VOLUME 2—APPENDIX F
STORMWATER POLLUTION PREVENTION PLAN (SPPP)

Watchtower Educational Center Amended Site Plan

NYS Route 22, Town of Patterson
Putnam County, New York

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APPENDIX F

Section 1
Introduction

Section 1 Introduction

The Watchtower Bible and Tract Society of New York, Inc., proposes to expand the Watchtower Educational Center (WEC) located along New York State (NYS) Route 22 in the Town of Patterson, Putnam County, New York. The Project Site shall consist of the area within the WEC property where construction activity will be occurring, the majority of which is being constructed to the north and west of the existing campus. The Project Site is generally bounded by Mountain Brook to the north and west, woods and privately owned lands to the east, the existing campus to the south and Route 22 to the west. This Stormwater Pollution Prevention Plan (SPPP) has been prepared for the project to obtain coverage under the State Pollutant Discharge Elimination System (SPDES) General Permit (GP-0-10-001) for Stormwater Discharges from Construction Activity.—See Appendix F.1.g, "SPDES GP-0-10-001."

This Section presents the objectives of the SPPP and provides a description of the existing site, including soils and drainage area, as well as the proposed project.

A. Objectives

The objectives of this SPPP are to:

1. Outline Owner and Contractor responsibilities to maintain compliance with SPDES GP-0-10-001, including required inspections, maintenance, forms, and certifications.
2. Outline measures to install, inspect, and maintain erosion and sediment control measures for the proposed project. The objective of these measures is to eliminate or significantly minimize pollutant discharges to the adjacent surface water bodies during construction activities.
3. Describe the post-construction water quality treatment practices that are designed to capture and treat the stormwater runoff from the proposed project drainage areas.
4. Specify post-construction stormwater management structures on-site such that the proposed peak flows do not exceed the pre-development peak flows, thus providing channel protection, overbank flood control, and control of the peak discharge control from the extreme storm event.

B. Owner's Responsibilities

Watchtower Bible and Tract Society of New York, Inc., the "Owner," is responsible to ensure that the Contractor installs and maintains the erosion and sediment control measures in accordance with this SPPP. The Owner is also responsible to ensure that the appropriate forms and certifications contained herein are completed prior to and throughout the duration of demolition and construction activities. The Owner will keep a copy of this document, associated attachments, and any inspection reports generated on-site for the duration of the project and for a minimum of five years from the date that the site achieves final stabilization.

The Owner will also ensure that the provisions of the SPPP are implemented from the commencement of construction activity until all areas of disturbance have achieved final stabilization and the Notice of Termination (NOT) has been submitted to the appropriate NYSDEC office.

The Owner will maintain a copy of the SPDES GP-0-10-001, Notice of Intent (NOI), NOI acknowledgement letter, SPPP, MS4 Acceptance Form, and inspection reports at the construction site until all disturbed areas have achieved final stabilization and the Notice of Termination (NOT) has been

submitted to NYSDEC. The documents will be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock that is accessible during normal working hours to an individual performing a compliance inspection.

C. Contractor's Responsibilities

The Contractor is responsible for reading this entire SPPP and related project specifications and reviewing all forms, certifications, and contract drawings to become familiar with all aspects related to the SPDES GP-0-10-001. The Contractor will retain a signed copy of this SPPP and all associated attachments on-site from the initiation of demolition and proposed construction activities to the date of final stabilization. The Contractor is responsible for completing the certification contained herein prior to the commencement of demolition and proposed construction activities. The certification will be signed by a president or any person who performs similar decision making functions and by the on-site individual having responsibility for the firm. Each of the subcontractors involved in the implementation of erosion and sediment control measures must also complete a certification. The Contractor is responsible for each of the subcontractors employed by the Contractor that are involved in the implementation of erosion and sediment controls.

It is the duty of the Contractor to properly install and maintain all erosion and sediment control measures on the site as per this SPPP. The Contractor will also be responsible for the inspection of all erosion and sediment control measures for the proposed Project Site by a qualified inspector as per this SPPP. Should the Owner, an Owner's representative, or any local authority having jurisdiction deem that the SPPP or the Contractor's implementation of the SPPP proves to be ineffective in eliminating or significantly minimizing the pollutants or achieving the goals of the SPDES GP-0-10-001, the Contractor will be required to take necessary action to conform to the objectives of the permit at no additional cost to the Owner.

The Contractor will inspect and report the disturbed and stabilized areas for the duration of the project as indicated on the Record of Stabilization and Demolition and Construction Activities form contained herein. It is the duty of the Contractor to properly inspect and maintain all erosion and sediment control measures installed on the site as per this SPPP. Any revision to the SPPP in design, demolition, and construction activities, inspection, or maintenance will be reflected by the Contractor in the on-site copy of the SPPP in a timely manner. At the beginning of this work, the Contractor must designate a 'trained contractor.' The Contractor will coordinate with the Resident Engineer to ensure that all of the inspection requirements are in conformance with this SPPP and the requirements of the SPDES GP-0-10-001. On a monthly basis, copies of all inspection forms and maintenance records shall be organized and filed accordingly by the Contractor.

D. Existing Site Description

The property consists of five land parcels (Lots 14, 15, 37, 53, and 54) that encompass approximately 691 acres on either side of Route 22 in the Town of Patterson. A sixth land parcel (Lot 61) with an area of approximately 52.2 acres is located to the east of the five parcels and is owned by Valley Farms Corporation, a New York not-for-profit corporation that is recognized as exempt from federal income taxes under *Internal Revenue Code*, Section 501(c)(25) as a title-holding corporation. The Applicant is the sole member of Valley Farms Corporation. The majority of the property is bordered by vacant land.

The property east of Route 22 includes six residence buildings, an office building, an audio/video building, a school, two services buildings, a water treatment plant and a wastewater treatment plant along with various support and recreational facilities. Also located on the site is the Patterson Inn, where overnight visitors are accommodated.

Along with the existing development are three stormwater ponds built under the Phase I requirements. Stormwater Pond #1 is located near the southern portion of the developed campus. This pond collects runoff from the existing campus and a portion of the unnamed stream that flows through the southern terminus of the property. Stormwater Pond #2 is located just downstream of Stormwater Pond #1 and collects runoff from a portion of the campus as well as overflow from Stormwater Pond #1. All runoff ultimately discharges under Route 22 just north of Haviland Hollow Road. Stormwater Pond #3 is located in the center of the property and collects runoff from the northern portion of the campus as well as the existing orchard. This pond ultimately discharges to Mountain Brook. These three stormwater ponds were not modeled in the existing or proposed conditions and no credit has been taken as the primary method of water quality and/or water quantity treatment for the proposed conditions.

The property west of Route 22 is mainly used for agricultural purposes and outdoor recreation, and consists of farm structures, open fields, garden areas, ball fields, and water supply wells. The property west of Route 22 will not be disturbed as part of this project.

The existing stormwater drainage study area that is the focus of the SPPP is located east of NYS Route 22 and comprises approximately 106.5 acres, with the following land uses:

- 13.2 acres of orchard.
- 1.8 acres of gravel.
- 16.4 acres of impervious surfaces.
- 54.0 acres of open space.
- 0.08 acres of water.
- 21.0 acres of woods.

Figure 1-1, “Existing Land Use Map,” depicts the existing land use of the drainage area.

Waterbodies, Wetlands, and Drainage Structures

Stormwater runoff from the Project Site is collected on the property through a series of catch basins and discharges to one of three existing detention basins then into Mountain Brook and eventually into the Great Swamp, which is designated as a Critical Environmental Area and NYSDEC wetland. Four watercourses also traverse the property: Mountain Brook, an unnamed tributary, and two unnamed streams. Of the four watercourses that traverse the property only two directly affect the Project Site: Mountain Brook, and the unnamed stream located near the Patterson Inn. Mountain Brook flows through the property in a southwesterly direction. Flow is conveyed under Route 22 via a 10-feet wide by 9.5 feet high, 59.5 feet long, concrete box culvert and ultimately discharges to the Great Swamp. The unnamed stream flows in a southerly direction while passing through the southern portion of the site. The stream is directed through one of the existing detention basins on site and crosses under Route 22 approximately 800 feet north of its intersection with County Road 68 (Haviland Hollow Road).

Based upon a review of the New York State Department of Environmental Conservation (NYSDEC) Environmental Resource Mapper, Mountain Brook, and the two unnamed streams are classified as Class C, which indicates that waters support fisheries. On-site wetlands are located outside the area of disturbance. Based on a review of the Flood Insurance Rate Map (FIRM) for the Town of Patterson, New York (Panel 361023) dated July 3, 1986, the 100-year floodplain lies to the west of NYS Route 22 and is located outside the area of disturbance.—See Figure 1-2, “Wetlands and Waterbodies.”

Environmentally Sensitive Areas

The area of disturbance is not located in any designated Critical Environmental Areas (CEA). However, a portion of the Applicant's property, west of NYS Route 22, is located in the Great Swamp, which has a CEA designation due to its exceptional and unique character. This area contains a Significant Natural Community (Red Maple Hardwood Swamp) which is a freshwater, non-tidal wetland. The proposed project will not disturb the property west of NYS Route 22. Based on the nature of the proposed project, the only pollutant that could feasibly enter the Great Swamp during or after construction would be stormwater runoff. Precaution has been employed in order to provide adequate treatment to runoff during and after construction of the Project Site. Therefore, no impacts to the water quality are anticipated for the Great Swamp for this project.

Utilities and Easements

The Project Site includes potable water, wastewater, reclaimed water, natural gas, communication and electrical power utilities. Potable water is pumped from five on-site wells to the Applicant's water treatment plant. Wastewater is also treated on-site at the Applicant's wastewater treatment facility. A portion of treated wastewater effluent is reclaimed and used as irrigation water for lawns and landscaped areas. The remaining treated effluent is discharged to Mountain Brook as allowed by the Applicant's SPDES Permit NY-0165778. Electric and natural gas service is provided by NYSEG, while communication service is provided by Lightower, Verizon, and Paetec. These utilities will be extended to provide service to the new buildings.

Three easements exist on the property. The electrical and drainage easements are located on the parcel west of NYS Route 22, while the gas easement runs along NYS Route 22 on the east parcel.—See Figure 1-3, "Partial Utility and Easement Plan."

Soils

Based on a review of the United States Department of Agriculture Natural Resource Conservation Service (USDA NRCS) Soil Survey of Putnam County, New York, 16 soil types are encountered on the Project Site parcel east of NYS Route 22. The soils consist mainly of well-drained soils with moderate to moderately high rates of permeability. Of the 16 soil types encountered on the east parcel of the property, 10 are located within the project Watershed area.—See "Figure 1-4, "Drainage Area Soils Map."

Hydrologic soil group (HSG) designations (A, B, C, and D) are used to classify soils with respect to their relative potential to generate runoff. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

- HSG A soils have a low potential for runoff and have high infiltration rates.
- HSG B soils have moderate infiltration rates.
- HSG C soils have low infiltration rates and a moderate potential for runoff.
- HSG D soils have the highest potential for runoff.

NRCS uses the "K" factor which represents the susceptibility of soil to erode and generate runoff. Soils that are high in clay typically have very low K values ranging from 0.05 to 0.15. Soils that are coarse textured such as sandy soils have low K values, typically ranging from 0.05 to 0.20, because of the low amount of runoff they produce. Medium textured soils such as silt loams have moderate K values ranging from 0.25 to 0.40. Soils that have a high silt content are the most erodible of all soils and typically the K values tend to be greater than 0.4.

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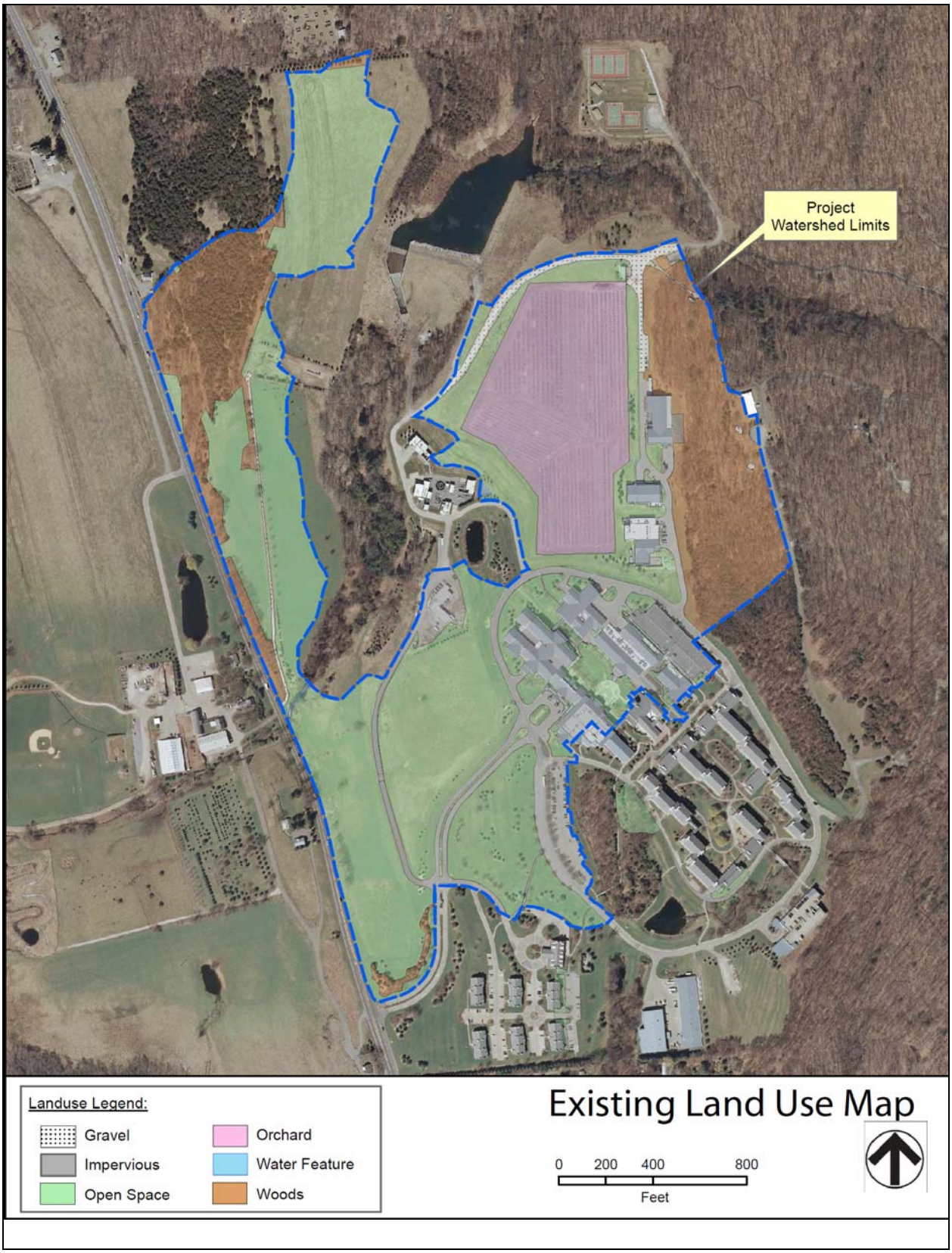


Figure 1-1
Existing Land Use Map

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Figure 1-2

Wetlands and Waterbodies Map

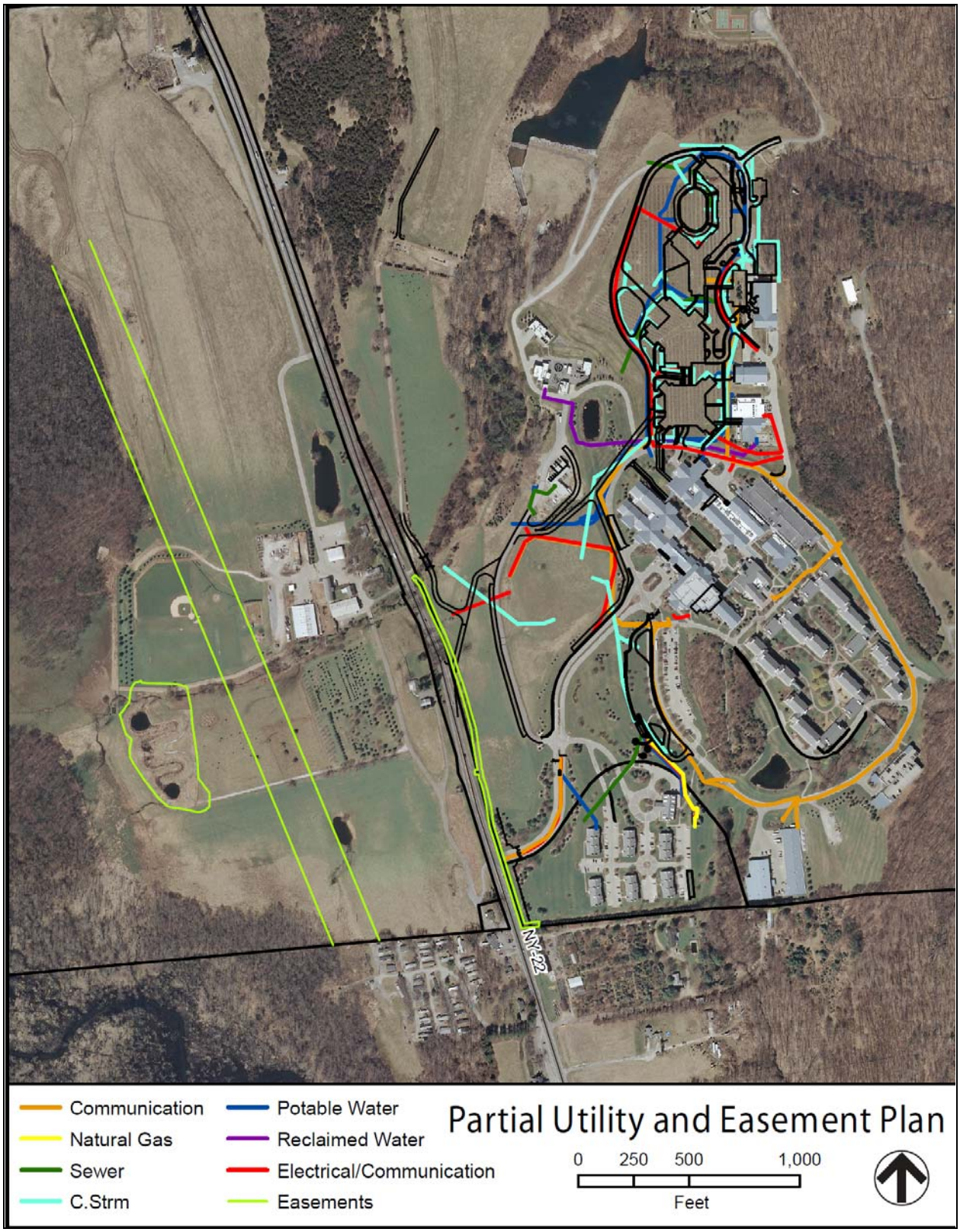


Figure 1-3

Partial Utility and Easement Plan

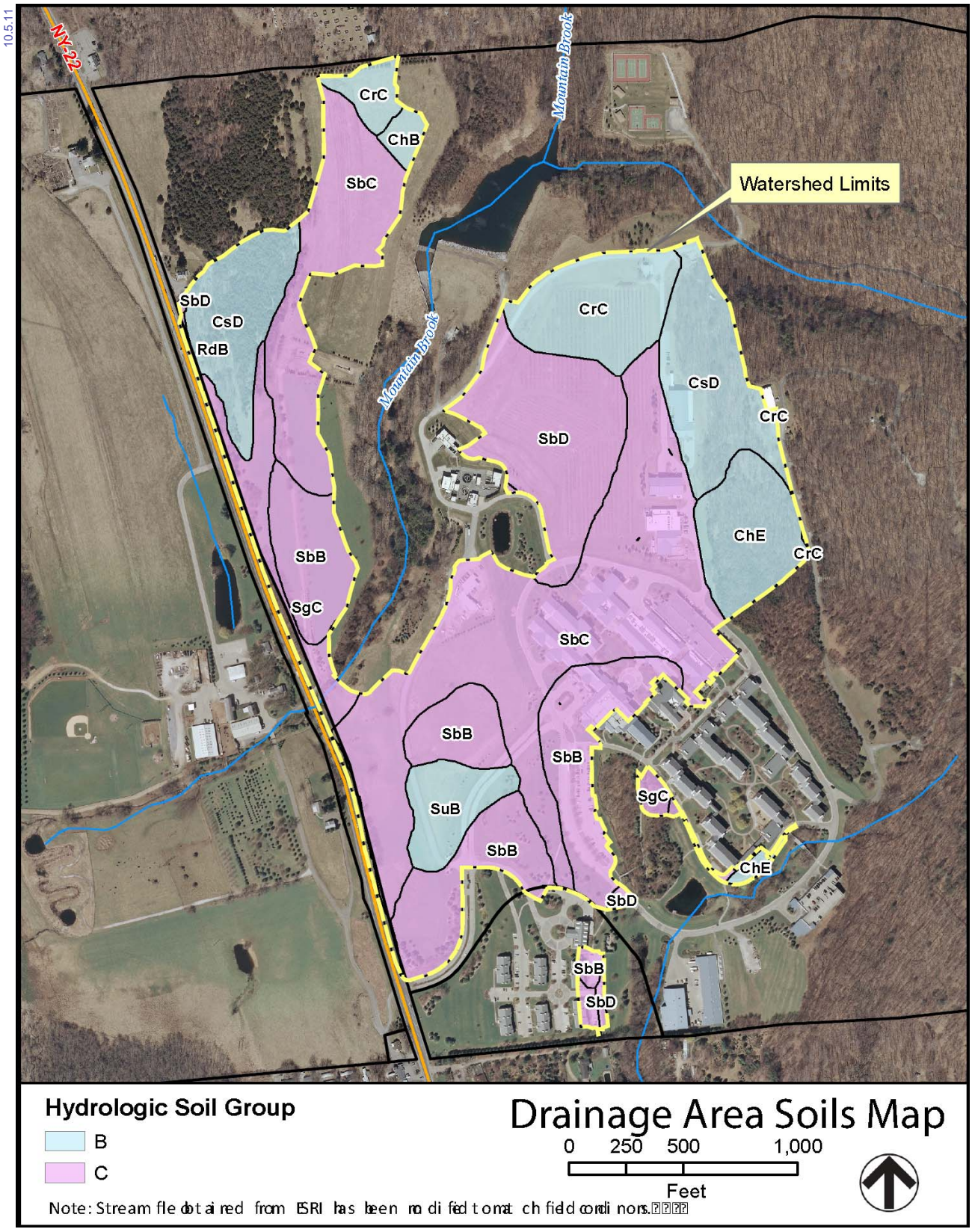


Figure 1-4

Drainage Area Soils Map

The soil types encountered in the drainage area are described below and listed in Table 1-1, "Drainage Area Soil Types."

Stockbridge Series (SbB, SbC, SbD, SgC)

The Stockbridge series is the predominant soil series in the area of the Project Site that would be disturbed in the development of the proposed project, and is located within the orchard, pasture areas, and the main visitor parking area. The Stockbridge series consists of very deep, well-drained soils that formed in the loamy glacial till derived mainly from limestone, marble, and schist. These soils are usually found on glaciated uplands. Slopes in the Stockbridge series range from 2 to 25 percent in the proposed disturbance area of the Project Site.

Three phases of the Stockbridge series occur in the proposed disturbance area: Stockbridge silt loam, 2 to 8 percent slopes (SbB); Stockbridge silt loam, 8 to 15 percent slopes (SbC); and Stockbridge silt loam, 15 to 25 percent slopes (SbD). All three phases have a perched water table at a depth of more than 6 feet throughout the year. The permeability for this soil is moderate in the surface layer and in the upper part of the subsoil, and slow or moderately slow in the lower part of the subsoil and in the substratum. Available water capacity is high, with a bedrock depth of more than 60 inches. Surface runoff grades from slow to rapid, and erosion hazard increases from slight to severe as slope percentage increases. This soil series is well suited for the cultivation of crops. According to the USDA, these soils do have some moderate to severe limitations for dwellings with basements, roads, and septic tank absorption fields due to their slope and slow permeability. Some moderate limitations are associated with proposed roadways due to seasonal frost action and slope. Development constraints due to slope can also occur on those Stockbridge soil mapping units having slopes from 8 to 25 percent; however, these limitations may be overcome with proper engineering and site design.

The Stockbridge-Rock outcrop (SgC) soil is a deep, well drained, complex soil type. Slopes typically range from 3 to 15 percent. Depth to bedrock and the water table is at a depth greater than 80 inches. In areas of the rock outcrop, lithic bedrock is often visible. For areas where soil is predominant, the typical soil profile consists of silt loam down to a depth of approximately 36 inches where it becomes a gravelly silt loam. Construction is typically very limited in these types of soils for small commercial buildings.

The Stockbridge soil found in much of Patterson and underlying the existing orchard site on the WEC campus is noted for silt loam with poor cohesive properties. In cohesionless soils such as this, the soil particles do not stick together effectively due to their physical and chemical properties. Once this silt loam is in suspension, it takes a significant period of time to settle out due to its lightweight and inability to adhere to other particles. The Owner has experience implementing effective erosion controls to overcome these limitations gained during the initial construction of the WEC and on more recent maintenance activities. Limitations on size of disturbance and diligent maintenance of erosion control measures have proved effective at preventing the migration of very small, colloidal particles off-site.

Charlton Series (ChB, ChE, CrC)

The Charlton series consists of very deep, well-drained soils on the sides and tops of glaciated hills. These soils formed in glacial till derived from granite, schist, and gneiss. Slopes in the Charlton series range from 2 to 35 percent on the Project Site. Three phases of the Charlton series occur on the Project Site: Charlton loam, 2 to 8 percent (ChB), Charlton loam, 25 to 35 percent (ChE), and Charlton-Chatfield complex, 2 to 15 percent (CrC). All three phases have a perched water table at a depth of more than 6 feet throughout the year. Permeability of the Charlton soils is moderate or moderately rapid throughout the profile. Available water capacity is moderate and bedrock is at a depth of more than 60 inches. Surface runoff is rapid to very rapid and erosion hazard severe to very severe in the Charlton loam phases. Surface

runoff is rated medium and erosion hazard moderate for the Charlton-Chatfield phase. The soil is poorly suited to the cultivation of crops. This series does experience some moderate to severe construction limitations due to slope; however, these limitations may be overcome with proper engineering and site designs.

Chatfield Series (CsD)

The Chatfield series exists on the Project Site as a complex of Chatfield and Charlton soils. These soil complexes are present in the northern portion of the orchard and in the area of the proposed Audio/Video Building expansion. The soil in the Chatfield series consists of moderately deep, well-drained, and somewhat excessively drained soils on the sides and tops of glaciated hills. These soils formed in glacial till deposits over highly fractured, folded, and tilted granite, schist, and gneiss. Slopes range from 2 to 35 percent on the Project Site. The depth to bedrock ranges from 20 to 40 inches to 60 inches below grade. The permeability is moderate to moderately rapid throughout the soil profile. The erosion hazard may be severe during construction and surface runoff is rated as rapid.

The available water capacity of the Chatfield-Charlton complex is low to moderate. According to the USDA, the Chatfield-Charlton series has severe limitations for building site and sanitary facility development due to the shallow depth to bedrock and slope.

Ridgebury Series (RdB)

Ridgebury loam is present in small quantities along NYS Route 22. The Ridgebury series consists of very deep, somewhat poorly and poorly drained soils formed in till derived mainly from granite, gneiss, and schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in low areas in uplands. Slope ranges from 0 to 15 percent. Saturated hydraulic conductivity ranges from moderately low to high in the solum and very low to moderately low in the substratum. These soils are somewhat poorly drained with a depth to the water table that ranges between 6 to 18 inches. The depth to dense material which acts as a restrictive feature ranges from 18 to 30 inches. The soil profile typically consists of loam down to a depth of about 8 inches where it becomes a gravelly fine sandy loam to a depth of 26 inches then gravelly loam to a depth of 60 inches. The K value (0.24) for this soil type exhibits a moderate rate of runoff and moderate rate of erodibility. This soil type is very limited with regards to construction due to the proximity of bedrock and the water table.

Sutton Series

Sutton loam is present in the southern portion of the pasture on the Project Site. The Sutton series consists of very deep, moderately well-drained soils formed in gravelly glacial till derived mainly from granite, schist, and gneiss. This soil series is typically found on the lower concave side slopes, in slight depressions, and along drainageways in the uplands. Slope of the Sutton loam present on-site ranges from 3 to 8 percent. The permeability of the soil is moderate to moderately rapid throughout the profile. The available water capacity is high. The erosion hazard and surface runoff are moderate.

This soil series does have some moderate to severe limitations for building site development due to the wetness and slope. The high water table, approximately 1.5 to 2.5 feet below the surface from November through April, is the main limitation for dwellings with basements; however, with proper engineering these limitations may be overcome. The potential for frost action limits the construction of local roads and streets.

Table 1-1 Drainage Area Soil Types

Hydrologic Soil Group Classifications				
Series	**Soil Map Unit Symbol**	**Soil Name**	**Hydrologic Soil Group**	**K Factor**
Charlton Series	ChB	Charlton loam, 2 to 8 percent slopes	B	0.24
	ChE	Charlton loam, 25 to 35 percent slopes	B	0.24
	CrC	Charlton-Chatfield complex, 2 to 15 percent slopes	B	0.24
Chatfield Series	CsD	Chatfield-Charlton complex, 15 to 35 percent slopes	B	0.20 to 0.24
Ridgebury Series	RdB	Ridgebury loam, 3 to 8 percent slopes	C	0.24
Stockbridge Series	SbB	Stockbridge silt loam	C	0.24 to 0.37
	SbC	Stockbridge silt loam	C	0.24 to 0.37
	SbD	Stockbridge silt loam	C	0.24 to 0.37
	SgC	Stockbridge Rock outcrop complex, rolling	C	0.24 to 0.37
Sutton Series	SuB	Sutton loam	B	0.24 to 0.28

E. Proposed Project Description

Approximately 48 acres of the 743-acre property will be disturbed to accommodate approximately 903,400 square feet of additional building space within a footprint of approximately 186,000 square feet and 34,600 square feet of additional surface parking space. The construction will be limited to the parcel east of NYS Route 22. The portion of property that lies west of NYS Route 22 will not be disturbed by the proposed plan.

The project consists of constructing the following new buildings and ancillary facilities as shown on Figure 1-5, "Proposed Site Plan" and described below:

- **Maintenance Building**. The Maintenance Building consists of approximately 271,900 square feet of floor space.
- **North Office Building.** The North Office Building consists of approximately 240,900 square feet of floor space. The Maintenance and North Office buildings will be connected at the lower levels where new underground parking will be provided.
- **G Residence**. The new residential building, G Residence, will include up to 289 dwelling units in approximately 330,500 square feet of floor space.
- **Audio/Video Building**. A total of 54,600 square feet of floor space will be added to the existing Audio/Video building. Two additions are proposed: the north addition, which will be 19,300 square feet and the west addition consisting of 35,300 square feet.
- **Main Lobby Expansion**. The existing main lobby will be expanded by approximately 1,000 square feet.

- **Dining Room Connector.** The existing North Services Kitchen/Dining Room Buildings will be connected above grade resulting in approximately 1,400 square feet of additional floor space.
- **Visitor Comfort Station and three Picnic Pavilions**. A new visitor comfort station consisting of approximately 1,600 square feet will be added on the southwest edge of the visitor parking lot. Also, three new pavilions consisting of approximately 1,500 square feet of floor space will be added in the area west of the expanded visitor parking lot.
- **Parking.** The overall site will include 571 new parking spaces (398 garaged spaces, 173 surface spaces).

Permits and Approvals

The following permits and approvals are anticipated for the proposed plan:

Table 1-2 Permits and Approvals

Approval/Permit/Review	Involved/Interested Agency
Town of Patterson	
Site Plan Approval	Planning Board
Modification to Special Use Permit	Zoning Board of Appeals (ZBA)
Area Variance (for height)	ZBA
Area Variance (for reduced parking dimensions)	ZBA
MS4 Stormwater SPPP Acceptance Form	Planning Board
Putnam County	
Modification to Water System	Putnam County Department of Health (PCDOH)
Modification to Wastewater System	PCDOH
Agency Review under 239-m	County Planning Board
New York City	
Stormwater Pollution Prevention Plan (SPPP)	New York City Department of Environmental Protection (NYCDEP)
Modification to Wastewater System	NYCDEP
New York State	
Driveway Permit (NYS Route 22)	New York State Department of Transportation (NYSDOT)
SPDES Permit (GP-0-10-001)	New York State Department of Environmental Conservation (NYSDEC)
Modification to Wastewater System	NYSDEC
Article 15 Dam Permit	NYSDEC
Modification to Water System	New York State Department of Health

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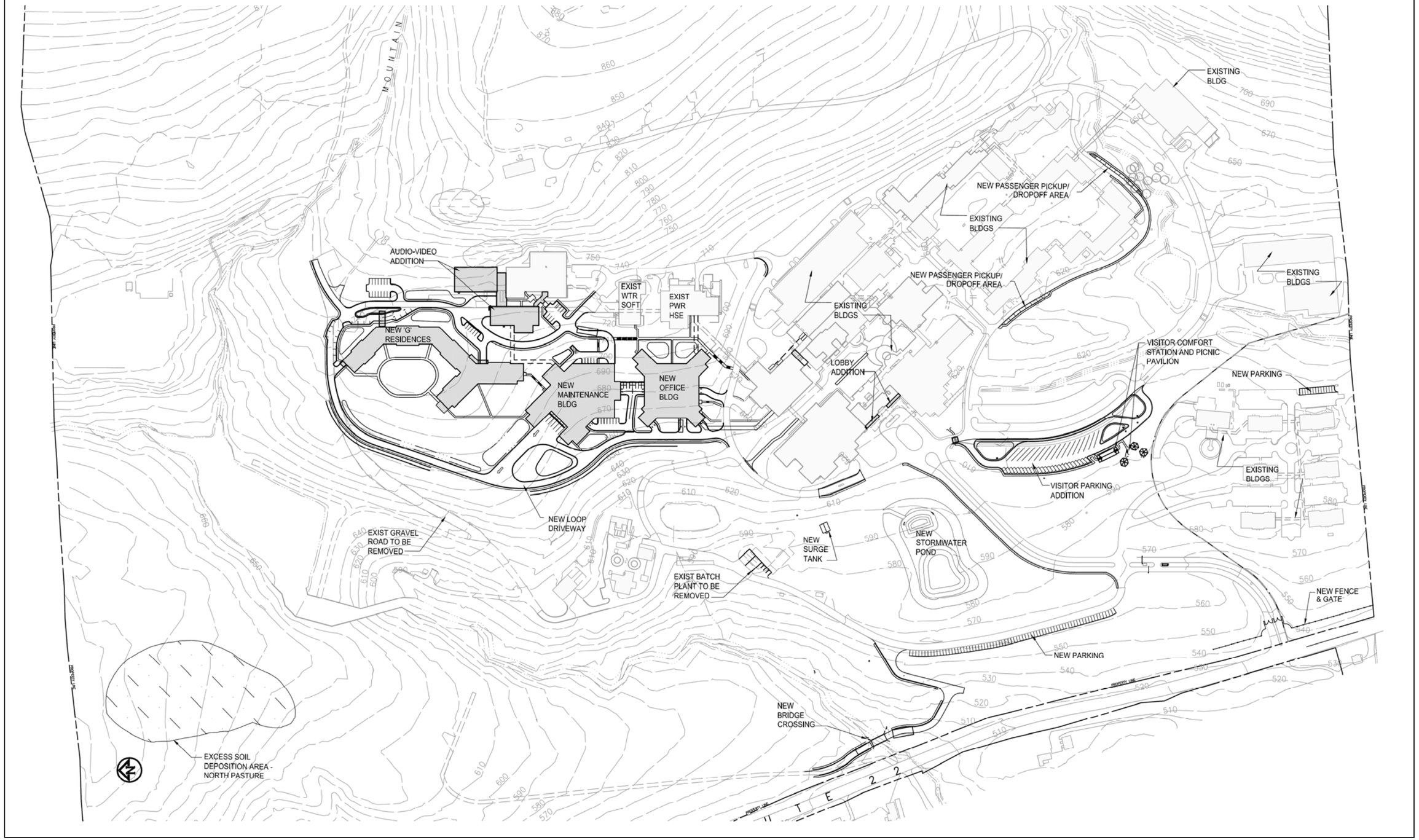


Figure 1-5

Proposed Site Plan

APPENDIX F

Section 2
Pollution Control During Construction

Section 2 Pollution Control During Construction

This Section identifies the pollution control measures that will be implemented during and after construction to mitigate erosion and sediment deposition. Additionally, the sequence of construction activities is presented.

A. Pollution Control

Inventory for Pollution Prevention Plan

The materials or substances listed below are expected to be located at or within the Project Site during construction activities:

- Cement Concrete
- Fertilizers/Seeding Materials
- Stone
- Asphalt/Porous Asphalt
- Petroleum-based Products
- Silt Fences Fabric
- Lumber
- Pavement Marking Paint
- Iron Pipe, HDPE, PVC
- Hydroseed Materials

Spill Prevention

The following are the material management practices that shall be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff:

Material Management Practices

- An effort shall be made to store only enough products required to reasonably complete the job.
- All material stored within the Project Site shall be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products shall be stored in their original containers with the original manufacturer's label.
- Substances shall not be mixed with one another unless recommended by the manufacturer.
- When possible, all of a product shall be used before disposing of the container.
- Manufacturers' recommendations for proper use and disposal shall be followed.
- The project overseer shall daily inspect to ensure proper use and disposal of materials.
- Materials will be stored in closed containers preventing contact with stormwater runoff.

- Where feasible, material will be stored more than 100 feet from existing natural features.

Material Management Regarding Hazardous Products

- Products will be kept in the original containers unless they are not re-sealable.
- Original labels and material safety data shall be retained.
- Surplus product shall be disposed of according to the manufacturer's recommendation or according to local and/or state recommended methods of proper disposal.
- Material Safety Data Sheets for all hazardous products shall be within the project area for the duration of the construction.
- Hazardous products will not be stored within 100 feet of any surface water body.

Specific Material Management Practices

- Petroleum Products—All project-related vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products shall be stored in tightly sealed containers which are clearly labeled. (For more detailed information, refer to the Spill Prevention Control & Countermeasure Plan (SPCCC) revised July 11, 2011, and housed with the WEC Regulatory Office.)
- Fertilizers—Fertilizers shall only be applied in the minimum amounts recommended by the manufacturer. Once applied, fertilizer shall be worked into the soil to limit the exposure to stormwater. Fertilizer shall be stored in a covered or other contained area minimizing potential contact with stormwater runoff.
- Paint—All containers shall be tightly sealed and stored when not required for use. Excess paint shall not be discharged to the storm sewer system, but shall be properly disposed of according to manufacturer's instructions or local and/or state regulations.
- Concrete Batch Plant—There is an existing concrete batch plant on-site that will be used throughout the duration of the project and removed during the final phases of the project. Concrete materials and water will be added to concrete trucks at the batch plant and then transported within the site to points of use. Concrete transport trucks shall be washed out at designated washout troughs located near the batch plant. Decanted wash water will flow through a closed conduit to a settling tank so that it can be reused as wash water. Excess wash water will be pumped from the settling tank through a closed conduit to a storage tank. A licensed commercial hauler will be contracted to haul off excess wash water and properly dispose of it at an approved waste disposal site. No concrete material shall be discharged from the property at any time during construction.

B. Erosion and Sediment Control

The majority of the proposed development (approximately 44 percent of the total disturbed area) will be located in soils with slopes between 0 and 10 percent. An effort has been made to minimize the disturbance to slopes greater than 25 percent and totals approximately 3.5 acres which is approximately 7 percent of the overall area of site disturbance. Disturbance to the slopes between 10 to 25 percent is approximately 23.1 acres, representing approximately 49 percent of the total site disturbance. For a detailed layout of site slopes, see DEIS Figure 5-2, "Existing Slopes."

During winter operations, snow accumulations will be removed from the active work sites and placed in a snow dump located within the Project Site. The snow dump will be located in an area that will prevent any potential for stormwater pollution.

For a plan view and layout of applicable erosion and sediment control measures (ESCM) and details, see the attached Drawings CE101, CE102, CE103, CE104, CE105, CE106, and CE107.

Temporary Stabilization

The following temporary stabilization practices shown in Tables 2-1 to 2-23 will be in effect for the duration of the construction project:

Table 2-1 ESCM #1: Phase Construction Activity

Description	In order to minimize the overall amount of disturbed soil that will be subject to potential erosion at one time, the project will be phased. Each phase will disturb a maximum of 10 acres at one time with written authorization from the DEC. Additional phases will begin only when the prior phase is near completion and exposed soil has been stabilized. Refer to Drawings CD101 and CD102 for overall phasing plan.
Installation Schedule	The sequence of construction is detailed in Section C below.
Maintenance and Inspection	Each construction phase area will be inspected twice every seven calendar days to ensure that all erosion control measures are in place and well maintained. Once a phase is completed, an additional inspection will occur to ensure that temporary or permanent stabilization is in place.

Table 2-2 ESCM #2: Existing Vegetation Protection

Description	The preserved area of existing vegetation will be surrounded by a temporary orange-colored plastic mesh fence, and all trees on the perimeter of the protected area will be marked with a brightly colored ribbon. The fencing will be at least 3 feet tall and have openings no larger than 2 inches by 2 inches. Posts will be spaced a maximum of 6 feet apart. The temporary fencing will be installed at the drip/spread line of the trees, and undergrowth vegetation to be protected. Vehicles and equipment will not be able to enter the protected area.
Installation Schedule	Protection of existing vegetation shall be implemented before construction begins.
Maintenance and Inspection	The area will be inspected weekly to ensure the temporary fence is intact and the trees are marked.

Table 2-3 ESCM #3: Topsoil

Description	Topsoil removed from the proposed construction areas will be stockpiled to create berms at different locations throughout the site. The stockpiles are in an area that will not interfere with construction phases and will be at least 15 feet from areas of concentrated flows or pavement. The slope of the stockpile will be roughened by equipment tracking and will not exceed 2:1 to prevent erosion. A silt fence will be installed at the toe of each stockpile. The area of each stockpile is included in the total area of disturbance for each construction phase (included in 10-acre limit).
Installation Schedule	Topsoil stockpiles will be created during grading activities. The silt fence will be installed immediately after the stockpile has been established.
Maintenance and Inspection	The stockpile will be inspected twice every seven calendar days for erosion and immediately after rain events. Areas on or around the stockpile that have eroded will be stabilized immediately with erosion controls.

Table 2-4 ESCM #4: Silt Fence

Description	Silt fence will be installed at locations shown on the plans.
Installation Schedule	Silt fence will be installed before construction begins and at spoil areas and stockpiles once it is started.
Maintenance and Inspection	The silt fence will be inspected twice every seven calendar days and immediately after rain events to ensure the fence is intact and no gaps exist where stormwater can pass. Sediment should be removed once it reaches one-third the height of the fence.

Table 2-5 ESCM #5: Diversions

Description	Temporary earth dikes, perimeter dikes, and water bars will be constructed to divert stormwater runoff at locations shown on the plans. The diversions will be stabilized by hydroseeding and mulching and/or erosion control blankets to prevent erosion within seven days of being constructed.
Installation Schedule	Construction will occur during phase of construction as shown on the plans.
Maintenance and Inspection	The diversions will be inspected twice every seven calendar days and after rain events. Dikes and water bars will be maintained to their original height. Any erosion damage will be repaired.

Table 2-6 ESCM #6: Temporary Stabilization (Seeding)

Description	Temporary vegetative cover will be established for areas of exposed soil where construction will cease for more the seven days. During spring, summer, or early fall, seed with rye grass at 30 lbs/acre will be used. During late fall or early winter, seed Certified “Aroostook” winter rye at 100 lbs/acre will be used.
Installation Schedule	Temporary stabilization measures will be applied to portions of the site where construction activities will temporarily cease for more than seven days.
Maintenance and Inspection	Areas will be inspected weekly and after rain events until a dense cover of vegetation has become established. If failure is noticed at the seeded area, the area will be reseeded, fertilized, and mulched immediately.

Table 2-7 ESCM #7: Hydromulching

Description	Hydromulching will provide protection to exposed soils during short periods of construction. Hydromulch will be applied in areas that have been seeded for temporary or permanent stabilization. Only NYSDOT approved Biodegrable fibers mixed with a non-toxic tackifier will be applied uniformly by machine.
Installation Schedule	Hydromulch will be applied to exposed soils during short periods of construction and seeded areas.
Maintenance and Inspection	Areas will be inspected twice every seven calendar days and after rain events to check for movement of mulch or erosion. If there is any damage, surface will be repaired and mulch reapplied.

Table 2-8 ESCM #8: Mulching (Hay/Straw)

Description	Hay/straw mulch will provide protection to exposed soils awaiting permanent seeding or the establishment of shrub planting. Hay/straw mulch will be applied in areas that have been seeded for temporary or permanent stabilization. Mulch is to be installed at two tons per acre. Where wind or areas of concentrated water are a concern, mulch anchoring will be used.
Installation Schedule	Mulch will be applied to exposed soils during short periods of construction and seeded areas.
Maintenance and Inspection	Areas will be inspected twice every seven calendar days and after rain events to check for movement of mulch or erosion. If any damage, surface will be repaired and mulch reapplied.

Table 2-9 ESCM #9: Dust Control (Sprinkling)

Description	Dust from the site will be controlled by using a mobile water truck to apply water to disturbed areas that are dry and susceptible to creating dust.
Installation Schedule	Dust control will be implemented as needed once site grading has been initiated and during windy conditions while site grading is occurring.
Maintenance and Inspection	Spraying of disturbed areas will start after grading activities commence. Spraying will be performed at least once per day during dry months or as needed to control dust.

Table 2-10 ESCM #10: Storm Drain Inlet Protection

Description	Existing and newly constructed drain inlets will be protected with filter fabric or stone and block inlet protection. Storm grate filter sacks will be installed on inlets in existing pavement and installed on inlets in newly paved areas.
Installation Schedule	Protection for existing inlets will be installed before construction begins in the contributing area. When new storm drain inlets are installed, the protection methods will be installed at the inlets and stabilized.
Maintenance and Inspection	The measures implemented for the protection of storm drains will be checked on a weekly basis and after rain events. Any damaged will be corrected or replaced immediately. Excess sedimentation will also be removed in a timely manner.

Table 2-11 ESCM #11: Stabilized Construction Exits (Before Paving)

Description	Stone anti-tracking pads will be installed at all exits to prevent the off-site transport of sediment by construction vehicles. The stabilized exits will be at least 50 feet long, a minimum of 12 feet wide, flared at the end closest to the paved road and will consist of 6-inch-thick layer of crushed stone. The crushed stone will be placed over a layer of geotextile filter fabric. Orange mesh fence will be installed along the length of the construction exit to keep construction vehicles from circumventing the tracking pads.
Installation Schedule	Installation will occur before construction begins and will remain in place until subgrade is installed.
Maintenance and Inspection	The stabilized exit will be inspected weekly and after rain events or heavy use. All sediment tracked, spilled, dropped, or washed onto the road will be swept up on a daily basis.

Table 2-12 ESCM #12: Waste Materials (Including Recyclable and Hazardous)

Description	All waste materials will be collected and disposed of in trash dumpsters located in the combined staging area, and will be placed away from stormwater conveyance and drains. Wood pallets, cardboard boxes, and other recyclable construction scraps will be disposed of in a designated dumpster for recycling. All hazardous waste materials, such as oil filters, petroleum products, paint, and equipment maintenance fluids, will be stored in structurally sound and sealed shipping containers. A hazardous-materials storage area will be designated in the materials storage area. Secondary containment will be provided by spill pallets. No hazardous material will be disposed of in the on-site dumpsters.
Installation Schedule	Dumpsters will be installed once the staging area is established.
Maintenance and Inspection	Dumpsters will be emptied weekly or as needed. Material Safety Data Sheets (MSDS) and emergency contact numbers will be maintained in the office trailer.

Table 2-13 ESCM #13: Combined Staging and Material Storage Area

Description	Construction equipment and maintenance materials will be stored at the combined staging area and material storage areas. Orange construction fence or silt fence will be installed around the perimeter to designate the staging and materials storage area.
Installation Schedule	Installation will occur after grading and before any infrastructure is constructed.
Maintenance and Inspection	Storage areas will be inspected weekly and after rain events. Area will be kept clean.

Table 2-14 ESCM #14: Temporary Sump Pit

Description	The water table may be encountered during the construction of the building foundation, and dewatering measures may need to be implemented to provide a dry base for construction. A temporary pit will be constructed to trap and filter water for pumping to a temporary sediment trap or basin. The sump pit will consist of a 24- or 36-inch perforated vertical standpipe (corrugated plastic or PVC) in the center with a 12-inch base of NYSDOT #2 aggregate.
Installation Schedule	Sump pits will be installed prior to the use of dewatering pumps.
Maintenance and Inspection	Sump pits will be inspected on a daily basis during dewatering operations to ensure no clogging of gravel has occurred. If so, the sump pit will be excavated and new gravel deposited.

Table 2-15 ESCM #15: Sanitary Waste

Description	Six portable toilets will be provided at the site near each phase of construction. The toilets will be located away from concentrated flow paths and traffic flow.
Installation Schedule	Portable toilets will be brought to the site during mobilization activities.
Maintenance and Inspection	Sanitary waste will be collected from the portable toilets as needed. Holding tanks will be inspected weekly for evidence of leaking. Any tanks with leaks will be removed and replaced.

Table 2-16 ESCM #16: Temporary Swale

Description	Temporary swales will be excavated to prevent runoff from entering into disturbed areas and to divert it to a stabilized outlet or sediment trap/basin.
Installation Schedule	Temporary swales will be constructed before site grading begins within the contributing area.
Maintenance and Inspection	Temporary swales will be inspected twice every seven calendar days and immediately after rain events. Any erosion damage will be repaired.

Table 2-17 ESCM #17: Portable Sediment Tank or Dewatering Bag

Description	Sediment-laden water will be pumped to a sediment tank or dewatering bag where space is limited.
Installation Schedule	Sediment tanks or dewatering bags will be installed before site grading begins within the contributing area.
Maintenance and Inspection	The sediment traps will be inspected twice every seven calendar days and immediately after rain events. Sediment tanks will be cleaned out when one third of the tank is filled with sediment. Dewatering bags should be replaced when the bag is half full of sediment or when the sediment has reduced the flow rate of the pump discharge to an impractical point. Sediment collected from tanks or bags will be disposed of in sediment traps/basins.

Table 2-18 ESCM #18: Sediment Trap (Temporary)

Description	Temporary sediment traps will be constructed for use during construction. The slopes of the traps will be stabilized using appropriate erosion control methods. Sizing of the traps will be according to the *New York Standards and Specifications for Erosion and Sediment Control.*
Installation Schedule	Sediment traps will be constructed before site grading begins within the contributing area.
Maintenance and Inspection	The sediment traps will be inspected twice every seven calendar days and immediately after rain events. The banks will be checked for erosion, seepage, and structural damage. Any damage will be repaired immediately. Accumulated sediments will be removed when one-half of the volume of sediment capacity storage is reached.

Permanent Stabilization

The following permanent stabilization practices will be in effect after construction of the project:

Table 2-19 ESCM #19: Permanent Seeding

Description	All disturbed areas not stabilized with pavement or buildings will be seeded to provide perennial vegetative cover.
Installation Schedule	Permanent seeding will occur, at the most, seven days after final grading of each phase. Optimum timing for a general seed mixture is early spring. Permanent seeding may be made at other times of year if properly mulched and sufficient moisture is provided. Refer to *New York Standards and Specifications for Erosion and Sediment Control* for appropriate seed mixtures. Hydromulch will be applied immediately following seeding.
Maintenance and Inspection	Areas will be inspected twice every seven calendar days and after rain events until a dense cover of vegetation has become established. If failure is noticed at the seeded area, the area will be reseeded, fertilized, and mulched immediately. After construction is completed at the site, permanently stabilized areas will be monitored until final stabilization is reached.

Table 2-20 ESCM #20: Outfall Protection (Riprap)

Description	All pipe conduit outlets will utilize riprap protection to reduce the depth, velocity, and energy of water. Filter fabric shall be placed between riprap and the underlying soil.
Installation Schedule	Installation will occur after outlet conduit to pond is installed.
Maintenance and Inspection	Area will be inspected after high flows for evidence of scour beneath the riprap or for dislodged stones. Repairs will be made immediately.

Table 2-21 ESCM #21: Grassed Waterway

Description	Permanent swales or waterways will be permanently stabilized with erosion control blankets to convey runoff without damage from erosion or flooding.
Installation Schedule	Grassed waterways will be constructed and stabilized during final grading in contributing areas.
Maintenance and Inspection	Waterways will be inspected twice every seven calendar days and after rain events until a dense cover of vegetation has become established. If failure is noticed at the seeded area, the area will be reseeded, fertilized, and stabilized immediately. After construction is completed at the site, waterways will be monitored until final stabilization is reached.

Table 2-22 ESCM #22: Level Spreader

Description	Level spreaders will be used to convert concentrated flow to sheet flow.
Installation Schedule	Level spreaders will be constructed before site grading begins within the contributing area.
Maintenance and Inspection	Level spreaders will be inspected twice every seven calendar days and immediately after rain events. The downstream end will be checked for erosion and stabilized.

Table 2-23 ESCM #23: Check Dam

Description	Rock or fiber roll check dams will be installed to reduce erosion in drainage channels.
Installation Schedule	Check dams will be installed immediately after drainage channel has been graded.
Maintenance and Inspection	Check dams will be inspected twice every seven calendar days and immediately after rain events. Dams will be checked to make sure that flow is not eroding soil underneath or around the structure and to ensure that rocks or fiber rolls are in place. Accumulated sediment will be removed.

C. Sequence of Construction

The SPPP presents temporary and permanent sediment and erosion control measures that are in compliance with the project's SPDES General Permit for construction activity. To the extent feasible, all temporary sediment and erosion control measures will be installed before associated project areas are disturbed with soil disturbing activities to follow. Total disturbance during construction will be kept at a 10-acre maximum at any given time, based upon NYSDEC regulations. No mass clearing and grading of the site will occur. The project will be divided into 11 phases in order to remain in compliance with NYSDEC regulations.

The following sequence of construction shown in Table 2-24, "Sequence of Construction" is currently planned:

Table 2-24 Sequence of Construction

Proposed Phasing for Areas of Soil Disturbance

Phase and Duration	Area of Disturbance Cut/Fill Net	Construction Activity
Pre-Construction (10 Days)		Tree protection, perimeter erosion control, construction entrance. Before any grading begins, complete the following: 1. Install tree protection at trees to be preserved. 2. Install perimeter dikes/swales and sediment fences at project limits. 3. Install storm drain inlet protection at existing inlets. 4. Install orange construction fencing.
Phase 1 (45 Days)	7.7 Acres 4048 cu yd / 4048cu yd 0 cu yd	Temporary construction sheds, rock crushing facility, construction trailers, staging and storage, haul roads. 1. Install silt fences, dikes, and inlet protection for existing inlets. 2. Construct road to connect to existing road near existing concrete batch plant. 3. Excavate and install construction sheds at concrete batch plant. 4. Install construction shed and rock crushing facility at existing recreation area. 5. Install construction office trailer near existing concrete batch plant. 6. Excavate and blast loop road station 16+00 to 22+00. 7. Install underground utilities at loop road station 16+00 to 22+00 and at haul road. 8. Construct loop road station 16+00 to 22+00 and haul roads connecting new loop road to pond and batch plant. 9. Install construction office trailers and staging areas north of loop road and temporary utilities. 10. Begin clearing of access road off of Route 22. 11. Stabilize all areas with exception of access road off of Route 22.
Phase 2 (40 Days)	9.4 Acres 12,687 cu yd / 8685 cu yd 4002 cu yd	North audio/video building, access and haul roads, staging/storage areas, pond embankment. 1. Install silt fences, dikes, and inlet protection for existing inlets. 2. Blast and excavate at audio/video building. 3. Install temporary concrete surface for construction trailers and materials staging. Install retaining wall behind building. 4. Construct of overflow/event parking area and retaining wall. 5. Construct staging/storage area and haul road to spoil area in north pasture. 6. Construct swales, dikes, and sediment trap at spoils area. Deposit excess soils at spoils area. 7. Construct permanent pond outlet and outfall. 8. Begin construction of pond embankment and outfall (temporary pond to be converted to permanent pond). 9. Stabilize all areas with exception of pond embankment.
Phase 3 (120 Days)	8.3 Acres 53,262 cu yd / 53,262 cu yd 0 cu yd	Office building, tunnel to powerhouse. 1. Install silt fences, dikes, and inlet protection for existing inlets. 2. Excavate for foundation of office and tunnel to bedrock. 3. Install underground utilities. 4. Construct loop road from station 0+00 to 16+00 and construct retaining walls. 5. Finalize sediment pond construction. 6. Stabilize all areas with exception of building excavation.
Phase 4 (140 Days)	9.9 Acres 37,500 cu yd / 11,291 cu yd 26,209 cu yd	Maintenance and office buildings. 1. Install silt fences, dikes, and inlet protection for existing inlets. 2. Excavate for foundation of office and maintenance buildings to bedrock. 3. Blast bedrock at office and maintenance buildings' foundations. 4. Place concrete slab on prepared subgrade. 5. Excavate and install sediment trap at maintenance building. 6. Install underground utilities. 7. Haul excess soils to spoils area. 8. Stabilize all areas.

Proposed Phasing for Areas of Soil Disturbance

Phase and Duration	Area of Disturbance Cut/Fill Net	Construction Activity
Phase 5 (120 Days)	7.1 Acres 25,064 cu yd / 25,064 cu yd 0 cu yd	G Residence (south) and tunnel, sediment traps, maintenance and office buildings and tunnel to powerhouse. 1. Excavate and install foundation of G residence (south) and backfill. 2. Install underground utilities and storm inlets. 3. Install sediment trap at G residence. 4. Excavate and install sediment trap at maintenance building. 5. Backfill at foundation walls of maintenance and office buildings and tunnel to powerhouse. 6. Install inlet protection. 7. Stabilize all areas.
Phase 6 (210 Days)	4.5 Acres 17,956 cu yd / 21,800 cu yd 3,844 cu yd	G Residence (north), west audio/video building, area around residence. 1. Excavate and install foundation of G residence (north) and backfill. 2. Grade area around Residence G. 3. Backfill at G residence foundation walls. 4. Blast and excavate for west audio/video building and tunnel foundation. 5. Haul backfill from spoils area and construct loop station 22+00 to end and construct adjacent parking areas. 6. Stabilize all areas.
Phase 7 (30 Days)	10.0 Acres	Final grading and soil restoration. 1. Final grade area around buildings, staging area, and trailers. 2. Pave walkways, driveways, and parking areas. 3. Excavate and construct bioretention areas. 4. Perform soil restoration as described in New York State DEC “Deep-Ripping and Decompaction,” April 2008. 5. Stabilize all areas with permanent landscaping.
Phase 8 (30 Days)	2.8 Acres	Final grading and soil restoration. 1. Demolish existing gravel road. 2. Perform final grading. 3. Pave walkways, driveways, and parking areas. 4. Excavate and construct bioretention areas. 5. Perform soil restoration as described in New York State DEC "Deep-Ripping and Decompaction," April 2008. Stabilize area with permanent landscaping. 6. Permanently stabilize all areas with permanent landscaping.
Phase 9 (120 Days)	6.6 Acres 998 cu yd / 5022 cu yd 998 cu yd	Bus and visitor parking lot, main lobby addition, dining room expansion, visitor comfort station and picnic areas, parking at E residence and F residence and Patterson Inn, pedestrian bridge, walkways, security gate, soil restoration. 1. Excavate and construct building foundation at lobby. 2. Excavate and construct building foundation at dining room expansion. 3. Haul excess soils to spoils area. 4. Construct bus and visitor parking lots. 5. Construct visitor comfort station and picnic areas. 6. Construct parking at E and F residences and at Inn. 7. Construct walkways and pedestrian bridge. 8. Reconstruct gatehouse and install security gate. 9. Install underground utilities. 10. Pave parking lots, drives, and walkways. 11. Construct bioretention areas. 12. Remove sheds, rock crusher, trailers, and repair recreation areas as needed. 13. Perform soil restoration as described in New York State DEC "Deep-Ripping and Decompaction," April 2008. Stabilize area with permanent landscaping. 14. Permanently stabilize all areas with permanent landscaping.
Phase 10 (40 days)	9.7 Acres	Stormwater pond, landscaping storage bins, batch plant, haul roads, trailers, sheds. 1. Demolish batch plant, construction trailers, and sheds. 2. Remove haul roads from new loop road to pond. 3. Install permanent landscaping storage area. 4. Perform soil restoration as described in New York State DEC "Deep-Ripping and Decompaction," April 2008. Stabilize area with permanent landscaping. 5. Permanently stabilize all areas with permanent landscaping.

Proposed Phasing for Areas of Soil Disturbance

Phase and Duration	Area of Disturbance Cut/Fill Net	Construction Activity
Phase 11 (40 days)	9.0 Acres	Spoils area, haul road, and staging area. 9. Demolish haul road and staging area. 10. Perform final grading of spoils area. 11. Perform soil restoration as described New York State DEC "Deep-Ripping and Decompaction," April 2008. Stabilize area with permanent landscaping. 12. Permanently stabilize all areas with permanent landscaping.
Total Duration: 945 Days		
Notes: Total duration of 945 days is for site disturbance only. Total construction duration will be approximately 5 years.		

APPENDIX F

Section 3
Post-Construction Water Quality and Quantity Control

Section 3 Post-Construction Water Quality and Quantity Control

This Section discusses the post-construction water quality and quantity control measures that will be employed for the proposed project. Stormwater regulations and design criteria, which have a bearing on the design, are also identified along with a discussion of the stormwater management approach for the proposed project.

The original Stormwater Pollution Prevention Plan (SPPP) for this project was submitted for review in early August 2010 and was designed around the requirements of the *New York State Stormwater Management Design Manual* dated August 2008 *(NYSSMDM, 2008)*. An updated stormwater management design manual was released in August 2010 and was required to be used by March 2011 for projects that had not already started the review process. (See Appendix F.4, "DEC 2010 Transition Policy.") Although the 2010 regulations are not required to be met for this project, the Owner is proposing to voluntarily implement green infrastructure practices as outlined in the *2010 Manual*.

A. Regulations

NYSDEC Criteria

The design criteria for stormwater management established for the project is in accordance with the *New York State Stormwater Management Design Manual (NYSSMDM)* dated August 2008 (except that green infrastructure practices are being implemented) and the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-10-001, January 29, 2010—see Appendix F.1.g). As outlined in the *2008 NYSSMDM*, the following stormwater sizing criteria were used for the proposed project:

- The Water Quality Volume (WQv) shall be sized to capture and treat the estimated stormwater runoff volume resulting from the 1-year, 24-hour design storm.
- Runoff Reduction Volume (RRv) of the total WQv should be achieved by the use of green infrastructure techniques that reduce contributing area or runoff volume to the maximum extent possible (*NYSSMDM, 2010*).
- Channel Protection Volume (Cpv) should be achieved by 24-hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction.
- Overbank Flood Control (Qp) shall control the peak discharge from the 10-year storm to 10-year pre-development rates.
- Extreme Flood Control (Qf) shall control the peak discharge from the 100-year storm to 100-year pre-development rates and provide safe passage of the 100-year storm event.

The project is located within the regulated Municipal Separate Storm Sewer System (MS4) for the Town of Patterson. Hence, the Town of Patterson is responsible to review the SPPP and complete the MS4 Acceptance Form prior to the Owner filing the Notice of Intent (NOI) with the NYSDEC. Additionally, the SPPP must meet the criteria set forth in New York City Department of Environmental Protection (NYCDEP) *Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources* dated April 4, 2010 *(WRR)*.

NYCDEP Criteria

The Project Site is located within the East of Hudson watershed, a phosphorous restricted watershed, and therefore it falls under the requirements of the *WRR*. The watershed is part of the larger East of Hudson watershed system, which supplies drinking water to approximately 9 million people within New York City and other municipalities. A "phosphorous restricted" watershed indicates that the phosphorous load from its contributing drainage basin exceeds the phosphorous limit established by the NYSDEC and based on the NYCDEP annual review. The following sections of the *WRR* apply to the SPPP of this project:

- §18-39(a)(1) prohibits impervious surfaces within the limiting distance of 100 feet of a watercourse or wetland, or within the limiting distance of 300 feet of a reservoir, reservoir stem, or controlled lake.
- §18-39(c)(2) states that any closed stormwater conveyance measures shall be sized to convey the stormwater runoff generated from a 10-year, 24-hour storm event.
- §18-39(c)(3) states that the greater of the volume of runoff generated by the 1-year, 24-hour storm or the Water Quality Volume (WQv) shall be captured and treated.
- §18-39(c)(6) states that stormwater runoff from a drainage with impervious surfaces covering twenty percent (20%) or more of the drainage area shall be treated by two different types of stormwater management practices in series.

B. Stormwater Management Approach

The five-step approach outlined in the *2010 NYSSMDM* has been used for site planning and the selection of stormwater management practices (SMPs). Since green infrastructure practices are being implemented, the stormwater management approach in the *2010 Manual*, which includes green infrastructure practices, was used rather than the approach in the *2008 Manual*, which excludes green infrastructure practices. These five steps are:

1. Site planning to preserve natural features and reduce impervious cover.
2. Calculation of the water quality volume for the site.
3. Incorporation of green infrastructure techniques and standard SMPs with runoff reduction volume (RRv) capacity.
4. Use of standard SMPs where applicable, to treat the portion of water quality volume not addressed by green infrastructure practices or standard SMPs with RRv capacity.
5. Design of volume and peak rate control practices where required.

Step 1: Green Infrastructure Practices (GIPs) Used in Planning Stage

- Preservation of Undisturbed Areas: The entire six-parcel property encompasses approximately 743.3 acres and includes, NYSDEC-classified streams, areas of steep slopes and undisturbed forests. The proposed project will disturb 47.8 acres, or 6.5 percent of the entire property, and is located such that impacts to environmentally sensitive areas are avoided or minimized. Approximately one-third of disturbance occurs in the location of the existing orchard, which will be removed. There will be limited disturbance of Hemlock-Northern Hardwood Forest, Successional Southern Hardwood Forest, and Successional Old Field.
- Preservation of Buffers: Naturally vegetated buffers will remain undisturbed (approximately 55± acres) for most of the on-site wetlands and water bodies. There will be limited impact to the

buffer around Mountain Brook to install a bridge crossing. Disturbed buffers will be restored and replanted.—See Drawings LD101 through LD106 for areas where trees will be planted and buffers replanted).

- Reduction of Clearing and Grading: The footprint of the proposed project is limited to the minimum by reducing the amount of roads, drives, and infrastructure. Specific measures include minimizing the amount of surface parking by providing multi-level parking below the proposed buildings, minimizing roadway and sidewalk widths, and ensuring that utilities and services are centrally located where possible.
- Locating Development in Less Sensitive Areas: The project is located to avoid or minimize impacts to sensitive areas. Approximately 13.1 acres of the proposed project will be located in previously disturbed areas of the orchard. Project disturbance is located entirely outside of the 100-year floodplain. Development has been kept out of the Great Swamp, which is designated as a Critical Environmental Area and NYSDEC wetland. Disturbance to steep slopes will be minimized and limited to approximately 3.5 acres. (See DEIS Figure 5-2, "Existing Slopes.") The majority of the area to be developed is over Charlton-Chatfield and Stockbridge series soils, which are well drained and have a moderate to severe potential for runoff (HSG B and C). Overall, the site will be designed to blend and adapt to the existing buildings and topography.
- Open Space Design: The proposed site was planned using clustering to reduce impervious cover, preserve open space, and protect environmental resources. Additionally, the proposed project will be constructed in previously disturbed areas of the site (i.e., the orchard) thereby preserving the maximum amount of undisturbed open space.
- Soil Restoration: The soil will be restored during the landscaping phase of the construction project as required by the *2010 NYSSMDM* and the NYSDEC guide *Deep Ripping and De-compaction*. Soil restoration will be performed on all disturbed areas that are designated as pervious and will include the addition of compost, tilling, rock removal, and the application of topsoil prior to landscaping.
- Roadway Reduction: Roadway widths and lengths were minimized to reduce the amount of impervious surface area on-site. A loop road will be provided in the area of new construction and will connect to the existing on-site roadway for ease of access. Also, widths were minimized by providing a 20-foot wide driveway with mountable curbs and adjacent sidewalks to satisfy the 26-foot wide fire access road requirement.
- Sidewalk Reduction: Impervious sidewalk surfaces were reduced by providing common walkways to access pedestrian areas. Additionally, below grade tunnels are used to connect the new buildings to each other and to existing buildings, further reducing the amount of impervious sidewalk cover.
- Building Footprint Reduction: Building footprints were reduced by increasing building heights to the extent possible while keeping in character with the existing building heights. The proposed project makes use of multi-level parking structures and multi-story residential and office buildings.
- Parking Reduction: Impervious parking area was reduced by incorporating 398 parking spaces in multi-level parking garages. The equivalent surface area required for this number of spaces would be approximately 3.5 acres; thus, the use of parking garages significantly reduces the impervious area required by surface parking. Additionally, efficient parking lanes will be used along the residential access drive which reduces the amount of paving used for vehicle circulation. Also, approximately 61,000 square feet of permeable paving will be implemented throughout the site.

Step 2: Water Quality Volume Calculation

The Water Quality Volume (WQv) shall be sized to capture and treat the estimated stormwater runoff volume resulting from the 1-year, 24-hour design storm. For a detailed summary refer to Section C, "Water Quality Analysis."

Step 3: GIPs and Standard SMPs Used for Runoff Reduction

The following green infrastructure practices and standard stormwater management practices will be implemented throughout the site to reduce and treat stormwater runoff. Standard Stormwater Management practices will be designed in accordance with the Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and Its Sources (dated April 4, 2010), and the New York State Stormwater Management Design Manual (dated August 2008). Although Green Practices are not required for this project due to the project being submitted prior to the Green Infrastructure requirements, Green Practices are implemented throughout the site and have been designed in accordance with the criteria provided in the New York State Stormwater Management Design Manual (dated August, 2011).—See Appendix F.2, "Revised DEIS Chapter 7," Figure 7-3, "Green Infrastructure," for the locations of these practices.

- Sheet flow to Riparian Buffers: Temporarily disturbed buffers adjacent to the proposed project will be replanted and restored. The buffers will treat sheet flow from adjacent sidewalks and landscaped areas.
- Tree Planting: Although runoff reduction credit is not being sought, there will be extensive tree planting as part of the proposed landscaping plan. Approximately 225 seedlings will be incorporated into open areas and among the existing trees.—See Drawing LD102, "Landscaping Plan."
- Rooftop Disconnection: Rooftop runoff from pavilions at picnic areas will be disconnected and directed to adjacent pervious areas.
- Green Roof: The proposed project will incorporate approximately 25,400 square feet of green roofs constructed at the office and maintenance buildings.
- Pervious Pavers: Approximately 61,000 square feet of parking areas and roadway will be constructed with pervious pavers, which will filter stormwater runoff.
- Bioretention: Seventeen bioretention areas will be included throughout the site to treat stormwater prior to discharging it to the stormwater system. The areas that will be treated include portions of the main entrance driveway and the residence, maintenance, and office building roofs.

Step 4: Standard Stormwater Practices Used for Remainder of WQv

Standard stormwater practices were applied to the portion of water quality volume that could not be treated using green infrastructure practices. The following standard stormwater practices were used:

- Underground Sand Filters.
- Stormwater Detention Ponds: A new stormwater pond will be constructed to the north of the existing entrance driveway. The pond will provide treatment and attenuation of stormwater runoff. Additionally, the existing stormwater pond located near the wastewater treatment plant will provide treatment for a small portion of the runoff that cannot be routed to the new pond.

Step 5: Volume and Peak Rate Control

- The new stormwater pond will be used to attenuate peak flows.

C. Water Quality Analysis

Due to the project being located in a phosphorus restricted watershed, the required water quality volume (WQv) for the drainage areas was computed using the SCS Method discussed in the Chapter 10 of *NYSSMDM*. For the Project Site, the 1-year, 24-hour rainfall event generates 3.1 inches of rainfall. (See Figure 3-1, "Rainfall Contour Map.") A summary of WQv is provided in Table 3-1 Summary of Water Quality Volume."—See Appendix F.1.e, "WQv and RRv Calculations."

Table 3-1 Summary of Water Quality Volume

Design Point	Drainage Area	Total Area (ft^2)	Required WQv (ft^3)	WQv Green Practices (ft^3)	WQv Standard Practices (ft^3)	Total Provided WQv (ft^3)
1	5B	160,069	0	0	0	0
2	2	9,470	0	0	0	0
3	3	64,709	0	0	0	0
4	4	53,831	0	0	0	0
5	5A	99,419	0	0	0	0
6	6A	448,448	1,114	1,114	1,114	2,228
6	6B[1]	313,226	0	0	0	0
7	7	70,915	0	0	0	0
8	8A	305,343	0	0	0	0
8	8B_1	59,869	10,724	7,683	13,765	21,448
8	8B_2	99,854	20,894	20,820	20,894	41,714
8	8B_3	187,200	16,668	16,668	16,668	33,336
8	8B_4	84,340	12,487	12,487	12,487	24,974
8	8B_5	56,887	3,685	3,685	3,685	7,370
8	8B_6	15,924	2,982	2,982	2,982	5,964
8	8B_7	21,302	2,408	2,408	2,408	4,816
8	8B_8	25,906	4,021	4,021	4,021	8,042
8	8B_9	67,701	13,315	4,694	21,936	26,630
8	8B_10	21,222	3,667	3,667	3,667	7,334
8	8B_11	38,389	6,713	6,713	6,713	13,426
8	8B_12	43,274	6,127	6,127	6,127	12,254
8	8B_13	28,114	0	0	0	0
8	8C	75,280	15,013	15,013	15,013	30,026
9	9	508,290	11,259	0	11,259	11,259
10	10	64,816	5,626	0	5,626	5,626
12	12	24,403	746	746	0	746

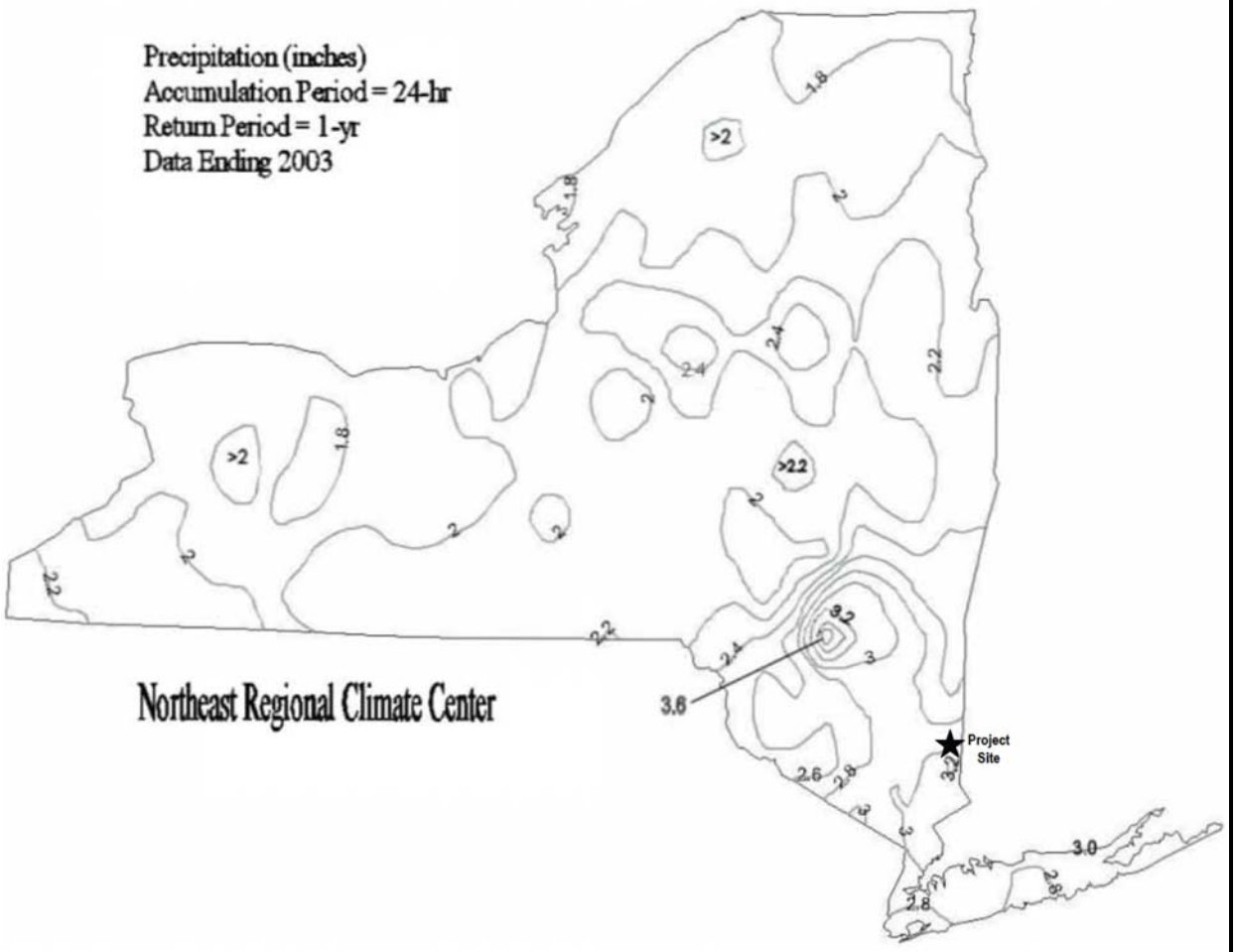
Design Point	Drainage Area	Total Area (ft^2)	Required WQv (ft^3)	WQv Green Practices (ft^3)	WQv Standard Practices (ft^3)	Total Provided WQv (ft^3)
13	13	11,691	907	907	0	907
14	14A	2,870	686	686	0	686
14	14B	5,683	271	271	271	542
15	15A	36,566	0	0	0	0
15	15B	2,642	668	668	0	668
16	16[2]	221,955	0	0	0	0
17	17	295,163	0	0	0	0
18	18	393,128	0	0	0	0
19	19	507,219	0	0	0	0
Grand Total		**4,425,118**	**139,981**	**111,360**	**148,636**	**259,996**

Notes:

1. DA -6B, Sub-basin 1 comprises an area of approximately 442,000 square feet and will include approximately 925 square feet (0.2 %) of proposed pavement area that results from increasing the turning radius of the existing road. Since the quantity of additional impervious area is so small compared to the total drainage basin area and location of improvement precludes a practice, no treatment of the water quality volume was provided.

2. DA-16 will include approximately 426 square feet of proposed sidewalk, or 0.2% of additional impervious area. Because the proposed impervious area is so small in comparison to the total drainage basin area, no treatment of the water quality volume was provided.

9.30.11



Source: NYS Stormwater Management Design Manual, August 2010

Rainfall Contour Map

NOT TO SCALE

Figure 3-1
Rainfall Contour Map

Soil Testing

Test pits and percolation tests were performed throughout the proposed development areas to help determine the types of stormwater treatment practices that will offer the best performance. (See Table 3-2, "Soil Testing.") Test pit locations were survey located and can be found on Drawing C-101, "Existing Conditions Plan."

Table 3-2 Soil Testing

Deep Test Hole Number	Description
1	3'6" Total Depth, Bedrock was encountered
15	13' Total Depth, 9' Groundwater seep, 11' Standing Groundwater
16	11' Total Depth, 8'3" Groundwater seep
17	13'6" Total Depth, 10'6" Groundwater seep
18	13'2" Total Depth, 6'9" Groundwater seep, 12'7" Standing Groundwater
19	13'8" Total Depth
20	12'6" Total Depth
22	10' Total Depth
23	10' Total Depth, 7' Groundwater seep, 9' Standing Groundwater
24	13' Total Depth, seasonal high groundwater table and bedrock were not encountered.
25	12' Total Depth, seasonal high groundwater table and bedrock were not encountered.
27	14' Total Depth, 10'4" Groundwater seep
28	14'3" Total Depth, seasonal high groundwater table and bedrock were not encountered
29	12' total Depth, seasonal high groundwater table and bedrock were not encountered
30	12'7" Total Depth, 9' Groundwater seep, 11' Standing Groundwater
31	18" Bedrock encountered
32	3'6" Bedrock encountered
33	4' Total Depth, rock encountered at 36"

Phosphorus Loading Analysis

Excess amounts of phosphorus can lead to contamination and degradation of a water supply. Consequently, the State of New York has been actively engaged in minimizing the quantity of phosphorus that enters the East of Hudson watershed, which includes reservoirs used as a drinking water supply for New York City and surrounding areas.

In January 2009, the NYSDEC prepared a report entitled "Croton Watershed Phase II Phosphorus TMDL Implementation Plan." (See Appendix F.5, "Croton Watershed TMDL Plan." The purpose of this report was to identify a plan to reduce phosphorus pollution in the Croton watershed. According to the report, typical sources of phosphorus include: "stormwater runoff from impervious surfaces, agricultural land and construction sites, excessive fertilizer use, leachate from septic systems and effluent from wastewater treatment plants." This report also quantified the phosphorus reduction that should be achieved by each Town in the Croton watershed. For the Town of Patterson, the goal is to reduce phosphorus loading by 17.2 kg over a period of five years.

The Town of Patterson has taken positive steps to meet this goal. In December 2009, the firm of Malcolm Pirnie prepared a report for the Putnam County MS4 Coordinating Committee in which 10 stormwater retrofit projects were identified in the Town of Patterson. (See Appendix F.6, "Malcolm Pirnie Stormwater Improvement Study.") Once implemented, these retrofits are projected to reduce the phosphorus loading in the watershed by 26.9 lbs (12.2 kg), which is 71 percent of the Town's five-year goal.

Additionally, the Owner of this proposed action has also taken an active role in reducing their "phosphorus footprint." For example, the phosphorus concentration of the existing orchard area is assumed to be similar to lawn areas, or 2.1 mg/L. (See Table A.2 in "The Simple Method to Calculate Urban Stormwater Loads at http://www.dec.ny.gov/docs/water_pdf/simple.pdf.) The orchard is being replaced by areas with lower phosphorus concentrations (roofs and driveways range between 0.11 mg/L to 0.56 mg/L). Furthermore, this SPPP has been developed based on criteria outlined in Chapter 10 of *2010 NYSSWDM*, which provides direction for the selection and sizing of stormwater practices that specifically reduce phosphorus in stormwater runoff. Thus, the proposed action results in a decrease of phosphorus loading when compared to existing conditions. As an additional demonstration of the Owner's commitment to reducing phosphorus pollution, historical data has been included in Appendix F.7 of this SPPP quantifying the amount of phosphorus found in the effluent stream of the Owner's wastewater treatment plant.

Based on the existing land use and runoff from the 1-year, 24-hour storm event, the amount of phosphorus calculated to be present in stormwater runoff from the existing facility is 208.7 pounds (94.7 kg). Under proposed mitigated conditions, the phosphorus amount is expected to decrease to 196.3 pounds (89.0 kg), a reduction of 5.9 percent or 12.4 pounds (5.6 kg) from present conditions. Thus, this reduction contributes to the Town's overall goal of decreasing phosphorus pollution in the watershed as shown in Table 3-3, "Pollutant Loading Pre- vs. Post- Development Values." Moreover, the combination of proposed project and the Town's 10 stormwater retrofit projects should allow the Town to meet or exceed its 5-year phosphorus reduction goal. For detailed phosphorus calculations see Appendix F.1.f, "Pollutant Loading Removal Calculations."

Table 3-3 Pollutant Loading Pre- vs. Post-Development Values

Design Point	Pre-Development Conditions (lbs/yr)				Post-Development Conditions (lbs/yr)			
	TSS	TP	TN	BOD	TSS	TP	TN	BOD
1	425.2	1.4	6.0	4.9	638.5	1.5	6.0	14.7
2	568.8	2.0	8.5	4.7	67.8	0.2	1.0	0.1
3	962.4	3.4	14.5	7.5	463.1	1.6	7.0	1.0
4	491.6	1.7	7.4	2.8	376.5	1.3	5.7	0.9
5	5,499.8	18.6	81.3	47.9	711.5	2.5	10.8	1.5
6	19,603.5	68.3	317.8	373.8	17,749.9	62.0	291.8	364.0
7	1,224.6	4.2	18.3	12.5	1,607.9	5.6	24.1	5.9
8	4,103.0	14.3	61.6	13.4	4,340.8	28.8	128.6	55.7
9	5,537.4	19.3	83.6	13.1	5,451.2	21.8	93.8	22.5
10	379.6	1.3	5.7	1.2	74.8	0.7	3.0	0.6
12	15.7	0.1	0.5	0.1	14.8	0.2	0.8	0.4
13	57.7	0.5	1.8	3.5	60.4	0.5	2.2	3.8
14	78.2	0.7	3.1	1.7	55.2	0.5	2.6	1.5
15	1,608.8	5.5	23.7	33.8	1,619.7	5.6	24.4	34.6
16	7,753.5	26.9	115.7	35.0	7,174.4	24.9	106.8	37.9
17	2,667.7	23.1	104.1	82.2	2,436.1	21.2	95.9	77.7
18	2,347.8	8.1	35.0	6.5	2,347.8	8.1	35.0	6.5
19	2,784.8	9.3	40.1	9.9	2,784.8	9.3	40.1	9.9
Totals:	***56,110.1***	***208.7***	***928.7***	***654.5***	***47,975.2***	***196.3***	***879.6***	***639.2***
Notes: Design Point 11 is not used.								

Phosphorus loading calculations were calculated using *HydroCAD*, which bases the stormwater concentration loads on subwatershed drainage area, impervious cover, stormwater runoff pollutant concentrations, and annual precipitation. The Simple Method estimates the pollutant loads based on the following equation from "The Simple Method to Calculate Urban Stormwater Loads" by NYSDEC:

$$L = 0.226 * R * C * A$$

Where:

L = Annual Load (lbs)

R = Annual Runoff (inches)

C = Pollutant Concentration (mg/l)

A = Area (acres)

0.226 = Unit Conversion Factor

Stormwater Management Practices have been included for both existing and proposed conditions to determine what the final annual pollutant load leaving the site will be. Suggested removal rates have been referenced from Table A.4 in "The Simple Method to Calculate Urban Stormwater Loads." Due to the project being located in a phosphorus restricted basin, at times two treatment practices will be required. In the event that some practices are located in series, the following equation was used:

$$R = L\,[(E_1) + (1\text{-}E_1)\,E2 + (1\text{-}((E_1) + (1\text{-}E_1)\,E2)\,E3 + \ldots]$$

Where:

R = Pollutant Removal (lbs)

L = Annual Loads from Simple Method (lbs)

E_i = Efficiency of the *ith* practice in a series

For detailed phosphorus removal calculations see Appendix F.1.f, "Pollutant Loading Removal Calculations."

D. Water Quantity Analysis

In order to determine the potential impacts associated with the project, existing and proposed condition hydrographs were generated using a Type III rainfall distribution based on Appendix B of the *Technical Release 55 Manual (TR-55)*. Rainfall depths for the design storm events were referenced from Chapter 4 of the *2010 NYSSMDM*. Data for the 1-year storm is more recent in the *2010 NYSSMDM*, while rainfall depths for the 10-year and 100-year storms are identical in both the *2008* and *2010 NYSSMDM*. The 24-hour rainfall depths for the 1-, 2- 10-, 25- and 100-year design storm events for the Project Site are listed in Table 3-4, "Rainfall Depths, 24-Hour Storm Duration."

Table 3-4 Rainfall Depths, 24-Hour Storm Duration

Storm Event	Rainfall Depth (inches)
1-year	3.1
2-year	3.5
10-year	5.5
25-year	6.0
100-year	9.5

Runoff curve numbers (CN) and times of concentration (Tc) were computed using the NRCS TR-55 methodology. Additionally, peak stormwater flows for the existing and proposed conditions were computed using *HydroCAD's Stormwater Modeling Systems*, Version 9.1 (which is based on NRCS TR-20 methodology).

Pre-Developed Condition Hydrology

The existing watershed consists of existing development, orchards, woods, water features, grassed areas, and pastures. The drainage areas were limited to those areas impacted by or tributary to the proposed site project and disturbed areas. The entire watershed consists of approximately 87 acres of drainage area. For the purposes of this existing condition analysis, 19 design points were defined to characterize the current drainage patterns within the watershed.

- Design Point 1 (DP-1) is the northern most design point and is located at a catch basin adjacent to the orchard Loop Road, just north of the orchard. DP-1 collects runoff from one drainage area (DA-1). Runoff is ultimately conveyed to Mountain Brook.
    - DA-1 generally consists of a portion of the existing orchard loop road, woods, and open space. Runoff from the drainage area is conveyed via overland flow in a northwesterly direction, until it is collected by the existing conveyance system and discharged to DP-1.
- Design Point 2 (DP-2) is also located at a catch basin adjacent to the existing orchard loop road near the northern portion of the watershed, just to the west of DP-1. DP-2 collects runoff from one drainage area (DA-2). Runoff is ultimately conveyed to Mountain Brook.
    - DA-2 generally consists of the orchards, open space, and a portion of the existing orchard loop road. Runoff flows in a westerly direction until it is collected in a swale parallel to road. The flow is discharged under the roadway to DP-3.
- Design Point 3 (DP-3) is located to the southwest of DP-2. This design point is located at a catch basin on the west side of the existing orchard loop road. DP-3 collects runoff from one drainage area (DA-3). Runoff is ultimately conveyed to Mountain Brook.

- DA-3 generally consists of a large portion of the existing orchard and a small portion of the existing orchard loop road. Runoff from this drainage area flows via overland flow in a westerly direction until it is collected in a swale parallel to the road. The flow is then discharged under the roadway to DP-3.

- Design Point 4 (DP-4) is located to the southwest of DP-3. This design point is at a catch basin on the east side of the existing orchard loop road. DP-4 collects runoff from one drainage area (DA-4). Runoff is ultimately conveyed to Mountain Brook.
  - DA-4 Generally consists of orchard and open space. Runoff from this drainage area flows via overland flow in a westerly direction until it is collected in a swale parallel to road. The flow is then discharged under the roadway to DP-4.
- Design Point 5 (DP-5) is located at an inlet just upstream of Stormwater Pond #3. DP-5 collects runoff from one drainage area (DA-5). Runoff is conveyed to Stormwater Pond #3 and ultimately discharges to Mountain Brook.
  - DA-5 consists of the largest portion of the orchard and a small amount of open space. Runoff from this area generally flows via overland flow in a southwesterly direction to its collection point at DP-5.
- Design Point 6 (DP-6) is located at the outlet pipe to Stormwater Pond #3. DP-6 collects runoff from two drainage areas (DA-6A and DA-6B). Runoff is ultimately conveyed to Mountain Brook.
  - DA-6A is located in the center of the watershed. This drainage area consists of the existing audio/video building, water softening facility, powerhouse, north parking garage, kitchen/dining room, recreation, and north services buildings. In addition, DA-6A consists of a portion of the existing loop road and some lawn and landscaped areas. Runoff from this drainage area flows overland until it is collected by the existing onsite conveyance system and conveyed to Stormwater Pond #3 located at DP-6.
  - DA-6B is located to the east of DA-6A. This area generally consists of woods. Runoff flows overland in a westerly direction until it is collected by the existing storm conveyance system and discharged to Stormwater Pond #3.
- Design Point 7 (DP-7) is located to the southwest of Stormwater Pond #3. DP-7 collects runoff from one drainage area (DA-7). Runoff is ultimately conveyed to Mountain Brook.
  - DA-7 is located to the south of Stormwater Pond #3 and to the west of the south office building. This area consists of open space and an operations and maintenance building with an existing concrete washout area. Runoff generally flows in a westerly direction toward the existing conveyance system and is discharged to Mountain Brook.
- Design Point 8 (DP-8) is located at an existing culvert to the south of DP-7. DP-8 collects runoff from one drainage area (DA-8). Runoff is ultimately discharged to Mountain Brook.
  - DA-8 is located to the south of DA-7. This area consists mostly of open pasture. Runoff from this drainage area flows in a westerly direction toward the existing swale parallel to the existing wastewater facility access road. It is then collected and conveyed under the access road and discharged to Mountain Brook.
- Design Point 9 (DP-9) is located to the west of the entrance road at the edge of Mountain Brook. This design point collects runoff from one drainage area (DA-9). Runoff is ultimately conveyed to Mountain Brook.
  - DA-9 consists of the area between the driveway entrance and Route 22. This drainage area consists mostly of open pasture with a small amount of impervious roadway. Runoff flows in a

westerly direction until it is collected by the swale that runs parallel to Route 22 in a northerly direction and is discharged to Mountain Brook.

- Design Point 10 (DP-10) is located on the northern side of Mountain Brook. This design point collects runoff from one drainage area (DA-10). Runoff is ultimately conveyed to Mountain Brook.
    - DA-10 is located to the north of DA-9. This drainage area consists mostly of open pasture. Runoff flows in a southwesterly direction overland until it is discharged to Mountain Brook.
- Design Point 11 is not used.
- Design Point 12 (DP-12) is located at an existing catch basin to the west of the existing residence buildings. This design point collects runoff from one drainage area (DA-12). Runoff is ultimately collected at the catch basin and conveyed to Stormwater Pond #1.
    - DA-12 is a relatively small drainage area located to the southwest of the existing E Residence building. The area generally consists of woods and some grassed lawn. Runoff flows in an easterly direction overland until it is collected by the stormwater collection system and is ultimately discharged to Stormwater Pond #1.
- Design Point 13 (DP-13) is located at a catch basin just south of DP-12. This design point collects runoff from one drainage area (DA-13). Runoff is ultimately conveyed to the existing Stormwater Pond #1.
    - DA-13 is a small drainage area that collects runoff from a portion of the existing loop road. The entire drainage area is impervious and flows toward the existing storm collection system and is ultimately discharged to Stormwater Pond #1.
- Design Point 14 (DP-14) is located to the south of the existing residence buildings. This design point collects runoff from two drainage areas (DA-14A and DA-14B). Runoff is collected via a stormwater conveyance system to an existing unnamed stream that feeds Stormwater Pond #1.
    - DA-14A is a small drainage area to the southeast of the existing D Residence building. This area collects a portion of runoff from the existing loop road and conveys it to the unnamed stream that feeds Stormwater Pond #1.
    - DA-14B consists of the southern portion of the existing F Residence building and lawn area. Runoff is collected and conveyed in a southeasterly direction toward the unnamed stream that feeds Stormwater Pond #1.
- Design Point 15 (DP-15) is located at an outlet for the Patterson Inn. This design point collects runoff from one drainage area (DA-15). Runoff is ultimately conveyed to the Stormwater Pond #2.
    - DA-15 is located at the Patterson Inn and consists of a portion of the B and C buildings and adjacent parking areas. Runoff is collected and conveyed to the unidentified stream just downstream of the existing Stormwater Pond #2.
- Design Point 16 (DP-16) is located in a catch basin at the main driveway entrance. This design point collects runoff from one drainage area (DA-16). Runoff is ultimately conveyed under Route 22 to stormwater treatment facilities located outside the project boundaries.
    - DA-16 is located to the north of the Patterson Inn. This drainage area generally consists of grassed lawn and the northeastern portion of the main driveway entrance. Runoff flows in a southwesterly direction overland until it is collected at DP-16.

- Design Point 17 (DP-17) is located at the inlet in the existing loop road just to the southeast of the existing visitor parking lot. This design point collects runoff from one drainage area (DA-17). Runoff is collected and conveyed to existing Stormwater Pond #2.
    - DA-17 consists of the existing south office building, lobby, auditorium, and school buildings, as well as the visitor parking lot. Runoff is collected by the existing storm system and conveyed in a southerly direction to DP-17.
- Design Point 18 (DP-18) is located at the inlet of a culvert that passes under Route 22. This design point collects runoff from one drainage area (DA-18). Runoff is ultimately discharged on the west side of Route 22 where it flows through an existing drainage channel to the East Branch Croton River.
    - DA-18 consists mostly of open space and pasture with smaller areas of woods. Runoff flows in a westerly direction until it is collected by the existing swale parallel to Route 22. Runoff then flows in a northerly direction to DP-18.
- Design Point 19 is located at the inlet of the 24-inch culvert that passes under Route 22. This design point collects runoff from one drainage area (DA-19). Runoff is discharged on the west side of Route 22 where it flows through an existing drainage channel to the East Branch Croton River.
    - DA-19 is located to the north of DA-18 and west of the existing Reservoir. DA-19 consists of open pasture and woods. Runoff flows in a southwesterly direction overland to DP-19.

The existing condition watershed is depicted in Figure 3-2, “Pre-Development Watershed” and Table 3-5, “Pre-Developed Analysis Summary.”

10.6.11

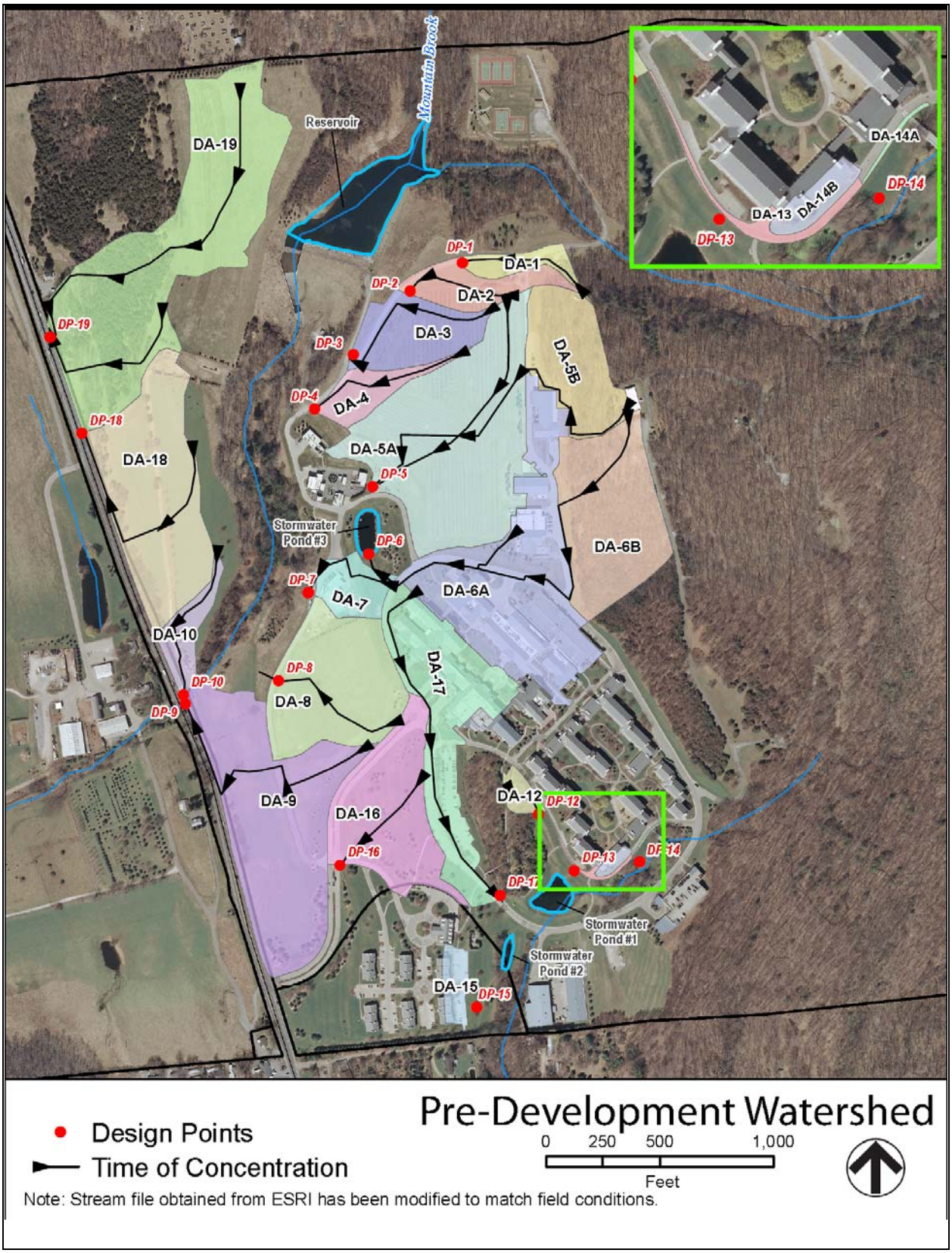


Figure 3-2
Pre-Development Watershed

Table 3-5 Pre-Developed Analysis Summary

Design Point	Drainage Area	Area (Acres)	Tc (mins.)	Curve Number	Peak Flow Rates (cfs)				
					1-year	2-year	10-year	25-year	100-year
1	DA-1	1.08	13.0	74	1.0	1.3	2.9	3.4	6.4
2	DA-2	2.12	19.1	65	0.7	1.1	3.3	3.9	8.8
3	DA-3	3.34	16.8	65	1.2	1.8	5.4	6.5	14.6
4	DA-4	1.63	11.4	74	1.5	1.9	4.4	5.1	10.0
5	DA-5A	12.70	21.2	71	7.3	9.8	24.4	28.4	57.9
	DA-5B	4.52	32.7	62	1.6	2.2	5.8	6.9	14.9
	Totals:	***17.22***	***-***	***-***	***8.6***	***11.6***	***29.3***	***34.1***	***70.4***
6	DA-6A	10.98	8.0	74	23.9	27.8	47.6	52.7	88.6
	DA-6B	7.19	28.0	60	1.2	2.0	7.4	9.0	22.1
	Totals:	***18.17***	***-***	***-***	***24.0***	***28.0***	***50.2***	***56.1***	***98.6***
7	DA-7	1.63	7.0	82	3.0	3.6	6.8	7.6	13.3
8	*DA-8*	6.91	10.0	75	7.5	9.6	21.0	24.0	45.7
9	DA-9	11.52	11.6	74	10.8	14.0	31.7	36.4	70.8
10	DA-10	1.46	13.3	75	1.3	1.7	3.9	4.5	8.6
12	DA-12	0.56	12.6	72	0.4	0.6	1.4	1.6	3.2
13	DA-13	0.17	5.0	98	0.5	0.6	0.9	1.0	1.6
14	DA-14A	0.03	5.0	98	0.1	0.1	0.2	0.2	0.3
	DA-14B	0.21	5.0	61	0.3	0.4	0.7	0.8	1.5
	Totals:	***0.24***	***-***	***-***	***0.4***	***0.5***	***0.9***	***1.0***	***1.8***
15	DA-15	0.84	5.0	74	2.2	2.5	4.2	4.6	7.7
16	DA-16	6.29	16.7	74	6.6	8.2	16.8	19.1	35.4
17	DA-17	7.31	13.1	74	14.1	16.3	27.7	30.6	51.1
18	DA-18	9.02	12.6	74	7.8	10.1	23.6	27.2	53.4
19	DA-19	15.50	12.3	72	11.7	15.6	38.1	44.1	89.0

Notes:
Design Point 11 is not used.

Post-Developed Condition Hydrology

The proposed watershed consists of new and existing development, orchards, woods, water features, grassed areas, and pastures. The drainage areas were limited to those areas impacted by or tributary to the proposed Project Site. There are no changes to the location of the 19 design points defined in the existing conditions. However, to accommodate new development, an increase in impervious area, and subsequent changes in drainage patterns, the drainage areas were revised to reflect grading and changes in hydrology for the proposed conditions.

The *Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and Its Sources* states than a drainage area that is greater than 20 percent impervious must provide treatment of the WQv in a series of treatment practices (100% treatment each practice). Due to this requirement, 39 drainage areas must provide treatment in two practices located in series. For each of these drainage areas, the first practice consists of a newly constructed green practice and the second practice consists of a stormwater pond. For detailed calculations, refer to Appendix F.1.e, "WQv and RRv Calculations."

- Design Point 1 (DP-1) collects runoff from one drainage area (DA-5B). A flow splitter will be installed at DP-1 to split flow being conveyed from DA-5B between DP-1 and DP-2. Runoff continues to be conveyed to Mountain Brook.
    - DA-5B continues to be located to the north and east of the existing audio-video building and audio-video addition. The drainage area generally consists of woods and contains no new development. Runoff generally flows in a westerly direction till it is collected by a new stormwater conveyance system and conveyed to DP-1.
- Design Point 2 (DP-2) remains in the same location, however, it is proposed to collect runoff from one drainage area (DA-2) and serve as the overflow for DA-5B. Runoff is ultimately conveyed to Mountain Brook.
    - DA-2 generally consists of a small area of open space near the western corner of the new Loop Road. Runoff flows in a southwesterly direction till it is collected at DP-2.
- Design Point 3 (DP-3) remains unchanged and continues to collect runoff from one drainage area (DA-3).
    - DA-3 now consists of a small area of open space to the west of the new Loop Road. Runoff from this drainage area flows via overland flow in a southwesterly direction till it is collected in DP-3.
- Design Point 4 (DP-4) remains unchanged and continues to collect runoff from one drainage area (DA-4).
    - DA-4 now consists of a small area of open space to the west of the new Loop Road. Runoff from this drainage area flows via overland flow in a westerly direction till it is collected in DP-4.
- Design Point 5 (DP-5) continues to discharge runoff to the existing Stormwater Pond #3 and ultimately discharged to Mountain Brook. DP-5 collects runoff from one drainage area (DA-5A).
    - DA-5A now consists of a small area of open space to the west of the new Loop Road. Runoff from this drainage area flows via overland flow in a westerly direction till it is collected in DP-5.
- Design Point 6 (DP-6) has been revised to collect runoff from five (5) drainage areas (DA-6A1, -6A2, -6A3, -6A4, and DA-6B). Runoff continues to be conveyed to Mountain Brook.
    - DA-6A1 is located in the center of the watershed. This drainage area continues to consist of the existing Audio/Video building, water softening facility, powerhouse, north parking garage, kitchen/dining room, recreation, and north services buildings. In addition, DA-6A1 consists of a

portion of Loop Road and some lawn and landscaped areas. Runoff from this drainage area flows overland till it is collected by the existing onsite conveyance system and conveyed to the existing Stormwater Pond #3 located at DP-6.

- DA-6A2 consists of a small sidewalk and bioretention located near the existing north services building within DA-6A1. Runoff from the sidewalk flows into the bioretention where it is treated.
- DA-6A3 consists of another small sidewalk and bioretention located near the existing south services building within DA-6A1. Runoff from the sidewalk flows into the bioretention where it is treated.
- DA-6A4 consists of another small sidewalk and bioretention located between the existing kitchen/dining room and existing lobby within DA-6A1. Runoff from the sidewalk flows into the bioretention where it is treated.
- DA-6B remains unchanged and is located to the east of DA-6A. Runoff flows overland in a westerly direction till it is collected by the existing storm conveyance system and discharged to the existing Stormwater Pond #3. (The three existing stormwater ponds were design to provide water quality treatment under the Phase I regulations. Existing and proposed condition models have not included the existing ponds. A portion of the areas that were previously tributary to these ponds in the existing conditions will now be routed to Green Practices in order to provide water quality treatment and water quantity mitigation. Therefore, the existing basins are not considered as primary methods of water quality treatment or water quantity mitigation in the existing or proposed conditions.)

- Design Point 7 (DP-7) continues to be located to the southwest of the existing Stormwater Pond #3 and collect runoff from one drainage area (DA-7).
  - DA-7 is located to the south of Stormwater Pond #3 and to the west of the South Office building. This area consists of open space and landscaping materials bins. Runoff generally flows in a westerly direction toward the existing conveyance system and is discharged to Mountain Brook.
- Design Point 8 (DP-8) has been revised to collect runoff from three main drainage areas (DA-8A, DA-8B, and DA-8C). These drainage areas are further divided into smaller subareas based on development and provided treatment practices. Runoff from the three main drainage areas ultimately are conveyed to a proposed Micropool Extended Detention Basin for water quality treatment located in DA-8A2.
  - DA-8A consists of two sub drainage areas (DA-8A1 and DA-8A2). DA-8A1 consists of the area to the north of and not tributary to the proposed Micropool Extended Detention Basin. This area generally consists of open space/pasture. Runoff flows in a westerly direction till it is collected by the existing stormwater conveyance system and discharged to DP-8. DA-8A2 consists of the proposed Micropool Extended Detention Basin and surrounding area that directly flows into the basin (for more information see Detail #1 on Drawing CG502, "Stormwater Pond Details"). All runoff in this area is routed through the basin and conveyed to DP-8.

    The Micropool Extended Detention Basin conforms to the criteria presented in the *NYSSWMDM* for standard stormwater practice and is intended to provide primary or secondary treatment to Drainage Areas DA-8A2, DA-8B, and DA-8C. A forebay has been designed upstream of the micropool basin to provide pretreatment of runoff. The forebay provides 19,500± cu.ft. (16.4%) of the WQv storage in the permanent pool and 22,100± cu.ft. (18.7%) in extended detention. The micropool basin provides 45,200± cu.ft. (38.1%) of the WQv storage in the permanent pool and 76,700± cu.ft. (64.6%) in extended detention. The large

percentages indicate that the basin was designed larger than what was only required for the WQv. A concrete box structure will provide mitigation of flows while also contributing to the 24 hour detention requirement. The top of the basin's dam height is proposed at 598.0± feet, thereby providing almost 2 feet of freeboard for the 100-year storm event.

  - DA-8B is located where the orchard was previously located. DA-8B consists of the area where the majority of the new development is occurring. In order to accommodate as much infiltration as possible the drainage area was further subdivided into 26 sub-drainage areas (DA-8B-1A, 8B-1B, 8B-1C, 8B-2A, 8B-2B, 8B-3, 8B-4, 8B-5, 8B-5A1, 8B-5A2, 8B-5B, 8B-5C, 8B-5D, 8B-6A, 8B-6B, 8B-7, 8B-8, 8B-9A, 8B-9B, 8B-9C, 8B-10, 8B-11A, 8B-11B, 8B-12A, 8B-12B, 8B-13). Green infrastructure practices were installed where feasible to provide runoff reduction. All sub-drainage areas are ultimately collected by the proposed stormwater system and conveyed to the proposed Micropool Extended Detention Basin in DA-8A2.
  - DA-8C is located just to the west of the existing visitor parking lot. This is a single drainage area and consists of additional visitor parking spaces as well as a new parking area for buses. Runoff from this area will flow overland to one of three bioretention facilities located in the drainage area. The runoff will then be conveyed to the Micropool Extended Detention Basin in DA-8A2.

- Design Point 9 (DP-9) remains unchanged and collects runoff from two (2) drainage areas (DA-9A and DA-9B). DA-9A generally consists of undisturbed area. Runoff continues to flow in a northwesterly direction to DP-9 at Mountain Brook. DA-9B is located to the north of DA-9A and consists of the addition of the permeable pavers to the wastewater facility access road, as well as an additional construction haul road. Runoff is collected in a swale along the northern edge of the construction haul road and ultimately discharges at DP-9 to Mountain Brook.
- Design Point 10 (DP-10) continues to collect runoff from one drainage area (DA-10).
  - DA-10 consists of a new roadway and bridge that crosses over Mountain Brook. Runoff continues to flow in a southwesterly direction toward a proposed swale located parallel to the new roadway. Runoff then discharges to DP-10 at Mountain Brook.
- Design Point 11 has been removed.
- Design Point 12 (DP-12) now consists of two drainage areas (DA-12A and DA-12B). DA-12A generally consists of undisturbed forest areas. DA-12B consists of additional parking and sidewalk provided near the existing E Residence building. Runoff continues to discharge to Stormwater Pond #1.
- Design Point 13 (DP-13) has been revised to collect runoff from three drainage areas (DA-13A, DA-13B, and DA-13C).
  - DA-13A continues to consist of a portion of the area along the western side of Loop Road. DA-13B consists of the proposed sidewalk parallel to Loop Road. Runoff is conveyed to the existing Stormwater Pond #1. DA-13C consists of additional parking spaces provided proposed near the existing F Residence building.
- Design Point 14 (DP-14) continues to consist of two drainage areas (DA-14A and DA-14B).
  - DA-14A consists of a portion of the existing Loop Road and some proposed additional parking spaces near the existing D Residence building. A sidewalk will also be installed along the new parking spaces to provide access and safety.
  - DA-14B remains unchanged with the exception of a new sidewalk that is added to provide additional access around the building. Runoff will continue to be conveyed to DP-14.

- Design Point 15 (DP-15) has been revised to collect runoff from two drainage areas (DA-15A and DA-15B).
    - DA-15A continues to consist of a portion of the B and C buildings and adjacent parking areas. No change or disturbance is proposed for this drainage area. DA-15B consists of the area with the proposed additional parking spaces. Runoff will be conveyed overland in an easterly direction to DP-15 and ultimately flow into the unidentified stream downstream of the existing Stormwater Pond #2.
- Design Point 16 (DP-16) continues to collect runoff from one drainage area (DA-16). Runoff is ultimately collected and conveyed under Route 22 to stormwater treatment facilities located outside the project boundaries.
    - DA-16 has been reduced to accommodate the new parking lot expansion in DA-8C. Three new picnic pavilions are proposed near DA-8C. Runoff continues to flow overland in a westerly direction to DP-16.
- Design Point 17 (DP-17) continues to be located at the inlet in Loop Road just to the southeast of the existing visitor parking lot.
    - DA-17 continues to consist of the existing south office building, lobby, auditorium, and school buildings, as well as the visitor parking lot and remains generally unchanged from the existing conditions. Runoff is collected by the existing storm system and conveyed in a southerly direction to DP-17.
- Design Point 18 (DP-18) continues to collect runoff from one drainage area (DA-18).
    - DA-18 remains unchanged from existing to proposed conditions.
- Design Point 19 continues to collect runoff from one drainage area (DA-19).
    - DA-19 contains the area used for a spoils site during construction. The northern pasture area will be used as the spoils area. A temporary access road will be constructed for use during construction and will be removed after construction is complete. Runoff will continue to be conveyed overland to DP-19.

The post-developed condition watershed is depicted in Figure 3-3, “Post-Development Watershed” and Table 3-6, “Post-Developed Analysis Summary.”

Table 3-6 Post-Developed Analysis Summary

Design Point	Drainage Area	Area (Acres)	T_c (mins.)	Curve Number	Peak Flow Rates (cfs)				
					1-year	2-year	10-year	25-year	100-year
1	DA-5B	3.67	24.6	56	0.7	1.6	2.2	5.2	5.6
2	DA-2	0.22	5.0	61	0.5	0.8	2.4	2.9	7.0
3	DA-3	1.49	6.1	67	0.9	1.3	3.7	4.3	9.4
4	DA-4	1.24	7.8	75	1.3	1.7	3.9	4.5	8.7
5	DA-5A	2.28	5.7	74	2.5	3.2	7.5	8.6	16.9
6	DA-6A1	10.14	8.0	74	22.4	26.0	44.4	49.0	82.2
	DA-6A2	0.02	5.0	74	0.1	0.1	0.1	0.1	0.2
	DA-6A3	0.08	5.0	74	0.2	0.2	0.4	0.4	0.7
	DA-6A4	0.05	5.0	74	0.1	0.1	0.2	0.2	0.4
	DA-6B	7.19	28.0	56	0.6	1.2	5.7	7.2	19.4
	Totals:	***17.48***	***-***	***-***	***22.5***	***26.1***	***46.6***	***52.1***	***91.8***
7	DA-7	1.63	6.6	74	2.1	2.7	5.6	6.4	12.1
8	*DA-8**		***-***	***-***	***5.4***	***6.8***	***14.7***	***16.9***	***42.3***
9	DA-9A	9.82	11.6	72	8.2	10.8	25.4	29.4	58.4
	DA-9B	1.85	5.0	74	3.4	4.1	7.7	8.7	15.4
	Totals:	***11.67***	***-***	***-***	***8.2***	***10.8***	***28.2***	***34.9***	***70.5***
10	DA-10	1.49	13.2	75	1.2	1.6	3.8	4.4	8.6
12	DA-12A	0.49	12.6	71	0.3	0.5	1.1	1.3	2.7
	DA-12B	0.07	5.0	98	0.2	0.3	0.4	0.4	0.7
	Totals:	***0.56***	***-***	***-***	***0.3***	***0.5***	***1.1***	***1.3***	***3.2***
13	DA-13A	0.17	5.0	98	0.5	0.6	0.9	1.0	1.6
	DA-13B	0.05	5.0	98	0.2	0.2	0.3	0.3	0.5
	DA-13C	0.03	5.0	98	0.1	0.1	0.2	0.1	0.3
	Totals:	***0.25***	***-***	***-***	***0.5***	***0.6***	***0.9***	***1.0***	***1.6***
14	DA-14A	0.07	5.0	98	0.2	0.2	0.4	0.4	0.6
	DA-14B1	0.16	5.0	62	0.3	0.3	0.6	0.7	1.3
	DA-14B2	0.05	5.0	61	0.1	0.1	0.2	0.2	0.4
	Totals:	***0.28***	***-***	***-***	***0.3***	***0.3***	***0.8***	***0.9***	***1.6***
15	DA-15A	0.84	5.0	74	2.2	2.5	4.2	4.6	7.7
	DA-15B	0.06	5.0	98	0.2	0.2	0.4	0.4	0.6
	Totals:	***0.90***	***-***	***-***	***2.2***	***2.5***	***4.2***	***4.6***	***7.7***
16	DA-16	5.10	9.9	72	6.5	7.9	16.1	18.3	34.1
17	DA-17	6.78	11.1	74	13.9	16.1	27.2	30.1	50.2
18	DA-18	9.02	12.6	74	7.8	10.1	23.6	27.2	53.4
19	DA-19	15.50	12.3	72	11.7	15.6	38.1	44.1	89.0

*Individual Drainage Areas have been summarized for design point DA-8. For details see Appendix F.1.d, "Hydrologic Calculations and Drawdown Analyses."

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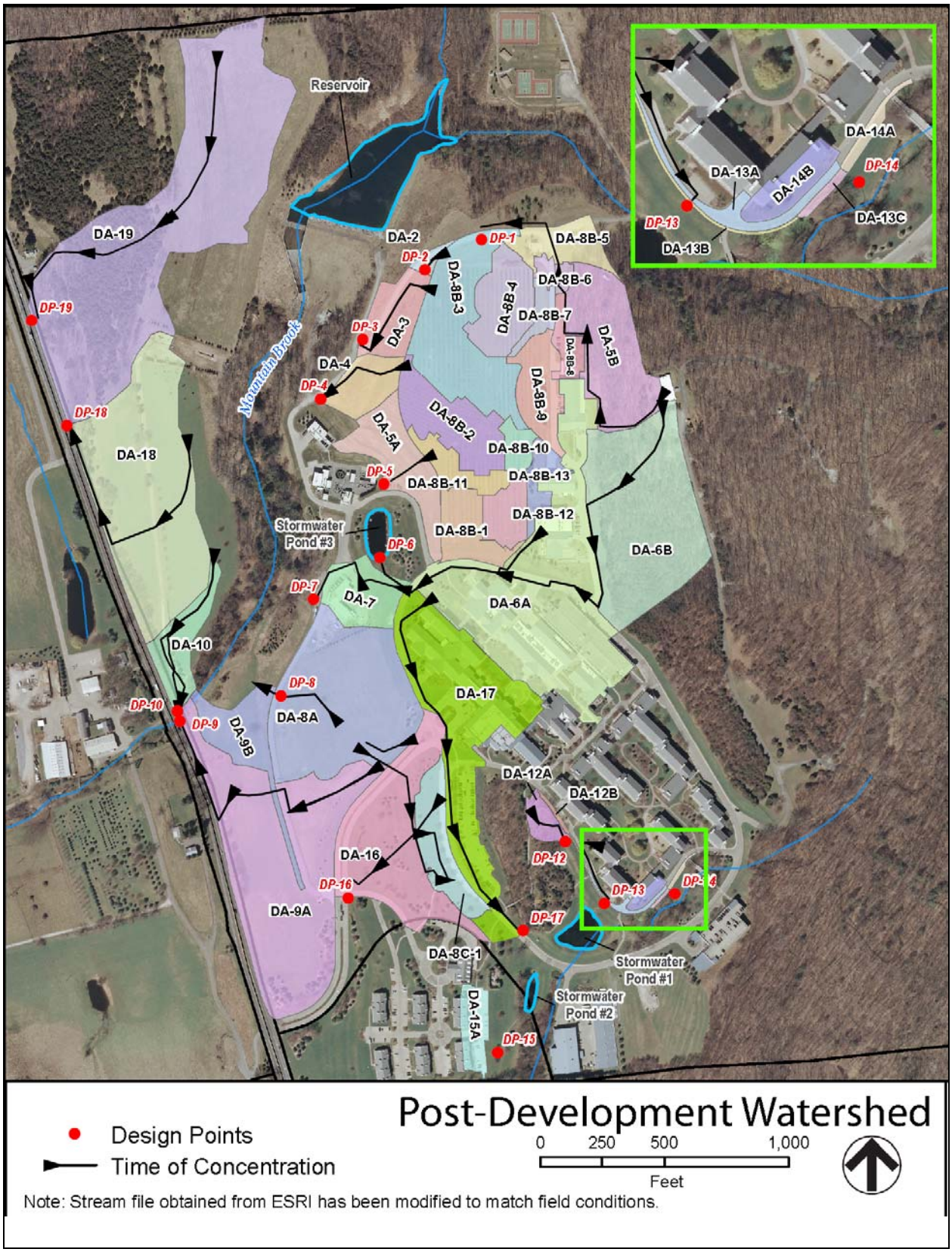


Figure 3-3
Post-Development Watershed

Water Quantity Analysis Summary

Table 3-7, "Pre- and Post-Developed Peak Flow Comparison" provides a summary of the peak flows by design point for each storm event. Post-developed peak flow at all the design points has been maintained at or below the existing peak flow rates.

Table 3-7 Pre- and Post-Developed Peak Flow Comparison

Design Point	Pre-Development Conditions (cfs)			Post-Development Conditions (cfs)		
	1-yr	10-yr	100-yr	1-yr	10-yr	100-yr
1	1.0	2.9	6.4	0.7	2.2	5.6
2	0.7	3.3	8.8	0.5	2.4	7.0
3	1.2	5.4	14.6	0.9	3.7	9.4
4	1.5	4.4	10.0	1.3	3.9	8.7
5	8.6	29.3	70.4	2.5	16.9	16.9
6	24.0	50.2	98.6	22.5	46.6	91.8
7	3.0	6.8	13.3	2.1	5.6	12.1
8	7.5	21.0	45.7	5.4	14.7	42.3
9	10.8	31.7	70.8	8.2	28.2	70.5
10	1.3	3.9	8.6	1.2	3.8	8.6
12	0.4	1.4	3.2	0.3	1.1	3.2
13	0.5	0.9	1.6	0.5	0.9	1.6
14	0.4	0.9	1.8	0.3	0.8	1.6
15	2.2	4.2	7.7	2.2	4.2	7.7
16	6.6	16.8	35.4	6.5	16.1	34.1
17	14.1	27.7	51.0	13.9	27.2	50.2
18	7.8	23.6	53.4	7.8	23.6	53.4
19	11.7	38.1	89.0	11.7	38.1	89.0
Notes: DP-11 is not used.						

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APPENDIX F

Section 4
Inspection and Maintenance

A. Inspections and Record Keeping During Construction

Maintenance and inspection is important to ensure that the stabilization and structural practices that are part of the SPPP continue to be effective in preventing sediment and other pollutants from entering the stormwater system. It is the responsibility of the Owner/operator to ensure that inspections and maintenance are completed in accordance with NYSDEC regulations and the State Pollutant Discharge Elimination System (SPDES) General Permit.—See Appendix F.1.g, "SPDES GP-0-10-001."

Record Forms

As a part of the SPPP inspection and maintenance activities during construction, forms provided in SPPP Appendix B will be updated and kept on-site, including:

- Pre-Construction Meeting Documents.
- Construction Duration Inspections.

A Record of Stabilization and Construction Activities (used when five acres or more will be disturbed at any given time) should also be maintained.

Inspections will be conducted by the qualified inspector according to the schedule required by the SPDES GP 0-10-001 and as described below. During each inspection, the qualified inspector will record the areas of disturbance, deficiencies in erosion and sediment control practices, required maintenance, and areas of temporary or permanent stabilization. The need for modifications to the Erosion and Sediment Control Plan will be identified and implemented immediately.

The erosion and sediment control inspection reports will be completed by a qualified inspector to fully document each inspection. A qualified inspector is a person knowledgeable in the principles and practices of erosion and sediment control, and shall be a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), or licensed Landscape Architect. It also means someone working under the direct supervision of the licensed Professional Engineer or licensed Landscape Architect, provided the person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that an individual performing the site inspection has received four hours of training, which has been endorsed by the NYSDEC, from a Soil and Water Conservation District, CPESC, Inc., or other NYSDEC endorsed entity, in proper erosion and sediment control principles no later than two years from the date SPDES GP-0-10-001 is issued. After receiving the initial training, an individual working under the direct supervision of the licensed Professional Engineer or licensed Landscape Architect shall receive four hours of training every three years.

Inspections

Inspections shall be conducted by the qualified inspector according to the following schedule:

1. When construction activities are ongoing, the qualified inspector shall conduct a site inspection at least once every seven (7) calendar days.
2. When construction activities are ongoing and the Owner/operator has received authorization in accordance with Part II.C.3 of GP-0-10-001 to disturb greater than five acres of soil at any one time, the qualified inspector shall conduct at least two site inspections every seven calendar days. When performing two inspections every seven calendar days, the inspections shall be separated by a minimum of two full calendar days.
3. If soil disturbance activities have been temporarily suspended (e.g., winter shutdown) and temporary stabilization measures have been applied to disturbed areas, the qualified inspector shall conduct a site inspection at least once every thirty (30) calendar days. The Owner/operator shall notify the NYS DEC Regional Office stormwater contact person in writing prior to reducing the frequency of inspections.
4. If soil disturbance activities have been shut down with partial project completion, the qualified inspector may stop conducting inspections if areas disturbed as of the project shutdown date have achieved final stabilization and post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SPPP and are operational. The Owner/operator shall notify the NYS DEC Regional Office stormwater contact person in writing prior to the shutdown. If soil disturbance activities have not resumed within two years from the date of shutdown, the Owner/operator shall have the qualified inspector(s) perform a final inspection and certify that disturbed areas have achieved final stabilization, and temporary, structural erosion and sediment control measures have been removed, and that post-construction stormwater management practices have been constructed in conformance with the SPPP by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the Notice of Termination (NOT). The Owner/operator shall then submit the completed NOT form in accordance with NYSDEC regulations.

During each inspection, the qualified inspector shall fill out the Construction Duration Inspection Report as directed below:

Show the following on the Construction Duration Inspection Report site map:

- Disturbed site areas and drainage pathways.
- Site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period.
- Site areas that have undergone temporary or permanent stabilization.
- In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control.
- Record the following information on the Construction Duration Inspections Reports:
- For each pollutant control measure, circle YES, NO, or N/A (not applicable) to indicate if the pollutant control measure is in conformance with specifications.

- For each structural measure, circle YES, NO, or N/A to indicate whether the structural measure is performing effectively in minimizing stormwater pollution.
- Inspect sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume (i.e., 10 percent, 20 percent, and 50 percent).
- A description of the condition of the runoff at points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e., pipes, culverts, ditches, etc.) and overland flow.
- A description of the condition of natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface water body.
- The qualified inspector will give a brief explanation for locations where he/she has noted that the structural practice was either not in conformance with specifications or in need of repair. This should be noted in the Construction Duration Inspections Report. The qualified inspector will then give a brief recommendation for soil erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced.

Erosion and Sediment Control Practices

Maintenance shall be completed in accordance with the New York State Standards and Specifications for Erosion and Sediment Control (NYSSSESC). Any material removed from erosion and sediment control measure shall be properly disposed.

Below is a list of minimum required inspection and maintenance procedures that shall be used to maintain erosion and sediment control measures:

- All measures will be inspected according to the schedule required by the SPDES GP 0-10-001 and as described in the previous section and following any rain event of 0.5 inches or greater in a 24-hour period.
- Measures will be maintained in good working order. If repairs are found to be necessary, the qualified inspector shall notify the Owner/operator of any corrective actions needed within one business day. The Owner/operator shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.
- A maintenance inspection report entitled, "Inspection and Maintenance Forms for Post-Construction Practices," will be made after each inspection conducted by a qualified inspector.
- Disturbed areas and materials storage areas will be inspected for evidence of potential pollutants entering stormwater systems. Within one business day of the completion of the inspection, the qualified inspector shall notify the Owner/operator of any corrective actions that need to be taken. The Owner/operator shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

Specific maintenance and inspection procedures for erosion control measures are outlined in Section 2.B, "Pollution Control During Construction—Erosion and Sediment Control."

Following completion of construction, a long-term inspection and maintenance program will be implemented to ensure the proper function of the stormwater management system. The program will be carried out by the Owner/operator. A detailed checklist for post-construction stormwater management practices is included in the Appendix F.1.c, "Inspection and Maintenance Forms." The maintenance program will include the following:

1. Litter and debris will be removed from catch basins, vegetated swales, ponds, and the outlet control structures.
2. The stormwater management system will be inspected after each major storm event (greater than 2-year, 24-hour storm, or 3.25 inches in 24 hours) to ensure the small orifices and inlets remain open.
3. Silt will be cleaned from catch basins and other drainage structures when the depth exceeds half of the depth of the sump.
4. Eroded areas and gullies will be restored and re-seeded as soon as possible.

In addition to inspection and maintenance of the stormwater management system, inspection of the overall site for areas of potential contamination will also be noted. Maintenance is already an important goal of the Owner as demonstrated by the neat grounds and impeccable cleanliness at the Watchtower Educational Center (WEC) and other facilities operated by the Owner. Maintenance of existing landscaped areas at these facilities is performed consistently throughout the year. This will be continued with the proposed project.

Potential pollutants, such as petroleum products and chemicals, will be properly stored in tightly sealed containers and/or in a covered area or contained area. ✷

SPPP—APPENDIX F.1

SPPP Appendices

SPPP—APPENDIX F.1.a

Contractor's Certification

Owner's Certification

Notice of Intent (NOI)

Pre-Construction Meeting Notes

MS4 SPPP Acceptance Form

CONTRACTOR'S CERTIFICATION

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings. "

SIGNED: _____ DATE: _____

NAME: _____

FIRM: _____

ADDRESS: _____

_____

PHONE: _____

SITE: _____

SWPPP IMPLEMENTER'S NAME _____

SWPPP IMPLEMENTER'S TITLE _____

CONTRACTOR'S SCOPE _____

TRAINED CONTRACTOR'S NAME _____

TRAINED CONTRACTOR'S TITLE _____

*The SWPPP Implementer must be a trained contractor responsible for SWPPP implementation, an employee of the firm who has received training in accordance with SPDES GP-0-10-001.

OWNER'S CERTIFICATION

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

SIGNED: _____ DATE: _____

NAME: _____

FIRM: _____

ADDRESS: _____

_____

PHONE: _____

SITE: _____

1358331598

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____
(for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-10-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-
RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
Watchtower Bible & Tract Society of NY

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Fischer

Owner/Operator Contact Person First Name
Kent

Owner/Operator Mailing Address
100 Watchtower Drive

City
Patterson

State
NY

Zip
12563 - 9204

Phone (Owner/Operator)
845 - 306 - 1000

Fax (Owner/Operator)
845 - 306 - 0305

Email (Owner/Operator)
kfischer@jw.org

FED TAX ID
11 - 1753577 (not required for individuals)

Project Site Information

Project/Site Name
Watchtower Educational Center

Street Address (NOT P.O. BOX)
100 Watchtower Drive

Side of Street
● **North** ○ **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Town of Patterson

State: NY
Zip: 12563-2044
County: Putnam
DEC Region: 3

Name of Nearest Cross Street
NYS Route 22

Distance to Nearest Cross Street (Feet)
10

Project In Relation to Cross Street
○ **North** ○ **South** ● **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel
14.-1.53

Tax Map Numbers
14.-1.54

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting): 618863

Y Coordinates (Northing): 4559522166

2. What is the nature of this construction project?

● **New Construction**

○ **Redevelopment with increase in imperviousness**

○ **Redevelopment with no increase in imperviousness**

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- ○ FOREST
- ○ PASTURE/OPEN LAND
- ○ CULTIVATED LAND
- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ● INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY
- ○ PARKING LOT
- ○ OTHER

Post-Development Future Land Use

Number of Lots

- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ● INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ MUNICIPAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY (water, sewer, gas, etc.)
- ○ PARKING LOT
- ○ CLEARING/GRADING ONLY
- ○ DEMOLITION, NO REDEVELOPMENT
- ○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
- ○ OTHER

*note: for gas well drilling, non-high volume hydraulic fractured wells only

4. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law ? ○ **Yes** ● **No**

5. Is this a project which does not require coverage under the General Permit (e.g. Project done under an Individual SPDES Permit, or department approved remediation)? ○ **Yes** ● **No**

6. Is this property owned by a state authority, state agency, federal government or local government? ○ **Yes** ● **No**

7. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area. Round to the nearest tenth of an acre.

Total Site Acreage	**Acreage To Be Disturbed**	**Existing Impervious Area Within Disturbed**	**Future Impervious Area Within Disturbed**
747334.33.3	48408.08.0	18198.19.9	26206.06.0

8. Do you plan to disturb more than 5 acres of soil at any one time? ● **Yes** ○ **No**

9. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	**B**	**C**	**D**
0 %	30 %	70 %	0 %

10. Is this a phased project? ● Yes ○ No

11. Enter the planned start and end dates of the disturbance activities

Start Date	End Date
11/01/2012	11/01/2017

12. Identify the nearest, natural, surface waterbody(ies) to which construction site runoff will discharge.

Name: Mountain Brook

12a. Type of waterbody identified in Question 12?

- ○ Wetland / State Jurisdiction On Site (Answer 12b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 12b)
- ○ Wetland / Federal Jurisdiction Off Site
- ● Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

12b. How was the wetland identified?

- ● Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

13. Has the surface waterbody(ies) in question 12 been identified as a 303(d) segment in Appendix E of GP-0-10-001? ○ Yes ● No

14. Is this project located in one of the Watersheds identified in Appendix C of GP-0-10-001? ● Yes ○ No

15. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? **If no, skip question 16.** ● Yes ○ No

16. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? **If Yes, what is the acreage to be disturbed?** ○ **Yes** ● **No**

.

17. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ● **Yes** ○ **No**

18. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ● **Yes** ○ **No** ○ **Unknown**

19. What is the name of the municipality/entity that owns the separate storm sewer system?

Town of Patterson

20. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ **Yes** ● **No** ○ **Unknown**

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book) ? ● **Yes** ○ **No**

22. Does this construction activity require the development of a SWPPP that includes Water Quality and Quantity Control components (Post-Construction Stormwater Management Practices) **(If No, skip questions 23 and 27-35)** ● **Yes** ○ **No**

23. Have the Water Quality and Quantity Control components of the SWPPP been developed in comformance with the current NYS Stormwater Management Design Manual ? ○ **Yes** ● **No**

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer

Harvey Castro

Contact Name (Last, Space, First)

Castro, Harvey

Mailing Address

900 Red Mills Road

City

Wallkill

State

NY

Zip

12589-3223

Phone

845-744-6000

Fax

845-744-9440

Email

hcastro@jw.org

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-10-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name

Harvey

MI

Last Name

Castro

Signature

Date

/ /

25. Has a construction sequence schedule for the planned management practices been prepared? ● Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ● Check Dams
- ● Construction Road Stabilization
- ● Dust Control
- ● Earth Dike
- ● Level Spreader
- ● Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ● Sediment Basin
- ● Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ● Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ● Temporary Swale
- ○ Turbidity Curtain
- ● Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ● Grassed Waterway
- ● Mulching
- ● Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ● Temporary Swale
- ● Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ● Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ● Retaining Wall
- ○ Riprap Slope Protection
- ● Rock Outlet Protection
- ○ Streambank Protection

Other

Hydromulching

Water Quality and Quantity Control

Important: Completion of Questions 27-35 is not required if response to Question 22 is No.

Post-Construction Stormwater Management Practices

27. Indicate **all** Stormwater Management Practice(s) that will be installed/constructed on this site:

Ponds
- ● **Micropool Extended Detention (P-1)**
- ○ **Wet Pond (P-2)**
- ○ **Wet Extended Detention (P-3)**
- ○ **Multiple Pond System (P-4)**
- ○ **Pocket Pond (P-5)**

Filtering
- ○ **Surface Sand Filter (F-1)**
- ● **Underground Sand Filter (F-2)**
- ○ **Perimeter Sand Filter (F-3)**
- ○ **Organic Filter (F-4)**
- ● **Bioretention (F-5)**
- ○ **Other**

Alternative Practice
- ○ **Rain Garden**
- ○ **Cistern**
- ● **Green Roof**
- ○ **Stormwater Planters**
- ● **Permeable Paving (Modular Block)**

Wetlands
- ○ **Shallow Wetland (W-1)**
- ○ **Extended Detention Wetland (W-2)**
- ○ **Pond/Wetland System (W-3)**
- ○ **Pocket Wetland (W-4)**

Infiltration
- ○ **Infiltration Trench (I-1)**
- ○ **Infiltration Basin (I-2)**
- ○ **Dry Well (I-3)**
- ○ **Underground Infiltration System**

Open Channels
- ○ **Dry Swale (O-1)**
- ○ **Wet Swale (O-2)**

Verified Proprietary Practice
- ○ **Hydrodynamic**
- ○ **Wet Vault**
- ○ **Media Filter**

28. Describe other stormwater management practices not listed above or explain any deviations from the technical standards.

Disconnection of rooftops and tree planting will also be utilized. Stormwater management practices were designed in accordance with the "2008 Stormwater Management Design Manual" since the SWPPP was submitted for preliminary approval prior to March 1, 2011. Refer to DOW - 1.2.5: New York State Stormwater Management Design Manual 2010 Update Transition Policy.

29. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ● **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

Watchtower Bible & Tract Society of NY

30. Provide the total water quality volume required and the total provided for the site.

WQv Required 3.214 **acre-feet**

WQv Provided 5.569 **acre-feet**

31. Provide the following Unified Stormwater Sizing Criteria for the site.

Total Channel Protection Storage Volume (CPv) - Extended detention of post-developed 1 year, 24 hour storm event

CPv Required 3.2314 **acre-feet**

CPv Provided 4.5449 **acre-feet**

31a. The need to provide for channel protection has been waived because:

○ **Site discharges directly to fourth order stream or larger**

Total Overbank Flood Control Criteria (Qp) - Peak discharge rate for the 10 year storm

Pre-Development 2722.5 **CFS**

Post-development 2400.0 **CFS**

Total Extreme Flood Control Criteria (Qf) - Peak discharge rate for the 100 year storm

Pre-Development 5900.3 **CFS**

Post-development 5133.7 **CFS**

31b. The need to provide for flood control has been waived because:

○ **Site discharges directly to fourth order stream or larger**

○ **Downstream analysis reveals that flood control is not required**

IMPORTANT: For questions 31 and 32, impervious area should be calculated considering the project site and all offsite areas that drain to the post-construction stormwater management practice(s). (Total Drainage Area = Project Site + Offsite areas)

32. Pre-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the existing impervious areas before construction begins. 18 %

33. Post-Construction Impervious Area - As a percent of the Total Drainage Area, enter the percentage of the future impervious areas that will be created/remain on the site after completion of construction. 25 %

34. Indicate the total number of post-construction stormwater management practices to be installed/constructed. 38

35. Provide the total number of stormwater discharge points from the site. (include discharges to either surface waters or to separate storm sewer systems) 19

36. Identify other DEC permits that are required for this project.

DEC Permits

○ Air Pollution Control	○ Navigable Waters Protection / Article 15
○ Coastal Erosion	○ Water Quality Certificate
○ Hazardous Waste	● Dam Safety
○ Long Island Wells	○ Water Supply
○ Mined Land Reclamation	○ Freshwater Wetlands/Article 24
○ Other SPDES	○ Tidal Wetlands
○ Solid Waste	○ Wild, Scenic and Recreational Rivers
○ None	● Stream Bed or Bank Protection / Article 15

○ Other

37. Does this project require a US Army Corps of Engineers Wetland Permit? ○ **Yes** ● **No**
If Yes, Indicate Size of Impact. _____.__

38. Is this project subject to the requirements of a regulated, traditional land use control MS4? ● **Yes** ○ **No**
(If No, skip question 39)

39. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ● **Yes** ○ **No**

40. If this NOI is being submitted for the purpose of continuing coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. _____

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name _____ **MI** _____

Print Last Name _____

Owner/Operator Signature _____

Date __ / __ / ____

I. PRE-CONSTRUCTION MEETING DOCUMENTS

Project Name _____
Permit No. _____ **Date of Authorization** _____
Name of Owner/Operator _____
Contractor _____

A. Preamble to Site Assessment and Inspections

The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a *qualified inspector*[1] conduct an assessment of the site prior to the commencement of construction[2] activities and certify in this inspection report that the appropriate erosion and sediment controls described in the SPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction. Prior to the commencement of construction, the Operator shall certify that the SPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements. When construction starts, site inspections shall be conducted by the qualified inspector at least every seven 7 calendar days. For construction sites where soil disturbances activities have received authorization to disturb greater than five (5) acres of soil at any one time, the qualified inspector shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

A *Trained Contractor*[3] shall be identified at the beginning of project commencement. The trained contractor will be responsible for the day to day implementation of the SPPP. The Operator shall maintain a record of all inspection reports in the SPPP. The SPPP shall be maintained on site and be made available to the permitting authorities upon request. Prior to filing the Notice of Termination or the end of permit term, the Operator shall have the *qualified inspector* perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization[4] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed.

In addition, the Operator must identify and certify that all permanent structures described in the SPPP have been constructed and provide the Owner(s) with an operation and maintenance plan that ensures the structure(s) continuously function as designed.

[1] "Qualified inspector means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a licensed Professional Engineer, a Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or other Department-endorsed individual(s). It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control.

[2] "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

[3] "Trained Contractor" means an employee from the contracting (construction) company, that has received four (4) hours of Department-endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department-endorsed entity.

[4] "Final stabilization" means that all soil-disturbing activities at the site have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete, or pavement.

B. Pre-Construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent (NOI), SPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent (NOI) been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SPPP on-site? Where? _____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date? _____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) on site? Where? _____
[ ] [ ] [ ] Have all contractors and trained contractors involved with stormwater-related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?
[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ] [ ] [ ] Creek crossings have been installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.
[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified or protected.
[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.
[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?_____

4. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Perimeter Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.
[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals.
[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.
[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ] [ ] [ ] The plan is contained in the SPPP on page _____
[ ] [ ] [ ] Appropriate materials to control spills are on site. Where? _____

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information
1. Owner/Operator Name:
2. Contact Person:
3. Street Address:
4. City/State/Zip:
II. Project Site Information
5. Project/Site Name:
6. Street Address:
7. City/State/Zip:
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information
8. SWPPP Reviewed by:
9. Title/Position:
10. Date Final SWPPP Reviewed and Accepted:
IV. Regulated MS4 Information
11. Name of MS4:
12. MS4 SPDES Permit Identification Number: NYR20A _____
13. Contact Person:
14. Street Address:
15. City/State/Zip:
16. Telephone Number:

(NYS DEC - MS4 SWPPP Acceptance Form - January 2010)

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s).
Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

SPPP—APPENDIX F.1.b

Construction Duration Inspection Form

CONSTRUCTION DURATION INSPECTION FORM

***Qualified Inspector*: _____** **Date: _____**

Signature: _____ **Time: _____**

Current Phase of Construction: _____ of _____ **INSPECTION NO.:_____**

Approximate Area of Disturbance: _____ **NOI ID NO.: _____**

The trained contractor as defined in Part III.A.6 of the SPDES GP-0-10-001 cannot conduct the qualified inspector site inspections unless they meet the qualified inspector qualifications included in Appendix A of the GP-0-10-001. Site inspections shall be conducted at least once every seven (7) calendar days for construction sites where soil disturbance activities are on-going. For construction sites where soil disturbance activities are greater than 5-acres and the owner or operator has received prior authorization, the qualified inspector shall conduct at least two (2) site inspections every seen (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

The qualified inspector shall inspect all erosion and sediment control practices to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SPPP, all areas of disturbance that have not achieved final stabilization, all points of discharge to natural surface water bodies located within, or immediately adjacent to the property boundaries of the construction site, and all points of discharge from the construction site.

IMMEDIATE ACTION ITEMS / INSPECTION SUMMARY:

_____

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1. SITE CONDITIONS: *Description of weather and soil conditions at time of inspection. Description of the condition of runoff at all points of discharge from the construction site.*

2. NATURAL SURFACE WATERBODIES: *Description of the condition of all natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from the disturbed areas.*

☐ **YES** ☐ **NO** Is there immediate action required regarding natural surface water bodies?

3. VEGETATION PROTECTION MEASURES: *Fencing to be at least 3 feet tall and have openings no larger than 2 inches by 2 inches. Posts will be spaced a maximum of 6 feet apart. The temporary fencing will be installed at the drip/spread line of the trees, and undergrowth vegetation to be protected. Vehicles and equipment will not be able to enter the protected area.*

☐ **YES** ☐ **NO** Is there immediate action required regarding vegetation protection measures?

4. TEMPORARY TOPSOIL STOCKPILES: *Stockpiles should be located at least 15 feet from areas of concentrated flows or pavement. The slope of the stockpile will be roughened by equipment tracking and will not exceed 2:1 to prevent erosion. A silt fence will be installed at the toe of each stockpile. The area of each stockpile is included in the total area of disturbance for each construction phase (included in 10-acre limit).*

☐ **YES** ☐ **NO** Is there immediate action required regarding temporary topsoil stockpiles?

5. SILT FENCE: *Ensure the fence is installed properly, intact and has no gaps or tears exist where stormwater can pass. Sediment should be removed once it reaches one-third the height of the fence.*

☐ **YES** ☐ **NO** Is there immediate action required regarding silt fence?

6. DIVERSION SWALES: *Dikes and swales will be maintained to their original height. Any erosion damage will be repaired.*

☐ **YES** ☐ **NO** Is there immediate action required regarding diversion swales?

7. DISTURBED AREAS: *Temporary vegetative cover (mulch, mulch and seed, hydromulch) will be established for areas of exposed soil where construction will cease for more the 7 days. If failure is noticed at the seeded area, the area will be reseeded, fertilized, and mulched immediately.*

☐ **YES** ☐ **NO** Is there immediate action required regarding disturbed areas?

8. DUST CONTROL: *Dust control will be implemented as needed once site grading has been initiated and during windy conditions while site grading is occurring.*

☐ **YES** ☐ **NO** Is there immediate action required regarding dust control?

9. INLET PROTECTION: *Existing and newly constructed drain inlets will be protected with filter fabric or stone and block inlet protection. Storm grate filter sacks will be installed on inlets in existing pavement and installed on inlets in newly paved areas. Any damaged will be corrected or replaced immediately. Excess sedimentation will also be removed in a timely manner.*

☐ **YES** ☐ **NO** Is there immediate action required regarding inlet protection?

10. STABILIZED CONSTRUCTION ENTRANCE: *The stabilized exits will be at least 50 feet long, a minimum of 12 feet wide, flared at the end closest to the paved road and will consist of 6-inch-thick layer of crushed stone. The crushed stone will be placed over a layer of geotextile filter fabric. Orange mesh fence will be installed along the length of the construction exit to keep construction vehicles from circumventing the tracking pads. All sediment tracked, spilled, dropped, or washed onto the road will be swept up on a daily basis.*

☐ **YES** ☐ **NO** Is there immediate action required regarding the stabilized construction entrance?

10. WASTE MATERIALS: *All waste materials are collected and disposed of in trash dumpsters. All hazardous waste materials stored in a structurally sound and sealed shipping container and designated as such. Dumpsters to be emptied weekly or as needed.*

☐ **YES** ☐ **NO** Is there immediate action required regarding waste materials handling or storage?

11. SUMP PITS: *Ensure no clogging of gravel has occurred. If so, the sump pit will be excavated and new gravel deposited.*

☐ **YES** ☐ **NO** Is there immediate action required regarding sump pits?

12. SANITARY WASTE: *Holding tanks will be inspected for evidence of leaking. Any tanks with leaks will be removed and replaced.*

☐ **YES** ☐ **NO** Is there immediate action required regarding sanitary waste removal or storage?

13. OUTFALL PROTECTION: *Area will be inspected after high flows for evidence of scour beneath the riprap or for dislodged stones. Repairs will be made immediately.*

☐ **YES** ☐ **NO** Is there immediate action required regarding outfall protection?

14. GRASSED WATERWAY: *Ensure that permanent swales or waterways will be permanently stabilized with erosion control blankets to convey runoff without damage from erosion or flooding.*

☐ **YES** ☐ **NO** Is there immediate action required regarding grassed waterways?

15. TEMPORARY SEDIMENT TRAP: *The banks will be checked for erosion, seepage, and structural damage. Any damage will be repaired immediately. Accumulated sediments will be removed when one-half of the volume of sediment capacity storage is reached.*

☐ **YES** ☐ **NO** Is there immediate action required regarding the temporary sediment traps?

16. LEVEL SPREADER: *The downstream end will be checked for erosion and stabilized.*

☐ **YES** ☐ **NO** Is there immediate action required regarding level spreaders?

17. CHECK DAM: *Dams will be checked to make sure that flow is not eroding soil underneath or around the structure and to ensure that rocks or fiber rolls are in place. Accumulated sediment will be removed.*

☐ **YES** ☐ **NO** Is there immediate action required regarding check dams?

18. PORTABLE SEDIMENT TANK OR DEWATERING BAG: *Sediment tanks will be cleaned out when one third of the tank is filled with sediment. Dewatering bags should be replaced when the bag is half full of sediment or when the sediment has reduced the flow rate of the pump discharge to an impractical point. Sediment collected from tanks or bags will be disposed of in sediment traps/basins.*

☐ **YES** ☐ **NO** Is there immediate action required regarding sediment tanks or dewatering bags?

18. STORMWATER MANAGEMENT CONSTRUCTION: *Stormwater basins constructed according to the specifications on the detailed plans. All upstream areas should be stabilized prior to directing runoff to the stormwater management practices.*

☐ **YES** ☐ **NO** Is there immediate action required regarding stormwater management practices?

ADDITIONAL NOTES:

INSPECTION PHOTOS:



Photo # 1 – Description Here….



Photo # 2 – Description Here….

SWPPP—APPENDIX F.1.c

Inspection and Maintenance Forms for Post-Construction Practices

Bioretention Ponds

Green Roofs

Pervious Pavers

Stormwater Detention Ponds

Underground Sand Filters

BIORETENTION INSPECTION AND MAINTENANCE CHECKLIST		
Project Name:	Location:	
Site Status:	Weather Condition:	
Inspector:	Date:	Time:
Maintenance Item	**Satisfactory/ Unsatisfactory**	**Comments**
1. Debris Cleanout (Monthly)		
Bioretention and contributing areas clean of debris		
No dumping of yard wastes into practice		
Litter (branches, etc.) have been removed		
2. Vegetation (Monthly)		
Plant height not less than design water depth		
Fertilized per specifications		
Plant composition according to approved plans		
No placement of inappropriate plants		
Grass height not greater than 6 inches		
No evidence of erosion		
3. Check Dams/Energy Dissipaters/Sumps (Annual, After Major Storms)		
No evidence of sediment buildup		
Sumps should not be more than 50% full of sediment		
No evidence of erosion at downstream toe of drop structure		
4. Dewatering (Monthly)		
Dewaters between storms		
No evidence of standing water		
5. Sediment Deposition (Annual)		
Swale clean of sediments		
Sediments should not be > 20% of swale design depth		

BIORETENTION INSPECTION AND MAINTENANCE CHECKLIST		
Project Name:	Location:	
Site Status:	Weather Condition:	
Inspector:	Date:	Time:
Maintenance Item	**Satisfactory/ Unsatisfactory**	**Comments**
6. Outlet/Overflow Spillway (Annual, After Major Storms)		
Good condition, no need for repair		
No evidence of erosion		
No evidence of any blockages		
7. Integrity of Filter Bed (Annual)		
Filter bed has not been blocked or filled inappropriately		

Comments:

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Actions to be Taken:

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GREEN ROOFS INSPECTION AND MAINTENANCE CHECKLIST		
Project Name:	Location:	
Site Status:	Weather Condition:	
Inspector:	Date:	Time:
Maintenance Item	**Satisfactory/ Unsatisfactory**	**Comments**
1. Vegetation (Monthly for first year)		
Watering		
Fertilizing		
2. Vegetation/Drainage/Leaks (Bi-Annually)		
Weeding of invasive species		
Clear roof drains		
Check for leaks or other structural concerns		
Safety		
Membrane inspection		

Comments:

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Actions to be Taken:

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POROUS PAVEMENT INSPECTION AND MAINTENANCE CHECKLIST		
Project Name:	Location:	
Site Status:	Weather Condition:	
Inspector:	Date:	Time:
Maintenance Item	**Satisfactory/ Unsatisfactory**	**Comments**
1. Ensure that paving area is clean of debris (Monthly)		
2. Ensure that paving dewaters between storms (Monthly and after storms >0.5 in.)		
3. Ensure that the area is clean of sediments (Monthly)		
4. Mow upland and adjacent areas, and seed bare areas (As needed)		
5. Vacuum sweep frequently to keep surface free of sediments (3 to 4 times a year)		
6. Inspect the surface for deterioration or spalling (Annual)		

Comments:

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Actions to be Taken:

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Stormwater/Wetland Pond Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
Pre-Construction/Materials and Equipment		
Pre-construction meeting		
Pipe and appurtenances on-site prior to construction and dimensions checked		
1. Material (including protective coating, if specified)		
2. Diameter		
3. Dimensions of metal riser or pre-cast concrete outlet structure		
4. Required dimensions between water control structures (orifices, weirs, etc.) are in accordance with approved plans		
5. Barrel stub for prefabricated pipe structures at proper angle for design barrel slope		
6. Number and dimensions of prefabricated anti-seep collars		
7. Watertight connectors and gaskets		
8. Outlet drain valve		
Project benchmark near pond site		
Equipment for temporary de-watering		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
2. Subgrade Preparation		
Area beneath embankment stripped of all vegetation, topsoil, and organic matter		
3. Pipe Spillway Installation		
Method of installation detailed on plans		
A. Bed preparation		
Installation trench excavated with specified side slopes		
Stable, uniform, dry subgrade of relatively impervious material (If subgrade is wet, contractor shall have defined steps before proceeding with installation)		
Invert at proper elevation and grade		
B. Pipe placement		
Metal / plastic pipe		
1. Watertight connectors and gaskets properly installed		
2. Anti-seep collars properly spaced and having watertight connections to pipe		
3. Backfill placed and tamped by hand under "haunches" of pipe		
4. Remaining backfill placed in max. 8 inch lifts using small power tamping equipment until 2 feet cover over pipe is reached		

SPPP—APPENDIX F.1.d

Pre-Development Hydrologic Calculations

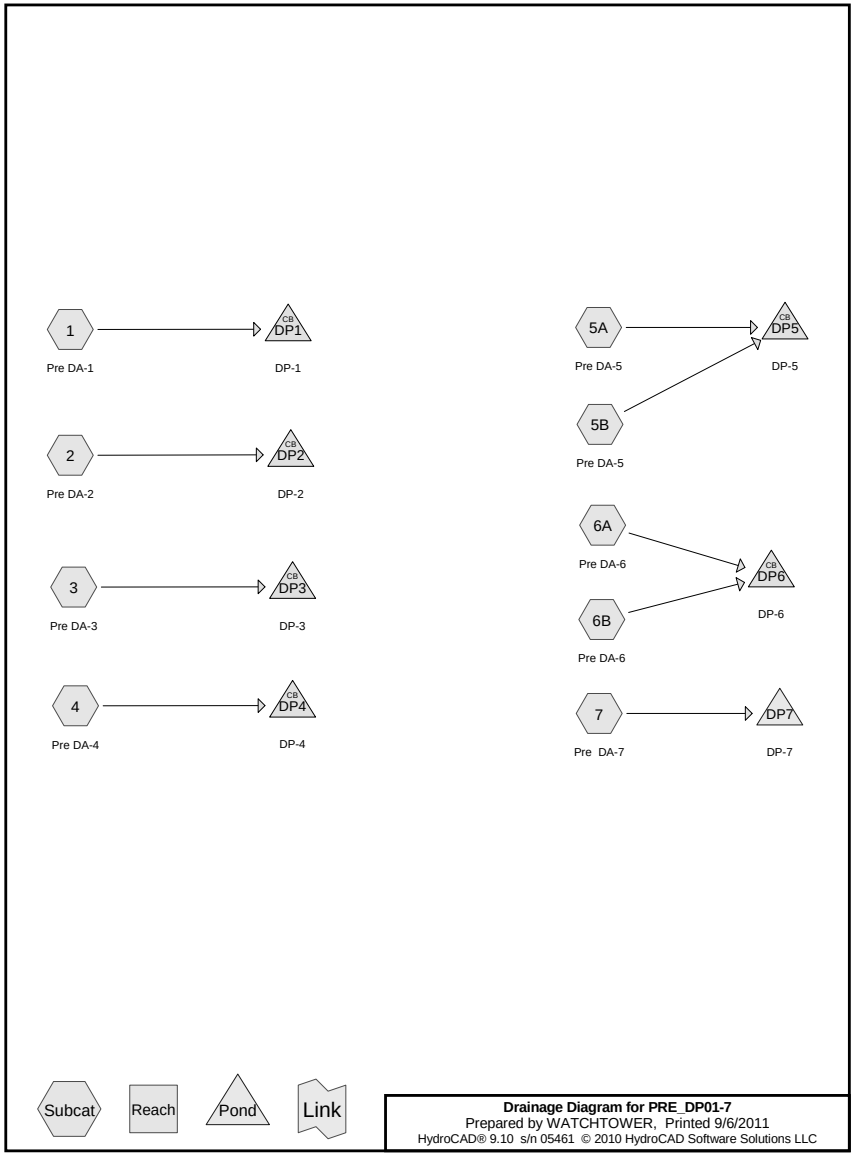
Post-Development Hydrologic Calculations

Drawdown Analyses

PPAT 0104 – Patterson Hydrologic Analysis

Pre-Development Conditions

HydroCAD 9.1 Output



Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
543,215	Open Space	1, 2, 3, 4, 5A, 5B, 6A, 6B, 7
572,817	Orchard	2, 3, 4, 5A, 6A
204	Pasture	5A
144,733	Pavement	1, 2, 5A, 6A, 6B, 7
87,931	Roadway	1, 2, 3, 4, 5A, 5B, 6B, 7
214,360	Roofs	5B, 6A, 7
405,072	Woods	1, 2, 5B, 6B
1,968,332	**TOTAL**	

Pollutant Concentrations

Line#	Land Use	TSS (mg/l)	TP (mg/l)	TN (mg/l)	BOD (mg/l)
1	Open Space	602.00	2.10	9.10	1.23
2	Orchard	602.00	2.10	9.10	5.10
3	Pasture	37.00	0.00	0.00	5.10
4	Pavement	173.00	0.56	2.10	6.70
5	Roadway	173.00	0.56	2.10	6.70
6	Roofs	19.00	0.11	1.50	7.40
7	Woods	37.00	0.00	0.00	1.23

Subcatchment Loading

Line#	Subcat Number	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1	1	**0.00**	**0.00**	**0.00**	**0.00**
2	2	0.00	0.00	0.00	0.00
3	3	0.00	0.00	0.00	0.00
4	4	0.00	0.00	0.00	0.00
5	5A	0.00	0.00	0.00	0.00
6	5B	0.00	0.00	0.00	0.00
7	6A	0.00	0.00	0.00	0.00
8	6B	0.00	0.00	0.00	0.00
9	7	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Pre DA-1 Runoff Area=46,914 sf 7.50% Impervious Runoff Depth=1.11"
Flow Length=568' Tc=13.0 min CN=74/98 Runoff=1.04 cfs 4,357 cf

Subcatchment 2: Pre DA-2 Runoff Area=92,465 sf 0.27% Impervious Runoff Depth=0.56"
Flow Length=470' Tc=19.1 min CN=65/98 Runoff=0.73 cfs 4,305 cf

Subcatchment 3: Pre DA-3 Runoff Area=145,666 sf 0.00% Impervious Runoff Depth=0.55"
Flow Length=783' Tc=16.8 min CN=65/0 Runoff=1.18 cfs 6,707 cf

Subcatchment 4: Pre DA-4 Runoff Area=70,908 sf 0.00% Impervious Runoff Depth=0.97"
Flow Length=643' Tc=11.4 min CN=74/0 Runoff=1.45 cfs 5,745 cf

Subcatchment 5A: Pre DA-5 Runoff Area=553,174 sf 0.76% Impervious Runoff Depth=0.83"
Flow Length=1,050' Tc=21.2 min CN=71/98 Runoff=7.30 cfs 38,453 cf

Subcatchment 5B: Pre DA-5 Runoff Area=196,780 sf 12.64% Impervious Runoff Depth=0.75"
Flow Length=1,707' Tc=32.7 min CN=62/98 Runoff=1.64 cfs 12,234 cf

Subcatchment 6A: Pre DA-6 Runoff Area=478,386 sf 65.34% Impervious Runoff Depth=2.21"
Flow Length=817' Tc=8.0 min CN=74/98 Runoff=23.93 cfs 88,136 cf

Subcatchment 6B: Pre DA-6 Runoff Area=313,227 sf 0.85% Impervious Runoff Depth=0.39"
Flow Length=1,980' Tc=28.0 min CN=60/98 Runoff=1.20 cfs 10,217 cf

Subcatchment 7: Pre DA-7 Runoff Area=70,812 sf 15.53% Impervious Runoff Depth=1.68"
Flow Length=493' Tc=7.0 min CN=82/98 Runoff=2.99 cfs 9,897 cf

Pond DP1: DP-1 Peak Elev=709.52' Inflow=1.04 cfs 4,357 cf
18.0" Round Culvert n=0.013 L=88.0' S=0.0114 '/' Outflow=1.04 cfs 4,357 cf

Pond DP2: DP-2 Peak Elev=677.43' Inflow=0.73 cfs 4,305 cf
18.0" Round Culvert n=0.013 L=51.0' S=0.0196 '/' Outflow=0.73 cfs 4,305 cf

Pond DP3: DP-3 Peak Elev=631.39' Inflow=1.18 cfs 6,707 cf
15.0" Round Culvert n=0.020 L=55.0' S=0.0515 '/' Outflow=1.18 cfs 6,707 cf

Pond DP4: DP-4 Peak Elev=606.38' Inflow=1.45 cfs 5,745 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.1191 '/' Outflow=1.45 cfs 5,745 cf

Pond DP5: DP-5 Peak Elev=608.40' Inflow=8.64 cfs 50,687 cf
15.0" Round Culvert n=0.013 L=29.0' S=0.0345 '/' Outflow=8.64 cfs 50,687 cf

Pond DP6: DP-6 Peak Elev=603.16' Inflow=24.04 cfs 98,353 cf
26.0" Round Culvert n=0.011 L=63.0' S=0.0135 '/' Outflow=24.04 cfs 98,353 cf

Pond DP7: DP-7 Inflow=2.99 cfs 9,897 cf
Primary=2.99 cfs 9,897 cf

Total Runoff Area = 1,968,332 sf Runoff Volume = 180,050 cf Average Runoff Depth = 1.10"
81.76% Pervious = 1,609,239 sf 18.24% Impervious = 359,093 sf

Summary for Subcatchment 1: Pre DA-1

Orchards have been considered as 'Woods in Fair Conditions' for purposes of calculating runoff. Orchards have been assumed to have the approximate pollutant concentration levels of Lawns as shown in Table A.2 'Pollutant Concentrations from Source Areas' in Appendix A of the NYS Stormwater Management Design Manual.

Runoff = 1.04 cfs @ 12.19 hrs, Volume= 4,357 cf, Depth= 1.11"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

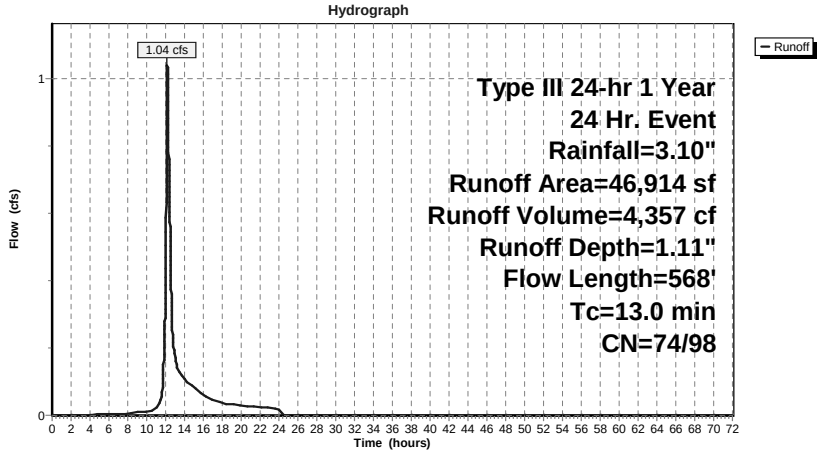
	Area (sf)	CN	Description	Land Use
	3,518	98	Paved parking, HSG C	Pavement
	18,742	61	>75% Grass cover, Good, HSG B	Open Space
	6,861	55	Woods, Good, HSG B	Woods
*	17,793	96	Gravel roads, HSG B	Roadway
	46,914	76	Weighted Average	
	43,396	74	92.50% Pervious Area	
	3,518	98	7.50% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	138	0.1590	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.5	90	0.0330	2.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	340	0.0910	6.12		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
13.0	568	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 7.50% Impervious, Rv= 0.117, Runoff= 5.37"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
18,742	Open Space	315.16	1.10	4.76	0.64
3,518	Pavement	17.00	0.06	0.21	0.66
17,793	Roadway	85.98	0.28	1.04	3.33
6,861	Woods	7.09	0.00	0.00	0.24
46,914	Total	425.23	1.43	6.01	4.87

Subcatchment 1: Pre DA-1



Hydrograph for Subcatchment 1: Pre DA-1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.16	1.33	**0.39**
14.00	2.51	0.62	2.28	**0.11**
16.00	2.75	0.75	2.52	0.06
18.00	2.88	0.83	2.65	0.04
20.00	2.97	0.89	2.74	0.03
22.00	3.04	0.93	2.81	0.02
24.00	**3.10**	**0.97**	**2.87**	0.02
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00

Summary for Subcatchment 2: Pre DA-2

Runoff = 0.73 cfs @ 12.33 hrs, Volume= 4,305 cf, Depth= 0.56"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

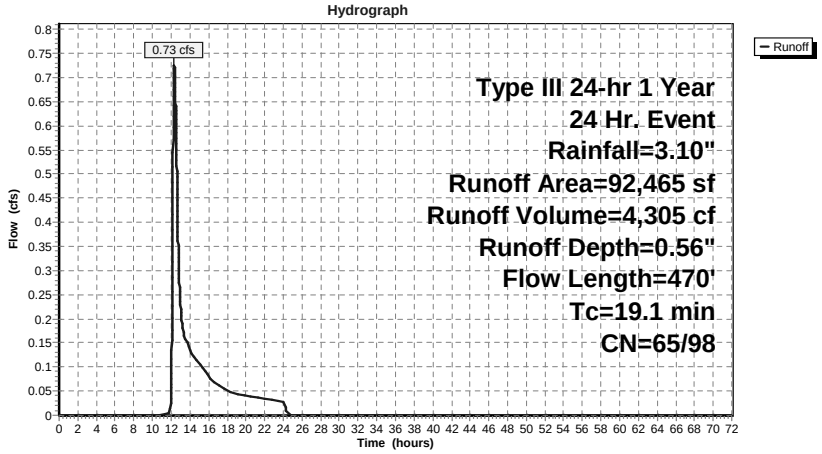
	Area (sf)	CN	Description	Land Use
	247	98	Paved parking, HSG B	Pavement
	25,422	61	>75% Grass cover, Good, HSG B	Open Space
	5,558	55	Woods, Good, HSG B	Woods
	45,478	58	Woods/grass comb., Good, HSG B	Orchard
*	15,760	96	Gravel roads, HSG B	Roadway
	92,465	65	Weighted Average	
	92,218	65	99.73% Pervious Area	
	247	98	0.27% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
3.5	50	0.1480	0.24		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.4	220	0.1480	2.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	100		3.00		**Direct Entry,**
19.1	470	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.27% Impervious, Rv= 0.052, Runoff= 2.39"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
25,422	Open Space	190.67	0.67	2.88	0.39
45,478	Orchard	341.10	1.19	5.16	2.89
247	Pavement	0.53	0.00	0.01	0.02
15,760	Roadway	33.97	0.11	0.41	1.32
5,558	Woods	2.56	0.00	0.00	0.09
92,465	Total	568.83	1.97	8.46	4.70

Subcatchment 2: Pre DA-2



Hydrograph for Subcatchment 2: Pre DA-2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.00
12.00	1.55	0.04	1.33	**0.06**
14.00	2.51	0.30	2.28	**0.14**
16.00	2.75	0.40	2.52	0.08
18.00	2.88	0.45	2.65	0.05
20.00	2.97	0.49	2.74	0.04
22.00	3.04	0.52	2.81	0.03
24.00	**3.10**	**0.55**	**2.87**	0.03
26.00	3.10	0.55	2.87	0.00
28.00	3.10	0.55	2.87	0.00
30.00	3.10	0.55	2.87	0.00
32.00	3.10	0.55	2.87	0.00
34.00	3.10	0.55	2.87	0.00
36.00	3.10	0.55	2.87	0.00
38.00	3.10	0.55	2.87	0.00
40.00	3.10	0.55	2.87	0.00
42.00	3.10	0.55	2.87	0.00
44.00	3.10	0.55	2.87	0.00
46.00	3.10	0.55	2.87	0.00
48.00	3.10	0.55	2.87	0.00
50.00	3.10	0.55	2.87	0.00
52.00	3.10	0.55	2.87	0.00
54.00	3.10	0.55	2.87	0.00
56.00	3.10	0.55	2.87	0.00
58.00	3.10	0.55	2.87	0.00
60.00	3.10	0.55	2.87	0.00
62.00	3.10	0.55	2.87	0.00
64.00	3.10	0.55	2.87	0.00
66.00	3.10	0.55	2.87	0.00
68.00	3.10	0.55	2.87	0.00
70.00	3.10	0.55	2.87	0.00
72.00	3.10	0.55	2.87	0.00

Summary for Subcatchment 3: Pre DA-3

Runoff = 1.18 cfs @ 12.30 hrs, Volume= 6,707 cf, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

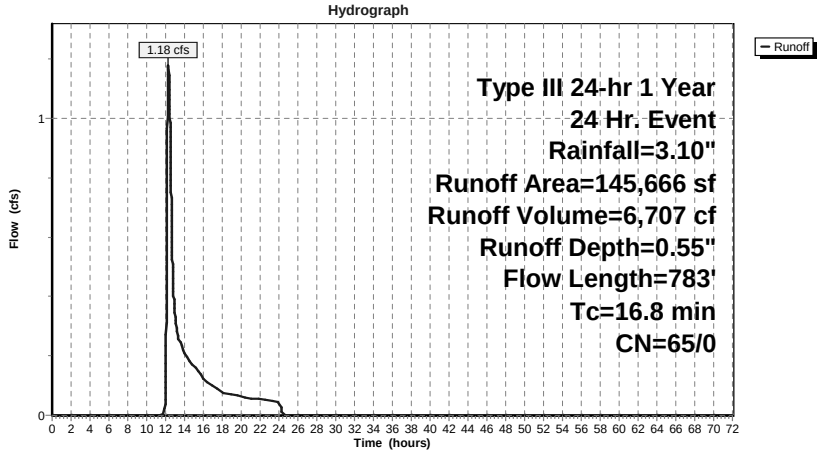
	Area (sf)	CN	Description	Land Use
	19,104	61	>75% Grass cover, Good, HSG B	Open Space
	16,367	74	>75% Grass cover, Good, HSG C	Open Space
	82,613	58	Woods/grass comb., Good, HSG B	Orchard
	11,899	72	Woods/grass comb., Good, HSG C	Orchard
*	15,683	96	Gravel roads, HSG C	Roadway
	145,666	65	Weighted Average	
	145,666	65	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	125	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	25	0.1800	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.7	275	0.1800	6.36		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.7	312		3.00		**Direct Entry,**
0.1	46	0.0870	11.87	14.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Concrete sewer w/manholes & inlets
16.8	783	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
35,471	Open Space	253.84	0.89	3.84	0.52
94,512	Orchard	676.34	2.36	10.22	5.73
15,683	Roadway	32.25	0.10	0.39	1.25
145,666	Total	962.43	3.35	14.45	7.50

Subcatchment 3: Pre DA-3



Hydrograph for Subcatchment 3: Pre DA-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.04	0.00	**0.11**
14.00	2.51	0.30	0.00	**0.21**
16.00	2.75	0.40	0.00	0.13
18.00	2.88	0.45	0.00	0.08
20.00	2.97	0.49	0.00	0.06
22.00	3.04	0.52	0.00	0.05
24.00	**3.10**	**0.55**	0.00	0.04
26.00	3.10	0.55	0.00	0.00
28.00	3.10	0.55	0.00	0.00
30.00	3.10	0.55	0.00	0.00
32.00	3.10	0.55	0.00	0.00
34.00	3.10	0.55	0.00	0.00
36.00	3.10	0.55	0.00	0.00
38.00	3.10	0.55	0.00	0.00
40.00	3.10	0.55	0.00	0.00
42.00	3.10	0.55	0.00	0.00
44.00	3.10	0.55	0.00	0.00
46.00	3.10	0.55	0.00	0.00
48.00	3.10	0.55	0.00	0.00
50.00	3.10	0.55	0.00	0.00
52.00	3.10	0.55	0.00	0.00
54.00	3.10	0.55	0.00	0.00
56.00	3.10	0.55	0.00	0.00
58.00	3.10	0.55	0.00	0.00
60.00	3.10	0.55	0.00	0.00
62.00	3.10	0.55	0.00	0.00
64.00	3.10	0.55	0.00	0.00
66.00	3.10	0.55	0.00	0.00
68.00	3.10	0.55	0.00	0.00
70.00	3.10	0.55	0.00	0.00
72.00	3.10	0.55	0.00	0.00

Summary for Subcatchment 4: Pre DA-4

Runoff = 1.45 cfs @ 12.17 hrs, Volume= 5,745 cf, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

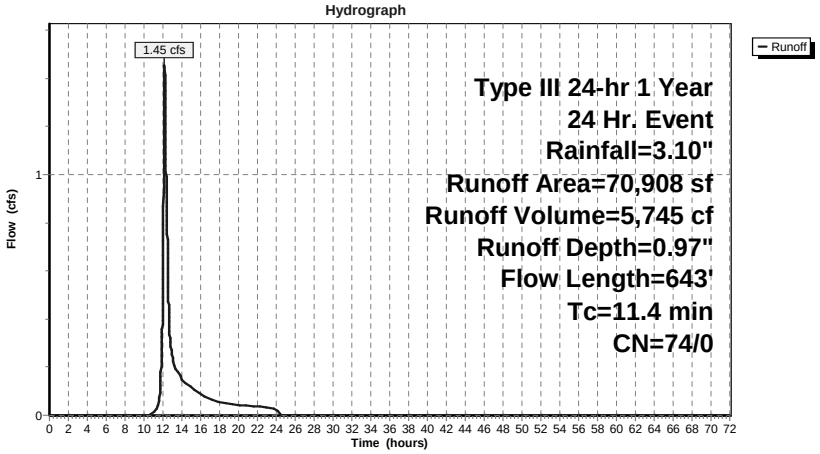
	Area (sf)	CN	Description	Land Use
	34,519	74	>75% Grass cover, Good, HSG C	Open Space
	2,363	58	Woods/grass comb., Good, HSG B	Orchard
	30,919	72	Woods/grass comb., Good, HSG C	Orchard
*	3,107	96	Gravel roads, HSG C	Roadway
	70,908	74	Weighted Average	
	70,908	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	150	0.1200	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.6	270	0.1600	2.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	100	0.3600	4.20		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	123	0.1050	11.24	8.83	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.017 Concrete sewer w/manholes & inlets
11.4	643	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
34,519	Open Space	247.02	0.86	3.73	0.50
33,282	Orchard	238.17	0.83	3.60	2.02
3,107	Roadway	6.39	0.02	0.08	0.25
70,908	Total	491.58	1.71	7.41	2.77

Subcatchment 4: Pre DA-4



Hydrograph for Subcatchment 4: Pre DA-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.16	0.00	**0.52**
14.00	2.51	0.62	0.00	**0.15**
16.00	2.75	0.75	0.00	0.09
18.00	2.88	0.83	0.00	0.05
20.00	2.97	0.89	0.00	0.04
22.00	3.04	0.93	0.00	0.04
24.00	**3.10**	**0.97**	0.00	0.03
26.00	3.10	0.97	0.00	0.00
28.00	3.10	0.97	0.00	0.00
30.00	3.10	0.97	0.00	0.00
32.00	3.10	0.97	0.00	0.00
34.00	3.10	0.97	0.00	0.00
36.00	3.10	0.97	0.00	0.00
38.00	3.10	0.97	0.00	0.00
40.00	3.10	0.97	0.00	0.00
42.00	3.10	0.97	0.00	0.00
44.00	3.10	0.97	0.00	0.00
46.00	3.10	0.97	0.00	0.00
48.00	3.10	0.97	0.00	0.00
50.00	3.10	0.97	0.00	0.00
52.00	3.10	0.97	0.00	0.00
54.00	3.10	0.97	0.00	0.00
56.00	3.10	0.97	0.00	0.00
58.00	3.10	0.97	0.00	0.00
60.00	3.10	0.97	0.00	0.00
62.00	3.10	0.97	0.00	0.00
64.00	3.10	0.97	0.00	0.00
66.00	3.10	0.97	0.00	0.00
68.00	3.10	0.97	0.00	0.00
70.00	3.10	0.97	0.00	0.00
72.00	3.10	0.97	0.00	0.00

Summary for Subcatchment 5A: Pre DA-5

Runoff = 7.30 cfs @ 12.32 hrs, Volume= 38,453 cf, Depth= 0.83"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

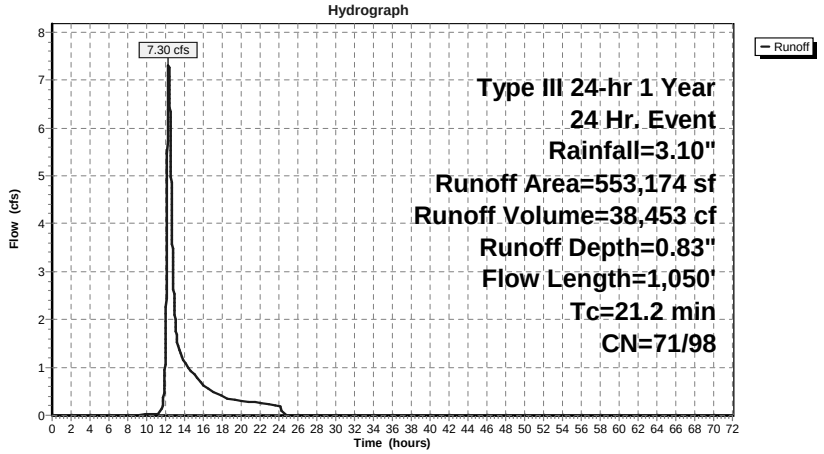
	Area (sf)	CN	Description	Land Use
	4,202	98	Paved parking, HSG C	Pavement
	13,701	61	>75% Grass cover, Good, HSG B	Open Space
	133,086	74	>75% Grass cover, Good, HSG C	Open Space
	204	69	Pasture/grassland/range, Fair, HSG B	Pasture
	43,970	58	Woods/grass comb., Good, HSG B	Orchard
	355,243	72	Woods/grass comb., Good, HSG C	Orchard
*	2,768	96	Gravel roads, HSG C	Roadway
	553,174	71	Weighted Average	
	548,972	71	99.24% Pervious Area	
	4,202	98	0.76% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	150	0.0300	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	140	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.7	630	0.3100	3.90		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	130	0.2900	3.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.2	1,050	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.76% Impervious, Rv= 0.057, Runoff= 2.60"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
146,787	Open Space	1,194.06	4.17	18.05	2.44
399,213	Orchard	3,247.45	11.33	49.09	27.51
204	Pasture	0.10	0.00	0.00	0.01
4,202	Pavement	9.82	0.03	0.12	0.38
2,768	Roadway	6.47	0.02	0.08	0.25
553,174	Total	4,457.91	15.55	67.34	30.60

Subcatchment 5A: Pre DA-5



Hydrograph for Subcatchment 5A: Pre DA-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.11	1.33	**1.50**
14.00	2.51	0.50	2.28	**1.12**
16.00	2.75	0.62	2.52	0.64
18.00	2.88	0.69	2.65	0.39
20.00	2.97	0.74	2.74	0.31
22.00	3.04	0.78	2.81	0.26
24.00	**3.10**	**0.82**	**2.87**	0.21
26.00	3.10	0.82	2.87	0.00
28.00	3.10	0.82	2.87	0.00
30.00	3.10	0.82	2.87	0.00
32.00	3.10	0.82	2.87	0.00
34.00	3.10	0.82	2.87	0.00
36.00	3.10	0.82	2.87	0.00
38.00	3.10	0.82	2.87	0.00
40.00	3.10	0.82	2.87	0.00
42.00	3.10	0.82	2.87	0.00
44.00	3.10	0.82	2.87	0.00
46.00	3.10	0.82	2.87	0.00
48.00	3.10	0.82	2.87	0.00
50.00	3.10	0.82	2.87	0.00
52.00	3.10	0.82	2.87	0.00
54.00	3.10	0.82	2.87	0.00
56.00	3.10	0.82	2.87	0.00
58.00	3.10	0.82	2.87	0.00
60.00	3.10	0.82	2.87	0.00
62.00	3.10	0.82	2.87	0.00
64.00	3.10	0.82	2.87	0.00
66.00	3.10	0.82	2.87	0.00
68.00	3.10	0.82	2.87	0.00
70.00	3.10	0.82	2.87	0.00
72.00	3.10	0.82	2.87	0.00

Summary for Subcatchment 5B: Pre DA-5

Runoff = 1.64 cfs @ 12.53 hrs, Volume= 12,234 cf, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

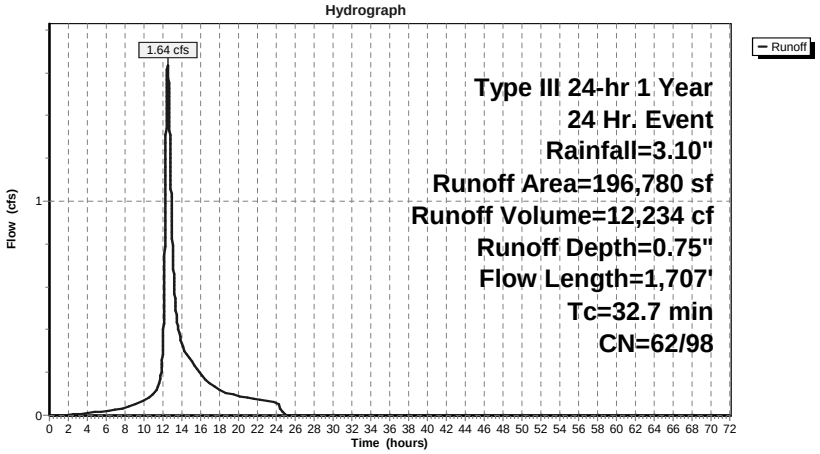
	Area (sf)	CN	Description	Land Use
	24,498	98	Roofs, HSG B	Roofs
	33,151	61	>75% Grass cover, Good, HSG B	Open Space
*	8,758	96	Gravel roads, HSG B	Roadway
	384	98	Unconnected roofs, HSG B	Roofs
	129,989	60	Woods, Fair, HSG B	Woods
	196,780	67	Weighted Average	
	171,898	62	87.36% Pervious Area	
	24,882	98	12.64% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.5	150	0.0870	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
0.6	146	0.5800	3.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	111	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.6	1,300	0.0337	8.37	10.28	**Pipe Channel, Confirm Pipe Size** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
32.7	1,707	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 12.64% Impervious, Rv= 0.164, Runoff= 7.49"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
33,151	Open Space	777.18	2.71	11.75	1.59
8,758	Roadway	59.00	0.19	0.72	2.29
24,882	Roofs	18.41	0.11	1.45	7.17
129,989	Woods	187.30	0.00	0.00	6.23
196,780	Total	1,041.90	3.01	13.92	17.27

Subcatchment 5B: Pre DA-5



Hydrograph for Subcatchment 5B: Pre DA-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.02
8.00	0.35	0.00	0.19	0.03
10.00	0.59	0.00	0.40	0.07
12.00	1.55	0.02	1.33	**0.33**
14.00	2.51	0.22	2.28	**0.34**
16.00	2.75	0.30	2.52	0.19
18.00	2.88	0.35	2.65	0.12
20.00	2.97	0.39	2.74	0.09
22.00	3.04	0.41	2.81	0.08
24.00	**3.10**	**0.44**	**2.87**	0.06
26.00	3.10	0.44	2.87	0.00
28.00	3.10	0.44	2.87	0.00
30.00	3.10	0.44	2.87	0.00
32.00	3.10	0.44	2.87	0.00
34.00	3.10	0.44	2.87	0.00
36.00	3.10	0.44	2.87	0.00
38.00	3.10	0.44	2.87	0.00
40.00	3.10	0.44	2.87	0.00
42.00	3.10	0.44	2.87	0.00
44.00	3.10	0.44	2.87	0.00
46.00	3.10	0.44	2.87	0.00
48.00	3.10	0.44	2.87	0.00
50.00	3.10	0.44	2.87	0.00
52.00	3.10	0.44	2.87	0.00
54.00	3.10	0.44	2.87	0.00
56.00	3.10	0.44	2.87	0.00
58.00	3.10	0.44	2.87	0.00
60.00	3.10	0.44	2.87	0.00
62.00	3.10	0.44	2.87	0.00
64.00	3.10	0.44	2.87	0.00
66.00	3.10	0.44	2.87	0.00
68.00	3.10	0.44	2.87	0.00
70.00	3.10	0.44	2.87	0.00
72.00	3.10	0.44	2.87	0.00

Summary for Subcatchment 6A: Pre DA-6

Runoff = 23.93 cfs @ 12.11 hrs, Volume= 88,136 cf, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

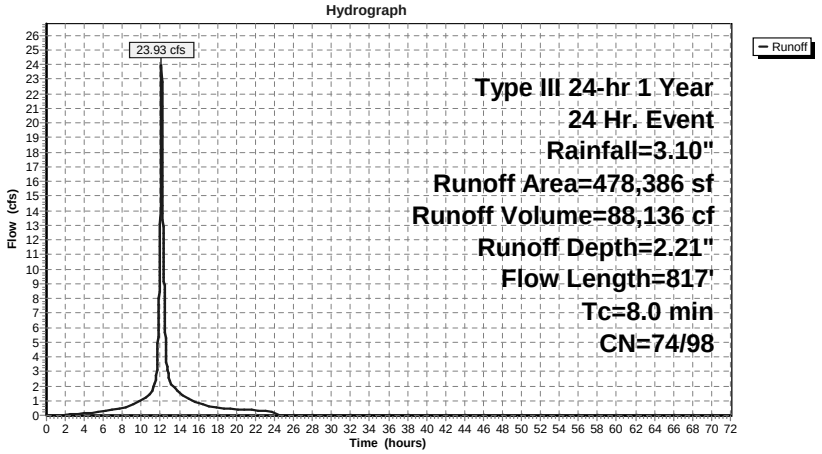
Area (sf)	CN	Description	Land Use
129,856	98	Unconnected pavement, HSG C	Pavement
182,714	98	Unconnected roofs, HSG C	Roofs
161,824	74	>75% Grass cover, Good, HSG C	Open Space
3,660	61	>75% Grass cover, Good, HSG B	Open Space
332	58	Woods/grass comb., Good, HSG B	Orchard
478,386	90	Weighted Average	
165,816	74	34.66% Pervious Area	
312,570	98	65.34% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	90	0.3310	9.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	627	0.1080	18.10	56.85	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
8.0	817	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 65.34% Impervious, Rv= 0.638, Runoff= 29.16"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
165,484	Open Space	15,111.88	52.72	228.44	30.88
332	Orchard	30.32	0.11	0.46	0.26
129,856	Pavement	3,407.80	11.03	41.37	131.98
182,714	Roofs	526.61	3.05	41.57	205.10
478,386	Total	19,076.62	66.90	311.83	368.21

Subcatchment 6A: Pre DA-6



Hydrograph for Subcatchment 6A: Pre DA-6

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.03
4.00	0.13	0.00	0.03	0.15
6.00	0.22	0.00	0.09	0.25
8.00	0.35	0.00	0.19	0.48
10.00	0.59	0.00	0.40	0.98
12.00	1.55	0.16	1.33	**13.07**
14.00	2.51	0.62	2.28	**1.51**
16.00	2.75	0.75	2.52	0.81
18.00	2.88	0.83	2.65	0.49
20.00	2.97	0.89	2.74	0.39
22.00	3.04	0.93	2.81	0.33
24.00	**3.10**	**0.97**	**2.87**	0.26
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00

Summary for Subcatchment 6B: Pre DA-6

Runoff = 1.20 cfs @ 12.54 hrs, Volume= 10,217 cf, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

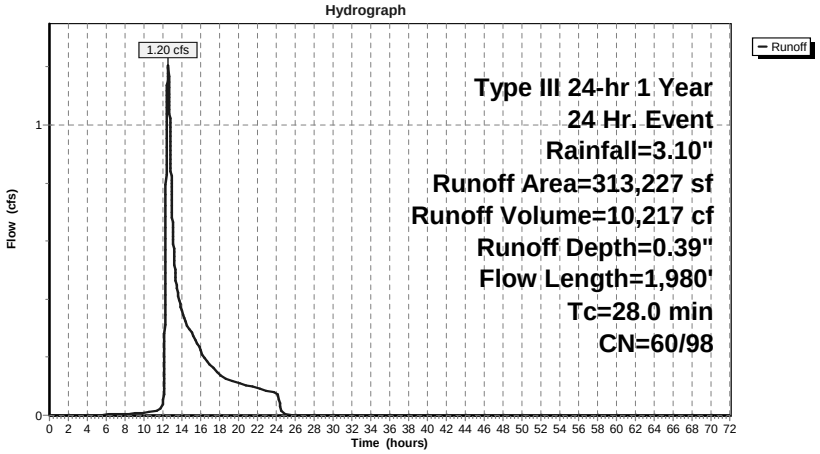
	Area (sf)	CN	Description	Land Use
	2,675	98	Unconnected pavement, HSG C	Pavement
	46,506	61	>75% Grass cover, Good, HSG B	Open Space
	262,664	60	Woods, Fair, HSG B	Woods
*	1,382	96	Gravel roads, HSG C	Roadway
	313,227	61	Weighted Average	
	310,552	60	99.15% Pervious Area	
	2,675	98	0.85% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	150	0.1200	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.4	370	0.2600	2.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	100	0.1200	7.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	1,360	0.1000	17.41	54.71	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
28.0	1,980	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.85% Impervious, Rv= 0.058, Runoff= 2.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
46,506	Open Space	383.96	1.34	5.80	0.78
2,675	Pavement	6.35	0.02	0.08	0.25
1,382	Roadway	3.28	0.01	0.04	0.13
262,664	Woods	133.29	0.00	0.00	4.43
313,227	Total	526.88	1.37	5.92	5.59

Subcatchment 6B: Pre DA-6



Hydrograph for Subcatchment 6B: Pre DA-6

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.01	1.33	**0.04**
14.00	2.51	0.18	2.28	**0.36**
16.00	2.75	0.25	2.52	0.22
18.00	2.88	0.29	2.65	0.14
20.00	2.97	0.32	2.74	0.11
22.00	3.04	0.35	2.81	0.09
24.00	**3.10**	**0.37**	**2.87**	0.08
26.00	3.10	0.37	2.87	0.00
28.00	3.10	0.37	2.87	0.00
30.00	3.10	0.37	2.87	0.00
32.00	3.10	0.37	2.87	0.00
34.00	3.10	0.37	2.87	0.00
36.00	3.10	0.37	2.87	0.00
38.00	3.10	0.37	2.87	0.00
40.00	3.10	0.37	2.87	0.00
42.00	3.10	0.37	2.87	0.00
44.00	3.10	0.37	2.87	0.00
46.00	3.10	0.37	2.87	0.00
48.00	3.10	0.37	2.87	0.00
50.00	3.10	0.37	2.87	0.00
52.00	3.10	0.37	2.87	0.00
54.00	3.10	0.37	2.87	0.00
56.00	3.10	0.37	2.87	0.00
58.00	3.10	0.37	2.87	0.00
60.00	3.10	0.37	2.87	0.00
62.00	3.10	0.37	2.87	0.00
64.00	3.10	0.37	2.87	0.00
66.00	3.10	0.37	2.87	0.00
68.00	3.10	0.37	2.87	0.00
70.00	3.10	0.37	2.87	0.00
72.00	3.10	0.37	2.87	0.00

Summary for Subcatchment 7: Pre DA-7

Runoff = 2.99 cfs @ 12.10 hrs, Volume= 9,897 cf, Depth= 1.68"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

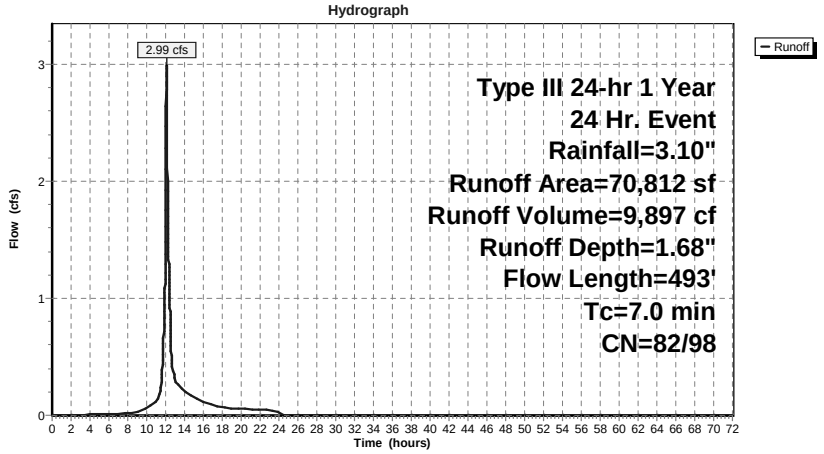
	Area (sf)	CN	Description	Land Use
	4,235	98	Paved parking, HSG C	Pavement
	6,764	98	Roofs, HSG C	Roofs
	37,133	74	>75% Grass cover, Good, HSG C	Open Space
*	22,680	96	Gravel roads, HSG C	Roadway
	70,812	85	Weighted Average	
	59,813	82	84.47% Pervious Area	
	10,999	98	15.53% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	135	0.2670	0.37		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	40	0.1500	2.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	81	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	114	0.0350	13.47	42.32	**Pipe Channel, Assumed Dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.1	123	0.0810	20.49	64.38	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
7.0	493	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 15.53% Impervious, Rv= 0.190, Runoff= 8.67"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
37,133	Open Space	1,008.68	3.52	15.25	2.06
4,235	Pavement	33.06	0.11	0.40	1.28
22,680	Roadway	177.05	0.57	2.15	6.86
6,764	Roofs	5.80	0.03	0.46	2.26
70,812	Total	1,224.58	4.23	18.26	12.46

Subcatchment 7: Pre DA-7



Hydrograph for Subcatchment 7: Pre DA-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.02
10.00	0.59	0.01	0.40	0.06
12.00	1.55	0.37	1.33	**1.61**
14.00	2.51	1.01	2.28	**0.20**
16.00	2.75	1.18	2.52	0.11
18.00	2.88	1.28	2.65	0.07
20.00	2.97	1.35	2.74	0.05
22.00	3.04	1.41	2.81	0.05
24.00	**3.10**	**1.46**	**2.87**	0.04
26.00	3.10	1.46	2.87	0.00
28.00	3.10	1.46	2.87	0.00
30.00	3.10	1.46	2.87	0.00
32.00	3.10	1.46	2.87	0.00
34.00	3.10	1.46	2.87	0.00
36.00	3.10	1.46	2.87	0.00
38.00	3.10	1.46	2.87	0.00
40.00	3.10	1.46	2.87	0.00
42.00	3.10	1.46	2.87	0.00
44.00	3.10	1.46	2.87	0.00
46.00	3.10	1.46	2.87	0.00
48.00	3.10	1.46	2.87	0.00
50.00	3.10	1.46	2.87	0.00
52.00	3.10	1.46	2.87	0.00
54.00	3.10	1.46	2.87	0.00
56.00	3.10	1.46	2.87	0.00
58.00	3.10	1.46	2.87	0.00
60.00	3.10	1.46	2.87	0.00
62.00	3.10	1.46	2.87	0.00
64.00	3.10	1.46	2.87	0.00
66.00	3.10	1.46	2.87	0.00
68.00	3.10	1.46	2.87	0.00
70.00	3.10	1.46	2.87	0.00
72.00	3.10	1.46	2.87	0.00

Summary for Pond DP1: DP-1

[57] Hint: Peaked at 709.52' (Flood elevation advised)

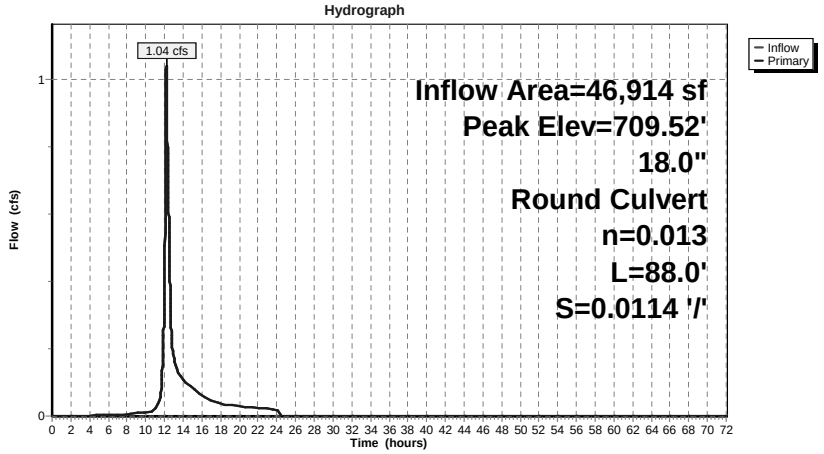
Inflow Area = 46,914 sf, 7.50% Impervious, Inflow Depth = 1.11" for 1 Year, 24 Hr. Event event
Inflow = 1.04 cfs @ 12.19 hrs, Volume= 4,357 cf
Outflow = 1.04 cfs @ 12.19 hrs, Volume= 4,357 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.19 hrs, Volume= 4,357 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 709.52' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	709.00'	**18.0" Round Culvert** L= 88.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 709.00' / 708.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.04 cfs @ 12.19 hrs HW=709.52' (Free Discharge)
1=Culvert (Inlet Controls 1.04 cfs @ 1.93 fps)

Pond DP1: DP-1



Hydrograph for Pond DP1: DP-1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	709.00	0.00	52.00	0.00	709.00	0.00
1.00	0.00	709.00	0.00	53.00	0.00	709.00	0.00
2.00	0.00	709.01	0.00	54.00	0.00	709.00	0.00
3.00	0.00	709.02	0.00	55.00	0.00	709.00	0.00
4.00	0.00	709.02	0.00	56.00	0.00	709.00	0.00
5.00	0.00	709.02	0.00	57.00	0.00	709.00	0.00
6.00	0.00	709.03	0.00	58.00	0.00	709.00	0.00
7.00	0.00	709.03	0.00	59.00	0.00	709.00	0.00
8.00	0.01	709.03	0.01	60.00	0.00	709.00	0.00
9.00	0.01	709.04	0.01	61.00	0.00	709.00	0.00
10.00	0.01	709.05	0.01	62.00	0.00	709.00	0.00
11.00	0.02	709.07	0.02	63.00	0.00	709.00	0.00
12.00	**0.39**	**709.31**	**0.39**	64.00	0.00	709.00	0.00
13.00	**0.17**	**709.20**	**0.17**	65.00	0.00	709.00	0.00
14.00	0.11	709.16	0.11	66.00	0.00	709.00	0.00
15.00	0.08	709.14	0.08	67.00	0.00	709.00	0.00
16.00	0.06	709.12	0.06	68.00	0.00	709.00	0.00
17.00	0.05	709.10	0.05	69.00	0.00	709.00	0.00
18.00	0.04	709.09	0.04	70.00	0.00	709.00	0.00
19.00	0.03	709.09	0.03	71.00	0.00	709.00	0.00
20.00	0.03	709.08	0.03	72.00	0.00	709.00	0.00
21.00	0.03	709.08	0.03				
22.00	0.02	709.08	0.02				
23.00	0.02	709.07	0.02				
24.00	0.02	709.07	0.02				
25.00	0.00	709.00	0.00				
26.00	0.00	709.00	0.00				
27.00	0.00	709.00	0.00				
28.00	0.00	709.00	0.00				
29.00	0.00	709.00	0.00				
30.00	0.00	709.00	0.00				
31.00	0.00	709.00	0.00				
32.00	0.00	709.00	0.00				
33.00	0.00	709.00	0.00				
34.00	0.00	709.00	0.00				
35.00	0.00	709.00	0.00				
36.00	0.00	709.00	0.00				
37.00	0.00	709.00	0.00				
38.00	0.00	709.00	0.00				
39.00	0.00	709.00	0.00				
40.00	0.00	709.00	0.00				
41.00	0.00	709.00	0.00				
42.00	0.00	709.00	0.00				
43.00	0.00	709.00	0.00				
44.00	0.00	709.00	0.00				
45.00	0.00	709.00	0.00				
46.00	0.00	709.00	0.00				
47.00	0.00	709.00	0.00				
48.00	0.00	709.00	0.00				
49.00	0.00	709.00	0.00				
50.00	0.00	709.00	0.00				
51.00	0.00	709.00	0.00				

Summary for Pond DP2: DP-2

[57] Hint: Peaked at 677.43' (Flood elevation advised)

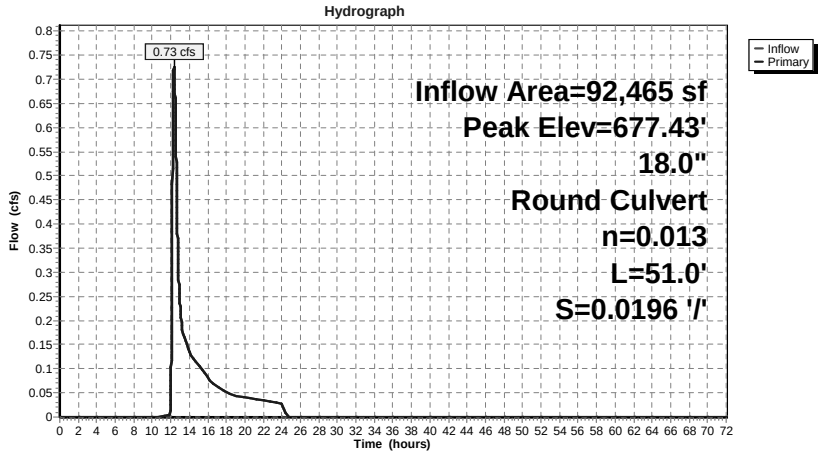
Inflow Area = 92,465 sf, 0.27% Impervious, Inflow Depth = 0.56" for 1 Year, 24 Hr. Event event
Inflow = 0.73 cfs @ 12.33 hrs, Volume= 4,305 cf
Outflow = 0.73 cfs @ 12.33 hrs, Volume= 4,305 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.73 cfs @ 12.33 hrs, Volume= 4,305 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 677.43' @ 12.33 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	677.00'	**18.0" Round Culvert** L= 51.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 677.00' / 676.00' S= 0.0196 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.73 cfs @ 12.33 hrs HW=677.43' (Free Discharge)
1=Culvert (Inlet Controls 0.73 cfs @ 1.75 fps)

Pond DP2: DP-2



Hydrograph for Pond DP2: DP-2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	677.00	0.00	52.00	0.00	677.00	0.00
1.00	0.00	677.00	0.00	53.00	0.00	677.00	0.00
2.00	0.00	677.00	0.00	54.00	0.00	677.00	0.00
3.00	0.00	677.00	0.00	55.00	0.00	677.00	0.00
4.00	0.00	677.00	0.00	56.00	0.00	677.00	0.00
5.00	0.00	677.01	0.00	57.00	0.00	677.00	0.00
6.00	0.00	677.01	0.00	58.00	0.00	677.00	0.00
7.00	0.00	677.01	0.00	59.00	0.00	677.00	0.00
8.00	0.00	677.01	0.00	60.00	0.00	677.00	0.00
9.00	0.00	677.01	0.00	61.00	0.00	677.00	0.00
10.00	0.00	677.01	0.00	62.00	0.00	677.00	0.00
11.00	0.00	677.02	0.00	63.00	0.00	677.00	0.00
12.00	**0.06**	**677.11**	**0.06**	64.00	0.00	677.00	0.00
13.00	**0.23**	**677.24**	**0.23**	65.00	0.00	677.00	0.00
14.00	0.14	677.18	0.14	66.00	0.00	677.00	0.00
15.00	0.11	677.16	0.11	67.00	0.00	677.00	0.00
16.00	0.08	677.14	0.08	68.00	0.00	677.00	0.00
17.00	0.06	677.12	0.06	69.00	0.00	677.00	0.00
18.00	0.05	677.11	0.05	70.00	0.00	677.00	0.00
19.00	0.04	677.10	0.04	71.00	0.00	677.00	0.00
20.00	0.04	677.10	0.04	72.00	0.00	677.00	0.00
21.00	0.04	677.09	0.04				
22.00	0.03	677.09	0.03				
23.00	0.03	677.08	0.03				
24.00	0.03	677.08	0.03				
25.00	0.00	677.00	0.00				
26.00	0.00	677.00	0.00				
27.00	0.00	677.00	0.00				
28.00	0.00	677.00	0.00				
29.00	0.00	677.00	0.00				
30.00	0.00	677.00	0.00				
31.00	0.00	677.00	0.00				
32.00	0.00	677.00	0.00				
33.00	0.00	677.00	0.00				
34.00	0.00	677.00	0.00				
35.00	0.00	677.00	0.00				
36.00	0.00	677.00	0.00				
37.00	0.00	677.00	0.00				
38.00	0.00	677.00	0.00				
39.00	0.00	677.00	0.00				
40.00	0.00	677.00	0.00				
41.00	0.00	677.00	0.00				
42.00	0.00	677.00	0.00				
43.00	0.00	677.00	0.00				
44.00	0.00	677.00	0.00				
45.00	0.00	677.00	0.00				
46.00	0.00	677.00	0.00				
47.00	0.00	677.00	0.00				
48.00	0.00	677.00	0.00				
49.00	0.00	677.00	0.00				
50.00	0.00	677.00	0.00				
51.00	0.00	677.00	0.00				

Summary for Pond DP3: DP-3

[57] Hint: Peaked at 631.39' (Flood elevation advised)

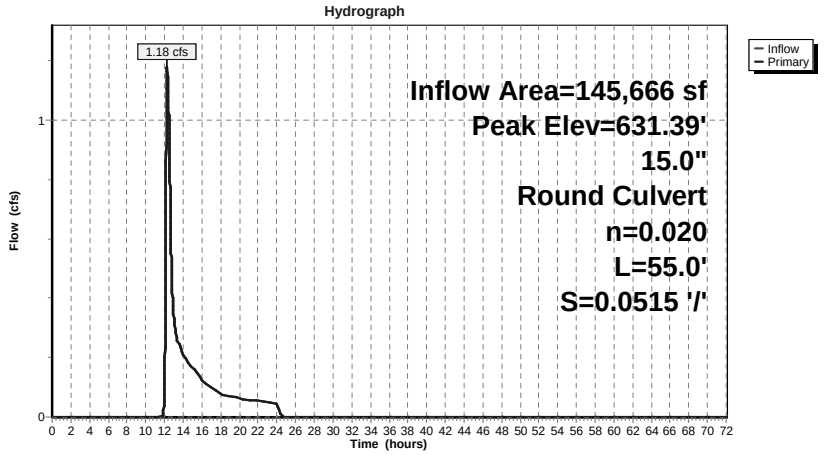
Inflow Area = 145,666 sf, 0.00% Impervious, Inflow Depth = 0.55" for 1 Year, 24 Hr. Event event
Inflow = 1.18 cfs @ 12.30 hrs, Volume= 6,707 cf
Outflow = 1.18 cfs @ 12.30 hrs, Volume= 6,707 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.18 cfs @ 12.30 hrs, Volume= 6,707 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 631.39' @ 12.30 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	630.80'	**15.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 630.80' / 627.97' S= 0.0515 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=1.18 cfs @ 12.30 hrs HW=631.39' (Free Discharge)
1=Culvert (Inlet Controls 1.18 cfs @ 2.07 fps)

Pond DP3: DP-3



Hydrograph for Pond DP3: DP-3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	630.80	0.00	52.00	0.00	630.80	0.00
1.00	0.00	630.80	0.00	53.00	0.00	630.80	0.00
2.00	0.00	630.80	0.00	54.00	0.00	630.80	0.00
3.00	0.00	630.80	0.00	55.00	0.00	630.80	0.00
4.00	0.00	630.80	0.00	56.00	0.00	630.80	0.00
5.00	0.00	630.80	0.00	57.00	0.00	630.80	0.00
6.00	0.00	630.80	0.00	58.00	0.00	630.80	0.00
7.00	0.00	630.80	0.00	59.00	0.00	630.80	0.00
8.00	0.00	630.80	0.00	60.00	0.00	630.80	0.00
9.00	0.00	630.80	0.00	61.00	0.00	630.80	0.00
10.00	0.00	630.80	0.00	62.00	0.00	630.80	0.00
11.00	0.00	630.80	0.00	63.00	0.00	630.80	0.00
12.00	**0.11**	**630.97**	**0.11**	64.00	0.00	630.80	0.00
13.00	**0.34**	**631.10**	**0.34**	65.00	0.00	630.80	0.00
14.00	0.21	631.04	0.21	66.00	0.00	630.80	0.00
15.00	0.17	631.01	0.17	67.00	0.00	630.80	0.00
16.00	0.13	630.98	0.13	68.00	0.00	630.80	0.00
17.00	0.10	630.96	0.10	69.00	0.00	630.80	0.00
18.00	0.08	630.94	0.08	70.00	0.00	630.80	0.00
19.00	0.07	630.93	0.07	71.00	0.00	630.80	0.00
20.00	0.06	630.93	0.06	72.00	0.00	630.80	0.00
21.00	0.06	630.92	0.06				
22.00	0.05	630.92	0.05				
23.00	0.05	630.91	0.05				
24.00	0.04	630.91	0.04				
25.00	0.00	630.80	0.00				
26.00	0.00	630.80	0.00				
27.00	0.00	630.80	0.00				
28.00	0.00	630.80	0.00				
29.00	0.00	630.80	0.00				
30.00	0.00	630.80	0.00				
31.00	0.00	630.80	0.00				
32.00	0.00	630.80	0.00				
33.00	0.00	630.80	0.00				
34.00	0.00	630.80	0.00				
35.00	0.00	630.80	0.00				
36.00	0.00	630.80	0.00				
37.00	0.00	630.80	0.00				
38.00	0.00	630.80	0.00				
39.00	0.00	630.80	0.00				
40.00	0.00	630.80	0.00				
41.00	0.00	630.80	0.00				
42.00	0.00	630.80	0.00				
43.00	0.00	630.80	0.00				
44.00	0.00	630.80	0.00				
45.00	0.00	630.80	0.00				
46.00	0.00	630.80	0.00				
47.00	0.00	630.80	0.00				
48.00	0.00	630.80	0.00				
49.00	0.00	630.80	0.00				
50.00	0.00	630.80	0.00				
51.00	0.00	630.80	0.00				

Summary for Pond DP4: DP-4

[57] Hint: Peaked at 606.38' (Flood elevation advised)

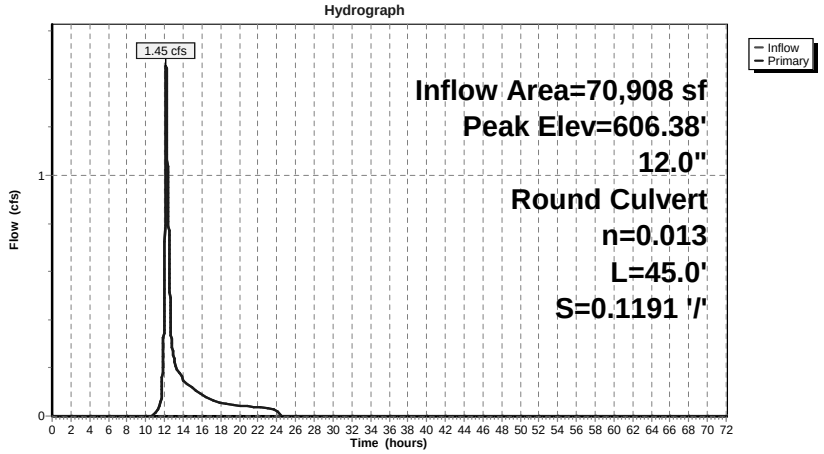
Inflow Area = 70,908 sf, 0.00% Impervious, Inflow Depth = 0.97" for 1 Year, 24 Hr. Event event
Inflow = 1.45 cfs @ 12.17 hrs, Volume= 5,745 cf
Outflow = 1.45 cfs @ 12.17 hrs, Volume= 5,745 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.45 cfs @ 12.17 hrs, Volume= 5,745 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 606.38' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	605.64'	**12.0" Round Culvert** L= 45.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 605.64' / 600.28' S= 0.1191 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.45 cfs @ 12.17 hrs HW=606.38' (Free Discharge)
↑**1=Culvert** (Inlet Controls 1.45 cfs @ 2.32 fps)

Pond DP4: DP-4



Hydrograph for Pond DP4: DP-4

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	605.64	0.00	52.00	0.00	605.64	0.00
1.00	0.00	605.64	0.00	53.00	0.00	605.64	0.00
2.00	0.00	605.64	0.00	54.00	0.00	605.64	0.00
3.00	0.00	605.64	0.00	55.00	0.00	605.64	0.00
4.00	0.00	605.64	0.00	56.00	0.00	605.64	0.00
5.00	0.00	605.64	0.00	57.00	0.00	605.64	0.00
6.00	0.00	605.64	0.00	58.00	0.00	605.64	0.00
7.00	0.00	605.64	0.00	59.00	0.00	605.64	0.00
8.00	0.00	605.64	0.00	60.00	0.00	605.64	0.00
9.00	0.00	605.64	0.00	61.00	0.00	605.64	0.00
10.00	0.00	605.64	0.00	62.00	0.00	605.64	0.00
11.00	0.01	605.68	0.01	63.00	0.00	605.64	0.00
12.00	**0.52**	**606.05**	**0.52**	64.00	0.00	605.64	0.00
13.00	**0.24**	**605.91**	**0.24**	65.00	0.00	605.64	0.00
14.00	0.15	605.85	0.15	66.00	0.00	605.64	0.00
15.00	0.12	605.83	0.12	67.00	0.00	605.64	0.00
16.00	0.09	605.80	0.09	68.00	0.00	605.64	0.00
17.00	0.07	605.78	0.07	69.00	0.00	605.64	0.00
18.00	0.05	605.76	0.05	70.00	0.00	605.64	0.00
19.00	0.05	605.76	0.05	71.00	0.00	605.64	0.00
20.00	0.04	605.75	0.04	72.00	0.00	605.64	0.00
21.00	0.04	605.75	0.04				
22.00	0.04	605.74	0.04				
23.00	0.03	605.74	0.03				
24.00	0.03	605.73	0.03				
25.00	0.00	605.64	0.00				
26.00	0.00	605.64	0.00				
27.00	0.00	605.64	0.00				
28.00	0.00	605.64	0.00				
29.00	0.00	605.64	0.00				
30.00	0.00	605.64	0.00				
31.00	0.00	605.64	0.00				
32.00	0.00	605.64	0.00				
33.00	0.00	605.64	0.00				
34.00	0.00	605.64	0.00				
35.00	0.00	605.64	0.00				
36.00	0.00	605.64	0.00				
37.00	0.00	605.64	0.00				
38.00	0.00	605.64	0.00				
39.00	0.00	605.64	0.00				
40.00	0.00	605.64	0.00				
41.00	0.00	605.64	0.00				
42.00	0.00	605.64	0.00				
43.00	0.00	605.64	0.00				
44.00	0.00	605.64	0.00				
45.00	0.00	605.64	0.00				
46.00	0.00	605.64	0.00				
47.00	0.00	605.64	0.00				
48.00	0.00	605.64	0.00				
49.00	0.00	605.64	0.00				
50.00	0.00	605.64	0.00				
51.00	0.00	605.64	0.00				

Summary for Pond DP5: DP-5

[57] Hint: Peaked at 608.40' (Flood elevation advised)

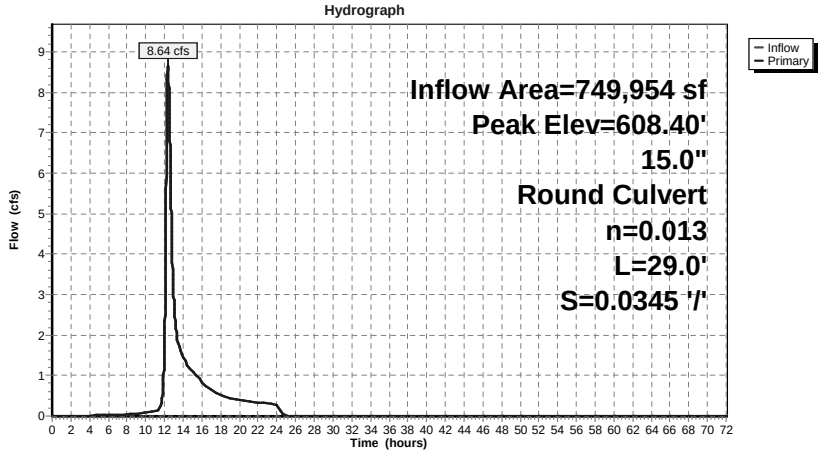
Inflow Area = 749,954 sf, 3.88% Impervious, Inflow Depth = 0.81" for 1 Year, 24 Hr. Event event
Inflow = 8.64 cfs @ 12.35 hrs, Volume= 50,687 cf
Outflow = 8.64 cfs @ 12.35 hrs, Volume= 50,687 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.64 cfs @ 12.35 hrs, Volume= 50,687 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.40' @ 12.35 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	604.34'	**15.0" Round Culvert** L= 29.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 604.34' / 603.34' S= 0.0345 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=8.64 cfs @ 12.35 hrs HW=608.39' (Free Discharge)
1=Culvert (Inlet Controls 8.64 cfs @ 7.04 fps)

Pond DP5: DP-5



Hydrograph for Pond DP5: DP-5

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	604.34	0.00	52.00	0.00	604.34	0.00
1.00	0.00	604.34	0.00	53.00	0.00	604.34	0.00
2.00	0.00	604.36	0.00	54.00	0.00	604.34	0.00
3.00	0.01	604.38	0.01	55.00	0.00	604.34	0.00
4.00	0.01	604.39	0.01	56.00	0.00	604.34	0.00
5.00	0.02	604.41	0.02	57.00	0.00	604.34	0.00
6.00	0.02	604.41	0.02	58.00	0.00	604.34	0.00
7.00	0.03	604.43	0.03	59.00	0.00	604.34	0.00
8.00	0.04	604.44	0.04	60.00	0.00	604.34	0.00
9.00	0.06	604.46	0.06	61.00	0.00	604.34	0.00
10.00	0.08	604.49	0.08	62.00	0.00	604.34	0.00
11.00	0.12	604.52	0.12	63.00	0.00	604.34	0.00
12.00	**1.83**	**605.10**	**1.83**	64.00	0.00	604.34	0.00
13.00	**2.88**	**605.35**	**2.88**	65.00	0.00	604.34	0.00
14.00	1.46	605.01	1.46	66.00	0.00	604.34	0.00
15.00	1.11	604.91	1.11	67.00	0.00	604.34	0.00
16.00	0.83	604.83	0.83	68.00	0.00	604.34	0.00
17.00	0.64	604.76	0.64	69.00	0.00	604.34	0.00
18.00	0.51	604.72	0.51	70.00	0.00	604.34	0.00
19.00	0.44	604.69	0.44	71.00	0.00	604.34	0.00
20.00	0.40	604.67	0.40	72.00	0.00	604.34	0.00
21.00	0.36	604.65	0.36				
22.00	0.33	604.64	0.33				
23.00	0.30	604.62	0.30				
24.00	0.27	604.61	0.27				
25.00	0.00	604.37	0.00				
26.00	0.00	604.34	0.00				
27.00	0.00	604.34	0.00				
28.00	0.00	604.34	0.00				
29.00	0.00	604.34	0.00				
30.00	0.00	604.34	0.00				
31.00	0.00	604.34	0.00				
32.00	0.00	604.34	0.00				
33.00	0.00	604.34	0.00				
34.00	0.00	604.34	0.00				
35.00	0.00	604.34	0.00				
36.00	0.00	604.34	0.00				
37.00	0.00	604.34	0.00				
38.00	0.00	604.34	0.00				
39.00	0.00	604.34	0.00				
40.00	0.00	604.34	0.00				
41.00	0.00	604.34	0.00				
42.00	0.00	604.34	0.00				
43.00	0.00	604.34	0.00				
44.00	0.00	604.34	0.00				
45.00	0.00	604.34	0.00				
46.00	0.00	604.34	0.00				
47.00	0.00	604.34	0.00				
48.00	0.00	604.34	0.00				
49.00	0.00	604.34	0.00				
50.00	0.00	604.34	0.00				
51.00	0.00	604.34	0.00				

Summary for Pond DP6: DP-6

[57] Hint: Peaked at 603.16' (Flood elevation advised)

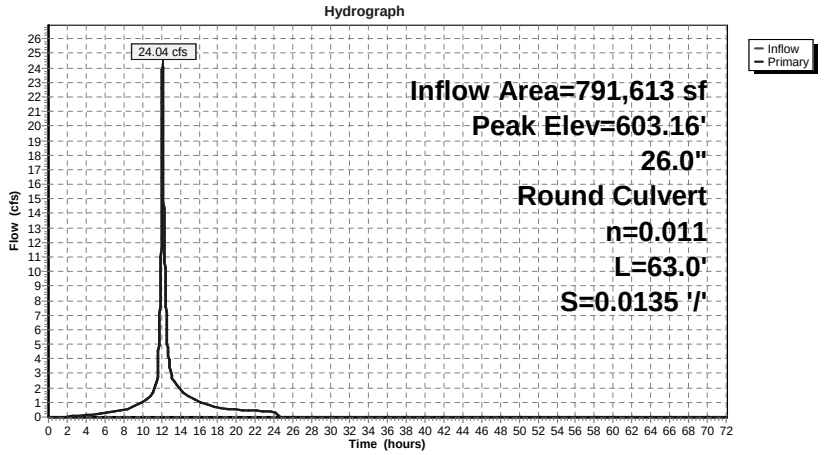
Inflow Area = 791,613 sf, 39.82% Impervious, Inflow Depth = 1.49" for 1 Year, 24 Hr. Event event
Inflow = 24.04 cfs @ 12.11 hrs, Volume= 98,353 cf
Outflow = 24.04 cfs @ 12.11 hrs, Volume= 98,353 cf, Atten= 0%, Lag= 0.0 min
Primary = 24.04 cfs @ 12.11 hrs, Volume= 98,353 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 603.16' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	600.24'	**26.0" Round Culvert** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.24' / 599.39' S= 0.0135 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=24.02 cfs @ 12.11 hrs HW=603.15' (Free Discharge)
1=Culvert (Inlet Controls 24.02 cfs @ 6.52 fps)

Pond DP6: DP-6



Hydrograph for Pond DP6: DP-6

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	600.24	0.00	52.00	0.00	600.24	0.00
1.00	0.00	600.24	0.00	53.00	0.00	600.24	0.00
2.00	0.03	600.31	0.03	54.00	0.00	600.24	0.00
3.00	0.09	600.36	0.09	55.00	0.00	600.24	0.00
4.00	0.15	600.39	0.15	56.00	0.00	600.24	0.00
5.00	0.20	600.42	0.20	57.00	0.00	600.24	0.00
6.00	0.25	600.44	0.25	58.00	0.00	600.24	0.00
7.00	0.36	600.48	0.36	59.00	0.00	600.24	0.00
8.00	0.48	600.51	0.48	60.00	0.00	600.24	0.00
9.00	0.72	600.58	0.72	61.00	0.00	600.24	0.00
10.00	0.99	600.64	0.99	62.00	0.00	600.24	0.00
11.00	1.52	600.74	1.52	63.00	0.00	600.24	0.00
12.00	**13.11**	**601.88**	**13.11**	64.00	0.00	600.24	0.00
13.00	**3.08**	**600.96**	**3.08**	65.00	0.00	600.24	0.00
14.00	1.87	600.79	1.87	66.00	0.00	600.24	0.00
15.00	1.42	600.72	1.42	67.00	0.00	600.24	0.00
16.00	1.03	600.64	1.03	68.00	0.00	600.24	0.00
17.00	0.81	600.60	0.81	69.00	0.00	600.24	0.00
18.00	0.63	600.55	0.63	70.00	0.00	600.24	0.00
19.00	0.56	600.53	0.56	71.00	0.00	600.24	0.00
20.00	0.50	600.52	0.50	72.00	0.00	600.24	0.00
21.00	0.46	600.51	0.46				
22.00	0.42	600.50	0.42				
23.00	0.38	600.48	0.38				
24.00	0.34	600.47	0.34				
25.00	0.00	600.26	0.00				
26.00	0.00	600.24	0.00				
27.00	0.00	600.24	0.00				
28.00	0.00	600.24	0.00				
29.00	0.00	600.24	0.00				
30.00	0.00	600.24	0.00				
31.00	0.00	600.24	0.00				
32.00	0.00	600.24	0.00				
33.00	0.00	600.24	0.00				
34.00	0.00	600.24	0.00				
35.00	0.00	600.24	0.00				
36.00	0.00	600.24	0.00				
37.00	0.00	600.24	0.00				
38.00	0.00	600.24	0.00				
39.00	0.00	600.24	0.00				
40.00	0.00	600.24	0.00				
41.00	0.00	600.24	0.00				
42.00	0.00	600.24	0.00				
43.00	0.00	600.24	0.00				
44.00	0.00	600.24	0.00				
45.00	0.00	600.24	0.00				
46.00	0.00	600.24	0.00				
47.00	0.00	600.24	0.00				
48.00	0.00	600.24	0.00				
49.00	0.00	600.24	0.00				
50.00	0.00	600.24	0.00				
51.00	0.00	600.24	0.00				

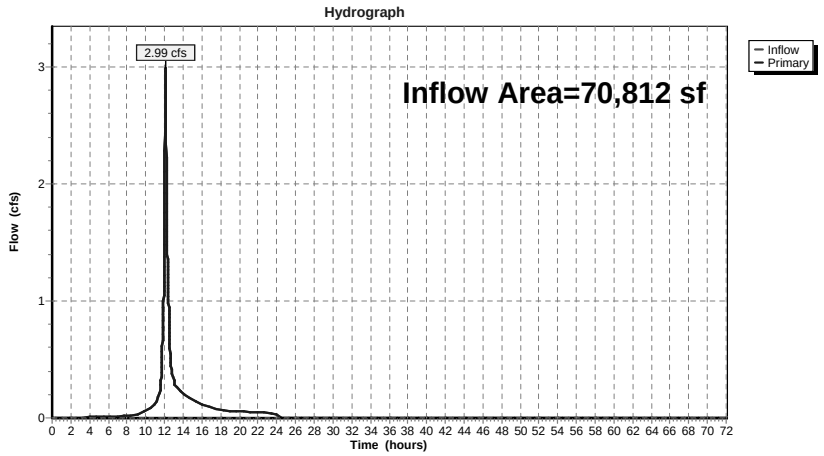
Summary for Pond DP7: DP-7

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 70,812 sf, 15.53% Impervious, Inflow Depth = 1.68" for 1 Year, 24 Hr. Event event
Inflow = 2.99 cfs @ 12.10 hrs, Volume= 9,897 cf
Primary = 2.99 cfs @ 12.10 hrs, Volume= 9,897 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP7: DP-7



Hydrograph for Pond DP7: DP-7

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.02		0.02	60.00	0.00		0.00
9.00	0.03		0.03	61.00	0.00		0.00
10.00	0.06		0.06	62.00	0.00		0.00
11.00	0.12		0.12	63.00	0.00		0.00
12.00	**1.61**		**1.61**	64.00	0.00		0.00
13.00	**0.32**		**0.32**	65.00	0.00		0.00
14.00	0.20		0.20	66.00	0.00		0.00
15.00	0.16		0.16	67.00	0.00		0.00
16.00	0.11		0.11	68.00	0.00		0.00
17.00	0.09		0.09	69.00	0.00		0.00
18.00	0.07		0.07	70.00	0.00		0.00
19.00	0.06		0.06	71.00	0.00		0.00
20.00	0.05		0.05	72.00	0.00		0.00
21.00	0.05		0.05				
22.00	0.05		0.05				
23.00	0.04		0.04				
24.00	0.04		0.04				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Pre DA-1 Runoff Area=46,914 sf 7.50% Impervious Runoff Depth=1.39"
Flow Length=568' Tc=13.0 min CN=74/98 Runoff=1.33 cfs 5,442 cf

Subcatchment 2: Pre DA-2 Runoff Area=92,465 sf 0.27% Impervious Runoff Depth=0.76"
Flow Length=470' Tc=19.1 min CN=65/98 Runoff=1.07 cfs 5,846 cf

Subcatchment 3: Pre DA-3 Runoff Area=145,666 sf 0.00% Impervious Runoff Depth=0.75"
Flow Length=783' Tc=16.8 min CN=65/0 Runoff=1.76 cfs 9,128 cf

Subcatchment 4: Pre DA-4 Runoff Area=70,908 sf 0.00% Impervious Runoff Depth=1.24"
Flow Length=643' Tc=11.4 min CN=74/0 Runoff=1.90 cfs 7,327 cf

Subcatchment 5A: Pre DA-5 Runoff Area=553,174 sf 0.76% Impervious Runoff Depth=1.08"
Flow Length=1,050' Tc=21.2 min CN=71/98 Runoff=9.82 cfs 49,808 cf

Subcatchment 5B: Pre DA-5 Runoff Area=196,780 sf 12.64% Impervious Runoff Depth=0.95"
Flow Length=1,707' Tc=32.7 min CN=62/98 Runoff=2.21 cfs 15,590 cf

Subcatchment 6A: Pre DA-6 Runoff Area=478,386 sf 65.34% Impervious Runoff Depth=2.56"
Flow Length=817' Tc=8.0 min CN=74/98 Runoff=27.76 cfs 102,217 cf

Subcatchment 6B: Pre DA-6 Runoff Area=313,227 sf 0.85% Impervious Runoff Depth=0.55"
Flow Length=1,980' Tc=28.0 min CN=60/98 Runoff=1.96 cfs 14,482 cf

Subcatchment 7: Pre DA-7 Runoff Area=70,812 sf 15.53% Impervious Runoff Depth=2.01"
Flow Length=493' Tc=7.0 min CN=82/98 Runoff=3.60 cfs 11,879 cf

Pond DP1: DP-1 Peak Elev=709.59' Inflow=1.33 cfs 5,442 cf
18.0" Round Culvert n=0.013 L=88.0' S=0.0114 '/' Outflow=1.33 cfs 5,442 cf

Pond DP2: DP-2 Peak Elev=677.53' Inflow=1.07 cfs 5,846 cf
18.0" Round Culvert n=0.013 L=51.0' S=0.0196 '/' Outflow=1.07 cfs 5,846 cf

Pond DP3: DP-3 Peak Elev=631.54' Inflow=1.76 cfs 9,128 cf
15.0" Round Culvert n=0.020 L=55.0' S=0.0515 '/' Outflow=1.76 cfs 9,128 cf

Pond DP4: DP-4 Peak Elev=606.54' Inflow=1.90 cfs 7,327 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.1191 '/' Outflow=1.90 cfs 7,327 cf

Pond DP5: DP-5 Peak Elev=611.14' Inflow=11.59 cfs 65,397 cf
15.0" Round Culvert n=0.013 L=29.0' S=0.0345 '/' Outflow=11.59 cfs 65,397 cf

Pond DP6: DP-6 Peak Elev=603.81' Inflow=28.02 cfs 116,698 cf
26.0" Round Culvert n=0.011 L=63.0' S=0.0135 '/' Outflow=28.02 cfs 116,698 cf

Pond DP7: DP-7 Inflow=3.60 cfs 11,879 cf
Primary=3.60 cfs 11,879 cf

Total Runoff Area = 1,968,332 sf Runoff Volume = 221,717 cf Average Runoff Depth = 1.35"
81.76% Pervious = 1,609,239 sf 18.24% Impervious = 359,093 sf

Summary for Subcatchment 1: Pre DA-1

Orchards have been considered as 'Woods in Fair Conditions' for purposes of calculating runoff. Orchards have been assumed to have the approximate pollutant concentration levels of Lawns as shown in Table A.2 'Pollutant Concentrations from Source Areas' in Appendix A of the NYS Stormwater Management Design Manual.

Runoff = 1.33 cfs @ 12.18 hrs, Volume= 5,442 cf, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

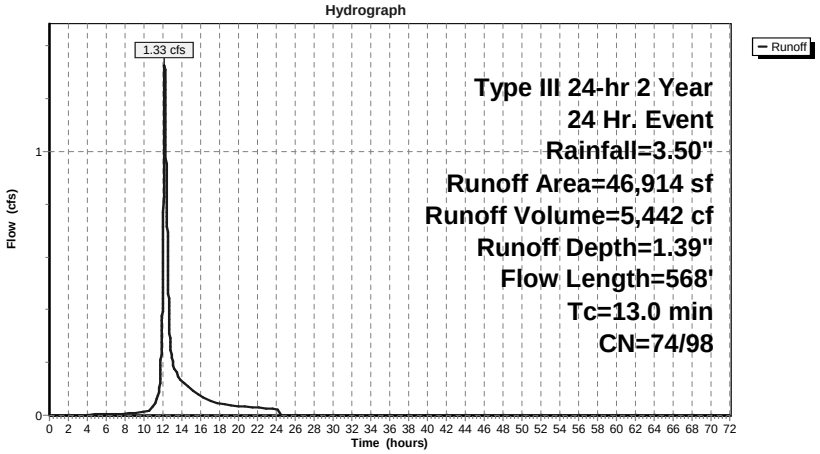
	Area (sf)	CN	Description	Land Use
	3,518	98	Paved parking, HSG C	Pavement
	18,742	61	>75% Grass cover, Good, HSG B	Open Space
	6,861	55	Woods, Good, HSG B	Woods
*	17,793	96	Gravel roads, HSG B	Roadway
	46,914	76	Weighted Average	
	43,396	74	92.50% Pervious Area	
	3,518	98	7.50% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	138	0.1590	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.5	90	0.0330	2.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	340	0.0910	6.12		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
13.0	568	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 7.50% Impervious, Rv= 0.117, Runoff= 5.37"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
18,742	Open Space	315.16	1.10	4.76	0.64
3,518	Pavement	17.00	0.06	0.21	0.66
17,793	Roadway	85.98	0.28	1.04	3.33
6,861	Woods	7.09	0.00	0.00	0.24
46,914	Total	425.23	1.43	6.01	4.87

Subcatchment 1: Pre DA-1



Hydrograph for Subcatchment 1: Pre DA-1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.24	1.53	**0.51**
14.00	2.84	0.81	2.61	**0.13**
16.00	3.10	0.97	2.87	0.07
18.00	3.25	1.07	3.02	0.04
20.00	3.35	1.14	3.12	0.04
22.00	3.43	1.19	3.20	0.03
24.00	**3.50**	**1.24**	**3.27**	0.02
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00

Summary for Subcatchment 2: Pre DA-2

Runoff = 1.07 cfs @ 12.31 hrs, Volume= 5,846 cf, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

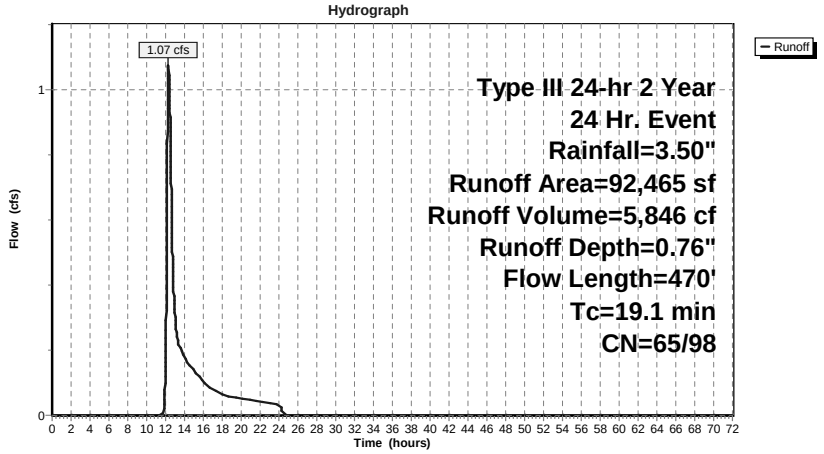
	Area (sf)	CN	Description	Land Use
	247	98	Paved parking, HSG B	Pavement
	25,422	61	>75% Grass cover, Good, HSG B	Open Space
	5,558	55	Woods, Good, HSG B	Woods
	45,478	58	Woods/grass comb., Good, HSG B	Orchard
*	15,760	96	Gravel roads, HSG B	Roadway
	92,465	65	Weighted Average	
	92,218	65	99.73% Pervious Area	
	247	98	0.27% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
3.5	50	0.1480	0.24		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.4	220	0.1480	2.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	100		3.00		**Direct Entry,**
19.1	470	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.27% Impervious, Rv= 0.052, Runoff= 2.39"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
25,422	Open Space	190.67	0.67	2.88	0.39
45,478	Orchard	341.10	1.19	5.16	2.89
247	Pavement	0.53	0.00	0.01	0.02
15,760	Roadway	33.97	0.11	0.41	1.32
5,558	Woods	2.56	0.00	0.00	0.09
92,465	Total	568.83	1.97	8.46	4.70

Subcatchment 2: Pre DA-2



Hydrograph for Subcatchment 2: Pre DA-2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.00
12.00	1.75	0.07	1.53	**0.16**
14.00	2.84	0.43	2.61	**0.18**
16.00	3.10	0.55	2.87	0.10
18.00	3.25	0.62	3.02	0.06
20.00	3.35	0.67	3.12	0.05
22.00	3.43	0.72	3.20	0.04
24.00	**3.50**	**0.75**	**3.27**	0.03
26.00	3.50	0.75	3.27	0.00
28.00	3.50	0.75	3.27	0.00
30.00	3.50	0.75	3.27	0.00
32.00	3.50	0.75	3.27	0.00
34.00	3.50	0.75	3.27	0.00
36.00	3.50	0.75	3.27	0.00
38.00	3.50	0.75	3.27	0.00
40.00	3.50	0.75	3.27	0.00
42.00	3.50	0.75	3.27	0.00
44.00	3.50	0.75	3.27	0.00
46.00	3.50	0.75	3.27	0.00
48.00	3.50	0.75	3.27	0.00
50.00	3.50	0.75	3.27	0.00
52.00	3.50	0.75	3.27	0.00
54.00	3.50	0.75	3.27	0.00
56.00	3.50	0.75	3.27	0.00
58.00	3.50	0.75	3.27	0.00
60.00	3.50	0.75	3.27	0.00
62.00	3.50	0.75	3.27	0.00
64.00	3.50	0.75	3.27	0.00
66.00	3.50	0.75	3.27	0.00
68.00	3.50	0.75	3.27	0.00
70.00	3.50	0.75	3.27	0.00
72.00	3.50	0.75	3.27	0.00

Summary for Subcatchment 3: Pre DA-3

Runoff = 1.76 cfs @ 12.27 hrs, Volume= 9,128 cf, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

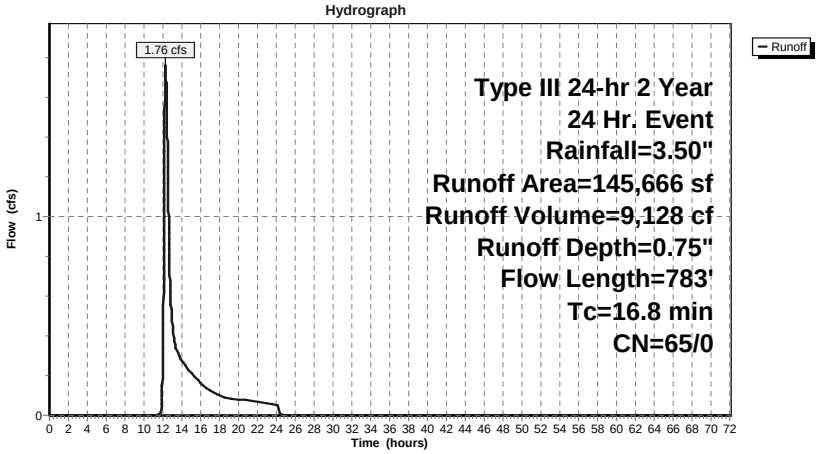
	Area (sf)	CN	Description	Land Use
	19,104	61	>75% Grass cover, Good, HSG B	Open Space
	16,367	74	>75% Grass cover, Good, HSG C	Open Space
	82,613	58	Woods/grass comb., Good, HSG B	Orchard
	11,899	72	Woods/grass comb., Good, HSG C	Orchard
*	15,683	96	Gravel roads, HSG C	Roadway
	145,666	65	Weighted Average	
	145,666	65	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	125	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	25	0.1800	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.7	275	0.1800	6.36		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.7	312		3.00		**Direct Entry,**
0.1	46	0.0870	11.87	14.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Concrete sewer w/manholes & inlets
16.8	783	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
35,471	Open Space	253.84	0.89	3.84	0.52
94,512	Orchard	676.34	2.36	10.22	5.73
15,683	Roadway	32.25	0.10	0.39	1.25
145,666	Total	962.43	3.35	14.45	7.50

Subcatchment 3: Pre DA-3



Hydrograph for Subcatchment 3: Pre DA-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.07	0.00	**0.31**
14.00	2.84	0.43	0.00	**0.28**
16.00	3.10	0.55	0.00	0.16
18.00	3.25	0.62	0.00	0.10
20.00	3.35	0.67	0.00	0.08
22.00	3.43	0.72	0.00	0.07
24.00	**3.50**	**0.75**	0.00	0.05
26.00	3.50	0.75	0.00	0.00
28.00	3.50	0.75	0.00	0.00
30.00	3.50	0.75	0.00	0.00
32.00	3.50	0.75	0.00	0.00
34.00	3.50	0.75	0.00	0.00
36.00	3.50	0.75	0.00	0.00
38.00	3.50	0.75	0.00	0.00
40.00	3.50	0.75	0.00	0.00
42.00	3.50	0.75	0.00	0.00
44.00	3.50	0.75	0.00	0.00
46.00	3.50	0.75	0.00	0.00
48.00	3.50	0.75	0.00	0.00
50.00	3.50	0.75	0.00	0.00
52.00	3.50	0.75	0.00	0.00
54.00	3.50	0.75	0.00	0.00
56.00	3.50	0.75	0.00	0.00
58.00	3.50	0.75	0.00	0.00
60.00	3.50	0.75	0.00	0.00
62.00	3.50	0.75	0.00	0.00
64.00	3.50	0.75	0.00	0.00
66.00	3.50	0.75	0.00	0.00
68.00	3.50	0.75	0.00	0.00
70.00	3.50	0.75	0.00	0.00
72.00	3.50	0.75	0.00	0.00

Summary for Subcatchment 4: Pre DA-4

Runoff = 1.90 cfs @ 12.17 hrs, Volume= 7,327 cf, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

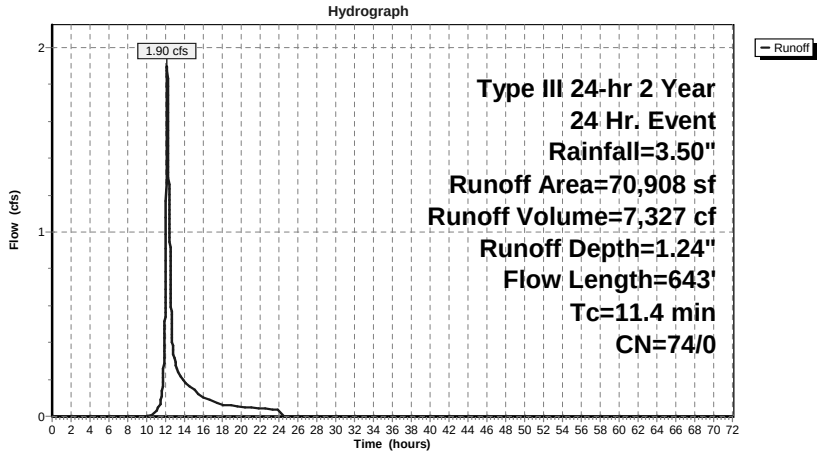
	Area (sf)	CN	Description	Land Use
	34,519	74	>75% Grass cover, Good, HSG C	Open Space
	2,363	58	Woods/grass comb., Good, HSG B	Orchard
	30,919	72	Woods/grass comb., Good, HSG C	Orchard
*	3,107	96	Gravel roads, HSG C	Roadway
	70,908	74	Weighted Average	
	70,908	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	150	0.1200	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.6	270	0.1600	2.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	100	0.3600	4.20		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	123	0.1050	11.24	8.83	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.017 Concrete sewer w/manholes & inlets
11.4	643	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
34,519	Open Space	247.02	0.86	3.73	0.50
33,282	Orchard	238.17	0.83	3.60	2.02
3,107	Roadway	6.39	0.02	0.08	0.25
70,908	Total	491.58	1.71	7.41	2.77

Subcatchment 4: Pre DA-4



Hydrograph for Subcatchment 4: Pre DA-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.24	0.00	**0.73**
14.00	2.84	0.81	0.00	**0.19**
16.00	3.10	0.97	0.00	0.10
18.00	3.25	1.07	0.00	0.06
20.00	3.35	1.14	0.00	0.05
22.00	3.43	1.19	0.00	0.04
24.00	**3.50**	**1.24**	0.00	0.03
26.00	3.50	1.24	0.00	0.00
28.00	3.50	1.24	0.00	0.00
30.00	3.50	1.24	0.00	0.00
32.00	3.50	1.24	0.00	0.00
34.00	3.50	1.24	0.00	0.00
36.00	3.50	1.24	0.00	0.00
38.00	3.50	1.24	0.00	0.00
40.00	3.50	1.24	0.00	0.00
42.00	3.50	1.24	0.00	0.00
44.00	3.50	1.24	0.00	0.00
46.00	3.50	1.24	0.00	0.00
48.00	3.50	1.24	0.00	0.00
50.00	3.50	1.24	0.00	0.00
52.00	3.50	1.24	0.00	0.00
54.00	3.50	1.24	0.00	0.00
56.00	3.50	1.24	0.00	0.00
58.00	3.50	1.24	0.00	0.00
60.00	3.50	1.24	0.00	0.00
62.00	3.50	1.24	0.00	0.00
64.00	3.50	1.24	0.00	0.00
66.00	3.50	1.24	0.00	0.00
68.00	3.50	1.24	0.00	0.00
70.00	3.50	1.24	0.00	0.00
72.00	3.50	1.24	0.00	0.00

Summary for Subcatchment 5A: Pre DA-5

Runoff = 9.82 cfs @ 12.32 hrs, Volume= 49,808 cf, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

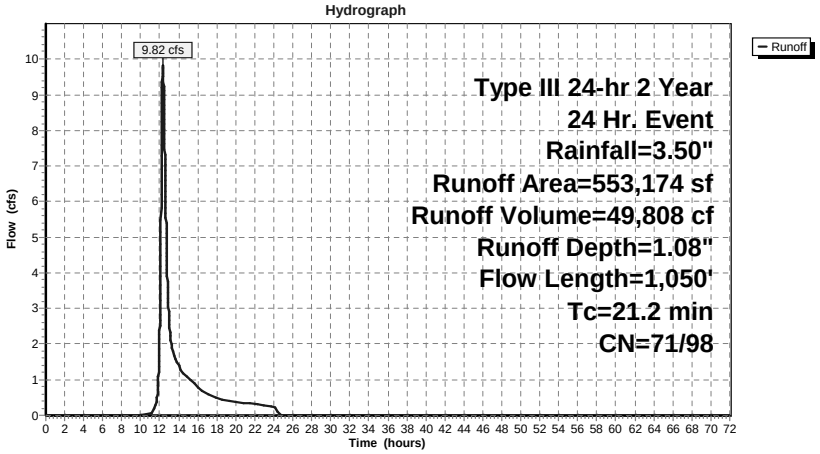
	Area (sf)	CN	Description	Land Use
	4,202	98	Paved parking, HSG C	Pavement
	13,701	61	>75% Grass cover, Good, HSG B	Open Space
	133,086	74	>75% Grass cover, Good, HSG C	Open Space
	204	69	Pasture/grassland/range, Fair, HSG B	Pasture
	43,970	58	Woods/grass comb., Good, HSG B	Orchard
	355,243	72	Woods/grass comb., Good, HSG C	Orchard
*	2,768	96	Gravel roads, HSG C	Roadway
	553,174	71	Weighted Average	
	548,972	71	99.24% Pervious Area	
	4,202	98	0.76% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	150	0.0300	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	140	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.7	630	0.3100	3.90		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	130	0.2900	3.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.2	1,050	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.76% Impervious, Rv= 0.057, Runoff= 2.60"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
146,787	Open Space	1,194.06	4.17	18.05	2.44
399,213	Orchard	3,247.45	11.33	49.09	27.51
204	Pasture	0.10	0.00	0.00	0.01
4,202	Pavement	9.82	0.03	0.12	0.38
2,768	Roadway	6.47	0.02	0.08	0.25
553,174	Total	4,457.91	15.55	67.34	30.60

Subcatchment 5A: Pre DA-5



Hydrograph for Subcatchment 5A: Pre DA-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.17	1.53	**2.38**
14.00	2.84	0.67	2.61	**1.39**
16.00	3.10	0.82	2.87	0.78
18.00	3.25	0.91	3.02	0.48
20.00	3.35	0.97	3.12	0.38
22.00	3.43	1.02	3.20	0.31
24.00	**3.50**	**1.06**	**3.27**	0.25
26.00	3.50	1.06	3.27	0.00
28.00	3.50	1.06	3.27	0.00
30.00	3.50	1.06	3.27	0.00
32.00	3.50	1.06	3.27	0.00
34.00	3.50	1.06	3.27	0.00
36.00	3.50	1.06	3.27	0.00
38.00	3.50	1.06	3.27	0.00
40.00	3.50	1.06	3.27	0.00
42.00	3.50	1.06	3.27	0.00
44.00	3.50	1.06	3.27	0.00
46.00	3.50	1.06	3.27	0.00
48.00	3.50	1.06	3.27	0.00
50.00	3.50	1.06	3.27	0.00
52.00	3.50	1.06	3.27	0.00
54.00	3.50	1.06	3.27	0.00
56.00	3.50	1.06	3.27	0.00
58.00	3.50	1.06	3.27	0.00
60.00	3.50	1.06	3.27	0.00
62.00	3.50	1.06	3.27	0.00
64.00	3.50	1.06	3.27	0.00
66.00	3.50	1.06	3.27	0.00
68.00	3.50	1.06	3.27	0.00
70.00	3.50	1.06	3.27	0.00
72.00	3.50	1.06	3.27	0.00

Summary for Subcatchment 5B: Pre DA-5

Runoff = 2.21 cfs @ 12.50 hrs, Volume= 15,590 cf, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

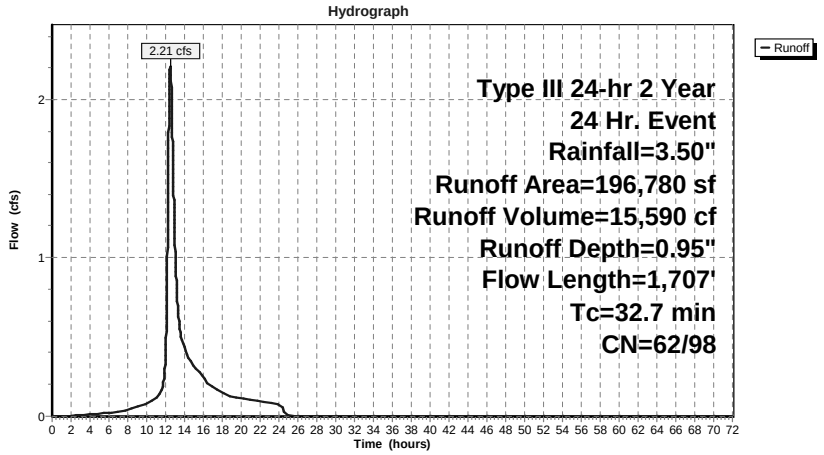
	Area (sf)	CN	Description	Land Use
	24,498	98	Roofs, HSG B	Roofs
	33,151	61	>75% Grass cover, Good, HSG B	Open Space
*	8,758	96	Gravel roads, HSG B	Roadway
	384	98	Unconnected roofs, HSG B	Roofs
	129,989	60	Woods, Fair, HSG B	Woods
	196,780	67	Weighted Average	
	171,898	62	87.36% Pervious Area	
	24,882	98	12.64% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.5	150	0.0870	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
0.6	146	0.5800	3.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	111	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.6	1,300	0.0337	8.37	10.28	**Pipe Channel, Confirm Pipe Size** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
32.7	1,707	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 12.64% Impervious, Rv= 0.164, Runoff= 7.49"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
33,151	Open Space	777.18	2.71	11.75	1.59
8,758	Roadway	59.00	0.19	0.72	2.29
24,882	Roofs	18.41	0.11	1.45	7.17
129,989	Woods	187.30	0.00	0.00	6.23
196,780	Total	1,041.90	3.01	13.92	17.27

Subcatchment 5B: Pre DA-5



Hydrograph for Subcatchment 5B: Pre DA-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.02
8.00	0.40	0.00	0.23	0.04
10.00	0.66	0.00	0.47	0.08
12.00	1.75	0.04	1.53	**0.39**
14.00	2.84	0.34	2.61	**0.43**
16.00	3.10	0.44	2.87	0.24
18.00	3.25	0.50	3.02	0.15
20.00	3.35	0.55	3.12	0.11
22.00	3.43	0.58	3.20	0.09
24.00	**3.50**	**0.62**	**3.27**	0.08
26.00	3.50	0.62	3.27	0.00
28.00	3.50	0.62	3.27	0.00
30.00	3.50	0.62	3.27	0.00
32.00	3.50	0.62	3.27	0.00
34.00	3.50	0.62	3.27	0.00
36.00	3.50	0.62	3.27	0.00
38.00	3.50	0.62	3.27	0.00
40.00	3.50	0.62	3.27	0.00
42.00	3.50	0.62	3.27	0.00
44.00	3.50	0.62	3.27	0.00
46.00	3.50	0.62	3.27	0.00
48.00	3.50	0.62	3.27	0.00
50.00	3.50	0.62	3.27	0.00
52.00	3.50	0.62	3.27	0.00
54.00	3.50	0.62	3.27	0.00
56.00	3.50	0.62	3.27	0.00
58.00	3.50	0.62	3.27	0.00
60.00	3.50	0.62	3.27	0.00
62.00	3.50	0.62	3.27	0.00
64.00	3.50	0.62	3.27	0.00
66.00	3.50	0.62	3.27	0.00
68.00	3.50	0.62	3.27	0.00
70.00	3.50	0.62	3.27	0.00
72.00	3.50	0.62	3.27	0.00

Summary for Subcatchment 6A: Pre DA-6

Runoff = 27.76 cfs @ 12.11 hrs, Volume= 102,217 cf, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

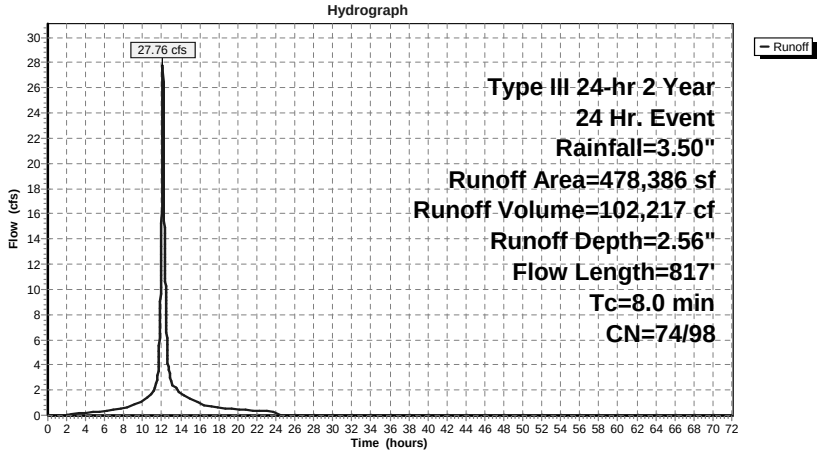
Area (sf)	CN	Description	Land Use
129,856	98	Unconnected pavement, HSG C	Pavement
182,714	98	Unconnected roofs, HSG C	Roofs
161,824	74	>75% Grass cover, Good, HSG C	Open Space
3,660	61	>75% Grass cover, Good, HSG B	Open Space
332	58	Woods/grass comb., Good, HSG B	Orchard
478,386	90	Weighted Average	
165,816	74	34.66% Pervious Area	
312,570	98	65.34% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	90	0.3310	9.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	627	0.1080	18.10	56.85	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
8.0	817	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 65.34% Impervious, Rv= 0.638, Runoff= 29.16"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
165,484	Open Space	15,111.88	52.72	228.44	30.88
332	Orchard	30.32	0.11	0.46	0.26
129,856	Pavement	3,407.80	11.03	41.37	131.98
182,714	Roofs	526.61	3.05	41.57	205.10
478,386	Total	19,076.62	66.90	311.83	368.21

Subcatchment 6A: Pre DA-6



Hydrograph for Subcatchment 6A: Pre DA-6

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.05
4.00	0.15	0.00	0.04	0.18
6.00	0.25	0.00	0.11	0.30
8.00	0.40	0.00	0.23	0.55
10.00	0.66	0.00	0.47	1.13
12.00	1.75	0.24	1.53	**15.20**
14.00	2.84	0.81	2.61	**1.74**
16.00	3.10	0.97	2.87	0.93
18.00	3.25	1.07	3.02	0.57
20.00	3.35	1.14	3.12	0.45
22.00	3.43	1.19	3.20	0.37
24.00	**3.50**	**1.24**	**3.27**	0.30
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00

Summary for Subcatchment 6B: Pre DA-6

Runoff = 1.96 cfs @ 12.51 hrs, Volume= 14,482 cf, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

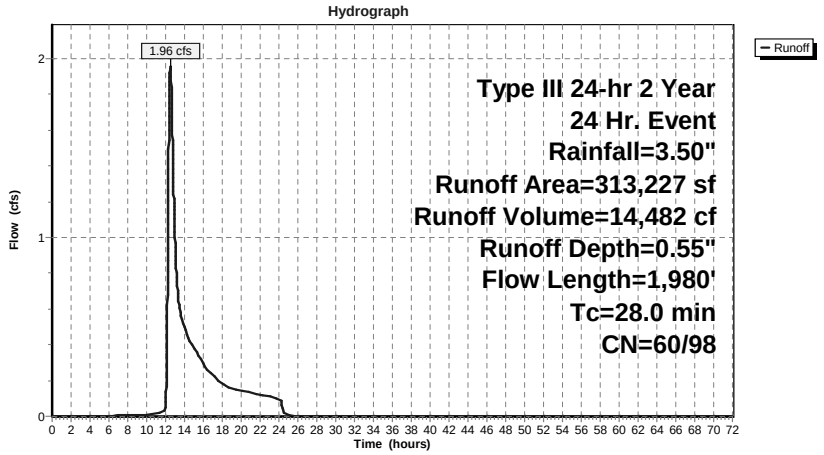
	Area (sf)	CN	Description	Land Use
	2,675	98	Unconnected pavement, HSG C	Pavement
	46,506	61	>75% Grass cover, Good, HSG B	Open Space
	262,664	60	Woods, Fair, HSG B	Woods
*	1,382	96	Gravel roads, HSG C	Roadway
	313,227	61	Weighted Average	
	310,552	60	99.15% Pervious Area	
	2,675	98	0.85% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	150	0.1200	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.4	370	0.2600	2.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	100	0.1200	7.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	1,360	0.1000	17.41	54.71	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
28.0	1,980	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.85% Impervious, Rv= 0.058, Runoff= 2.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
46,506	Open Space	383.96	1.34	5.80	0.78
2,675	Pavement	6.35	0.02	0.08	0.25
1,382	Roadway	3.28	0.01	0.04	0.13
262,664	Woods	133.29	0.00	0.00	4.43
313,227	Total	526.88	1.37	5.92	5.59

Subcatchment 6B: Pre DA-6



Hydrograph for Subcatchment 6B: Pre DA-6

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.02	1.53	**0.06**
14.00	2.84	0.28	2.61	**0.49**
16.00	3.10	0.37	2.87	0.29
18.00	3.25	0.43	3.02	0.18
20.00	3.35	0.47	3.12	0.14
22.00	3.43	0.50	3.20	0.12
24.00	**3.50**	**0.53**	**3.27**	0.10
26.00	3.50	0.53	3.27	0.00
28.00	3.50	0.53	3.27	0.00
30.00	3.50	0.53	3.27	0.00
32.00	3.50	0.53	3.27	0.00
34.00	3.50	0.53	3.27	0.00
36.00	3.50	0.53	3.27	0.00
38.00	3.50	0.53	3.27	0.00
40.00	3.50	0.53	3.27	0.00
42.00	3.50	0.53	3.27	0.00
44.00	3.50	0.53	3.27	0.00
46.00	3.50	0.53	3.27	0.00
48.00	3.50	0.53	3.27	0.00
50.00	3.50	0.53	3.27	0.00
52.00	3.50	0.53	3.27	0.00
54.00	3.50	0.53	3.27	0.00
56.00	3.50	0.53	3.27	0.00
58.00	3.50	0.53	3.27	0.00
60.00	3.50	0.53	3.27	0.00
62.00	3.50	0.53	3.27	0.00
64.00	3.50	0.53	3.27	0.00
66.00	3.50	0.53	3.27	0.00
68.00	3.50	0.53	3.27	0.00
70.00	3.50	0.53	3.27	0.00
72.00	3.50	0.53	3.27	0.00

Summary for Subcatchment 7: Pre DA-7

Runoff = 3.60 cfs @ 12.10 hrs, Volume= 11,879 cf, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

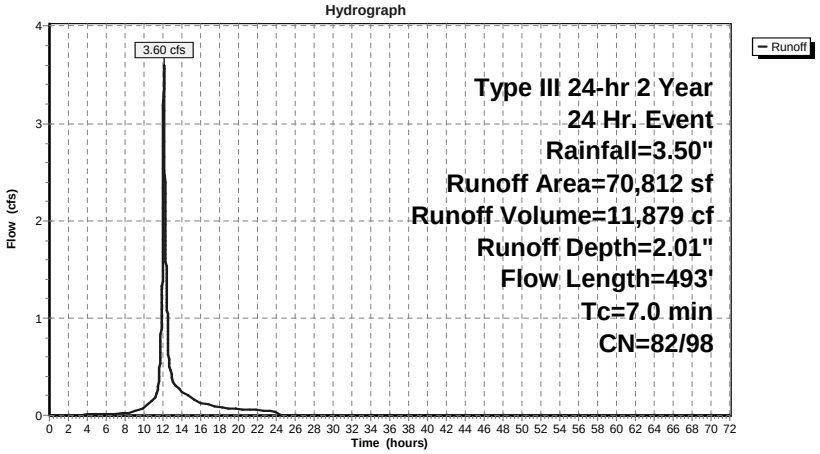
	Area (sf)	CN	Description	Land Use
	4,235	98	Paved parking, HSG C	Pavement
	6,764	98	Roofs, HSG C	Roofs
	37,133	74	>75% Grass cover, Good, HSG C	Open Space
*	22,680	96	Gravel roads, HSG C	Roadway
	70,812	85	Weighted Average	
	59,813	82	84.47% Pervious Area	
	10,999	98	15.53% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	135	0.2670	0.37		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	40	0.1500	2.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	81	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	114	0.0350	13.47	42.32	**Pipe Channel, Assumed Dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.1	123	0.0810	20.49	64.38	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
7.0	493	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 15.53% Impervious, Rv= 0.190, Runoff= 8.67"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
37,133	Open Space	1,008.68	3.52	15.25	2.06
4,235	Pavement	33.06	0.11	0.40	1.28
22,680	Roadway	177.05	0.57	2.15	6.86
6,764	Roofs	5.80	0.03	0.46	2.26
70,812	Total	1,224.58	4.23	18.26	12.46

Subcatchment 7: Pre DA-7



Hydrograph for Subcatchment 7: Pre DA-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.02
10.00	0.66	0.02	0.47	0.08
12.00	1.75	0.49	1.53	**1.96**
14.00	2.84	1.25	2.61	**0.24**
16.00	3.10	1.46	2.87	0.13
18.00	3.25	1.58	3.02	0.08
20.00	3.35	1.66	3.12	0.06
22.00	3.43	1.73	3.20	0.05
24.00	**3.50**	**1.78**	**3.27**	0.04
26.00	3.50	1.78	3.27	0.00
28.00	3.50	1.78	3.27	0.00
30.00	3.50	1.78	3.27	0.00
32.00	3.50	1.78	3.27	0.00
34.00	3.50	1.78	3.27	0.00
36.00	3.50	1.78	3.27	0.00
38.00	3.50	1.78	3.27	0.00
40.00	3.50	1.78	3.27	0.00
42.00	3.50	1.78	3.27	0.00
44.00	3.50	1.78	3.27	0.00
46.00	3.50	1.78	3.27	0.00
48.00	3.50	1.78	3.27	0.00
50.00	3.50	1.78	3.27	0.00
52.00	3.50	1.78	3.27	0.00
54.00	3.50	1.78	3.27	0.00
56.00	3.50	1.78	3.27	0.00
58.00	3.50	1.78	3.27	0.00
60.00	3.50	1.78	3.27	0.00
62.00	3.50	1.78	3.27	0.00
64.00	3.50	1.78	3.27	0.00
66.00	3.50	1.78	3.27	0.00
68.00	3.50	1.78	3.27	0.00
70.00	3.50	1.78	3.27	0.00
72.00	3.50	1.78	3.27	0.00

Summary for Pond DP1: DP-1

[57] Hint: Peaked at 709.59' (Flood elevation advised)

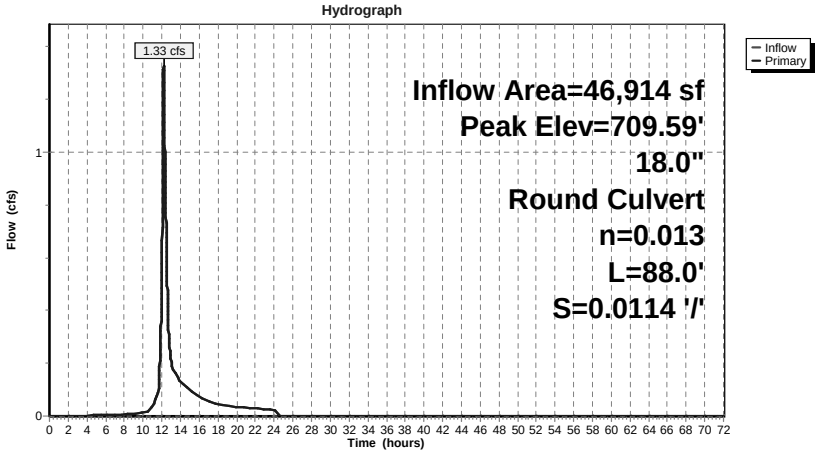
Inflow Area = 46,914 sf, 7.50% Impervious, Inflow Depth = 1.39" for 2 Year, 24 Hr. Event event
Inflow = 1.33 cfs @ 12.18 hrs, Volume= 5,442 cf
Outflow = 1.33 cfs @ 12.18 hrs, Volume= 5,442 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.33 cfs @ 12.18 hrs, Volume= 5,442 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 709.59' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	709.00'	**18.0" Round Culvert** L= 88.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 709.00' / 708.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.32 cfs @ 12.18 hrs HW=709.59' (Free Discharge)
1=Culvert (Inlet Controls 1.32 cfs @ 2.06 fps)

Pond DP1: DP-1



Hydrograph for Pond DP1: DP-1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	709.00	0.00	52.00	0.00	709.00	0.00
1.00	0.00	709.00	0.00	53.00	0.00	709.00	0.00
2.00	0.00	709.01	0.00	54.00	0.00	709.00	0.00
3.00	0.00	709.02	0.00	55.00	0.00	709.00	0.00
4.00	0.00	709.02	0.00	56.00	0.00	709.00	0.00
5.00	0.00	709.02	0.00	57.00	0.00	709.00	0.00
6.00	0.00	709.03	0.00	58.00	0.00	709.00	0.00
7.00	0.00	709.03	0.00	59.00	0.00	709.00	0.00
8.00	0.01	709.04	0.01	60.00	0.00	709.00	0.00
9.00	0.01	709.05	0.01	61.00	0.00	709.00	0.00
10.00	0.01	709.05	0.01	62.00	0.00	709.00	0.00
11.00	0.03	709.09	0.03	63.00	0.00	709.00	0.00
12.00	**0.51**	**709.36**	**0.51**	64.00	0.00	709.00	0.00
13.00	**0.21**	**709.22**	**0.21**	65.00	0.00	709.00	0.00
14.00	0.13	709.18	0.13	66.00	0.00	709.00	0.00
15.00	0.10	709.15	0.10	67.00	0.00	709.00	0.00
16.00	0.07	709.13	0.07	68.00	0.00	709.00	0.00
17.00	0.06	709.12	0.06	69.00	0.00	709.00	0.00
18.00	0.04	709.10	0.04	70.00	0.00	709.00	0.00
19.00	0.04	709.10	0.04	71.00	0.00	709.00	0.00
20.00	0.04	709.09	0.04	72.00	0.00	709.00	0.00
21.00	0.03	709.09	0.03				
22.00	0.03	709.08	0.03				
23.00	0.03	709.08	0.03				
24.00	0.02	709.07	0.02				
25.00	0.00	709.00	0.00				
26.00	0.00	709.00	0.00				
27.00	0.00	709.00	0.00				
28.00	0.00	709.00	0.00				
29.00	0.00	709.00	0.00				
30.00	0.00	709.00	0.00				
31.00	0.00	709.00	0.00				
32.00	0.00	709.00	0.00				
33.00	0.00	709.00	0.00				
34.00	0.00	709.00	0.00				
35.00	0.00	709.00	0.00				
36.00	0.00	709.00	0.00				
37.00	0.00	709.00	0.00				
38.00	0.00	709.00	0.00				
39.00	0.00	709.00	0.00				
40.00	0.00	709.00	0.00				
41.00	0.00	709.00	0.00				
42.00	0.00	709.00	0.00				
43.00	0.00	709.00	0.00				
44.00	0.00	709.00	0.00				
45.00	0.00	709.00	0.00				
46.00	0.00	709.00	0.00				
47.00	0.00	709.00	0.00				
48.00	0.00	709.00	0.00				
49.00	0.00	709.00	0.00				
50.00	0.00	709.00	0.00				
51.00	0.00	709.00	0.00				

Summary for Pond DP2: DP-2

[57] Hint: Peaked at 677.53' (Flood elevation advised)

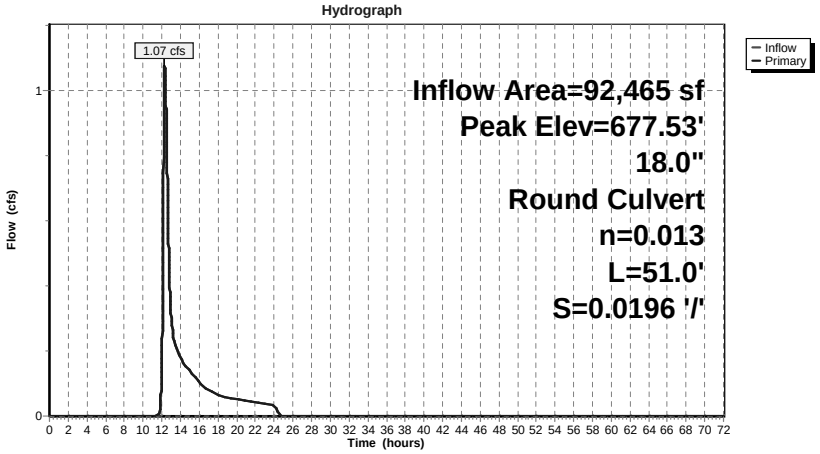
Inflow Area = 92,465 sf, 0.27% Impervious, Inflow Depth = 0.76" for 2 Year, 24 Hr. Event event
Inflow = 1.07 cfs @ 12.31 hrs, Volume= 5,846 cf
Outflow = 1.07 cfs @ 12.31 hrs, Volume= 5,846 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.07 cfs @ 12.31 hrs, Volume= 5,846 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 677.53' @ 12.31 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	677.00'	**18.0" Round Culvert** L= 51.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 677.00' / 676.00' S= 0.0196 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.07 cfs @ 12.31 hrs HW=677.53' (Free Discharge)
1=Culvert (Inlet Controls 1.07 cfs @ 1.95 fps)

Pond DP2: DP-2



Hydrograph for Pond DP2: DP-2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	677.00	0.00	52.00	0.00	677.00	0.00
1.00	0.00	677.00	0.00	53.00	0.00	677.00	0.00
2.00	0.00	677.00	0.00	54.00	0.00	677.00	0.00
3.00	0.00	677.00	0.00	55.00	0.00	677.00	0.00
4.00	0.00	677.01	0.00	56.00	0.00	677.00	0.00
5.00	0.00	677.01	0.00	57.00	0.00	677.00	0.00
6.00	0.00	677.01	0.00	58.00	0.00	677.00	0.00
7.00	0.00	677.01	0.00	59.00	0.00	677.00	0.00
8.00	0.00	677.01	0.00	60.00	0.00	677.00	0.00
9.00	0.00	677.01	0.00	61.00	0.00	677.00	0.00
10.00	0.00	677.01	0.00	62.00	0.00	677.00	0.00
11.00	0.00	677.02	0.00	63.00	0.00	677.00	0.00
12.00	**0.16**	**677.20**	**0.16**	64.00	0.00	677.00	0.00
13.00	**0.31**	**677.27**	**0.31**	65.00	0.00	677.00	0.00
14.00	0.18	677.21	0.18	66.00	0.00	677.00	0.00
15.00	0.14	677.18	0.14	67.00	0.00	677.00	0.00
16.00	0.10	677.16	0.10	68.00	0.00	677.00	0.00
17.00	0.08	677.14	0.08	69.00	0.00	677.00	0.00
18.00	0.06	677.12	0.06	70.00	0.00	677.00	0.00
19.00	0.06	677.11	0.06	71.00	0.00	677.00	0.00
20.00	0.05	677.11	0.05	72.00	0.00	677.00	0.00
21.00	0.05	677.10	0.05				
22.00	0.04	677.10	0.04				
23.00	0.04	677.09	0.04				
24.00	0.03	677.09	0.03				
25.00	0.00	677.00	0.00				
26.00	0.00	677.00	0.00				
27.00	0.00	677.00	0.00				
28.00	0.00	677.00	0.00				
29.00	0.00	677.00	0.00				
30.00	0.00	677.00	0.00				
31.00	0.00	677.00	0.00				
32.00	0.00	677.00	0.00				
33.00	0.00	677.00	0.00				
34.00	0.00	677.00	0.00				
35.00	0.00	677.00	0.00				
36.00	0.00	677.00	0.00				
37.00	0.00	677.00	0.00				
38.00	0.00	677.00	0.00				
39.00	0.00	677.00	0.00				
40.00	0.00	677.00	0.00				
41.00	0.00	677.00	0.00				
42.00	0.00	677.00	0.00				
43.00	0.00	677.00	0.00				
44.00	0.00	677.00	0.00				
45.00	0.00	677.00	0.00				
46.00	0.00	677.00	0.00				
47.00	0.00	677.00	0.00				
48.00	0.00	677.00	0.00				
49.00	0.00	677.00	0.00				
50.00	0.00	677.00	0.00				
51.00	0.00	677.00	0.00				

Summary for Pond DP3: DP-3

[57] Hint: Peaked at 631.54' (Flood elevation advised)

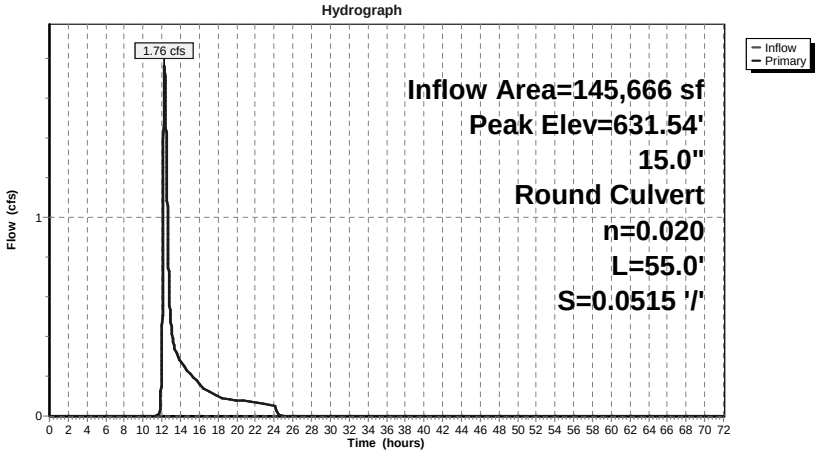
Inflow Area = 145,666 sf, 0.00% Impervious, Inflow Depth = 0.75" for 2 Year, 24 Hr. Event event
Inflow = 1.76 cfs @ 12.27 hrs, Volume= 9,128 cf
Outflow = 1.76 cfs @ 12.27 hrs, Volume= 9,128 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.76 cfs @ 12.27 hrs, Volume= 9,128 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 631.54' @ 12.27 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	630.80'	**15.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 630.80' / 627.97' S= 0.0515 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=1.76 cfs @ 12.27 hrs HW=631.54' (Free Discharge)
1=Culvert (Inlet Controls 1.76 cfs @ 2.32 fps)

Pond DP3: DP-3



Hydrograph for Pond DP3: DP-3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	630.80	0.00	52.00	0.00	630.80	0.00
1.00	0.00	630.80	0.00	53.00	0.00	630.80	0.00
2.00	0.00	630.80	0.00	54.00	0.00	630.80	0.00
3.00	0.00	630.80	0.00	55.00	0.00	630.80	0.00
4.00	0.00	630.80	0.00	56.00	0.00	630.80	0.00
5.00	0.00	630.80	0.00	57.00	0.00	630.80	0.00
6.00	0.00	630.80	0.00	58.00	0.00	630.80	0.00
7.00	0.00	630.80	0.00	59.00	0.00	630.80	0.00
8.00	0.00	630.80	0.00	60.00	0.00	630.80	0.00
9.00	0.00	630.80	0.00	61.00	0.00	630.80	0.00
10.00	0.00	630.80	0.00	62.00	0.00	630.80	0.00
11.00	0.00	630.80	0.00	63.00	0.00	630.80	0.00
12.00	**0.31**	**631.09**	**0.31**	64.00	0.00	630.80	0.00
13.00	**0.45**	**631.15**	**0.45**	65.00	0.00	630.80	0.00
14.00	0.28	631.07	0.28	66.00	0.00	630.80	0.00
15.00	0.22	631.04	0.22	67.00	0.00	630.80	0.00
16.00	0.16	631.01	0.16	68.00	0.00	630.80	0.00
17.00	0.13	630.98	0.13	69.00	0.00	630.80	0.00
18.00	0.10	630.96	0.10	70.00	0.00	630.80	0.00
19.00	0.09	630.95	0.09	71.00	0.00	630.80	0.00
20.00	0.08	630.94	0.08	72.00	0.00	630.80	0.00
21.00	0.07	630.94	0.07				
22.00	0.07	630.93	0.07				
23.00	0.06	630.93	0.06				
24.00	0.05	630.92	0.05				
25.00	0.00	630.80	0.00				
26.00	0.00	630.80	0.00				
27.00	0.00	630.80	0.00				
28.00	0.00	630.80	0.00				
29.00	0.00	630.80	0.00				
30.00	0.00	630.80	0.00				
31.00	0.00	630.80	0.00				
32.00	0.00	630.80	0.00				
33.00	0.00	630.80	0.00				
34.00	0.00	630.80	0.00				
35.00	0.00	630.80	0.00				
36.00	0.00	630.80	0.00				
37.00	0.00	630.80	0.00				
38.00	0.00	630.80	0.00				
39.00	0.00	630.80	0.00				
40.00	0.00	630.80	0.00				
41.00	0.00	630.80	0.00				
42.00	0.00	630.80	0.00				
43.00	0.00	630.80	0.00				
44.00	0.00	630.80	0.00				
45.00	0.00	630.80	0.00				
46.00	0.00	630.80	0.00				
47.00	0.00	630.80	0.00				
48.00	0.00	630.80	0.00				
49.00	0.00	630.80	0.00				
50.00	0.00	630.80	0.00				
51.00	0.00	630.80	0.00				

Summary for Pond DP4: DP-4

[57] Hint: Peaked at 606.54' (Flood elevation advised)

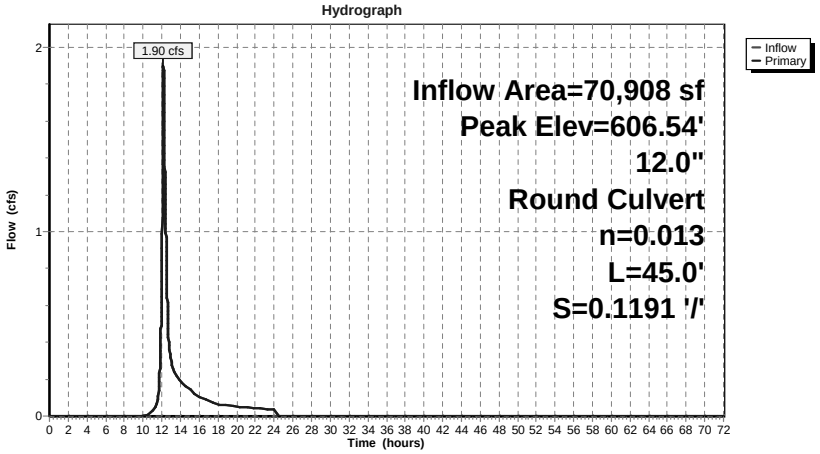
Inflow Area = 70,908 sf, 0.00% Impervious, Inflow Depth = 1.24" for 2 Year, 24 Hr. Event event
Inflow = 1.90 cfs @ 12.17 hrs, Volume= 7,327 cf
Outflow = 1.90 cfs @ 12.17 hrs, Volume= 7,327 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.90 cfs @ 12.17 hrs, Volume= 7,327 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 606.54' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	605.64'	**12.0" Round Culvert** L= 45.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 605.64' / 600.28' S= 0.1191 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.89 cfs @ 12.17 hrs HW=606.54' (Free Discharge)
1=Culvert (Inlet Controls 1.89 cfs @ 2.55 fps)

Pond DP4: DP-4



Hydrograph for Pond DP4: DP-4

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	605.64	0.00	52.00	0.00	605.64	0.00
1.00	0.00	605.64	0.00	53.00	0.00	605.64	0.00
2.00	0.00	605.64	0.00	54.00	0.00	605.64	0.00
3.00	0.00	605.64	0.00	55.00	0.00	605.64	0.00
4.00	0.00	605.64	0.00	56.00	0.00	605.64	0.00
5.00	0.00	605.64	0.00	57.00	0.00	605.64	0.00
6.00	0.00	605.64	0.00	58.00	0.00	605.64	0.00
7.00	0.00	605.64	0.00	59.00	0.00	605.64	0.00
8.00	0.00	605.64	0.00	60.00	0.00	605.64	0.00
9.00	0.00	605.64	0.00	61.00	0.00	605.64	0.00
10.00	0.00	605.64	0.00	62.00	0.00	605.64	0.00
11.00	0.03	605.73	0.03	63.00	0.00	605.64	0.00
12.00	**0.73**	**606.13**	**0.73**	64.00	0.00	605.64	0.00
13.00	**0.29**	**605.94**	**0.29**	65.00	0.00	605.64	0.00
14.00	0.19	605.88	0.19	66.00	0.00	605.64	0.00
15.00	0.14	605.85	0.14	67.00	0.00	605.64	0.00
16.00	0.10	605.82	0.10	68.00	0.00	605.64	0.00
17.00	0.08	605.80	0.08	69.00	0.00	605.64	0.00
18.00	0.06	605.78	0.06	70.00	0.00	605.64	0.00
19.00	0.06	605.77	0.06	71.00	0.00	605.64	0.00
20.00	0.05	605.76	0.05	72.00	0.00	605.64	0.00
21.00	0.05	605.76	0.05				
22.00	0.04	605.75	0.04				
23.00	0.04	605.75	0.04				
24.00	0.03	605.74	0.03				
25.00	0.00	605.64	0.00				
26.00	0.00	605.64	0.00				
27.00	0.00	605.64	0.00				
28.00	0.00	605.64	0.00				
29.00	0.00	605.64	0.00				
30.00	0.00	605.64	0.00				
31.00	0.00	605.64	0.00				
32.00	0.00	605.64	0.00				
33.00	0.00	605.64	0.00				
34.00	0.00	605.64	0.00				
35.00	0.00	605.64	0.00				
36.00	0.00	605.64	0.00				
37.00	0.00	605.64	0.00				
38.00	0.00	605.64	0.00				
39.00	0.00	605.64	0.00				
40.00	0.00	605.64	0.00				
41.00	0.00	605.64	0.00				
42.00	0.00	605.64	0.00				
43.00	0.00	605.64	0.00				
44.00	0.00	605.64	0.00				
45.00	0.00	605.64	0.00				
46.00	0.00	605.64	0.00				
47.00	0.00	605.64	0.00				
48.00	0.00	605.64	0.00				
49.00	0.00	605.64	0.00				
50.00	0.00	605.64	0.00				
51.00	0.00	605.64	0.00				

Summary for Pond DP5: DP-5

[57] Hint: Peaked at 611.14' (Flood elevation advised)

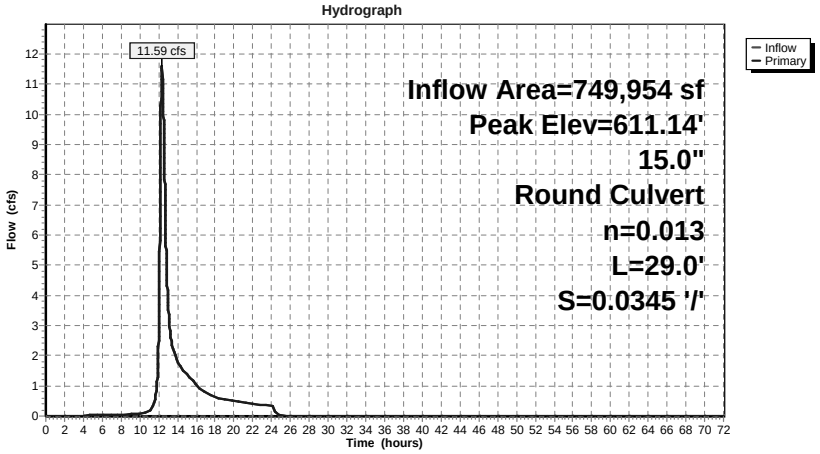
Inflow Area = 749,954 sf, 3.88% Impervious, Inflow Depth = 1.05" for 2 Year, 24 Hr. Event event
Inflow = 11.59 cfs @ 12.34 hrs, Volume= 65,397 cf
Outflow = 11.59 cfs @ 12.34 hrs, Volume= 65,397 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.59 cfs @ 12.34 hrs, Volume= 65,397 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 611.14' @ 12.34 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	604.34'	**15.0" Round Culvert** L= 29.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 604.34' / 603.34' S= 0.0345 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=11.59 cfs @ 12.34 hrs HW=611.14' (Free Discharge)
1=Culvert (Inlet Controls 11.59 cfs @ 9.45 fps)

Pond DP5: DP-5



Hydrograph for Pond DP5: DP-5

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	604.34	0.00	52.00	0.00	604.34	0.00
1.00	0.00	604.34	0.00	53.00	0.00	604.34	0.00
2.00	0.00	604.37	0.00	54.00	0.00	604.34	0.00
3.00	0.01	604.39	0.01	55.00	0.00	604.34	0.00
4.00	0.01	604.40	0.01	56.00	0.00	604.34	0.00
5.00	0.02	604.41	0.02	57.00	0.00	604.34	0.00
6.00	0.03	604.42	0.03	58.00	0.00	604.34	0.00
7.00	0.03	604.43	0.03	59.00	0.00	604.34	0.00
8.00	0.05	604.45	0.05	60.00	0.00	604.34	0.00
9.00	0.07	604.47	0.07	61.00	0.00	604.34	0.00
10.00	0.09	604.50	0.09	62.00	0.00	604.34	0.00
11.00	0.14	604.53	0.14	63.00	0.00	604.34	0.00
12.00	**2.77**	**605.33**	**2.77**	64.00	0.00	604.34	0.00
13.00	**3.68**	**605.59**	**3.68**	65.00	0.00	604.34	0.00
14.00	1.82	605.10	1.82	66.00	0.00	604.34	0.00
15.00	1.38	604.98	1.38	67.00	0.00	604.34	0.00
16.00	1.03	604.89	1.03	68.00	0.00	604.34	0.00
17.00	0.79	604.81	0.79	69.00	0.00	604.34	0.00
18.00	0.63	604.76	0.63	70.00	0.00	604.34	0.00
19.00	0.54	604.73	0.54	71.00	0.00	604.34	0.00
20.00	0.49	604.71	0.49	72.00	0.00	604.34	0.00
21.00	0.45	604.69	0.45				
22.00	0.41	604.67	0.41				
23.00	0.37	604.66	0.37				
24.00	0.33	604.64	0.33				
25.00	0.00	604.37	0.00				
26.00	0.00	604.34	0.00				
27.00	0.00	604.34	0.00				
28.00	0.00	604.34	0.00				
29.00	0.00	604.34	0.00				
30.00	0.00	604.34	0.00				
31.00	0.00	604.34	0.00				
32.00	0.00	604.34	0.00				
33.00	0.00	604.34	0.00				
34.00	0.00	604.34	0.00				
35.00	0.00	604.34	0.00				
36.00	0.00	604.34	0.00				
37.00	0.00	604.34	0.00				
38.00	0.00	604.34	0.00				
39.00	0.00	604.34	0.00				
40.00	0.00	604.34	0.00				
41.00	0.00	604.34	0.00				
42.00	0.00	604.34	0.00				
43.00	0.00	604.34	0.00				
44.00	0.00	604.34	0.00				
45.00	0.00	604.34	0.00				
46.00	0.00	604.34	0.00				
47.00	0.00	604.34	0.00				
48.00	0.00	604.34	0.00				
49.00	0.00	604.34	0.00				
50.00	0.00	604.34	0.00				
51.00	0.00	604.34	0.00				

Summary for Pond DP6: DP-6

[57] Hint: Peaked at 603.81' (Flood elevation advised)

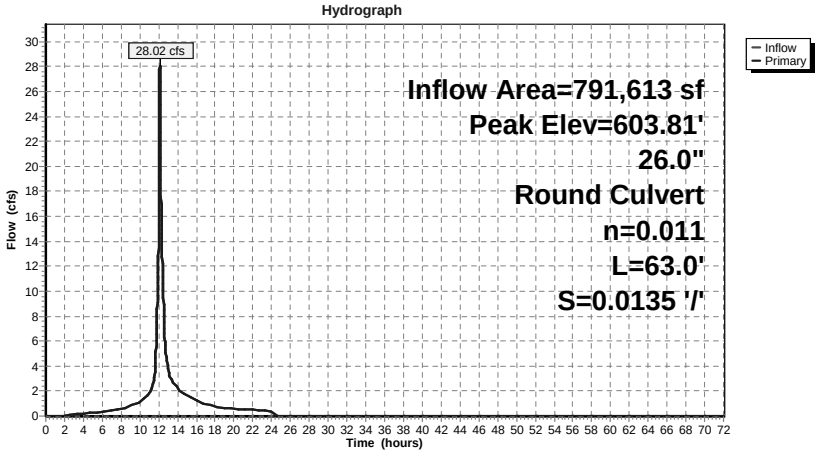
Inflow Area = 791,613 sf, 39.82% Impervious, Inflow Depth = 1.77" for 2 Year, 24 Hr. Event event
Inflow = 28.02 cfs @ 12.11 hrs, Volume= 116,698 cf
Outflow = 28.02 cfs @ 12.11 hrs, Volume= 116,698 cf, Atten= 0%, Lag= 0.0 min
Primary = 28.02 cfs @ 12.11 hrs, Volume= 116,698 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 603.81' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	600.24'	**26.0" Round Culvert** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.24' / 599.39' S= 0.0135 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=27.99 cfs @ 12.11 hrs HW=603.81' (Free Discharge)
1=Culvert (Inlet Controls 27.99 cfs @ 7.59 fps)

Pond DP6: DP-6



Hydrograph for Pond DP6: DP-6

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	600.24	0.00	52.00	0.00	600.24	0.00
1.00	0.00	600.24	0.00	53.00	0.00	600.24	0.00
2.00	0.05	600.33	0.05	54.00	0.00	600.24	0.00
3.00	0.12	600.37	0.12	55.00	0.00	600.24	0.00
4.00	0.18	600.41	0.18	56.00	0.00	600.24	0.00
5.00	0.25	600.43	0.25	57.00	0.00	600.24	0.00
6.00	0.30	600.46	0.30	58.00	0.00	600.24	0.00
7.00	0.42	600.50	0.42	59.00	0.00	600.24	0.00
8.00	0.56	600.54	0.56	60.00	0.00	600.24	0.00
9.00	0.83	600.60	0.83	61.00	0.00	600.24	0.00
10.00	1.14	600.67	1.14	62.00	0.00	600.24	0.00
11.00	1.79	600.78	1.79	63.00	0.00	600.24	0.00
12.00	**15.27**	**602.07**	**15.27**	64.00	0.00	600.24	0.00
13.00	**3.76**	**601.04**	**3.76**	65.00	0.00	600.24	0.00
14.00	2.23	600.84	2.23	66.00	0.00	600.24	0.00
15.00	1.69	600.76	1.69	67.00	0.00	600.24	0.00
16.00	1.22	600.68	1.22	68.00	0.00	600.24	0.00
17.00	0.96	600.63	0.96	69.00	0.00	600.24	0.00
18.00	0.75	600.58	0.75	70.00	0.00	600.24	0.00
19.00	0.66	600.56	0.66	71.00	0.00	600.24	0.00
20.00	0.60	600.55	0.60	72.00	0.00	600.24	0.00
21.00	0.54	600.53	0.54				
22.00	0.50	600.52	0.50				
23.00	0.45	600.50	0.45				
24.00	0.40	600.49	0.40				
25.00	0.00	600.26	0.00				
26.00	0.00	600.24	0.00				
27.00	0.00	600.24	0.00				
28.00	0.00	600.24	0.00				
29.00	0.00	600.24	0.00				
30.00	0.00	600.24	0.00				
31.00	0.00	600.24	0.00				
32.00	0.00	600.24	0.00				
33.00	0.00	600.24	0.00				
34.00	0.00	600.24	0.00				
35.00	0.00	600.24	0.00				
36.00	0.00	600.24	0.00				
37.00	0.00	600.24	0.00				
38.00	0.00	600.24	0.00				
39.00	0.00	600.24	0.00				
40.00	0.00	600.24	0.00				
41.00	0.00	600.24	0.00				
42.00	0.00	600.24	0.00				
43.00	0.00	600.24	0.00				
44.00	0.00	600.24	0.00				
45.00	0.00	600.24	0.00				
46.00	0.00	600.24	0.00				
47.00	0.00	600.24	0.00				
48.00	0.00	600.24	0.00				
49.00	0.00	600.24	0.00				
50.00	0.00	600.24	0.00				
51.00	0.00	600.24	0.00				

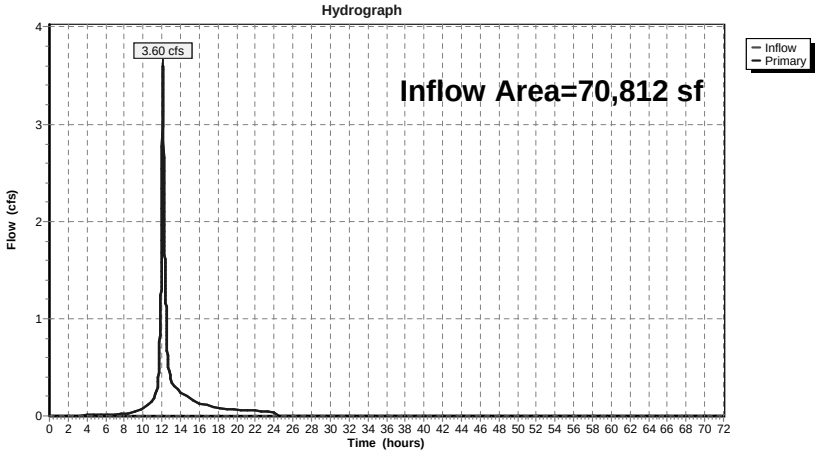
Summary for Pond DP7: DP-7

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 70,812 sf, 15.53% Impervious, Inflow Depth = 2.01" for 2 Year, 24 Hr. Event event
Inflow = 3.60 cfs @ 12.10 hrs, Volume= 11,879 cf
Primary = 3.60 cfs @ 12.10 hrs, Volume= 11,879 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP7: DP-7



Hydrograph for Pond DP7: DP-7

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.02		0.02	60.00	0.00		0.00
9.00	0.04		0.04	61.00	0.00		0.00
10.00	0.08		0.08	62.00	0.00		0.00
11.00	0.16		0.16	63.00	0.00		0.00
12.00	**1.96**		**1.96**	64.00	0.00		0.00
13.00	**0.37**		**0.37**	65.00	0.00		0.00
14.00	0.24		0.24	66.00	0.00		0.00
15.00	0.18		0.18	67.00	0.00		0.00
16.00	0.13		0.13	68.00	0.00		0.00
17.00	0.10		0.10	69.00	0.00		0.00
18.00	0.08		0.08	70.00	0.00		0.00
19.00	0.07		0.07	71.00	0.00		0.00
20.00	0.06		0.06	72.00	0.00		0.00
21.00	0.06		0.06				
22.00	0.05		0.05				
23.00	0.05		0.05				
24.00	0.04		0.04				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Pre DA-1 Runoff Area=46,914 sf 7.50% Impervious Runoff Depth=2.96"
Flow Length=568' Tc=13.0 min CN=74/98 Runoff=2.93 cfs 11,557 cf

Subcatchment 2: Pre DA-2 Runoff Area=92,465 sf 0.27% Impervious Runoff Depth=2.00"
Flow Length=470' Tc=19.1 min CN=65/98 Runoff=3.29 cfs 15,437 cf

Subcatchment 3: Pre DA-3 Runoff Area=145,666 sf 0.00% Impervious Runoff Depth=1.99"
Flow Length=783' Tc=16.8 min CN=65/0 Runoff=5.43 cfs 24,214 cf

Subcatchment 4: Pre DA-4 Runoff Area=70,908 sf 0.00% Impervious Runoff Depth=2.77"
Flow Length=643' Tc=11.4 min CN=74/0 Runoff=4.41 cfs 16,363 cf

Subcatchment 5A: Pre DA-5 Runoff Area=553,174 sf 0.76% Impervious Runoff Depth=2.52"
Flow Length=1,050' Tc=21.2 min CN=71/98 Runoff=24.38 cfs 116,277 cf

Subcatchment 5B: Pre DA-5 Runoff Area=196,780 sf 12.64% Impervious Runoff Depth=2.20"
Flow Length=1,707' Tc=32.7 min CN=62/98 Runoff=5.83 cfs 36,067 cf

Subcatchment 6A: Pre DA-6 Runoff Area=478,386 sf 65.34% Impervious Runoff Depth=4.40"
Flow Length=817' Tc=8.0 min CN=74/98 Runoff=47.62 cfs 175,338 cf

Subcatchment 6B: Pre DA-6 Runoff Area=313,227 sf 0.85% Impervious Runoff Depth=1.63"
Flow Length=1,980' Tc=28.0 min CN=60/98 Runoff=7.39 cfs 42,646 cf

Subcatchment 7: Pre DA-7 Runoff Area=70,812 sf 15.53% Impervious Runoff Depth=3.80"
Flow Length=493' Tc=7.0 min CN=82/98 Runoff=6.77 cfs 22,418 cf

Pond DP1: DP-1 Peak Elev=709.92' Inflow=2.93 cfs 11,557 cf
18.0" Round Culvert n=0.013 L=88.0' S=0.0114 '/' Outflow=2.93 cfs 11,557 cf

Pond DP2: DP-2 Peak Elev=677.99' Inflow=3.29 cfs 15,437 cf
18.0" Round Culvert n=0.013 L=51.0' S=0.0196 '/' Outflow=3.29 cfs 15,437 cf

Pond DP3: DP-3 Peak Elev=632.78' Inflow=5.43 cfs 24,214 cf
15.0" Round Culvert n=0.020 L=55.0' S=0.0515 '/' Outflow=5.43 cfs 24,214 cf

Pond DP4: DP-4 Peak Elev=608.32' Inflow=4.41 cfs 16,363 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.1191 '/' Outflow=4.41 cfs 16,363 cf

Pond DP5: DP-5 Peak Elev=644.27' Inflow=29.25 cfs 152,344 cf
15.0" Round Culvert n=0.013 L=29.0' S=0.0345 '/' Outflow=29.25 cfs 152,344 cf

Pond DP6: DP-6 Peak Elev=609.32' Inflow=50.19 cfs 217,985 cf
26.0" Round Culvert n=0.011 L=63.0' S=0.0135 '/' Outflow=50.19 cfs 217,985 cf

Pond DP7: DP-7 Inflow=6.77 cfs 22,418 cf
Primary=6.77 cfs 22,418 cf

Total Runoff Area = 1,968,332 sf Runoff Volume = 460,317 cf Average Runoff Depth = 2.81"
81.76% Pervious = 1,609,239 sf 18.24% Impervious = 359,093 sf

Summary for Subcatchment 1: Pre DA-1

Orchards have been considered as 'Woods in Fair Conditions' for purposes of calculating runoff. Orchards have been assumed to have the approximate pollutant concentration levels of Lawns as shown in Table A.2 'Pollutant Concentrations from Source Areas' in Appendix A of the NYS Stormwater Management Design Manual.

Runoff = 2.93 cfs @ 12.18 hrs, Volume= 11,557 cf, Depth= 2.96"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

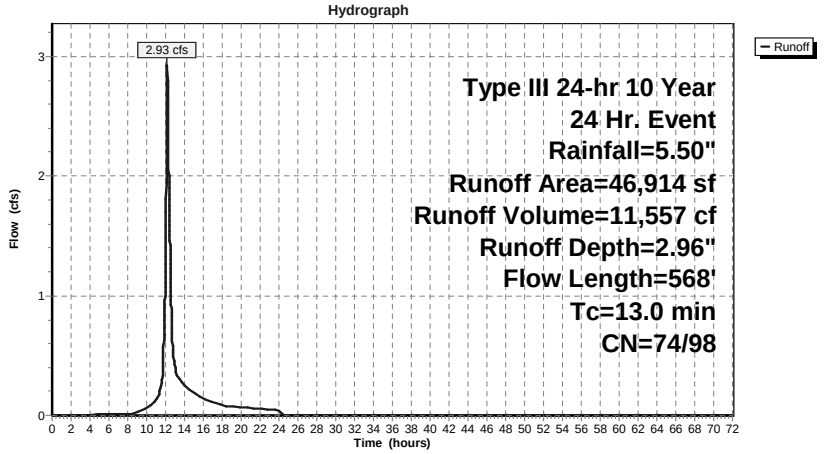
	Area (sf)	CN	Description	Land Use
	3,518	98	Paved parking, HSG C	Pavement
	18,742	61	>75% Grass cover, Good, HSG B	Open Space
	6,861	55	Woods, Good, HSG B	Woods
*	17,793	96	Gravel roads, HSG B	Roadway
	46,914	76	Weighted Average	
	43,396	74	92.50% Pervious Area	
	3,518	98	7.50% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	138	0.1590	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.5	90	0.0330	2.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	340	0.0910	6.12		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
13.0	568	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 7.50% Impervious, Rv= 0.117, Runoff= 5.37"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
18,742	Open Space	315.16	1.10	4.76	0.64
3,518	Pavement	17.00	0.06	0.21	0.66
17,793	Roadway	85.98	0.28	1.04	3.33
6,861	Woods	7.09	0.00	0.00	0.24
46,914	Total	425.23	1.43	6.01	4.87

Subcatchment 1: Pre DA-1



Hydrograph for Subcatchment 1: Pre DA-1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.03	0.83	0.06
12.00	2.75	0.75	2.52	**1.26**
14.00	4.46	1.94	4.22	**0.25**
16.00	4.87	2.26	4.64	0.14
18.00	5.10	2.45	4.87	0.08
20.00	5.26	2.58	5.03	0.07
22.00	5.39	2.68	5.16	0.05
24.00	**5.50**	**2.77**	**5.26**	0.04
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00

Summary for Subcatchment 2: Pre DA-2

Runoff = 3.29 cfs @ 12.28 hrs, Volume= 15,437 cf, Depth= 2.00"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

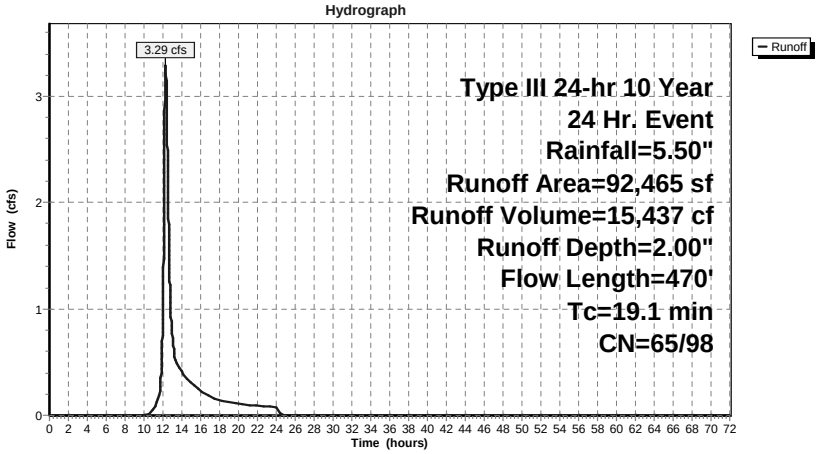
	Area (sf)	CN	Description	Land Use
	247	98	Paved parking, HSG B	Pavement
	25,422	61	>75% Grass cover, Good, HSG B	Open Space
	5,558	55	Woods, Good, HSG B	Woods
	45,478	58	Woods/grass comb., Good, HSG B	Orchard
*	15,760	96	Gravel roads, HSG B	Roadway
	92,465	65	Weighted Average	
	92,218	65	99.73% Pervious Area	
	247	98	0.27% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
3.5	50	0.1480	0.24		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.4	220	0.1480	2.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	100		3.00		**Direct Entry,**
19.1	470	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.27% Impervious, Rv= 0.052, Runoff= 2.39"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
25,422	Open Space	190.67	0.67	2.88	0.39
45,478	Orchard	341.10	1.19	5.16	2.89
247	Pavement	0.53	0.00	0.01	0.02
15,760	Roadway	33.97	0.11	0.41	1.32
5,558	Woods	2.56	0.00	0.00	0.09
92,465	Total	568.83	1.97	8.46	4.70

Subcatchment 2: Pre DA-2



Hydrograph for Subcatchment 2: Pre DA-2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.00
10.00	1.04	0.00	0.83	0.00
12.00	2.75	0.40	2.52	**0.99**
14.00	4.46	1.31	4.22	**0.41**
16.00	4.87	1.57	4.64	0.23
18.00	5.10	1.72	4.87	0.14
20.00	5.26	1.83	5.03	0.11
22.00	5.39	1.92	5.16	0.09
24.00	**5.50**	**1.99**	**5.26**	0.07
26.00	5.50	1.99	5.26	0.00
28.00	5.50	1.99	5.26	0.00
30.00	5.50	1.99	5.26	0.00
32.00	5.50	1.99	5.26	0.00
34.00	5.50	1.99	5.26	0.00
36.00	5.50	1.99	5.26	0.00
38.00	5.50	1.99	5.26	0.00
40.00	5.50	1.99	5.26	0.00
42.00	5.50	1.99	5.26	0.00
44.00	5.50	1.99	5.26	0.00
46.00	5.50	1.99	5.26	0.00
48.00	5.50	1.99	5.26	0.00
50.00	5.50	1.99	5.26	0.00
52.00	5.50	1.99	5.26	0.00
54.00	5.50	1.99	5.26	0.00
56.00	5.50	1.99	5.26	0.00
58.00	5.50	1.99	5.26	0.00
60.00	5.50	1.99	5.26	0.00
62.00	5.50	1.99	5.26	0.00
64.00	5.50	1.99	5.26	0.00
66.00	5.50	1.99	5.26	0.00
68.00	5.50	1.99	5.26	0.00
70.00	5.50	1.99	5.26	0.00
72.00	5.50	1.99	5.26	0.00

Summary for Subcatchment 3: Pre DA-3

Runoff = 5.43 cfs @ 12.24 hrs, Volume= 24,214 cf, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

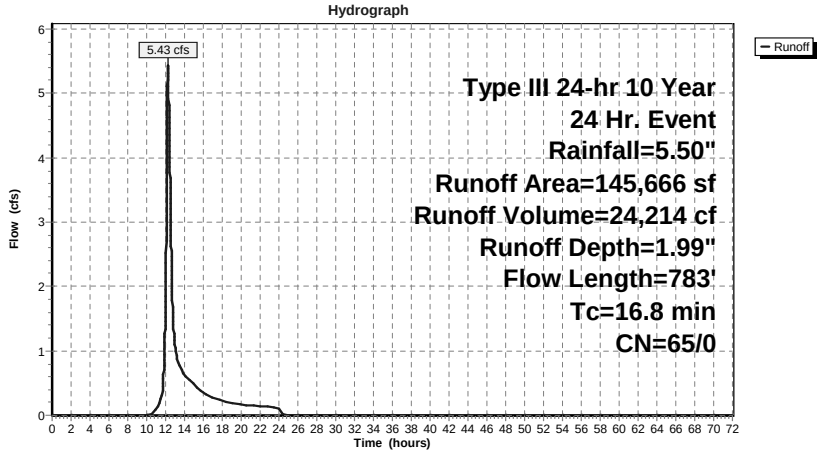
	Area (sf)	CN	Description	Land Use
	19,104	61	>75% Grass cover, Good, HSG B	Open Space
	16,367	74	>75% Grass cover, Good, HSG C	Open Space
	82,613	58	Woods/grass comb., Good, HSG B	Orchard
	11,899	72	Woods/grass comb., Good, HSG C	Orchard
*	15,683	96	Gravel roads, HSG C	Roadway
	145,666	65	Weighted Average	
	145,666	65	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	125	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	25	0.1800	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.7	275	0.1800	6.36		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.7	312		3.00		**Direct Entry,**
0.1	46	0.0870	11.87	14.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Concrete sewer w/manholes & inlets
16.8	783	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
35,471	Open Space	253.84	0.89	3.84	0.52
94,512	Orchard	676.34	2.36	10.22	5.73
15,683	Roadway	32.25	0.10	0.39	1.25
145,666	Total	962.43	3.35	14.45	7.50

Subcatchment 3: Pre DA-3



Hydrograph for Subcatchment 3: Pre DA-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.00	0.00	0.00
12.00	2.75	0.40	0.00	**1.76**
14.00	4.46	1.31	0.00	**0.63**
16.00	4.87	1.57	0.00	0.35
18.00	5.10	1.72	0.00	0.22
20.00	5.26	1.83	0.00	0.17
22.00	5.39	1.92	0.00	0.14
24.00	**5.50**	**1.99**	0.00	0.11
26.00	5.50	1.99	0.00	0.00
28.00	5.50	1.99	0.00	0.00
30.00	5.50	1.99	0.00	0.00
32.00	5.50	1.99	0.00	0.00
34.00	5.50	1.99	0.00	0.00
36.00	5.50	1.99	0.00	0.00
38.00	5.50	1.99	0.00	0.00
40.00	5.50	1.99	0.00	0.00
42.00	5.50	1.99	0.00	0.00
44.00	5.50	1.99	0.00	0.00
46.00	5.50	1.99	0.00	0.00
48.00	5.50	1.99	0.00	0.00
50.00	5.50	1.99	0.00	0.00
52.00	5.50	1.99	0.00	0.00
54.00	5.50	1.99	0.00	0.00
56.00	5.50	1.99	0.00	0.00
58.00	5.50	1.99	0.00	0.00
60.00	5.50	1.99	0.00	0.00
62.00	5.50	1.99	0.00	0.00
64.00	5.50	1.99	0.00	0.00
66.00	5.50	1.99	0.00	0.00
68.00	5.50	1.99	0.00	0.00
70.00	5.50	1.99	0.00	0.00
72.00	5.50	1.99	0.00	0.00

Summary for Subcatchment 4: Pre DA-4

Runoff = 4.41 cfs @ 12.16 hrs, Volume= 16,363 cf, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

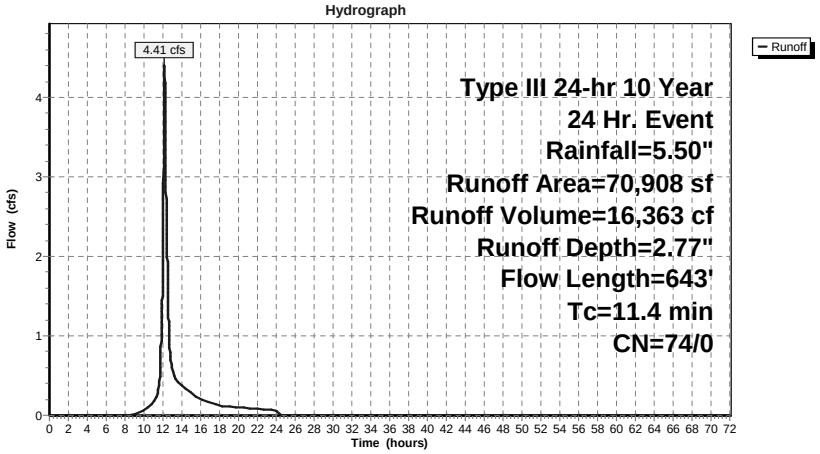
	Area (sf)	CN	Description	Land Use
	34,519	74	>75% Grass cover, Good, HSG C	Open Space
	2,363	58	Woods/grass comb., Good, HSG B	Orchard
	30,919	72	Woods/grass comb., Good, HSG C	Orchard
*	3,107	96	Gravel roads, HSG C	Roadway
	70,908	74	Weighted Average	
	70,908	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	150	0.1200	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.6	270	0.1600	2.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	100	0.3600	4.20		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	123	0.1050	11.24	8.83	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.017 Concrete sewer w/manholes & inlets
11.4	643	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
34,519	Open Space	247.02	0.86	3.73	0.50
33,282	Orchard	238.17	0.83	3.60	2.02
3,107	Roadway	6.39	0.02	0.08	0.25
70,908	Total	491.58	1.71	7.41	2.77

Subcatchment 4: Pre DA-4



Hydrograph for Subcatchment 4: Pre DA-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.03	0.00	0.06
12.00	2.75	0.75	0.00	**1.94**
14.00	4.46	1.94	0.00	**0.37**
16.00	4.87	2.26	0.00	0.20
18.00	5.10	2.45	0.00	0.12
20.00	5.26	2.58	0.00	0.10
22.00	5.39	2.68	0.00	0.08
24.00	**5.50**	**2.77**	0.00	0.06
26.00	5.50	2.77	0.00	0.00
28.00	5.50	2.77	0.00	0.00
30.00	5.50	2.77	0.00	0.00
32.00	5.50	2.77	0.00	0.00
34.00	5.50	2.77	0.00	0.00
36.00	5.50	2.77	0.00	0.00
38.00	5.50	2.77	0.00	0.00
40.00	5.50	2.77	0.00	0.00
42.00	5.50	2.77	0.00	0.00
44.00	5.50	2.77	0.00	0.00
46.00	5.50	2.77	0.00	0.00
48.00	5.50	2.77	0.00	0.00
50.00	5.50	2.77	0.00	0.00
52.00	5.50	2.77	0.00	0.00
54.00	5.50	2.77	0.00	0.00
56.00	5.50	2.77	0.00	0.00
58.00	5.50	2.77	0.00	0.00
60.00	5.50	2.77	0.00	0.00
62.00	5.50	2.77	0.00	0.00
64.00	5.50	2.77	0.00	0.00
66.00	5.50	2.77	0.00	0.00
68.00	5.50	2.77	0.00	0.00
70.00	5.50	2.77	0.00	0.00
72.00	5.50	2.77	0.00	0.00

Summary for Subcatchment 5A: Pre DA-5

Runoff = 24.38 cfs @ 12.30 hrs, Volume= 116,277 cf, Depth= 2.52"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

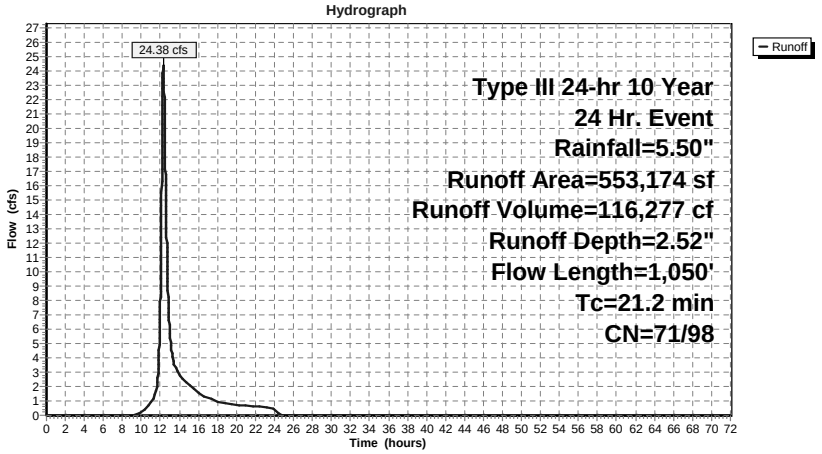
	Area (sf)	CN	Description	Land Use
	4,202	98	Paved parking, HSG C	Pavement
	13,701	61	>75% Grass cover, Good, HSG B	Open Space
	133,086	74	>75% Grass cover, Good, HSG C	Open Space
	204	69	Pasture/grassland/range, Fair, HSG B	Pasture
	43,970	58	Woods/grass comb., Good, HSG B	Orchard
	355,243	72	Woods/grass comb., Good, HSG C	Orchard
*	2,768	96	Gravel roads, HSG C	Roadway
	553,174	71	Weighted Average	
	548,972	71	99.24% Pervious Area	
	4,202	98	0.76% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	150	0.0300	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	140	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.7	630	0.3100	3.90		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	130	0.2900	3.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.2	1,050	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.76% Impervious, Rv= 0.057, Runoff= 2.60"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
146,787	Open Space	1,194.06	4.17	18.05	2.44
399,213	Orchard	3,247.45	11.33	49.09	27.51
204	Pasture	0.10	0.00	0.00	0.01
4,202	Pavement	9.82	0.03	0.12	0.38
2,768	Roadway	6.47	0.02	0.08	0.25
553,174	Total	4,457.91	15.55	67.34	30.60

Subcatchment 5A: Pre DA-5



Hydrograph for Subcatchment 5A: Pre DA-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.01	0.83	0.23
12.00	2.75	0.62	2.52	**7.91**
14.00	4.46	1.72	4.22	**2.86**
16.00	4.87	2.02	4.64	1.57
18.00	5.10	2.20	4.87	0.95
20.00	5.26	2.32	5.03	0.73
22.00	5.39	2.42	5.16	0.61
24.00	**5.50**	**2.50**	**5.26**	0.49
26.00	5.50	2.50	5.26	0.00
28.00	5.50	2.50	5.26	0.00
30.00	5.50	2.50	5.26	0.00
32.00	5.50	2.50	5.26	0.00
34.00	5.50	2.50	5.26	0.00
36.00	5.50	2.50	5.26	0.00
38.00	5.50	2.50	5.26	0.00
40.00	5.50	2.50	5.26	0.00
42.00	5.50	2.50	5.26	0.00
44.00	5.50	2.50	5.26	0.00
46.00	5.50	2.50	5.26	0.00
48.00	5.50	2.50	5.26	0.00
50.00	5.50	2.50	5.26	0.00
52.00	5.50	2.50	5.26	0.00
54.00	5.50	2.50	5.26	0.00
56.00	5.50	2.50	5.26	0.00
58.00	5.50	2.50	5.26	0.00
60.00	5.50	2.50	5.26	0.00
62.00	5.50	2.50	5.26	0.00
64.00	5.50	2.50	5.26	0.00
66.00	5.50	2.50	5.26	0.00
68.00	5.50	2.50	5.26	0.00
70.00	5.50	2.50	5.26	0.00
72.00	5.50	2.50	5.26	0.00

Summary for Subcatchment 5B: Pre DA-5

Runoff = 5.83 cfs @ 12.47 hrs, Volume= 36,067 cf, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

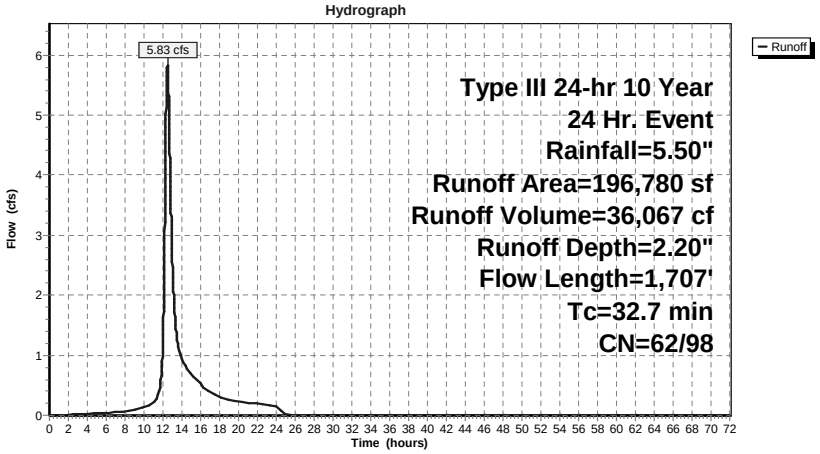
	Area (sf)	CN	Description	Land Use
	24,498	98	Roofs, HSG B	Roofs
	33,151	61	>75% Grass cover, Good, HSG B	Open Space
*	8,758	96	Gravel roads, HSG B	Roadway
	384	98	Unconnected roofs, HSG B	Roofs
	129,989	60	Woods, Fair, HSG B	Woods
	196,780	67	Weighted Average	
	171,898	62	87.36% Pervious Area	
	24,882	98	12.64% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.5	150	0.0870	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
0.6	146	0.5800	3.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	111	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.6	1,300	0.0337	8.37	10.28	**Pipe Channel, Confirm Pipe Size** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
32.7	1,707	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 12.64% Impervious, Rv= 0.164, Runoff= 7.49"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
33,151	Open Space	777.18	2.71	11.75	1.59
8,758	Roadway	59.00	0.19	0.72	2.29
24,882	Roofs	18.41	0.11	1.45	7.17
129,989	Woods	187.30	0.00	0.00	6.23
196,780	Total	1,041.90	3.01	13.92	17.27

Subcatchment 5B: Pre DA-5



Hydrograph for Subcatchment 5B: Pre DA-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.03
6.00	0.40	0.00	0.23	0.04
8.00	0.63	0.00	0.43	0.07
10.00	1.04	0.00	0.83	0.13
12.00	2.75	0.30	2.52	**1.26**
14.00	4.46	1.12	4.22	**0.95**
16.00	4.87	1.36	4.64	0.52
18.00	5.10	1.50	4.87	0.31
20.00	5.26	1.60	5.03	0.23
22.00	5.39	1.69	5.16	0.20
24.00	**5.50**	**1.76**	**5.26**	0.16
26.00	5.50	1.76	5.26	0.00
28.00	5.50	1.76	5.26	0.00
30.00	5.50	1.76	5.26	0.00
32.00	5.50	1.76	5.26	0.00
34.00	5.50	1.76	5.26	0.00
36.00	5.50	1.76	5.26	0.00
38.00	5.50	1.76	5.26	0.00
40.00	5.50	1.76	5.26	0.00
42.00	5.50	1.76	5.26	0.00
44.00	5.50	1.76	5.26	0.00
46.00	5.50	1.76	5.26	0.00
48.00	5.50	1.76	5.26	0.00
50.00	5.50	1.76	5.26	0.00
52.00	5.50	1.76	5.26	0.00
54.00	5.50	1.76	5.26	0.00
56.00	5.50	1.76	5.26	0.00
58.00	5.50	1.76	5.26	0.00
60.00	5.50	1.76	5.26	0.00
62.00	5.50	1.76	5.26	0.00
64.00	5.50	1.76	5.26	0.00
66.00	5.50	1.76	5.26	0.00
68.00	5.50	1.76	5.26	0.00
70.00	5.50	1.76	5.26	0.00
72.00	5.50	1.76	5.26	0.00

Summary for Subcatchment 6A: Pre DA-6

Runoff = 47.62 cfs @ 12.11 hrs, Volume= 175,338 cf, Depth= 4.40"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

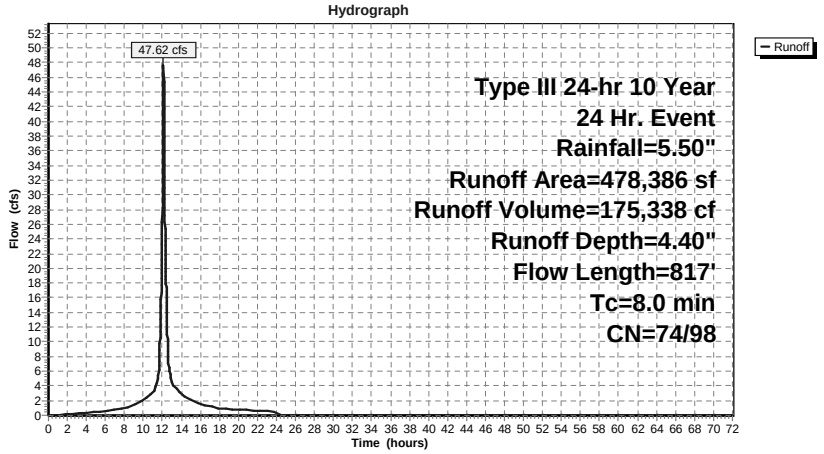
Area (sf)	CN	Description	Land Use
129,856	98	Unconnected pavement, HSG C	Pavement
182,714	98	Unconnected roofs, HSG C	Roofs
161,824	74	>75% Grass cover, Good, HSG C	Open Space
3,660	61	>75% Grass cover, Good, HSG B	Open Space
332	58	Woods/grass comb., Good, HSG B	Orchard
478,386	90	Weighted Average	
165,816	74	34.66% Pervious Area	
312,570	98	65.34% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	90	0.3310	9.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	627	0.1080	18.10	56.85	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
8.0	817	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 65.34% Impervious, Rv= 0.638, Runoff= 29.16"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
165,484	Open Space	15,111.88	52.72	228.44	30.88
332	Orchard	30.32	0.11	0.46	0.26
129,856	Pavement	3,407.80	11.03	41.37	131.98
182,714	Roofs	526.61	3.05	41.57	205.10
478,386	Total	19,076.62	66.90	311.83	368.21

Subcatchment 6A: Pre DA-6



Hydrograph for Subcatchment 6A: Pre DA-6

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.16
4.00	0.24	0.00	0.10	0.37
6.00	0.40	0.00	0.23	0.54
8.00	0.63	0.00	0.43	0.94
10.00	1.04	0.03	0.83	1.99
12.00	2.75	0.75	2.52	**26.31**
14.00	4.46	1.94	4.22	**2.90**
16.00	4.87	2.26	4.64	1.55
18.00	5.10	2.45	4.87	0.94
20.00	5.26	2.58	5.03	0.75
22.00	5.39	2.68	5.16	0.62
24.00	**5.50**	**2.77**	**5.26**	0.49
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00

Summary for Subcatchment 6B: Pre DA-6

Runoff = 7.39 cfs @ 12.42 hrs, Volume= 42,646 cf, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

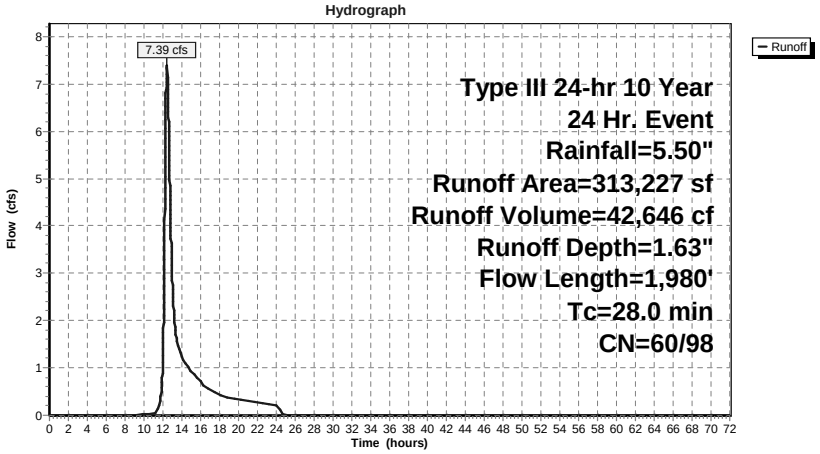
	Area (sf)	CN	Description	Land Use
	2,675	98	Unconnected pavement, HSG C	Pavement
	46,506	61	>75% Grass cover, Good, HSG B	Open Space
	262,664	60	Woods, Fair, HSG B	Woods
*	1,382	96	Gravel roads, HSG C	Roadway
	313,227	61	Weighted Average	
	310,552	60	99.15% Pervious Area	
	2,675	98	0.85% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	150	0.1200	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.4	370	0.2600	2.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	100	0.1200	7.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	1,360	0.1000	17.41	54.71	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
28.0	1,980	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.85% Impervious, Rv= 0.058, Runoff= 2.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
46,506	Open Space	383.96	1.34	5.80	0.78
2,675	Pavement	6.35	0.02	0.08	0.25
1,382	Roadway	3.28	0.01	0.04	0.13
262,664	Woods	133.29	0.00	0.00	4.43
313,227	Total	526.88	1.37	5.92	5.59

Subcatchment 6B: Pre DA-6



Hydrograph for Subcatchment 6B: Pre DA-6

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.00	0.83	0.01
12.00	2.75	0.25	2.52	**1.29**
14.00	4.46	1.00	4.22	**1.25**
16.00	4.87	1.23	4.64	0.71
18.00	5.10	1.36	4.87	0.43
20.00	5.26	1.46	5.03	0.33
22.00	5.39	1.54	5.16	0.28
24.00	**5.50**	**1.60**	**5.26**	0.22
26.00	5.50	1.60	5.26	0.00
28.00	5.50	1.60	5.26	0.00
30.00	5.50	1.60	5.26	0.00
32.00	5.50	1.60	5.26	0.00
34.00	5.50	1.60	5.26	0.00
36.00	5.50	1.60	5.26	0.00
38.00	5.50	1.60	5.26	0.00
40.00	5.50	1.60	5.26	0.00
42.00	5.50	1.60	5.26	0.00
44.00	5.50	1.60	5.26	0.00
46.00	5.50	1.60	5.26	0.00
48.00	5.50	1.60	5.26	0.00
50.00	5.50	1.60	5.26	0.00
52.00	5.50	1.60	5.26	0.00
54.00	5.50	1.60	5.26	0.00
56.00	5.50	1.60	5.26	0.00
58.00	5.50	1.60	5.26	0.00
60.00	5.50	1.60	5.26	0.00
62.00	5.50	1.60	5.26	0.00
64.00	5.50	1.60	5.26	0.00
66.00	5.50	1.60	5.26	0.00
68.00	5.50	1.60	5.26	0.00
70.00	5.50	1.60	5.26	0.00
72.00	5.50	1.60	5.26	0.00

Summary for Subcatchment 7: Pre DA-7

Runoff = 6.77 cfs @ 12.10 hrs, Volume= 22,418 cf, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

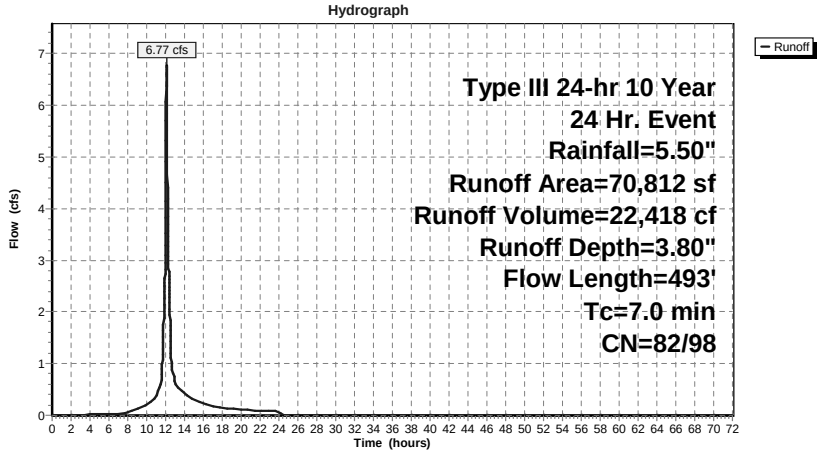
	Area (sf)	CN	Description	Land Use
	4,235	98	Paved parking, HSG C	Pavement
	6,764	98	Roofs, HSG C	Roofs
	37,133	74	>75% Grass cover, Good, HSG C	Open Space
*	22,680	96	Gravel roads, HSG C	Roadway
	70,812	85	Weighted Average	
	59,813	82	84.47% Pervious Area	
	10,999	98	15.53% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	135	0.2670	0.37		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	40	0.1500	2.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	81	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	114	0.0350	13.47	42.32	**Pipe Channel, Assumed Dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.1	123	0.0810	20.49	64.38	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
7.0	493	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 15.53% Impervious, Rv= 0.190, Runoff= 8.67"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
37,133	Open Space	1,008.68	3.52	15.25	2.06
4,235	Pavement	33.06	0.11	0.40	1.28
22,680	Roadway	177.05	0.57	2.15	6.86
6,764	Roofs	5.80	0.03	0.46	2.26
70,812	Total	1,224.58	4.23	18.26	12.46

Subcatchment 7: Pre DA-7



Hydrograph for Subcatchment 7: Pre DA-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.02
8.00	0.63	0.01	0.43	0.06
10.00	1.04	0.13	0.83	0.20
12.00	2.75	1.19	2.52	**3.82**
14.00	4.46	2.60	4.22	**0.42**
16.00	4.87	2.97	4.64	0.22
18.00	5.10	3.17	4.87	0.14
20.00	5.26	3.32	5.03	0.11
22.00	5.39	3.43	5.16	0.09
24.00	**5.50**	**3.53**	**5.26**	0.07
26.00	5.50	3.53	5.26	0.00
28.00	5.50	3.53	5.26	0.00
30.00	5.50	3.53	5.26	0.00
32.00	5.50	3.53	5.26	0.00
34.00	5.50	3.53	5.26	0.00
36.00	5.50	3.53	5.26	0.00
38.00	5.50	3.53	5.26	0.00
40.00	5.50	3.53	5.26	0.00
42.00	5.50	3.53	5.26	0.00
44.00	5.50	3.53	5.26	0.00
46.00	5.50	3.53	5.26	0.00
48.00	5.50	3.53	5.26	0.00
50.00	5.50	3.53	5.26	0.00
52.00	5.50	3.53	5.26	0.00
54.00	5.50	3.53	5.26	0.00
56.00	5.50	3.53	5.26	0.00
58.00	5.50	3.53	5.26	0.00
60.00	5.50	3.53	5.26	0.00
62.00	5.50	3.53	5.26	0.00
64.00	5.50	3.53	5.26	0.00
66.00	5.50	3.53	5.26	0.00
68.00	5.50	3.53	5.26	0.00
70.00	5.50	3.53	5.26	0.00
72.00	5.50	3.53	5.26	0.00

Summary for Pond DP1: DP-1

[57] Hint: Peaked at 709.92' (Flood elevation advised)

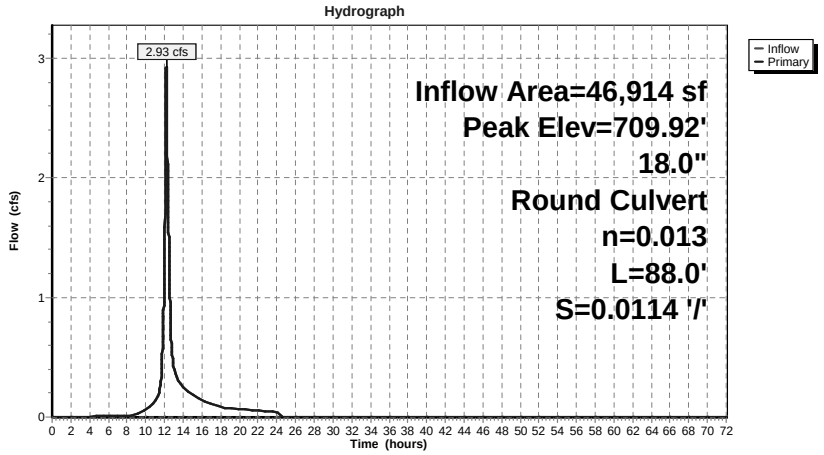
Inflow Area = 46,914 sf, 7.50% Impervious, Inflow Depth = 2.96" for 10 Year, 24 Hr. Event event
Inflow = 2.93 cfs @ 12.18 hrs, Volume= 11,557 cf
Outflow = 2.93 cfs @ 12.18 hrs, Volume= 11,557 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.93 cfs @ 12.18 hrs, Volume= 11,557 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 709.92' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	709.00'	**18.0" Round Culvert** L= 88.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 709.00' / 708.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.93 cfs @ 12.18 hrs HW=709.92' (Free Discharge)
1=Culvert (Inlet Controls 2.93 cfs @ 2.58 fps)

Pond DP1: DP-1



Hydrograph for Pond DP1: DP-1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	709.00	0.00	52.00	0.00	709.00	0.00
1.00	0.00	709.01	0.00	53.00	0.00	709.00	0.00
2.00	0.00	709.02	0.00	54.00	0.00	709.00	0.00
3.00	0.00	709.03	0.00	55.00	0.00	709.00	0.00
4.00	0.00	709.03	0.00	56.00	0.00	709.00	0.00
5.00	0.01	709.03	0.01	57.00	0.00	709.00	0.00
6.00	0.01	709.04	0.01	58.00	0.00	709.00	0.00
7.00	0.01	709.04	0.01	59.00	0.00	709.00	0.00
8.00	0.01	709.05	0.01	60.00	0.00	709.00	0.00
9.00	0.02	709.07	0.02	61.00	0.00	709.00	0.00
10.00	0.06	709.12	0.06	62.00	0.00	709.00	0.00
11.00	0.13	709.18	0.13	63.00	0.00	709.00	0.00
12.00	**1.26**	**709.57**	**1.26**	64.00	0.00	709.00	0.00
13.00	**0.42**	**709.32**	**0.42**	65.00	0.00	709.00	0.00
14.00	0.25	709.25	0.25	66.00	0.00	709.00	0.00
15.00	0.19	709.21	0.19	67.00	0.00	709.00	0.00
16.00	0.14	709.18	0.14	68.00	0.00	709.00	0.00
17.00	0.11	709.16	0.11	69.00	0.00	709.00	0.00
18.00	0.08	709.14	0.08	70.00	0.00	709.00	0.00
19.00	0.07	709.13	0.07	71.00	0.00	709.00	0.00
20.00	0.07	709.12	0.07	72.00	0.00	709.00	0.00
21.00	0.06	709.12	0.06				
22.00	0.05	709.11	0.05				
23.00	0.05	709.11	0.05				
24.00	0.04	709.10	0.04				
25.00	0.00	709.00	0.00				
26.00	0.00	709.00	0.00				
27.00	0.00	709.00	0.00				
28.00	0.00	709.00	0.00				
29.00	0.00	709.00	0.00				
30.00	0.00	709.00	0.00				
31.00	0.00	709.00	0.00				
32.00	0.00	709.00	0.00				
33.00	0.00	709.00	0.00				
34.00	0.00	709.00	0.00				
35.00	0.00	709.00	0.00				
36.00	0.00	709.00	0.00				
37.00	0.00	709.00	0.00				
38.00	0.00	709.00	0.00				
39.00	0.00	709.00	0.00				
40.00	0.00	709.00	0.00				
41.00	0.00	709.00	0.00				
42.00	0.00	709.00	0.00				
43.00	0.00	709.00	0.00				
44.00	0.00	709.00	0.00				
45.00	0.00	709.00	0.00				
46.00	0.00	709.00	0.00				
47.00	0.00	709.00	0.00				
48.00	0.00	709.00	0.00				
49.00	0.00	709.00	0.00				
50.00	0.00	709.00	0.00				
51.00	0.00	709.00	0.00				

Summary for Pond DP2: DP-2

[57] Hint: Peaked at 677.99' (Flood elevation advised)

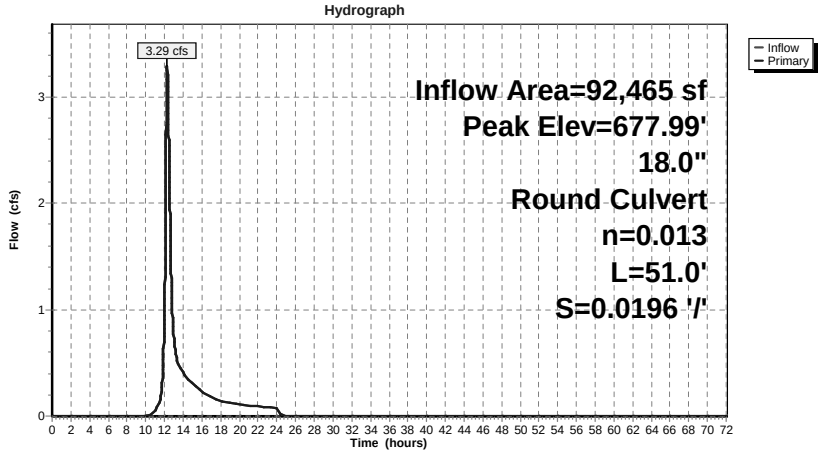
Inflow Area = 92,465 sf, 0.27% Impervious, Inflow Depth = 2.00" for 10 Year, 24 Hr. Event event
Inflow = 3.29 cfs @ 12.28 hrs, Volume= 15,437 cf
Outflow = 3.29 cfs @ 12.28 hrs, Volume= 15,437 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.29 cfs @ 12.28 hrs, Volume= 15,437 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 677.99' @ 12.28 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	677.00'	**18.0" Round Culvert** L= 51.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 677.00' / 676.00' S= 0.0196 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=3.29 cfs @ 12.28 hrs HW=677.99' (Free Discharge)
1=Culvert (Inlet Controls 3.29 cfs @ 2.67 fps)

Pond DP2: DP-2



Hydrograph for Pond DP2: DP-2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	677.00	0.00	52.00	0.00	677.00	0.00
1.00	0.00	677.00	0.00	53.00	0.00	677.00	0.00
2.00	0.00	677.01	0.00	54.00	0.00	677.00	0.00
3.00	0.00	677.01	0.00	55.00	0.00	677.00	0.00
4.00	0.00	677.01	0.00	56.00	0.00	677.00	0.00
5.00	0.00	677.01	0.00	57.00	0.00	677.00	0.00
6.00	0.00	677.01	0.00	58.00	0.00	677.00	0.00
7.00	0.00	677.01	0.00	59.00	0.00	677.00	0.00
8.00	0.00	677.01	0.00	60.00	0.00	677.00	0.00
9.00	0.00	677.02	0.00	61.00	0.00	677.00	0.00
10.00	0.00	677.02	0.00	62.00	0.00	677.00	0.00
11.00	0.05	677.11	0.05	63.00	0.00	677.00	0.00
12.00	**0.99**	**677.50**	**0.99**	64.00	0.00	677.00	0.00
13.00	**0.74**	**677.43**	**0.74**	65.00	0.00	677.00	0.00
14.00	0.41	677.31	0.41	66.00	0.00	677.00	0.00
15.00	0.31	677.27	0.31	67.00	0.00	677.00	0.00
16.00	0.23	677.23	0.23	68.00	0.00	677.00	0.00
17.00	0.18	677.20	0.18	69.00	0.00	677.00	0.00
18.00	0.14	677.18	0.14	70.00	0.00	677.00	0.00
19.00	0.12	677.17	0.12	71.00	0.00	677.00	0.00
20.00	0.11	677.16	0.11	72.00	0.00	677.00	0.00
21.00	0.10	677.15	0.10				
22.00	0.09	677.15	0.09				
23.00	0.08	677.14	0.08				
24.00	0.07	677.13	0.07				
25.00	0.00	677.00	0.00				
26.00	0.00	677.00	0.00				
27.00	0.00	677.00	0.00				
28.00	0.00	677.00	0.00				
29.00	0.00	677.00	0.00				
30.00	0.00	677.00	0.00				
31.00	0.00	677.00	0.00				
32.00	0.00	677.00	0.00				
33.00	0.00	677.00	0.00				
34.00	0.00	677.00	0.00				
35.00	0.00	677.00	0.00				
36.00	0.00	677.00	0.00				
37.00	0.00	677.00	0.00				
38.00	0.00	677.00	0.00				
39.00	0.00	677.00	0.00				
40.00	0.00	677.00	0.00				
41.00	0.00	677.00	0.00				
42.00	0.00	677.00	0.00				
43.00	0.00	677.00	0.00				
44.00	0.00	677.00	0.00				
45.00	0.00	677.00	0.00				
46.00	0.00	677.00	0.00				
47.00	0.00	677.00	0.00				
48.00	0.00	677.00	0.00				
49.00	0.00	677.00	0.00				
50.00	0.00	677.00	0.00				
51.00	0.00	677.00	0.00				

Summary for Pond DP3: DP-3

[57] Hint: Peaked at 632.78' (Flood elevation advised)

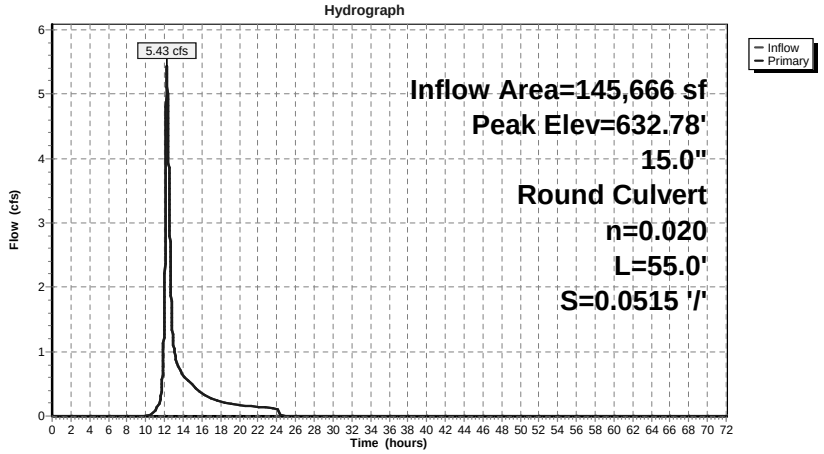
Inflow Area = 145,666 sf, 0.00% Impervious, Inflow Depth = 1.99" for 10 Year, 24 Hr. Event event
Inflow = 5.43 cfs @ 12.24 hrs, Volume= 24,214 cf
Outflow = 5.43 cfs @ 12.24 hrs, Volume= 24,214 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.43 cfs @ 12.24 hrs, Volume= 24,214 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 632.78' @ 12.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	630.80'	**15.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 630.80' / 627.97' S= 0.0515 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=5.43 cfs @ 12.24 hrs HW=632.78' (Free Discharge)
↑**1=Culvert** (Inlet Controls 5.43 cfs @ 4.42 fps)

Pond DP3: DP-3



Hydrograph for Pond DP3: DP-3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	630.80	0.00	52.00	0.00	630.80	0.00
1.00	0.00	630.80	0.00	53.00	0.00	630.80	0.00
2.00	0.00	630.80	0.00	54.00	0.00	630.80	0.00
3.00	0.00	630.80	0.00	55.00	0.00	630.80	0.00
4.00	0.00	630.80	0.00	56.00	0.00	630.80	0.00
5.00	0.00	630.80	0.00	57.00	0.00	630.80	0.00
6.00	0.00	630.80	0.00	58.00	0.00	630.80	0.00
7.00	0.00	630.80	0.00	59.00	0.00	630.80	0.00
8.00	0.00	630.80	0.00	60.00	0.00	630.80	0.00
9.00	0.00	630.80	0.00	61.00	0.00	630.80	0.00
10.00	0.00	630.80	0.00	62.00	0.00	630.80	0.00
11.00	0.09	630.95	0.09	63.00	0.00	630.80	0.00
12.00	**1.76**	**631.54**	**1.76**	64.00	0.00	630.80	0.00
13.00	**1.08**	**631.36**	**1.08**	65.00	0.00	630.80	0.00
14.00	0.63	631.22	0.63	66.00	0.00	630.80	0.00
15.00	0.48	631.16	0.48	67.00	0.00	630.80	0.00
16.00	0.35	631.11	0.35	68.00	0.00	630.80	0.00
17.00	0.27	631.07	0.27	69.00	0.00	630.80	0.00
18.00	0.22	631.04	0.22	70.00	0.00	630.80	0.00
19.00	0.19	631.02	0.19	71.00	0.00	630.80	0.00
20.00	0.17	631.01	0.17	72.00	0.00	630.80	0.00
21.00	0.16	631.00	0.16				
22.00	0.14	630.99	0.14				
23.00	0.13	630.98	0.13				
24.00	0.11	630.97	0.11				
25.00	0.00	630.80	0.00				
26.00	0.00	630.80	0.00				
27.00	0.00	630.80	0.00				
28.00	0.00	630.80	0.00				
29.00	0.00	630.80	0.00				
30.00	0.00	630.80	0.00				
31.00	0.00	630.80	0.00				
32.00	0.00	630.80	0.00				
33.00	0.00	630.80	0.00				
34.00	0.00	630.80	0.00				
35.00	0.00	630.80	0.00				
36.00	0.00	630.80	0.00				
37.00	0.00	630.80	0.00				
38.00	0.00	630.80	0.00				
39.00	0.00	630.80	0.00				
40.00	0.00	630.80	0.00				
41.00	0.00	630.80	0.00				
42.00	0.00	630.80	0.00				
43.00	0.00	630.80	0.00				
44.00	0.00	630.80	0.00				
45.00	0.00	630.80	0.00				
46.00	0.00	630.80	0.00				
47.00	0.00	630.80	0.00				
48.00	0.00	630.80	0.00				
49.00	0.00	630.80	0.00				
50.00	0.00	630.80	0.00				
51.00	0.00	630.80	0.00				

Summary for Pond DP4: DP-4

[57] Hint: Peaked at 608.32' (Flood elevation advised)

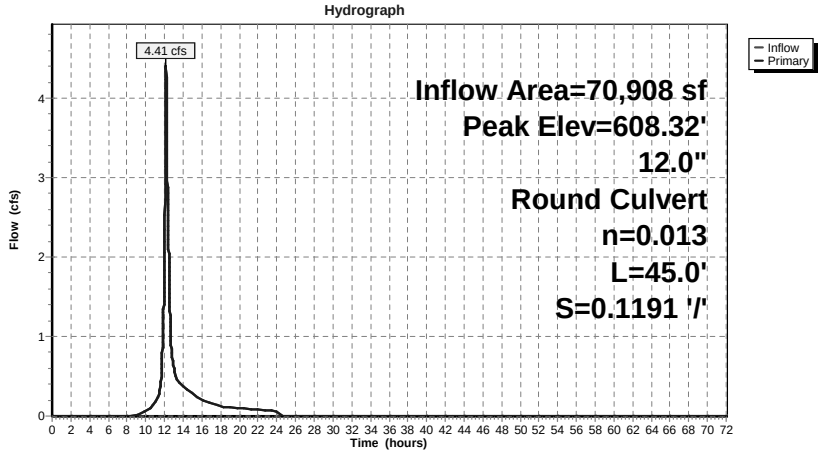
Inflow Area = 70,908 sf, 0.00% Impervious, Inflow Depth = 2.77" for 10 Year, 24 Hr. Event event
Inflow = 4.41 cfs @ 12.16 hrs, Volume= 16,363 cf
Outflow = 4.41 cfs @ 12.16 hrs, Volume= 16,363 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.41 cfs @ 12.16 hrs, Volume= 16,363 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.32' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	605.64'	**12.0" Round Culvert** L= 45.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 605.64' / 600.28' S= 0.1191 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=4.41 cfs @ 12.16 hrs HW=608.32' (Free Discharge)
1=Culvert (Inlet Controls 4.41 cfs @ 5.61 fps)

Pond DP4: DP-4



Hydrograph for Pond DP4: DP-4

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	605.64	0.00	52.00	0.00	605.64	0.00
1.00	0.00	605.64	0.00	53.00	0.00	605.64	0.00
2.00	0.00	605.64	0.00	54.00	0.00	605.64	0.00
3.00	0.00	605.64	0.00	55.00	0.00	605.64	0.00
4.00	0.00	605.64	0.00	56.00	0.00	605.64	0.00
5.00	0.00	605.64	0.00	57.00	0.00	605.64	0.00
6.00	0.00	605.64	0.00	58.00	0.00	605.64	0.00
7.00	0.00	605.64	0.00	59.00	0.00	605.64	0.00
8.00	0.00	605.64	0.00	60.00	0.00	605.64	0.00
9.00	0.01	605.70	0.01	61.00	0.00	605.64	0.00
10.00	0.06	605.77	0.06	62.00	0.00	605.64	0.00
11.00	0.17	605.87	0.17	63.00	0.00	605.64	0.00
12.00	**1.94**	**606.56**	**1.94**	64.00	0.00	605.64	0.00
13.00	**0.59**	**606.08**	**0.59**	65.00	0.00	605.64	0.00
14.00	0.37	605.98	0.37	66.00	0.00	605.64	0.00
15.00	0.28	605.93	0.28	67.00	0.00	605.64	0.00
16.00	0.20	605.89	0.20	68.00	0.00	605.64	0.00
17.00	0.16	605.86	0.16	69.00	0.00	605.64	0.00
18.00	0.12	605.83	0.12	70.00	0.00	605.64	0.00
19.00	0.11	605.82	0.11	71.00	0.00	605.64	0.00
20.00	0.10	605.81	0.10	72.00	0.00	605.64	0.00
21.00	0.09	605.80	0.09				
22.00	0.08	605.79	0.08				
23.00	0.07	605.79	0.07				
24.00	0.06	605.78	0.06				
25.00	0.00	605.64	0.00				
26.00	0.00	605.64	0.00				
27.00	0.00	605.64	0.00				
28.00	0.00	605.64	0.00				
29.00	0.00	605.64	0.00				
30.00	0.00	605.64	0.00				
31.00	0.00	605.64	0.00				
32.00	0.00	605.64	0.00				
33.00	0.00	605.64	0.00				
34.00	0.00	605.64	0.00				
35.00	0.00	605.64	0.00				
36.00	0.00	605.64	0.00				
37.00	0.00	605.64	0.00				
38.00	0.00	605.64	0.00				
39.00	0.00	605.64	0.00				
40.00	0.00	605.64	0.00				
41.00	0.00	605.64	0.00				
42.00	0.00	605.64	0.00				
43.00	0.00	605.64	0.00				
44.00	0.00	605.64	0.00				
45.00	0.00	605.64	0.00				
46.00	0.00	605.64	0.00				
47.00	0.00	605.64	0.00				
48.00	0.00	605.64	0.00				
49.00	0.00	605.64	0.00				
50.00	0.00	605.64	0.00				
51.00	0.00	605.64	0.00				

Summary for Pond DP5: DP-5

[57] Hint: Peaked at 644.27' (Flood elevation advised)

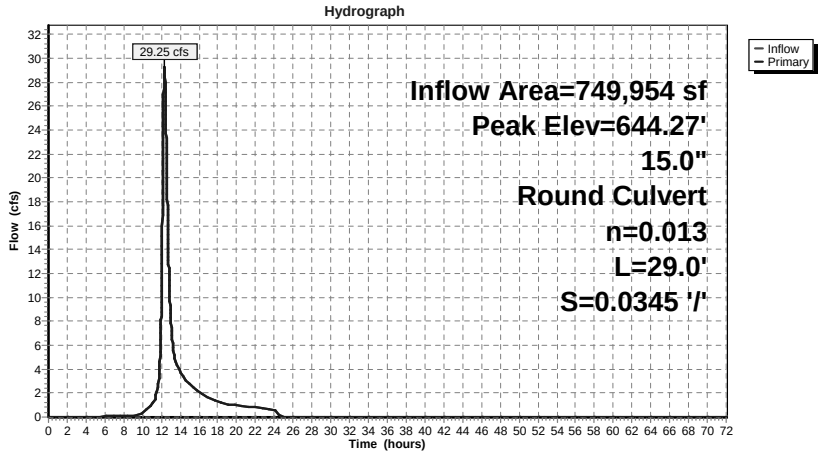
Inflow Area = 749,954 sf, 3.88% Impervious, Inflow Depth = 2.44" for 10 Year, 24 Hr. Event event
Inflow = 29.25 cfs @ 12.32 hrs, Volume= 152,344 cf
Outflow = 29.25 cfs @ 12.32 hrs, Volume= 152,344 cf, Atten= 0%, Lag= 0.0 min
Primary = 29.25 cfs @ 12.32 hrs, Volume= 152,344 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 644.27' @ 12.32 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	604.34'	**15.0" Round Culvert** L= 29.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 604.34' / 603.34' S= 0.0345 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=29.24 cfs @ 12.32 hrs HW=644.26' (Free Discharge)
1=Culvert (Inlet Controls 29.24 cfs @ 23.83 fps)

Pond DP5: DP-5



Hydrograph for Pond DP5: DP-5

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	604.34	0.00	52.00	0.00	604.34	0.00
1.00	0.00	604.35	0.00	53.00	0.00	604.34	0.00
2.00	0.01	604.39	0.01	54.00	0.00	604.34	0.00
3.00	0.02	604.41	0.02	55.00	0.00	604.34	0.00
4.00	0.03	604.43	0.03	56.00	0.00	604.34	0.00
5.00	0.04	604.44	0.04	57.00	0.00	604.34	0.00
6.00	0.05	604.45	0.05	58.00	0.00	604.34	0.00
7.00	0.06	604.47	0.06	59.00	0.00	604.34	0.00
8.00	0.08	604.48	0.08	60.00	0.00	604.34	0.00
9.00	0.11	604.51	0.11	61.00	0.00	604.34	0.00
10.00	0.36	604.65	0.36	62.00	0.00	604.34	0.00
11.00	1.07	604.90	1.07	63.00	0.00	604.34	0.00
12.00	**9.17**	**608.83**	**9.17**	64.00	0.00	604.34	0.00
13.00	**8.14**	**608.01**	**8.14**	65.00	0.00	604.34	0.00
14.00	3.82	605.63	3.82	66.00	0.00	604.34	0.00
15.00	2.83	605.34	2.83	67.00	0.00	604.34	0.00
16.00	2.08	605.16	2.08	68.00	0.00	604.34	0.00
17.00	1.59	605.04	1.59	69.00	0.00	604.34	0.00
18.00	1.26	604.95	1.26	70.00	0.00	604.34	0.00
19.00	1.07	604.90	1.07	71.00	0.00	604.34	0.00
20.00	0.97	604.87	0.97	72.00	0.00	604.34	0.00
21.00	0.88	604.84	0.88				
22.00	0.80	604.82	0.80				
23.00	0.73	604.79	0.73				
24.00	0.65	604.77	0.65				
25.00	0.01	604.38	0.01				
26.00	0.00	604.34	0.00				
27.00	0.00	604.34	0.00				
28.00	0.00	604.34	0.00				
29.00	0.00	604.34	0.00				
30.00	0.00	604.34	0.00				
31.00	0.00	604.34	0.00				
32.00	0.00	604.34	0.00				
33.00	0.00	604.34	0.00				
34.00	0.00	604.34	0.00				
35.00	0.00	604.34	0.00				
36.00	0.00	604.34	0.00				
37.00	0.00	604.34	0.00				
38.00	0.00	604.34	0.00				
39.00	0.00	604.34	0.00				
40.00	0.00	604.34	0.00				
41.00	0.00	604.34	0.00				
42.00	0.00	604.34	0.00				
43.00	0.00	604.34	0.00				
44.00	0.00	604.34	0.00				
45.00	0.00	604.34	0.00				
46.00	0.00	604.34	0.00				
47.00	0.00	604.34	0.00				
48.00	0.00	604.34	0.00				
49.00	0.00	604.34	0.00				
50.00	0.00	604.34	0.00				
51.00	0.00	604.34	0.00				

Summary for Pond DP6: DP-6

[57] Hint: Peaked at 609.32' (Flood elevation advised)

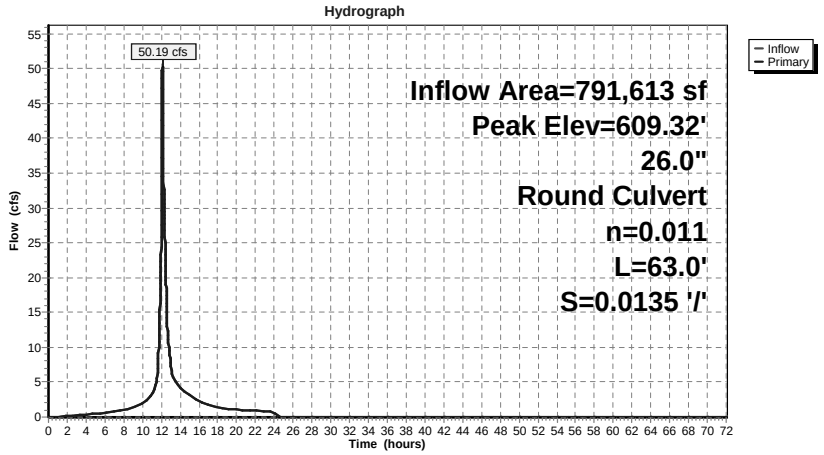
Inflow Area = 791,613 sf, 39.82% Impervious, Inflow Depth = 3.30" for 10 Year, 24 Hr. Event event
Inflow = 50.19 cfs @ 12.11 hrs, Volume= 217,985 cf
Outflow = 50.19 cfs @ 12.11 hrs, Volume= 217,985 cf, Atten= 0%, Lag= 0.0 min
Primary = 50.19 cfs @ 12.11 hrs, Volume= 217,985 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 609.32' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	600.24'	**26.0" Round Culvert** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.24' / 599.39' S= 0.0135 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=50.13 cfs @ 12.11 hrs HW=609.30' (Free Discharge)
1=Culvert (Inlet Controls 50.13 cfs @ 13.60 fps)

Pond DP6: DP-6



Hydrograph for Pond DP6: DP-6

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	600.24	0.00	52.00	0.00	600.24	0.00
1.00	0.03	600.30	0.03	53.00	0.00	600.24	0.00
2.00	0.17	600.40	0.17	54.00	0.00	600.24	0.00
3.00	0.27	600.45	0.27	55.00	0.00	600.24	0.00
4.00	0.37	600.48	0.37	56.00	0.00	600.24	0.00
5.00	0.46	600.51	0.46	57.00	0.00	600.24	0.00
6.00	0.55	600.53	0.55	58.00	0.00	600.24	0.00
7.00	0.74	600.58	0.74	59.00	0.00	600.24	0.00
8.00	0.95	600.63	0.95	60.00	0.00	600.24	0.00
9.00	1.41	600.72	1.41	61.00	0.00	600.24	0.00
10.00	2.00	600.81	2.00	62.00	0.00	600.24	0.00
11.00	3.17	600.97	3.17	63.00	0.00	600.24	0.00
12.00	**27.60**	**603.74**	**27.60**	64.00	0.00	600.24	0.00
13.00	**7.48**	**601.41**	**7.48**	65.00	0.00	600.24	0.00
14.00	4.16	601.08	4.16	66.00	0.00	600.24	0.00
15.00	3.12	600.96	3.12	67.00	0.00	600.24	0.00
16.00	2.25	600.85	2.25	68.00	0.00	600.24	0.00
17.00	1.76	600.77	1.76	69.00	0.00	600.24	0.00
18.00	1.37	600.71	1.37	70.00	0.00	600.24	0.00
19.00	1.20	600.68	1.20	71.00	0.00	600.24	0.00
20.00	1.08	600.65	1.08	72.00	0.00	600.24	0.00
21.00	0.98	600.64	0.98				
22.00	0.90	600.62	0.90				
23.00	0.81	600.60	0.81				
24.00	0.72	600.58	0.72				
25.00	0.00	600.27	0.00				
26.00	0.00	600.24	0.00				
27.00	0.00	600.24	0.00				
28.00	0.00	600.24	0.00				
29.00	0.00	600.24	0.00				
30.00	0.00	600.24	0.00				
31.00	0.00	600.24	0.00				
32.00	0.00	600.24	0.00				
33.00	0.00	600.24	0.00				
34.00	0.00	600.24	0.00				
35.00	0.00	600.24	0.00				
36.00	0.00	600.24	0.00				
37.00	0.00	600.24	0.00				
38.00	0.00	600.24	0.00				
39.00	0.00	600.24	0.00				
40.00	0.00	600.24	0.00				
41.00	0.00	600.24	0.00				
42.00	0.00	600.24	0.00				
43.00	0.00	600.24	0.00				
44.00	0.00	600.24	0.00				
45.00	0.00	600.24	0.00				
46.00	0.00	600.24	0.00				
47.00	0.00	600.24	0.00				
48.00	0.00	600.24	0.00				
49.00	0.00	600.24	0.00				
50.00	0.00	600.24	0.00				
51.00	0.00	600.24	0.00				

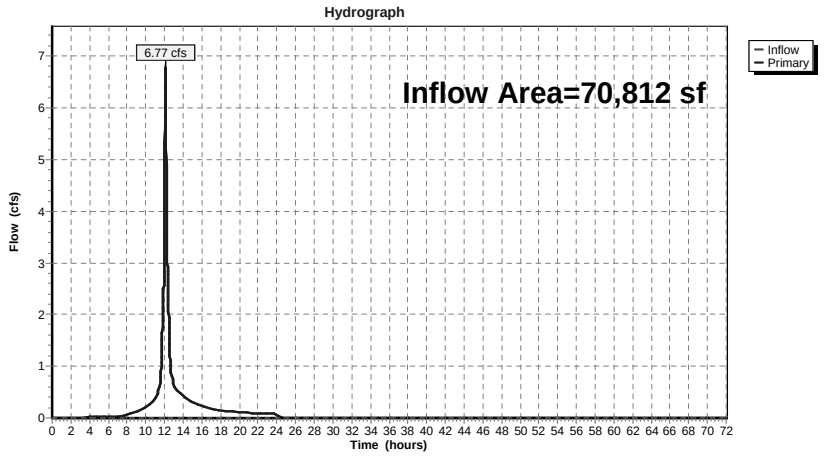
Summary for Pond DP7: DP-7

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 70,812 sf, 15.53% Impervious, Inflow Depth = 3.80" for 10 Year, 24 Hr. Event event
Inflow = 6.77 cfs @ 12.10 hrs, Volume= 22,418 cf
Primary = 6.77 cfs @ 12.10 hrs, Volume= 22,418 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP7: DP-7



Hydrograph for Pond DP7: DP-7

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.03		0.03	59.00	0.00		0.00
8.00	0.06		0.06	60.00	0.00		0.00
9.00	0.12		0.12	61.00	0.00		0.00
10.00	0.20		0.20	62.00	0.00		0.00
11.00	0.36		0.36	63.00	0.00		0.00
12.00	**3.82**		**3.82**	64.00	0.00		0.00
13.00	**0.66**		**0.66**	65.00	0.00		0.00
14.00	0.42		0.42	66.00	0.00		0.00
15.00	0.31		0.31	67.00	0.00		0.00
16.00	0.22		0.22	68.00	0.00		0.00
17.00	0.18		0.18	69.00	0.00		0.00
18.00	0.14		0.14	70.00	0.00		0.00
19.00	0.12		0.12	71.00	0.00		0.00
20.00	0.11		0.11	72.00	0.00		0.00
21.00	0.10		0.10				
22.00	0.09		0.09				
23.00	0.08		0.08				
24.00	0.07		0.07				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Pre DA-1 Runoff Area=46,914 sf 7.50% Impervious Runoff Depth=3.38"
Flow Length=568' Tc=13.0 min CN=74/98 Runoff=3.35 cfs 13,207 cf

Subcatchment 2: Pre DA-2 Runoff Area=92,465 sf 0.27% Impervious Runoff Depth=2.36"
Flow Length=470' Tc=19.1 min CN=65/98 Runoff=3.92 cfs 18,188 cf

Subcatchment 3: Pre DA-3 Runoff Area=145,666 sf 0.00% Impervious Runoff Depth=2.35"
Flow Length=783' Tc=16.8 min CN=65/0 Runoff=6.48 cfs 28,542 cf

Subcatchment 4: Pre DA-4 Runoff Area=70,908 sf 0.00% Impervious Runoff Depth=3.18"
Flow Length=643' Tc=11.4 min CN=74/0 Runoff=5.08 cfs 18,819 cf

Subcatchment 5A: Pre DA-5 Runoff Area=553,174 sf 0.76% Impervious Runoff Depth=2.92"
Flow Length=1,050' Tc=21.2 min CN=71/98 Runoff=28.36 cfs 134,629 cf

Subcatchment 5B: Pre DA-5 Runoff Area=196,780 sf 12.64% Impervious Runoff Depth=2.55"
Flow Length=1,707' Tc=32.7 min CN=62/98 Runoff=6.87 cfs 41,893 cf

Subcatchment 6A: Pre DA-6 Runoff Area=478,386 sf 65.34% Impervious Runoff Depth=4.87"
Flow Length=817' Tc=8.0 min CN=74/98 Runoff=52.68 cfs 194,091 cf

Subcatchment 6B: Pre DA-6 Runoff Area=313,227 sf 0.85% Impervious Runoff Depth=1.95"
Flow Length=1,980' Tc=28.0 min CN=60/98 Runoff=9.03 cfs 51,013 cf

Subcatchment 7: Pre DA-7 Runoff Area=70,812 sf 15.53% Impervious Runoff Depth=4.26"
Flow Length=493' Tc=7.0 min CN=82/98 Runoff=7.58 cfs 25,155 cf

Pond DP1: DP-1 Peak Elev=710.00' Inflow=3.35 cfs 13,207 cf
18.0" Round Culvert n=0.013 L=88.0' S=0.0114 '/' Outflow=3.35 cfs 13,207 cf

Pond DP2: DP-2 Peak Elev=678.10' Inflow=3.92 cfs 18,188 cf
18.0" Round Culvert n=0.013 L=51.0' S=0.0196 '/' Outflow=3.92 cfs 18,188 cf

Pond DP3: DP-3 Peak Elev=633.36' Inflow=6.48 cfs 28,542 cf
15.0" Round Culvert n=0.020 L=55.0' S=0.0515 '/' Outflow=6.48 cfs 28,542 cf

Pond DP4: DP-4 Peak Elev=609.03' Inflow=5.08 cfs 18,819 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.1191 '/' Outflow=5.08 cfs 18,819 cf

Pond DP5: DP-5 Peak Elev=658.43' Inflow=34.11 cfs 176,522 cf
15.0" Round Culvert n=0.013 L=29.0' S=0.0345 '/' Outflow=34.11 cfs 176,522 cf

Pond DP6: DP-6 Peak Elev=611.29' Inflow=56.06 cfs 245,104 cf
26.0" Round Culvert n=0.011 L=63.0' S=0.0135 '/' Outflow=56.06 cfs 245,104 cf

Pond DP7: DP-7 Inflow=7.58 cfs 25,155 cf
Primary=7.58 cfs 25,155 cf

Total Runoff Area = 1,968,332 sf Runoff Volume = 525,537 cf Average Runoff Depth = 3.20"
81.76% Pervious = 1,609,239 sf 18.24% Impervious = 359,093 sf

Summary for Subcatchment 1: Pre DA-1

Orchards have been considered as 'Woods in Fair Conditions' for purposes of calculating runoff. Orchards have been assumed to have the approximate pollutant concentration levels of Lawns as shown in Table A.2 'Pollutant Concentrations from Source Areas' in Appendix A of the NYS Stormwater Management Design Manual.

Runoff = 3.35 cfs @ 12.18 hrs, Volume= 13,207 cf, Depth= 3.38"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

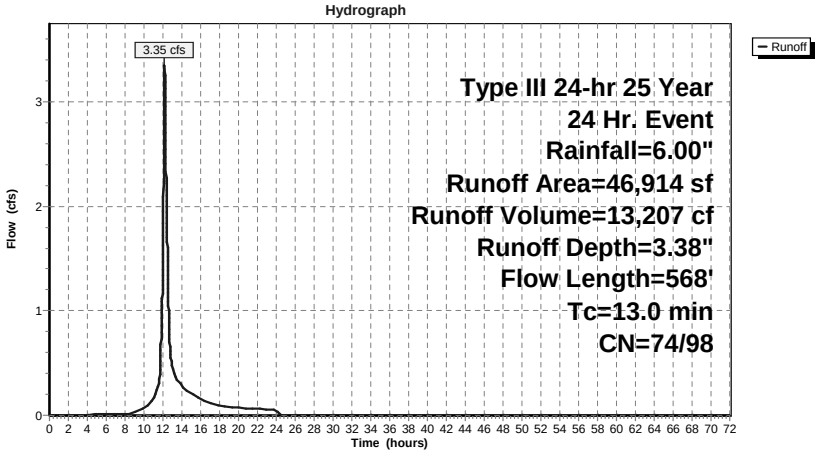
	Area (sf)	CN	Description	Land Use
	3,518	98	Paved parking, HSG C	Pavement
	18,742	61	>75% Grass cover, Good, HSG B	Open Space
	6,861	55	Woods, Good, HSG B	Woods
*	17,793	96	Gravel roads, HSG B	Roadway
	46,914	76	Weighted Average	
	43,396	74	92.50% Pervious Area	
	3,518	98	7.50% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	138	0.1590	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.5	90	0.0330	2.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	340	0.0910	6.12		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
13.0	568	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 7.50% Impervious, Rv= 0.117, Runoff= 5.37"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
18,742	Open Space	315.16	1.10	4.76	0.64
3,518	Pavement	17.00	0.06	0.21	0.66
17,793	Roadway	85.98	0.28	1.04	3.33
6,861	Woods	7.09	0.00	0.00	0.24
46,914	Total	425.23	1.43	6.01	4.87

Subcatchment 1: Pre DA-1



Hydrograph for Subcatchment 1: Pre DA-1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.05	0.92	0.07
12.00	3.00	0.91	2.77	**1.47**
14.00	4.87	2.26	4.63	**0.28**
16.00	5.32	2.62	5.08	0.15
18.00	5.57	2.83	5.33	0.09
20.00	5.74	2.97	5.50	0.07
22.00	5.88	3.09	5.65	0.06
24.00	**6.00**	**3.18**	**5.76**	0.05
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00

Summary for Subcatchment 2: Pre DA-2

Runoff = 3.92 cfs @ 12.28 hrs, Volume= 18,188 cf, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

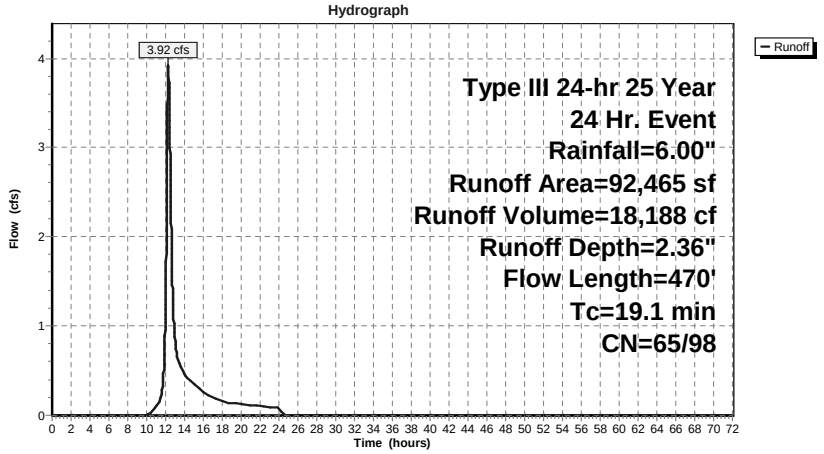
	Area (sf)	CN	Description	Land Use
	247	98	Paved parking, HSG B	Pavement
	25,422	61	>75% Grass cover, Good, HSG B	Open Space
	5,558	55	Woods, Good, HSG B	Woods
	45,478	58	Woods/grass comb., Good, HSG B	Orchard
*	15,760	96	Gravel roads, HSG B	Roadway
	92,465	65	Weighted Average	
	92,218	65	99.73% Pervious Area	
	247	98	0.27% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
3.5	50	0.1480	0.24		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.4	220	0.1480	2.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	100		3.00		**Direct Entry,**
19.1	470	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.27% Impervious, Rv= 0.052, Runoff= 2.39"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
25,422	Open Space	190.67	0.67	2.88	0.39
45,478	Orchard	341.10	1.19	5.16	2.89
247	Pavement	0.53	0.00	0.01	0.02
15,760	Roadway	33.97	0.11	0.41	1.32
5,558	Woods	2.56	0.00	0.00	0.09
92,465	Total	568.83	1.97	8.46	4.70

Subcatchment 2: Pre DA-2



Hydrograph for Subcatchment 2: Pre DA-2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.00
10.00	1.13	0.00	0.92	0.00
12.00	3.00	0.51	2.77	**1.24**
14.00	4.87	1.57	4.63	**0.47**
16.00	5.32	1.87	5.08	0.26
18.00	5.57	2.04	5.33	0.16
20.00	5.74	2.17	5.50	0.12
22.00	5.88	2.27	5.65	0.10
24.00	**6.00**	**2.35**	**5.76**	0.08
26.00	6.00	2.35	5.76	0.00
28.00	6.00	2.35	5.76	0.00
30.00	6.00	2.35	5.76	0.00
32.00	6.00	2.35	5.76	0.00
34.00	6.00	2.35	5.76	0.00
36.00	6.00	2.35	5.76	0.00
38.00	6.00	2.35	5.76	0.00
40.00	6.00	2.35	5.76	0.00
42.00	6.00	2.35	5.76	0.00
44.00	6.00	2.35	5.76	0.00
46.00	6.00	2.35	5.76	0.00
48.00	6.00	2.35	5.76	0.00
50.00	6.00	2.35	5.76	0.00
52.00	6.00	2.35	5.76	0.00
54.00	6.00	2.35	5.76	0.00
56.00	6.00	2.35	5.76	0.00
58.00	6.00	2.35	5.76	0.00
60.00	6.00	2.35	5.76	0.00
62.00	6.00	2.35	5.76	0.00
64.00	6.00	2.35	5.76	0.00
66.00	6.00	2.35	5.76	0.00
68.00	6.00	2.35	5.76	0.00
70.00	6.00	2.35	5.76	0.00
72.00	6.00	2.35	5.76	0.00

Summary for Subcatchment 3: Pre DA-3

Runoff = 6.48 cfs @ 12.24 hrs, Volume= 28,542 cf, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

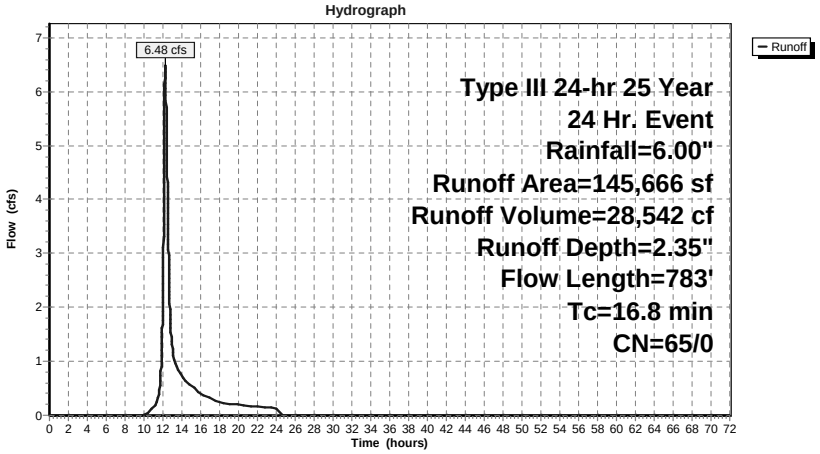
	Area (sf)	CN	Description	Land Use
	19,104	61	>75% Grass cover, Good, HSG B	Open Space
	16,367	74	>75% Grass cover, Good, HSG C	Open Space
	82,613	58	Woods/grass comb., Good, HSG B	Orchard
	11,899	72	Woods/grass comb., Good, HSG C	Orchard
*	15,683	96	Gravel roads, HSG C	Roadway
	145,666	65	Weighted Average	
	145,666	65	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	125	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	25	0.1800	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.7	275	0.1800	6.36		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.7	312		3.00		**Direct Entry,**
0.1	46	0.0870	11.87	14.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Concrete sewer w/manholes & inlets
16.8	783	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
35,471	Open Space	253.84	0.89	3.84	0.52
94,512	Orchard	676.34	2.36	10.22	5.73
15,683	Roadway	32.25	0.10	0.39	1.25
145,666	Total	962.43	3.35	14.45	7.50

Subcatchment 3: Pre DA-3



Hydrograph for Subcatchment 3: Pre DA-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.00	0.00	0.00
12.00	3.00	0.51	0.00	**2.20**
14.00	4.87	1.57	0.00	**0.72**
16.00	5.32	1.87	0.00	0.40
18.00	5.57	2.04	0.00	0.25
20.00	5.74	2.17	0.00	0.19
22.00	5.88	2.27	0.00	0.16
24.00	**6.00**	**2.35**	0.00	0.13
26.00	6.00	2.35	0.00	0.00
28.00	6.00	2.35	0.00	0.00
30.00	6.00	2.35	0.00	0.00
32.00	6.00	2.35	0.00	0.00
34.00	6.00	2.35	0.00	0.00
36.00	6.00	2.35	0.00	0.00
38.00	6.00	2.35	0.00	0.00
40.00	6.00	2.35	0.00	0.00
42.00	6.00	2.35	0.00	0.00
44.00	6.00	2.35	0.00	0.00
46.00	6.00	2.35	0.00	0.00
48.00	6.00	2.35	0.00	0.00
50.00	6.00	2.35	0.00	0.00
52.00	6.00	2.35	0.00	0.00
54.00	6.00	2.35	0.00	0.00
56.00	6.00	2.35	0.00	0.00
58.00	6.00	2.35	0.00	0.00
60.00	6.00	2.35	0.00	0.00
62.00	6.00	2.35	0.00	0.00
64.00	6.00	2.35	0.00	0.00
66.00	6.00	2.35	0.00	0.00
68.00	6.00	2.35	0.00	0.00
70.00	6.00	2.35	0.00	0.00
72.00	6.00	2.35	0.00	0.00

Summary for Subcatchment 4: Pre DA-4

Runoff = 5.08 cfs @ 12.16 hrs, Volume= 18,819 cf, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

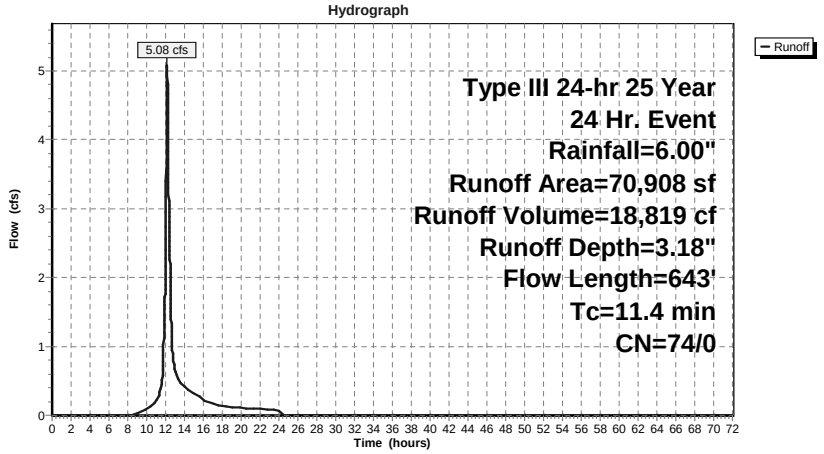
	Area (sf)	CN	Description	Land Use
	34,519	74	>75% Grass cover, Good, HSG C	Open Space
	2,363	58	Woods/grass comb., Good, HSG B	Orchard
	30,919	72	Woods/grass comb., Good, HSG C	Orchard
*	3,107	96	Gravel roads, HSG C	Roadway
	70,908	74	Weighted Average	
	70,908	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	150	0.1200	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.6	270	0.1600	2.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	100	0.3600	4.20		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	123	0.1050	11.24	8.83	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.017 Concrete sewer w/manholes & inlets
11.4	643	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
34,519	Open Space	247.02	0.86	3.73	0.50
33,282	Orchard	238.17	0.83	3.60	2.02
3,107	Roadway	6.39	0.02	0.08	0.25
70,908	Total	491.58	1.71	7.41	2.77

Subcatchment 4: Pre DA-4



Hydrograph for Subcatchment 4: Pre DA-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.05	0.00	0.09
12.00	3.00	0.91	0.00	**2.27**
14.00	4.87	2.26	0.00	**0.41**
16.00	5.32	2.62	0.00	0.22
18.00	5.57	2.83	0.00	0.14
20.00	5.74	2.97	0.00	0.11
22.00	5.88	3.09	0.00	0.09
24.00	**6.00**	**3.18**	0.00	0.07
26.00	6.00	3.18	0.00	0.00
28.00	6.00	3.18	0.00	0.00
30.00	6.00	3.18	0.00	0.00
32.00	6.00	3.18	0.00	0.00
34.00	6.00	3.18	0.00	0.00
36.00	6.00	3.18	0.00	0.00
38.00	6.00	3.18	0.00	0.00
40.00	6.00	3.18	0.00	0.00
42.00	6.00	3.18	0.00	0.00
44.00	6.00	3.18	0.00	0.00
46.00	6.00	3.18	0.00	0.00
48.00	6.00	3.18	0.00	0.00
50.00	6.00	3.18	0.00	0.00
52.00	6.00	3.18	0.00	0.00
54.00	6.00	3.18	0.00	0.00
56.00	6.00	3.18	0.00	0.00
58.00	6.00	3.18	0.00	0.00
60.00	6.00	3.18	0.00	0.00
62.00	6.00	3.18	0.00	0.00
64.00	6.00	3.18	0.00	0.00
66.00	6.00	3.18	0.00	0.00
68.00	6.00	3.18	0.00	0.00
70.00	6.00	3.18	0.00	0.00
72.00	6.00	3.18	0.00	0.00

Summary for Subcatchment 5A: Pre DA-5

Runoff = 28.36 cfs @ 12.30 hrs, Volume= 134,629 cf, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

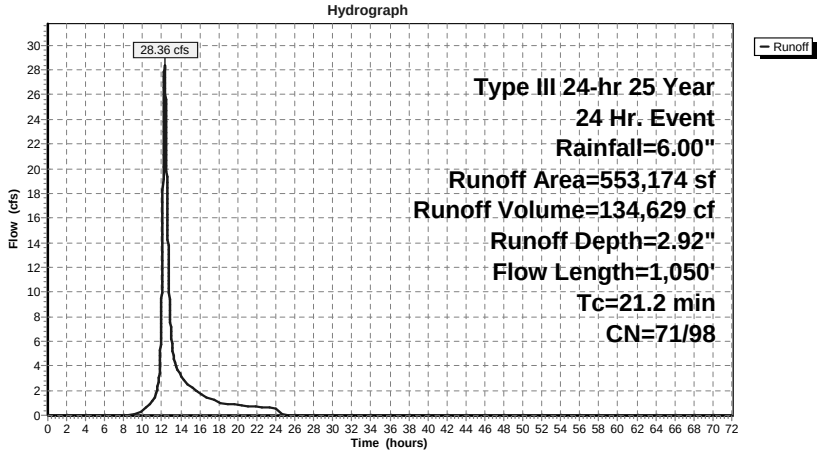
	Area (sf)	CN	Description	Land Use
	4,202	98	Paved parking, HSG C	Pavement
	13,701	61	>75% Grass cover, Good, HSG B	Open Space
	133,086	74	>75% Grass cover, Good, HSG C	Open Space
	204	69	Pasture/grassland/range, Fair, HSG B	Pasture
	43,970	58	Woods/grass comb., Good, HSG B	Orchard
	355,243	72	Woods/grass comb., Good, HSG C	Orchard
*	2,768	96	Gravel roads, HSG C	Roadway
	553,174	71	Weighted Average	
	548,972	71	99.24% Pervious Area	
	4,202	98	0.76% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	150	0.0300	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	140	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.7	630	0.3100	3.90		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	130	0.2900	3.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.2	1,050	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.76% Impervious, Rv= 0.057, Runoff= 2.60"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
146,787	Open Space	1,194.06	4.17	18.05	2.44
399,213	Orchard	3,247.45	11.33	49.09	27.51
204	Pasture	0.10	0.00	0.00	0.01
4,202	Pavement	9.82	0.03	0.12	0.38
2,768	Roadway	6.47	0.02	0.08	0.25
553,174	Total	4,457.91	15.55	67.34	30.60

Subcatchment 5A: Pre DA-5



Hydrograph for Subcatchment 5A: Pre DA-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.02	0.92	0.38
12.00	3.00	0.76	2.77	**9.50**
14.00	4.87	2.02	4.63	**3.24**
16.00	5.32	2.36	5.08	1.77
18.00	5.57	2.55	5.33	1.06
20.00	5.74	2.69	5.50	0.82
22.00	5.88	2.81	5.65	0.68
24.00	**6.00**	**2.90**	**5.76**	0.55
26.00	6.00	2.90	5.76	0.00
28.00	6.00	2.90	5.76	0.00
30.00	6.00	2.90	5.76	0.00
32.00	6.00	2.90	5.76	0.00
34.00	6.00	2.90	5.76	0.00
36.00	6.00	2.90	5.76	0.00
38.00	6.00	2.90	5.76	0.00
40.00	6.00	2.90	5.76	0.00
42.00	6.00	2.90	5.76	0.00
44.00	6.00	2.90	5.76	0.00
46.00	6.00	2.90	5.76	0.00
48.00	6.00	2.90	5.76	0.00
50.00	6.00	2.90	5.76	0.00
52.00	6.00	2.90	5.76	0.00
54.00	6.00	2.90	5.76	0.00
56.00	6.00	2.90	5.76	0.00
58.00	6.00	2.90	5.76	0.00
60.00	6.00	2.90	5.76	0.00
62.00	6.00	2.90	5.76	0.00
64.00	6.00	2.90	5.76	0.00
66.00	6.00	2.90	5.76	0.00
68.00	6.00	2.90	5.76	0.00
70.00	6.00	2.90	5.76	0.00
72.00	6.00	2.90	5.76	0.00

Summary for Subcatchment 5B: Pre DA-5

Runoff = 6.87 cfs @ 12.46 hrs, Volume= 41,893 cf, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

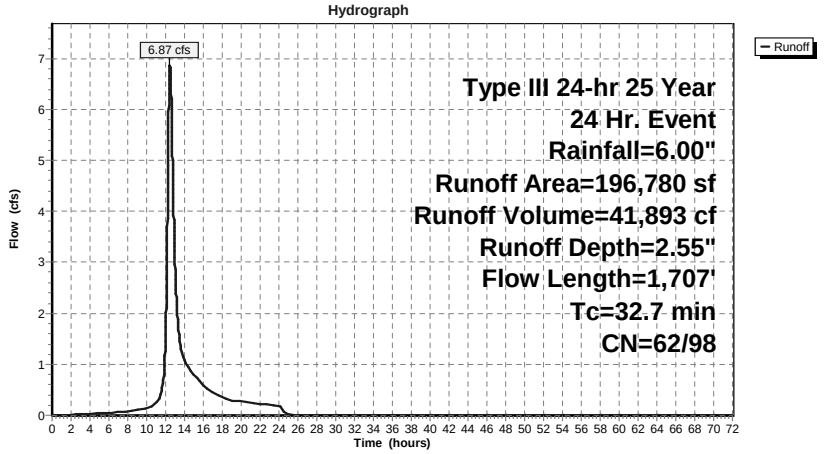
	Area (sf)	CN	Description	Land Use
	24,498	98	Roofs, HSG B	Roofs
	33,151	61	>75% Grass cover, Good, HSG B	Open Space
*	8,758	96	Gravel roads, HSG B	Roadway
	384	98	Unconnected roofs, HSG B	Roofs
	129,989	60	Woods, Fair, HSG B	Woods
	196,780	67	Weighted Average	
	171,898	62	87.36% Pervious Area	
	24,882	98	12.64% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.5	150	0.0870	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
0.6	146	0.5800	3.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	111	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.6	1,300	0.0337	8.37	10.28	**Pipe Channel, Confirm Pipe Size** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
32.7	1,707	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 12.64% Impervious, Rv= 0.164, Runoff= 7.49"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
33,151	Open Space	777.18	2.71	11.75	1.59
8,758	Roadway	59.00	0.19	0.72	2.29
24,882	Roofs	18.41	0.11	1.45	7.17
129,989	Woods	187.30	0.00	0.00	6.23
196,780	Total	1,041.90	3.01	13.92	17.27

Subcatchment 5B: Pre DA-5



Hydrograph for Subcatchment 5B: Pre DA-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.03
6.00	0.43	0.00	0.26	0.05
8.00	0.68	0.00	0.49	0.08
10.00	1.13	0.00	0.92	0.14
12.00	3.00	0.40	2.77	**1.55**
14.00	4.87	1.36	4.63	**1.09**
16.00	5.32	1.64	5.08	0.59
18.00	5.57	1.80	5.33	0.35
20.00	5.74	1.92	5.50	0.27
22.00	5.88	2.01	5.65	0.22
24.00	**6.00**	**2.09**	**5.76**	0.18
26.00	6.00	2.09	5.76	0.00
28.00	6.00	2.09	5.76	0.00
30.00	6.00	2.09	5.76	0.00
32.00	6.00	2.09	5.76	0.00
34.00	6.00	2.09	5.76	0.00
36.00	6.00	2.09	5.76	0.00
38.00	6.00	2.09	5.76	0.00
40.00	6.00	2.09	5.76	0.00
42.00	6.00	2.09	5.76	0.00
44.00	6.00	2.09	5.76	0.00
46.00	6.00	2.09	5.76	0.00
48.00	6.00	2.09	5.76	0.00
50.00	6.00	2.09	5.76	0.00
52.00	6.00	2.09	5.76	0.00
54.00	6.00	2.09	5.76	0.00
56.00	6.00	2.09	5.76	0.00
58.00	6.00	2.09	5.76	0.00
60.00	6.00	2.09	5.76	0.00
62.00	6.00	2.09	5.76	0.00
64.00	6.00	2.09	5.76	0.00
66.00	6.00	2.09	5.76	0.00
68.00	6.00	2.09	5.76	0.00
70.00	6.00	2.09	5.76	0.00
72.00	6.00	2.09	5.76	0.00

Summary for Subcatchment 6A: Pre DA-6

Runoff = 52.68 cfs @ 12.11 hrs, Volume= 194,091 cf, Depth= 4.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

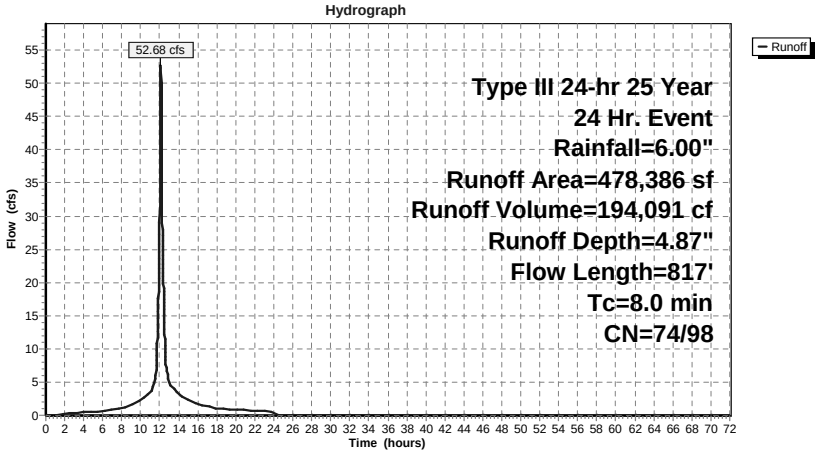
Area (sf)	CN	Description	Land Use
129,856	98	Unconnected pavement, HSG C	Pavement
182,714	98	Unconnected roofs, HSG C	Roofs
161,824	74	>75% Grass cover, Good, HSG C	Open Space
3,660	61	>75% Grass cover, Good, HSG B	Open Space
332	58	Woods/grass comb., Good, HSG B	Orchard
478,386	90	Weighted Average	
165,816	74	34.66% Pervious Area	
312,570	98	65.34% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	90	0.3310	9.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	627	0.1080	18.10	56.85	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
8.0	817	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 65.34% Impervious, Rv= 0.638, Runoff= 29.16"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
165,484	Open Space	15,111.88	52.72	228.44	30.88
332	Orchard	30.32	0.11	0.46	0.26
129,856	Pavement	3,407.80	11.03	41.37	131.98
182,714	Roofs	526.61	3.05	41.57	205.10
478,386	Total	19,076.62	66.90	311.83	368.21

Subcatchment 6A: Pre DA-6



Hydrograph for Subcatchment 6A: Pre DA-6

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.20
4.00	0.26	0.00	0.11	0.42
6.00	0.43	0.00	0.26	0.60
8.00	0.68	0.00	0.49	1.03
10.00	1.13	0.05	0.92	2.22
12.00	3.00	0.91	2.77	**29.16**
14.00	4.87	2.26	4.63	**3.20**
16.00	5.32	2.62	5.08	1.70
18.00	5.57	2.83	5.33	1.04
20.00	5.74	2.97	5.50	0.82
22.00	5.88	3.09	5.65	0.68
24.00	**6.00**	**3.18**	**5.76**	0.54
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00

Summary for Subcatchment 6B: Pre DA-6

Runoff = 9.03 cfs @ 12.42 hrs, Volume= 51,013 cf, Depth= 1.95"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

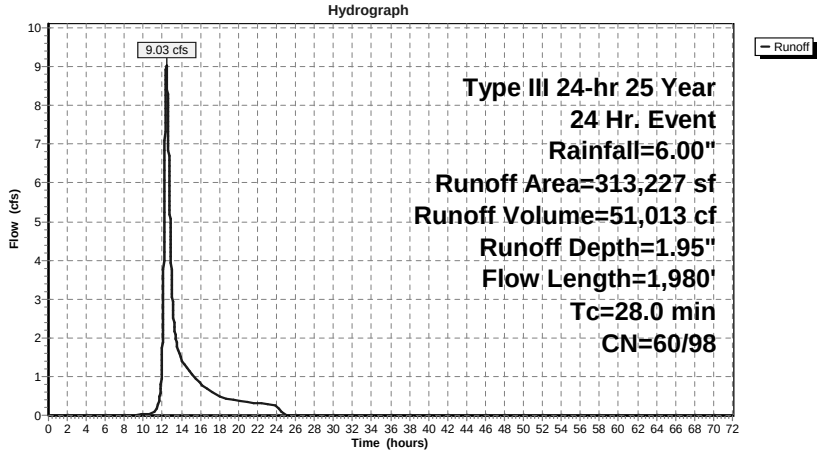
	Area (sf)	CN	Description	Land Use
	2,675	98	Unconnected pavement, HSG C	Pavement
	46,506	61	>75% Grass cover, Good, HSG B	Open Space
	262,664	60	Woods, Fair, HSG B	Woods
*	1,382	96	Gravel roads, HSG C	Roadway
	313,227	61	Weighted Average	
	310,552	60	99.15% Pervious Area	
	2,675	98	0.85% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	150	0.1200	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.4	370	0.2600	2.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	100	0.1200	7.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	1,360	0.1000	17.41	54.71	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
28.0	1,980	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.85% Impervious, Rv= 0.058, Runoff= 2.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
46,506	Open Space	383.96	1.34	5.80	0.78
2,675	Pavement	6.35	0.02	0.08	0.25
1,382	Roadway	3.28	0.01	0.04	0.13
262,664	Woods	133.29	0.00	0.00	4.43
313,227	Total	526.88	1.37	5.92	5.59

Subcatchment 6B: Pre DA-6



Hydrograph for Subcatchment 6B: Pre DA-6

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.00	0.92	0.02
12.00	3.00	0.33	2.77	**1.78**
14.00	4.87	1.22	4.63	**1.46**
16.00	5.32	1.49	5.08	0.82
18.00	5.57	1.64	5.33	0.49
20.00	5.74	1.75	5.50	0.38
22.00	5.88	1.85	5.65	0.32
24.00	**6.00**	**1.92**	**5.76**	0.26
26.00	6.00	1.92	5.76	0.00
28.00	6.00	1.92	5.76	0.00
30.00	6.00	1.92	5.76	0.00
32.00	6.00	1.92	5.76	0.00
34.00	6.00	1.92	5.76	0.00
36.00	6.00	1.92	5.76	0.00
38.00	6.00	1.92	5.76	0.00
40.00	6.00	1.92	5.76	0.00
42.00	6.00	1.92	5.76	0.00
44.00	6.00	1.92	5.76	0.00
46.00	6.00	1.92	5.76	0.00
48.00	6.00	1.92	5.76	0.00
50.00	6.00	1.92	5.76	0.00
52.00	6.00	1.92	5.76	0.00
54.00	6.00	1.92	5.76	0.00
56.00	6.00	1.92	5.76	0.00
58.00	6.00	1.92	5.76	0.00
60.00	6.00	1.92	5.76	0.00
62.00	6.00	1.92	5.76	0.00
64.00	6.00	1.92	5.76	0.00
66.00	6.00	1.92	5.76	0.00
68.00	6.00	1.92	5.76	0.00
70.00	6.00	1.92	5.76	0.00
72.00	6.00	1.92	5.76	0.00

Summary for Subcatchment 7: Pre DA-7

Runoff = 7.58 cfs @ 12.10 hrs, Volume= 25,155 cf, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

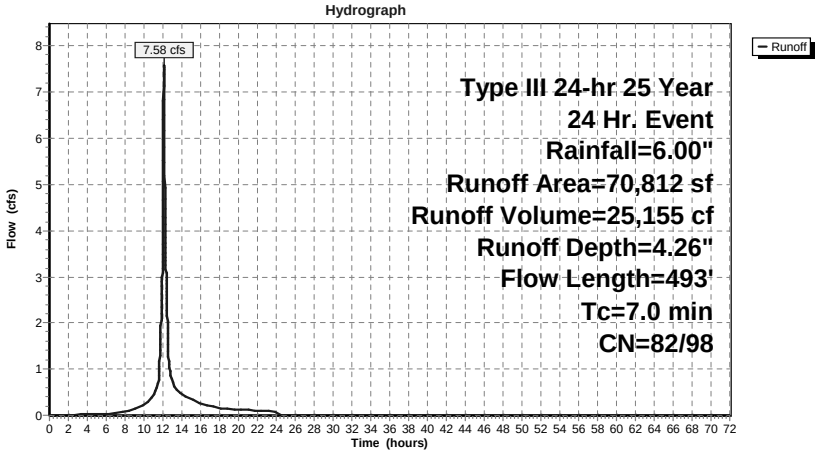
	Area (sf)	CN	Description	Land Use
	4,235	98	Paved parking, HSG C	Pavement
	6,764	98	Roofs, HSG C	Roofs
	37,133	74	>75% Grass cover, Good, HSG C	Open Space
*	22,680	96	Gravel roads, HSG C	Roadway
	70,812	85	Weighted Average	
	59,813	82	84.47% Pervious Area	
	10,999	98	15.53% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	135	0.2670	0.37		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	40	0.1500	2.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	81	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	114	0.0350	13.47	42.32	**Pipe Channel, Assumed Dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.1	123	0.0810	20.49	64.38	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
7.0	493	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 15.53% Impervious, Rv= 0.190, Runoff= 8.67"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
37,133	Open Space	1,008.68	3.52	15.25	2.06
4,235	Pavement	33.06	0.11	0.40	1.28
22,680	Roadway	177.05	0.57	2.15	6.86
6,764	Roofs	5.80	0.03	0.46	2.26
70,812	Total	1,224.58	4.23	18.26	12.46

Subcatchment 7: Pre DA-7



Hydrograph for Subcatchment 7: Pre DA-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.02
8.00	0.68	0.02	0.49	0.07
10.00	1.13	0.17	0.92	0.23
12.00	3.00	1.38	2.77	**4.30**
14.00	4.87	2.96	4.63	**0.46**
16.00	5.32	3.36	5.08	0.25
18.00	5.57	3.59	5.33	0.15
20.00	5.74	3.75	5.50	0.12
22.00	5.88	3.88	5.65	0.10
24.00	**6.00**	**3.99**	**5.76**	0.08
26.00	6.00	3.99	5.76	0.00
28.00	6.00	3.99	5.76	0.00
30.00	6.00	3.99	5.76	0.00
32.00	6.00	3.99	5.76	0.00
34.00	6.00	3.99	5.76	0.00
36.00	6.00	3.99	5.76	0.00
38.00	6.00	3.99	5.76	0.00
40.00	6.00	3.99	5.76	0.00
42.00	6.00	3.99	5.76	0.00
44.00	6.00	3.99	5.76	0.00
46.00	6.00	3.99	5.76	0.00
48.00	6.00	3.99	5.76	0.00
50.00	6.00	3.99	5.76	0.00
52.00	6.00	3.99	5.76	0.00
54.00	6.00	3.99	5.76	0.00
56.00	6.00	3.99	5.76	0.00
58.00	6.00	3.99	5.76	0.00
60.00	6.00	3.99	5.76	0.00
62.00	6.00	3.99	5.76	0.00
64.00	6.00	3.99	5.76	0.00
66.00	6.00	3.99	5.76	0.00
68.00	6.00	3.99	5.76	0.00
70.00	6.00	3.99	5.76	0.00
72.00	6.00	3.99	5.76	0.00

Summary for Pond DP1: DP-1

[57] Hint: Peaked at 710.00' (Flood elevation advised)

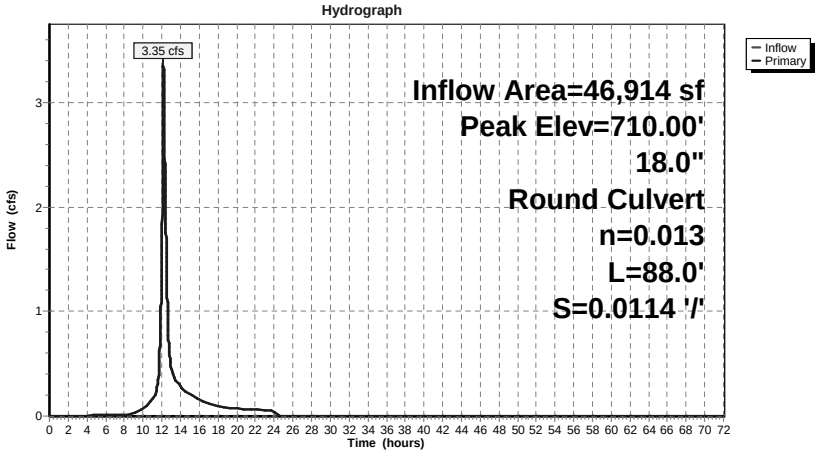
Inflow Area = 46,914 sf, 7.50% Impervious, Inflow Depth = 3.38" for 25 Year, 24 Hr. Event event
Inflow = 3.35 cfs @ 12.18 hrs, Volume= 13,207 cf
Outflow = 3.35 cfs @ 12.18 hrs, Volume= 13,207 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.35 cfs @ 12.18 hrs, Volume= 13,207 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 710.00' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	709.00'	**18.0" Round Culvert** L= 88.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 709.00' / 708.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=3.35 cfs @ 12.18 hrs HW=710.00' (Free Discharge)
1=Culvert (Inlet Controls 3.35 cfs @ 2.68 fps)

Pond DP1: DP-1



Hydrograph for Pond DP1: DP-1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	709.00	0.00	52.00	0.00	709.00	0.00
1.00	0.00	709.01	0.00	53.00	0.00	709.00	0.00
2.00	0.00	709.02	0.00	54.00	0.00	709.00	0.00
3.00	0.00	709.03	0.00	55.00	0.00	709.00	0.00
4.00	0.00	709.03	0.00	56.00	0.00	709.00	0.00
5.00	0.01	709.04	0.01	57.00	0.00	709.00	0.00
6.00	0.01	709.04	0.01	58.00	0.00	709.00	0.00
7.00	0.01	709.05	0.01	59.00	0.00	709.00	0.00
8.00	0.01	709.05	0.01	60.00	0.00	709.00	0.00
9.00	0.03	709.09	0.03	61.00	0.00	709.00	0.00
10.00	0.07	709.13	0.07	62.00	0.00	709.00	0.00
11.00	0.16	709.19	0.16	63.00	0.00	709.00	0.00
12.00	**1.47**	**709.62**	**1.47**	64.00	0.00	709.00	0.00
13.00	**0.47**	**709.34**	**0.47**	65.00	0.00	709.00	0.00
14.00	0.28	709.26	0.28	66.00	0.00	709.00	0.00
15.00	0.21	709.22	0.21	67.00	0.00	709.00	0.00
16.00	0.15	709.19	0.15	68.00	0.00	709.00	0.00
17.00	0.12	709.17	0.12	69.00	0.00	709.00	0.00
18.00	0.09	709.15	0.09	70.00	0.00	709.00	0.00
19.00	0.08	709.14	0.08	71.00	0.00	709.00	0.00
20.00	0.07	709.13	0.07	72.00	0.00	709.00	0.00
21.00	0.07	709.12	0.07				
22.00	0.06	709.12	0.06				
23.00	0.05	709.11	0.05				
24.00	0.05	709.11	0.05				
25.00	0.00	709.00	0.00				
26.00	0.00	709.00	0.00				
27.00	0.00	709.00	0.00				
28.00	0.00	709.00	0.00				
29.00	0.00	709.00	0.00				
30.00	0.00	709.00	0.00				
31.00	0.00	709.00	0.00				
32.00	0.00	709.00	0.00				
33.00	0.00	709.00	0.00				
34.00	0.00	709.00	0.00				
35.00	0.00	709.00	0.00				
36.00	0.00	709.00	0.00				
37.00	0.00	709.00	0.00				
38.00	0.00	709.00	0.00				
39.00	0.00	709.00	0.00				
40.00	0.00	709.00	0.00				
41.00	0.00	709.00	0.00				
42.00	0.00	709.00	0.00				
43.00	0.00	709.00	0.00				
44.00	0.00	709.00	0.00				
45.00	0.00	709.00	0.00				
46.00	0.00	709.00	0.00				
47.00	0.00	709.00	0.00				
48.00	0.00	709.00	0.00				
49.00	0.00	709.00	0.00				
50.00	0.00	709.00	0.00				
51.00	0.00	709.00	0.00				

Summary for Pond DP2: DP-2

[57] Hint: Peaked at 678.10' (Flood elevation advised)

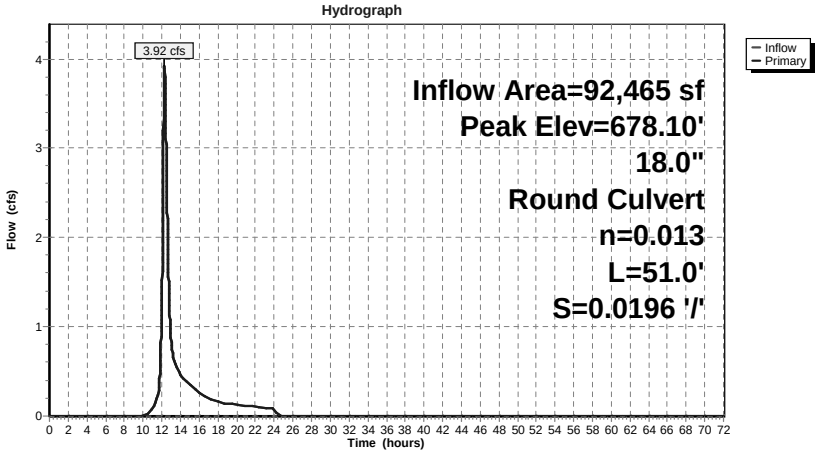
Inflow Area = 92,465 sf, 0.27% Impervious, Inflow Depth = 2.36" for 25 Year, 24 Hr. Event event
Inflow = 3.92 cfs @ 12.28 hrs, Volume= 18,188 cf
Outflow = 3.92 cfs @ 12.28 hrs, Volume= 18,188 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.92 cfs @ 12.28 hrs, Volume= 18,188 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 678.10' @ 12.28 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	677.00'	**18.0" Round Culvert** L= 51.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 677.00' / 676.00' S= 0.0196 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=3.92 cfs @ 12.28 hrs HW=678.10' (Free Discharge)
1=Culvert (Inlet Controls 3.92 cfs @ 2.82 fps)

Pond DP2: DP-2



Hydrograph for Pond DP2: DP-2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	677.00	0.00	52.00	0.00	677.00	0.00
1.00	0.00	677.00	0.00	53.00	0.00	677.00	0.00
2.00	0.00	677.01	0.00	54.00	0.00	677.00	0.00
3.00	0.00	677.01	0.00	55.00	0.00	677.00	0.00
4.00	0.00	677.01	0.00	56.00	0.00	677.00	0.00
5.00	0.00	677.01	0.00	57.00	0.00	677.00	0.00
6.00	0.00	677.01	0.00	58.00	0.00	677.00	0.00
7.00	0.00	677.01	0.00	59.00	0.00	677.00	0.00
8.00	0.00	677.01	0.00	60.00	0.00	677.00	0.00
9.00	0.00	677.02	0.00	61.00	0.00	677.00	0.00
10.00	0.00	677.02	0.00	62.00	0.00	677.00	0.00
11.00	0.09	677.15	0.09	63.00	0.00	677.00	0.00
12.00	**1.24**	**677.57**	**1.24**	64.00	0.00	677.00	0.00
13.00	**0.85**	**677.46**	**0.85**	65.00	0.00	677.00	0.00
14.00	0.47	677.34	0.47	66.00	0.00	677.00	0.00
15.00	0.35	677.29	0.35	67.00	0.00	677.00	0.00
16.00	0.26	677.25	0.26	68.00	0.00	677.00	0.00
17.00	0.20	677.22	0.20	69.00	0.00	677.00	0.00
18.00	0.16	677.19	0.16	70.00	0.00	677.00	0.00
19.00	0.14	677.18	0.14	71.00	0.00	677.00	0.00
20.00	0.12	677.17	0.12	72.00	0.00	677.00	0.00
21.00	0.11	677.16	0.11				
22.00	0.10	677.16	0.10				
23.00	0.09	677.15	0.09				
24.00	0.08	677.14	0.08				
25.00	0.00	677.00	0.00				
26.00	0.00	677.00	0.00				
27.00	0.00	677.00	0.00				
28.00	0.00	677.00	0.00				
29.00	0.00	677.00	0.00				
30.00	0.00	677.00	0.00				
31.00	0.00	677.00	0.00				
32.00	0.00	677.00	0.00				
33.00	0.00	677.00	0.00				
34.00	0.00	677.00	0.00				
35.00	0.00	677.00	0.00				
36.00	0.00	677.00	0.00				
37.00	0.00	677.00	0.00				
38.00	0.00	677.00	0.00				
39.00	0.00	677.00	0.00				
40.00	0.00	677.00	0.00				
41.00	0.00	677.00	0.00				
42.00	0.00	677.00	0.00				
43.00	0.00	677.00	0.00				
44.00	0.00	677.00	0.00				
45.00	0.00	677.00	0.00				
46.00	0.00	677.00	0.00				
47.00	0.00	677.00	0.00				
48.00	0.00	677.00	0.00				
49.00	0.00	677.00	0.00				
50.00	0.00	677.00	0.00				
51.00	0.00	677.00	0.00				

Summary for Pond DP3: DP-3

[57] Hint: Peaked at 633.36' (Flood elevation advised)

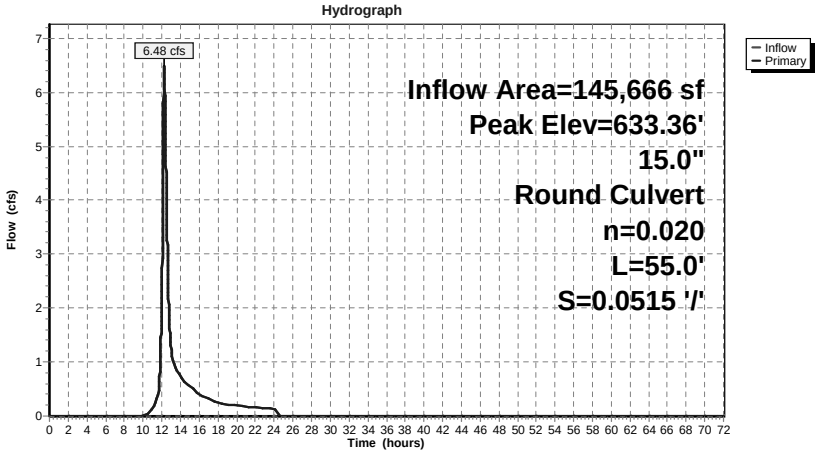
Inflow Area = 145,666 sf, 0.00% Impervious, Inflow Depth = 2.35" for 25 Year, 24 Hr. Event event
Inflow = 6.48 cfs @ 12.24 hrs, Volume= 28,542 cf
Outflow = 6.48 cfs @ 12.24 hrs, Volume= 28,542 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.48 cfs @ 12.24 hrs, Volume= 28,542 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 633.36' @ 12.24 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	630.80'	**15.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 630.80' / 627.97' S= 0.0515 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=6.48 cfs @ 12.24 hrs HW=633.36' (Free Discharge)
1=Culvert (Inlet Controls 6.48 cfs @ 5.28 fps)

Pond DP3: DP-3



Hydrograph for Pond DP3: DP-3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	630.80	0.00	52.00	0.00	630.80	0.00
1.00	0.00	630.80	0.00	53.00	0.00	630.80	0.00
2.00	0.00	630.80	0.00	54.00	0.00	630.80	0.00
3.00	0.00	630.80	0.00	55.00	0.00	630.80	0.00
4.00	0.00	630.80	0.00	56.00	0.00	630.80	0.00
5.00	0.00	630.80	0.00	57.00	0.00	630.80	0.00
6.00	0.00	630.80	0.00	58.00	0.00	630.80	0.00
7.00	0.00	630.80	0.00	59.00	0.00	630.80	0.00
8.00	0.00	630.80	0.00	60.00	0.00	630.80	0.00
9.00	0.00	630.80	0.00	61.00	0.00	630.80	0.00
10.00	0.00	630.82	0.00	62.00	0.00	630.80	0.00
11.00	0.15	631.00	0.15	63.00	0.00	630.80	0.00
12.00	**2.20**	**631.65**	**2.20**	64.00	0.00	630.80	0.00
13.00	**1.25**	**631.41**	**1.25**	65.00	0.00	630.80	0.00
14.00	0.72	631.25	0.72	66.00	0.00	630.80	0.00
15.00	0.55	631.19	0.55	67.00	0.00	630.80	0.00
16.00	0.40	631.13	0.40	68.00	0.00	630.80	0.00
17.00	0.31	631.09	0.31	69.00	0.00	630.80	0.00
18.00	0.25	631.06	0.25	70.00	0.00	630.80	0.00
19.00	0.21	631.04	0.21	71.00	0.00	630.80	0.00
20.00	0.19	631.03	0.19	72.00	0.00	630.80	0.00
21.00	0.18	631.02	0.18				
22.00	0.16	631.01	0.16				
23.00	0.15	631.00	0.15				
24.00	0.13	630.98	0.13				
25.00	0.00	630.80	0.00				
26.00	0.00	630.80	0.00				
27.00	0.00	630.80	0.00				
28.00	0.00	630.80	0.00				
29.00	0.00	630.80	0.00				
30.00	0.00	630.80	0.00				
31.00	0.00	630.80	0.00				
32.00	0.00	630.80	0.00				
33.00	0.00	630.80	0.00				
34.00	0.00	630.80	0.00				
35.00	0.00	630.80	0.00				
36.00	0.00	630.80	0.00				
37.00	0.00	630.80	0.00				
38.00	0.00	630.80	0.00				
39.00	0.00	630.80	0.00				
40.00	0.00	630.80	0.00				
41.00	0.00	630.80	0.00				
42.00	0.00	630.80	0.00				
43.00	0.00	630.80	0.00				
44.00	0.00	630.80	0.00				
45.00	0.00	630.80	0.00				
46.00	0.00	630.80	0.00				
47.00	0.00	630.80	0.00				
48.00	0.00	630.80	0.00				
49.00	0.00	630.80	0.00				
50.00	0.00	630.80	0.00				
51.00	0.00	630.80	0.00				

Summary for Pond DP4: DP-4

[57] Hint: Peaked at 609.03' (Flood elevation advised)

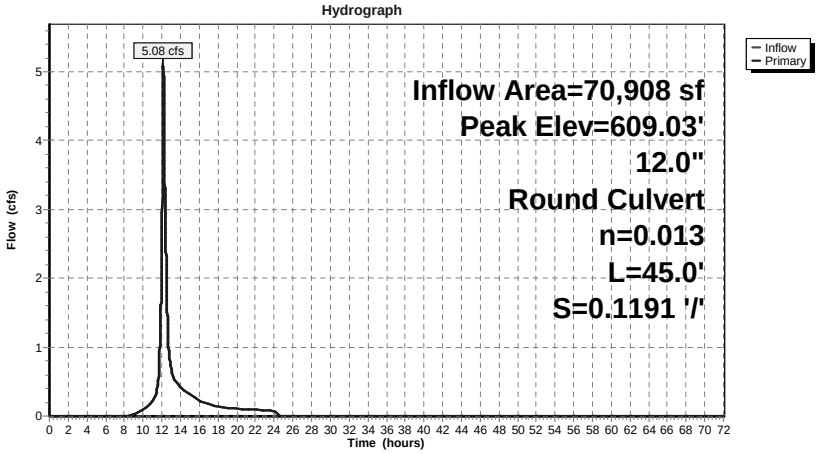
Inflow Area = 70,908 sf, 0.00% Impervious, Inflow Depth = 3.18" for 25 Year, 24 Hr. Event event
Inflow = 5.08 cfs @ 12.16 hrs, Volume= 18,819 cf
Outflow = 5.08 cfs @ 12.16 hrs, Volume= 18,819 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.08 cfs @ 12.16 hrs, Volume= 18,819 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 609.03' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	605.64'	**12.0" Round Culvert** L= 45.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 605.64' / 600.28' S= 0.1191 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=5.08 cfs @ 12.16 hrs HW=609.03' (Free Discharge)
1=Culvert (Inlet Controls 5.08 cfs @ 6.46 fps)

Pond DP4: DP-4



Hydrograph for Pond DP4: DP-4

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	605.64	0.00	52.00	0.00	605.64	0.00
1.00	0.00	605.64	0.00	53.00	0.00	605.64	0.00
2.00	0.00	605.64	0.00	54.00	0.00	605.64	0.00
3.00	0.00	605.64	0.00	55.00	0.00	605.64	0.00
4.00	0.00	605.64	0.00	56.00	0.00	605.64	0.00
5.00	0.00	605.64	0.00	57.00	0.00	605.64	0.00
6.00	0.00	605.64	0.00	58.00	0.00	605.64	0.00
7.00	0.00	605.64	0.00	59.00	0.00	605.64	0.00
8.00	0.00	605.64	0.00	60.00	0.00	605.64	0.00
9.00	0.03	605.72	0.03	61.00	0.00	605.64	0.00
10.00	0.09	605.80	0.09	62.00	0.00	605.64	0.00
11.00	0.21	605.89	0.21	63.00	0.00	605.64	0.00
12.00	**2.27**	**606.72**	**2.27**	64.00	0.00	605.64	0.00
13.00	**0.67**	**606.11**	**0.67**	65.00	0.00	605.64	0.00
14.00	0.41	606.00	0.41	66.00	0.00	605.64	0.00
15.00	0.31	605.95	0.31	67.00	0.00	605.64	0.00
16.00	0.22	605.90	0.22	68.00	0.00	605.64	0.00
17.00	0.18	605.87	0.18	69.00	0.00	605.64	0.00
18.00	0.14	605.84	0.14	70.00	0.00	605.64	0.00
19.00	0.12	605.83	0.12	71.00	0.00	605.64	0.00
20.00	0.11	605.82	0.11	72.00	0.00	605.64	0.00
21.00	0.10	605.81	0.10				
22.00	0.09	605.80	0.09				
23.00	0.08	605.79	0.08				
24.00	0.07	605.79	0.07				
25.00	0.00	605.64	0.00				
26.00	0.00	605.64	0.00				
27.00	0.00	605.64	0.00				
28.00	0.00	605.64	0.00				
29.00	0.00	605.64	0.00				
30.00	0.00	605.64	0.00				
31.00	0.00	605.64	0.00				
32.00	0.00	605.64	0.00				
33.00	0.00	605.64	0.00				
34.00	0.00	605.64	0.00				
35.00	0.00	605.64	0.00				
36.00	0.00	605.64	0.00				
37.00	0.00	605.64	0.00				
38.00	0.00	605.64	0.00				
39.00	0.00	605.64	0.00				
40.00	0.00	605.64	0.00				
41.00	0.00	605.64	0.00				
42.00	0.00	605.64	0.00				
43.00	0.00	605.64	0.00				
44.00	0.00	605.64	0.00				
45.00	0.00	605.64	0.00				
46.00	0.00	605.64	0.00				
47.00	0.00	605.64	0.00				
48.00	0.00	605.64	0.00				
49.00	0.00	605.64	0.00				
50.00	0.00	605.64	0.00				
51.00	0.00	605.64	0.00				

Summary for Pond DP5: DP-5

[57] Hint: Peaked at 658.43' (Flood elevation advised)

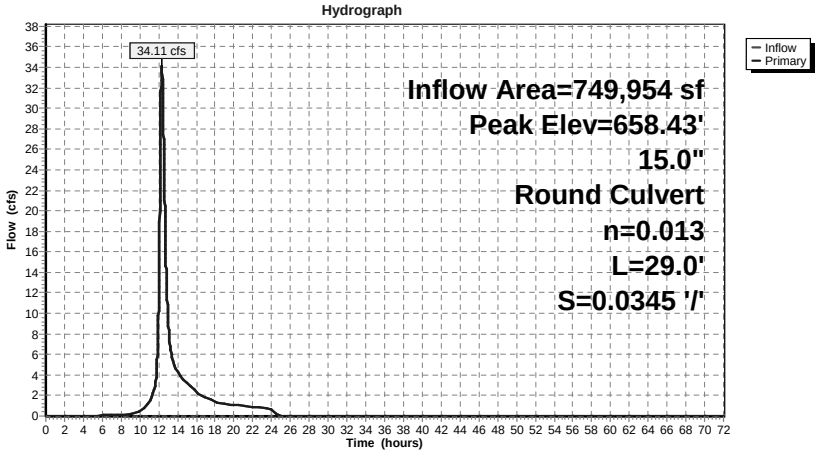
Inflow Area = 749,954 sf, 3.88% Impervious, Inflow Depth = 2.82" for 25 Year, 24 Hr. Event event
Inflow = 34.11 cfs @ 12.32 hrs, Volume= 176,522 cf
Outflow = 34.11 cfs @ 12.32 hrs, Volume= 176,522 cf, Atten= 0%, Lag= 0.0 min
Primary = 34.11 cfs @ 12.32 hrs, Volume= 176,522 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 658.43' @ 12.32 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	604.34'	**15.0" Round Culvert** L= 29.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 604.34' / 603.34' S= 0.0345 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=34.11 cfs @ 12.32 hrs HW=658.42' (Free Discharge)
1=Culvert (Inlet Controls 34.11 cfs @ 27.79 fps)

Pond DP5: DP-5



Hydrograph for Pond DP5: DP-5

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	604.34	0.00	52.00	0.00	604.34	0.00
1.00	0.00	604.35	0.00	53.00	0.00	604.34	0.00
2.00	0.01	604.40	0.01	54.00	0.00	604.34	0.00
3.00	0.03	604.42	0.03	55.00	0.00	604.34	0.00
4.00	0.04	604.44	0.04	56.00	0.00	604.34	0.00
5.00	0.04	604.45	0.04	57.00	0.00	604.34	0.00
6.00	0.05	604.46	0.05	58.00	0.00	604.34	0.00
7.00	0.07	604.47	0.07	59.00	0.00	604.34	0.00
8.00	0.09	604.49	0.09	60.00	0.00	604.34	0.00
9.00	0.13	604.53	0.13	61.00	0.00	604.34	0.00
10.00	0.52	604.72	0.52	62.00	0.00	604.34	0.00
11.00	1.40	604.99	1.40	63.00	0.00	604.34	0.00
12.00	**11.05**	**610.57**	**11.05**	64.00	0.00	604.34	0.00
13.00	**9.32**	**608.96**	**9.32**	65.00	0.00	604.34	0.00
14.00	4.33	605.83	4.33	66.00	0.00	604.34	0.00
15.00	3.20	605.43	3.20	67.00	0.00	604.34	0.00
16.00	2.36	605.23	2.36	68.00	0.00	604.34	0.00
17.00	1.80	605.09	1.80	69.00	0.00	604.34	0.00
18.00	1.42	605.00	1.42	70.00	0.00	604.34	0.00
19.00	1.21	604.94	1.21	71.00	0.00	604.34	0.00
20.00	1.09	604.91	1.09	72.00	0.00	604.34	0.00
21.00	0.99	604.88	0.99				
22.00	0.91	604.85	0.91				
23.00	0.82	604.82	0.82				
24.00	0.73	604.79	0.73				
25.00	0.01	604.39	0.01				
26.00	0.00	604.34	0.00				
27.00	0.00	604.34	0.00				
28.00	0.00	604.34	0.00				
29.00	0.00	604.34	0.00				
30.00	0.00	604.34	0.00				
31.00	0.00	604.34	0.00				
32.00	0.00	604.34	0.00				
33.00	0.00	604.34	0.00				
34.00	0.00	604.34	0.00				
35.00	0.00	604.34	0.00				
36.00	0.00	604.34	0.00				
37.00	0.00	604.34	0.00				
38.00	0.00	604.34	0.00				
39.00	0.00	604.34	0.00				
40.00	0.00	604.34	0.00				
41.00	0.00	604.34	0.00				
42.00	0.00	604.34	0.00				
43.00	0.00	604.34	0.00				
44.00	0.00	604.34	0.00				
45.00	0.00	604.34	0.00				
46.00	0.00	604.34	0.00				
47.00	0.00	604.34	0.00				
48.00	0.00	604.34	0.00				
49.00	0.00	604.34	0.00				
50.00	0.00	604.34	0.00				
51.00	0.00	604.34	0.00				

Summary for Pond DP6: DP-6

[57] Hint: Peaked at 611.29' (Flood elevation advised)

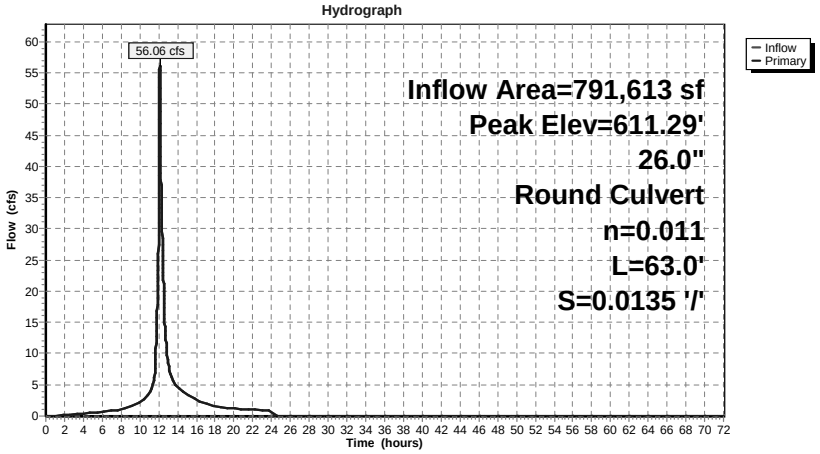
Inflow Area = 791,613 sf, 39.82% Impervious, Inflow Depth = 3.72" for 25 Year, 24 Hr. Event event
Inflow = 56.06 cfs @ 12.11 hrs, Volume= 245,104 cf
Outflow = 56.06 cfs @ 12.11 hrs, Volume= 245,104 cf, Atten= 0%, Lag= 0.0 min
Primary = 56.06 cfs @ 12.11 hrs, Volume= 245,104 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 611.29' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	600.24'	**26.0" Round Culvert** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.24' / 599.39' S= 0.0135 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=55.99 cfs @ 12.11 hrs HW=611.27' (Free Discharge)
1=Culvert (Inlet Controls 55.99 cfs @ 15.19 fps)

Pond DP6: DP-6



Hydrograph for Pond DP6: DP-6

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	600.24	0.00	52.00	0.00	600.24	0.00
1.00	0.05	600.32	0.05	53.00	0.00	600.24	0.00
2.00	0.20	600.41	0.20	54.00	0.00	600.24	0.00
3.00	0.32	600.46	0.32	55.00	0.00	600.24	0.00
4.00	0.42	600.50	0.42	56.00	0.00	600.24	0.00
5.00	0.52	600.52	0.52	57.00	0.00	600.24	0.00
6.00	0.61	600.55	0.61	58.00	0.00	600.24	0.00
7.00	0.81	600.60	0.81	59.00	0.00	600.24	0.00
8.00	1.04	600.65	1.04	60.00	0.00	600.24	0.00
9.00	1.58	600.74	1.58	61.00	0.00	600.24	0.00
10.00	2.24	600.85	2.24	62.00	0.00	600.24	0.00
11.00	3.55	601.02	3.55	63.00	0.00	600.24	0.00
12.00	**30.94**	**604.36**	**30.94**	64.00	0.00	600.24	0.00
13.00	**8.47**	**601.50**	**8.47**	65.00	0.00	600.24	0.00
14.00	4.66	601.14	4.66	66.00	0.00	600.24	0.00
15.00	3.49	601.01	3.49	67.00	0.00	600.24	0.00
16.00	2.52	600.89	2.52	68.00	0.00	600.24	0.00
17.00	1.97	600.81	1.97	69.00	0.00	600.24	0.00
18.00	1.53	600.74	1.53	70.00	0.00	600.24	0.00
19.00	1.33	600.70	1.33	71.00	0.00	600.24	0.00
20.00	1.20	600.68	1.20	72.00	0.00	600.24	0.00
21.00	1.10	600.66	1.10				
22.00	1.00	600.64	1.00				
23.00	0.90	600.62	0.90				
24.00	0.80	600.59	0.80				
25.00	0.01	600.27	0.01				
26.00	0.00	600.24	0.00				
27.00	0.00	600.24	0.00				
28.00	0.00	600.24	0.00				
29.00	0.00	600.24	0.00				
30.00	0.00	600.24	0.00				
31.00	0.00	600.24	0.00				
32.00	0.00	600.24	0.00				
33.00	0.00	600.24	0.00				
34.00	0.00	600.24	0.00				
35.00	0.00	600.24	0.00				
36.00	0.00	600.24	0.00				
37.00	0.00	600.24	0.00				
38.00	0.00	600.24	0.00				
39.00	0.00	600.24	0.00				
40.00	0.00	600.24	0.00				
41.00	0.00	600.24	0.00				
42.00	0.00	600.24	0.00				
43.00	0.00	600.24	0.00				
44.00	0.00	600.24	0.00				
45.00	0.00	600.24	0.00				
46.00	0.00	600.24	0.00				
47.00	0.00	600.24	0.00				
48.00	0.00	600.24	0.00				
49.00	0.00	600.24	0.00				
50.00	0.00	600.24	0.00				
51.00	0.00	600.24	0.00				

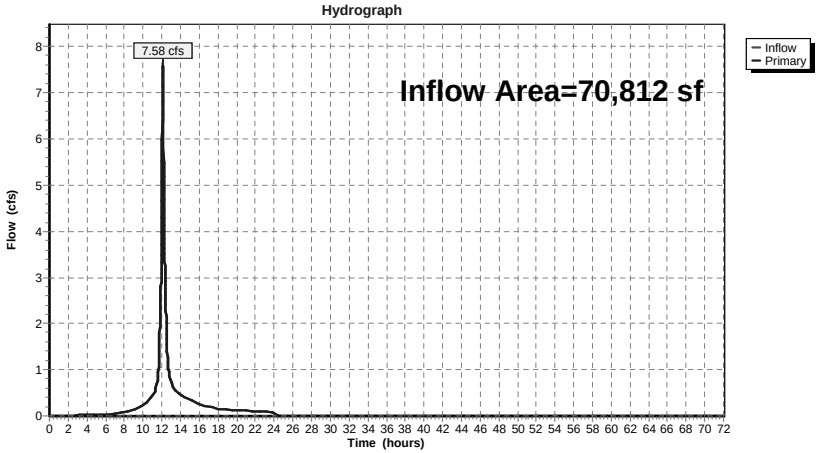
Summary for Pond DP7: DP-7

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 70,812 sf, 15.53% Impervious, Inflow Depth = 4.26" for 25 Year, 24 Hr. Event event
Inflow = 7.58 cfs @ 12.10 hrs, Volume= 25,155 cf
Primary = 7.58 cfs @ 12.10 hrs, Volume= 25,155 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP7: DP-7



Hydrograph for Pond DP7: DP-7

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.04		0.04	59.00	0.00		0.00
8.00	0.07		0.07	60.00	0.00		0.00
9.00	0.14		0.14	61.00	0.00		0.00
10.00	0.23		0.23	62.00	0.00		0.00
11.00	0.42		0.42	63.00	0.00		0.00
12.00	**4.30**		**4.30**	64.00	0.00		0.00
13.00	**0.73**		**0.73**	65.00	0.00		0.00
14.00	0.46		0.46	66.00	0.00		0.00
15.00	0.35		0.35	67.00	0.00		0.00
16.00	0.25		0.25	68.00	0.00		0.00
17.00	0.20		0.20	69.00	0.00		0.00
18.00	0.15		0.15	70.00	0.00		0.00
19.00	0.13		0.13	71.00	0.00		0.00
20.00	0.12		0.12	72.00	0.00		0.00
21.00	0.11		0.11				
22.00	0.10		0.10				
23.00	0.09		0.09				
24.00	0.08		0.08				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Pre DA-1 Runoff Area=46,914 sf 7.50% Impervious Runoff Depth=6.51"
Flow Length=568' Tc=13.0 min CN=74/98 Runoff=6.44 cfs 25,449 cf

Subcatchment 2: Pre DA-2 Runoff Area=92,465 sf 0.27% Impervious Runoff Depth=5.15"
Flow Length=470' Tc=19.1 min CN=65/98 Runoff=8.79 cfs 39,678 cf

Subcatchment 3: Pre DA-3 Runoff Area=145,666 sf 0.00% Impervious Runoff Depth=5.14"
Flow Length=783' Tc=16.8 min CN=65/0 Runoff=14.59 cfs 62,373 cf

Subcatchment 4: Pre DA-4 Runoff Area=70,908 sf 0.00% Impervious Runoff Depth=6.29"
Flow Length=643' Tc=11.4 min CN=74/0 Runoff=9.98 cfs 37,147 cf

Subcatchment 5A: Pre DA-5 Runoff Area=553,174 sf 0.76% Impervious Runoff Depth=5.93"
Flow Length=1,050' Tc=21.2 min CN=71/98 Runoff=57.90 cfs 273,395 cf

Subcatchment 5B: Pre DA-5 Runoff Area=196,780 sf 12.64% Impervious Runoff Depth=5.32"
Flow Length=1,707' Tc=32.7 min CN=62/98 Runoff=14.86 cfs 87,289 cf

Subcatchment 6A: Pre DA-6 Runoff Area=478,386 sf 65.34% Impervious Runoff Depth=8.23"
Flow Length=817' Tc=8.0 min CN=74/98 Runoff=88.59 cfs 328,052 cf

Subcatchment 6B: Pre DA-6 Runoff Area=313,227 sf 0.85% Impervious Runoff Depth=4.54"
Flow Length=1,980' Tc=28.0 min CN=60/98 Runoff=22.10 cfs 118,424 cf

Subcatchment 7: Pre DA-7 Runoff Area=70,812 sf 15.53% Impervious Runoff Depth=7.60"
Flow Length=493' Tc=7.0 min CN=82/98 Runoff=13.25 cfs 44,843 cf

Pond DP1: DP-1 Peak Elev=710.67' Inflow=6.44 cfs 25,449 cf
18.0" Round Culvert n=0.013 L=88.0' S=0.0114 '/' Outflow=6.44 cfs 25,449 cf

Pond DP2: DP-2 Peak Elev=679.46' Inflow=8.79 cfs 39,678 cf
18.0" Round Culvert n=0.013 L=51.0' S=0.0196 '/' Outflow=8.79 cfs 39,678 cf

Pond DP3: DP-3 Peak Elev=641.21' Inflow=14.59 cfs 62,373 cf
15.0" Round Culvert n=0.020 L=55.0' S=0.0515 '/' Outflow=14.59 cfs 62,373 cf

Pond DP4: DP-4 Peak Elev=617.31' Inflow=9.98 cfs 37,147 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.1191 '/' Outflow=9.98 cfs 37,147 cf

Pond DP5: DP-5 Peak Elev=832.93' Inflow=70.43 cfs 360,684 cf
15.0" Round Culvert n=0.013 L=29.0' S=0.0345 '/' Outflow=70.43 cfs 360,684 cf

Pond DP6: DP-6 Peak Elev=632.19' Inflow=98.64 cfs 446,476 cf
26.0" Round Culvert n=0.011 L=63.0' S=0.0135 '/' Outflow=98.64 cfs 446,476 cf

Pond DP7: DP-7 Inflow=13.25 cfs 44,843 cf
Primary=13.25 cfs 44,843 cf

Total Runoff Area = 1,968,332 sf Runoff Volume = 1,016,650 cf Average Runoff Depth = 6.20"
81.76% Pervious = 1,609,239 sf 18.24% Impervious = 359,093 sf

Summary for Subcatchment 1: Pre DA-1

Orchards have been considered as 'Woods in Fair Conditions' for purposes of calculating runoff. Orchards have been assumed to have the approximate pollutant concentration levels of Lawns as shown in Table A.2 'Pollutant Concentrations from Source Areas' in Appendix A of the NYS Stormwater Management Design Manual.

Runoff = 6.44 cfs @ 12.18 hrs, Volume= 25,449 cf, Depth= 6.51"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

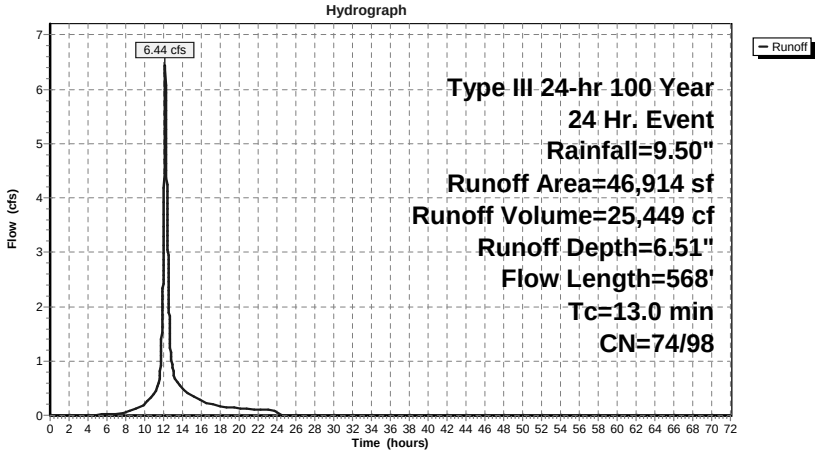
	Area (sf)	CN	Description	Land Use
	3,518	98	Paved parking, HSG C	Pavement
	18,742	61	>75% Grass cover, Good, HSG B	Open Space
	6,861	55	Woods, Good, HSG B	Woods
*	17,793	96	Gravel roads, HSG B	Roadway
	46,914	76	Weighted Average	
	43,396	74	92.50% Pervious Area	
	3,518	98	7.50% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	138	0.1590	0.20		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
0.5	90	0.0330	2.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	340	0.0910	6.12		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
13.0	568	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 7.50% Impervious, Rv= 0.117, Runoff= 5.37"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
18,742	Open Space	315.16	1.10	4.76	0.64
3,518	Pavement	17.00	0.06	0.21	0.66
17,793	Roadway	85.98	0.28	1.04	3.33
6,861	Woods	7.09	0.00	0.00	0.24
46,914	Total	425.23	1.43	6.01	4.87

Subcatchment 1: Pre DA-1



Hydrograph for Subcatchment 1: Pre DA-1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.04	0.87	0.06
10.00	1.80	0.26	1.57	0.21
12.00	4.75	2.17	4.51	**2.99**
14.00	7.70	4.66	7.46	**0.50**
16.00	8.42	5.30	8.18	0.27
18.00	8.82	5.66	8.58	0.16
20.00	9.09	5.91	8.85	0.13
22.00	9.32	6.12	9.08	0.10
24.00	**9.50**	**6.29**	**9.26**	0.08
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00

Summary for Subcatchment 2: Pre DA-2

Runoff = 8.79 cfs @ 12.26 hrs, Volume= 39,678 cf, Depth= 5.15"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

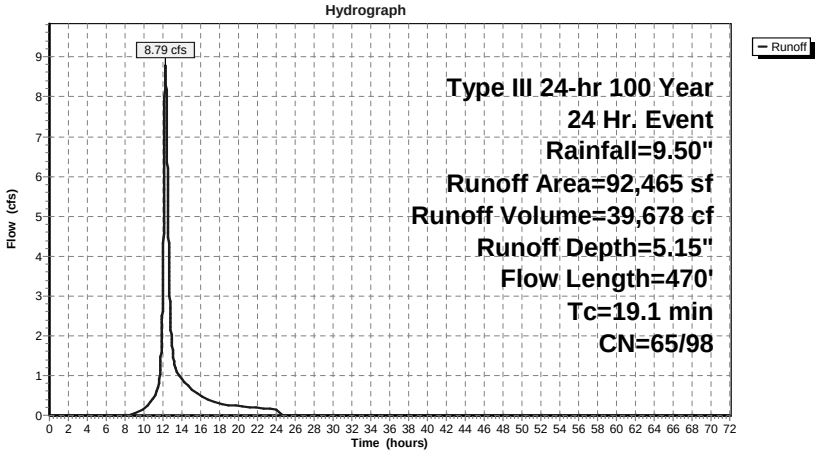
	Area (sf)	CN	Description	Land Use
	247	98	Paved parking, HSG B	Pavement
	25,422	61	>75% Grass cover, Good, HSG B	Open Space
	5,558	55	Woods, Good, HSG B	Woods
	45,478	58	Woods/grass comb., Good, HSG B	Orchard
*	15,760	96	Gravel roads, HSG B	Roadway
	92,465	65	Weighted Average	
	92,218	65	99.73% Pervious Area	
	247	98	0.27% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
3.5	50	0.1480	0.24		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.4	220	0.1480	2.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	100		3.00		**Direct Entry,**
19.1	470	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.27% Impervious, Rv= 0.052, Runoff= 2.39"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
25,422	Open Space	190.67	0.67	2.88	0.39
45,478	Orchard	341.10	1.19	5.16	2.89
247	Pavement	0.53	0.00	0.01	0.02
15,760	Roadway	33.97	0.11	0.41	1.32
5,558	Woods	2.56	0.00	0.00	0.09
92,465	Total	568.83	1.97	8.46	4.70

Subcatchment 2: Pre DA-2



Hydrograph for Subcatchment 2: Pre DA-2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.00
6.00	0.68	0.00	0.49	0.00
8.00	1.08	0.00	0.87	0.00
10.00	1.80	0.08	1.57	0.18
12.00	4.75	1.49	4.51	**3.28**
14.00	7.70	3.66	7.46	**0.91**
16.00	8.42	4.23	8.18	0.49
18.00	8.82	4.56	8.58	0.30
20.00	9.09	4.79	8.85	0.23
22.00	9.32	4.98	9.08	0.19
24.00	**9.50**	**5.14**	**9.26**	0.15
26.00	9.50	5.14	9.26	0.00
28.00	9.50	5.14	9.26	0.00
30.00	9.50	5.14	9.26	0.00
32.00	9.50	5.14	9.26	0.00
34.00	9.50	5.14	9.26	0.00
36.00	9.50	5.14	9.26	0.00
38.00	9.50	5.14	9.26	0.00
40.00	9.50	5.14	9.26	0.00
42.00	9.50	5.14	9.26	0.00
44.00	9.50	5.14	9.26	0.00
46.00	9.50	5.14	9.26	0.00
48.00	9.50	5.14	9.26	0.00
50.00	9.50	5.14	9.26	0.00
52.00	9.50	5.14	9.26	0.00
54.00	9.50	5.14	9.26	0.00
56.00	9.50	5.14	9.26	0.00
58.00	9.50	5.14	9.26	0.00
60.00	9.50	5.14	9.26	0.00
62.00	9.50	5.14	9.26	0.00
64.00	9.50	5.14	9.26	0.00
66.00	9.50	5.14	9.26	0.00
68.00	9.50	5.14	9.26	0.00
70.00	9.50	5.14	9.26	0.00
72.00	9.50	5.14	9.26	0.00

Summary for Subcatchment 3: Pre DA-3

Runoff = 14.59 cfs @ 12.23 hrs, Volume= 62,373 cf, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

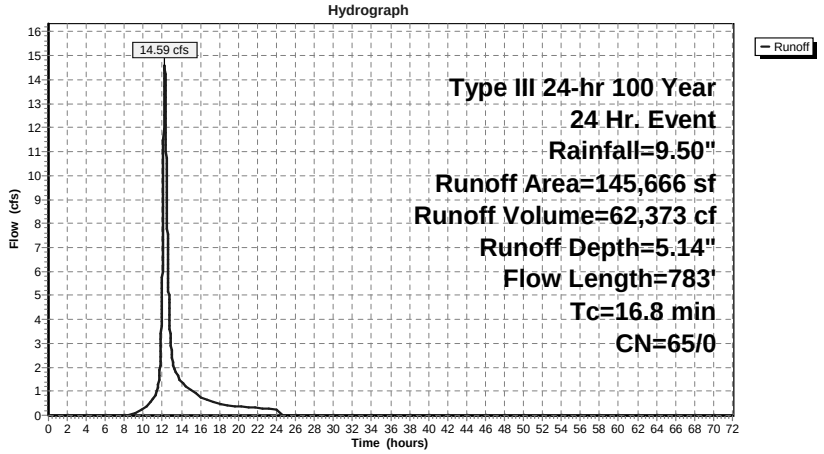
	Area (sf)	CN	Description	Land Use
	19,104	61	>75% Grass cover, Good, HSG B	Open Space
	16,367	74	>75% Grass cover, Good, HSG C	Open Space
	82,613	58	Woods/grass comb., Good, HSG B	Orchard
	11,899	72	Woods/grass comb., Good, HSG C	Orchard
*	15,683	96	Gravel roads, HSG C	Roadway
	145,666	65	Weighted Average	
	145,666	65	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	125	0.0400	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	25	0.1800	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.7	275	0.1800	6.36		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.7	312		3.00		**Direct Entry,**
0.1	46	0.0870	11.87	14.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Concrete sewer w/manholes & inlets
16.8	783	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
35,471	Open Space	253.84	0.89	3.84	0.52
94,512	Orchard	676.34	2.36	10.22	5.73
15,683	Roadway	32.25	0.10	0.39	1.25
145,666	Total	962.43	3.35	14.45	7.50

Subcatchment 3: Pre DA-3



Hydrograph for Subcatchment 3: Pre DA-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.00	0.00	0.00
10.00	1.80	0.08	0.00	0.28
12.00	4.75	1.49	0.00	**5.74**
14.00	7.70	3.66	0.00	**1.40**
16.00	8.42	4.23	0.00	0.76
18.00	8.82	4.56	0.00	0.46
20.00	9.09	4.79	0.00	0.36
22.00	9.32	4.98	0.00	0.30
24.00	**9.50**	**5.14**	0.00	0.24
26.00	9.50	5.14	0.00	0.00
28.00	9.50	5.14	0.00	0.00
30.00	9.50	5.14	0.00	0.00
32.00	9.50	5.14	0.00	0.00
34.00	9.50	5.14	0.00	0.00
36.00	9.50	5.14	0.00	0.00
38.00	9.50	5.14	0.00	0.00
40.00	9.50	5.14	0.00	0.00
42.00	9.50	5.14	0.00	0.00
44.00	9.50	5.14	0.00	0.00
46.00	9.50	5.14	0.00	0.00
48.00	9.50	5.14	0.00	0.00
50.00	9.50	5.14	0.00	0.00
52.00	9.50	5.14	0.00	0.00
54.00	9.50	5.14	0.00	0.00
56.00	9.50	5.14	0.00	0.00
58.00	9.50	5.14	0.00	0.00
60.00	9.50	5.14	0.00	0.00
62.00	9.50	5.14	0.00	0.00
64.00	9.50	5.14	0.00	0.00
66.00	9.50	5.14	0.00	0.00
68.00	9.50	5.14	0.00	0.00
70.00	9.50	5.14	0.00	0.00
72.00	9.50	5.14	0.00	0.00

Summary for Subcatchment 4: Pre DA-4

Runoff = 9.98 cfs @ 12.15 hrs, Volume= 37,147 cf, Depth= 6.29"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

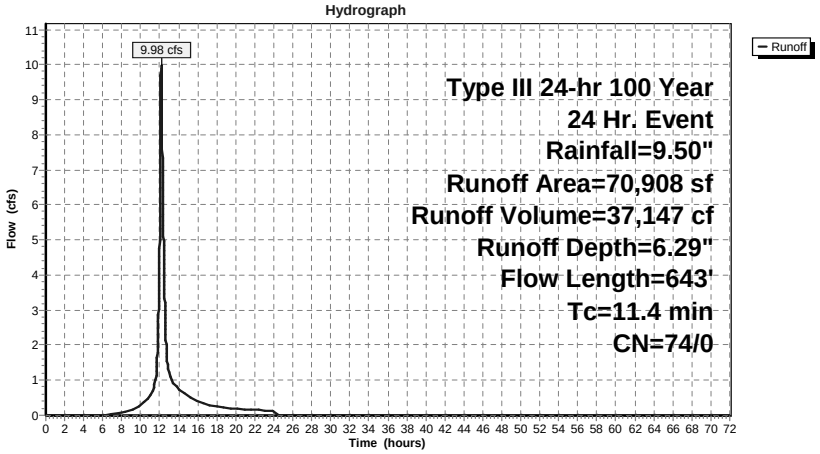
	Area (sf)	CN	Description	Land Use
	34,519	74	>75% Grass cover, Good, HSG C	Open Space
	2,363	58	Woods/grass comb., Good, HSG B	Orchard
	30,919	72	Woods/grass comb., Good, HSG C	Orchard
*	3,107	96	Gravel roads, HSG C	Roadway
	70,908	74	Weighted Average	
	70,908	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	150	0.1200	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.6	270	0.1600	2.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	100	0.3600	4.20		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	123	0.1050	11.24	8.83	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.017 Concrete sewer w/manholes & inlets
11.4	643	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
34,519	Open Space	247.02	0.86	3.73	0.50
33,282	Orchard	238.17	0.83	3.60	2.02
3,107	Roadway	6.39	0.02	0.08	0.25
70,908	Total	491.58	1.71	7.41	2.77

Subcatchment 4: Pre DA-4



Hydrograph for Subcatchment 4: Pre DA-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.04	0.00	0.07
10.00	1.80	0.26	0.00	0.29
12.00	4.75	2.17	0.00	**4.76**
14.00	7.70	4.66	0.00	**0.74**
16.00	8.42	5.30	0.00	0.39
18.00	8.82	5.66	0.00	0.24
20.00	9.09	5.91	0.00	0.19
22.00	9.32	6.12	0.00	0.16
24.00	**9.50**	**6.29**	0.00	0.12
26.00	9.50	6.29	0.00	0.00
28.00	9.50	6.29	0.00	0.00
30.00	9.50	6.29	0.00	0.00
32.00	9.50	6.29	0.00	0.00
34.00	9.50	6.29	0.00	0.00
36.00	9.50	6.29	0.00	0.00
38.00	9.50	6.29	0.00	0.00
40.00	9.50	6.29	0.00	0.00
42.00	9.50	6.29	0.00	0.00
44.00	9.50	6.29	0.00	0.00
46.00	9.50	6.29	0.00	0.00
48.00	9.50	6.29	0.00	0.00
50.00	9.50	6.29	0.00	0.00
52.00	9.50	6.29	0.00	0.00
54.00	9.50	6.29	0.00	0.00
56.00	9.50	6.29	0.00	0.00
58.00	9.50	6.29	0.00	0.00
60.00	9.50	6.29	0.00	0.00
62.00	9.50	6.29	0.00	0.00
64.00	9.50	6.29	0.00	0.00
66.00	9.50	6.29	0.00	0.00
68.00	9.50	6.29	0.00	0.00
70.00	9.50	6.29	0.00	0.00
72.00	9.50	6.29	0.00	0.00

Summary for Subcatchment 5A: Pre DA-5

Runoff = 57.90 cfs @ 12.28 hrs, Volume= 273,395 cf, Depth= 5.93"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

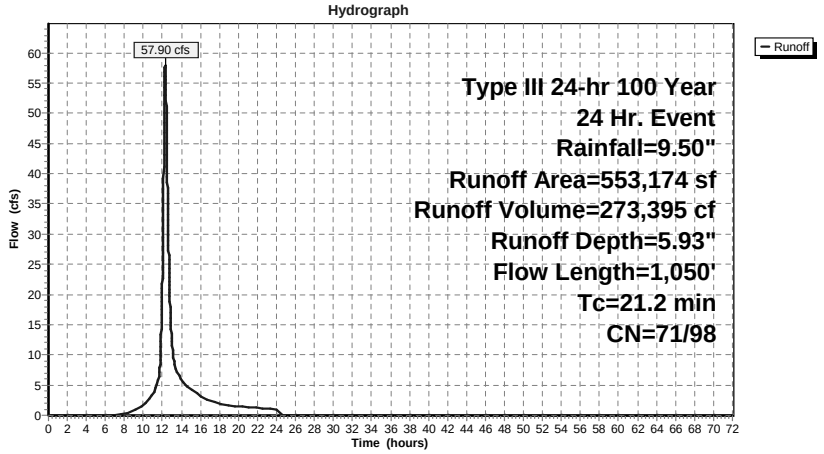
	Area (sf)	CN	Description	Land Use
	4,202	98	Paved parking, HSG C	Pavement
	13,701	61	>75% Grass cover, Good, HSG B	Open Space
	133,086	74	>75% Grass cover, Good, HSG C	Open Space
	204	69	Pasture/grassland/range, Fair, HSG B	Pasture
	43,970	58	Woods/grass comb., Good, HSG B	Orchard
	355,243	72	Woods/grass comb., Good, HSG C	Orchard
*	2,768	96	Gravel roads, HSG C	Roadway
	553,174	71	Weighted Average	
	548,972	71	99.24% Pervious Area	
	4,202	98	0.76% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	150	0.0300	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	140	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.7	630	0.3100	3.90		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	130	0.2900	3.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.2	1,050	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.76% Impervious, Rv= 0.057, Runoff= 2.60"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
146,787	Open Space	1,194.06	4.17	18.05	2.44
399,213	Orchard	3,247.45	11.33	49.09	27.51
204	Pasture	0.10	0.00	0.00	0.01
4,202	Pavement	9.82	0.03	0.12	0.38
2,768	Roadway	6.47	0.02	0.08	0.25
553,174	Total	4,457.91	15.55	67.34	30.60

Subcatchment 5A: Pre DA-5



Hydrograph for Subcatchment 5A: Pre DA-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.02	0.87	0.28
10.00	1.80	0.19	1.57	1.74
12.00	4.75	1.93	4.51	**21.77**
14.00	7.70	4.32	7.46	**5.93**
16.00	8.42	4.94	8.18	3.18
18.00	8.82	5.30	8.58	1.90
20.00	9.09	5.54	8.85	1.46
22.00	9.32	5.74	9.08	1.21
24.00	**9.50**	**5.91**	**9.26**	0.97
26.00	9.50	5.91	9.26	0.00
28.00	9.50	5.91	9.26	0.00
30.00	9.50	5.91	9.26	0.00
32.00	9.50	5.91	9.26	0.00
34.00	9.50	5.91	9.26	0.00
36.00	9.50	5.91	9.26	0.00
38.00	9.50	5.91	9.26	0.00
40.00	9.50	5.91	9.26	0.00
42.00	9.50	5.91	9.26	0.00
44.00	9.50	5.91	9.26	0.00
46.00	9.50	5.91	9.26	0.00
48.00	9.50	5.91	9.26	0.00
50.00	9.50	5.91	9.26	0.00
52.00	9.50	5.91	9.26	0.00
54.00	9.50	5.91	9.26	0.00
56.00	9.50	5.91	9.26	0.00
58.00	9.50	5.91	9.26	0.00
60.00	9.50	5.91	9.26	0.00
62.00	9.50	5.91	9.26	0.00
64.00	9.50	5.91	9.26	0.00
66.00	9.50	5.91	9.26	0.00
68.00	9.50	5.91	9.26	0.00
70.00	9.50	5.91	9.26	0.00
72.00	9.50	5.91	9.26	0.00

Summary for Subcatchment 5B: Pre DA-5

Runoff = 14.86 cfs @ 12.46 hrs, Volume= 87,289 cf, Depth= 5.32"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

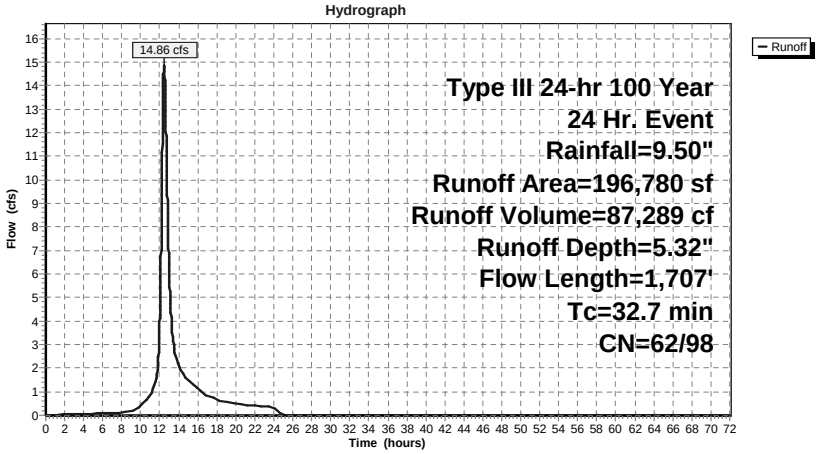
	Area (sf)	CN	Description	Land Use
	24,498	98	Roofs, HSG B	Roofs
	33,151	61	>75% Grass cover, Good, HSG B	Open Space
*	8,758	96	Gravel roads, HSG B	Roadway
	384	98	Unconnected roofs, HSG B	Roofs
	129,989	60	Woods, Fair, HSG B	Woods
	196,780	67	Weighted Average	
	171,898	62	87.36% Pervious Area	
	24,882	98	12.64% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.5	150	0.0870	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
0.6	146	0.5800	3.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	111	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.6	1,300	0.0337	8.37	10.28	**Pipe Channel, Confirm Pipe Size** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
32.7	1,707	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 12.64% Impervious, Rv= 0.164, Runoff= 7.49"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
33,151	Open Space	777.18	2.71	11.75	1.59
8,758	Roadway	59.00	0.19	0.72	2.29
24,882	Roofs	18.41	0.11	1.45	7.17
129,989	Woods	187.30	0.00	0.00	6.23
196,780	Total	1,041.90	3.01	13.92	17.27

Subcatchment 5B: Pre DA-5



Hydrograph for Subcatchment 5B: Pre DA-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.03
4.00	0.41	0.00	0.24	0.06
6.00	0.68	0.00	0.49	0.08
8.00	1.08	0.00	0.87	0.12
10.00	1.80	0.05	1.57	0.41
12.00	4.75	1.29	4.51	**3.97**
14.00	7.70	3.33	7.46	**2.10**
16.00	8.42	3.88	8.18	1.12
18.00	8.82	4.20	8.58	0.66
20.00	9.09	4.42	8.85	0.49
22.00	9.32	4.60	9.08	0.41
24.00	**9.50**	**4.75**	**9.26**	0.33
26.00	9.50	4.75	9.26	0.00
28.00	9.50	4.75	9.26	0.00
30.00	9.50	4.75	9.26	0.00
32.00	9.50	4.75	9.26	0.00
34.00	9.50	4.75	9.26	0.00
36.00	9.50	4.75	9.26	0.00
38.00	9.50	4.75	9.26	0.00
40.00	9.50	4.75	9.26	0.00
42.00	9.50	4.75	9.26	0.00
44.00	9.50	4.75	9.26	0.00
46.00	9.50	4.75	9.26	0.00
48.00	9.50	4.75	9.26	0.00
50.00	9.50	4.75	9.26	0.00
52.00	9.50	4.75	9.26	0.00
54.00	9.50	4.75	9.26	0.00
56.00	9.50	4.75	9.26	0.00
58.00	9.50	4.75	9.26	0.00
60.00	9.50	4.75	9.26	0.00
62.00	9.50	4.75	9.26	0.00
64.00	9.50	4.75	9.26	0.00
66.00	9.50	4.75	9.26	0.00
68.00	9.50	4.75	9.26	0.00
70.00	9.50	4.75	9.26	0.00
72.00	9.50	4.75	9.26	0.00

Summary for Subcatchment 6A: Pre DA-6

Runoff = 88.59 cfs @ 12.11 hrs, Volume= 328,052 cf, Depth= 8.23"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

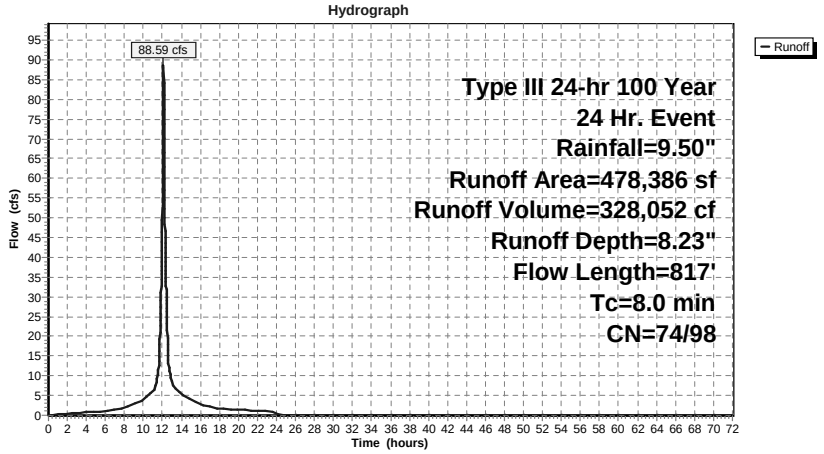
Area (sf)	CN	Description	Land Use
129,856	98	Unconnected pavement, HSG C	Pavement
182,714	98	Unconnected roofs, HSG C	Roofs
161,824	74	>75% Grass cover, Good, HSG C	Open Space
3,660	61	>75% Grass cover, Good, HSG B	Open Space
332	58	Woods/grass comb., Good, HSG B	Orchard
478,386	90	Weighted Average	
165,816	74	34.66% Pervious Area	
312,570	98	65.34% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	90	0.3310	9.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	627	0.1080	18.10	56.85	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
8.0	817	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 65.34% Impervious, Rv= 0.638, Runoff= 29.16"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
165,484	Open Space	15,111.88	52.72	228.44	30.88
332	Orchard	30.32	0.11	0.46	0.26
129,856	Pavement	3,407.80	11.03	41.37	131.98
182,714	Roofs	526.61	3.05	41.57	205.10
478,386	Total	19,076.62	66.90	311.83	368.21

Subcatchment 6A: Pre DA-6



Hydrograph for Subcatchment 6A: Pre DA-6

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.44
4.00	0.41	0.00	0.24	0.76
6.00	0.68	0.00	0.49	1.02
8.00	1.08	0.04	0.87	1.86
10.00	1.80	0.26	1.57	3.93
12.00	4.75	2.17	4.51	**49.50**
14.00	7.70	4.66	7.46	**5.25**
16.00	8.42	5.30	8.18	2.78
18.00	8.82	5.66	8.58	1.69
20.00	9.09	5.91	8.85	1.34
22.00	9.32	6.12	9.08	1.11
24.00	**9.50**	**6.29**	**9.26**	0.88
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00

Summary for Subcatchment 6B: Pre DA-6

Runoff = 22.10 cfs @ 12.41 hrs, Volume= 118,424 cf, Depth= 4.54"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

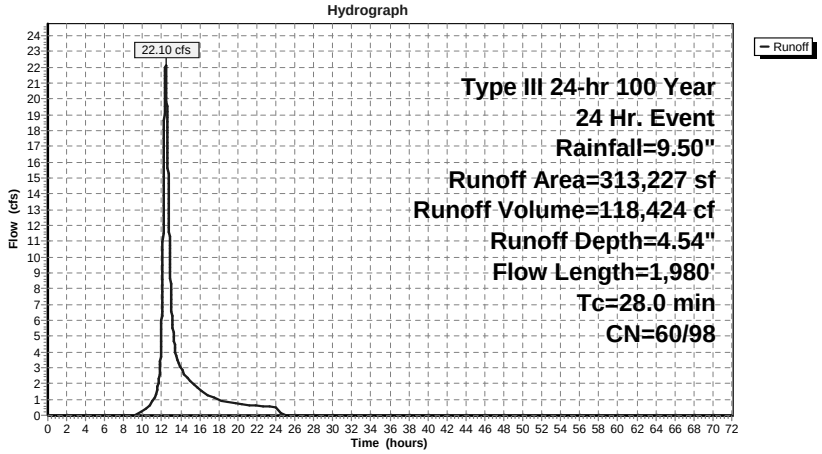
	Area (sf)	CN	Description	Land Use
	2,675	98	Unconnected pavement, HSG C	Pavement
	46,506	61	>75% Grass cover, Good, HSG B	Open Space
	262,664	60	Woods, Fair, HSG B	Woods
*	1,382	96	Gravel roads, HSG C	Roadway
	313,227	61	Weighted Average	
	310,552	60	99.15% Pervious Area	
	2,675	98	0.85% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	150	0.1200	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.4	370	0.2600	2.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	100	0.1200	7.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	1,360	0.1000	17.41	54.71	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
28.0	1,980	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.85% Impervious, Rv= 0.058, Runoff= 2.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
46,506	Open Space	383.96	1.34	5.80	0.78
2,675	Pavement	6.35	0.02	0.08	0.25
1,382	Roadway	3.28	0.01	0.04	0.13
262,664	Woods	133.29	0.00	0.00	4.43
313,227	Total	526.88	1.37	5.92	5.59

Subcatchment 6B: Pre DA-6



Hydrograph for Subcatchment 6B: Pre DA-6

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.00	0.87	0.01
10.00	1.80	0.03	1.57	0.26
12.00	4.75	1.16	4.51	**6.02**
14.00	7.70	3.11	7.46	**3.00**
16.00	8.42	3.65	8.18	1.63
18.00	8.82	3.96	8.58	0.97
20.00	9.09	4.17	8.85	0.74
22.00	9.32	4.35	9.08	0.61
24.00	**9.50**	**4.50**	**9.26**	0.49
26.00	9.50	4.50	9.26	0.00
28.00	9.50	4.50	9.26	0.00
30.00	9.50	4.50	9.26	0.00
32.00	9.50	4.50	9.26	0.00
34.00	9.50	4.50	9.26	0.00
36.00	9.50	4.50	9.26	0.00
38.00	9.50	4.50	9.26	0.00
40.00	9.50	4.50	9.26	0.00
42.00	9.50	4.50	9.26	0.00
44.00	9.50	4.50	9.26	0.00
46.00	9.50	4.50	9.26	0.00
48.00	9.50	4.50	9.26	0.00
50.00	9.50	4.50	9.26	0.00
52.00	9.50	4.50	9.26	0.00
54.00	9.50	4.50	9.26	0.00
56.00	9.50	4.50	9.26	0.00
58.00	9.50	4.50	9.26	0.00
60.00	9.50	4.50	9.26	0.00
62.00	9.50	4.50	9.26	0.00
64.00	9.50	4.50	9.26	0.00
66.00	9.50	4.50	9.26	0.00
68.00	9.50	4.50	9.26	0.00
70.00	9.50	4.50	9.26	0.00
72.00	9.50	4.50	9.26	0.00

Summary for Subcatchment 7: Pre DA-7

Runoff = 13.25 cfs @ 12.10 hrs, Volume= 44,843 cf, Depth= 7.60"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

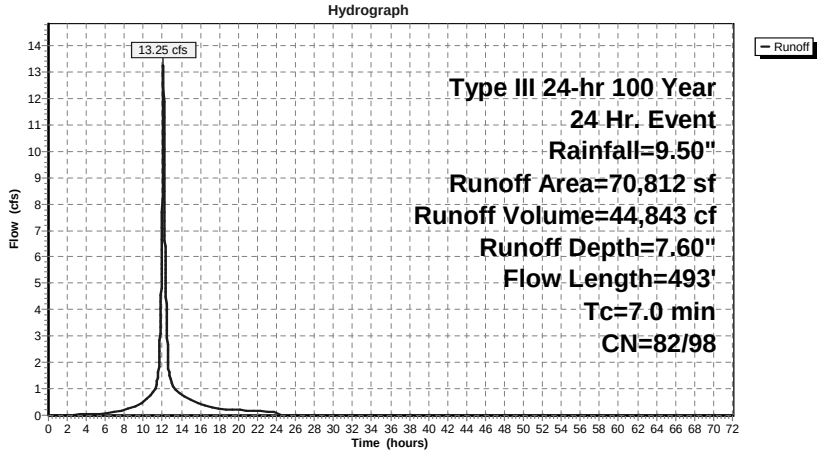
	Area (sf)	CN	Description	Land Use
	4,235	98	Paved parking, HSG C	Pavement
	6,764	98	Roofs, HSG C	Roofs
	37,133	74	>75% Grass cover, Good, HSG C	Open Space
*	22,680	96	Gravel roads, HSG C	Roadway
	70,812	85	Weighted Average	
	59,813	82	84.47% Pervious Area	
	10,999	98	15.53% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	135	0.2670	0.37		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	40	0.1500	2.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	81	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	114	0.0350	13.47	42.32	**Pipe Channel, Assumed Dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.1	123	0.0810	20.49	64.38	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
7.0	493	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 15.53% Impervious, Rv= 0.190, Runoff= 8.67"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
37,133	Open Space	1,008.68	3.52	15.25	2.06
4,235	Pavement	33.06	0.11	0.40	1.28
22,680	Roadway	177.05	0.57	2.15	6.86
6,764	Roofs	5.80	0.03	0.46	2.26
70,812	Total	1,224.58	4.23	18.26	12.46

Subcatchment 7: Pre DA-7



Hydrograph for Subcatchment 7: Pre DA-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.02
4.00	0.41	0.00	0.24	0.03
6.00	0.68	0.02	0.49	0.07
8.00	1.08	0.15	0.87	0.19
10.00	1.80	0.52	1.57	0.50
12.00	4.75	2.86	4.51	**7.68**
14.00	7.70	5.58	7.46	**0.77**
16.00	8.42	6.26	8.18	0.41
18.00	8.82	6.64	8.58	0.25
20.00	9.09	6.90	8.85	0.20
22.00	9.32	7.12	9.08	0.16
24.00	**9.50**	**7.29**	**9.26**	0.13
26.00	9.50	7.29	9.26	0.00
28.00	9.50	7.29	9.26	0.00
30.00	9.50	7.29	9.26	0.00
32.00	9.50	7.29	9.26	0.00
34.00	9.50	7.29	9.26	0.00
36.00	9.50	7.29	9.26	0.00
38.00	9.50	7.29	9.26	0.00
40.00	9.50	7.29	9.26	0.00
42.00	9.50	7.29	9.26	0.00
44.00	9.50	7.29	9.26	0.00
46.00	9.50	7.29	9.26	0.00
48.00	9.50	7.29	9.26	0.00
50.00	9.50	7.29	9.26	0.00
52.00	9.50	7.29	9.26	0.00
54.00	9.50	7.29	9.26	0.00
56.00	9.50	7.29	9.26	0.00
58.00	9.50	7.29	9.26	0.00
60.00	9.50	7.29	9.26	0.00
62.00	9.50	7.29	9.26	0.00
64.00	9.50	7.29	9.26	0.00
66.00	9.50	7.29	9.26	0.00
68.00	9.50	7.29	9.26	0.00
70.00	9.50	7.29	9.26	0.00
72.00	9.50	7.29	9.26	0.00

Summary for Pond DP1: DP-1

[57] Hint: Peaked at 710.67' (Flood elevation advised)

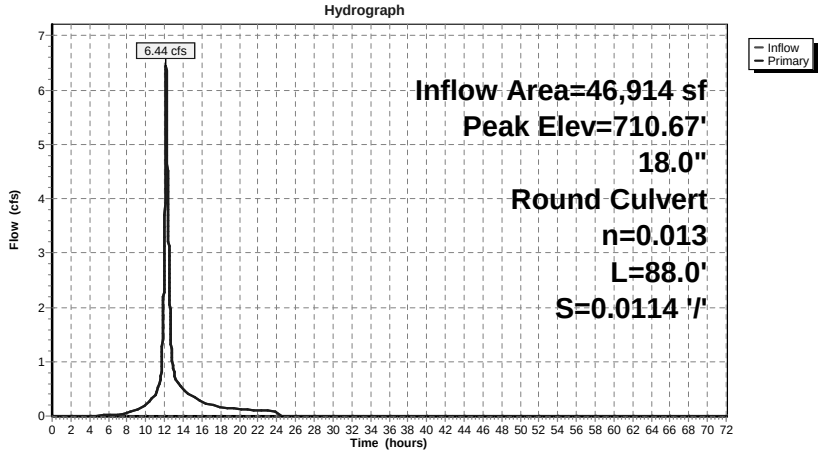
Inflow Area = 46,914 sf, 7.50% Impervious, Inflow Depth = 6.51" for 100 Year, 24 Hr. Event event
Inflow = 6.44 cfs @ 12.18 hrs, Volume= 25,449 cf
Outflow = 6.44 cfs @ 12.18 hrs, Volume= 25,449 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.44 cfs @ 12.18 hrs, Volume= 25,449 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 710.67' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	709.00'	**18.0" Round Culvert** L= 88.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 709.00' / 708.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=6.43 cfs @ 12.18 hrs HW=710.67' (Free Discharge)
1=Culvert (Inlet Controls 6.43 cfs @ 3.64 fps)

Pond DP1: DP-1



Hydrograph for Pond DP1: DP-1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	709.00	0.00	52.00	0.00	709.00	0.00
1.00	0.00	709.02	0.00	53.00	0.00	709.00	0.00
2.00	0.00	709.03	0.00	54.00	0.00	709.00	0.00
3.00	0.01	709.04	0.01	55.00	0.00	709.00	0.00
4.00	0.01	709.04	0.01	56.00	0.00	709.00	0.00
5.00	0.01	709.05	0.01	57.00	0.00	709.00	0.00
6.00	0.01	709.05	0.01	58.00	0.00	709.00	0.00
7.00	0.03	709.08	0.03	59.00	0.00	709.00	0.00
8.00	0.06	709.12	0.06	60.00	0.00	709.00	0.00
9.00	0.12	709.17	0.12	61.00	0.00	709.00	0.00
10.00	0.21	709.22	0.21	62.00	0.00	709.00	0.00
11.00	0.39	709.31	0.39	63.00	0.00	709.00	0.00
12.00	**2.99**	**709.93**	**2.99**	64.00	0.00	709.00	0.00
13.00	**0.84**	**709.46**	**0.84**	65.00	0.00	709.00	0.00
14.00	0.50	709.35	0.50	66.00	0.00	709.00	0.00
15.00	0.37	709.30	0.37	67.00	0.00	709.00	0.00
16.00	0.27	709.25	0.27	68.00	0.00	709.00	0.00
17.00	0.21	709.22	0.21	69.00	0.00	709.00	0.00
18.00	0.16	709.20	0.16	70.00	0.00	709.00	0.00
19.00	0.14	709.18	0.14	71.00	0.00	709.00	0.00
20.00	0.13	709.17	0.13	72.00	0.00	709.00	0.00
21.00	0.11	709.16	0.11				
22.00	0.10	709.16	0.10				
23.00	0.09	709.15	0.09				
24.00	0.08	709.14	0.08				
25.00	0.00	709.00	0.00				
26.00	0.00	709.00	0.00				
27.00	0.00	709.00	0.00				
28.00	0.00	709.00	0.00				
29.00	0.00	709.00	0.00				
30.00	0.00	709.00	0.00				
31.00	0.00	709.00	0.00				
32.00	0.00	709.00	0.00				
33.00	0.00	709.00	0.00				
34.00	0.00	709.00	0.00				
35.00	0.00	709.00	0.00				
36.00	0.00	709.00	0.00				
37.00	0.00	709.00	0.00				
38.00	0.00	709.00	0.00				
39.00	0.00	709.00	0.00				
40.00	0.00	709.00	0.00				
41.00	0.00	709.00	0.00				
42.00	0.00	709.00	0.00				
43.00	0.00	709.00	0.00				
44.00	0.00	709.00	0.00				
45.00	0.00	709.00	0.00				
46.00	0.00	709.00	0.00				
47.00	0.00	709.00	0.00				
48.00	0.00	709.00	0.00				
49.00	0.00	709.00	0.00				
50.00	0.00	709.00	0.00				
51.00	0.00	709.00	0.00				

Summary for Pond DP2: DP-2

[57] Hint: Peaked at 679.46' (Flood elevation advised)

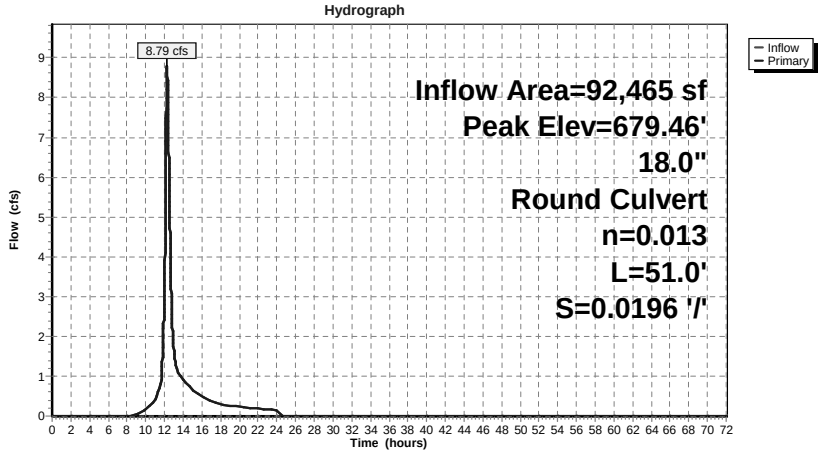
Inflow Area = 92,465 sf, 0.27% Impervious, Inflow Depth = 5.15" for 100 Year, 24 Hr. Event event
Inflow = 8.79 cfs @ 12.26 hrs, Volume= 39,678 cf
Outflow = 8.79 cfs @ 12.26 hrs, Volume= 39,678 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.79 cfs @ 12.26 hrs, Volume= 39,678 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 679.46' @ 12.26 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	677.00'	**18.0" Round Culvert** L= 51.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 677.00' / 676.00' S= 0.0196 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=8.79 cfs @ 12.26 hrs HW=679.46' (Free Discharge)
1=Culvert (Inlet Controls 8.79 cfs @ 4.97 fps)

Pond DP2: DP-2



Hydrograph for Pond DP2: DP-2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	677.00	0.00	52.00	0.00	677.00	0.00
1.00	0.00	677.01	0.00	53.00	0.00	677.00	0.00
2.00	0.00	677.01	0.00	54.00	0.00	677.00	0.00
3.00	0.00	677.01	0.00	55.00	0.00	677.00	0.00
4.00	0.00	677.01	0.00	56.00	0.00	677.00	0.00
5.00	0.00	677.01	0.00	57.00	0.00	677.00	0.00
6.00	0.00	677.01	0.00	58.00	0.00	677.00	0.00
7.00	0.00	677.02	0.00	59.00	0.00	677.00	0.00
8.00	0.00	677.02	0.00	60.00	0.00	677.00	0.00
9.00	0.05	677.11	0.05	61.00	0.00	677.00	0.00
10.00	0.18	677.20	0.18	62.00	0.00	677.00	0.00
11.00	0.42	677.32	0.42	63.00	0.00	677.00	0.00
12.00	**3.28**	**677.98**	**3.28**	64.00	0.00	677.00	0.00
13.00	**1.70**	**677.67**	**1.70**	65.00	0.00	677.00	0.00
14.00	0.91	677.48	0.91	66.00	0.00	677.00	0.00
15.00	0.67	677.41	0.67	67.00	0.00	677.00	0.00
16.00	0.49	677.35	0.49	68.00	0.00	677.00	0.00
17.00	0.38	677.30	0.38	69.00	0.00	677.00	0.00
18.00	0.30	677.27	0.30	70.00	0.00	677.00	0.00
19.00	0.25	677.25	0.25	71.00	0.00	677.00	0.00
20.00	0.23	677.23	0.23	72.00	0.00	677.00	0.00
21.00	0.21	677.22	0.21				
22.00	0.19	677.21	0.19				
23.00	0.17	677.20	0.17				
24.00	0.15	677.19	0.15				
25.00	0.00	677.00	0.00				
26.00	0.00	677.00	0.00				
27.00	0.00	677.00	0.00				
28.00	0.00	677.00	0.00				
29.00	0.00	677.00	0.00				
30.00	0.00	677.00	0.00				
31.00	0.00	677.00	0.00				
32.00	0.00	677.00	0.00				
33.00	0.00	677.00	0.00				
34.00	0.00	677.00	0.00				
35.00	0.00	677.00	0.00				
36.00	0.00	677.00	0.00				
37.00	0.00	677.00	0.00				
38.00	0.00	677.00	0.00				
39.00	0.00	677.00	0.00				
40.00	0.00	677.00	0.00				
41.00	0.00	677.00	0.00				
42.00	0.00	677.00	0.00				
43.00	0.00	677.00	0.00				
44.00	0.00	677.00	0.00				
45.00	0.00	677.00	0.00				
46.00	0.00	677.00	0.00				
47.00	0.00	677.00	0.00				
48.00	0.00	677.00	0.00				
49.00	0.00	677.00	0.00				
50.00	0.00	677.00	0.00				
51.00	0.00	677.00	0.00				

Summary for Pond DP3: DP-3

[57] Hint: Peaked at 641.21' (Flood elevation advised)

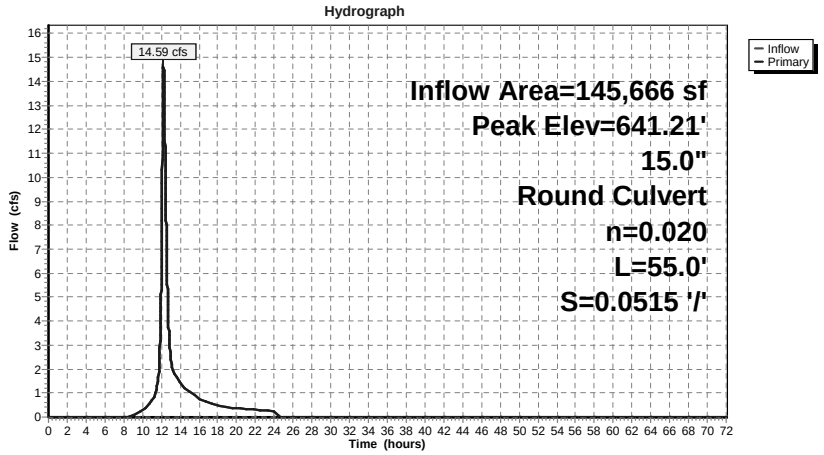
Inflow Area = 145,666 sf, 0.00% Impervious, Inflow Depth = 5.14" for 100 Year, 24 Hr. Event event
Inflow = 14.59 cfs @ 12.23 hrs, Volume= 62,373 cf
Outflow = 14.59 cfs @ 12.23 hrs, Volume= 62,373 cf, Atten= 0%, Lag= 0.0 min
Primary = 14.59 cfs @ 12.23 hrs, Volume= 62,373 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 641.21' @ 12.23 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	630.80'	**15.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 630.80' / 627.97' S= 0.0515 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=14.59 cfs @ 12.23 hrs HW=641.21' (Free Discharge)
1=Culvert (Inlet Controls 14.59 cfs @ 11.89 fps)

Pond DP3: DP-3



Hydrograph for Pond DP3: DP-3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	630.80	0.00	52.00	0.00	630.80	0.00
1.00	0.00	630.80	0.00	53.00	0.00	630.80	0.00
2.00	0.00	630.80	0.00	54.00	0.00	630.80	0.00
3.00	0.00	630.80	0.00	55.00	0.00	630.80	0.00
4.00	0.00	630.80	0.00	56.00	0.00	630.80	0.00
5.00	0.00	630.80	0.00	57.00	0.00	630.80	0.00
6.00	0.00	630.80	0.00	58.00	0.00	630.80	0.00
7.00	0.00	630.80	0.00	59.00	0.00	630.80	0.00
8.00	0.00	630.80	0.00	60.00	0.00	630.80	0.00
9.00	0.09	630.95	0.09	61.00	0.00	630.80	0.00
10.00	0.28	631.07	0.28	62.00	0.00	630.80	0.00
11.00	0.68	631.24	0.68	63.00	0.00	630.80	0.00
12.00	**5.74**	**632.94**	**5.74**	64.00	0.00	630.80	0.00
13.00	**2.48**	**631.72**	**2.48**	65.00	0.00	630.80	0.00
14.00	1.40	631.45	1.40	66.00	0.00	630.80	0.00
15.00	1.05	631.35	1.05	67.00	0.00	630.80	0.00
16.00	0.76	631.26	0.76	68.00	0.00	630.80	0.00
17.00	0.59	631.21	0.59	69.00	0.00	630.80	0.00
18.00	0.46	631.16	0.46	70.00	0.00	630.80	0.00
19.00	0.40	631.13	0.40	71.00	0.00	630.80	0.00
20.00	0.36	631.11	0.36	72.00	0.00	630.80	0.00
21.00	0.33	631.10	0.33				
22.00	0.30	631.08	0.30				
23.00	0.27	631.07	0.27				
24.00	0.24	631.05	0.24				
25.00	0.00	630.80	0.00				
26.00	0.00	630.80	0.00				
27.00	0.00	630.80	0.00				
28.00	0.00	630.80	0.00				
29.00	0.00	630.80	0.00				
30.00	0.00	630.80	0.00				
31.00	0.00	630.80	0.00				
32.00	0.00	630.80	0.00				
33.00	0.00	630.80	0.00				
34.00	0.00	630.80	0.00				
35.00	0.00	630.80	0.00				
36.00	0.00	630.80	0.00				
37.00	0.00	630.80	0.00				
38.00	0.00	630.80	0.00				
39.00	0.00	630.80	0.00				
40.00	0.00	630.80	0.00				
41.00	0.00	630.80	0.00				
42.00	0.00	630.80	0.00				
43.00	0.00	630.80	0.00				
44.00	0.00	630.80	0.00				
45.00	0.00	630.80	0.00				
46.00	0.00	630.80	0.00				
47.00	0.00	630.80	0.00				
48.00	0.00	630.80	0.00				
49.00	0.00	630.80	0.00				
50.00	0.00	630.80	0.00				
51.00	0.00	630.80	0.00				

Summary for Pond DP4: DP-4

[57] Hint: Peaked at 617.31' (Flood elevation advised)

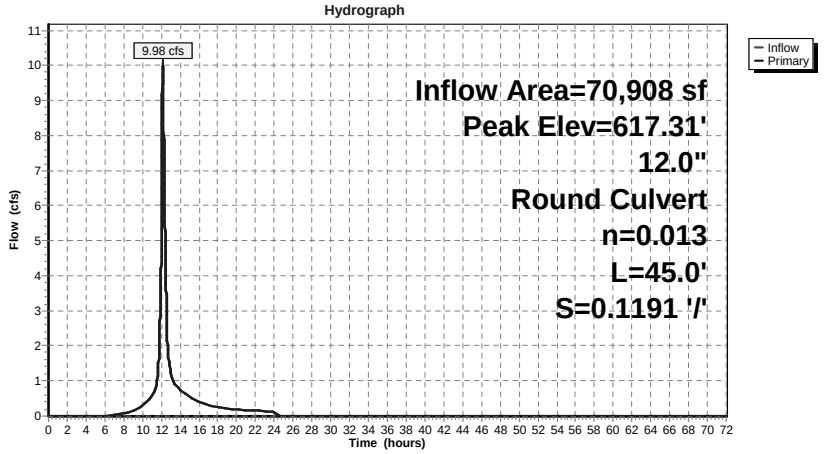
Inflow Area = 70,908 sf, 0.00% Impervious, Inflow Depth = 6.29" for 100 Year, 24 Hr. Event event
Inflow = 9.98 cfs @ 12.15 hrs, Volume= 37,147 cf
Outflow = 9.98 cfs @ 12.15 hrs, Volume= 37,147 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.98 cfs @ 12.15 hrs, Volume= 37,147 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 617.31' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	605.64'	**12.0" Round Culvert** L= 45.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 605.64' / 600.28' S= 0.1191 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=9.96 cfs @ 12.15 hrs HW=617.28' (Free Discharge)
1=Culvert (Inlet Controls 9.96 cfs @ 12.69 fps)

Pond DP4: DP-4



Hydrograph for Pond DP4: DP-4

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	605.64	0.00	52.00	0.00	605.64	0.00
1.00	0.00	605.64	0.00	53.00	0.00	605.64	0.00
2.00	0.00	605.64	0.00	54.00	0.00	605.64	0.00
3.00	0.00	605.64	0.00	55.00	0.00	605.64	0.00
4.00	0.00	605.64	0.00	56.00	0.00	605.64	0.00
5.00	0.00	605.64	0.00	57.00	0.00	605.64	0.00
6.00	0.00	605.64	0.00	58.00	0.00	605.64	0.00
7.00	0.02	605.72	0.02	59.00	0.00	605.64	0.00
8.00	0.07	605.78	0.07	60.00	0.00	605.64	0.00
9.00	0.15	605.85	0.15	61.00	0.00	605.64	0.00
10.00	0.29	605.94	0.29	62.00	0.00	605.64	0.00
11.00	0.56	606.06	0.56	63.00	0.00	605.64	0.00
12.00	**4.76**	**608.68**	**4.76**	64.00	0.00	605.64	0.00
13.00	**1.21**	**606.30**	**1.21**	65.00	0.00	605.64	0.00
14.00	0.74	606.14	0.74	66.00	0.00	605.64	0.00
15.00	0.55	606.06	0.55	67.00	0.00	605.64	0.00
16.00	0.39	605.99	0.39	68.00	0.00	605.64	0.00
17.00	0.31	605.95	0.31	69.00	0.00	605.64	0.00
18.00	0.24	605.91	0.24	70.00	0.00	605.64	0.00
19.00	0.21	605.89	0.21	71.00	0.00	605.64	0.00
20.00	0.19	605.88	0.19	72.00	0.00	605.64	0.00
21.00	0.17	605.87	0.17				
22.00	0.16	605.86	0.16				
23.00	0.14	605.84	0.14				
24.00	0.12	605.83	0.12				
25.00	0.00	605.64	0.00				
26.00	0.00	605.64	0.00				
27.00	0.00	605.64	0.00				
28.00	0.00	605.64	0.00				
29.00	0.00	605.64	0.00				
30.00	0.00	605.64	0.00				
31.00	0.00	605.64	0.00				
32.00	0.00	605.64	0.00				
33.00	0.00	605.64	0.00				
34.00	0.00	605.64	0.00				
35.00	0.00	605.64	0.00				
36.00	0.00	605.64	0.00				
37.00	0.00	605.64	0.00				
38.00	0.00	605.64	0.00				
39.00	0.00	605.64	0.00				
40.00	0.00	605.64	0.00				
41.00	0.00	605.64	0.00				
42.00	0.00	605.64	0.00				
43.00	0.00	605.64	0.00				
44.00	0.00	605.64	0.00				
45.00	0.00	605.64	0.00				
46.00	0.00	605.64	0.00				
47.00	0.00	605.64	0.00				
48.00	0.00	605.64	0.00				
49.00	0.00	605.64	0.00				
50.00	0.00	605.64	0.00				
51.00	0.00	605.64	0.00				

Summary for Pond DP5: DP-5

[57] Hint: Peaked at 832.93' (Flood elevation advised)

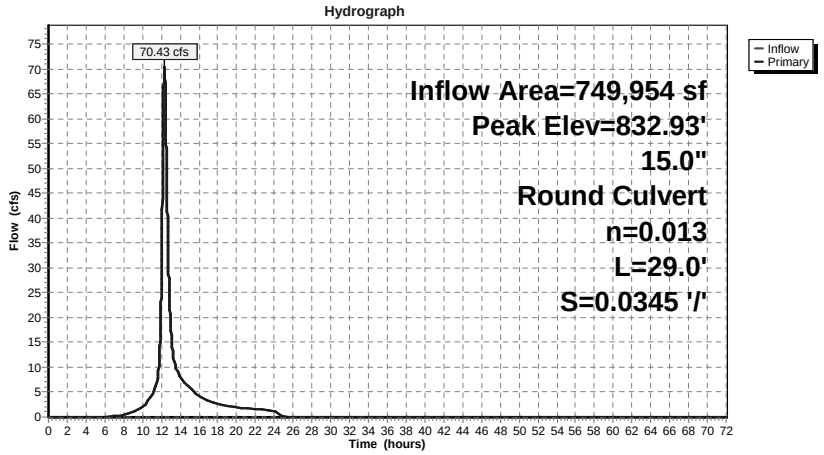
Inflow Area = 749,954 sf, 3.88% Impervious, Inflow Depth = 5.77" for 100 Year, 24 Hr. Event event
Inflow = 70.43 cfs @ 12.32 hrs, Volume= 360,684 cf
Outflow = 70.43 cfs @ 12.32 hrs, Volume= 360,684 cf, Atten= 0%, Lag= 0.0 min
Primary = 70.43 cfs @ 12.32 hrs, Volume= 360,684 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 832.93' @ 12.32 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	604.34'	**15.0" Round Culvert** L= 29.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 604.34' / 603.34' S= 0.0345 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=70.39 cfs @ 12.32 hrs HW=832.66' (Free Discharge)
1=Culvert (Inlet Controls 70.39 cfs @ 57.36 fps)

Pond DP5: DP-5



Hydrograph for Pond DP5: DP-5

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	604.34	0.00	52.00	0.00	604.34	0.00
1.00	0.01	604.38	0.01	53.00	0.00	604.34	0.00
2.00	0.04	604.43	0.04	54.00	0.00	604.34	0.00
3.00	0.05	604.45	0.05	55.00	0.00	604.34	0.00
4.00	0.07	604.47	0.07	56.00	0.00	604.34	0.00
5.00	0.08	604.48	0.08	57.00	0.00	604.34	0.00
6.00	0.09	604.49	0.09	58.00	0.00	604.34	0.00
7.00	0.12	604.51	0.12	59.00	0.00	604.34	0.00
8.00	0.40	604.67	0.40	60.00	0.00	604.34	0.00
9.00	0.99	604.88	0.99	61.00	0.00	604.34	0.00
10.00	2.14	605.18	2.14	62.00	0.00	604.34	0.00
11.00	4.34	605.83	4.34	63.00	0.00	604.34	0.00
12.00	**25.74**	**635.41**	**25.74**	64.00	0.00	604.34	0.00
13.00	**17.91**	**619.71**	**17.91**	65.00	0.00	604.34	0.00
14.00	8.04	607.93	8.04	66.00	0.00	604.34	0.00
15.00	5.87	606.55	5.87	67.00	0.00	604.34	0.00
16.00	4.29	605.81	4.29	68.00	0.00	604.34	0.00
17.00	3.26	605.45	3.26	69.00	0.00	604.34	0.00
18.00	2.56	605.28	2.56	70.00	0.00	604.34	0.00
19.00	2.17	605.18	2.17	71.00	0.00	604.34	0.00
20.00	1.96	605.13	1.96	72.00	0.00	604.34	0.00
21.00	1.78	605.09	1.78				
22.00	1.62	605.05	1.62				
23.00	1.46	605.01	1.46				
24.00	1.30	604.96	1.30				
25.00	0.02	604.40	0.02				
26.00	0.00	604.34	0.00				
27.00	0.00	604.34	0.00				
28.00	0.00	604.34	0.00				
29.00	0.00	604.34	0.00				
30.00	0.00	604.34	0.00				
31.00	0.00	604.34	0.00				
32.00	0.00	604.34	0.00				
33.00	0.00	604.34	0.00				
34.00	0.00	604.34	0.00				
35.00	0.00	604.34	0.00				
36.00	0.00	604.34	0.00				
37.00	0.00	604.34	0.00				
38.00	0.00	604.34	0.00				
39.00	0.00	604.34	0.00				
40.00	0.00	604.34	0.00				
41.00	0.00	604.34	0.00				
42.00	0.00	604.34	0.00				
43.00	0.00	604.34	0.00				
44.00	0.00	604.34	0.00				
45.00	0.00	604.34	0.00				
46.00	0.00	604.34	0.00				
47.00	0.00	604.34	0.00				
48.00	0.00	604.34	0.00				
49.00	0.00	604.34	0.00				
50.00	0.00	604.34	0.00				
51.00	0.00	604.34	0.00				

Summary for Pond DP6: DP-6

[57] Hint: Peaked at 632.19' (Flood elevation advised)

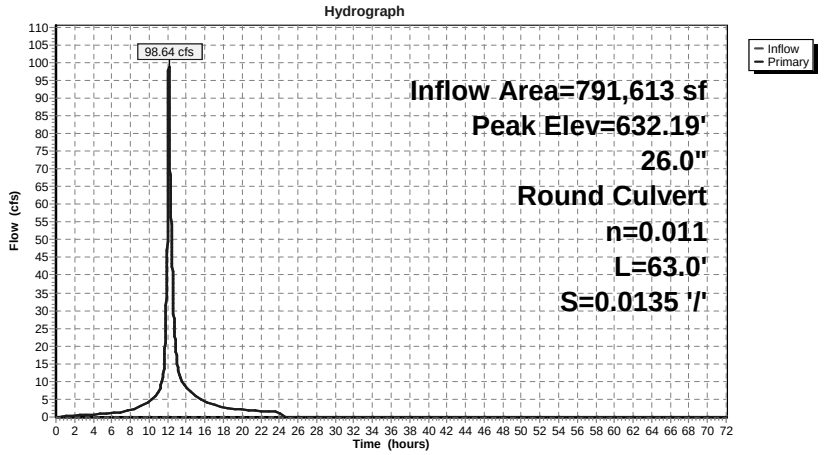
Inflow Area = 791,613 sf, 39.82% Impervious, Inflow Depth = 6.77" for 100 Year, 24 Hr. Event event
Inflow = 98.64 cfs @ 12.11 hrs, Volume= 446,476 cf
Outflow = 98.64 cfs @ 12.11 hrs, Volume= 446,476 cf, Atten= 0%, Lag= 0.0 min
Primary = 98.64 cfs @ 12.11 hrs, Volume= 446,476 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 632.19' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	600.24'	**26.0" Round Culvert** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.24' / 599.39' S= 0.0135 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=98.52 cfs @ 12.11 hrs HW=632.12' (Free Discharge)
1=Culvert (Inlet Controls 98.52 cfs @ 26.72 fps)

Pond DP6: DP-6



Hydrograph for Pond DP6: DP-6

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	600.24	0.00	52.00	0.00	600.24	0.00
1.00	0.22	600.42	0.22	53.00	0.00	600.24	0.00
2.00	0.45	600.50	0.45	54.00	0.00	600.24	0.00
3.00	0.62	600.55	0.62	55.00	0.00	600.24	0.00
4.00	0.77	600.59	0.77	56.00	0.00	600.24	0.00
5.00	0.90	600.62	0.90	57.00	0.00	600.24	0.00
6.00	1.03	600.64	1.03	58.00	0.00	600.24	0.00
7.00	1.41	600.72	1.41	59.00	0.00	600.24	0.00
8.00	1.87	600.79	1.87	60.00	0.00	600.24	0.00
9.00	2.83	600.93	2.83	61.00	0.00	600.24	0.00
10.00	4.19	601.09	4.19	62.00	0.00	600.24	0.00
11.00	7.00	601.37	7.00	63.00	0.00	600.24	0.00
12.00	**55.51**	**611.10**	**55.51**	64.00	0.00	600.24	0.00
13.00	**15.73**	**602.11**	**15.73**	65.00	0.00	600.24	0.00
14.00	8.25	601.48	8.25	66.00	0.00	600.24	0.00
15.00	6.14	601.29	6.14	67.00	0.00	600.24	0.00
16.00	4.41	601.11	4.41	68.00	0.00	600.24	0.00
17.00	3.43	601.00	3.43	69.00	0.00	600.24	0.00
18.00	2.67	600.90	2.67	70.00	0.00	600.24	0.00
19.00	2.31	600.86	2.31	71.00	0.00	600.24	0.00
20.00	2.08	600.82	2.08	72.00	0.00	600.24	0.00
21.00	1.90	600.80	1.90				
22.00	1.73	600.77	1.73				
23.00	1.55	600.74	1.55				
24.00	1.38	600.71	1.38				
25.00	0.01	600.28	0.01				
26.00	0.00	600.24	0.00				
27.00	0.00	600.24	0.00				
28.00	0.00	600.24	0.00				
29.00	0.00	600.24	0.00				
30.00	0.00	600.24	0.00				
31.00	0.00	600.24	0.00				
32.00	0.00	600.24	0.00				
33.00	0.00	600.24	0.00				
34.00	0.00	600.24	0.00				
35.00	0.00	600.24	0.00				
36.00	0.00	600.24	0.00				
37.00	0.00	600.24	0.00				
38.00	0.00	600.24	0.00				
39.00	0.00	600.24	0.00				
40.00	0.00	600.24	0.00				
41.00	0.00	600.24	0.00				
42.00	0.00	600.24	0.00				
43.00	0.00	600.24	0.00				
44.00	0.00	600.24	0.00				
45.00	0.00	600.24	0.00				
46.00	0.00	600.24	0.00				
47.00	0.00	600.24	0.00				
48.00	0.00	600.24	0.00				
49.00	0.00	600.24	0.00				
50.00	0.00	600.24	0.00				
51.00	0.00	600.24	0.00				

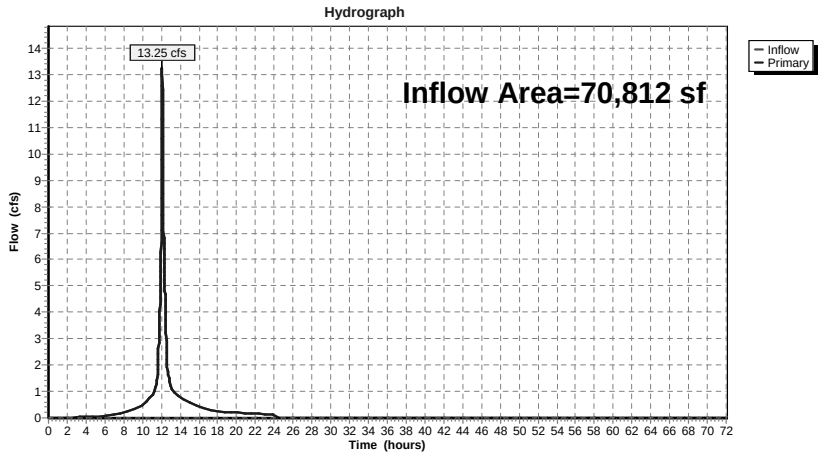
Summary for Pond DP7: DP-7

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 70,812 sf, 15.53% Impervious, Inflow Depth = 7.60" for 100 Year, 24 Hr. Event event
Inflow = 13.25 cfs @ 12.10 hrs, Volume= 44,843 cf
Primary = 13.25 cfs @ 12.10 hrs, Volume= 44,843 cf, Atten= 0%, Lag= 0.0 min

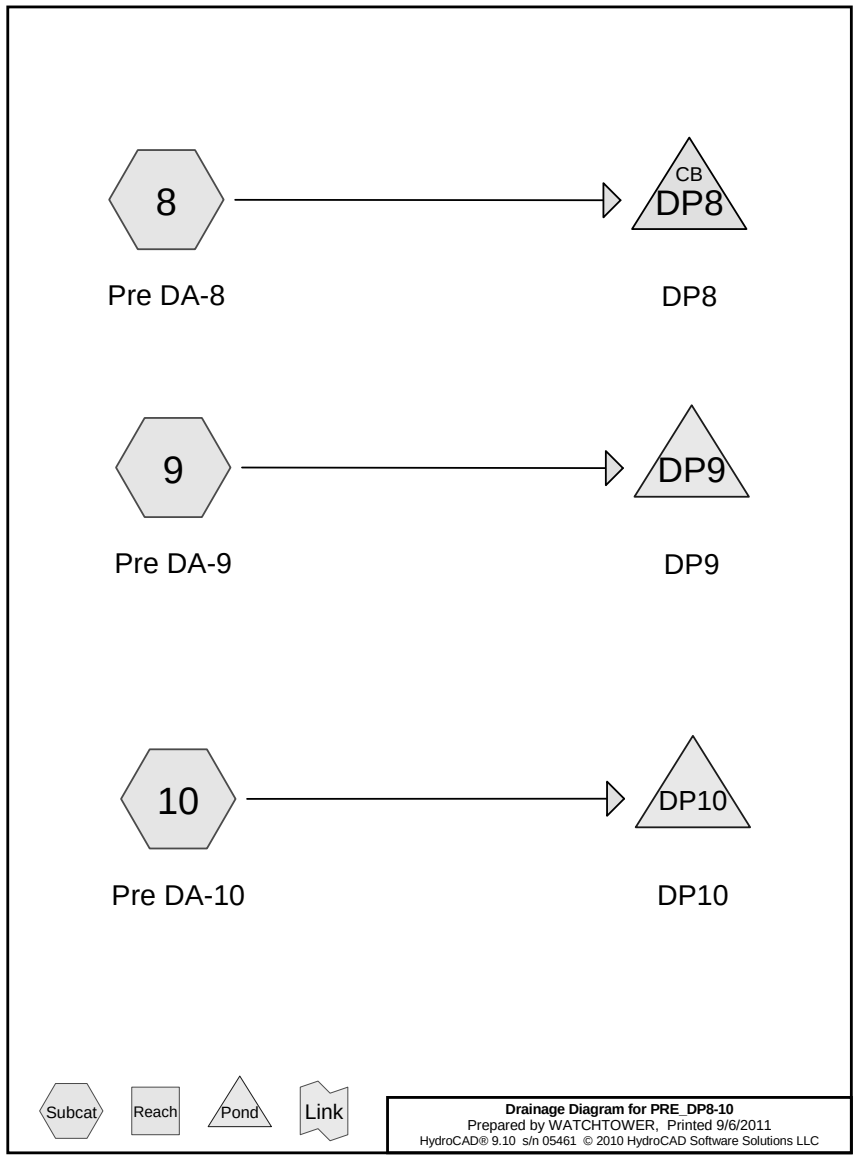
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP7: DP-7



Hydrograph for Pond DP7: DP-7

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.01		0.01	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.02		0.02	55.00	0.00		0.00
4.00	0.03		0.03	56.00	0.00		0.00
5.00	0.05		0.05	57.00	0.00		0.00
6.00	0.07		0.07	58.00	0.00		0.00
7.00	0.12		0.12	59.00	0.00		0.00
8.00	0.19		0.19	60.00	0.00		0.00
9.00	0.32		0.32	61.00	0.00		0.00
10.00	0.50		0.50	62.00	0.00		0.00
11.00	0.82		0.82	63.00	0.00		0.00
12.00	**7.68**		**7.68**	64.00	0.00		0.00
13.00	**1.22**		**1.22**	65.00	0.00		0.00
14.00	0.77		0.77	66.00	0.00		0.00
15.00	0.58		0.58	67.00	0.00		0.00
16.00	0.41		0.41	68.00	0.00		0.00
17.00	0.32		0.32	69.00	0.00		0.00
18.00	0.25		0.25	70.00	0.00		0.00
19.00	0.22		0.22	71.00	0.00		0.00
20.00	0.20		0.20	72.00	0.00		0.00
21.00	0.18		0.18				
22.00	0.16		0.16				
23.00	0.15		0.15				
24.00	0.13		0.13				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				



Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
806,096	Open Space	8, 9, 10
31,935	Pavement	8, 9
18,316	Roadway	8, 10
302	Roofs	8
1,669	Water	9
8,150	Woods	10
866,468	**TOTAL**	

Pollutant Concentrations

Line#	Land Use	TSS (mg/l)	TP (mg/l)	TN (mg/l)	BOD (mg/l)
1	Open Space	602.00	2.10	9.10	1.23
2	Pavement	173.00	0.56	2.10	6.70
3	Roadway	173.00	0.56	2.10	6.70
4	Roofs	19.00	0.11	1.50	7.40
5	Water	0.00	0.00	0.00	1.60
6	Woods	37.00	0.00	0.00	1.23

Subcatchment Loading

Line#	Subcat Number	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1	8	**0.00**	**0.00**	**0.00**	**0.00**
2	9	0.00	0.00	0.00	0.00
3	10	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 8: Pre DA-8 Runoff Area=301,029 sf 5.89% Impervious Runoff Depth=1.14"
Flow Length=697' Tc=10.0 min CN=75/98 Runoff=7.54 cfs 28,480 cf

Subcatchment 9: Pre DA-9 Runoff Area=501,807 sf 3.22% Impervious Runoff Depth=1.03"
Flow Length=1,235' Tc=11.6 min CN=74/98 Runoff=10.79 cfs 43,212 cf

Subcatchment 10: Pre DA-10 Runoff Area=63,632 sf 0.00% Impervious Runoff Depth=1.03"
Flow Length=727' Tc=13.3 min CN=75/0 Runoff=1.32 cfs 5,445 cf

Pond DP10: DP10 Inflow=1.32 cfs 5,445 cf
Primary=1.32 cfs 5,445 cf

Pond DP8: DP8 Peak Elev=560.58' Inflow=7.54 cfs 28,480 cf
24.0" Round Culvert n=0.013 L=102.0' S=0.1975 '/' Outflow=7.54 cfs 28,480 cf

Pond DP9: DP9 Inflow=10.79 cfs 43,212 cf
Primary=10.79 cfs 43,212 cf

Total Runoff Area = 866,468 sf Runoff Volume = 77,136 cf Average Runoff Depth = 1.07"
96.09% Pervious = 832,562 sf 3.91% Impervious = 33,906 sf

Summary for Subcatchment 8: Pre DA-8

move Tc around proposed pond.

Runoff = 7.54 cfs @ 12.15 hrs, Volume= 28,480 cf, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

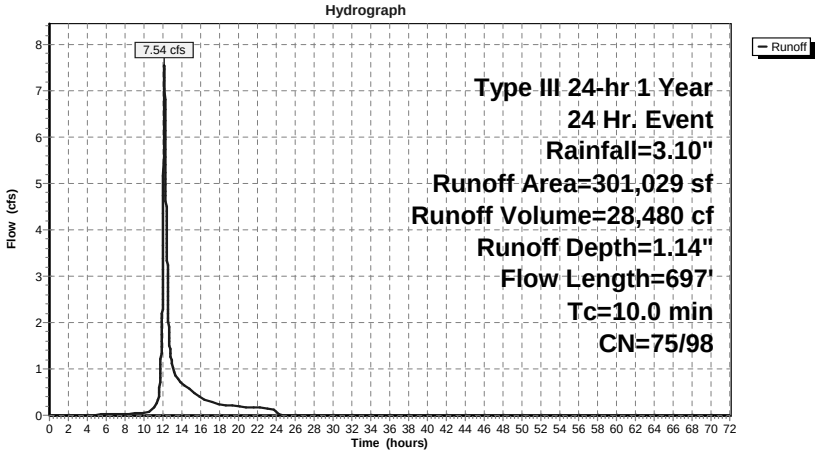
	Area (sf)	CN	Description	Land Use
	17,441	98	Unconnected pavement, HSG C	Pavement
	302	98	Roofs, HSG C	Roofs
	269,097	74	>75% Grass cover, Good, HSG C	Open Space
*	14,189	96	Gravel roads, HSG C	Roadway
	301,029	76	Weighted Average	
	283,286	75	94.11% Pervious Area	
	17,743	98	5.89% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0760	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.4	46	0.0940	2.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	124	0.0940	4.60		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.0	197	0.0510	3.39		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	230	0.1210	19.15	60.18	**Pipe Channel, Verify Slope** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
10.0	697	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 5.89% Impervious, Rv= 0.103, Runoff= 4.71"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
269,097	Open Space	3,968.76	13.84	59.99	8.11
17,441	Pavement	73.92	0.24	0.90	2.86
14,189	Roadway	60.14	0.19	0.73	2.33
302	Roofs	0.14	0.00	0.01	0.05
301,029	Total	4,102.96	14.28	61.63	13.36

Subcatchment 8: Pre DA-8



Hydrograph for Subcatchment 8: Pre DA-8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.03
10.00	0.59	0.00	0.40	0.06
12.00	1.55	0.19	1.33	**3.13**
14.00	2.51	0.66	2.28	**0.69**
16.00	2.75	0.80	2.52	0.38
18.00	2.88	0.88	2.65	0.24
20.00	2.97	0.94	2.74	0.19
22.00	3.04	0.99	2.81	0.16
24.00	**3.10**	**1.03**	**2.87**	0.13
26.00	3.10	1.03	2.87	0.00
28.00	3.10	1.03	2.87	0.00
30.00	3.10	1.03	2.87	0.00
32.00	3.10	1.03	2.87	0.00
34.00	3.10	1.03	2.87	0.00
36.00	3.10	1.03	2.87	0.00
38.00	3.10	1.03	2.87	0.00
40.00	3.10	1.03	2.87	0.00
42.00	3.10	1.03	2.87	0.00
44.00	3.10	1.03	2.87	0.00
46.00	3.10	1.03	2.87	0.00
48.00	3.10	1.03	2.87	0.00
50.00	3.10	1.03	2.87	0.00
52.00	3.10	1.03	2.87	0.00
54.00	3.10	1.03	2.87	0.00
56.00	3.10	1.03	2.87	0.00
58.00	3.10	1.03	2.87	0.00
60.00	3.10	1.03	2.87	0.00
62.00	3.10	1.03	2.87	0.00
64.00	3.10	1.03	2.87	0.00
66.00	3.10	1.03	2.87	0.00
68.00	3.10	1.03	2.87	0.00
70.00	3.10	1.03	2.87	0.00
72.00	3.10	1.03	2.87	0.00

Summary for Subcatchment 9: Pre DA-9

Verify ditch along RT22 x section

Runoff = 10.79 cfs @ 12.17 hrs, Volume= 43,212 cf, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

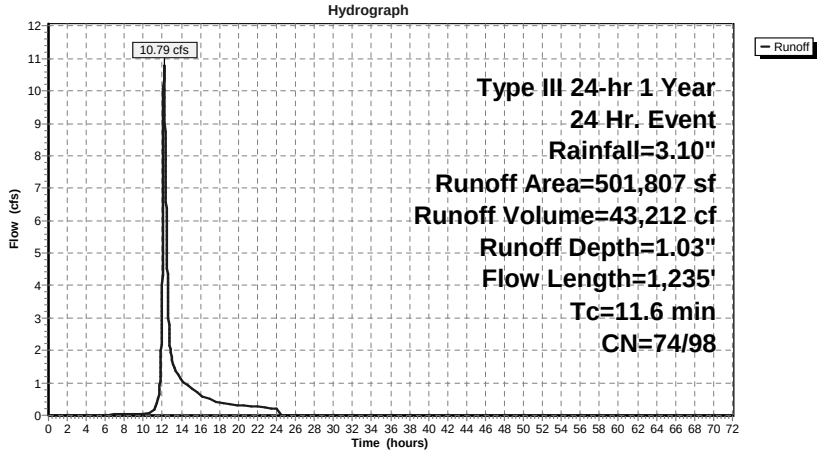
	Area (sf)	CN	Description	Land Use
	14,494	98	Paved parking, HSG C	Pavement
	485,644	74	>75% Grass cover, Good, HSG C	Open Space
*	1,669	100	Pond	Water
	501,807	75	Weighted Average	
	485,644	74	96.78% Pervious Area	
	16,163	98	3.22% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0610	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.5	50	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	19	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	210	0.1130	2.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	93		15.00		**Direct Entry,**
0.6	763	0.1000	22.77	71.54	**Pipe Channel, Verify Inverts** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
11.6	1,235	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 3.22% Impervious, Rv= 0.079, Runoff= 3.61"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
485,644	Open Space	5,490.26	19.15	82.99	11.22
14,494	Pavement	47.09	0.15	0.57	1.82
1,669	Water	0.00	0.00	0.00	0.05
501,807	Total	5,537.35	19.30	83.56	13.09

Subcatchment 9: Pre DA-9



Hydrograph for Subcatchment 9: Pre DA-9

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.02
10.00	0.59	0.00	0.40	0.05
12.00	1.55	0.16	1.33	**4.02**
14.00	2.51	0.62	2.28	**1.10**
16.00	2.75	0.75	2.52	0.62
18.00	2.88	0.83	2.65	0.38
20.00	2.97	0.89	2.74	0.31
22.00	3.04	0.93	2.81	0.26
24.00	**3.10**	**0.97**	**2.87**	0.21
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00

Summary for Subcatchment 10: Pre DA-10

confirm road side swale/ add pipe to CGOOO from swale, either side....

Runoff = 1.32 cfs @ 12.19 hrs, Volume= 5,445 cf, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

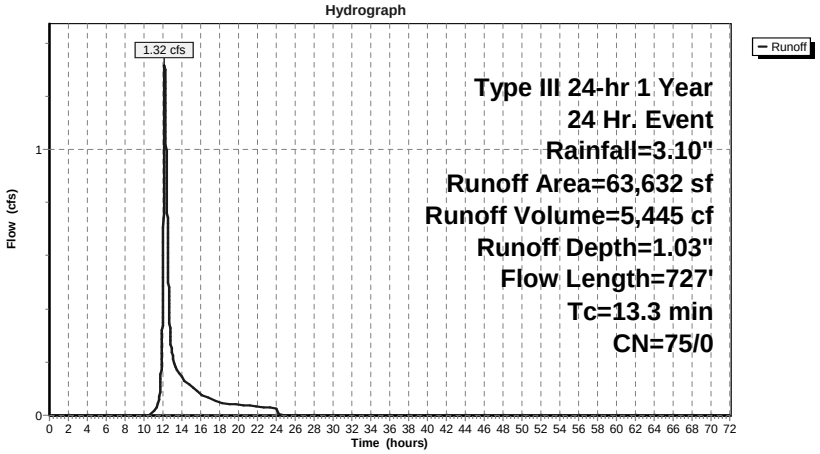
	Area (sf)	CN	Description	Land Use
	51,355	74	>75% Grass cover, Good, HSG C	Open Space
	8,150	70	Woods, Good, HSG C	Woods
*	4,127	96	Gravel roads, HSG C	Roadway
	63,632	75	Weighted Average	
	63,632	75	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	87	0.0440	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	13	0.0490	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.0	122	0.0820	2.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	88	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	44	0.1800	2.97		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	61	0.1200	2.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	312		15.00		**Direct Entry,**
13.3	727	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
51,355	Open Space	367.51	1.28	5.56	0.75
4,127	Roadway	8.49	0.03	0.10	0.33
8,150	Woods	3.58	0.00	0.00	0.12
63,632	Total	379.58	1.31	5.66	1.20

Subcatchment 10: Pre DA-10



Hydrograph for Subcatchment 10: Pre DA-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.19	0.00	**0.45**
14.00	2.51	0.66	0.00	**0.14**
16.00	2.75	0.80	0.00	0.08
18.00	2.88	0.88	0.00	0.05
20.00	2.97	0.94	0.00	0.04
22.00	3.04	0.99	0.00	0.03
24.00	**3.10**	**1.03**	0.00	0.03
26.00	3.10	1.03	0.00	0.00
28.00	3.10	1.03	0.00	0.00
30.00	3.10	1.03	0.00	0.00
32.00	3.10	1.03	0.00	0.00
34.00	3.10	1.03	0.00	0.00
36.00	3.10	1.03	0.00	0.00
38.00	3.10	1.03	0.00	0.00
40.00	3.10	1.03	0.00	0.00
42.00	3.10	1.03	0.00	0.00
44.00	3.10	1.03	0.00	0.00
46.00	3.10	1.03	0.00	0.00
48.00	3.10	1.03	0.00	0.00
50.00	3.10	1.03	0.00	0.00
52.00	3.10	1.03	0.00	0.00
54.00	3.10	1.03	0.00	0.00
56.00	3.10	1.03	0.00	0.00
58.00	3.10	1.03	0.00	0.00
60.00	3.10	1.03	0.00	0.00
62.00	3.10	1.03	0.00	0.00
64.00	3.10	1.03	0.00	0.00
66.00	3.10	1.03	0.00	0.00
68.00	3.10	1.03	0.00	0.00
70.00	3.10	1.03	0.00	0.00
72.00	3.10	1.03	0.00	0.00

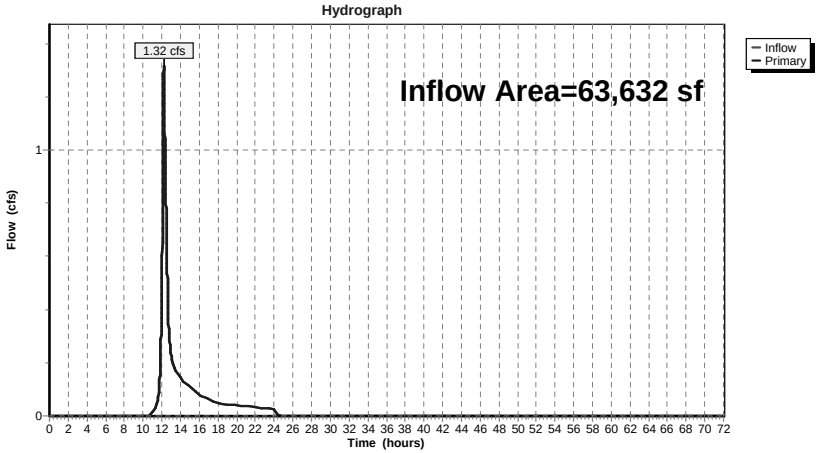
Summary for Pond DP10: DP10

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 63,632 sf, 0.00% Impervious, Inflow Depth = 1.03" for 1 Year, 24 Hr. Event event
Inflow = 1.32 cfs @ 12.19 hrs, Volume= 5,445 cf
Primary = 1.32 cfs @ 12.19 hrs, Volume= 5,445 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP10: DP10



Hydrograph for Pond DP10: DP10

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.01		0.01	63.00	0.00		0.00
12.00	**0.45**		**0.45**	64.00	0.00		0.00
13.00	**0.23**		**0.23**	65.00	0.00		0.00
14.00	0.14		0.14	66.00	0.00		0.00
15.00	0.11		0.11	67.00	0.00		0.00
16.00	0.08		0.08	68.00	0.00		0.00
17.00	0.06		0.06	69.00	0.00		0.00
18.00	0.05		0.05	70.00	0.00		0.00
19.00	0.04		0.04	71.00	0.00		0.00
20.00	0.04		0.04	72.00	0.00		0.00
21.00	0.04		0.04				
22.00	0.03		0.03				
23.00	0.03		0.03				
24.00	0.03		0.03				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP8: DP8

[57] Hint: Peaked at 560.58' (Flood elevation advised)

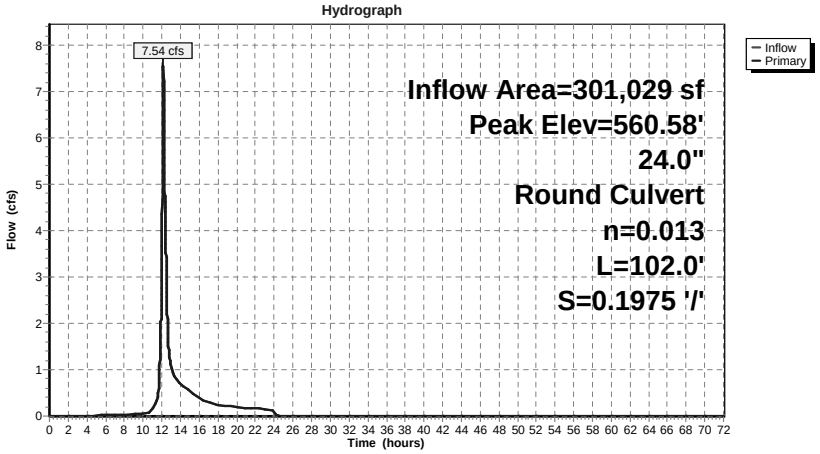
Inflow Area = 301,029 sf, 5.89% Impervious, Inflow Depth = 1.14" for 1 Year, 24 Hr. Event event
Inflow = 7.54 cfs @ 12.15 hrs, Volume= 28,480 cf
Outflow = 7.54 cfs @ 12.15 hrs, Volume= 28,480 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.54 cfs @ 12.15 hrs, Volume= 28,480 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 560.58' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	559.36'	**24.0" Round Culvert** L= 102.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 559.36' / 539.21' S= 0.1975 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=7.53 cfs @ 12.15 hrs HW=560.58' (Free Discharge)
1=Culvert (Inlet Controls 7.53 cfs @ 3.76 fps)

Pond DP8: DP8



Hydrograph for Pond DP8: DP8

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	559.36	0.00	52.00	0.00	559.36	0.00
1.00	0.00	559.36	0.00	53.00	0.00	559.36	0.00
2.00	0.00	559.38	0.00	54.00	0.00	559.36	0.00
3.00	0.01	559.39	0.01	55.00	0.00	559.36	0.00
4.00	0.01	559.40	0.01	56.00	0.00	559.36	0.00
5.00	0.01	559.40	0.01	57.00	0.00	559.36	0.00
6.00	0.01	559.41	0.01	58.00	0.00	559.36	0.00
7.00	0.02	559.42	0.02	59.00	0.00	559.36	0.00
8.00	0.03	559.42	0.03	60.00	0.00	559.36	0.00
9.00	0.04	559.44	0.04	61.00	0.00	559.36	0.00
10.00	0.06	559.45	0.06	62.00	0.00	559.36	0.00
11.00	0.14	559.51	0.14	63.00	0.00	559.36	0.00
12.00	**3.13**	**560.11**	**3.13**	64.00	0.00	559.36	0.00
13.00	**1.08**	**559.78**	**1.08**	65.00	0.00	559.36	0.00
14.00	0.69	559.70	0.69	66.00	0.00	559.36	0.00
15.00	0.53	559.65	0.53	67.00	0.00	559.36	0.00
16.00	0.38	559.61	0.38	68.00	0.00	559.36	0.00
17.00	0.31	559.58	0.31	69.00	0.00	559.36	0.00
18.00	0.24	559.56	0.24	70.00	0.00	559.36	0.00
19.00	0.21	559.54	0.21	71.00	0.00	559.36	0.00
20.00	0.19	559.53	0.19	72.00	0.00	559.36	0.00
21.00	0.18	559.53	0.18				
22.00	0.16	559.52	0.16				
23.00	0.14	559.51	0.14				
24.00	0.13	559.50	0.13				
25.00	0.00	559.36	0.00				
26.00	0.00	559.36	0.00				
27.00	0.00	559.36	0.00				
28.00	0.00	559.36	0.00				
29.00	0.00	559.36	0.00				
30.00	0.00	559.36	0.00				
31.00	0.00	559.36	0.00				
32.00	0.00	559.36	0.00				
33.00	0.00	559.36	0.00				
34.00	0.00	559.36	0.00				
35.00	0.00	559.36	0.00				
36.00	0.00	559.36	0.00				
37.00	0.00	559.36	0.00				
38.00	0.00	559.36	0.00				
39.00	0.00	559.36	0.00				
40.00	0.00	559.36	0.00				
41.00	0.00	559.36	0.00				
42.00	0.00	559.36	0.00				
43.00	0.00	559.36	0.00				
44.00	0.00	559.36	0.00				
45.00	0.00	559.36	0.00				
46.00	0.00	559.36	0.00				
47.00	0.00	559.36	0.00				
48.00	0.00	559.36	0.00				
49.00	0.00	559.36	0.00				
50.00	0.00	559.36	0.00				
51.00	0.00	559.36	0.00				

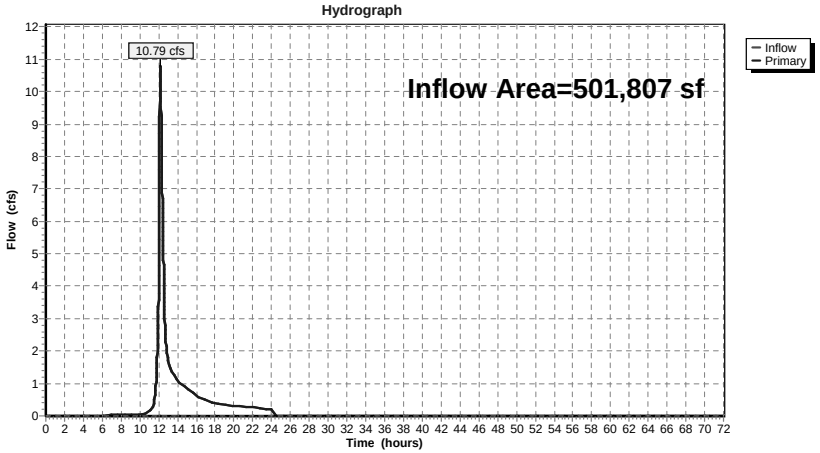
Summary for Pond DP9: DP9

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 501,807 sf, 3.22% Impervious, Inflow Depth = 1.03" for 1 Year, 24 Hr. Event event
Inflow = 10.79 cfs @ 12.17 hrs, Volume= 43,212 cf
Primary = 10.79 cfs @ 12.17 hrs, Volume= 43,212 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP9: DP9



Hydrograph for Pond DP9: DP9

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.02		0.02	59.00	0.00		0.00
8.00	0.02		0.02	60.00	0.00		0.00
9.00	0.04		0.04	61.00	0.00		0.00
10.00	0.05		0.05	62.00	0.00		0.00
11.00	0.12		0.12	63.00	0.00		0.00
12.00	**4.02**		**4.02**	64.00	0.00		0.00
13.00	**1.74**		**1.74**	65.00	0.00		0.00
14.00	1.10		1.10	66.00	0.00		0.00
15.00	0.85		0.85	67.00	0.00		0.00
16.00	0.62		0.62	68.00	0.00		0.00
17.00	0.49		0.49	69.00	0.00		0.00
18.00	0.38		0.38	70.00	0.00		0.00
19.00	0.34		0.34	71.00	0.00		0.00
20.00	0.31		0.31	72.00	0.00		0.00
21.00	0.28		0.28				
22.00	0.26		0.26				
23.00	0.23		0.23				
24.00	0.21		0.21				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 8: Pre DA-8 Runoff Area=301,029 sf 5.89% Impervious Runoff Depth=1.42"
Flow Length=697' Tc=10.0 min CN=75/98 Runoff=9.59 cfs 35,562 cf

Subcatchment 9: Pre DA-9 Runoff Area=501,807 sf 3.22% Impervious Runoff Depth=1.31"
Flow Length=1,235' Tc=11.6 min CN=74/98 Runoff=13.95 cfs 54,579 cf

Subcatchment 10: Pre DA-10 Runoff Area=63,632 sf 0.00% Impervious Runoff Depth=1.30"
Flow Length=727' Tc=13.3 min CN=75/0 Runoff=1.70 cfs 6,903 cf

Pond DP10: DP10 Inflow=1.70 cfs 6,903 cf
Primary=1.70 cfs 6,903 cf

Pond DP8: DP8 Peak Elev=560.77' Inflow=9.59 cfs 35,562 cf
24.0" Round Culvert n=0.013 L=102.0' S=0.1975 '/' Outflow=9.59 cfs 35,562 cf

Pond DP9: DP9 Inflow=13.95 cfs 54,579 cf
Primary=13.95 cfs 54,579 cf

Total Runoff Area = 866,468 sf Runoff Volume = 97,044 cf Average Runoff Depth = 1.34"
96.09% Pervious = 832,562 sf 3.91% Impervious = 33,906 sf

Summary for Subcatchment 8: Pre DA-8

move Tc around proposed pond.

Runoff = 9.59 cfs @ 12.14 hrs, Volume= 35,562 cf, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

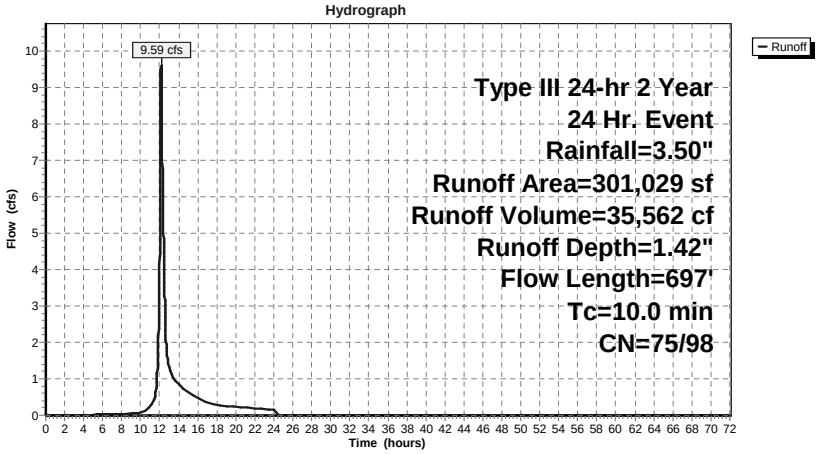
	Area (sf)	CN	Description	Land Use
	17,441	98	Unconnected pavement, HSG C	Pavement
	302	98	Roofs, HSG C	Roofs
	269,097	74	>75% Grass cover, Good, HSG C	Open Space
*	14,189	96	Gravel roads, HSG C	Roadway
	301,029	76	Weighted Average	
	283,286	75	94.11% Pervious Area	
	17,743	98	5.89% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0760	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.4	46	0.0940	2.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	124	0.0940	4.60		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.0	197	0.0510	3.39		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	230	0.1210	19.15	60.18	**Pipe Channel, Verify Slope** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
10.0	697	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 5.89% Impervious, Rv= 0.103, Runoff= 4.71"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
269,097	Open Space	3,968.76	13.84	59.99	8.11
17,441	Pavement	73.92	0.24	0.90	2.86
14,189	Roadway	60.14	0.19	0.73	2.33
302	Roofs	0.14	0.00	0.01	0.05
301,029	Total	4,102.96	14.28	61.63	13.36

Subcatchment 8: Pre DA-8



Hydrograph for Subcatchment 8: Pre DA-8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.02
8.00	0.40	0.00	0.23	0.03
10.00	0.66	0.00	0.47	0.06
12.00	1.75	0.27	1.53	**4.13**
14.00	2.84	0.86	2.61	**0.84**
16.00	3.10	1.03	2.87	0.46
18.00	3.25	1.13	3.02	0.29
20.00	3.35	1.20	3.12	0.23
22.00	3.43	1.25	3.20	0.19
24.00	**3.50**	**1.30**	**3.27**	0.15
26.00	3.50	1.30	3.27	0.00
28.00	3.50	1.30	3.27	0.00
30.00	3.50	1.30	3.27	0.00
32.00	3.50	1.30	3.27	0.00
34.00	3.50	1.30	3.27	0.00
36.00	3.50	1.30	3.27	0.00
38.00	3.50	1.30	3.27	0.00
40.00	3.50	1.30	3.27	0.00
42.00	3.50	1.30	3.27	0.00
44.00	3.50	1.30	3.27	0.00
46.00	3.50	1.30	3.27	0.00
48.00	3.50	1.30	3.27	0.00
50.00	3.50	1.30	3.27	0.00
52.00	3.50	1.30	3.27	0.00
54.00	3.50	1.30	3.27	0.00
56.00	3.50	1.30	3.27	0.00
58.00	3.50	1.30	3.27	0.00
60.00	3.50	1.30	3.27	0.00
62.00	3.50	1.30	3.27	0.00
64.00	3.50	1.30	3.27	0.00
66.00	3.50	1.30	3.27	0.00
68.00	3.50	1.30	3.27	0.00
70.00	3.50	1.30	3.27	0.00
72.00	3.50	1.30	3.27	0.00

Summary for Subcatchment 9: Pre DA-9

Verify ditch along RT22 x section

Runoff = 13.95 cfs @ 12.17 hrs, Volume= 54,579 cf, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

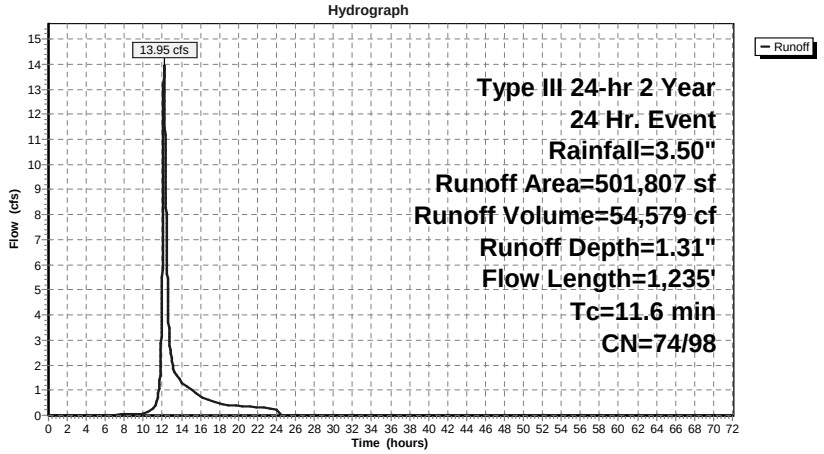
	Area (sf)	CN	Description	Land Use
	14,494	98	Paved parking, HSG C	Pavement
	485,644	74	>75% Grass cover, Good, HSG C	Open Space
*	1,669	100	Pond	Water
	501,807	75	Weighted Average	
	485,644	74	96.78% Pervious Area	
	16,163	98	3.22% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0610	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.5	50	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	19	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	210	0.1130	2.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	93		15.00		**Direct Entry,**
0.6	763	0.1000	22.77	71.54	**Pipe Channel, Verify Inverts** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
11.6	1,235	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 3.22% Impervious, Rv= 0.079, Runoff= 3.61"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
485,644	Open Space	5,490.26	19.15	82.99	11.22
14,494	Pavement	47.09	0.15	0.57	1.82
1,669	Water	0.00	0.00	0.00	0.05
501,807	Total	5,537.35	19.30	83.56	13.09

Subcatchment 9: Pre DA-9



Hydrograph for Subcatchment 9: Pre DA-9

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.02
8.00	0.40	0.00	0.23	0.03
10.00	0.66	0.00	0.47	0.06
12.00	1.75	0.24	1.53	**5.48**
14.00	2.84	0.81	2.61	**1.35**
16.00	3.10	0.97	2.87	0.75
18.00	3.25	1.07	3.02	0.46
20.00	3.35	1.14	3.12	0.37
22.00	3.43	1.19	3.20	0.31
24.00	**3.50**	**1.24**	**3.27**	0.25
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00

Summary for Subcatchment 10: Pre DA-10

confirm road side swale/ add pipe to CGOOO from swale, either side....

Runoff = 1.70 cfs @ 12.19 hrs, Volume= 6,903 cf, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

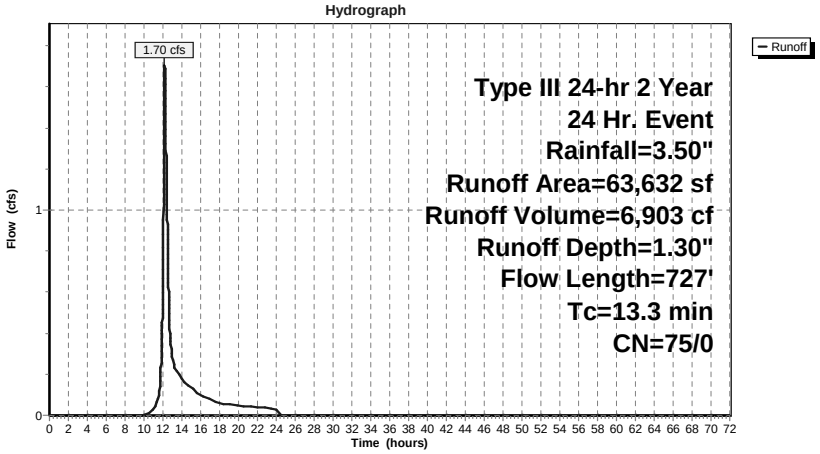
	Area (sf)	CN	Description	Land Use
	51,355	74	>75% Grass cover, Good, HSG C	Open Space
	8,150	70	Woods, Good, HSG C	Woods
*	4,127	96	Gravel roads, HSG C	Roadway
	63,632	75	Weighted Average	
	63,632	75	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	87	0.0440	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	13	0.0490	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.0	122	0.0820	2.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	88	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	44	0.1800	2.97		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	61	0.1200	2.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	312		15.00		**Direct Entry,**
13.3	727	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
51,355	Open Space	367.51	1.28	5.56	0.75
4,127	Roadway	8.49	0.03	0.10	0.33
8,150	Woods	3.58	0.00	0.00	0.12
63,632	Total	379.58	1.31	5.66	1.20

Subcatchment 10: Pre DA-10



Hydrograph for Subcatchment 10: Pre DA-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.27	0.00	**0.63**
14.00	2.84	0.86	0.00	**0.17**
16.00	3.10	1.03	0.00	0.10
18.00	3.25	1.13	0.00	0.06
20.00	3.35	1.20	0.00	0.05
22.00	3.43	1.25	0.00	0.04
24.00	**3.50**	**1.30**	0.00	0.03
26.00	3.50	1.30	0.00	0.00
28.00	3.50	1.30	0.00	0.00
30.00	3.50	1.30	0.00	0.00
32.00	3.50	1.30	0.00	0.00
34.00	3.50	1.30	0.00	0.00
36.00	3.50	1.30	0.00	0.00
38.00	3.50	1.30	0.00	0.00
40.00	3.50	1.30	0.00	0.00
42.00	3.50	1.30	0.00	0.00
44.00	3.50	1.30	0.00	0.00
46.00	3.50	1.30	0.00	0.00
48.00	3.50	1.30	0.00	0.00
50.00	3.50	1.30	0.00	0.00
52.00	3.50	1.30	0.00	0.00
54.00	3.50	1.30	0.00	0.00
56.00	3.50	1.30	0.00	0.00
58.00	3.50	1.30	0.00	0.00
60.00	3.50	1.30	0.00	0.00
62.00	3.50	1.30	0.00	0.00
64.00	3.50	1.30	0.00	0.00
66.00	3.50	1.30	0.00	0.00
68.00	3.50	1.30	0.00	0.00
70.00	3.50	1.30	0.00	0.00
72.00	3.50	1.30	0.00	0.00

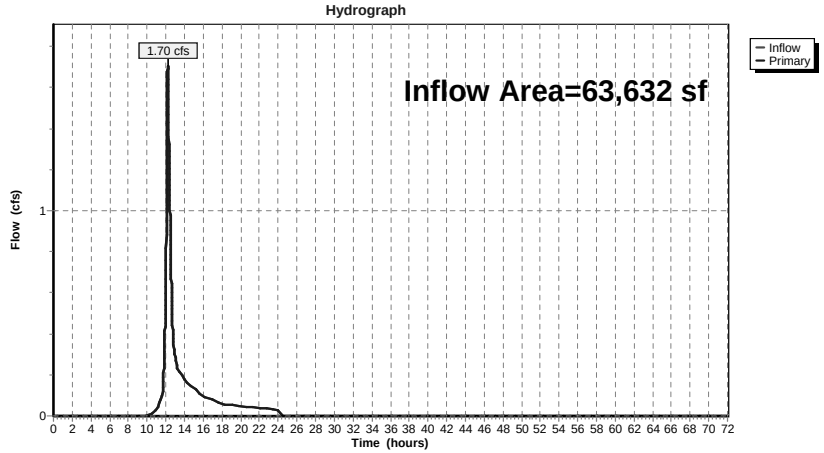
Summary for Pond DP10: DP10

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 63,632 sf, 0.00% Impervious, Inflow Depth = 1.30" for 2 Year, 24 Hr. Event event
Inflow = 1.70 cfs @ 12.19 hrs, Volume= 6,903 cf
Primary = 1.70 cfs @ 12.19 hrs, Volume= 6,903 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP10: DP10



Hydrograph for Pond DP10: DP10

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.03		0.03	63.00	0.00		0.00
12.00	**0.63**		**0.63**	64.00	0.00		0.00
13.00	**0.28**		**0.28**	65.00	0.00		0.00
14.00	0.17		0.17	66.00	0.00		0.00
15.00	0.13		0.13	67.00	0.00		0.00
16.00	0.10		0.10	68.00	0.00		0.00
17.00	0.08		0.08	69.00	0.00		0.00
18.00	0.06		0.06	70.00	0.00		0.00
19.00	0.05		0.05	71.00	0.00		0.00
20.00	0.05		0.05	72.00	0.00		0.00
21.00	0.04		0.04				
22.00	0.04		0.04				
23.00	0.04		0.04				
24.00	0.03		0.03				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP8: DP8

[57] Hint: Peaked at 560.77' (Flood elevation advised)

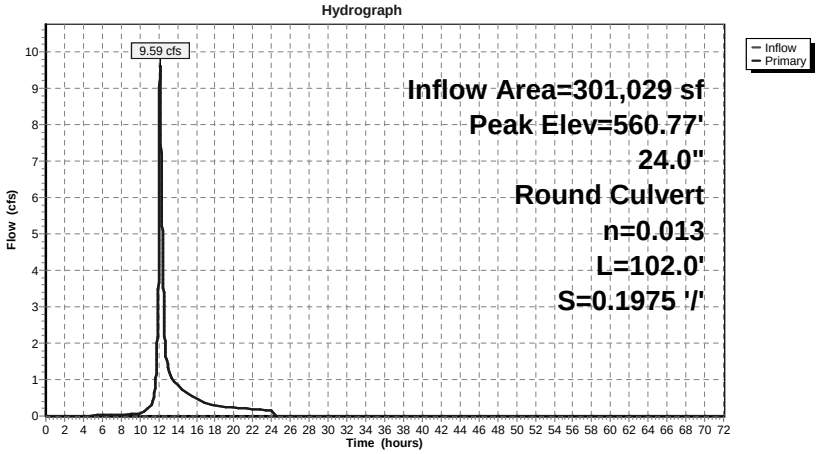
Inflow Area = 301,029 sf, 5.89% Impervious, Inflow Depth = 1.42" for 2 Year, 24 Hr. Event event
Inflow = 9.59 cfs @ 12.14 hrs, Volume= 35,562 cf
Outflow = 9.59 cfs @ 12.14 hrs, Volume= 35,562 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.59 cfs @ 12.14 hrs, Volume= 35,562 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 560.77' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	559.36'	**24.0" Round Culvert** L= 102.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 559.36' / 539.21' S= 0.1975 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=9.58 cfs @ 12.14 hrs HW=560.77' (Free Discharge)
1=Culvert (Inlet Controls 9.58 cfs @ 4.04 fps)

Pond DP8: DP8



Hydrograph for Pond DP8: DP8

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	559.36	0.00	52.00	0.00	559.36	0.00
1.00	0.00	559.36	0.00	53.00	0.00	559.36	0.00
2.00	0.00	559.38	0.00	54.00	0.00	559.36	0.00
3.00	0.01	559.39	0.01	55.00	0.00	559.36	0.00
4.00	0.01	559.40	0.01	56.00	0.00	559.36	0.00
5.00	0.01	559.41	0.01	57.00	0.00	559.36	0.00
6.00	0.02	559.41	0.02	58.00	0.00	559.36	0.00
7.00	0.02	559.42	0.02	59.00	0.00	559.36	0.00
8.00	0.03	559.43	0.03	60.00	0.00	559.36	0.00
9.00	0.05	559.45	0.05	61.00	0.00	559.36	0.00
10.00	0.06	559.46	0.06	62.00	0.00	559.36	0.00
11.00	0.25	559.56	0.25	63.00	0.00	559.36	0.00
12.00	**4.13**	**560.23**	**4.13**	64.00	0.00	559.36	0.00
13.00	**1.32**	**559.83**	**1.32**	65.00	0.00	559.36	0.00
14.00	0.84	559.73	0.84	66.00	0.00	559.36	0.00
15.00	0.64	559.68	0.64	67.00	0.00	559.36	0.00
16.00	0.46	559.63	0.46	68.00	0.00	559.36	0.00
17.00	0.37	559.60	0.37	69.00	0.00	559.36	0.00
18.00	0.29	559.57	0.29	70.00	0.00	559.36	0.00
19.00	0.25	559.56	0.25	71.00	0.00	559.36	0.00
20.00	0.23	559.55	0.23	72.00	0.00	559.36	0.00
21.00	0.21	559.54	0.21				
22.00	0.19	559.53	0.19				
23.00	0.17	559.53	0.17				
24.00	0.15	559.52	0.15				
25.00	0.00	559.36	0.00				
26.00	0.00	559.36	0.00				
27.00	0.00	559.36	0.00				
28.00	0.00	559.36	0.00				
29.00	0.00	559.36	0.00				
30.00	0.00	559.36	0.00				
31.00	0.00	559.36	0.00				
32.00	0.00	559.36	0.00				
33.00	0.00	559.36	0.00				
34.00	0.00	559.36	0.00				
35.00	0.00	559.36	0.00				
36.00	0.00	559.36	0.00				
37.00	0.00	559.36	0.00				
38.00	0.00	559.36	0.00				
39.00	0.00	559.36	0.00				
40.00	0.00	559.36	0.00				
41.00	0.00	559.36	0.00				
42.00	0.00	559.36	0.00				
43.00	0.00	559.36	0.00				
44.00	0.00	559.36	0.00				
45.00	0.00	559.36	0.00				
46.00	0.00	559.36	0.00				
47.00	0.00	559.36	0.00				
48.00	0.00	559.36	0.00				
49.00	0.00	559.36	0.00				
50.00	0.00	559.36	0.00				
51.00	0.00	559.36	0.00				

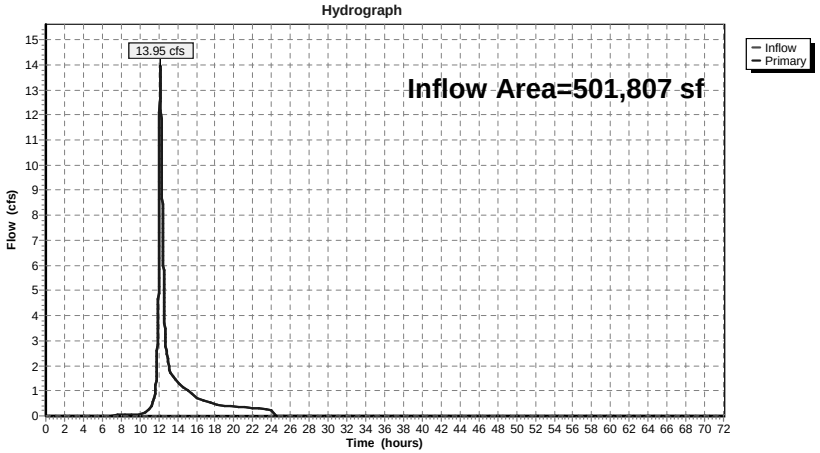
Summary for Pond DP9: DP9

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 501,807 sf, 3.22% Impervious, Inflow Depth = 1.31" for 2 Year, 24 Hr. Event event
Inflow = 13.95 cfs @ 12.17 hrs, Volume= 54,579 cf
Primary = 13.95 cfs @ 12.17 hrs, Volume= 54,579 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP9: DP9



Hydrograph for Pond DP9: DP9

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.02		0.02	59.00	0.00		0.00
8.00	0.03		0.03	60.00	0.00		0.00
9.00	0.04		0.04	61.00	0.00		0.00
10.00	0.06		0.06	62.00	0.00		0.00
11.00	0.27		0.27	63.00	0.00		0.00
12.00	**5.48**		**5.48**	64.00	0.00		0.00
13.00	**2.14**		**2.14**	65.00	0.00		0.00
14.00	1.35		1.35	66.00	0.00		0.00
15.00	1.03		1.03	67.00	0.00		0.00
16.00	0.75		0.75	68.00	0.00		0.00
17.00	0.59		0.59	69.00	0.00		0.00
18.00	0.46		0.46	70.00	0.00		0.00
19.00	0.41		0.41	71.00	0.00		0.00
20.00	0.37		0.37	72.00	0.00		0.00
21.00	0.34		0.34				
22.00	0.31		0.31				
23.00	0.28		0.28				
24.00	0.25		0.25				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 8: Pre DA-8 Runoff Area=301,029 sf 5.89% Impervious Runoff Depth=3.00"
Flow Length=697' Tc=10.0 min CN=75/98 Runoff=20.95 cfs 75,310 cf

Subcatchment 9: Pre DA-9 Runoff Area=501,807 sf 3.22% Impervious Runoff Depth=2.85"
Flow Length=1,235' Tc=11.6 min CN=74/98 Runoff=31.68 cfs 119,157 cf

Subcatchment 10: Pre DA-10 Runoff Area=63,632 sf 0.00% Impervious Runoff Depth=2.86"
Flow Length=727' Tc=13.3 min CN=75/0 Runoff=3.88 cfs 15,169 cf

Pond DP10: DP10 Inflow=3.88 cfs 15,169 cf
Primary=3.88 cfs 15,169 cf

Pond DP8: DP8 Peak Elev=562.28' Inflow=20.95 cfs 75,310 cf
24.0" Round Culvert n=0.013 L=102.0' S=0.1975 '/' Outflow=20.95 cfs 75,310 cf

Pond DP9: DP9 Inflow=31.68 cfs 119,157 cf
Primary=31.68 cfs 119,157 cf

Total Runoff Area = 866,468 sf Runoff Volume = 209,636 cf Average Runoff Depth = 2.90"
96.09% Pervious = 832,562 sf 3.91% Impervious = 33,906 sf

Summary for Subcatchment 8: Pre DA-8

move Tc around proposed pond.

Runoff = 20.95 cfs @ 12.14 hrs, Volume= 75,310 cf, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

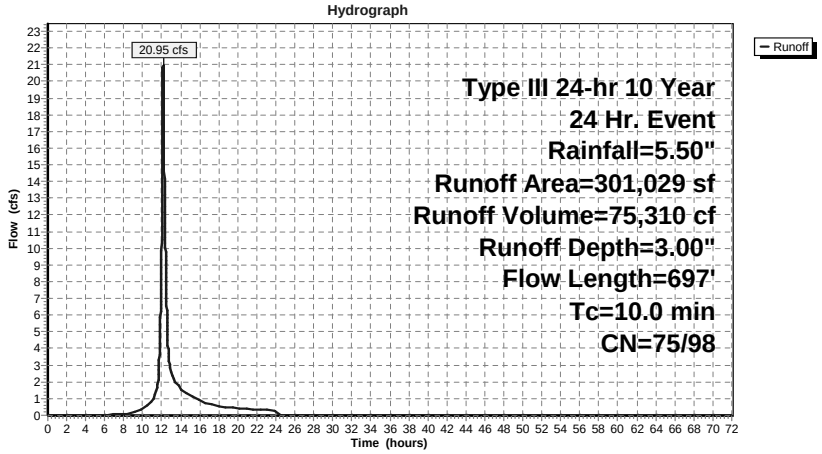
	Area (sf)	CN	Description	Land Use
	17,441	98	Unconnected pavement, HSG C	Pavement
	302	98	Roofs, HSG C	Roofs
	269,097	74	>75% Grass cover, Good, HSG C	Open Space
*	14,189	96	Gravel roads, HSG C	Roadway
	301,029	76	Weighted Average	
	283,286	75	94.11% Pervious Area	
	17,743	98	5.89% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0760	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.4	46	0.0940	2.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	124	0.0940	4.60		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.0	197	0.0510	3.39		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	230	0.1210	19.15	60.18	**Pipe Channel, Verify Slope** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
10.0	697	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 5.89% Impervious, Rv= 0.103, Runoff= 4.71"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
269,097	Open Space	3,968.76	13.84	59.99	8.11
17,441	Pavement	73.92	0.24	0.90	2.86
14,189	Roadway	60.14	0.19	0.73	2.33
302	Roofs	0.14	0.00	0.01	0.05
301,029	Total	4,102.96	14.28	61.63	13.36

Subcatchment 8: Pre DA-8



Hydrograph for Subcatchment 8: Pre DA-8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.02
6.00	0.40	0.00	0.23	0.03
8.00	0.63	0.00	0.43	0.05
10.00	1.04	0.04	0.83	0.40
12.00	2.75	0.80	2.52	**9.86**
14.00	4.46	2.02	4.22	**1.60**
16.00	4.87	2.35	4.64	0.87
18.00	5.10	2.53	4.87	0.53
20.00	5.26	2.66	5.03	0.42
22.00	5.39	2.77	5.16	0.35
24.00	**5.50**	**2.86**	**5.26**	0.28
26.00	5.50	2.86	5.26	0.00
28.00	5.50	2.86	5.26	0.00
30.00	5.50	2.86	5.26	0.00
32.00	5.50	2.86	5.26	0.00
34.00	5.50	2.86	5.26	0.00
36.00	5.50	2.86	5.26	0.00
38.00	5.50	2.86	5.26	0.00
40.00	5.50	2.86	5.26	0.00
42.00	5.50	2.86	5.26	0.00
44.00	5.50	2.86	5.26	0.00
46.00	5.50	2.86	5.26	0.00
48.00	5.50	2.86	5.26	0.00
50.00	5.50	2.86	5.26	0.00
52.00	5.50	2.86	5.26	0.00
54.00	5.50	2.86	5.26	0.00
56.00	5.50	2.86	5.26	0.00
58.00	5.50	2.86	5.26	0.00
60.00	5.50	2.86	5.26	0.00
62.00	5.50	2.86	5.26	0.00
64.00	5.50	2.86	5.26	0.00
66.00	5.50	2.86	5.26	0.00
68.00	5.50	2.86	5.26	0.00
70.00	5.50	2.86	5.26	0.00
72.00	5.50	2.86	5.26	0.00

Summary for Subcatchment 9: Pre DA-9

Verify ditch along RT22 x section

Runoff = 31.68 cfs @ 12.16 hrs, Volume= 119,157 cf, Depth= 2.85"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

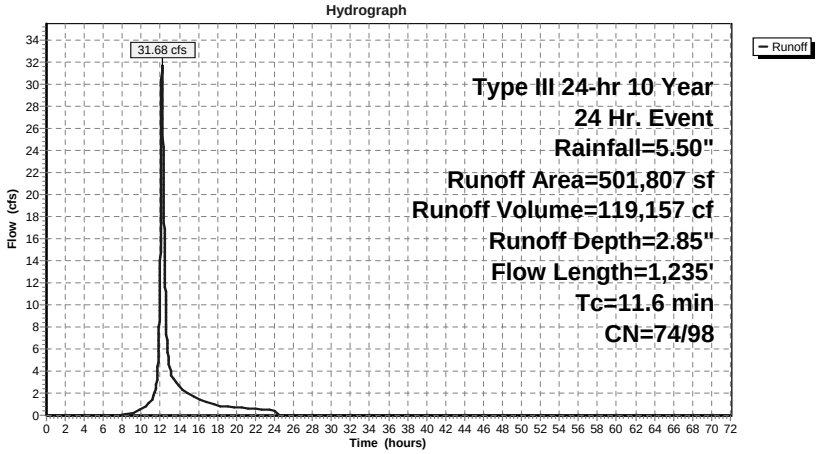
	Area (sf)	CN	Description	Land Use
	14,494	98	Paved parking, HSG C	Pavement
	485,644	74	>75% Grass cover, Good, HSG C	Open Space
*	1,669	100	Pond	Water
	501,807	75	Weighted Average	
	485,644	74	96.78% Pervious Area	
	16,163	98	3.22% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0610	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.5	50	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	19	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	210	0.1130	2.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	93		15.00		**Direct Entry,**
0.6	763	0.1000	22.77	71.54	**Pipe Channel, Verify Inverts** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
11.6	1,235	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 3.22% Impervious, Rv= 0.079, Runoff= 3.61"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
485,644	Open Space	5,490.26	19.15	82.99	11.22
14,494	Pavement	47.09	0.15	0.57	1.82
1,669	Water	0.00	0.00	0.00	0.05
501,807	Total	5,537.35	19.30	83.56	13.09

Subcatchment 9: Pre DA-9



Hydrograph for Subcatchment 9: Pre DA-9

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.02
6.00	0.40	0.00	0.23	0.03
8.00	0.63	0.00	0.43	0.05
10.00	1.04	0.03	0.83	0.52
12.00	2.75	0.75	2.52	**14.00**
14.00	4.46	1.94	4.22	**2.62**
16.00	4.87	2.26	4.64	1.43
18.00	5.10	2.45	4.87	0.87
20.00	5.26	2.58	5.03	0.69
22.00	5.39	2.68	5.16	0.58
24.00	**5.50**	**2.77**	**5.26**	0.46
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00

Summary for Subcatchment 10: Pre DA-10

confirm road side swale/ add pipe to CGOOO from swale, either side....

Runoff = 3.88 cfs @ 12.19 hrs, Volume= 15,169 cf, Depth= 2.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

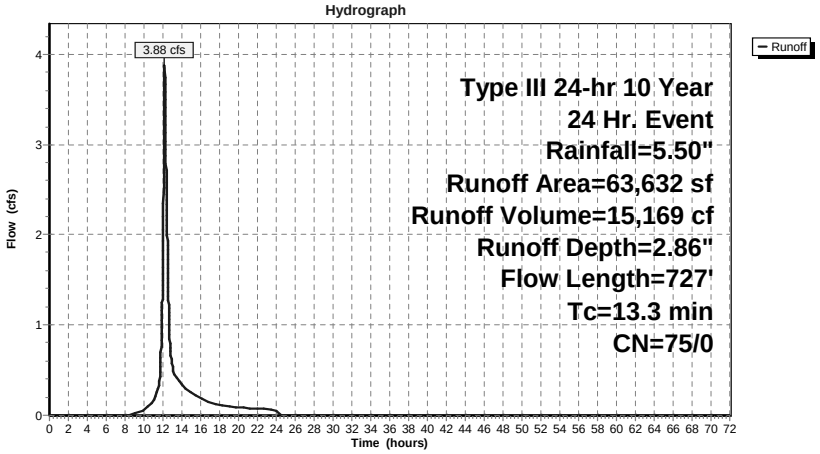
	Area (sf)	CN	Description	Land Use
	51,355	74	>75% Grass cover, Good, HSG C	Open Space
	8,150	70	Woods, Good, HSG C	Woods
*	4,127	96	Gravel roads, HSG C	Roadway
	63,632	75	Weighted Average	
	63,632	75	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	87	0.0440	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	13	0.0490	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.0	122	0.0820	2.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	88	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	44	0.1800	2.97		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	61	0.1200	2.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	312		15.00		**Direct Entry,**
13.3	727	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
51,355	Open Space	367.51	1.28	5.56	0.75
4,127	Roadway	8.49	0.03	0.10	0.33
8,150	Woods	3.58	0.00	0.00	0.12
63,632	Total	379.58	1.31	5.66	1.20

Subcatchment 10: Pre DA-10



Hydrograph for Subcatchment 10: Pre DA-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.04	0.00	0.06
12.00	2.75	0.80	0.00	**1.64**
14.00	4.46	2.02	0.00	**0.34**
16.00	4.87	2.35	0.00	0.18
18.00	5.10	2.53	0.00	0.11
20.00	5.26	2.66	0.00	0.09
22.00	5.39	2.77	0.00	0.07
24.00	**5.50**	**2.86**	0.00	0.06
26.00	5.50	2.86	0.00	0.00
28.00	5.50	2.86	0.00	0.00
30.00	5.50	2.86	0.00	0.00
32.00	5.50	2.86	0.00	0.00
34.00	5.50	2.86	0.00	0.00
36.00	5.50	2.86	0.00	0.00
38.00	5.50	2.86	0.00	0.00
40.00	5.50	2.86	0.00	0.00
42.00	5.50	2.86	0.00	0.00
44.00	5.50	2.86	0.00	0.00
46.00	5.50	2.86	0.00	0.00
48.00	5.50	2.86	0.00	0.00
50.00	5.50	2.86	0.00	0.00
52.00	5.50	2.86	0.00	0.00
54.00	5.50	2.86	0.00	0.00
56.00	5.50	2.86	0.00	0.00
58.00	5.50	2.86	0.00	0.00
60.00	5.50	2.86	0.00	0.00
62.00	5.50	2.86	0.00	0.00
64.00	5.50	2.86	0.00	0.00
66.00	5.50	2.86	0.00	0.00
68.00	5.50	2.86	0.00	0.00
70.00	5.50	2.86	0.00	0.00
72.00	5.50	2.86	0.00	0.00

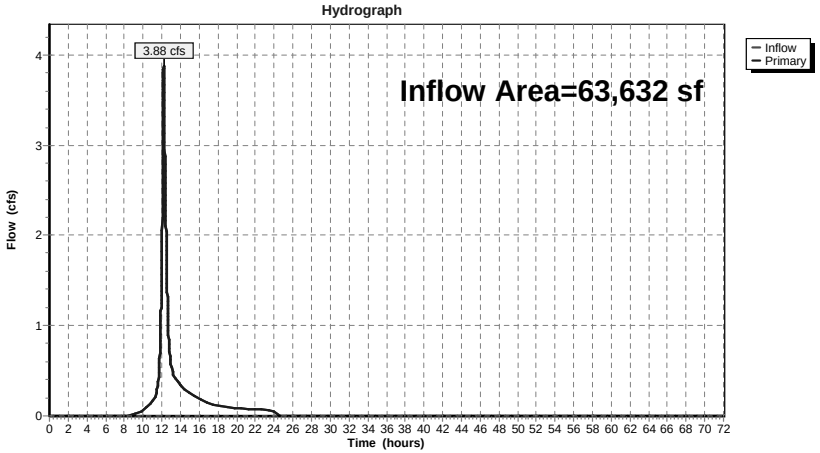
Summary for Pond DP10: DP10

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 63,632 sf, 0.00% Impervious, Inflow Depth = 2.86" for 10 Year, 24 Hr. Event event
Inflow = 3.88 cfs @ 12.19 hrs, Volume= 15,169 cf
Primary = 3.88 cfs @ 12.19 hrs, Volume= 15,169 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP10: DP10



Hydrograph for Pond DP10: DP10

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.02		0.02	61.00	0.00		0.00
10.00	0.06		0.06	62.00	0.00		0.00
11.00	0.16		0.16	63.00	0.00		0.00
12.00	**1.64**		**1.64**	64.00	0.00		0.00
13.00	**0.56**		**0.56**	65.00	0.00		0.00
14.00	0.34		0.34	66.00	0.00		0.00
15.00	0.26		0.26	67.00	0.00		0.00
16.00	0.18		0.18	68.00	0.00		0.00
17.00	0.14		0.14	69.00	0.00		0.00
18.00	0.11		0.11	70.00	0.00		0.00
19.00	0.10		0.10	71.00	0.00		0.00
20.00	0.09		0.09	72.00	0.00		0.00
21.00	0.08		0.08				
22.00	0.07		0.07				
23.00	0.07		0.07				
24.00	0.06		0.06				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP8: DP8

[57] Hint: Peaked at 562.28' (Flood elevation advised)

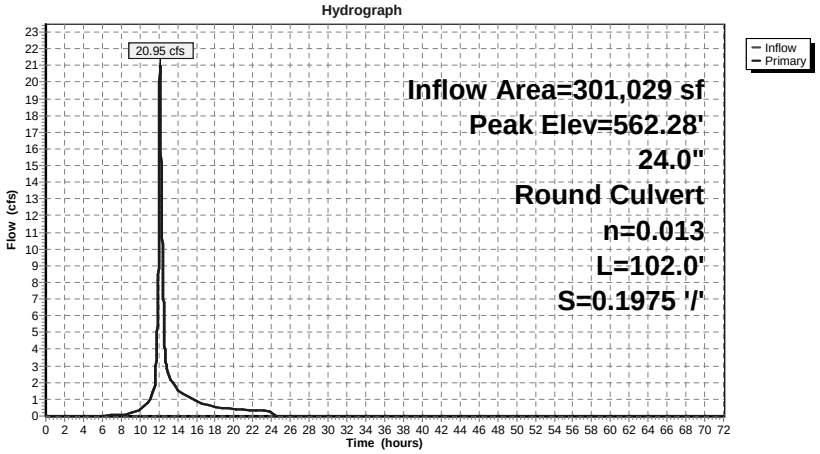
Inflow Area = 301,029 sf, 5.89% Impervious, Inflow Depth = 3.00" for 10 Year, 24 Hr. Event event
Inflow = 20.95 cfs @ 12.14 hrs, Volume= 75,310 cf
Outflow = 20.95 cfs @ 12.14 hrs, Volume= 75,310 cf, Atten= 0%, Lag= 0.0 min
Primary = 20.95 cfs @ 12.14 hrs, Volume= 75,310 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 562.28' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	559.36'	**24.0" Round Culvert** L= 102.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 559.36' / 539.21' S= 0.1975 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=20.95 cfs @ 12.14 hrs HW=562.28' (Free Discharge)
1=Culvert (Inlet Controls 20.95 cfs @ 6.67 fps)

Pond DP8: DP8



Hydrograph for Pond DP8: DP8

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	559.36	0.00	52.00	0.00	559.36	0.00
1.00	0.00	559.37	0.00	53.00	0.00	559.36	0.00
2.00	0.01	559.40	0.01	54.00	0.00	559.36	0.00
3.00	0.02	559.41	0.02	55.00	0.00	559.36	0.00
4.00	0.02	559.42	0.02	56.00	0.00	559.36	0.00
5.00	0.03	559.42	0.03	57.00	0.00	559.36	0.00
6.00	0.03	559.43	0.03	58.00	0.00	559.36	0.00
7.00	0.04	559.44	0.04	59.00	0.00	559.36	0.00
8.00	0.05	559.45	0.05	60.00	0.00	559.36	0.00
9.00	0.15	559.52	0.15	61.00	0.00	559.36	0.00
10.00	0.40	559.61	0.40	62.00	0.00	559.36	0.00
11.00	0.90	559.75	0.90	63.00	0.00	559.36	0.00
12.00	**9.86**	**560.80**	**9.86**	64.00	0.00	559.36	0.00
13.00	**2.57**	**560.03**	**2.57**	65.00	0.00	559.36	0.00
14.00	1.60	559.88	1.60	66.00	0.00	559.36	0.00
15.00	1.21	559.81	1.21	67.00	0.00	559.36	0.00
16.00	0.87	559.74	0.87	68.00	0.00	559.36	0.00
17.00	0.68	559.70	0.68	69.00	0.00	559.36	0.00
18.00	0.53	559.65	0.53	70.00	0.00	559.36	0.00
19.00	0.47	559.64	0.47	71.00	0.00	559.36	0.00
20.00	0.42	559.62	0.42	72.00	0.00	559.36	0.00
21.00	0.39	559.61	0.39				
22.00	0.35	559.60	0.35				
23.00	0.32	559.59	0.32				
24.00	0.28	559.57	0.28				
25.00	0.00	559.36	0.00				
26.00	0.00	559.36	0.00				
27.00	0.00	559.36	0.00				
28.00	0.00	559.36	0.00				
29.00	0.00	559.36	0.00				
30.00	0.00	559.36	0.00				
31.00	0.00	559.36	0.00				
32.00	0.00	559.36	0.00				
33.00	0.00	559.36	0.00				
34.00	0.00	559.36	0.00				
35.00	0.00	559.36	0.00				
36.00	0.00	559.36	0.00				
37.00	0.00	559.36	0.00				
38.00	0.00	559.36	0.00				
39.00	0.00	559.36	0.00				
40.00	0.00	559.36	0.00				
41.00	0.00	559.36	0.00				
42.00	0.00	559.36	0.00				
43.00	0.00	559.36	0.00				
44.00	0.00	559.36	0.00				
45.00	0.00	559.36	0.00				
46.00	0.00	559.36	0.00				
47.00	0.00	559.36	0.00				
48.00	0.00	559.36	0.00				
49.00	0.00	559.36	0.00				
50.00	0.00	559.36	0.00				
51.00	0.00	559.36	0.00				

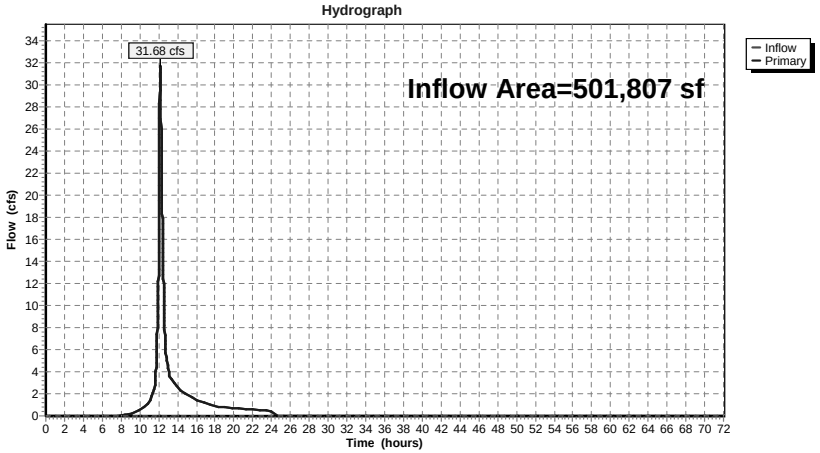
Summary for Pond DP9: DP9

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 501,807 sf, 3.22% Impervious, Inflow Depth = 2.85" for 10 Year, 24 Hr. Event event
Inflow = 31.68 cfs @ 12.16 hrs, Volume= 119,157 cf
Primary = 31.68 cfs @ 12.16 hrs, Volume= 119,157 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP9: DP9



Hydrograph for Pond DP9: DP9

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.02		0.02	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.03		0.03	58.00	0.00		0.00
7.00	0.04		0.04	59.00	0.00		0.00
8.00	0.05		0.05	60.00	0.00		0.00
9.00	0.15		0.15	61.00	0.00		0.00
10.00	0.52		0.52	62.00	0.00		0.00
11.00	1.29		1.29	63.00	0.00		0.00
12.00	**14.00**		**14.00**	64.00	0.00		0.00
13.00	**4.27**		**4.27**	65.00	0.00		0.00
14.00	2.62		2.62	66.00	0.00		0.00
15.00	1.99		1.99	67.00	0.00		0.00
16.00	1.43		1.43	68.00	0.00		0.00
17.00	1.12		1.12	69.00	0.00		0.00
18.00	0.87		0.87	70.00	0.00		0.00
19.00	0.77		0.77	71.00	0.00		0.00
20.00	0.69		0.69	72.00	0.00		0.00
21.00	0.63		0.63				
22.00	0.58		0.58				
23.00	0.52		0.52				
24.00	0.46		0.46				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 8: Pre DA-8 Runoff Area=301,029 sf 5.89% Impervious Runoff Depth=3.43"
Flow Length=697' Tc=10.0 min CN=75/98 Runoff=23.96 cfs 85,999 cf

Subcatchment 9: Pre DA-9 Runoff Area=501,807 sf 3.22% Impervious Runoff Depth=3.27"
Flow Length=1,235' Tc=11.6 min CN=74/98 Runoff=36.41 cfs 136,654 cf

Subcatchment 10: Pre DA-10 Runoff Area=63,632 sf 0.00% Impervious Runoff Depth=3.28"
Flow Length=727' Tc=13.3 min CN=75/0 Runoff=4.45 cfs 17,404 cf

Pond DP10: DP10 Inflow=4.45 cfs 17,404 cf
Primary=4.45 cfs 17,404 cf

Pond DP8: DP8 Peak Elev=562.87' Inflow=23.96 cfs 85,999 cf
24.0" Round Culvert n=0.013 L=102.0' S=0.1975 '/' Outflow=23.96 cfs 85,999 cf

Pond DP9: DP9 Inflow=36.41 cfs 136,654 cf
Primary=36.41 cfs 136,654 cf

Total Runoff Area = 866,468 sf Runoff Volume = 240,057 cf Average Runoff Depth = 3.32"
96.09% Pervious = 832,562 sf 3.91% Impervious = 33,906 sf

Summary for Subcatchment 8: Pre DA-8

move Tc around proposed pond.

Runoff = 23.96 cfs @ 12.14 hrs, Volume= 85,999 cf, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

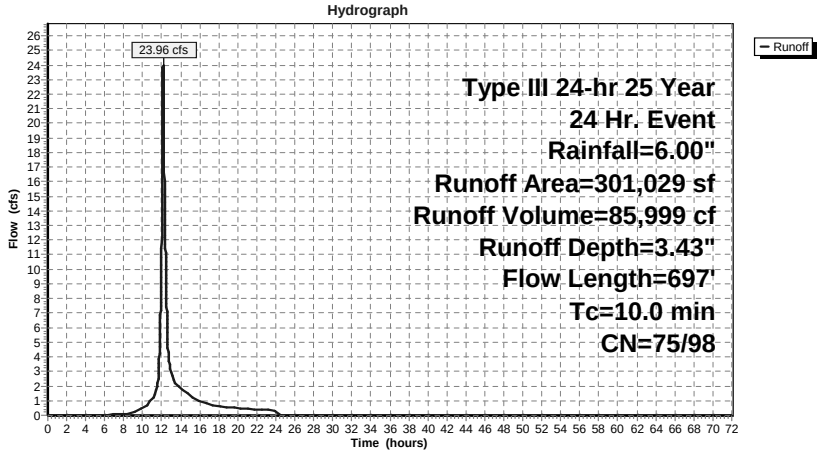
	Area (sf)	CN	Description	Land Use
	17,441	98	Unconnected pavement, HSG C	Pavement
	302	98	Roofs, HSG C	Roofs
	269,097	74	>75% Grass cover, Good, HSG C	Open Space
*	14,189	96	Gravel roads, HSG C	Roadway
	301,029	76	Weighted Average	
	283,286	75	94.11% Pervious Area	
	17,743	98	5.89% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0760	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.4	46	0.0940	2.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	124	0.0940	4.60		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.0	197	0.0510	3.39		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	230	0.1210	19.15	60.18	**Pipe Channel, Verify Slope** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
10.0	697	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 5.89% Impervious, Rv= 0.103, Runoff= 4.71"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
269,097	Open Space	3,968.76	13.84	59.99	8.11
17,441	Pavement	73.92	0.24	0.90	2.86
14,189	Roadway	60.14	0.19	0.73	2.33
302	Roofs	0.14	0.00	0.01	0.05
301,029	Total	4,102.96	14.28	61.63	13.36

Subcatchment 8: Pre DA-8



Hydrograph for Subcatchment 8: Pre DA-8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.02
6.00	0.43	0.00	0.26	0.03
8.00	0.68	0.00	0.49	0.06
10.00	1.13	0.06	0.92	0.51
12.00	3.00	0.96	2.77	**11.41**
14.00	4.87	2.34	4.63	**1.79**
16.00	5.32	2.71	5.08	0.97
18.00	5.57	2.92	5.33	0.59
20.00	5.74	3.06	5.50	0.47
22.00	5.88	3.18	5.65	0.39
24.00	**6.00**	**3.28**	**5.76**	0.31
26.00	6.00	3.28	5.76	0.00
28.00	6.00	3.28	5.76	0.00
30.00	6.00	3.28	5.76	0.00
32.00	6.00	3.28	5.76	0.00
34.00	6.00	3.28	5.76	0.00
36.00	6.00	3.28	5.76	0.00
38.00	6.00	3.28	5.76	0.00
40.00	6.00	3.28	5.76	0.00
42.00	6.00	3.28	5.76	0.00
44.00	6.00	3.28	5.76	0.00
46.00	6.00	3.28	5.76	0.00
48.00	6.00	3.28	5.76	0.00
50.00	6.00	3.28	5.76	0.00
52.00	6.00	3.28	5.76	0.00
54.00	6.00	3.28	5.76	0.00
56.00	6.00	3.28	5.76	0.00
58.00	6.00	3.28	5.76	0.00
60.00	6.00	3.28	5.76	0.00
62.00	6.00	3.28	5.76	0.00
64.00	6.00	3.28	5.76	0.00
66.00	6.00	3.28	5.76	0.00
68.00	6.00	3.28	5.76	0.00
70.00	6.00	3.28	5.76	0.00
72.00	6.00	3.28	5.76	0.00

Summary for Subcatchment 9: Pre DA-9

Verify ditch along RT22 x section

Runoff = 36.41 cfs @ 12.16 hrs, Volume= 136,654 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

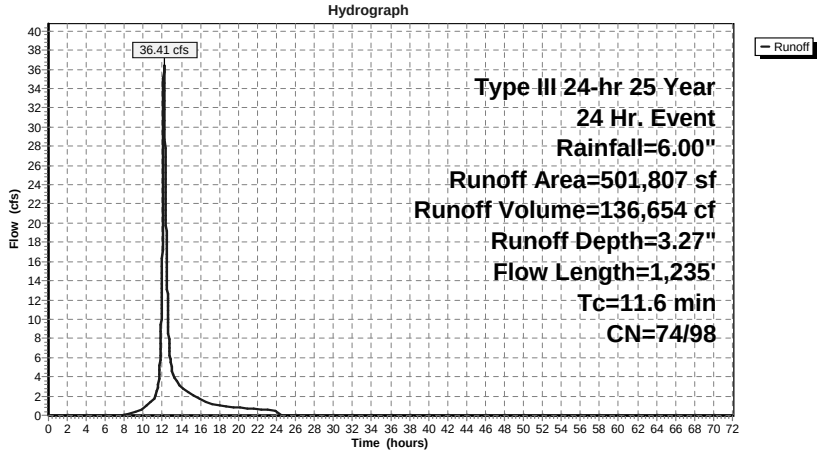
	Area (sf)	CN	Description	Land Use
	14,494	98	Paved parking, HSG C	Pavement
	485,644	74	>75% Grass cover, Good, HSG C	Open Space
*	1,669	100	Pond	Water
	501,807	75	Weighted Average	
	485,644	74	96.78% Pervious Area	
	16,163	98	3.22% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0610	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.5	50	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	19	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	210	0.1130	2.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	93		15.00		**Direct Entry,**
0.6	763	0.1000	22.77	71.54	**Pipe Channel, Verify Inverts** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
11.6	1,235	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 3.22% Impervious, Rv= 0.079, Runoff= 3.61"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
485,644	Open Space	5,490.26	19.15	82.99	11.22
14,494	Pavement	47.09	0.15	0.57	1.82
1,669	Water	0.00	0.00	0.00	0.05
501,807	Total	5,537.35	19.30	83.56	13.09

Subcatchment 9: Pre DA-9



Hydrograph for Subcatchment 9: Pre DA-9

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.02
6.00	0.43	0.00	0.26	0.03
8.00	0.68	0.00	0.49	0.05
10.00	1.13	0.05	0.92	0.69
12.00	3.00	0.91	2.77	**16.34**
14.00	4.87	2.26	4.63	**2.95**
16.00	5.32	2.62	5.08	1.60
18.00	5.57	2.83	5.33	0.98
20.00	5.74	2.97	5.50	0.77
22.00	5.88	3.09	5.65	0.64
24.00	**6.00**	**3.18**	**5.76**	0.51
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00

Summary for Subcatchment 10: Pre DA-10

confirm road side swale/ add pipe to CGOOO from swale, either side....

Runoff = 4.45 cfs @ 12.19 hrs, Volume= 17,404 cf, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

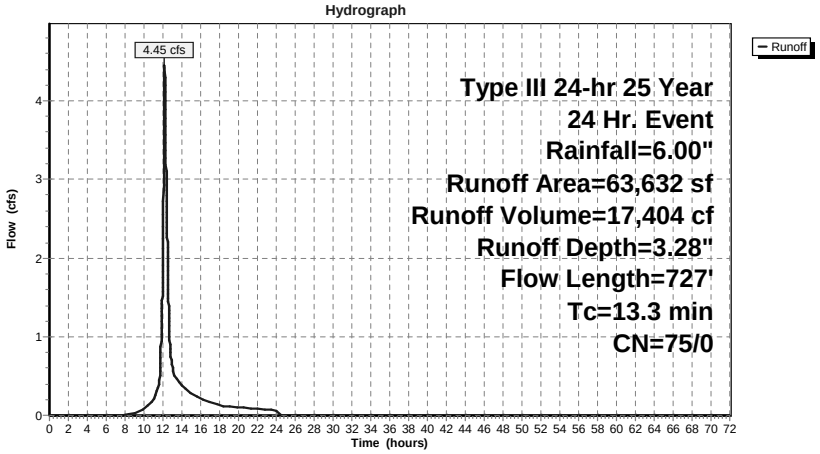
	Area (sf)	CN	Description	Land Use
	51,355	74	>75% Grass cover, Good, HSG C	Open Space
	8,150	70	Woods, Good, HSG C	Woods
*	4,127	96	Gravel roads, HSG C	Roadway
	63,632	75	Weighted Average	
	63,632	75	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	87	0.0440	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	13	0.0490	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.0	122	0.0820	2.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	88	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	44	0.1800	2.97		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	61	0.1200	2.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	312		15.00		**Direct Entry,**
13.3	727	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
51,355	Open Space	367.51	1.28	5.56	0.75
4,127	Roadway	8.49	0.03	0.10	0.33
8,150	Woods	3.58	0.00	0.00	0.12
63,632	Total	379.58	1.31	5.66	1.20

Subcatchment 10: Pre DA-10



Hydrograph for Subcatchment 10: Pre DA-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.06	0.00	0.09
12.00	3.00	0.96	0.00	**1.91**
14.00	4.87	2.34	0.00	**0.38**
16.00	5.32	2.71	0.00	0.21
18.00	5.57	2.92	0.00	0.13
20.00	5.74	3.06	0.00	0.10
22.00	5.88	3.18	0.00	0.08
24.00	**6.00**	**3.28**	0.00	0.07
26.00	6.00	3.28	0.00	0.00
28.00	6.00	3.28	0.00	0.00
30.00	6.00	3.28	0.00	0.00
32.00	6.00	3.28	0.00	0.00
34.00	6.00	3.28	0.00	0.00
36.00	6.00	3.28	0.00	0.00
38.00	6.00	3.28	0.00	0.00
40.00	6.00	3.28	0.00	0.00
42.00	6.00	3.28	0.00	0.00
44.00	6.00	3.28	0.00	0.00
46.00	6.00	3.28	0.00	0.00
48.00	6.00	3.28	0.00	0.00
50.00	6.00	3.28	0.00	0.00
52.00	6.00	3.28	0.00	0.00
54.00	6.00	3.28	0.00	0.00
56.00	6.00	3.28	0.00	0.00
58.00	6.00	3.28	0.00	0.00
60.00	6.00	3.28	0.00	0.00
62.00	6.00	3.28	0.00	0.00
64.00	6.00	3.28	0.00	0.00
66.00	6.00	3.28	0.00	0.00
68.00	6.00	3.28	0.00	0.00
70.00	6.00	3.28	0.00	0.00
72.00	6.00	3.28	0.00	0.00

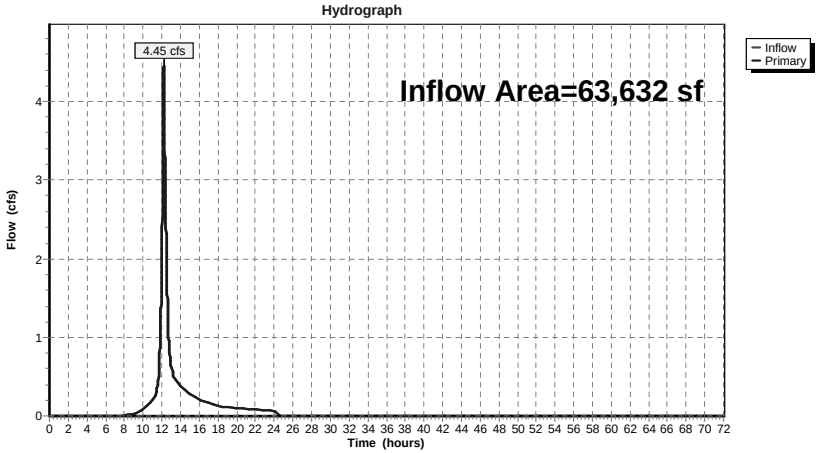
Summary for Pond DP10: DP10

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 63,632 sf, 0.00% Impervious, Inflow Depth = 3.28" for 25 Year, 24 Hr. Event event
Inflow = 4.45 cfs @ 12.19 hrs, Volume= 17,404 cf
Primary = 4.45 cfs @ 12.19 hrs, Volume= 17,404 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP10: DP10



Hydrograph for Pond DP10: DP10

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.03		0.03	61.00	0.00		0.00
10.00	0.09		0.09	62.00	0.00		0.00
11.00	0.20		0.20	63.00	0.00		0.00
12.00	**1.91**		**1.91**	64.00	0.00		0.00
13.00	**0.64**		**0.64**	65.00	0.00		0.00
14.00	0.38		0.38	66.00	0.00		0.00
15.00	0.29		0.29	67.00	0.00		0.00
16.00	0.21		0.21	68.00	0.00		0.00
17.00	0.16		0.16	69.00	0.00		0.00
18.00	0.13		0.13	70.00	0.00		0.00
19.00	0.11		0.11	71.00	0.00		0.00
20.00	0.10		0.10	72.00	0.00		0.00
21.00	0.09		0.09				
22.00	0.08		0.08				
23.00	0.07		0.07				
24.00	0.07		0.07				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP8: DP8

[57] Hint: Peaked at 562.87' (Flood elevation advised)

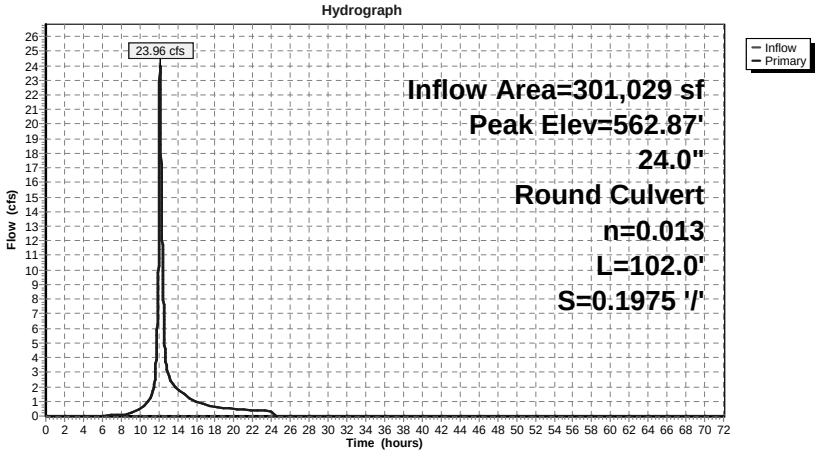
Inflow Area = 301,029 sf, 5.89% Impervious, Inflow Depth = 3.43" for 25 Year, 24 Hr. Event event
Inflow = 23.96 cfs @ 12.14 hrs, Volume= 85,999 cf
Outflow = 23.96 cfs @ 12.14 hrs, Volume= 85,999 cf, Atten= 0%, Lag= 0.0 min
Primary = 23.96 cfs @ 12.14 hrs, Volume= 85,999 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 562.87' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	559.36'	**24.0" Round Culvert** L= 102.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 559.36' / 539.21' S= 0.1975 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=23.96 cfs @ 12.14 hrs HW=562.87' (Free Discharge)
1=Culvert (Inlet Controls 23.96 cfs @ 7.63 fps)

Pond DP8: DP8



Hydrograph for Pond DP8: DP8

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	559.36	0.00	52.00	0.00	559.36	0.00
1.00	0.00	559.38	0.00	53.00	0.00	559.36	0.00
2.00	0.01	559.40	0.01	54.00	0.00	559.36	0.00
3.00	0.02	559.41	0.02	55.00	0.00	559.36	0.00
4.00	0.02	559.42	0.02	56.00	0.00	559.36	0.00
5.00	0.03	559.43	0.03	57.00	0.00	559.36	0.00
6.00	0.03	559.43	0.03	58.00	0.00	559.36	0.00
7.00	0.05	559.44	0.05	59.00	0.00	559.36	0.00
8.00	0.06	559.46	0.06	60.00	0.00	559.36	0.00
9.00	0.22	559.55	0.22	61.00	0.00	559.36	0.00
10.00	0.51	559.65	0.51	62.00	0.00	559.36	0.00
11.00	1.09	559.79	1.09	63.00	0.00	559.36	0.00
12.00	**11.41**	**560.94**	**11.41**	64.00	0.00	559.36	0.00
13.00	**2.89**	**560.07**	**2.89**	65.00	0.00	559.36	0.00
14.00	1.79	559.91	1.79	66.00	0.00	559.36	0.00
15.00	1.36	559.84	1.36	67.00	0.00	559.36	0.00
16.00	0.97	559.76	0.97	68.00	0.00	559.36	0.00
17.00	0.76	559.72	0.76	69.00	0.00	559.36	0.00
18.00	0.59	559.67	0.59	70.00	0.00	559.36	0.00
19.00	0.52	559.65	0.52	71.00	0.00	559.36	0.00
20.00	0.47	559.64	0.47	72.00	0.00	559.36	0.00
21.00	0.43	559.62	0.43				
22.00	0.39	559.61	0.39				
23.00	0.35	559.60	0.35				
24.00	0.31	559.58	0.31				
25.00	0.00	559.36	0.00				
26.00	0.00	559.36	0.00				
27.00	0.00	559.36	0.00				
28.00	0.00	559.36	0.00				
29.00	0.00	559.36	0.00				
30.00	0.00	559.36	0.00				
31.00	0.00	559.36	0.00				
32.00	0.00	559.36	0.00				
33.00	0.00	559.36	0.00				
34.00	0.00	559.36	0.00				
35.00	0.00	559.36	0.00				
36.00	0.00	559.36	0.00				
37.00	0.00	559.36	0.00				
38.00	0.00	559.36	0.00				
39.00	0.00	559.36	0.00				
40.00	0.00	559.36	0.00				
41.00	0.00	559.36	0.00				
42.00	0.00	559.36	0.00				
43.00	0.00	559.36	0.00				
44.00	0.00	559.36	0.00				
45.00	0.00	559.36	0.00				
46.00	0.00	559.36	0.00				
47.00	0.00	559.36	0.00				
48.00	0.00	559.36	0.00				
49.00	0.00	559.36	0.00				
50.00	0.00	559.36	0.00				
51.00	0.00	559.36	0.00				

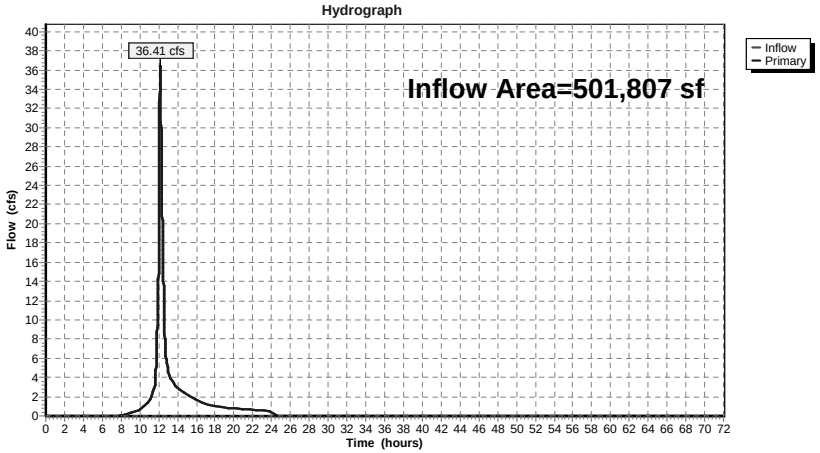
Summary for Pond DP9: DP9

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 501,807 sf, 3.22% Impervious, Inflow Depth = 3.27" for 25 Year, 24 Hr. Event event
Inflow = 36.41 cfs @ 12.16 hrs, Volume= 136,654 cf
Primary = 36.41 cfs @ 12.16 hrs, Volume= 136,654 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP9: DP9



Hydrograph for Pond DP9: DP9

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.02		0.02	55.00	0.00		0.00
4.00	0.02		0.02	56.00	0.00		0.00
5.00	0.03		0.03	57.00	0.00		0.00
6.00	0.03		0.03	58.00	0.00		0.00
7.00	0.04		0.04	59.00	0.00		0.00
8.00	0.05		0.05	60.00	0.00		0.00
9.00	0.25		0.25	61.00	0.00		0.00
10.00	0.69		0.69	62.00	0.00		0.00
11.00	1.60		1.60	63.00	0.00		0.00
12.00	**16.34**		**16.34**	64.00	0.00		0.00
13.00	**4.82**		**4.82**	65.00	0.00		0.00
14.00	2.95		2.95	66.00	0.00		0.00
15.00	2.23		2.23	67.00	0.00		0.00
16.00	1.60		1.60	68.00	0.00		0.00
17.00	1.26		1.26	69.00	0.00		0.00
18.00	0.98		0.98	70.00	0.00		0.00
19.00	0.86		0.86	71.00	0.00		0.00
20.00	0.77		0.77	72.00	0.00		0.00
21.00	0.71		0.71				
22.00	0.64		0.64				
23.00	0.58		0.58				
24.00	0.51		0.51				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 8: Pre DA-8 Runoff Area=301,029 sf 5.89% Impervious Runoff Depth=6.58"
Flow Length=697' Tc=10.0 min CN=75/98 Runoff=45.68 cfs 165,089 cf

Subcatchment 9: Pre DA-9 Runoff Area=501,807 sf 3.22% Impervious Runoff Depth=6.38"
Flow Length=1,235' Tc=11.6 min CN=74/98 Runoff=70.81 cfs 266,890 cf

Subcatchment 10: Pre DA-10 Runoff Area=63,632 sf 0.00% Impervious Runoff Depth=6.41"
Flow Length=727' Tc=13.3 min CN=75/0 Runoff=8.63 cfs 34,007 cf

Pond DP10: DP10 Inflow=8.63 cfs 34,007 cf
Primary=8.63 cfs 34,007 cf

Pond DP8: DP8 Peak Elev=569.48' Inflow=45.68 cfs 165,089 cf
24.0" Round Culvert n=0.013 L=102.0' S=0.1975 '/' Outflow=45.68 cfs 165,089 cf

Pond DP9: DP9 Inflow=70.81 cfs 266,890 cf
Primary=70.81 cfs 266,890 cf

Total Runoff Area = 866,468 sf Runoff Volume = 465,987 cf Average Runoff Depth = 6.45"
96.09% Pervious = 832,562 sf 3.91% Impervious = 33,906 sf

Summary for Subcatchment 8: Pre DA-8

move Tc around proposed pond.

Runoff = 45.68 cfs @ 12.14 hrs, Volume= 165,089 cf, Depth= 6.58"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

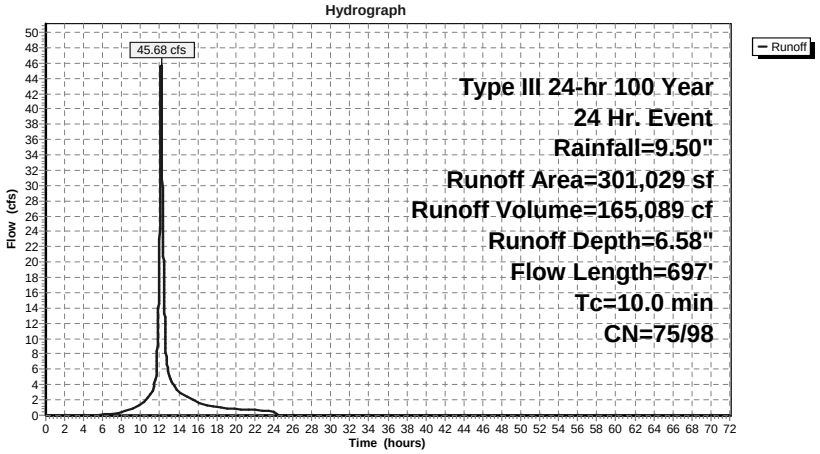
	Area (sf)	CN	Description	Land Use
	17,441	98	Unconnected pavement, HSG C	Pavement
	302	98	Roofs, HSG C	Roofs
	269,097	74	>75% Grass cover, Good, HSG C	Open Space
*	14,189	96	Gravel roads, HSG C	Roadway
	301,029	76	Weighted Average	
	283,286	75	94.11% Pervious Area	
	17,743	98	5.89% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0760	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.4	46	0.0940	2.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	124	0.0940	4.60		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.0	197	0.0510	3.39		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	230	0.1210	19.15	60.18	**Pipe Channel, Verify Slope** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
10.0	697	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 5.89% Impervious, Rv= 0.103, Runoff= 4.71"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
269,097	Open Space	3,968.76	13.84	59.99	8.11
17,441	Pavement	73.92	0.24	0.90	2.86
14,189	Roadway	60.14	0.19	0.73	2.33
302	Roofs	0.14	0.00	0.01	0.05
301,029	Total	4,102.96	14.28	61.63	13.36

Subcatchment 8: Pre DA-8



Hydrograph for Subcatchment 8: Pre DA-8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.02
4.00	0.41	0.00	0.24	0.04
6.00	0.68	0.00	0.49	0.06
8.00	1.08	0.05	0.87	0.40
10.00	1.80	0.29	1.57	1.43
12.00	4.75	2.25	4.51	**22.85**
14.00	7.70	4.78	7.46	**3.14**
16.00	8.42	5.42	8.18	1.68
18.00	8.82	5.78	8.58	1.02
20.00	9.09	6.04	8.85	0.81
22.00	9.32	6.24	9.08	0.67
24.00	**9.50**	**6.41**	**9.26**	0.53
26.00	9.50	6.41	9.26	0.00
28.00	9.50	6.41	9.26	0.00
30.00	9.50	6.41	9.26	0.00
32.00	9.50	6.41	9.26	0.00
34.00	9.50	6.41	9.26	0.00
36.00	9.50	6.41	9.26	0.00
38.00	9.50	6.41	9.26	0.00
40.00	9.50	6.41	9.26	0.00
42.00	9.50	6.41	9.26	0.00
44.00	9.50	6.41	9.26	0.00
46.00	9.50	6.41	9.26	0.00
48.00	9.50	6.41	9.26	0.00
50.00	9.50	6.41	9.26	0.00
52.00	9.50	6.41	9.26	0.00
54.00	9.50	6.41	9.26	0.00
56.00	9.50	6.41	9.26	0.00
58.00	9.50	6.41	9.26	0.00
60.00	9.50	6.41	9.26	0.00
62.00	9.50	6.41	9.26	0.00
64.00	9.50	6.41	9.26	0.00
66.00	9.50	6.41	9.26	0.00
68.00	9.50	6.41	9.26	0.00
70.00	9.50	6.41	9.26	0.00
72.00	9.50	6.41	9.26	0.00

Summary for Subcatchment 9: Pre DA-9

Verify ditch along RT22 x section

Runoff = 70.81 cfs @ 12.16 hrs, Volume= 266,890 cf, Depth= 6.38"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

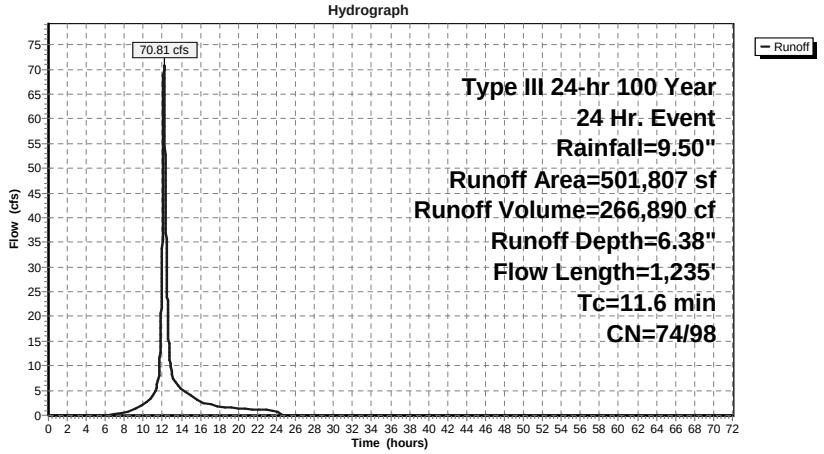
	Area (sf)	CN	Description	Land Use
	14,494	98	Paved parking, HSG C	Pavement
	485,644	74	>75% Grass cover, Good, HSG C	Open Space
*	1,669	100	Pond	Water
	501,807	75	Weighted Average	
	485,644	74	96.78% Pervious Area	
	16,163	98	3.22% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0610	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.5	50	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	19	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	210	0.1130	2.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	93		15.00		**Direct Entry,**
0.6	763	0.1000	22.77	71.54	**Pipe Channel, Verify Inverts** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
11.6	1,235	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 3.22% Impervious, Rv= 0.079, Runoff= 3.61"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
485,644	Open Space	5,490.26	19.15	82.99	11.22
14,494	Pavement	47.09	0.15	0.57	1.82
1,669	Water	0.00	0.00	0.00	0.05
501,807	Total	5,537.35	19.30	83.56	13.09

Subcatchment 9: Pre DA-9



Hydrograph for Subcatchment 9: Pre DA-9

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.02
4.00	0.41	0.00	0.24	0.04
6.00	0.68	0.00	0.49	0.05
8.00	1.08	0.04	0.87	0.54
10.00	1.80	0.26	1.57	2.15
12.00	4.75	2.17	4.51	**33.77**
14.00	7.70	4.66	7.46	**5.23**
16.00	8.42	5.30	8.18	2.80
18.00	8.82	5.66	8.58	1.70
20.00	9.09	5.91	8.85	1.34
22.00	9.32	6.12	9.08	1.11
24.00	**9.50**	**6.29**	**9.26**	0.88
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00

Summary for Subcatchment 10: Pre DA-10

confirm road side swale/ add pipe to CGOOO from swale, either side....

Runoff = 8.63 cfs @ 12.18 hrs, Volume= 34,007 cf, Depth= 6.41"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

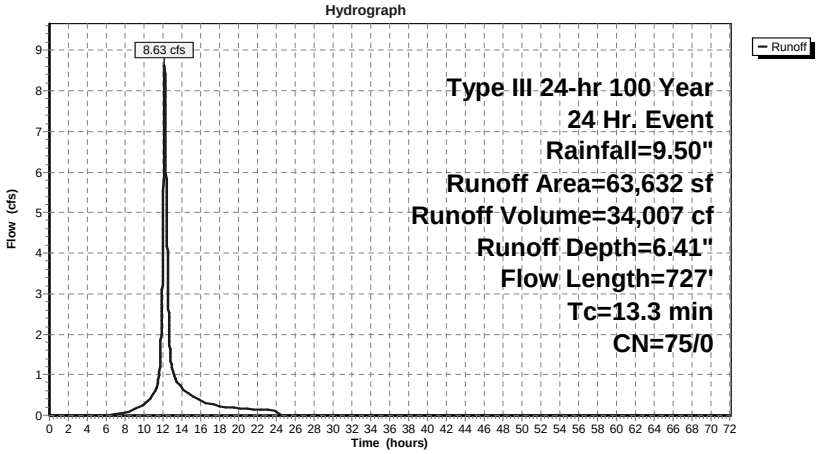
	Area (sf)	CN	Description	Land Use
	51,355	74	>75% Grass cover, Good, HSG C	Open Space
	8,150	70	Woods, Good, HSG C	Woods
*	4,127	96	Gravel roads, HSG C	Roadway
	63,632	75	Weighted Average	
	63,632	75	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	87	0.0440	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	13	0.0490	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.0	122	0.0820	2.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	88	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	44	0.1800	2.97		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	61	0.1200	2.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	312		15.00		**Direct Entry,**
13.3	727	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
51,355	Open Space	367.51	1.28	5.56	0.75
4,127	Roadway	8.49	0.03	0.10	0.33
8,150	Woods	3.58	0.00	0.00	0.12
63,632	Total	379.58	1.31	5.66	1.20

Subcatchment 10: Pre DA-10



Hydrograph for Subcatchment 10: Pre DA-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.05	0.00	0.07
10.00	1.80	0.29	0.00	0.27
12.00	4.75	2.25	0.00	**3.97**
14.00	7.70	4.78	0.00	**0.68**
16.00	8.42	5.42	0.00	0.36
18.00	8.82	5.78	0.00	0.22
20.00	9.09	6.04	0.00	0.17
22.00	9.32	6.24	0.00	0.14
24.00	**9.50**	**6.41**	0.00	0.11
26.00	9.50	6.41	0.00	0.00
28.00	9.50	6.41	0.00	0.00
30.00	9.50	6.41	0.00	0.00
32.00	9.50	6.41	0.00	0.00
34.00	9.50	6.41	0.00	0.00
36.00	9.50	6.41	0.00	0.00
38.00	9.50	6.41	0.00	0.00
40.00	9.50	6.41	0.00	0.00
42.00	9.50	6.41	0.00	0.00
44.00	9.50	6.41	0.00	0.00
46.00	9.50	6.41	0.00	0.00
48.00	9.50	6.41	0.00	0.00
50.00	9.50	6.41	0.00	0.00
52.00	9.50	6.41	0.00	0.00
54.00	9.50	6.41	0.00	0.00
56.00	9.50	6.41	0.00	0.00
58.00	9.50	6.41	0.00	0.00
60.00	9.50	6.41	0.00	0.00
62.00	9.50	6.41	0.00	0.00
64.00	9.50	6.41	0.00	0.00
66.00	9.50	6.41	0.00	0.00
68.00	9.50	6.41	0.00	0.00
70.00	9.50	6.41	0.00	0.00
72.00	9.50	6.41	0.00	0.00

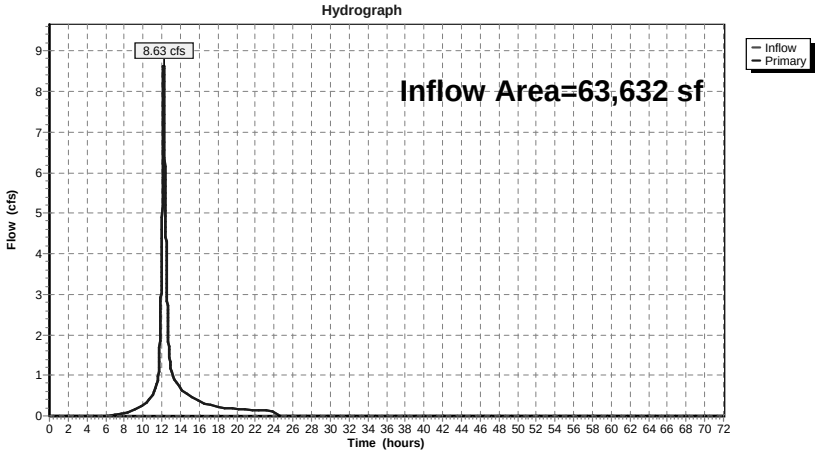
Summary for Pond DP10: DP10

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 63,632 sf, 0.00% Impervious, Inflow Depth = 6.41" for 100 Year, 24 Hr. Event event
Inflow = 8.63 cfs @ 12.18 hrs, Volume= 34,007 cf
Primary = 8.63 cfs @ 12.18 hrs, Volume= 34,007 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP10: DP10



Hydrograph for Pond DP10: DP10

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.02		0.02	59.00	0.00		0.00
8.00	0.07		0.07	60.00	0.00		0.00
9.00	0.15		0.15	61.00	0.00		0.00
10.00	0.27		0.27	62.00	0.00		0.00
11.00	0.51		0.51	63.00	0.00		0.00
12.00	**3.97**		**3.97**	64.00	0.00		0.00
13.00	**1.14**		**1.14**	65.00	0.00		0.00
14.00	0.68		0.68	66.00	0.00		0.00
15.00	0.50		0.50	67.00	0.00		0.00
16.00	0.36		0.36	68.00	0.00		0.00
17.00	0.28		0.28	69.00	0.00		0.00
18.00	0.22		0.22	70.00	0.00		0.00
19.00	0.19		0.19	71.00	0.00		0.00
20.00	0.17		0.17	72.00	0.00		0.00
21.00	0.16		0.16				
22.00	0.14		0.14				
23.00	0.13		0.13				
24.00	0.11		0.11				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP8: DP8

[57] Hint: Peaked at 569.48' (Flood elevation advised)

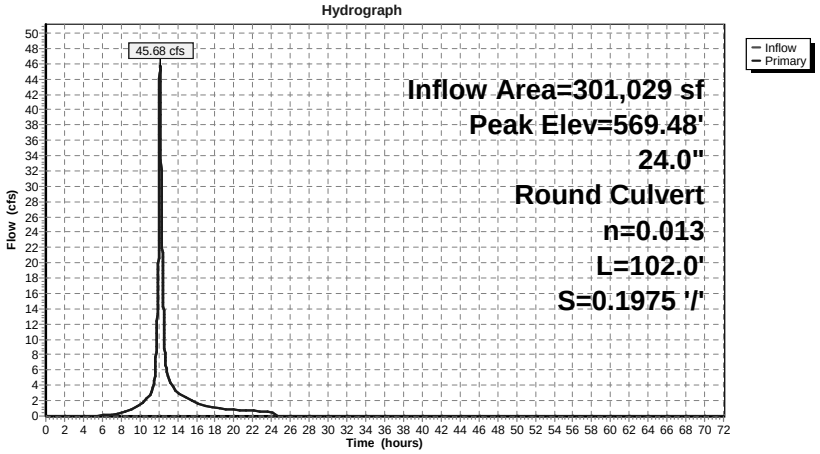
Inflow Area = 301,029 sf, 5.89% Impervious, Inflow Depth = 6.58" for 100 Year, 24 Hr. Event event
Inflow = 45.68 cfs @ 12.14 hrs, Volume= 165,089 cf
Outflow = 45.68 cfs @ 12.14 hrs, Volume= 165,089 cf, Atten= 0%, Lag= 0.0 min
Primary = 45.68 cfs @ 12.14 hrs, Volume= 165,089 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 569.48' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	559.36'	**24.0" Round Culvert** L= 102.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 559.36' / 539.21' S= 0.1975 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=45.63 cfs @ 12.14 hrs HW=569.46' (Free Discharge)
1=Culvert (Inlet Controls 45.63 cfs @ 14.53 fps)

Pond DP8: DP8



Hydrograph for Pond DP8: DP8

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	559.36	0.00	52.00	0.00	559.36	0.00
1.00	0.01	559.40	0.01	53.00	0.00	559.36	0.00
2.00	0.02	559.42	0.02	54.00	0.00	559.36	0.00
3.00	0.03	559.43	0.03	55.00	0.00	559.36	0.00
4.00	0.04	559.44	0.04	56.00	0.00	559.36	0.00
5.00	0.05	559.45	0.05	57.00	0.00	559.36	0.00
6.00	0.06	559.46	0.06	58.00	0.00	559.36	0.00
7.00	0.19	559.53	0.19	59.00	0.00	559.36	0.00
8.00	0.40	559.61	0.40	60.00	0.00	559.36	0.00
9.00	0.82	559.73	0.82	61.00	0.00	559.36	0.00
10.00	1.43	559.85	1.43	62.00	0.00	559.36	0.00
11.00	2.62	560.04	2.62	63.00	0.00	559.36	0.00
12.00	**22.85**	**562.64**	**22.85**	64.00	0.00	559.36	0.00
13.00	**5.13**	**560.34**	**5.13**	65.00	0.00	559.36	0.00
14.00	3.14	560.11	3.14	66.00	0.00	559.36	0.00
15.00	2.36	560.00	2.36	67.00	0.00	559.36	0.00
16.00	1.68	559.89	1.68	68.00	0.00	559.36	0.00
17.00	1.32	559.83	1.32	69.00	0.00	559.36	0.00
18.00	1.02	559.77	1.02	70.00	0.00	559.36	0.00
19.00	0.90	559.75	0.90	71.00	0.00	559.36	0.00
20.00	0.81	559.73	0.81	72.00	0.00	559.36	0.00
21.00	0.74	559.71	0.74				
22.00	0.67	559.69	0.67				
23.00	0.60	559.67	0.60				
24.00	0.53	559.66	0.53				
25.00	0.00	559.36	0.00				
26.00	0.00	559.36	0.00				
27.00	0.00	559.36	0.00				
28.00	0.00	559.36	0.00				
29.00	0.00	559.36	0.00				
30.00	0.00	559.36	0.00				
31.00	0.00	559.36	0.00				
32.00	0.00	559.36	0.00				
33.00	0.00	559.36	0.00				
34.00	0.00	559.36	0.00				
35.00	0.00	559.36	0.00				
36.00	0.00	559.36	0.00				
37.00	0.00	559.36	0.00				
38.00	0.00	559.36	0.00				
39.00	0.00	559.36	0.00				
40.00	0.00	559.36	0.00				
41.00	0.00	559.36	0.00				
42.00	0.00	559.36	0.00				
43.00	0.00	559.36	0.00				
44.00	0.00	559.36	0.00				
45.00	0.00	559.36	0.00				
46.00	0.00	559.36	0.00				
47.00	0.00	559.36	0.00				
48.00	0.00	559.36	0.00				
49.00	0.00	559.36	0.00				
50.00	0.00	559.36	0.00				
51.00	0.00	559.36	0.00				

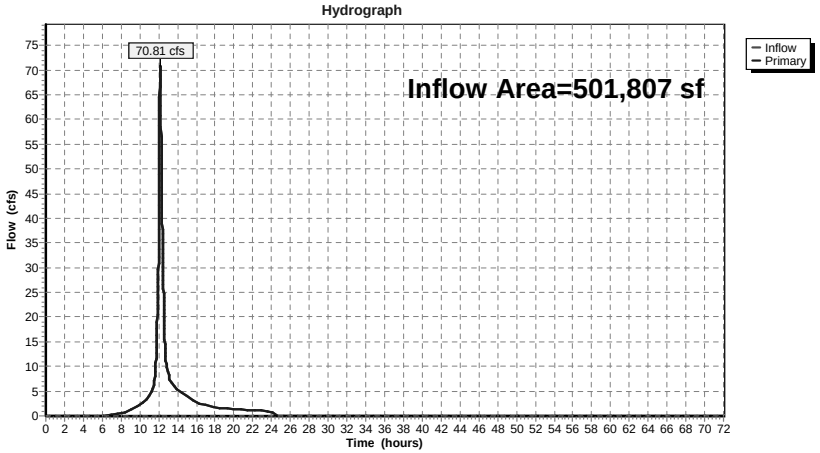
Summary for Pond DP9: DP9

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 501,807 sf, 3.22% Impervious, Inflow Depth = 6.38" for 100 Year, 24 Hr. Event event
Inflow = 70.81 cfs @ 12.16 hrs, Volume= 266,890 cf
Primary = 70.81 cfs @ 12.16 hrs, Volume= 266,890 cf, Atten= 0%, Lag= 0.0 min

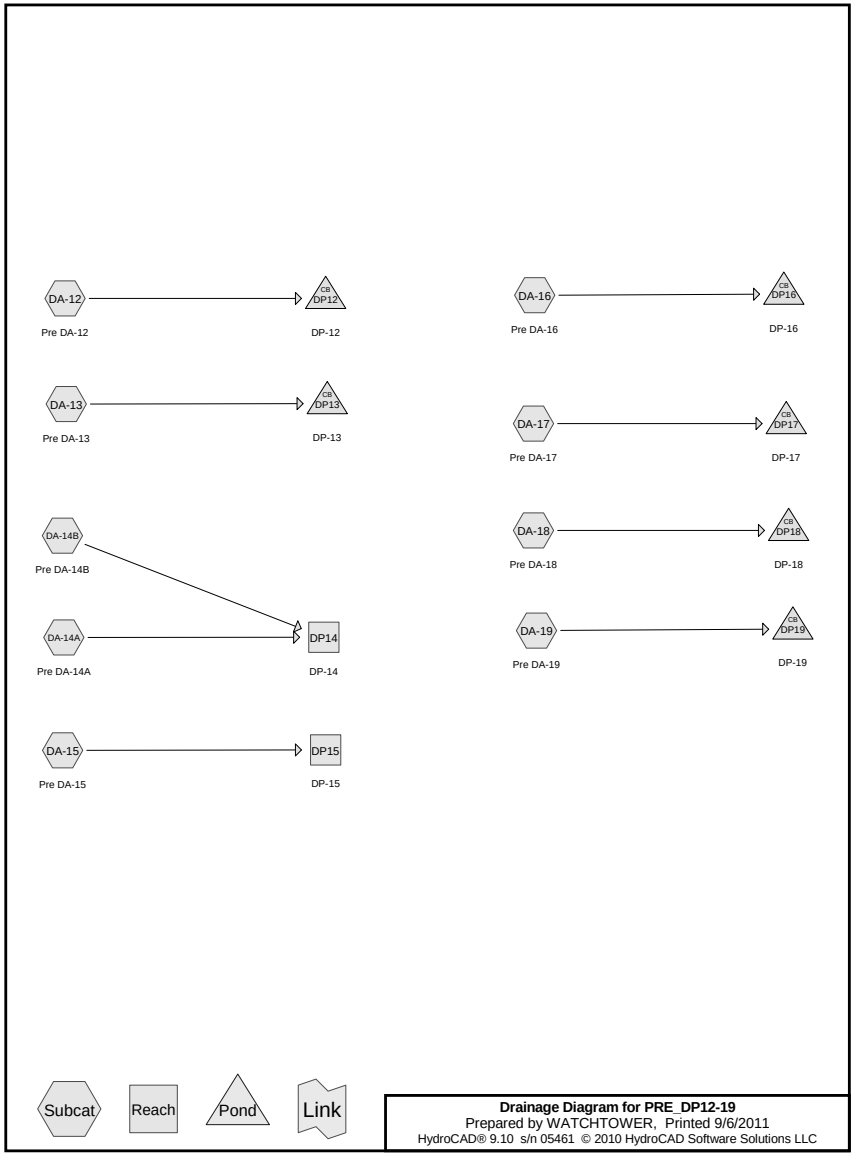
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP9: DP9



Hydrograph for Pond DP9: DP9

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.01		0.01	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.03		0.03	55.00	0.00		0.00
4.00	0.04		0.04	56.00	0.00		0.00
5.00	0.05		0.05	57.00	0.00		0.00
6.00	0.05		0.05	58.00	0.00		0.00
7.00	0.21		0.21	59.00	0.00		0.00
8.00	0.54		0.54	60.00	0.00		0.00
9.00	1.17		1.17	61.00	0.00		0.00
10.00	2.15		2.15	62.00	0.00		0.00
11.00	4.05		4.05	63.00	0.00		0.00
12.00	**33.77**		**33.77**	64.00	0.00		0.00
13.00	**8.67**		**8.67**	65.00	0.00		0.00
14.00	5.23		5.23	66.00	0.00		0.00
15.00	3.92		3.92	67.00	0.00		0.00
16.00	2.80		2.80	68.00	0.00		0.00
17.00	2.20		2.20	69.00	0.00		0.00
18.00	1.70		1.70	70.00	0.00		0.00
19.00	1.49		1.49	71.00	0.00		0.00
20.00	1.34		1.34	72.00	0.00		0.00
21.00	1.22		1.22				
22.00	1.11		1.11				
23.00	1.00		1.00				
24.00	0.88		0.88				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				



Drainage Diagram for PRE_DP12-19
Prepared by WATCHTOWER, Printed 9/6/2011
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Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
1,033,168	Open Space	DA-12, DA-14B, DA-15, DA-16, DA-17, DA-18, DA-19
216,197	Pavement	DA-13, DA-14A, DA-14B, DA-15, DA-16, DA-17
11,226	Roadway	DA-18
98,729	Roofs	DA-14B, DA-15, DA-17
379,756	Woods	DA-12, DA-18, DA-19
1,739,076	**TOTAL**	

Pollutant Concentrations

Line#	Land Use	TSS (mg/l)	TP (mg/l)	TN (mg/l)	BOD (mg/l)
1	Open Space	602.00	2.10	9.10	1.23
2	Pavement	173.00	0.56	2.10	6.70
3	Roadway	173.00	0.56	2.10	6.70
4	Roofs	19.00	0.11	1.50	7.40
5	Woods	37.00	0.00	0.00	1.23

Subcatchment Loading

Line#	Subcat Number	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1	DA-12	**0.00**	**0.00**	**0.00**	**0.00**
2	DA-13	0.00	0.00	0.00	0.00
3	DA-14A	0.00	0.00	0.00	0.00
4	DA-14B	0.00	0.00	0.00	0.00
5	DA-15	0.00	0.00	0.00	0.00
6	DA-16	0.00	0.00	0.00	0.00
7	DA-17	0.00	0.00	0.00	0.00
8	DA-18	0.00	0.00	0.00	0.00
9	DA-19	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment DA-12: Pre DA-12 Runoff Area=24,403 sf 0.00% Impervious Runoff Depth=0.87"
Flow Length=184' Tc=12.6 min CN=72/0 Runoff=0.42 cfs 1,766 cf

Subcatchment DA-13: Pre DA-13 Runoff Area=7,377 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.53 cfs 1,763 cf

Subcatchment DA-14A: Pre DA-14A Runoff Area=1,310 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.09 cfs 313 cf

Subcatchment DA-14B: Pre DA-14B Runoff Area=9,040 sf 43.33% Impervious Runoff Depth=1.47"
Tc=5.0 min CN=61/98 Runoff=0.31 cfs 1,109 cf

Subcatchment DA-15: Pre DA-15 Runoff Area=36,565 sf 74.25% Impervious Runoff Depth=2.38"
Tc=5.0 min CN=74/98 Runoff=2.18 cfs 7,252 cf

Subcatchment DA-16: Pre DA-16 Runoff Area=273,856 sf 20.10% Impervious Runoff Depth=1.35"
Flow Length=523' Tc=16.7 min CN=74/98 Runoff=6.64 cfs 30,884 cf

Subcatchment DA-17: Pre DA-17 Runoff Area=318,304 sf 69.16% Impervious Runoff Depth=2.28"
Flow Length=1,520' Tc=13.1 min CN=74/98 Runoff=14.09 cfs 60,563 cf

Subcatchment DA-18: Pre DA-18 Runoff Area=393,128 sf 0.00% Impervious Runoff Depth=0.97"
Flow Length=1,070' Tc=12.6 min CN=74/0 Runoff=7.76 cfs 31,853 cf

Subcatchment DA-19: Pre DA-19 Runoff Area=675,093 sf 0.00% Impervious Runoff Depth=0.87"
Flow Length=1,348' Tc=12.3 min CN=72/0 Runoff=11.65 cfs 48,845 cf

Pond DP12: DP-12 Peak Elev=608.66' Inflow=0.42 cfs 1,766 cf
24.0" Round Culvert n=0.013 L=147.0' S=0.0307 '/' Outflow=0.42 cfs 1,766 cf

Pond DP13: DP-13 Peak Elev=604.24' Inflow=0.53 cfs 1,763 cf
24.0" Round Culvert n=0.013 L=79.0' S=0.1128 '/' Outflow=0.53 cfs 1,763 cf

Reach DP14: DP-14 Inflow=0.40 cfs 1,422 cf
Outflow=0.40 cfs 1,422 cf

Reach DP15: DP-15 Inflow=2.18 cfs 7,252 cf
Outflow=2.18 cfs 7,252 cf

Pond DP16: DP-16 Peak Elev=569.94' Inflow=6.64 cfs 30,884 cf
15.0" Round Culvert n=0.013 L=22.0' S=0.0336 '/' Outflow=6.64 cfs 30,884 cf

Pond DP17: DP-17 Peak Elev=596.19' Inflow=14.09 cfs 60,563 cf
15.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=14.09 cfs 60,563 cf

Pond DP18: DP-18 Peak Elev=492.59' Inflow=7.76 cfs 31,853 cf
15.0" Round Culvert n=0.013 L=50.0' S=0.0268 '/' Outflow=7.76 cfs 31,853 cf

Pond DP19: DP-19 Peak Elev=483.19' Inflow=11.65 cfs 48,845 cf
24.0" x 20.0" Box Culvert n=0.011 L=52.0' S=0.0090 '/' Outflow=11.65 cfs 48,845 cf

Total Runoff Area = 1,739,076 sf Runoff Volume = 184,346 cf Average Runoff Depth = 1.27"
81.89% Pervious = 1,424,150 sf 18.11% Impervious = 314,926 sf

Summary for Subcatchment DA-12: Pre DA-12

Runoff = 0.42 cfs @ 12.19 hrs, Volume= 1,766 cf, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

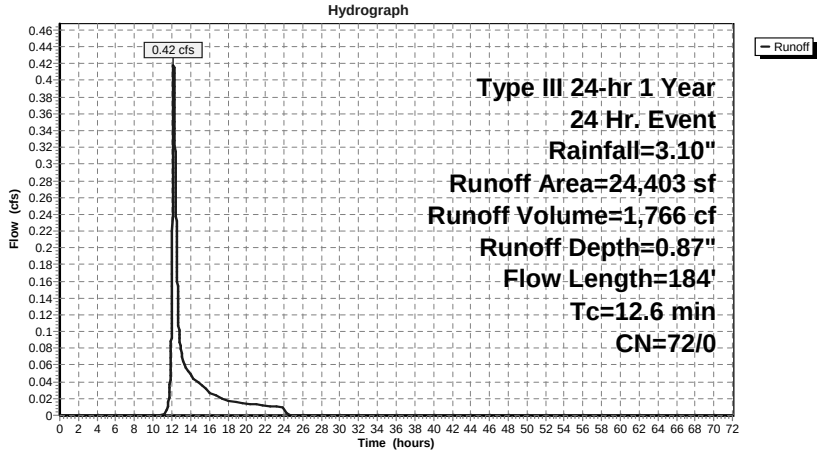
Area (sf)	CN	Description	Land Use
10,105	74	>75% Grass cover, Good, HSG C	Open Space
14,298	70	Woods, Good, HSG C	Woods
24,403	72	Weighted Average	
24,403	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	100	0.0810	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.50"
0.3	14	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	70	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
10,105	Open Space	72.31	0.25	1.09	0.15
14,298	Woods	6.29	0.00	0.00	0.21
24,403	Total	78.60	0.25	1.09	0.36

Subcatchment DA-12: Pre DA-12



Hydrograph for Subcatchment DA-12: Pre DA-12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.13	0.00	**0.13**
14.00	2.51	0.54	0.00	**0.05**
16.00	2.75	0.66	0.00	0.03
18.00	2.88	0.74	0.00	0.02
20.00	2.97	0.79	0.00	0.01
22.00	3.04	0.83	0.00	0.01
24.00	**3.10**	**0.87**	0.00	0.01
26.00	3.10	0.87	0.00	0.00
28.00	3.10	0.87	0.00	0.00
30.00	3.10	0.87	0.00	0.00
32.00	3.10	0.87	0.00	0.00
34.00	3.10	0.87	0.00	0.00
36.00	3.10	0.87	0.00	0.00
38.00	3.10	0.87	0.00	0.00
40.00	3.10	0.87	0.00	0.00
42.00	3.10	0.87	0.00	0.00
44.00	3.10	0.87	0.00	0.00
46.00	3.10	0.87	0.00	0.00
48.00	3.10	0.87	0.00	0.00
50.00	3.10	0.87	0.00	0.00
52.00	3.10	0.87	0.00	0.00
54.00	3.10	0.87	0.00	0.00
56.00	3.10	0.87	0.00	0.00
58.00	3.10	0.87	0.00	0.00
60.00	3.10	0.87	0.00	0.00
62.00	3.10	0.87	0.00	0.00
64.00	3.10	0.87	0.00	0.00
66.00	3.10	0.87	0.00	0.00
68.00	3.10	0.87	0.00	0.00
70.00	3.10	0.87	0.00	0.00
72.00	3.10	0.87	0.00	0.00

Summary for Subcatchment DA-13: Pre DA-13

Runoff = 0.53 cfs @ 12.07 hrs, Volume= 1,763 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

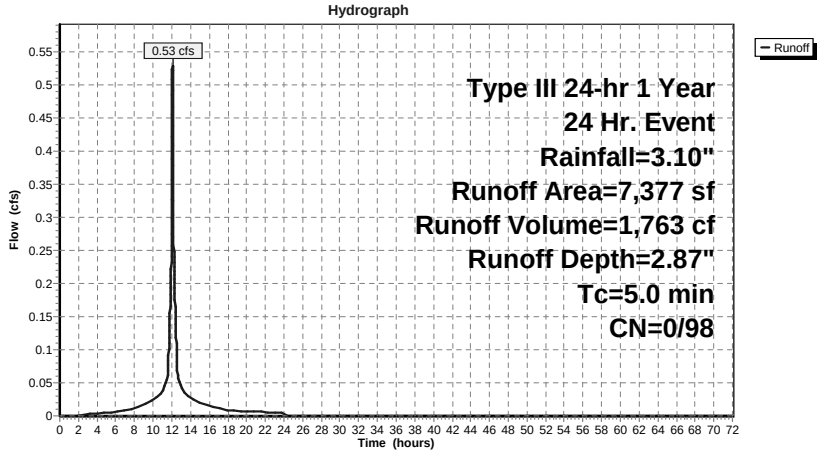
Area (sf)	CN	Description	Land Use
7,377	98	Paved parking, HSG C	Pavement
7,377	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,377	Pavement	288.25	0.93	3.50	11.16
7,377	Total	288.25	0.93	3.50	11.16

Subcatchment DA-13: Pre DA-13



Hydrograph for Subcatchment DA-13: Pre DA-13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.02
12.00	1.55	0.00	1.33	**0.36**
14.00	2.51	0.00	2.28	**0.03**
16.00	2.75	0.00	2.52	0.01
18.00	2.88	0.00	2.65	0.01
20.00	2.97	0.00	2.74	0.01
22.00	3.04	0.00	2.81	0.01
24.00	**3.10**	0.00	**2.87**	0.00
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00

Summary for Subcatchment DA-14A: Pre DA-14A

Runoff = 0.09 cfs @ 12.07 hrs, Volume= 313 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

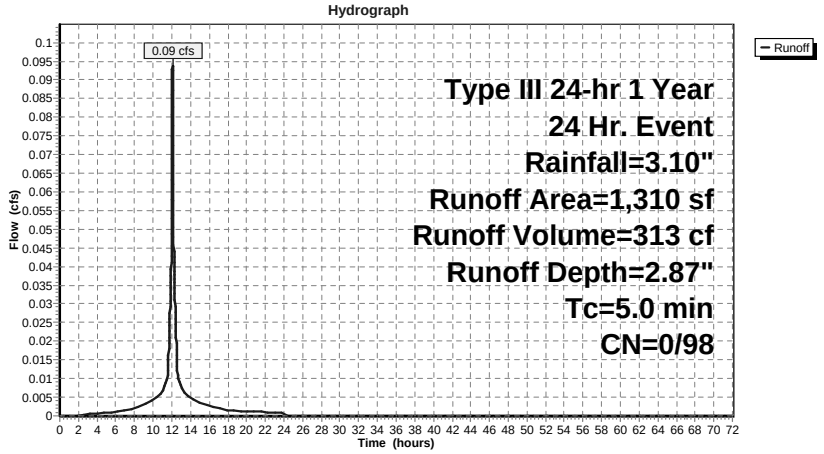
Area (sf)	CN	Description	Land Use
1,310	98	Paved parking, HSG C	Pavement
1,310	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,310	Pavement	51.19	0.17	0.62	1.98
1,310	Total	51.19	0.17	0.62	1.98

Subcatchment DA-14A: Pre DA-14A



Hydrograph for Subcatchment DA-14A: Pre DA-14A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.00
12.00	1.55	0.00	1.33	**0.06**
14.00	2.51	0.00	2.28	**0.00**
16.00	2.75	0.00	2.52	0.00
18.00	2.88	0.00	2.65	0.00
20.00	2.97	0.00	2.74	0.00
22.00	3.04	0.00	2.81	0.00
24.00	**3.10**	0.00	**2.87**	0.00
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00

Summary for Subcatchment DA-14B: Pre DA-14B

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 1,109 cf, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

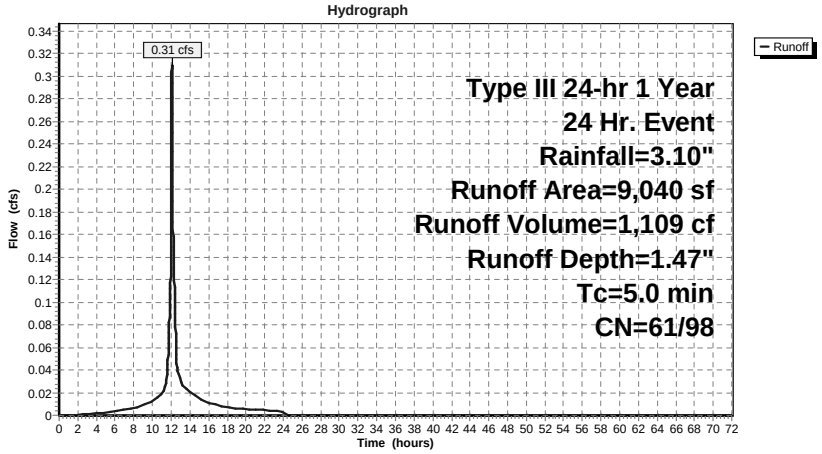
Area (sf)	CN	Description	Land Use
573	98	Unconnected pavement, HSG C	Pavement
3,344	98	Roofs, HSG C	Roofs
5,123	61	>75% Grass cover, Good, HSG B	Open Space
9,040	77	Weighted Average	
5,123	61	56.67% Pervious Area	
3,917	98	43.33% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 43.33% Impervious, Rv= 0.440, Runoff= 20.11"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,123	Open Space	322.59	1.13	4.88	0.66
573	Pavement	10.37	0.03	0.13	0.40
3,344	Roofs	6.65	0.04	0.52	2.59
9,040	Total	339.61	1.20	5.53	3.65

Subcatchment DA-14B: Pre DA-14B



Hydrograph for Subcatchment DA-14B: Pre DA-14B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.01	1.33	**0.20**
14.00	2.51	0.20	2.28	**0.02**
16.00	2.75	0.27	2.52	0.01
18.00	2.88	0.32	2.65	0.01
20.00	2.97	0.35	2.74	0.01
22.00	3.04	0.38	2.81	0.00
24.00	**3.10**	**0.40**	**2.87**	0.00
26.00	3.10	0.40	2.87	0.00
28.00	3.10	0.40	2.87	0.00
30.00	3.10	0.40	2.87	0.00
32.00	3.10	0.40	2.87	0.00
34.00	3.10	0.40	2.87	0.00
36.00	3.10	0.40	2.87	0.00
38.00	3.10	0.40	2.87	0.00
40.00	3.10	0.40	2.87	0.00
42.00	3.10	0.40	2.87	0.00
44.00	3.10	0.40	2.87	0.00
46.00	3.10	0.40	2.87	0.00
48.00	3.10	0.40	2.87	0.00
50.00	3.10	0.40	2.87	0.00
52.00	3.10	0.40	2.87	0.00
54.00	3.10	0.40	2.87	0.00
56.00	3.10	0.40	2.87	0.00
58.00	3.10	0.40	2.87	0.00
60.00	3.10	0.40	2.87	0.00
62.00	3.10	0.40	2.87	0.00
64.00	3.10	0.40	2.87	0.00
66.00	3.10	0.40	2.87	0.00
68.00	3.10	0.40	2.87	0.00
70.00	3.10	0.40	2.87	0.00
72.00	3.10	0.40	2.87	0.00

Summary for Subcatchment DA-15: Pre DA-15

Runoff = 2.18 cfs @ 12.07 hrs, Volume= 7,252 cf, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

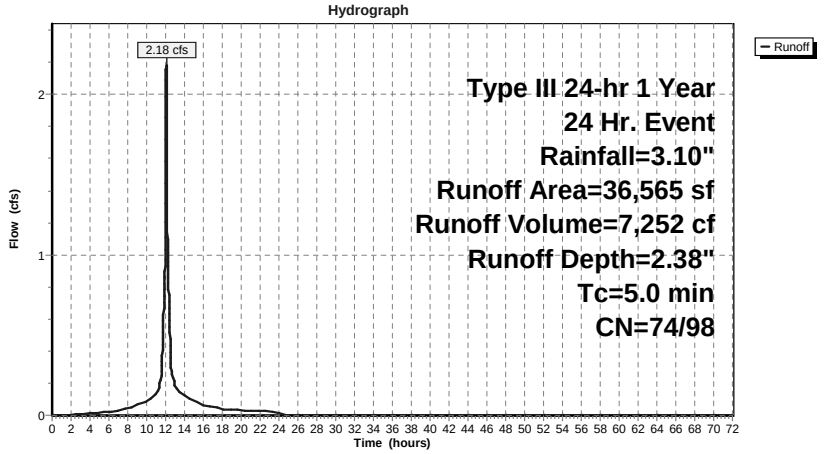
Area (sf)	CN	Description	Land Use
21,025	98	Paved parking, HSG B	Pavement
6,126	98	Roofs, HSG B	Roofs
9,414	74	>75% Grass cover, Good, HSG C	Open Space
36,565	92	Weighted Average	
9,414	74	25.75% Pervious Area	
27,151	98	74.25% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.25% Impervious, Rv= 0.718, Runoff= 32.83"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,414	Open Space	967.79	3.38	14.63	1.98
21,025	Pavement	621.15	2.01	7.54	24.06
6,126	Roofs	19.88	0.12	1.57	7.74
36,565	Total	1,608.82	5.50	23.74	33.77

Subcatchment DA-15: Pre DA-15



Hydrograph for Subcatchment DA-15: Pre DA-15

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.02
8.00	0.35	0.00	0.19	0.04
10.00	0.59	0.00	0.40	0.09
12.00	1.55	0.16	1.33	**1.44**
14.00	2.51	0.62	2.28	**0.12**
16.00	2.75	0.75	2.52	0.06
18.00	2.88	0.83	2.65	0.04
20.00	2.97	0.89	2.74	0.03
22.00	3.04	0.93	2.81	0.03
24.00	**3.10**	**0.97**	**2.87**	0.02
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00

Summary for Subcatchment DA-16: Pre DA-16

Runoff = 6.64 cfs @ 12.23 hrs, Volume= 30,884 cf, Depth= 1.35"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

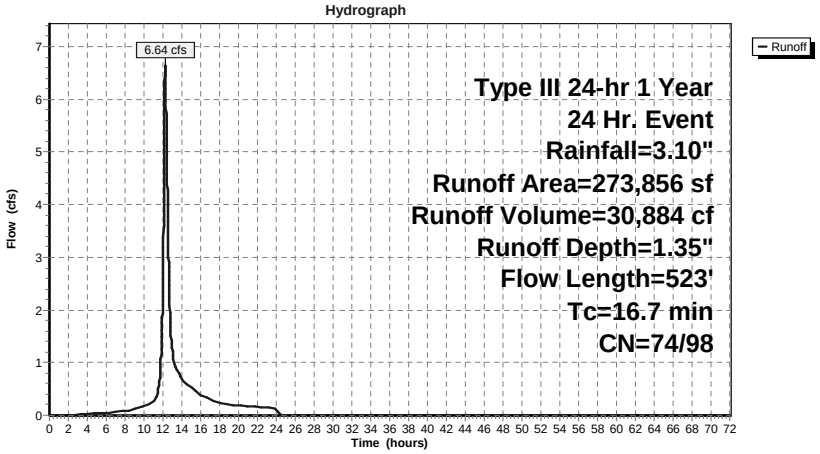
Area (sf)	CN	Description	Land Use
55,041	98	Paved parking, HSG B	Pavement
218,815	74	>75% Grass cover, Good, HSG C	Open Space
273,856	79	Weighted Average	
218,815	74	79.90% Pervious Area	
55,041	98	20.10% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	150	0.0330	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	30	0.0330	2.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.8	275	0.1160	5.48		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	68	0.0440	3.38		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
16.7	523	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 20.10% Impervious, Rv= 0.231, Runoff= 10.55"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
218,815	Open Space	7,230.80	25.22	109.30	14.77
55,041	Pavement	522.69	1.69	6.34	20.24
273,856	Total	7,753.49	26.92	115.65	35.02

Subcatchment DA-16: Pre DA-16



Hydrograph for Subcatchment DA-16: Pre DA-16

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.02
6.00	0.22	0.00	0.09	0.04
8.00	0.35	0.00	0.19	0.08
10.00	0.59	0.00	0.40	0.17
12.00	1.55	0.16	1.33	**2.46**
14.00	2.51	0.62	2.28	**0.70**
16.00	2.75	0.75	2.52	0.39
18.00	2.88	0.83	2.65	0.24
20.00	2.97	0.89	2.74	0.18
22.00	3.04	0.93	2.81	0.15
24.00	**3.10**	**0.97**	**2.87**	0.12
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00

Summary for Subcatchment DA-17: Pre DA-17

Runoff = 14.09 cfs @ 12.18 hrs, Volume= 60,563 cf, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

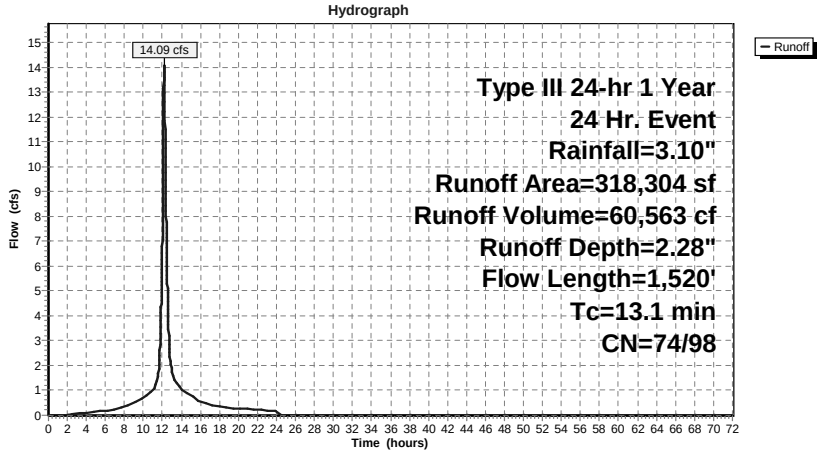
Area (sf)	CN	Description	Land Use
130,871	98	Paved parking, HSG C	Pavement
89,259	98	Roofs, HSG C	Roofs
98,174	74	>75% Grass cover, Good, HSG C	Open Space
318,304	91	Weighted Average	
98,174	74	30.84% Pervious Area	
220,130	98	69.16% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	135	0.0670	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.1	35	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.2	1,350		10.00		**Direct Entry, Pipe Flow**
13.1	1,520	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 69.16% Impervious, Rv= 0.672, Runoff= 30.73"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
98,174	Open Space	9,448.09	32.96	142.82	19.30
130,871	Pavement	3,619.43	11.72	43.94	140.17
89,259	Roofs	271.12	1.57	21.40	105.59
318,304	Total	13,338.64	46.24	208.16	265.07

Subcatchment DA-17: Pre DA-17



Hydrograph for Subcatchment DA-17: Pre DA-17

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.02
4.00	0.13	0.00	0.03	0.10
6.00	0.22	0.00	0.09	0.18
8.00	0.35	0.00	0.19	0.33
10.00	0.59	0.00	0.40	0.68
12.00	1.55	0.16	1.33	**6.78**
14.00	2.51	0.62	2.28	**1.06**
16.00	2.75	0.75	2.52	0.56
18.00	2.88	0.83	2.65	0.34
20.00	2.97	0.89	2.74	0.27
22.00	3.04	0.93	2.81	0.22
24.00	**3.10**	**0.97**	**2.87**	0.18
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00

Summary for Subcatchment DA-18: Pre DA-18

Runoff = 7.76 cfs @ 12.19 hrs, Volume= 31,853 cf, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

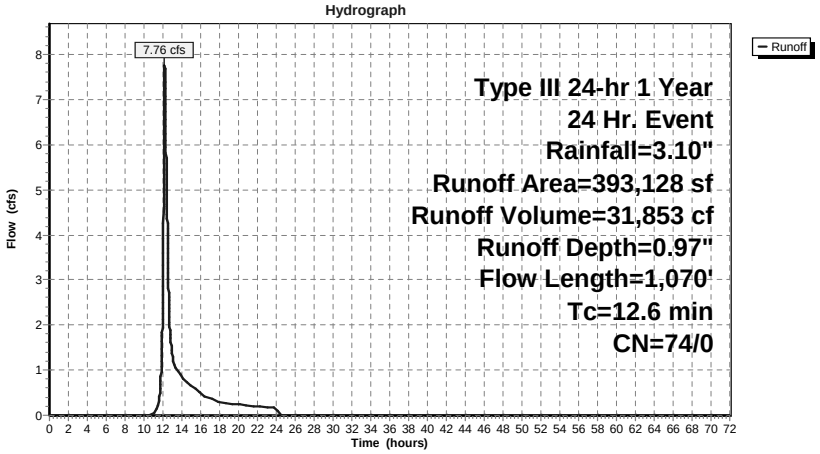
Area (sf)	CN	Description	Land Use
321,115	74	>75% Grass cover, Good, HSG C	Open Space
60,787	70	Woods, Good, HSG C	Woods
11,226	89	Gravel roads, HSG C	Roadway
393,128	74	Weighted Average	
393,128	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	150	0.0800	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	220	0.0910	4.86		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	190	0.2630	8.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	510	0.0200	13.18	79.10	**Channel Flow,** Area= 6.0 sf Perim= 5.0' r= 1.20' n= 0.018 Earth, clean & straight
12.6	1,070	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
321,115	Open Space	2,297.95	8.02	34.74	4.70
11,226	Roadway	23.09	0.07	0.28	0.89
60,787	Woods	26.74	0.00	0.00	0.89
393,128	Total	2,347.78	8.09	35.02	6.48

Subcatchment DA-18: Pre DA-18



Hydrograph for Subcatchment DA-18: Pre DA-18

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.16	0.00	**2.67**
14.00	2.51	0.62	0.00	**0.85**
16.00	2.75	0.75	0.00	0.48
18.00	2.88	0.83	0.00	0.30
20.00	2.97	0.89	0.00	0.24
22.00	3.04	0.93	0.00	0.20
24.00	**3.10**	**0.97**	0.00	0.16
26.00	3.10	0.97	0.00	0.00
28.00	3.10	0.97	0.00	0.00
30.00	3.10	0.97	0.00	0.00
32.00	3.10	0.97	0.00	0.00
34.00	3.10	0.97	0.00	0.00
36.00	3.10	0.97	0.00	0.00
38.00	3.10	0.97	0.00	0.00
40.00	3.10	0.97	0.00	0.00
42.00	3.10	0.97	0.00	0.00
44.00	3.10	0.97	0.00	0.00
46.00	3.10	0.97	0.00	0.00
48.00	3.10	0.97	0.00	0.00
50.00	3.10	0.97	0.00	0.00
52.00	3.10	0.97	0.00	0.00
54.00	3.10	0.97	0.00	0.00
56.00	3.10	0.97	0.00	0.00
58.00	3.10	0.97	0.00	0.00
60.00	3.10	0.97	0.00	0.00
62.00	3.10	0.97	0.00	0.00
64.00	3.10	0.97	0.00	0.00
66.00	3.10	0.97	0.00	0.00
68.00	3.10	0.97	0.00	0.00
70.00	3.10	0.97	0.00	0.00
72.00	3.10	0.97	0.00	0.00

Summary for Subcatchment DA-19: Pre DA-19

Runoff = 11.65 cfs @ 12.18 hrs, Volume= 48,845 cf, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

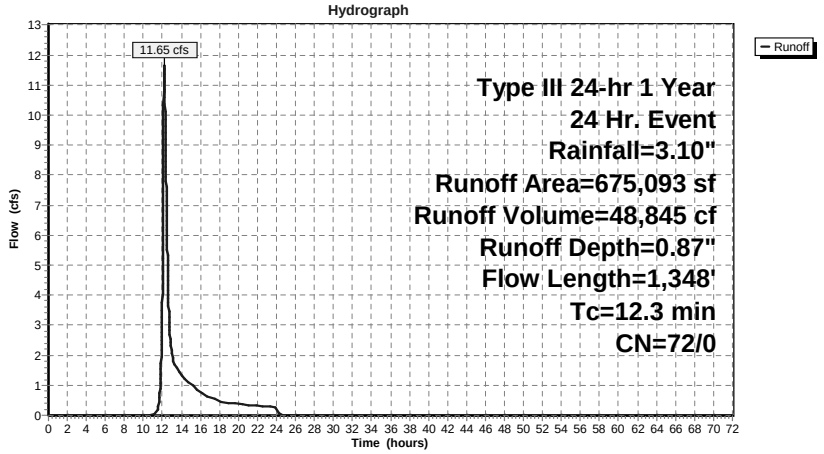
Area (sf)	CN	Description	Land Use
370,422	74	>75% Grass cover, Good, HSG C	Open Space
304,671	70	Woods, Good, HSG C	Woods
675,093	72	Weighted Average	
675,093	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0970	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.1	273	0.0970	2.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	121	0.1980	3.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	214	0.1680	2.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	640		10.00		**Direct Entry,**
12.3	1,348	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
370,422	Open Space	2,650.80	9.25	40.07	5.42
304,671	Woods	134.00	0.00	0.00	4.45
675,093	Total	2,784.81	9.25	40.07	9.87

Subcatchment DA-19: Pre DA-19



Hydrograph for Subcatchment DA-19: Pre DA-19

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.13	0.00	**3.76**
14.00	2.51	0.54	0.00	**1.34**
16.00	2.75	0.66	0.00	0.76
18.00	2.88	0.74	0.00	0.47
20.00	2.97	0.79	0.00	0.38
22.00	3.04	0.83	0.00	0.32
24.00	**3.10**	**0.87**	0.00	0.26
26.00	3.10	0.87	0.00	0.00
28.00	3.10	0.87	0.00	0.00
30.00	3.10	0.87	0.00	0.00
32.00	3.10	0.87	0.00	0.00
34.00	3.10	0.87	0.00	0.00
36.00	3.10	0.87	0.00	0.00
38.00	3.10	0.87	0.00	0.00
40.00	3.10	0.87	0.00	0.00
42.00	3.10	0.87	0.00	0.00
44.00	3.10	0.87	0.00	0.00
46.00	3.10	0.87	0.00	0.00
48.00	3.10	0.87	0.00	0.00
50.00	3.10	0.87	0.00	0.00
52.00	3.10	0.87	0.00	0.00
54.00	3.10	0.87	0.00	0.00
56.00	3.10	0.87	0.00	0.00
58.00	3.10	0.87	0.00	0.00
60.00	3.10	0.87	0.00	0.00
62.00	3.10	0.87	0.00	0.00
64.00	3.10	0.87	0.00	0.00
66.00	3.10	0.87	0.00	0.00
68.00	3.10	0.87	0.00	0.00
70.00	3.10	0.87	0.00	0.00
72.00	3.10	0.87	0.00	0.00

Summary for Pond DP12: DP-12

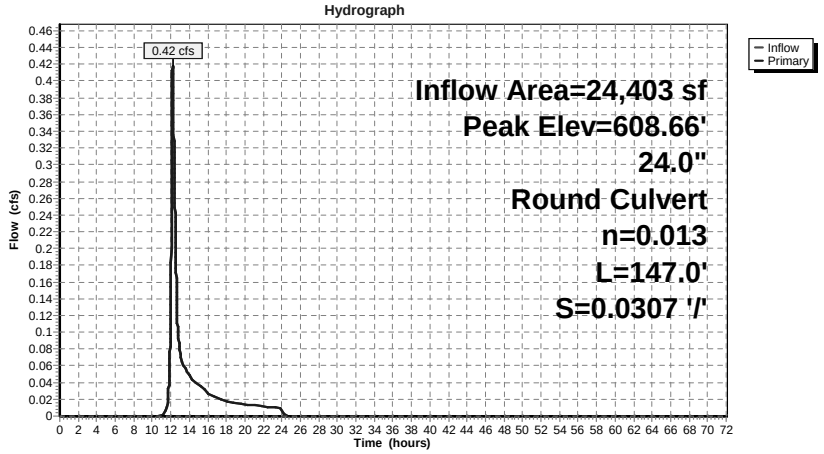
Inflow Area = 24,403 sf, 0.00% Impervious, Inflow Depth = 0.87" for 1 Year, 24 Hr. Event event
Inflow = 0.42 cfs @ 12.19 hrs, Volume= 1,766 cf
Outflow = 0.42 cfs @ 12.19 hrs, Volume= 1,766 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.19 hrs, Volume= 1,766 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.66' @ 12.19 hrs
Flood Elev= 613.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.37'	**24.0" Round Culvert** L= 147.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 608.37' / 603.85' S= 0.0307 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.42 cfs @ 12.19 hrs HW=608.66' (Free Discharge)
↑**1=Culvert** (Inlet Controls 0.42 cfs @ 1.46 fps)

Pond DP12: DP-12



Hydrograph for Pond DP12: DP-12

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	608.37	0.00	52.00	0.00	608.37	0.00
1.00	0.00	608.37	0.00	53.00	0.00	608.37	0.00
2.00	0.00	608.37	0.00	54.00	0.00	608.37	0.00
3.00	0.00	608.37	0.00	55.00	0.00	608.37	0.00
4.00	0.00	608.37	0.00	56.00	0.00	608.37	0.00
5.00	0.00	608.37	0.00	57.00	0.00	608.37	0.00
6.00	0.00	608.37	0.00	58.00	0.00	608.37	0.00
7.00	0.00	608.37	0.00	59.00	0.00	608.37	0.00
8.00	0.00	608.37	0.00	60.00	0.00	608.37	0.00
9.00	0.00	608.37	0.00	61.00	0.00	608.37	0.00
10.00	0.00	608.37	0.00	62.00	0.00	608.37	0.00
11.00	0.00	608.37	0.00	63.00	0.00	608.37	0.00
12.00	**0.13**	**608.53**	**0.13**	64.00	0.00	608.37	0.00
13.00	**0.08**	**608.49**	**0.08**	65.00	0.00	608.37	0.00
14.00	0.05	608.47	0.05	66.00	0.00	608.37	0.00
15.00	0.04	608.46	0.04	67.00	0.00	608.37	0.00
16.00	0.03	608.44	0.03	68.00	0.00	608.37	0.00
17.00	0.02	608.44	0.02	69.00	0.00	608.37	0.00
18.00	0.02	608.43	0.02	70.00	0.00	608.37	0.00
19.00	0.02	608.42	0.02	71.00	0.00	608.37	0.00
20.00	0.01	608.42	0.01	72.00	0.00	608.37	0.00
21.00	0.01	608.42	0.01				
22.00	0.01	608.42	0.01				
23.00	0.01	608.42	0.01				
24.00	0.01	608.41	0.01				
25.00	0.00	608.37	0.00				
26.00	0.00	608.37	0.00				
27.00	0.00	608.37	0.00				
28.00	0.00	608.37	0.00				
29.00	0.00	608.37	0.00				
30.00	0.00	608.37	0.00				
31.00	0.00	608.37	0.00				
32.00	0.00	608.37	0.00				
33.00	0.00	608.37	0.00				
34.00	0.00	608.37	0.00				
35.00	0.00	608.37	0.00				
36.00	0.00	608.37	0.00				
37.00	0.00	608.37	0.00				
38.00	0.00	608.37	0.00				
39.00	0.00	608.37	0.00				
40.00	0.00	608.37	0.00				
41.00	0.00	608.37	0.00				
42.00	0.00	608.37	0.00				
43.00	0.00	608.37	0.00				
44.00	0.00	608.37	0.00				
45.00	0.00	608.37	0.00				
46.00	0.00	608.37	0.00				
47.00	0.00	608.37	0.00				
48.00	0.00	608.37	0.00				
49.00	0.00	608.37	0.00				
50.00	0.00	608.37	0.00				
51.00	0.00	608.37	0.00				

Summary for Pond DP13: DP-13

[57] Hint: Peaked at 604.24' (Flood elevation advised)

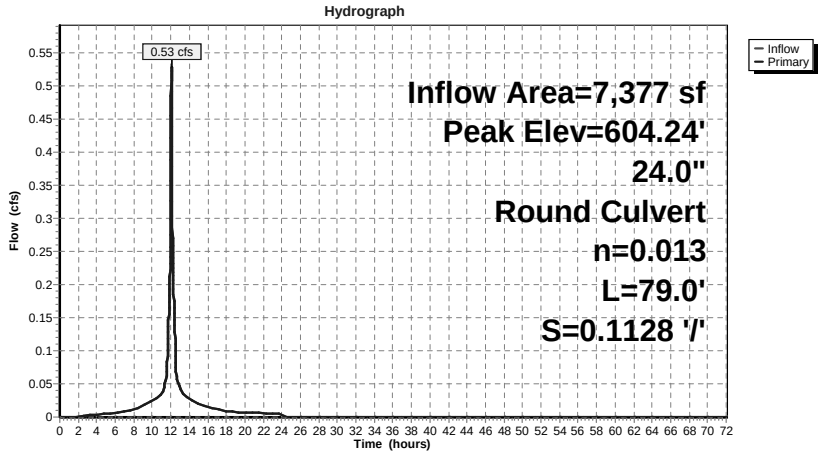
Inflow Area = 7,377 sf,100.00% Impervious, Inflow Depth = 2.87" for 1 Year, 24 Hr. Event event
Inflow = 0.53 cfs @ 12.07 hrs, Volume= 1,763 cf
Outflow = 0.53 cfs @ 12.07 hrs, Volume= 1,763 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.53 cfs @ 12.07 hrs, Volume= 1,763 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 604.24' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	603.91'	**24.0" Round Culvert** L= 79.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 603.91' / 595.00' S= 0.1128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.53 cfs @ 12.07 hrs HW=604.24' (Free Discharge)
1=Culvert (Inlet Controls 0.53 cfs @ 1.55 fps)

Pond DP13: DP-13



Hydrograph for Pond DP13: DP-13

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	603.91	0.00	52.00	0.00	603.91	0.00
1.00	0.00	603.91	0.00	53.00	0.00	603.91	0.00
2.00	0.00	603.92	0.00	54.00	0.00	603.91	0.00
3.00	0.00	603.93	0.00	55.00	0.00	603.91	0.00
4.00	0.00	603.94	0.00	56.00	0.00	603.91	0.00
5.00	0.00	603.94	0.00	57.00	0.00	603.91	0.00
6.00	0.01	603.94	0.01	58.00	0.00	603.91	0.00
7.00	0.01	603.95	0.01	59.00	0.00	603.91	0.00
8.00	0.01	603.96	0.01	60.00	0.00	603.91	0.00
9.00	0.02	603.97	0.02	61.00	0.00	603.91	0.00
10.00	0.02	603.98	0.02	62.00	0.00	603.91	0.00
11.00	0.04	603.99	0.04	63.00	0.00	603.91	0.00
12.00	**0.36**	**604.18**	**0.36**	64.00	0.00	603.91	0.00
13.00	**0.04**	**604.00**	**0.04**	65.00	0.00	603.91	0.00
14.00	0.03	603.98	0.03	66.00	0.00	603.91	0.00
15.00	0.02	603.97	0.02	67.00	0.00	603.91	0.00
16.00	0.01	603.96	0.01	68.00	0.00	603.91	0.00
17.00	0.01	603.96	0.01	69.00	0.00	603.91	0.00
18.00	0.01	603.95	0.01	70.00	0.00	603.91	0.00
19.00	0.01	603.95	0.01	71.00	0.00	603.91	0.00
20.00	0.01	603.95	0.01	72.00	0.00	603.91	0.00
21.00	0.01	603.95	0.01				
22.00	0.01	603.94	0.01				
23.00	0.01	603.94	0.01				
24.00	0.00	603.94	0.00				
25.00	0.00	603.91	0.00				
26.00	0.00	603.91	0.00				
27.00	0.00	603.91	0.00				
28.00	0.00	603.91	0.00				
29.00	0.00	603.91	0.00				
30.00	0.00	603.91	0.00				
31.00	0.00	603.91	0.00				
32.00	0.00	603.91	0.00				
33.00	0.00	603.91	0.00				
34.00	0.00	603.91	0.00				
35.00	0.00	603.91	0.00				
36.00	0.00	603.91	0.00				
37.00	0.00	603.91	0.00				
38.00	0.00	603.91	0.00				
39.00	0.00	603.91	0.00				
40.00	0.00	603.91	0.00				
41.00	0.00	603.91	0.00				
42.00	0.00	603.91	0.00				
43.00	0.00	603.91	0.00				
44.00	0.00	603.91	0.00				
45.00	0.00	603.91	0.00				
46.00	0.00	603.91	0.00				
47.00	0.00	603.91	0.00				
48.00	0.00	603.91	0.00				
49.00	0.00	603.91	0.00				
50.00	0.00	603.91	0.00				
51.00	0.00	603.91	0.00				

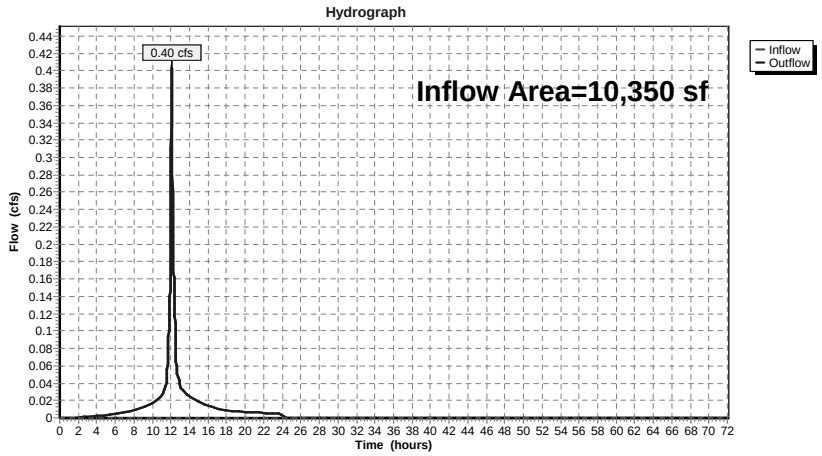
Summary for Reach DP14: DP-14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10,350 sf, 50.50% Impervious, Inflow Depth = 1.65" for 1 Year, 24 Hr. Event event
Inflow = 0.40 cfs @ 12.07 hrs, Volume= 1,422 cf
Outflow = 0.40 cfs @ 12.07 hrs, Volume= 1,422 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP14: DP-14



Hydrograph for Reach DP14: DP-14

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.01		0.01	60.00	0.00		0.00
9.00	0.01		0.01	61.00	0.00		0.00
10.00	0.02		0.02	62.00	0.00		0.00
11.00	0.03		0.03	63.00	0.00		0.00
12.00	**0.26**		**0.26**	64.00	0.00		0.00
13.00	**0.04**		**0.04**	65.00	0.00		0.00
14.00	0.02		0.02	66.00	0.00		0.00
15.00	0.02		0.02	67.00	0.00		0.00
16.00	0.01		0.01	68.00	0.00		0.00
17.00	0.01		0.01	69.00	0.00		0.00
18.00	0.01		0.01	70.00	0.00		0.00
19.00	0.01		0.01	71.00	0.00		0.00
20.00	0.01		0.01	72.00	0.00		0.00
21.00	0.01		0.01				
22.00	0.01		0.01				
23.00	0.01		0.01				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

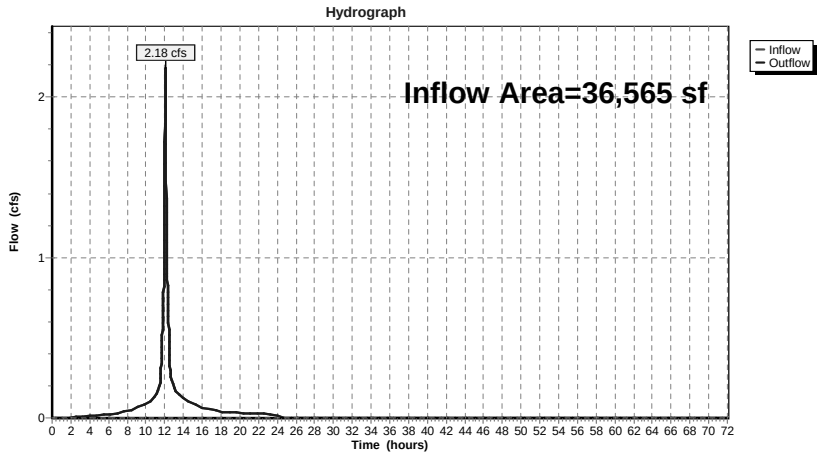
Summary for Reach DP15: DP-15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 36,565 sf, 74.25% Impervious, Inflow Depth = 2.38" for 1 Year, 24 Hr. Event event
Inflow = 2.18 cfs @ 12.07 hrs, Volume= 7,252 cf
Outflow = 2.18 cfs @ 12.07 hrs, Volume= 7,252 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP15: DP-15



Hydrograph for Reach DP15: DP-15

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.03		0.03	59.00	0.00		0.00
8.00	0.04		0.04	60.00	0.00		0.00
9.00	0.06		0.06	61.00	0.00		0.00
10.00	0.09		0.09	62.00	0.00		0.00
11.00	0.13		0.13	63.00	0.00		0.00
12.00	**1.44**		**1.44**	64.00	0.00		0.00
13.00	**0.18**		**0.18**	65.00	0.00		0.00
14.00	0.12		0.12	66.00	0.00		0.00
15.00	0.09		0.09	67.00	0.00		0.00
16.00	0.06		0.06	68.00	0.00		0.00
17.00	0.05		0.05	69.00	0.00		0.00
18.00	0.04		0.04	70.00	0.00		0.00
19.00	0.03		0.03	71.00	0.00		0.00
20.00	0.03		0.03	72.00	0.00		0.00
21.00	0.03		0.03				
22.00	0.03		0.03				
23.00	0.02		0.02				
24.00	0.02		0.02				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP16: DP-16

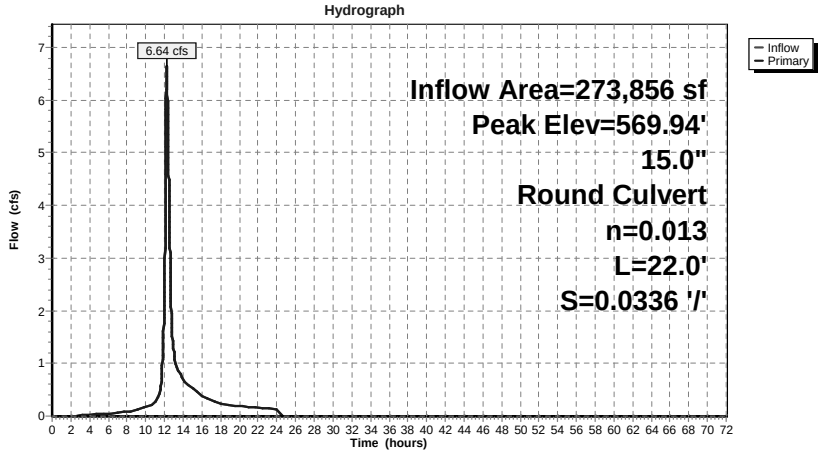
Inflow Area = 273,856 sf, 20.10% Impervious, Inflow Depth = 1.35" for 1 Year, 24 Hr. Event event
Inflow = 6.64 cfs @ 12.23 hrs, Volume= 30,884 cf
Outflow = 6.64 cfs @ 12.23 hrs, Volume= 30,884 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.64 cfs @ 12.23 hrs, Volume= 30,884 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 569.94' @ 12.23 hrs
Flood Elev= 571.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	567.29'	**15.0" Round Culvert** L= 22.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 567.29' / 566.55' S= 0.0336 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=6.63 cfs @ 12.23 hrs HW=569.94' (Free Discharge)
1=Culvert (Inlet Controls 6.63 cfs @ 5.41 fps)

Pond DP16: DP-16



Hydrograph for Pond DP16: DP-16

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	567.29	0.00	52.00	0.00	567.29	0.00
1.00	0.00	567.29	0.00	53.00	0.00	567.29	0.00
2.00	0.00	567.32	0.00	54.00	0.00	567.29	0.00
3.00	0.01	567.35	0.01	55.00	0.00	567.29	0.00
4.00	0.02	567.37	0.02	56.00	0.00	567.29	0.00
5.00	0.03	567.38	0.03	57.00	0.00	567.29	0.00
6.00	0.04	567.40	0.04	58.00	0.00	567.29	0.00
7.00	0.06	567.41	0.06	59.00	0.00	567.29	0.00
8.00	0.08	567.43	0.08	60.00	0.00	567.29	0.00
9.00	0.12	567.47	0.12	61.00	0.00	567.29	0.00
10.00	0.17	567.50	0.17	62.00	0.00	567.29	0.00
11.00	0.26	567.56	0.26	63.00	0.00	567.29	0.00
12.00	**2.46**	**568.20**	**2.46**	64.00	0.00	567.29	0.00
13.00	**1.21**	**567.89**	**1.21**	65.00	0.00	567.29	0.00
14.00	0.70	567.73	0.70	66.00	0.00	567.29	0.00
15.00	0.53	567.67	0.53	67.00	0.00	567.29	0.00
16.00	0.39	567.61	0.39	68.00	0.00	567.29	0.00
17.00	0.30	567.57	0.30	69.00	0.00	567.29	0.00
18.00	0.24	567.54	0.24	70.00	0.00	567.29	0.00
19.00	0.20	567.52	0.20	71.00	0.00	567.29	0.00
20.00	0.18	567.51	0.18	72.00	0.00	567.29	0.00
21.00	0.17	567.50	0.17				
22.00	0.15	567.49	0.15				
23.00	0.14	567.48	0.14				
24.00	0.12	567.47	0.12				
25.00	0.00	567.29	0.00				
26.00	0.00	567.29	0.00				
27.00	0.00	567.29	0.00				
28.00	0.00	567.29	0.00				
29.00	0.00	567.29	0.00				
30.00	0.00	567.29	0.00				
31.00	0.00	567.29	0.00				
32.00	0.00	567.29	0.00				
33.00	0.00	567.29	0.00				
34.00	0.00	567.29	0.00				
35.00	0.00	567.29	0.00				
36.00	0.00	567.29	0.00				
37.00	0.00	567.29	0.00				
38.00	0.00	567.29	0.00				
39.00	0.00	567.29	0.00				
40.00	0.00	567.29	0.00				
41.00	0.00	567.29	0.00				
42.00	0.00	567.29	0.00				
43.00	0.00	567.29	0.00				
44.00	0.00	567.29	0.00				
45.00	0.00	567.29	0.00				
46.00	0.00	567.29	0.00				
47.00	0.00	567.29	0.00				
48.00	0.00	567.29	0.00				
49.00	0.00	567.29	0.00				
50.00	0.00	567.29	0.00				
51.00	0.00	567.29	0.00				

Summary for Pond DP17: DP-17

[58] Hint: Peaked 5.37' above defined flood level

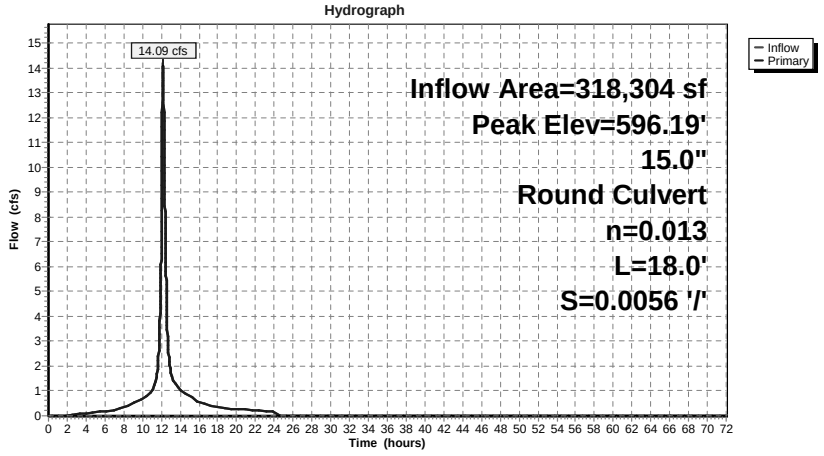
Inflow Area = 318,304 sf, 69.16% Impervious, Inflow Depth = 2.28" for 1 Year, 24 Hr. Event event
Inflow = 14.09 cfs @ 12.18 hrs, Volume= 60,563 cf
Outflow = 14.09 cfs @ 12.18 hrs, Volume= 60,563 cf, Atten= 0%, Lag= 0.0 min
Primary = 14.09 cfs @ 12.18 hrs, Volume= 60,563 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 596.19' @ 12.18 hrs
Flood Elev= 590.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	586.45'	**15.0" Round Culvert-verify outlet invert** L= 18.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 586.45' / 586.35' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=14.07 cfs @ 12.18 hrs HW=596.17' (Free Discharge)
↑**1=Culvert-verify outlet invert** (Inlet Controls 14.07 cfs @ 11.47 fps)

Pond DP17: DP-17



Hydrograph for Pond DP17: DP-17

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	586.45	0.00	52.00	0.00	586.45	0.00
1.00	0.00	586.45	0.00	53.00	0.00	586.45	0.00
2.00	0.02	586.53	0.02	54.00	0.00	586.45	0.00
3.00	0.06	586.59	0.06	55.00	0.00	586.45	0.00
4.00	0.10	586.63	0.10	56.00	0.00	586.45	0.00
5.00	0.14	586.66	0.14	57.00	0.00	586.45	0.00
6.00	0.18	586.68	0.18	58.00	0.00	586.45	0.00
7.00	0.25	586.73	0.25	59.00	0.00	586.45	0.00
8.00	0.33	586.77	0.33	60.00	0.00	586.45	0.00
9.00	0.49	586.85	0.49	61.00	0.00	586.45	0.00
10.00	0.68	586.93	0.68	62.00	0.00	586.45	0.00
11.00	1.03	587.05	1.03	63.00	0.00	586.45	0.00
12.00	**6.78**	**589.19**	**6.78**	64.00	0.00	586.45	0.00
13.00	**1.79**	**587.28**	**1.79**	65.00	0.00	586.45	0.00
14.00	1.06	587.06	1.06	66.00	0.00	586.45	0.00
15.00	0.79	586.97	0.79	67.00	0.00	586.45	0.00
16.00	0.56	586.88	0.56	68.00	0.00	586.45	0.00
17.00	0.44	586.83	0.44	69.00	0.00	586.45	0.00
18.00	0.34	586.78	0.34	70.00	0.00	586.45	0.00
19.00	0.30	586.76	0.30	71.00	0.00	586.45	0.00
20.00	0.27	586.74	0.27	72.00	0.00	586.45	0.00
21.00	0.24	586.73	0.24				
22.00	0.22	586.71	0.22				
23.00	0.20	586.70	0.20				
24.00	0.18	586.68	0.18				
25.00	0.00	586.45	0.00				
26.00	0.00	586.45	0.00				
27.00	0.00	586.45	0.00				
28.00	0.00	586.45	0.00				
29.00	0.00	586.45	0.00				
30.00	0.00	586.45	0.00				
31.00	0.00	586.45	0.00				
32.00	0.00	586.45	0.00				
33.00	0.00	586.45	0.00				
34.00	0.00	586.45	0.00				
35.00	0.00	586.45	0.00				
36.00	0.00	586.45	0.00				
37.00	0.00	586.45	0.00				
38.00	0.00	586.45	0.00				
39.00	0.00	586.45	0.00				
40.00	0.00	586.45	0.00				
41.00	0.00	586.45	0.00				
42.00	0.00	586.45	0.00				
43.00	0.00	586.45	0.00				
44.00	0.00	586.45	0.00				
45.00	0.00	586.45	0.00				
46.00	0.00	586.45	0.00				
47.00	0.00	586.45	0.00				
48.00	0.00	586.45	0.00				
49.00	0.00	586.45	0.00				
50.00	0.00	586.45	0.00				
51.00	0.00	586.45	0.00				

Summary for Pond DP18: DP-18

[58] Hint: Peaked 0.58' above defined flood level

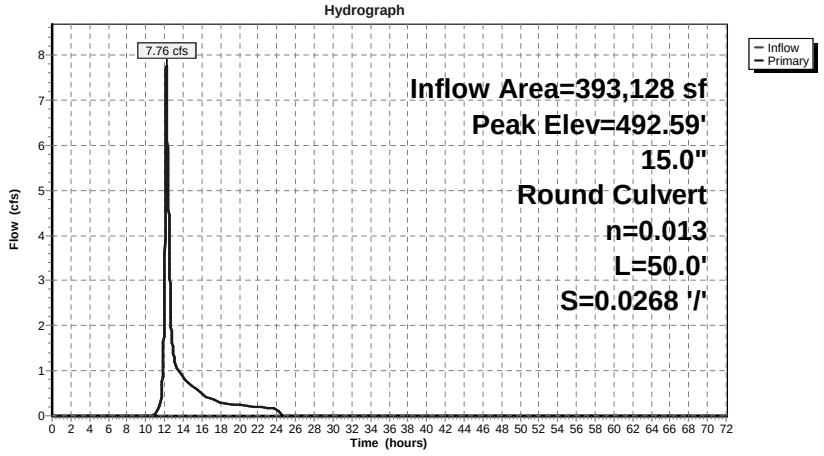
Inflow Area = 393,128 sf, 0.00% Impervious, Inflow Depth = 0.97" for 1 Year, 24 Hr. Event event
Inflow = 7.76 cfs @ 12.19 hrs, Volume= 31,853 cf
Outflow = 7.76 cfs @ 12.19 hrs, Volume= 31,853 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.76 cfs @ 12.19 hrs, Volume= 31,853 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 492.59' @ 12.19 hrs
Flood Elev= 492.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	489.20'	**15.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.20' / 487.86' S= 0.0268 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=7.75 cfs @ 12.19 hrs HW=492.59' (Free Discharge)
↑**1=Culvert** (Inlet Controls 7.75 cfs @ 6.32 fps)

Pond DP18: DP-18



Hydrograph for Pond DP18: DP-18

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	489.20	0.00	52.00	0.00	489.20	0.00
1.00	0.00	489.20	0.00	53.00	0.00	489.20	0.00
2.00	0.00	489.20	0.00	54.00	0.00	489.20	0.00
3.00	0.00	489.20	0.00	55.00	0.00	489.20	0.00
4.00	0.00	489.20	0.00	56.00	0.00	489.20	0.00
5.00	0.00	489.20	0.00	57.00	0.00	489.20	0.00
6.00	0.00	489.20	0.00	58.00	0.00	489.20	0.00
7.00	0.00	489.20	0.00	59.00	0.00	489.20	0.00
8.00	0.00	489.20	0.00	60.00	0.00	489.20	0.00
9.00	0.00	489.20	0.00	61.00	0.00	489.20	0.00
10.00	0.00	489.20	0.00	62.00	0.00	489.20	0.00
11.00	0.03	489.29	0.03	63.00	0.00	489.20	0.00
12.00	**2.67**	**490.16**	**2.67**	64.00	0.00	489.20	0.00
13.00	**1.35**	**489.84**	**1.35**	65.00	0.00	489.20	0.00
14.00	0.85	489.69	0.85	66.00	0.00	489.20	0.00
15.00	0.65	489.63	0.65	67.00	0.00	489.20	0.00
16.00	0.48	489.56	0.48	68.00	0.00	489.20	0.00
17.00	0.38	489.52	0.38	69.00	0.00	489.20	0.00
18.00	0.30	489.48	0.30	70.00	0.00	489.20	0.00
19.00	0.26	489.46	0.26	71.00	0.00	489.20	0.00
20.00	0.24	489.45	0.24	72.00	0.00	489.20	0.00
21.00	0.22	489.44	0.22				
22.00	0.20	489.43	0.20				
23.00	0.18	489.42	0.18				
24.00	0.16	489.40	0.16				
25.00	0.00	489.20	0.00				
26.00	0.00	489.20	0.00				
27.00	0.00	489.20	0.00				
28.00	0.00	489.20	0.00				
29.00	0.00	489.20	0.00				
30.00	0.00	489.20	0.00				
31.00	0.00	489.20	0.00				
32.00	0.00	489.20	0.00				
33.00	0.00	489.20	0.00				
34.00	0.00	489.20	0.00				
35.00	0.00	489.20	0.00				
36.00	0.00	489.20	0.00				
37.00	0.00	489.20	0.00				
38.00	0.00	489.20	0.00				
39.00	0.00	489.20	0.00				
40.00	0.00	489.20	0.00				
41.00	0.00	489.20	0.00				
42.00	0.00	489.20	0.00				
43.00	0.00	489.20	0.00				
44.00	0.00	489.20	0.00				
45.00	0.00	489.20	0.00				
46.00	0.00	489.20	0.00				
47.00	0.00	489.20	0.00				
48.00	0.00	489.20	0.00				
49.00	0.00	489.20	0.00				
50.00	0.00	489.20	0.00				
51.00	0.00	489.20	0.00				

Summary for Pond DP19: DP-19

[57] Hint: Peaked at 483.19' (Flood elevation advised)

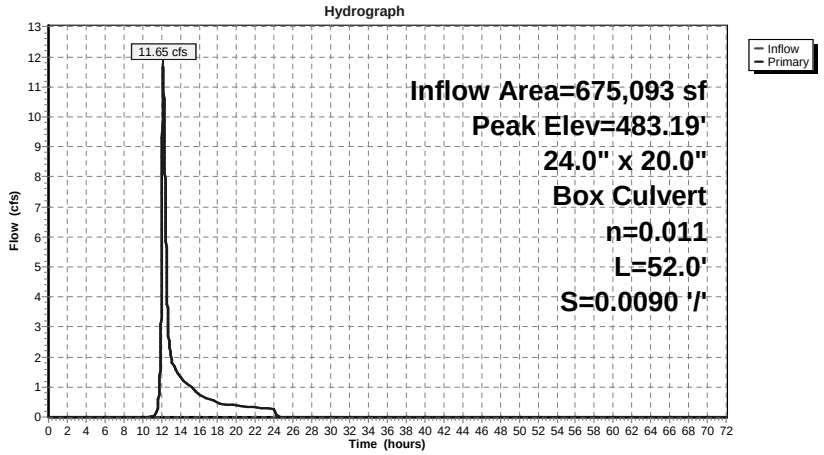
Inflow Area = 675,093 sf, 0.00% Impervious, Inflow Depth = 0.87" for 1 Year, 24 Hr. Event event
Inflow = 11.65 cfs @ 12.18 hrs, Volume= 48,845 cf
Outflow = 11.65 cfs @ 12.18 hrs, Volume= 48,845 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.65 cfs @ 12.18 hrs, Volume= 48,845 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 483.19' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	481.70'	**24.0" W x 20.0" H Box Culvert** L= 52.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 481.70' / 481.23' S= 0.0090 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=11.64 cfs @ 12.18 hrs HW=483.19' (Free Discharge)
1=Culvert (Inlet Controls 11.64 cfs @ 3.91 fps)

Pond DP19: DP-19



Hydrograph for Pond DP19: DP-19

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	481.70	0.00	52.00	0.00	481.70	0.00
1.00	0.00	481.70	0.00	53.00	0.00	481.70	0.00
2.00	0.00	481.70	0.00	54.00	0.00	481.70	0.00
3.00	0.00	481.70	0.00	55.00	0.00	481.70	0.00
4.00	0.00	481.70	0.00	56.00	0.00	481.70	0.00
5.00	0.00	481.70	0.00	57.00	0.00	481.70	0.00
6.00	0.00	481.70	0.00	58.00	0.00	481.70	0.00
7.00	0.00	481.70	0.00	59.00	0.00	481.70	0.00
8.00	0.00	481.70	0.00	60.00	0.00	481.70	0.00
9.00	0.00	481.70	0.00	61.00	0.00	481.70	0.00
10.00	0.00	481.70	0.00	62.00	0.00	481.70	0.00
11.00	0.00	481.70	0.00	63.00	0.00	481.70	0.00
12.00	**3.76**	**482.40**	**3.76**	64.00	0.00	481.70	0.00
13.00	**2.11**	**482.18**	**2.11**	65.00	0.00	481.70	0.00
14.00	1.34	482.05	1.34	66.00	0.00	481.70	0.00
15.00	1.04	482.00	1.04	67.00	0.00	481.70	0.00
16.00	0.76	481.94	0.76	68.00	0.00	481.70	0.00
17.00	0.60	481.91	0.60	69.00	0.00	481.70	0.00
18.00	0.47	481.88	0.47	70.00	0.00	481.70	0.00
19.00	0.42	481.86	0.42	71.00	0.00	481.70	0.00
20.00	0.38	481.85	0.38	72.00	0.00	481.70	0.00
21.00	0.35	481.84	0.35				
22.00	0.32	481.83	0.32				
23.00	0.29	481.83	0.29				
24.00	0.26	481.82	0.26				
25.00	0.00	481.70	0.00				
26.00	0.00	481.70	0.00				
27.00	0.00	481.70	0.00				
28.00	0.00	481.70	0.00				
29.00	0.00	481.70	0.00				
30.00	0.00	481.70	0.00				
31.00	0.00	481.70	0.00				
32.00	0.00	481.70	0.00				
33.00	0.00	481.70	0.00				
34.00	0.00	481.70	0.00				
35.00	0.00	481.70	0.00				
36.00	0.00	481.70	0.00				
37.00	0.00	481.70	0.00				
38.00	0.00	481.70	0.00				
39.00	0.00	481.70	0.00				
40.00	0.00	481.70	0.00				
41.00	0.00	481.70	0.00				
42.00	0.00	481.70	0.00				
43.00	0.00	481.70	0.00				
44.00	0.00	481.70	0.00				
45.00	0.00	481.70	0.00				
46.00	0.00	481.70	0.00				
47.00	0.00	481.70	0.00				
48.00	0.00	481.70	0.00				
49.00	0.00	481.70	0.00				
50.00	0.00	481.70	0.00				
51.00	0.00	481.70	0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment DA-12: Pre DA-12 Runoff Area=24,403 sf 0.00% Impervious Runoff Depth=1.12"
Flow Length=184' Tc=12.6 min CN=72/0 Runoff=0.56 cfs 2,279 cf

Subcatchment DA-13: Pre DA-13 Runoff Area=7,377 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=0.60 cfs 2,008 cf

Subcatchment DA-14A: Pre DA-14A Runoff Area=1,310 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=0.11 cfs 357 cf

Subcatchment DA-14B: Pre DA-14B Runoff Area=9,040 sf 43.33% Impervious Runoff Depth=1.74"
Tc=5.0 min CN=61/98 Runoff=0.37 cfs 1,311 cf

Subcatchment DA-15: Pre DA-15 Runoff Area=36,565 sf 74.25% Impervious Runoff Depth=2.74"
Tc=5.0 min CN=74/98 Runoff=2.51 cfs 8,363 cf

Subcatchment DA-16: Pre DA-16 Runoff Area=273,856 sf 20.10% Impervious Runoff Depth=1.65"
Flow Length=523' Tc=16.7 min CN=74/98 Runoff=8.21 cfs 37,592 cf

Subcatchment DA-17: Pre DA-17 Runoff Area=318,304 sf 69.16% Impervious Runoff Depth=2.64"
Flow Length=1,520' Tc=13.1 min CN=74/98 Runoff=16.29 cfs 70,065 cf

Subcatchment DA-18: Pre DA-18 Runoff Area=393,128 sf 0.00% Impervious Runoff Depth=1.24"
Flow Length=1,070' Tc=12.6 min CN=74/0 Runoff=10.14 cfs 40,620 cf

Subcatchment DA-19: Pre DA-19 Runoff Area=675,093 sf 0.00% Impervious Runoff Depth=1.12"
Flow Length=1,348' Tc=12.3 min CN=72/0 Runoff=15.57 cfs 63,060 cf

Pond DP12: DP-12 Peak Elev=608.71' Inflow=0.56 cfs 2,279 cf
24.0" Round Culvert n=0.013 L=147.0' S=0.0307 '/' Outflow=0.56 cfs 2,279 cf

Pond DP13: DP-13 Peak Elev=604.26' Inflow=0.60 cfs 2,008 cf
24.0" Round Culvert n=0.013 L=79.0' S=0.1128 '/' Outflow=0.60 cfs 2,008 cf

Reach DP14: DP-14 Inflow=0.48 cfs 1,667 cf
Outflow=0.48 cfs 1,667 cf

Reach DP15: DP-15 Inflow=2.51 cfs 8,363 cf
Outflow=2.51 cfs 8,363 cf

Pond DP16: DP-16 Peak Elev=571.01' Inflow=8.21 cfs 37,592 cf
15.0" Round Culvert n=0.013 L=22.0' S=0.0336 '/' Outflow=8.21 cfs 37,592 cf

Pond DP17: DP-17 Peak Elev=599.27' Inflow=16.29 cfs 70,065 cf
15.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=16.29 cfs 70,065 cf

Pond DP18: DP-18 Peak Elev=494.55' Inflow=10.14 cfs 40,620 cf
15.0" Round Culvert n=0.013 L=50.0' S=0.0268 '/' Outflow=10.14 cfs 40,620 cf

Pond DP19: DP-19 Peak Elev=483.54' Inflow=15.57 cfs 63,060 cf
24.0" x 20.0" Box Culvert n=0.011 L=52.0' S=0.0090 '/' Outflow=15.57 cfs 63,060 cf

Total Runoff Area = 1,739,076 sf Runoff Volume = 225,655 cf Average Runoff Depth = 1.56"
81.89% Pervious = 1,424,150 sf 18.11% Impervious = 314,926 sf

Summary for Subcatchment DA-12: Pre DA-12

Runoff = 0.56 cfs @ 12.19 hrs, Volume= 2,279 cf, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

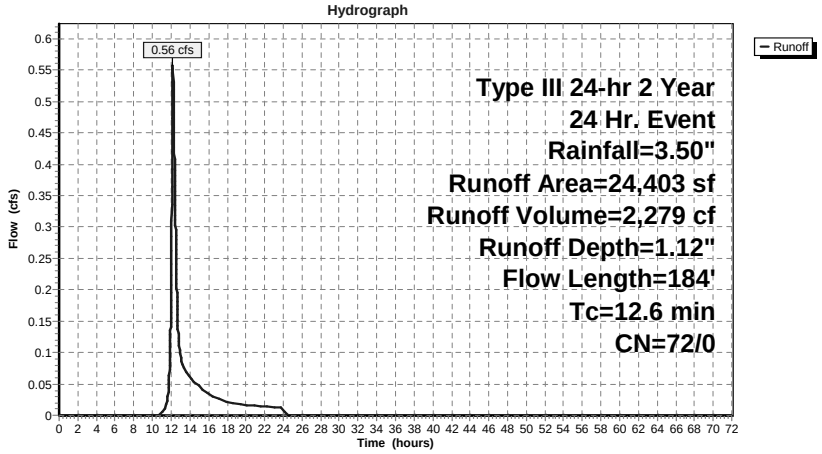
Area (sf)	CN	Description	Land Use
10,105	74	>75% Grass cover, Good, HSG C	Open Space
14,298	70	Woods, Good, HSG C	Woods
24,403	72	Weighted Average	
24,403	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	100	0.0810	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.50"
0.3	14	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	70	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
10,105	Open Space	72.31	0.25	1.09	0.15
14,298	Woods	6.29	0.00	0.00	0.21
24,403	Total	78.60	0.25	1.09	0.36

Subcatchment DA-12: Pre DA-12



Hydrograph for Subcatchment DA-12: Pre DA-12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.19	0.00	**0.19**
14.00	2.84	0.71	0.00	**0.06**
16.00	3.10	0.87	0.00	0.03
18.00	3.25	0.96	0.00	0.02
20.00	3.35	1.02	0.00	0.02
22.00	3.43	1.08	0.00	0.01
24.00	**3.50**	**1.12**	0.00	0.01
26.00	3.50	1.12	0.00	0.00
28.00	3.50	1.12	0.00	0.00
30.00	3.50	1.12	0.00	0.00
32.00	3.50	1.12	0.00	0.00
34.00	3.50	1.12	0.00	0.00
36.00	3.50	1.12	0.00	0.00
38.00	3.50	1.12	0.00	0.00
40.00	3.50	1.12	0.00	0.00
42.00	3.50	1.12	0.00	0.00
44.00	3.50	1.12	0.00	0.00
46.00	3.50	1.12	0.00	0.00
48.00	3.50	1.12	0.00	0.00
50.00	3.50	1.12	0.00	0.00
52.00	3.50	1.12	0.00	0.00
54.00	3.50	1.12	0.00	0.00
56.00	3.50	1.12	0.00	0.00
58.00	3.50	1.12	0.00	0.00
60.00	3.50	1.12	0.00	0.00
62.00	3.50	1.12	0.00	0.00
64.00	3.50	1.12	0.00	0.00
66.00	3.50	1.12	0.00	0.00
68.00	3.50	1.12	0.00	0.00
70.00	3.50	1.12	0.00	0.00
72.00	3.50	1.12	0.00	0.00

Summary for Subcatchment DA-13: Pre DA-13

Runoff = 0.60 cfs @ 12.07 hrs, Volume= 2,008 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

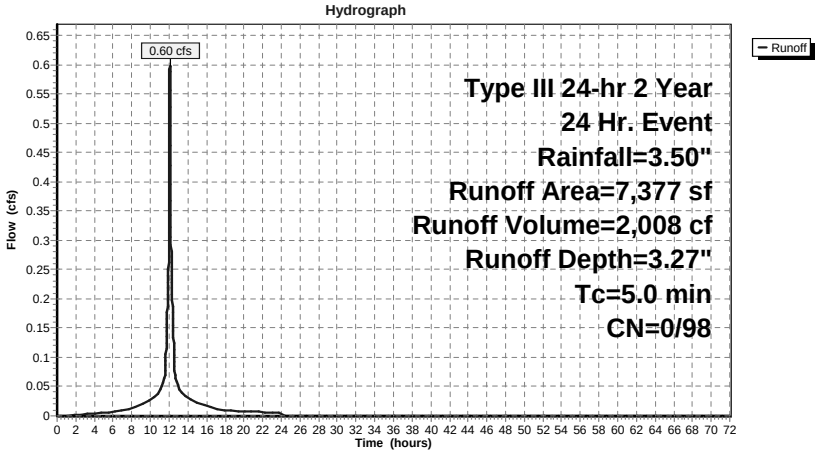
Area (sf)	CN	Description	Land Use
7,377	98	Paved parking, HSG C	Pavement
7,377	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,377	Pavement	288.25	0.93	3.50	11.16
7,377	Total	288.25	0.93	3.50	11.16

Subcatchment DA-13: Pre DA-13



Hydrograph for Subcatchment DA-13: Pre DA-13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.03
12.00	1.75	0.00	1.53	**0.40**
14.00	2.84	0.00	2.61	**0.03**
16.00	3.10	0.00	2.87	0.02
18.00	3.25	0.00	3.02	0.01
20.00	3.35	0.00	3.12	0.01
22.00	3.43	0.00	3.20	0.01
24.00	**3.50**	0.00	**3.27**	0.01
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00

Summary for Subcatchment DA-14A: Pre DA-14A

Runoff = 0.11 cfs @ 12.07 hrs, Volume= 357 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

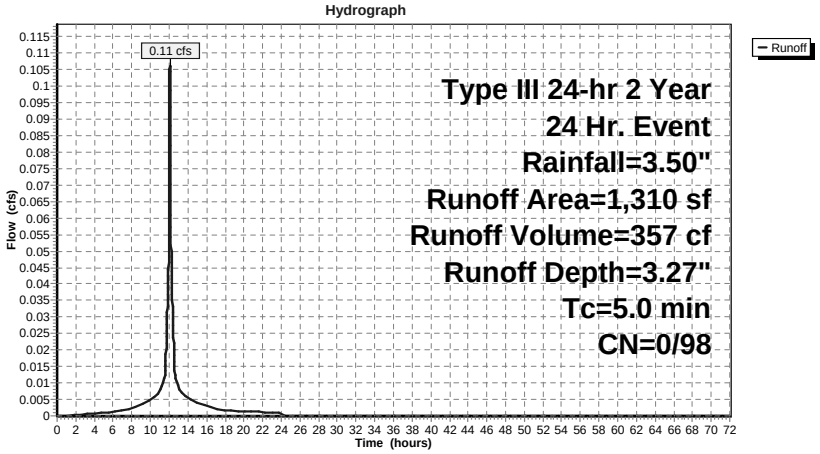
Area (sf)	CN	Description	Land Use
1,310	98	Paved parking, HSG C	Pavement
1,310	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,310	Pavement	51.19	0.17	0.62	1.98
1,310	Total	51.19	0.17	0.62	1.98

Subcatchment DA-14A: Pre DA-14A



Hydrograph for Subcatchment DA-14A: Pre DA-14A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.00
12.00	1.75	0.00	1.53	**0.07**
14.00	2.84	0.00	2.61	**0.01**
16.00	3.10	0.00	2.87	0.00
18.00	3.25	0.00	3.02	0.00
20.00	3.35	0.00	3.12	0.00
22.00	3.43	0.00	3.20	0.00
24.00	**3.50**	0.00	**3.27**	0.00
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00

Summary for Subcatchment DA-14B: Pre DA-14B

Runoff = 0.37 cfs @ 12.07 hrs, Volume= 1,311 cf, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

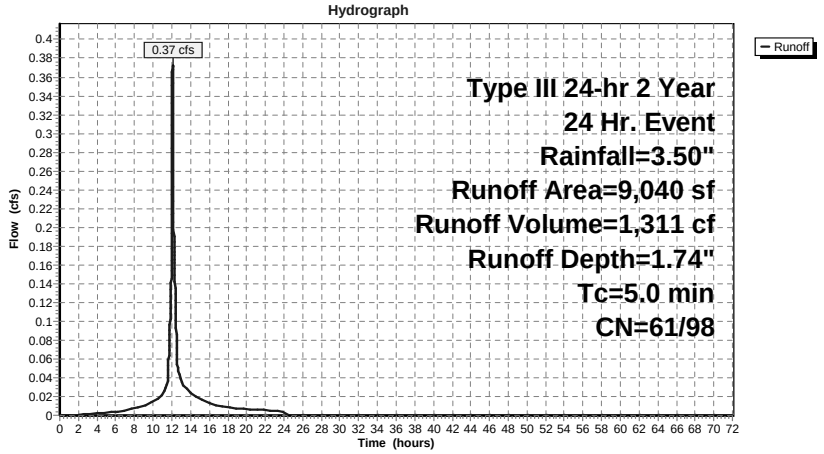
Area (sf)	CN	Description	Land Use
573	98	Unconnected pavement, HSG C	Pavement
3,344	98	Roofs, HSG C	Roofs
5,123	61	>75% Grass cover, Good, HSG B	Open Space
9,040	77	Weighted Average	
5,123	61	56.67% Pervious Area	
3,917	98	43.33% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 43.33% Impervious, Rv= 0.440, Runoff= 20.11"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,123	Open Space	322.59	1.13	4.88	0.66
573	Pavement	10.37	0.03	0.13	0.40
3,344	Roofs	6.65	0.04	0.52	2.59
9,040	Total	339.61	1.20	5.53	3.65

Subcatchment DA-14B: Pre DA-14B



Hydrograph for Subcatchment DA-14B: Pre DA-14B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.03	1.53	**0.24**
14.00	2.84	0.31	2.61	**0.02**
16.00	3.10	0.40	2.87	0.01
18.00	3.25	0.46	3.02	0.01
20.00	3.35	0.51	3.12	0.01
22.00	3.43	0.54	3.20	0.01
24.00	**3.50**	**0.57**	**3.27**	0.00
26.00	3.50	0.57	3.27	0.00
28.00	3.50	0.57	3.27	0.00
30.00	3.50	0.57	3.27	0.00
32.00	3.50	0.57	3.27	0.00
34.00	3.50	0.57	3.27	0.00
36.00	3.50	0.57	3.27	0.00
38.00	3.50	0.57	3.27	0.00
40.00	3.50	0.57	3.27	0.00
42.00	3.50	0.57	3.27	0.00
44.00	3.50	0.57	3.27	0.00
46.00	3.50	0.57	3.27	0.00
48.00	3.50	0.57	3.27	0.00
50.00	3.50	0.57	3.27	0.00
52.00	3.50	0.57	3.27	0.00
54.00	3.50	0.57	3.27	0.00
56.00	3.50	0.57	3.27	0.00
58.00	3.50	0.57	3.27	0.00
60.00	3.50	0.57	3.27	0.00
62.00	3.50	0.57	3.27	0.00
64.00	3.50	0.57	3.27	0.00
66.00	3.50	0.57	3.27	0.00
68.00	3.50	0.57	3.27	0.00
70.00	3.50	0.57	3.27	0.00
72.00	3.50	0.57	3.27	0.00

Summary for Subcatchment DA-15: Pre DA-15

Runoff = 2.51 cfs @ 12.07 hrs, Volume= 8,363 cf, Depth= 2.74"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

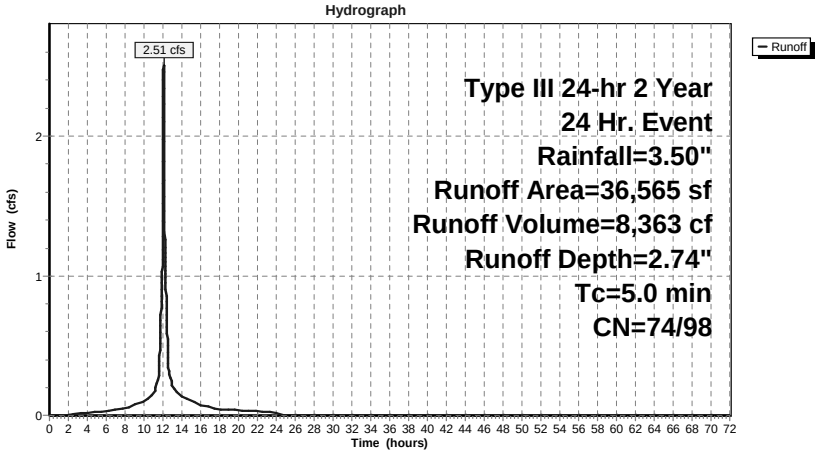
Area (sf)	CN	Description	Land Use
21,025	98	Paved parking, HSG B	Pavement
6,126	98	Roofs, HSG B	Roofs
9,414	74	>75% Grass cover, Good, HSG C	Open Space
36,565	92	Weighted Average	
9,414	74	25.75% Pervious Area	
27,151	98	74.25% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.25% Impervious, Rv= 0.718, Runoff= 32.83"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,414	Open Space	967.79	3.38	14.63	1.98
21,025	Pavement	621.15	2.01	7.54	24.06
6,126	Roofs	19.88	0.12	1.57	7.74
36,565	Total	1,608.82	5.50	23.74	33.77

Subcatchment DA-15: Pre DA-15



Hydrograph for Subcatchment DA-15: Pre DA-15

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.02
6.00	0.25	0.00	0.11	0.03
8.00	0.40	0.00	0.23	0.05
10.00	0.66	0.00	0.47	0.10
12.00	1.75	0.24	1.53	**1.66**
14.00	2.84	0.81	2.61	**0.14**
16.00	3.10	0.97	2.87	0.07
18.00	3.25	1.07	3.02	0.04
20.00	3.35	1.14	3.12	0.04
22.00	3.43	1.19	3.20	0.03
24.00	**3.50**	**1.24**	**3.27**	0.02
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00

Summary for Subcatchment DA-16: Pre DA-16

Runoff = 8.21 cfs @ 12.23 hrs, Volume= 37,592 cf, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

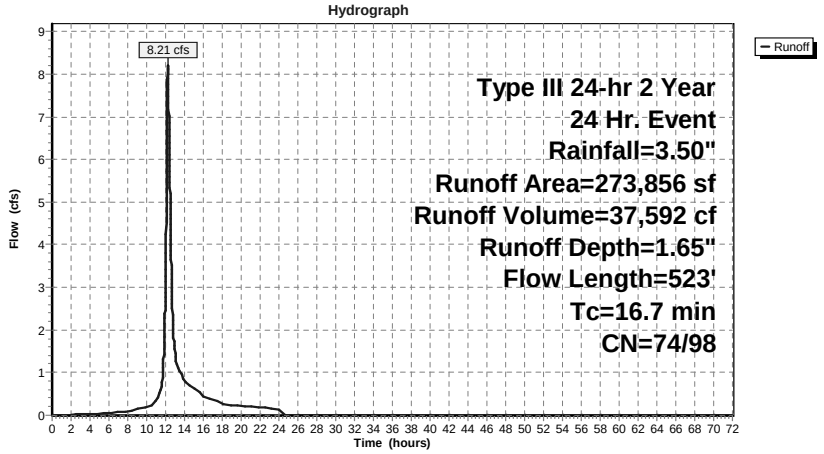
Area (sf)	CN	Description	Land Use
55,041	98	Paved parking, HSG B	Pavement
218,815	74	>75% Grass cover, Good, HSG C	Open Space
273,856	79	Weighted Average	
218,815	74	79.90% Pervious Area	
55,041	98	20.10% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	150	0.0330	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	30	0.0330	2.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.8	275	0.1160	5.48		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	68	0.0440	3.38		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
16.7	523	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 20.10% Impervious, Rv= 0.231, Runoff= 10.55"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
218,815	Open Space	7,230.80	25.22	109.30	14.77
55,041	Pavement	522.69	1.69	6.34	20.24
273,856	Total	7,753.49	26.92	115.65	35.02

Subcatchment DA-16: Pre DA-16



Hydrograph for Subcatchment DA-16: Pre DA-16

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.01
4.00	0.15	0.00	0.04	0.03
6.00	0.25	0.00	0.11	0.05
8.00	0.40	0.00	0.23	0.09
10.00	0.66	0.00	0.47	0.19
12.00	1.75	0.24	1.53	**3.12**
14.00	2.84	0.81	2.61	**0.84**
16.00	3.10	0.97	2.87	0.46
18.00	3.25	1.07	3.02	0.28
20.00	3.35	1.14	3.12	0.22
22.00	3.43	1.19	3.20	0.18
24.00	**3.50**	**1.24**	**3.27**	0.15
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00

Summary for Subcatchment DA-17: Pre DA-17

Runoff = 16.29 cfs @ 12.18 hrs, Volume= 70,065 cf, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

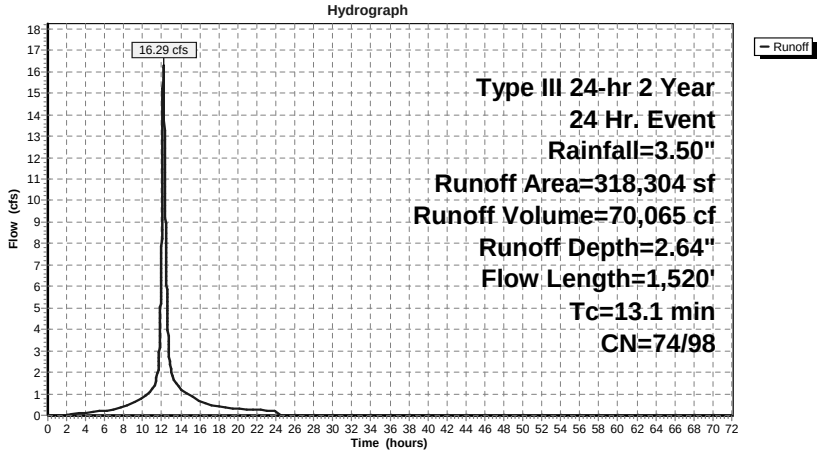
Area (sf)	CN	Description	Land Use
130,871	98	Paved parking, HSG C	Pavement
89,259	98	Roofs, HSG C	Roofs
98,174	74	>75% Grass cover, Good, HSG C	Open Space
318,304	91	Weighted Average	
98,174	74	30.84% Pervious Area	
220,130	98	69.16% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	135	0.0670	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.1	35	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.2	1,350		10.00		**Direct Entry, Pipe Flow**
13.1	1,520	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 69.16% Impervious, Rv= 0.672, Runoff= 30.73"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
98,174	Open Space	9,448.09	32.96	142.82	19.30
130,871	Pavement	3,619.43	11.72	43.94	140.17
89,259	Roofs	271.12	1.57	21.40	105.59
318,304	Total	13,338.64	46.24	208.16	265.07

Subcatchment DA-17: Pre DA-17



Hydrograph for Subcatchment DA-17: Pre DA-17

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.03
4.00	0.15	0.00	0.04	0.12
6.00	0.25	0.00	0.11	0.21
8.00	0.40	0.00	0.23	0.38
10.00	0.66	0.00	0.47	0.78
12.00	1.75	0.24	1.53	**7.86**
14.00	2.84	0.81	2.61	**1.22**
16.00	3.10	0.97	2.87	0.65
18.00	3.25	1.07	3.02	0.39
20.00	3.35	1.14	3.12	0.31
22.00	3.43	1.19	3.20	0.25
24.00	**3.50**	**1.24**	**3.27**	0.20
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00

Summary for Subcatchment DA-18: Pre DA-18

Runoff = 10.14 cfs @ 12.19 hrs, Volume= 40,620 cf, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

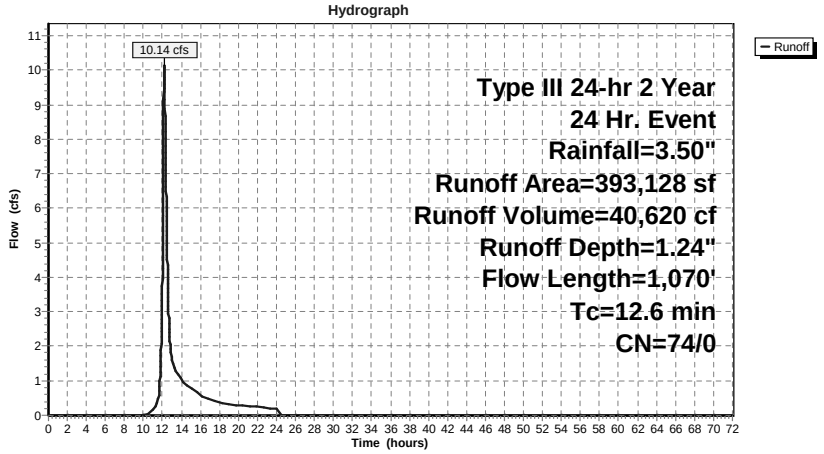
Area (sf)	CN	Description	Land Use
321,115	74	>75% Grass cover, Good, HSG C	Open Space
60,787	70	Woods, Good, HSG C	Woods
11,226	89	Gravel roads, HSG C	Roadway
393,128	74	Weighted Average	
393,128	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	150	0.0800	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	220	0.0910	4.86		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	190	0.2630	8.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	510	0.0200	13.18	79.10	**Channel Flow,** Area= 6.0 sf Perim= 5.0' r= 1.20' n= 0.018 Earth, clean & straight
12.6	1,070	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
321,115	Open Space	2,297.95	8.02	34.74	4.70
11,226	Roadway	23.09	0.07	0.28	0.89
60,787	Woods	26.74	0.00	0.00	0.89
393,128	Total	2,347.78	8.09	35.02	6.48

Subcatchment DA-18: Pre DA-18



Hydrograph for Subcatchment DA-18: Pre DA-18

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.24	0.00	**3.74**
14.00	2.84	0.81	0.00	**1.04**
16.00	3.10	0.97	0.00	0.58
18.00	3.25	1.07	0.00	0.36
20.00	3.35	1.14	0.00	0.29
22.00	3.43	1.19	0.00	0.24
24.00	**3.50**	**1.24**	0.00	0.19
26.00	3.50	1.24	0.00	0.00
28.00	3.50	1.24	0.00	0.00
30.00	3.50	1.24	0.00	0.00
32.00	3.50	1.24	0.00	0.00
34.00	3.50	1.24	0.00	0.00
36.00	3.50	1.24	0.00	0.00
38.00	3.50	1.24	0.00	0.00
40.00	3.50	1.24	0.00	0.00
42.00	3.50	1.24	0.00	0.00
44.00	3.50	1.24	0.00	0.00
46.00	3.50	1.24	0.00	0.00
48.00	3.50	1.24	0.00	0.00
50.00	3.50	1.24	0.00	0.00
52.00	3.50	1.24	0.00	0.00
54.00	3.50	1.24	0.00	0.00
56.00	3.50	1.24	0.00	0.00
58.00	3.50	1.24	0.00	0.00
60.00	3.50	1.24	0.00	0.00
62.00	3.50	1.24	0.00	0.00
64.00	3.50	1.24	0.00	0.00
66.00	3.50	1.24	0.00	0.00
68.00	3.50	1.24	0.00	0.00
70.00	3.50	1.24	0.00	0.00
72.00	3.50	1.24	0.00	0.00

Summary for Subcatchment DA-19: Pre DA-19

Runoff = 15.57 cfs @ 12.18 hrs, Volume= 63,060 cf, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

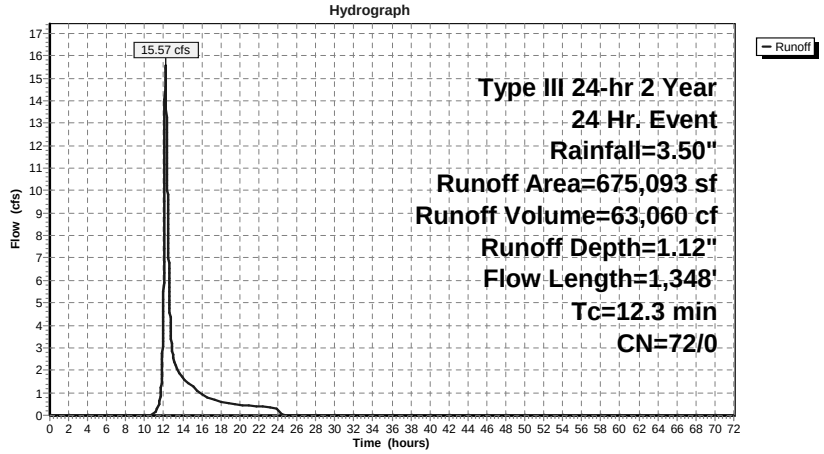
Area (sf)	CN	Description	Land Use
370,422	74	>75% Grass cover, Good, HSG C	Open Space
304,671	70	Woods, Good, HSG C	Woods
675,093	72	Weighted Average	
675,093	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0970	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.1	273	0.0970	2.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	121	0.1980	3.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	214	0.1680	2.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	640		10.00		**Direct Entry,**
12.3	1,348	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
370,422	Open Space	2,650.80	9.25	40.07	5.42
304,671	Woods	134.00	0.00	0.00	4.45
675,093	Total	2,784.81	9.25	40.07	9.87

Subcatchment DA-19: Pre DA-19



Hydrograph for Subcatchment DA-19: Pre DA-19

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.19	0.00	**5.49**
14.00	2.84	0.71	0.00	**1.66**
16.00	3.10	0.87	0.00	0.93
18.00	3.25	0.96	0.00	0.58
20.00	3.35	1.02	0.00	0.46
22.00	3.43	1.08	0.00	0.39
24.00	**3.50**	**1.12**	0.00	0.31
26.00	3.50	1.12	0.00	0.00
28.00	3.50	1.12	0.00	0.00
30.00	3.50	1.12	0.00	0.00
32.00	3.50	1.12	0.00	0.00
34.00	3.50	1.12	0.00	0.00
36.00	3.50	1.12	0.00	0.00
38.00	3.50	1.12	0.00	0.00
40.00	3.50	1.12	0.00	0.00
42.00	3.50	1.12	0.00	0.00
44.00	3.50	1.12	0.00	0.00
46.00	3.50	1.12	0.00	0.00
48.00	3.50	1.12	0.00	0.00
50.00	3.50	1.12	0.00	0.00
52.00	3.50	1.12	0.00	0.00
54.00	3.50	1.12	0.00	0.00
56.00	3.50	1.12	0.00	0.00
58.00	3.50	1.12	0.00	0.00
60.00	3.50	1.12	0.00	0.00
62.00	3.50	1.12	0.00	0.00
64.00	3.50	1.12	0.00	0.00
66.00	3.50	1.12	0.00	0.00
68.00	3.50	1.12	0.00	0.00
70.00	3.50	1.12	0.00	0.00
72.00	3.50	1.12	0.00	0.00

Summary for Pond DP12: DP-12

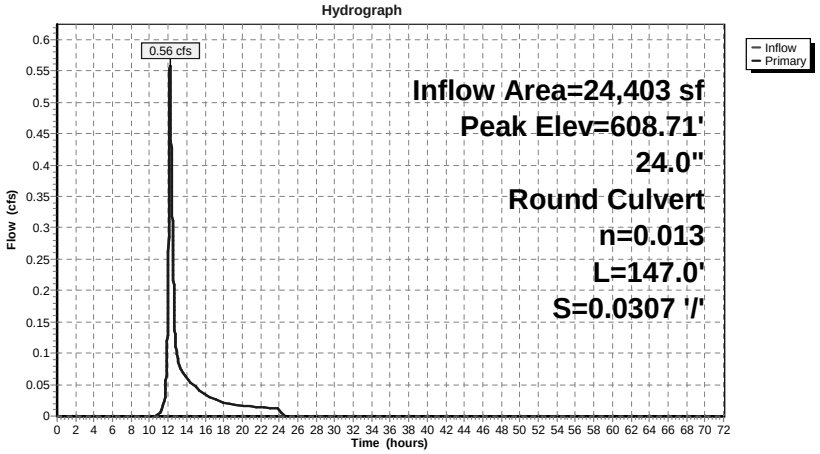
Inflow Area = 24,403 sf, 0.00% Impervious, Inflow Depth = 1.12" for 2 Year, 24 Hr. Event event
Inflow = 0.56 cfs @ 12.19 hrs, Volume= 2,279 cf
Outflow = 0.56 cfs @ 12.19 hrs, Volume= 2,279 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.56 cfs @ 12.19 hrs, Volume= 2,279 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.71' @ 12.19 hrs
Flood Elev= 613.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.37'	**24.0" Round Culvert** L= 147.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 608.37' / 603.85' S= 0.0307 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.56 cfs @ 12.19 hrs HW=608.71' (Free Discharge)
1=Culvert (Inlet Controls 0.56 cfs @ 1.57 fps)

Pond DP12: DP-12



Hydrograph for Pond DP12: DP-12

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	608.37	0.00	52.00	0.00	608.37	0.00
1.00	0.00	608.37	0.00	53.00	0.00	608.37	0.00
2.00	0.00	608.37	0.00	54.00	0.00	608.37	0.00
3.00	0.00	608.37	0.00	55.00	0.00	608.37	0.00
4.00	0.00	608.37	0.00	56.00	0.00	608.37	0.00
5.00	0.00	608.37	0.00	57.00	0.00	608.37	0.00
6.00	0.00	608.37	0.00	58.00	0.00	608.37	0.00
7.00	0.00	608.37	0.00	59.00	0.00	608.37	0.00
8.00	0.00	608.37	0.00	60.00	0.00	608.37	0.00
9.00	0.00	608.37	0.00	61.00	0.00	608.37	0.00
10.00	0.00	608.37	0.00	62.00	0.00	608.37	0.00
11.00	0.00	608.40	0.00	63.00	0.00	608.37	0.00
12.00	**0.19**	**608.57**	**0.19**	64.00	0.00	608.37	0.00
13.00	**0.10**	**608.51**	**0.10**	65.00	0.00	608.37	0.00
14.00	0.06	608.48	0.06	66.00	0.00	608.37	0.00
15.00	0.05	608.47	0.05	67.00	0.00	608.37	0.00
16.00	0.03	608.45	0.03	68.00	0.00	608.37	0.00
17.00	0.03	608.44	0.03	69.00	0.00	608.37	0.00
18.00	0.02	608.43	0.02	70.00	0.00	608.37	0.00
19.00	0.02	608.43	0.02	71.00	0.00	608.37	0.00
20.00	0.02	608.43	0.02	72.00	0.00	608.37	0.00
21.00	0.02	608.43	0.02				
22.00	0.01	608.42	0.01				
23.00	0.01	608.42	0.01				
24.00	0.01	608.42	0.01				
25.00	0.00	608.37	0.00				
26.00	0.00	608.37	0.00				
27.00	0.00	608.37	0.00				
28.00	0.00	608.37	0.00				
29.00	0.00	608.37	0.00				
30.00	0.00	608.37	0.00				
31.00	0.00	608.37	0.00				
32.00	0.00	608.37	0.00				
33.00	0.00	608.37	0.00				
34.00	0.00	608.37	0.00				
35.00	0.00	608.37	0.00				
36.00	0.00	608.37	0.00				
37.00	0.00	608.37	0.00				
38.00	0.00	608.37	0.00				
39.00	0.00	608.37	0.00				
40.00	0.00	608.37	0.00				
41.00	0.00	608.37	0.00				
42.00	0.00	608.37	0.00				
43.00	0.00	608.37	0.00				
44.00	0.00	608.37	0.00				
45.00	0.00	608.37	0.00				
46.00	0.00	608.37	0.00				
47.00	0.00	608.37	0.00				
48.00	0.00	608.37	0.00				
49.00	0.00	608.37	0.00				
50.00	0.00	608.37	0.00				
51.00	0.00	608.37	0.00				

Summary for Pond DP13: DP-13

[57] Hint: Peaked at 604.26' (Flood elevation advised)

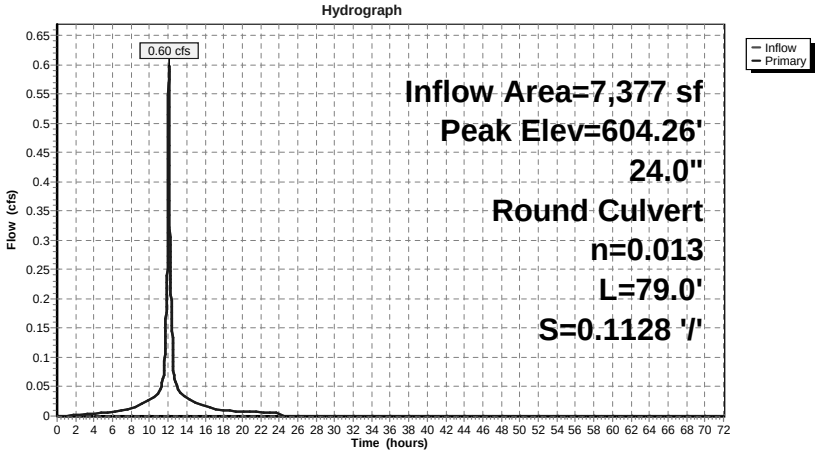
Inflow Area = 7,377 sf,100.00% Impervious, Inflow Depth = 3.27" for 2 Year, 24 Hr. Event event
Inflow = 0.60 cfs @ 12.07 hrs, Volume= 2,008 cf
Outflow = 0.60 cfs @ 12.07 hrs, Volume= 2,008 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.60 cfs @ 12.07 hrs, Volume= 2,008 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 604.26' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	603.91'	**24.0" Round Culvert** L= 79.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 603.91' / 595.00' S= 0.1128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.60 cfs @ 12.07 hrs HW=604.26' (Free Discharge)
1=Culvert (Inlet Controls 0.60 cfs @ 1.60 fps)

Pond DP13: DP-13



Hydrograph for Pond DP13: DP-13

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	603.91	0.00	52.00	0.00	603.91	0.00
1.00	0.00	603.91	0.00	53.00	0.00	603.91	0.00
2.00	0.00	603.93	0.00	54.00	0.00	603.91	0.00
3.00	0.00	603.93	0.00	55.00	0.00	603.91	0.00
4.00	0.00	603.94	0.00	56.00	0.00	603.91	0.00
5.00	0.01	603.94	0.01	57.00	0.00	603.91	0.00
6.00	0.01	603.95	0.01	58.00	0.00	603.91	0.00
7.00	0.01	603.95	0.01	59.00	0.00	603.91	0.00
8.00	0.01	603.96	0.01	60.00	0.00	603.91	0.00
9.00	0.02	603.97	0.02	61.00	0.00	603.91	0.00
10.00	0.03	603.98	0.03	62.00	0.00	603.91	0.00
11.00	0.04	604.00	0.04	63.00	0.00	603.91	0.00
12.00	**0.40**	**604.20**	**0.40**	64.00	0.00	603.91	0.00
13.00	**0.05**	**604.01**	**0.05**	65.00	0.00	603.91	0.00
14.00	0.03	603.99	0.03	66.00	0.00	603.91	0.00
15.00	0.02	603.98	0.02	67.00	0.00	603.91	0.00
16.00	0.02	603.97	0.02	68.00	0.00	603.91	0.00
17.00	0.01	603.96	0.01	69.00	0.00	603.91	0.00
18.00	0.01	603.95	0.01	70.00	0.00	603.91	0.00
19.00	0.01	603.95	0.01	71.00	0.00	603.91	0.00
20.00	0.01	603.95	0.01	72.00	0.00	603.91	0.00
21.00	0.01	603.95	0.01				
22.00	0.01	603.95	0.01				
23.00	0.01	603.94	0.01				
24.00	0.01	603.94	0.01				
25.00	0.00	603.91	0.00				
26.00	0.00	603.91	0.00				
27.00	0.00	603.91	0.00				
28.00	0.00	603.91	0.00				
29.00	0.00	603.91	0.00				
30.00	0.00	603.91	0.00				
31.00	0.00	603.91	0.00				
32.00	0.00	603.91	0.00				
33.00	0.00	603.91	0.00				
34.00	0.00	603.91	0.00				
35.00	0.00	603.91	0.00				
36.00	0.00	603.91	0.00				
37.00	0.00	603.91	0.00				
38.00	0.00	603.91	0.00				
39.00	0.00	603.91	0.00				
40.00	0.00	603.91	0.00				
41.00	0.00	603.91	0.00				
42.00	0.00	603.91	0.00				
43.00	0.00	603.91	0.00				
44.00	0.00	603.91	0.00				
45.00	0.00	603.91	0.00				
46.00	0.00	603.91	0.00				
47.00	0.00	603.91	0.00				
48.00	0.00	603.91	0.00				
49.00	0.00	603.91	0.00				
50.00	0.00	603.91	0.00				
51.00	0.00	603.91	0.00				

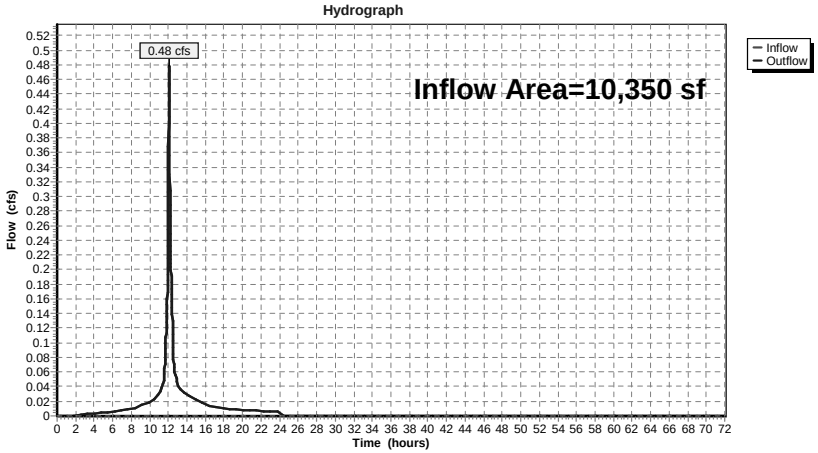
Summary for Reach DP14: DP-14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10,350 sf, 50.50% Impervious, Inflow Depth = 1.93" for 2 Year, 24 Hr. Event event
Inflow = 0.48 cfs @ 12.07 hrs, Volume= 1,667 cf
Outflow = 0.48 cfs @ 12.07 hrs, Volume= 1,667 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP14: DP-14



Hydrograph for Reach DP14: DP-14

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.01		0.01	60.00	0.00		0.00
9.00	0.01		0.01	61.00	0.00		0.00
10.00	0.02		0.02	62.00	0.00		0.00
11.00	0.03		0.03	63.00	0.00		0.00
12.00	**0.31**		**0.31**	64.00	0.00		0.00
13.00	**0.04**		**0.04**	65.00	0.00		0.00
14.00	0.03		0.03	66.00	0.00		0.00
15.00	0.02		0.02	67.00	0.00		0.00
16.00	0.02		0.02	68.00	0.00		0.00
17.00	0.01		0.01	69.00	0.00		0.00
18.00	0.01		0.01	70.00	0.00		0.00
19.00	0.01		0.01	71.00	0.00		0.00
20.00	0.01		0.01	72.00	0.00		0.00
21.00	0.01		0.01				
22.00	0.01		0.01				
23.00	0.01		0.01				
24.00	0.01		0.01				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

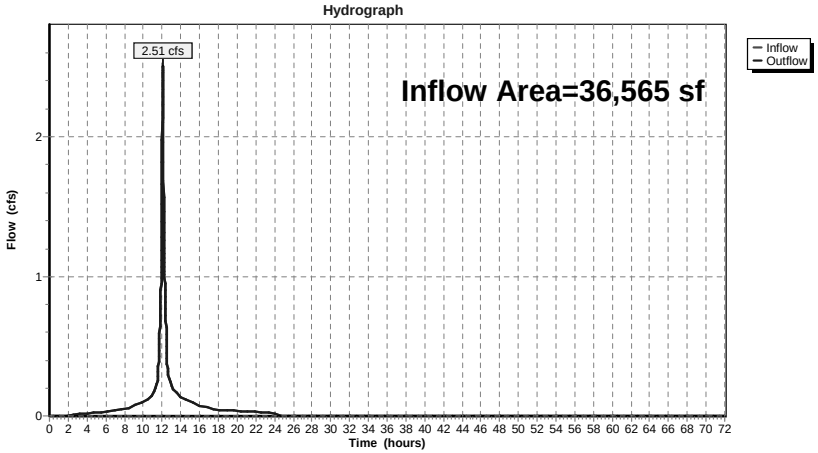
Summary for Reach DP15: DP-15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 36,565 sf, 74.25% Impervious, Inflow Depth = 2.74" for 2 Year, 24 Hr. Event event
Inflow = 2.51 cfs @ 12.07 hrs, Volume= 8,363 cf
Outflow = 2.51 cfs @ 12.07 hrs, Volume= 8,363 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP15: DP-15



Hydrograph for Reach DP15: DP-15

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.02		0.02	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.03		0.03	58.00	0.00		0.00
7.00	0.04		0.04	59.00	0.00		0.00
8.00	0.05		0.05	60.00	0.00		0.00
9.00	0.07		0.07	61.00	0.00		0.00
10.00	0.10		0.10	62.00	0.00		0.00
11.00	0.15		0.15	63.00	0.00		0.00
12.00	**1.66**		**1.66**	64.00	0.00		0.00
13.00	**0.21**		**0.21**	65.00	0.00		0.00
14.00	0.14		0.14	66.00	0.00		0.00
15.00	0.10		0.10	67.00	0.00		0.00
16.00	0.07		0.07	68.00	0.00		0.00
17.00	0.06		0.06	69.00	0.00		0.00
18.00	0.04		0.04	70.00	0.00		0.00
19.00	0.04		0.04	71.00	0.00		0.00
20.00	0.04		0.04	72.00	0.00		0.00
21.00	0.03		0.03				
22.00	0.03		0.03				
23.00	0.03		0.03				
24.00	0.02		0.02				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP16: DP-16

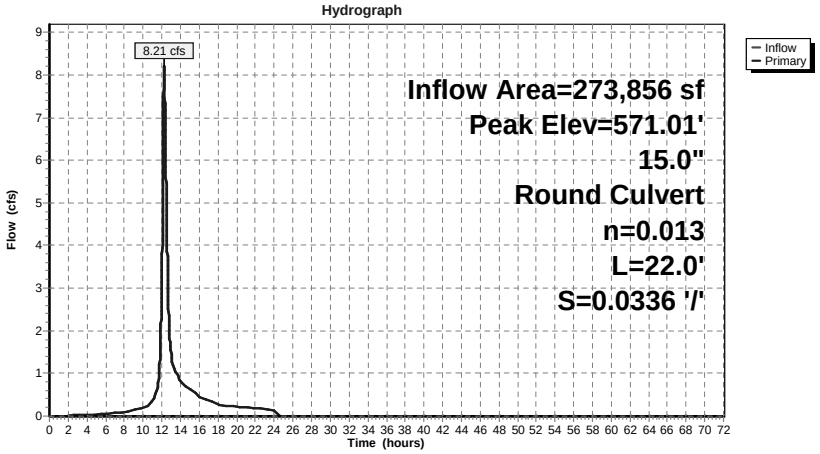
Inflow Area = 273,856 sf, 20.10% Impervious, Inflow Depth = 1.65" for 2 Year, 24 Hr. Event event
Inflow = 8.21 cfs @ 12.23 hrs, Volume= 37,592 cf
Outflow = 8.21 cfs @ 12.23 hrs, Volume= 37,592 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.21 cfs @ 12.23 hrs, Volume= 37,592 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 571.01' @ 12.23 hrs
Flood Elev= 571.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	567.29'	**15.0" Round Culvert** L= 22.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 567.29' / 566.55' S= 0.0336 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=8.20 cfs @ 12.23 hrs HW=571.01' (Free Discharge)
↑—1=Culvert (Inlet Controls 8.20 cfs @ 6.68 fps)

Pond DP16: DP-16



Hydrograph for Pond DP16: DP-16

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	567.29	0.00	52.00	0.00	567.29	0.00
1.00	0.00	567.29	0.00	53.00	0.00	567.29	0.00
2.00	0.01	567.33	0.01	54.00	0.00	567.29	0.00
3.00	0.02	567.36	0.02	55.00	0.00	567.29	0.00
4.00	0.03	567.38	0.03	56.00	0.00	567.29	0.00
5.00	0.04	567.39	0.04	57.00	0.00	567.29	0.00
6.00	0.05	567.41	0.05	58.00	0.00	567.29	0.00
7.00	0.07	567.43	0.07	59.00	0.00	567.29	0.00
8.00	0.09	567.45	0.09	60.00	0.00	567.29	0.00
9.00	0.14	567.48	0.14	61.00	0.00	567.29	0.00
10.00	0.19	567.51	0.19	62.00	0.00	567.29	0.00
11.00	0.36	567.60	0.36	63.00	0.00	567.29	0.00
12.00	**3.12**	**568.36**	**3.12**	64.00	0.00	567.29	0.00
13.00	**1.46**	**567.96**	**1.46**	65.00	0.00	567.29	0.00
14.00	0.84	567.78	0.84	66.00	0.00	567.29	0.00
15.00	0.63	567.71	0.63	67.00	0.00	567.29	0.00
16.00	0.46	567.64	0.46	68.00	0.00	567.29	0.00
17.00	0.36	567.60	0.36	69.00	0.00	567.29	0.00
18.00	0.28	567.56	0.28	70.00	0.00	567.29	0.00
19.00	0.24	567.54	0.24	71.00	0.00	567.29	0.00
20.00	0.22	567.53	0.22	72.00	0.00	567.29	0.00
21.00	0.20	567.52	0.20				
22.00	0.18	567.51	0.18				
23.00	0.16	567.50	0.16				
24.00	0.15	567.49	0.15				
25.00	0.00	567.29	0.00				
26.00	0.00	567.29	0.00				
27.00	0.00	567.29	0.00				
28.00	0.00	567.29	0.00				
29.00	0.00	567.29	0.00				
30.00	0.00	567.29	0.00				
31.00	0.00	567.29	0.00				
32.00	0.00	567.29	0.00				
33.00	0.00	567.29	0.00				
34.00	0.00	567.29	0.00				
35.00	0.00	567.29	0.00				
36.00	0.00	567.29	0.00				
37.00	0.00	567.29	0.00				
38.00	0.00	567.29	0.00				
39.00	0.00	567.29	0.00				
40.00	0.00	567.29	0.00				
41.00	0.00	567.29	0.00				
42.00	0.00	567.29	0.00				
43.00	0.00	567.29	0.00				
44.00	0.00	567.29	0.00				
45.00	0.00	567.29	0.00				
46.00	0.00	567.29	0.00				
47.00	0.00	567.29	0.00				
48.00	0.00	567.29	0.00				
49.00	0.00	567.29	0.00				
50.00	0.00	567.29	0.00				
51.00	0.00	567.29	0.00				

Summary for Pond DP17: DP-17

[58] Hint: Peaked 8.45' above defined flood level

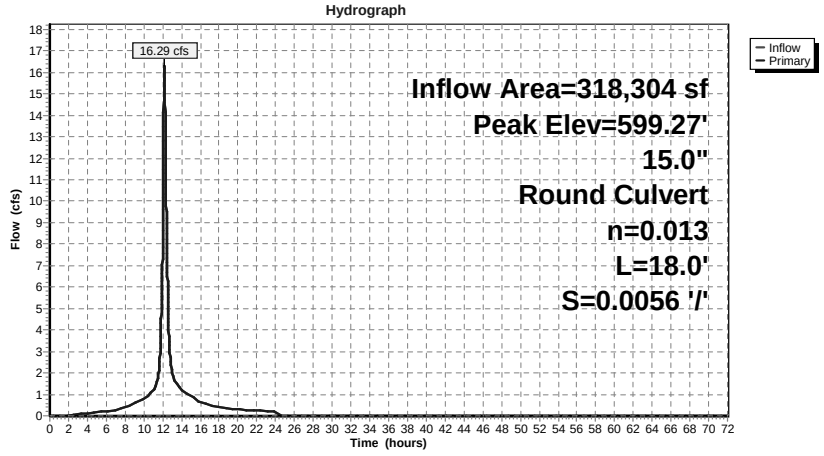
Inflow Area = 318,304 sf, 69.16% Impervious, Inflow Depth = 2.64" for 2 Year, 24 Hr. Event event
Inflow = 16.29 cfs @ 12.18 hrs, Volume= 70,065 cf
Outflow = 16.29 cfs @ 12.18 hrs, Volume= 70,065 cf, Atten= 0%, Lag= 0.0 min
Primary = 16.29 cfs @ 12.18 hrs, Volume= 70,065 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 599.27' @ 12.18 hrs
Flood Elev= 590.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	586.45'	**15.0" Round Culvert-verify outlet invert** L= 18.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 586.45' / 586.35' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=16.27 cfs @ 12.18 hrs HW=599.25' (Free Discharge)
↳**1=Culvert-verify outlet invert** (Inlet Controls 16.27 cfs @ 13.26 fps)

Pond DP17: DP-17



Hydrograph for Pond DP17: DP-17

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	586.45	0.00	52.00	0.00	586.45	0.00
1.00	0.00	586.45	0.00	53.00	0.00	586.45	0.00
2.00	0.03	586.55	0.03	54.00	0.00	586.45	0.00
3.00	0.08	586.61	0.08	55.00	0.00	586.45	0.00
4.00	0.12	586.65	0.12	56.00	0.00	586.45	0.00
5.00	0.17	586.68	0.17	57.00	0.00	586.45	0.00
6.00	0.21	586.71	0.21	58.00	0.00	586.45	0.00
7.00	0.29	586.75	0.29	59.00	0.00	586.45	0.00
8.00	0.38	586.80	0.38	60.00	0.00	586.45	0.00
9.00	0.56	586.88	0.56	61.00	0.00	586.45	0.00
10.00	0.78	586.97	0.78	62.00	0.00	586.45	0.00
11.00	1.20	587.11	1.20	63.00	0.00	586.45	0.00
12.00	**7.86**	**589.92**	**7.86**	64.00	0.00	586.45	0.00
13.00	**2.06**	**587.35**	**2.06**	65.00	0.00	586.45	0.00
14.00	1.22	587.11	1.22	66.00	0.00	586.45	0.00
15.00	0.91	587.01	0.91	67.00	0.00	586.45	0.00
16.00	0.65	586.92	0.65	68.00	0.00	586.45	0.00
17.00	0.51	586.86	0.51	69.00	0.00	586.45	0.00
18.00	0.39	586.81	0.39	70.00	0.00	586.45	0.00
19.00	0.34	586.78	0.34	71.00	0.00	586.45	0.00
20.00	0.31	586.76	0.31	72.00	0.00	586.45	0.00
21.00	0.28	586.75	0.28				
22.00	0.25	586.73	0.25				
23.00	0.23	586.72	0.23				
24.00	0.20	586.70	0.20				
25.00	0.00	586.45	0.00				
26.00	0.00	586.45	0.00				
27.00	0.00	586.45	0.00				
28.00	0.00	586.45	0.00				
29.00	0.00	586.45	0.00				
30.00	0.00	586.45	0.00				
31.00	0.00	586.45	0.00				
32.00	0.00	586.45	0.00				
33.00	0.00	586.45	0.00				
34.00	0.00	586.45	0.00				
35.00	0.00	586.45	0.00				
36.00	0.00	586.45	0.00				
37.00	0.00	586.45	0.00				
38.00	0.00	586.45	0.00				
39.00	0.00	586.45	0.00				
40.00	0.00	586.45	0.00				
41.00	0.00	586.45	0.00				
42.00	0.00	586.45	0.00				
43.00	0.00	586.45	0.00				
44.00	0.00	586.45	0.00				
45.00	0.00	586.45	0.00				
46.00	0.00	586.45	0.00				
47.00	0.00	586.45	0.00				
48.00	0.00	586.45	0.00				
49.00	0.00	586.45	0.00				
50.00	0.00	586.45	0.00				
51.00	0.00	586.45	0.00				

Summary for Pond DP18: DP-18

[58] Hint: Peaked 2.54' above defined flood level

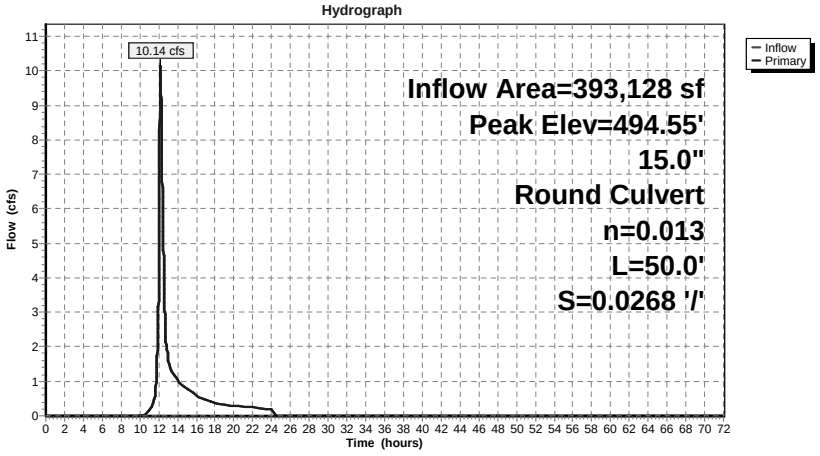
Inflow Area = 393,128 sf, 0.00% Impervious, Inflow Depth = 1.24" for 2 Year, 24 Hr. Event event
Inflow = 10.14 cfs @ 12.19 hrs, Volume= 40,620 cf
Outflow = 10.14 cfs @ 12.19 hrs, Volume= 40,620 cf, Atten= 0%, Lag= 0.0 min
Primary = 10.14 cfs @ 12.19 hrs, Volume= 40,620 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 494.55' @ 12.19 hrs
Flood Elev= 492.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	489.20'	**15.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.20' / 487.86' S= 0.0268 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=10.13 cfs @ 12.19 hrs HW=494.54' (Free Discharge)
↳**1=Culvert** (Inlet Controls 10.13 cfs @ 8.26 fps)

Pond DP18: DP-18



Hydrograph for Pond DP18: DP-18

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	489.20	0.00	52.00	0.00	489.20	0.00
1.00	0.00	489.20	0.00	53.00	0.00	489.20	0.00
2.00	0.00	489.20	0.00	54.00	0.00	489.20	0.00
3.00	0.00	489.20	0.00	55.00	0.00	489.20	0.00
4.00	0.00	489.20	0.00	56.00	0.00	489.20	0.00
5.00	0.00	489.20	0.00	57.00	0.00	489.20	0.00
6.00	0.00	489.20	0.00	58.00	0.00	489.20	0.00
7.00	0.00	489.20	0.00	59.00	0.00	489.20	0.00
8.00	0.00	489.20	0.00	60.00	0.00	489.20	0.00
9.00	0.00	489.20	0.00	61.00	0.00	489.20	0.00
10.00	0.00	489.20	0.00	62.00	0.00	489.20	0.00
11.00	0.15	489.40	0.15	63.00	0.00	489.20	0.00
12.00	**3.74**	**490.47**	**3.74**	64.00	0.00	489.20	0.00
13.00	**1.67**	**489.92**	**1.67**	65.00	0.00	489.20	0.00
14.00	1.04	489.75	1.04	66.00	0.00	489.20	0.00
15.00	0.80	489.68	0.80	67.00	0.00	489.20	0.00
16.00	0.58	489.60	0.58	68.00	0.00	489.20	0.00
17.00	0.46	489.55	0.46	69.00	0.00	489.20	0.00
18.00	0.36	489.51	0.36	70.00	0.00	489.20	0.00
19.00	0.32	489.49	0.32	71.00	0.00	489.20	0.00
20.00	0.29	489.48	0.29	72.00	0.00	489.20	0.00
21.00	0.26	489.46	0.26				
22.00	0.24	489.45	0.24				
23.00	0.22	489.44	0.22				
24.00	0.19	489.42	0.19				
25.00	0.00	489.20	0.00				
26.00	0.00	489.20	0.00				
27.00	0.00	489.20	0.00				
28.00	0.00	489.20	0.00				
29.00	0.00	489.20	0.00				
30.00	0.00	489.20	0.00				
31.00	0.00	489.20	0.00				
32.00	0.00	489.20	0.00				
33.00	0.00	489.20	0.00				
34.00	0.00	489.20	0.00				
35.00	0.00	489.20	0.00				
36.00	0.00	489.20	0.00				
37.00	0.00	489.20	0.00				
38.00	0.00	489.20	0.00				
39.00	0.00	489.20	0.00				
40.00	0.00	489.20	0.00				
41.00	0.00	489.20	0.00				
42.00	0.00	489.20	0.00				
43.00	0.00	489.20	0.00				
44.00	0.00	489.20	0.00				
45.00	0.00	489.20	0.00				
46.00	0.00	489.20	0.00				
47.00	0.00	489.20	0.00				
48.00	0.00	489.20	0.00				
49.00	0.00	489.20	0.00				
50.00	0.00	489.20	0.00				
51.00	0.00	489.20	0.00				

Summary for Pond DP19: DP-19

[57] Hint: Peaked at 483.54' (Flood elevation advised)

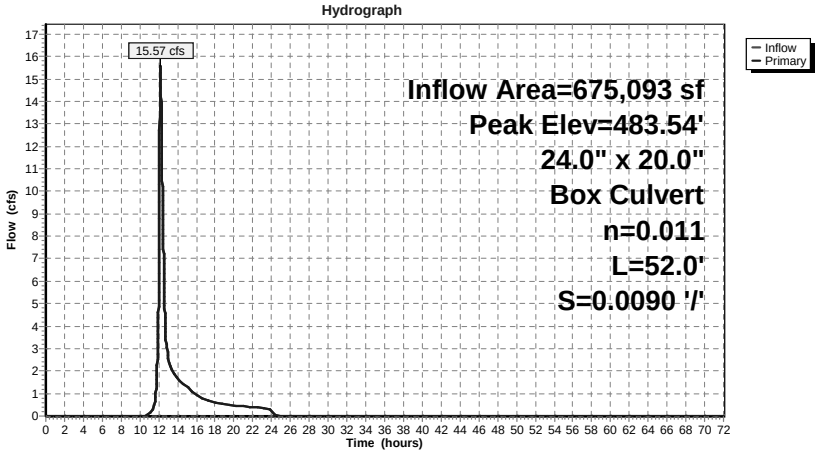
Inflow Area = 675,093 sf, 0.00% Impervious, Inflow Depth = 1.12" for 2 Year, 24 Hr. Event event
Inflow = 15.57 cfs @ 12.18 hrs, Volume= 63,060 cf
Outflow = 15.57 cfs @ 12.18 hrs, Volume= 63,060 cf, Atten= 0%, Lag= 0.0 min
Primary = 15.57 cfs @ 12.18 hrs, Volume= 63,060 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 483.54' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	481.70'	**24.0" W x 20.0" H Box Culvert** L= 52.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 481.70' / 481.23' S= 0.0090 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=15.56 cfs @ 12.18 hrs HW=483.54' (Free Discharge)
1=Culvert (Inlet Controls 15.56 cfs @ 4.67 fps)

Pond DP19: DP-19



Hydrograph for Pond DP19: DP-19

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	481.70	0.00	52.00	0.00	481.70	0.00
1.00	0.00	481.70	0.00	53.00	0.00	481.70	0.00
2.00	0.00	481.70	0.00	54.00	0.00	481.70	0.00
3.00	0.00	481.70	0.00	55.00	0.00	481.70	0.00
4.00	0.00	481.70	0.00	56.00	0.00	481.70	0.00
5.00	0.00	481.70	0.00	57.00	0.00	481.70	0.00
6.00	0.00	481.70	0.00	58.00	0.00	481.70	0.00
7.00	0.00	481.70	0.00	59.00	0.00	481.70	0.00
8.00	0.00	481.70	0.00	60.00	0.00	481.70	0.00
9.00	0.00	481.70	0.00	61.00	0.00	481.70	0.00
10.00	0.00	481.70	0.00	62.00	0.00	481.70	0.00
11.00	0.10	481.76	0.10	63.00	0.00	481.70	0.00
12.00	**5.49**	**482.60**	**5.49**	64.00	0.00	481.70	0.00
13.00	**2.64**	**482.25**	**2.64**	65.00	0.00	481.70	0.00
14.00	1.66	482.11	1.66	66.00	0.00	481.70	0.00
15.00	1.28	482.04	1.28	67.00	0.00	481.70	0.00
16.00	0.93	481.98	0.93	68.00	0.00	481.70	0.00
17.00	0.74	481.94	0.74	69.00	0.00	481.70	0.00
18.00	0.58	481.90	0.58	70.00	0.00	481.70	0.00
19.00	0.51	481.88	0.51	71.00	0.00	481.70	0.00
20.00	0.46	481.87	0.46	72.00	0.00	481.70	0.00
21.00	0.42	481.86	0.42				
22.00	0.39	481.85	0.39				
23.00	0.35	481.84	0.35				
24.00	0.31	481.83	0.31				
25.00	0.00	481.70	0.00				
26.00	0.00	481.70	0.00				
27.00	0.00	481.70	0.00				
28.00	0.00	481.70	0.00				
29.00	0.00	481.70	0.00				
30.00	0.00	481.70	0.00				
31.00	0.00	481.70	0.00				
32.00	0.00	481.70	0.00				
33.00	0.00	481.70	0.00				
34.00	0.00	481.70	0.00				
35.00	0.00	481.70	0.00				
36.00	0.00	481.70	0.00				
37.00	0.00	481.70	0.00				
38.00	0.00	481.70	0.00				
39.00	0.00	481.70	0.00				
40.00	0.00	481.70	0.00				
41.00	0.00	481.70	0.00				
42.00	0.00	481.70	0.00				
43.00	0.00	481.70	0.00				
44.00	0.00	481.70	0.00				
45.00	0.00	481.70	0.00				
46.00	0.00	481.70	0.00				
47.00	0.00	481.70	0.00				
48.00	0.00	481.70	0.00				
49.00	0.00	481.70	0.00				
50.00	0.00	481.70	0.00				
51.00	0.00	481.70	0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment DA-12: Pre DA-12 Runoff Area=24,403 sf 0.00% Impervious Runoff Depth=2.59"
Flow Length=184' Tc=12.6 min CN=72/0 Runoff=1.36 cfs 5,266 cf

Subcatchment DA-13: Pre DA-13 Runoff Area=7,377 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=0.94 cfs 3,235 cf

Subcatchment DA-14A: Pre DA-14A Runoff Area=1,310 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=0.17 cfs 574 cf

Subcatchment DA-14B: Pre DA-14B Runoff Area=9,040 sf 43.33% Impervious Runoff Depth=3.23"
Tc=5.0 min CN=61/98 Runoff=0.72 cfs 2,434 cf

Subcatchment DA-15: Pre DA-15 Runoff Area=36,565 sf 74.25% Impervious Runoff Depth=4.62"
Tc=5.0 min CN=74/98 Runoff=4.20 cfs 14,079 cf

Subcatchment DA-16: Pre DA-16 Runoff Area=273,856 sf 20.10% Impervious Runoff Depth=3.27"
Flow Length=523' Tc=16.7 min CN=74/98 Runoff=16.79 cfs 74,632 cf

Subcatchment DA-17: Pre DA-17 Runoff Area=318,304 sf 69.16% Impervious Runoff Depth=4.49"
Flow Length=1,520' Tc=13.1 min CN=74/98 Runoff=27.65 cfs 119,190 cf

Subcatchment DA-18: Pre DA-18 Runoff Area=393,128 sf 0.00% Impervious Runoff Depth=2.77"
Flow Length=1,070' Tc=12.6 min CN=74/0 Runoff=23.60 cfs 90,720 cf

Subcatchment DA-19: Pre DA-19 Runoff Area=675,093 sf 0.00% Impervious Runoff Depth=2.59"
Flow Length=1,348' Tc=12.3 min CN=72/0 Runoff=38.05 cfs 145,685 cf

Pond DP12: DP-12 Peak Elev=608.91' Inflow=1.36 cfs 5,266 cf
24.0" Round Culvert n=0.013 L=147.0' S=0.0307 '/' Outflow=1.36 cfs 5,266 cf

Pond DP13: DP-13 Peak Elev=604.36' Inflow=0.94 cfs 3,235 cf
24.0" Round Culvert n=0.013 L=79.0' S=0.1128 '/' Outflow=0.94 cfs 3,235 cf

Reach DP14: DP-14 Inflow=0.89 cfs 3,009 cf
Outflow=0.89 cfs 3,009 cf

Reach DP15: DP-15 Inflow=4.20 cfs 14,079 cf
Outflow=4.20 cfs 14,079 cf

Pond DP16: DP-16 Peak Elev=580.88' Inflow=16.79 cfs 74,632 cf
15.0" Round Culvert n=0.013 L=22.0' S=0.0336 '/' Outflow=16.79 cfs 74,632 cf

Pond DP17: DP-17 Peak Elev=622.22' Inflow=27.65 cfs 119,190 cf
15.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=27.65 cfs 119,190 cf

Pond DP18: DP-18 Peak Elev=515.41' Inflow=23.60 cfs 90,720 cf
15.0" Round Culvert n=0.013 L=50.0' S=0.0268 '/' Outflow=23.60 cfs 90,720 cf

Pond DP19: DP-19 Peak Elev=488.16' Inflow=38.05 cfs 145,685 cf
24.0" x 20.0" Box Culvert n=0.011 L=52.0' S=0.0090 '/' Outflow=38.05 cfs 145,685 cf

Total Runoff Area = 1,739,076 sf Runoff Volume = 455,817 cf Average Runoff Depth = 3.15"
81.89% Pervious = 1,424,150 sf 18.11% Impervious = 314,926 sf

Summary for Subcatchment DA-12: Pre DA-12

Runoff = 1.36 cfs @ 12.18 hrs, Volume= 5,266 cf, Depth= 2.59"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

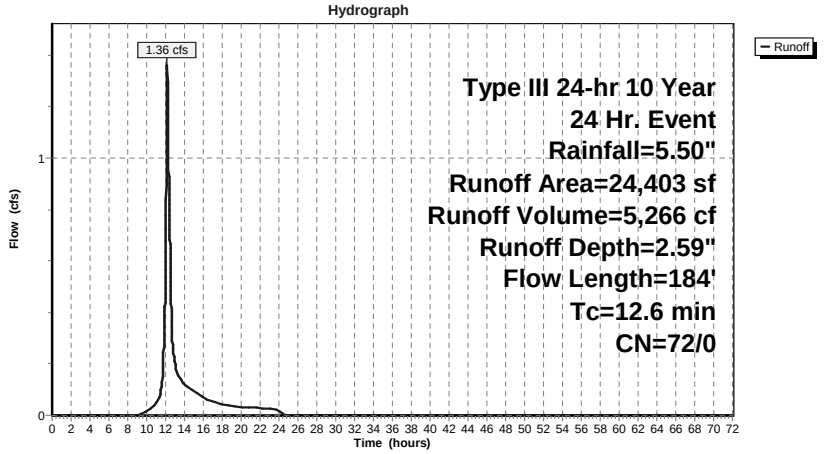
Area (sf)	CN	Description	Land Use
10,105	74	>75% Grass cover, Good, HSG C	Open Space
14,298	70	Woods, Good, HSG C	Woods
24,403	72	Weighted Average	
24,403	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	100	0.0810	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.50"
0.3	14	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	70	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
10,105	Open Space	72.31	0.25	1.09	0.15
14,298	Woods	6.29	0.00	0.00	0.21
24,403	Total	78.60	0.25	1.09	0.36

Subcatchment DA-12: Pre DA-12



Hydrograph for Subcatchment DA-12: Pre DA-12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.02	0.00	0.01
12.00	2.75	0.66	0.00	**0.57**
14.00	4.46	1.79	0.00	**0.12**
16.00	4.87	2.10	0.00	0.07
18.00	5.10	2.28	0.00	0.04
20.00	5.26	2.40	0.00	0.03
22.00	5.39	2.51	0.00	0.03
24.00	**5.50**	**2.59**	0.00	0.02
26.00	5.50	2.59	0.00	0.00
28.00	5.50	2.59	0.00	0.00
30.00	5.50	2.59	0.00	0.00
32.00	5.50	2.59	0.00	0.00
34.00	5.50	2.59	0.00	0.00
36.00	5.50	2.59	0.00	0.00
38.00	5.50	2.59	0.00	0.00
40.00	5.50	2.59	0.00	0.00
42.00	5.50	2.59	0.00	0.00
44.00	5.50	2.59	0.00	0.00
46.00	5.50	2.59	0.00	0.00
48.00	5.50	2.59	0.00	0.00
50.00	5.50	2.59	0.00	0.00
52.00	5.50	2.59	0.00	0.00
54.00	5.50	2.59	0.00	0.00
56.00	5.50	2.59	0.00	0.00
58.00	5.50	2.59	0.00	0.00
60.00	5.50	2.59	0.00	0.00
62.00	5.50	2.59	0.00	0.00
64.00	5.50	2.59	0.00	0.00
66.00	5.50	2.59	0.00	0.00
68.00	5.50	2.59	0.00	0.00
70.00	5.50	2.59	0.00	0.00
72.00	5.50	2.59	0.00	0.00

Summary for Subcatchment DA-13: Pre DA-13

Runoff = 0.94 cfs @ 12.07 hrs, Volume= 3,235 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

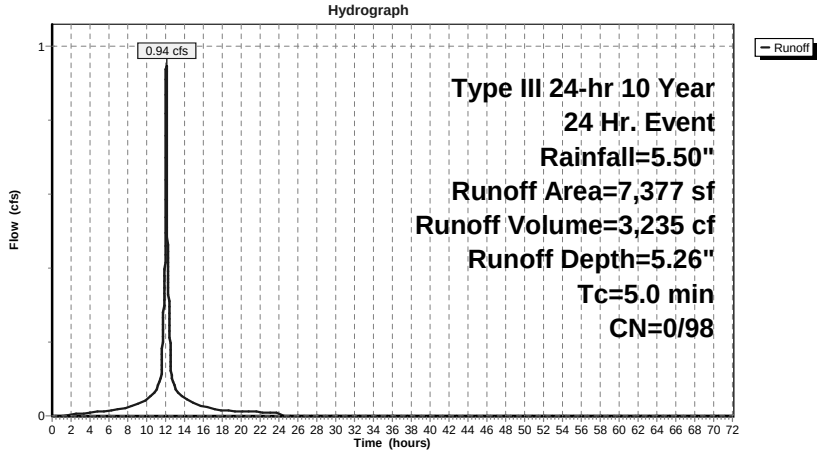
Area (sf)	CN	Description	Land Use
7,377	98	Paved parking, HSG C	Pavement
7,377	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,377	Pavement	288.25	0.93	3.50	11.16
7,377	Total	288.25	0.93	3.50	11.16

Subcatchment DA-13: Pre DA-13



Hydrograph for Subcatchment DA-13: Pre DA-13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.02
10.00	1.04	0.00	0.83	0.04
12.00	2.75	0.00	2.52	**0.64**
14.00	4.46	0.00	4.22	**0.05**
16.00	4.87	0.00	4.64	0.03
18.00	5.10	0.00	4.87	0.02
20.00	5.26	0.00	5.03	0.01
22.00	5.39	0.00	5.16	0.01
24.00	**5.50**	0.00	**5.26**	0.01
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00

Summary for Subcatchment DA-14A: Pre DA-14A

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 574 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

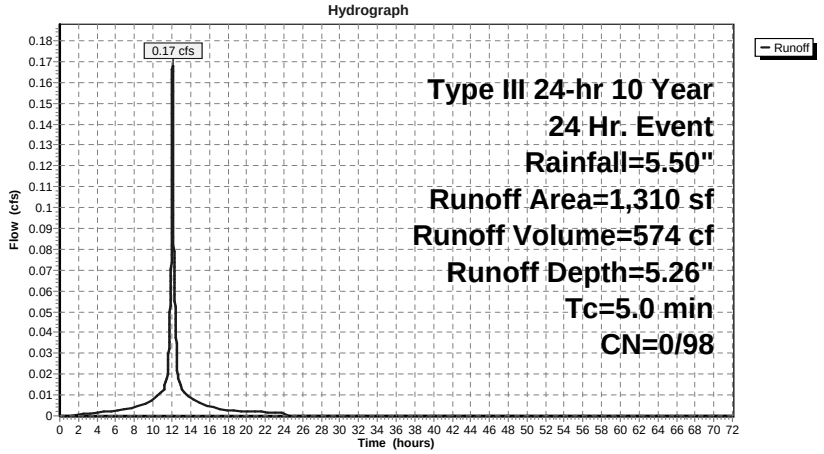
Area (sf)	CN	Description	Land Use
1,310	98	Paved parking, HSG C	Pavement
1,310	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,310	Pavement	51.19	0.17	0.62	1.98
1,310	Total	51.19	0.17	0.62	1.98

Subcatchment DA-14A: Pre DA-14A



Hydrograph for Subcatchment DA-14A: Pre DA-14A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.00
10.00	1.04	0.00	0.83	0.01
12.00	2.75	0.00	2.52	**0.11**
14.00	4.46	0.00	4.22	**0.01**
16.00	4.87	0.00	4.64	0.00
18.00	5.10	0.00	4.87	0.00
20.00	5.26	0.00	5.03	0.00
22.00	5.39	0.00	5.16	0.00
24.00	**5.50**	0.00	**5.26**	0.00
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00

Summary for Subcatchment DA-14B: Pre DA-14B

Runoff = 0.72 cfs @ 12.07 hrs, Volume= 2,434 cf, Depth= 3.23"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

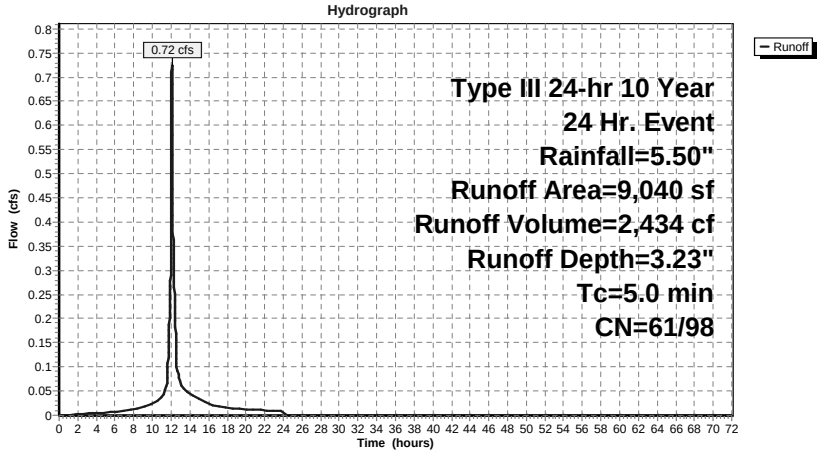
Area (sf)	CN	Description	Land Use
573	98	Unconnected pavement, HSG C	Pavement
3,344	98	Roofs, HSG C	Roofs
5,123	61	>75% Grass cover, Good, HSG B	Open Space
9,040	77	Weighted Average	
5,123	61	56.67% Pervious Area	
3,917	98	43.33% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 43.33% Impervious, Rv= 0.440, Runoff= 20.11"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,123	Open Space	322.59	1.13	4.88	0.66
573	Pavement	10.37	0.03	0.13	0.40
3,344	Roofs	6.65	0.04	0.52	2.59
9,040	Total	339.61	1.20	5.53	3.65

Subcatchment DA-14B: Pre DA-14B



Hydrograph for Subcatchment DA-14B: Pre DA-14B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.00	0.83	0.02
12.00	2.75	0.28	2.52	**0.46**
14.00	4.46	1.06	4.22	**0.04**
16.00	4.87	1.29	4.64	0.02
18.00	5.10	1.43	4.87	0.01
20.00	5.26	1.53	5.03	0.01
22.00	5.39	1.61	5.16	0.01
24.00	**5.50**	**1.68**	**5.26**	0.01
26.00	5.50	1.68	5.26	0.00
28.00	5.50	1.68	5.26	0.00
30.00	5.50	1.68	5.26	0.00
32.00	5.50	1.68	5.26	0.00
34.00	5.50	1.68	5.26	0.00
36.00	5.50	1.68	5.26	0.00
38.00	5.50	1.68	5.26	0.00
40.00	5.50	1.68	5.26	0.00
42.00	5.50	1.68	5.26	0.00
44.00	5.50	1.68	5.26	0.00
46.00	5.50	1.68	5.26	0.00
48.00	5.50	1.68	5.26	0.00
50.00	5.50	1.68	5.26	0.00
52.00	5.50	1.68	5.26	0.00
54.00	5.50	1.68	5.26	0.00
56.00	5.50	1.68	5.26	0.00
58.00	5.50	1.68	5.26	0.00
60.00	5.50	1.68	5.26	0.00
62.00	5.50	1.68	5.26	0.00
64.00	5.50	1.68	5.26	0.00
66.00	5.50	1.68	5.26	0.00
68.00	5.50	1.68	5.26	0.00
70.00	5.50	1.68	5.26	0.00
72.00	5.50	1.68	5.26	0.00

Summary for Subcatchment DA-15: Pre DA-15

Runoff = 4.20 cfs @ 12.07 hrs, Volume= 14,079 cf, Depth= 4.62"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

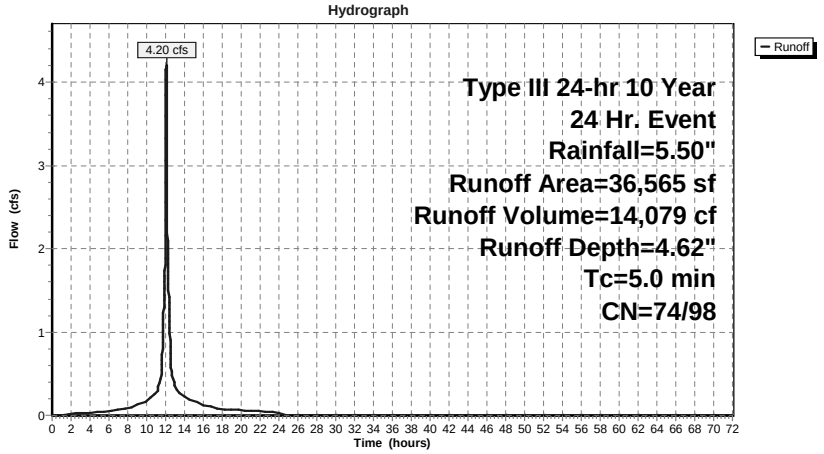
Area (sf)	CN	Description	Land Use
21,025	98	Paved parking, HSG B	Pavement
6,126	98	Roofs, HSG B	Roofs
9,414	74	>75% Grass cover, Good, HSG C	Open Space
36,565	92	Weighted Average	
9,414	74	25.75% Pervious Area	
27,151	98	74.25% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.25% Impervious, Rv= 0.718, Runoff= 32.83"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,414	Open Space	967.79	3.38	14.63	1.98
21,025	Pavement	621.15	2.01	7.54	24.06
6,126	Roofs	19.88	0.12	1.57	7.74
36,565	Total	1,608.82	5.50	23.74	33.77

Subcatchment DA-15: Pre DA-15



Hydrograph for Subcatchment DA-15: Pre DA-15

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.03
6.00	0.40	0.00	0.23	0.05
8.00	0.63	0.00	0.43	0.08
10.00	1.04	0.03	0.83	0.17
12.00	2.75	0.75	2.52	**2.80**
14.00	4.46	1.94	4.22	**0.22**
16.00	4.87	2.26	4.64	0.12
18.00	5.10	2.45	4.87	0.07
20.00	5.26	2.58	5.03	0.06
22.00	5.39	2.68	5.16	0.05
24.00	**5.50**	**2.77**	**5.26**	0.04
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00

Summary for Subcatchment DA-16: Pre DA-16

Runoff = 16.79 cfs @ 12.23 hrs, Volume= 74,632 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

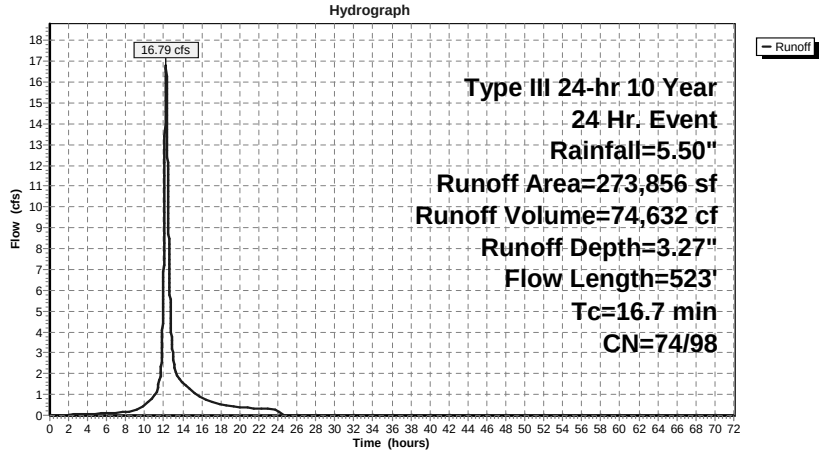
Area (sf)	CN	Description	Land Use
55,041	98	Paved parking, HSG B	Pavement
218,815	74	>75% Grass cover, Good, HSG C	Open Space
273,856	79	Weighted Average	
218,815	74	79.90% Pervious Area	
55,041	98	20.10% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	150	0.0330	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	30	0.0330	2.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.8	275	0.1160	5.48		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	68	0.0440	3.38		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
16.7	523	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 20.10% Impervious, Rv= 0.231, Runoff= 10.55"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
218,815	Open Space	7,230.80	25.22	109.30	14.77
55,041	Pavement	522.69	1.69	6.34	20.24
273,856	Total	7,753.49	26.92	115.65	35.02

Subcatchment DA-16: Pre DA-16



Hydrograph for Subcatchment DA-16: Pre DA-16

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.03
4.00	0.24	0.00	0.10	0.06
6.00	0.40	0.00	0.23	0.09
8.00	0.63	0.00	0.43	0.16
10.00	1.04	0.03	0.83	0.49
12.00	2.75	0.75	2.52	**6.90**
14.00	4.46	1.94	4.22	**1.56**
16.00	4.87	2.26	4.64	0.84
18.00	5.10	2.45	4.87	0.51
20.00	5.26	2.58	5.03	0.40
22.00	5.39	2.68	5.16	0.33
24.00	**5.50**	**2.77**	**5.26**	0.26
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00

Summary for Subcatchment DA-17: Pre DA-17

Runoff = 27.65 cfs @ 12.18 hrs, Volume= 119,190 cf, Depth= 4.49"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

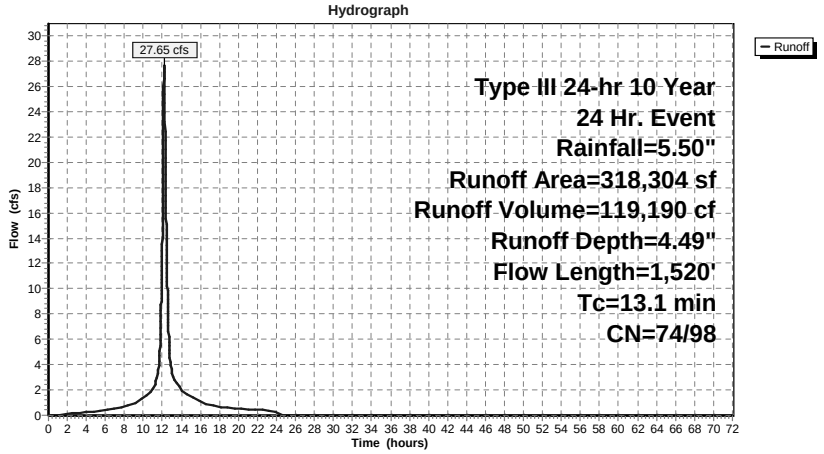
Area (sf)	CN	Description	Land Use
130,871	98	Paved parking, HSG C	Pavement
89,259	98	Roofs, HSG C	Roofs
98,174	74	>75% Grass cover, Good, HSG C	Open Space
318,304	91	Weighted Average	
98,174	74	30.84% Pervious Area	
220,130	98	69.16% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	135	0.0670	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.1	35	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.2	1,350		10.00		**Direct Entry, Pipe Flow**
13.1	1,520	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 69.16% Impervious, Rv= 0.672, Runoff= 30.73"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
98,174	Open Space	9,448.09	32.96	142.82	19.30
130,871	Pavement	3,619.43	11.72	43.94	140.17
89,259	Roofs	271.12	1.57	21.40	105.59
318,304	Total	13,338.64	46.24	208.16	265.07

Subcatchment DA-17: Pre DA-17



Hydrograph for Subcatchment DA-17: Pre DA-17

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.11
4.00	0.24	0.00	0.10	0.26
6.00	0.40	0.00	0.23	0.38
8.00	0.63	0.00	0.43	0.65
10.00	1.04	0.03	0.83	1.35
12.00	2.75	0.75	2.52	**13.49**
14.00	4.46	1.94	4.22	**2.02**
16.00	4.87	2.26	4.64	1.07
18.00	5.10	2.45	4.87	0.65
20.00	5.26	2.58	5.03	0.51
22.00	5.39	2.68	5.16	0.42
24.00	**5.50**	**2.77**	**5.26**	0.33
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00

Summary for Subcatchment DA-18: Pre DA-18

Runoff = 23.60 cfs @ 12.17 hrs, Volume= 90,720 cf, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

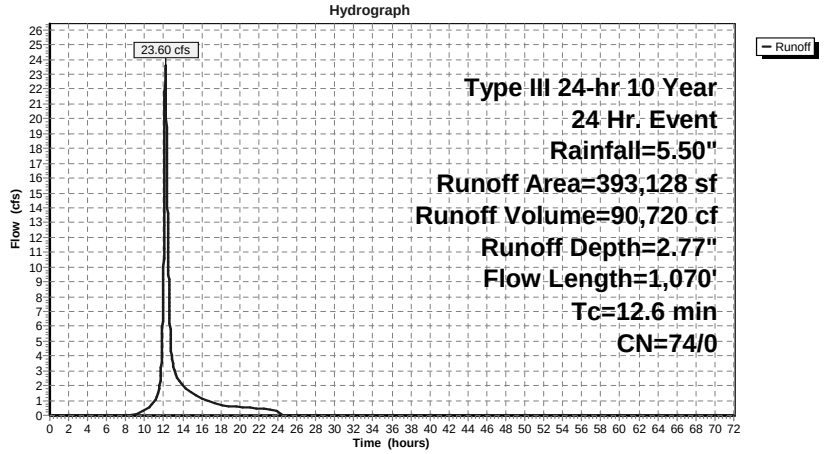
Area (sf)	CN	Description	Land Use
321,115	74	>75% Grass cover, Good, HSG C	Open Space
60,787	70	Woods, Good, HSG C	Woods
11,226	89	Gravel roads, HSG C	Roadway
393,128	74	Weighted Average	
393,128	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	150	0.0800	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	220	0.0910	4.86		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	190	0.2630	8.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	510	0.0200	13.18	79.10	**Channel Flow,** Area= 6.0 sf Perim= 5.0' r= 1.20' n= 0.018 Earth, clean & straight
12.6	1,070	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
321,115	Open Space	2,297.95	8.02	34.74	4.70
11,226	Roadway	23.09	0.07	0.28	0.89
60,787	Woods	26.74	0.00	0.00	0.89
393,128	Total	2,347.78	8.09	35.02	6.48

Subcatchment DA-18: Pre DA-18



Hydrograph for Subcatchment DA-18: Pre DA-18

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.03	0.00	0.34
12.00	2.75	0.75	0.00	**10.05**
14.00	4.46	1.94	0.00	**2.05**
16.00	4.87	2.26	0.00	1.12
18.00	5.10	2.45	0.00	0.68
20.00	5.26	2.58	0.00	0.54
22.00	5.39	2.68	0.00	0.45
24.00	**5.50**	**2.77**	0.00	0.36
26.00	5.50	2.77	0.00	0.00
28.00	5.50	2.77	0.00	0.00
30.00	5.50	2.77	0.00	0.00
32.00	5.50	2.77	0.00	0.00
34.00	5.50	2.77	0.00	0.00
36.00	5.50	2.77	0.00	0.00
38.00	5.50	2.77	0.00	0.00
40.00	5.50	2.77	0.00	0.00
42.00	5.50	2.77	0.00	0.00
44.00	5.50	2.77	0.00	0.00
46.00	5.50	2.77	0.00	0.00
48.00	5.50	2.77	0.00	0.00
50.00	5.50	2.77	0.00	0.00
52.00	5.50	2.77	0.00	0.00
54.00	5.50	2.77	0.00	0.00
56.00	5.50	2.77	0.00	0.00
58.00	5.50	2.77	0.00	0.00
60.00	5.50	2.77	0.00	0.00
62.00	5.50	2.77	0.00	0.00
64.00	5.50	2.77	0.00	0.00
66.00	5.50	2.77	0.00	0.00
68.00	5.50	2.77	0.00	0.00
70.00	5.50	2.77	0.00	0.00
72.00	5.50	2.77	0.00	0.00

Summary for Subcatchment DA-19: Pre DA-19

Runoff = 38.05 cfs @ 12.17 hrs, Volume= 145,685 cf, Depth= 2.59"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

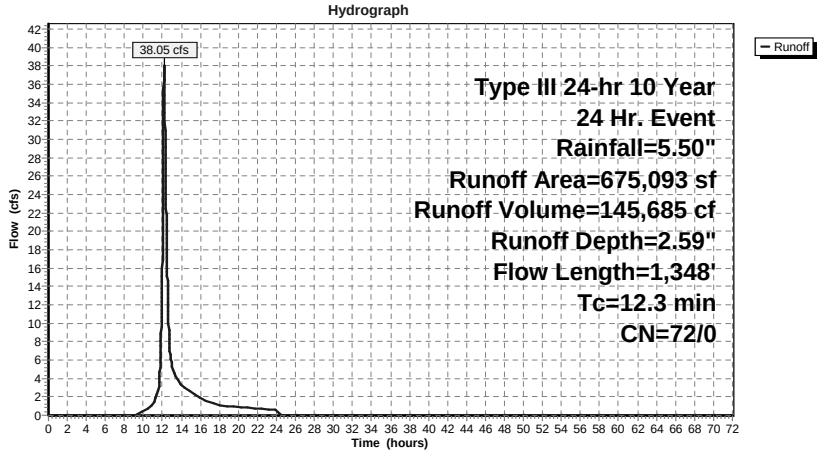
Area (sf)	CN	Description	Land Use
370,422	74	>75% Grass cover, Good, HSG C	Open Space
304,671	70	Woods, Good, HSG C	Woods
675,093	72	Weighted Average	
675,093	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0970	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.1	273	0.0970	2.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	121	0.1980	3.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	214	0.1680	2.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	640		10.00		**Direct Entry,**
12.3	1,348	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
370,422	Open Space	2,650.80	9.25	40.07	5.42
304,671	Woods	134.00	0.00	0.00	4.45
675,093	Total	2,784.81	9.25	40.07	9.87

Subcatchment DA-19: Pre DA-19



Hydrograph for Subcatchment DA-19: Pre DA-19

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.02	0.00	0.41
12.00	2.75	0.66	0.00	**15.94**
14.00	4.46	1.79	0.00	**3.37**
16.00	4.87	2.10	0.00	1.84
18.00	5.10	2.28	0.00	1.13
20.00	5.26	2.40	0.00	0.89
22.00	5.39	2.51	0.00	0.74
24.00	**5.50**	**2.59**	0.00	0.60
26.00	5.50	2.59	0.00	0.00
28.00	5.50	2.59	0.00	0.00
30.00	5.50	2.59	0.00	0.00
32.00	5.50	2.59	0.00	0.00
34.00	5.50	2.59	0.00	0.00
36.00	5.50	2.59	0.00	0.00
38.00	5.50	2.59	0.00	0.00
40.00	5.50	2.59	0.00	0.00
42.00	5.50	2.59	0.00	0.00
44.00	5.50	2.59	0.00	0.00
46.00	5.50	2.59	0.00	0.00
48.00	5.50	2.59	0.00	0.00
50.00	5.50	2.59	0.00	0.00
52.00	5.50	2.59	0.00	0.00
54.00	5.50	2.59	0.00	0.00
56.00	5.50	2.59	0.00	0.00
58.00	5.50	2.59	0.00	0.00
60.00	5.50	2.59	0.00	0.00
62.00	5.50	2.59	0.00	0.00
64.00	5.50	2.59	0.00	0.00
66.00	5.50	2.59	0.00	0.00
68.00	5.50	2.59	0.00	0.00
70.00	5.50	2.59	0.00	0.00
72.00	5.50	2.59	0.00	0.00

Summary for Pond DP12: DP-12

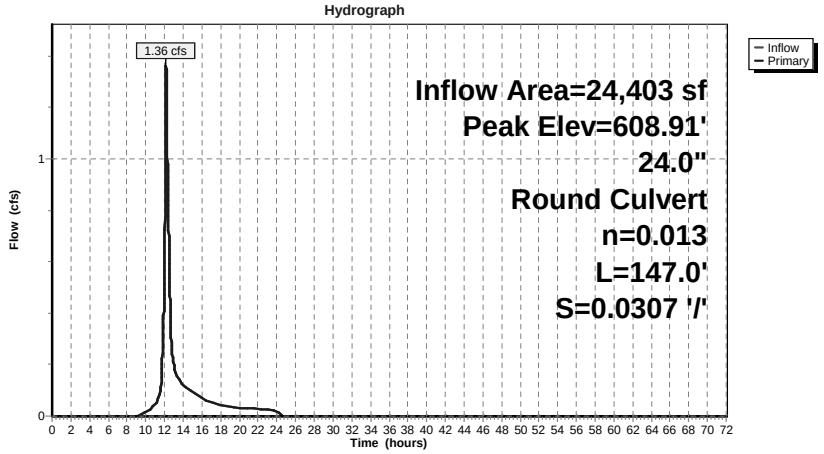
Inflow Area = 24,403 sf, 0.00% Impervious, Inflow Depth = 2.59" for 10 Year, 24 Hr. Event event
Inflow = 1.36 cfs @ 12.18 hrs, Volume= 5,266 cf
Outflow = 1.36 cfs @ 12.18 hrs, Volume= 5,266 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.36 cfs @ 12.18 hrs, Volume= 5,266 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.91' @ 12.18 hrs
Flood Elev= 613.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.37'	**24.0" Round Culvert** L= 147.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 608.37' / 603.85' S= 0.0307 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.36 cfs @ 12.18 hrs HW=608.91' (Free Discharge)
↑**1=Culvert** (Inlet Controls 1.36 cfs @ 1.98 fps)

Pond DP12: DP-12



Hydrograph for Pond DP12: DP-12

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	608.37	0.00	52.00	0.00	608.37	0.00
1.00	0.00	608.37	0.00	53.00	0.00	608.37	0.00
2.00	0.00	608.37	0.00	54.00	0.00	608.37	0.00
3.00	0.00	608.37	0.00	55.00	0.00	608.37	0.00
4.00	0.00	608.37	0.00	56.00	0.00	608.37	0.00
5.00	0.00	608.37	0.00	57.00	0.00	608.37	0.00
6.00	0.00	608.37	0.00	58.00	0.00	608.37	0.00
7.00	0.00	608.37	0.00	59.00	0.00	608.37	0.00
8.00	0.00	608.37	0.00	60.00	0.00	608.37	0.00
9.00	0.00	608.37	0.00	61.00	0.00	608.37	0.00
10.00	0.01	608.42	0.01	62.00	0.00	608.37	0.00
11.00	0.05	608.47	0.05	63.00	0.00	608.37	0.00
12.00	**0.57**	**608.71**	**0.57**	64.00	0.00	608.37	0.00
13.00	**0.20**	**608.57**	**0.20**	65.00	0.00	608.37	0.00
14.00	0.12	608.53	0.12	66.00	0.00	608.37	0.00
15.00	0.09	608.51	0.09	67.00	0.00	608.37	0.00
16.00	0.07	608.49	0.07	68.00	0.00	608.37	0.00
17.00	0.05	608.47	0.05	69.00	0.00	608.37	0.00
18.00	0.04	608.46	0.04	70.00	0.00	608.37	0.00
19.00	0.04	608.45	0.04	71.00	0.00	608.37	0.00
20.00	0.03	608.45	0.03	72.00	0.00	608.37	0.00
21.00	0.03	608.45	0.03				
22.00	0.03	608.44	0.03				
23.00	0.02	608.44	0.02				
24.00	0.02	608.44	0.02				
25.00	0.00	608.37	0.00				
26.00	0.00	608.37	0.00				
27.00	0.00	608.37	0.00				
28.00	0.00	608.37	0.00				
29.00	0.00	608.37	0.00				
30.00	0.00	608.37	0.00				
31.00	0.00	608.37	0.00				
32.00	0.00	608.37	0.00				
33.00	0.00	608.37	0.00				
34.00	0.00	608.37	0.00				
35.00	0.00	608.37	0.00				
36.00	0.00	608.37	0.00				
37.00	0.00	608.37	0.00				
38.00	0.00	608.37	0.00				
39.00	0.00	608.37	0.00				
40.00	0.00	608.37	0.00				
41.00	0.00	608.37	0.00				
42.00	0.00	608.37	0.00				
43.00	0.00	608.37	0.00				
44.00	0.00	608.37	0.00				
45.00	0.00	608.37	0.00				
46.00	0.00	608.37	0.00				
47.00	0.00	608.37	0.00				
48.00	0.00	608.37	0.00				
49.00	0.00	608.37	0.00				
50.00	0.00	608.37	0.00				
51.00	0.00	608.37	0.00				

Summary for Pond DP13: DP-13

[57] Hint: Peaked at 604.36' (Flood elevation advised)

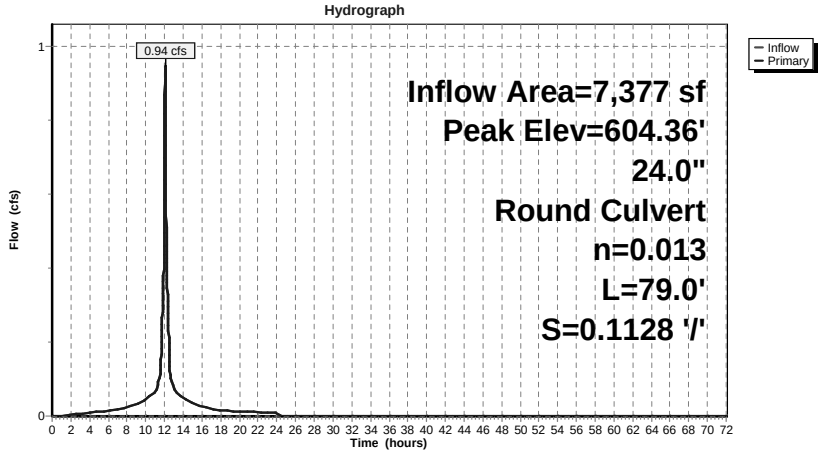
Inflow Area = 7,377 sf,100.00% Impervious, Inflow Depth = 5.26" for 10 Year, 24 Hr. Event event
Inflow = 0.94 cfs @ 12.07 hrs, Volume= 3,235 cf
Outflow = 0.94 cfs @ 12.07 hrs, Volume= 3,235 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.94 cfs @ 12.07 hrs, Volume= 3,235 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 604.36' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	603.91'	**24.0" Round Culvert** L= 79.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 603.91' / 595.00' S= 0.1128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.94 cfs @ 12.07 hrs HW=604.36' (Free Discharge)
1=Culvert (Inlet Controls 0.94 cfs @ 1.80 fps)

Pond DP13: DP-13



Hydrograph for Pond DP13: DP-13

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	603.91	0.00	52.00	0.00	603.91	0.00
1.00	0.00	603.92	0.00	53.00	0.00	603.91	0.00
2.00	0.00	603.94	0.00	54.00	0.00	603.91	0.00
3.00	0.01	603.95	0.01	55.00	0.00	603.91	0.00
4.00	0.01	603.95	0.01	56.00	0.00	603.91	0.00
5.00	0.01	603.96	0.01	57.00	0.00	603.91	0.00
6.00	0.01	603.96	0.01	58.00	0.00	603.91	0.00
7.00	0.02	603.97	0.02	59.00	0.00	603.91	0.00
8.00	0.02	603.98	0.02	60.00	0.00	603.91	0.00
9.00	0.03	603.99	0.03	61.00	0.00	603.91	0.00
10.00	0.04	604.00	0.04	62.00	0.00	603.91	0.00
11.00	0.07	604.02	0.07	63.00	0.00	603.91	0.00
12.00	**0.64**	**604.28**	**0.64**	64.00	0.00	603.91	0.00
13.00	**0.08**	**604.03**	**0.08**	65.00	0.00	603.91	0.00
14.00	0.05	604.01	0.05	66.00	0.00	603.91	0.00
15.00	0.04	603.99	0.04	67.00	0.00	603.91	0.00
16.00	0.03	603.98	0.03	68.00	0.00	603.91	0.00
17.00	0.02	603.97	0.02	69.00	0.00	603.91	0.00
18.00	0.02	603.97	0.02	70.00	0.00	603.91	0.00
19.00	0.01	603.96	0.01	71.00	0.00	603.91	0.00
20.00	0.01	603.96	0.01	72.00	0.00	603.91	0.00
21.00	0.01	603.96	0.01				
22.00	0.01	603.95	0.01				
23.00	0.01	603.95	0.01				
24.00	0.01	603.95	0.01				
25.00	0.00	603.91	0.00				
26.00	0.00	603.91	0.00				
27.00	0.00	603.91	0.00				
28.00	0.00	603.91	0.00				
29.00	0.00	603.91	0.00				
30.00	0.00	603.91	0.00				
31.00	0.00	603.91	0.00				
32.00	0.00	603.91	0.00				
33.00	0.00	603.91	0.00				
34.00	0.00	603.91	0.00				
35.00	0.00	603.91	0.00				
36.00	0.00	603.91	0.00				
37.00	0.00	603.91	0.00				
38.00	0.00	603.91	0.00				
39.00	0.00	603.91	0.00				
40.00	0.00	603.91	0.00				
41.00	0.00	603.91	0.00				
42.00	0.00	603.91	0.00				
43.00	0.00	603.91	0.00				
44.00	0.00	603.91	0.00				
45.00	0.00	603.91	0.00				
46.00	0.00	603.91	0.00				
47.00	0.00	603.91	0.00				
48.00	0.00	603.91	0.00				
49.00	0.00	603.91	0.00				
50.00	0.00	603.91	0.00				
51.00	0.00	603.91	0.00				

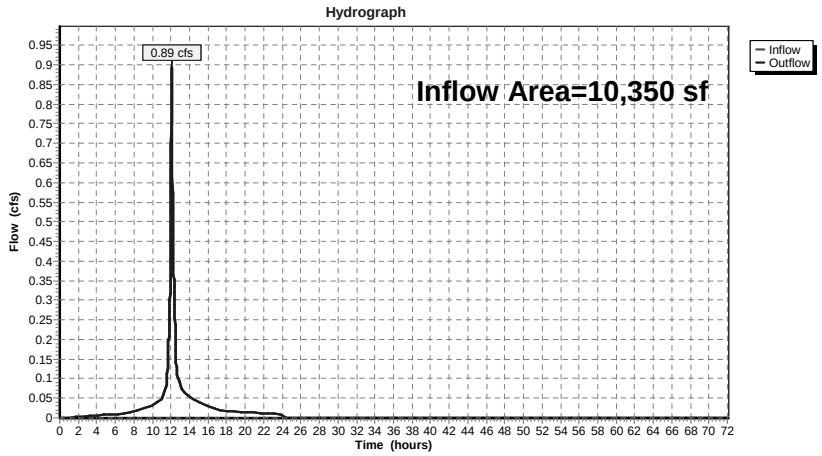
Summary for Reach DP14: DP-14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10,350 sf, 50.50% Impervious, Inflow Depth = 3.49" for 10 Year, 24 Hr. Event event
Inflow = 0.89 cfs @ 12.07 hrs, Volume= 3,009 cf
Outflow = 0.89 cfs @ 12.07 hrs, Volume= 3,009 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP14: DP-14



Hydrograph for Reach DP14: DP-14

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.02		0.02	60.00	0.00		0.00
9.00	0.02		0.02	61.00	0.00		0.00
10.00	0.03		0.03	62.00	0.00		0.00
11.00	0.05		0.05	63.00	0.00		0.00
12.00	**0.58**		**0.58**	64.00	0.00		0.00
13.00	**0.08**		**0.08**	65.00	0.00		0.00
14.00	0.05		0.05	66.00	0.00		0.00
15.00	0.04		0.04	67.00	0.00		0.00
16.00	0.03		0.03	68.00	0.00		0.00
17.00	0.02		0.02	69.00	0.00		0.00
18.00	0.02		0.02	70.00	0.00		0.00
19.00	0.02		0.02	71.00	0.00		0.00
20.00	0.01		0.01	72.00	0.00		0.00
21.00	0.01		0.01				
22.00	0.01		0.01				
23.00	0.01		0.01				
24.00	0.01		0.01				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

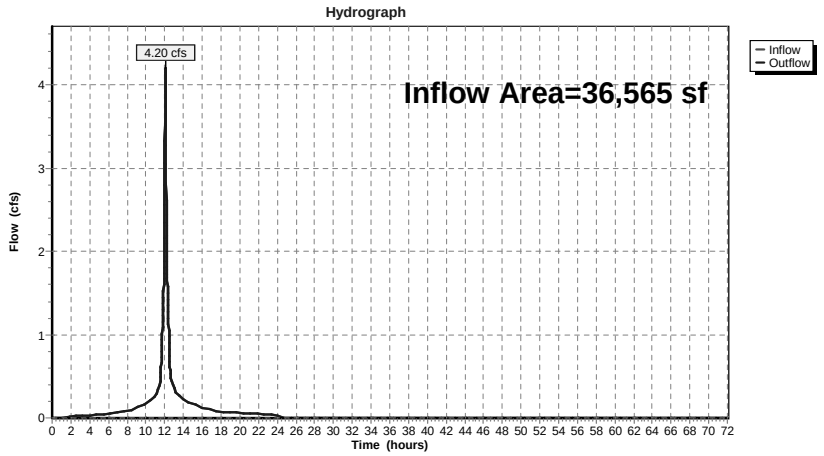
Summary for Reach DP15: DP-15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 36,565 sf, 74.25% Impervious, Inflow Depth = 4.62" for 10 Year, 24 Hr. Event event
Inflow = 4.20 cfs @ 12.07 hrs, Volume= 14,079 cf
Outflow = 4.20 cfs @ 12.07 hrs, Volume= 14,079 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP15: DP-15



Hydrograph for Reach DP15: DP-15

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.02		0.02	55.00	0.00		0.00
4.00	0.03		0.03	56.00	0.00		0.00
5.00	0.04		0.04	57.00	0.00		0.00
6.00	0.05		0.05	58.00	0.00		0.00
7.00	0.06		0.06	59.00	0.00		0.00
8.00	0.08		0.08	60.00	0.00		0.00
9.00	0.12		0.12	61.00	0.00		0.00
10.00	0.17		0.17	62.00	0.00		0.00
11.00	0.27		0.27	63.00	0.00		0.00
12.00	**2.80**		**2.80**	64.00	0.00		0.00
13.00	**0.35**		**0.35**	65.00	0.00		0.00
14.00	0.22		0.22	66.00	0.00		0.00
15.00	0.17		0.17	67.00	0.00		0.00
16.00	0.12		0.12	68.00	0.00		0.00
17.00	0.09		0.09	69.00	0.00		0.00
18.00	0.07		0.07	70.00	0.00		0.00
19.00	0.06		0.06	71.00	0.00		0.00
20.00	0.06		0.06	72.00	0.00		0.00
21.00	0.05		0.05				
22.00	0.05		0.05				
23.00	0.04		0.04				
24.00	0.04		0.04				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP16: DP-16

[58] Hint: Peaked 9.67' above defined flood level

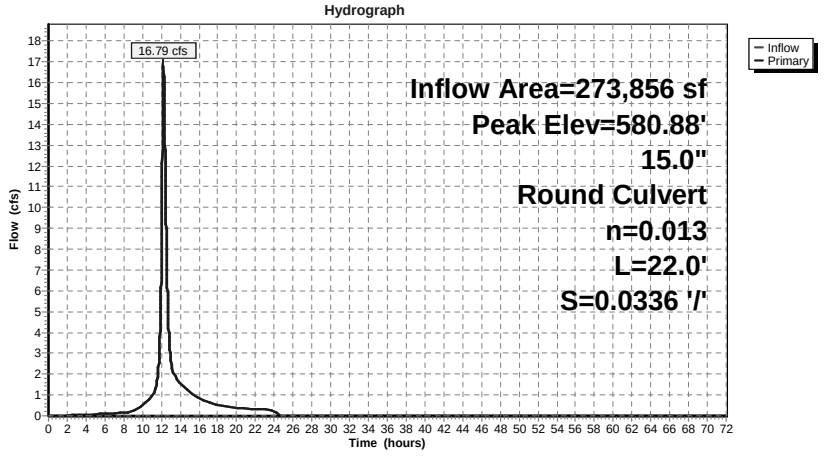
Inflow Area = 273,856 sf, 20.10% Impervious, Inflow Depth = 3.27" for 10 Year, 24 Hr. Event event
Inflow = 16.79 cfs @ 12.23 hrs, Volume= 74,632 cf
Outflow = 16.79 cfs @ 12.23 hrs, Volume= 74,632 cf, Atten= 0%, Lag= 0.0 min
Primary = 16.79 cfs @ 12.23 hrs, Volume= 74,632 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 580.88' @ 12.23 hrs
Flood Elev= 571.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	567.29'	**15.0" Round Culvert** L= 22.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 567.29' / 566.55' S= 0.0336 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=16.79 cfs @ 12.23 hrs HW=580.86' (Free Discharge)
↑**1=Culvert** (Inlet Controls 16.79 cfs @ 13.68 fps)

Pond DP16: DP-16



Hydrograph for Pond DP16: DP-16

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	567.29	0.00	52.00	0.00	567.29	0.00
1.00	0.00	567.31	0.00	53.00	0.00	567.29	0.00
2.00	0.03	567.37	0.03	54.00	0.00	567.29	0.00
3.00	0.05	567.40	0.05	55.00	0.00	567.29	0.00
4.00	0.06	567.42	0.06	56.00	0.00	567.29	0.00
5.00	0.08	567.43	0.08	57.00	0.00	567.29	0.00
6.00	0.09	567.45	0.09	58.00	0.00	567.29	0.00
7.00	0.12	567.47	0.12	59.00	0.00	567.29	0.00
8.00	0.16	567.50	0.16	60.00	0.00	567.29	0.00
9.00	0.26	567.55	0.26	61.00	0.00	567.29	0.00
10.00	0.49	567.66	0.49	62.00	0.00	567.29	0.00
11.00	0.95	567.81	0.95	63.00	0.00	567.29	0.00
12.00	**6.90**	**570.11**	**6.90**	64.00	0.00	567.29	0.00
13.00	**2.76**	**568.27**	**2.76**	65.00	0.00	567.29	0.00
14.00	1.56	567.98	1.56	66.00	0.00	567.29	0.00
15.00	1.16	567.88	1.16	67.00	0.00	567.29	0.00
16.00	0.84	567.78	0.84	68.00	0.00	567.29	0.00
17.00	0.65	567.72	0.65	69.00	0.00	567.29	0.00
18.00	0.51	567.66	0.51	70.00	0.00	567.29	0.00
19.00	0.44	567.64	0.44	71.00	0.00	567.29	0.00
20.00	0.40	567.62	0.40	72.00	0.00	567.29	0.00
21.00	0.36	567.60	0.36				
22.00	0.33	567.59	0.33				
23.00	0.30	567.57	0.30				
24.00	0.26	567.55	0.26				
25.00	0.00	567.29	0.00				
26.00	0.00	567.29	0.00				
27.00	0.00	567.29	0.00				
28.00	0.00	567.29	0.00				
29.00	0.00	567.29	0.00				
30.00	0.00	567.29	0.00				
31.00	0.00	567.29	0.00				
32.00	0.00	567.29	0.00				
33.00	0.00	567.29	0.00				
34.00	0.00	567.29	0.00				
35.00	0.00	567.29	0.00				
36.00	0.00	567.29	0.00				
37.00	0.00	567.29	0.00				
38.00	0.00	567.29	0.00				
39.00	0.00	567.29	0.00				
40.00	0.00	567.29	0.00				
41.00	0.00	567.29	0.00				
42.00	0.00	567.29	0.00				
43.00	0.00	567.29	0.00				
44.00	0.00	567.29	0.00				
45.00	0.00	567.29	0.00				
46.00	0.00	567.29	0.00				
47.00	0.00	567.29	0.00				
48.00	0.00	567.29	0.00				
49.00	0.00	567.29	0.00				
50.00	0.00	567.29	0.00				
51.00	0.00	567.29	0.00				

Summary for Pond DP17: DP-17

[58] Hint: Peaked 31.40' above defined flood level

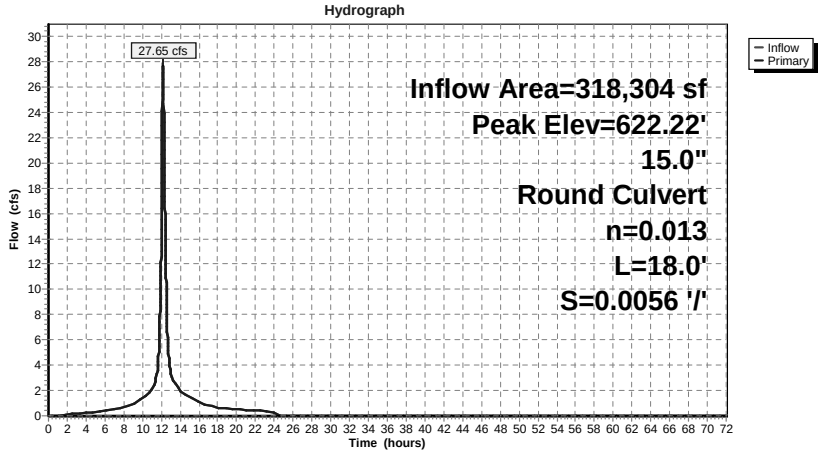
Inflow Area = 318,304 sf, 69.16% Impervious, Inflow Depth = 4.49" for 10 Year, 24 Hr. Event event
Inflow = 27.65 cfs @ 12.18 hrs, Volume= 119,190 cf
Outflow = 27.65 cfs @ 12.18 hrs, Volume= 119,190 cf, Atten= 0%, Lag= 0.0 min
Primary = 27.65 cfs @ 12.18 hrs, Volume= 119,190 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 622.22' @ 12.18 hrs
Flood Elev= 590.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	586.45'	**15.0" Round Culvert-verify outlet invert** L= 18.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 586.45' / 586.35' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=27.63 cfs @ 12.18 hrs HW=622.15' (Free Discharge)
1=Culvert-verify outlet invert (Inlet Controls 27.63 cfs @ 22.51 fps)

Pond DP17: DP-17



Hydrograph for Pond DP17: DP-17

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	586.45	0.00	52.00	0.00	586.45	0.00
1.00	0.01	586.51	0.01	53.00	0.00	586.45	0.00
2.00	0.11	586.63	0.11	54.00	0.00	586.45	0.00
3.00	0.19	586.69	0.19	55.00	0.00	586.45	0.00
4.00	0.26	586.73	0.26	56.00	0.00	586.45	0.00
5.00	0.32	586.77	0.32	57.00	0.00	586.45	0.00
6.00	0.38	586.80	0.38	58.00	0.00	586.45	0.00
7.00	0.50	586.86	0.50	59.00	0.00	586.45	0.00
8.00	0.65	586.92	0.65	60.00	0.00	586.45	0.00
9.00	0.95	587.03	0.95	61.00	0.00	586.45	0.00
10.00	1.35	587.16	1.35	62.00	0.00	586.45	0.00
11.00	2.10	587.37	2.10	63.00	0.00	586.45	0.00
12.00	**13.49**	**595.44**	**13.49**	64.00	0.00	586.45	0.00
13.00	**3.43**	**587.71**	**3.43**	65.00	0.00	586.45	0.00
14.00	2.02	587.34	2.02	66.00	0.00	586.45	0.00
15.00	1.50	587.20	1.50	67.00	0.00	586.45	0.00
16.00	1.07	587.07	1.07	68.00	0.00	586.45	0.00
17.00	0.83	586.99	0.83	69.00	0.00	586.45	0.00
18.00	0.65	586.92	0.65	70.00	0.00	586.45	0.00
19.00	0.56	586.88	0.56	71.00	0.00	586.45	0.00
20.00	0.51	586.86	0.51	72.00	0.00	586.45	0.00
21.00	0.46	586.84	0.46				
22.00	0.42	586.82	0.42				
23.00	0.38	586.80	0.38				
24.00	0.33	586.78	0.33				
25.00	0.00	586.45	0.00				
26.00	0.00	586.45	0.00				
27.00	0.00	586.45	0.00				
28.00	0.00	586.45	0.00				
29.00	0.00	586.45	0.00				
30.00	0.00	586.45	0.00				
31.00	0.00	586.45	0.00				
32.00	0.00	586.45	0.00				
33.00	0.00	586.45	0.00				
34.00	0.00	586.45	0.00				
35.00	0.00	586.45	0.00				
36.00	0.00	586.45	0.00				
37.00	0.00	586.45	0.00				
38.00	0.00	586.45	0.00				
39.00	0.00	586.45	0.00				
40.00	0.00	586.45	0.00				
41.00	0.00	586.45	0.00				
42.00	0.00	586.45	0.00				
43.00	0.00	586.45	0.00				
44.00	0.00	586.45	0.00				
45.00	0.00	586.45	0.00				
46.00	0.00	586.45	0.00				
47.00	0.00	586.45	0.00				
48.00	0.00	586.45	0.00				
49.00	0.00	586.45	0.00				
50.00	0.00	586.45	0.00				
51.00	0.00	586.45	0.00				

Summary for Pond DP18: DP-18

[58] Hint: Peaked 23.40' above defined flood level

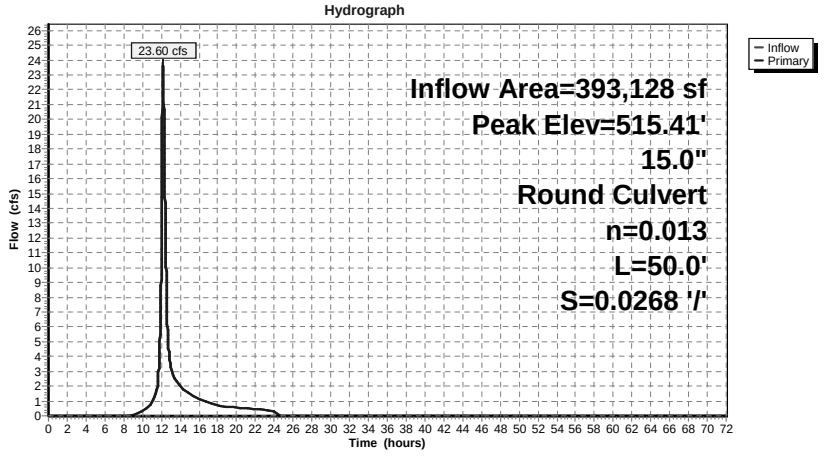
Inflow Area = 393,128 sf, 0.00% Impervious, Inflow Depth = 2.77" for 10 Year, 24 Hr. Event event
Inflow = 23.60 cfs @ 12.17 hrs, Volume= 90,720 cf
Outflow = 23.60 cfs @ 12.17 hrs, Volume= 90,720 cf, Atten= 0%, Lag= 0.0 min
Primary = 23.60 cfs @ 12.17 hrs, Volume= 90,720 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 515.41' @ 12.17 hrs
Flood Elev= 492.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	489.20'	**15.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.20' / 487.86' S= 0.0268 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=23.57 cfs @ 12.17 hrs HW=515.36' (Free Discharge)
↑**1=Culvert** (Inlet Controls 23.57 cfs @ 19.21 fps)

Pond DP18: DP-18



Hydrograph for Pond DP18: DP-18

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	489.20	0.00	52.00	0.00	489.20	0.00
1.00	0.00	489.20	0.00	53.00	0.00	489.20	0.00
2.00	0.00	489.20	0.00	54.00	0.00	489.20	0.00
3.00	0.00	489.20	0.00	55.00	0.00	489.20	0.00
4.00	0.00	489.20	0.00	56.00	0.00	489.20	0.00
5.00	0.00	489.20	0.00	57.00	0.00	489.20	0.00
6.00	0.00	489.20	0.00	58.00	0.00	489.20	0.00
7.00	0.00	489.20	0.00	59.00	0.00	489.20	0.00
8.00	0.00	489.20	0.00	60.00	0.00	489.20	0.00
9.00	0.06	489.32	0.06	61.00	0.00	489.20	0.00
10.00	0.34	489.50	0.34	62.00	0.00	489.20	0.00
11.00	0.92	489.72	0.92	63.00	0.00	489.20	0.00
12.00	**10.05**	**494.46**	**10.05**	64.00	0.00	489.20	0.00
13.00	**3.37**	**490.34**	**3.37**	65.00	0.00	489.20	0.00
14.00	2.05	490.01	2.05	66.00	0.00	489.20	0.00
15.00	1.55	489.89	1.55	67.00	0.00	489.20	0.00
16.00	1.12	489.77	1.12	68.00	0.00	489.20	0.00
17.00	0.88	489.70	0.88	69.00	0.00	489.20	0.00
18.00	0.68	489.64	0.68	70.00	0.00	489.20	0.00
19.00	0.60	489.61	0.60	71.00	0.00	489.20	0.00
20.00	0.54	489.59	0.54	72.00	0.00	489.20	0.00
21.00	0.49	489.57	0.49				
22.00	0.45	489.55	0.45				
23.00	0.40	489.53	0.40				
24.00	0.36	489.51	0.36				
25.00	0.00	489.20	0.00				
26.00	0.00	489.20	0.00				
27.00	0.00	489.20	0.00				
28.00	0.00	489.20	0.00				
29.00	0.00	489.20	0.00				
30.00	0.00	489.20	0.00				
31.00	0.00	489.20	0.00				
32.00	0.00	489.20	0.00				
33.00	0.00	489.20	0.00				
34.00	0.00	489.20	0.00				
35.00	0.00	489.20	0.00				
36.00	0.00	489.20	0.00				
37.00	0.00	489.20	0.00				
38.00	0.00	489.20	0.00				
39.00	0.00	489.20	0.00				
40.00	0.00	489.20	0.00				
41.00	0.00	489.20	0.00				
42.00	0.00	489.20	0.00				
43.00	0.00	489.20	0.00				
44.00	0.00	489.20	0.00				
45.00	0.00	489.20	0.00				
46.00	0.00	489.20	0.00				
47.00	0.00	489.20	0.00				
48.00	0.00	489.20	0.00				
49.00	0.00	489.20	0.00				
50.00	0.00	489.20	0.00				
51.00	0.00	489.20	0.00				

Summary for Pond DP19: DP-19

[57] Hint: Peaked at 488.16' (Flood elevation advised)

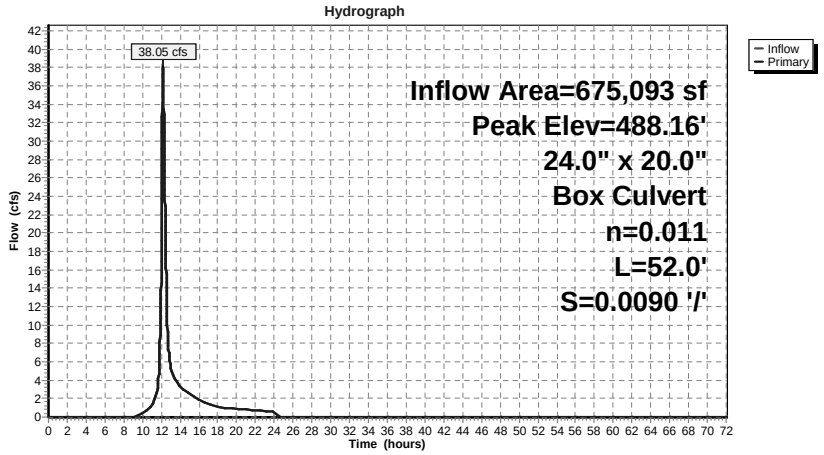
Inflow Area = 675,093 sf, 0.00% Impervious, Inflow Depth = 2.59" for 10 Year, 24 Hr. Event event
Inflow = 38.05 cfs @ 12.17 hrs, Volume= 145,685 cf
Outflow = 38.05 cfs @ 12.17 hrs, Volume= 145,685 cf, Atten= 0%, Lag= 0.0 min
Primary = 38.05 cfs @ 12.17 hrs, Volume= 145,685 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 488.16' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	481.70'	**24.0" W x 20.0" H Box Culvert** L= 52.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 481.70' / 481.23' S= 0.0090 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=38.02 cfs @ 12.17 hrs HW=488.15' (Free Discharge)
1=Culvert (Inlet Controls 38.02 cfs @ 11.41 fps)

Pond DP19: DP-19



Hydrograph for Pond DP19: DP-19

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	481.70	0.00	52.00	0.00	481.70	0.00
1.00	0.00	481.70	0.00	53.00	0.00	481.70	0.00
2.00	0.00	481.70	0.00	54.00	0.00	481.70	0.00
3.00	0.00	481.70	0.00	55.00	0.00	481.70	0.00
4.00	0.00	481.70	0.00	56.00	0.00	481.70	0.00
5.00	0.00	481.70	0.00	57.00	0.00	481.70	0.00
6.00	0.00	481.70	0.00	58.00	0.00	481.70	0.00
7.00	0.00	481.70	0.00	59.00	0.00	481.70	0.00
8.00	0.00	481.70	0.00	60.00	0.00	481.70	0.00
9.00	0.00	481.70	0.00	61.00	0.00	481.70	0.00
10.00	0.41	481.86	0.41	62.00	0.00	481.70	0.00
11.00	1.32	482.05	1.32	63.00	0.00	481.70	0.00
12.00	**15.94**	**483.58**	**15.94**	64.00	0.00	481.70	0.00
13.00	**5.50**	**482.60**	**5.50**	65.00	0.00	481.70	0.00
14.00	3.37	482.35	3.37	66.00	0.00	481.70	0.00
15.00	2.56	482.24	2.56	67.00	0.00	481.70	0.00
16.00	1.84	482.14	1.84	68.00	0.00	481.70	0.00
17.00	1.45	482.07	1.45	69.00	0.00	481.70	0.00
18.00	1.13	482.01	1.13	70.00	0.00	481.70	0.00
19.00	0.99	481.99	0.99	71.00	0.00	481.70	0.00
20.00	0.89	481.97	0.89	72.00	0.00	481.70	0.00
21.00	0.82	481.95	0.82				
22.00	0.74	481.94	0.74				
23.00	0.67	481.92	0.67				
24.00	0.60	481.90	0.60				
25.00	0.00	481.70	0.00				
26.00	0.00	481.70	0.00				
27.00	0.00	481.70	0.00				
28.00	0.00	481.70	0.00				
29.00	0.00	481.70	0.00				
30.00	0.00	481.70	0.00				
31.00	0.00	481.70	0.00				
32.00	0.00	481.70	0.00				
33.00	0.00	481.70	0.00				
34.00	0.00	481.70	0.00				
35.00	0.00	481.70	0.00				
36.00	0.00	481.70	0.00				
37.00	0.00	481.70	0.00				
38.00	0.00	481.70	0.00				
39.00	0.00	481.70	0.00				
40.00	0.00	481.70	0.00				
41.00	0.00	481.70	0.00				
42.00	0.00	481.70	0.00				
43.00	0.00	481.70	0.00				
44.00	0.00	481.70	0.00				
45.00	0.00	481.70	0.00				
46.00	0.00	481.70	0.00				
47.00	0.00	481.70	0.00				
48.00	0.00	481.70	0.00				
49.00	0.00	481.70	0.00				
50.00	0.00	481.70	0.00				
51.00	0.00	481.70	0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment DA-12: Pre DA-12 Runoff Area=24,403 sf 0.00% Impervious Runoff Depth=2.99"
Flow Length=184' Tc=12.6 min CN=72/0 Runoff=1.58 cfs 6,087 cf

Subcatchment DA-13: Pre DA-13 Runoff Area=7,377 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=1.03 cfs 3,542 cf

Subcatchment DA-14A: Pre DA-14A Runoff Area=1,310 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=0.18 cfs 629 cf

Subcatchment DA-14B: Pre DA-14B Runoff Area=9,040 sf 43.33% Impervious Runoff Depth=3.63"
Tc=5.0 min CN=61/98 Runoff=0.82 cfs 2,737 cf

Subcatchment DA-15: Pre DA-15 Runoff Area=36,565 sf 74.25% Impervious Runoff Depth=5.10"
Tc=5.0 min CN=74/98 Runoff=4.63 cfs 15,535 cf

Subcatchment DA-16: Pre DA-16 Runoff Area=273,856 sf 20.10% Impervious Runoff Depth=3.70"
Flow Length=523' Tc=16.7 min CN=74/98 Runoff=19.06 cfs 84,503 cf

Subcatchment DA-17: Pre DA-17 Runoff Area=318,304 sf 69.16% Impervious Runoff Depth=4.97"
Flow Length=1,520' Tc=13.1 min CN=74/98 Runoff=30.55 cfs 131,753 cf

Subcatchment DA-18: Pre DA-18 Runoff Area=393,128 sf 0.00% Impervious Runoff Depth=3.18"
Flow Length=1,070' Tc=12.6 min CN=74/0 Runoff=27.20 cfs 104,339 cf

Subcatchment DA-19: Pre DA-19 Runoff Area=675,093 sf 0.00% Impervious Runoff Depth=2.99"
Flow Length=1,348' Tc=12.3 min CN=72/0 Runoff=44.14 cfs 168,392 cf

Pond DP12: DP-12 Peak Elev=608.96' Inflow=1.58 cfs 6,087 cf
24.0" Round Culvert n=0.013 L=147.0' S=0.0307 '/' Outflow=1.58 cfs 6,087 cf

Pond DP13: DP-13 Peak Elev=604.38' Inflow=1.03 cfs 3,542 cf
24.0" Round Culvert n=0.013 L=79.0' S=0.1128 '/' Outflow=1.03 cfs 3,542 cf

Reach DP14: DP-14 Inflow=1.00 cfs 3,366 cf
Outflow=1.00 cfs 3,366 cf

Reach DP15: DP-15 Inflow=4.63 cfs 15,535 cf
Outflow=4.63 cfs 15,535 cf

Pond DP16: DP-16 Peak Elev=584.61' Inflow=19.06 cfs 84,503 cf
15.0" Round Culvert n=0.013 L=22.0' S=0.0336 '/' Outflow=19.06 cfs 84,503 cf

Pond DP17: DP-17 Peak Elev=629.96' Inflow=30.55 cfs 131,753 cf
15.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=30.55 cfs 131,753 cf

Pond DP18: DP-18 Peak Elev=523.83' Inflow=27.20 cfs 104,339 cf
15.0" Round Culvert n=0.013 L=50.0' S=0.0268 '/' Outflow=27.20 cfs 104,339 cf

Pond DP19: DP-19 Peak Elev=490.11' Inflow=44.14 cfs 168,392 cf
24.0" x 20.0" Box Culvert n=0.011 L=52.0' S=0.0090 '/' Outflow=44.14 cfs 168,392 cf

Total Runoff Area = 1,739,076 sf Runoff Volume = 517,517 cf Average Runoff Depth = 3.57"
81.89% Pervious = 1,424,150 sf 18.11% Impervious = 314,926 sf

Summary for Subcatchment DA-12: Pre DA-12

Runoff = 1.58 cfs @ 12.17 hrs, Volume= 6,087 cf, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

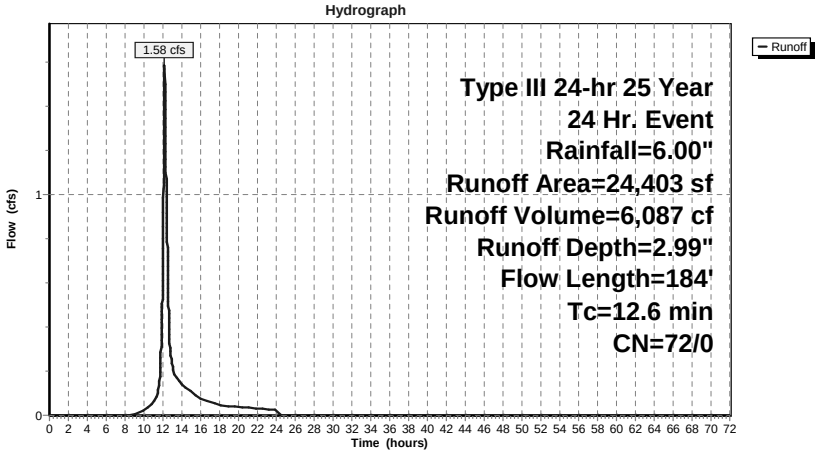
Area (sf)	CN	Description	Land Use
10,105	74	>75% Grass cover, Good, HSG C	Open Space
14,298	70	Woods, Good, HSG C	Woods
24,403	72	Weighted Average	
24,403	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	100	0.0810	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.50"
0.3	14	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	70	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
10,105	Open Space	72.31	0.25	1.09	0.15
14,298	Woods	6.29	0.00	0.00	0.21
24,403	Total	78.60	0.25	1.09	0.36

Subcatchment DA-12: Pre DA-12



Hydrograph for Subcatchment DA-12: Pre DA-12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.03	0.00	0.02
12.00	3.00	0.81	0.00	**0.67**
14.00	4.87	2.10	0.00	**0.14**
16.00	5.32	2.44	0.00	0.08
18.00	5.57	2.64	0.00	0.05
20.00	5.74	2.78	0.00	0.04
22.00	5.88	2.90	0.00	0.03
24.00	**6.00**	**2.99**	0.00	0.02
26.00	6.00	2.99	0.00	0.00
28.00	6.00	2.99	0.00	0.00
30.00	6.00	2.99	0.00	0.00
32.00	6.00	2.99	0.00	0.00
34.00	6.00	2.99	0.00	0.00
36.00	6.00	2.99	0.00	0.00
38.00	6.00	2.99	0.00	0.00
40.00	6.00	2.99	0.00	0.00
42.00	6.00	2.99	0.00	0.00
44.00	6.00	2.99	0.00	0.00
46.00	6.00	2.99	0.00	0.00
48.00	6.00	2.99	0.00	0.00
50.00	6.00	2.99	0.00	0.00
52.00	6.00	2.99	0.00	0.00
54.00	6.00	2.99	0.00	0.00
56.00	6.00	2.99	0.00	0.00
58.00	6.00	2.99	0.00	0.00
60.00	6.00	2.99	0.00	0.00
62.00	6.00	2.99	0.00	0.00
64.00	6.00	2.99	0.00	0.00
66.00	6.00	2.99	0.00	0.00
68.00	6.00	2.99	0.00	0.00
70.00	6.00	2.99	0.00	0.00
72.00	6.00	2.99	0.00	0.00

Summary for Subcatchment DA-13: Pre DA-13

Runoff = 1.03 cfs @ 12.07 hrs, Volume= 3,542 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

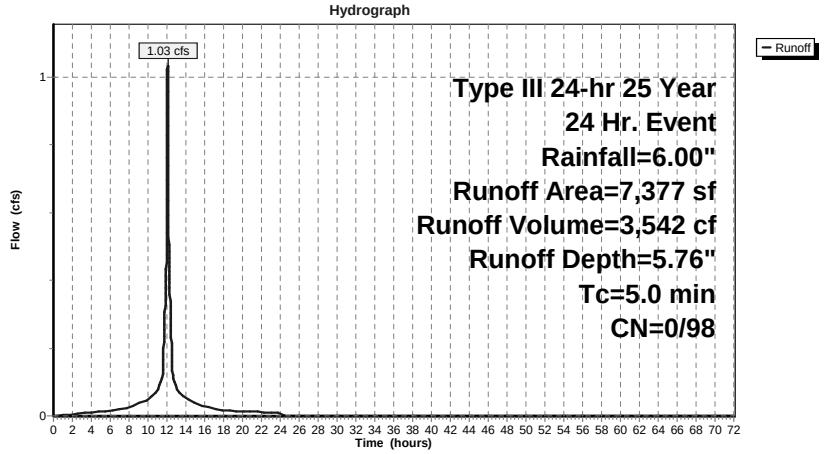
Area (sf)	CN	Description	Land Use
7,377	98	Paved parking, HSG C	Pavement
7,377	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,377	Pavement	288.25	0.93	3.50	11.16
7,377	Total	288.25	0.93	3.50	11.16

Subcatchment DA-13: Pre DA-13



Hydrograph for Subcatchment DA-13: Pre DA-13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.02
10.00	1.13	0.00	0.92	0.05
12.00	3.00	0.00	2.77	**0.70**
14.00	4.87	0.00	4.63	**0.05**
16.00	5.32	0.00	5.08	0.03
18.00	5.57	0.00	5.33	0.02
20.00	5.74	0.00	5.50	0.01
22.00	5.88	0.00	5.65	0.01
24.00	**6.00**	0.00	**5.76**	0.01
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00

Summary for Subcatchment DA-14A: Pre DA-14A

Runoff = 0.18 cfs @ 12.07 hrs, Volume= 629 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

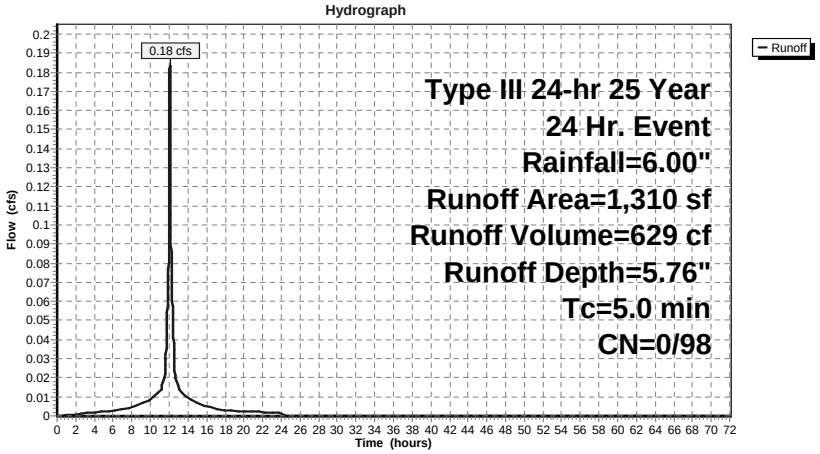
Area (sf)	CN	Description	Land Use
1,310	98	Paved parking, HSG C	Pavement
1,310	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,310	Pavement	51.19	0.17	0.62	1.98
1,310	Total	51.19	0.17	0.62	1.98

Subcatchment DA-14A: Pre DA-14A



Hydrograph for Subcatchment DA-14A: Pre DA-14A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.00
10.00	1.13	0.00	0.92	0.01
12.00	3.00	0.00	2.77	**0.12**
14.00	4.87	0.00	4.63	**0.01**
16.00	5.32	0.00	5.08	0.00
18.00	5.57	0.00	5.33	0.00
20.00	5.74	0.00	5.50	0.00
22.00	5.88	0.00	5.65	0.00
24.00	**6.00**	0.00	**5.76**	0.00
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00

Summary for Subcatchment DA-14B: Pre DA-14B

Runoff = 0.82 cfs @ 12.07 hrs, Volume= 2,737 cf, Depth= 3.63"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

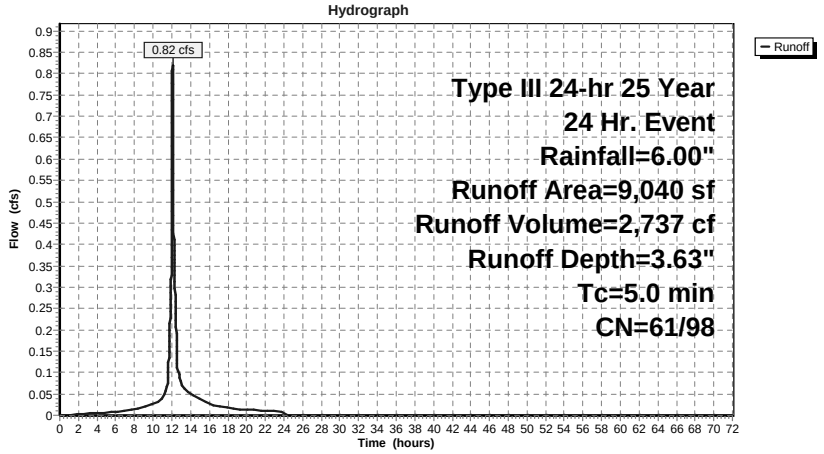
Area (sf)	CN	Description	Land Use
573	98	Unconnected pavement, HSG C	Pavement
3,344	98	Roofs, HSG C	Roofs
5,123	61	>75% Grass cover, Good, HSG B	Open Space
9,040	77	Weighted Average	
5,123	61	56.67% Pervious Area	
3,917	98	43.33% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 43.33% Impervious, Rv= 0.440, Runoff= 20.11"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,123	Open Space	322.59	1.13	4.88	0.66
573	Pavement	10.37	0.03	0.13	0.40
3,344	Roofs	6.65	0.04	0.52	2.59
9,040	Total	339.61	1.20	5.53	3.65

Subcatchment DA-14B: Pre DA-14B



Hydrograph for Subcatchment DA-14B: Pre DA-14B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.00	0.92	0.03
12.00	3.00	0.37	2.77	**0.53**
14.00	4.87	1.29	4.63	**0.05**
16.00	5.32	1.56	5.08	0.03
18.00	5.57	1.72	5.33	0.02
20.00	5.74	1.83	5.50	0.01
22.00	5.88	1.93	5.65	0.01
24.00	**6.00**	**2.01**	**5.76**	0.01
26.00	6.00	2.01	5.76	0.00
28.00	6.00	2.01	5.76	0.00
30.00	6.00	2.01	5.76	0.00
32.00	6.00	2.01	5.76	0.00
34.00	6.00	2.01	5.76	0.00
36.00	6.00	2.01	5.76	0.00
38.00	6.00	2.01	5.76	0.00
40.00	6.00	2.01	5.76	0.00
42.00	6.00	2.01	5.76	0.00
44.00	6.00	2.01	5.76	0.00
46.00	6.00	2.01	5.76	0.00
48.00	6.00	2.01	5.76	0.00
50.00	6.00	2.01	5.76	0.00
52.00	6.00	2.01	5.76	0.00
54.00	6.00	2.01	5.76	0.00
56.00	6.00	2.01	5.76	0.00
58.00	6.00	2.01	5.76	0.00
60.00	6.00	2.01	5.76	0.00
62.00	6.00	2.01	5.76	0.00
64.00	6.00	2.01	5.76	0.00
66.00	6.00	2.01	5.76	0.00
68.00	6.00	2.01	5.76	0.00
70.00	6.00	2.01	5.76	0.00
72.00	6.00	2.01	5.76	0.00

Summary for Subcatchment DA-15: Pre DA-15

Runoff = 4.63 cfs @ 12.07 hrs, Volume= 15,535 cf, Depth= 5.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

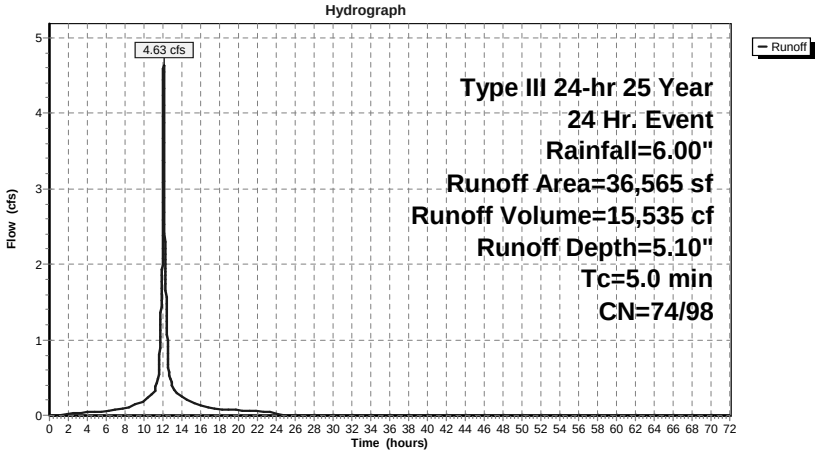
Area (sf)	CN	Description	Land Use
21,025	98	Paved parking, HSG B	Pavement
6,126	98	Roofs, HSG B	Roofs
9,414	74	>75% Grass cover, Good, HSG C	Open Space
36,565	92	Weighted Average	
9,414	74	25.75% Pervious Area	
27,151	98	74.25% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.25% Impervious, Rv= 0.718, Runoff= 32.83"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,414	Open Space	967.79	3.38	14.63	1.98
21,025	Pavement	621.15	2.01	7.54	24.06
6,126	Roofs	19.88	0.12	1.57	7.74
36,565	Total	1,608.82	5.50	23.74	33.77

Subcatchment DA-15: Pre DA-15



Hydrograph for Subcatchment DA-15: Pre DA-15

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.02
4.00	0.26	0.00	0.11	0.04
6.00	0.43	0.00	0.26	0.05
8.00	0.68	0.00	0.49	0.09
10.00	1.13	0.05	0.92	0.19
12.00	3.00	0.91	2.77	**3.09**
14.00	4.87	2.26	4.63	**0.24**
16.00	5.32	2.62	5.08	0.13
18.00	5.57	2.83	5.33	0.08
20.00	5.74	2.97	5.50	0.06
22.00	5.88	3.09	5.65	0.05
24.00	**6.00**	**3.18**	**5.76**	0.04
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00

Summary for Subcatchment DA-16: Pre DA-16

Runoff = 19.06 cfs @ 12.23 hrs, Volume= 84,503 cf, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

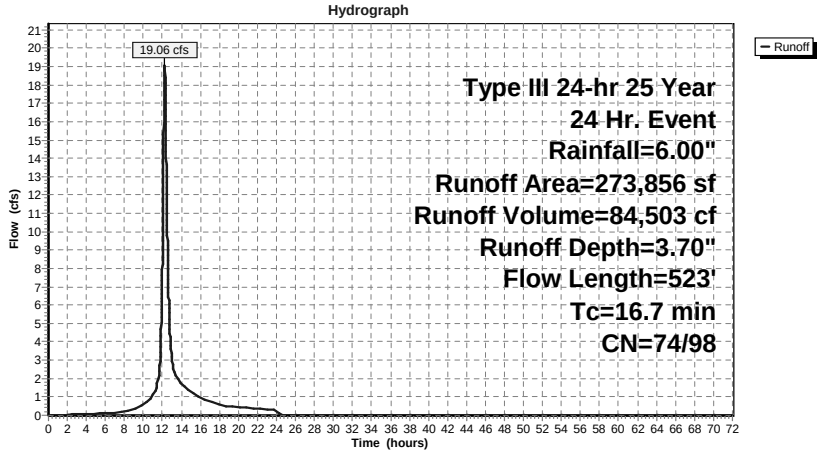
Area (sf)	CN	Description	Land Use
55,041	98	Paved parking, HSG B	Pavement
218,815	74	>75% Grass cover, Good, HSG C	Open Space
273,856	79	Weighted Average	
218,815	74	79.90% Pervious Area	
55,041	98	20.10% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	150	0.0330	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	30	0.0330	2.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.8	275	0.1160	5.48		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	68	0.0440	3.38		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
16.7	523	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 20.10% Impervious, Rv= 0.231, Runoff= 10.55"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
218,815	Open Space	7,230.80	25.22	109.30	14.77
55,041	Pavement	522.69	1.69	6.34	20.24
273,856	Total	7,753.49	26.92	115.65	35.02

Subcatchment DA-16: Pre DA-16



Hydrograph for Subcatchment DA-16: Pre DA-16

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.03
4.00	0.26	0.00	0.11	0.07
6.00	0.43	0.00	0.26	0.10
8.00	0.68	0.00	0.49	0.18
10.00	1.13	0.05	0.92	0.59
12.00	3.00	0.91	2.77	**7.93**
14.00	4.87	2.26	4.63	**1.74**
16.00	5.32	2.62	5.08	0.93
18.00	5.57	2.83	5.33	0.56
20.00	5.74	2.97	5.50	0.44
22.00	5.88	3.09	5.65	0.36
24.00	**6.00**	**3.18**	**5.76**	0.29
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00

Summary for Subcatchment DA-17: Pre DA-17

Runoff = 30.55 cfs @ 12.18 hrs, Volume= 131,753 cf, Depth= 4.97"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

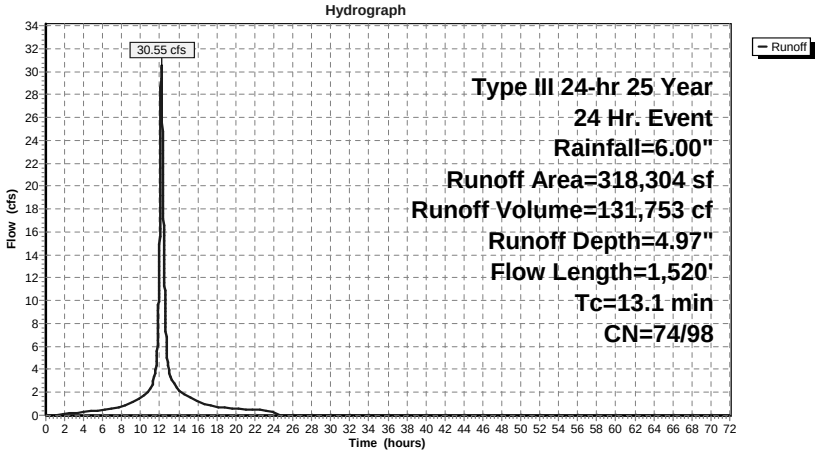
Area (sf)	CN	Description	Land Use
130,871	98	Paved parking, HSG C	Pavement
89,259	98	Roofs, HSG C	Roofs
98,174	74	>75% Grass cover, Good, HSG C	Open Space
318,304	91	Weighted Average	
98,174	74	30.84% Pervious Area	
220,130	98	69.16% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	135	0.0670	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.1	35	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.2	1,350		10.00		**Direct Entry, Pipe Flow**
13.1	1,520	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 69.16% Impervious, Rv= 0.672, Runoff= 30.73"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
98,174	Open Space	9,448.09	32.96	142.82	19.30
130,871	Pavement	3,619.43	11.72	43.94	140.17
89,259	Roofs	271.12	1.57	21.40	105.59
318,304	Total	13,338.64	46.24	208.16	265.07

Subcatchment DA-17: Pre DA-17



Hydrograph for Subcatchment DA-17: Pre DA-17

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.13
4.00	0.26	0.00	0.11	0.29
6.00	0.43	0.00	0.26	0.42
8.00	0.68	0.00	0.49	0.72
10.00	1.13	0.05	0.92	1.51
12.00	3.00	0.91	2.77	**14.93**
14.00	4.87	2.26	4.63	**2.22**
16.00	5.32	2.62	5.08	1.18
18.00	5.57	2.83	5.33	0.71
20.00	5.74	2.97	5.50	0.56
22.00	5.88	3.09	5.65	0.46
24.00	**6.00**	**3.18**	**5.76**	0.37
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00

Summary for Subcatchment DA-18: Pre DA-18

Runoff = 27.20 cfs @ 12.17 hrs, Volume= 104,339 cf, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

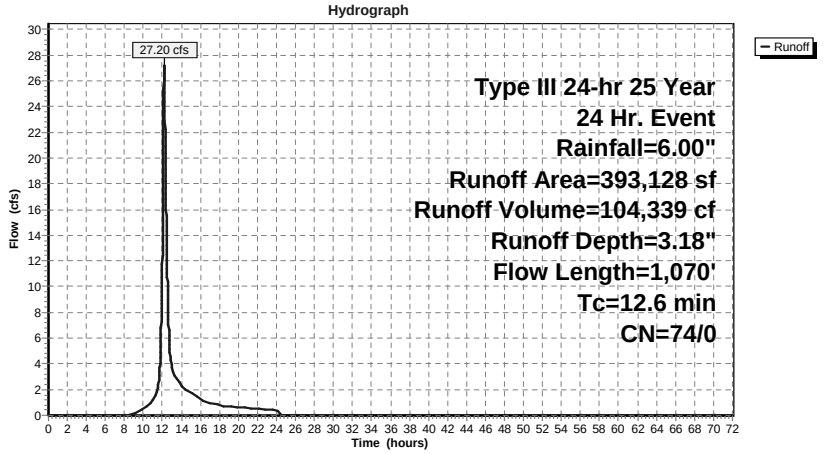
Area (sf)	CN	Description	Land Use
321,115	74	>75% Grass cover, Good, HSG C	Open Space
60,787	70	Woods, Good, HSG C	Woods
11,226	89	Gravel roads, HSG C	Roadway
393,128	74	Weighted Average	
393,128	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	150	0.0800	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	220	0.0910	4.86		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	190	0.2630	8.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	510	0.0200	13.18	79.10	**Channel Flow,** Area= 6.0 sf Perim= 5.0' r= 1.20' n= 0.018 Earth, clean & straight
12.6	1,070	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
321,115	Open Space	2,297.95	8.02	34.74	4.70
11,226	Roadway	23.09	0.07	0.28	0.89
60,787	Woods	26.74	0.00	0.00	0.89
393,128	Total	2,347.78	8.09	35.02	6.48

Subcatchment DA-18: Pre DA-18



Hydrograph for Subcatchment DA-18: Pre DA-18

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.05	0.00	0.47
12.00	3.00	0.91	0.00	**11.79**
14.00	4.87	2.26	0.00	**2.31**
16.00	5.32	2.62	0.00	1.25
18.00	5.57	2.83	0.00	0.76
20.00	5.74	2.97	0.00	0.60
22.00	5.88	3.09	0.00	0.50
24.00	**6.00**	**3.18**	0.00	0.40
26.00	6.00	3.18	0.00	0.00
28.00	6.00	3.18	0.00	0.00
30.00	6.00	3.18	0.00	0.00
32.00	6.00	3.18	0.00	0.00
34.00	6.00	3.18	0.00	0.00
36.00	6.00	3.18	0.00	0.00
38.00	6.00	3.18	0.00	0.00
40.00	6.00	3.18	0.00	0.00
42.00	6.00	3.18	0.00	0.00
44.00	6.00	3.18	0.00	0.00
46.00	6.00	3.18	0.00	0.00
48.00	6.00	3.18	0.00	0.00
50.00	6.00	3.18	0.00	0.00
52.00	6.00	3.18	0.00	0.00
54.00	6.00	3.18	0.00	0.00
56.00	6.00	3.18	0.00	0.00
58.00	6.00	3.18	0.00	0.00
60.00	6.00	3.18	0.00	0.00
62.00	6.00	3.18	0.00	0.00
64.00	6.00	3.18	0.00	0.00
66.00	6.00	3.18	0.00	0.00
68.00	6.00	3.18	0.00	0.00
70.00	6.00	3.18	0.00	0.00
72.00	6.00	3.18	0.00	0.00

Summary for Subcatchment DA-19: Pre DA-19

Runoff = 44.14 cfs @ 12.17 hrs, Volume= 168,392 cf, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

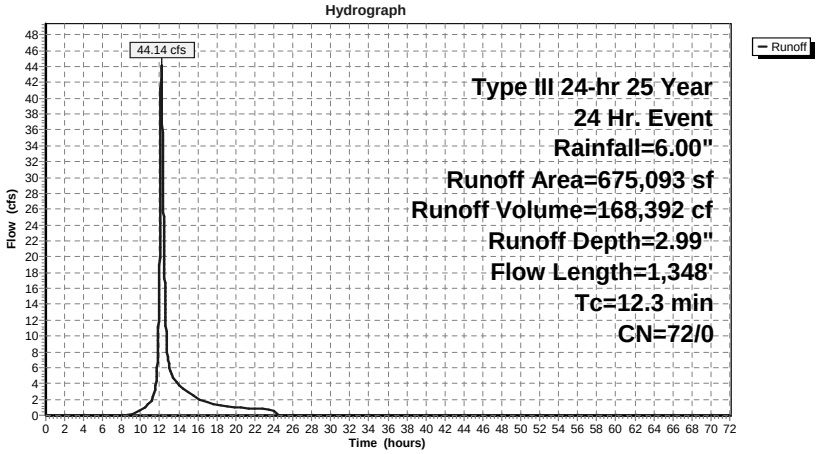
Area (sf)	CN	Description	Land Use
370,422	74	>75% Grass cover, Good, HSG C	Open Space
304,671	70	Woods, Good, HSG C	Woods
675,093	72	Weighted Average	
675,093	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0970	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.1	273	0.0970	2.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	121	0.1980	3.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	214	0.1680	2.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	640		10.00		**Direct Entry,**
12.3	1,348	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
370,422	Open Space	2,650.80	9.25	40.07	5.42
304,671	Woods	134.00	0.00	0.00	4.45
675,093	Total	2,784.81	9.25	40.07	9.87

Subcatchment DA-19: Pre DA-19



Hydrograph for Subcatchment DA-19: Pre DA-19

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.03	0.00	0.61
12.00	3.00	0.81	0.00	**18.88**
14.00	4.87	2.10	0.00	**3.81**
16.00	5.32	2.44	0.00	2.08
18.00	5.57	2.64	0.00	1.27
20.00	5.74	2.78	0.00	1.00
22.00	5.88	2.90	0.00	0.84
24.00	**6.00**	**2.99**	0.00	0.67
26.00	6.00	2.99	0.00	0.00
28.00	6.00	2.99	0.00	0.00
30.00	6.00	2.99	0.00	0.00
32.00	6.00	2.99	0.00	0.00
34.00	6.00	2.99	0.00	0.00
36.00	6.00	2.99	0.00	0.00
38.00	6.00	2.99	0.00	0.00
40.00	6.00	2.99	0.00	0.00
42.00	6.00	2.99	0.00	0.00
44.00	6.00	2.99	0.00	0.00
46.00	6.00	2.99	0.00	0.00
48.00	6.00	2.99	0.00	0.00
50.00	6.00	2.99	0.00	0.00
52.00	6.00	2.99	0.00	0.00
54.00	6.00	2.99	0.00	0.00
56.00	6.00	2.99	0.00	0.00
58.00	6.00	2.99	0.00	0.00
60.00	6.00	2.99	0.00	0.00
62.00	6.00	2.99	0.00	0.00
64.00	6.00	2.99	0.00	0.00
66.00	6.00	2.99	0.00	0.00
68.00	6.00	2.99	0.00	0.00
70.00	6.00	2.99	0.00	0.00
72.00	6.00	2.99	0.00	0.00

Summary for Pond DP12: DP-12

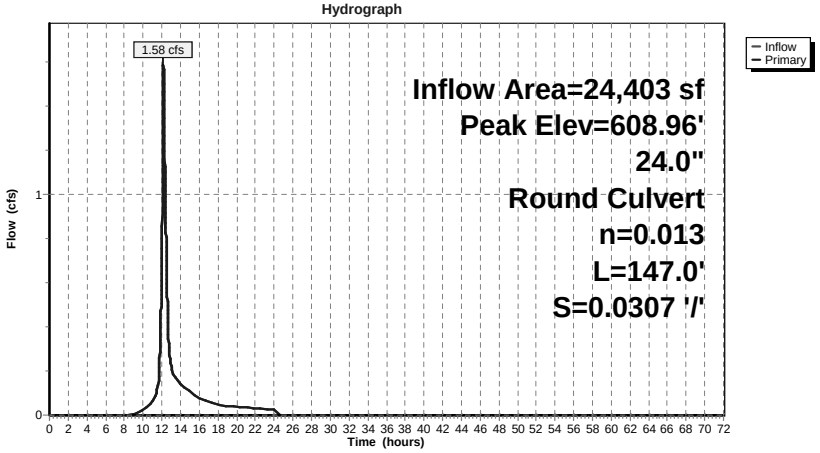
Inflow Area = 24,403 sf, 0.00% Impervious, Inflow Depth = 2.99" for 25 Year, 24 Hr. Event event
Inflow = 1.58 cfs @ 12.17 hrs, Volume= 6,087 cf
Outflow = 1.58 cfs @ 12.17 hrs, Volume= 6,087 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.58 cfs @ 12.17 hrs, Volume= 6,087 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.96' @ 12.17 hrs
Flood Elev= 613.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.37'	**24.0" Round Culvert** L= 147.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 608.37' / 603.85' S= 0.0307 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.58 cfs @ 12.17 hrs HW=608.96' (Free Discharge)
1=Culvert (Inlet Controls 1.58 cfs @ 2.06 fps)

Pond DP12: DP-12



Hydrograph for Pond DP12: DP-12

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	608.37	0.00	52.00	0.00	608.37	0.00
1.00	0.00	608.37	0.00	53.00	0.00	608.37	0.00
2.00	0.00	608.37	0.00	54.00	0.00	608.37	0.00
3.00	0.00	608.37	0.00	55.00	0.00	608.37	0.00
4.00	0.00	608.37	0.00	56.00	0.00	608.37	0.00
5.00	0.00	608.37	0.00	57.00	0.00	608.37	0.00
6.00	0.00	608.37	0.00	58.00	0.00	608.37	0.00
7.00	0.00	608.37	0.00	59.00	0.00	608.37	0.00
8.00	0.00	608.37	0.00	60.00	0.00	608.37	0.00
9.00	0.00	608.40	0.00	61.00	0.00	608.37	0.00
10.00	0.02	608.44	0.02	62.00	0.00	608.37	0.00
11.00	0.06	608.48	0.06	63.00	0.00	608.37	0.00
12.00	**0.67**	**608.75**	**0.67**	64.00	0.00	608.37	0.00
13.00	**0.23**	**608.59**	**0.23**	65.00	0.00	608.37	0.00
14.00	0.14	608.54	0.14	66.00	0.00	608.37	0.00
15.00	0.10	608.52	0.10	67.00	0.00	608.37	0.00
16.00	0.08	608.49	0.08	68.00	0.00	608.37	0.00
17.00	0.06	608.48	0.06	69.00	0.00	608.37	0.00
18.00	0.05	608.47	0.05	70.00	0.00	608.37	0.00
19.00	0.04	608.46	0.04	71.00	0.00	608.37	0.00
20.00	0.04	608.46	0.04	72.00	0.00	608.37	0.00
21.00	0.03	608.45	0.03				
22.00	0.03	608.45	0.03				
23.00	0.03	608.44	0.03				
24.00	0.02	608.44	0.02				
25.00	0.00	608.37	0.00				
26.00	0.00	608.37	0.00				
27.00	0.00	608.37	0.00				
28.00	0.00	608.37	0.00				
29.00	0.00	608.37	0.00				
30.00	0.00	608.37	0.00				
31.00	0.00	608.37	0.00				
32.00	0.00	608.37	0.00				
33.00	0.00	608.37	0.00				
34.00	0.00	608.37	0.00				
35.00	0.00	608.37	0.00				
36.00	0.00	608.37	0.00				
37.00	0.00	608.37	0.00				
38.00	0.00	608.37	0.00				
39.00	0.00	608.37	0.00				
40.00	0.00	608.37	0.00				
41.00	0.00	608.37	0.00				
42.00	0.00	608.37	0.00				
43.00	0.00	608.37	0.00				
44.00	0.00	608.37	0.00				
45.00	0.00	608.37	0.00				
46.00	0.00	608.37	0.00				
47.00	0.00	608.37	0.00				
48.00	0.00	608.37	0.00				
49.00	0.00	608.37	0.00				
50.00	0.00	608.37	0.00				
51.00	0.00	608.37	0.00				

Summary for Pond DP13: DP-13

[57] Hint: Peaked at 604.38' (Flood elevation advised)

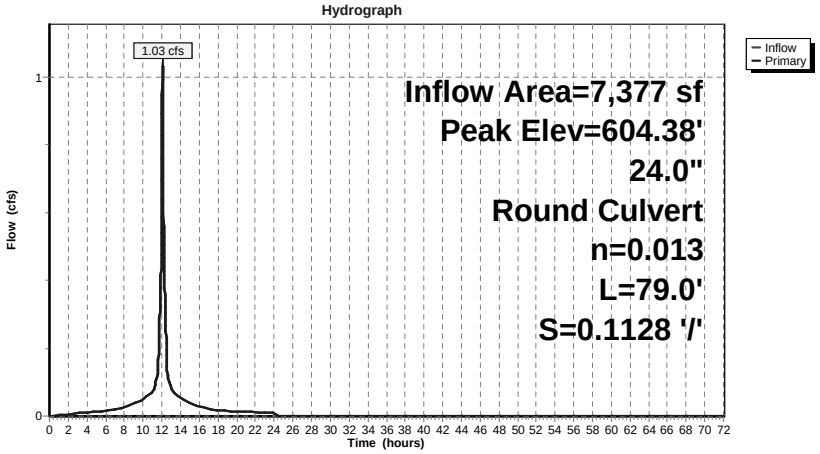
Inflow Area = 7,377 sf,100.00% Impervious, Inflow Depth = 5.76" for 25 Year, 24 Hr. Event event
Inflow = 1.03 cfs @ 12.07 hrs, Volume= 3,542 cf
Outflow = 1.03 cfs @ 12.07 hrs, Volume= 3,542 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.03 cfs @ 12.07 hrs, Volume= 3,542 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 604.38' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	603.91'	**24.0" Round Culvert** L= 79.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 603.91' / 595.00' S= 0.1128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.03 cfs @ 12.07 hrs HW=604.38' (Free Discharge)
1=Culvert (Inlet Controls 1.03 cfs @ 1.84 fps)

Pond DP13: DP-13



Hydrograph for Pond DP13: DP-13

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	603.91	0.00	52.00	0.00	603.91	0.00
1.00	0.00	603.93	0.00	53.00	0.00	603.91	0.00
2.00	0.00	603.94	0.00	54.00	0.00	603.91	0.00
3.00	0.01	603.95	0.01	55.00	0.00	603.91	0.00
4.00	0.01	603.95	0.01	56.00	0.00	603.91	0.00
5.00	0.01	603.96	0.01	57.00	0.00	603.91	0.00
6.00	0.01	603.96	0.01	58.00	0.00	603.91	0.00
7.00	0.02	603.97	0.02	59.00	0.00	603.91	0.00
8.00	0.02	603.98	0.02	60.00	0.00	603.91	0.00
9.00	0.04	603.99	0.04	61.00	0.00	603.91	0.00
10.00	0.05	604.01	0.05	62.00	0.00	603.91	0.00
11.00	0.07	604.03	0.07	63.00	0.00	603.91	0.00
12.00	**0.70**	**604.29**	**0.70**	64.00	0.00	603.91	0.00
13.00	**0.08**	**604.04**	**0.08**	65.00	0.00	603.91	0.00
14.00	0.05	604.01	0.05	66.00	0.00	603.91	0.00
15.00	0.04	604.00	0.04	67.00	0.00	603.91	0.00
16.00	0.03	603.98	0.03	68.00	0.00	603.91	0.00
17.00	0.02	603.98	0.02	69.00	0.00	603.91	0.00
18.00	0.02	603.97	0.02	70.00	0.00	603.91	0.00
19.00	0.01	603.96	0.01	71.00	0.00	603.91	0.00
20.00	0.01	603.96	0.01	72.00	0.00	603.91	0.00
21.00	0.01	603.96	0.01				
22.00	0.01	603.96	0.01				
23.00	0.01	603.95	0.01				
24.00	0.01	603.95	0.01				
25.00	0.00	603.91	0.00				
26.00	0.00	603.91	0.00				
27.00	0.00	603.91	0.00				
28.00	0.00	603.91	0.00				
29.00	0.00	603.91	0.00				
30.00	0.00	603.91	0.00				
31.00	0.00	603.91	0.00				
32.00	0.00	603.91	0.00				
33.00	0.00	603.91	0.00				
34.00	0.00	603.91	0.00				
35.00	0.00	603.91	0.00				
36.00	0.00	603.91	0.00				
37.00	0.00	603.91	0.00				
38.00	0.00	603.91	0.00				
39.00	0.00	603.91	0.00				
40.00	0.00	603.91	0.00				
41.00	0.00	603.91	0.00				
42.00	0.00	603.91	0.00				
43.00	0.00	603.91	0.00				
44.00	0.00	603.91	0.00				
45.00	0.00	603.91	0.00				
46.00	0.00	603.91	0.00				
47.00	0.00	603.91	0.00				
48.00	0.00	603.91	0.00				
49.00	0.00	603.91	0.00				
50.00	0.00	603.91	0.00				
51.00	0.00	603.91	0.00				

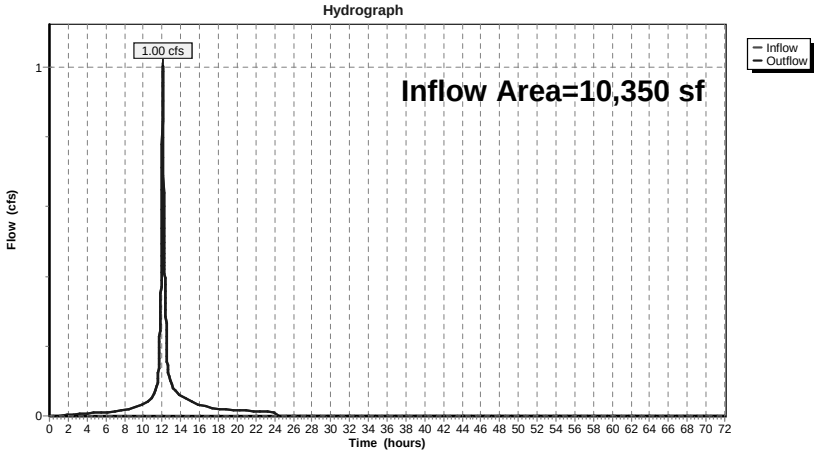
Summary for Reach DP14: DP-14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10,350 sf, 50.50% Impervious, Inflow Depth = 3.90" for 25 Year, 24 Hr. Event event
Inflow = 1.00 cfs @ 12.07 hrs, Volume= 3,366 cf
Outflow = 1.00 cfs @ 12.07 hrs, Volume= 3,366 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP14: DP-14



Hydrograph for Reach DP14: DP-14

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.02		0.02	60.00	0.00		0.00
9.00	0.03		0.03	61.00	0.00		0.00
10.00	0.03		0.03	62.00	0.00		0.00
11.00	0.05		0.05	63.00	0.00		0.00
12.00	**0.65**		**0.65**	64.00	0.00		0.00
13.00	**0.09**		**0.09**	65.00	0.00		0.00
14.00	0.06		0.06	66.00	0.00		0.00
15.00	0.04		0.04	67.00	0.00		0.00
16.00	0.03		0.03	68.00	0.00		0.00
17.00	0.03		0.03	69.00	0.00		0.00
18.00	0.02		0.02	70.00	0.00		0.00
19.00	0.02		0.02	71.00	0.00		0.00
20.00	0.02		0.02	72.00	0.00		0.00
21.00	0.01		0.01				
22.00	0.01		0.01				
23.00	0.01		0.01				
24.00	0.01		0.01				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

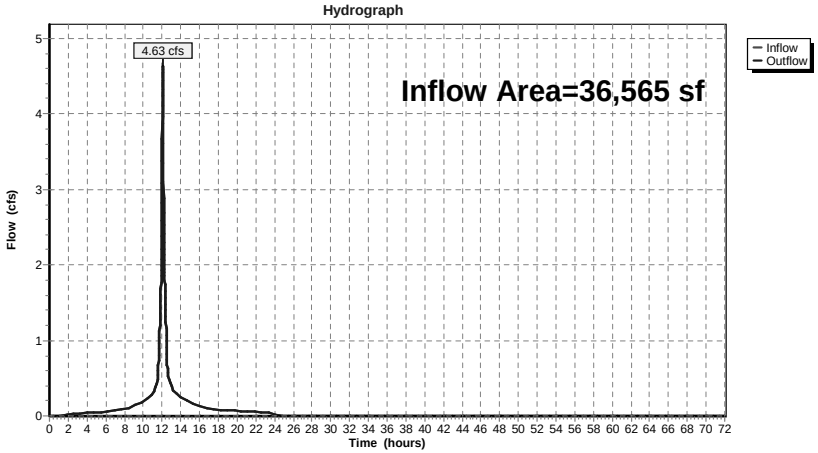
Summary for Reach DP15: DP-15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 36,565 sf, 74.25% Impervious, Inflow Depth = 5.10" for 25 Year, 24 Hr. Event event
Inflow = 4.63 cfs @ 12.07 hrs, Volume= 15,535 cf
Outflow = 4.63 cfs @ 12.07 hrs, Volume= 15,535 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP15: DP-15



Hydrograph for Reach DP15: DP-15

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.03		0.03	55.00	0.00		0.00
4.00	0.04		0.04	56.00	0.00		0.00
5.00	0.05		0.05	57.00	0.00		0.00
6.00	0.05		0.05	58.00	0.00		0.00
7.00	0.07		0.07	59.00	0.00		0.00
8.00	0.09		0.09	60.00	0.00		0.00
9.00	0.14		0.14	61.00	0.00		0.00
10.00	0.19		0.19	62.00	0.00		0.00
11.00	0.29		0.29	63.00	0.00		0.00
12.00	**3.09**		**3.09**	64.00	0.00		0.00
13.00	**0.38**		**0.38**	65.00	0.00		0.00
14.00	0.24		0.24	66.00	0.00		0.00
15.00	0.18		0.18	67.00	0.00		0.00
16.00	0.13		0.13	68.00	0.00		0.00
17.00	0.10		0.10	69.00	0.00		0.00
18.00	0.08		0.08	70.00	0.00		0.00
19.00	0.07		0.07	71.00	0.00		0.00
20.00	0.06		0.06	72.00	0.00		0.00
21.00	0.06		0.06				
22.00	0.05		0.05				
23.00	0.05		0.05				
24.00	0.04		0.04				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP16: DP-16

[58] Hint: Peaked 13.40' above defined flood level

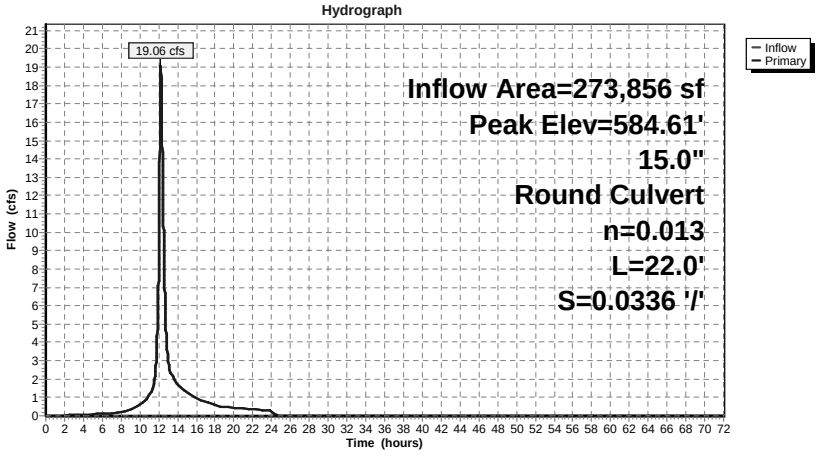
Inflow Area = 273,856 sf, 20.10% Impervious, Inflow Depth = 3.70" for 25 Year, 24 Hr. Event event
Inflow = 19.06 cfs @ 12.23 hrs, Volume= 84,503 cf
Outflow = 19.06 cfs @ 12.23 hrs, Volume= 84,503 cf, Atten= 0%, Lag= 0.0 min
Primary = 19.06 cfs @ 12.23 hrs, Volume= 84,503 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 584.61' @ 12.23 hrs
Flood Elev= 571.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	567.29'	**15.0" Round Culvert** L= 22.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 567.29' / 566.55' S= 0.0336 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=19.05 cfs @ 12.23 hrs HW=584.59' (Free Discharge)
↳**1=Culvert** (Inlet Controls 19.05 cfs @ 15.52 fps)

Pond DP16: DP-16



Hydrograph for Pond DP16: DP-16

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	567.29	0.00	52.00	0.00	567.29	0.00
1.00	0.00	567.32	0.00	53.00	0.00	567.29	0.00
2.00	0.03	567.38	0.03	54.00	0.00	567.29	0.00
3.00	0.05	567.41	0.05	55.00	0.00	567.29	0.00
4.00	0.07	567.43	0.07	56.00	0.00	567.29	0.00
5.00	0.09	567.44	0.09	57.00	0.00	567.29	0.00
6.00	0.10	567.45	0.10	58.00	0.00	567.29	0.00
7.00	0.14	567.48	0.14	59.00	0.00	567.29	0.00
8.00	0.18	567.51	0.18	60.00	0.00	567.29	0.00
9.00	0.32	567.58	0.32	61.00	0.00	567.29	0.00
10.00	0.59	567.70	0.59	62.00	0.00	567.29	0.00
11.00	1.12	567.86	1.12	63.00	0.00	567.29	0.00
12.00	**7.93**	**570.80**	**7.93**	64.00	0.00	567.29	0.00
13.00	**3.09**	**568.35**	**3.09**	65.00	0.00	567.29	0.00
14.00	1.74	568.03	1.74	66.00	0.00	567.29	0.00
15.00	1.29	567.91	1.29	67.00	0.00	567.29	0.00
16.00	0.93	567.81	0.93	68.00	0.00	567.29	0.00
17.00	0.72	567.74	0.72	69.00	0.00	567.29	0.00
18.00	0.56	567.69	0.56	70.00	0.00	567.29	0.00
19.00	0.49	567.66	0.49	71.00	0.00	567.29	0.00
20.00	0.44	567.64	0.44	72.00	0.00	567.29	0.00
21.00	0.40	567.62	0.40				
22.00	0.36	567.60	0.36				
23.00	0.33	567.59	0.33				
24.00	0.29	567.57	0.29				
25.00	0.00	567.29	0.00				
26.00	0.00	567.29	0.00				
27.00	0.00	567.29	0.00				
28.00	0.00	567.29	0.00				
29.00	0.00	567.29	0.00				
30.00	0.00	567.29	0.00				
31.00	0.00	567.29	0.00				
32.00	0.00	567.29	0.00				
33.00	0.00	567.29	0.00				
34.00	0.00	567.29	0.00				
35.00	0.00	567.29	0.00				
36.00	0.00	567.29	0.00				
37.00	0.00	567.29	0.00				
38.00	0.00	567.29	0.00				
39.00	0.00	567.29	0.00				
40.00	0.00	567.29	0.00				
41.00	0.00	567.29	0.00				
42.00	0.00	567.29	0.00				
43.00	0.00	567.29	0.00				
44.00	0.00	567.29	0.00				
45.00	0.00	567.29	0.00				
46.00	0.00	567.29	0.00				
47.00	0.00	567.29	0.00				
48.00	0.00	567.29	0.00				
49.00	0.00	567.29	0.00				
50.00	0.00	567.29	0.00				
51.00	0.00	567.29	0.00				

Summary for Pond DP17: DP-17

[58] Hint: Peaked 39.14' above defined flood level

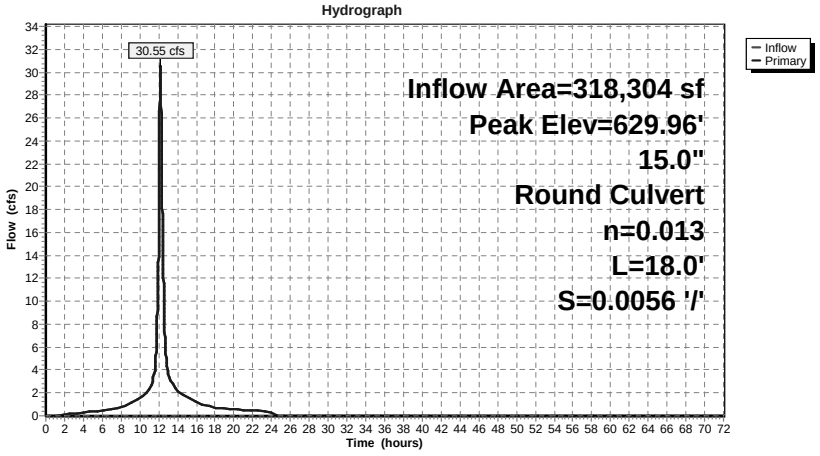
Inflow Area = 318,304 sf, 69.16% Impervious, Inflow Depth = 4.97" for 25 Year, 24 Hr. Event event
Inflow = 30.55 cfs @ 12.18 hrs, Volume= 131,753 cf
Outflow = 30.55 cfs @ 12.18 hrs, Volume= 131,753 cf, Atten= 0%, Lag= 0.0 min
Primary = 30.55 cfs @ 12.18 hrs, Volume= 131,753 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 629.96' @ 12.18 hrs
Flood Elev= 590.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	586.45'	**15.0" Round Culvert-verify outlet invert** L= 18.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 586.45' / 586.35' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=30.52 cfs @ 12.18 hrs HW=629.87' (Free Discharge)
↳**1=Culvert-verify outlet invert** (Inlet Controls 30.52 cfs @ 24.87 fps)

Pond DP17: DP-17



Hydrograph for Pond DP17: DP-17

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	586.45	0.00	52.00	0.00	586.45	0.00
1.00	0.02	586.53	0.02	53.00	0.00	586.45	0.00
2.00	0.13	586.65	0.13	54.00	0.00	586.45	0.00
3.00	0.21	586.71	0.21	55.00	0.00	586.45	0.00
4.00	0.29	586.75	0.29	56.00	0.00	586.45	0.00
5.00	0.36	586.79	0.36	57.00	0.00	586.45	0.00
6.00	0.42	586.82	0.42	58.00	0.00	586.45	0.00
7.00	0.56	586.88	0.56	59.00	0.00	586.45	0.00
8.00	0.72	586.94	0.72	60.00	0.00	586.45	0.00
9.00	1.06	587.07	1.06	61.00	0.00	586.45	0.00
10.00	1.51	587.20	1.51	62.00	0.00	586.45	0.00
11.00	2.33	587.43	2.33	63.00	0.00	586.45	0.00
12.00	**14.93**	**597.32**	**14.93**	64.00	0.00	586.45	0.00
13.00	**3.78**	**587.80**	**3.78**	65.00	0.00	586.45	0.00
14.00	2.22	587.40	2.22	66.00	0.00	586.45	0.00
15.00	1.65	587.24	1.65	67.00	0.00	586.45	0.00
16.00	1.18	587.10	1.18	68.00	0.00	586.45	0.00
17.00	0.92	587.02	0.92	69.00	0.00	586.45	0.00
18.00	0.71	586.94	0.71	70.00	0.00	586.45	0.00
19.00	0.62	586.91	0.62	71.00	0.00	586.45	0.00
20.00	0.56	586.88	0.56	72.00	0.00	586.45	0.00
21.00	0.51	586.86	0.51				
22.00	0.46	586.84	0.46				
23.00	0.41	586.82	0.41				
24.00	0.37	586.79	0.37				
25.00	0.00	586.45	0.00				
26.00	0.00	586.45	0.00				
27.00	0.00	586.45	0.00				
28.00	0.00	586.45	0.00				
29.00	0.00	586.45	0.00				
30.00	0.00	586.45	0.00				
31.00	0.00	586.45	0.00				
32.00	0.00	586.45	0.00				
33.00	0.00	586.45	0.00				
34.00	0.00	586.45	0.00				
35.00	0.00	586.45	0.00				
36.00	0.00	586.45	0.00				
37.00	0.00	586.45	0.00				
38.00	0.00	586.45	0.00				
39.00	0.00	586.45	0.00				
40.00	0.00	586.45	0.00				
41.00	0.00	586.45	0.00				
42.00	0.00	586.45	0.00				
43.00	0.00	586.45	0.00				
44.00	0.00	586.45	0.00				
45.00	0.00	586.45	0.00				
46.00	0.00	586.45	0.00				
47.00	0.00	586.45	0.00				
48.00	0.00	586.45	0.00				
49.00	0.00	586.45	0.00				
50.00	0.00	586.45	0.00				
51.00	0.00	586.45	0.00				

Summary for Pond DP18: DP-18

[58] Hint: Peaked 31.82' above defined flood level

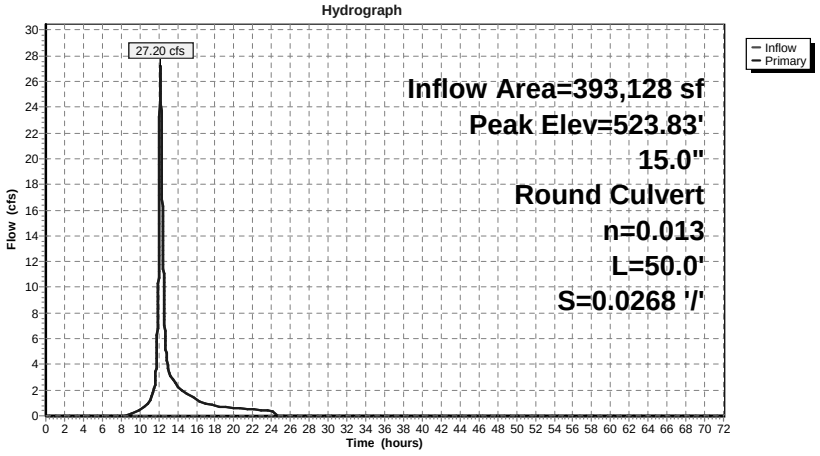
Inflow Area = 393,128 sf, 0.00% Impervious, Inflow Depth = 3.18" for 25 Year, 24 Hr. Event event
Inflow = 27.20 cfs @ 12.17 hrs, Volume= 104,339 cf
Outflow = 27.20 cfs @ 12.17 hrs, Volume= 104,339 cf, Atten= 0%, Lag= 0.0 min
Primary = 27.20 cfs @ 12.17 hrs, Volume= 104,339 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 523.83' @ 12.17 hrs
Flood Elev= 492.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	489.20'	**15.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.20' / 487.86' S= 0.0268 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=27.17 cfs @ 12.17 hrs HW=523.76' (Free Discharge)
1=Culvert (Inlet Controls 27.17 cfs @ 22.14 fps)

Pond DP18: DP-18



Hydrograph for Pond DP18: DP-18

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	489.20	0.00	52.00	0.00	489.20	0.00
1.00	0.00	489.20	0.00	53.00	0.00	489.20	0.00
2.00	0.00	489.20	0.00	54.00	0.00	489.20	0.00
3.00	0.00	489.20	0.00	55.00	0.00	489.20	0.00
4.00	0.00	489.20	0.00	56.00	0.00	489.20	0.00
5.00	0.00	489.20	0.00	57.00	0.00	489.20	0.00
6.00	0.00	489.20	0.00	58.00	0.00	489.20	0.00
7.00	0.00	489.20	0.00	59.00	0.00	489.20	0.00
8.00	0.00	489.20	0.00	60.00	0.00	489.20	0.00
9.00	0.14	489.39	0.14	61.00	0.00	489.20	0.00
10.00	0.47	489.56	0.47	62.00	0.00	489.20	0.00
11.00	1.16	489.78	1.16	63.00	0.00	489.20	0.00
12.00	**11.79**	**496.21**	**11.79**	64.00	0.00	489.20	0.00
13.00	**3.81**	**490.49**	**3.81**	65.00	0.00	489.20	0.00
14.00	2.31	490.07	2.31	66.00	0.00	489.20	0.00
15.00	1.74	489.94	1.74	67.00	0.00	489.20	0.00
16.00	1.25	489.81	1.25	68.00	0.00	489.20	0.00
17.00	0.98	489.73	0.98	69.00	0.00	489.20	0.00
18.00	0.76	489.67	0.76	70.00	0.00	489.20	0.00
19.00	0.67	489.63	0.67	71.00	0.00	489.20	0.00
20.00	0.60	489.61	0.60	72.00	0.00	489.20	0.00
21.00	0.55	489.59	0.55				
22.00	0.50	489.57	0.50				
23.00	0.45	489.55	0.45				
24.00	0.40	489.53	0.40				
25.00	0.00	489.20	0.00				
26.00	0.00	489.20	0.00				
27.00	0.00	489.20	0.00				
28.00	0.00	489.20	0.00				
29.00	0.00	489.20	0.00				
30.00	0.00	489.20	0.00				
31.00	0.00	489.20	0.00				
32.00	0.00	489.20	0.00				
33.00	0.00	489.20	0.00				
34.00	0.00	489.20	0.00				
35.00	0.00	489.20	0.00				
36.00	0.00	489.20	0.00				
37.00	0.00	489.20	0.00				
38.00	0.00	489.20	0.00				
39.00	0.00	489.20	0.00				
40.00	0.00	489.20	0.00				
41.00	0.00	489.20	0.00				
42.00	0.00	489.20	0.00				
43.00	0.00	489.20	0.00				
44.00	0.00	489.20	0.00				
45.00	0.00	489.20	0.00				
46.00	0.00	489.20	0.00				
47.00	0.00	489.20	0.00				
48.00	0.00	489.20	0.00				
49.00	0.00	489.20	0.00				
50.00	0.00	489.20	0.00				
51.00	0.00	489.20	0.00				

Summary for Pond DP19: DP-19

[57] Hint: Peaked at 490.11' (Flood elevation advised)

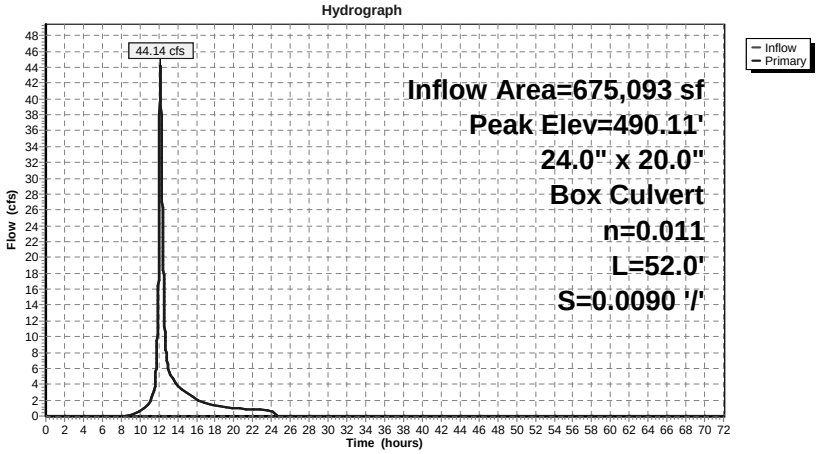
Inflow Area = 675,093 sf, 0.00% Impervious, Inflow Depth = 2.99" for 25 Year, 24 Hr. Event event
Inflow = 44.14 cfs @ 12.17 hrs, Volume= 168,392 cf
Outflow = 44.14 cfs @ 12.17 hrs, Volume= 168,392 cf, Atten= 0%, Lag= 0.0 min
Primary = 44.14 cfs @ 12.17 hrs, Volume= 168,392 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 490.11' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	481.70'	**24.0" W x 20.0" H Box Culvert** L= 52.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 481.70' / 481.23' S= 0.0090 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=44.11 cfs @ 12.17 hrs HW=490.09' (Free Discharge)
1=Culvert (Inlet Controls 44.11 cfs @ 13.23 fps)

Pond DP19: DP-19



Hydrograph for Pond DP19: DP-19

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	481.70	0.00	52.00	0.00	481.70	0.00
1.00	0.00	481.70	0.00	53.00	0.00	481.70	0.00
2.00	0.00	481.70	0.00	54.00	0.00	481.70	0.00
3.00	0.00	481.70	0.00	55.00	0.00	481.70	0.00
4.00	0.00	481.70	0.00	56.00	0.00	481.70	0.00
5.00	0.00	481.70	0.00	57.00	0.00	481.70	0.00
6.00	0.00	481.70	0.00	58.00	0.00	481.70	0.00
7.00	0.00	481.70	0.00	59.00	0.00	481.70	0.00
8.00	0.00	481.70	0.00	60.00	0.00	481.70	0.00
9.00	0.09	481.76	0.09	61.00	0.00	481.70	0.00
10.00	0.61	481.91	0.61	62.00	0.00	481.70	0.00
11.00	1.69	482.11	1.69	63.00	0.00	481.70	0.00
12.00	**18.88**	**483.96**	**18.88**	64.00	0.00	481.70	0.00
13.00	**6.24**	**482.68**	**6.24**	65.00	0.00	481.70	0.00
14.00	3.81	482.41	3.81	66.00	0.00	481.70	0.00
15.00	2.88	482.29	2.88	67.00	0.00	481.70	0.00
16.00	2.08	482.17	2.08	68.00	0.00	481.70	0.00
17.00	1.63	482.10	1.63	69.00	0.00	481.70	0.00
18.00	1.27	482.04	1.27	70.00	0.00	481.70	0.00
19.00	1.11	482.01	1.11	71.00	0.00	481.70	0.00
20.00	1.00	481.99	1.00	72.00	0.00	481.70	0.00
21.00	0.92	481.97	0.92				
22.00	0.84	481.96	0.84				
23.00	0.75	481.94	0.75				
24.00	0.67	481.92	0.67				
25.00	0.00	481.70	0.00				
26.00	0.00	481.70	0.00				
27.00	0.00	481.70	0.00				
28.00	0.00	481.70	0.00				
29.00	0.00	481.70	0.00				
30.00	0.00	481.70	0.00				
31.00	0.00	481.70	0.00				
32.00	0.00	481.70	0.00				
33.00	0.00	481.70	0.00				
34.00	0.00	481.70	0.00				
35.00	0.00	481.70	0.00				
36.00	0.00	481.70	0.00				
37.00	0.00	481.70	0.00				
38.00	0.00	481.70	0.00				
39.00	0.00	481.70	0.00				
40.00	0.00	481.70	0.00				
41.00	0.00	481.70	0.00				
42.00	0.00	481.70	0.00				
43.00	0.00	481.70	0.00				
44.00	0.00	481.70	0.00				
45.00	0.00	481.70	0.00				
46.00	0.00	481.70	0.00				
47.00	0.00	481.70	0.00				
48.00	0.00	481.70	0.00				
49.00	0.00	481.70	0.00				
50.00	0.00	481.70	0.00				
51.00	0.00	481.70	0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment DA-12: Pre DA-12 Runoff Area=24,403 sf 0.00% Impervious Runoff Depth=6.03"
Flow Length=184' Tc=12.6 min CN=72/0 Runoff=3.19 cfs 12,268 cf

Subcatchment DA-13: Pre DA-13 Runoff Area=7,377 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=1.64 cfs 5,692 cf

Subcatchment DA-14A: Pre DA-14A Runoff Area=1,310 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=0.29 cfs 1,011 cf

Subcatchment DA-14B: Pre DA-14B Runoff Area=9,040 sf 43.33% Impervious Runoff Depth=6.63"
Tc=5.0 min CN=61/98 Runoff=1.53 cfs 4,997 cf

Subcatchment DA-15: Pre DA-15 Runoff Area=36,565 sf 74.25% Impervious Runoff Depth=8.49"
Tc=5.0 min CN=74/98 Runoff=7.66 cfs 25,882 cf

Subcatchment DA-16: Pre DA-16 Runoff Area=273,856 sf 20.10% Impervious Runoff Depth=6.88"
Flow Length=523' Tc=16.7 min CN=74/98 Runoff=35.41 cfs 157,103 cf

Subcatchment DA-17: Pre DA-17 Runoff Area=318,304 sf 69.16% Impervious Runoff Depth=8.34"
Flow Length=1,520' Tc=13.1 min CN=74/98 Runoff=51.01 cfs 221,287 cf

Subcatchment DA-18: Pre DA-18 Runoff Area=393,128 sf 0.00% Impervious Runoff Depth=6.29"
Flow Length=1,070' Tc=12.6 min CN=74/0 Runoff=53.43 cfs 205,951 cf

Subcatchment DA-19: Pre DA-19 Runoff Area=675,093 sf 0.00% Impervious Runoff Depth=6.03"
Flow Length=1,348' Tc=12.3 min CN=72/0 Runoff=88.98 cfs 339,378 cf

Pond DP12: DP-12 Peak Elev=609.23' Inflow=3.19 cfs 12,268 cf
24.0" Round Culvert n=0.013 L=147.0' S=0.0307 '/' Outflow=3.19 cfs 12,268 cf

Pond DP13: DP-13 Peak Elev=604.51' Inflow=1.64 cfs 5,692 cf
24.0" Round Culvert n=0.013 L=79.0' S=0.1128 '/' Outflow=1.64 cfs 5,692 cf

Reach DP14: DP-14 Inflow=1.82 cfs 6,008 cf
Outflow=1.82 cfs 6,008 cf

Reach DP15: DP-15 Inflow=7.66 cfs 25,882 cf
Outflow=7.66 cfs 25,882 cf

Pond DP16: DP-16 Peak Elev=625.52' Inflow=35.41 cfs 157,103 cf
15.0" Round Culvert n=0.013 L=22.0' S=0.0336 '/' Outflow=35.41 cfs 157,103 cf

Pond DP17: DP-17 Peak Elev=706.63' Inflow=51.01 cfs 221,287 cf
15.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=51.01 cfs 221,287 cf

Pond DP18: DP-18 Peak Elev=621.00' Inflow=53.43 cfs 205,951 cf
15.0" Round Culvert n=0.013 L=50.0' S=0.0268 '/' Outflow=53.43 cfs 205,951 cf

Pond DP19: DP-19 Peak Elev=513.27' Inflow=88.98 cfs 339,378 cf
24.0" x 20.0" Box Culvert n=0.011 L=52.0' S=0.0090 '/' Outflow=88.98 cfs 339,378 cf

Total Runoff Area = 1,739,076 sf Runoff Volume = 973,569 cf Average Runoff Depth = 6.72"
81.89% Pervious = 1,424,150 sf 18.11% Impervious = 314,926 sf

Summary for Subcatchment DA-12: Pre DA-12

Runoff = 3.19 cfs @ 12.17 hrs, Volume= 12,268 cf, Depth= 6.03"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

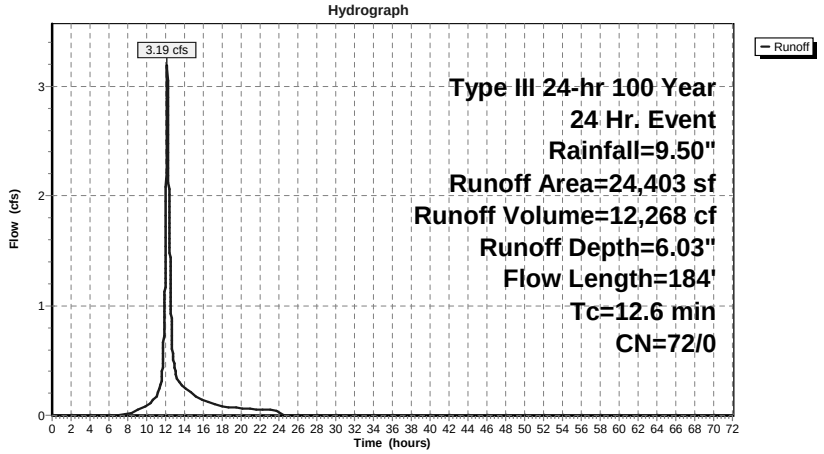
Area (sf)	CN	Description	Land Use
10,105	74	>75% Grass cover, Good, HSG C	Open Space
14,298	70	Woods, Good, HSG C	Woods
24,403	72	Weighted Average	
24,403	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	100	0.0810	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.50"
0.3	14	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	70	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
10,105	Open Space	72.31	0.25	1.09	0.15
14,298	Woods	6.29	0.00	0.00	0.21
24,403	Total	78.60	0.25	1.09	0.36

Subcatchment DA-12: Pre DA-12



Hydrograph for Subcatchment DA-12: Pre DA-12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.02	0.00	0.02
10.00	1.80	0.21	0.00	0.09
12.00	4.75	2.01	0.00	**1.46**
14.00	7.70	4.44	0.00	**0.25**
16.00	8.42	5.06	0.00	0.13
18.00	8.82	5.42	0.00	0.08
20.00	9.09	5.66	0.00	0.06
22.00	9.32	5.87	0.00	0.05
24.00	**9.50**	**6.03**	0.00	0.04
26.00	9.50	6.03	0.00	0.00
28.00	9.50	6.03	0.00	0.00
30.00	9.50	6.03	0.00	0.00
32.00	9.50	6.03	0.00	0.00
34.00	9.50	6.03	0.00	0.00
36.00	9.50	6.03	0.00	0.00
38.00	9.50	6.03	0.00	0.00
40.00	9.50	6.03	0.00	0.00
42.00	9.50	6.03	0.00	0.00
44.00	9.50	6.03	0.00	0.00
46.00	9.50	6.03	0.00	0.00
48.00	9.50	6.03	0.00	0.00
50.00	9.50	6.03	0.00	0.00
52.00	9.50	6.03	0.00	0.00
54.00	9.50	6.03	0.00	0.00
56.00	9.50	6.03	0.00	0.00
58.00	9.50	6.03	0.00	0.00
60.00	9.50	6.03	0.00	0.00
62.00	9.50	6.03	0.00	0.00
64.00	9.50	6.03	0.00	0.00
66.00	9.50	6.03	0.00	0.00
68.00	9.50	6.03	0.00	0.00
70.00	9.50	6.03	0.00	0.00
72.00	9.50	6.03	0.00	0.00

Summary for Subcatchment DA-13: Pre DA-13

Runoff = 1.64 cfs @ 12.07 hrs, Volume= 5,692 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

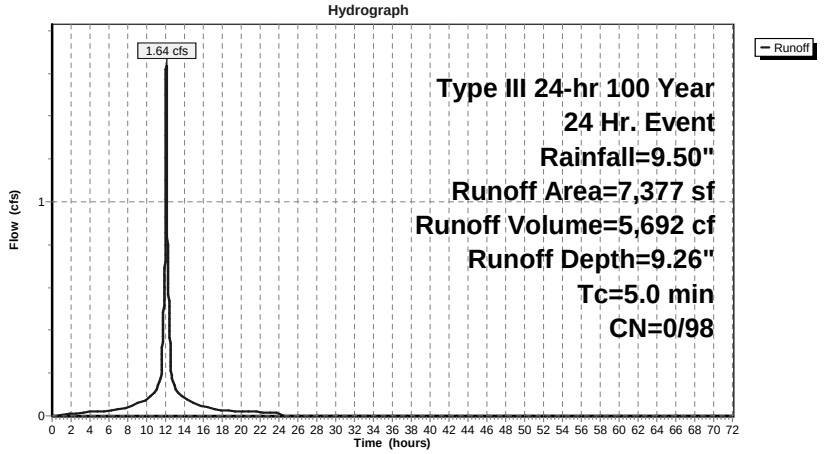
Area (sf)	CN	Description	Land Use
7,377	98	Paved parking, HSG C	Pavement
7,377	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,377	Pavement	288.25	0.93	3.50	11.16
7,377	Total	288.25	0.93	3.50	11.16

Subcatchment DA-13: Pre DA-13



Hydrograph for Subcatchment DA-13: Pre DA-13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.02
6.00	0.68	0.00	0.49	0.02
8.00	1.08	0.00	0.87	0.04
10.00	1.80	0.00	1.57	0.08
12.00	4.75	0.00	4.51	**1.11**
14.00	7.70	0.00	7.46	**0.08**
16.00	8.42	0.00	8.18	0.04
18.00	8.82	0.00	8.58	0.03
20.00	9.09	0.00	8.85	0.02
22.00	9.32	0.00	9.08	0.02
24.00	**9.50**	0.00	**9.26**	0.01
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00

Summary for Subcatchment DA-14A: Pre DA-14A

Runoff = 0.29 cfs @ 12.07 hrs, Volume= 1,011 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

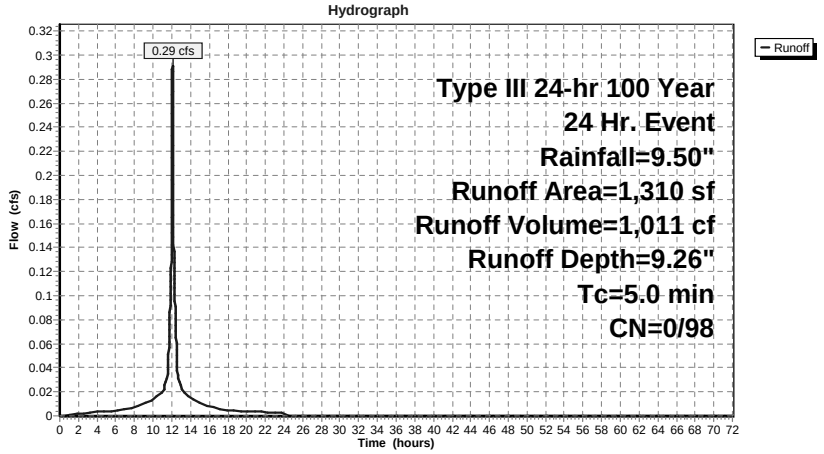
Area (sf)	CN	Description	Land Use
1,310	98	Paved parking, HSG C	Pavement
1,310	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,310	Pavement	51.19	0.17	0.62	1.98
1,310	Total	51.19	0.17	0.62	1.98

Subcatchment DA-14A: Pre DA-14A



Hydrograph for Subcatchment DA-14A: Pre DA-14A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.00
6.00	0.68	0.00	0.49	0.00
8.00	1.08	0.00	0.87	0.01
10.00	1.80	0.00	1.57	0.01
12.00	4.75	0.00	4.51	**0.20**
14.00	7.70	0.00	7.46	**0.01**
16.00	8.42	0.00	8.18	0.01
18.00	8.82	0.00	8.58	0.00
20.00	9.09	0.00	8.85	0.00
22.00	9.32	0.00	9.08	0.00
24.00	**9.50**	0.00	**9.26**	0.00
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00

Summary for Subcatchment DA-14B: Pre DA-14B

Runoff = 1.53 cfs @ 12.07 hrs, Volume= 4,997 cf, Depth= 6.63"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

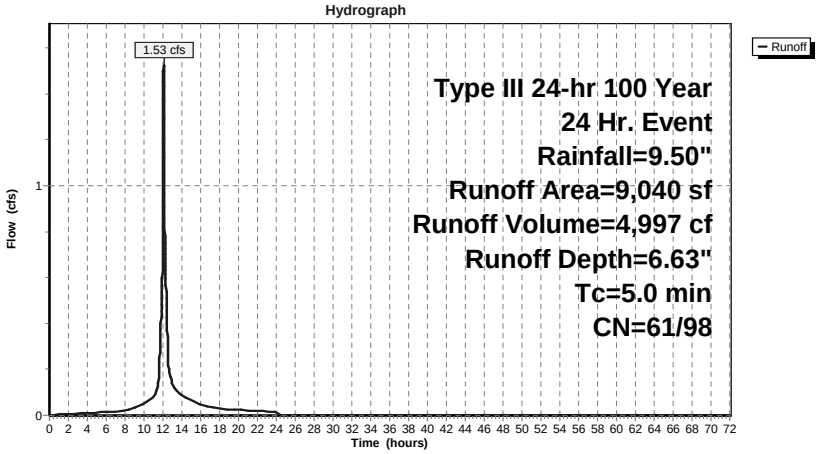
Area (sf)	CN	Description	Land Use
573	98	Unconnected pavement, HSG C	Pavement
3,344	98	Roofs, HSG C	Roofs
5,123	61	>75% Grass cover, Good, HSG B	Open Space
9,040	77	Weighted Average	
5,123	61	56.67% Pervious Area	
3,917	98	43.33% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 43.33% Impervious, Rv= 0.440, Runoff= 20.11"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,123	Open Space	322.59	1.13	4.88	0.66
573	Pavement	10.37	0.03	0.13	0.40
3,344	Roofs	6.65	0.04	0.52	2.59
9,040	Total	339.61	1.20	5.53	3.65

Subcatchment DA-14B: Pre DA-14B



Hydrograph for Subcatchment DA-14B: Pre DA-14B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.00	0.87	0.02
10.00	1.80	0.04	1.57	0.05
12.00	4.75	1.22	4.51	**0.99**
14.00	7.70	3.22	7.46	**0.09**
16.00	8.42	3.77	8.18	0.05
18.00	8.82	4.08	8.58	0.03
20.00	9.09	4.30	8.85	0.02
22.00	9.32	4.48	9.08	0.02
24.00	**9.50**	**4.62**	**9.26**	0.02
26.00	9.50	4.62	9.26	0.00
28.00	9.50	4.62	9.26	0.00
30.00	9.50	4.62	9.26	0.00
32.00	9.50	4.62	9.26	0.00
34.00	9.50	4.62	9.26	0.00
36.00	9.50	4.62	9.26	0.00
38.00	9.50	4.62	9.26	0.00
40.00	9.50	4.62	9.26	0.00
42.00	9.50	4.62	9.26	0.00
44.00	9.50	4.62	9.26	0.00
46.00	9.50	4.62	9.26	0.00
48.00	9.50	4.62	9.26	0.00
50.00	9.50	4.62	9.26	0.00
52.00	9.50	4.62	9.26	0.00
54.00	9.50	4.62	9.26	0.00
56.00	9.50	4.62	9.26	0.00
58.00	9.50	4.62	9.26	0.00
60.00	9.50	4.62	9.26	0.00
62.00	9.50	4.62	9.26	0.00
64.00	9.50	4.62	9.26	0.00
66.00	9.50	4.62	9.26	0.00
68.00	9.50	4.62	9.26	0.00
70.00	9.50	4.62	9.26	0.00
72.00	9.50	4.62	9.26	0.00

Summary for Subcatchment DA-15: Pre DA-15

Runoff = 7.66 cfs @ 12.07 hrs, Volume= 25,882 cf, Depth= 8.49"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

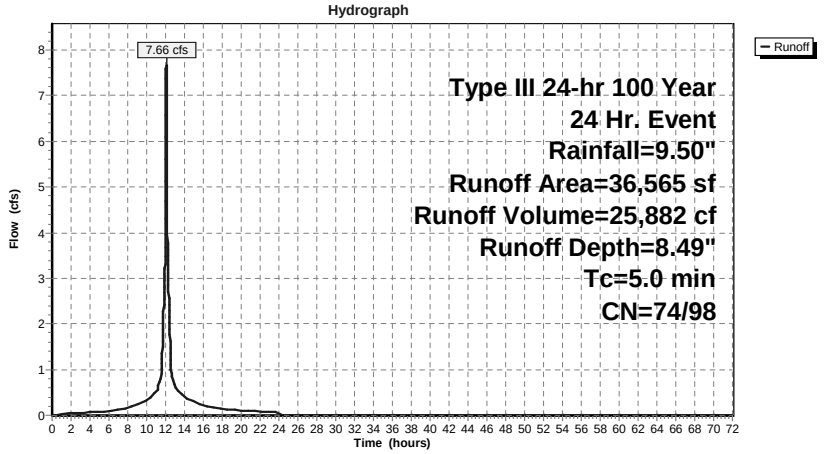
Area (sf)	CN	Description	Land Use
21,025	98	Paved parking, HSG B	Pavement
6,126	98	Roofs, HSG B	Roofs
9,414	74	>75% Grass cover, Good, HSG C	Open Space
36,565	92	Weighted Average	
9,414	74	25.75% Pervious Area	
27,151	98	74.25% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.25% Impervious, Rv= 0.718, Runoff= 32.83"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,414	Open Space	967.79	3.38	14.63	1.98
21,025	Pavement	621.15	2.01	7.54	24.06
6,126	Roofs	19.88	0.12	1.57	7.74
36,565	Total	1,608.82	5.50	23.74	33.77

Subcatchment DA-15: Pre DA-15



Hydrograph for Subcatchment DA-15: Pre DA-15

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.04
4.00	0.41	0.00	0.24	0.07
6.00	0.68	0.00	0.49	0.09
8.00	1.08	0.04	0.87	0.16
10.00	1.80	0.26	1.57	0.32
12.00	4.75	2.17	4.51	**5.13**
14.00	7.70	4.66	7.46	**0.40**
16.00	8.42	5.30	8.18	0.21
18.00	8.82	5.66	8.58	0.13
20.00	9.09	5.91	8.85	0.10
22.00	9.32	6.12	9.08	0.09
24.00	**9.50**	**6.29**	**9.26**	0.07
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00

Summary for Subcatchment DA-16: Pre DA-16

Runoff = 35.41 cfs @ 12.23 hrs, Volume= 157,103 cf, Depth= 6.88"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

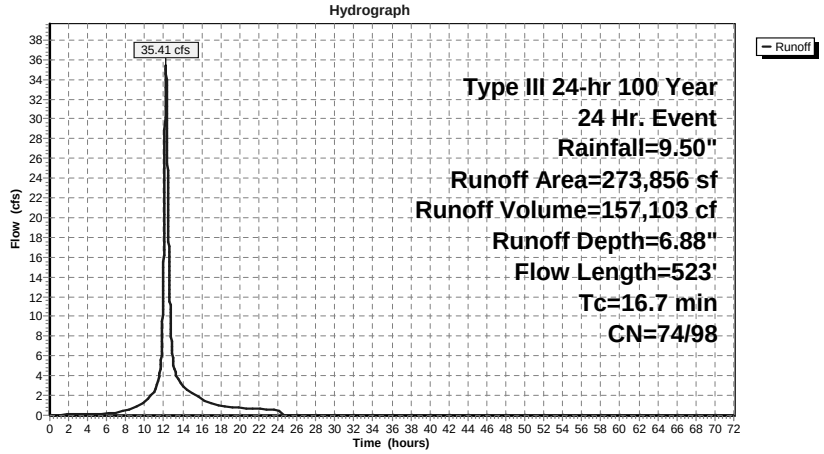
Area (sf)	CN	Description	Land Use
55,041	98	Paved parking, HSG B	Pavement
218,815	74	>75% Grass cover, Good, HSG C	Open Space
273,856	79	Weighted Average	
218,815	74	79.90% Pervious Area	
55,041	98	20.10% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	150	0.0330	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	30	0.0330	2.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.8	275	0.1160	5.48		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	68	0.0440	3.38		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
16.7	523	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 20.10% Impervious, Rv= 0.231, Runoff= 10.55"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
218,815	Open Space	7,230.80	25.22	109.30	14.77
55,041	Pavement	522.69	1.69	6.34	20.24
273,856	Total	7,753.49	26.92	115.65	35.02

Subcatchment DA-16: Pre DA-16



Hydrograph for Subcatchment DA-16: Pre DA-16

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.07
4.00	0.41	0.00	0.24	0.13
6.00	0.68	0.00	0.49	0.18
8.00	1.08	0.04	0.87	0.48
10.00	1.80	0.26	1.57	1.41
12.00	4.75	2.17	4.51	**15.53**
14.00	7.70	4.66	7.46	**3.02**
16.00	8.42	5.30	8.18	1.61
18.00	8.82	5.66	8.58	0.96
20.00	9.09	5.91	8.85	0.75
22.00	9.32	6.12	9.08	0.62
24.00	**9.50**	**6.29**	**9.26**	0.49
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00

Summary for Subcatchment DA-17: Pre DA-17

Runoff = 51.01 cfs @ 12.17 hrs, Volume= 221,287 cf, Depth= 8.34"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

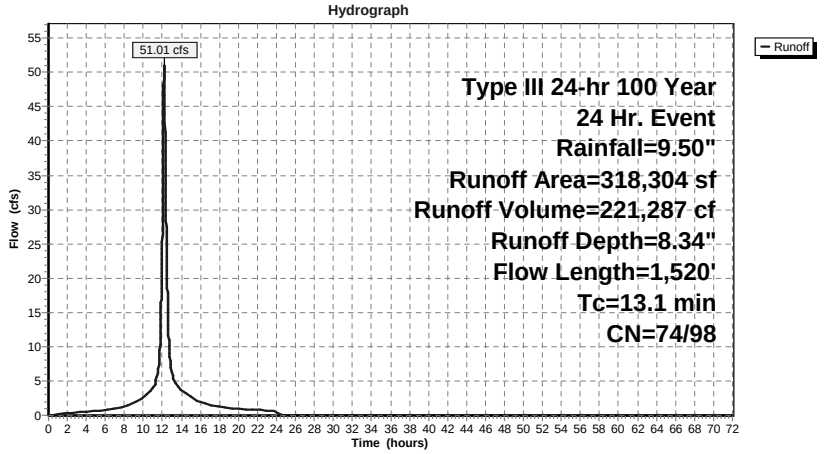
Area (sf)	CN	Description	Land Use
130,871	98	Paved parking, HSG C	Pavement
89,259	98	Roofs, HSG C	Roofs
98,174	74	>75% Grass cover, Good, HSG C	Open Space
318,304	91	Weighted Average	
98,174	74	30.84% Pervious Area	
220,130	98	69.16% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	135	0.0670	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.1	35	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.2	1,350		10.00		**Direct Entry, Pipe Flow**
13.1	1,520	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 69.16% Impervious, Rv= 0.672, Runoff= 30.73"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
98,174	Open Space	9,448.09	32.96	142.82	19.30
130,871	Pavement	3,619.43	11.72	43.94	140.17
89,259	Roofs	271.12	1.57	21.40	105.59
318,304	Total	13,338.64	46.24	208.16	265.07

Subcatchment DA-17: Pre DA-17



Hydrograph for Subcatchment DA-17: Pre DA-17

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.30
4.00	0.41	0.00	0.24	0.53
6.00	0.68	0.00	0.49	0.71
8.00	1.08	0.04	0.87	1.26
10.00	1.80	0.26	1.57	2.63
12.00	4.75	2.17	4.51	**25.23**
14.00	7.70	4.66	7.46	**3.63**
16.00	8.42	5.30	8.18	1.92
18.00	8.82	5.66	8.58	1.16
20.00	9.09	5.91	8.85	0.91
22.00	9.32	6.12	9.08	0.75
24.00	**9.50**	**6.29**	**9.26**	0.60
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00

Summary for Subcatchment DA-18: Pre DA-18

Runoff = 53.43 cfs @ 12.17 hrs, Volume= 205,951 cf, Depth= 6.29"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

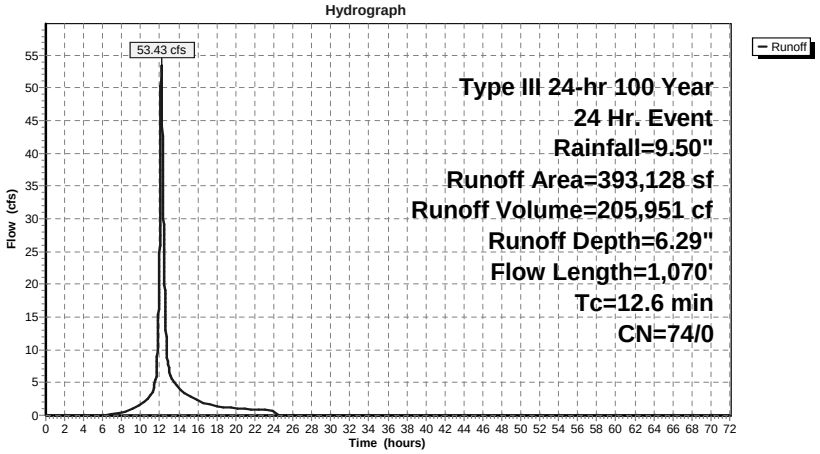
Area (sf)	CN	Description	Land Use
321,115	74	>75% Grass cover, Good, HSG C	Open Space
60,787	70	Woods, Good, HSG C	Woods
11,226	89	Gravel roads, HSG C	Roadway
393,128	74	Weighted Average	
393,128	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	150	0.0800	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	220	0.0910	4.86		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	190	0.2630	8.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	510	0.0200	13.18	79.10	**Channel Flow,** Area= 6.0 sf Perim= 5.0' r= 1.20' n= 0.018 Earth, clean & straight
12.6	1,070	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
321,115	Open Space	2,297.95	8.02	34.74	4.70
11,226	Roadway	23.09	0.07	0.28	0.89
60,787	Woods	26.74	0.00	0.00	0.89
393,128	Total	2,347.78	8.09	35.02	6.48

Subcatchment DA-18: Pre DA-18



Hydrograph for Subcatchment DA-18: Pre DA-18

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.04	0.00	0.36
10.00	1.80	0.26	0.00	1.60
12.00	4.75	2.17	0.00	**24.81**
14.00	7.70	4.66	0.00	**4.11**
16.00	8.42	5.30	0.00	2.20
18.00	8.82	5.66	0.00	1.33
20.00	9.09	5.91	0.00	1.05
22.00	9.32	6.12	0.00	0.87
24.00	**9.50**	**6.29**	0.00	0.69
26.00	9.50	6.29	0.00	0.00
28.00	9.50	6.29	0.00	0.00
30.00	9.50	6.29	0.00	0.00
32.00	9.50	6.29	0.00	0.00
34.00	9.50	6.29	0.00	0.00
36.00	9.50	6.29	0.00	0.00
38.00	9.50	6.29	0.00	0.00
40.00	9.50	6.29	0.00	0.00
42.00	9.50	6.29	0.00	0.00
44.00	9.50	6.29	0.00	0.00
46.00	9.50	6.29	0.00	0.00
48.00	9.50	6.29	0.00	0.00
50.00	9.50	6.29	0.00	0.00
52.00	9.50	6.29	0.00	0.00
54.00	9.50	6.29	0.00	0.00
56.00	9.50	6.29	0.00	0.00
58.00	9.50	6.29	0.00	0.00
60.00	9.50	6.29	0.00	0.00
62.00	9.50	6.29	0.00	0.00
64.00	9.50	6.29	0.00	0.00
66.00	9.50	6.29	0.00	0.00
68.00	9.50	6.29	0.00	0.00
70.00	9.50	6.29	0.00	0.00
72.00	9.50	6.29	0.00	0.00

Summary for Subcatchment DA-19: Pre DA-19

Runoff = 88.98 cfs @ 12.17 hrs, Volume= 339,378 cf, Depth= 6.03"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

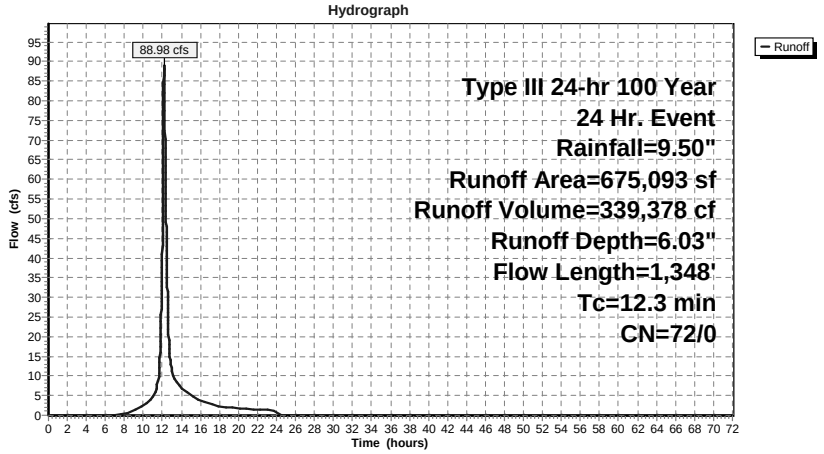
Area (sf)	CN	Description	Land Use
370,422	74	>75% Grass cover, Good, HSG C	Open Space
304,671	70	Woods, Good, HSG C	Woods
675,093	72	Weighted Average	
675,093	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0970	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.1	273	0.0970	2.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	121	0.1980	3.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	214	0.1680	2.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	640		10.00		**Direct Entry,**
12.3	1,348	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
370,422	Open Space	2,650.80	9.25	40.07	5.42
304,671	Woods	134.00	0.00	0.00	4.45
675,093	Total	2,784.81	9.25	40.07	9.87

Subcatchment DA-19: Pre DA-19



Hydrograph for Subcatchment DA-19: Pre DA-19

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.02	0.00	0.45
10.00	1.80	0.21	0.00	2.43
12.00	4.75	2.01	0.00	**41.09**
14.00	7.70	4.44	0.00	**6.90**
16.00	8.42	5.06	0.00	3.71
18.00	8.82	5.42	0.00	2.25
20.00	9.09	5.66	0.00	1.77
22.00	9.32	5.87	0.00	1.47
24.00	**9.50**	**6.03**	0.00	1.17
26.00	9.50	6.03	0.00	0.00
28.00	9.50	6.03	0.00	0.00
30.00	9.50	6.03	0.00	0.00
32.00	9.50	6.03	0.00	0.00
34.00	9.50	6.03	0.00	0.00
36.00	9.50	6.03	0.00	0.00
38.00	9.50	6.03	0.00	0.00
40.00	9.50	6.03	0.00	0.00
42.00	9.50	6.03	0.00	0.00
44.00	9.50	6.03	0.00	0.00
46.00	9.50	6.03	0.00	0.00
48.00	9.50	6.03	0.00	0.00
50.00	9.50	6.03	0.00	0.00
52.00	9.50	6.03	0.00	0.00
54.00	9.50	6.03	0.00	0.00
56.00	9.50	6.03	0.00	0.00
58.00	9.50	6.03	0.00	0.00
60.00	9.50	6.03	0.00	0.00
62.00	9.50	6.03	0.00	0.00
64.00	9.50	6.03	0.00	0.00
66.00	9.50	6.03	0.00	0.00
68.00	9.50	6.03	0.00	0.00
70.00	9.50	6.03	0.00	0.00
72.00	9.50	6.03	0.00	0.00

Summary for Pond DP12: DP-12

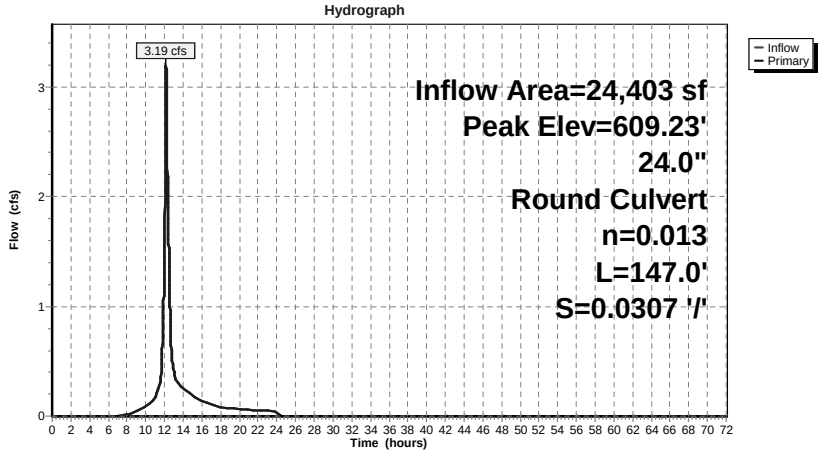
Inflow Area = 24,403 sf, 0.00% Impervious, Inflow Depth = 6.03" for 100 Year, 24 Hr. Event event
Inflow = 3.19 cfs @ 12.17 hrs, Volume= 12,268 cf
Outflow = 3.19 cfs @ 12.17 hrs, Volume= 12,268 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.19 cfs @ 12.17 hrs, Volume= 12,268 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 609.23' @ 12.17 hrs
Flood Elev= 613.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.37'	**24.0" Round Culvert** L= 147.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 608.37' / 603.85' S= 0.0307 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=3.19 cfs @ 12.17 hrs HW=609.23' (Free Discharge)
↑**1=Culvert** (Inlet Controls 3.19 cfs @ 2.49 fps)

Pond DP12: DP-12



Hydrograph for Pond DP12: DP-12

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	608.37	0.00	52.00	0.00	608.37	0.00
1.00	0.00	608.37	0.00	53.00	0.00	608.37	0.00
2.00	0.00	608.37	0.00	54.00	0.00	608.37	0.00
3.00	0.00	608.37	0.00	55.00	0.00	608.37	0.00
4.00	0.00	608.37	0.00	56.00	0.00	608.37	0.00
5.00	0.00	608.37	0.00	57.00	0.00	608.37	0.00
6.00	0.00	608.37	0.00	58.00	0.00	608.37	0.00
7.00	0.00	608.39	0.00	59.00	0.00	608.37	0.00
8.00	0.02	608.43	0.02	60.00	0.00	608.37	0.00
9.00	0.04	608.46	0.04	61.00	0.00	608.37	0.00
10.00	0.09	608.50	0.09	62.00	0.00	608.37	0.00
11.00	0.17	608.56	0.17	63.00	0.00	608.37	0.00
12.00	**1.46**	**608.93**	**1.46**	64.00	0.00	608.37	0.00
13.00	**0.42**	**608.66**	**0.42**	65.00	0.00	608.37	0.00
14.00	0.25	608.60	0.25	66.00	0.00	608.37	0.00
15.00	0.19	608.57	0.19	67.00	0.00	608.37	0.00
16.00	0.13	608.53	0.13	68.00	0.00	608.37	0.00
17.00	0.10	608.52	0.10	69.00	0.00	608.37	0.00
18.00	0.08	608.50	0.08	70.00	0.00	608.37	0.00
19.00	0.07	608.49	0.07	71.00	0.00	608.37	0.00
20.00	0.06	608.48	0.06	72.00	0.00	608.37	0.00
21.00	0.06	608.48	0.06				
22.00	0.05	608.47	0.05				
23.00	0.05	608.47	0.05				
24.00	0.04	608.46	0.04				
25.00	0.00	608.37	0.00				
26.00	0.00	608.37	0.00				
27.00	0.00	608.37	0.00				
28.00	0.00	608.37	0.00				
29.00	0.00	608.37	0.00				
30.00	0.00	608.37	0.00				
31.00	0.00	608.37	0.00				
32.00	0.00	608.37	0.00				
33.00	0.00	608.37	0.00				
34.00	0.00	608.37	0.00				
35.00	0.00	608.37	0.00				
36.00	0.00	608.37	0.00				
37.00	0.00	608.37	0.00				
38.00	0.00	608.37	0.00				
39.00	0.00	608.37	0.00				
40.00	0.00	608.37	0.00				
41.00	0.00	608.37	0.00				
42.00	0.00	608.37	0.00				
43.00	0.00	608.37	0.00				
44.00	0.00	608.37	0.00				
45.00	0.00	608.37	0.00				
46.00	0.00	608.37	0.00				
47.00	0.00	608.37	0.00				
48.00	0.00	608.37	0.00				
49.00	0.00	608.37	0.00				
50.00	0.00	608.37	0.00				
51.00	0.00	608.37	0.00				

Summary for Pond DP13: DP-13

[57] Hint: Peaked at 604.51' (Flood elevation advised)

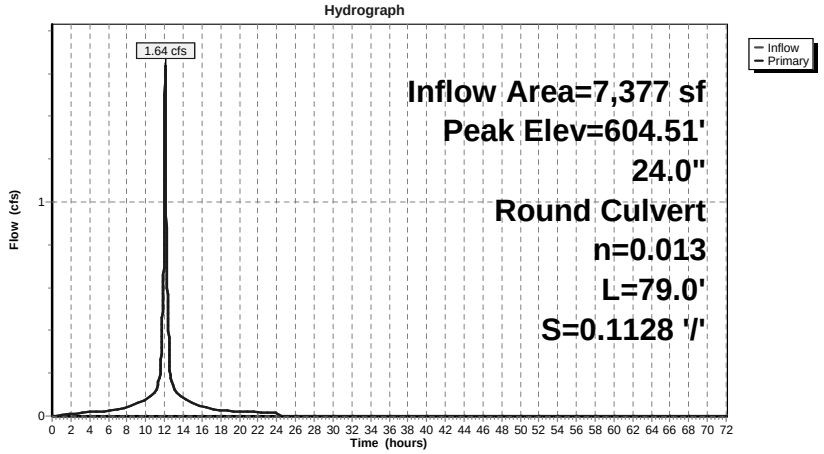
Inflow Area = 7,377 sf,100.00% Impervious, Inflow Depth = 9.26" for 100 Year, 24 Hr. Event event
Inflow = 1.64 cfs @ 12.07 hrs, Volume= 5,692 cf
Outflow = 1.64 cfs @ 12.07 hrs, Volume= 5,692 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.64 cfs @ 12.07 hrs, Volume= 5,692 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 604.51' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	603.91'	**24.0" Round Culvert** L= 79.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 603.91' / 595.00' S= 0.1128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.64 cfs @ 12.07 hrs HW=604.51' (Free Discharge)
1=Culvert (Inlet Controls 1.64 cfs @ 2.08 fps)

Pond DP13: DP-13



Hydrograph for Pond DP13: DP-13

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	603.91	0.00	52.00	0.00	603.91	0.00
1.00	0.01	603.94	0.01	53.00	0.00	603.91	0.00
2.00	0.01	603.96	0.01	54.00	0.00	603.91	0.00
3.00	0.01	603.96	0.01	55.00	0.00	603.91	0.00
4.00	0.02	603.97	0.02	56.00	0.00	603.91	0.00
5.00	0.02	603.98	0.02	57.00	0.00	603.91	0.00
6.00	0.02	603.98	0.02	58.00	0.00	603.91	0.00
7.00	0.03	603.99	0.03	59.00	0.00	603.91	0.00
8.00	0.04	604.00	0.04	60.00	0.00	603.91	0.00
9.00	0.06	604.02	0.06	61.00	0.00	603.91	0.00
10.00	0.08	604.03	0.08	62.00	0.00	603.91	0.00
11.00	0.11	604.06	0.11	63.00	0.00	603.91	0.00
12.00	**1.11**	**604.40**	**1.11**	64.00	0.00	603.91	0.00
13.00	**0.13**	**604.07**	**0.13**	65.00	0.00	603.91	0.00
14.00	0.08	604.04	0.08	66.00	0.00	603.91	0.00
15.00	0.06	604.02	0.06	67.00	0.00	603.91	0.00
16.00	0.04	604.00	0.04	68.00	0.00	603.91	0.00
17.00	0.03	603.99	0.03	69.00	0.00	603.91	0.00
18.00	0.03	603.98	0.03	70.00	0.00	603.91	0.00
19.00	0.02	603.98	0.02	71.00	0.00	603.91	0.00
20.00	0.02	603.98	0.02	72.00	0.00	603.91	0.00
21.00	0.02	603.97	0.02				
22.00	0.02	603.97	0.02				
23.00	0.02	603.97	0.02				
24.00	0.01	603.96	0.01				
25.00	0.00	603.91	0.00				
26.00	0.00	603.91	0.00				
27.00	0.00	603.91	0.00				
28.00	0.00	603.91	0.00				
29.00	0.00	603.91	0.00				
30.00	0.00	603.91	0.00				
31.00	0.00	603.91	0.00				
32.00	0.00	603.91	0.00				
33.00	0.00	603.91	0.00				
34.00	0.00	603.91	0.00				
35.00	0.00	603.91	0.00				
36.00	0.00	603.91	0.00				
37.00	0.00	603.91	0.00				
38.00	0.00	603.91	0.00				
39.00	0.00	603.91	0.00				
40.00	0.00	603.91	0.00				
41.00	0.00	603.91	0.00				
42.00	0.00	603.91	0.00				
43.00	0.00	603.91	0.00				
44.00	0.00	603.91	0.00				
45.00	0.00	603.91	0.00				
46.00	0.00	603.91	0.00				
47.00	0.00	603.91	0.00				
48.00	0.00	603.91	0.00				
49.00	0.00	603.91	0.00				
50.00	0.00	603.91	0.00				
51.00	0.00	603.91	0.00				

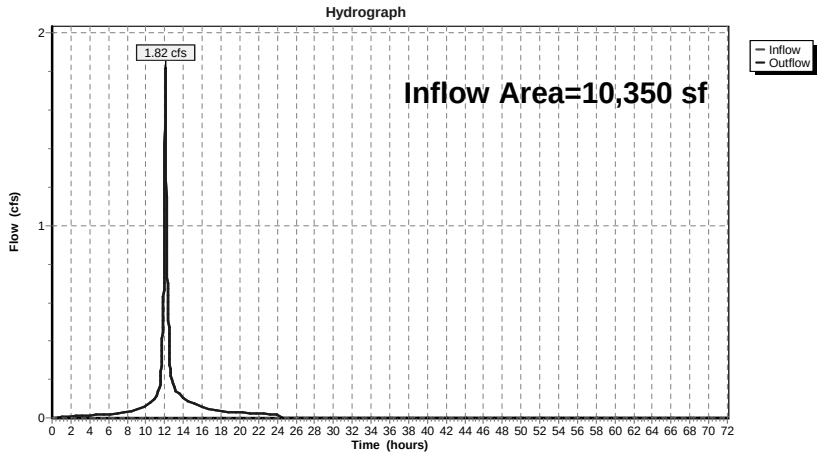
Summary for Reach DP14: DP-14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10,350 sf, 50.50% Impervious, Inflow Depth = 6.97" for 100 Year, 24 Hr. Event event
Inflow = 1.82 cfs @ 12.07 hrs, Volume= 6,008 cf
Outflow = 1.82 cfs @ 12.07 hrs, Volume= 6,008 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP14: DP-14



Hydrograph for Reach DP14: DP-14

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.02		0.02	59.00	0.00		0.00
8.00	0.03		0.03	60.00	0.00		0.00
9.00	0.04		0.04	61.00	0.00		0.00
10.00	0.06		0.06	62.00	0.00		0.00
11.00	0.10		0.10	63.00	0.00		0.00
12.00	**1.19**		**1.19**	64.00	0.00		0.00
13.00	**0.16**		**0.16**	65.00	0.00		0.00
14.00	0.10		0.10	66.00	0.00		0.00
15.00	0.08		0.08	67.00	0.00		0.00
16.00	0.05		0.05	68.00	0.00		0.00
17.00	0.04		0.04	69.00	0.00		0.00
18.00	0.03		0.03	70.00	0.00		0.00
19.00	0.03		0.03	71.00	0.00		0.00
20.00	0.03		0.03	72.00	0.00		0.00
21.00	0.02		0.02				
22.00	0.02		0.02				
23.00	0.02		0.02				
24.00	0.02		0.02				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

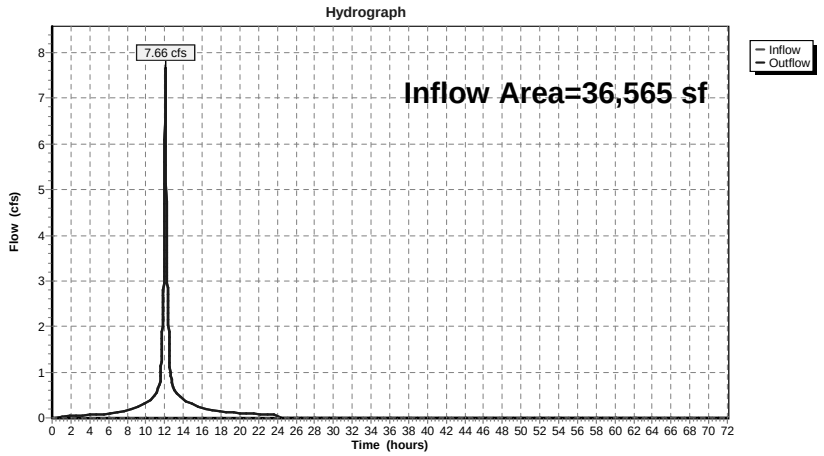
Summary for Reach DP15: DP-15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 36,565 sf, 74.25% Impervious, Inflow Depth = 8.49" for 100 Year, 24 Hr. Event event
Inflow = 7.66 cfs @ 12.07 hrs, Volume= 25,882 cf
Outflow = 7.66 cfs @ 12.07 hrs, Volume= 25,882 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP15: DP-15



Hydrograph for Reach DP15: DP-15

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.02		0.02	53.00	0.00		0.00
2.00	0.04		0.04	54.00	0.00		0.00
3.00	0.05		0.05	55.00	0.00		0.00
4.00	0.07		0.07	56.00	0.00		0.00
5.00	0.08		0.08	57.00	0.00		0.00
6.00	0.09		0.09	58.00	0.00		0.00
7.00	0.12		0.12	59.00	0.00		0.00
8.00	0.16		0.16	60.00	0.00		0.00
9.00	0.24		0.24	61.00	0.00		0.00
10.00	0.32		0.32	62.00	0.00		0.00
11.00	0.50		0.50	63.00	0.00		0.00
12.00	**5.13**		**5.13**	64.00	0.00		0.00
13.00	**0.62**		**0.62**	65.00	0.00		0.00
14.00	0.40		0.40	66.00	0.00		0.00
15.00	0.30		0.30	67.00	0.00		0.00
16.00	0.21		0.21	68.00	0.00		0.00
17.00	0.17		0.17	69.00	0.00		0.00
18.00	0.13		0.13	70.00	0.00		0.00
19.00	0.11		0.11	71.00	0.00		0.00
20.00	0.10		0.10	72.00	0.00		0.00
21.00	0.09		0.09				
22.00	0.09		0.09				
23.00	0.08		0.08				
24.00	0.07		0.07				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP16: DP-16

[58] Hint: Peaked 54.31' above defined flood level

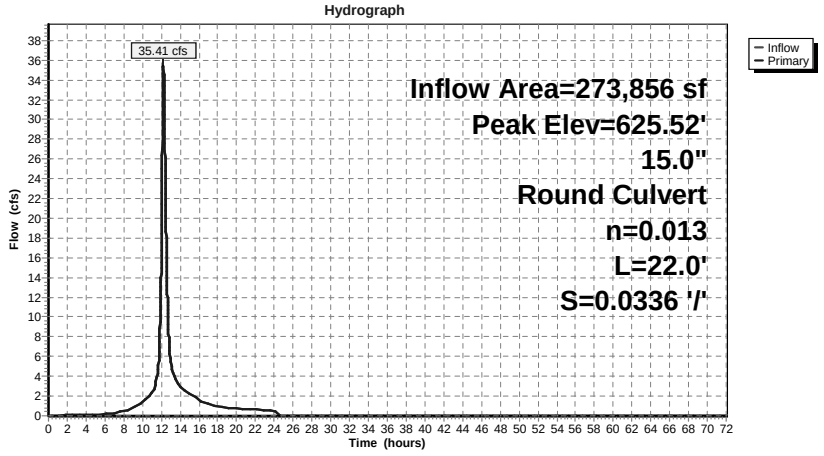
Inflow Area = 273,856 sf, 20.10% Impervious, Inflow Depth = 6.88" for 100 Year, 24 Hr. Event event
Inflow = 35.41 cfs @ 12.23 hrs, Volume= 157,103 cf
Outflow = 35.41 cfs @ 12.23 hrs, Volume= 157,103 cf, Atten= 0%, Lag= 0.0 min
Primary = 35.41 cfs @ 12.23 hrs, Volume= 157,103 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 625.52' @ 12.23 hrs
Flood Elev= 571.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	567.29'	**15.0" Round Culvert** L= 22.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 567.29' / 566.55' S= 0.0336 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=35.38 cfs @ 12.23 hrs HW=625.42' (Free Discharge)
↑**1=Culvert** (Inlet Controls 35.38 cfs @ 28.83 fps)

Pond DP16: DP-16



Hydrograph for Pond DP16: DP-16

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	567.29	0.00	52.00	0.00	567.29	0.00
1.00	0.03	567.37	0.03	53.00	0.00	567.29	0.00
2.00	0.07	567.43	0.07	54.00	0.00	567.29	0.00
3.00	0.10	567.45	0.10	55.00	0.00	567.29	0.00
4.00	0.13	567.47	0.13	56.00	0.00	567.29	0.00
5.00	0.15	567.49	0.15	57.00	0.00	567.29	0.00
6.00	0.18	567.51	0.18	58.00	0.00	567.29	0.00
7.00	0.28	567.57	0.28	59.00	0.00	567.29	0.00
8.00	0.48	567.65	0.48	60.00	0.00	567.29	0.00
9.00	0.86	567.79	0.86	61.00	0.00	567.29	0.00
10.00	1.41	567.94	1.41	62.00	0.00	567.29	0.00
11.00	2.44	568.20	2.44	63.00	0.00	567.29	0.00
12.00	**15.53**	**579.00**	**15.53**	64.00	0.00	567.29	0.00
13.00	**5.43**	**569.27**	**5.43**	65.00	0.00	567.29	0.00
14.00	3.02	568.34	3.02	66.00	0.00	567.29	0.00
15.00	2.23	568.15	2.23	67.00	0.00	567.29	0.00
16.00	1.61	567.99	1.61	68.00	0.00	567.29	0.00
17.00	1.24	567.90	1.24	69.00	0.00	567.29	0.00
18.00	0.96	567.82	0.96	70.00	0.00	567.29	0.00
19.00	0.83	567.78	0.83	71.00	0.00	567.29	0.00
20.00	0.75	567.75	0.75	72.00	0.00	567.29	0.00
21.00	0.68	567.73	0.68				
22.00	0.62	567.71	0.62				
23.00	0.56	567.68	0.56				
24.00	0.49	567.66	0.49				
25.00	0.00	567.29	0.00				
26.00	0.00	567.29	0.00				
27.00	0.00	567.29	0.00				
28.00	0.00	567.29	0.00				
29.00	0.00	567.29	0.00				
30.00	0.00	567.29	0.00				
31.00	0.00	567.29	0.00				
32.00	0.00	567.29	0.00				
33.00	0.00	567.29	0.00				
34.00	0.00	567.29	0.00				
35.00	0.00	567.29	0.00				
36.00	0.00	567.29	0.00				
37.00	0.00	567.29	0.00				
38.00	0.00	567.29	0.00				
39.00	0.00	567.29	0.00				
40.00	0.00	567.29	0.00				
41.00	0.00	567.29	0.00				
42.00	0.00	567.29	0.00				
43.00	0.00	567.29	0.00				
44.00	0.00	567.29	0.00				
45.00	0.00	567.29	0.00				
46.00	0.00	567.29	0.00				
47.00	0.00	567.29	0.00				
48.00	0.00	567.29	0.00				
49.00	0.00	567.29	0.00				
50.00	0.00	567.29	0.00				
51.00	0.00	567.29	0.00				

Summary for Pond DP17: DP-17

[58] Hint: Peaked 115.81' above defined flood level

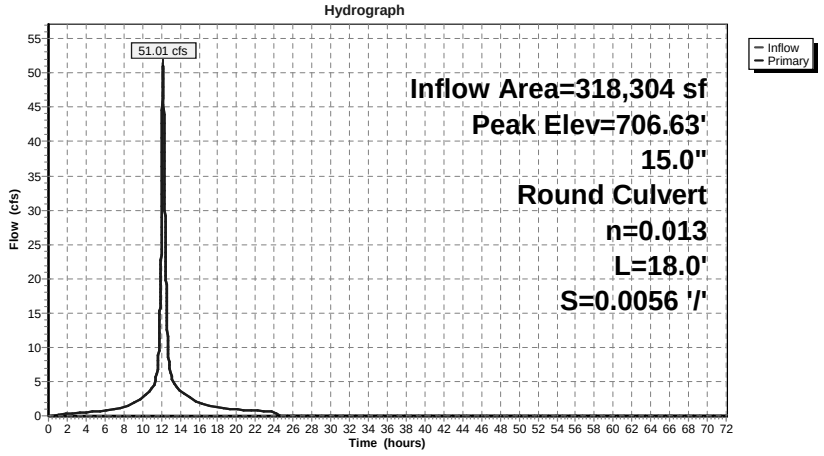
Inflow Area = 318,304 sf, 69.16% Impervious, Inflow Depth = 8.34" for 100 Year, 24 Hr. Event event
Inflow = 51.01 cfs @ 12.17 hrs, Volume= 221,287 cf
Outflow = 51.01 cfs @ 12.17 hrs, Volume= 221,287 cf, Atten= 0%, Lag= 0.0 min
Primary = 51.01 cfs @ 12.17 hrs, Volume= 221,287 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 706.63' @ 12.17 hrs
Flood Elev= 590.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	586.45'	**15.0" Round Culvert-verify outlet invert** L= 18.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 586.45' / 586.35' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=50.98 cfs @ 12.17 hrs HW=706.49' (Free Discharge)
↑**1=Culvert-verify outlet invert** (Inlet Controls 50.98 cfs @ 41.54 fps)

Pond DP17: DP-17



Hydrograph for Pond DP17: DP-17

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	586.45	0.00	52.00	0.00	586.45	0.00
1.00	0.13	586.65	0.13	53.00	0.00	586.45	0.00
2.00	0.30	586.76	0.30	54.00	0.00	586.45	0.00
3.00	0.42	586.82	0.42	55.00	0.00	586.45	0.00
4.00	0.53	586.87	0.53	56.00	0.00	586.45	0.00
5.00	0.62	586.91	0.62	57.00	0.00	586.45	0.00
6.00	0.71	586.94	0.71	58.00	0.00	586.45	0.00
7.00	0.95	587.03	0.95	59.00	0.00	586.45	0.00
8.00	1.26	587.13	1.26	60.00	0.00	586.45	0.00
9.00	1.88	587.31	1.88	61.00	0.00	586.45	0.00
10.00	2.63	587.50	2.63	62.00	0.00	586.45	0.00
11.00	4.03	587.87	4.03	63.00	0.00	586.45	0.00
12.00	**25.23**	**616.33**	**25.23**	64.00	0.00	586.45	0.00
13.00	**6.21**	**588.85**	**6.21**	65.00	0.00	586.45	0.00
14.00	3.63	587.76	3.63	66.00	0.00	586.45	0.00
15.00	2.70	587.52	2.70	67.00	0.00	586.45	0.00
16.00	1.92	587.32	1.92	68.00	0.00	586.45	0.00
17.00	1.49	587.20	1.49	69.00	0.00	586.45	0.00
18.00	1.16	587.10	1.16	70.00	0.00	586.45	0.00
19.00	1.01	587.05	1.01	71.00	0.00	586.45	0.00
20.00	0.91	587.01	0.91	72.00	0.00	586.45	0.00
21.00	0.82	586.98	0.82				
22.00	0.75	586.96	0.75				
23.00	0.67	586.93	0.67				
24.00	0.60	586.90	0.60				
25.00	0.00	586.45	0.00				
26.00	0.00	586.45	0.00				
27.00	0.00	586.45	0.00				
28.00	0.00	586.45	0.00				
29.00	0.00	586.45	0.00				
30.00	0.00	586.45	0.00				
31.00	0.00	586.45	0.00				
32.00	0.00	586.45	0.00				
33.00	0.00	586.45	0.00				
34.00	0.00	586.45	0.00				
35.00	0.00	586.45	0.00				
36.00	0.00	586.45	0.00				
37.00	0.00	586.45	0.00				
38.00	0.00	586.45	0.00				
39.00	0.00	586.45	0.00				
40.00	0.00	586.45	0.00				
41.00	0.00	586.45	0.00				
42.00	0.00	586.45	0.00				
43.00	0.00	586.45	0.00				
44.00	0.00	586.45	0.00				
45.00	0.00	586.45	0.00				
46.00	0.00	586.45	0.00				
47.00	0.00	586.45	0.00				
48.00	0.00	586.45	0.00				
49.00	0.00	586.45	0.00				
50.00	0.00	586.45	0.00				
51.00	0.00	586.45	0.00				

Summary for Pond DP18: DP-18

[58] Hint: Peaked 128.99' above defined flood level

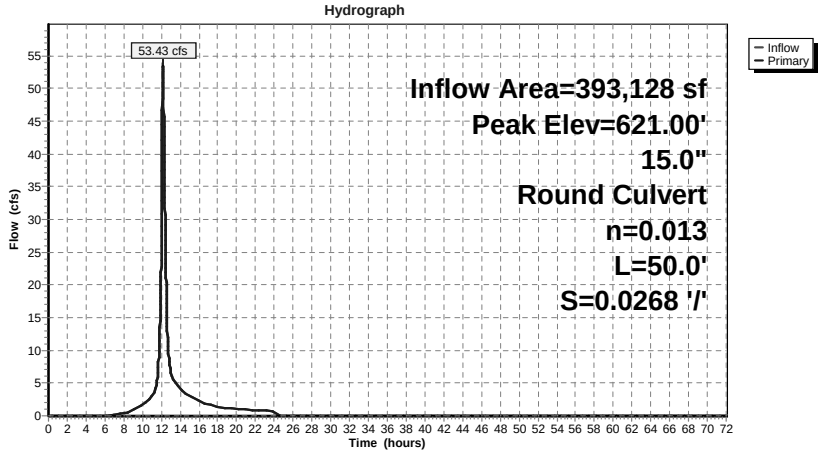
Inflow Area = 393,128 sf, 0.00% Impervious, Inflow Depth = 6.29" for 100 Year, 24 Hr. Event event
Inflow = 53.43 cfs @ 12.17 hrs, Volume= 205,951 cf
Outflow = 53.43 cfs @ 12.17 hrs, Volume= 205,951 cf, Atten= 0%, Lag= 0.0 min
Primary = 53.43 cfs @ 12.17 hrs, Volume= 205,951 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 621.00' @ 12.17 hrs
Flood Elev= 492.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	489.20'	**15.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.20' / 487.86' S= 0.0268 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=53.42 cfs @ 12.17 hrs HW=620.96' (Free Discharge)
↑**1=Culvert** (Inlet Controls 53.42 cfs @ 43.53 fps)

Pond DP18: DP-18



Hydrograph for Pond DP18: DP-18

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	489.20	0.00	52.00	0.00	489.20	0.00
1.00	0.00	489.20	0.00	53.00	0.00	489.20	0.00
2.00	0.00	489.20	0.00	54.00	0.00	489.20	0.00
3.00	0.00	489.20	0.00	55.00	0.00	489.20	0.00
4.00	0.00	489.20	0.00	56.00	0.00	489.20	0.00
5.00	0.00	489.20	0.00	57.00	0.00	489.20	0.00
6.00	0.00	489.20	0.00	58.00	0.00	489.20	0.00
7.00	0.11	489.37	0.11	59.00	0.00	489.20	0.00
8.00	0.36	489.51	0.36	60.00	0.00	489.20	0.00
9.00	0.84	489.69	0.84	61.00	0.00	489.20	0.00
10.00	1.60	489.90	1.60	62.00	0.00	489.20	0.00
11.00	3.05	490.26	3.05	63.00	0.00	489.20	0.00
12.00	**24.81**	**518.11**	**24.81**	64.00	0.00	489.20	0.00
13.00	**6.88**	**492.00**	**6.88**	65.00	0.00	489.20	0.00
14.00	4.11	490.60	4.11	66.00	0.00	489.20	0.00
15.00	3.08	490.26	3.08	67.00	0.00	489.20	0.00
16.00	2.20	490.05	2.20	68.00	0.00	489.20	0.00
17.00	1.72	489.93	1.72	69.00	0.00	489.20	0.00
18.00	1.33	489.83	1.33	70.00	0.00	489.20	0.00
19.00	1.16	489.79	1.16	71.00	0.00	489.20	0.00
20.00	1.05	489.75	1.05	72.00	0.00	489.20	0.00
21.00	0.96	489.73	0.96				
22.00	0.87	489.70	0.87				
23.00	0.78	489.67	0.78				
24.00	0.69	489.64	0.69				
25.00	0.00	489.20	0.00				
26.00	0.00	489.20	0.00				
27.00	0.00	489.20	0.00				
28.00	0.00	489.20	0.00				
29.00	0.00	489.20	0.00				
30.00	0.00	489.20	0.00				
31.00	0.00	489.20	0.00				
32.00	0.00	489.20	0.00				
33.00	0.00	489.20	0.00				
34.00	0.00	489.20	0.00				
35.00	0.00	489.20	0.00				
36.00	0.00	489.20	0.00				
37.00	0.00	489.20	0.00				
38.00	0.00	489.20	0.00				
39.00	0.00	489.20	0.00				
40.00	0.00	489.20	0.00				
41.00	0.00	489.20	0.00				
42.00	0.00	489.20	0.00				
43.00	0.00	489.20	0.00				
44.00	0.00	489.20	0.00				
45.00	0.00	489.20	0.00				
46.00	0.00	489.20	0.00				
47.00	0.00	489.20	0.00				
48.00	0.00	489.20	0.00				
49.00	0.00	489.20	0.00				
50.00	0.00	489.20	0.00				
51.00	0.00	489.20	0.00				

Summary for Pond DP19: DP-19

[57] Hint: Peaked at 513.27' (Flood elevation advised)

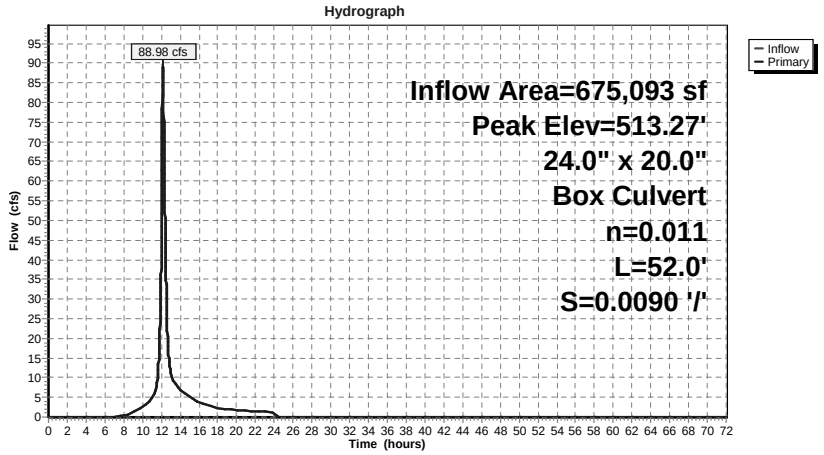
Inflow Area = 675,093 sf, 0.00% Impervious, Inflow Depth = 6.03" for 100 Year, 24 Hr. Event event
Inflow = 88.98 cfs @ 12.17 hrs, Volume= 339,378 cf
Outflow = 88.98 cfs @ 12.17 hrs, Volume= 339,378 cf, Atten= 0%, Lag= 0.0 min
Primary = 88.98 cfs @ 12.17 hrs, Volume= 339,378 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 513.27' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	481.70'	**24.0" W x 20.0" H Box Culvert** L= 52.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 481.70' / 481.23' S= 0.0090 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=88.94 cfs @ 12.17 hrs HW=513.24' (Free Discharge)
1=Culvert (Inlet Controls 88.94 cfs @ 26.68 fps)

Pond DP19: DP-19



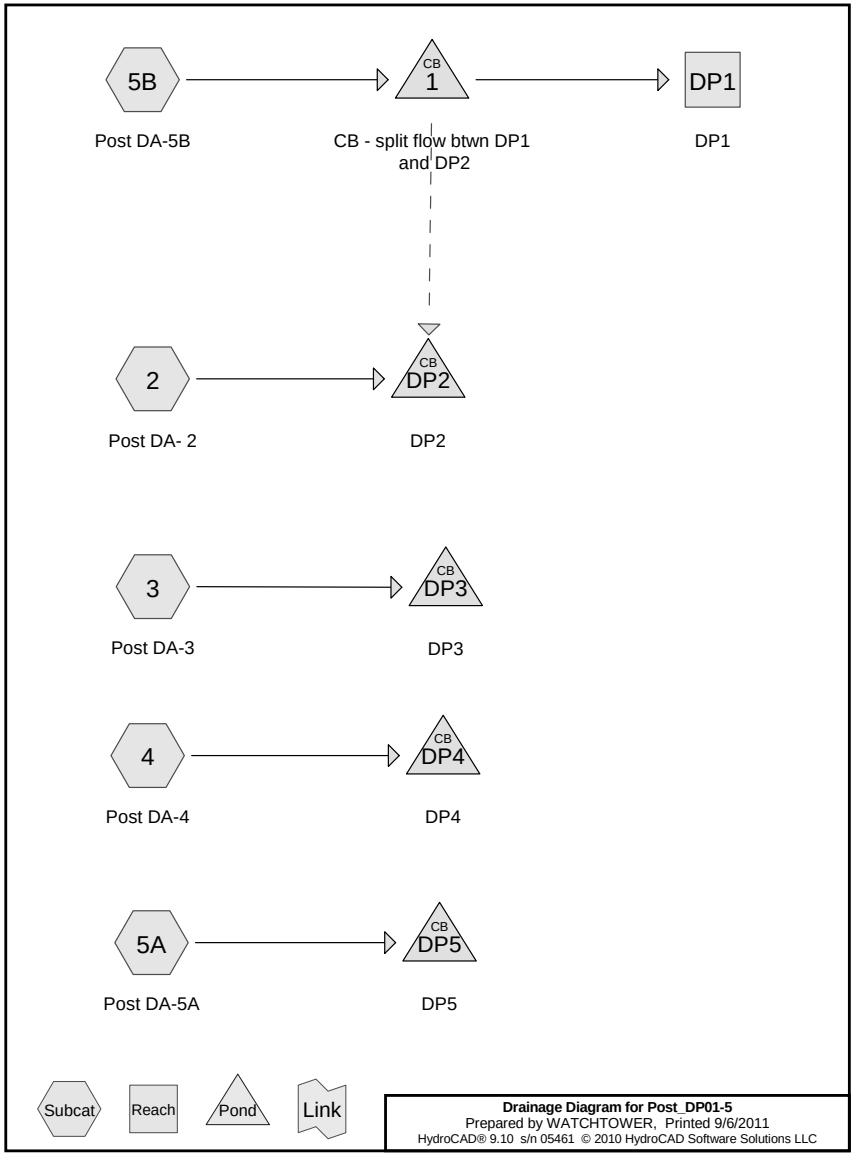
Hydrograph for Pond DP19: DP-19

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	481.70	0.00	52.00	0.00	481.70	0.00
1.00	0.00	481.70	0.00	53.00	0.00	481.70	0.00
2.00	0.00	481.70	0.00	54.00	0.00	481.70	0.00
3.00	0.00	481.70	0.00	55.00	0.00	481.70	0.00
4.00	0.00	481.70	0.00	56.00	0.00	481.70	0.00
5.00	0.00	481.70	0.00	57.00	0.00	481.70	0.00
6.00	0.00	481.70	0.00	58.00	0.00	481.70	0.00
7.00	0.07	481.75	0.07	59.00	0.00	481.70	0.00
8.00	0.45	481.87	0.45	60.00	0.00	481.70	0.00
9.00	1.20	482.03	1.20	61.00	0.00	481.70	0.00
10.00	2.43	482.22	2.43	62.00	0.00	481.70	0.00
11.00	4.81	482.53	4.81	63.00	0.00	481.70	0.00
12.00	**41.09**	**489.10**	**41.09**	64.00	0.00	481.70	0.00
13.00	**11.49**	**483.17**	**11.49**	65.00	0.00	481.70	0.00
14.00	6.90	482.75	6.90	66.00	0.00	481.70	0.00
15.00	5.18	482.57	5.18	67.00	0.00	481.70	0.00
16.00	3.71	482.39	3.71	68.00	0.00	481.70	0.00
17.00	2.90	482.29	2.90	69.00	0.00	481.70	0.00
18.00	2.25	482.20	2.25	70.00	0.00	481.70	0.00
19.00	1.97	482.15	1.97	71.00	0.00	481.70	0.00
20.00	1.77	482.12	1.77	72.00	0.00	481.70	0.00
21.00	1.62	482.10	1.62				
22.00	1.47	482.07	1.47				
23.00	1.32	482.05	1.32				
24.00	1.17	482.02	1.17				
25.00	0.00	481.70	0.00				
26.00	0.00	481.70	0.00				
27.00	0.00	481.70	0.00				
28.00	0.00	481.70	0.00				
29.00	0.00	481.70	0.00				
30.00	0.00	481.70	0.00				
31.00	0.00	481.70	0.00				
32.00	0.00	481.70	0.00				
33.00	0.00	481.70	0.00				
34.00	0.00	481.70	0.00				
35.00	0.00	481.70	0.00				
36.00	0.00	481.70	0.00				
37.00	0.00	481.70	0.00				
38.00	0.00	481.70	0.00				
39.00	0.00	481.70	0.00				
40.00	0.00	481.70	0.00				
41.00	0.00	481.70	0.00				
42.00	0.00	481.70	0.00				
43.00	0.00	481.70	0.00				
44.00	0.00	481.70	0.00				
45.00	0.00	481.70	0.00				
46.00	0.00	481.70	0.00				
47.00	0.00	481.70	0.00				
48.00	0.00	481.70	0.00				
49.00	0.00	481.70	0.00				
50.00	0.00	481.70	0.00				
51.00	0.00	481.70	0.00				

PPAT 0104 – Patterson Hydrologic Analysis

Post-Development Conditions

HydroCAD 9.1 Output



Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
234,970	Open Space	2, 3, 4, 5A, 5B
23,822	Pavement	5B
2,087	Roadway	4, 5B
380	Roofs	5B
126,239	Woods	5B
387,498	**TOTAL**	

Pollutant Concentrations

Line#	Land Use	TSS (mg/l)	TP (mg/l)	TN (mg/l)	BOD (mg/l)
1	Open Space	602.00	2.10	9.10	1.23
2	Pavement	173.00	0.56	2.10	6.70
3	Roadway	173.00	0.56	2.10	6.70
4	Roofs	19.00	0.11	1.50	7.40
5	Woods	37.00	0.00	0.00	1.23

Subcatchment Loading

Line#	Subcat Number	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1	2	**0.00**	**0.00**	**0.00**	**0.00**
2	3	0.00	0.00	0.00	0.00
3	4	0.00	0.00	0.00	0.00
4	5A	0.00	0.00	0.00	0.00
5	5B	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 1: CB - split flow btwn DP1 and DP2 Peak Elev=709.41' Inflow=1.17 cfs 8,603 cf
Primary=0.67 cfs 6,699 cf Secondary=0.50 cfs 1,903 cf Outflow=1.17 cfs 8,603 cf

Subcatchment 2: Post DA- 2 Runoff Area=9,470 sf 0.00% Impervious Runoff Depth=0.40"
Tc=5.0 min CN=61/0 Runoff=0.06 cfs 319 cf

Subcatchment 3: Post DA-3 Runoff Area=64,709 sf 0.00% Impervious Runoff Depth=0.64"
Flow Length=430' Tc=6.1 min CN=67/0 Runoff=0.90 cfs 3,426 cf

Subcatchment 4: Post DA-4 Runoff Area=53,831 sf 0.00% Impervious Runoff Depth=1.03"
Flow Length=374' Tc=7.8 min CN=75/0 Runoff=1.33 cfs 4,606 cf

Subcatchment 5A: Post DA-5A Runoff Area=99,419 sf 0.00% Impervious Runoff Depth=0.97"
Flow Length=172' Tc=5.7 min CN=74/0 Runoff=2.48 cfs 8,055 cf

Subcatchment 5B: Post DA-5B Runoff Area=160,069 sf 15.12% Impervious Runoff Depth=0.64"
Flow Length=1,406' Tc=24.6 min CN=56/98 Runoff=1.17 cfs 8,603 cf

Reach DP1: DP1 Inflow=0.67 cfs 6,699 cf
Outflow=0.67 cfs 6,699 cf

Pond DP2: DP2 Peak Elev=677.37' Inflow=0.54 cfs 2,222 cf
18.0" Round Culvert n=0.013 L=51.0' S=0.0196 '/' Outflow=0.54 cfs 2,222 cf

Pond DP3: DP3 Peak Elev=631.31' Inflow=0.90 cfs 3,426 cf
15.0" Round Culvert n=0.020 L=55.0' S=0.0515 '/' Outflow=0.90 cfs 3,426 cf

Pond DP4: DP4 Peak Elev=606.34' Inflow=1.33 cfs 4,606 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.1191 '/' Outflow=1.33 cfs 4,606 cf

Pond DP5: DP5 Peak Elev=605.26' Inflow=2.48 cfs 8,055 cf
15.0" Round Culvert n=0.013 L=29.0' S=0.0345 '/' Outflow=2.48 cfs 8,055 cf

Total Runoff Area = 387,498 sf Runoff Volume = 25,009 cf Average Runoff Depth = 0.77"
93.75% Pervious = 363,296 sf 6.25% Impervious = 24,202 sf

Summary for Pond 1: CB - split flow btwn DP1 and DP2

[57] Hint: Peaked at 709.41' (Flood elevation advised)

Inflow Area =	160,069 sf,	15.12% Impervious,	Inflow Depth =	0.64" for 1 Year, 24 Hr. Event event
Inflow =	1.17 cfs @	12.38 hrs,	Volume=	8,603 cf
Outflow =	1.17 cfs @	12.38 hrs,	Volume=	8,603 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.67 cfs @	12.38 hrs,	Volume=	6,699 cf
Secondary =	0.50 cfs @	12.38 hrs,	Volume=	1,903 cf

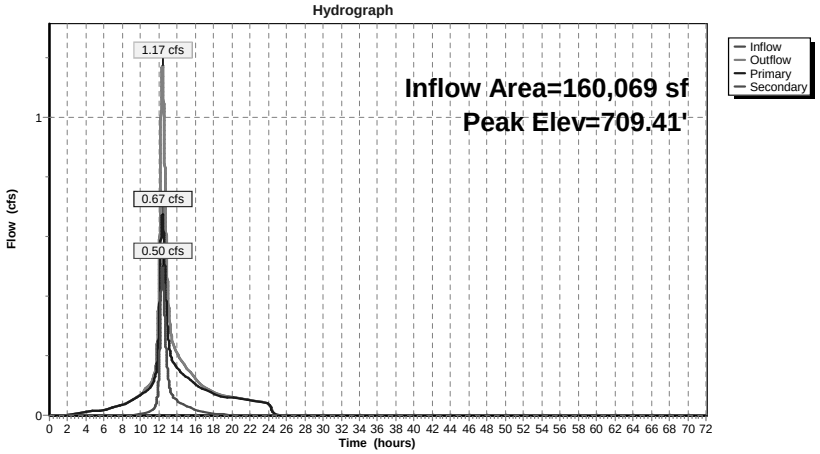
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 709.41' @ 12.38 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	709.00'	**18.0" Round Culvert** L= 88.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 709.00' / 708.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Secondary	709.10'	**18.0" Round Culvert** L= 290.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 709.10' / 678.60' S= 0.1052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.67 cfs @ 12.38 hrs HW=709.41' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.67 cfs @ 1.72 fps)

Secondary OutFlow Max=0.50 cfs @ 12.38 hrs HW=709.41' TW=677.36' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 0.50 cfs @ 1.89 fps)

Pond 1: CB - split flow btwn DP1 and DP2



Hydrograph for Pond 1: CB - split flow btwn DP1 and DP2

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	709.00	0.00	0.00	0.00
2.00	0.00	709.02	0.00	0.00	0.00
4.00	0.01	709.05	0.01	0.01	0.00
6.00	0.02	709.07	0.02	0.02	0.00
8.00	0.03	709.09	0.03	0.03	0.00
10.00	0.07	709.13	0.07	0.07	0.00
12.00	**0.43**	**709.26**	**0.43**	**0.29**	**0.14**
14.00	**0.21**	**709.19**	**0.21**	**0.16**	**0.05**
16.00	0.12	709.16	0.12	0.10	0.02
18.00	0.08	709.13	0.08	0.07	0.00
20.00	0.06	709.12	0.06	0.06	0.00
22.00	0.05	709.11	0.05	0.05	0.00
24.00	0.04	709.10	0.04	0.04	0.00
26.00	0.00	709.00	0.00	0.00	0.00
28.00	0.00	709.00	0.00	0.00	0.00
30.00	0.00	709.00	0.00	0.00	0.00
32.00	0.00	709.00	0.00	0.00	0.00
34.00	0.00	709.00	0.00	0.00	0.00
36.00	0.00	709.00	0.00	0.00	0.00
38.00	0.00	709.00	0.00	0.00	0.00
40.00	0.00	709.00	0.00	0.00	0.00
42.00	0.00	709.00	0.00	0.00	0.00
44.00	0.00	709.00	0.00	0.00	0.00
46.00	0.00	709.00	0.00	0.00	0.00
48.00	0.00	709.00	0.00	0.00	0.00
50.00	0.00	709.00	0.00	0.00	0.00
52.00	0.00	709.00	0.00	0.00	0.00
54.00	0.00	709.00	0.00	0.00	0.00
56.00	0.00	709.00	0.00	0.00	0.00
58.00	0.00	709.00	0.00	0.00	0.00
60.00	0.00	709.00	0.00	0.00	0.00
62.00	0.00	709.00	0.00	0.00	0.00
64.00	0.00	709.00	0.00	0.00	0.00
66.00	0.00	709.00	0.00	0.00	0.00
68.00	0.00	709.00	0.00	0.00	0.00
70.00	0.00	709.00	0.00	0.00	0.00
72.00	0.00	709.00	0.00	0.00	0.00

Summary for Subcatchment 2: Post DA- 2

Runoff = 0.06 cfs @ 12.11 hrs, Volume= 319 cf, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

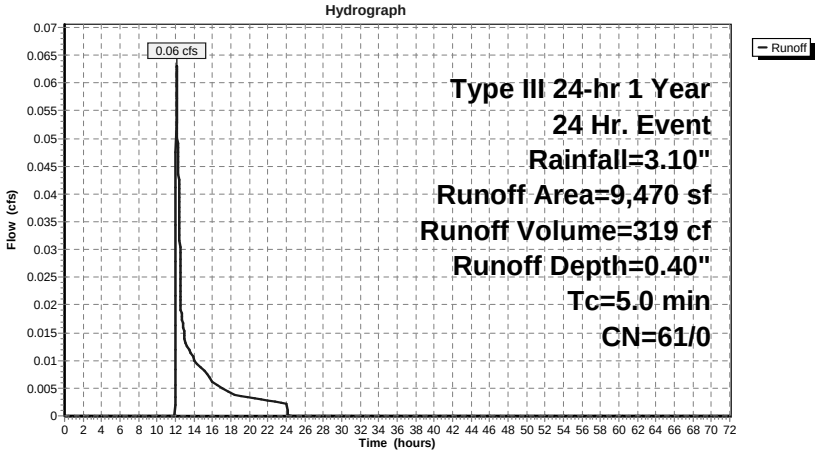
Area (sf)	CN	Description	Land Use
9,470	61	>75% Grass cover, Good, HSG B	Open Space
9,470	61	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,470	Open Space	67.77	0.24	1.02	0.14
9,470	Total	67.77	0.24	1.02	0.14

Subcatchment 2: Post DA- 2



Hydrograph for Subcatchment 2: Post DA- 2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.01	0.00	**0.01**
14.00	2.51	0.20	0.00	**0.01**
16.00	2.75	0.27	0.00	0.01
18.00	2.88	0.32	0.00	0.00
20.00	2.97	0.35	0.00	0.00
22.00	3.04	0.38	0.00	0.00
24.00	**3.10**	**0.40**	0.00	0.00
26.00	3.10	0.40	0.00	0.00
28.00	3.10	0.40	0.00	0.00
30.00	3.10	0.40	0.00	0.00
32.00	3.10	0.40	0.00	0.00
34.00	3.10	0.40	0.00	0.00
36.00	3.10	0.40	0.00	0.00
38.00	3.10	0.40	0.00	0.00
40.00	3.10	0.40	0.00	0.00
42.00	3.10	0.40	0.00	0.00
44.00	3.10	0.40	0.00	0.00
46.00	3.10	0.40	0.00	0.00
48.00	3.10	0.40	0.00	0.00
50.00	3.10	0.40	0.00	0.00
52.00	3.10	0.40	0.00	0.00
54.00	3.10	0.40	0.00	0.00
56.00	3.10	0.40	0.00	0.00
58.00	3.10	0.40	0.00	0.00
60.00	3.10	0.40	0.00	0.00
62.00	3.10	0.40	0.00	0.00
64.00	3.10	0.40	0.00	0.00
66.00	3.10	0.40	0.00	0.00
68.00	3.10	0.40	0.00	0.00
70.00	3.10	0.40	0.00	0.00
72.00	3.10	0.40	0.00	0.00

Summary for Subcatchment 3: Post DA-3

Runoff = 0.90 cfs @ 12.11 hrs, Volume= 3,426 cf, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

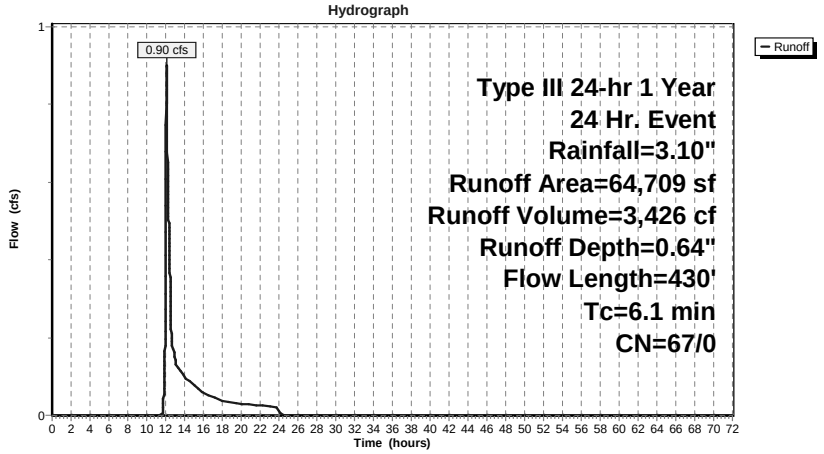
Area (sf)	CN	Description	Land Use
36,773	61	>75% Grass cover, Good, HSG B	Open Space
27,936	74	>75% Grass cover, Good, HSG C	Open Space
64,709	67	Weighted Average	
64,709	67	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	72	0.2500	0.31		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.2	312	0.1180	2.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	46	0.0870	11.87	14.57	**Pipe Channel, Existing Pipe** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Concrete sewer w/manholes & inlets
6.1	430	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
64,709	Open Space	463.07	1.62	7.00	0.95
64,709	Total	463.07	1.62	7.00	0.95

Subcatchment 3: Post DA-3



Hydrograph for Subcatchment 3: Post DA-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.06	0.00	**0.36**
14.00	2.51	0.36	0.00	**0.10**
16.00	2.75	0.46	0.00	0.06
18.00	2.88	0.52	0.00	0.04
20.00	2.97	0.57	0.00	0.03
22.00	3.04	0.61	0.00	0.03
24.00	**3.10**	**0.64**	0.00	0.02
26.00	3.10	0.64	0.00	0.00
28.00	3.10	0.64	0.00	0.00
30.00	3.10	0.64	0.00	0.00
32.00	3.10	0.64	0.00	0.00
34.00	3.10	0.64	0.00	0.00
36.00	3.10	0.64	0.00	0.00
38.00	3.10	0.64	0.00	0.00
40.00	3.10	0.64	0.00	0.00
42.00	3.10	0.64	0.00	0.00
44.00	3.10	0.64	0.00	0.00
46.00	3.10	0.64	0.00	0.00
48.00	3.10	0.64	0.00	0.00
50.00	3.10	0.64	0.00	0.00
52.00	3.10	0.64	0.00	0.00
54.00	3.10	0.64	0.00	0.00
56.00	3.10	0.64	0.00	0.00
58.00	3.10	0.64	0.00	0.00
60.00	3.10	0.64	0.00	0.00
62.00	3.10	0.64	0.00	0.00
64.00	3.10	0.64	0.00	0.00
66.00	3.10	0.64	0.00	0.00
68.00	3.10	0.64	0.00	0.00
70.00	3.10	0.64	0.00	0.00
72.00	3.10	0.64	0.00	0.00

Summary for Subcatchment 4: Post DA-4

Runoff = 1.33 cfs @ 12.12 hrs, Volume= 4,606 cf, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

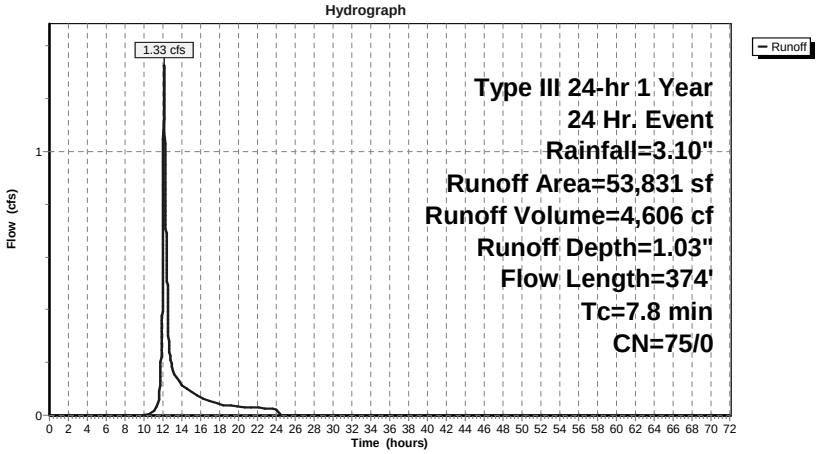
	Area (sf)	CN	Description	Land Use
	52,124	74	>75% Grass cover, Good, HSG C	Open Space
*	1,707	96	Gravel roads, HSG C	Roadway
	53,831	75	Weighted Average	
	53,831	75	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	85	0.1640	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.9	15	0.3630	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	84	0.3630	4.22		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	190	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.8	374	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
52,124	Open Space	373.01	1.30	5.64	0.76
1,707	Roadway	3.51	0.01	0.04	0.14
53,831	Total	376.52	1.31	5.68	0.90

Subcatchment 4: Post DA-4



Hydrograph for Subcatchment 4: Post DA-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.19	0.00	**0.59**
14.00	2.51	0.66	0.00	**0.12**
16.00	2.75	0.80	0.00	0.07
18.00	2.88	0.88	0.00	0.04
20.00	2.97	0.94	0.00	0.03
22.00	3.04	0.99	0.00	0.03
24.00	**3.10**	**1.03**	0.00	0.02
26.00	3.10	1.03	0.00	0.00
28.00	3.10	1.03	0.00	0.00
30.00	3.10	1.03	0.00	0.00
32.00	3.10	1.03	0.00	0.00
34.00	3.10	1.03	0.00	0.00
36.00	3.10	1.03	0.00	0.00
38.00	3.10	1.03	0.00	0.00
40.00	3.10	1.03	0.00	0.00
42.00	3.10	1.03	0.00	0.00
44.00	3.10	1.03	0.00	0.00
46.00	3.10	1.03	0.00	0.00
48.00	3.10	1.03	0.00	0.00
50.00	3.10	1.03	0.00	0.00
52.00	3.10	1.03	0.00	0.00
54.00	3.10	1.03	0.00	0.00
56.00	3.10	1.03	0.00	0.00
58.00	3.10	1.03	0.00	0.00
60.00	3.10	1.03	0.00	0.00
62.00	3.10	1.03	0.00	0.00
64.00	3.10	1.03	0.00	0.00
66.00	3.10	1.03	0.00	0.00
68.00	3.10	1.03	0.00	0.00
70.00	3.10	1.03	0.00	0.00
72.00	3.10	1.03	0.00	0.00

Summary for Subcatchment 5A: Post DA-5A

Runoff = 2.48 cfs @ 12.09 hrs, Volume= 8,055 cf, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

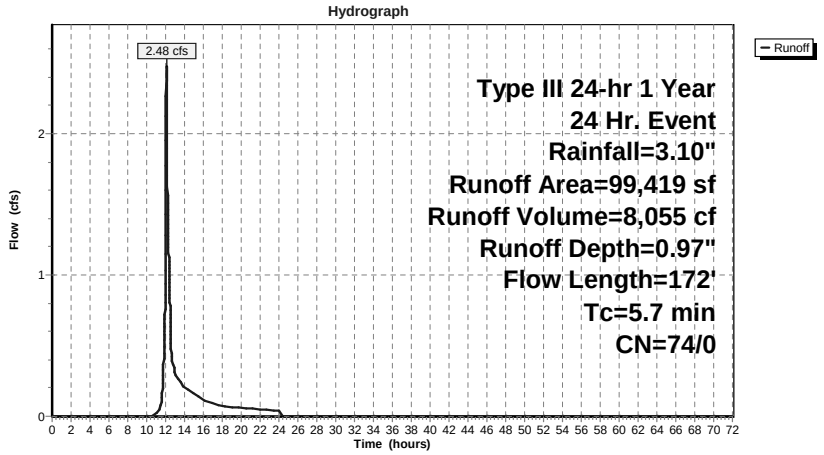
Area (sf)	CN	Description	Land Use
99,419	74	>75% Grass cover, Good, HSG C	Open Space
99,419	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	42	0.2130	0.26		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.8	58	0.3380	0.34		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	72	0.3380	4.07		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.7	172	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
99,419	Open Space	711.46	2.48	10.75	1.45
99,419	Total	711.46	2.48	10.75	1.45

Subcatchment 5A: Post DA-5A



Hydrograph for Subcatchment 5A: Post DA-5A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.16	0.00	**1.28**
14.00	2.51	0.62	0.00	**0.21**
16.00	2.75	0.75	0.00	0.12
18.00	2.88	0.83	0.00	0.07
20.00	2.97	0.89	0.00	0.06
22.00	3.04	0.93	0.00	0.05
24.00	**3.10**	**0.97**	0.00	0.04
26.00	3.10	0.97	0.00	0.00
28.00	3.10	0.97	0.00	0.00
30.00	3.10	0.97	0.00	0.00
32.00	3.10	0.97	0.00	0.00
34.00	3.10	0.97	0.00	0.00
36.00	3.10	0.97	0.00	0.00
38.00	3.10	0.97	0.00	0.00
40.00	3.10	0.97	0.00	0.00
42.00	3.10	0.97	0.00	0.00
44.00	3.10	0.97	0.00	0.00
46.00	3.10	0.97	0.00	0.00
48.00	3.10	0.97	0.00	0.00
50.00	3.10	0.97	0.00	0.00
52.00	3.10	0.97	0.00	0.00
54.00	3.10	0.97	0.00	0.00
56.00	3.10	0.97	0.00	0.00
58.00	3.10	0.97	0.00	0.00
60.00	3.10	0.97	0.00	0.00
62.00	3.10	0.97	0.00	0.00
64.00	3.10	0.97	0.00	0.00
66.00	3.10	0.97	0.00	0.00
68.00	3.10	0.97	0.00	0.00
70.00	3.10	0.97	0.00	0.00
72.00	3.10	0.97	0.00	0.00

Summary for Subcatchment 5B: Post DA-5B

Runoff = 1.17 cfs @ 12.38 hrs, Volume= 8,603 cf, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

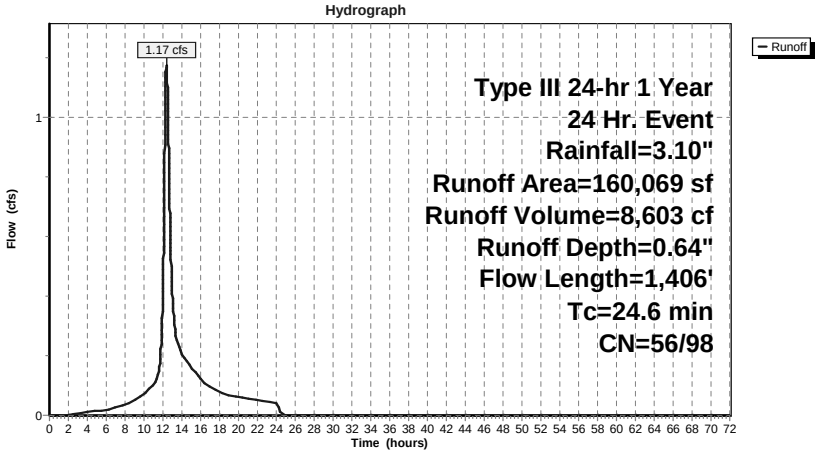
	Area (sf)	CN	Description	Land Use
	380	98	Roofs, HSG B	Roofs
	126,239	55	Woods, Good, HSG B	Woods
*	380	96	Gravel roads, HSG B	Roadway
	23,822	98	Paved parking, HSG B	Pavement
	9,248	61	>75% Grass cover, Good, HSG B	Open Space
	160,069	62	Weighted Average	
	135,867	56	84.88% Pervious Area	
	24,202	98	15.12% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.9	100	0.0870	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
0.6	50	0.0870	1.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	146	0.5800	3.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	110	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	1,000	0.0337	11.46	35.99	**Pipe Channel, Confirm Pipe Size** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015 Concrete sewer w/manholes & inlets
24.6	1,406	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 15.12% Impervious, Rv= 0.186, Runoff= 8.50"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,248	Open Space	246.29	0.86	3.72	0.50
23,822	Pavement	182.32	0.59	2.21	7.06
380	Roadway	2.91	0.01	0.04	0.11
380	Roofs	0.32	0.00	0.03	0.12
126,239	Woods	206.63	0.00	0.00	6.87
160,069	Total	638.47	1.46	6.00	14.67

Subcatchment 5B: Post DA-5B



Hydrograph for Subcatchment 5B: Post DA-5B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.02
8.00	0.35	0.00	0.19	0.03
10.00	0.59	0.00	0.40	0.07
12.00	1.55	0.00	1.33	**0.43**
14.00	2.51	0.10	2.28	**0.21**
16.00	2.75	0.15	2.52	0.12
18.00	2.88	0.19	2.65	0.08
20.00	2.97	0.21	2.74	0.06
22.00	3.04	0.23	2.81	0.05
24.00	**3.10**	**0.25**	**2.87**	0.04
26.00	3.10	0.25	2.87	0.00
28.00	3.10	0.25	2.87	0.00
30.00	3.10	0.25	2.87	0.00
32.00	3.10	0.25	2.87	0.00
34.00	3.10	0.25	2.87	0.00
36.00	3.10	0.25	2.87	0.00
38.00	3.10	0.25	2.87	0.00
40.00	3.10	0.25	2.87	0.00
42.00	3.10	0.25	2.87	0.00
44.00	3.10	0.25	2.87	0.00
46.00	3.10	0.25	2.87	0.00
48.00	3.10	0.25	2.87	0.00
50.00	3.10	0.25	2.87	0.00
52.00	3.10	0.25	2.87	0.00
54.00	3.10	0.25	2.87	0.00
56.00	3.10	0.25	2.87	0.00
58.00	3.10	0.25	2.87	0.00
60.00	3.10	0.25	2.87	0.00
62.00	3.10	0.25	2.87	0.00
64.00	3.10	0.25	2.87	0.00
66.00	3.10	0.25	2.87	0.00
68.00	3.10	0.25	2.87	0.00
70.00	3.10	0.25	2.87	0.00
72.00	3.10	0.25	2.87	0.00

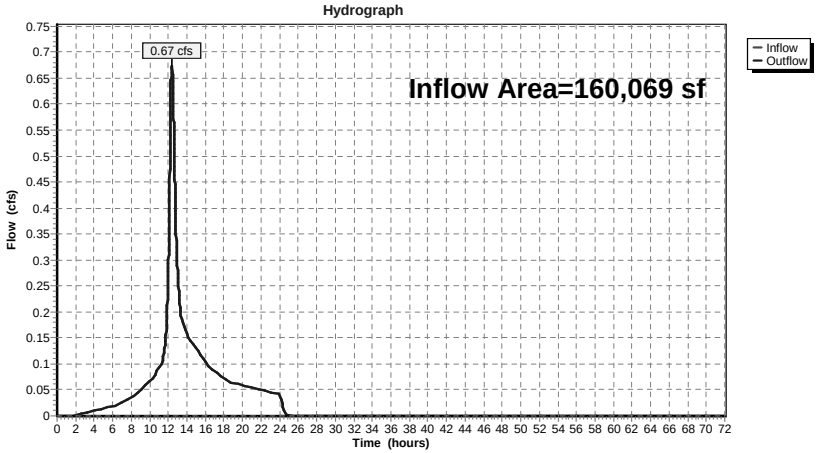
Summary for Reach DP1: DP1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 160,069 sf, 15.12% Impervious, Inflow Depth = 0.50" for 1 Year, 24 Hr. Event event
Inflow = 0.67 cfs @ 12.38 hrs, Volume= 6,699 cf
Outflow = 0.67 cfs @ 12.38 hrs, Volume= 6,699 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP1: DP1



Hydrograph for Reach DP1: DP1

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.03		0.03	59.00	0.00		0.00
8.00	0.03		0.03	60.00	0.00		0.00
9.00	0.05		0.05	61.00	0.00		0.00
10.00	0.07		0.07	62.00	0.00		0.00
11.00	0.09		0.09	63.00	0.00		0.00
12.00	**0.29**		**0.29**	64.00	0.00		0.00
13.00	**0.27**		**0.27**	65.00	0.00		0.00
14.00	0.16		0.16	66.00	0.00		0.00
15.00	0.13		0.13	67.00	0.00		0.00
16.00	0.10		0.10	68.00	0.00		0.00
17.00	0.09		0.09	69.00	0.00		0.00
18.00	0.07		0.07	70.00	0.00		0.00
19.00	0.06		0.06	71.00	0.00		0.00
20.00	0.06		0.06	72.00	0.00		0.00
21.00	0.05		0.05				
22.00	0.05		0.05				
23.00	0.05		0.05				
24.00	0.04		0.04				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP2: DP2

[57] Hint: Peaked at 677.37' (Flood elevation advised)

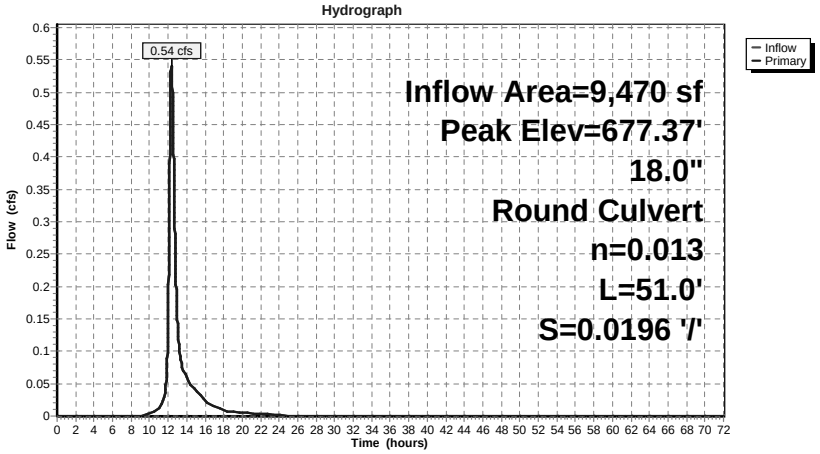
Inflow Area = 9,470 sf, 0.00% Impervious, Inflow Depth = 2.82" for 1 Year, 24 Hr. Event event
Inflow = 0.54 cfs @ 12.36 hrs, Volume= 2,222 cf
Outflow = 0.54 cfs @ 12.36 hrs, Volume= 2,222 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.54 cfs @ 12.36 hrs, Volume= 2,222 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 677.37' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	677.00'	**18.0" Round Culvert** L= 51.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 677.00' / 676.00' S= 0.0196 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.54 cfs @ 12.36 hrs HW=677.36' (Free Discharge)
1=Culvert (Inlet Controls 0.54 cfs @ 1.62 fps)

Pond DP2: DP2



Hydrograph for Pond DP2: DP2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	677.00	0.00	52.00	0.00	677.00	0.00
1.00	0.00	677.00	0.00	53.00	0.00	677.00	0.00
2.00	0.00	677.00	0.00	54.00	0.00	677.00	0.00
3.00	0.00	677.00	0.00	55.00	0.00	677.00	0.00
4.00	0.00	677.00	0.00	56.00	0.00	677.00	0.00
5.00	0.00	677.00	0.00	57.00	0.00	677.00	0.00
6.00	0.00	677.00	0.00	58.00	0.00	677.00	0.00
7.00	0.00	677.00	0.00	59.00	0.00	677.00	0.00
8.00	0.00	677.00	0.00	60.00	0.00	677.00	0.00
9.00	0.00	677.01	0.00	61.00	0.00	677.00	0.00
10.00	0.00	677.03	0.00	62.00	0.00	677.00	0.00
11.00	0.01	677.05	0.01	63.00	0.00	677.00	0.00
12.00	**0.15**	**677.19**	**0.15**	64.00	0.00	677.00	0.00
13.00	**0.14**	**677.18**	**0.14**	65.00	0.00	677.00	0.00
14.00	0.06	677.12	0.06	66.00	0.00	677.00	0.00
15.00	0.04	677.10	0.04	67.00	0.00	677.00	0.00
16.00	0.02	677.07	0.02	68.00	0.00	677.00	0.00
17.00	0.01	677.06	0.01	69.00	0.00	677.00	0.00
18.00	0.01	677.05	0.01	70.00	0.00	677.00	0.00
19.00	0.01	677.04	0.01	71.00	0.00	677.00	0.00
20.00	0.00	677.03	0.00	72.00	0.00	677.00	0.00
21.00	0.00	677.03	0.00				
22.00	0.00	677.03	0.00				
23.00	0.00	677.02	0.00				
24.00	0.00	677.02	0.00				
25.00	0.00	677.00	0.00				
26.00	0.00	677.00	0.00				
27.00	0.00	677.00	0.00				
28.00	0.00	677.00	0.00				
29.00	0.00	677.00	0.00				
30.00	0.00	677.00	0.00				
31.00	0.00	677.00	0.00				
32.00	0.00	677.00	0.00				
33.00	0.00	677.00	0.00				
34.00	0.00	677.00	0.00				
35.00	0.00	677.00	0.00				
36.00	0.00	677.00	0.00				
37.00	0.00	677.00	0.00				
38.00	0.00	677.00	0.00				
39.00	0.00	677.00	0.00				
40.00	0.00	677.00	0.00				
41.00	0.00	677.00	0.00				
42.00	0.00	677.00	0.00				
43.00	0.00	677.00	0.00				
44.00	0.00	677.00	0.00				
45.00	0.00	677.00	0.00				
46.00	0.00	677.00	0.00				
47.00	0.00	677.00	0.00				
48.00	0.00	677.00	0.00				
49.00	0.00	677.00	0.00				
50.00	0.00	677.00	0.00				
51.00	0.00	677.00	0.00				

Summary for Pond DP3: DP3

[57] Hint: Peaked at 631.31' (Flood elevation advised)

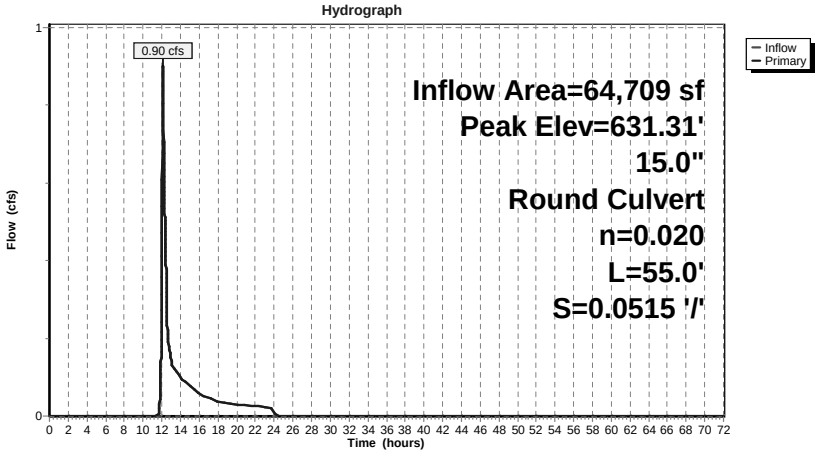
Inflow Area = 64,709 sf, 0.00% Impervious, Inflow Depth = 0.64" for 1 Year, 24 Hr. Event event
Inflow = 0.90 cfs @ 12.11 hrs, Volume= 3,426 cf
Outflow = 0.90 cfs @ 12.11 hrs, Volume= 3,426 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.90 cfs @ 12.11 hrs, Volume= 3,426 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 631.31' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	630.80'	**15.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 630.80' / 627.97' S= 0.0515 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=0.90 cfs @ 12.11 hrs HW=631.31' (Free Discharge)
1=Culvert (Inlet Controls 0.90 cfs @ 1.92 fps)

Pond DP3: DP3



Hydrograph for Pond DP3: DP3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	630.80	0.00	52.00	0.00	630.80	0.00
1.00	0.00	630.80	0.00	53.00	0.00	630.80	0.00
2.00	0.00	630.80	0.00	54.00	0.00	630.80	0.00
3.00	0.00	630.80	0.00	55.00	0.00	630.80	0.00
4.00	0.00	630.80	0.00	56.00	0.00	630.80	0.00
5.00	0.00	630.80	0.00	57.00	0.00	630.80	0.00
6.00	0.00	630.80	0.00	58.00	0.00	630.80	0.00
7.00	0.00	630.80	0.00	59.00	0.00	630.80	0.00
8.00	0.00	630.80	0.00	60.00	0.00	630.80	0.00
9.00	0.00	630.80	0.00	61.00	0.00	630.80	0.00
10.00	0.00	630.80	0.00	62.00	0.00	630.80	0.00
11.00	0.00	630.80	0.00	63.00	0.00	630.80	0.00
12.00	**0.36**	**631.11**	**0.36**	64.00	0.00	630.80	0.00
13.00	**0.14**	**630.99**	**0.14**	65.00	0.00	630.80	0.00
14.00	0.10	630.96	0.10	66.00	0.00	630.80	0.00
15.00	0.08	630.94	0.08	67.00	0.00	630.80	0.00
16.00	0.06	630.92	0.06	68.00	0.00	630.80	0.00
17.00	0.05	630.91	0.05	69.00	0.00	630.80	0.00
18.00	0.04	630.90	0.04	70.00	0.00	630.80	0.00
19.00	0.03	630.89	0.03	71.00	0.00	630.80	0.00
20.00	0.03	630.89	0.03	72.00	0.00	630.80	0.00
21.00	0.03	630.88	0.03				
22.00	0.03	630.88	0.03				
23.00	0.02	630.88	0.02				
24.00	0.02	630.87	0.02				
25.00	0.00	630.80	0.00				
26.00	0.00	630.80	0.00				
27.00	0.00	630.80	0.00				
28.00	0.00	630.80	0.00				
29.00	0.00	630.80	0.00				
30.00	0.00	630.80	0.00				
31.00	0.00	630.80	0.00				
32.00	0.00	630.80	0.00				
33.00	0.00	630.80	0.00				
34.00	0.00	630.80	0.00				
35.00	0.00	630.80	0.00				
36.00	0.00	630.80	0.00				
37.00	0.00	630.80	0.00				
38.00	0.00	630.80	0.00				
39.00	0.00	630.80	0.00				
40.00	0.00	630.80	0.00				
41.00	0.00	630.80	0.00				
42.00	0.00	630.80	0.00				
43.00	0.00	630.80	0.00				
44.00	0.00	630.80	0.00				
45.00	0.00	630.80	0.00				
46.00	0.00	630.80	0.00				
47.00	0.00	630.80	0.00				
48.00	0.00	630.80	0.00				
49.00	0.00	630.80	0.00				
50.00	0.00	630.80	0.00				
51.00	0.00	630.80	0.00				

Summary for Pond DP4: DP4

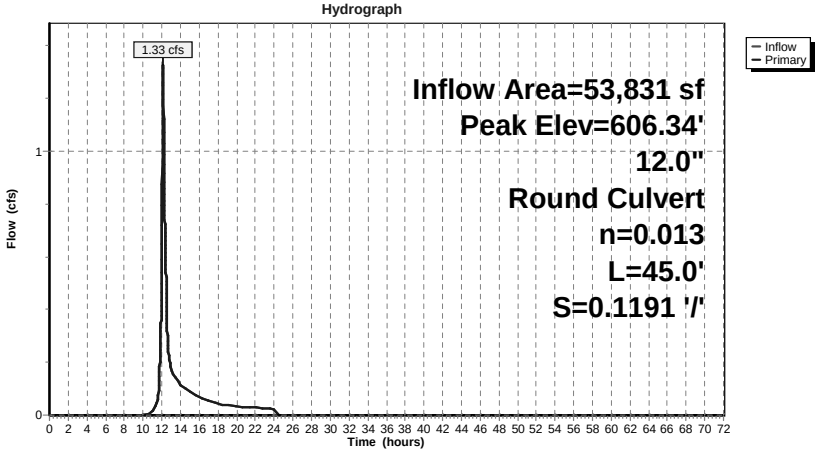
Inflow Area = 53,831 sf, 0.00% Impervious, Inflow Depth = 1.03" for 1 Year, 24 Hr. Event event
Inflow = 1.33 cfs @ 12.12 hrs, Volume= 4,606 cf
Outflow = 1.33 cfs @ 12.12 hrs, Volume= 4,606 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.33 cfs @ 12.12 hrs, Volume= 4,606 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 606.34' @ 12.12 hrs
Flood Elev= 608.79'

Device	Routing	Invert	Outlet Devices
#1	Primary	605.64'	**12.0" Round Culvert** L= 45.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 605.64' / 600.28' S= 0.1191 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.33 cfs @ 12.12 hrs HW=606.34' (Free Discharge)
↑—1=Culvert (Inlet Controls 1.33 cfs @ 2.25 fps)

Pond DP4: DP4



Hydrograph for Pond DP4: DP4

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	605.64	0.00	52.00	0.00	605.64	0.00
1.00	0.00	605.64	0.00	53.00	0.00	605.64	0.00
2.00	0.00	605.64	0.00	54.00	0.00	605.64	0.00
3.00	0.00	605.64	0.00	55.00	0.00	605.64	0.00
4.00	0.00	605.64	0.00	56.00	0.00	605.64	0.00
5.00	0.00	605.64	0.00	57.00	0.00	605.64	0.00
6.00	0.00	605.64	0.00	58.00	0.00	605.64	0.00
7.00	0.00	605.64	0.00	59.00	0.00	605.64	0.00
8.00	0.00	605.64	0.00	60.00	0.00	605.64	0.00
9.00	0.00	605.64	0.00	61.00	0.00	605.64	0.00
10.00	0.00	605.64	0.00	62.00	0.00	605.64	0.00
11.00	0.01	605.70	0.01	63.00	0.00	605.64	0.00
12.00	**0.59**	**606.08**	**0.59**	64.00	0.00	605.64	0.00
13.00	**0.18**	**605.87**	**0.18**	65.00	0.00	605.64	0.00
14.00	0.12	605.83	0.12	66.00	0.00	605.64	0.00
15.00	0.09	605.80	0.09	67.00	0.00	605.64	0.00
16.00	0.07	605.78	0.07	68.00	0.00	605.64	0.00
17.00	0.05	605.76	0.05	69.00	0.00	605.64	0.00
18.00	0.04	605.75	0.04	70.00	0.00	605.64	0.00
19.00	0.04	605.74	0.04	71.00	0.00	605.64	0.00
20.00	0.03	605.74	0.03	72.00	0.00	605.64	0.00
21.00	0.03	605.73	0.03				
22.00	0.03	605.73	0.03				
23.00	0.02	605.72	0.02				
24.00	0.02	605.72	0.02				
25.00	0.00	605.64	0.00				
26.00	0.00	605.64	0.00				
27.00	0.00	605.64	0.00				
28.00	0.00	605.64	0.00				
29.00	0.00	605.64	0.00				
30.00	0.00	605.64	0.00				
31.00	0.00	605.64	0.00				
32.00	0.00	605.64	0.00				
33.00	0.00	605.64	0.00				
34.00	0.00	605.64	0.00				
35.00	0.00	605.64	0.00				
36.00	0.00	605.64	0.00				
37.00	0.00	605.64	0.00				
38.00	0.00	605.64	0.00				
39.00	0.00	605.64	0.00				
40.00	0.00	605.64	0.00				
41.00	0.00	605.64	0.00				
42.00	0.00	605.64	0.00				
43.00	0.00	605.64	0.00				
44.00	0.00	605.64	0.00				
45.00	0.00	605.64	0.00				
46.00	0.00	605.64	0.00				
47.00	0.00	605.64	0.00				
48.00	0.00	605.64	0.00				
49.00	0.00	605.64	0.00				
50.00	0.00	605.64	0.00				
51.00	0.00	605.64	0.00				

Summary for Pond DP5: DP5

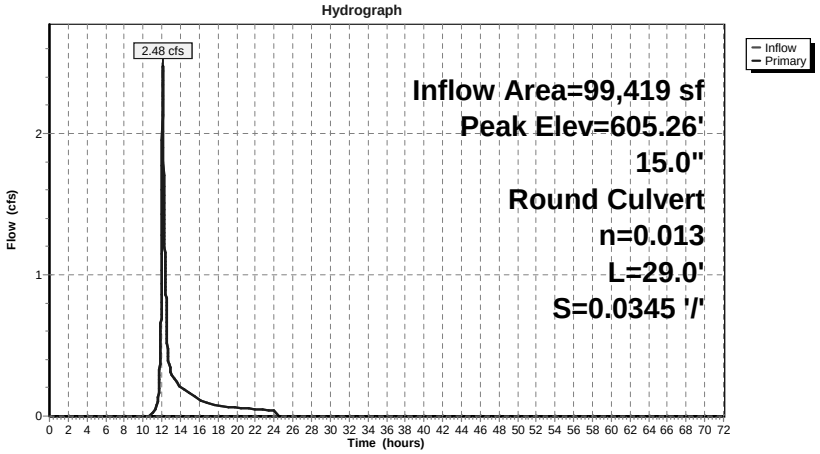
Inflow Area = 99,419 sf, 0.00% Impervious, Inflow Depth = 0.97" for 1 Year, 24 Hr. Event event
Inflow = 2.48 cfs @ 12.09 hrs, Volume= 8,055 cf
Outflow = 2.48 cfs @ 12.09 hrs, Volume= 8,055 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.48 cfs @ 12.09 hrs, Volume= 8,055 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 605.26' @ 12.09 hrs
Flood Elev= 609.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	604.34'	**15.0" Round Culvert** L= 29.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 604.34' / 603.34' S= 0.0345 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.47 cfs @ 12.09 hrs HW=605.25' (Free Discharge)
↑—1=Culvert (Inlet Controls 2.47 cfs @ 2.57 fps)

Pond DP5: DP5



Hydrograph for Pond DP5: DP5

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	604.34	0.00	52.00	0.00	604.34	0.00
1.00	0.00	604.34	0.00	53.00	0.00	604.34	0.00
2.00	0.00	604.34	0.00	54.00	0.00	604.34	0.00
3.00	0.00	604.34	0.00	55.00	0.00	604.34	0.00
4.00	0.00	604.34	0.00	56.00	0.00	604.34	0.00
5.00	0.00	604.34	0.00	57.00	0.00	604.34	0.00
6.00	0.00	604.34	0.00	58.00	0.00	604.34	0.00
7.00	0.00	604.34	0.00	59.00	0.00	604.34	0.00
8.00	0.00	604.34	0.00	60.00	0.00	604.34	0.00
9.00	0.00	604.34	0.00	61.00	0.00	604.34	0.00
10.00	0.00	604.34	0.00	62.00	0.00	604.34	0.00
11.00	0.01	604.40	0.01	63.00	0.00	604.34	0.00
12.00	**1.28**	**604.96**	**1.28**	64.00	0.00	604.34	0.00
13.00	**0.31**	**604.63**	**0.31**	65.00	0.00	604.34	0.00
14.00	0.21	604.57	0.21	66.00	0.00	604.34	0.00
15.00	0.16	604.55	0.16	67.00	0.00	604.34	0.00
16.00	0.12	604.51	0.12	68.00	0.00	604.34	0.00
17.00	0.09	604.50	0.09	69.00	0.00	604.34	0.00
18.00	0.07	604.48	0.07	70.00	0.00	604.34	0.00
19.00	0.07	604.47	0.07	71.00	0.00	604.34	0.00
20.00	0.06	604.46	0.06	72.00	0.00	604.34	0.00
21.00	0.05	604.46	0.05				
22.00	0.05	604.45	0.05				
23.00	0.04	604.45	0.04				
24.00	0.04	604.44	0.04				
25.00	0.00	604.34	0.00				
26.00	0.00	604.34	0.00				
27.00	0.00	604.34	0.00				
28.00	0.00	604.34	0.00				
29.00	0.00	604.34	0.00				
30.00	0.00	604.34	0.00				
31.00	0.00	604.34	0.00				
32.00	0.00	604.34	0.00				
33.00	0.00	604.34	0.00				
34.00	0.00	604.34	0.00				
35.00	0.00	604.34	0.00				
36.00	0.00	604.34	0.00				
37.00	0.00	604.34	0.00				
38.00	0.00	604.34	0.00				
39.00	0.00	604.34	0.00				
40.00	0.00	604.34	0.00				
41.00	0.00	604.34	0.00				
42.00	0.00	604.34	0.00				
43.00	0.00	604.34	0.00				
44.00	0.00	604.34	0.00				
45.00	0.00	604.34	0.00				
46.00	0.00	604.34	0.00				
47.00	0.00	604.34	0.00				
48.00	0.00	604.34	0.00				
49.00	0.00	604.34	0.00				
50.00	0.00	604.34	0.00				
51.00	0.00	604.34	0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 1: CB - split flow btwn DP1 and DP2 Peak Elev=709.47' Inflow=1.55 cfs 10,891 cf
Primary=0.86 cfs 8,144 cf Secondary=0.69 cfs 2,747 cf Outflow=1.55 cfs 10,891 cf

Subcatchment 2: Post DA- 2 Runoff Area=9,470 sf 0.00% Impervious Runoff Depth=0.57"
Tc=5.0 min CN=61/0 Runoff=0.11 cfs 452 cf

Subcatchment 3: Post DA-3 Runoff Area=64,709 sf 0.00% Impervious Runoff Depth=0.85"
Flow Length=430' Tc=6.1 min CN=67/0 Runoff=1.29 cfs 4,584 cf

Subcatchment 4: Post DA-4 Runoff Area=53,831 sf 0.00% Impervious Runoff Depth=1.30"
Flow Length=374' Tc=7.8 min CN=75/0 Runoff=1.72 cfs 5,840 cf

Subcatchment 5A: Post DA-5A Runoff Area=99,419 sf 0.00% Impervious Runoff Depth=1.24"
Flow Length=172' Tc=5.7 min CN=74/0 Runoff=3.23 cfs 10,273 cf

Subcatchment 5B: Post DA-5B Runoff Area=160,069 sf 15.12% Impervious Runoff Depth=0.82"
Flow Length=1,406' Tc=24.6 min CN=56/98 Runoff=1.55 cfs 10,891 cf

Reach DP1: DP1 Inflow=0.86 cfs 8,144 cf
Outflow=0.86 cfs 8,144 cf

Pond DP2: DP2 Peak Elev=677.43' Inflow=0.75 cfs 3,199 cf
18.0" Round Culvert n=0.013 L=51.0' S=0.0196 '/' Outflow=0.75 cfs 3,199 cf

Pond DP3: DP3 Peak Elev=631.42' Inflow=1.29 cfs 4,584 cf
15.0" Round Culvert n=0.020 L=55.0' S=0.0515 '/' Outflow=1.29 cfs 4,584 cf

Pond DP4: DP4 Peak Elev=606.47' Inflow=1.72 cfs 5,840 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.1191 '/' Outflow=1.72 cfs 5,840 cf

Pond DP5: DP5 Peak Elev=605.44' Inflow=3.23 cfs 10,273 cf
15.0" Round Culvert n=0.013 L=29.0' S=0.0345 '/' Outflow=3.23 cfs 10,273 cf

Total Runoff Area = 387,498 sf Runoff Volume = 32,040 cf Average Runoff Depth = 0.99"
93.75% Pervious = 363,296 sf 6.25% Impervious = 24,202 sf

Summary for Pond 1: CB - split flow btwn DP1 and DP2

[57] Hint: Peaked at 709.47' (Flood elevation advised)

Inflow Area =	160,069 sf,	15.12% Impervious,	Inflow Depth =	0.82"	for 2 Year, 24 Hr. Event event
Inflow =	1.55 cfs @	12.38 hrs,	Volume=	10,891 cf	
Outflow =	1.55 cfs @	12.38 hrs,	Volume=	10,891 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.86 cfs @	12.38 hrs,	Volume=	8,144 cf	
Secondary =	0.69 cfs @	12.38 hrs,	Volume=	2,747 cf	

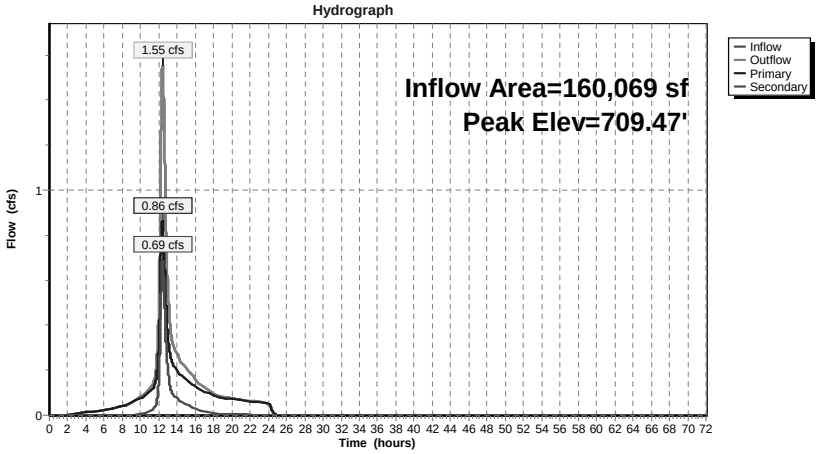
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 709.47' @ 12.38 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	709.00'	**18.0" Round Culvert** L= 88.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 709.00' / 708.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Secondary	709.10'	**18.0" Round Culvert** L= 290.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 709.10' / 678.60' S= 0.1052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.86 cfs @ 12.38 hrs HW=709.47' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.86 cfs @ 1.84 fps)

Secondary OutFlow Max=0.69 cfs @ 12.38 hrs HW=709.47' TW=677.43' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 0.69 cfs @ 2.06 fps)

Pond 1: CB - split flow btwn DP1 and DP2



Hydrograph for Pond 1: CB - split flow btwn DP1 and DP2

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	709.00	0.00	0.00	0.00
2.00	0.00	709.02	0.00	0.00	0.00
4.00	0.01	709.05	0.01	0.01	0.00
6.00	0.02	709.07	0.02	0.02	0.00
8.00	0.04	709.10	0.04	0.04	0.00
10.00	0.08	709.13	0.08	0.08	0.01
12.00	**0.48**	**709.28**	**0.48**	**0.32**	**0.17**
14.00	**0.27**	**709.22**	**0.27**	**0.20**	**0.07**
16.00	0.16	709.17	0.16	0.13	0.03
18.00	0.10	709.14	0.10	0.09	0.01
20.00	0.08	709.13	0.08	0.07	0.00
22.00	0.06	709.12	0.06	0.06	0.00
24.00	0.05	709.11	0.05	0.05	0.00
26.00	0.00	709.00	0.00	0.00	0.00
28.00	0.00	709.00	0.00	0.00	0.00
30.00	0.00	709.00	0.00	0.00	0.00
32.00	0.00	709.00	0.00	0.00	0.00
34.00	0.00	709.00	0.00	0.00	0.00
36.00	0.00	709.00	0.00	0.00	0.00
38.00	0.00	709.00	0.00	0.00	0.00
40.00	0.00	709.00	0.00	0.00	0.00
42.00	0.00	709.00	0.00	0.00	0.00
44.00	0.00	709.00	0.00	0.00	0.00
46.00	0.00	709.00	0.00	0.00	0.00
48.00	0.00	709.00	0.00	0.00	0.00
50.00	0.00	709.00	0.00	0.00	0.00
52.00	0.00	709.00	0.00	0.00	0.00
54.00	0.00	709.00	0.00	0.00	0.00
56.00	0.00	709.00	0.00	0.00	0.00
58.00	0.00	709.00	0.00	0.00	0.00
60.00	0.00	709.00	0.00	0.00	0.00
62.00	0.00	709.00	0.00	0.00	0.00
64.00	0.00	709.00	0.00	0.00	0.00
66.00	0.00	709.00	0.00	0.00	0.00
68.00	0.00	709.00	0.00	0.00	0.00
70.00	0.00	709.00	0.00	0.00	0.00
72.00	0.00	709.00	0.00	0.00	0.00

Summary for Subcatchment 2: Post DA- 2

Runoff = 0.11 cfs @ 12.10 hrs, Volume= 452 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

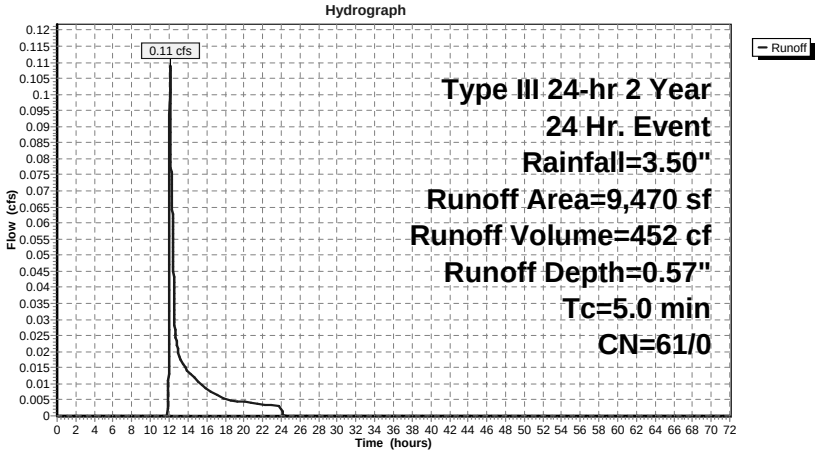
Area (sf)	CN	Description	Land Use
9,470	61	>75% Grass cover, Good, HSG B	Open Space
9,470	61	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,470	Open Space	67.77	0.24	1.02	0.14
9,470	Total	67.77	0.24	1.02	0.14

Subcatchment 2: Post DA- 2



Hydrograph for Subcatchment 2: Post DA- 2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.03	0.00	**0.04**
14.00	2.84	0.31	0.00	**0.01**
16.00	3.10	0.40	0.00	0.01
18.00	3.25	0.46	0.00	0.01
20.00	3.35	0.51	0.00	0.00
22.00	3.43	0.54	0.00	0.00
24.00	**3.50**	**0.57**	0.00	0.00
26.00	3.50	0.57	0.00	0.00
28.00	3.50	0.57	0.00	0.00
30.00	3.50	0.57	0.00	0.00
32.00	3.50	0.57	0.00	0.00
34.00	3.50	0.57	0.00	0.00
36.00	3.50	0.57	0.00	0.00
38.00	3.50	0.57	0.00	0.00
40.00	3.50	0.57	0.00	0.00
42.00	3.50	0.57	0.00	0.00
44.00	3.50	0.57	0.00	0.00
46.00	3.50	0.57	0.00	0.00
48.00	3.50	0.57	0.00	0.00
50.00	3.50	0.57	0.00	0.00
52.00	3.50	0.57	0.00	0.00
54.00	3.50	0.57	0.00	0.00
56.00	3.50	0.57	0.00	0.00
58.00	3.50	0.57	0.00	0.00
60.00	3.50	0.57	0.00	0.00
62.00	3.50	0.57	0.00	0.00
64.00	3.50	0.57	0.00	0.00
66.00	3.50	0.57	0.00	0.00
68.00	3.50	0.57	0.00	0.00
70.00	3.50	0.57	0.00	0.00
72.00	3.50	0.57	0.00	0.00

Summary for Subcatchment 3: Post DA-3

Runoff = 1.29 cfs @ 12.10 hrs, Volume= 4,584 cf, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

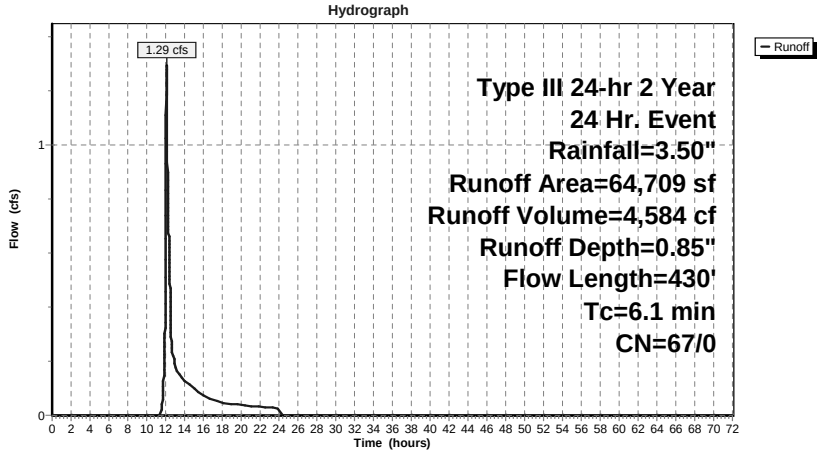
Area (sf)	CN	Description	Land Use
36,773	61	>75% Grass cover, Good, HSG B	Open Space
27,936	74	>75% Grass cover, Good, HSG C	Open Space
64,709	67	Weighted Average	
64,709	67	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	72	0.2500	0.31		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.2	312	0.1180	2.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	46	0.0870	11.87	14.57	**Pipe Channel, Existing Pipe** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Concrete sewer w/manholes & inlets
6.1	430	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
64,709	Open Space	463.07	1.62	7.00	0.95
64,709	Total	463.07	1.62	7.00	0.95

Subcatchment 3: Post DA-3



Hydrograph for Subcatchment 3: Post DA-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.10	0.00	**0.58**
14.00	2.84	0.51	0.00	**0.13**
16.00	3.10	0.64	0.00	0.07
18.00	3.25	0.71	0.00	0.05
20.00	3.35	0.77	0.00	0.04
22.00	3.43	0.81	0.00	0.03
24.00	**3.50**	**0.85**	0.00	0.03
26.00	3.50	0.85	0.00	0.00
28.00	3.50	0.85	0.00	0.00
30.00	3.50	0.85	0.00	0.00
32.00	3.50	0.85	0.00	0.00
34.00	3.50	0.85	0.00	0.00
36.00	3.50	0.85	0.00	0.00
38.00	3.50	0.85	0.00	0.00
40.00	3.50	0.85	0.00	0.00
42.00	3.50	0.85	0.00	0.00
44.00	3.50	0.85	0.00	0.00
46.00	3.50	0.85	0.00	0.00
48.00	3.50	0.85	0.00	0.00
50.00	3.50	0.85	0.00	0.00
52.00	3.50	0.85	0.00	0.00
54.00	3.50	0.85	0.00	0.00
56.00	3.50	0.85	0.00	0.00
58.00	3.50	0.85	0.00	0.00
60.00	3.50	0.85	0.00	0.00
62.00	3.50	0.85	0.00	0.00
64.00	3.50	0.85	0.00	0.00
66.00	3.50	0.85	0.00	0.00
68.00	3.50	0.85	0.00	0.00
70.00	3.50	0.85	0.00	0.00
72.00	3.50	0.85	0.00	0.00

Summary for Subcatchment 4: Post DA-4

Runoff = 1.72 cfs @ 12.12 hrs, Volume= 5,840 cf, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

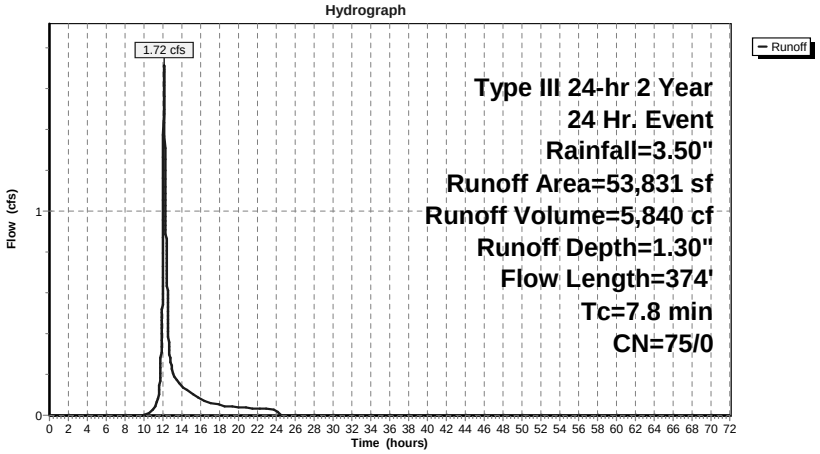
	Area (sf)	CN	Description	Land Use
	52,124	74	>75% Grass cover, Good, HSG C	Open Space
*	1,707	96	Gravel roads, HSG C	Roadway
	53,831	75	Weighted Average	
	53,831	75	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	85	0.1640	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.9	15	0.3630	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	84	0.3630	4.22		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	190	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.8	374	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
52,124	Open Space	373.01	1.30	5.64	0.76
1,707	Roadway	3.51	0.01	0.04	0.14
53,831	Total	376.52	1.31	5.68	0.90

Subcatchment 4: Post DA-4



Hydrograph for Subcatchment 4: Post DA-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.27	0.00	**0.80**
14.00	2.84	0.86	0.00	**0.14**
16.00	3.10	1.03	0.00	0.08
18.00	3.25	1.13	0.00	0.05
20.00	3.35	1.20	0.00	0.04
22.00	3.43	1.25	0.00	0.03
24.00	**3.50**	**1.30**	0.00	0.03
26.00	3.50	1.30	0.00	0.00
28.00	3.50	1.30	0.00	0.00
30.00	3.50	1.30	0.00	0.00
32.00	3.50	1.30	0.00	0.00
34.00	3.50	1.30	0.00	0.00
36.00	3.50	1.30	0.00	0.00
38.00	3.50	1.30	0.00	0.00
40.00	3.50	1.30	0.00	0.00
42.00	3.50	1.30	0.00	0.00
44.00	3.50	1.30	0.00	0.00
46.00	3.50	1.30	0.00	0.00
48.00	3.50	1.30	0.00	0.00
50.00	3.50	1.30	0.00	0.00
52.00	3.50	1.30	0.00	0.00
54.00	3.50	1.30	0.00	0.00
56.00	3.50	1.30	0.00	0.00
58.00	3.50	1.30	0.00	0.00
60.00	3.50	1.30	0.00	0.00
62.00	3.50	1.30	0.00	0.00
64.00	3.50	1.30	0.00	0.00
66.00	3.50	1.30	0.00	0.00
68.00	3.50	1.30	0.00	0.00
70.00	3.50	1.30	0.00	0.00
72.00	3.50	1.30	0.00	0.00

Summary for Subcatchment 5A: Post DA-5A

Runoff = 3.23 cfs @ 12.09 hrs, Volume= 10,273 cf, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

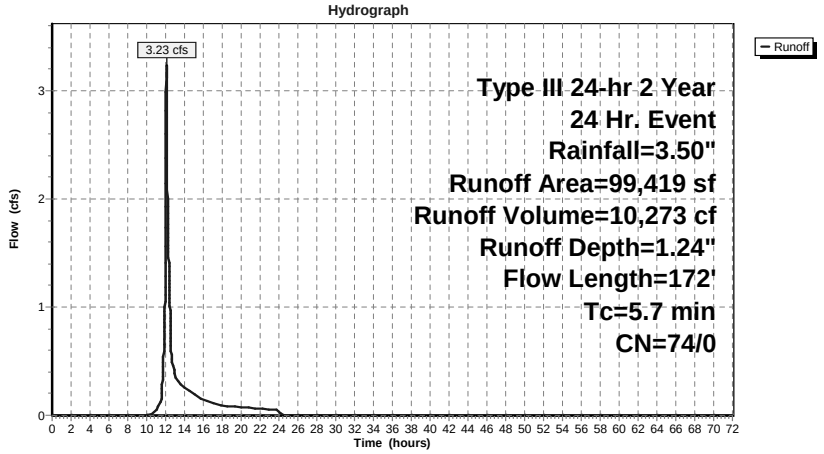
Area (sf)	CN	Description	Land Use
99,419	74	>75% Grass cover, Good, HSG C	Open Space
99,419	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	42	0.2130	0.26		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.8	58	0.3380	0.34		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	72	0.3380	4.07		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.7	172	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
99,419	Open Space	711.46	2.48	10.75	1.45
99,419	Total	711.46	2.48	10.75	1.45

Subcatchment 5A: Post DA-5A



Hydrograph for Subcatchment 5A: Post DA-5A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.24	0.00	**1.73**
14.00	2.84	0.81	0.00	**0.25**
16.00	3.10	0.97	0.00	0.14
18.00	3.25	1.07	0.00	0.09
20.00	3.35	1.14	0.00	0.07
22.00	3.43	1.19	0.00	0.06
24.00	**3.50**	**1.24**	0.00	0.05
26.00	3.50	1.24	0.00	0.00
28.00	3.50	1.24	0.00	0.00
30.00	3.50	1.24	0.00	0.00
32.00	3.50	1.24	0.00	0.00
34.00	3.50	1.24	0.00	0.00
36.00	3.50	1.24	0.00	0.00
38.00	3.50	1.24	0.00	0.00
40.00	3.50	1.24	0.00	0.00
42.00	3.50	1.24	0.00	0.00
44.00	3.50	1.24	0.00	0.00
46.00	3.50	1.24	0.00	0.00
48.00	3.50	1.24	0.00	0.00
50.00	3.50	1.24	0.00	0.00
52.00	3.50	1.24	0.00	0.00
54.00	3.50	1.24	0.00	0.00
56.00	3.50	1.24	0.00	0.00
58.00	3.50	1.24	0.00	0.00
60.00	3.50	1.24	0.00	0.00
62.00	3.50	1.24	0.00	0.00
64.00	3.50	1.24	0.00	0.00
66.00	3.50	1.24	0.00	0.00
68.00	3.50	1.24	0.00	0.00
70.00	3.50	1.24	0.00	0.00
72.00	3.50	1.24	0.00	0.00

Summary for Subcatchment 5B: Post DA-5B

Runoff = 1.55 cfs @ 12.38 hrs, Volume= 10,891 cf, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

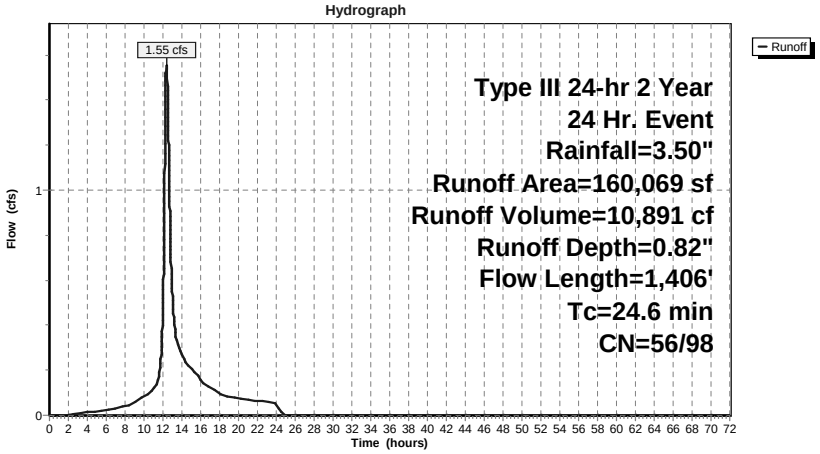
	Area (sf)	CN	Description	Land Use
	380	98	Roofs, HSG B	Roofs
	126,239	55	Woods, Good, HSG B	Woods
*	380	96	Gravel roads, HSG B	Roadway
	23,822	98	Paved parking, HSG B	Pavement
	9,248	61	>75% Grass cover, Good, HSG B	Open Space
	160,069	62	Weighted Average	
	135,867	56	84.88% Pervious Area	
	24,202	98	15.12% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.9	100	0.0870	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
0.6	50	0.0870	1.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	146	0.5800	3.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	110	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	1,000	0.0337	11.46	35.99	**Pipe Channel, Confirm Pipe Size** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015 Concrete sewer w/manholes & inlets
24.6	1,406	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 15.12% Impervious, Rv= 0.186, Runoff= 8.50"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,248	Open Space	246.29	0.86	3.72	0.50
23,822	Pavement	182.32	0.59	2.21	7.06
380	Roadway	2.91	0.01	0.04	0.11
380	Roofs	0.32	0.00	0.03	0.12
126,239	Woods	206.63	0.00	0.00	6.87
160,069	Total	638.47	1.46	6.00	14.67

Subcatchment 5B: Post DA-5B



Hydrograph for Subcatchment 5B: Post DA-5B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.02
8.00	0.40	0.00	0.23	0.04
10.00	0.66	0.00	0.47	0.08
12.00	1.75	0.00	1.53	**0.48**
14.00	2.84	0.18	2.61	**0.27**
16.00	3.10	0.25	2.87	0.16
18.00	3.25	0.29	3.02	0.10
20.00	3.35	0.33	3.12	0.08
22.00	3.43	0.36	3.20	0.06
24.00	**3.50**	**0.38**	**3.27**	0.05
26.00	3.50	0.38	3.27	0.00
28.00	3.50	0.38	3.27	0.00
30.00	3.50	0.38	3.27	0.00
32.00	3.50	0.38	3.27	0.00
34.00	3.50	0.38	3.27	0.00
36.00	3.50	0.38	3.27	0.00
38.00	3.50	0.38	3.27	0.00
40.00	3.50	0.38	3.27	0.00
42.00	3.50	0.38	3.27	0.00
44.00	3.50	0.38	3.27	0.00
46.00	3.50	0.38	3.27	0.00
48.00	3.50	0.38	3.27	0.00
50.00	3.50	0.38	3.27	0.00
52.00	3.50	0.38	3.27	0.00
54.00	3.50	0.38	3.27	0.00
56.00	3.50	0.38	3.27	0.00
58.00	3.50	0.38	3.27	0.00
60.00	3.50	0.38	3.27	0.00
62.00	3.50	0.38	3.27	0.00
64.00	3.50	0.38	3.27	0.00
66.00	3.50	0.38	3.27	0.00
68.00	3.50	0.38	3.27	0.00
70.00	3.50	0.38	3.27	0.00
72.00	3.50	0.38	3.27	0.00

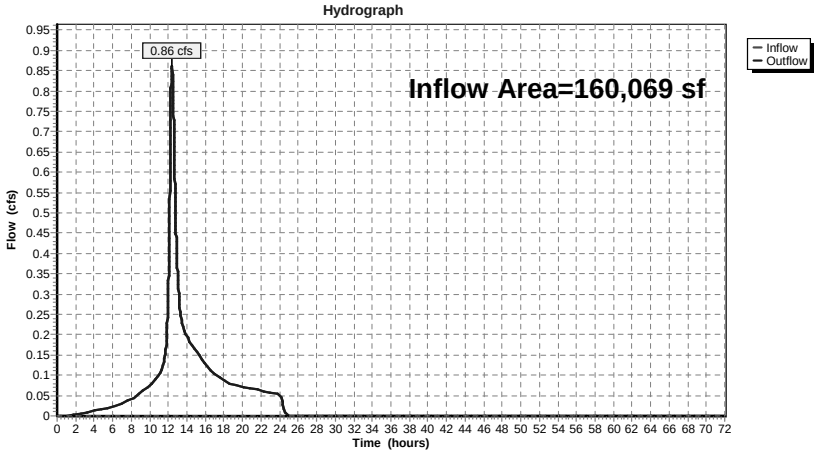
Summary for Reach DP1: DP1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 160,069 sf, 15.12% Impervious, Inflow Depth = 0.61" for 2 Year, 24 Hr. Event event
Inflow = 0.86 cfs @ 12.38 hrs, Volume= 8,144 cf
Outflow = 0.86 cfs @ 12.38 hrs, Volume= 8,144 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP1: DP1



Hydrograph for Reach DP1: DP1

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.03		0.03	59.00	0.00		0.00
8.00	0.04		0.04	60.00	0.00		0.00
9.00	0.06		0.06	61.00	0.00		0.00
10.00	0.08		0.08	62.00	0.00		0.00
11.00	0.10		0.10	63.00	0.00		0.00
12.00	**0.32**		**0.32**	64.00	0.00		0.00
13.00	**0.34**		**0.34**	65.00	0.00		0.00
14.00	0.20		0.20	66.00	0.00		0.00
15.00	0.16		0.16	67.00	0.00		0.00
16.00	0.13		0.13	68.00	0.00		0.00
17.00	0.10		0.10	69.00	0.00		0.00
18.00	0.09		0.09	70.00	0.00		0.00
19.00	0.08		0.08	71.00	0.00		0.00
20.00	0.07		0.07	72.00	0.00		0.00
21.00	0.07		0.07				
22.00	0.06		0.06				
23.00	0.06		0.06				
24.00	0.05		0.05				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP2: DP2

[57] Hint: Peaked at 677.43' (Flood elevation advised)

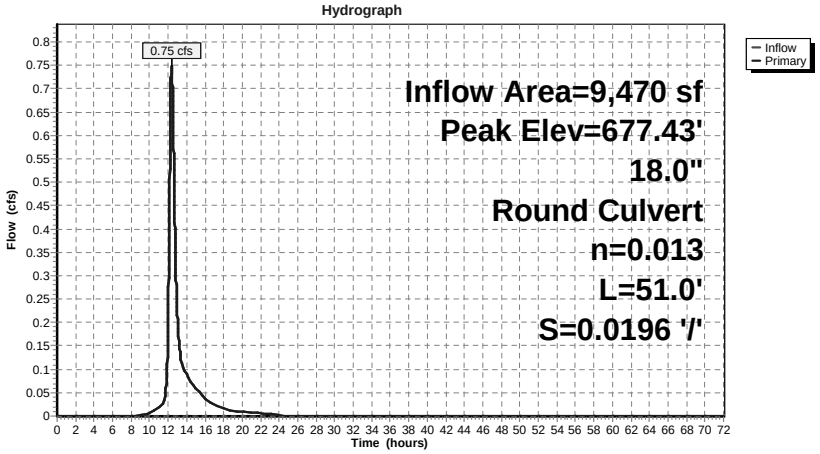
Inflow Area = 9,470 sf, 0.00% Impervious, Inflow Depth = 4.05" for 2 Year, 24 Hr. Event event
Inflow = 0.75 cfs @ 12.38 hrs, Volume= 3,199 cf
Outflow = 0.75 cfs @ 12.38 hrs, Volume= 3,199 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.75 cfs @ 12.38 hrs, Volume= 3,199 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 677.43' @ 12.38 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	677.00'	**18.0" Round Culvert** L= 51.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 677.00' / 676.00' S= 0.0196 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.75 cfs @ 12.38 hrs HW=677.43' (Free Discharge)
1=Culvert (Inlet Controls 0.75 cfs @ 1.77 fps)

Pond DP2: DP2



Hydrograph for Pond DP2: DP2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	677.00	0.00	52.00	0.00	677.00	0.00
1.00	0.00	677.00	0.00	53.00	0.00	677.00	0.00
2.00	0.00	677.00	0.00	54.00	0.00	677.00	0.00
3.00	0.00	677.00	0.00	55.00	0.00	677.00	0.00
4.00	0.00	677.00	0.00	56.00	0.00	677.00	0.00
5.00	0.00	677.00	0.00	57.00	0.00	677.00	0.00
6.00	0.00	677.00	0.00	58.00	0.00	677.00	0.00
7.00	0.00	677.00	0.00	59.00	0.00	677.00	0.00
8.00	0.00	677.00	0.00	60.00	0.00	677.00	0.00
9.00	0.00	677.02	0.00	61.00	0.00	677.00	0.00
10.00	0.01	677.04	0.01	62.00	0.00	677.00	0.00
11.00	0.02	677.06	0.02	63.00	0.00	677.00	0.00
12.00	**0.21**	**677.22**	**0.21**	64.00	0.00	677.00	0.00
13.00	**0.21**	**677.22**	**0.21**	65.00	0.00	677.00	0.00
14.00	0.09	677.14	0.09	66.00	0.00	677.00	0.00
15.00	0.06	677.12	0.06	67.00	0.00	677.00	0.00
16.00	0.04	677.09	0.04	68.00	0.00	677.00	0.00
17.00	0.02	677.08	0.02	69.00	0.00	677.00	0.00
18.00	0.02	677.06	0.02	70.00	0.00	677.00	0.00
19.00	0.01	677.05	0.01	71.00	0.00	677.00	0.00
20.00	0.01	677.05	0.01	72.00	0.00	677.00	0.00
21.00	0.01	677.04	0.01				
22.00	0.01	677.04	0.01				
23.00	0.00	677.03	0.00				
24.00	0.00	677.03	0.00				
25.00	0.00	677.00	0.00				
26.00	0.00	677.00	0.00				
27.00	0.00	677.00	0.00				
28.00	0.00	677.00	0.00				
29.00	0.00	677.00	0.00				
30.00	0.00	677.00	0.00				
31.00	0.00	677.00	0.00				
32.00	0.00	677.00	0.00				
33.00	0.00	677.00	0.00				
34.00	0.00	677.00	0.00				
35.00	0.00	677.00	0.00				
36.00	0.00	677.00	0.00				
37.00	0.00	677.00	0.00				
38.00	0.00	677.00	0.00				
39.00	0.00	677.00	0.00				
40.00	0.00	677.00	0.00				
41.00	0.00	677.00	0.00				
42.00	0.00	677.00	0.00				
43.00	0.00	677.00	0.00				
44.00	0.00	677.00	0.00				
45.00	0.00	677.00	0.00				
46.00	0.00	677.00	0.00				
47.00	0.00	677.00	0.00				
48.00	0.00	677.00	0.00				
49.00	0.00	677.00	0.00				
50.00	0.00	677.00	0.00				
51.00	0.00	677.00	0.00				

Summary for Pond DP3: DP3

[57] Hint: Peaked at 631.42' (Flood elevation advised)

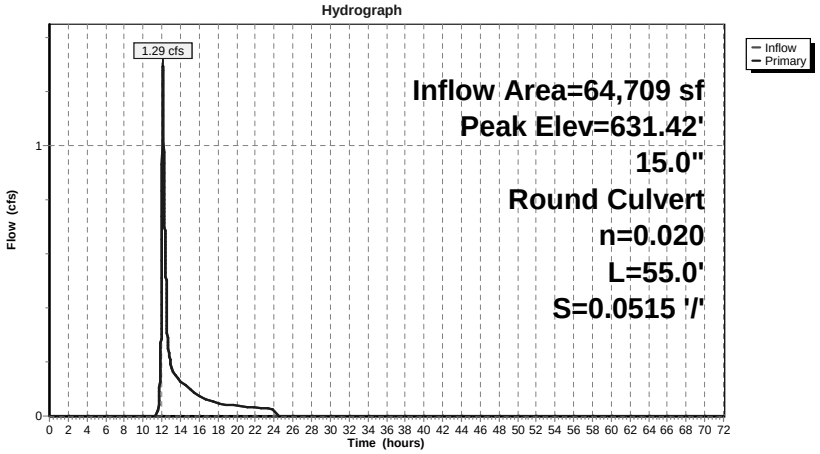
Inflow Area = 64,709 sf, 0.00% Impervious, Inflow Depth = 0.85" for 2 Year, 24 Hr. Event event
Inflow = 1.29 cfs @ 12.10 hrs, Volume= 4,584 cf
Outflow = 1.29 cfs @ 12.10 hrs, Volume= 4,584 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.29 cfs @ 12.10 hrs, Volume= 4,584 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 631.42' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	630.80'	**15.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 630.80' / 627.97' S= 0.0515 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=1.29 cfs @ 12.10 hrs HW=631.42' (Free Discharge)
1=Culvert (Inlet Controls 1.29 cfs @ 2.12 fps)

Pond DP3: DP3



Hydrograph for Pond DP3: DP3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	630.80	0.00	52.00	0.00	630.80	0.00
1.00	0.00	630.80	0.00	53.00	0.00	630.80	0.00
2.00	0.00	630.80	0.00	54.00	0.00	630.80	0.00
3.00	0.00	630.80	0.00	55.00	0.00	630.80	0.00
4.00	0.00	630.80	0.00	56.00	0.00	630.80	0.00
5.00	0.00	630.80	0.00	57.00	0.00	630.80	0.00
6.00	0.00	630.80	0.00	58.00	0.00	630.80	0.00
7.00	0.00	630.80	0.00	59.00	0.00	630.80	0.00
8.00	0.00	630.80	0.00	60.00	0.00	630.80	0.00
9.00	0.00	630.80	0.00	61.00	0.00	630.80	0.00
10.00	0.00	630.80	0.00	62.00	0.00	630.80	0.00
11.00	0.00	630.80	0.00	63.00	0.00	630.80	0.00
12.00	**0.58**	**631.20**	**0.58**	64.00	0.00	630.80	0.00
13.00	**0.19**	**631.02**	**0.19**	65.00	0.00	630.80	0.00
14.00	0.13	630.98	0.13	66.00	0.00	630.80	0.00
15.00	0.10	630.96	0.10	67.00	0.00	630.80	0.00
16.00	0.07	630.94	0.07	68.00	0.00	630.80	0.00
17.00	0.06	630.92	0.06	69.00	0.00	630.80	0.00
18.00	0.05	630.91	0.05	70.00	0.00	630.80	0.00
19.00	0.04	630.90	0.04	71.00	0.00	630.80	0.00
20.00	0.04	630.90	0.04	72.00	0.00	630.80	0.00
21.00	0.03	630.89	0.03				
22.00	0.03	630.89	0.03				
23.00	0.03	630.89	0.03				
24.00	0.03	630.88	0.03				
25.00	0.00	630.80	0.00				
26.00	0.00	630.80	0.00				
27.00	0.00	630.80	0.00				
28.00	0.00	630.80	0.00				
29.00	0.00	630.80	0.00				
30.00	0.00	630.80	0.00				
31.00	0.00	630.80	0.00				
32.00	0.00	630.80	0.00				
33.00	0.00	630.80	0.00				
34.00	0.00	630.80	0.00				
35.00	0.00	630.80	0.00				
36.00	0.00	630.80	0.00				
37.00	0.00	630.80	0.00				
38.00	0.00	630.80	0.00				
39.00	0.00	630.80	0.00				
40.00	0.00	630.80	0.00				
41.00	0.00	630.80	0.00				
42.00	0.00	630.80	0.00				
43.00	0.00	630.80	0.00				
44.00	0.00	630.80	0.00				
45.00	0.00	630.80	0.00				
46.00	0.00	630.80	0.00				
47.00	0.00	630.80	0.00				
48.00	0.00	630.80	0.00				
49.00	0.00	630.80	0.00				
50.00	0.00	630.80	0.00				
51.00	0.00	630.80	0.00				

Summary for Pond DP4: DP4

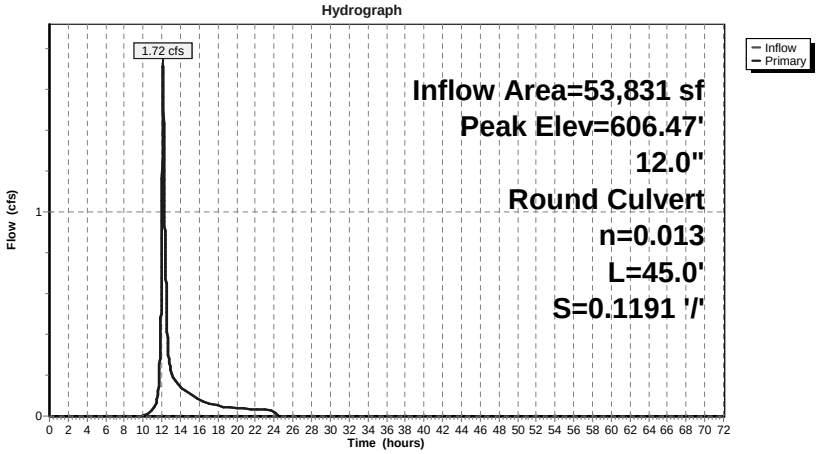
Inflow Area = 53,831 sf, 0.00% Impervious, Inflow Depth = 1.30" for 2 Year, 24 Hr. Event event
Inflow = 1.72 cfs @ 12.12 hrs, Volume= 5,840 cf
Outflow = 1.72 cfs @ 12.12 hrs, Volume= 5,840 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.72 cfs @ 12.12 hrs, Volume= 5,840 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 606.47' @ 12.12 hrs
Flood Elev= 608.79'

Device	Routing	Invert	Outlet Devices
#1	Primary	605.64'	**12.0" Round Culvert** L= 45.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 605.64' / 600.28' S= 0.1191 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.72 cfs @ 12.12 hrs HW=606.47' (Free Discharge)
1=Culvert (Inlet Controls 1.72 cfs @ 2.45 fps)

Pond DP4: DP4



Hydrograph for Pond DP4: DP4

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	605.64	0.00	52.00	0.00	605.64	0.00
1.00	0.00	605.64	0.00	53.00	0.00	605.64	0.00
2.00	0.00	605.64	0.00	54.00	0.00	605.64	0.00
3.00	0.00	605.64	0.00	55.00	0.00	605.64	0.00
4.00	0.00	605.64	0.00	56.00	0.00	605.64	0.00
5.00	0.00	605.64	0.00	57.00	0.00	605.64	0.00
6.00	0.00	605.64	0.00	58.00	0.00	605.64	0.00
7.00	0.00	605.64	0.00	59.00	0.00	605.64	0.00
8.00	0.00	605.64	0.00	60.00	0.00	605.64	0.00
9.00	0.00	605.64	0.00	61.00	0.00	605.64	0.00
10.00	0.00	605.64	0.00	62.00	0.00	605.64	0.00
11.00	0.03	605.73	0.03	63.00	0.00	605.64	0.00
12.00	**0.80**	**606.16**	**0.80**	64.00	0.00	605.64	0.00
13.00	**0.22**	**605.90**	**0.22**	65.00	0.00	605.64	0.00
14.00	0.14	605.85	0.14	66.00	0.00	605.64	0.00
15.00	0.11	605.82	0.11	67.00	0.00	605.64	0.00
16.00	0.08	605.79	0.08	68.00	0.00	605.64	0.00
17.00	0.06	605.78	0.06	69.00	0.00	605.64	0.00
18.00	0.05	605.76	0.05	70.00	0.00	605.64	0.00
19.00	0.04	605.75	0.04	71.00	0.00	605.64	0.00
20.00	0.04	605.75	0.04	72.00	0.00	605.64	0.00
21.00	0.04	605.74	0.04				
22.00	0.03	605.74	0.03				
23.00	0.03	605.73	0.03				
24.00	0.03	605.73	0.03				
25.00	0.00	605.64	0.00				
26.00	0.00	605.64	0.00				
27.00	0.00	605.64	0.00				
28.00	0.00	605.64	0.00				
29.00	0.00	605.64	0.00				
30.00	0.00	605.64	0.00				
31.00	0.00	605.64	0.00				
32.00	0.00	605.64	0.00				
33.00	0.00	605.64	0.00				
34.00	0.00	605.64	0.00				
35.00	0.00	605.64	0.00				
36.00	0.00	605.64	0.00				
37.00	0.00	605.64	0.00				
38.00	0.00	605.64	0.00				
39.00	0.00	605.64	0.00				
40.00	0.00	605.64	0.00				
41.00	0.00	605.64	0.00				
42.00	0.00	605.64	0.00				
43.00	0.00	605.64	0.00				
44.00	0.00	605.64	0.00				
45.00	0.00	605.64	0.00				
46.00	0.00	605.64	0.00				
47.00	0.00	605.64	0.00				
48.00	0.00	605.64	0.00				
49.00	0.00	605.64	0.00				
50.00	0.00	605.64	0.00				
51.00	0.00	605.64	0.00				

Summary for Pond DP5: DP5

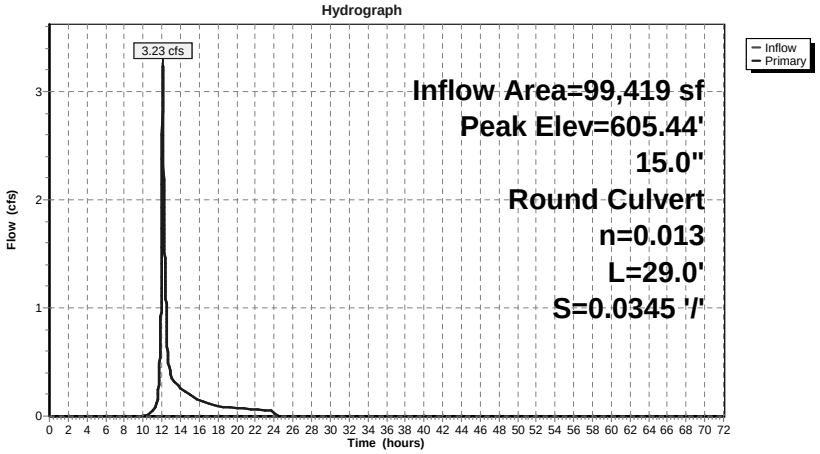
Inflow Area = 99,419 sf, 0.00% Impervious, Inflow Depth = 1.24" for 2 Year, 24 Hr. Event event
Inflow = 3.23 cfs @ 12.09 hrs, Volume= 10,273 cf
Outflow = 3.23 cfs @ 12.09 hrs, Volume= 10,273 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.23 cfs @ 12.09 hrs, Volume= 10,273 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 605.44' @ 12.09 hrs
Flood Elev= 609.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	604.34'	**15.0" Round Culvert** L= 29.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 604.34' / 603.34' S= 0.0345 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=3.23 cfs @ 12.09 hrs HW=605.44' (Free Discharge)
1=Culvert (Inlet Controls 3.23 cfs @ 2.82 fps)

Pond DP5: DP5



Hydrograph for Pond DP5: DP5

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	604.34	0.00	52.00	0.00	604.34	0.00
1.00	0.00	604.34	0.00	53.00	0.00	604.34	0.00
2.00	0.00	604.34	0.00	54.00	0.00	604.34	0.00
3.00	0.00	604.34	0.00	55.00	0.00	604.34	0.00
4.00	0.00	604.34	0.00	56.00	0.00	604.34	0.00
5.00	0.00	604.34	0.00	57.00	0.00	604.34	0.00
6.00	0.00	604.34	0.00	58.00	0.00	604.34	0.00
7.00	0.00	604.34	0.00	59.00	0.00	604.34	0.00
8.00	0.00	604.34	0.00	60.00	0.00	604.34	0.00
9.00	0.00	604.34	0.00	61.00	0.00	604.34	0.00
10.00	0.00	604.34	0.00	62.00	0.00	604.34	0.00
11.00	0.05	604.45	0.05	63.00	0.00	604.34	0.00
12.00	**1.73**	**605.08**	**1.73**	64.00	0.00	604.34	0.00
13.00	**0.38**	**604.66**	**0.38**	65.00	0.00	604.34	0.00
14.00	0.25	604.60	0.25	66.00	0.00	604.34	0.00
15.00	0.20	604.57	0.20	67.00	0.00	604.34	0.00
16.00	0.14	604.53	0.14	68.00	0.00	604.34	0.00
17.00	0.11	604.51	0.11	69.00	0.00	604.34	0.00
18.00	0.09	604.49	0.09	70.00	0.00	604.34	0.00
19.00	0.08	604.48	0.08	71.00	0.00	604.34	0.00
20.00	0.07	604.48	0.07	72.00	0.00	604.34	0.00
21.00	0.07	604.47	0.07				
22.00	0.06	604.46	0.06				
23.00	0.05	604.46	0.05				
24.00	0.05	604.45	0.05				
25.00	0.00	604.34	0.00				
26.00	0.00	604.34	0.00				
27.00	0.00	604.34	0.00				
28.00	0.00	604.34	0.00				
29.00	0.00	604.34	0.00				
30.00	0.00	604.34	0.00				
31.00	0.00	604.34	0.00				
32.00	0.00	604.34	0.00				
33.00	0.00	604.34	0.00				
34.00	0.00	604.34	0.00				
35.00	0.00	604.34	0.00				
36.00	0.00	604.34	0.00				
37.00	0.00	604.34	0.00				
38.00	0.00	604.34	0.00				
39.00	0.00	604.34	0.00				
40.00	0.00	604.34	0.00				
41.00	0.00	604.34	0.00				
42.00	0.00	604.34	0.00				
43.00	0.00	604.34	0.00				
44.00	0.00	604.34	0.00				
45.00	0.00	604.34	0.00				
46.00	0.00	604.34	0.00				
47.00	0.00	604.34	0.00				
48.00	0.00	604.34	0.00				
49.00	0.00	604.34	0.00				
50.00	0.00	604.34	0.00				
51.00	0.00	604.34	0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 1: CB - split flow btwn DP1 and DP2 Peak Elev=709.78' Inflow=4.38 cfs 25,440 cf
Primary=2.20 cfs 16,375 cf Secondary=2.18 cfs 9,065 cf Outflow=4.38 cfs 25,440 cf

Subcatchment 2: Post DA- 2 Runoff Area=9,470 sf 0.00% Impervious Runoff Depth=1.68"
Tc=5.0 min CN=61/0 Runoff=0.42 cfs 1,325 cf

Subcatchment 3: Post DA-3 Runoff Area=64,709 sf 0.00% Impervious Runoff Depth=2.16"
Flow Length=430' Tc=6.1 min CN=67/0 Runoff=3.67 cfs 11,644 cf

Subcatchment 4: Post DA-4 Runoff Area=53,831 sf 0.00% Impervious Runoff Depth=2.86"
Flow Length=374' Tc=7.8 min CN=75/0 Runoff=3.89 cfs 12,832 cf

Subcatchment 5A: Post DA-5A Runoff Area=99,419 sf 0.00% Impervious Runoff Depth=2.77"
Flow Length=172' Tc=5.7 min CN=74/0 Runoff=7.48 cfs 22,942 cf

Subcatchment 5B: Post DA-5B Runoff Area=160,069 sf 15.12% Impervious Runoff Depth=1.91"
Flow Length=1,406' Tc=24.6 min CN=56/98 Runoff=4.38 cfs 25,440 cf

Reach DP1: DP1 Inflow=2.20 cfs 16,375 cf
Outflow=2.20 cfs 16,375 cf

Pond DP2: DP2 Peak Elev=677.81' Inflow=2.35 cfs 10,390 cf
18.0" Round Culvert n=0.013 L=51.0' S=0.0196 '/' Outflow=2.35 cfs 10,390 cf

Pond DP3: DP3 Peak Elev=632.04' Inflow=3.67 cfs 11,644 cf
15.0" Round Culvert n=0.020 L=55.0' S=0.0515 '/' Outflow=3.67 cfs 11,644 cf

Pond DP4: DP4 Peak Elev=607.84' Inflow=3.89 cfs 12,832 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.1191 '/' Outflow=3.89 cfs 12,832 cf

Pond DP5: DP5 Peak Elev=607.54' Inflow=7.48 cfs 22,942 cf
15.0" Round Culvert n=0.013 L=29.0' S=0.0345 '/' Outflow=7.48 cfs 22,942 cf

Total Runoff Area = 387,498 sf Runoff Volume = 74,183 cf Average Runoff Depth = 2.30"
93.75% Pervious = 363,296 sf 6.25% Impervious = 24,202 sf

Summary for Pond 1: CB - split flow btwn DP1 and DP2

[57] Hint: Peaked at 709.78' (Flood elevation advised)

Inflow Area =	160,069 sf,	15.12% Impervious,	Inflow Depth =	1.91"	for 10 Year, 24 Hr. Event event
Inflow =	4.38 cfs @	12.37 hrs,	Volume=	25,440 cf	
Outflow =	4.38 cfs @	12.37 hrs,	Volume=	25,440 cf,	Atten= 0%, Lag= 0.0 min
Primary =	2.20 cfs @	12.37 hrs,	Volume=	16,375 cf	
Secondary =	2.18 cfs @	12.37 hrs,	Volume=	9,065 cf	

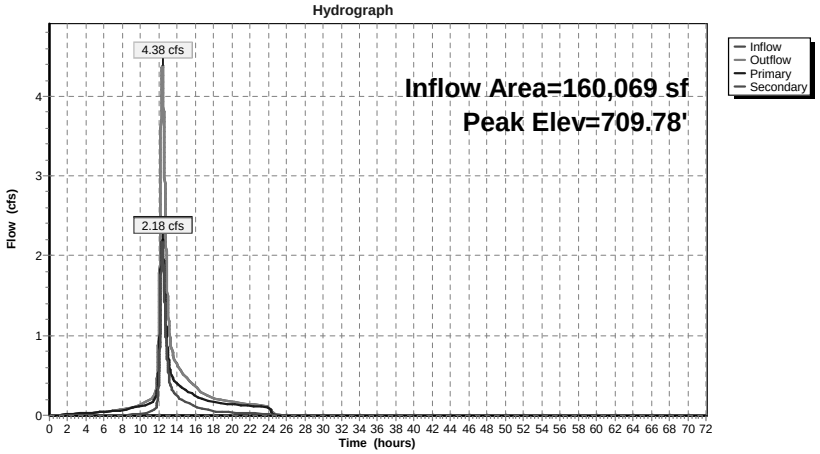
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 709.78' @ 12.37 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	709.00'	**18.0" Round Culvert** L= 88.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 709.00' / 708.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Secondary	709.10'	**18.0" Round Culvert** L= 290.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 709.10' / 678.60' S= 0.1052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.20 cfs @ 12.37 hrs HW=709.78' TW=0.00' (Dynamic Tailwater)
↑└**1=Culvert** (Inlet Controls 2.20 cfs @ 2.37 fps)

Secondary OutFlow Max=2.18 cfs @ 12.37 hrs HW=709.78' TW=677.81' (Dynamic Tailwater)
↑└**2=Culvert** (Inlet Controls 2.18 cfs @ 2.81 fps)

Pond 1: CB - split flow btwn DP1 and DP2



Hydrograph for Pond 1: CB - split flow btwn DP1 and DP2

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	709.00	0.00	0.00	0.00
2.00	0.01	709.05	0.01	0.01	0.00
4.00	0.03	709.08	0.03	0.03	0.00
6.00	0.04	709.10	0.04	0.04	0.00
8.00	0.07	709.12	0.07	0.07	0.00
10.00	0.13	709.16	0.13	0.11	0.02
12.00	**1.11**	**709.40**	**1.11**	**0.64**	**0.47**
14.00	**0.63**	**709.31**	**0.63**	**0.40**	**0.24**
16.00	0.36	709.24	0.36	0.25	0.11
18.00	0.22	709.20	0.22	0.16	0.05
20.00	0.17	709.18	0.17	0.13	0.03
22.00	0.14	709.17	0.14	0.12	0.02
24.00	0.11	709.15	0.11	0.10	0.01
26.00	0.00	709.00	0.00	0.00	0.00
28.00	0.00	709.00	0.00	0.00	0.00
30.00	0.00	709.00	0.00	0.00	0.00
32.00	0.00	709.00	0.00	0.00	0.00
34.00	0.00	709.00	0.00	0.00	0.00
36.00	0.00	709.00	0.00	0.00	0.00
38.00	0.00	709.00	0.00	0.00	0.00
40.00	0.00	709.00	0.00	0.00	0.00
42.00	0.00	709.00	0.00	0.00	0.00
44.00	0.00	709.00	0.00	0.00	0.00
46.00	0.00	709.00	0.00	0.00	0.00
48.00	0.00	709.00	0.00	0.00	0.00
50.00	0.00	709.00	0.00	0.00	0.00
52.00	0.00	709.00	0.00	0.00	0.00
54.00	0.00	709.00	0.00	0.00	0.00
56.00	0.00	709.00	0.00	0.00	0.00
58.00	0.00	709.00	0.00	0.00	0.00
60.00	0.00	709.00	0.00	0.00	0.00
62.00	0.00	709.00	0.00	0.00	0.00
64.00	0.00	709.00	0.00	0.00	0.00
66.00	0.00	709.00	0.00	0.00	0.00
68.00	0.00	709.00	0.00	0.00	0.00
70.00	0.00	709.00	0.00	0.00	0.00
72.00	0.00	709.00	0.00	0.00	0.00

Summary for Subcatchment 2: Post DA- 2

Runoff = 0.42 cfs @ 12.08 hrs, Volume= 1,325 cf, Depth= 1.68"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

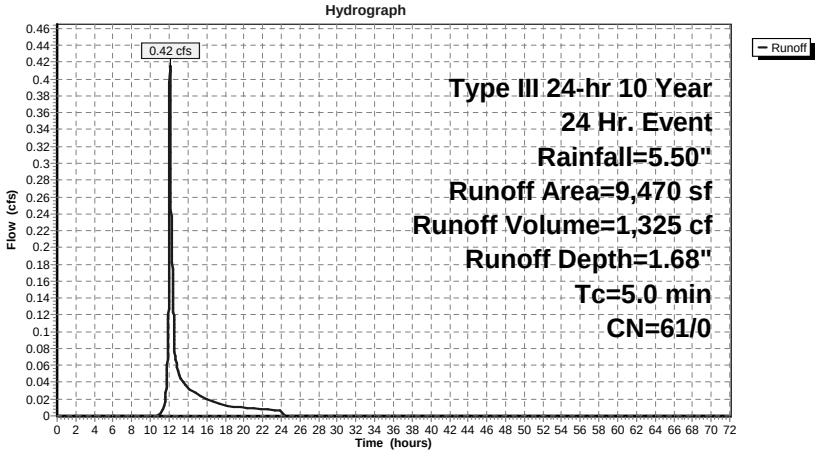
Area (sf)	CN	Description	Land Use
9,470	61	>75% Grass cover, Good, HSG B	Open Space
9,470	61	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,470	Open Space	67.77	0.24	1.02	0.14
9,470	Total	67.77	0.24	1.02	0.14

Subcatchment 2: Post DA- 2



Hydrograph for Subcatchment 2: Post DA- 2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.00	0.00	0.00
12.00	2.75	0.28	0.00	**0.23**
14.00	4.46	1.06	0.00	**0.03**
16.00	4.87	1.29	0.00	0.02
18.00	5.10	1.43	0.00	0.01
20.00	5.26	1.53	0.00	0.01
22.00	5.39	1.61	0.00	0.01
24.00	**5.50**	**1.68**	0.00	0.01
26.00	5.50	1.68	0.00	0.00
28.00	5.50	1.68	0.00	0.00
30.00	5.50	1.68	0.00	0.00
32.00	5.50	1.68	0.00	0.00
34.00	5.50	1.68	0.00	0.00
36.00	5.50	1.68	0.00	0.00
38.00	5.50	1.68	0.00	0.00
40.00	5.50	1.68	0.00	0.00
42.00	5.50	1.68	0.00	0.00
44.00	5.50	1.68	0.00	0.00
46.00	5.50	1.68	0.00	0.00
48.00	5.50	1.68	0.00	0.00
50.00	5.50	1.68	0.00	0.00
52.00	5.50	1.68	0.00	0.00
54.00	5.50	1.68	0.00	0.00
56.00	5.50	1.68	0.00	0.00
58.00	5.50	1.68	0.00	0.00
60.00	5.50	1.68	0.00	0.00
62.00	5.50	1.68	0.00	0.00
64.00	5.50	1.68	0.00	0.00
66.00	5.50	1.68	0.00	0.00
68.00	5.50	1.68	0.00	0.00
70.00	5.50	1.68	0.00	0.00
72.00	5.50	1.68	0.00	0.00

Summary for Subcatchment 3: Post DA-3

Runoff = 3.67 cfs @ 12.09 hrs, Volume= 11,644 cf, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

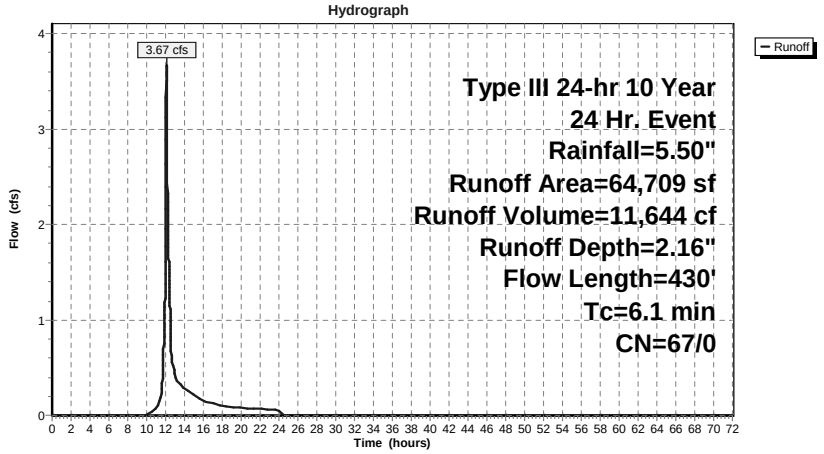
Area (sf)	CN	Description	Land Use
36,773	61	>75% Grass cover, Good, HSG B	Open Space
27,936	74	>75% Grass cover, Good, HSG C	Open Space
64,709	67	Weighted Average	
64,709	67	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	72	0.2500	0.31		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.2	312	0.1180	2.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	46	0.0870	11.87	14.57	**Pipe Channel, Existing Pipe** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Concrete sewer w/manholes & inlets
6.1	430	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
64,709	Open Space	463.07	1.62	7.00	0.95
64,709	Total	463.07	1.62	7.00	0.95

Subcatchment 3: Post DA-3



Hydrograph for Subcatchment 3: Post DA-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.00	0.00	0.00
12.00	2.75	0.47	0.00	**1.95**
14.00	4.46	1.44	0.00	**0.28**
16.00	4.87	1.72	0.00	0.15
18.00	5.10	1.88	0.00	0.10
20.00	5.26	1.99	0.00	0.08
22.00	5.39	2.08	0.00	0.06
24.00	**5.50**	**2.16**	0.00	0.05
26.00	5.50	2.16	0.00	0.00
28.00	5.50	2.16	0.00	0.00
30.00	5.50	2.16	0.00	0.00
32.00	5.50	2.16	0.00	0.00
34.00	5.50	2.16	0.00	0.00
36.00	5.50	2.16	0.00	0.00
38.00	5.50	2.16	0.00	0.00
40.00	5.50	2.16	0.00	0.00
42.00	5.50	2.16	0.00	0.00
44.00	5.50	2.16	0.00	0.00
46.00	5.50	2.16	0.00	0.00
48.00	5.50	2.16	0.00	0.00
50.00	5.50	2.16	0.00	0.00
52.00	5.50	2.16	0.00	0.00
54.00	5.50	2.16	0.00	0.00
56.00	5.50	2.16	0.00	0.00
58.00	5.50	2.16	0.00	0.00
60.00	5.50	2.16	0.00	0.00
62.00	5.50	2.16	0.00	0.00
64.00	5.50	2.16	0.00	0.00
66.00	5.50	2.16	0.00	0.00
68.00	5.50	2.16	0.00	0.00
70.00	5.50	2.16	0.00	0.00
72.00	5.50	2.16	0.00	0.00

Summary for Subcatchment 4: Post DA-4

Runoff = 3.89 cfs @ 12.11 hrs, Volume= 12,832 cf, Depth= 2.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

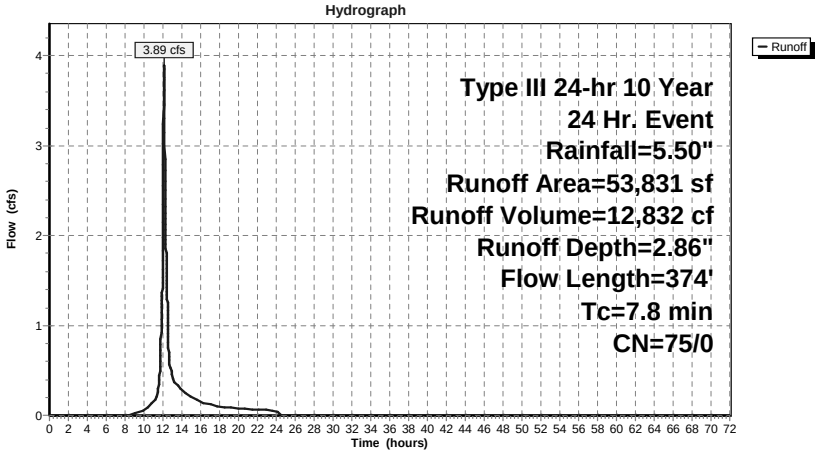
	Area (sf)	CN	Description	Land Use
	52,124	74	>75% Grass cover, Good, HSG C	Open Space
*	1,707	96	Gravel roads, HSG C	Roadway
	53,831	75	Weighted Average	
	53,831	75	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	85	0.1640	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.9	15	0.3630	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	84	0.3630	4.22		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	190	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.8	374	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
52,124	Open Space	373.01	1.30	5.64	0.76
1,707	Roadway	3.51	0.01	0.04	0.14
53,831	Total	376.52	1.31	5.68	0.90

Subcatchment 4: Post DA-4



Hydrograph for Subcatchment 4: Post DA-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.04	0.00	0.06
12.00	2.75	0.80	0.00	**1.98**
14.00	4.46	2.02	0.00	**0.28**
16.00	4.87	2.35	0.00	0.15
18.00	5.10	2.53	0.00	0.09
20.00	5.26	2.66	0.00	0.07
22.00	5.39	2.77	0.00	0.06
24.00	**5.50**	**2.86**	0.00	0.05
26.00	5.50	2.86	0.00	0.00
28.00	5.50	2.86	0.00	0.00
30.00	5.50	2.86	0.00	0.00
32.00	5.50	2.86	0.00	0.00
34.00	5.50	2.86	0.00	0.00
36.00	5.50	2.86	0.00	0.00
38.00	5.50	2.86	0.00	0.00
40.00	5.50	2.86	0.00	0.00
42.00	5.50	2.86	0.00	0.00
44.00	5.50	2.86	0.00	0.00
46.00	5.50	2.86	0.00	0.00
48.00	5.50	2.86	0.00	0.00
50.00	5.50	2.86	0.00	0.00
52.00	5.50	2.86	0.00	0.00
54.00	5.50	2.86	0.00	0.00
56.00	5.50	2.86	0.00	0.00
58.00	5.50	2.86	0.00	0.00
60.00	5.50	2.86	0.00	0.00
62.00	5.50	2.86	0.00	0.00
64.00	5.50	2.86	0.00	0.00
66.00	5.50	2.86	0.00	0.00
68.00	5.50	2.86	0.00	0.00
70.00	5.50	2.86	0.00	0.00
72.00	5.50	2.86	0.00	0.00

Summary for Subcatchment 5A: Post DA-5A

Runoff = 7.48 cfs @ 12.09 hrs, Volume= 22,942 cf, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

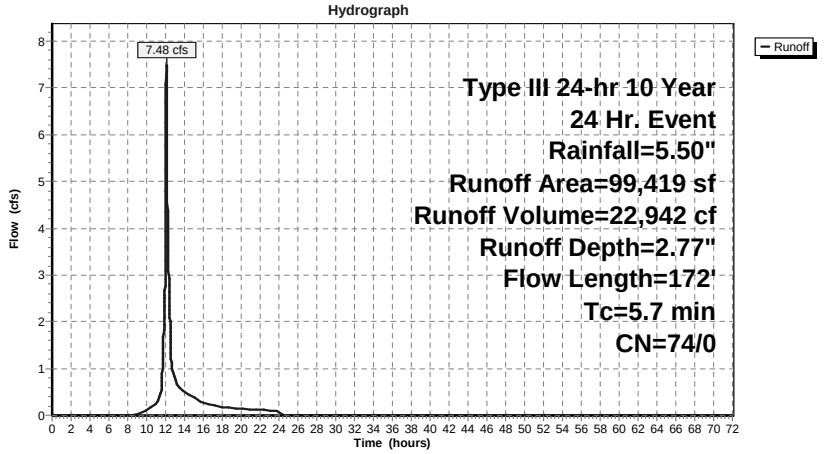
Area (sf)	CN	Description	Land Use
99,419	74	>75% Grass cover, Good, HSG C	Open Space
99,419	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	42	0.2130	0.26		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.8	58	0.3380	0.34		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	72	0.3380	4.07		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.7	172	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
99,419	Open Space	711.46	2.48	10.75	1.45
99,419	Total	711.46	2.48	10.75	1.45

Subcatchment 5A: Post DA-5A



Hydrograph for Subcatchment 5A: Post DA-5A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.03	0.00	0.10
12.00	2.75	0.75	0.00	**4.34**
14.00	4.46	1.94	0.00	**0.49**
16.00	4.87	2.26	0.00	0.27
18.00	5.10	2.45	0.00	0.17
20.00	5.26	2.58	0.00	0.13
22.00	5.39	2.68	0.00	0.11
24.00	**5.50**	**2.77**	0.00	0.09
26.00	5.50	2.77	0.00	0.00
28.00	5.50	2.77	0.00	0.00
30.00	5.50	2.77	0.00	0.00
32.00	5.50	2.77	0.00	0.00
34.00	5.50	2.77	0.00	0.00
36.00	5.50	2.77	0.00	0.00
38.00	5.50	2.77	0.00	0.00
40.00	5.50	2.77	0.00	0.00
42.00	5.50	2.77	0.00	0.00
44.00	5.50	2.77	0.00	0.00
46.00	5.50	2.77	0.00	0.00
48.00	5.50	2.77	0.00	0.00
50.00	5.50	2.77	0.00	0.00
52.00	5.50	2.77	0.00	0.00
54.00	5.50	2.77	0.00	0.00
56.00	5.50	2.77	0.00	0.00
58.00	5.50	2.77	0.00	0.00
60.00	5.50	2.77	0.00	0.00
62.00	5.50	2.77	0.00	0.00
64.00	5.50	2.77	0.00	0.00
66.00	5.50	2.77	0.00	0.00
68.00	5.50	2.77	0.00	0.00
70.00	5.50	2.77	0.00	0.00
72.00	5.50	2.77	0.00	0.00

Summary for Subcatchment 5B: Post DA-5B

Runoff = 4.38 cfs @ 12.37 hrs, Volume= 25,440 cf, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

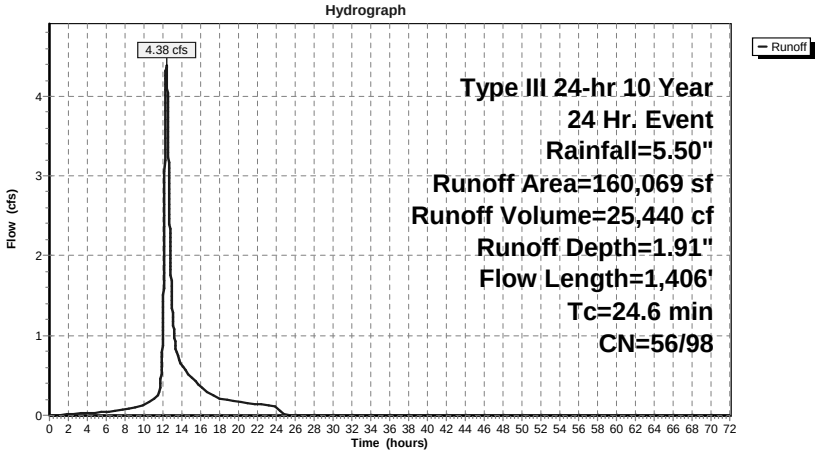
	Area (sf)	CN	Description	Land Use
	380	98	Roofs, HSG B	Roofs
	126,239	55	Woods, Good, HSG B	Woods
*	380	96	Gravel roads, HSG B	Roadway
	23,822	98	Paved parking, HSG B	Pavement
	9,248	61	>75% Grass cover, Good, HSG B	Open Space
	160,069	62	Weighted Average	
	135,867	56	84.88% Pervious Area	
	24,202	98	15.12% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.9	100	0.0870	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
0.6	50	0.0870	1.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	146	0.5800	3.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	110	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	1,000	0.0337	11.46	35.99	**Pipe Channel, Confirm Pipe Size** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015 Concrete sewer w/manholes & inlets
24.6	1,406	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 15.12% Impervious, Rv= 0.186, Runoff= 8.50"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,248	Open Space	246.29	0.86	3.72	0.50
23,822	Pavement	182.32	0.59	2.21	7.06
380	Roadway	2.91	0.01	0.04	0.11
380	Roofs	0.32	0.00	0.03	0.12
126,239	Woods	206.63	0.00	0.00	6.87
160,069	Total	638.47	1.46	6.00	14.67

Subcatchment 5B: Post DA-5B



Hydrograph for Subcatchment 5B: Post DA-5B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.03
6.00	0.40	0.00	0.23	0.04
8.00	0.63	0.00	0.43	0.07
10.00	1.04	0.00	0.83	0.13
12.00	2.75	0.15	2.52	**1.11**
14.00	4.46	0.78	4.22	**0.63**
16.00	4.87	0.98	4.64	0.36
18.00	5.10	1.10	4.87	0.22
20.00	5.26	1.18	5.03	0.17
22.00	5.39	1.25	5.16	0.14
24.00	**5.50**	**1.31**	**5.26**	0.11
26.00	5.50	1.31	5.26	0.00
28.00	5.50	1.31	5.26	0.00
30.00	5.50	1.31	5.26	0.00
32.00	5.50	1.31	5.26	0.00
34.00	5.50	1.31	5.26	0.00
36.00	5.50	1.31	5.26	0.00
38.00	5.50	1.31	5.26	0.00
40.00	5.50	1.31	5.26	0.00
42.00	5.50	1.31	5.26	0.00
44.00	5.50	1.31	5.26	0.00
46.00	5.50	1.31	5.26	0.00
48.00	5.50	1.31	5.26	0.00
50.00	5.50	1.31	5.26	0.00
52.00	5.50	1.31	5.26	0.00
54.00	5.50	1.31	5.26	0.00
56.00	5.50	1.31	5.26	0.00
58.00	5.50	1.31	5.26	0.00
60.00	5.50	1.31	5.26	0.00
62.00	5.50	1.31	5.26	0.00
64.00	5.50	1.31	5.26	0.00
66.00	5.50	1.31	5.26	0.00
68.00	5.50	1.31	5.26	0.00
70.00	5.50	1.31	5.26	0.00
72.00	5.50	1.31	5.26	0.00

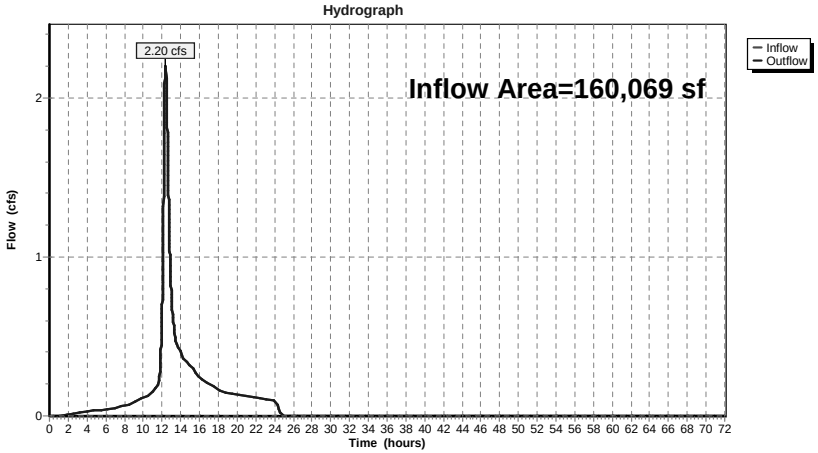
Summary for Reach DP1: DP1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 160,069 sf, 15.12% Impervious, Inflow Depth = 1.23" for 10 Year, 24 Hr. Event event
Inflow = 2.20 cfs @ 12.37 hrs, Volume= 16,375 cf
Outflow = 2.20 cfs @ 12.37 hrs, Volume= 16,375 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP1: DP1



Hydrograph for Reach DP1: DP1

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.02		0.02	55.00	0.00		0.00
4.00	0.03		0.03	56.00	0.00		0.00
5.00	0.03		0.03	57.00	0.00		0.00
6.00	0.04		0.04	58.00	0.00		0.00
7.00	0.05		0.05	59.00	0.00		0.00
8.00	0.07		0.07	60.00	0.00		0.00
9.00	0.09		0.09	61.00	0.00		0.00
10.00	0.11		0.11	62.00	0.00		0.00
11.00	0.15		0.15	63.00	0.00		0.00
12.00	**0.64**		**0.64**	64.00	0.00		0.00
13.00	**0.75**		**0.75**	65.00	0.00		0.00
14.00	0.40		0.40	66.00	0.00		0.00
15.00	0.31		0.31	67.00	0.00		0.00
16.00	0.25		0.25	68.00	0.00		0.00
17.00	0.20		0.20	69.00	0.00		0.00
18.00	0.16		0.16	70.00	0.00		0.00
19.00	0.14		0.14	71.00	0.00		0.00
20.00	0.13		0.13	72.00	0.00		0.00
21.00	0.12		0.12				
22.00	0.12		0.12				
23.00	0.11		0.11				
24.00	0.10		0.10				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP2: DP2

[57] Hint: Peaked at 677.81' (Flood elevation advised)

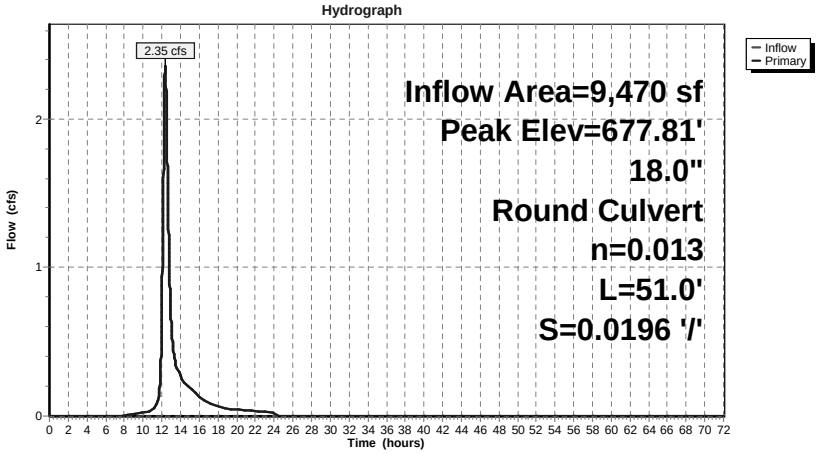
Inflow Area = 9,470 sf, 0.00% Impervious, Inflow Depth = 13.17" for 10 Year, 24 Hr. Event event
Inflow = 2.35 cfs @ 12.35 hrs, Volume= 10,390 cf
Outflow = 2.35 cfs @ 12.35 hrs, Volume= 10,390 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.35 cfs @ 12.35 hrs, Volume= 10,390 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 677.81' @ 12.35 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	677.00'	**18.0" Round Culvert** L= 51.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 677.00' / 676.00' S= 0.0196 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.35 cfs @ 12.35 hrs HW=677.81' (Free Discharge)
1=Culvert (Inlet Controls 2.35 cfs @ 2.42 fps)

Pond DP2: DP2



Hydrograph for Pond DP2: DP2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	677.00	0.00	52.00	0.00	677.00	0.00
1.00	0.00	677.00	0.00	53.00	0.00	677.00	0.00
2.00	0.00	677.00	0.00	54.00	0.00	677.00	0.00
3.00	0.00	677.00	0.00	55.00	0.00	677.00	0.00
4.00	0.00	677.00	0.00	56.00	0.00	677.00	0.00
5.00	0.00	677.00	0.00	57.00	0.00	677.00	0.00
6.00	0.00	677.00	0.00	58.00	0.00	677.00	0.00
7.00	0.00	677.01	0.00	59.00	0.00	677.00	0.00
8.00	0.00	677.03	0.00	60.00	0.00	677.00	0.00
9.00	0.01	677.05	0.01	61.00	0.00	677.00	0.00
10.00	0.02	677.07	0.02	62.00	0.00	677.00	0.00
11.00	0.04	677.10	0.04	63.00	0.00	677.00	0.00
12.00	**0.70**	**677.42**	**0.70**	64.00	0.00	677.00	0.00
13.00	**0.63**	**677.39**	**0.63**	65.00	0.00	677.00	0.00
14.00	0.27	677.26	0.27	66.00	0.00	677.00	0.00
15.00	0.19	677.21	0.19	67.00	0.00	677.00	0.00
16.00	0.13	677.17	0.13	68.00	0.00	677.00	0.00
17.00	0.09	677.15	0.09	69.00	0.00	677.00	0.00
18.00	0.06	677.12	0.06	70.00	0.00	677.00	0.00
19.00	0.05	677.11	0.05	71.00	0.00	677.00	0.00
20.00	0.04	677.10	0.04	72.00	0.00	677.00	0.00
21.00	0.04	677.09	0.04				
22.00	0.03	677.09	0.03				
23.00	0.03	677.08	0.03				
24.00	0.02	677.07	0.02				
25.00	0.00	677.00	0.00				
26.00	0.00	677.00	0.00				
27.00	0.00	677.00	0.00				
28.00	0.00	677.00	0.00				
29.00	0.00	677.00	0.00				
30.00	0.00	677.00	0.00				
31.00	0.00	677.00	0.00				
32.00	0.00	677.00	0.00				
33.00	0.00	677.00	0.00				
34.00	0.00	677.00	0.00				
35.00	0.00	677.00	0.00				
36.00	0.00	677.00	0.00				
37.00	0.00	677.00	0.00				
38.00	0.00	677.00	0.00				
39.00	0.00	677.00	0.00				
40.00	0.00	677.00	0.00				
41.00	0.00	677.00	0.00				
42.00	0.00	677.00	0.00				
43.00	0.00	677.00	0.00				
44.00	0.00	677.00	0.00				
45.00	0.00	677.00	0.00				
46.00	0.00	677.00	0.00				
47.00	0.00	677.00	0.00				
48.00	0.00	677.00	0.00				
49.00	0.00	677.00	0.00				
50.00	0.00	677.00	0.00				
51.00	0.00	677.00	0.00				

Summary for Pond DP3: DP3

[57] Hint: Peaked at 632.04' (Flood elevation advised)

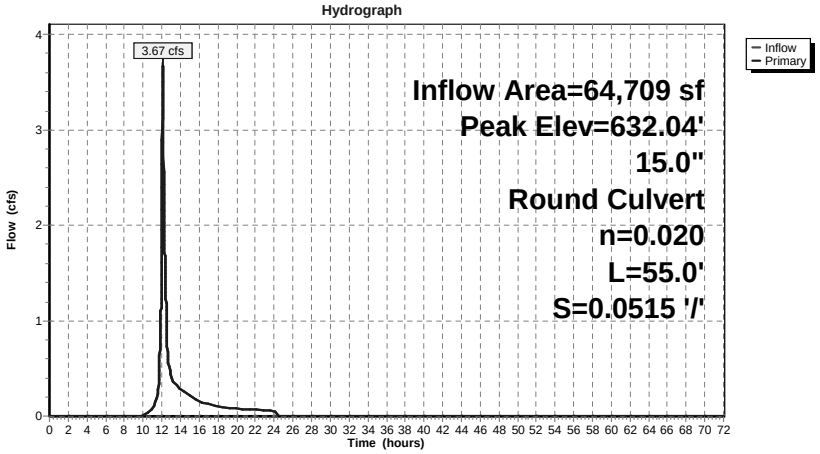
Inflow Area = 64,709 sf, 0.00% Impervious, Inflow Depth = 2.16" for 10 Year, 24 Hr. Event event
Inflow = 3.67 cfs @ 12.09 hrs, Volume= 11,644 cf
Outflow = 3.67 cfs @ 12.09 hrs, Volume= 11,644 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.67 cfs @ 12.09 hrs, Volume= 11,644 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 632.04' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	630.80'	**15.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 630.80' / 627.97' S= 0.0515 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=3.66 cfs @ 12.09 hrs HW=632.04' (Free Discharge)
1=Culvert (Inlet Controls 3.66 cfs @ 2.99 fps)

Pond DP3: DP3



Hydrograph for Pond DP3: DP3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	630.80	0.00	52.00	0.00	630.80	0.00
1.00	0.00	630.80	0.00	53.00	0.00	630.80	0.00
2.00	0.00	630.80	0.00	54.00	0.00	630.80	0.00
3.00	0.00	630.80	0.00	55.00	0.00	630.80	0.00
4.00	0.00	630.80	0.00	56.00	0.00	630.80	0.00
5.00	0.00	630.80	0.00	57.00	0.00	630.80	0.00
6.00	0.00	630.80	0.00	58.00	0.00	630.80	0.00
7.00	0.00	630.80	0.00	59.00	0.00	630.80	0.00
8.00	0.00	630.80	0.00	60.00	0.00	630.80	0.00
9.00	0.00	630.80	0.00	61.00	0.00	630.80	0.00
10.00	0.00	630.83	0.00	62.00	0.00	630.80	0.00
11.00	0.08	630.94	0.08	63.00	0.00	630.80	0.00
12.00	**1.95**	**631.59**	**1.95**	64.00	0.00	630.80	0.00
13.00	**0.42**	**631.14**	**0.42**	65.00	0.00	630.80	0.00
14.00	0.28	631.07	0.28	66.00	0.00	630.80	0.00
15.00	0.21	631.04	0.21	67.00	0.00	630.80	0.00
16.00	0.15	631.00	0.15	68.00	0.00	630.80	0.00
17.00	0.12	630.98	0.12	69.00	0.00	630.80	0.00
18.00	0.10	630.96	0.10	70.00	0.00	630.80	0.00
19.00	0.09	630.95	0.09	71.00	0.00	630.80	0.00
20.00	0.08	630.94	0.08	72.00	0.00	630.80	0.00
21.00	0.07	630.94	0.07				
22.00	0.06	630.93	0.06				
23.00	0.06	630.92	0.06				
24.00	0.05	630.92	0.05				
25.00	0.00	630.80	0.00				
26.00	0.00	630.80	0.00				
27.00	0.00	630.80	0.00				
28.00	0.00	630.80	0.00				
29.00	0.00	630.80	0.00				
30.00	0.00	630.80	0.00				
31.00	0.00	630.80	0.00				
32.00	0.00	630.80	0.00				
33.00	0.00	630.80	0.00				
34.00	0.00	630.80	0.00				
35.00	0.00	630.80	0.00				
36.00	0.00	630.80	0.00				
37.00	0.00	630.80	0.00				
38.00	0.00	630.80	0.00				
39.00	0.00	630.80	0.00				
40.00	0.00	630.80	0.00				
41.00	0.00	630.80	0.00				
42.00	0.00	630.80	0.00				
43.00	0.00	630.80	0.00				
44.00	0.00	630.80	0.00				
45.00	0.00	630.80	0.00				
46.00	0.00	630.80	0.00				
47.00	0.00	630.80	0.00				
48.00	0.00	630.80	0.00				
49.00	0.00	630.80	0.00				
50.00	0.00	630.80	0.00				
51.00	0.00	630.80	0.00				

Summary for Pond DP4: DP4

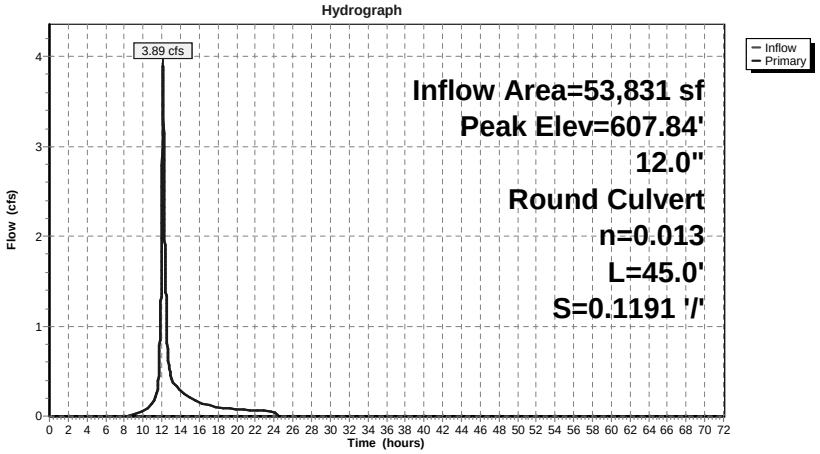
Inflow Area = 53,831 sf, 0.00% Impervious, Inflow Depth = 2.86" for 10 Year, 24 Hr. Event event
Inflow = 3.89 cfs @ 12.11 hrs, Volume= 12,832 cf
Outflow = 3.89 cfs @ 12.11 hrs, Volume= 12,832 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.89 cfs @ 12.11 hrs, Volume= 12,832 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 607.84' @ 12.11 hrs
Flood Elev= 608.79'

Device	Routing	Invert	Outlet Devices
#1	Primary	605.64'	**12.0" Round Culvert** L= 45.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 605.64' / 600.28' S= 0.1191 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=3.89 cfs @ 12.11 hrs HW=607.83' (Free Discharge)
1=Culvert (Inlet Controls 3.89 cfs @ 4.95 fps)

Pond DP4: DP4



Hydrograph for Pond DP4: DP4

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	605.64	0.00	52.00	0.00	605.64	0.00
1.00	0.00	605.64	0.00	53.00	0.00	605.64	0.00
2.00	0.00	605.64	0.00	54.00	0.00	605.64	0.00
3.00	0.00	605.64	0.00	55.00	0.00	605.64	0.00
4.00	0.00	605.64	0.00	56.00	0.00	605.64	0.00
5.00	0.00	605.64	0.00	57.00	0.00	605.64	0.00
6.00	0.00	605.64	0.00	58.00	0.00	605.64	0.00
7.00	0.00	605.64	0.00	59.00	0.00	605.64	0.00
8.00	0.00	605.64	0.00	60.00	0.00	605.64	0.00
9.00	0.02	605.71	0.02	61.00	0.00	605.64	0.00
10.00	0.06	605.77	0.06	62.00	0.00	605.64	0.00
11.00	0.15	605.85	0.15	63.00	0.00	605.64	0.00
12.00	**1.98**	**606.57**	**1.98**	64.00	0.00	605.64	0.00
13.00	**0.44**	**606.01**	**0.44**	65.00	0.00	605.64	0.00
14.00	0.28	605.93	0.28	66.00	0.00	605.64	0.00
15.00	0.21	605.89	0.21	67.00	0.00	605.64	0.00
16.00	0.15	605.85	0.15	68.00	0.00	605.64	0.00
17.00	0.12	605.83	0.12	69.00	0.00	605.64	0.00
18.00	0.09	605.81	0.09	70.00	0.00	605.64	0.00
19.00	0.08	605.80	0.08	71.00	0.00	605.64	0.00
20.00	0.07	605.79	0.07	72.00	0.00	605.64	0.00
21.00	0.07	605.78	0.07				
22.00	0.06	605.77	0.06				
23.00	0.06	605.77	0.06				
24.00	0.05	605.76	0.05				
25.00	0.00	605.64	0.00				
26.00	0.00	605.64	0.00				
27.00	0.00	605.64	0.00				
28.00	0.00	605.64	0.00				
29.00	0.00	605.64	0.00				
30.00	0.00	605.64	0.00				
31.00	0.00	605.64	0.00				
32.00	0.00	605.64	0.00				
33.00	0.00	605.64	0.00				
34.00	0.00	605.64	0.00				
35.00	0.00	605.64	0.00				
36.00	0.00	605.64	0.00				
37.00	0.00	605.64	0.00				
38.00	0.00	605.64	0.00				
39.00	0.00	605.64	0.00				
40.00	0.00	605.64	0.00				
41.00	0.00	605.64	0.00				
42.00	0.00	605.64	0.00				
43.00	0.00	605.64	0.00				
44.00	0.00	605.64	0.00				
45.00	0.00	605.64	0.00				
46.00	0.00	605.64	0.00				
47.00	0.00	605.64	0.00				
48.00	0.00	605.64	0.00				
49.00	0.00	605.64	0.00				
50.00	0.00	605.64	0.00				
51.00	0.00	605.64	0.00				

Summary for Pond DP5: DP5

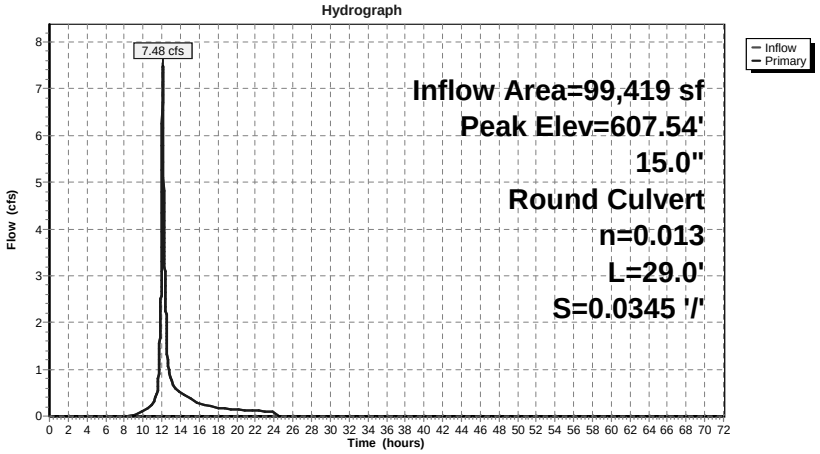
Inflow Area = 99,419 sf, 0.00% Impervious, Inflow Depth = 2.77" for 10 Year, 24 Hr. Event event
Inflow = 7.48 cfs @ 12.09 hrs, Volume= 22,942 cf
Outflow = 7.48 cfs @ 12.09 hrs, Volume= 22,942 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.48 cfs @ 12.09 hrs, Volume= 22,942 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 607.54' @ 12.09 hrs
Flood Elev= 609.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	604.34'	**15.0" Round Culvert** L= 29.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 604.34' / 603.34' S= 0.0345 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=7.47 cfs @ 12.09 hrs HW=607.53' (Free Discharge)
↑—1=Culvert (Inlet Controls 7.47 cfs @ 6.09 fps)

Pond DP5: DP5



Hydrograph for Pond DP5: DP5

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	604.34	0.00	52.00	0.00	604.34	0.00
1.00	0.00	604.34	0.00	53.00	0.00	604.34	0.00
2.00	0.00	604.34	0.00	54.00	0.00	604.34	0.00
3.00	0.00	604.34	0.00	55.00	0.00	604.34	0.00
4.00	0.00	604.34	0.00	56.00	0.00	604.34	0.00
5.00	0.00	604.34	0.00	57.00	0.00	604.34	0.00
6.00	0.00	604.34	0.00	58.00	0.00	604.34	0.00
7.00	0.00	604.34	0.00	59.00	0.00	604.34	0.00
8.00	0.00	604.34	0.00	60.00	0.00	604.34	0.00
9.00	0.02	604.41	0.02	61.00	0.00	604.34	0.00
10.00	0.10	604.50	0.10	62.00	0.00	604.34	0.00
11.00	0.25	604.60	0.25	63.00	0.00	604.34	0.00
12.00	**4.34**	**605.83**	**4.34**	64.00	0.00	604.34	0.00
13.00	**0.76**	**604.80**	**0.76**	65.00	0.00	604.34	0.00
14.00	0.49	604.71	0.49	66.00	0.00	604.34	0.00
15.00	0.38	604.66	0.38	67.00	0.00	604.34	0.00
16.00	0.27	604.61	0.27	68.00	0.00	604.34	0.00
17.00	0.22	604.58	0.22	69.00	0.00	604.34	0.00
18.00	0.17	604.55	0.17	70.00	0.00	604.34	0.00
19.00	0.15	604.54	0.15	71.00	0.00	604.34	0.00
20.00	0.13	604.53	0.13	72.00	0.00	604.34	0.00
21.00	0.12	604.52	0.12				
22.00	0.11	604.51	0.11				
23.00	0.10	604.50	0.10				
24.00	0.09	604.49	0.09				
25.00	0.00	604.34	0.00				
26.00	0.00	604.34	0.00				
27.00	0.00	604.34	0.00				
28.00	0.00	604.34	0.00				
29.00	0.00	604.34	0.00				
30.00	0.00	604.34	0.00				
31.00	0.00	604.34	0.00				
32.00	0.00	604.34	0.00				
33.00	0.00	604.34	0.00				
34.00	0.00	604.34	0.00				
35.00	0.00	604.34	0.00				
36.00	0.00	604.34	0.00				
37.00	0.00	604.34	0.00				
38.00	0.00	604.34	0.00				
39.00	0.00	604.34	0.00				
40.00	0.00	604.34	0.00				
41.00	0.00	604.34	0.00				
42.00	0.00	604.34	0.00				
43.00	0.00	604.34	0.00				
44.00	0.00	604.34	0.00				
45.00	0.00	604.34	0.00				
46.00	0.00	604.34	0.00				
47.00	0.00	604.34	0.00				
48.00	0.00	604.34	0.00				
49.00	0.00	604.34	0.00				
50.00	0.00	604.34	0.00				
51.00	0.00	604.34	0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 1: CB - split flow btwn DP1 and DP2 Peak Elev=709.86' Inflow=5.23 cfs 29,695 cf
Primary=2.59 cfs 18,641 cf Secondary=2.64 cfs 11,054 cf Outflow=5.23 cfs 29,695 cf

Subcatchment 2: Post DA- 2 Runoff Area=9,470 sf 0.00% Impervious Runoff Depth=2.01"
Tc=5.0 min CN=61/0 Runoff=0.51 cfs 1,583 cf

Subcatchment 3: Post DA-3 Runoff Area=64,709 sf 0.00% Impervious Runoff Depth=2.53"
Flow Length=430' Tc=6.1 min CN=67/0 Runoff=4.33 cfs 13,643 cf

Subcatchment 4: Post DA-4 Runoff Area=53,831 sf 0.00% Impervious Runoff Depth=3.28"
Flow Length=374' Tc=7.8 min CN=75/0 Runoff=4.47 cfs 14,723 cf

Subcatchment 5A: Post DA-5A Runoff Area=99,419 sf 0.00% Impervious Runoff Depth=3.18"
Flow Length=172' Tc=5.7 min CN=74/0 Runoff=8.62 cfs 26,386 cf

Subcatchment 5B: Post DA-5B Runoff Area=160,069 sf 15.12% Impervious Runoff Depth=2.23"
Flow Length=1,406' Tc=24.6 min CN=56/98 Runoff=5.23 cfs 29,695 cf

Reach DP1: DP1 Inflow=2.59 cfs 18,641 cf
Outflow=2.59 cfs 18,641 cf

Pond DP2: DP2 Peak Elev=677.90' Inflow=2.85 cfs 12,636 cf
18.0" Round Culvert n=0.013 L=51.0' S=0.0196 '/' Outflow=2.85 cfs 12,636 cf

Pond DP3: DP3 Peak Elev=632.29' Inflow=4.33 cfs 13,643 cf
15.0" Round Culvert n=0.020 L=55.0' S=0.0515 '/' Outflow=4.33 cfs 13,643 cf

Pond DP4: DP4 Peak Elev=608.38' Inflow=4.47 cfs 14,723 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.1191 '/' Outflow=4.47 cfs 14,723 cf

Pond DP5: DP5 Peak Elev=608.38' Inflow=8.62 cfs 26,386 cf
15.0" Round Culvert n=0.013 L=29.0' S=0.0345 '/' Outflow=8.62 cfs 26,386 cf

Total Runoff Area = 387,498 sf Runoff Volume = 86,030 cf Average Runoff Depth = 2.66"
93.75% Pervious = 363,296 sf 6.25% Impervious = 24,202 sf

Summary for Pond 1: CB - split flow btwn DP1 and DP2

[57] Hint: Peaked at 709.86' (Flood elevation advised)

Inflow Area =	160,069 sf,	15.12% Impervious,	Inflow Depth =	2.23"	for 25 Year, 24 Hr. Event event
Inflow =	5.23 cfs @	12.36 hrs,	Volume=	29,695 cf	
Outflow =	5.23 cfs @	12.36 hrs,	Volume=	29,695 cf,	Atten= 0%, Lag= 0.0 min
Primary =	2.59 cfs @	12.36 hrs,	Volume=	18,641 cf	
Secondary =	2.64 cfs @	12.36 hrs,	Volume=	11,054 cf	

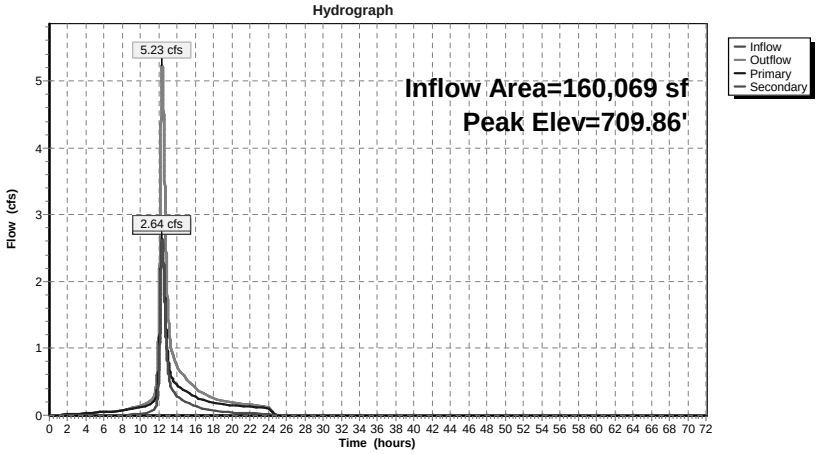
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 709.86' @ 12.36 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	709.00'	**18.0" Round Culvert** L= 88.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 709.00' / 708.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Secondary	709.10'	**18.0" Round Culvert** L= 290.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 709.10' / 678.60' S= 0.1052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.59 cfs @ 12.36 hrs HW=709.86' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 2.59 cfs @ 2.49 fps)

Secondary OutFlow Max=2.64 cfs @ 12.36 hrs HW=709.86' TW=677.90' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 2.64 cfs @ 2.96 fps)

Pond 1: CB - split flow btwn DP1 and DP2



Hydrograph for Pond 1: CB - split flow btwn DP1 and DP2

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	709.00	0.00	0.00	0.00
2.00	0.01	709.05	0.01	0.01	0.00
4.00	0.03	709.08	0.03	0.03	0.00
6.00	0.04	709.10	0.04	0.04	0.00
8.00	0.08	709.13	0.08	0.07	0.00
10.00	0.15	709.17	0.15	0.12	0.03
12.00	**1.39**	**709.44**	**1.39**	**0.78**	**0.61**
14.00	**0.73**	**709.33**	**0.73**	**0.45**	**0.28**
16.00	0.41	709.26	0.41	0.28	0.13
18.00	0.25	709.21	0.25	0.18	0.06
20.00	0.19	709.19	0.19	0.15	0.04
22.00	0.16	709.17	0.16	0.13	0.03
24.00	0.13	709.16	0.13	0.11	0.02
26.00	0.00	709.00	0.00	0.00	0.00
28.00	0.00	709.00	0.00	0.00	0.00
30.00	0.00	709.00	0.00	0.00	0.00
32.00	0.00	709.00	0.00	0.00	0.00
34.00	0.00	709.00	0.00	0.00	0.00
36.00	0.00	709.00	0.00	0.00	0.00
38.00	0.00	709.00	0.00	0.00	0.00
40.00	0.00	709.00	0.00	0.00	0.00
42.00	0.00	709.00	0.00	0.00	0.00
44.00	0.00	709.00	0.00	0.00	0.00
46.00	0.00	709.00	0.00	0.00	0.00
48.00	0.00	709.00	0.00	0.00	0.00
50.00	0.00	709.00	0.00	0.00	0.00
52.00	0.00	709.00	0.00	0.00	0.00
54.00	0.00	709.00	0.00	0.00	0.00
56.00	0.00	709.00	0.00	0.00	0.00
58.00	0.00	709.00	0.00	0.00	0.00
60.00	0.00	709.00	0.00	0.00	0.00
62.00	0.00	709.00	0.00	0.00	0.00
64.00	0.00	709.00	0.00	0.00	0.00
66.00	0.00	709.00	0.00	0.00	0.00
68.00	0.00	709.00	0.00	0.00	0.00
70.00	0.00	709.00	0.00	0.00	0.00
72.00	0.00	709.00	0.00	0.00	0.00

Summary for Subcatchment 2: Post DA- 2

Runoff = 0.51 cfs @ 12.08 hrs, Volume= 1,583 cf, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

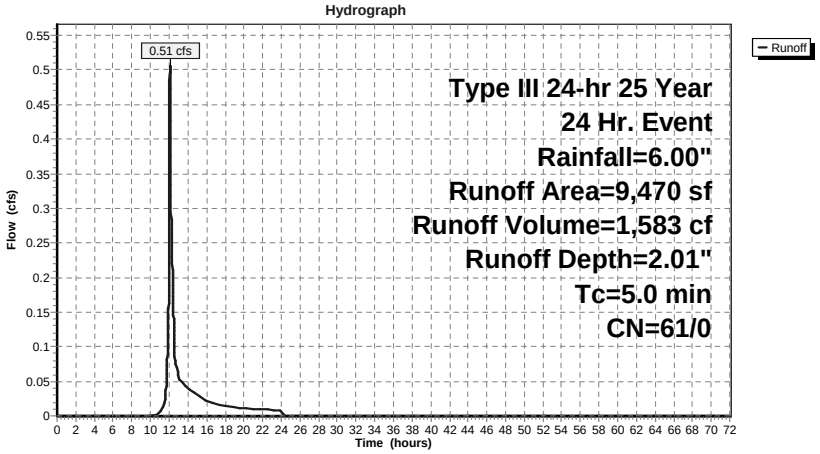
Area (sf)	CN	Description	Land Use
9,470	61	>75% Grass cover, Good, HSG B	Open Space
9,470	61	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,470	Open Space	67.77	0.24	1.02	0.14
9,470	Total	67.77	0.24	1.02	0.14

Subcatchment 2: Post DA- 2



Hydrograph for Subcatchment 2: Post DA- 2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.00	0.00	0.00
12.00	3.00	0.37	0.00	**0.29**
14.00	4.87	1.29	0.00	**0.04**
16.00	5.32	1.56	0.00	0.02
18.00	5.57	1.72	0.00	0.01
20.00	5.74	1.83	0.00	0.01
22.00	5.88	1.93	0.00	0.01
24.00	**6.00**	**2.01**	0.00	0.01
26.00	6.00	2.01	0.00	0.00
28.00	6.00	2.01	0.00	0.00
30.00	6.00	2.01	0.00	0.00
32.00	6.00	2.01	0.00	0.00
34.00	6.00	2.01	0.00	0.00
36.00	6.00	2.01	0.00	0.00
38.00	6.00	2.01	0.00	0.00
40.00	6.00	2.01	0.00	0.00
42.00	6.00	2.01	0.00	0.00
44.00	6.00	2.01	0.00	0.00
46.00	6.00	2.01	0.00	0.00
48.00	6.00	2.01	0.00	0.00
50.00	6.00	2.01	0.00	0.00
52.00	6.00	2.01	0.00	0.00
54.00	6.00	2.01	0.00	0.00
56.00	6.00	2.01	0.00	0.00
58.00	6.00	2.01	0.00	0.00
60.00	6.00	2.01	0.00	0.00
62.00	6.00	2.01	0.00	0.00
64.00	6.00	2.01	0.00	0.00
66.00	6.00	2.01	0.00	0.00
68.00	6.00	2.01	0.00	0.00
70.00	6.00	2.01	0.00	0.00
72.00	6.00	2.01	0.00	0.00

Summary for Subcatchment 3: Post DA-3

Runoff = 4.33 cfs @ 12.09 hrs, Volume= 13,643 cf, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

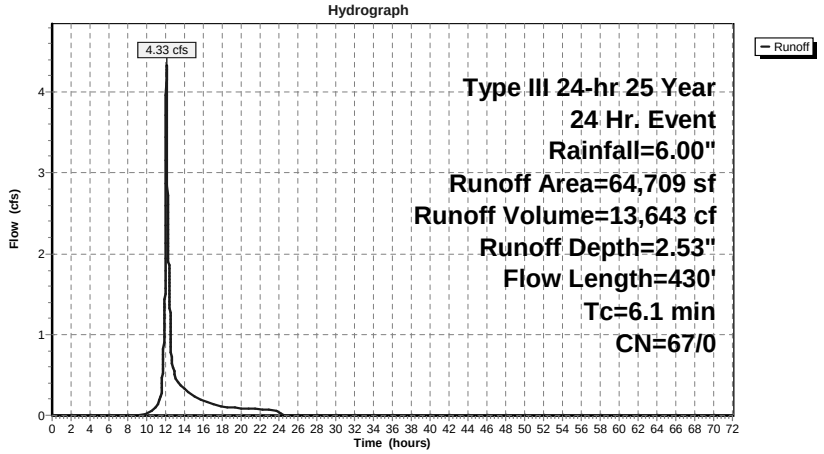
Area (sf)	CN	Description	Land Use
36,773	61	>75% Grass cover, Good, HSG B	Open Space
27,936	74	>75% Grass cover, Good, HSG C	Open Space
64,709	67	Weighted Average	
64,709	67	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	72	0.2500	0.31		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.2	312	0.1180	2.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	46	0.0870	11.87	14.57	**Pipe Channel, Existing Pipe** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Concrete sewer w/manholes & inlets
6.1	430	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
64,709	Open Space	463.07	1.62	7.00	0.95
64,709	Total	463.07	1.62	7.00	0.95

Subcatchment 3: Post DA-3



Hydrograph for Subcatchment 3: Post DA-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.00	0.00	0.02
12.00	3.00	0.58	0.00	**2.34**
14.00	4.87	1.71	0.00	**0.32**
16.00	5.32	2.03	0.00	0.17
18.00	5.57	2.21	0.00	0.11
20.00	5.74	2.34	0.00	0.09
22.00	5.88	2.44	0.00	0.07
24.00	**6.00**	**2.53**	0.00	0.06
26.00	6.00	2.53	0.00	0.00
28.00	6.00	2.53	0.00	0.00
30.00	6.00	2.53	0.00	0.00
32.00	6.00	2.53	0.00	0.00
34.00	6.00	2.53	0.00	0.00
36.00	6.00	2.53	0.00	0.00
38.00	6.00	2.53	0.00	0.00
40.00	6.00	2.53	0.00	0.00
42.00	6.00	2.53	0.00	0.00
44.00	6.00	2.53	0.00	0.00
46.00	6.00	2.53	0.00	0.00
48.00	6.00	2.53	0.00	0.00
50.00	6.00	2.53	0.00	0.00
52.00	6.00	2.53	0.00	0.00
54.00	6.00	2.53	0.00	0.00
56.00	6.00	2.53	0.00	0.00
58.00	6.00	2.53	0.00	0.00
60.00	6.00	2.53	0.00	0.00
62.00	6.00	2.53	0.00	0.00
64.00	6.00	2.53	0.00	0.00
66.00	6.00	2.53	0.00	0.00
68.00	6.00	2.53	0.00	0.00
70.00	6.00	2.53	0.00	0.00
72.00	6.00	2.53	0.00	0.00

Summary for Subcatchment 4: Post DA-4

Runoff = 4.47 cfs @ 12.11 hrs, Volume= 14,723 cf, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

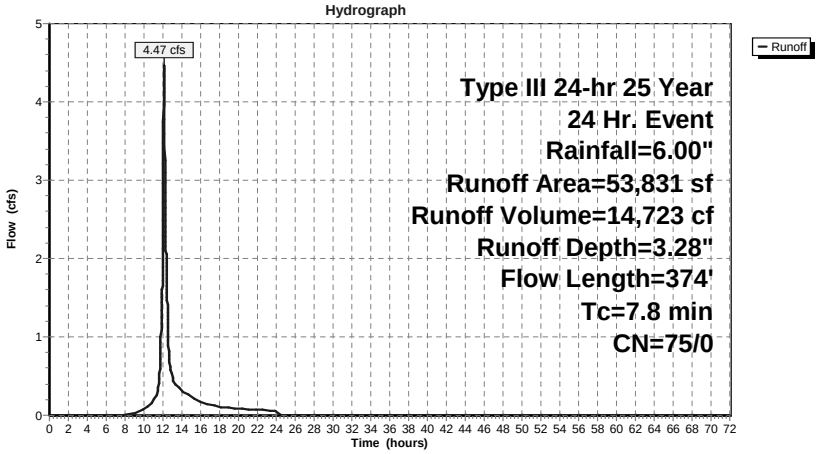
	Area (sf)	CN	Description	Land Use
	52,124	74	>75% Grass cover, Good, HSG C	Open Space
*	1,707	96	Gravel roads, HSG C	Roadway
	53,831	75	Weighted Average	
	53,831	75	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	85	0.1640	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.9	15	0.3630	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	84	0.3630	4.22		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	190	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.8	374	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
52,124	Open Space	373.01	1.30	5.64	0.76
1,707	Roadway	3.51	0.01	0.04	0.14
53,831	Total	376.52	1.31	5.68	0.90

Subcatchment 4: Post DA-4



Hydrograph for Subcatchment 4: Post DA-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.06	0.00	0.08
12.00	3.00	0.96	0.00	**2.30**
14.00	4.87	2.34	0.00	**0.31**
16.00	5.32	2.71	0.00	0.17
18.00	5.57	2.92	0.00	0.10
20.00	5.74	3.06	0.00	0.08
22.00	5.88	3.18	0.00	0.07
24.00	**6.00**	**3.28**	0.00	0.06
26.00	6.00	3.28	0.00	0.00
28.00	6.00	3.28	0.00	0.00
30.00	6.00	3.28	0.00	0.00
32.00	6.00	3.28	0.00	0.00
34.00	6.00	3.28	0.00	0.00
36.00	6.00	3.28	0.00	0.00
38.00	6.00	3.28	0.00	0.00
40.00	6.00	3.28	0.00	0.00
42.00	6.00	3.28	0.00	0.00
44.00	6.00	3.28	0.00	0.00
46.00	6.00	3.28	0.00	0.00
48.00	6.00	3.28	0.00	0.00
50.00	6.00	3.28	0.00	0.00
52.00	6.00	3.28	0.00	0.00
54.00	6.00	3.28	0.00	0.00
56.00	6.00	3.28	0.00	0.00
58.00	6.00	3.28	0.00	0.00
60.00	6.00	3.28	0.00	0.00
62.00	6.00	3.28	0.00	0.00
64.00	6.00	3.28	0.00	0.00
66.00	6.00	3.28	0.00	0.00
68.00	6.00	3.28	0.00	0.00
70.00	6.00	3.28	0.00	0.00
72.00	6.00	3.28	0.00	0.00

Summary for Subcatchment 5A: Post DA-5A

Runoff = 8.62 cfs @ 12.09 hrs, Volume= 26,386 cf, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

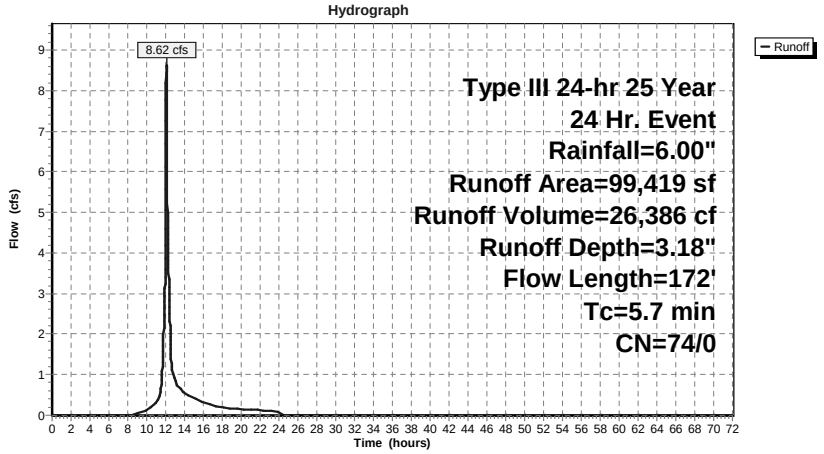
Area (sf)	CN	Description	Land Use
99,419	74	>75% Grass cover, Good, HSG C	Open Space
99,419	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	42	0.2130	0.26		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.8	58	0.3380	0.34		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	72	0.3380	4.07		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.7	172	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
99,419	Open Space	711.46	2.48	10.75	1.45
99,419	Total	711.46	2.48	10.75	1.45

Subcatchment 5A: Post DA-5A



Hydrograph for Subcatchment 5A: Post DA-5A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.05	0.00	0.13
12.00	3.00	0.91	0.00	**5.05**
14.00	4.87	2.26	0.00	**0.56**
16.00	5.32	2.62	0.00	0.30
18.00	5.57	2.83	0.00	0.19
20.00	5.74	2.97	0.00	0.15
22.00	5.88	3.09	0.00	0.13
24.00	**6.00**	**3.18**	0.00	0.10
26.00	6.00	3.18	0.00	0.00
28.00	6.00	3.18	0.00	0.00
30.00	6.00	3.18	0.00	0.00
32.00	6.00	3.18	0.00	0.00
34.00	6.00	3.18	0.00	0.00
36.00	6.00	3.18	0.00	0.00
38.00	6.00	3.18	0.00	0.00
40.00	6.00	3.18	0.00	0.00
42.00	6.00	3.18	0.00	0.00
44.00	6.00	3.18	0.00	0.00
46.00	6.00	3.18	0.00	0.00
48.00	6.00	3.18	0.00	0.00
50.00	6.00	3.18	0.00	0.00
52.00	6.00	3.18	0.00	0.00
54.00	6.00	3.18	0.00	0.00
56.00	6.00	3.18	0.00	0.00
58.00	6.00	3.18	0.00	0.00
60.00	6.00	3.18	0.00	0.00
62.00	6.00	3.18	0.00	0.00
64.00	6.00	3.18	0.00	0.00
66.00	6.00	3.18	0.00	0.00
68.00	6.00	3.18	0.00	0.00
70.00	6.00	3.18	0.00	0.00
72.00	6.00	3.18	0.00	0.00

Summary for Subcatchment 5B: Post DA-5B

Runoff = 5.23 cfs @ 12.36 hrs, Volume= 29,695 cf, Depth= 2.23"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

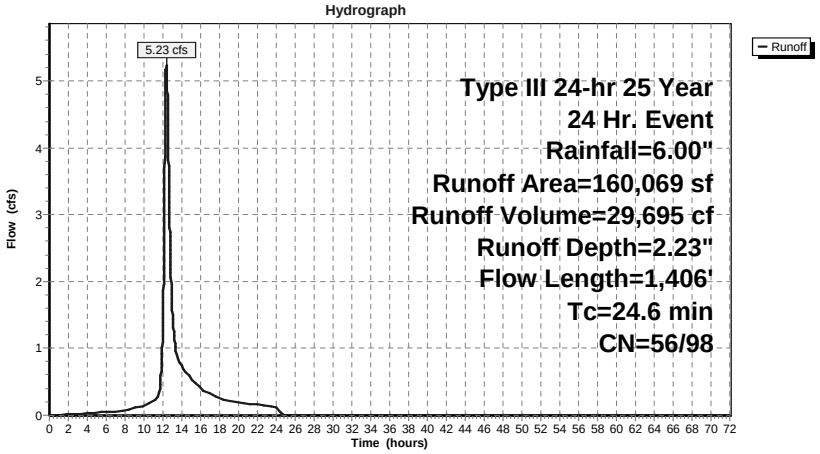
	Area (sf)	CN	Description	Land Use
	380	98	Roofs, HSG B	Roofs
	126,239	55	Woods, Good, HSG B	Woods
*	380	96	Gravel roads, HSG B	Roadway
	23,822	98	Paved parking, HSG B	Pavement
	9,248	61	>75% Grass cover, Good, HSG B	Open Space
	160,069	62	Weighted Average	
	135,867	56	84.88% Pervious Area	
	24,202	98	15.12% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.9	100	0.0870	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
0.6	50	0.0870	1.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	146	0.5800	3.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	110	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	1,000	0.0337	11.46	35.99	**Pipe Channel, Confirm Pipe Size** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015 Concrete sewer w/manholes & inlets
24.6	1,406	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 15.12% Impervious, Rv= 0.186, Runoff= 8.50"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,248	Open Space	246.29	0.86	3.72	0.50
23,822	Pavement	182.32	0.59	2.21	7.06
380	Roadway	2.91	0.01	0.04	0.11
380	Roofs	0.32	0.00	0.03	0.12
126,239	Woods	206.63	0.00	0.00	6.87
160,069	Total	638.47	1.46	6.00	14.67

Subcatchment 5B: Post DA-5B



Hydrograph for Subcatchment 5B: Post DA-5B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.03
6.00	0.43	0.00	0.26	0.04
8.00	0.68	0.00	0.49	0.08
10.00	1.13	0.00	0.92	0.15
12.00	3.00	0.22	2.77	**1.39**
14.00	4.87	0.97	4.63	**0.73**
16.00	5.32	1.21	5.08	0.41
18.00	5.57	1.35	5.33	0.25
20.00	5.74	1.45	5.50	0.19
22.00	5.88	1.53	5.65	0.16
24.00	**6.00**	**1.60**	**5.76**	0.13
26.00	6.00	1.60	5.76	0.00
28.00	6.00	1.60	5.76	0.00
30.00	6.00	1.60	5.76	0.00
32.00	6.00	1.60	5.76	0.00
34.00	6.00	1.60	5.76	0.00
36.00	6.00	1.60	5.76	0.00
38.00	6.00	1.60	5.76	0.00
40.00	6.00	1.60	5.76	0.00
42.00	6.00	1.60	5.76	0.00
44.00	6.00	1.60	5.76	0.00
46.00	6.00	1.60	5.76	0.00
48.00	6.00	1.60	5.76	0.00
50.00	6.00	1.60	5.76	0.00
52.00	6.00	1.60	5.76	0.00
54.00	6.00	1.60	5.76	0.00
56.00	6.00	1.60	5.76	0.00
58.00	6.00	1.60	5.76	0.00
60.00	6.00	1.60	5.76	0.00
62.00	6.00	1.60	5.76	0.00
64.00	6.00	1.60	5.76	0.00
66.00	6.00	1.60	5.76	0.00
68.00	6.00	1.60	5.76	0.00
70.00	6.00	1.60	5.76	0.00
72.00	6.00	1.60	5.76	0.00

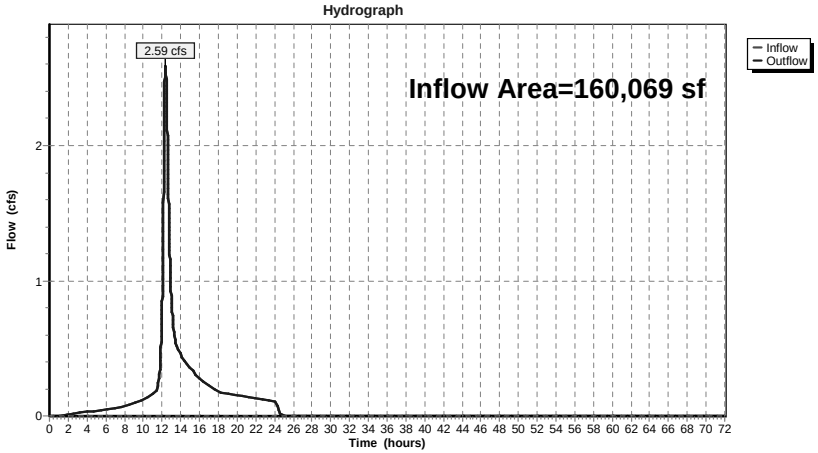
Summary for Reach DP1: DP1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 160,069 sf, 15.12% Impervious, Inflow Depth = 1.40" for 25 Year, 24 Hr. Event event
Inflow = 2.59 cfs @ 12.36 hrs, Volume= 18,641 cf
Outflow = 2.59 cfs @ 12.36 hrs, Volume= 18,641 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP1: DP1



Hydrograph for Reach DP1: DP1

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.02		0.02	55.00	0.00		0.00
4.00	0.03		0.03	56.00	0.00		0.00
5.00	0.04		0.04	57.00	0.00		0.00
6.00	0.04		0.04	58.00	0.00		0.00
7.00	0.06		0.06	59.00	0.00		0.00
8.00	0.07		0.07	60.00	0.00		0.00
9.00	0.09		0.09	61.00	0.00		0.00
10.00	0.12		0.12	62.00	0.00		0.00
11.00	0.16		0.16	63.00	0.00		0.00
12.00	**0.78**		**0.78**	64.00	0.00		0.00
13.00	**0.86**		**0.86**	65.00	0.00		0.00
14.00	0.45		0.45	66.00	0.00		0.00
15.00	0.35		0.35	67.00	0.00		0.00
16.00	0.28		0.28	68.00	0.00		0.00
17.00	0.22		0.22	69.00	0.00		0.00
18.00	0.18		0.18	70.00	0.00		0.00
19.00	0.16		0.16	71.00	0.00		0.00
20.00	0.15		0.15	72.00	0.00		0.00
21.00	0.14		0.14				
22.00	0.13		0.13				
23.00	0.12		0.12				
24.00	0.11		0.11				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP2: DP2

[57] Hint: Peaked at 677.90' (Flood elevation advised)

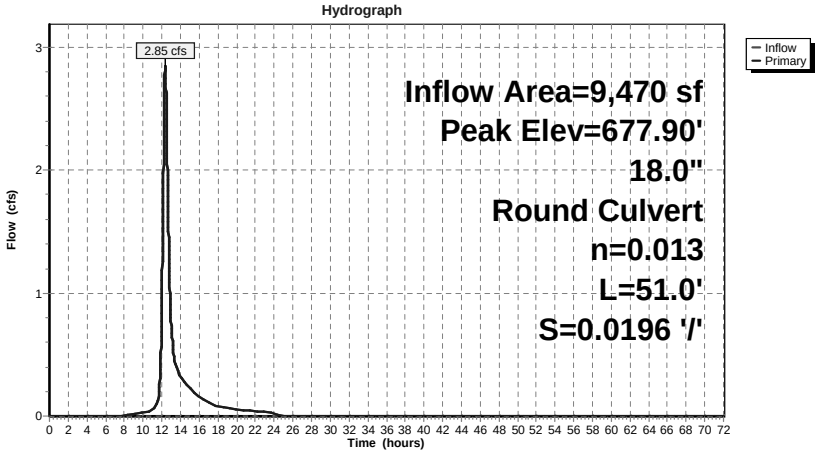
Inflow Area = 9,470 sf, 0.00% Impervious, Inflow Depth = 16.01" for 25 Year, 24 Hr. Event event
Inflow = 2.85 cfs @ 12.35 hrs, Volume= 12,636 cf
Outflow = 2.85 cfs @ 12.35 hrs, Volume= 12,636 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.85 cfs @ 12.35 hrs, Volume= 12,636 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 677.90' @ 12.35 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	677.00'	**18.0" Round Culvert** L= 51.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 677.00' / 676.00' S= 0.0196 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.85 cfs @ 12.35 hrs HW=677.90' (Free Discharge)
1=Culvert (Inlet Controls 2.85 cfs @ 2.56 fps)

Pond DP2: DP2



Hydrograph for Pond DP2: DP2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	677.00	0.00	52.00	0.00	677.00	0.00
1.00	0.00	677.00	0.00	53.00	0.00	677.00	0.00
2.00	0.00	677.00	0.00	54.00	0.00	677.00	0.00
3.00	0.00	677.00	0.00	55.00	0.00	677.00	0.00
4.00	0.00	677.00	0.00	56.00	0.00	677.00	0.00
5.00	0.00	677.00	0.00	57.00	0.00	677.00	0.00
6.00	0.00	677.00	0.00	58.00	0.00	677.00	0.00
7.00	0.00	677.02	0.00	59.00	0.00	677.00	0.00
8.00	0.00	677.03	0.00	60.00	0.00	677.00	0.00
9.00	0.01	677.05	0.01	61.00	0.00	677.00	0.00
10.00	0.03	677.08	0.03	62.00	0.00	677.00	0.00
11.00	0.06	677.11	0.06	63.00	0.00	677.00	0.00
12.00	**0.89**	**677.48**	**0.89**	64.00	0.00	677.00	0.00
13.00	**0.75**	**677.43**	**0.75**	65.00	0.00	677.00	0.00
14.00	0.32	677.28	0.32	66.00	0.00	677.00	0.00
15.00	0.23	677.23	0.23	67.00	0.00	677.00	0.00
16.00	0.16	677.19	0.16	68.00	0.00	677.00	0.00
17.00	0.11	677.16	0.11	69.00	0.00	677.00	0.00
18.00	0.08	677.14	0.08	70.00	0.00	677.00	0.00
19.00	0.06	677.12	0.06	71.00	0.00	677.00	0.00
20.00	0.05	677.11	0.05	72.00	0.00	677.00	0.00
21.00	0.05	677.10	0.05				
22.00	0.04	677.10	0.04				
23.00	0.03	677.09	0.03				
24.00	0.03	677.08	0.03				
25.00	0.00	677.00	0.00				
26.00	0.00	677.00	0.00				
27.00	0.00	677.00	0.00				
28.00	0.00	677.00	0.00				
29.00	0.00	677.00	0.00				
30.00	0.00	677.00	0.00				
31.00	0.00	677.00	0.00				
32.00	0.00	677.00	0.00				
33.00	0.00	677.00	0.00				
34.00	0.00	677.00	0.00				
35.00	0.00	677.00	0.00				
36.00	0.00	677.00	0.00				
37.00	0.00	677.00	0.00				
38.00	0.00	677.00	0.00				
39.00	0.00	677.00	0.00				
40.00	0.00	677.00	0.00				
41.00	0.00	677.00	0.00				
42.00	0.00	677.00	0.00				
43.00	0.00	677.00	0.00				
44.00	0.00	677.00	0.00				
45.00	0.00	677.00	0.00				
46.00	0.00	677.00	0.00				
47.00	0.00	677.00	0.00				
48.00	0.00	677.00	0.00				
49.00	0.00	677.00	0.00				
50.00	0.00	677.00	0.00				
51.00	0.00	677.00	0.00				

Summary for Pond DP3: DP3

[57] Hint: Peaked at 632.29' (Flood elevation advised)

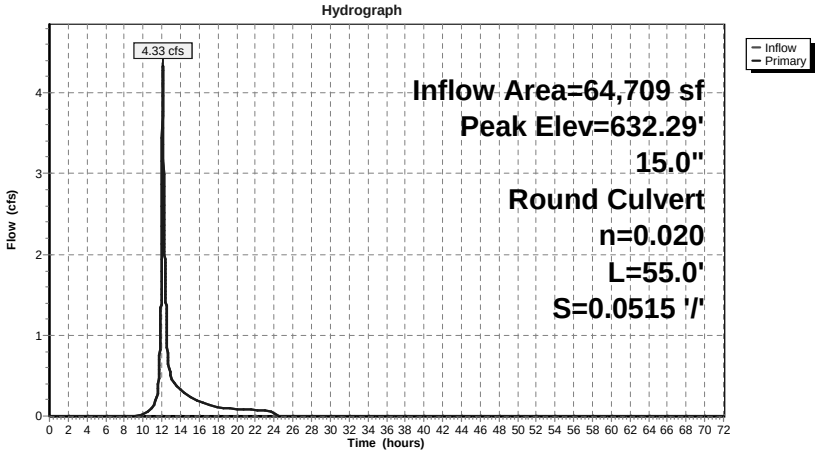
Inflow Area = 64,709 sf, 0.00% Impervious, Inflow Depth = 2.53" for 25 Year, 24 Hr. Event event
Inflow = 4.33 cfs @ 12.09 hrs, Volume= 13,643 cf
Outflow = 4.33 cfs @ 12.09 hrs, Volume= 13,643 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.33 cfs @ 12.09 hrs, Volume= 13,643 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 632.29' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	630.80'	**15.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 630.80' / 627.97' S= 0.0515 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=4.32 cfs @ 12.09 hrs HW=632.28' (Free Discharge)
1=Culvert (Inlet Controls 4.32 cfs @ 3.52 fps)

Pond DP3: DP3



Hydrograph for Pond DP3: DP3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	630.80	0.00	52.00	0.00	630.80	0.00
1.00	0.00	630.80	0.00	53.00	0.00	630.80	0.00
2.00	0.00	630.80	0.00	54.00	0.00	630.80	0.00
3.00	0.00	630.80	0.00	55.00	0.00	630.80	0.00
4.00	0.00	630.80	0.00	56.00	0.00	630.80	0.00
5.00	0.00	630.80	0.00	57.00	0.00	630.80	0.00
6.00	0.00	630.80	0.00	58.00	0.00	630.80	0.00
7.00	0.00	630.80	0.00	59.00	0.00	630.80	0.00
8.00	0.00	630.80	0.00	60.00	0.00	630.80	0.00
9.00	0.00	630.80	0.00	61.00	0.00	630.80	0.00
10.00	0.02	630.87	0.02	62.00	0.00	630.80	0.00
11.00	0.11	630.97	0.11	63.00	0.00	630.80	0.00
12.00	**2.34**	**631.68**	**2.34**	64.00	0.00	630.80	0.00
13.00	**0.48**	**631.16**	**0.48**	65.00	0.00	630.80	0.00
14.00	0.32	631.09	0.32	66.00	0.00	630.80	0.00
15.00	0.24	631.06	0.24	67.00	0.00	630.80	0.00
16.00	0.17	631.01	0.17	68.00	0.00	630.80	0.00
17.00	0.14	630.99	0.14	69.00	0.00	630.80	0.00
18.00	0.11	630.97	0.11	70.00	0.00	630.80	0.00
19.00	0.10	630.96	0.10	71.00	0.00	630.80	0.00
20.00	0.09	630.95	0.09	72.00	0.00	630.80	0.00
21.00	0.08	630.94	0.08				
22.00	0.07	630.94	0.07				
23.00	0.07	630.93	0.07				
24.00	0.06	630.92	0.06				
25.00	0.00	630.80	0.00				
26.00	0.00	630.80	0.00				
27.00	0.00	630.80	0.00				
28.00	0.00	630.80	0.00				
29.00	0.00	630.80	0.00				
30.00	0.00	630.80	0.00				
31.00	0.00	630.80	0.00				
32.00	0.00	630.80	0.00				
33.00	0.00	630.80	0.00				
34.00	0.00	630.80	0.00				
35.00	0.00	630.80	0.00				
36.00	0.00	630.80	0.00				
37.00	0.00	630.80	0.00				
38.00	0.00	630.80	0.00				
39.00	0.00	630.80	0.00				
40.00	0.00	630.80	0.00				
41.00	0.00	630.80	0.00				
42.00	0.00	630.80	0.00				
43.00	0.00	630.80	0.00				
44.00	0.00	630.80	0.00				
45.00	0.00	630.80	0.00				
46.00	0.00	630.80	0.00				
47.00	0.00	630.80	0.00				
48.00	0.00	630.80	0.00				
49.00	0.00	630.80	0.00				
50.00	0.00	630.80	0.00				
51.00	0.00	630.80	0.00				

Summary for Pond DP4: DP4

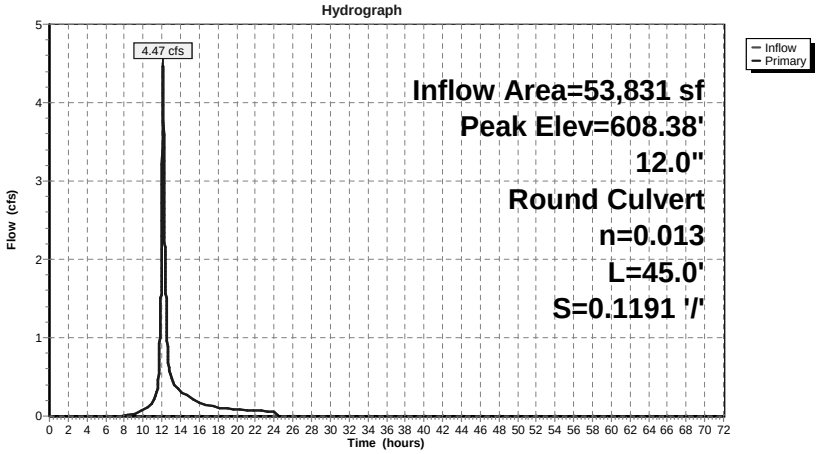
Inflow Area = 53,831 sf, 0.00% Impervious, Inflow Depth = 3.28" for 25 Year, 24 Hr. Event event
Inflow = 4.47 cfs @ 12.11 hrs, Volume= 14,723 cf
Outflow = 4.47 cfs @ 12.11 hrs, Volume= 14,723 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.47 cfs @ 12.11 hrs, Volume= 14,723 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.38' @ 12.11 hrs
Flood Elev= 608.79'

Device	Routing	Invert	Outlet Devices
#1	Primary	605.64'	**12.0" Round Culvert** L= 45.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 605.64' / 600.28' S= 0.1191 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=4.46 cfs @ 12.11 hrs HW=608.38' (Free Discharge)
1=Culvert (Inlet Controls 4.46 cfs @ 5.68 fps)

Pond DP4: DP4



Hydrograph for Pond DP4: DP4

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	605.64	0.00	52.00	0.00	605.64	0.00
1.00	0.00	605.64	0.00	53.00	0.00	605.64	0.00
2.00	0.00	605.64	0.00	54.00	0.00	605.64	0.00
3.00	0.00	605.64	0.00	55.00	0.00	605.64	0.00
4.00	0.00	605.64	0.00	56.00	0.00	605.64	0.00
5.00	0.00	605.64	0.00	57.00	0.00	605.64	0.00
6.00	0.00	605.64	0.00	58.00	0.00	605.64	0.00
7.00	0.00	605.64	0.00	59.00	0.00	605.64	0.00
8.00	0.00	605.65	0.00	60.00	0.00	605.64	0.00
9.00	0.03	605.73	0.03	61.00	0.00	605.64	0.00
10.00	0.08	605.79	0.08	62.00	0.00	605.64	0.00
11.00	0.18	605.87	0.18	63.00	0.00	605.64	0.00
12.00	**2.30**	**606.73**	**2.30**	64.00	0.00	605.64	0.00
13.00	**0.49**	**606.04**	**0.49**	65.00	0.00	605.64	0.00
14.00	0.31	605.95	0.31	66.00	0.00	605.64	0.00
15.00	0.24	605.91	0.24	67.00	0.00	605.64	0.00
16.00	0.17	605.87	0.17	68.00	0.00	605.64	0.00
17.00	0.13	605.84	0.13	69.00	0.00	605.64	0.00
18.00	0.10	605.81	0.10	70.00	0.00	605.64	0.00
19.00	0.09	605.80	0.09	71.00	0.00	605.64	0.00
20.00	0.08	605.80	0.08	72.00	0.00	605.64	0.00
21.00	0.08	605.79	0.08				
22.00	0.07	605.78	0.07				
23.00	0.06	605.77	0.06				
24.00	0.06	605.77	0.06				
25.00	0.00	605.64	0.00				
26.00	0.00	605.64	0.00				
27.00	0.00	605.64	0.00				
28.00	0.00	605.64	0.00				
29.00	0.00	605.64	0.00				
30.00	0.00	605.64	0.00				
31.00	0.00	605.64	0.00				
32.00	0.00	605.64	0.00				
33.00	0.00	605.64	0.00				
34.00	0.00	605.64	0.00				
35.00	0.00	605.64	0.00				
36.00	0.00	605.64	0.00				
37.00	0.00	605.64	0.00				
38.00	0.00	605.64	0.00				
39.00	0.00	605.64	0.00				
40.00	0.00	605.64	0.00				
41.00	0.00	605.64	0.00				
42.00	0.00	605.64	0.00				
43.00	0.00	605.64	0.00				
44.00	0.00	605.64	0.00				
45.00	0.00	605.64	0.00				
46.00	0.00	605.64	0.00				
47.00	0.00	605.64	0.00				
48.00	0.00	605.64	0.00				
49.00	0.00	605.64	0.00				
50.00	0.00	605.64	0.00				
51.00	0.00	605.64	0.00				

Summary for Pond DP5: DP5

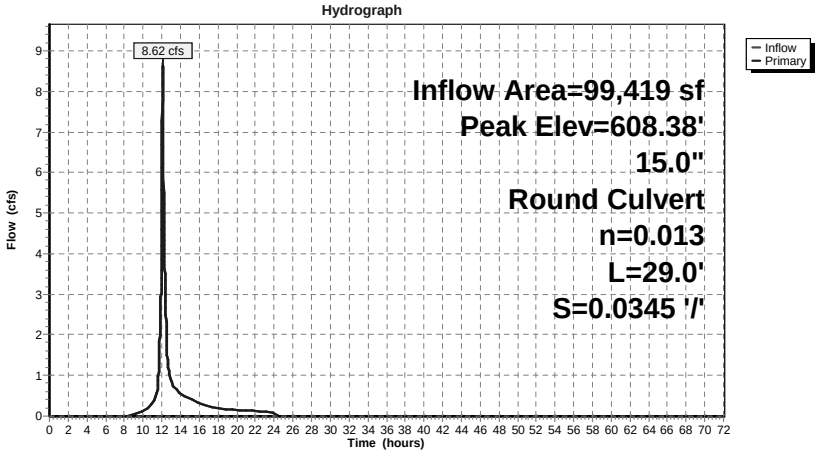
Inflow Area = 99,419 sf, 0.00% Impervious, Inflow Depth = 3.18" for 25 Year, 24 Hr. Event event
Inflow = 8.62 cfs @ 12.09 hrs, Volume= 26,386 cf
Outflow = 8.62 cfs @ 12.09 hrs, Volume= 26,386 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.62 cfs @ 12.09 hrs, Volume= 26,386 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.38' @ 12.09 hrs
Flood Elev= 609.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	604.34'	**15.0" Round Culvert** L= 29.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 604.34' / 603.34' S= 0.0345 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=8.60 cfs @ 12.09 hrs HW=608.36' (Free Discharge)
↑—1=Culvert (Inlet Controls 8.60 cfs @ 7.01 fps)

Pond DP5: DP5



Hydrograph for Pond DP5: DP5

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	604.34	0.00	52.00	0.00	604.34	0.00
1.00	0.00	604.34	0.00	53.00	0.00	604.34	0.00
2.00	0.00	604.34	0.00	54.00	0.00	604.34	0.00
3.00	0.00	604.34	0.00	55.00	0.00	604.34	0.00
4.00	0.00	604.34	0.00	56.00	0.00	604.34	0.00
5.00	0.00	604.34	0.00	57.00	0.00	604.34	0.00
6.00	0.00	604.34	0.00	58.00	0.00	604.34	0.00
7.00	0.00	604.34	0.00	59.00	0.00	604.34	0.00
8.00	0.00	604.34	0.00	60.00	0.00	604.34	0.00
9.00	0.04	604.44	0.04	61.00	0.00	604.34	0.00
10.00	0.13	604.52	0.13	62.00	0.00	604.34	0.00
11.00	0.32	604.63	0.32	63.00	0.00	604.34	0.00
12.00	**5.05**	**606.14**	**5.05**	64.00	0.00	604.34	0.00
13.00	**0.86**	**604.84**	**0.86**	65.00	0.00	604.34	0.00
14.00	0.56	604.73	0.56	66.00	0.00	604.34	0.00
15.00	0.43	604.68	0.43	67.00	0.00	604.34	0.00
16.00	0.30	604.63	0.30	68.00	0.00	604.34	0.00
17.00	0.24	604.59	0.24	69.00	0.00	604.34	0.00
18.00	0.19	604.56	0.19	70.00	0.00	604.34	0.00
19.00	0.17	604.55	0.17	71.00	0.00	604.34	0.00
20.00	0.15	604.54	0.15	72.00	0.00	604.34	0.00
21.00	0.14	604.53	0.14				
22.00	0.13	604.52	0.13				
23.00	0.11	604.51	0.11				
24.00	0.10	604.50	0.10				
25.00	0.00	604.34	0.00				
26.00	0.00	604.34	0.00				
27.00	0.00	604.34	0.00				
28.00	0.00	604.34	0.00				
29.00	0.00	604.34	0.00				
30.00	0.00	604.34	0.00				
31.00	0.00	604.34	0.00				
32.00	0.00	604.34	0.00				
33.00	0.00	604.34	0.00				
34.00	0.00	604.34	0.00				
35.00	0.00	604.34	0.00				
36.00	0.00	604.34	0.00				
37.00	0.00	604.34	0.00				
38.00	0.00	604.34	0.00				
39.00	0.00	604.34	0.00				
40.00	0.00	604.34	0.00				
41.00	0.00	604.34	0.00				
42.00	0.00	604.34	0.00				
43.00	0.00	604.34	0.00				
44.00	0.00	604.34	0.00				
45.00	0.00	604.34	0.00				
46.00	0.00	604.34	0.00				
47.00	0.00	604.34	0.00				
48.00	0.00	604.34	0.00				
49.00	0.00	604.34	0.00				
50.00	0.00	604.34	0.00				
51.00	0.00	604.34	0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 1: CB - split flow btwn DP1 and DP2 Peak Elev=710.43' Inflow=12.04 cfs 63,762 cf
Primary=5.56 cfs 35,892 cf Secondary=6.47 cfs 27,870 cf Outflow=12.04 cfs 63,762 cf

Subcatchment 2: Post DA- 2 Runoff Area=9,470 sf 0.00% Impervious Runoff Depth=4.62"
Tc=5.0 min CN=61/0 Runoff=1.22 cfs 3,650 cf

Subcatchment 3: Post DA-3 Runoff Area=64,709 sf 0.00% Impervious Runoff Depth=5.39"
Flow Length=430' Tc=6.1 min CN=67/0 Runoff=9.37 cfs 29,089 cf

Subcatchment 4: Post DA-4 Runoff Area=53,831 sf 0.00% Impervious Runoff Depth=6.41"
Flow Length=374' Tc=7.8 min CN=75/0 Runoff=8.65 cfs 28,769 cf

Subcatchment 5A: Post DA-5A Runoff Area=99,419 sf 0.00% Impervious Runoff Depth=6.29"
Flow Length=172' Tc=5.7 min CN=74/0 Runoff=16.87 cfs 52,083 cf

Subcatchment 5B: Post DA-5B Runoff Area=160,069 sf 15.12% Impervious Runoff Depth=4.78"
Flow Length=1,406' Tc=24.6 min CN=56/98 Runoff=12.04 cfs 63,762 cf

Reach DP1: DP1 Inflow=5.56 cfs 35,892 cf
Outflow=5.56 cfs 35,892 cf

Pond DP2: DP2 Peak Elev=678.82' Inflow=6.95 cfs 31,520 cf
18.0" Round Culvert n=0.013 L=51.0' S=0.0196 '/' Outflow=6.95 cfs 31,520 cf

Pond DP3: DP3 Peak Elev=635.46' Inflow=9.37 cfs 29,089 cf
15.0" Round Culvert n=0.020 L=55.0' S=0.0515 '/' Outflow=9.37 cfs 29,089 cf

Pond DP4: DP4 Peak Elev=614.53' Inflow=8.65 cfs 28,769 cf
12.0" Round Culvert n=0.013 L=45.0' S=0.1191 '/' Outflow=8.65 cfs 28,769 cf

Pond DP5: DP5 Peak Elev=618.04' Inflow=16.87 cfs 52,083 cf
15.0" Round Culvert n=0.013 L=29.0' S=0.0345 '/' Outflow=16.87 cfs 52,083 cf

Total Runoff Area = 387,498 sf Runoff Volume = 177,354 cf Average Runoff Depth = 5.49"
93.75% Pervious = 363,296 sf 6.25% Impervious = 24,202 sf

Summary for Pond 1: CB - split flow btwn DP1 and DP2

[57] Hint: Peaked at 710.43' (Flood elevation advised)

Inflow Area =	160,069 sf,	15.12% Impervious,	Inflow Depth =	4.78"	for 100 Year, 24 Hr. Event event
Inflow =	12.04 cfs @	12.34 hrs,	Volume=	63,762 cf	
Outflow =	12.04 cfs @	12.34 hrs,	Volume=	63,762 cf,	Atten= 0%, Lag= 0.0 min
Primary =	5.56 cfs @	12.34 hrs,	Volume=	35,892 cf	
Secondary =	6.47 cfs @	12.34 hrs,	Volume=	27,870 cf	

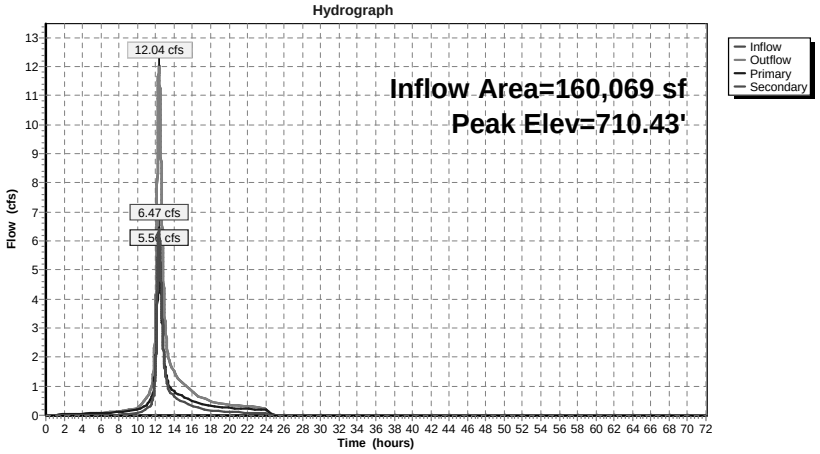
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 710.43' @ 12.34 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	709.00'	**18.0" Round Culvert** L= 88.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 709.00' / 708.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Secondary	709.10'	**18.0" Round Culvert** L= 290.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 709.10' / 678.60' S= 0.1052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=5.56 cfs @ 12.34 hrs HW=710.43' TW=0.00' (Dynamic Tailwater)
↑└**1=Culvert** (Inlet Controls 5.56 cfs @ 3.21 fps)

Secondary OutFlow Max=6.47 cfs @ 12.34 hrs HW=710.43' TW=678.82' (Dynamic Tailwater)
↑└**2=Culvert** (Inlet Controls 6.47 cfs @ 3.92 fps)

Pond 1: CB - split flow btwn DP1 and DP2



Hydrograph for Pond 1: CB - split flow btwn DP1 and DP2

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	709.00	0.00	0.00	0.00
2.00	0.03	709.08	0.03	0.03	0.00
4.00	0.06	709.11	0.06	0.06	0.00
6.00	0.08	709.13	0.08	0.07	0.00
8.00	0.12	709.16	0.12	0.11	0.02
10.00	0.26	709.21	0.26	0.19	0.07
12.00	**3.78**	**709.72**	**3.78**	**1.92**	**1.86**
14.00	**1.48**	**709.46**	**1.48**	**0.83**	**0.66**
16.00	0.81	709.35	0.81	0.49	0.32
18.00	0.48	709.28	0.48	0.32	0.17
20.00	0.37	709.25	0.37	0.25	0.12
22.00	0.31	709.23	0.31	0.22	0.09
24.00	0.25	709.21	0.25	0.18	0.06
26.00	0.00	709.00	0.00	0.00	0.00
28.00	0.00	709.00	0.00	0.00	0.00
30.00	0.00	709.00	0.00	0.00	0.00
32.00	0.00	709.00	0.00	0.00	0.00
34.00	0.00	709.00	0.00	0.00	0.00
36.00	0.00	709.00	0.00	0.00	0.00
38.00	0.00	709.00	0.00	0.00	0.00
40.00	0.00	709.00	0.00	0.00	0.00
42.00	0.00	709.00	0.00	0.00	0.00
44.00	0.00	709.00	0.00	0.00	0.00
46.00	0.00	709.00	0.00	0.00	0.00
48.00	0.00	709.00	0.00	0.00	0.00
50.00	0.00	709.00	0.00	0.00	0.00
52.00	0.00	709.00	0.00	0.00	0.00
54.00	0.00	709.00	0.00	0.00	0.00
56.00	0.00	709.00	0.00	0.00	0.00
58.00	0.00	709.00	0.00	0.00	0.00
60.00	0.00	709.00	0.00	0.00	0.00
62.00	0.00	709.00	0.00	0.00	0.00
64.00	0.00	709.00	0.00	0.00	0.00
66.00	0.00	709.00	0.00	0.00	0.00
68.00	0.00	709.00	0.00	0.00	0.00
70.00	0.00	709.00	0.00	0.00	0.00
72.00	0.00	709.00	0.00	0.00	0.00

Summary for Subcatchment 2: Post DA- 2

Runoff = 1.22 cfs @ 12.08 hrs, Volume= 3,650 cf, Depth= 4.62"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

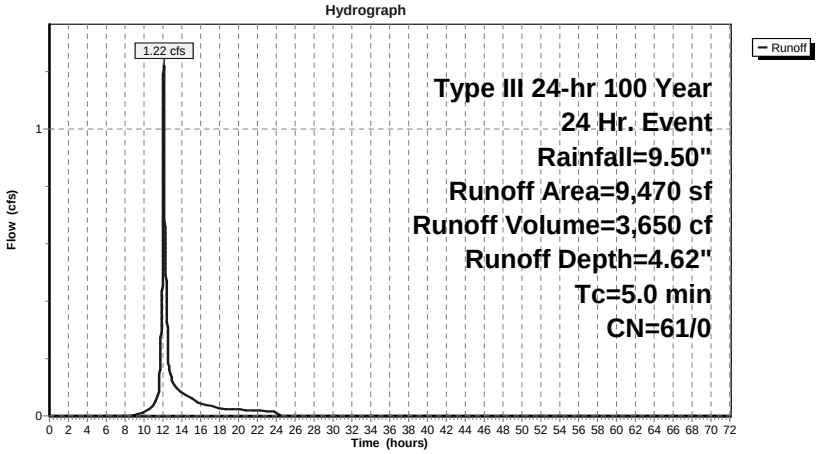
Area (sf)	CN	Description	Land Use
9,470	61	>75% Grass cover, Good, HSG B	Open Space
9,470	61	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,470	Open Space	67.77	0.24	1.02	0.14
9,470	Total	67.77	0.24	1.02	0.14

Subcatchment 2: Post DA- 2



Hydrograph for Subcatchment 2: Post DA- 2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.00	0.00	0.00
10.00	1.80	0.04	0.00	0.01
12.00	4.75	1.22	0.00	**0.75**
14.00	7.70	3.22	0.00	**0.08**
16.00	8.42	3.77	0.00	0.04
18.00	8.82	4.08	0.00	0.03
20.00	9.09	4.30	0.00	0.02
22.00	9.32	4.48	0.00	0.02
24.00	**9.50**	**4.62**	0.00	0.01
26.00	9.50	4.62	0.00	0.00
28.00	9.50	4.62	0.00	0.00
30.00	9.50	4.62	0.00	0.00
32.00	9.50	4.62	0.00	0.00
34.00	9.50	4.62	0.00	0.00
36.00	9.50	4.62	0.00	0.00
38.00	9.50	4.62	0.00	0.00
40.00	9.50	4.62	0.00	0.00
42.00	9.50	4.62	0.00	0.00
44.00	9.50	4.62	0.00	0.00
46.00	9.50	4.62	0.00	0.00
48.00	9.50	4.62	0.00	0.00
50.00	9.50	4.62	0.00	0.00
52.00	9.50	4.62	0.00	0.00
54.00	9.50	4.62	0.00	0.00
56.00	9.50	4.62	0.00	0.00
58.00	9.50	4.62	0.00	0.00
60.00	9.50	4.62	0.00	0.00
62.00	9.50	4.62	0.00	0.00
64.00	9.50	4.62	0.00	0.00
66.00	9.50	4.62	0.00	0.00
68.00	9.50	4.62	0.00	0.00
70.00	9.50	4.62	0.00	0.00
72.00	9.50	4.62	0.00	0.00

Summary for Subcatchment 3: Post DA-3

Runoff = 9.37 cfs @ 12.09 hrs, Volume= 29,089 cf, Depth= 5.39"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

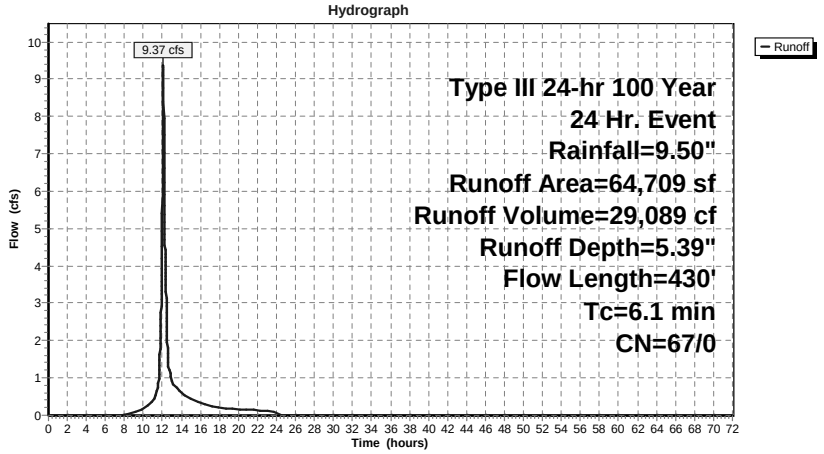
Area (sf)	CN	Description	Land Use
36,773	61	>75% Grass cover, Good, HSG B	Open Space
27,936	74	>75% Grass cover, Good, HSG C	Open Space
64,709	67	Weighted Average	
64,709	67	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	72	0.2500	0.31		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.2	312	0.1180	2.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	46	0.0870	11.87	14.57	**Pipe Channel, Existing Pipe** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Concrete sewer w/manholes & inlets
6.1	430	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
64,709	Open Space	463.07	1.62	7.00	0.95
64,709	Total	463.07	1.62	7.00	0.95

Subcatchment 3: Post DA-3



Hydrograph for Subcatchment 3: Post DA-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.00	0.00	0.01
10.00	1.80	0.11	0.00	0.17
12.00	4.75	1.63	0.00	**5.39**
14.00	7.70	3.88	0.00	**0.60**
16.00	8.42	4.47	0.00	0.32
18.00	8.82	4.81	0.00	0.20
20.00	9.09	5.04	0.00	0.16
22.00	9.32	5.24	0.00	0.13
24.00	**9.50**	**5.39**	0.00	0.11
26.00	9.50	5.39	0.00	0.00
28.00	9.50	5.39	0.00	0.00
30.00	9.50	5.39	0.00	0.00
32.00	9.50	5.39	0.00	0.00
34.00	9.50	5.39	0.00	0.00
36.00	9.50	5.39	0.00	0.00
38.00	9.50	5.39	0.00	0.00
40.00	9.50	5.39	0.00	0.00
42.00	9.50	5.39	0.00	0.00
44.00	9.50	5.39	0.00	0.00
46.00	9.50	5.39	0.00	0.00
48.00	9.50	5.39	0.00	0.00
50.00	9.50	5.39	0.00	0.00
52.00	9.50	5.39	0.00	0.00
54.00	9.50	5.39	0.00	0.00
56.00	9.50	5.39	0.00	0.00
58.00	9.50	5.39	0.00	0.00
60.00	9.50	5.39	0.00	0.00
62.00	9.50	5.39	0.00	0.00
64.00	9.50	5.39	0.00	0.00
66.00	9.50	5.39	0.00	0.00
68.00	9.50	5.39	0.00	0.00
70.00	9.50	5.39	0.00	0.00
72.00	9.50	5.39	0.00	0.00

Summary for Subcatchment 4: Post DA-4

Runoff = 8.65 cfs @ 12.11 hrs, Volume= 28,769 cf, Depth= 6.41"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

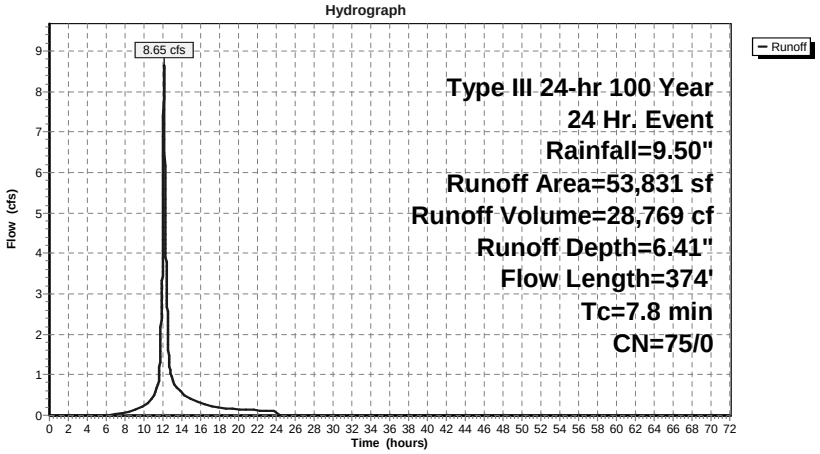
	Area (sf)	CN	Description	Land Use
	52,124	74	>75% Grass cover, Good, HSG C	Open Space
*	1,707	96	Gravel roads, HSG C	Roadway
	53,831	75	Weighted Average	
	53,831	75	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	85	0.1640	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.9	15	0.3630	0.27		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	84	0.3630	4.22		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	190	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.8	374	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
52,124	Open Space	373.01	1.30	5.64	0.76
1,707	Roadway	3.51	0.01	0.04	0.14
53,831	Total	376.52	1.31	5.68	0.90

Subcatchment 4: Post DA-4



Hydrograph for Subcatchment 4: Post DA-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.05	0.00	0.06
10.00	1.80	0.29	0.00	0.24
12.00	4.75	2.25	0.00	**4.66**
14.00	7.70	4.78	0.00	**0.55**
16.00	8.42	5.42	0.00	0.29
18.00	8.82	5.78	0.00	0.18
20.00	9.09	6.04	0.00	0.14
22.00	9.32	6.24	0.00	0.12
24.00	**9.50**	**6.41**	0.00	0.09
26.00	9.50	6.41	0.00	0.00
28.00	9.50	6.41	0.00	0.00
30.00	9.50	6.41	0.00	0.00
32.00	9.50	6.41	0.00	0.00
34.00	9.50	6.41	0.00	0.00
36.00	9.50	6.41	0.00	0.00
38.00	9.50	6.41	0.00	0.00
40.00	9.50	6.41	0.00	0.00
42.00	9.50	6.41	0.00	0.00
44.00	9.50	6.41	0.00	0.00
46.00	9.50	6.41	0.00	0.00
48.00	9.50	6.41	0.00	0.00
50.00	9.50	6.41	0.00	0.00
52.00	9.50	6.41	0.00	0.00
54.00	9.50	6.41	0.00	0.00
56.00	9.50	6.41	0.00	0.00
58.00	9.50	6.41	0.00	0.00
60.00	9.50	6.41	0.00	0.00
62.00	9.50	6.41	0.00	0.00
64.00	9.50	6.41	0.00	0.00
66.00	9.50	6.41	0.00	0.00
68.00	9.50	6.41	0.00	0.00
70.00	9.50	6.41	0.00	0.00
72.00	9.50	6.41	0.00	0.00

Summary for Subcatchment 5A: Post DA-5A

Runoff = 16.87 cfs @ 12.08 hrs, Volume= 52,083 cf, Depth= 6.29"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

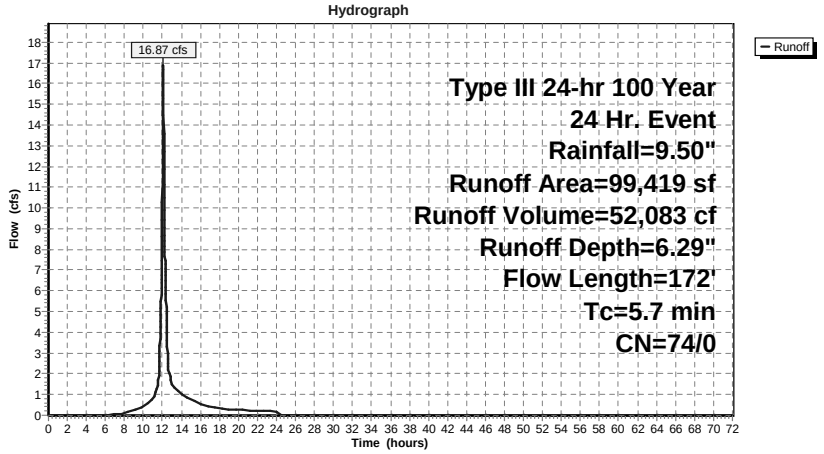
Area (sf)	CN	Description	Land Use
99,419	74	>75% Grass cover, Good, HSG C	Open Space
99,419	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	42	0.2130	0.26		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.8	58	0.3380	0.34		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	72	0.3380	4.07		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.7	172	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
99,419	Open Space	711.46	2.48	10.75	1.45
99,419	Total	711.46	2.48	10.75	1.45

Subcatchment 5A: Post DA-5A



Hydrograph for Subcatchment 5A: Post DA-5A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.04	0.00	0.10
10.00	1.80	0.26	0.00	0.43
12.00	4.75	2.17	0.00	**10.29**
14.00	7.70	4.66	0.00	**0.99**
16.00	8.42	5.30	0.00	0.53
18.00	8.82	5.66	0.00	0.33
20.00	9.09	5.91	0.00	0.26
22.00	9.32	6.12	0.00	0.22
24.00	**9.50**	**6.29**	0.00	0.17
26.00	9.50	6.29	0.00	0.00
28.00	9.50	6.29	0.00	0.00
30.00	9.50	6.29	0.00	0.00
32.00	9.50	6.29	0.00	0.00
34.00	9.50	6.29	0.00	0.00
36.00	9.50	6.29	0.00	0.00
38.00	9.50	6.29	0.00	0.00
40.00	9.50	6.29	0.00	0.00
42.00	9.50	6.29	0.00	0.00
44.00	9.50	6.29	0.00	0.00
46.00	9.50	6.29	0.00	0.00
48.00	9.50	6.29	0.00	0.00
50.00	9.50	6.29	0.00	0.00
52.00	9.50	6.29	0.00	0.00
54.00	9.50	6.29	0.00	0.00
56.00	9.50	6.29	0.00	0.00
58.00	9.50	6.29	0.00	0.00
60.00	9.50	6.29	0.00	0.00
62.00	9.50	6.29	0.00	0.00
64.00	9.50	6.29	0.00	0.00
66.00	9.50	6.29	0.00	0.00
68.00	9.50	6.29	0.00	0.00
70.00	9.50	6.29	0.00	0.00
72.00	9.50	6.29	0.00	0.00

Summary for Subcatchment 5B: Post DA-5B

Runoff = 12.04 cfs @ 12.34 hrs, Volume= 63,762 cf, Depth= 4.78"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

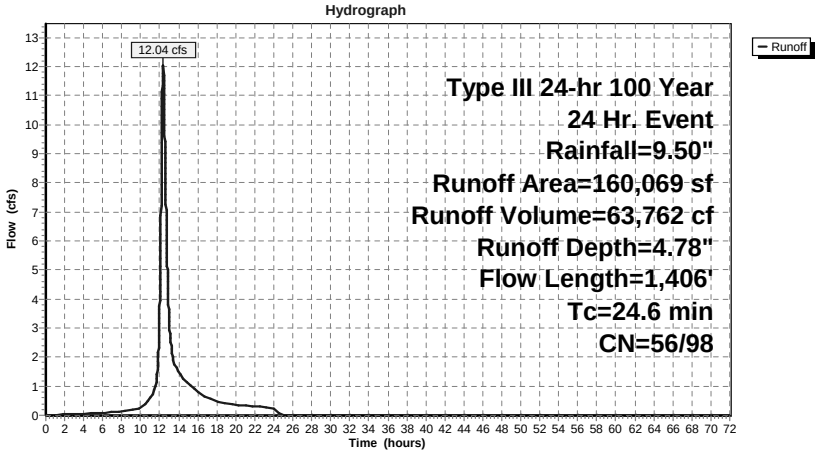
	Area (sf)	CN	Description	Land Use
	380	98	Roofs, HSG B	Roofs
	126,239	55	Woods, Good, HSG B	Woods
*	380	96	Gravel roads, HSG B	Roadway
	23,822	98	Paved parking, HSG B	Pavement
	9,248	61	>75% Grass cover, Good, HSG B	Open Space
	160,069	62	Weighted Average	
	135,867	56	84.88% Pervious Area	
	24,202	98	15.12% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.9	100	0.0870	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
0.6	50	0.0870	1.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	146	0.5800	3.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	110	0.0180	0.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	1,000	0.0337	11.46	35.99	**Pipe Channel, Confirm Pipe Size** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015 Concrete sewer w/manholes & inlets
24.6	1,406	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 15.12% Impervious, Rv= 0.186, Runoff= 8.50"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,248	Open Space	246.29	0.86	3.72	0.50
23,822	Pavement	182.32	0.59	2.21	7.06
380	Roadway	2.91	0.01	0.04	0.11
380	Roofs	0.32	0.00	0.03	0.12
126,239	Woods	206.63	0.00	0.00	6.87
160,069	Total	638.47	1.46	6.00	14.67

Subcatchment 5B: Post DA-5B



Hydrograph for Subcatchment 5B: Post DA-5B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.03
4.00	0.41	0.00	0.24	0.06
6.00	0.68	0.00	0.49	0.08
8.00	1.08	0.00	0.87	0.12
10.00	1.80	0.01	1.57	0.26
12.00	4.75	0.92	4.51	**3.78**
14.00	7.70	2.69	7.46	**1.48**
16.00	8.42	3.19	8.18	0.81
18.00	8.82	3.48	8.58	0.48
20.00	9.09	3.68	8.85	0.37
22.00	9.32	3.85	9.08	0.31
24.00	**9.50**	**3.98**	**9.26**	0.25
26.00	9.50	3.98	9.26	0.00
28.00	9.50	3.98	9.26	0.00
30.00	9.50	3.98	9.26	0.00
32.00	9.50	3.98	9.26	0.00
34.00	9.50	3.98	9.26	0.00
36.00	9.50	3.98	9.26	0.00
38.00	9.50	3.98	9.26	0.00
40.00	9.50	3.98	9.26	0.00
42.00	9.50	3.98	9.26	0.00
44.00	9.50	3.98	9.26	0.00
46.00	9.50	3.98	9.26	0.00
48.00	9.50	3.98	9.26	0.00
50.00	9.50	3.98	9.26	0.00
52.00	9.50	3.98	9.26	0.00
54.00	9.50	3.98	9.26	0.00
56.00	9.50	3.98	9.26	0.00
58.00	9.50	3.98	9.26	0.00
60.00	9.50	3.98	9.26	0.00
62.00	9.50	3.98	9.26	0.00
64.00	9.50	3.98	9.26	0.00
66.00	9.50	3.98	9.26	0.00
68.00	9.50	3.98	9.26	0.00
70.00	9.50	3.98	9.26	0.00
72.00	9.50	3.98	9.26	0.00

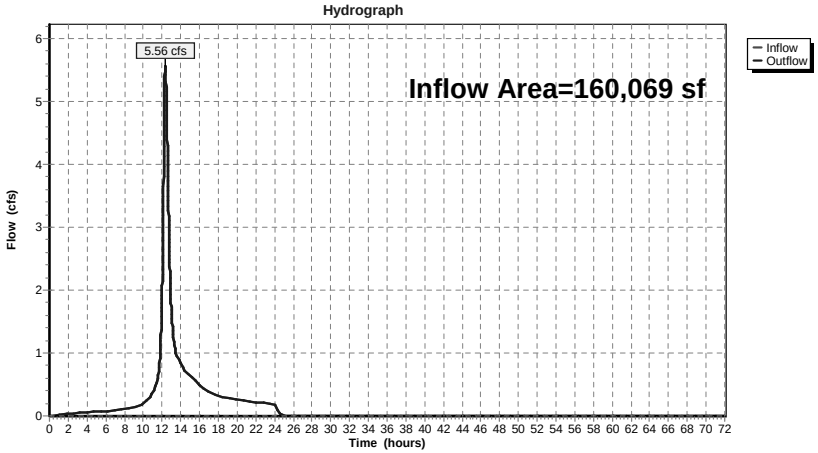
Summary for Reach DP1: DP1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 160,069 sf, 15.12% Impervious, Inflow Depth = 2.69" for 100 Year, 24 Hr. Event event
Inflow = 5.56 cfs @ 12.34 hrs, Volume= 35,892 cf
Outflow = 5.56 cfs @ 12.34 hrs, Volume= 35,892 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP1: DP1



Hydrograph for Reach DP1: DP1

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.01		0.01	53.00	0.00		0.00
2.00	0.03		0.03	54.00	0.00		0.00
3.00	0.04		0.04	55.00	0.00		0.00
4.00	0.06		0.06	56.00	0.00		0.00
5.00	0.06		0.06	57.00	0.00		0.00
6.00	0.07		0.07	58.00	0.00		0.00
7.00	0.09		0.09	59.00	0.00		0.00
8.00	0.11		0.11	60.00	0.00		0.00
9.00	0.14		0.14	61.00	0.00		0.00
10.00	0.19		0.19	62.00	0.00		0.00
11.00	0.37		0.37	63.00	0.00		0.00
12.00	**1.92**		**1.92**	64.00	0.00		0.00
13.00	**1.67**		**1.67**	65.00	0.00		0.00
14.00	0.83		0.83	66.00	0.00		0.00
15.00	0.63		0.63	67.00	0.00		0.00
16.00	0.49		0.49	68.00	0.00		0.00
17.00	0.39		0.39	69.00	0.00		0.00
18.00	0.32		0.32	70.00	0.00		0.00
19.00	0.28		0.28	71.00	0.00		0.00
20.00	0.25		0.25	72.00	0.00		0.00
21.00	0.24		0.24				
22.00	0.22		0.22				
23.00	0.20		0.20				
24.00	0.18		0.18				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP2: DP2

[57] Hint: Peaked at 678.82' (Flood elevation advised)

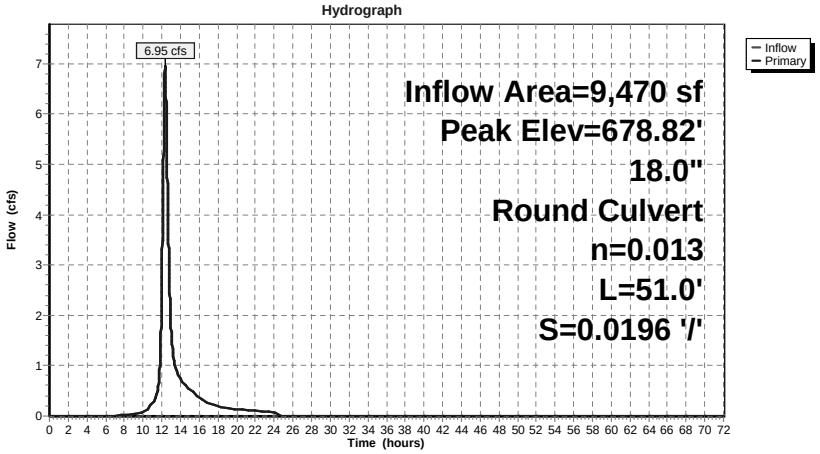
Inflow Area = 9,470 sf, 0.00% Impervious, Inflow Depth = 39.94" for 100 Year, 24 Hr. Event event
Inflow = 6.95 cfs @ 12.33 hrs, Volume= 31,520 cf
Outflow = 6.95 cfs @ 12.33 hrs, Volume= 31,520 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.95 cfs @ 12.33 hrs, Volume= 31,520 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 678.82' @ 12.33 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	677.00'	**18.0" Round Culvert** L= 51.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 677.00' / 676.00' S= 0.0196 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=6.95 cfs @ 12.33 hrs HW=678.82' (Free Discharge)
1=Culvert (Inlet Controls 6.95 cfs @ 3.93 fps)

Pond DP2: DP2



Hydrograph for Pond DP2: DP2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	677.00	0.00	52.00	0.00	677.00	0.00
1.00	0.00	677.00	0.00	53.00	0.00	677.00	0.00
2.00	0.00	677.00	0.00	54.00	0.00	677.00	0.00
3.00	0.00	677.00	0.00	55.00	0.00	677.00	0.00
4.00	0.00	677.02	0.00	56.00	0.00	677.00	0.00
5.00	0.00	677.03	0.00	57.00	0.00	677.00	0.00
6.00	0.00	677.03	0.00	58.00	0.00	677.00	0.00
7.00	0.01	677.05	0.01	59.00	0.00	677.00	0.00
8.00	0.02	677.07	0.02	60.00	0.00	677.00	0.00
9.00	0.04	677.09	0.04	61.00	0.00	677.00	0.00
10.00	0.08	677.14	0.08	62.00	0.00	677.00	0.00
11.00	0.25	677.25	0.25	63.00	0.00	677.00	0.00
12.00	**2.60**	**677.86**	**2.60**	64.00	0.00	677.00	0.00
13.00	**1.69**	**677.67**	**1.69**	65.00	0.00	677.00	0.00
14.00	0.73	677.43	0.73	66.00	0.00	677.00	0.00
15.00	0.52	677.36	0.52	67.00	0.00	677.00	0.00
16.00	0.36	677.30	0.36	68.00	0.00	677.00	0.00
17.00	0.26	677.25	0.26	69.00	0.00	677.00	0.00
18.00	0.19	677.22	0.19	70.00	0.00	677.00	0.00
19.00	0.16	677.19	0.16	71.00	0.00	677.00	0.00
20.00	0.14	677.18	0.14	72.00	0.00	677.00	0.00
21.00	0.12	677.17	0.12				
22.00	0.11	677.16	0.11				
23.00	0.09	677.15	0.09				
24.00	0.08	677.14	0.08				
25.00	0.00	677.00	0.00				
26.00	0.00	677.00	0.00				
27.00	0.00	677.00	0.00				
28.00	0.00	677.00	0.00				
29.00	0.00	677.00	0.00				
30.00	0.00	677.00	0.00				
31.00	0.00	677.00	0.00				
32.00	0.00	677.00	0.00				
33.00	0.00	677.00	0.00				
34.00	0.00	677.00	0.00				
35.00	0.00	677.00	0.00				
36.00	0.00	677.00	0.00				
37.00	0.00	677.00	0.00				
38.00	0.00	677.00	0.00				
39.00	0.00	677.00	0.00				
40.00	0.00	677.00	0.00				
41.00	0.00	677.00	0.00				
42.00	0.00	677.00	0.00				
43.00	0.00	677.00	0.00				
44.00	0.00	677.00	0.00				
45.00	0.00	677.00	0.00				
46.00	0.00	677.00	0.00				
47.00	0.00	677.00	0.00				
48.00	0.00	677.00	0.00				
49.00	0.00	677.00	0.00				
50.00	0.00	677.00	0.00				
51.00	0.00	677.00	0.00				

Summary for Pond DP3: DP3

[57] Hint: Peaked at 635.46' (Flood elevation advised)

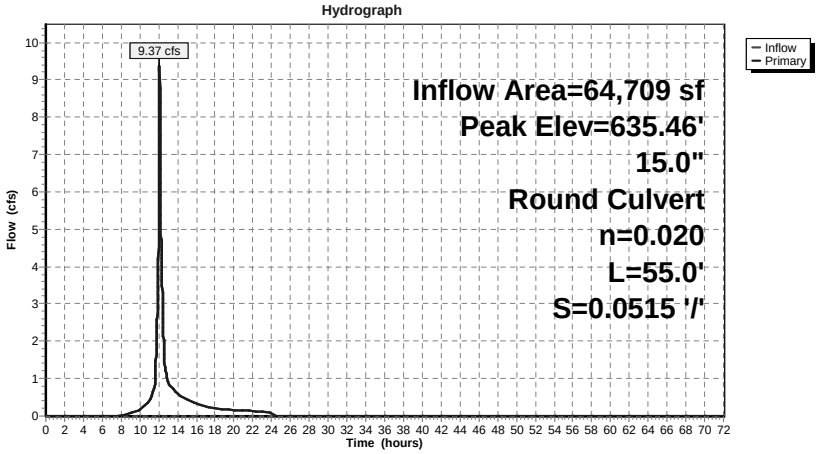
Inflow Area = 64,709 sf, 0.00% Impervious, Inflow Depth = 5.39" for 100 Year, 24 Hr. Event event
Inflow = 9.37 cfs @ 12.09 hrs, Volume= 29,089 cf
Outflow = 9.37 cfs @ 12.09 hrs, Volume= 29,089 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.37 cfs @ 12.09 hrs, Volume= 29,089 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 635.46' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	630.80'	**15.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 630.80' / 627.97' S= 0.0515 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior

Primary OutFlow Max=9.36 cfs @ 12.09 hrs HW=635.45' (Free Discharge)
1=Culvert (Inlet Controls 9.36 cfs @ 7.63 fps)

Pond DP3: DP3



Hydrograph for Pond DP3: DP3

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	630.80	0.00	52.00	0.00	630.80	0.00
1.00	0.00	630.80	0.00	53.00	0.00	630.80	0.00
2.00	0.00	630.80	0.00	54.00	0.00	630.80	0.00
3.00	0.00	630.80	0.00	55.00	0.00	630.80	0.00
4.00	0.00	630.80	0.00	56.00	0.00	630.80	0.00
5.00	0.00	630.80	0.00	57.00	0.00	630.80	0.00
6.00	0.00	630.80	0.00	58.00	0.00	630.80	0.00
7.00	0.00	630.80	0.00	59.00	0.00	630.80	0.00
8.00	0.01	630.85	0.01	60.00	0.00	630.80	0.00
9.00	0.07	630.93	0.07	61.00	0.00	630.80	0.00
10.00	0.17	631.01	0.17	62.00	0.00	630.80	0.00
11.00	0.38	631.12	0.38	63.00	0.00	630.80	0.00
12.00	**5.39**	**632.76**	**5.39**	64.00	0.00	630.80	0.00
13.00	**0.93**	**631.32**	**0.93**	65.00	0.00	630.80	0.00
14.00	0.60	631.21	0.60	66.00	0.00	630.80	0.00
15.00	0.46	631.15	0.46	67.00	0.00	630.80	0.00
16.00	0.32	631.10	0.32	68.00	0.00	630.80	0.00
17.00	0.26	631.06	0.26	69.00	0.00	630.80	0.00
18.00	0.20	631.03	0.20	70.00	0.00	630.80	0.00
19.00	0.18	631.02	0.18	71.00	0.00	630.80	0.00
20.00	0.16	631.01	0.16	72.00	0.00	630.80	0.00
21.00	0.15	631.00	0.15				
22.00	0.13	630.99	0.13				
23.00	0.12	630.98	0.12				
24.00	0.11	630.97	0.11				
25.00	0.00	630.80	0.00				
26.00	0.00	630.80	0.00				
27.00	0.00	630.80	0.00				
28.00	0.00	630.80	0.00				
29.00	0.00	630.80	0.00				
30.00	0.00	630.80	0.00				
31.00	0.00	630.80	0.00				
32.00	0.00	630.80	0.00				
33.00	0.00	630.80	0.00				
34.00	0.00	630.80	0.00				
35.00	0.00	630.80	0.00				
36.00	0.00	630.80	0.00				
37.00	0.00	630.80	0.00				
38.00	0.00	630.80	0.00				
39.00	0.00	630.80	0.00				
40.00	0.00	630.80	0.00				
41.00	0.00	630.80	0.00				
42.00	0.00	630.80	0.00				
43.00	0.00	630.80	0.00				
44.00	0.00	630.80	0.00				
45.00	0.00	630.80	0.00				
46.00	0.00	630.80	0.00				
47.00	0.00	630.80	0.00				
48.00	0.00	630.80	0.00				
49.00	0.00	630.80	0.00				
50.00	0.00	630.80	0.00				
51.00	0.00	630.80	0.00				

Summary for Pond DP4: DP4

[58] Hint: Peaked 5.74' above defined flood level

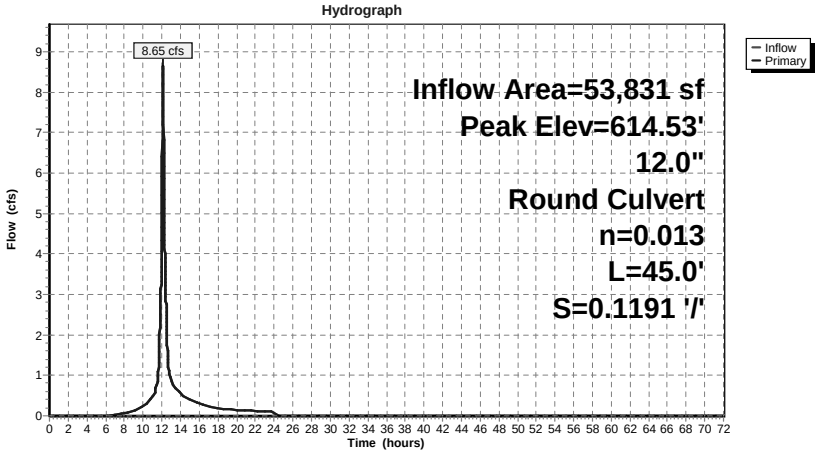
Inflow Area = 53,831 sf, 0.00% Impervious, Inflow Depth = 6.41" for 100 Year, 24 Hr. Event event
Inflow = 8.65 cfs @ 12.11 hrs, Volume= 28,769 cf
Outflow = 8.65 cfs @ 12.11 hrs, Volume= 28,769 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.65 cfs @ 12.11 hrs, Volume= 28,769 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 614.53' @ 12.11 hrs
Flood Elev= 608.79'

Device	Routing	Invert	Outlet Devices
#1	Primary	605.64'	**12.0" Round Culvert** L= 45.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 605.64' / 600.28' S= 0.1191 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=8.65 cfs @ 12.11 hrs HW=614.53' (Free Discharge)
1=Culvert (Inlet Controls 8.65 cfs @ 11.01 fps)

Pond DP4: DP4



Hydrograph for Pond DP4: DP4

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	605.64	0.00	52.00	0.00	605.64	0.00
1.00	0.00	605.64	0.00	53.00	0.00	605.64	0.00
2.00	0.00	605.64	0.00	54.00	0.00	605.64	0.00
3.00	0.00	605.64	0.00	55.00	0.00	605.64	0.00
4.00	0.00	605.64	0.00	56.00	0.00	605.64	0.00
5.00	0.00	605.64	0.00	57.00	0.00	605.64	0.00
6.00	0.00	605.65	0.00	58.00	0.00	605.64	0.00
7.00	0.02	605.72	0.02	59.00	0.00	605.64	0.00
8.00	0.06	605.77	0.06	60.00	0.00	605.64	0.00
9.00	0.13	605.84	0.13	61.00	0.00	605.64	0.00
10.00	0.24	605.91	0.24	62.00	0.00	605.64	0.00
11.00	0.46	606.02	0.46	63.00	0.00	605.64	0.00
12.00	**4.66**	**608.58**	**4.66**	64.00	0.00	605.64	0.00
13.00	**0.88**	**606.19**	**0.88**	65.00	0.00	605.64	0.00
14.00	0.55	606.06	0.55	66.00	0.00	605.64	0.00
15.00	0.42	606.00	0.42	67.00	0.00	605.64	0.00
16.00	0.29	605.94	0.29	68.00	0.00	605.64	0.00
17.00	0.23	605.91	0.23	69.00	0.00	605.64	0.00
18.00	0.18	605.87	0.18	70.00	0.00	605.64	0.00
19.00	0.16	605.86	0.16	71.00	0.00	605.64	0.00
20.00	0.14	605.85	0.14	72.00	0.00	605.64	0.00
21.00	0.13	605.84	0.13				
22.00	0.12	605.83	0.12				
23.00	0.11	605.82	0.11				
24.00	0.09	605.81	0.09				
25.00	0.00	605.64	0.00				
26.00	0.00	605.64	0.00				
27.00	0.00	605.64	0.00				
28.00	0.00	605.64	0.00				
29.00	0.00	605.64	0.00				
30.00	0.00	605.64	0.00				
31.00	0.00	605.64	0.00				
32.00	0.00	605.64	0.00				
33.00	0.00	605.64	0.00				
34.00	0.00	605.64	0.00				
35.00	0.00	605.64	0.00				
36.00	0.00	605.64	0.00				
37.00	0.00	605.64	0.00				
38.00	0.00	605.64	0.00				
39.00	0.00	605.64	0.00				
40.00	0.00	605.64	0.00				
41.00	0.00	605.64	0.00				
42.00	0.00	605.64	0.00				
43.00	0.00	605.64	0.00				
44.00	0.00	605.64	0.00				
45.00	0.00	605.64	0.00				
46.00	0.00	605.64	0.00				
47.00	0.00	605.64	0.00				
48.00	0.00	605.64	0.00				
49.00	0.00	605.64	0.00				
50.00	0.00	605.64	0.00				
51.00	0.00	605.64	0.00				

Summary for Pond DP5: DP5

[58] Hint: Peaked 9.00' above defined flood level

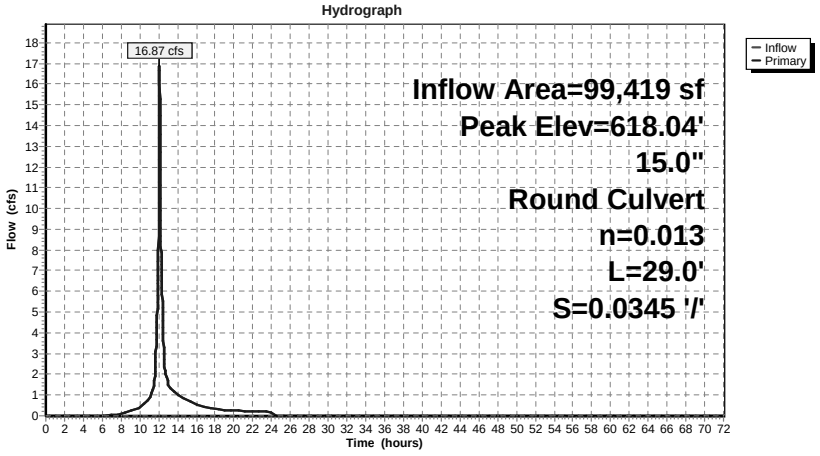
Inflow Area = 99,419 sf, 0.00% Impervious, Inflow Depth = 6.29" for 100 Year, 24 Hr. Event event
Inflow = 16.87 cfs @ 12.08 hrs, Volume= 52,083 cf
Outflow = 16.87 cfs @ 12.08 hrs, Volume= 52,083 cf, Atten= 0%, Lag= 0.0 min
Primary = 16.87 cfs @ 12.08 hrs, Volume= 52,083 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 618.04' @ 12.08 hrs
Flood Elev= 609.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	604.34'	**15.0" Round Culvert** L= 29.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 604.34' / 603.34' S= 0.0345 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

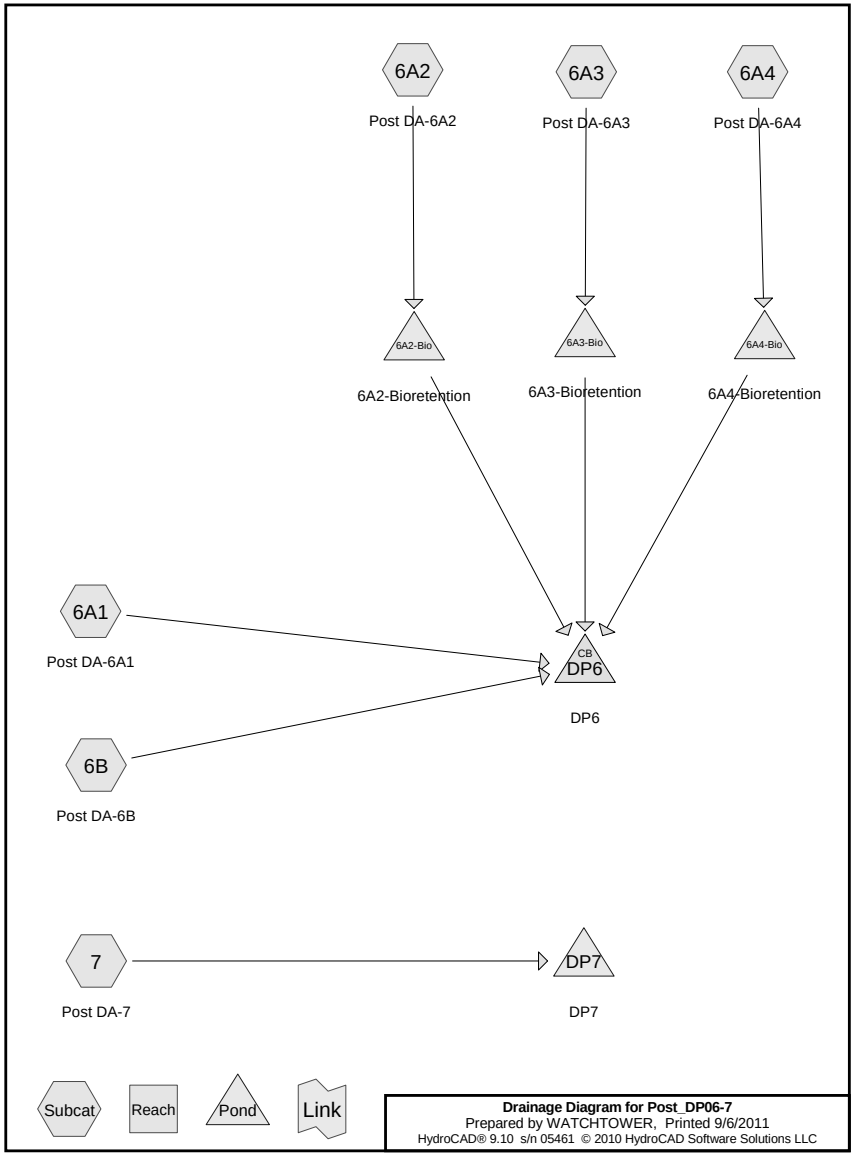
Primary OutFlow Max=16.84 cfs @ 12.08 hrs HW=618.00' (Free Discharge)
↳**1=Culvert** (Inlet Controls 16.84 cfs @ 13.72 fps)

Pond DP5: DP5



Hydrograph for Pond DP5: DP5

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	604.34	0.00	52.00	0.00	604.34	0.00
1.00	0.00	604.34	0.00	53.00	0.00	604.34	0.00
2.00	0.00	604.34	0.00	54.00	0.00	604.34	0.00
3.00	0.00	604.34	0.00	55.00	0.00	604.34	0.00
4.00	0.00	604.34	0.00	56.00	0.00	604.34	0.00
5.00	0.00	604.34	0.00	57.00	0.00	604.34	0.00
6.00	0.00	604.34	0.00	58.00	0.00	604.34	0.00
7.00	0.03	604.43	0.03	59.00	0.00	604.34	0.00
8.00	0.10	604.50	0.10	60.00	0.00	604.34	0.00
9.00	0.23	604.59	0.23	61.00	0.00	604.34	0.00
10.00	0.43	604.68	0.43	62.00	0.00	604.34	0.00
11.00	0.82	604.82	0.82	63.00	0.00	604.34	0.00
12.00	**10.29**	**609.83**	**10.29**	64.00	0.00	604.34	0.00
13.00	**1.55**	**605.03**	**1.55**	65.00	0.00	604.34	0.00
14.00	0.99	604.88	0.99	66.00	0.00	604.34	0.00
15.00	0.75	604.80	0.75	67.00	0.00	604.34	0.00
16.00	0.53	604.72	0.53	68.00	0.00	604.34	0.00
17.00	0.42	604.68	0.42	69.00	0.00	604.34	0.00
18.00	0.33	604.64	0.33	70.00	0.00	604.34	0.00
19.00	0.29	604.62	0.29	71.00	0.00	604.34	0.00
20.00	0.26	604.60	0.26	72.00	0.00	604.34	0.00
21.00	0.24	604.59	0.24				
22.00	0.22	604.58	0.22				
23.00	0.20	604.57	0.20				
24.00	0.17	604.55	0.17				
25.00	0.00	604.34	0.00				
26.00	0.00	604.34	0.00				
27.00	0.00	604.34	0.00				
28.00	0.00	604.34	0.00				
29.00	0.00	604.34	0.00				
30.00	0.00	604.34	0.00				
31.00	0.00	604.34	0.00				
32.00	0.00	604.34	0.00				
33.00	0.00	604.34	0.00				
34.00	0.00	604.34	0.00				
35.00	0.00	604.34	0.00				
36.00	0.00	604.34	0.00				
37.00	0.00	604.34	0.00				
38.00	0.00	604.34	0.00				
39.00	0.00	604.34	0.00				
40.00	0.00	604.34	0.00				
41.00	0.00	604.34	0.00				
42.00	0.00	604.34	0.00				
43.00	0.00	604.34	0.00				
44.00	0.00	604.34	0.00				
45.00	0.00	604.34	0.00				
46.00	0.00	604.34	0.00				
47.00	0.00	604.34	0.00				
48.00	0.00	604.34	0.00				
49.00	0.00	604.34	0.00				
50.00	0.00	604.34	0.00				
51.00	0.00	604.34	0.00				



Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
2,859	Landscaped	6A2, 6A3, 6A4
252,548	Open Space	6A1, 6B, 7
130,423	Pavement	6A1, 6A2, 6A3, 6A4, 6B, 7
1,381	Roadway	6B
182,714	Roofs	6A1
262,664	Woods	6B
832,589	**TOTAL**	

Pollutant Concentrations

Line#	Land Use	TSS (mg/l)	TP (mg/l)	TN (mg/l)	BOD (mg/l)
1	Landscaped	0.00	0.00	0.00	0.00
2	Open Space	602.00	2.10	9.10	1.23
3	Pavement	173.00	0.56	2.10	6.70
4	Roadway	173.00	0.56	2.10	6.70
5	Roofs	19.00	0.11	1.50	7.40
6	Woods	37.00	0.00	0.00	1.23

Subcatchment Loading

Line#	Subcat Number	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1	6A1	**0.00**	**0.00**	**0.00**	**0.00**
2	6A2	0.00	0.00	0.00	0.00
3	6A3	0.00	0.00	0.00	0.00
4	6A4	0.00	0.00	0.00	0.00
5	6B	0.00	0.00	0.00	0.00
6	7	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 6A1: Post DA-6A1 Runoff Area=441,897 sf 67.17% Impervious Runoff Depth=2.25"
Flow Length=817' Tc=8.0 min CN=74/98 Runoff=22.44 cfs 82,695 cf

Subcatchment 6A2: Post DA-6A2 Runoff Area=996 sf 47.89% Impervious Runoff Depth=1.88"
Tc=5.0 min CN=74/98 Runoff=0.05 cfs 156 cf

Pond 6A2-Bio: 6A2-Bioretention Peak Elev=652.50' Storage=115 cf Inflow=0.05 cfs 156 cf
Discarded=0.00 cfs 123 cf Primary=0.00 cfs 3 cf Outflow=0.00 cfs 126 cf

Subcatchment 6A3: Post DA-6A3 Runoff Area=3,487 sf 58.70% Impervious Runoff Depth=2.09"
Tc=5.0 min CN=74/98 Runoff=0.18 cfs 606 cf

Pond 6A3-Bio: 6A3-Bioretention Peak Elev=630.50' Storage=429 cf Inflow=0.18 cfs 606 cf
Discarded=0.00 cfs 447 cf Primary=0.01 cfs 40 cf Outflow=0.01 cfs 487 cf

Subcatchment 6A4: Post DA-6A4 Runoff Area=2,068 sf 56.48% Impervious Runoff Depth=2.04"
Tc=5.0 min CN=74/98 Runoff=0.11 cfs 352 cf

Pond 6A4-Bio: 6A4-Bioretention Peak Elev=640.50' Storage=245 cf Inflow=0.11 cfs 352 cf
Discarded=0.00 cfs 258 cf Primary=0.00 cfs 28 cf Outflow=0.01 cfs 285 cf

Subcatchment 6B: Post DA-6B Runoff Area=313,226 sf 0.85% Impervious Runoff Depth=0.27"
Flow Length=1,980' Tc=28.0 min CN=56/98 Runoff=0.63 cfs 7,082 cf

Subcatchment 7: Post DA-7 Runoff Area=70,915 sf 14.00% Impervious Runoff Depth=1.24"
Flow Length=493' Tc=6.6 min CN=74/98 Runoff=2.13 cfs 7,314 cf

Pond DP6: DP6 Peak Elev=602.93' Inflow=22.51 cfs 89,848 cf
26.0" Round Culvert n=0.011 L=63.0' S=0.0135 '/' Outflow=22.51 cfs 89,848 cf

Pond DP7: DP7 Inflow=2.13 cfs 7,314 cf
Primary=2.13 cfs 7,314 cf

Total Runoff Area = 832,589 sf Runoff Volume = 98,205 cf Average Runoff Depth = 1.42"
62.39% Pervious = 519,452 sf 37.61% Impervious = 313,137 sf

Summary for Subcatchment 6A1: Post DA-6A1

Runoff = 22.44 cfs @ 12.11 hrs, Volume= 82,695 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

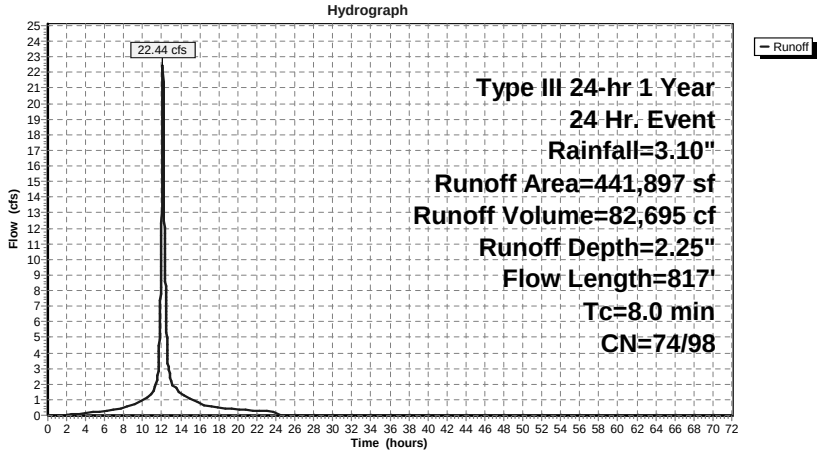
Area (sf)	CN	Description	Land Use
114,130	98	Unconnected pavement, HSG C	Pavement
182,714	98	Unconnected roofs, HSG C	Roofs
3,659	61	>75% Grass cover, Good, HSG B	Open Space
141,394	74	>75% Grass cover, Good, HSG C	Open Space
441,897	90	Weighted Average	
145,053	74	32.83% Pervious Area	
296,844	98	67.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	90	0.3310	9.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	627	0.1080	18.10	56.85	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
8.0	817	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 67.17% Impervious, Rv= 0.655, Runoff= 29.91"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
145,053	Open Space	13,589.28	47.40	205.42	27.77
114,130	Pavement	3,072.69	9.95	37.30	119.00
182,714	Roofs	540.25	3.13	42.65	210.41
441,897	Total	17,202.22	60.48	285.37	357.18

Subcatchment 6A1: Post DA-6A1



Hydrograph for Subcatchment 6A1: Post DA-6A1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.03
4.00	0.13	0.00	0.03	0.14
6.00	0.22	0.00	0.09	0.24
8.00	0.35	0.00	0.19	0.45
10.00	0.59	0.00	0.40	0.93
12.00	1.55	0.16	1.33	**12.29**
14.00	2.51	0.62	2.28	**1.40**
16.00	2.75	0.75	2.52	0.75
18.00	2.88	0.83	2.65	0.46
20.00	2.97	0.89	2.74	0.37
22.00	3.04	0.93	2.81	0.30
24.00	**3.10**	**0.97**	**2.87**	0.24
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00

Summary for Subcatchment 6A2: Post DA-6A2

Runoff = 0.05 cfs @ 12.07 hrs, Volume= 156 cf, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

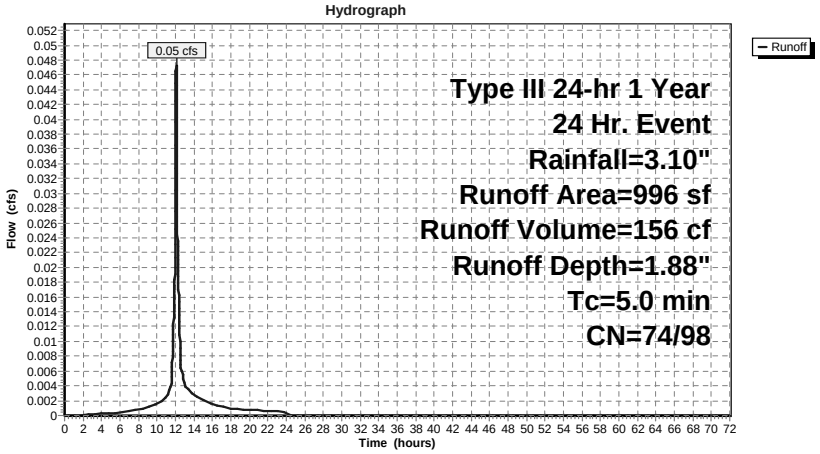
	Area (sf)	CN	Description	Land Use
	477	98	Paved parking, HSG C	Pavement
*	519	74	Bioretention, HSG C	Landscaped
	996	85	Weighted Average	
	519	74	52.11% Pervious Area	
	477	98	47.89% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 47.89% Impervious, Rv= 0.481, Runoff= 21.98"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
519	Landscaped	0.00	0.00	0.00	0.00
477	Pavement	9.44	0.03	0.11	0.37
996	Total	9.44	0.03	0.11	0.37

Subcatchment 6A2: Post DA-6A2



Hydrograph for Subcatchment 6A2: Post DA-6A2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.00
12.00	1.55	0.16	1.33	**0.03**
14.00	2.51	0.62	2.28	**0.00**
16.00	2.75	0.75	2.52	0.00
18.00	2.88	0.83	2.65	0.00
20.00	2.97	0.89	2.74	0.00
22.00	3.04	0.93	2.81	0.00
24.00	**3.10**	**0.97**	**2.87**	0.00
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00

Summary for Pond 6A2-Bio: 6A2-Bioretention

Inflow Area = 996 sf, 47.89% Impervious, Inflow Depth = 1.88" for 1 Year, 24 Hr. Event event
Inflow = 0.05 cfs @ 12.07 hrs, Volume= 156 cf
Outflow = 0.00 cfs @ 16.02 hrs, Volume= 126 cf, Atten= 97%, Lag= 236.9 min
Discarded = 0.00 cfs @ 12.00 hrs, Volume= 123 cf
Primary = 0.00 cfs @ 16.02 hrs, Volume= 3 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 652.50' @ 16.02 hrs Surf.Area= 143 sf Storage= 115 cf

Plug-Flow detention time= 1,179.5 min calculated for 126 cf (81% of inflow)
Center-of-Mass det. time= 1,102.0 min (1,887.0 - 785.0)

Volume	Invert	Avail.Storage	Storage Description
#1	647.75'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

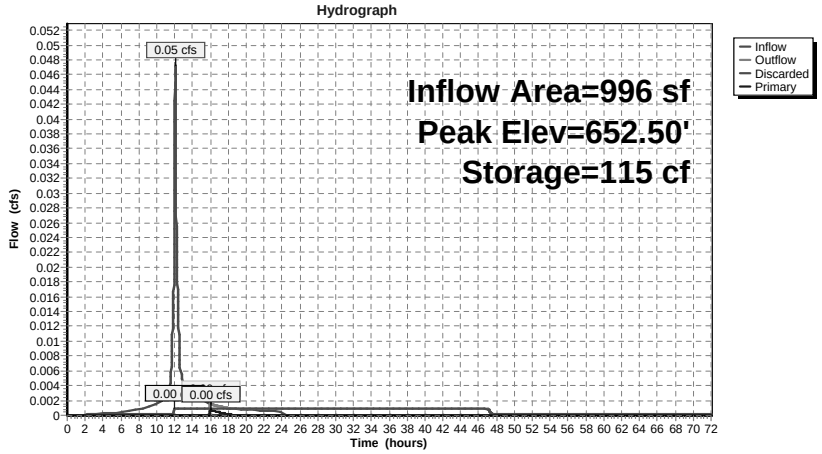
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
647.75	25	0.0	0	0
651.75	25	40.0	40	40
651.99	25	40.0	2	42
652.00	143	100.0	1	43
652.50	143	100.0	72	115
653.00	143	100.0	72	186

Device	Routing	Invert	Outlet Devices
#1	Discarded	647.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	652.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.00 hrs HW=652.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 16.02 hrs HW=652.50' TW=600.62' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.00 cfs @ 0.10 fps)

Pond 6A2-Bio: 6A2-Bioretention



Hydrograph for Pond 6A2-Bio: 6A2-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	647.75	0.00	0.00	0.00
2.00	0.00	0	647.75	0.00	0.00	0.00
4.00	0.00	0	647.76	0.00	0.00	0.00
6.00	0.00	1	647.88	0.00	0.00	0.00
8.00	0.00	4	648.18	0.00	0.00	0.00
10.00	0.00	11	648.88	0.00	0.00	0.00
12.00	**0.03**	44	652.00	0.00	**0.00**	0.00
14.00	**0.00**	106	652.44	0.00	0.00	0.00
16.00	0.00	**115**	**652.50**	**0.00**	0.00	**0.00**
18.00	0.00	**115**	**652.50**	**0.00**	0.00	**0.00**
20.00	0.00	115	652.50	0.00	0.00	0.00
22.00	0.00	114	652.49	0.00	0.00	0.00
24.00	0.00	112	652.48	0.00	0.00	0.00
26.00	0.00	106	652.44	0.00	0.00	0.00
28.00	0.00	100	652.40	0.00	0.00	0.00
30.00	0.00	94	652.36	0.00	0.00	0.00
32.00	0.00	88	652.31	0.00	0.00	0.00
34.00	0.00	82	652.27	0.00	0.00	0.00
36.00	0.00	76	652.23	0.00	0.00	0.00
38.00	0.00	70	652.19	0.00	0.00	0.00
40.00	0.00	64	652.15	0.00	0.00	0.00
42.00	0.00	58	652.11	0.00	0.00	0.00
44.00	0.00	52	652.06	0.00	0.00	0.00
46.00	0.00	46	652.02	0.00	0.00	0.00
48.00	0.00	42	651.97	0.00	0.00	0.00
50.00	0.00	41	651.86	0.00	0.00	0.00
52.00	0.00	40	651.76	0.00	0.00	0.00
54.00	0.00	39	651.65	0.00	0.00	0.00
56.00	0.00	38	651.55	0.00	0.00	0.00
58.00	0.00	37	651.44	0.00	0.00	0.00
60.00	0.00	36	651.34	0.00	0.00	0.00
62.00	0.00	35	651.24	0.00	0.00	0.00
64.00	0.00	34	651.13	0.00	0.00	0.00
66.00	0.00	33	651.03	0.00	0.00	0.00
68.00	0.00	32	650.92	0.00	0.00	0.00
70.00	0.00	31	650.82	0.00	0.00	0.00
72.00	0.00	30	650.72	0.00	0.00	0.00

Summary for Subcatchment 6A3: Post DA-6A3

Runoff = 0.18 cfs @ 12.07 hrs, Volume= 606 cf, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

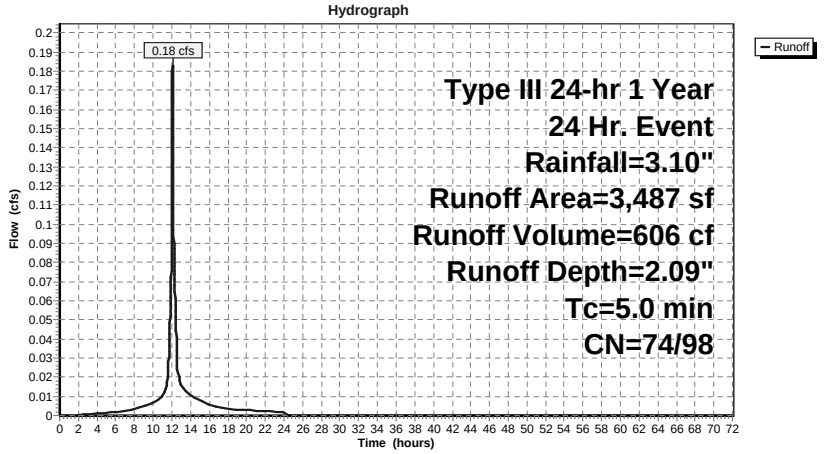
	Area (sf)	CN	Description	Land Use
	2,047	98	Paved parking, HSG C	Pavement
*	1,440	74	Bioretention, HSG C	Landscaped
	3,487	88	Weighted Average	
	1,440	74	41.30% Pervious Area	
	2,047	98	58.70% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 58.70% Impervious, Rv= 0.578, Runoff= 26.43"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,440	Landscaped	0.00	0.00	0.00	0.00
2,047	Pavement	48.69	0.16	0.59	1.89
3,487	Total	48.69	0.16	0.59	1.89

Subcatchment 6A3: Post DA-6A3



Hydrograph for Subcatchment 6A3: Post DA-6A3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.16	1.33	**0.12**
14.00	2.51	0.62	2.28	**0.01**
16.00	2.75	0.75	2.52	0.01
18.00	2.88	0.83	2.65	0.00
20.00	2.97	0.89	2.74	0.00
22.00	3.04	0.93	2.81	0.00
24.00	**3.10**	**0.97**	**2.87**	0.00
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00

Summary for Pond 6A3-Bio: 6A3-Bioretention

Inflow Area = 3,487 sf, 58.70% Impervious, Inflow Depth = 2.09" for 1 Year, 24 Hr. Event event
Inflow = 0.18 cfs @ 12.07 hrs, Volume= 606 cf
Outflow = 0.01 cfs @ 14.60 hrs, Volume= 487 cf, Atten= 95%, Lag= 151.8 min
Discarded = 0.00 cfs @ 11.98 hrs, Volume= 447 cf
Primary = 0.01 cfs @ 14.60 hrs, Volume= 40 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 630.50' @ 14.60 hrs Surf.Area= 509 sf Storage= 429 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,068.8 min (1,845.5 - 776.8)

Volume	Invert	Avail.Storage	Storage Description
#1	625.75'	682 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

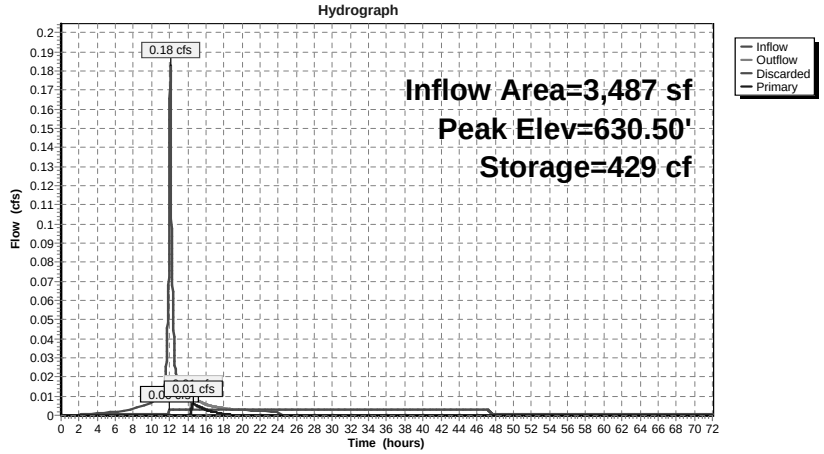
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
625.75	100	0.0	0	0
629.75	100	40.0	160	160
629.99	100	40.0	10	170
630.00	509	100.0	3	173
630.50	509	100.0	255	427
631.00	509	100.0	255	682

Device	Routing	Invert	Outlet Devices
#1	Discarded	625.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	630.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.98 hrs HW=630.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.01 cfs @ 14.60 hrs HW=630.50' TW=600.72' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.01 cfs @ 0.20 fps)

Pond 6A3-Bio: 6A3-Bioretention



Hydrograph for Pond 6A3-Bio: 6A3-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	625.75	0.00	0.00	0.00
2.00	0.00	0	625.75	0.00	0.00	0.00
4.00	0.00	1	625.77	0.00	0.00	0.00
6.00	0.00	6	625.90	0.00	0.00	0.00
8.00	0.00	19	626.23	0.00	0.00	0.00
10.00	0.01	49	626.99	0.00	**0.00**	0.00
12.00	**0.12**	183	630.02	0.00	**0.00**	0.00
14.00	**0.01**	**419**	**630.48**	**0.00**	0.00	**0.00**
16.00	0.01	**428**	**630.50**	**0.01**	0.00	**0.00**
18.00	0.00	428	630.50	0.00	0.00	0.00
20.00	0.00	427	630.50	0.00	0.00	0.00
22.00	0.00	424	630.49	0.00	0.00	0.00
24.00	0.00	418	630.48	0.00	0.00	0.00
26.00	0.00	397	630.44	0.00	0.00	0.00
28.00	0.00	376	630.40	0.00	0.00	0.00
30.00	0.00	355	630.36	0.00	0.00	0.00
32.00	0.00	333	630.32	0.00	0.00	0.00
34.00	0.00	312	630.27	0.00	0.00	0.00
36.00	0.00	291	630.23	0.00	0.00	0.00
38.00	0.00	270	630.19	0.00	0.00	0.00
40.00	0.00	249	630.15	0.00	0.00	0.00
42.00	0.00	227	630.11	0.00	0.00	0.00
44.00	0.00	206	630.07	0.00	0.00	0.00
46.00	0.00	185	630.02	0.00	0.00	0.00
48.00	0.00	169	629.97	0.00	0.00	0.00
50.00	0.00	165	629.87	0.00	0.00	0.00
52.00	0.00	161	629.76	0.00	0.00	0.00
54.00	0.00	156	629.66	0.00	0.00	0.00
56.00	0.00	152	629.55	0.00	0.00	0.00
58.00	0.00	148	629.45	0.00	0.00	0.00
60.00	0.00	144	629.35	0.00	0.00	0.00
62.00	0.00	140	629.24	0.00	0.00	0.00
64.00	0.00	136	629.14	0.00	0.00	0.00
66.00	0.00	131	629.03	0.00	0.00	0.00
68.00	0.00	127	628.93	0.00	0.00	0.00
70.00	0.00	123	628.83	0.00	0.00	0.00
72.00	0.00	119	628.72	0.00	0.00	0.00

Summary for Subcatchment 6A4: Post DA-6A4

Runoff = 0.11 cfs @ 12.07 hrs, Volume= 352 cf, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

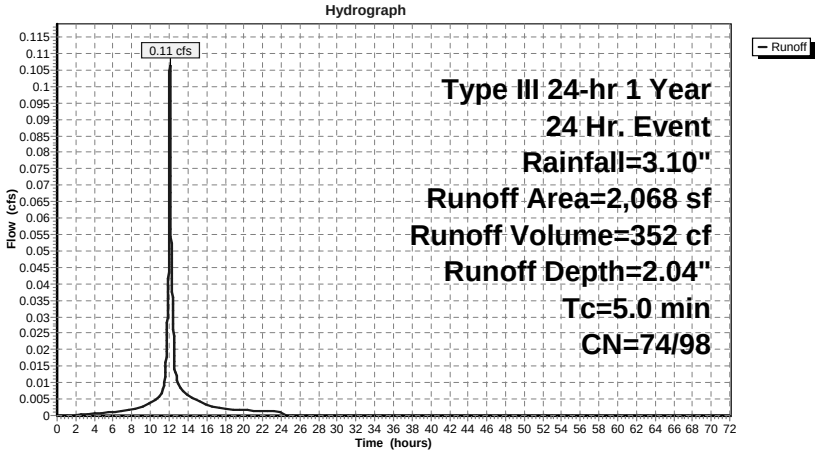
	Area (sf)	CN	Description	Land Use
	1,168	98	Paved parking, HSG C	Pavement
*	900	74	Bioretention, HSG C	Landscaped
	2,068	88	Weighted Average	
	900	74	43.52% Pervious Area	
	1,168	98	56.48% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 56.48% Impervious, Rv= 0.558, Runoff= 25.52"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
900	Landscaped	0.00	0.00	0.00	0.00
1,168	Pavement	26.82	0.09	0.33	1.04
2,068	Total	26.82	0.09	0.33	1.04

Subcatchment 6A4: Post DA-6A4



Hydrograph for Subcatchment 6A4: Post DA-6A4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.00
12.00	1.55	0.16	1.33	**0.07**
14.00	2.51	0.62	2.28	**0.01**
16.00	2.75	0.75	2.52	0.00
18.00	2.88	0.83	2.65	0.00
20.00	2.97	0.89	2.74	0.00
22.00	3.04	0.93	2.81	0.00
24.00	**3.10**	**0.97**	**2.87**	0.00
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00

Summary for Pond 6A4-Bio: 6A4-Bioretention

Inflow Area = 2,068 sf, 56.48% Impervious, Inflow Depth = 2.04" for 1 Year, 24 Hr. Event event
Inflow = 0.11 cfs @ 12.07 hrs, Volume= 352 cf
Outflow = 0.01 cfs @ 14.25 hrs, Volume= 285 cf, Atten= 95%, Lag= 130.6 min
Discarded = 0.00 cfs @ 11.96 hrs, Volume= 258 cf
Primary = 0.00 cfs @ 14.25 hrs, Volume= 28 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 640.50' @ 14.25 hrs Surf.Area= 294 sf Storage= 245 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,047.1 min (1,825.4 - 778.3)

Volume	Invert	Avail.Storage	Storage Description
#1	635.75'	391 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

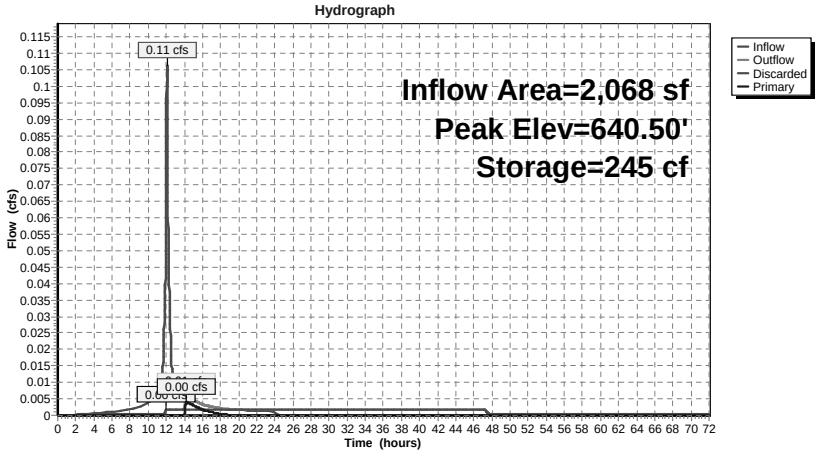
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
635.75	56	0.0	0	0
635.76	56	40.0	0	0
639.99	56	40.0	95	95
640.00	294	100.0	2	97
640.50	294	100.0	147	244
641.00	294	100.0	147	391

Device	Routing	Invert	Outlet Devices
#1	Discarded	635.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	640.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.96 hrs HW=640.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 14.25 hrs HW=640.50' TW=600.74' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.00 cfs @ 0.17 fps)

Pond 6A4-Bio: 6A4-Bioretention



Hydrograph for Pond 6A4-Bio: 6A4-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	635.75	0.00	0.00	0.00
2.00	0.00	0	635.75	0.00	0.00	0.00
4.00	0.00	0	635.77	0.00	0.00	0.00
6.00	0.00	4	635.91	0.00	0.00	0.00
8.00	0.00	11	636.24	0.00	0.00	0.00
10.00	0.00	28	637.02	0.00	**0.00**	0.00
12.00	**0.07**	105	640.03	0.00	**0.00**	0.00
14.00	**0.01**	**243**	**640.50**	**0.00**	0.00	**0.00**
16.00	0.00	**244**	**640.50**	**0.00**	0.00	**0.00**
18.00	0.00	244	640.50	0.00	0.00	0.00
20.00	0.00	244	640.50	0.00	0.00	0.00
22.00	0.00	242	640.49	0.00	0.00	0.00
24.00	0.00	239	640.48	0.00	0.00	0.00
26.00	0.00	227	640.44	0.00	0.00	0.00
28.00	0.00	214	640.40	0.00	0.00	0.00
30.00	0.00	202	640.36	0.00	0.00	0.00
32.00	0.00	190	640.32	0.00	0.00	0.00
34.00	0.00	178	640.28	0.00	0.00	0.00
36.00	0.00	165	640.23	0.00	0.00	0.00
38.00	0.00	153	640.19	0.00	0.00	0.00
40.00	0.00	141	640.15	0.00	0.00	0.00
42.00	0.00	129	640.11	0.00	0.00	0.00
44.00	0.00	116	640.07	0.00	0.00	0.00
46.00	0.00	104	640.03	0.00	0.00	0.00
48.00	0.00	95	639.97	0.00	0.00	0.00
50.00	0.00	92	639.87	0.00	0.00	0.00
52.00	0.00	90	639.77	0.00	0.00	0.00
54.00	0.00	88	639.66	0.00	0.00	0.00
56.00	0.00	85	639.56	0.00	0.00	0.00
58.00	0.00	83	639.45	0.00	0.00	0.00
60.00	0.00	81	639.35	0.00	0.00	0.00
62.00	0.00	78	639.25	0.00	0.00	0.00
64.00	0.00	76	639.14	0.00	0.00	0.00
66.00	0.00	74	639.04	0.00	0.00	0.00
68.00	0.00	71	638.93	0.00	0.00	0.00
70.00	0.00	69	638.83	0.00	0.00	0.00
72.00	0.00	67	638.72	0.00	0.00	0.00

Summary for Subcatchment 6B: Post DA-6B

Runoff = 0.63 cfs @ 12.63 hrs, Volume= 7,082 cf, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

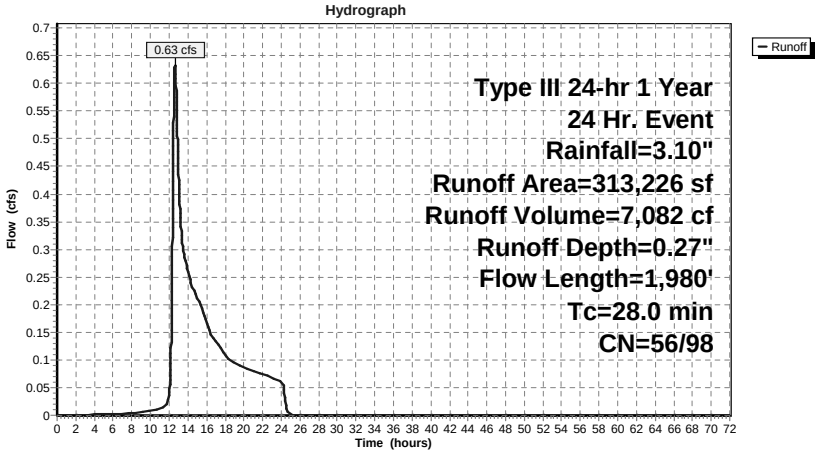
	Area (sf)	CN	Description	Land Use
	2,675	98	Unconnected pavement, HSG C	Pavement
	42,639	61	>75% Grass cover, Good, HSG B	Open Space
	262,664	55	Woods, Good, HSG B	Woods
	3,867	74	>75% Grass cover, Good, HSG C	Open Space
*	1,381	96	Gravel roads, HSG C	Roadway
	313,226	57	Weighted Average	
	310,551	56	99.15% Pervious Area	
	2,675	98	0.85% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	150	0.1200	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.4	370	0.2600	2.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	100	0.1200	7.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	1,360	0.1000	17.41	54.71	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
28.0	1,980	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.85% Impervious, Rv= 0.058, Runoff= 2.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
46,506	Open Space	383.96	1.34	5.80	0.78
2,675	Pavement	6.35	0.02	0.08	0.25
1,381	Roadway	3.28	0.01	0.04	0.13
262,664	Woods	133.29	0.00	0.00	4.43
313,226	Total	526.87	1.37	5.92	5.59

Subcatchment 6B: Post DA-6B



Hydrograph for Subcatchment 6B: Post DA-6B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.00	1.33	**0.04**
14.00	2.51	0.10	2.28	**0.26**
16.00	2.75	0.15	2.52	0.17
18.00	2.88	0.19	2.65	0.11
20.00	2.97	0.21	2.74	0.09
22.00	3.04	0.23	2.81	0.07
24.00	**3.10**	**0.25**	**2.87**	0.06
26.00	3.10	0.25	2.87	0.00
28.00	3.10	0.25	2.87	0.00
30.00	3.10	0.25	2.87	0.00
32.00	3.10	0.25	2.87	0.00
34.00	3.10	0.25	2.87	0.00
36.00	3.10	0.25	2.87	0.00
38.00	3.10	0.25	2.87	0.00
40.00	3.10	0.25	2.87	0.00
42.00	3.10	0.25	2.87	0.00
44.00	3.10	0.25	2.87	0.00
46.00	3.10	0.25	2.87	0.00
48.00	3.10	0.25	2.87	0.00
50.00	3.10	0.25	2.87	0.00
52.00	3.10	0.25	2.87	0.00
54.00	3.10	0.25	2.87	0.00
56.00	3.10	0.25	2.87	0.00
58.00	3.10	0.25	2.87	0.00
60.00	3.10	0.25	2.87	0.00
62.00	3.10	0.25	2.87	0.00
64.00	3.10	0.25	2.87	0.00
66.00	3.10	0.25	2.87	0.00
68.00	3.10	0.25	2.87	0.00
70.00	3.10	0.25	2.87	0.00
72.00	3.10	0.25	2.87	0.00

Summary for Subcatchment 7: Post DA-7

Runoff = 2.13 cfs @ 12.10 hrs, Volume= 7,314 cf, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

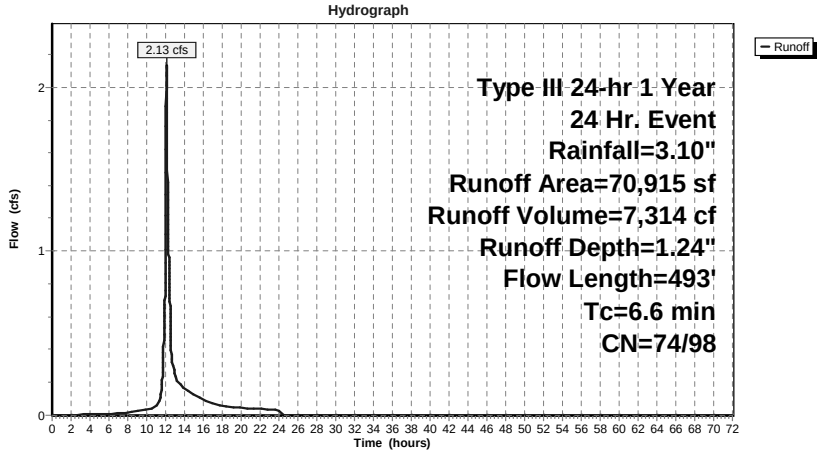
Area (sf)	CN	Description	Land Use
9,926	98	Unconnected pavement, HSG C	Pavement
60,989	74	>75% Grass cover, Good, HSG C	Open Space
70,915	77	Weighted Average	
60,989	74	86.00% Pervious Area	
9,926	98	14.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2670	0.34		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	35	0.2670	3.62		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	81	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	114	0.0350	13.47	42.32	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.1	123	0.0810	20.49	64.38	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
6.6	493	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 14.00% Impervious, Rv= 0.176, Runoff= 8.04"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
60,989	Open Space	1,536.06	5.36	23.22	3.14
9,926	Pavement	71.84	0.23	0.87	2.78
70,915	Total	1,607.91	5.59	24.09	5.92

Subcatchment 7: Post DA-7



Hydrograph for Subcatchment 7: Post DA-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.02
10.00	0.59	0.00	0.40	0.03
12.00	1.55	0.16	1.33	**1.11**
14.00	2.51	0.62	2.28	**0.16**
16.00	2.75	0.75	2.52	0.09
18.00	2.88	0.83	2.65	0.06
20.00	2.97	0.89	2.74	0.05
22.00	3.04	0.93	2.81	0.04
24.00	**3.10**	**0.97**	**2.87**	0.03
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00

Summary for Pond DP6: DP6

[57] Hint: Peaked at 602.93' (Flood elevation advised)

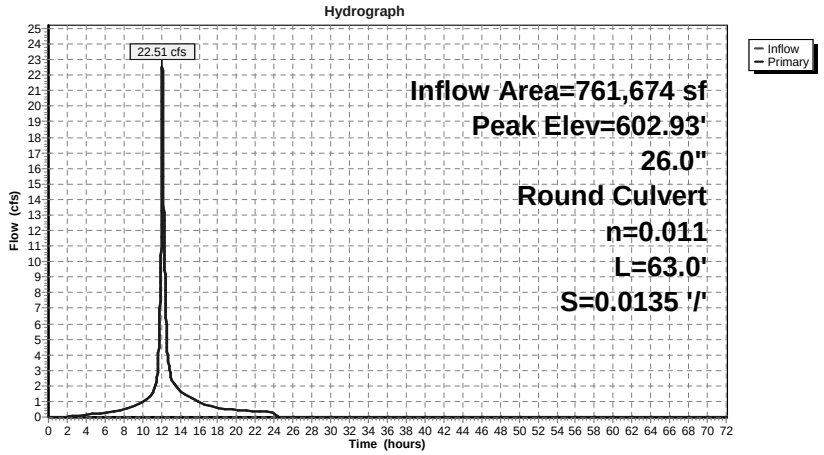
Inflow Area = 761,674 sf, 39.81% Impervious, Inflow Depth = 1.42" for 1 Year, 24 Hr. Event event
Inflow = 22.51 cfs @ 12.11 hrs, Volume= 89,848 cf
Outflow = 22.51 cfs @ 12.11 hrs, Volume= 89,848 cf, Atten= 0%, Lag= 0.0 min
Primary = 22.51 cfs @ 12.11 hrs, Volume= 89,848 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 602.93' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	600.24'	**26.0" Round Culvert** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.24' / 599.39' S= 0.0135 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=22.50 cfs @ 12.11 hrs HW=602.93' (Free Discharge)
1=Culvert (Inlet Controls 22.50 cfs @ 6.10 fps)

Pond DP6: DP6



Hydrograph for Pond DP6: DP6

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	600.24	0.00	52.00	0.00	600.24	0.00
1.00	0.00	600.24	0.00	53.00	0.00	600.24	0.00
2.00	0.03	600.31	0.03	54.00	0.00	600.24	0.00
3.00	0.09	600.35	0.09	55.00	0.00	600.24	0.00
4.00	0.14	600.39	0.14	56.00	0.00	600.24	0.00
5.00	0.19	600.41	0.19	57.00	0.00	600.24	0.00
6.00	0.24	600.43	0.24	58.00	0.00	600.24	0.00
7.00	0.34	600.47	0.34	59.00	0.00	600.24	0.00
8.00	0.46	600.51	0.46	60.00	0.00	600.24	0.00
9.00	0.69	600.57	0.69	61.00	0.00	600.24	0.00
10.00	0.94	600.63	0.94	62.00	0.00	600.24	0.00
11.00	1.45	600.72	1.45	63.00	0.00	600.24	0.00
12.00	**12.33**	**601.82**	**12.33**	64.00	0.00	600.24	0.00
13.00	**2.68**	**600.91**	**2.68**	65.00	0.00	600.24	0.00
14.00	1.67	600.76	1.67	66.00	0.00	600.24	0.00
15.00	1.28	600.69	1.28	67.00	0.00	600.24	0.00
16.00	0.93	600.62	0.93	68.00	0.00	600.24	0.00
17.00	0.73	600.58	0.73	69.00	0.00	600.24	0.00
18.00	0.57	600.54	0.57	70.00	0.00	600.24	0.00
19.00	0.50	600.52	0.50	71.00	0.00	600.24	0.00
20.00	0.45	600.51	0.45	72.00	0.00	600.24	0.00
21.00	0.41	600.49	0.41				
22.00	0.38	600.48	0.38				
23.00	0.34	600.47	0.34				
24.00	0.30	600.46	0.30				
25.00	0.00	600.25	0.00				
26.00	0.00	600.24	0.00				
27.00	0.00	600.24	0.00				
28.00	0.00	600.24	0.00				
29.00	0.00	600.24	0.00				
30.00	0.00	600.24	0.00				
31.00	0.00	600.24	0.00				
32.00	0.00	600.24	0.00				
33.00	0.00	600.24	0.00				
34.00	0.00	600.24	0.00				
35.00	0.00	600.24	0.00				
36.00	0.00	600.24	0.00				
37.00	0.00	600.24	0.00				
38.00	0.00	600.24	0.00				
39.00	0.00	600.24	0.00				
40.00	0.00	600.24	0.00				
41.00	0.00	600.24	0.00				
42.00	0.00	600.24	0.00				
43.00	0.00	600.24	0.00				
44.00	0.00	600.24	0.00				
45.00	0.00	600.24	0.00				
46.00	0.00	600.24	0.00				
47.00	0.00	600.24	0.00				
48.00	0.00	600.24	0.00				
49.00	0.00	600.24	0.00				
50.00	0.00	600.24	0.00				
51.00	0.00	600.24	0.00				

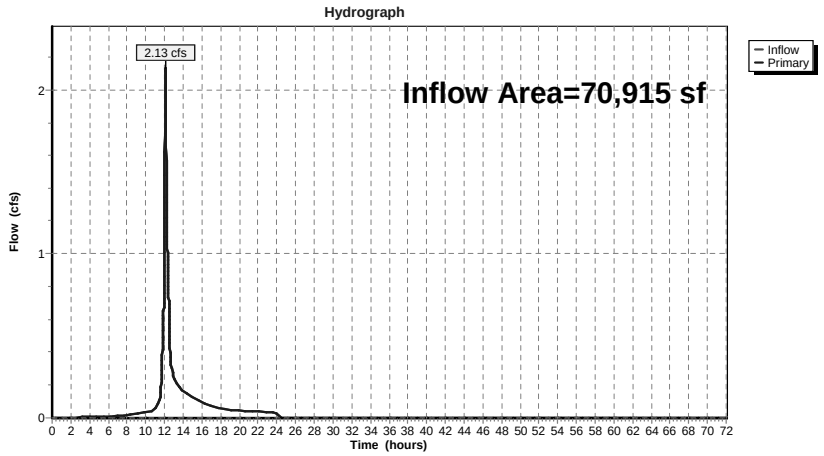
Summary for Pond DP7: DP7

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 70,915 sf, 14.00% Impervious, Inflow Depth = 1.24" for 1 Year, 24 Hr. Event event
Inflow = 2.13 cfs @ 12.10 hrs, Volume= 7,314 cf
Primary = 2.13 cfs @ 12.10 hrs, Volume= 7,314 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP7: DP7



Hydrograph for Pond DP7: DP7

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.02		0.02	60.00	0.00		0.00
9.00	0.02		0.02	61.00	0.00		0.00
10.00	0.03		0.03	62.00	0.00		0.00
11.00	0.06		0.06	63.00	0.00		0.00
12.00	**1.11**		**1.11**	64.00	0.00		0.00
13.00	**0.25**		**0.25**	65.00	0.00		0.00
14.00	0.16		0.16	66.00	0.00		0.00
15.00	0.13		0.13	67.00	0.00		0.00
16.00	0.09		0.09	68.00	0.00		0.00
17.00	0.07		0.07	69.00	0.00		0.00
18.00	0.06		0.06	70.00	0.00		0.00
19.00	0.05		0.05	71.00	0.00		0.00
20.00	0.05		0.05	72.00	0.00		0.00
21.00	0.04		0.04				
22.00	0.04		0.04				
23.00	0.03		0.03				
24.00	0.03		0.03				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 6A1: Post DA-6A1 Runoff Area=441,897 sf 67.17% Impervious Runoff Depth=2.60"
Flow Length=817' Tc=8.0 min CN=74/98 Runoff=26.00 cfs 95,790 cf

Subcatchment 6A2: Post DA-6A2 Runoff Area=996 sf 47.89% Impervious Runoff Depth=2.21"
Tc=5.0 min CN=74/98 Runoff=0.06 cfs 183 cf

Pond 6A2-Bio: 6A2-Bioretention Peak Elev=652.50' Storage=115 cf Inflow=0.06 cfs 183 cf
Discarded=0.00 cfs 125 cf Primary=0.00 cfs 29 cf Outflow=0.00 cfs 154 cf

Subcatchment 6A3: Post DA-6A3 Runoff Area=3,487 sf 58.70% Impervious Runoff Depth=2.43"
Tc=5.0 min CN=74/98 Runoff=0.21 cfs 706 cf

Pond 6A3-Bio: 6A3-Bioretention Peak Elev=630.51' Storage=431 cf Inflow=0.21 cfs 706 cf
Discarded=0.00 cfs 453 cf Primary=0.02 cfs 133 cf Outflow=0.02 cfs 586 cf

Subcatchment 6A4: Post DA-6A4 Runoff Area=2,068 sf 56.48% Impervious Runoff Depth=2.38"
Tc=5.0 min CN=74/98 Runoff=0.12 cfs 411 cf

Pond 6A4-Bio: 6A4-Bioretention Peak Elev=640.51' Storage=246 cf Inflow=0.12 cfs 411 cf
Discarded=0.00 cfs 261 cf Primary=0.01 cfs 83 cf Outflow=0.01 cfs 344 cf

Subcatchment 6B: Post DA-6B Runoff Area=313,226 sf 0.85% Impervious Runoff Depth=0.40"
Flow Length=1,980' Tc=28.0 min CN=56/98 Runoff=1.17 cfs 10,564 cf

Subcatchment 7: Post DA-7 Runoff Area=70,915 sf 14.00% Impervious Runoff Depth=1.52"
Flow Length=493' Tc=6.6 min CN=74/98 Runoff=2.67 cfs 9,004 cf

Pond DP6: DP6 Peak Elev=603.49' Inflow=26.10 cfs 106,600 cf
26.0" Round Culvert n=0.011 L=63.0' S=0.0135 '/' Outflow=26.10 cfs 106,600 cf

Pond DP7: DP7 Inflow=2.67 cfs 9,004 cf
Primary=2.67 cfs 9,004 cf

Total Runoff Area = 832,589 sf Runoff Volume = 116,659 cf Average Runoff Depth = 1.68"
62.39% Pervious = 519,452 sf 37.61% Impervious = 313,137 sf

Summary for Subcatchment 6A1: Post DA-6A1

Runoff = 26.00 cfs @ 12.11 hrs, Volume= 95,790 cf, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

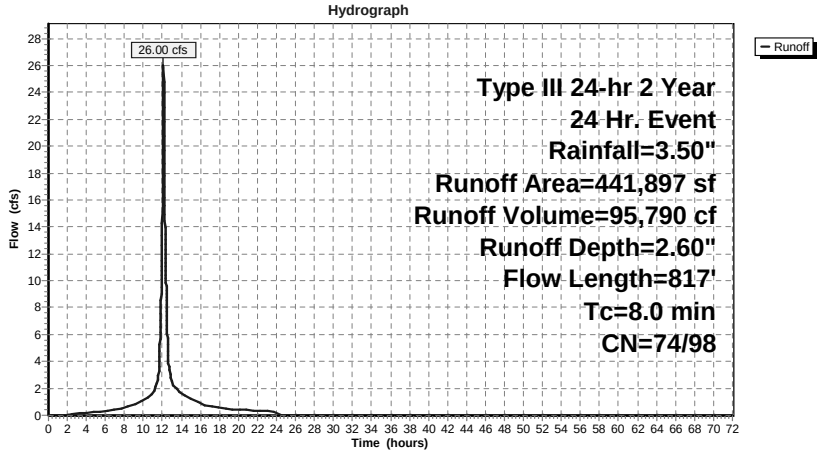
Area (sf)	CN	Description	Land Use
114,130	98	Unconnected pavement, HSG C	Pavement
182,714	98	Unconnected roofs, HSG C	Roofs
3,659	61	>75% Grass cover, Good, HSG B	Open Space
141,394	74	>75% Grass cover, Good, HSG C	Open Space
441,897	90	Weighted Average	
145,053	74	32.83% Pervious Area	
296,844	98	67.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	90	0.3310	9.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	627	0.1080	18.10	56.85	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
8.0	817	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 67.17% Impervious, Rv= 0.655, Runoff= 29.91"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
145,053	Open Space	13,589.28	47.40	205.42	27.77
114,130	Pavement	3,072.69	9.95	37.30	119.00
182,714	Roofs	540.25	3.13	42.65	210.41
441,897	Total	17,202.22	60.48	285.37	357.18

Subcatchment 6A1: Post DA-6A1



Hydrograph for Subcatchment 6A1: Post DA-6A1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.05
4.00	0.15	0.00	0.04	0.17
6.00	0.25	0.00	0.11	0.29
8.00	0.40	0.00	0.23	0.53
10.00	0.66	0.00	0.47	1.07
12.00	1.75	0.24	1.53	**14.27**
14.00	2.84	0.81	2.61	**1.62**
16.00	3.10	0.97	2.87	0.86
18.00	3.25	1.07	3.02	0.53
20.00	3.35	1.14	3.12	0.42
22.00	3.43	1.19	3.20	0.35
24.00	**3.50**	**1.24**	**3.27**	0.28
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00

Summary for Subcatchment 6A2: Post DA-6A2

Runoff = 0.06 cfs @ 12.07 hrs, Volume= 183 cf, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

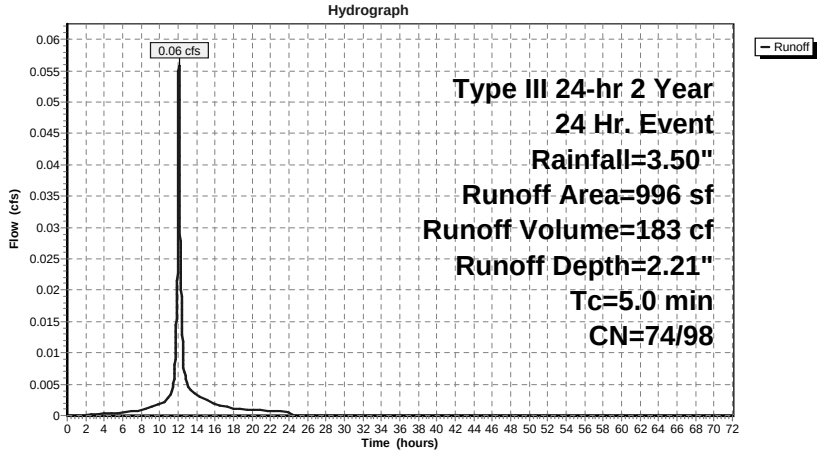
	Area (sf)	CN	Description	Land Use
	477	98	Paved parking, HSG C	Pavement
*	519	74	Bioretention, HSG C	Landscaped
	996	85	Weighted Average	
	519	74	52.11% Pervious Area	
	477	98	47.89% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 47.89% Impervious, Rv= 0.481, Runoff= 21.98"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
519	Landscaped	0.00	0.00	0.00	0.00
477	Pavement	9.44	0.03	0.11	0.37
996	Total	9.44	0.03	0.11	0.37

Subcatchment 6A2: Post DA-6A2



Hydrograph for Subcatchment 6A2: Post DA-6A2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.00
12.00	1.75	0.24	1.53	**0.04**
14.00	2.84	0.81	2.61	**0.00**
16.00	3.10	0.97	2.87	0.00
18.00	3.25	1.07	3.02	0.00
20.00	3.35	1.14	3.12	0.00
22.00	3.43	1.19	3.20	0.00
24.00	**3.50**	**1.24**	**3.27**	0.00
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00

Summary for Pond 6A2-Bio: 6A2-Bioretention

Inflow Area = 996 sf, 47.89% Impervious, Inflow Depth = 2.21" for 2 Year, 24 Hr. Event event
Inflow = 0.06 cfs @ 12.07 hrs, Volume= 183 cf
Outflow = 0.00 cfs @ 13.09 hrs, Volume= 154 cf, Atten= 92%, Lag= 61.2 min
Discarded = 0.00 cfs @ 11.90 hrs, Volume= 125 cf
Primary = 0.00 cfs @ 13.09 hrs, Volume= 29 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 652.50' @ 13.09 hrs Surf.Area= 143 sf Storage= 115 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 939.2 min (1,722.7 - 783.5)

Volume	Invert	Avail.Storage	Storage Description
#1	647.75'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

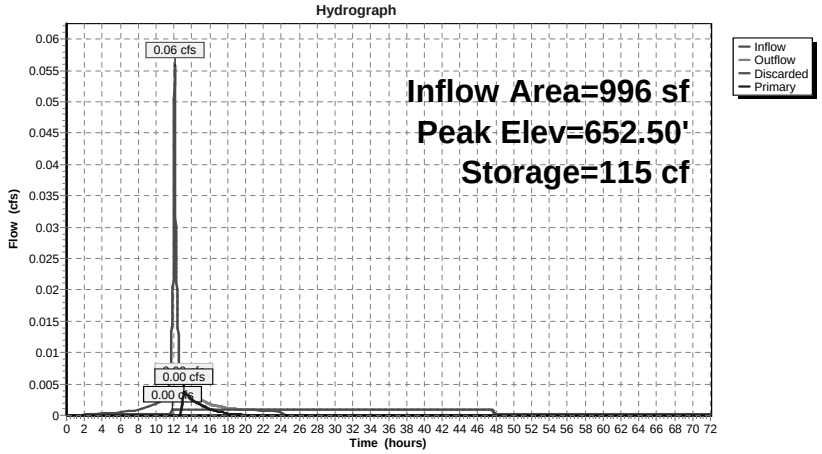
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
647.75	25	0.0	0	0
651.75	25	40.0	40	40
651.99	25	40.0	2	42
652.00	143	100.0	1	43
652.50	143	100.0	72	115
653.00	143	100.0	72	186

Device	Routing	Invert	Outlet Devices
#1	Discarded	647.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	652.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.90 hrs HW=652.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 13.09 hrs HW=652.50' TW=600.95' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.00 cfs @ 0.17 fps)

Pond 6A2-Bio: 6A2-Bioretention



Hydrograph for Pond 6A2-Bio: 6A2-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	647.75	0.00	0.00	0.00
2.00	0.00	0	647.75	0.00	0.00	0.00
4.00	0.00	0	647.78	0.00	0.00	0.00
6.00	0.00	2	647.95	0.00	0.00	0.00
8.00	0.00	6	648.32	0.00	0.00	0.00
10.00	0.00	14	649.14	0.00	**0.00**	0.00
12.00	**0.04**	**52**	**652.06**	**0.00**	**0.00**	**0.00**
14.00	**0.00**	**115**	**652.50**	**0.00**	0.00	**0.00**
16.00	0.00	115	652.50	0.00	0.00	0.00
18.00	0.00	115	652.50	0.00	0.00	0.00
20.00	0.00	115	652.50	0.00	0.00	0.00
22.00	0.00	115	652.50	0.00	0.00	0.00
24.00	0.00	113	652.49	0.00	0.00	0.00
26.00	0.00	107	652.45	0.00	0.00	0.00
28.00	0.00	102	652.41	0.00	0.00	0.00
30.00	0.00	96	652.37	0.00	0.00	0.00
32.00	0.00	90	652.32	0.00	0.00	0.00
34.00	0.00	84	652.28	0.00	0.00	0.00
36.00	0.00	78	652.24	0.00	0.00	0.00
38.00	0.00	72	652.20	0.00	0.00	0.00
40.00	0.00	66	652.16	0.00	0.00	0.00
42.00	0.00	60	652.12	0.00	0.00	0.00
44.00	0.00	54	652.07	0.00	0.00	0.00
46.00	0.00	48	652.03	0.00	0.00	0.00
48.00	0.00	42	651.99	0.00	0.00	0.00
50.00	0.00	41	651.89	0.00	0.00	0.00
52.00	0.00	40	651.78	0.00	0.00	0.00
54.00	0.00	39	651.68	0.00	0.00	0.00
56.00	0.00	38	651.58	0.00	0.00	0.00
58.00	0.00	37	651.47	0.00	0.00	0.00
60.00	0.00	36	651.37	0.00	0.00	0.00
62.00	0.00	35	651.26	0.00	0.00	0.00
64.00	0.00	34	651.16	0.00	0.00	0.00
66.00	0.00	33	651.05	0.00	0.00	0.00
68.00	0.00	32	650.95	0.00	0.00	0.00
70.00	0.00	31	650.85	0.00	0.00	0.00
72.00	0.00	30	650.74	0.00	0.00	0.00

Summary for Subcatchment 6A3: Post DA-6A3

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 706 cf, Depth= 2.43"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

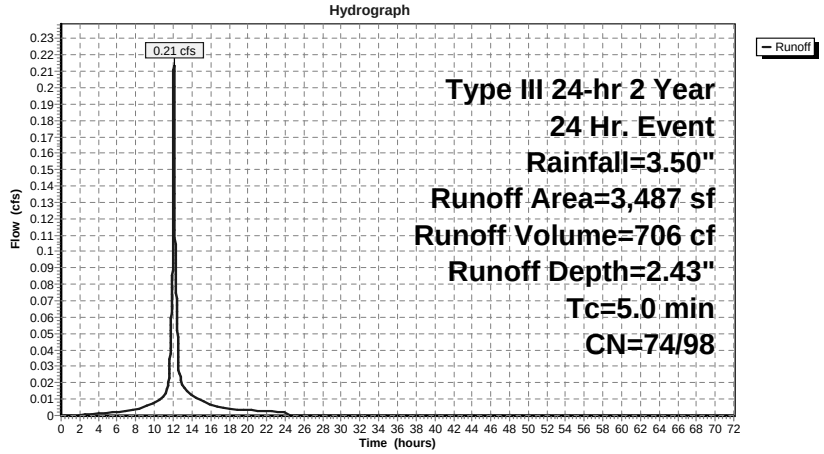
	Area (sf)	CN	Description	Land Use
	2,047	98	Paved parking, HSG C	Pavement
*	1,440	74	Bioretention, HSG C	Landscaped
	3,487	88	Weighted Average	
	1,440	74	41.30% Pervious Area	
	2,047	98	58.70% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 58.70% Impervious, Rv= 0.578, Runoff= 26.43"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,440	Landscaped	0.00	0.00	0.00	0.00
2,047	Pavement	48.69	0.16	0.59	1.89
3,487	Total	48.69	0.16	0.59	1.89

Subcatchment 6A3: Post DA-6A3



Hydrograph for Subcatchment 6A3: Post DA-6A3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.24	1.53	**0.14**
14.00	2.84	0.81	2.61	**0.01**
16.00	3.10	0.97	2.87	0.01
18.00	3.25	1.07	3.02	0.00
20.00	3.35	1.14	3.12	0.00
22.00	3.43	1.19	3.20	0.00
24.00	**3.50**	**1.24**	**3.27**	0.00
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00

Summary for Pond 6A3-Bio: 6A3-Bioretention

Inflow Area = 3,487 sf, 58.70% Impervious, Inflow Depth = 2.43" for 2 Year, 24 Hr. Event event
Inflow = 0.21 cfs @ 12.07 hrs, Volume= 706 cf
Outflow = 0.02 cfs @ 12.80 hrs, Volume= 586 cf, Atten= 89%, Lag= 43.5 min
Discarded = 0.00 cfs @ 11.87 hrs, Volume= 453 cf
Primary = 0.02 cfs @ 12.80 hrs, Volume= 133 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 630.51' @ 12.80 hrs Surf.Area= 509 sf Storage= 431 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 912.7 min (1,687.8 - 775.1)

Volume	Invert	Avail.Storage	Storage Description
#1	625.75'	682 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

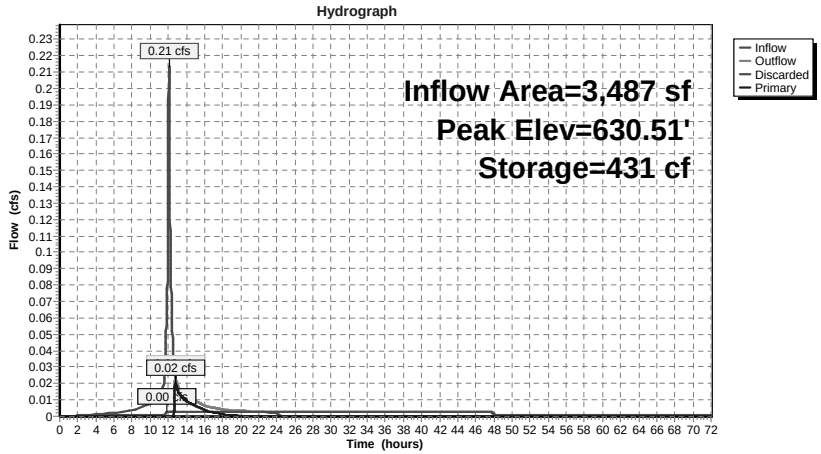
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
625.75	100	0.0	0	0
629.75	100	40.0	160	160
629.99	100	40.0	10	170
630.00	509	100.0	3	173
630.50	509	100.0	255	427
631.00	509	100.0	255	682

Device	Routing	Invert	Outlet Devices
#1	Discarded	625.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	630.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.87 hrs HW=630.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.02 cfs @ 12.80 hrs HW=630.51' TW=601.08' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.02 cfs @ 0.30 fps)

Pond 6A3-Bio: 6A3-Bioretention



Hydrograph for Pond 6A3-Bio: 6A3-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	625.75	0.00	0.00	0.00
2.00	0.00	0	625.75	0.00	0.00	0.00
4.00	0.00	2	625.79	0.00	0.00	0.00
6.00	0.00	9	625.98	0.00	0.00	0.00
8.00	0.00	25	626.38	0.00	0.00	0.00
10.00	0.01	61	627.27	0.00	**0.00**	0.00
12.00	**0.14**	**217**	**630.09**	**0.00**	**0.00**	**0.00**
14.00	**0.01**	**430**	**630.51**	**0.01**	0.00	**0.01**
16.00	0.01	429	630.50	0.01	0.00	0.00
18.00	0.00	428	630.50	0.00	0.00	0.00
20.00	0.00	427	630.50	0.00	0.00	0.00
22.00	0.00	427	630.50	0.00	0.00	0.00
24.00	0.00	423	630.49	0.00	0.00	0.00
26.00	0.00	402	630.45	0.00	0.00	0.00
28.00	0.00	381	630.41	0.00	0.00	0.00
30.00	0.00	360	630.37	0.00	0.00	0.00
32.00	0.00	338	630.33	0.00	0.00	0.00
34.00	0.00	317	630.28	0.00	0.00	0.00
36.00	0.00	296	630.24	0.00	0.00	0.00
38.00	0.00	275	630.20	0.00	0.00	0.00
40.00	0.00	254	630.16	0.00	0.00	0.00
42.00	0.00	232	630.12	0.00	0.00	0.00
44.00	0.00	211	630.08	0.00	0.00	0.00
46.00	0.00	190	630.03	0.00	0.00	0.00
48.00	0.00	170	629.99	0.00	0.00	0.00
50.00	0.00	166	629.89	0.00	0.00	0.00
52.00	0.00	161	629.79	0.00	0.00	0.00
54.00	0.00	157	629.68	0.00	0.00	0.00
56.00	0.00	153	629.58	0.00	0.00	0.00
58.00	0.00	149	629.47	0.00	0.00	0.00
60.00	0.00	145	629.37	0.00	0.00	0.00
62.00	0.00	141	629.27	0.00	0.00	0.00
64.00	0.00	136	629.16	0.00	0.00	0.00
66.00	0.00	132	629.06	0.00	0.00	0.00
68.00	0.00	128	628.95	0.00	0.00	0.00
70.00	0.00	124	628.85	0.00	0.00	0.00
72.00	0.00	120	628.75	0.00	0.00	0.00

Summary for Subcatchment 6A4: Post DA-6A4

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 411 cf, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

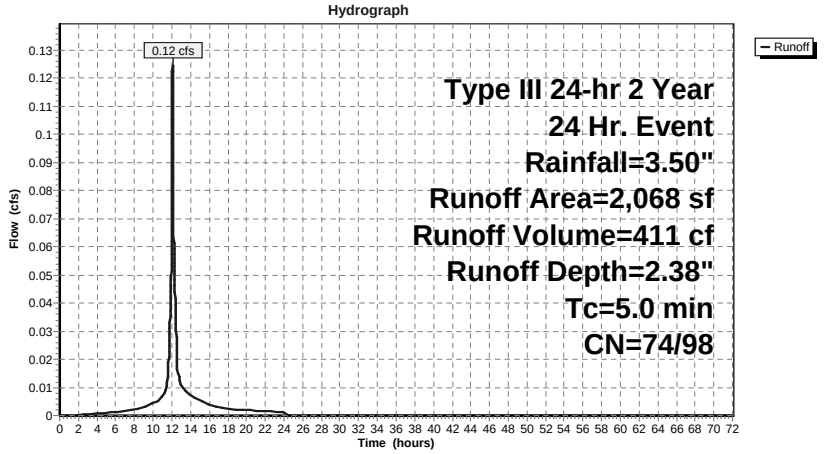
	Area (sf)	CN	Description	Land Use
	1,168	98	Paved parking, HSG C	Pavement
*	900	74	Bioretention, HSG C	Landscaped
	2,068	88	Weighted Average	
	900	74	43.52% Pervious Area	
	1,168	98	56.48% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 56.48% Impervious, Rv= 0.558, Runoff= 25.52"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
900	Landscaped	0.00	0.00	0.00	0.00
1,168	Pavement	26.82	0.09	0.33	1.04
2,068	Total	26.82	0.09	0.33	1.04

Subcatchment 6A4: Post DA-6A4



Hydrograph for Subcatchment 6A4: Post DA-6A4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.00
12.00	1.75	0.24	1.53	**0.08**
14.00	2.84	0.81	2.61	**0.01**
16.00	3.10	0.97	2.87	0.00
18.00	3.25	1.07	3.02	0.00
20.00	3.35	1.14	3.12	0.00
22.00	3.43	1.19	3.20	0.00
24.00	**3.50**	**1.24**	**3.27**	0.00
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00

Summary for Pond 6A4-Bio: 6A4-Bioretention

Inflow Area = 2,068 sf, 56.48% Impervious, Inflow Depth = 2.38" for 2 Year, 24 Hr. Event event
Inflow = 0.12 cfs @ 12.07 hrs, Volume= 411 cf
Outflow = 0.01 cfs @ 12.67 hrs, Volume= 344 cf, Atten= 88%, Lag= 36.1 min
Discarded = 0.00 cfs @ 11.85 hrs, Volume= 261 cf
Primary = 0.01 cfs @ 12.67 hrs, Volume= 83 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 640.51' @ 12.67 hrs Surf.Area= 294 sf Storage= 246 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 892.2 min (1,668.9 - 776.7)

Volume	Invert	Avail.Storage	Storage Description
#1	635.75'	391 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

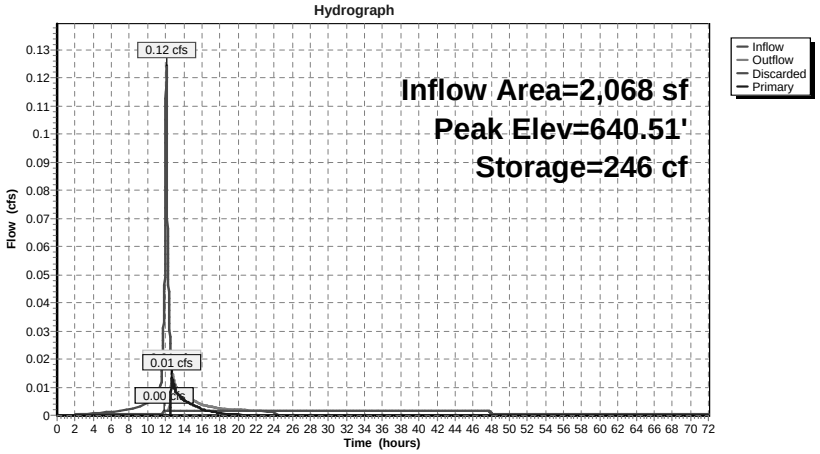
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
635.75	56	0.0	0	0
635.76	56	40.0	0	0
639.99	56	40.0	95	95
640.00	294	100.0	2	97
640.50	294	100.0	147	244
641.00	294	100.0	147	391

Device	Routing	Invert	Outlet Devices
#1	Discarded	635.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	640.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.85 hrs HW=640.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.01 cfs @ 12.67 hrs HW=640.51' TW=601.15' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.01 cfs @ 0.26 fps)

Pond 6A4-Bio: 6A4-Bioretention



Hydrograph for Pond 6A4-Bio: 6A4-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	635.75	0.00	0.00	0.00
2.00	0.00	0	635.75	0.00	0.00	0.00
4.00	0.00	1	635.80	0.00	0.00	0.00
6.00	0.00	5	635.99	0.00	0.00	0.00
8.00	0.00	14	636.39	0.00	0.00	0.00
10.00	0.00	35	637.30	0.00	**0.00**	0.00
12.00	**0.08**	**125**	**640.10**	**0.00**	**0.00**	**0.00**
14.00	**0.01**	**245**	**640.50**	**0.01**	0.00	**0.01**
16.00	0.00	244	640.50	0.00	0.00	0.00
18.00	0.00	244	640.50	0.00	0.00	0.00
20.00	0.00	244	640.50	0.00	0.00	0.00
22.00	0.00	244	640.50	0.00	0.00	0.00
24.00	0.00	241	640.49	0.00	0.00	0.00
26.00	0.00	229	640.45	0.00	0.00	0.00
28.00	0.00	217	640.41	0.00	0.00	0.00
30.00	0.00	205	640.37	0.00	0.00	0.00
32.00	0.00	193	640.33	0.00	0.00	0.00
34.00	0.00	180	640.28	0.00	0.00	0.00
36.00	0.00	168	640.24	0.00	0.00	0.00
38.00	0.00	156	640.20	0.00	0.00	0.00
40.00	0.00	144	640.16	0.00	0.00	0.00
42.00	0.00	131	640.12	0.00	0.00	0.00
44.00	0.00	119	640.08	0.00	0.00	0.00
46.00	0.00	107	640.03	0.00	0.00	0.00
48.00	0.00	95	639.99	0.00	0.00	0.00
50.00	0.00	93	639.89	0.00	0.00	0.00
52.00	0.00	90	639.79	0.00	0.00	0.00
54.00	0.00	88	639.69	0.00	0.00	0.00
56.00	0.00	86	639.58	0.00	0.00	0.00
58.00	0.00	83	639.48	0.00	0.00	0.00
60.00	0.00	81	639.37	0.00	0.00	0.00
62.00	0.00	79	639.27	0.00	0.00	0.00
64.00	0.00	76	639.16	0.00	0.00	0.00
66.00	0.00	74	639.06	0.00	0.00	0.00
68.00	0.00	72	638.96	0.00	0.00	0.00
70.00	0.00	69	638.85	0.00	0.00	0.00
72.00	0.00	67	638.75	0.00	0.00	0.00

Summary for Subcatchment 6B: Post DA-6B

Runoff = 1.17 cfs @ 12.57 hrs, Volume= 10,564 cf, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

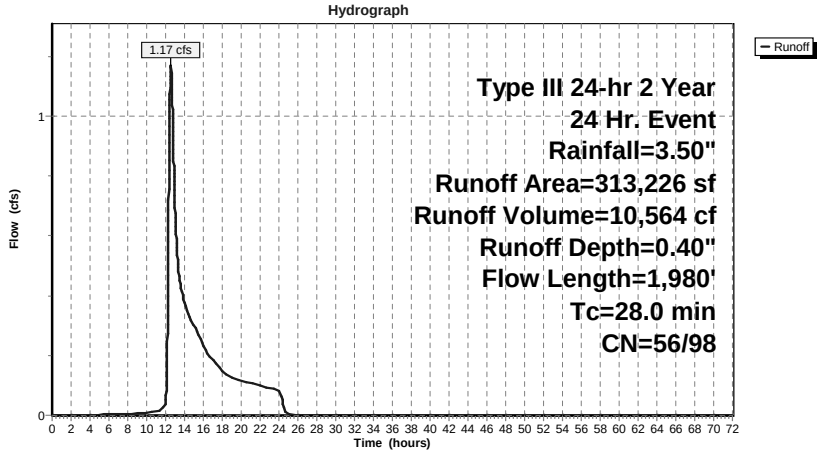
	Area (sf)	CN	Description	Land Use
	2,675	98	Unconnected pavement, HSG C	Pavement
	42,639	61	>75% Grass cover, Good, HSG B	Open Space
	262,664	55	Woods, Good, HSG B	Woods
	3,867	74	>75% Grass cover, Good, HSG C	Open Space
*	1,381	96	Gravel roads, HSG C	Roadway
	313,226	57	Weighted Average	
	310,551	56	99.15% Pervious Area	
	2,675	98	0.85% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	150	0.1200	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.4	370	0.2600	2.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	100	0.1200	7.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	1,360	0.1000	17.41	54.71	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
28.0	1,980	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.85% Impervious, Rv= 0.058, Runoff= 2.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
46,506	Open Space	383.96	1.34	5.80	0.78
2,675	Pavement	6.35	0.02	0.08	0.25
1,381	Roadway	3.28	0.01	0.04	0.13
262,664	Woods	133.29	0.00	0.00	4.43
313,226	Total	526.87	1.37	5.92	5.59

Subcatchment 6B: Post DA-6B



Hydrograph for Subcatchment 6B: Post DA-6B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.00	1.53	**0.05**
14.00	2.84	0.18	2.61	**0.38**
16.00	3.10	0.25	2.87	0.23
18.00	3.25	0.29	3.02	0.15
20.00	3.35	0.33	3.12	0.12
22.00	3.43	0.36	3.20	0.10
24.00	**3.50**	**0.38**	**3.27**	0.08
26.00	3.50	0.38	3.27	0.00
28.00	3.50	0.38	3.27	0.00
30.00	3.50	0.38	3.27	0.00
32.00	3.50	0.38	3.27	0.00
34.00	3.50	0.38	3.27	0.00
36.00	3.50	0.38	3.27	0.00
38.00	3.50	0.38	3.27	0.00
40.00	3.50	0.38	3.27	0.00
42.00	3.50	0.38	3.27	0.00
44.00	3.50	0.38	3.27	0.00
46.00	3.50	0.38	3.27	0.00
48.00	3.50	0.38	3.27	0.00
50.00	3.50	0.38	3.27	0.00
52.00	3.50	0.38	3.27	0.00
54.00	3.50	0.38	3.27	0.00
56.00	3.50	0.38	3.27	0.00
58.00	3.50	0.38	3.27	0.00
60.00	3.50	0.38	3.27	0.00
62.00	3.50	0.38	3.27	0.00
64.00	3.50	0.38	3.27	0.00
66.00	3.50	0.38	3.27	0.00
68.00	3.50	0.38	3.27	0.00
70.00	3.50	0.38	3.27	0.00
72.00	3.50	0.38	3.27	0.00

Summary for Subcatchment 7: Post DA-7

Runoff = 2.67 cfs @ 12.10 hrs, Volume= 9,004 cf, Depth= 1.52"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

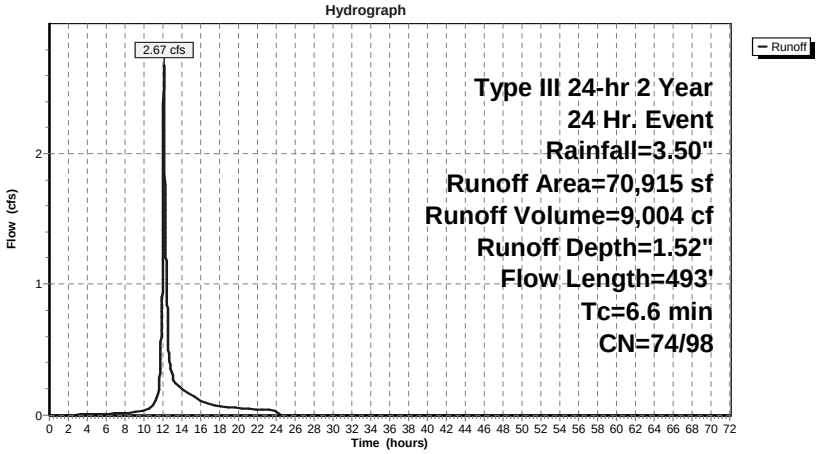
Area (sf)	CN	Description	Land Use
9,926	98	Unconnected pavement, HSG C	Pavement
60,989	74	>75% Grass cover, Good, HSG C	Open Space
70,915	77	Weighted Average	
60,989	74	86.00% Pervious Area	
9,926	98	14.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2670	0.34		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	35	0.2670	3.62		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	81	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	114	0.0350	13.47	42.32	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.1	123	0.0810	20.49	64.38	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
6.6	493	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 14.00% Impervious, Rv= 0.176, Runoff= 8.04"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
60,989	Open Space	1,536.06	5.36	23.22	3.14
9,926	Pavement	71.84	0.23	0.87	2.78
70,915	Total	1,607.91	5.59	24.09	5.92

Subcatchment 7: Post DA-7



Hydrograph for Subcatchment 7: Post DA-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.02
10.00	0.66	0.00	0.47	0.04
12.00	1.75	0.24	1.53	**1.41**
14.00	2.84	0.81	2.61	**0.20**
16.00	3.10	0.97	2.87	0.11
18.00	3.25	1.07	3.02	0.07
20.00	3.35	1.14	3.12	0.05
22.00	3.43	1.19	3.20	0.05
24.00	**3.50**	**1.24**	**3.27**	0.04
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00

Summary for Pond DP6: DP6

[57] Hint: Peaked at 603.49' (Flood elevation advised)

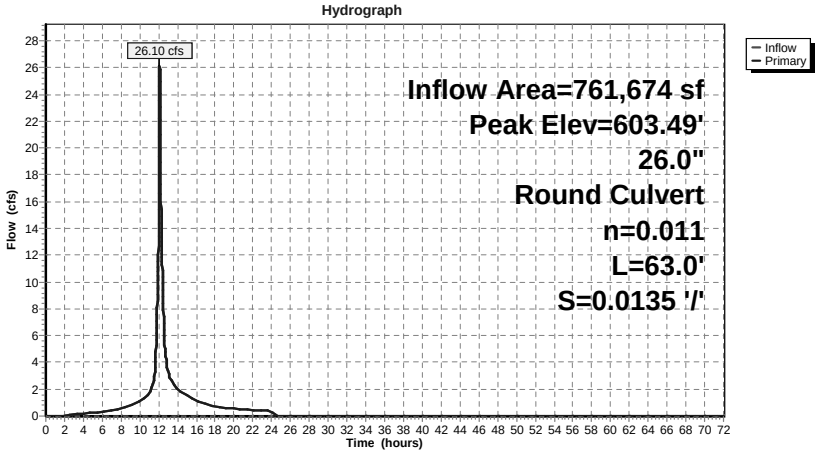
Inflow Area = 761,674 sf, 39.81% Impervious, Inflow Depth = 1.68" for 2 Year, 24 Hr. Event event
Inflow = 26.10 cfs @ 12.11 hrs, Volume= 106,600 cf
Outflow = 26.10 cfs @ 12.11 hrs, Volume= 106,600 cf, Atten= 0%, Lag= 0.0 min
Primary = 26.10 cfs @ 12.11 hrs, Volume= 106,600 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 603.49' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	600.24'	**26.0" Round Culvert** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.24' / 599.39' S= 0.0135 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=26.09 cfs @ 12.11 hrs HW=603.48' (Free Discharge)
1=Culvert (Inlet Controls 26.09 cfs @ 7.08 fps)

Pond DP6: DP6



Hydrograph for Pond DP6: DP6

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	600.24	0.00	52.00	0.00	600.24	0.00
1.00	0.00	600.24	0.00	53.00	0.00	600.24	0.00
2.00	0.05	600.33	0.05	54.00	0.00	600.24	0.00
3.00	0.11	600.37	0.11	55.00	0.00	600.24	0.00
4.00	0.17	600.40	0.17	56.00	0.00	600.24	0.00
5.00	0.23	600.43	0.23	57.00	0.00	600.24	0.00
6.00	0.29	600.45	0.29	58.00	0.00	600.24	0.00
7.00	0.40	600.49	0.40	59.00	0.00	600.24	0.00
8.00	0.53	600.53	0.53	60.00	0.00	600.24	0.00
9.00	0.79	600.59	0.79	61.00	0.00	600.24	0.00
10.00	1.08	600.65	1.08	62.00	0.00	600.24	0.00
11.00	1.69	600.76	1.69	63.00	0.00	600.24	0.00
12.00	**14.32**	**601.99**	**14.32**	64.00	0.00	600.24	0.00
13.00	**3.31**	**600.99**	**3.31**	65.00	0.00	600.24	0.00
14.00	2.01	600.81	2.01	66.00	0.00	600.24	0.00
15.00	1.53	600.74	1.53	67.00	0.00	600.24	0.00
16.00	1.11	600.66	1.11	68.00	0.00	600.24	0.00
17.00	0.87	600.61	0.87	69.00	0.00	600.24	0.00
18.00	0.68	600.57	0.68	70.00	0.00	600.24	0.00
19.00	0.60	600.55	0.60	71.00	0.00	600.24	0.00
20.00	0.54	600.53	0.54	72.00	0.00	600.24	0.00
21.00	0.49	600.52	0.49				
22.00	0.45	600.50	0.45				
23.00	0.40	600.49	0.40				
24.00	0.36	600.48	0.36				
25.00	0.00	600.26	0.00				
26.00	0.00	600.24	0.00				
27.00	0.00	600.24	0.00				
28.00	0.00	600.24	0.00				
29.00	0.00	600.24	0.00				
30.00	0.00	600.24	0.00				
31.00	0.00	600.24	0.00				
32.00	0.00	600.24	0.00				
33.00	0.00	600.24	0.00				
34.00	0.00	600.24	0.00				
35.00	0.00	600.24	0.00				
36.00	0.00	600.24	0.00				
37.00	0.00	600.24	0.00				
38.00	0.00	600.24	0.00				
39.00	0.00	600.24	0.00				
40.00	0.00	600.24	0.00				
41.00	0.00	600.24	0.00				
42.00	0.00	600.24	0.00				
43.00	0.00	600.24	0.00				
44.00	0.00	600.24	0.00				
45.00	0.00	600.24	0.00				
46.00	0.00	600.24	0.00				
47.00	0.00	600.24	0.00				
48.00	0.00	600.24	0.00				
49.00	0.00	600.24	0.00				
50.00	0.00	600.24	0.00				
51.00	0.00	600.24	0.00				

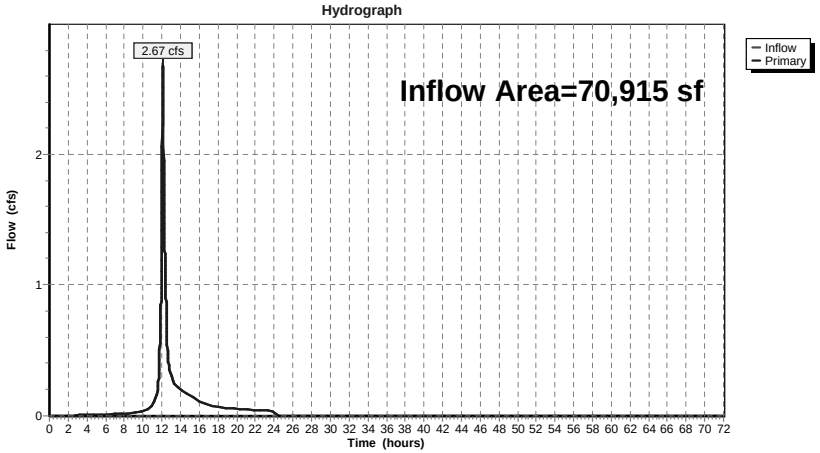
Summary for Pond DP7: DP7

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 70,915 sf, 14.00% Impervious, Inflow Depth = 1.52" for 2 Year, 24 Hr. Event event
Inflow = 2.67 cfs @ 12.10 hrs, Volume= 9,004 cf
Primary = 2.67 cfs @ 12.10 hrs, Volume= 9,004 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP7: DP7



Hydrograph for Pond DP7: DP7

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.02		0.02	60.00	0.00		0.00
9.00	0.03		0.03	61.00	0.00		0.00
10.00	0.04		0.04	62.00	0.00		0.00
11.00	0.08		0.08	63.00	0.00		0.00
12.00	**1.41**		**1.41**	64.00	0.00		0.00
13.00	**0.30**		**0.30**	65.00	0.00		0.00
14.00	0.20		0.20	66.00	0.00		0.00
15.00	0.15		0.15	67.00	0.00		0.00
16.00	0.11		0.11	68.00	0.00		0.00
17.00	0.09		0.09	69.00	0.00		0.00
18.00	0.07		0.07	70.00	0.00		0.00
19.00	0.06		0.06	71.00	0.00		0.00
20.00	0.05		0.05	72.00	0.00		0.00
21.00	0.05		0.05				
22.00	0.05		0.05				
23.00	0.04		0.04				
24.00	0.04		0.04				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 6A1: Post DA-6A1 Runoff Area=441,897 sf 67.17% Impervious Runoff Depth=4.44"
Flow Length=817' Tc=8.0 min CN=74/98 Runoff=44.36 cfs 163,650 cf

Subcatchment 6A2: Post DA-6A2 Runoff Area=996 sf 47.89% Impervious Runoff Depth=3.96"
Tc=5.0 min CN=74/98 Runoff=0.10 cfs 329 cf

Pond 6A2-Bio: 6A2-Bioretention Peak Elev=652.52' Storage=118 cf Inflow=0.10 cfs 329 cf
Discarded=0.00 cfs 129 cf Primary=0.10 cfs 170 cf Outflow=0.10 cfs 299 cf

Subcatchment 6A3: Post DA-6A3 Runoff Area=3,487 sf 58.70% Impervious Runoff Depth=4.23"
Tc=5.0 min CN=74/98 Runoff=0.37 cfs 1,230 cf

Pond 6A3-Bio: 6A3-Bioretention Peak Elev=630.56' Storage=456 cf Inflow=0.37 cfs 1,230 cf
Discarded=0.00 cfs 468 cf Primary=0.35 cfs 642 cf Outflow=0.36 cfs 1,109 cf

Subcatchment 6A4: Post DA-6A4 Runoff Area=2,068 sf 56.48% Impervious Runoff Depth=4.18"
Tc=5.0 min CN=74/98 Runoff=0.22 cfs 720 cf

Pond 6A4-Bio: 6A4-Bioretention Peak Elev=640.54' Storage=256 cf Inflow=0.22 cfs 720 cf
Discarded=0.00 cfs 269 cf Primary=0.21 cfs 383 cf Outflow=0.22 cfs 652 cf

Subcatchment 6B: Post DA-6B Runoff Area=313,226 sf 0.85% Impervious Runoff Depth=1.34"
Flow Length=1,980' Tc=28.0 min CN=56/98 Runoff=5.74 cfs 35,063 cf

Subcatchment 7: Post DA-7 Runoff Area=70,915 sf 14.00% Impervious Runoff Depth=3.12"
Flow Length=493' Tc=6.6 min CN=74/98 Runoff=5.64 cfs 18,427 cf

Pond DP6: DP6 Peak Elev=608.22' Inflow=46.63 cfs 199,908 cf
26.0" Round Culvert n=0.011 L=63.0' S=0.0135 '/' Outflow=46.63 cfs 199,908 cf

Pond DP7: DP7 Inflow=5.64 cfs 18,427 cf
Primary=5.64 cfs 18,427 cf

Total Runoff Area = 832,589 sf Runoff Volume = 219,419 cf Average Runoff Depth = 3.16"
62.39% Pervious = 519,452 sf 37.61% Impervious = 313,137 sf

Summary for Subcatchment 6A1: Post DA-6A1

Runoff = 44.36 cfs @ 12.11 hrs, Volume= 163,650 cf, Depth= 4.44"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

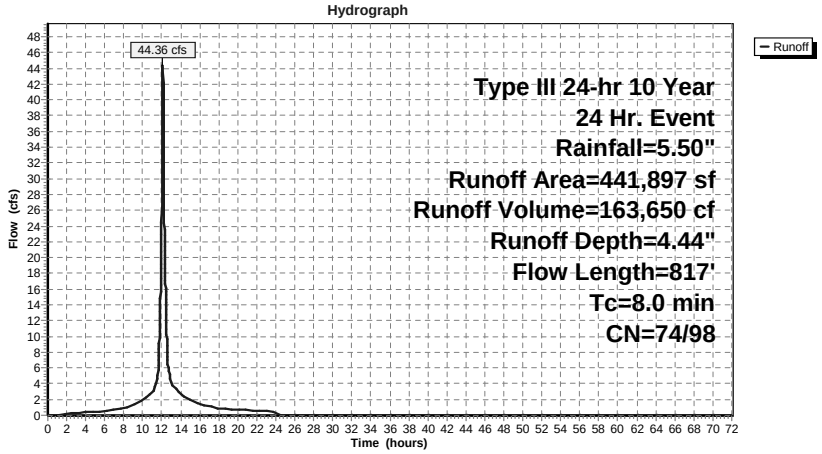
Area (sf)	CN	Description	Land Use
114,130	98	Unconnected pavement, HSG C	Pavement
182,714	98	Unconnected roofs, HSG C	Roofs
3,659	61	>75% Grass cover, Good, HSG B	Open Space
141,394	74	>75% Grass cover, Good, HSG C	Open Space
441,897	90	Weighted Average	
145,053	74	32.83% Pervious Area	
296,844	98	67.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	90	0.3310	9.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	627	0.1080	18.10	56.85	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
8.0	817	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 67.17% Impervious, Rv= 0.655, Runoff= 29.91"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
145,053	Open Space	13,589.28	47.40	205.42	27.77
114,130	Pavement	3,072.69	9.95	37.30	119.00
182,714	Roofs	540.25	3.13	42.65	210.41
441,897	Total	17,202.22	60.48	285.37	357.18

Subcatchment 6A1: Post DA-6A1



Hydrograph for Subcatchment 6A1: Post DA-6A1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.16
4.00	0.24	0.00	0.10	0.35
6.00	0.40	0.00	0.23	0.52
8.00	0.63	0.00	0.43	0.89
10.00	1.04	0.03	0.83	1.88
12.00	2.75	0.75	2.52	**24.55**
14.00	4.46	1.94	4.22	**2.69**
16.00	4.87	2.26	4.64	1.43
18.00	5.10	2.45	4.87	0.87
20.00	5.26	2.58	5.03	0.69
22.00	5.39	2.68	5.16	0.58
24.00	**5.50**	**2.77**	**5.26**	0.46
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00

Summary for Subcatchment 6A2: Post DA-6A2

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 329 cf, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

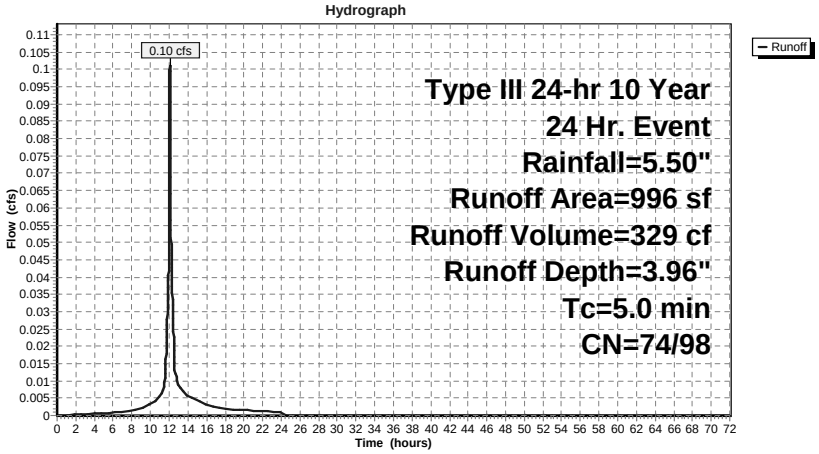
	Area (sf)	CN	Description	Land Use
	477	98	Paved parking, HSG C	Pavement
*	519	74	Bioretention, HSG C	Landscaped
	996	85	Weighted Average	
	519	74	52.11% Pervious Area	
	477	98	47.89% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 47.89% Impervious, Rv= 0.481, Runoff= 21.98"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
519	Landscaped	0.00	0.00	0.00	0.00
477	Pavement	9.44	0.03	0.11	0.37
996	Total	9.44	0.03	0.11	0.37

Subcatchment 6A2: Post DA-6A2



Hydrograph for Subcatchment 6A2: Post DA-6A2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.00
10.00	1.04	0.03	0.83	0.00
12.00	2.75	0.75	2.52	**0.07**
14.00	4.46	1.94	4.22	**0.01**
16.00	4.87	2.26	4.64	0.00
18.00	5.10	2.45	4.87	0.00
20.00	5.26	2.58	5.03	0.00
22.00	5.39	2.68	5.16	0.00
24.00	**5.50**	**2.77**	**5.26**	0.00
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00

Summary for Pond 6A2-Bio: 6A2-Bioretention

Inflow Area = 996 sf, 47.89% Impervious, Inflow Depth = 3.96" for 10 Year, 24 Hr. Event event
Inflow = 0.10 cfs @ 12.07 hrs, Volume= 329 cf
Outflow = 0.10 cfs @ 12.08 hrs, Volume= 299 cf, Atten= 1%, Lag= 0.7 min
Discarded = 0.00 cfs @ 10.97 hrs, Volume= 129 cf
Primary = 0.10 cfs @ 12.08 hrs, Volume= 170 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 652.52' @ 12.08 hrs Surf.Area= 143 sf Storage= 118 cf

Plug-Flow detention time= 557.0 min calculated for 299 cf (91% of inflow)
Center-of-Mass det. time= 509.8 min (1,286.8 - 777.0)

Volume	Invert	Avail.Storage	Storage Description
#1	647.75'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

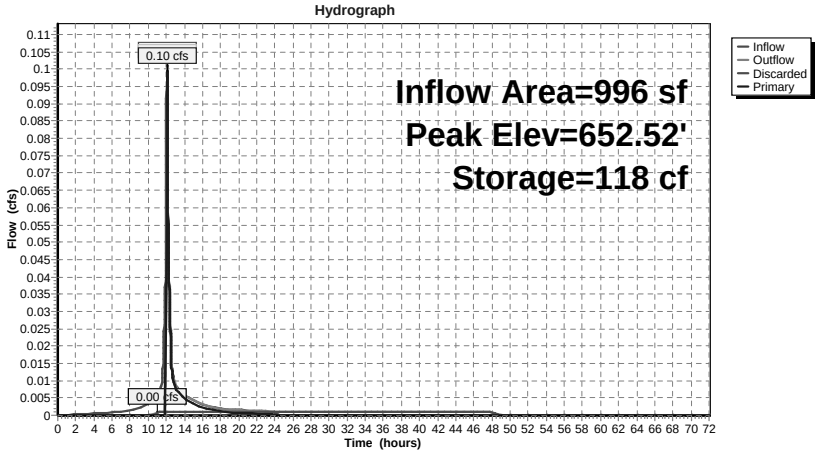
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
647.75	25	0.0	0	0
651.75	25	40.0	40	40
651.99	25	40.0	2	42
652.00	143	100.0	1	43
652.50	143	100.0	72	115
653.00	143	100.0	72	186

Device	Routing	Invert	Outlet Devices
#1	Discarded	647.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	652.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 10.97 hrs HW=652.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.10 cfs @ 12.08 hrs HW=652.52' TW=607.61' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.10 cfs @ 0.51 fps)

Pond 6A2-Bio: 6A2-Bioretention



Hydrograph for Pond 6A2-Bio: 6A2-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	647.75	0.00	0.00	0.00
2.00	0.00	0	647.76	0.00	0.00	0.00
4.00	0.00	2	647.96	0.00	0.00	0.00
6.00	0.00	6	648.37	0.00	0.00	0.00
8.00	0.00	13	649.08	0.00	0.00	0.00
10.00	0.00	29	650.61	0.00	**0.00**	0.00
12.00	**0.07**	**101**	**652.40**	**0.00**	**0.00**	**0.00**
14.00	**0.01**	**115**	**652.50**	**0.01**	0.00	**0.00**
16.00	0.00	115	652.50	0.00	0.00	0.00
18.00	0.00	115	652.50	0.00	0.00	0.00
20.00	0.00	115	652.50	0.00	0.00	0.00
22.00	0.00	115	652.50	0.00	0.00	0.00
24.00	0.00	115	652.50	0.00	0.00	0.00
26.00	0.00	109	652.46	0.00	0.00	0.00
28.00	0.00	103	652.42	0.00	0.00	0.00
30.00	0.00	97	652.38	0.00	0.00	0.00
32.00	0.00	91	652.34	0.00	0.00	0.00
34.00	0.00	85	652.29	0.00	0.00	0.00
36.00	0.00	79	652.25	0.00	0.00	0.00
38.00	0.00	73	652.21	0.00	0.00	0.00
40.00	0.00	67	652.17	0.00	0.00	0.00
42.00	0.00	61	652.13	0.00	0.00	0.00
44.00	0.00	55	652.09	0.00	0.00	0.00
46.00	0.00	49	652.04	0.00	0.00	0.00
48.00	0.00	44	652.00	0.00	0.00	0.00
50.00	0.00	42	651.92	0.00	0.00	0.00
52.00	0.00	41	651.81	0.00	0.00	0.00
54.00	0.00	40	651.71	0.00	0.00	0.00
56.00	0.00	39	651.60	0.00	0.00	0.00
58.00	0.00	37	651.50	0.00	0.00	0.00
60.00	0.00	36	651.40	0.00	0.00	0.00
62.00	0.00	35	651.29	0.00	0.00	0.00
64.00	0.00	34	651.19	0.00	0.00	0.00
66.00	0.00	33	651.08	0.00	0.00	0.00
68.00	0.00	32	650.98	0.00	0.00	0.00
70.00	0.00	31	650.87	0.00	0.00	0.00
72.00	0.00	30	650.77	0.00	0.00	0.00

Summary for Subcatchment 6A3: Post DA-6A3

Runoff = 0.37 cfs @ 12.07 hrs, Volume= 1,230 cf, Depth= 4.23"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

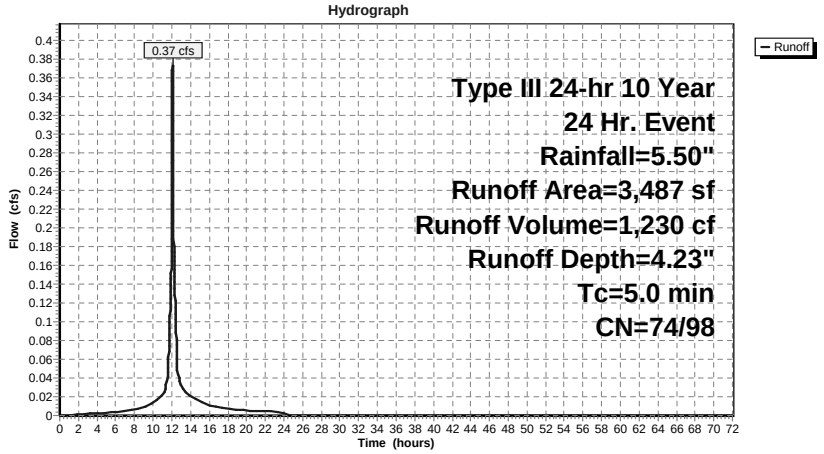
	Area (sf)	CN	Description	Land Use
	2,047	98	Paved parking, HSG C	Pavement
*	1,440	74	Bioretention, HSG C	Landscaped
	3,487	88	Weighted Average	
	1,440	74	41.30% Pervious Area	
	2,047	98	58.70% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 58.70% Impervious, Rv= 0.578, Runoff= 26.43"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,440	Landscaped	0.00	0.00	0.00	0.00
2,047	Pavement	48.69	0.16	0.59	1.89
3,487	Total	48.69	0.16	0.59	1.89

Subcatchment 6A3: Post DA-6A3



Hydrograph for Subcatchment 6A3: Post DA-6A3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.03	0.83	0.01
12.00	2.75	0.75	2.52	**0.25**
14.00	4.46	1.94	4.22	**0.02**
16.00	4.87	2.26	4.64	0.01
18.00	5.10	2.45	4.87	0.01
20.00	5.26	2.58	5.03	0.01
22.00	5.39	2.68	5.16	0.00
24.00	**5.50**	**2.77**	**5.26**	0.00
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00

Summary for Pond 6A3-Bio: 6A3-Bioretention

Inflow Area = 3,487 sf, 58.70% Impervious, Inflow Depth = 4.23" for 10 Year, 24 Hr. Event event
Inflow = 0.37 cfs @ 12.07 hrs, Volume= 1,230 cf
Outflow = 0.36 cfs @ 12.10 hrs, Volume= 1,109 cf, Atten= 5%, Lag= 1.4 min
Discarded = 0.00 cfs @ 10.86 hrs, Volume= 468 cf
Primary = 0.35 cfs @ 12.10 hrs, Volume= 642 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 630.56' @ 12.10 hrs Surf.Area= 509 sf Storage= 456 cf

Plug-Flow detention time= 559.6 min calculated for 1,109 cf (90% of inflow)
Center-of-Mass det. time= 509.9 min (1,278.8 - 768.9)

Volume	Invert	Avail.Storage	Storage Description
#1	625.75'	682 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

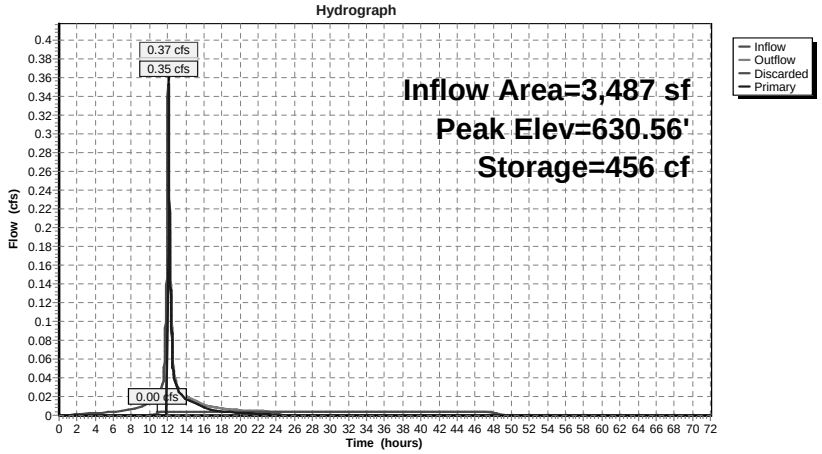
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
625.75	100	0.0	0	0
629.75	100	40.0	160	160
629.99	100	40.0	10	170
630.00	509	100.0	3	173
630.50	509	100.0	255	427
631.00	509	100.0	255	682

Device	Routing	Invert	Outlet Devices
#1	Discarded	625.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	630.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 10.86 hrs HW=630.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.35 cfs @ 12.10 hrs HW=630.56' TW=607.99' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.35 cfs @ 0.78 fps)

Pond 6A3-Bio: 6A3-Bioretention



Hydrograph for Pond 6A3-Bio: 6A3-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	625.75	0.00	0.00	0.00
2.00	0.00	1	625.77	0.00	0.00	0.00
4.00	0.00	10	625.99	0.00	0.00	0.00
6.00	0.00	27	626.43	0.00	0.00	0.00
8.00	0.01	58	627.20	0.00	0.00	0.00
10.00	0.01	123	628.81	0.00	**0.00**	0.00
12.00	**0.25**	**399**	**630.44**	**0.00**	**0.00**	**0.00**
14.00	**0.02**	**431**	**630.51**	**0.02**	0.00	**0.02**
16.00	0.01	429	630.50	0.01	0.00	0.01
18.00	0.01	429	630.50	0.01	0.00	0.00
20.00	0.01	428	630.50	0.01	0.00	0.00
22.00	0.00	428	630.50	0.00	0.00	0.00
24.00	0.00	428	630.50	0.00	0.00	0.00
26.00	0.00	407	630.46	0.00	0.00	0.00
28.00	0.00	386	630.42	0.00	0.00	0.00
30.00	0.00	365	630.38	0.00	0.00	0.00
32.00	0.00	344	630.34	0.00	0.00	0.00
34.00	0.00	322	630.29	0.00	0.00	0.00
36.00	0.00	301	630.25	0.00	0.00	0.00
38.00	0.00	280	630.21	0.00	0.00	0.00
40.00	0.00	259	630.17	0.00	0.00	0.00
42.00	0.00	238	630.13	0.00	0.00	0.00
44.00	0.00	216	630.09	0.00	0.00	0.00
46.00	0.00	195	630.04	0.00	0.00	0.00
48.00	0.00	174	630.00	0.00	0.00	0.00
50.00	0.00	167	629.92	0.00	0.00	0.00
52.00	0.00	163	629.81	0.00	0.00	0.00
54.00	0.00	158	629.71	0.00	0.00	0.00
56.00	0.00	154	629.60	0.00	0.00	0.00
58.00	0.00	150	629.50	0.00	0.00	0.00
60.00	0.00	146	629.40	0.00	0.00	0.00
62.00	0.00	142	629.29	0.00	0.00	0.00
64.00	0.00	138	629.19	0.00	0.00	0.00
66.00	0.00	133	629.08	0.00	0.00	0.00
68.00	0.00	129	628.98	0.00	0.00	0.00
70.00	0.00	125	628.88	0.00	0.00	0.00
72.00	0.00	121	628.77	0.00	0.00	0.00

Summary for Subcatchment 6A4: Post DA-6A4

Runoff = 0.22 cfs @ 12.07 hrs, Volume= 720 cf, Depth= 4.18"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

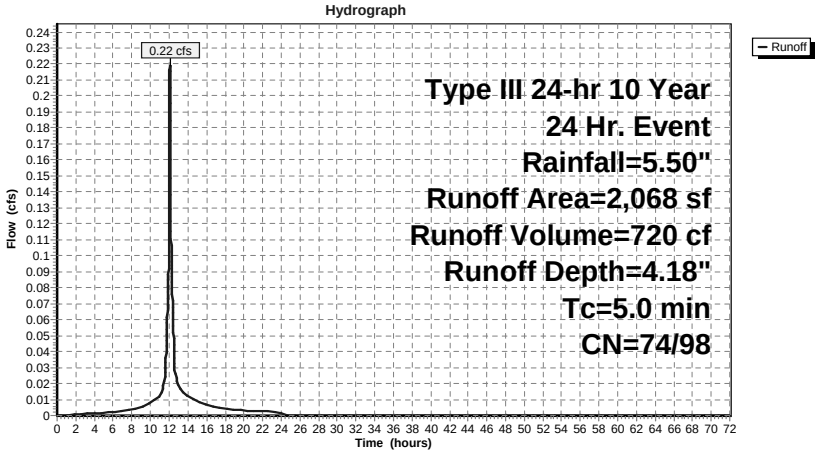
	Area (sf)	CN	Description	Land Use
	1,168	98	Paved parking, HSG C	Pavement
*	900	74	Bioretention, HSG C	Landscaped
	2,068	88	Weighted Average	
	900	74	43.52% Pervious Area	
	1,168	98	56.48% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 56.48% Impervious, Rv= 0.558, Runoff= 25.52"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
900	Landscaped	0.00	0.00	0.00	0.00
1,168	Pavement	26.82	0.09	0.33	1.04
2,068	Total	26.82	0.09	0.33	1.04

Subcatchment 6A4: Post DA-6A4



Hydrograph for Subcatchment 6A4: Post DA-6A4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.00
10.00	1.04	0.03	0.83	0.01
12.00	2.75	0.75	2.52	**0.14**
14.00	4.46	1.94	4.22	**0.01**
16.00	4.87	2.26	4.64	0.01
18.00	5.10	2.45	4.87	0.00
20.00	5.26	2.58	5.03	0.00
22.00	5.39	2.68	5.16	0.00
24.00	**5.50**	**2.77**	**5.26**	0.00
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00

Summary for Pond 6A4-Bio: 6A4-Bioretention

Inflow Area = 2,068 sf, 56.48% Impervious, Inflow Depth = 4.18" for 10 Year, 24 Hr. Event event
Inflow = 0.22 cfs @ 12.07 hrs, Volume= 720 cf
Outflow = 0.22 cfs @ 12.08 hrs, Volume= 652 cf, Atten= 1%, Lag= 0.8 min
Discarded = 0.00 cfs @ 10.80 hrs, Volume= 269 cf
Primary = 0.21 cfs @ 12.08 hrs, Volume= 383 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 640.54' @ 12.08 hrs Surf.Area= 294 sf Storage= 256 cf

Plug-Flow detention time= 543.9 min calculated for 652 cf (91% of inflow)
Center-of-Mass det. time= 496.3 min (1,266.7 - 770.5)

Volume	Invert	Avail.Storage	Storage Description
#1	635.75'	391 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

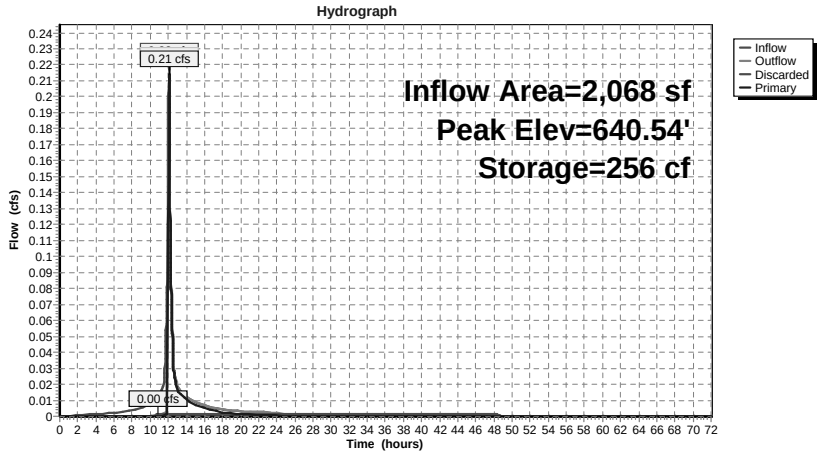
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
635.75	56	0.0	0	0
635.76	56	40.0	0	0
639.99	56	40.0	95	95
640.00	294	100.0	2	97
640.50	294	100.0	147	244
641.00	294	100.0	147	391

Device	Routing	Invert	Outlet Devices
#1	Discarded	635.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	640.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 10.80 hrs HW=640.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.21 cfs @ 12.08 hrs HW=640.54' TW=607.63' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.21 cfs @ 0.66 fps)

Pond 6A4-Bio: 6A4-Bioretention



Hydrograph for Pond 6A4-Bio: 6A4-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	635.75	0.00	0.00	0.00
2.00	0.00	0	635.77	0.00	0.00	0.00
4.00	0.00	5	635.99	0.00	0.00	0.00
6.00	0.00	16	636.45	0.00	0.00	0.00
8.00	0.00	33	637.23	0.00	0.00	0.00
10.00	0.01	70	638.89	0.00	**0.00**	0.00
12.00	**0.14**	**231**	**640.46**	**0.00**	**0.00**	**0.00**
14.00	**0.01**	**245**	**640.51**	**0.01**	0.00	**0.01**
16.00	0.01	245	640.50	0.01	0.00	0.00
18.00	0.00	244	640.50	0.00	0.00	0.00
20.00	0.00	244	640.50	0.00	0.00	0.00
22.00	0.00	244	640.50	0.00	0.00	0.00
24.00	0.00	244	640.50	0.00	0.00	0.00
26.00	0.00	232	640.46	0.00	0.00	0.00
28.00	0.00	220	640.42	0.00	0.00	0.00
30.00	0.00	208	640.38	0.00	0.00	0.00
32.00	0.00	195	640.34	0.00	0.00	0.00
34.00	0.00	183	640.29	0.00	0.00	0.00
36.00	0.00	171	640.25	0.00	0.00	0.00
38.00	0.00	159	640.21	0.00	0.00	0.00
40.00	0.00	146	640.17	0.00	0.00	0.00
42.00	0.00	134	640.13	0.00	0.00	0.00
44.00	0.00	122	640.09	0.00	0.00	0.00
46.00	0.00	110	640.04	0.00	0.00	0.00
48.00	0.00	97	640.00	0.00	0.00	0.00
50.00	0.00	93	639.92	0.00	0.00	0.00
52.00	0.00	91	639.81	0.00	0.00	0.00
54.00	0.00	89	639.71	0.00	0.00	0.00
56.00	0.00	86	639.60	0.00	0.00	0.00
58.00	0.00	84	639.50	0.00	0.00	0.00
60.00	0.00	82	639.40	0.00	0.00	0.00
62.00	0.00	79	639.29	0.00	0.00	0.00
64.00	0.00	77	639.19	0.00	0.00	0.00
66.00	0.00	75	639.08	0.00	0.00	0.00
68.00	0.00	72	638.98	0.00	0.00	0.00
70.00	0.00	70	638.87	0.00	0.00	0.00
72.00	0.00	68	638.77	0.00	0.00	0.00

Summary for Subcatchment 6B: Post DA-6B

Runoff = 5.74 cfs @ 12.45 hrs, Volume= 35,063 cf, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

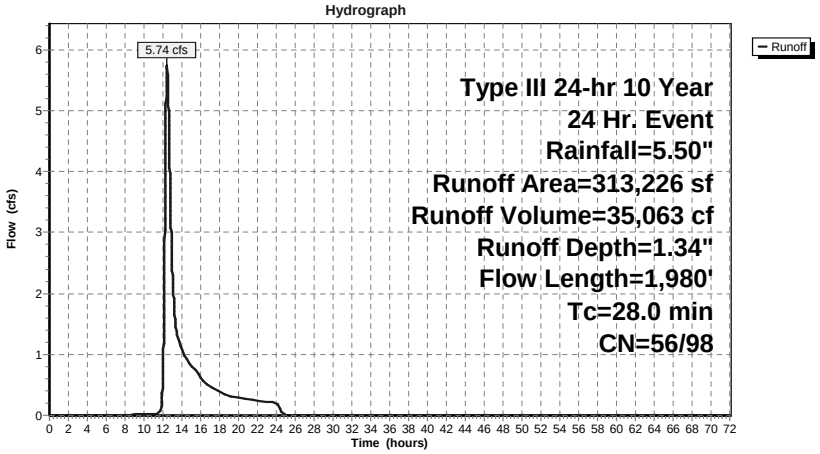
	Area (sf)	CN	Description	Land Use
	2,675	98	Unconnected pavement, HSG C	Pavement
	42,639	61	>75% Grass cover, Good, HSG B	Open Space
	262,664	55	Woods, Good, HSG B	Woods
	3,867	74	>75% Grass cover, Good, HSG C	Open Space
*	1,381	96	Gravel roads, HSG C	Roadway
	313,226	57	Weighted Average	
	310,551	56	99.15% Pervious Area	
	2,675	98	0.85% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	150	0.1200	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.4	370	0.2600	2.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	100	0.1200	7.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	1,360	0.1000	17.41	54.71	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
28.0	1,980	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.85% Impervious, Rv= 0.058, Runoff= 2.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
46,506	Open Space	383.96	1.34	5.80	0.78
2,675	Pavement	6.35	0.02	0.08	0.25
1,381	Roadway	3.28	0.01	0.04	0.13
262,664	Woods	133.29	0.00	0.00	4.43
313,226	Total	526.87	1.37	5.92	5.59

Subcatchment 6B: Post DA-6B



Hydrograph for Subcatchment 6B: Post DA-6B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.00	0.83	0.01
12.00	2.75	0.15	2.52	**0.68**
14.00	4.46	0.78	4.22	**1.08**
16.00	4.87	0.98	4.64	0.62
18.00	5.10	1.10	4.87	0.38
20.00	5.26	1.18	5.03	0.29
22.00	5.39	1.25	5.16	0.25
24.00	**5.50**	**1.31**	**5.26**	0.20
26.00	5.50	1.31	5.26	0.00
28.00	5.50	1.31	5.26	0.00
30.00	5.50	1.31	5.26	0.00
32.00	5.50	1.31	5.26	0.00
34.00	5.50	1.31	5.26	0.00
36.00	5.50	1.31	5.26	0.00
38.00	5.50	1.31	5.26	0.00
40.00	5.50	1.31	5.26	0.00
42.00	5.50	1.31	5.26	0.00
44.00	5.50	1.31	5.26	0.00
46.00	5.50	1.31	5.26	0.00
48.00	5.50	1.31	5.26	0.00
50.00	5.50	1.31	5.26	0.00
52.00	5.50	1.31	5.26	0.00
54.00	5.50	1.31	5.26	0.00
56.00	5.50	1.31	5.26	0.00
58.00	5.50	1.31	5.26	0.00
60.00	5.50	1.31	5.26	0.00
62.00	5.50	1.31	5.26	0.00
64.00	5.50	1.31	5.26	0.00
66.00	5.50	1.31	5.26	0.00
68.00	5.50	1.31	5.26	0.00
70.00	5.50	1.31	5.26	0.00
72.00	5.50	1.31	5.26	0.00

Summary for Subcatchment 7: Post DA-7

Runoff = 5.64 cfs @ 12.10 hrs, Volume= 18,427 cf, Depth= 3.12"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

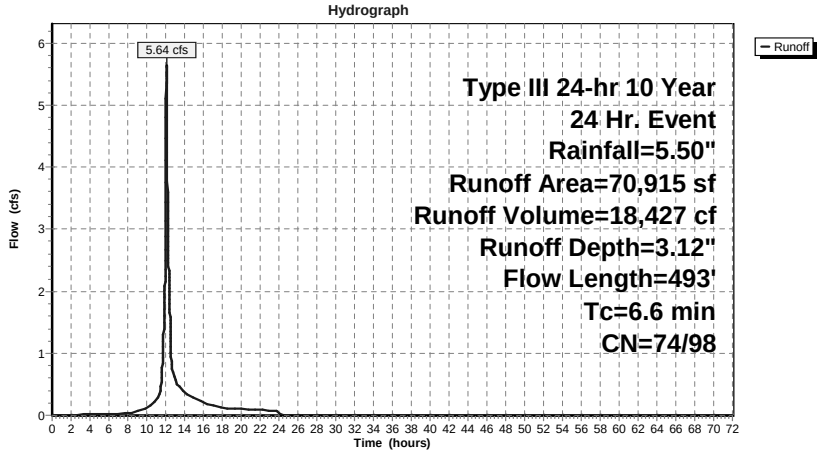
Area (sf)	CN	Description	Land Use
9,926	98	Unconnected pavement, HSG C	Pavement
60,989	74	>75% Grass cover, Good, HSG C	Open Space
70,915	77	Weighted Average	
60,989	74	86.00% Pervious Area	
9,926	98	14.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2670	0.34		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	35	0.2670	3.62		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	81	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	114	0.0350	13.47	42.32	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.1	123	0.0810	20.49	64.38	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
6.6	493	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 14.00% Impervious, Rv= 0.176, Runoff= 8.04"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
60,989	Open Space	1,536.06	5.36	23.22	3.14
9,926	Pavement	71.84	0.23	0.87	2.78
70,915	Total	1,607.91	5.59	24.09	5.92

Subcatchment 7: Post DA-7



Hydrograph for Subcatchment 7: Post DA-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.02
8.00	0.63	0.00	0.43	0.03
10.00	1.04	0.03	0.83	0.12
12.00	2.75	0.75	2.52	**3.14**
14.00	4.46	1.94	4.22	**0.37**
16.00	4.87	2.26	4.64	0.20
18.00	5.10	2.45	4.87	0.12
20.00	5.26	2.58	5.03	0.10
22.00	5.39	2.68	5.16	0.08
24.00	**5.50**	**2.77**	**5.26**	0.07
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00

Summary for Pond DP6: DP6

[57] Hint: Peaked at 608.22' (Flood elevation advised)

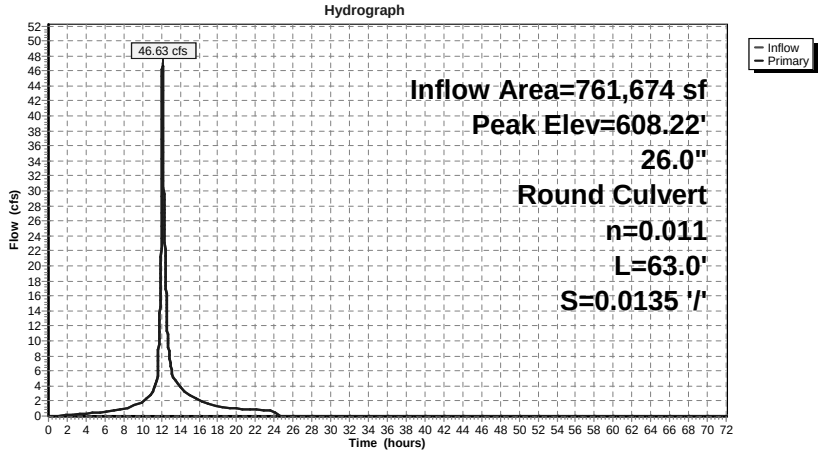
Inflow Area = 761,674 sf, 39.81% Impervious, Inflow Depth = 3.15" for 10 Year, 24 Hr. Event event
Inflow = 46.63 cfs @ 12.11 hrs, Volume= 199,908 cf
Outflow = 46.63 cfs @ 12.11 hrs, Volume= 199,908 cf, Atten= 0%, Lag= 0.0 min
Primary = 46.63 cfs @ 12.11 hrs, Volume= 199,908 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.22' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	600.24'	**26.0" Round Culvert** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.24' / 599.39' S= 0.0135 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=46.58 cfs @ 12.11 hrs HW=608.21' (Free Discharge)
1=Culvert (Inlet Controls 46.58 cfs @ 12.63 fps)

Pond DP6: DP6



Hydrograph for Pond DP6: DP6

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	600.24	0.00	52.00	0.00	600.24	0.00
1.00	0.03	600.30	0.03	53.00	0.00	600.24	0.00
2.00	0.16	600.40	0.16	54.00	0.00	600.24	0.00
3.00	0.26	600.44	0.26	55.00	0.00	600.24	0.00
4.00	0.36	600.47	0.36	56.00	0.00	600.24	0.00
5.00	0.44	600.50	0.44	57.00	0.00	600.24	0.00
6.00	0.52	600.52	0.52	58.00	0.00	600.24	0.00
7.00	0.70	600.57	0.70	59.00	0.00	600.24	0.00
8.00	0.90	600.62	0.90	60.00	0.00	600.24	0.00
9.00	1.34	600.70	1.34	61.00	0.00	600.24	0.00
10.00	1.89	600.80	1.89	62.00	0.00	600.24	0.00
11.00	2.98	600.95	2.98	63.00	0.00	600.24	0.00
12.00	**25.23**	**603.34**	**25.23**	64.00	0.00	600.24	0.00
13.00	**6.74**	**601.34**	**6.74**	65.00	0.00	600.24	0.00
14.00	3.81	601.05	3.81	66.00	0.00	600.24	0.00
15.00	2.87	600.93	2.87	67.00	0.00	600.24	0.00
16.00	2.07	600.82	2.07	68.00	0.00	600.24	0.00
17.00	1.62	600.75	1.62	69.00	0.00	600.24	0.00
18.00	1.26	600.69	1.26	70.00	0.00	600.24	0.00
19.00	1.10	600.66	1.10	71.00	0.00	600.24	0.00
20.00	0.99	600.64	0.99	72.00	0.00	600.24	0.00
21.00	0.91	600.62	0.91				
22.00	0.82	600.60	0.82				
23.00	0.74	600.58	0.74				
24.00	0.66	600.56	0.66				
25.00	0.00	600.26	0.00				
26.00	0.00	600.24	0.00				
27.00	0.00	600.24	0.00				
28.00	0.00	600.24	0.00				
29.00	0.00	600.24	0.00				
30.00	0.00	600.24	0.00				
31.00	0.00	600.24	0.00				
32.00	0.00	600.24	0.00				
33.00	0.00	600.24	0.00				
34.00	0.00	600.24	0.00				
35.00	0.00	600.24	0.00				
36.00	0.00	600.24	0.00				
37.00	0.00	600.24	0.00				
38.00	0.00	600.24	0.00				
39.00	0.00	600.24	0.00				
40.00	0.00	600.24	0.00				
41.00	0.00	600.24	0.00				
42.00	0.00	600.24	0.00				
43.00	0.00	600.24	0.00				
44.00	0.00	600.24	0.00				
45.00	0.00	600.24	0.00				
46.00	0.00	600.24	0.00				
47.00	0.00	600.24	0.00				
48.00	0.00	600.24	0.00				
49.00	0.00	600.24	0.00				
50.00	0.00	600.24	0.00				
51.00	0.00	600.24	0.00				

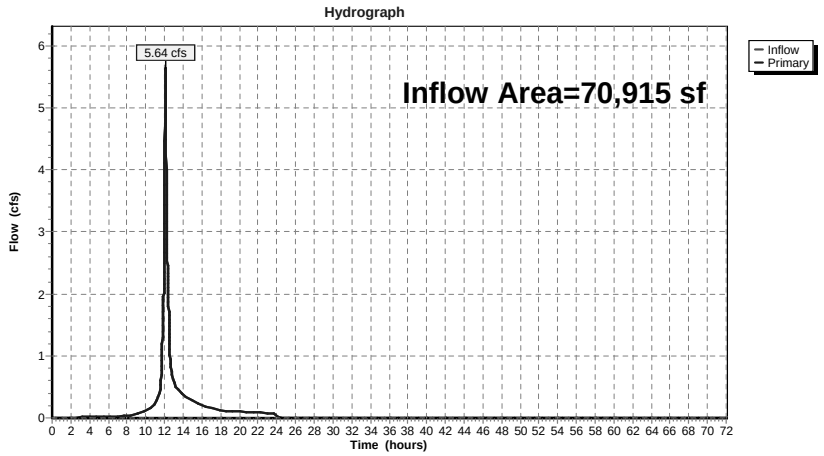
Summary for Pond DP7: DP7

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 70,915 sf, 14.00% Impervious, Inflow Depth = 3.12" for 10 Year, 24 Hr. Event event
Inflow = 5.64 cfs @ 12.10 hrs, Volume= 18,427 cf
Primary = 5.64 cfs @ 12.10 hrs, Volume= 18,427 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP7: DP7



Hydrograph for Pond DP7: DP7

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.02		0.02	59.00	0.00		0.00
8.00	0.03		0.03	60.00	0.00		0.00
9.00	0.06		0.06	61.00	0.00		0.00
10.00	0.12		0.12	62.00	0.00		0.00
11.00	0.24		0.24	63.00	0.00		0.00
12.00	**3.14**		**3.14**	64.00	0.00		0.00
13.00	**0.58**		**0.58**	65.00	0.00		0.00
14.00	0.37		0.37	66.00	0.00		0.00
15.00	0.28		0.28	67.00	0.00		0.00
16.00	0.20		0.20	68.00	0.00		0.00
17.00	0.16		0.16	69.00	0.00		0.00
18.00	0.12		0.12	70.00	0.00		0.00
19.00	0.11		0.11	71.00	0.00		0.00
20.00	0.10		0.10	72.00	0.00		0.00
21.00	0.09		0.09				
22.00	0.08		0.08				
23.00	0.07		0.07				
24.00	0.07		0.07				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 6A1: Post DA-6A1 Runoff Area=441,897 sf 67.17% Impervious Runoff Depth=4.92"
Flow Length=817' Tc=8.0 min CN=74/98 Runoff=49.04 cfs 181,029 cf

Subcatchment 6A2: Post DA-6A2 Runoff Area=996 sf 47.89% Impervious Runoff Depth=4.42"
Tc=5.0 min CN=74/98 Runoff=0.11 cfs 367 cf

Pond 6A2-Bio: 6A2-Bioretention Peak Elev=652.53' Storage=118 cf Inflow=0.11 cfs 367 cf
Discarded=0.00 cfs 130 cf Primary=0.11 cfs 207 cf Outflow=0.11 cfs 337 cf

Subcatchment 6A3: Post DA-6A3 Runoff Area=3,487 sf 58.70% Impervious Runoff Depth=4.70"
Tc=5.0 min CN=74/98 Runoff=0.41 cfs 1,365 cf

Pond 6A3-Bio: 6A3-Bioretention Peak Elev=630.56' Storage=459 cf Inflow=0.41 cfs 1,365 cf
Discarded=0.00 cfs 471 cf Primary=0.40 cfs 774 cf Outflow=0.41 cfs 1,244 cf

Subcatchment 6A4: Post DA-6A4 Runoff Area=2,068 sf 56.48% Impervious Runoff Depth=4.64"
Tc=5.0 min CN=74/98 Runoff=0.24 cfs 800 cf

Pond 6A4-Bio: 6A4-Bioretention Peak Elev=640.54' Storage=257 cf Inflow=0.24 cfs 800 cf
Discarded=0.00 cfs 271 cf Primary=0.24 cfs 461 cf Outflow=0.24 cfs 732 cf

Subcatchment 6B: Post DA-6B Runoff Area=313,226 sf 0.85% Impervious Runoff Depth=1.63"
Flow Length=1,980' Tc=28.0 min CN=56/98 Runoff=7.21 cfs 42,597 cf

Subcatchment 7: Post DA-7 Runoff Area=70,915 sf 14.00% Impervious Runoff Depth=3.55"
Flow Length=493' Tc=6.6 min CN=74/98 Runoff=6.43 cfs 20,953 cf

Pond DP6: DP6 Peak Elev=609.92' Inflow=52.07 cfs 225,067 cf
26.0" Round Culvert n=0.011 L=63.0' S=0.0135 '/' Outflow=52.07 cfs 225,067 cf

Pond DP7: DP7 Inflow=6.43 cfs 20,953 cf
Primary=6.43 cfs 20,953 cf

Total Runoff Area = 832,589 sf Runoff Volume = 247,110 cf Average Runoff Depth = 3.56"
62.39% Pervious = 519,452 sf 37.61% Impervious = 313,137 sf

Summary for Subcatchment 6A1: Post DA-6A1

Runoff = 49.04 cfs @ 12.11 hrs, Volume= 181,029 cf, Depth= 4.92"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

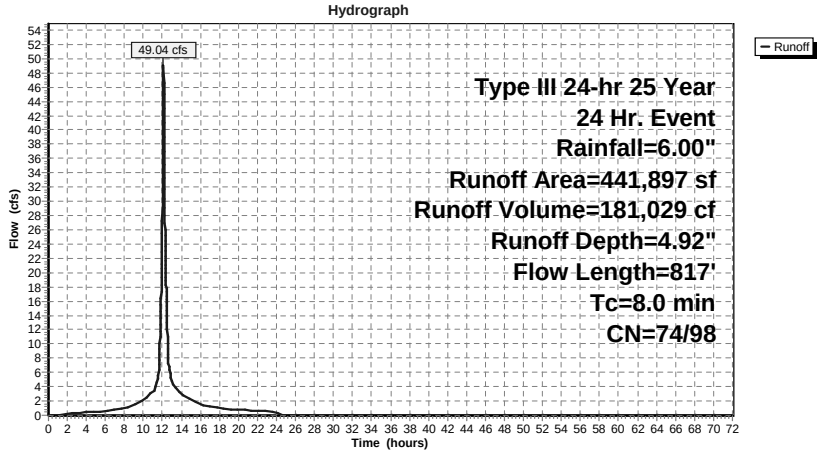
Area (sf)	CN	Description	Land Use
114,130	98	Unconnected pavement, HSG C	Pavement
182,714	98	Unconnected roofs, HSG C	Roofs
3,659	61	>75% Grass cover, Good, HSG B	Open Space
141,394	74	>75% Grass cover, Good, HSG C	Open Space
441,897	90	Weighted Average	
145,053	74	32.83% Pervious Area	
296,844	98	67.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	90	0.3310	9.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	627	0.1080	18.10	56.85	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
8.0	817	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 67.17% Impervious, Rv= 0.655, Runoff= 29.91"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
145,053	Open Space	13,589.28	47.40	205.42	27.77
114,130	Pavement	3,072.69	9.95	37.30	119.00
182,714	Roofs	540.25	3.13	42.65	210.41
441,897	Total	17,202.22	60.48	285.37	357.18

Subcatchment 6A1: Post DA-6A1



Hydrograph for Subcatchment 6A1: Post DA-6A1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.19
4.00	0.26	0.00	0.11	0.40
6.00	0.43	0.00	0.26	0.57
8.00	0.68	0.00	0.49	0.98
10.00	1.13	0.05	0.92	2.10
12.00	3.00	0.91	2.77	**27.19**
14.00	4.87	2.26	4.63	**2.97**
16.00	5.32	2.62	5.08	1.58
18.00	5.57	2.83	5.33	0.96
20.00	5.74	2.97	5.50	0.76
22.00	5.88	3.09	5.65	0.63
24.00	**6.00**	**3.18**	**5.76**	0.50
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00

Summary for Subcatchment 6A2: Post DA-6A2

Runoff = 0.11 cfs @ 12.07 hrs, Volume= 367 cf, Depth= 4.42"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

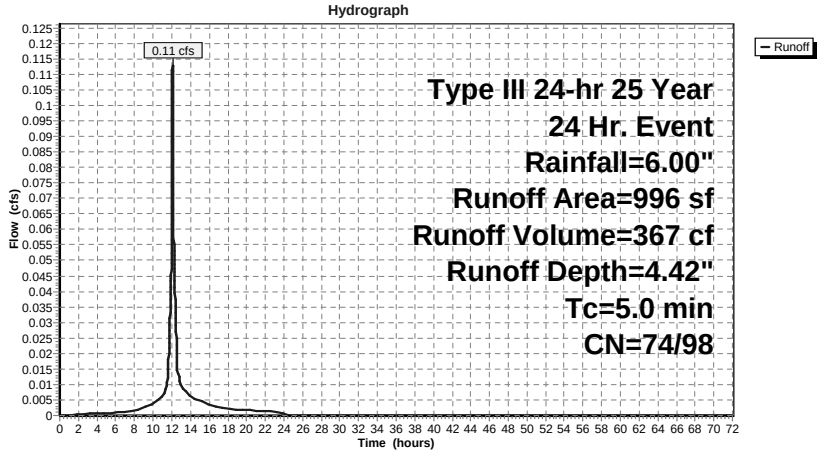
	Area (sf)	CN	Description	Land Use
	477	98	Paved parking, HSG C	Pavement
*	519	74	Bioretention, HSG C	Landscaped
	996	85	Weighted Average	
	519	74	52.11% Pervious Area	
	477	98	47.89% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 47.89% Impervious, Rv= 0.481, Runoff= 21.98"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
519	Landscaped	0.00	0.00	0.00	0.00
477	Pavement	9.44	0.03	0.11	0.37
996	Total	9.44	0.03	0.11	0.37

Subcatchment 6A2: Post DA-6A2



Hydrograph for Subcatchment 6A2: Post DA-6A2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.00
10.00	1.13	0.05	0.92	0.00
12.00	3.00	0.91	2.77	**0.07**
14.00	4.87	2.26	4.63	**0.01**
16.00	5.32	2.62	5.08	0.00
18.00	5.57	2.83	5.33	0.00
20.00	5.74	2.97	5.50	0.00
22.00	5.88	3.09	5.65	0.00
24.00	**6.00**	**3.18**	**5.76**	0.00
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00

Summary for Pond 6A2-Bio: 6A2-Bioretention

Inflow Area = 996 sf, 47.89% Impervious, Inflow Depth = 4.42" for 25 Year, 24 Hr. Event event
Inflow = 0.11 cfs @ 12.07 hrs, Volume= 367 cf
Outflow = 0.11 cfs @ 12.08 hrs, Volume= 337 cf, Atten= 0%, Lag= 0.4 min
Discarded = 0.00 cfs @ 10.67 hrs, Volume= 130 cf
Primary = 0.11 cfs @ 12.08 hrs, Volume= 207 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 652.53' @ 12.08 hrs Surf.Area= 143 sf Storage= 118 cf

Plug-Flow detention time= 500.4 min calculated for 337 cf (92% of inflow)
Center-of-Mass det. time= 457.0 min (1,232.6 - 775.6)

Volume	Invert	Avail.Storage	Storage Description
#1	647.75'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

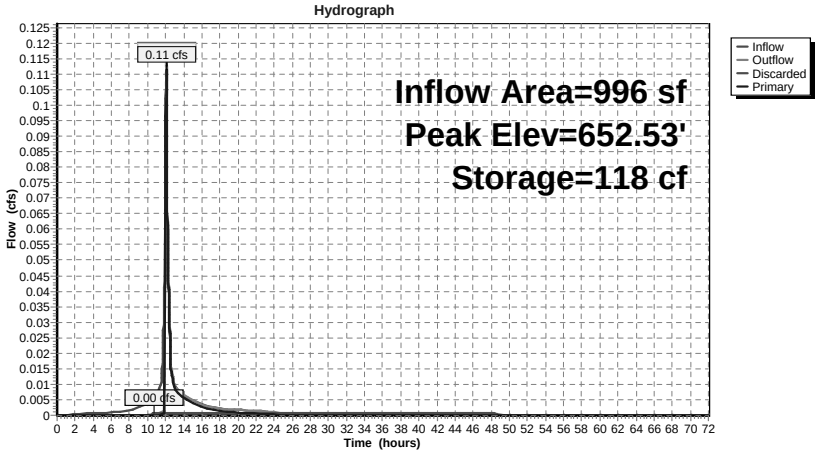
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
647.75	25	0.0	0	0
651.75	25	40.0	40	40
651.99	25	40.0	2	42
652.00	143	100.0	1	43
652.50	143	100.0	72	115
653.00	143	100.0	72	186

Device	Routing	Invert	Outlet Devices
#1	Discarded	647.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	652.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 10.67 hrs HW=652.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.11 cfs @ 12.08 hrs HW=652.53' TW=608.86' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.11 cfs @ 0.53 fps)

Pond 6A2-Bio: 6A2-Bioretention



Hydrograph for Pond 6A2-Bio: 6A2-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	647.75	0.00	0.00	0.00
2.00	0.00	0	647.78	0.00	0.00	0.00
4.00	0.00	3	648.02	0.00	0.00	0.00
6.00	0.00	7	648.48	0.00	0.00	0.00
8.00	0.00	15	649.28	0.00	0.00	0.00
10.00	0.00	33	651.04	0.00	**0.00**	0.00
12.00	**0.07**	**114**	**652.49**	**0.00**	**0.00**	**0.00**
14.00	**0.01**	**115**	**652.50**	**0.01**	0.00	**0.01**
16.00	0.00	115	652.50	0.00	0.00	0.00
18.00	0.00	115	652.50	0.00	0.00	0.00
20.00	0.00	115	652.50	0.00	0.00	0.00
22.00	0.00	115	652.50	0.00	0.00	0.00
24.00	0.00	115	652.50	0.00	0.00	0.00
26.00	0.00	109	652.46	0.00	0.00	0.00
28.00	0.00	103	652.42	0.00	0.00	0.00
30.00	0.00	97	652.38	0.00	0.00	0.00
32.00	0.00	91	652.34	0.00	0.00	0.00
34.00	0.00	85	652.29	0.00	0.00	0.00
36.00	0.00	79	652.25	0.00	0.00	0.00
38.00	0.00	73	652.21	0.00	0.00	0.00
40.00	0.00	67	652.17	0.00	0.00	0.00
42.00	0.00	61	652.13	0.00	0.00	0.00
44.00	0.00	55	652.09	0.00	0.00	0.00
46.00	0.00	50	652.04	0.00	0.00	0.00
48.00	0.00	44	652.00	0.00	0.00	0.00
50.00	0.00	42	651.92	0.00	0.00	0.00
52.00	0.00	41	651.81	0.00	0.00	0.00
54.00	0.00	40	651.71	0.00	0.00	0.00
56.00	0.00	39	651.60	0.00	0.00	0.00
58.00	0.00	37	651.50	0.00	0.00	0.00
60.00	0.00	36	651.40	0.00	0.00	0.00
62.00	0.00	35	651.29	0.00	0.00	0.00
64.00	0.00	34	651.19	0.00	0.00	0.00
66.00	0.00	33	651.08	0.00	0.00	0.00
68.00	0.00	32	650.98	0.00	0.00	0.00
70.00	0.00	31	650.87	0.00	0.00	0.00
72.00	0.00	30	650.77	0.00	0.00	0.00

Summary for Subcatchment 6A3: Post DA-6A3

Runoff = 0.41 cfs @ 12.07 hrs, Volume= 1,365 cf, Depth= 4.70"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

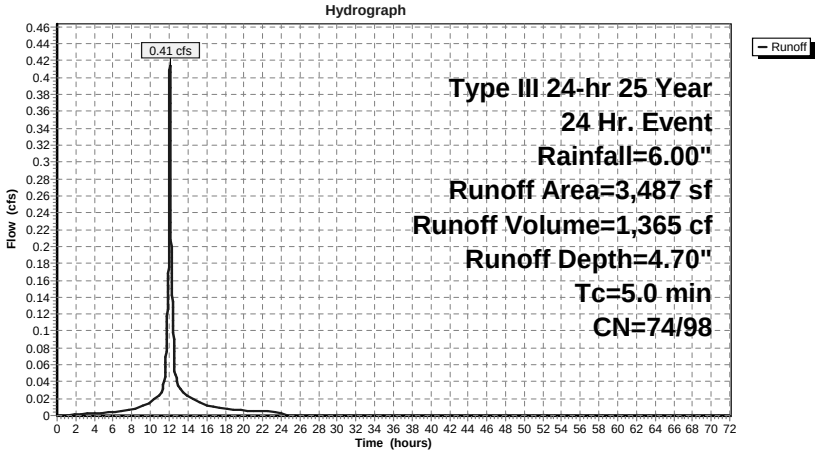
	Area (sf)	CN	Description	Land Use
	2,047	98	Paved parking, HSG C	Pavement
*	1,440	74	Bioretention, HSG C	Landscaped
	3,487	88	Weighted Average	
	1,440	74	41.30% Pervious Area	
	2,047	98	58.70% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 58.70% Impervious, Rv= 0.578, Runoff= 26.43"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,440	Landscaped	0.00	0.00	0.00	0.00
2,047	Pavement	48.69	0.16	0.59	1.89
3,487	Total	48.69	0.16	0.59	1.89

Subcatchment 6A3: Post DA-6A3



Hydrograph for Subcatchment 6A3: Post DA-6A3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.05	0.92	0.02
12.00	3.00	0.91	2.77	**0.27**
14.00	4.87	2.26	4.63	**0.02**
16.00	5.32	2.62	5.08	0.01
18.00	5.57	2.83	5.33	0.01
20.00	5.74	2.97	5.50	0.01
22.00	5.88	3.09	5.65	0.00
24.00	**6.00**	**3.18**	**5.76**	0.00
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00

Summary for Pond 6A3-Bio: 6A3-Bioretention

Inflow Area = 3,487 sf, 58.70% Impervious, Inflow Depth = 4.70" for 25 Year, 24 Hr. Event event
Inflow = 0.41 cfs @ 12.07 hrs, Volume= 1,365 cf
Outflow = 0.41 cfs @ 12.09 hrs, Volume= 1,244 cf, Atten= 2%, Lag= 0.9 min
Discarded = 0.00 cfs @ 10.55 hrs, Volume= 471 cf
Primary = 0.40 cfs @ 12.09 hrs, Volume= 774 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 630.56' @ 12.09 hrs Surf.Area= 509 sf Storage= 459 cf

Plug-Flow detention time= 505.5 min calculated for 1,244 cf (91% of inflow)
Center-of-Mass det. time= 459.5 min (1,227.2 - 767.6)

Volume	Invert	Avail.Storage	Storage Description
#1	625.75'	682 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

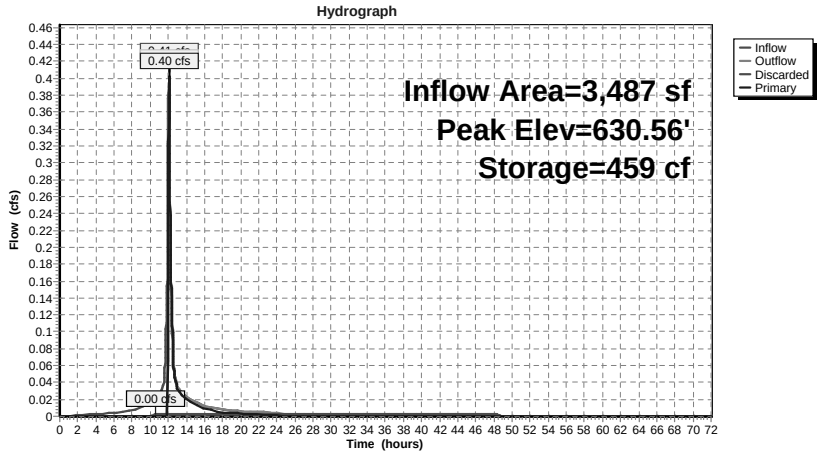
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
625.75	100	0.0	0	0
629.75	100	40.0	160	160
629.99	100	40.0	10	170
630.00	509	100.0	3	173
630.50	509	100.0	255	427
631.00	509	100.0	255	682

Device	Routing	Invert	Outlet Devices
#1	Discarded	625.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	630.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 10.55 hrs HW=630.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.40 cfs @ 12.09 hrs HW=630.56' TW=609.29' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.40 cfs @ 0.81 fps)

Pond 6A3-Bio: 6A3-Bioretention



Hydrograph for Pond 6A3-Bio: 6A3-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	625.75	0.00	0.00	0.00
2.00	0.00	1	625.78	0.00	0.00	0.00
4.00	0.00	12	626.05	0.00	0.00	0.00
6.00	0.00	32	626.56	0.00	0.00	0.00
8.00	0.01	67	627.42	0.00	0.00	0.00
10.00	0.02	140	629.24	0.00	**0.00**	0.00
12.00	**0.27**	**442**	**630.53**	**0.14**	**0.00**	**0.13**
14.00	**0.02**	**431**	**630.51**	**0.02**	0.00	**0.02**
16.00	0.01	430	630.51	0.01	0.00	0.01
18.00	0.01	429	630.50	0.01	0.00	0.00
20.00	0.01	428	630.50	0.01	0.00	0.00
22.00	0.00	428	630.50	0.00	0.00	0.00
24.00	0.00	428	630.50	0.00	0.00	0.00
26.00	0.00	407	630.46	0.00	0.00	0.00
28.00	0.00	386	630.42	0.00	0.00	0.00
30.00	0.00	365	630.38	0.00	0.00	0.00
32.00	0.00	344	630.34	0.00	0.00	0.00
34.00	0.00	322	630.29	0.00	0.00	0.00
36.00	0.00	301	630.25	0.00	0.00	0.00
38.00	0.00	280	630.21	0.00	0.00	0.00
40.00	0.00	259	630.17	0.00	0.00	0.00
42.00	0.00	238	630.13	0.00	0.00	0.00
44.00	0.00	216	630.09	0.00	0.00	0.00
46.00	0.00	195	630.04	0.00	0.00	0.00
48.00	0.00	174	630.00	0.00	0.00	0.00
50.00	0.00	167	629.92	0.00	0.00	0.00
52.00	0.00	163	629.81	0.00	0.00	0.00
54.00	0.00	158	629.71	0.00	0.00	0.00
56.00	0.00	154	629.61	0.00	0.00	0.00
58.00	0.00	150	629.50	0.00	0.00	0.00
60.00	0.00	146	629.40	0.00	0.00	0.00
62.00	0.00	142	629.29	0.00	0.00	0.00
64.00	0.00	138	629.19	0.00	0.00	0.00
66.00	0.00	133	629.08	0.00	0.00	0.00
68.00	0.00	129	628.98	0.00	0.00	0.00
70.00	0.00	125	628.88	0.00	0.00	0.00
72.00	0.00	121	628.77	0.00	0.00	0.00

Summary for Subcatchment 6A4: Post DA-6A4

Runoff = 0.24 cfs @ 12.07 hrs, Volume= 800 cf, Depth= 4.64"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

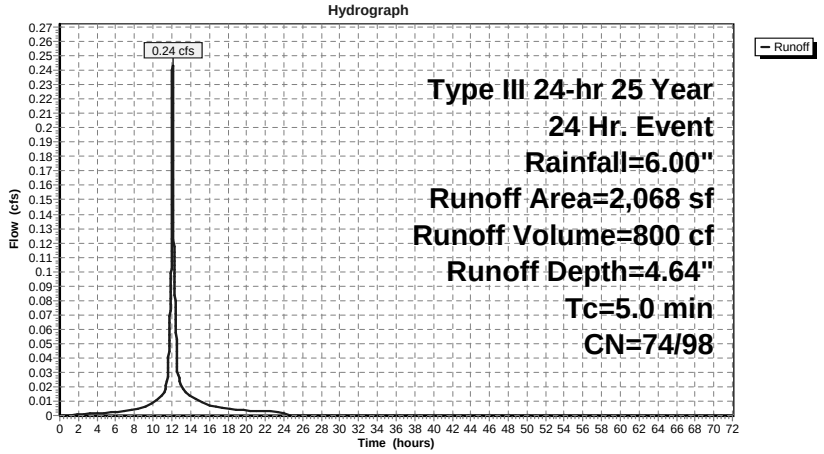
	Area (sf)	CN	Description	Land Use
	1,168	98	Paved parking, HSG C	Pavement
*	900	74	Bioretention, HSG C	Landscaped
	2,068	88	Weighted Average	
	900	74	43.52% Pervious Area	
	1,168	98	56.48% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 56.48% Impervious, Rv= 0.558, Runoff= 25.52"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
900	Landscaped	0.00	0.00	0.00	0.00
1,168	Pavement	26.82	0.09	0.33	1.04
2,068	Total	26.82	0.09	0.33	1.04

Subcatchment 6A4: Post DA-6A4



Hydrograph for Subcatchment 6A4: Post DA-6A4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.00
10.00	1.13	0.05	0.92	0.01
12.00	3.00	0.91	2.77	**0.16**
14.00	4.87	2.26	4.63	**0.01**
16.00	5.32	2.62	5.08	0.01
18.00	5.57	2.83	5.33	0.00
20.00	5.74	2.97	5.50	0.00
22.00	5.88	3.09	5.65	0.00
24.00	**6.00**	**3.18**	**5.76**	0.00
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00

Summary for Pond 6A4-Bio: 6A4-Bioretention

Inflow Area = 2,068 sf, 56.48% Impervious, Inflow Depth = 4.64" for 25 Year, 24 Hr. Event event
Inflow = 0.24 cfs @ 12.07 hrs, Volume= 800 cf
Outflow = 0.24 cfs @ 12.08 hrs, Volume= 732 cf, Atten= 1%, Lag= 0.6 min
Discarded = 0.00 cfs @ 10.49 hrs, Volume= 271 cf
Primary = 0.24 cfs @ 12.08 hrs, Volume= 461 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 640.54' @ 12.08 hrs Surf.Area= 294 sf Storage= 257 cf

Plug-Flow detention time= 491.3 min calculated for 732 cf (92% of inflow)
Center-of-Mass det. time= 446.9 min (1,216.1 - 769.2)

Volume	Invert	Avail.Storage	Storage Description
#1	635.75'	391 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

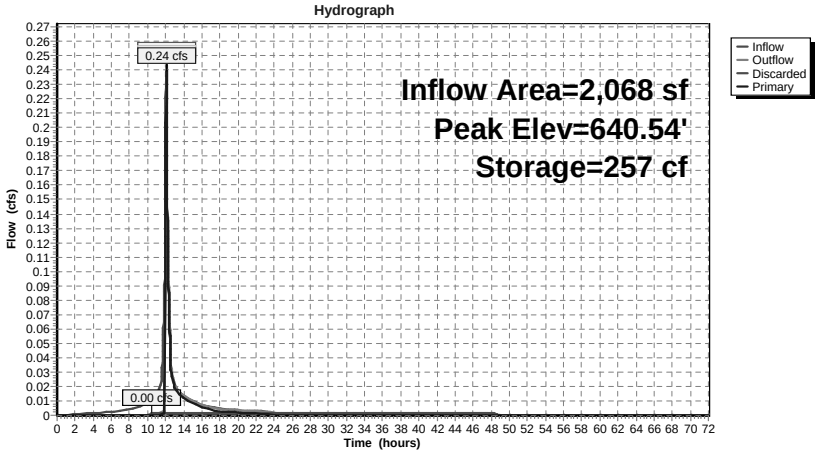
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
635.75	56	0.0	0	0
635.76	56	40.0	0	0
639.99	56	40.0	95	95
640.00	294	100.0	2	97
640.50	294	100.0	147	244
641.00	294	100.0	147	391

Device	Routing	Invert	Outlet Devices
#1	Discarded	635.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	640.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 10.49 hrs HW=640.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.24 cfs @ 12.08 hrs HW=640.54' TW=609.05' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.24 cfs @ 0.68 fps)

Pond 6A4-Bio: 6A4-Bioretention



Hydrograph for Pond 6A4-Bio: 6A4-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	635.75	0.00	0.00	0.00
2.00	0.00	1	635.78	0.00	0.00	0.00
4.00	0.00	7	636.06	0.00	0.00	0.00
6.00	0.00	18	636.58	0.00	0.00	0.00
8.00	0.00	38	637.46	0.00	0.00	0.00
10.00	0.01	80	639.33	0.00	**0.00**	0.00
12.00	**0.16**	**252**	**640.53**	**0.13**	**0.00**	**0.12**
14.00	**0.01**	**245**	**640.51**	**0.01**	0.00	**0.01**
16.00	0.01	245	640.50	0.01	0.00	0.01
18.00	0.00	244	640.50	0.00	0.00	0.00
20.00	0.00	244	640.50	0.00	0.00	0.00
22.00	0.00	244	640.50	0.00	0.00	0.00
24.00	0.00	244	640.50	0.00	0.00	0.00
26.00	0.00	232	640.46	0.00	0.00	0.00
28.00	0.00	220	640.42	0.00	0.00	0.00
30.00	0.00	208	640.38	0.00	0.00	0.00
32.00	0.00	195	640.34	0.00	0.00	0.00
34.00	0.00	183	640.29	0.00	0.00	0.00
36.00	0.00	171	640.25	0.00	0.00	0.00
38.00	0.00	159	640.21	0.00	0.00	0.00
40.00	0.00	146	640.17	0.00	0.00	0.00
42.00	0.00	134	640.13	0.00	0.00	0.00
44.00	0.00	122	640.09	0.00	0.00	0.00
46.00	0.00	110	640.04	0.00	0.00	0.00
48.00	0.00	97	640.00	0.00	0.00	0.00
50.00	0.00	93	639.92	0.00	0.00	0.00
52.00	0.00	91	639.81	0.00	0.00	0.00
54.00	0.00	89	639.71	0.00	0.00	0.00
56.00	0.00	86	639.60	0.00	0.00	0.00
58.00	0.00	84	639.50	0.00	0.00	0.00
60.00	0.00	82	639.40	0.00	0.00	0.00
62.00	0.00	79	639.29	0.00	0.00	0.00
64.00	0.00	77	639.19	0.00	0.00	0.00
66.00	0.00	75	639.08	0.00	0.00	0.00
68.00	0.00	72	638.98	0.00	0.00	0.00
70.00	0.00	70	638.88	0.00	0.00	0.00
72.00	0.00	68	638.77	0.00	0.00	0.00

Summary for Subcatchment 6B: Post DA-6B

Runoff = 7.21 cfs @ 12.44 hrs, Volume= 42,597 cf, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

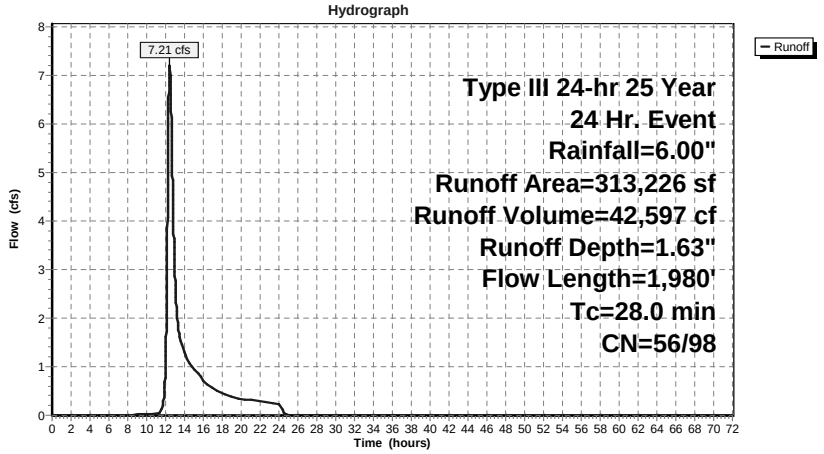
	Area (sf)	CN	Description	Land Use
	2,675	98	Unconnected pavement, HSG C	Pavement
	42,639	61	>75% Grass cover, Good, HSG B	Open Space
	262,664	55	Woods, Good, HSG B	Woods
	3,867	74	>75% Grass cover, Good, HSG C	Open Space
*	1,381	96	Gravel roads, HSG C	Roadway
	313,226	57	Weighted Average	
	310,551	56	99.15% Pervious Area	
	2,675	98	0.85% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	150	0.1200	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.4	370	0.2600	2.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	100	0.1200	7.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	1,360	0.1000	17.41	54.71	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
28.0	1,980	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.85% Impervious, Rv= 0.058, Runoff= 2.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
46,506	Open Space	383.96	1.34	5.80	0.78
2,675	Pavement	6.35	0.02	0.08	0.25
1,381	Roadway	3.28	0.01	0.04	0.13
262,664	Woods	133.29	0.00	0.00	4.43
313,226	Total	526.87	1.37	5.92	5.59

Subcatchment 6B: Post DA-6B



Hydrograph for Subcatchment 6B: Post DA-6B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.00	0.92	0.02
12.00	3.00	0.22	2.77	**1.08**
14.00	4.87	0.97	4.63	**1.28**
16.00	5.32	1.21	5.08	0.73
18.00	5.57	1.35	5.33	0.44
20.00	5.74	1.45	5.50	0.34
22.00	5.88	1.53	5.65	0.29
24.00	**6.00**	**1.60**	**5.76**	0.23
26.00	6.00	1.60	5.76	0.00
28.00	6.00	1.60	5.76	0.00
30.00	6.00	1.60	5.76	0.00
32.00	6.00	1.60	5.76	0.00
34.00	6.00	1.60	5.76	0.00
36.00	6.00	1.60	5.76	0.00
38.00	6.00	1.60	5.76	0.00
40.00	6.00	1.60	5.76	0.00
42.00	6.00	1.60	5.76	0.00
44.00	6.00	1.60	5.76	0.00
46.00	6.00	1.60	5.76	0.00
48.00	6.00	1.60	5.76	0.00
50.00	6.00	1.60	5.76	0.00
52.00	6.00	1.60	5.76	0.00
54.00	6.00	1.60	5.76	0.00
56.00	6.00	1.60	5.76	0.00
58.00	6.00	1.60	5.76	0.00
60.00	6.00	1.60	5.76	0.00
62.00	6.00	1.60	5.76	0.00
64.00	6.00	1.60	5.76	0.00
66.00	6.00	1.60	5.76	0.00
68.00	6.00	1.60	5.76	0.00
70.00	6.00	1.60	5.76	0.00
72.00	6.00	1.60	5.76	0.00

Summary for Subcatchment 7: Post DA-7

Runoff = 6.43 cfs @ 12.10 hrs, Volume= 20,953 cf, Depth= 3.55"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

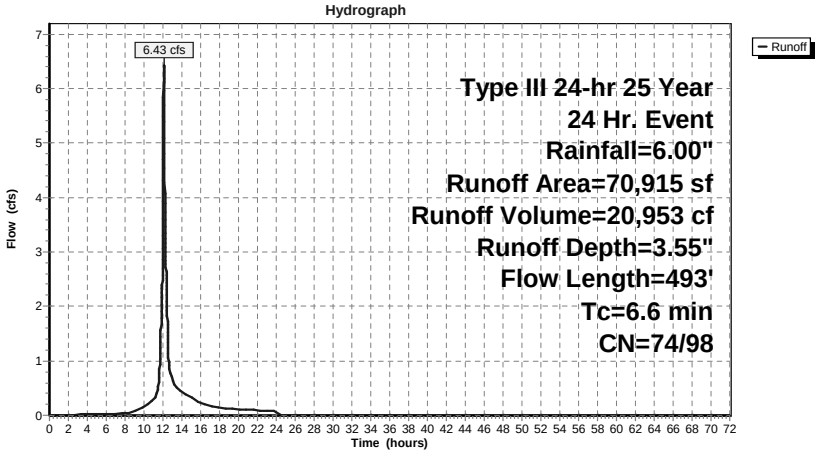
Area (sf)	CN	Description	Land Use
9,926	98	Unconnected pavement, HSG C	Pavement
60,989	74	>75% Grass cover, Good, HSG C	Open Space
70,915	77	Weighted Average	
60,989	74	86.00% Pervious Area	
9,926	98	14.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2670	0.34		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	35	0.2670	3.62		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	81	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	114	0.0350	13.47	42.32	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.1	123	0.0810	20.49	64.38	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
6.6	493	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 14.00% Impervious, Rv= 0.176, Runoff= 8.04"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
60,989	Open Space	1,536.06	5.36	23.22	3.14
9,926	Pavement	71.84	0.23	0.87	2.78
70,915	Total	1,607.91	5.59	24.09	5.92

Subcatchment 7: Post DA-7



Hydrograph for Subcatchment 7: Post DA-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.02
8.00	0.68	0.00	0.49	0.03
10.00	1.13	0.05	0.92	0.14
12.00	3.00	0.91	2.77	**3.61**
14.00	4.87	2.26	4.63	**0.41**
16.00	5.32	2.62	5.08	0.22
18.00	5.57	2.83	5.33	0.14
20.00	5.74	2.97	5.50	0.11
22.00	5.88	3.09	5.65	0.09
24.00	**6.00**	**3.18**	**5.76**	0.07
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00

Summary for Pond DP6: DP6

[57] Hint: Peaked at 609.92' (Flood elevation advised)

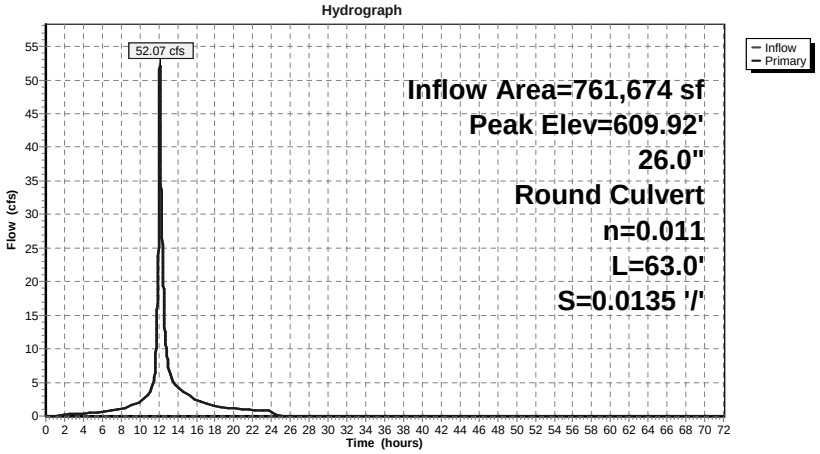
Inflow Area = 761,674 sf, 39.81% Impervious, Inflow Depth = 3.55" for 25 Year, 24 Hr. Event event
Inflow = 52.07 cfs @ 12.11 hrs, Volume= 225,067 cf
Outflow = 52.07 cfs @ 12.11 hrs, Volume= 225,067 cf, Atten= 0%, Lag= 0.0 min
Primary = 52.07 cfs @ 12.11 hrs, Volume= 225,067 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 609.92' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	600.24'	**26.0" Round Culvert** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.24' / 599.39' S= 0.0135 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=52.01 cfs @ 12.11 hrs HW=609.91' (Free Discharge)
1=Culvert (Inlet Controls 52.01 cfs @ 14.11 fps)

Pond DP6: DP6



Hydrograph for Pond DP6: DP6

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	600.24	0.00	52.00	0.00	600.24	0.00
1.00	0.04	600.32	0.04	53.00	0.00	600.24	0.00
2.00	0.19	600.41	0.19	54.00	0.00	600.24	0.00
3.00	0.30	600.46	0.30	55.00	0.00	600.24	0.00
4.00	0.40	600.49	0.40	56.00	0.00	600.24	0.00
5.00	0.49	600.52	0.49	57.00	0.00	600.24	0.00
6.00	0.58	600.54	0.58	58.00	0.00	600.24	0.00
7.00	0.77	600.59	0.77	59.00	0.00	600.24	0.00
8.00	0.99	600.64	0.99	60.00	0.00	600.24	0.00
9.00	1.49	600.73	1.49	61.00	0.00	600.24	0.00
10.00	2.11	600.83	2.11	62.00	0.00	600.24	0.00
11.00	3.31	600.99	3.31	63.00	0.00	600.24	0.00
12.00	**28.53**	**603.91**	**28.53**	64.00	0.00	600.24	0.00
13.00	**7.67**	**601.43**	**7.67**	65.00	0.00	600.24	0.00
14.00	4.28	601.10	4.28	66.00	0.00	600.24	0.00
15.00	3.22	600.98	3.22	67.00	0.00	600.24	0.00
16.00	2.32	600.86	2.32	68.00	0.00	600.24	0.00
17.00	1.82	600.78	1.82	69.00	0.00	600.24	0.00
18.00	1.41	600.72	1.41	70.00	0.00	600.24	0.00
19.00	1.23	600.68	1.23	71.00	0.00	600.24	0.00
20.00	1.11	600.66	1.11	72.00	0.00	600.24	0.00
21.00	1.01	600.64	1.01				
22.00	0.92	600.62	0.92				
23.00	0.83	600.60	0.83				
24.00	0.74	600.58	0.74				
25.00	0.00	600.27	0.00				
26.00	0.00	600.24	0.00				
27.00	0.00	600.24	0.00				
28.00	0.00	600.24	0.00				
29.00	0.00	600.24	0.00				
30.00	0.00	600.24	0.00				
31.00	0.00	600.24	0.00				
32.00	0.00	600.24	0.00				
33.00	0.00	600.24	0.00				
34.00	0.00	600.24	0.00				
35.00	0.00	600.24	0.00				
36.00	0.00	600.24	0.00				
37.00	0.00	600.24	0.00				
38.00	0.00	600.24	0.00				
39.00	0.00	600.24	0.00				
40.00	0.00	600.24	0.00				
41.00	0.00	600.24	0.00				
42.00	0.00	600.24	0.00				
43.00	0.00	600.24	0.00				
44.00	0.00	600.24	0.00				
45.00	0.00	600.24	0.00				
46.00	0.00	600.24	0.00				
47.00	0.00	600.24	0.00				
48.00	0.00	600.24	0.00				
49.00	0.00	600.24	0.00				
50.00	0.00	600.24	0.00				
51.00	0.00	600.24	0.00				

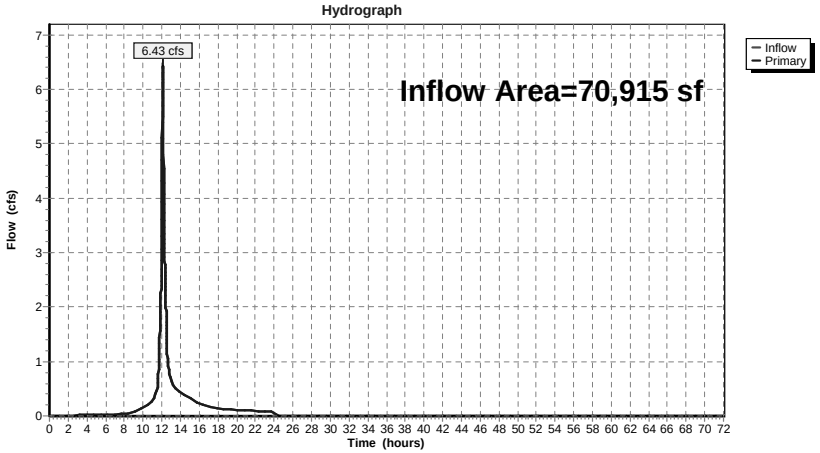
Summary for Pond DP7: DP7

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 70,915 sf, 14.00% Impervious, Inflow Depth = 3.55" for 25 Year, 24 Hr. Event event
Inflow = 6.43 cfs @ 12.10 hrs, Volume= 20,953 cf
Primary = 6.43 cfs @ 12.10 hrs, Volume= 20,953 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP7: DP7



Hydrograph for Pond DP7: DP7

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.03		0.03	59.00	0.00		0.00
8.00	0.03		0.03	60.00	0.00		0.00
9.00	0.07		0.07	61.00	0.00		0.00
10.00	0.14		0.14	62.00	0.00		0.00
11.00	0.29		0.29	63.00	0.00		0.00
12.00	**3.61**		**3.61**	64.00	0.00		0.00
13.00	**0.65**		**0.65**	65.00	0.00		0.00
14.00	0.41		0.41	66.00	0.00		0.00
15.00	0.32		0.32	67.00	0.00		0.00
16.00	0.22		0.22	68.00	0.00		0.00
17.00	0.18		0.18	69.00	0.00		0.00
18.00	0.14		0.14	70.00	0.00		0.00
19.00	0.12		0.12	71.00	0.00		0.00
20.00	0.11		0.11	72.00	0.00		0.00
21.00	0.10		0.10				
22.00	0.09		0.09				
23.00	0.08		0.08				
24.00	0.07		0.07				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 6A1: Post DA-6A1 Runoff Area=441,897 sf 67.17% Impervious Runoff Depth=8.28"
Flow Length=817' Tc=8.0 min CN=74/98 Runoff=82.19 cfs 305,040 cf

Subcatchment 6A2: Post DA-6A2 Runoff Area=996 sf 47.89% Impervious Runoff Depth=7.71"
Tc=5.0 min CN=74/98 Runoff=0.20 cfs 640 cf

Pond 6A2-Bio: 6A2-Bioretention Peak Elev=652.54' Storage=120 cf Inflow=0.20 cfs 640 cf
Discarded=0.00 cfs 134 cf Primary=0.19 cfs 475 cf Outflow=0.20 cfs 610 cf

Subcatchment 6A3: Post DA-6A3 Runoff Area=3,487 sf 58.70% Impervious Runoff Depth=8.03"
Tc=5.0 min CN=74/98 Runoff=0.70 cfs 2,334 cf

Pond 6A3-Bio: 6A3-Bioretention Peak Elev=630.59' Storage=472 cf Inflow=0.70 cfs 2,334 cf
Discarded=0.00 cfs 487 cf Primary=0.69 cfs 1,726 cf Outflow=0.70 cfs 2,213 cf

Subcatchment 6A4: Post DA-6A4 Runoff Area=2,068 sf 56.48% Impervious Runoff Depth=7.97"
Tc=5.0 min CN=74/98 Runoff=0.42 cfs 1,373 cf

Pond 6A4-Bio: 6A4-Bioretention Peak Elev=640.56' Storage=262 cf Inflow=0.42 cfs 1,373 cf
Discarded=0.00 cfs 280 cf Primary=0.41 cfs 1,025 cf Outflow=0.41 cfs 1,305 cf

Subcatchment 6B: Post DA-6B Runoff Area=313,226 sf 0.85% Impervious Runoff Depth=4.03"
Flow Length=1,980' Tc=28.0 min CN=56/98 Runoff=19.41 cfs 105,121 cf

Subcatchment 7: Post DA-7 Runoff Area=70,915 sf 14.00% Impervious Runoff Depth=6.70"
Flow Length=493' Tc=6.6 min CN=74/98 Runoff=12.11 cfs 39,610 cf

Pond DP6: DP6 Peak Elev=628.04' Inflow=91.75 cfs 413,387 cf
26.0" Round Culvert n=0.011 L=63.0' S=0.0135 '/' Outflow=91.75 cfs 413,387 cf

Pond DP7: DP7 Inflow=12.11 cfs 39,610 cf
Primary=12.11 cfs 39,610 cf

Total Runoff Area = 832,589 sf Runoff Volume = 454,118 cf Average Runoff Depth = 6.55"
62.39% Pervious = 519,452 sf 37.61% Impervious = 313,137 sf

Summary for Subcatchment 6A1: Post DA-6A1

Runoff = 82.19 cfs @ 12.11 hrs, Volume= 305,040 cf, Depth= 8.28"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

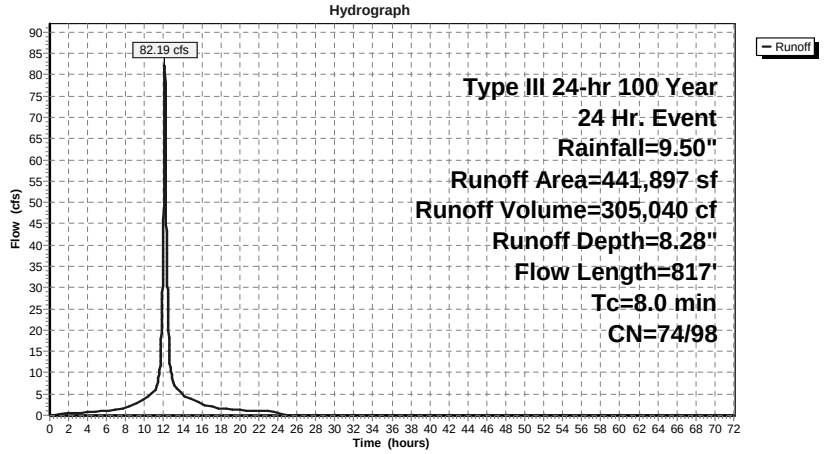
Area (sf)	CN	Description	Land Use
114,130	98	Unconnected pavement, HSG C	Pavement
182,714	98	Unconnected roofs, HSG C	Roofs
3,659	61	>75% Grass cover, Good, HSG B	Open Space
141,394	74	>75% Grass cover, Good, HSG C	Open Space
441,897	90	Weighted Average	
145,053	74	32.83% Pervious Area	
296,844	98	67.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	90	0.3310	9.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	627	0.1080	18.10	56.85	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
8.0	817	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 67.17% Impervious, Rv= 0.655, Runoff= 29.91"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
145,053	Open Space	13,589.28	47.40	205.42	27.77
114,130	Pavement	3,072.69	9.95	37.30	119.00
182,714	Roofs	540.25	3.13	42.65	210.41
441,897	Total	17,202.22	60.48	285.37	357.18

Subcatchment 6A1: Post DA-6A1



Hydrograph for Subcatchment 6A1: Post DA-6A1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.42
4.00	0.41	0.00	0.24	0.72
6.00	0.68	0.00	0.49	0.97
8.00	1.08	0.04	0.87	1.75
10.00	1.80	0.26	1.57	3.68
12.00	4.75	2.17	4.51	**45.97**
14.00	7.70	4.66	7.46	**4.86**
16.00	8.42	5.30	8.18	2.58
18.00	8.82	5.66	8.58	1.57
20.00	9.09	5.91	8.85	1.24
22.00	9.32	6.12	9.08	1.03
24.00	**9.50**	**6.29**	**9.26**	0.82
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00

Summary for Subcatchment 6A2: Post DA-6A2

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 640 cf, Depth= 7.71"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

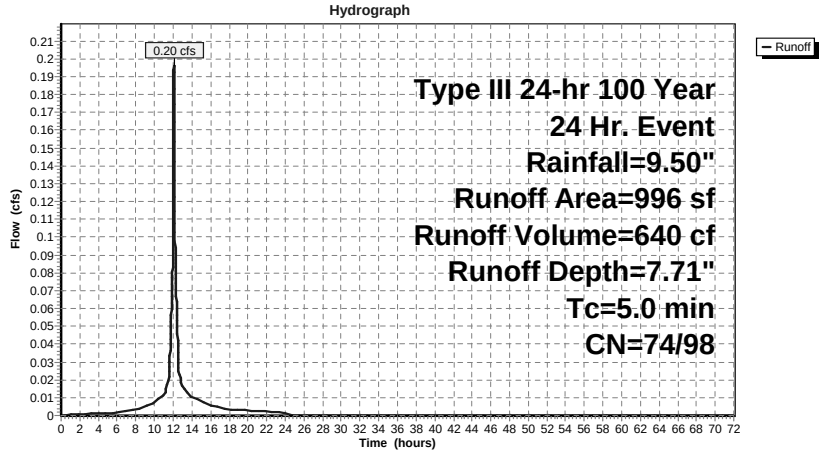
	Area (sf)	CN	Description	Land Use
	477	98	Paved parking, HSG C	Pavement
*	519	74	Bioretention, HSG C	Landscaped
	996	85	Weighted Average	
	519	74	52.11% Pervious Area	
	477	98	47.89% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 47.89% Impervious, Rv= 0.481, Runoff= 21.98"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
519	Landscaped	0.00	0.00	0.00	0.00
477	Pavement	9.44	0.03	0.11	0.37
996	Total	9.44	0.03	0.11	0.37

Subcatchment 6A2: Post DA-6A2



Hydrograph for Subcatchment 6A2: Post DA-6A2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.00
6.00	0.68	0.00	0.49	0.00
8.00	1.08	0.04	0.87	0.00
10.00	1.80	0.26	1.57	0.01
12.00	4.75	2.17	4.51	**0.13**
14.00	7.70	4.66	7.46	**0.01**
16.00	8.42	5.30	8.18	0.01
18.00	8.82	5.66	8.58	0.00
20.00	9.09	5.91	8.85	0.00
22.00	9.32	6.12	9.08	0.00
24.00	**9.50**	**6.29**	**9.26**	0.00
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00

Summary for Pond 6A2-Bio: 6A2-Bioretention

Inflow Area = 996 sf, 47.89% Impervious, Inflow Depth = 7.71" for 100 Year, 24 Hr. Event event
Inflow = 0.20 cfs @ 12.07 hrs, Volume= 640 cf
Outflow = 0.20 cfs @ 12.08 hrs, Volume= 610 cf, Atten= 0%, Lag= 0.3 min
Discarded = 0.00 cfs @ 8.88 hrs, Volume= 134 cf
Primary = 0.19 cfs @ 12.08 hrs, Volume= 475 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 652.54' @ 12.08 hrs Surf.Area= 143 sf Storage= 120 cf

Plug-Flow detention time= 296.2 min calculated for 610 cf (95% of inflow)
Center-of-Mass det. time= 269.0 min (1,037.1 - 768.1)

Volume	Invert	Avail.Storage	Storage Description
#1	647.75'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

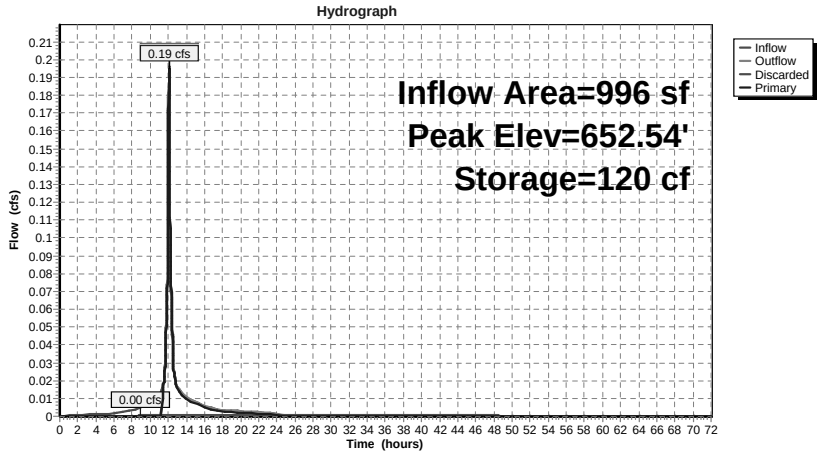
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
647.75	25	0.0	0	0
651.75	25	40.0	40	40
651.99	25	40.0	2	42
652.00	143	100.0	1	43
652.50	143	100.0	72	115
653.00	143	100.0	72	186

Device	Routing	Invert	Outlet Devices
#1	Discarded	647.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	652.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 8.88 hrs HW=652.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.19 cfs @ 12.08 hrs HW=652.54' TW=624.33' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.19 cfs @ 0.64 fps)

Pond 6A2-Bio: 6A2-Bioretention



Hydrograph for Pond 6A2-Bio: 6A2-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	647.75	0.00	0.00	0.00
2.00	0.00	2	647.91	0.00	0.00	0.00
4.00	0.00	7	648.48	0.00	0.00	0.00
6.00	0.00	16	649.36	0.00	0.00	0.00
8.00	0.00	32	650.90	0.00	**0.00**	0.00
10.00	0.01	64	652.14	0.00	**0.00**	0.00
12.00	**0.13**	**119**	**652.53**	**0.12**	0.00	**0.12**
14.00	**0.01**	**115**	**652.51**	**0.01**	0.00	**0.01**
16.00	0.01	115	652.50	0.01	0.00	0.00
18.00	0.00	115	652.50	0.00	0.00	0.00
20.00	0.00	115	652.50	0.00	0.00	0.00
22.00	0.00	115	652.50	0.00	0.00	0.00
24.00	0.00	115	652.50	0.00	0.00	0.00
26.00	0.00	109	652.46	0.00	0.00	0.00
28.00	0.00	103	652.42	0.00	0.00	0.00
30.00	0.00	97	652.38	0.00	0.00	0.00
32.00	0.00	91	652.34	0.00	0.00	0.00
34.00	0.00	85	652.29	0.00	0.00	0.00
36.00	0.00	79	652.25	0.00	0.00	0.00
38.00	0.00	73	652.21	0.00	0.00	0.00
40.00	0.00	67	652.17	0.00	0.00	0.00
42.00	0.00	62	652.13	0.00	0.00	0.00
44.00	0.00	56	652.09	0.00	0.00	0.00
46.00	0.00	50	652.04	0.00	0.00	0.00
48.00	0.00	44	652.00	0.00	0.00	0.00
50.00	0.00	42	651.92	0.00	0.00	0.00
52.00	0.00	41	651.81	0.00	0.00	0.00
54.00	0.00	40	651.71	0.00	0.00	0.00
56.00	0.00	39	651.61	0.00	0.00	0.00
58.00	0.00	38	651.50	0.00	0.00	0.00
60.00	0.00	36	651.40	0.00	0.00	0.00
62.00	0.00	35	651.29	0.00	0.00	0.00
64.00	0.00	34	651.19	0.00	0.00	0.00
66.00	0.00	33	651.08	0.00	0.00	0.00
68.00	0.00	32	650.98	0.00	0.00	0.00
70.00	0.00	31	650.88	0.00	0.00	0.00
72.00	0.00	30	650.77	0.00	0.00	0.00

Summary for Subcatchment 6A3: Post DA-6A3

Runoff = 0.70 cfs @ 12.07 hrs, Volume= 2,334 cf, Depth= 8.03"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

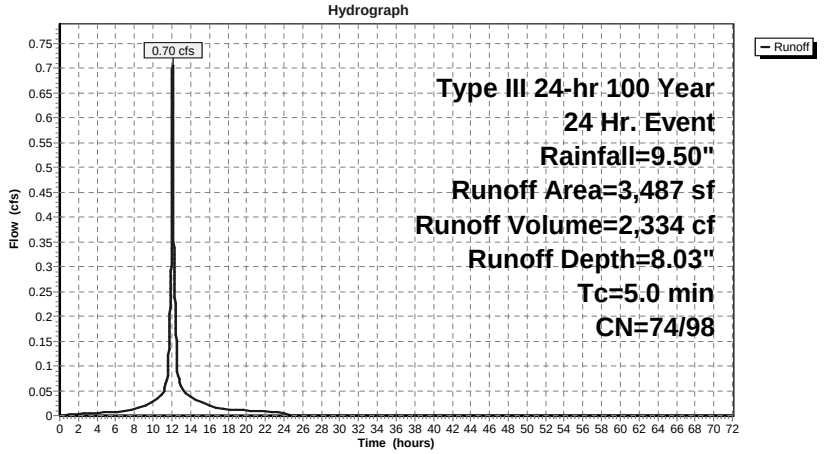
	Area (sf)	CN	Description	Land Use
	2,047	98	Paved parking, HSG C	Pavement
*	1,440	74	Bioretention, HSG C	Landscaped
	3,487	88	Weighted Average	
	1,440	74	41.30% Pervious Area	
	2,047	98	58.70% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 58.70% Impervious, Rv= 0.578, Runoff= 26.43"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,440	Landscaped	0.00	0.00	0.00	0.00
2,047	Pavement	48.69	0.16	0.59	1.89
3,487	Total	48.69	0.16	0.59	1.89

Subcatchment 6A3: Post DA-6A3



Hydrograph for Subcatchment 6A3: Post DA-6A3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.04	0.87	0.01
10.00	1.80	0.26	1.57	0.03
12.00	4.75	2.17	4.51	**0.47**
14.00	7.70	4.66	7.46	**0.04**
16.00	8.42	5.30	8.18	0.02
18.00	8.82	5.66	8.58	0.01
20.00	9.09	5.91	8.85	0.01
22.00	9.32	6.12	9.08	0.01
24.00	**9.50**	**6.29**	**9.26**	0.01
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00

Summary for Pond 6A3-Bio: 6A3-Bioretention

Inflow Area = 3,487 sf, 58.70% Impervious, Inflow Depth = 8.03" for 100 Year, 24 Hr. Event event
Inflow = 0.70 cfs @ 12.07 hrs, Volume= 2,334 cf
Outflow = 0.70 cfs @ 12.08 hrs, Volume= 2,213 cf, Atten= 1%, Lag= 0.7 min
Discarded = 0.00 cfs @ 8.75 hrs, Volume= 487 cf
Primary = 0.69 cfs @ 12.08 hrs, Volume= 1,726 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 630.59' @ 12.08 hrs Surf.Area= 509 sf Storage= 472 cf

Plug-Flow detention time= 306.9 min calculated for 2,213 cf (95% of inflow)
Center-of-Mass det. time= 276.9 min (1,037.8 - 760.9)

Volume	Invert	Avail.Storage	Storage Description
#1	625.75'	682 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

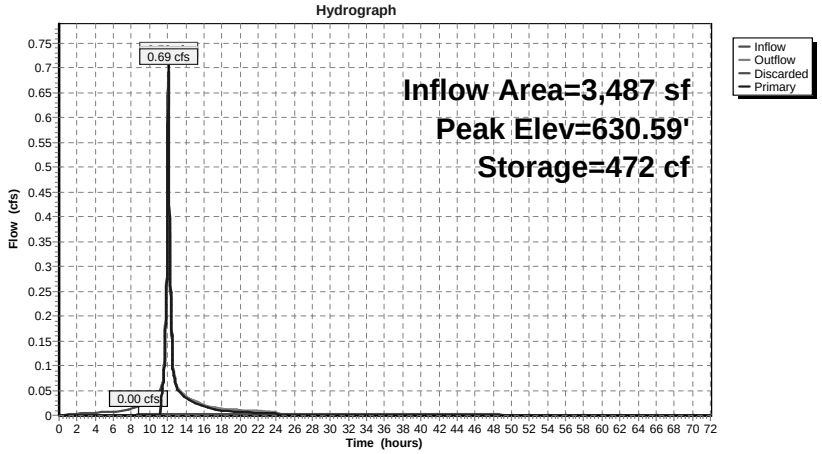
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
625.75	100	0.0	0	0
629.75	100	40.0	160	160
629.99	100	40.0	10	170
630.00	509	100.0	3	173
630.50	509	100.0	255	427
631.00	509	100.0	255	682

Device	Routing	Invert	Outlet Devices
#1	Discarded	625.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	630.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 8.75 hrs HW=630.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.69 cfs @ 12.08 hrs HW=630.59' TW=625.50' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.69 cfs @ 0.97 fps)

Pond 6A3-Bio: 6A3-Bioretention



Hydrograph for Pond 6A3-Bio: 6A3-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	625.75	0.00	0.00	0.00
2.00	0.00	7	625.92	0.00	0.00	0.00
4.00	0.01	32	626.54	0.00	0.00	0.00
6.00	0.01	70	627.50	0.00	0.00	0.00
8.00	0.01	134	629.10	0.00	**0.00**	0.00
10.00	0.03	261	630.17	0.00	**0.00**	0.00
12.00	**0.47**	**459**	**630.56**	**0.42**	0.00	**0.41**
14.00	**0.04**	**433**	**630.51**	**0.04**	0.00	**0.03**
16.00	0.02	431	630.51	0.02	0.00	0.02
18.00	0.01	430	630.51	0.01	0.00	0.01
20.00	0.01	429	630.50	0.01	0.00	0.01
22.00	0.01	429	630.50	0.01	0.00	0.01
24.00	0.01	428	630.50	0.01	0.00	0.00
26.00	0.00	408	630.46	0.00	0.00	0.00
28.00	0.00	387	630.42	0.00	0.00	0.00
30.00	0.00	365	630.38	0.00	0.00	0.00
32.00	0.00	344	630.34	0.00	0.00	0.00
34.00	0.00	323	630.30	0.00	0.00	0.00
36.00	0.00	302	630.25	0.00	0.00	0.00
38.00	0.00	281	630.21	0.00	0.00	0.00
40.00	0.00	259	630.17	0.00	0.00	0.00
42.00	0.00	238	630.13	0.00	0.00	0.00
44.00	0.00	217	630.09	0.00	0.00	0.00
46.00	0.00	196	630.05	0.00	0.00	0.00
48.00	0.00	174	630.00	0.00	0.00	0.00
50.00	0.00	167	629.92	0.00	0.00	0.00
52.00	0.00	163	629.82	0.00	0.00	0.00
54.00	0.00	158	629.71	0.00	0.00	0.00
56.00	0.00	154	629.61	0.00	0.00	0.00
58.00	0.00	150	629.50	0.00	0.00	0.00
60.00	0.00	146	629.40	0.00	0.00	0.00
62.00	0.00	142	629.29	0.00	0.00	0.00
64.00	0.00	138	629.19	0.00	0.00	0.00
66.00	0.00	133	629.09	0.00	0.00	0.00
68.00	0.00	129	628.98	0.00	0.00	0.00
70.00	0.00	125	628.88	0.00	0.00	0.00
72.00	0.00	121	628.77	0.00	0.00	0.00

Summary for Subcatchment 6A4: Post DA-6A4

Runoff = 0.42 cfs @ 12.07 hrs, Volume= 1,373 cf, Depth= 7.97"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

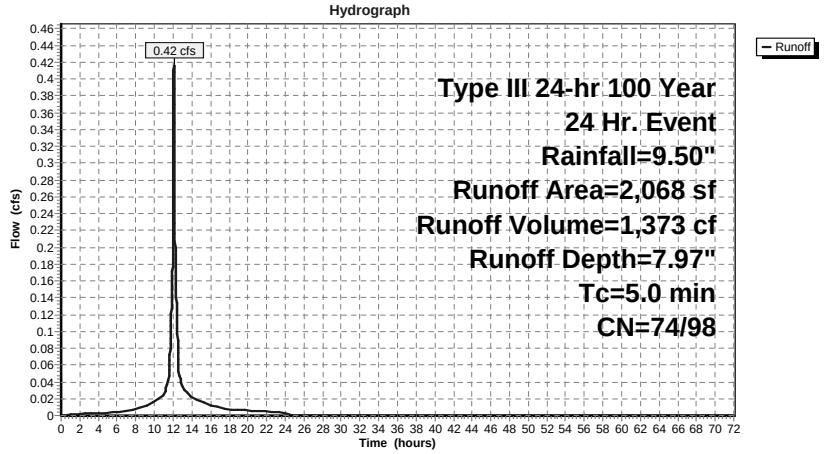
	Area (sf)	CN	Description	Land Use
	1,168	98	Paved parking, HSG C	Pavement
*	900	74	Bioretention, HSG C	Landscaped
	2,068	88	Weighted Average	
	900	74	43.52% Pervious Area	
	1,168	98	56.48% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 56.48% Impervious, Rv= 0.558, Runoff= 25.52"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
900	Landscaped	0.00	0.00	0.00	0.00
1,168	Pavement	26.82	0.09	0.33	1.04
2,068	Total	26.82	0.09	0.33	1.04

Subcatchment 6A4: Post DA-6A4



Hydrograph for Subcatchment 6A4: Post DA-6A4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.00
6.00	0.68	0.00	0.49	0.00
8.00	1.08	0.04	0.87	0.01
10.00	1.80	0.26	1.57	0.02
12.00	4.75	2.17	4.51	**0.28**
14.00	7.70	4.66	7.46	**0.02**
16.00	8.42	5.30	8.18	0.01
18.00	8.82	5.66	8.58	0.01
20.00	9.09	5.91	8.85	0.01
22.00	9.32	6.12	9.08	0.00
24.00	**9.50**	**6.29**	**9.26**	0.00
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00

Summary for Pond 6A4-Bio: 6A4-Bioretention

Inflow Area = 2,068 sf, 56.48% Impervious, Inflow Depth = 7.97" for 100 Year, 24 Hr. Event event
Inflow = 0.42 cfs @ 12.07 hrs, Volume= 1,373 cf
Outflow = 0.41 cfs @ 12.08 hrs, Volume= 1,305 cf, Atten= 1%, Lag= 0.5 min
Discarded = 0.00 cfs @ 8.68 hrs, Volume= 280 cf
Primary = 0.41 cfs @ 12.08 hrs, Volume= 1,025 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 640.56' @ 12.08 hrs Surf.Area= 294 sf Storage= 262 cf

Plug-Flow detention time= 296.8 min calculated for 1,305 cf (95% of inflow)
Center-of-Mass det. time= 268.4 min (1,030.8 - 762.4)

Volume	Invert	Avail.Storage	Storage Description
#1	635.75'	391 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

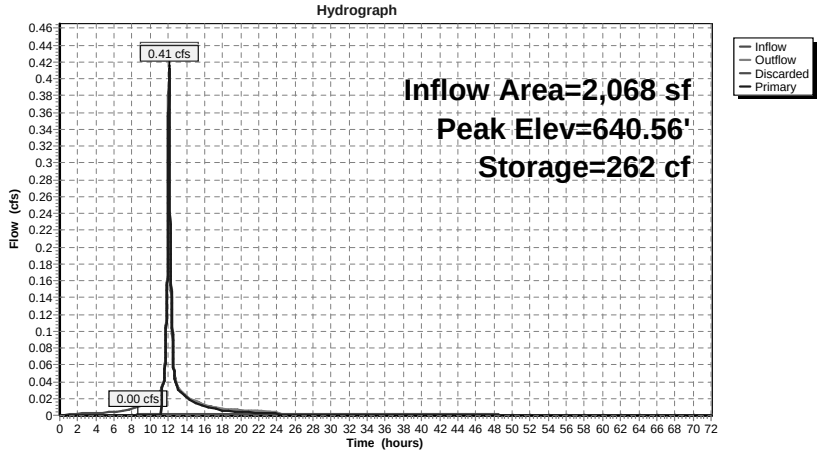
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
635.75	56	0.0	0	0
635.76	56	40.0	0	0
639.99	56	40.0	95	95
640.00	294	100.0	2	97
640.50	294	100.0	147	244
641.00	294	100.0	147	391

Device	Routing	Invert	Outlet Devices
#1	Discarded	635.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	640.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 8.68 hrs HW=640.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.41 cfs @ 12.08 hrs HW=640.56' TW=624.93' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.41 cfs @ 0.82 fps)

Pond 6A4-Bio: 6A4-Bioretention



Hydrograph for Pond 6A4-Bio: 6A4-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	635.75	0.00	0.00	0.00
2.00	0.00	4	635.93	0.00	0.00	0.00
4.00	0.00	18	636.56	0.00	0.00	0.00
6.00	0.00	40	637.54	0.00	0.00	0.00
8.00	0.01	77	639.18	0.00	**0.00**	0.00
10.00	0.02	150	640.18	0.00	**0.00**	0.00
12.00	**0.28**	**257**	**640.55**	**0.25**	0.00	**0.25**
14.00	**0.02**	**246**	**640.51**	**0.02**	0.00	**0.02**
16.00	0.01	245	640.51	0.01	0.00	0.01
18.00	0.01	245	640.50	0.01	0.00	0.01
20.00	0.01	245	640.50	0.01	0.00	0.00
22.00	0.00	244	640.50	0.00	0.00	0.00
24.00	0.00	244	640.50	0.00	0.00	0.00
26.00	0.00	232	640.46	0.00	0.00	0.00
28.00	0.00	220	640.42	0.00	0.00	0.00
30.00	0.00	208	640.38	0.00	0.00	0.00
32.00	0.00	196	640.34	0.00	0.00	0.00
34.00	0.00	183	640.29	0.00	0.00	0.00
36.00	0.00	171	640.25	0.00	0.00	0.00
38.00	0.00	159	640.21	0.00	0.00	0.00
40.00	0.00	147	640.17	0.00	0.00	0.00
42.00	0.00	134	640.13	0.00	0.00	0.00
44.00	0.00	122	640.09	0.00	0.00	0.00
46.00	0.00	110	640.04	0.00	0.00	0.00
48.00	0.00	98	640.00	0.00	0.00	0.00
50.00	0.00	93	639.92	0.00	0.00	0.00
52.00	0.00	91	639.81	0.00	0.00	0.00
54.00	0.00	89	639.71	0.00	0.00	0.00
56.00	0.00	86	639.61	0.00	0.00	0.00
58.00	0.00	84	639.50	0.00	0.00	0.00
60.00	0.00	82	639.40	0.00	0.00	0.00
62.00	0.00	79	639.29	0.00	0.00	0.00
64.00	0.00	77	639.19	0.00	0.00	0.00
66.00	0.00	75	639.09	0.00	0.00	0.00
68.00	0.00	72	638.98	0.00	0.00	0.00
70.00	0.00	70	638.88	0.00	0.00	0.00
72.00	0.00	68	638.77	0.00	0.00	0.00

Summary for Subcatchment 6B: Post DA-6B

Runoff = 19.41 cfs @ 12.41 hrs, Volume= 105,121 cf, Depth= 4.03"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

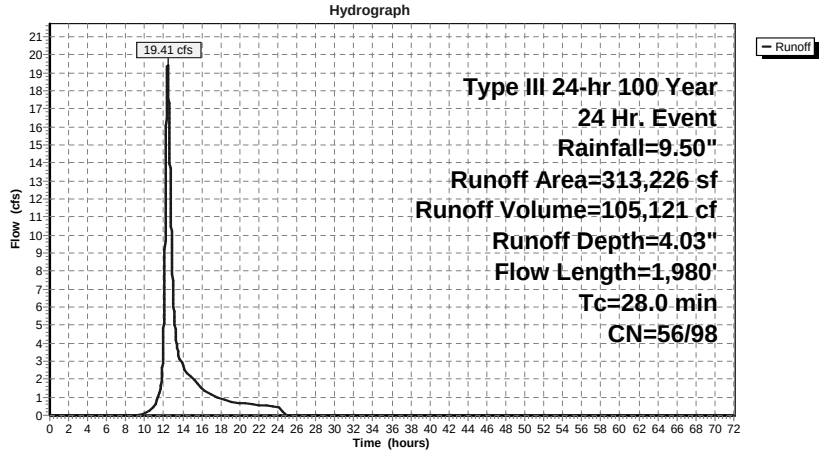
	Area (sf)	CN	Description	Land Use
	2,675	98	Unconnected pavement, HSG C	Pavement
	42,639	61	>75% Grass cover, Good, HSG B	Open Space
	262,664	55	Woods, Good, HSG B	Woods
	3,867	74	>75% Grass cover, Good, HSG C	Open Space
*	1,381	96	Gravel roads, HSG C	Roadway
	313,226	57	Weighted Average	
	310,551	56	99.15% Pervious Area	
	2,675	98	0.85% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	150	0.1200	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.4	370	0.2600	2.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	100	0.1200	7.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	1,360	0.1000	17.41	54.71	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.017 Concrete sewer w/manholes & inlets
28.0	1,980	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.85% Impervious, Rv= 0.058, Runoff= 2.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
46,506	Open Space	383.96	1.34	5.80	0.78
2,675	Pavement	6.35	0.02	0.08	0.25
1,381	Roadway	3.28	0.01	0.04	0.13
262,664	Woods	133.29	0.00	0.00	4.43
313,226	Total	526.87	1.37	5.92	5.59

Subcatchment 6B: Post DA-6B



Hydrograph for Subcatchment 6B: Post DA-6B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.00	0.87	0.01
10.00	1.80	0.01	1.57	0.07
12.00	4.75	0.92	4.51	**4.87**
14.00	7.70	2.69	7.46	**2.77**
16.00	8.42	3.19	8.18	1.52
18.00	8.82	3.48	8.58	0.91
20.00	9.09	3.68	8.85	0.70
22.00	9.32	3.85	9.08	0.58
24.00	**9.50**	**3.98**	**9.26**	0.47
26.00	9.50	3.98	9.26	0.00
28.00	9.50	3.98	9.26	0.00
30.00	9.50	3.98	9.26	0.00
32.00	9.50	3.98	9.26	0.00
34.00	9.50	3.98	9.26	0.00
36.00	9.50	3.98	9.26	0.00
38.00	9.50	3.98	9.26	0.00
40.00	9.50	3.98	9.26	0.00
42.00	9.50	3.98	9.26	0.00
44.00	9.50	3.98	9.26	0.00
46.00	9.50	3.98	9.26	0.00
48.00	9.50	3.98	9.26	0.00
50.00	9.50	3.98	9.26	0.00
52.00	9.50	3.98	9.26	0.00
54.00	9.50	3.98	9.26	0.00
56.00	9.50	3.98	9.26	0.00
58.00	9.50	3.98	9.26	0.00
60.00	9.50	3.98	9.26	0.00
62.00	9.50	3.98	9.26	0.00
64.00	9.50	3.98	9.26	0.00
66.00	9.50	3.98	9.26	0.00
68.00	9.50	3.98	9.26	0.00
70.00	9.50	3.98	9.26	0.00
72.00	9.50	3.98	9.26	0.00

Summary for Subcatchment 7: Post DA-7

Runoff = 12.11 cfs @ 12.09 hrs, Volume= 39,610 cf, Depth= 6.70"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

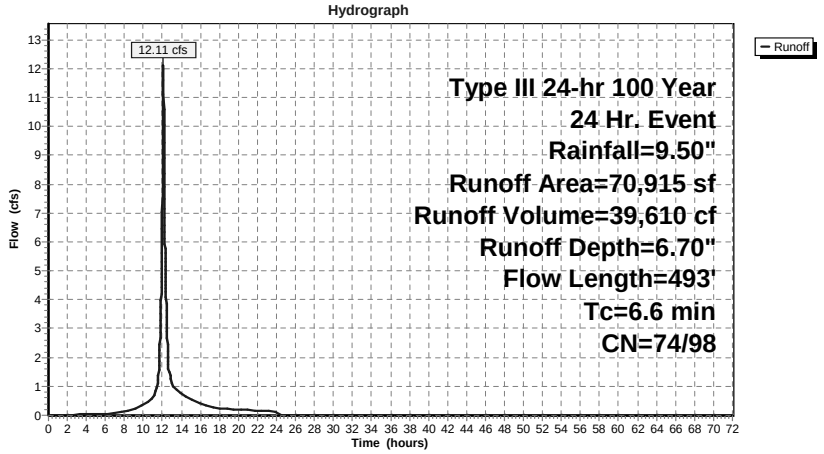
Area (sf)	CN	Description	Land Use
9,926	98	Unconnected pavement, HSG C	Pavement
60,989	74	>75% Grass cover, Good, HSG C	Open Space
70,915	77	Weighted Average	
60,989	74	86.00% Pervious Area	
9,926	98	14.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2670	0.34		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.2	35	0.2670	3.62		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	81	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	114	0.0350	13.47	42.32	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
0.1	123	0.0810	20.49	64.38	**Pipe Channel, assumed dia.** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
6.6	493	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 14.00% Impervious, Rv= 0.176, Runoff= 8.04"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
60,989	Open Space	1,536.06	5.36	23.22	3.14
9,926	Pavement	71.84	0.23	0.87	2.78
70,915	Total	1,607.91	5.59	24.09	5.92

Subcatchment 7: Post DA-7



Hydrograph for Subcatchment 7: Post DA-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.02
6.00	0.68	0.00	0.49	0.03
8.00	1.08	0.04	0.87	0.11
10.00	1.80	0.26	1.57	0.36
12.00	4.75	2.17	4.51	**7.01**
14.00	7.70	4.66	7.46	**0.72**
16.00	8.42	5.30	8.18	0.39
18.00	8.82	5.66	8.58	0.24
20.00	9.09	5.91	8.85	0.19
22.00	9.32	6.12	9.08	0.16
24.00	**9.50**	**6.29**	**9.26**	0.12
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00

Summary for Pond DP6: DP6

[57] Hint: Peaked at 628.04' (Flood elevation advised)

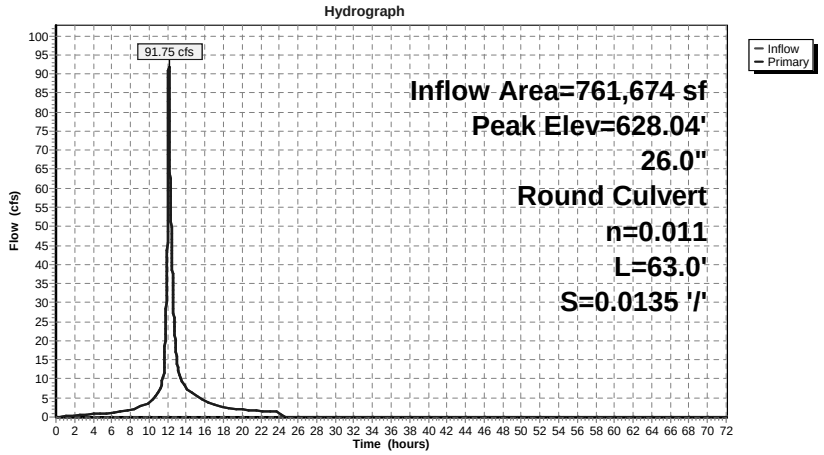
Inflow Area = 761,674 sf, 39.81% Impervious, Inflow Depth = 6.51" for 100 Year, 24 Hr. Event event
Inflow = 91.75 cfs @ 12.11 hrs, Volume= 413,387 cf
Outflow = 91.75 cfs @ 12.11 hrs, Volume= 413,387 cf, Atten= 0%, Lag= 0.0 min
Primary = 91.75 cfs @ 12.11 hrs, Volume= 413,387 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 628.04' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	600.24'	**26.0" Round Culvert** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 600.24' / 599.39' S= 0.0135 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=91.65 cfs @ 12.11 hrs HW=627.97' (Free Discharge)
1=Culvert (Inlet Controls 91.65 cfs @ 24.86 fps)

Pond DP6: DP6



Hydrograph for Pond DP6: DP6

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	600.24	0.00	52.00	0.00	600.24	0.00
1.00	0.21	600.42	0.21	53.00	0.00	600.24	0.00
2.00	0.42	600.50	0.42	54.00	0.00	600.24	0.00
3.00	0.59	600.54	0.59	55.00	0.00	600.24	0.00
4.00	0.73	600.58	0.73	56.00	0.00	600.24	0.00
5.00	0.86	600.61	0.86	57.00	0.00	600.24	0.00
6.00	0.98	600.63	0.98	58.00	0.00	600.24	0.00
7.00	1.33	600.70	1.33	59.00	0.00	600.24	0.00
8.00	1.76	600.77	1.76	60.00	0.00	600.24	0.00
9.00	2.66	600.90	2.66	61.00	0.00	600.24	0.00
10.00	3.75	601.04	3.75	62.00	0.00	600.24	0.00
11.00	6.28	601.30	6.28	63.00	0.00	600.24	0.00
12.00	**51.63**	**609.78**	**51.63**	64.00	0.00	600.24	0.00
13.00	**14.55**	**602.01**	**14.55**	65.00	0.00	600.24	0.00
14.00	7.70	601.43	7.70	66.00	0.00	600.24	0.00
15.00	5.74	601.25	5.74	67.00	0.00	600.24	0.00
16.00	4.13	601.08	4.13	68.00	0.00	600.24	0.00
17.00	3.21	600.97	3.21	69.00	0.00	600.24	0.00
18.00	2.50	600.88	2.50	70.00	0.00	600.24	0.00
19.00	2.17	600.84	2.17	71.00	0.00	600.24	0.00
20.00	1.95	600.80	1.95	72.00	0.00	600.24	0.00
21.00	1.78	600.78	1.78				
22.00	1.62	600.75	1.62				
23.00	1.45	600.72	1.45				
24.00	1.29	600.69	1.29				
25.00	0.01	600.28	0.01				
26.00	0.00	600.24	0.00				
27.00	0.00	600.24	0.00				
28.00	0.00	600.24	0.00				
29.00	0.00	600.24	0.00				
30.00	0.00	600.24	0.00				
31.00	0.00	600.24	0.00				
32.00	0.00	600.24	0.00				
33.00	0.00	600.24	0.00				
34.00	0.00	600.24	0.00				
35.00	0.00	600.24	0.00				
36.00	0.00	600.24	0.00				
37.00	0.00	600.24	0.00				
38.00	0.00	600.24	0.00				
39.00	0.00	600.24	0.00				
40.00	0.00	600.24	0.00				
41.00	0.00	600.24	0.00				
42.00	0.00	600.24	0.00				
43.00	0.00	600.24	0.00				
44.00	0.00	600.24	0.00				
45.00	0.00	600.24	0.00				
46.00	0.00	600.24	0.00				
47.00	0.00	600.24	0.00				
48.00	0.00	600.24	0.00				
49.00	0.00	600.24	0.00				
50.00	0.00	600.24	0.00				
51.00	0.00	600.24	0.00				

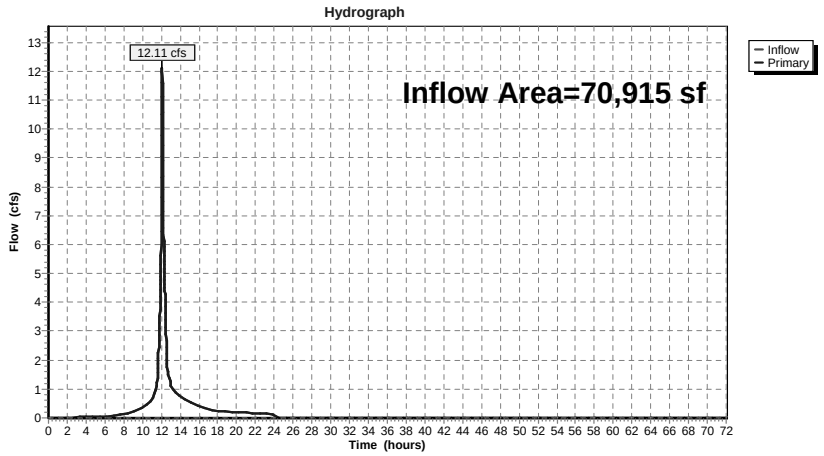
Summary for Pond DP7: DP7

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 70,915 sf, 14.00% Impervious, Inflow Depth = 6.70" for 100 Year, 24 Hr. Event event
Inflow = 12.11 cfs @ 12.09 hrs, Volume= 39,610 cf
Primary = 12.11 cfs @ 12.09 hrs, Volume= 39,610 cf, Atten= 0%, Lag= 0.0 min

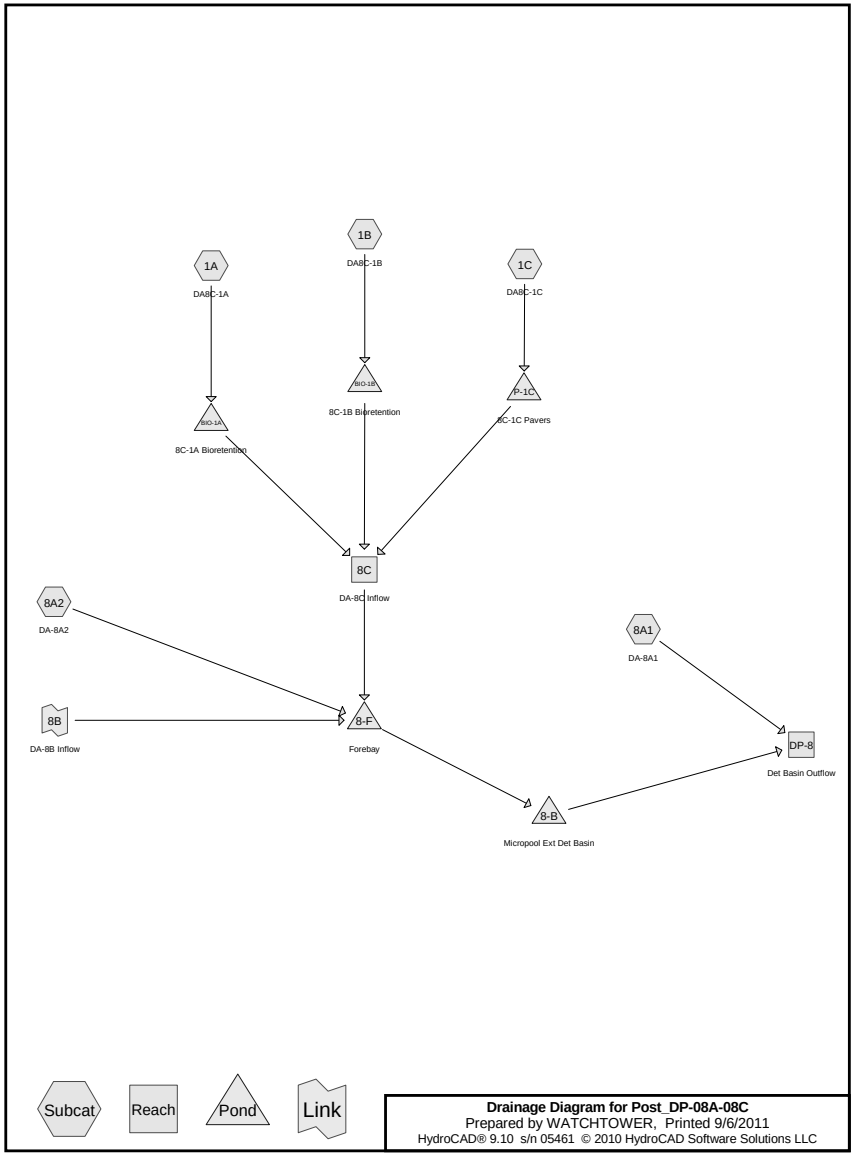
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Pond DP7: DP7



Hydrograph for Pond DP7: DP7

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.01		0.01	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.02		0.02	55.00	0.00		0.00
4.00	0.02		0.02	56.00	0.00		0.00
5.00	0.03		0.03	57.00	0.00		0.00
6.00	0.03		0.03	58.00	0.00		0.00
7.00	0.06		0.06	59.00	0.00		0.00
8.00	0.11		0.11	60.00	0.00		0.00
9.00	0.22		0.22	61.00	0.00		0.00
10.00	0.36		0.36	62.00	0.00		0.00
11.00	0.65		0.65	63.00	0.00		0.00
12.00	**7.01**		**7.01**	64.00	0.00		0.00
13.00	**1.14**		**1.14**	65.00	0.00		0.00
14.00	0.72		0.72	66.00	0.00		0.00
15.00	0.55		0.55	67.00	0.00		0.00
16.00	0.39		0.39	68.00	0.00		0.00
17.00	0.31		0.31	69.00	0.00		0.00
18.00	0.24		0.24	70.00	0.00		0.00
19.00	0.21		0.21	71.00	0.00		0.00
20.00	0.19		0.19	72.00	0.00		0.00
21.00	0.17		0.17				
22.00	0.16		0.16				
23.00	0.14		0.14				
24.00	0.12		0.12				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				



Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
12,654	Brush	1A, 1B
258,863	Open Space	1A, 1B, 8A1, 8A2
31,317	Open Water	8A2
73,523	Pavement	1A, 1B, 1C, 8A1, 8A2
376,357	**TOTAL**	

Pollutant Concentrations

Line#	Land Use	TSS (mg/l)	TP (mg/l)	TN (mg/l)	BOD (mg/l)
1	Brush	37.00	0.00	0.00	1.23
2	Open Space	602.00	2.10	9.10	1.23
3	Open Water	0.00	0.00	0.00	0.00
4	Pavement	173.00	0.56	2.10	6.70

Subcatchment Loading

Line#	Subcat Number	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1	1A	**0.00**	**0.00**	**0.00**	**0.00**
2	1B	0.00	0.00	0.00	0.00
3	1C	0.00	0.00	0.00	0.00
4	8A1	0.00	0.00	0.00	0.00
5	8A2	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: DA8C-1A Runoff Area=27,975 sf 75.07% Impervious Runoff Depth=2.40"
Tc=5.0 min CN=74/98 Runoff=1.68 cfs 5,584 cf

Subcatchment 1B: DA8C-1B Runoff Area=36,344 sf 74.37% Impervious Runoff Depth=2.38"
Tc=5.0 min CN=74/98 Runoff=2.17 cfs 7,214 cf

Subcatchment 1C: DA8C-1C Runoff Area=6,695 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.48 cfs 1,600 cf

Pond 8-B: Micropool Ext Det Basin Peak Elev=592.23' Storage=76,668 cf Inflow=10.61 cfs 43,871 cf
Outflow=0.28 cfs 42,596 cf

Pond 8-F: Forebay Peak Elev=593.01' Storage=22,164 cf Inflow=11.42 cfs 43,871 cf
Outflow=10.61 cfs 43,871 cf

Subcatchment 8A1: DA-8A1 Runoff Area=200,906 sf 8.68% Impervious Runoff Depth=1.14"
Flow Length=184' Tc=8.6 min CN=74/98 Runoff=5.21 cfs 19,033 cf

Subcatchment 8A2: DA-8A2 Runoff Area=104,437 sf 1.30% Impervious Runoff Depth=1.41"
Flow Length=100' Slope=0.0870 '/' Tc=7.6 min CN=81/98 Runoff=3.70 cfs 12,272 cf

Link 1 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_East~Reach DP-8B.hce Inflow=7.73 cfs 31,600 cf
Area= 711,597 sf 48.21% Imperv. Primary=7.73 cfs 31,600 cf

Reach 8C: DA-8C Inflow Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
24.0" Round Pipe n=0.013 L=200.0' S=0.0200 '/' Capacity=31.99 cfs Outflow=0.00 cfs 0 cf

Pond BIO-1A: 8C-1A Bioretention Peak Elev=603.18' Storage=4,090 cf Inflow=1.68 cfs 5,584 cf
Discarded=0.03 cfs 4,965 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 4,965 cf

Pond BIO-1B: 8C-1B Bioretention Peak Elev=606.28' Storage=5,872 cf Inflow=2.17 cfs 7,214 cf
Discarded=0.02 cfs 5,783 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 5,783 cf

Reach DP-8: Det Basin Outflow Avg. Flow Depth=0.33' Max Vel=15.49 fps Inflow=5.38 cfs 61,630 cf
24.0" Round Pipe n=0.013 L=475.0' S=0.1516 '/' Capacity=88.08 cfs Outflow=5.37 cfs 61,628 cf

Pond P-1C: 8C-1C Pavers Peak Elev=608.43' Storage=572 cf Inflow=0.48 cfs 1,600 cf
Discarded=0.04 cfs 1,601 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 1,601 cf

Total Runoff Area = 376,357 sf Runoff Volume = 45,703 cf Average Runoff Depth = 1.46"
80.46% Pervious = 302,834 sf 19.54% Impervious = 73,523 sf

Summary for Subcatchment 1A: DA8C-1A

Runoff = 1.68 cfs @ 12.07 hrs, Volume= 5,584 cf, Depth= 2.40"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

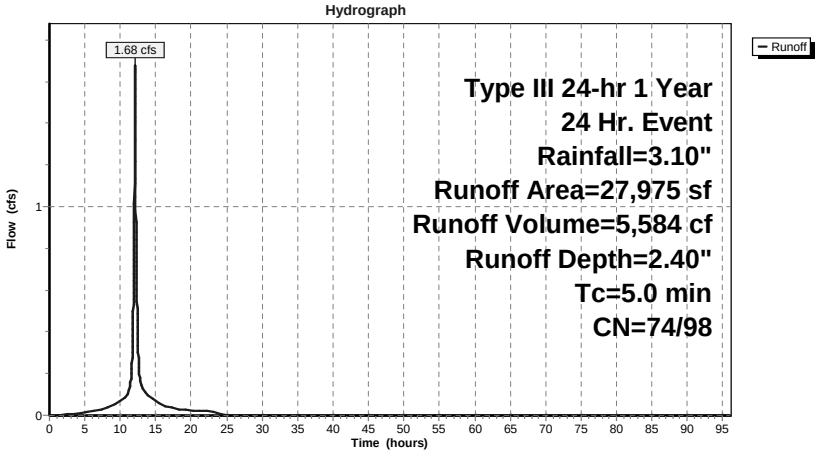
	Area (sf)	CN	Description	Land Use
	21,000	98	Paved parking, HSG C	Pavement
	1,381	74	>75% Grass cover, Good, HSG C	Open Space
*	5,594	74	Bioretention	Brush
	27,975	92	Weighted Average	
	6,975	74	24.93% Pervious Area	
	21,000	98	75.07% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 75.07% Impervious, Rv= 0.726, Runoff= 33.16"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,594	Brush	35.71	0.00	0.00	1.19
1,381	Open Space	143.42	0.50	2.17	0.29
21,000	Pavement	626.73	2.03	7.61	24.27
27,975	Total	805.85	2.53	9.78	25.75

Subcatchment 1A: DA8C-1A



Hydrograph for Subcatchment 1A: DA8C-1A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.02
8.00	0.35	0.00	0.19	0.03
10.00	0.59	0.00	0.40	0.07
12.00	1.55	0.16	1.33	**1.11**
14.00	2.51	0.62	2.28	**0.09**
16.00	2.75	0.75	2.52	0.05
18.00	2.88	0.83	2.65	0.03
20.00	2.97	0.89	2.74	0.02
22.00	3.04	0.93	2.81	0.02
24.00	**3.10**	**0.97**	**2.87**	0.02
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00
74.00	3.10	0.97	2.87	0.00
76.00	3.10	0.97	2.87	0.00
78.00	3.10	0.97	2.87	0.00
80.00	3.10	0.97	2.87	0.00
82.00	3.10	0.97	2.87	0.00
84.00	3.10	0.97	2.87	0.00
86.00	3.10	0.97	2.87	0.00
88.00	3.10	0.97	2.87	0.00
90.00	3.10	0.97	2.87	0.00
92.00	3.10	0.97	2.87	0.00
94.00	3.10	0.97	2.87	0.00
96.00	3.10	0.97	2.87	0.00

Summary for Subcatchment 1B: DA8C-1B

Runoff = 2.17 cfs @ 12.07 hrs, Volume= 7,214 cf, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

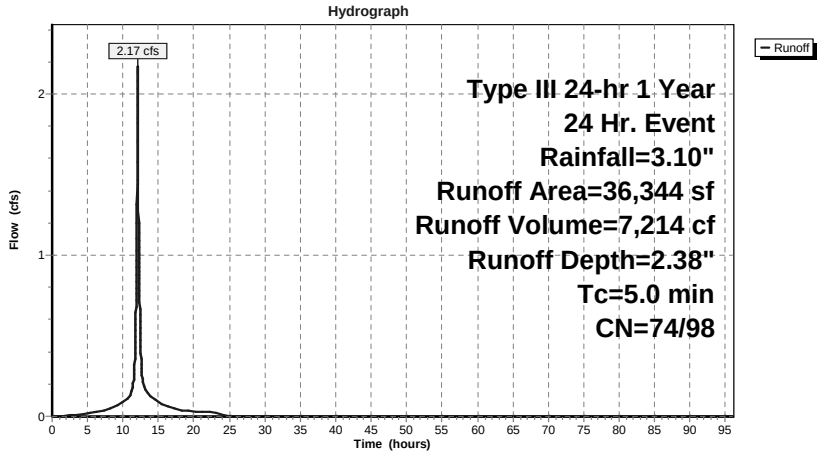
	Area (sf)	CN	Description	Land Use
	27,028	98	Paved parking, HSG C	Pavement
	2,256	74	>75% Grass cover, Good, HSG C	Open Space
*	7,060	74	Bioretention	Brush
	36,344	92	Weighted Average	
	9,316	74	25.63% Pervious Area	
	27,028	98	74.37% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.37% Impervious, Rv= 0.719, Runoff= 32.87"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,060	Brush	44.67	0.00	0.00	1.49
2,256	Open Space	232.25	0.81	3.51	0.47
27,028	Pavement	799.63	2.59	9.71	30.97
36,344	Total	1,076.55	3.40	13.22	32.93

Subcatchment 1B: DA8C-1B



Hydrograph for Subcatchment 1B: DA8C-1B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.02
8.00	0.35	0.00	0.19	0.04
10.00	0.59	0.00	0.40	0.09
12.00	1.55	0.16	1.33	**1.44**
14.00	2.51	0.62	2.28	**0.12**
16.00	2.75	0.75	2.52	0.06
18.00	2.88	0.83	2.65	0.04
20.00	2.97	0.89	2.74	0.03
22.00	3.04	0.93	2.81	0.03
24.00	**3.10**	**0.97**	**2.87**	0.02
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00
74.00	3.10	0.97	2.87	0.00
76.00	3.10	0.97	2.87	0.00
78.00	3.10	0.97	2.87	0.00
80.00	3.10	0.97	2.87	0.00
82.00	3.10	0.97	2.87	0.00
84.00	3.10	0.97	2.87	0.00
86.00	3.10	0.97	2.87	0.00
88.00	3.10	0.97	2.87	0.00
90.00	3.10	0.97	2.87	0.00
92.00	3.10	0.97	2.87	0.00
94.00	3.10	0.97	2.87	0.00
96.00	3.10	0.97	2.87	0.00

Summary for Subcatchment 1C: DA8C-1C

Runoff = 0.48 cfs @ 12.07 hrs, Volume= 1,600 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

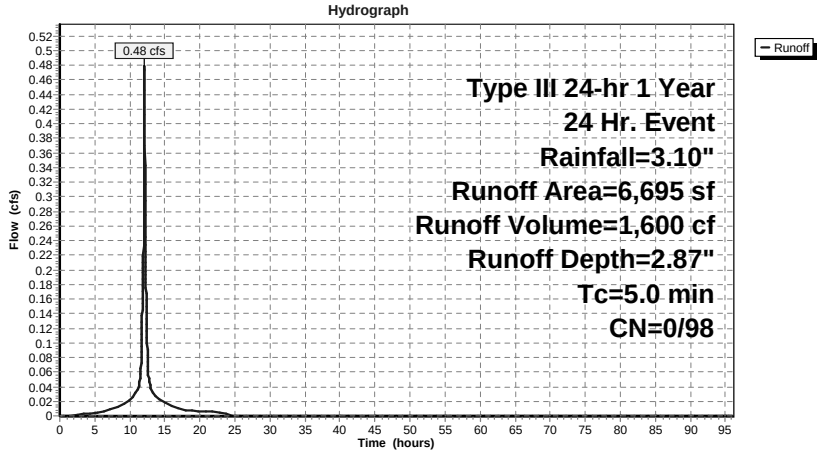
	Area (sf)	CN	Description	Land Use
*	6,695	98	Pavers	Pavement
	6,695	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
6,695	Pavement	261.60	0.85	3.18	10.13
6,695	Total	261.60	0.85	3.18	10.13

Subcatchment 1C: DA8C-1C



Hydrograph for Subcatchment 1C: DA8C-1C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.02
12.00	1.55	0.00	1.33	**0.32**
14.00	2.51	0.00	2.28	**0.02**
16.00	2.75	0.00	2.52	0.01
18.00	2.88	0.00	2.65	0.01
20.00	2.97	0.00	2.74	0.01
22.00	3.04	0.00	2.81	0.01
24.00	**3.10**	0.00	**2.87**	0.00
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00
74.00	3.10	0.00	2.87	0.00
76.00	3.10	0.00	2.87	0.00
78.00	3.10	0.00	2.87	0.00
80.00	3.10	0.00	2.87	0.00
82.00	3.10	0.00	2.87	0.00
84.00	3.10	0.00	2.87	0.00
86.00	3.10	0.00	2.87	0.00
88.00	3.10	0.00	2.87	0.00
90.00	3.10	0.00	2.87	0.00
92.00	3.10	0.00	2.87	0.00
94.00	3.10	0.00	2.87	0.00
96.00	3.10	0.00	2.87	0.00

Summary for Pond 8-B: Micropool Ext Det Basin

Inflow Area = 887,048 sf, 45.00% Impervious, Inflow Depth = 0.59" for 1 Year, 24 Hr. Event event
Inflow = 10.61 cfs @ 12.14 hrs, Volume= 43,871 cf
Outflow = 0.28 cfs @ 21.07 hrs, Volume= 42,596 cf, Atten= 97%, Lag= 535.9 min
Primary = 0.28 cfs @ 21.07 hrs, Volume= 42,596 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 590.75' Surf.Area= 17,970 sf Storage= 45,195 cf
Peak Elev= 592.23' @ 21.07 hrs Surf.Area= 26,442 sf Storage= 76,668 cf (31,473 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 1,374.3 min (2,198.4 - 824.2)

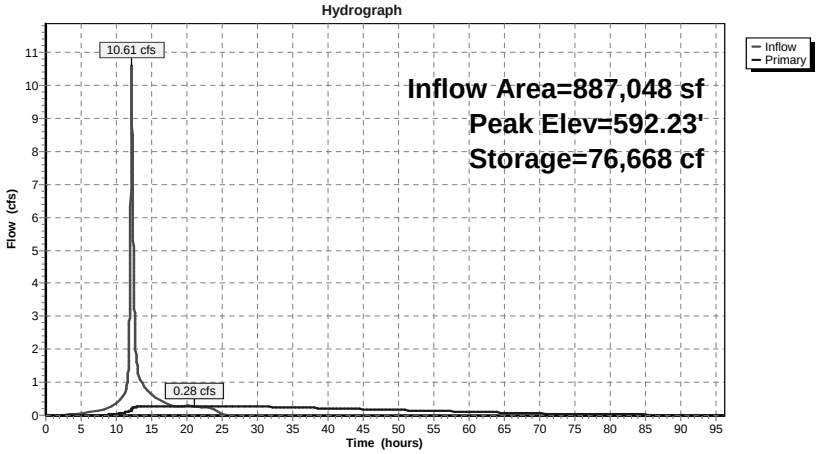
Volume	Invert	Avail.Storage	Storage Description
#1	586.75'	301,176 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
586.75	0	0	0
588.00	10,403	6,502	6,502
590.00	13,760	24,163	30,665
592.00	24,987	38,747	69,412
594.00	37,525	62,512	131,924
596.00	42,446	79,971	211,895
598.00	46,835	89,281	301,176

Device	Routing	Invert	Outlet Devices
#1	Primary	586.00'	**24.0" Round Culvert** L= 290.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 586.00' / 550.00' S= 0.1241 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	590.75'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	592.25'	**24.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	595.00'	**48.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=0.28 cfs @ 21.07 hrs HW=592.23' TW=590.10' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.28 cfs of 16.29 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.28 cfs @ 5.61 fps)
  ├**3=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 8-B: Micropool Ext Det Basin



Hydrograph for Pond 8-B: Micropool Ext Det Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	45,195	590.75	0.00
2.00	0.00	45,195	590.75	0.00
4.00	0.04	45,313	590.76	0.00
6.00	0.08	45,753	590.78	0.00
8.00	0.16	46,539	590.82	0.01
10.00	0.35	48,076	590.90	0.04
12.00	**4.87**	54,288	591.22	0.14
14.00	**0.85**	73,276	592.12	0.26
16.00	0.47	75,957	592.21	0.27
18.00	0.29	76,615	592.23	0.28
20.00	0.30	**76,617**	**592.23**	**0.28**
22.00	0.25	**76,628**	**592.23**	**0.28**
24.00	0.20	76,269	592.22	0.27
26.00	0.01	74,737	592.17	0.27
28.00	0.00	72,849	592.11	0.26
30.00	0.00	70,987	592.05	0.26
32.00	0.00	69,167	591.99	0.25
34.00	0.00	67,411	591.90	0.24
36.00	0.00	65,730	591.81	0.23
38.00	0.00	64,123	591.73	0.22
40.00	0.00	62,590	591.65	0.21
42.00	0.00	61,132	591.57	0.20
44.00	0.00	59,749	591.50	0.19
46.00	0.00	58,441	591.43	0.18
48.00	0.00	57,207	591.37	0.17
50.00	0.00	56,049	591.31	0.16
52.00	0.00	54,965	591.25	0.15
54.00	0.00	53,956	591.20	0.13
56.00	0.00	53,023	591.15	0.12
58.00	0.00	52,163	591.11	0.11
60.00	0.00	51,376	591.07	0.10
62.00	0.00	50,665	591.03	0.09
64.00	0.00	50,028	591.00	0.08
66.00	0.00	49,461	590.97	0.07
68.00	0.00	48,976	590.95	0.06
70.00	0.00	48,568	590.92	0.05
72.00	0.00	48,225	590.91	0.04
74.00	0.00	47,937	590.89	0.04
76.00	0.00	47,694	590.88	0.03
78.00	0.00	47,485	590.87	0.03
80.00	0.00	47,306	590.86	0.02
82.00	0.00	47,151	590.85	0.02
84.00	0.00	47,016	590.84	0.02
86.00	0.00	46,897	590.84	0.02
88.00	0.00	46,791	590.83	0.01
90.00	0.00	46,698	590.83	0.01
92.00	0.00	46,614	590.82	0.01
94.00	0.00	46,538	590.82	0.01
96.00	0.00	46,470	590.82	0.01

Summary for Pond 8-F: Forebay

Inflow Area = 887,048 sf, 45.00% Impervious, Inflow Depth = 0.59" for 1 Year, 24 Hr. Event event
Inflow = 11.42 cfs @ 12.10 hrs, Volume= 43,871 cf
Outflow = 10.61 cfs @ 12.14 hrs, Volume= 43,871 cf, Atten= 7%, Lag= 2.2 min
Primary = 10.61 cfs @ 12.14 hrs, Volume= 43,871 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 592.75' Surf.Area= 9,839 sf Storage= 19,484 cf
Peak Elev= 593.01' @ 12.14 hrs Surf.Area= 11,143 sf Storage= 22,164 cf (2,680 cf above start)

Plug-Flow detention time= 266.9 min calculated for 24,388 cf (56% of inflow)
Center-of-Mass det. time= 12.5 min (824.2 - 811.7)

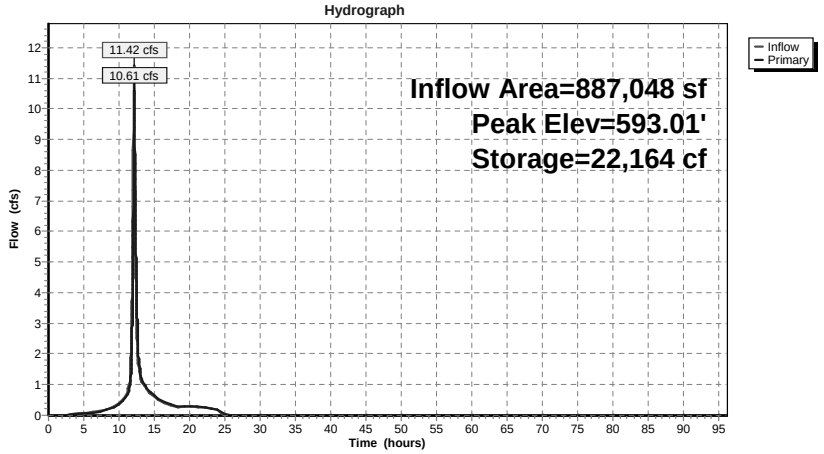
Volume	Invert	Avail.Storage	Storage Description
#1	587.25'	117,643 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
587.25	0	0	0
588.00	1,342	503	503
590.00	2,844	4,186	4,689
592.00	6,008	8,852	13,541
594.00	16,223	22,231	35,772
596.00	20,068	36,291	72,063
598.00	25,512	45,580	117,643

Device	Routing	Invert	Outlet Devices
#1	Primary	592.75'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**
			Head (feet) 0.00 1.25 4.00
			Width (feet) 12.00 172.00 204.00

Primary OutFlow Max=10.60 cfs @ 12.14 hrs HW=593.01' TW=591.43' (Dynamic Tailwater)
↳**1=Custom Weir/Orifice** (Weir Controls 10.60 cfs @ 1.46 fps)

Pond 8-F: Forebay



Hydrograph for Pond 8-F: Forebay

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	19,484	592.75	0.00
2.00	0.01	19,490	592.75	0.00
4.00	0.05	19,581	592.76	0.04
6.00	0.09	19,638	592.77	0.08
8.00	0.17	19,716	592.77	0.16
10.00	0.37	19,867	592.79	0.35
12.00	**6.30**	**21,253**	**592.92**	**4.87**
14.00	**0.81**	**20,143**	**592.82**	**0.85**
16.00	0.44	19,944	592.80	0.47
18.00	0.27	19,824	592.78	0.29
20.00	0.30	19,834	592.79	0.30
22.00	0.25	19,798	592.78	0.25
24.00	0.19	19,754	592.78	0.20
26.00	0.00	19,517	592.75	0.01
28.00	0.00	19,494	592.75	0.00
30.00	0.00	19,489	592.75	0.00
32.00	0.00	19,486	592.75	0.00
34.00	0.00	19,485	592.75	0.00
36.00	0.00	19,485	592.75	0.00
38.00	0.00	19,484	592.75	0.00
40.00	0.00	19,484	592.75	0.00
42.00	0.00	19,484	592.75	0.00
44.00	0.00	19,484	592.75	0.00
46.00	0.00	19,484	592.75	0.00
48.00	0.00	19,484	592.75	0.00
50.00	0.00	19,484	592.75	0.00
52.00	0.00	19,484	592.75	0.00
54.00	0.00	19,484	592.75	0.00
56.00	0.00	19,484	592.75	0.00
58.00	0.00	19,484	592.75	0.00
60.00	0.00	19,484	592.75	0.00
62.00	0.00	19,484	592.75	0.00
64.00	0.00	19,484	592.75	0.00
66.00	0.00	19,484	592.75	0.00
68.00	0.00	19,484	592.75	0.00
70.00	0.00	19,484	592.75	0.00
72.00	0.00	19,484	592.75	0.00
74.00	0.00	19,484	592.75	0.00
76.00	0.00	19,484	592.75	0.00
78.00	0.00	19,484	592.75	0.00
80.00	0.00	19,484	592.75	0.00
82.00	0.00	19,484	592.75	0.00
84.00	0.00	19,484	592.75	0.00
86.00	0.00	19,484	592.75	0.00
88.00	0.00	19,484	592.75	0.00
90.00	0.00	19,484	592.75	0.00
92.00	0.00	19,484	592.75	0.00
94.00	0.00	19,484	592.75	0.00
96.00	0.00	19,484	592.75	0.00

Summary for Subcatchment 8A1: DA-8A1

Runoff = 5.21 cfs @ 12.13 hrs, Volume= 19,033 cf, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

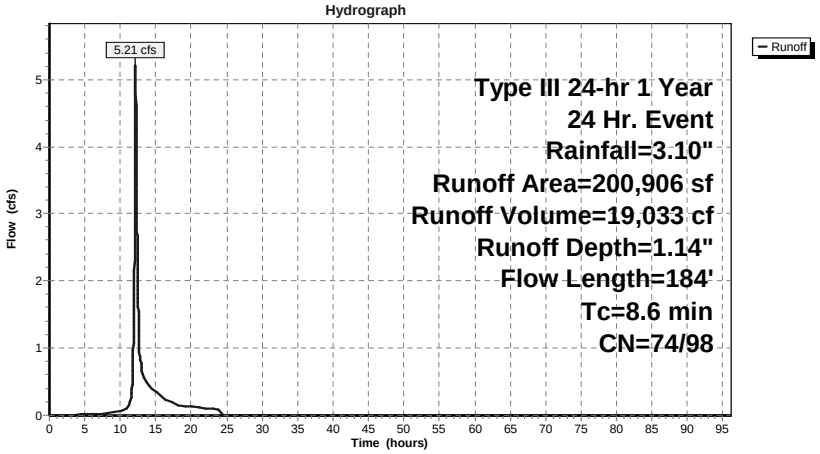
Area (sf)	CN	Description	Land Use
183,464	74	>75% Grass cover, Good, HSG C	Open Space
17,442	98	Unconnected pavement, HSG C	Pavement
200,906	76	Weighted Average	
183,464	74	91.32% Pervious Area	
17,442	98	8.68% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0760	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.0	5	0.0760	1.93		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	79	0.0940	2.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 8.68% Impervious, Rv= 0.128, Runoff= 5.86"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
183,464	Open Space	3,364.57	11.74	50.86	6.87
17,442	Pavement	91.92	0.30	1.12	3.56
200,906	Total	3,456.49	12.03	51.98	10.43

Subcatchment 8A1: DA-8A1



Hydrograph for Subcatchment 8A1: DA-8A1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.03
10.00	0.59	0.00	0.40	0.05
12.00	1.55	0.16	1.33	**2.32**
14.00	2.51	0.62	2.28	**0.45**
16.00	2.75	0.75	2.52	0.25
18.00	2.88	0.83	2.65	0.16
20.00	2.97	0.89	2.74	0.13
22.00	3.04	0.93	2.81	0.11
24.00	**3.10**	**0.97**	**2.87**	0.08
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00
74.00	3.10	0.97	2.87	0.00
76.00	3.10	0.97	2.87	0.00
78.00	3.10	0.97	2.87	0.00
80.00	3.10	0.97	2.87	0.00
82.00	3.10	0.97	2.87	0.00
84.00	3.10	0.97	2.87	0.00
86.00	3.10	0.97	2.87	0.00
88.00	3.10	0.97	2.87	0.00
90.00	3.10	0.97	2.87	0.00
92.00	3.10	0.97	2.87	0.00
94.00	3.10	0.97	2.87	0.00
96.00	3.10	0.97	2.87	0.00

Summary for Subcatchment 8A2: DA-8A2

Runoff = 3.70 cfs @ 12.11 hrs, Volume= 12,272 cf, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

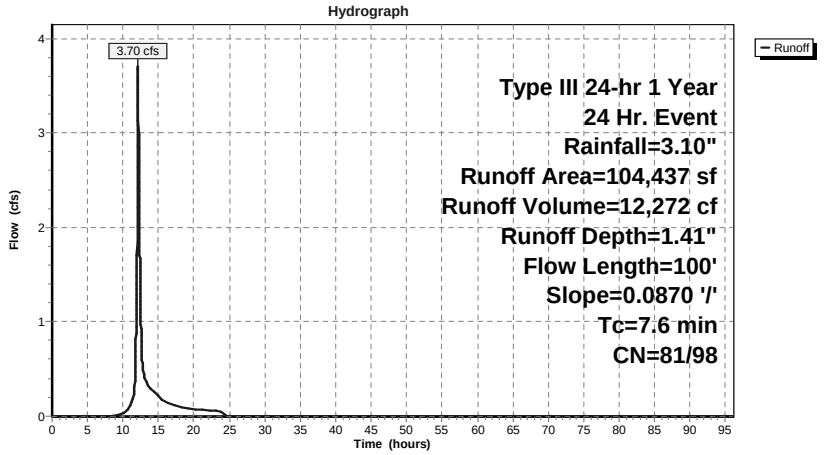
Area (sf)	CN	Description	Land Use
1,358	98	Paved parking, HSG C	Pavement
71,762	74	>75% Grass cover, Good, HSG C	Open Space
31,317	98	Water Surface, 0% imp, HSG C	Open Water
104,437	82	Weighted Average	
103,079	81	98.70% Pervious Area	
1,358	98	1.30% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.0870	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 1.30% Impervious, Rv= 0.062, Runoff= 2.82"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
71,762	Open Space	633.74	2.21	9.58	1.29
31,317	Open Water	0.00	0.00	0.00	0.00
1,358	Pavement	3.45	0.01	0.04	0.13
104,437	Total	637.18	2.22	9.62	1.43

Subcatchment 8A2: DA-8A2



Hydrograph for Subcatchment 8A2: DA-8A2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.01	0.40	0.03
12.00	1.55	0.34	1.33	**1.84**
14.00	2.51	0.95	2.28	**0.28**
16.00	2.75	1.12	2.52	0.15
18.00	2.88	1.22	2.65	0.09
20.00	2.97	1.29	2.74	0.08
22.00	3.04	1.34	2.81	0.06
24.00	**3.10**	**1.39**	**2.87**	0.05
26.00	3.10	1.39	2.87	0.00
28.00	3.10	1.39	2.87	0.00
30.00	3.10	1.39	2.87	0.00
32.00	3.10	1.39	2.87	0.00
34.00	3.10	1.39	2.87	0.00
36.00	3.10	1.39	2.87	0.00
38.00	3.10	1.39	2.87	0.00
40.00	3.10	1.39	2.87	0.00
42.00	3.10	1.39	2.87	0.00
44.00	3.10	1.39	2.87	0.00
46.00	3.10	1.39	2.87	0.00
48.00	3.10	1.39	2.87	0.00
50.00	3.10	1.39	2.87	0.00
52.00	3.10	1.39	2.87	0.00
54.00	3.10	1.39	2.87	0.00
56.00	3.10	1.39	2.87	0.00
58.00	3.10	1.39	2.87	0.00
60.00	3.10	1.39	2.87	0.00
62.00	3.10	1.39	2.87	0.00
64.00	3.10	1.39	2.87	0.00
66.00	3.10	1.39	2.87	0.00
68.00	3.10	1.39	2.87	0.00
70.00	3.10	1.39	2.87	0.00
72.00	3.10	1.39	2.87	0.00
74.00	3.10	1.39	2.87	0.00
76.00	3.10	1.39	2.87	0.00
78.00	3.10	1.39	2.87	0.00
80.00	3.10	1.39	2.87	0.00
82.00	3.10	1.39	2.87	0.00
84.00	3.10	1.39	2.87	0.00
86.00	3.10	1.39	2.87	0.00
88.00	3.10	1.39	2.87	0.00
90.00	3.10	1.39	2.87	0.00
92.00	3.10	1.39	2.87	0.00
94.00	3.10	1.39	2.87	0.00
96.00	3.10	1.39	2.87	0.00

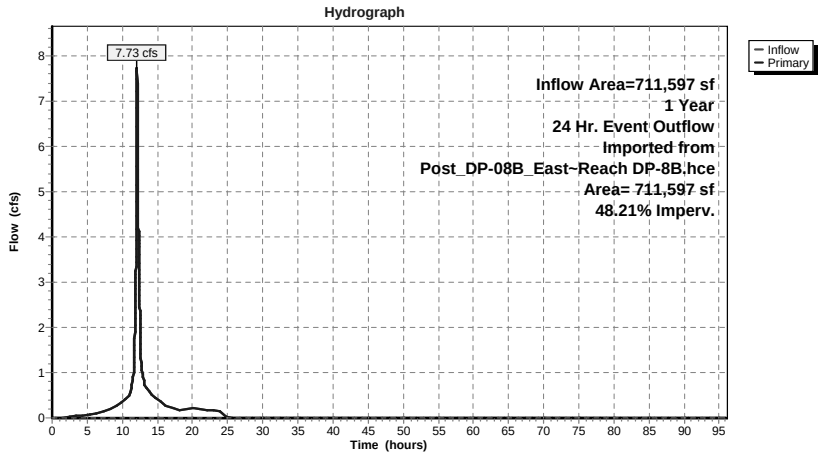
Summary for Link 8B: DA-8B Inflow

Inflow Area = 711,597 sf, 48.21% Impervious, Inflow Depth = 0.53" for 1 Year, 24 Hr. Event event
Inflow = 7.73 cfs @ 12.10 hrs, Volume= 31,600 cf
Primary = 7.73 cfs @ 12.10 hrs, Volume= 31,600 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

1 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_East~Reach DP-8B.hce

Link 8B: DA-8B Inflow



Hydrograph for Link 8B: DA-8B Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.03	0.00	0.03	55.00	0.00	0.00	0.00
4.00	0.05	0.00	0.05	56.00	0.00	0.00	0.00
5.00	0.07	0.00	0.07	57.00	0.00	0.00	0.00
6.00	0.09	0.00	0.09	58.00	0.00	0.00	0.00
7.00	0.12	0.00	0.12	59.00	0.00	0.00	0.00
8.00	0.16	0.00	0.16	60.00	0.00	0.00	0.00
9.00	0.25	0.00	0.25	61.00	0.00	0.00	0.00
10.00	0.34	0.00	0.34	62.00	0.00	0.00	0.00
11.00	0.52	0.00	0.52	63.00	0.00	0.00	0.00
12.00	**4.46**	0.00	**4.46**	64.00	0.00	0.00	0.00
13.00	**0.85**	0.00	**0.85**	65.00	0.00	0.00	0.00
14.00	0.53	0.00	0.53	66.00	0.00	0.00	0.00
15.00	0.40	0.00	0.40	67.00	0.00	0.00	0.00
16.00	0.29	0.00	0.29	68.00	0.00	0.00	0.00
17.00	0.23	0.00	0.23	69.00	0.00	0.00	0.00
18.00	0.18	0.00	0.18	70.00	0.00	0.00	0.00
19.00	0.19	0.00	0.19	71.00	0.00	0.00	0.00
20.00	0.22	0.00	0.22	72.00	0.00	0.00	0.00
21.00	0.20	0.00	0.20	73.00	0.00	0.00	0.00
22.00	0.18	0.00	0.18	74.00	0.00	0.00	0.00
23.00	0.16	0.00	0.16	75.00	0.00	0.00	0.00
24.00	0.14	0.00	0.14	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Reach 8C: DA-8C Inflow

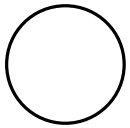
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 71,014 sf, 77.06% Impervious, Inflow Depth = 0.00" for 1 Year, 24 Hr. Event event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

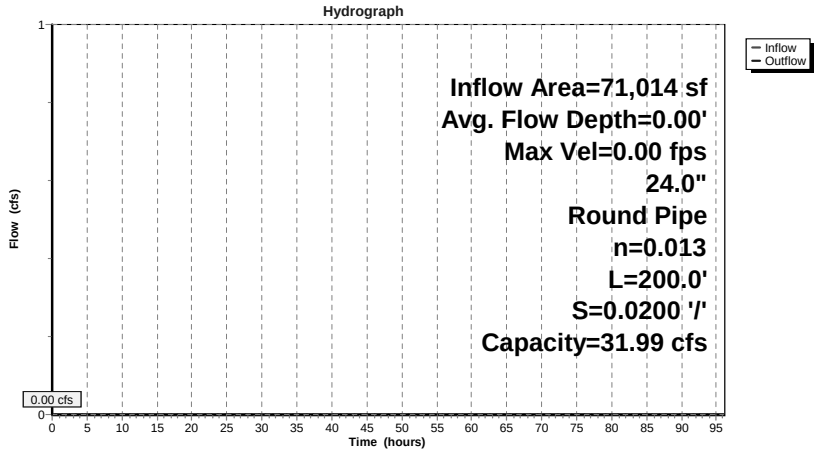
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 31.99 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 200.0' Slope= 0.0200 '/'
Inlet Invert= 600.00', Outlet Invert= 596.00'



Reach 8C: DA-8C Inflow



Hydrograph for Reach 8C: DA-8C Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	**0.00**	**600.00**	**0.00**	52.00	0.00	600.00	0.00
1.00	0.00	600.00	0.00	53.00	0.00	600.00	0.00
2.00	0.00	600.00	0.00	54.00	0.00	600.00	0.00
3.00	0.00	600.00	0.00	55.00	0.00	600.00	0.00
4.00	0.00	600.00	0.00	56.00	0.00	600.00	0.00
5.00	0.00	600.00	0.00	57.00	0.00	600.00	0.00
6.00	0.00	600.00	0.00	58.00	0.00	600.00	0.00
7.00	0.00	600.00	0.00	59.00	0.00	600.00	0.00
8.00	0.00	600.00	0.00	60.00	0.00	600.00	0.00
9.00	0.00	600.00	0.00	61.00	0.00	600.00	0.00
10.00	0.00	600.00	0.00	62.00	0.00	600.00	0.00
11.00	0.00	600.00	0.00	63.00	0.00	600.00	0.00
12.00	0.00	600.00	0.00	64.00	0.00	600.00	0.00
13.00	0.00	600.00	0.00	65.00	0.00	600.00	0.00
14.00	0.00	600.00	0.00	66.00	0.00	600.00	0.00
15.00	0.00	600.00	0.00	67.00	0.00	600.00	0.00
16.00	0.00	600.00	0.00	68.00	0.00	600.00	0.00
17.00	0.00	600.00	0.00	69.00	0.00	600.00	0.00
18.00	0.00	600.00	0.00	70.00	0.00	600.00	0.00
19.00	0.00	600.00	0.00	71.00	0.00	600.00	0.00
20.00	0.00	600.00	0.00	72.00	0.00	600.00	0.00
21.00	0.00	600.00	0.00	73.00	0.00	600.00	0.00
22.00	0.00	600.00	0.00	74.00	0.00	600.00	0.00
23.00	0.00	600.00	0.00	75.00	0.00	600.00	0.00
24.00	0.00	600.00	0.00	76.00	0.00	600.00	0.00
25.00	0.00	600.00	0.00	77.00	0.00	600.00	0.00
26.00	0.00	600.00	0.00	78.00	0.00	600.00	0.00
27.00	0.00	600.00	0.00	79.00	0.00	600.00	0.00
28.00	0.00	600.00	0.00	80.00	0.00	600.00	0.00
29.00	0.00	600.00	0.00	81.00	0.00	600.00	0.00
30.00	0.00	600.00	0.00	82.00	0.00	600.00	0.00
31.00	0.00	600.00	0.00	83.00	0.00	600.00	0.00
32.00	0.00	600.00	0.00	84.00	0.00	600.00	0.00
33.00	0.00	600.00	0.00	85.00	0.00	600.00	0.00
34.00	0.00	600.00	0.00	86.00	0.00	600.00	0.00
35.00	0.00	600.00	0.00	87.00	0.00	600.00	0.00
36.00	0.00	600.00	0.00	88.00	0.00	600.00	0.00
37.00	0.00	600.00	0.00	89.00	0.00	600.00	0.00
38.00	0.00	600.00	0.00	90.00	0.00	600.00	0.00
39.00	0.00	600.00	0.00	91.00	0.00	600.00	0.00
40.00	0.00	600.00	0.00	92.00	0.00	600.00	0.00
41.00	0.00	600.00	0.00	93.00	0.00	600.00	0.00
42.00	0.00	600.00	0.00	94.00	0.00	600.00	0.00
43.00	0.00	600.00	0.00	95.00	0.00	600.00	0.00
44.00	0.00	600.00	0.00	96.00	0.00	600.00	0.00
45.00	0.00	600.00	0.00				
46.00	0.00	600.00	0.00				
47.00	0.00	600.00	0.00				
48.00	0.00	600.00	0.00				
49.00	0.00	600.00	0.00				
50.00	0.00	600.00	0.00				
51.00	0.00	600.00	0.00				

Summary for Pond BIO-1A: 8C-1A Bioretention

Inflow Area = 27,975 sf, 75.07% Impervious, Inflow Depth = 2.40" for 1 Year, 24 Hr. Event event
Inflow = 1.68 cfs @ 12.07 hrs, Volume= 5,584 cf
Outflow = 0.03 cfs @ 12.43 hrs, Volume= 4,965 cf, Atten= 98%, Lag= 21.5 min
Discarded = 0.03 cfs @ 12.43 hrs, Volume= 4,965 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 603.18' @ 17.70 hrs Surf.Area= 5,594 sf Storage= 4,090 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,709.5 min (2,476.5 - 767.0)

Volume	Invert	Avail.Storage	Storage Description
#1	598.75'	8,702 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

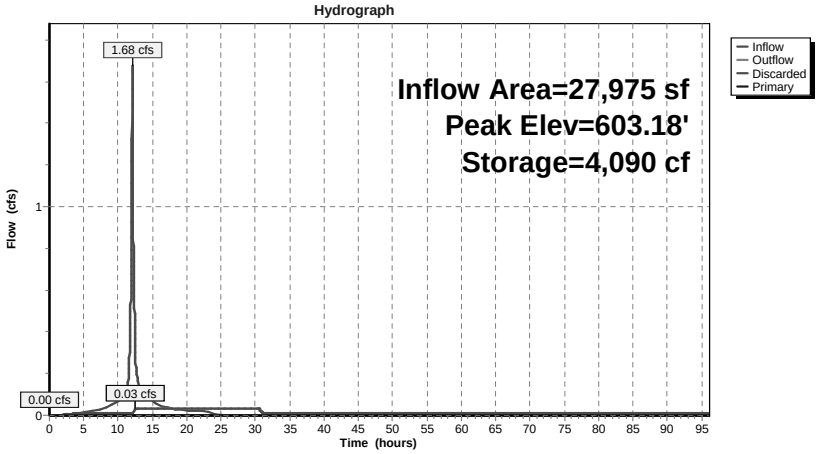
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
598.75	1,811	0.0	0	0
598.76	1,811	40.0	7	7
602.99	1,811	40.0	3,064	3,071
603.00	5,594	100.0	37	3,108
603.50	5,594	100.0	2,797	5,905
604.00	5,594	100.0	2,797	8,702

Device	Routing	Invert	Outlet Devices
#1	Discarded	598.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	603.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.43 hrs HW=603.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=598.75' TW=600.00' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond BIO-1A: 8C-1A Bioretention



Hydrograph for Pond BIO-1A: 8C-1A Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	598.75	0.00	0.00	**0.00**
2.00	0.00	0	598.75	0.00	0.00	0.00
4.00	0.01	0	598.75	0.01	0.01	0.00
6.00	0.02	23	598.78	0.01	0.01	0.00
8.00	0.03	123	598.92	0.01	0.01	0.00
10.00	0.07	401	599.30	0.01	0.01	0.00
12.00	**1.11**	1,673	601.06	**0.01**	**0.01**	0.00
14.00	**0.09**	3,781	603.12	**0.03**	**0.03**	0.00
16.00	0.05	**4,043**	**603.17**	0.03	0.03	0.00
18.00	0.03	**4,088**	**603.18**	0.03	0.03	0.00
20.00	0.02	4,046	603.17	0.03	0.03	0.00
22.00	0.02	3,969	603.15	0.03	0.03	0.00
24.00	0.02	3,864	603.14	0.03	0.03	0.00
26.00	0.00	3,635	603.09	0.03	0.03	0.00
28.00	0.00	3,402	603.05	0.03	0.03	0.00
30.00	0.00	3,169	603.01	0.03	0.03	0.00
32.00	0.00	3,034	602.94	0.01	0.01	0.00
34.00	0.00	2,958	602.83	0.01	0.01	0.00
36.00	0.00	2,883	602.73	0.01	0.01	0.00
38.00	0.00	2,807	602.63	0.01	0.01	0.00
40.00	0.00	2,732	602.52	0.01	0.01	0.00
42.00	0.00	2,656	602.42	0.01	0.01	0.00
44.00	0.00	2,581	602.31	0.01	0.01	0.00
46.00	0.00	2,505	602.21	0.01	0.01	0.00
48.00	0.00	2,430	602.10	0.01	0.01	0.00
50.00	0.00	2,355	602.00	0.01	0.01	0.00
52.00	0.00	2,279	601.90	0.01	0.01	0.00
54.00	0.00	2,204	601.79	0.01	0.01	0.00
56.00	0.00	2,128	601.69	0.01	0.01	0.00
58.00	0.00	2,053	601.58	0.01	0.01	0.00
60.00	0.00	1,977	601.48	0.01	0.01	0.00
62.00	0.00	1,902	601.38	0.01	0.01	0.00
64.00	0.00	1,826	601.27	0.01	0.01	0.00
66.00	0.00	1,751	601.17	0.01	0.01	0.00
68.00	0.00	1,675	601.06	0.01	0.01	0.00
70.00	0.00	1,600	600.96	0.01	0.01	0.00
72.00	0.00	1,524	600.85	0.01	0.01	0.00
74.00	0.00	1,449	600.75	0.01	0.01	0.00
76.00	0.00	1,374	600.65	0.01	0.01	0.00
78.00	0.00	1,298	600.54	0.01	0.01	0.00
80.00	0.00	1,223	600.44	0.01	0.01	0.00
82.00	0.00	1,147	600.33	0.01	0.01	0.00
84.00	0.00	1,072	600.23	0.01	0.01	0.00
86.00	0.00	996	600.13	0.01	0.01	0.00
88.00	0.00	921	600.02	0.01	0.01	0.00
90.00	0.00	845	599.92	0.01	0.01	0.00
92.00	0.00	770	599.81	0.01	0.01	0.00
94.00	0.00	694	599.71	0.01	0.01	0.00
96.00	0.00	619	599.60	0.01	0.01	0.00

Summary for Pond BIO-1B: 8C-1B Bioretention

Inflow Area = 36,344 sf, 74.37% Impervious, Inflow Depth = 2.38" for 1 Year, 24 Hr. Event event
Inflow = 2.17 cfs @ 12.07 hrs, Volume= 7,214 cf
Outflow = 0.02 cfs @ 24.03 hrs, Volume= 5,783 cf, Atten= 99%, Lag= 717.4 min
Discarded = 0.02 cfs @ 24.03 hrs, Volume= 5,783 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 606.28' @ 24.03 hrs Surf.Area= 3,326 sf Storage= 5,872 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2,173.3 min (2,940.6 - 767.3)

Volume	Invert	Avail.Storage	Storage Description
#1	601.75'	27,051 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

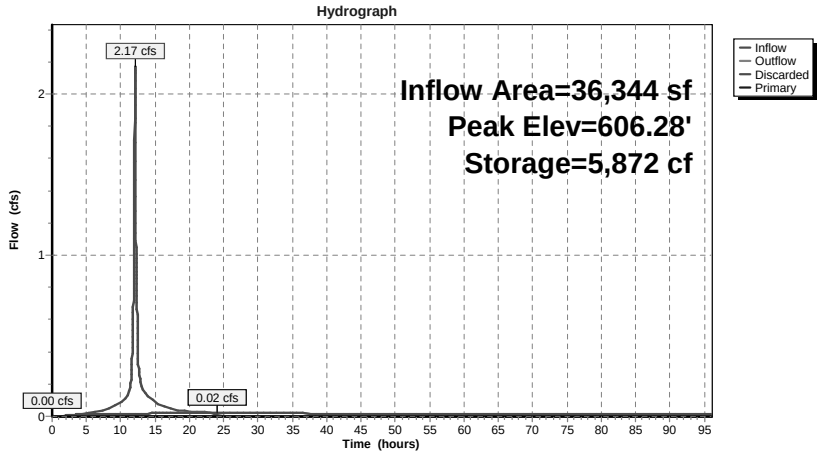
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
601.75	2,925	0.0	0	0
601.76	2,925	40.0	12	12
605.99	2,925	40.0	4,949	4,961
609.00	7,061	100.0	15,029	19,990
609.50	7,061	100.0	3,531	23,520
610.00	7,061	100.0	3,531	27,051

Device	Routing	Invert	Outlet Devices
#1	Discarded	601.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	609.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 24.03 hrs HW=606.28' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=601.75' TW=600.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond BIO-1B: 8C-1B Bioretention



Hydrograph for Pond BIO-1B: 8C-1B Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	601.75	0.00	0.00	**0.00**
2.00	0.00	0	601.75	0.00	0.00	0.00
4.00	0.01	0	601.75	0.01	0.01	0.00
6.00	0.02	11	601.76	0.02	0.02	0.00
8.00	0.04	115	601.85	0.02	0.02	0.00
10.00	0.09	448	602.13	0.02	0.02	0.00
12.00	**1.44**	2,063	603.51	0.02	0.02	0.00
14.00	**0.12**	4,928	605.96	0.02	0.02	0.00
16.00	0.06	5,442	606.15	0.02	0.02	0.00
18.00	0.04	5,669	606.22	0.02	0.02	0.00
20.00	0.03	5,780	606.25	0.02	0.02	0.00
22.00	0.03	5,845	606.27	0.02	0.02	0.00
24.00	0.02	**5,872**	**606.28**	**0.02**	**0.02**	0.00
26.00	0.00	**5,740**	**606.24**	**0.02**	**0.02**	0.00
28.00	0.00	5,605	606.20	0.02	0.02	0.00
30.00	0.00	5,472	606.16	0.02	0.02	0.00
32.00	0.00	5,342	606.12	0.02	0.02	0.00
34.00	0.00	5,214	606.07	0.02	0.02	0.00
36.00	0.00	5,089	606.03	0.02	0.02	0.00
38.00	0.00	4,965	605.99	0.02	0.02	0.00
40.00	0.00	4,844	605.89	0.02	0.02	0.00
42.00	0.00	4,722	605.79	0.02	0.02	0.00
44.00	0.00	4,600	605.68	0.02	0.02	0.00
46.00	0.00	4,478	605.58	0.02	0.02	0.00
48.00	0.00	4,356	605.47	0.02	0.02	0.00
50.00	0.00	4,234	605.37	0.02	0.02	0.00
52.00	0.00	4,112	605.26	0.02	0.02	0.00
54.00	0.00	3,990	605.16	0.02	0.02	0.00
56.00	0.00	3,869	605.06	0.02	0.02	0.00
58.00	0.00	3,747	604.95	0.02	0.02	0.00
60.00	0.00	3,625	604.85	0.02	0.02	0.00
62.00	0.00	3,503	604.74	0.02	0.02	0.00
64.00	0.00	3,381	604.64	0.02	0.02	0.00
66.00	0.00	3,259	604.54	0.02	0.02	0.00
68.00	0.00	3,137	604.43	0.02	0.02	0.00
70.00	0.00	3,015	604.33	0.02	0.02	0.00
72.00	0.00	2,894	604.22	0.02	0.02	0.00
74.00	0.00	2,772	604.12	0.02	0.02	0.00
76.00	0.00	2,650	604.01	0.02	0.02	0.00
78.00	0.00	2,528	603.91	0.02	0.02	0.00
80.00	0.00	2,406	603.81	0.02	0.02	0.00
82.00	0.00	2,284	603.70	0.02	0.02	0.00
84.00	0.00	2,162	603.60	0.02	0.02	0.00
86.00	0.00	2,040	603.49	0.02	0.02	0.00
88.00	0.00	1,919	603.39	0.02	0.02	0.00
90.00	0.00	1,797	603.29	0.02	0.02	0.00
92.00	0.00	1,675	603.18	0.02	0.02	0.00
94.00	0.00	1,553	603.08	0.02	0.02	0.00
96.00	0.00	1,431	602.97	0.02	0.02	0.00

Summary for Reach DP-8: Det Basin Outflow

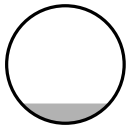
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1,087,954 sf, 38.29% Impervious, Inflow Depth > 0.68" for 1 Year, 24 Hr. Event event
Inflow = 5.38 cfs @ 12.13 hrs, Volume= 61,630 cf
Outflow = 5.37 cfs @ 12.14 hrs, Volume= 61,628 cf, Atten= 0%, Lag= 0.4 min

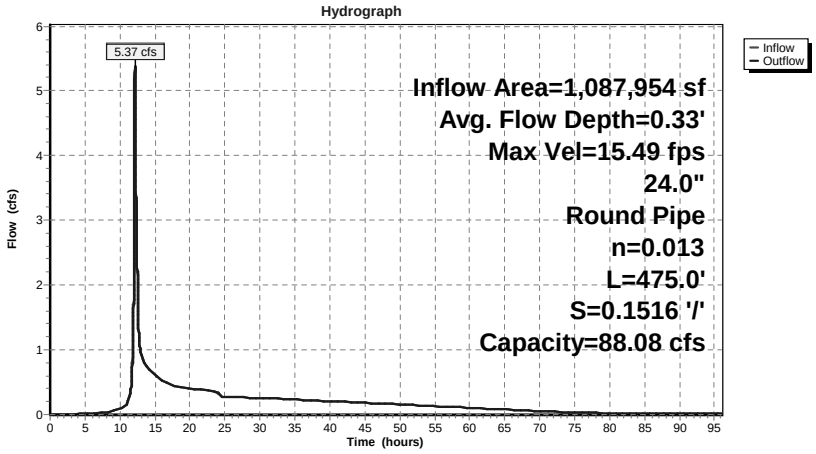
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 15.49 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 4.85 fps, Avg. Travel Time= 1.6 min

Peak Storage= 165 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 88.08 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 475.0' Slope= 0.1516 '/'
Inlet Invert= 590.00', Outlet Invert= 518.00'



Reach DP-8: Det Basin Outflow



Hydrograph for Reach DP-8: Det Basin Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	590.00	0.00
2.00	0.00	0	590.00	0.00
4.00	0.01	2	590.01	0.01
6.00	0.02	3	590.02	0.02
8.00	0.04	5	590.03	0.04
10.00	0.09	10	590.05	0.09
12.00	**2.46**	**92**	**590.22**	**2.33**
14.00	**0.71**	**40**	**590.13**	**0.72**
16.00	0.52	32	590.11	0.53
18.00	0.43	28	590.10	0.43
20.00	0.40	27	590.10	0.40
22.00	0.38	26	590.09	0.38
24.00	0.36	25	590.09	0.36
26.00	0.27	20	590.08	0.27
28.00	0.26	20	590.08	0.26
30.00	0.26	20	590.08	0.26
32.00	0.25	19	590.08	0.25
34.00	0.24	19	590.08	0.24
36.00	0.23	18	590.07	0.23
38.00	0.22	17	590.07	0.22
40.00	0.21	17	590.07	0.21
42.00	0.20	16	590.07	0.20
44.00	0.19	16	590.07	0.19
46.00	0.18	15	590.07	0.18
48.00	0.17	14	590.06	0.17
50.00	0.16	14	590.06	0.16
52.00	0.15	13	590.06	0.15
54.00	0.13	13	590.06	0.13
56.00	0.12	12	590.06	0.12
58.00	0.11	11	590.05	0.11
60.00	0.10	10	590.05	0.10
62.00	0.09	10	590.05	0.09
64.00	0.08	9	590.05	0.08
66.00	0.07	8	590.04	0.07
68.00	0.06	7	590.04	0.06
70.00	0.05	6	590.04	0.05
72.00	0.04	6	590.03	0.04
74.00	0.04	5	590.03	0.04
76.00	0.03	4	590.03	0.03
78.00	0.03	4	590.03	0.03
80.00	0.02	4	590.02	0.02
82.00	0.02	3	590.02	0.02
84.00	0.02	3	590.02	0.02
86.00	0.02	3	590.02	0.02
88.00	0.01	3	590.02	0.01
90.00	0.01	2	590.02	0.01
92.00	0.01	2	590.02	0.01
94.00	0.01	2	590.02	0.01
96.00	0.01	2	590.01	0.01

Summary for Pond P-1C: 8C-1C Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 6,695 sf,100.00% Impervious, Inflow Depth = 2.87" for 1 Year, 24 Hr. Event event
Inflow = 0.48 cfs @ 12.07 hrs, Volume= 1,600 cf
Outflow = 0.04 cfs @ 11.60 hrs, Volume= 1,601 cf, Atten= 92%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.60 hrs, Volume= 1,601 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.43' @ 12.99 hrs Surf.Area= 6,695 sf Storage= 572 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 104.4 min (860.5 - 756.1)

Volume	Invert	Avail.Storage	Storage Description
#1	608.00'	8,757 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

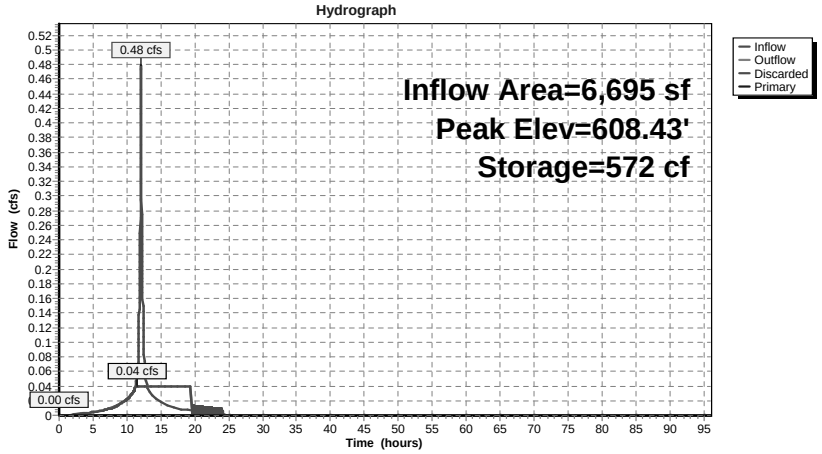
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.00	6,695	0.0	0	0
608.01	6,695	20.0	13	13
611.99	6,695	20.0	5,329	5,343
612.00	6,695	100.0	67	5,410
612.50	6,695	100.0	3,348	8,757

Device	Routing	Invert	Outlet Devices
#1	Primary	612.00'	**12.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	608.00'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.04 cfs @ 11.60 hrs HW=608.01' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=608.00' TW=600.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-1C: 8C-1C Pavers



Hydrograph for Pond P-1C: 8C-1C Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	608.00	0.00	0.00	**0.00**
2.00	0.00	0	608.00	0.00	0.00	0.00
4.00	0.00	0	608.00	0.00	0.00	0.00
6.00	0.01	0	608.00	0.01	0.01	0.00
8.00	0.01	0	608.00	0.01	0.01	0.00
10.00	0.02	0	608.00	**0.02**	**0.02**	0.00
12.00	**0.32**	**178**	**608.13**	**0.04**	**0.04**	0.00
14.00	**0.02**	**541**	**608.40**	0.04	0.04	0.00
16.00	0.01	394	608.29	0.04	0.04	0.00
18.00	0.01	189	608.14	0.04	0.04	0.00
20.00	0.01	0	608.00	0.01	0.01	0.00
22.00	0.01	0	608.00	0.01	0.01	0.00
24.00	0.00	0	608.00	0.01	0.01	0.00
26.00	0.00	0	608.00	0.00	0.00	0.00
28.00	0.00	0	608.00	0.00	0.00	0.00
30.00	0.00	0	608.00	0.00	0.00	0.00
32.00	0.00	0	608.00	0.00	0.00	0.00
34.00	0.00	0	608.00	0.00	0.00	0.00
36.00	0.00	0	608.00	0.00	0.00	0.00
38.00	0.00	0	608.00	0.00	0.00	0.00
40.00	0.00	0	608.00	0.00	0.00	0.00
42.00	0.00	0	608.00	0.00	0.00	0.00
44.00	0.00	0	608.00	0.00	0.00	0.00
46.00	0.00	0	608.00	0.00	0.00	0.00
48.00	0.00	0	608.00	0.00	0.00	0.00
50.00	0.00	0	608.00	0.00	0.00	0.00
52.00	0.00	0	608.00	0.00	0.00	0.00
54.00	0.00	0	608.00	0.00	0.00	0.00
56.00	0.00	0	608.00	0.00	0.00	0.00
58.00	0.00	0	608.00	0.00	0.00	0.00
60.00	0.00	0	608.00	0.00	0.00	0.00
62.00	0.00	0	608.00	0.00	0.00	0.00
64.00	0.00	0	608.00	0.00	0.00	0.00
66.00	0.00	0	608.00	0.00	0.00	0.00
68.00	0.00	0	608.00	0.00	0.00	0.00
70.00	0.00	0	608.00	0.00	0.00	0.00
72.00	0.00	0	608.00	0.00	0.00	0.00
74.00	0.00	0	608.00	0.00	0.00	0.00
76.00	0.00	0	608.00	0.00	0.00	0.00
78.00	0.00	0	608.00	0.00	0.00	0.00
80.00	0.00	0	608.00	0.00	0.00	0.00
82.00	0.00	0	608.00	0.00	0.00	0.00
84.00	0.00	0	608.00	0.00	0.00	0.00
86.00	0.00	0	608.00	0.00	0.00	0.00
88.00	0.00	0	608.00	0.00	0.00	0.00
90.00	0.00	0	608.00	0.00	0.00	0.00
92.00	0.00	0	608.00	0.00	0.00	0.00
94.00	0.00	0	608.00	0.00	0.00	0.00
96.00	0.00	0	608.00	0.00	0.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: DA8C-1A Runoff Area=27,975 sf 75.07% Impervious Runoff Depth=2.76"
Tc=5.0 min CN=74/98 Runoff=1.93 cfs 6,437 cf

Subcatchment 1B: DA8C-1B Runoff Area=36,344 sf 74.37% Impervious Runoff Depth=2.75"
Tc=5.0 min CN=74/98 Runoff=2.50 cfs 8,320 cf

Subcatchment 1C: DA8C-1C Runoff Area=6,695 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=0.54 cfs 1,822 cf

Pond 8-B: Micropool Ext Det Basin Peak Elev=592.43' Storage=82,727 cf Inflow=12.62 cfs 57,684 cf
Outflow=0.77 cfs 56,324 cf

Pond 8-F: Forebay Peak Elev=593.03' Storage=22,420 cf Inflow=13.45 cfs 57,684 cf
Outflow=12.62 cfs 57,684 cf

Subcatchment 8A1: DA-8A1 Runoff Area=200,906 sf 8.68% Impervious Runoff Depth=1.42"
Flow Length=184' Tc=8.6 min CN=74/98 Runoff=6.62 cfs 23,704 cf

Subcatchment 8A2: DA-8A2 Runoff Area=104,437 sf 1.30% Impervious Runoff Depth=1.73"
Flow Length=100' Slope=0.0870 '/' Tc=7.6 min CN=81/98 Runoff=4.57 cfs 15,046 cf

Link 2 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_East~Reach DP-8B.hce Inflow=8.90 cfs 42,638 cf
Area= 711,597 sf 48.21% Imperv. Primary=8.90 cfs 42,638 cf

Reach 8C: DA-8C Inflow Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
24.0" Round Pipe n=0.013 L=200.0' S=0.0200 '/' Capacity=31.99 cfs Outflow=0.00 cfs 0 cf

Pond BIO-1A: 8C-1A Bioretention Peak Elev=603.31' Storage=4,842 cf Inflow=1.93 cfs 6,437 cf
Discarded=0.03 cfs 5,552 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 5,552 cf

Pond BIO-1B: 8C-1B Bioretention Peak Elev=606.56' Storage=6,865 cf Inflow=2.50 cfs 8,320 cf
Discarded=0.02 cfs 6,064 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 6,064 cf

Reach DP-8: Det Basin Outflow Avg. Flow Depth=0.38' Max Vel=16.62 fps Inflow=6.81 cfs 80,028 cf
24.0" Round Pipe n=0.013 L=475.0' S=0.1516 '/' Capacity=88.08 cfs Outflow=6.80 cfs 80,026 cf

Pond P-1C: 8C-1C Pavers Peak Elev=608.51' Storage=683 cf Inflow=0.54 cfs 1,822 cf
Discarded=0.04 cfs 1,823 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 1,823 cf

Total Runoff Area = 376,357 sf Runoff Volume = 55,330 cf Average Runoff Depth = 1.76"
80.46% Pervious = 302,834 sf 19.54% Impervious = 73,523 sf

Summary for Subcatchment 1A: DA8C-1A

Runoff = 1.93 cfs @ 12.07 hrs, Volume= 6,437 cf, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

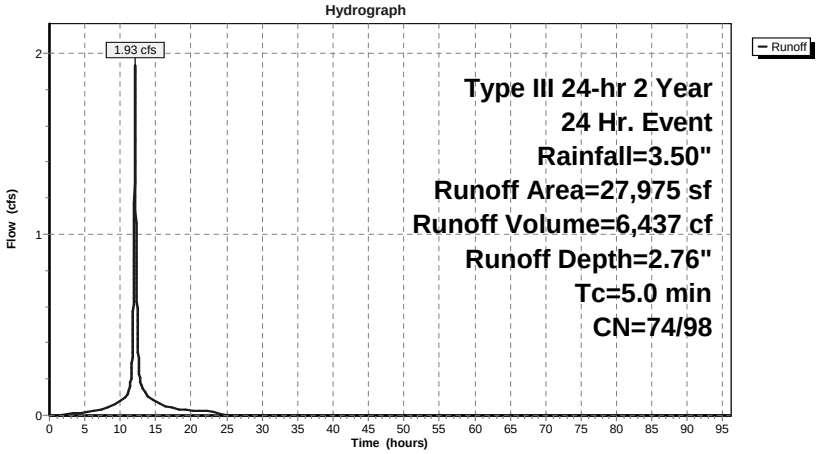
	Area (sf)	CN	Description	Land Use
	21,000	98	Paved parking, HSG C	Pavement
	1,381	74	>75% Grass cover, Good, HSG C	Open Space
*	5,594	74	Bioretention	Brush
	27,975	92	Weighted Average	
	6,975	74	24.93% Pervious Area	
	21,000	98	75.07% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 75.07% Impervious, Rv= 0.726, Runoff= 33.16"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,594	Brush	35.71	0.00	0.00	1.19
1,381	Open Space	143.42	0.50	2.17	0.29
21,000	Pavement	626.73	2.03	7.61	24.27
27,975	Total	805.85	2.53	9.78	25.75

Subcatchment 1A: DA8C-1A



Hydrograph for Subcatchment 1A: DA8C-1A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.02
8.00	0.40	0.00	0.23	0.04
10.00	0.66	0.00	0.47	0.08
12.00	1.75	0.24	1.53	**1.28**
14.00	2.84	0.81	2.61	**0.10**
16.00	3.10	0.97	2.87	0.06
18.00	3.25	1.07	3.02	0.03
20.00	3.35	1.14	3.12	0.03
22.00	3.43	1.19	3.20	0.02
24.00	**3.50**	**1.24**	**3.27**	0.02
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00
74.00	3.50	1.24	3.27	0.00
76.00	3.50	1.24	3.27	0.00
78.00	3.50	1.24	3.27	0.00
80.00	3.50	1.24	3.27	0.00
82.00	3.50	1.24	3.27	0.00
84.00	3.50	1.24	3.27	0.00
86.00	3.50	1.24	3.27	0.00
88.00	3.50	1.24	3.27	0.00
90.00	3.50	1.24	3.27	0.00
92.00	3.50	1.24	3.27	0.00
94.00	3.50	1.24	3.27	0.00
96.00	3.50	1.24	3.27	0.00

Summary for Subcatchment 1B: DA8C-1B

Runoff = 2.50 cfs @ 12.07 hrs, Volume= 8,320 cf, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

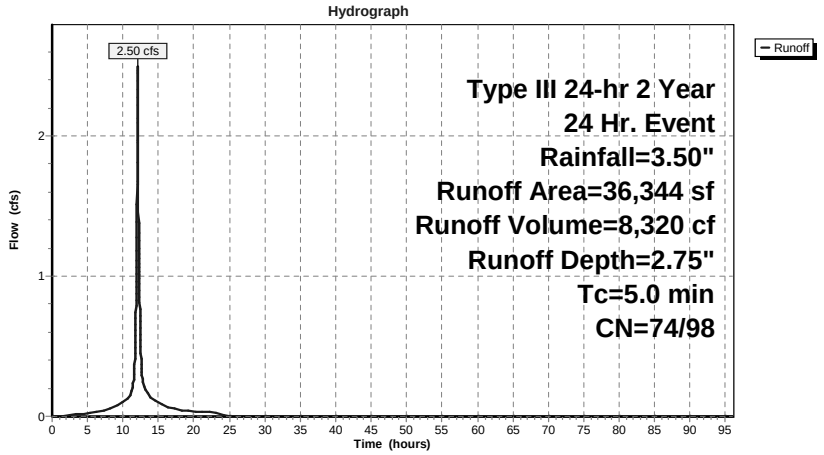
	Area (sf)	CN	Description	Land Use
	27,028	98	Paved parking, HSG C	Pavement
	2,256	74	>75% Grass cover, Good, HSG C	Open Space
*	7,060	74	Bioretention	Brush
	36,344	92	Weighted Average	
	9,316	74	25.63% Pervious Area	
	27,028	98	74.37% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.37% Impervious, Rv= 0.719, Runoff= 32.87"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,060	Brush	44.67	0.00	0.00	1.49
2,256	Open Space	232.25	0.81	3.51	0.47
27,028	Pavement	799.63	2.59	9.71	30.97
36,344	Total	1,076.55	3.40	13.22	32.93

Subcatchment 1B: DA8C-1B



Hydrograph for Subcatchment 1B: DA8C-1B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.02
6.00	0.25	0.00	0.11	0.03
8.00	0.40	0.00	0.23	0.05
10.00	0.66	0.00	0.47	0.10
12.00	1.75	0.24	1.53	**1.66**
14.00	2.84	0.81	2.61	**0.13**
16.00	3.10	0.97	2.87	0.07
18.00	3.25	1.07	3.02	0.04
20.00	3.35	1.14	3.12	0.04
22.00	3.43	1.19	3.20	0.03
24.00	**3.50**	**1.24**	**3.27**	0.02
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00
74.00	3.50	1.24	3.27	0.00
76.00	3.50	1.24	3.27	0.00
78.00	3.50	1.24	3.27	0.00
80.00	3.50	1.24	3.27	0.00
82.00	3.50	1.24	3.27	0.00
84.00	3.50	1.24	3.27	0.00
86.00	3.50	1.24	3.27	0.00
88.00	3.50	1.24	3.27	0.00
90.00	3.50	1.24	3.27	0.00
92.00	3.50	1.24	3.27	0.00
94.00	3.50	1.24	3.27	0.00
96.00	3.50	1.24	3.27	0.00

Summary for Subcatchment 1C: DA8C-1C

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 1,822 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

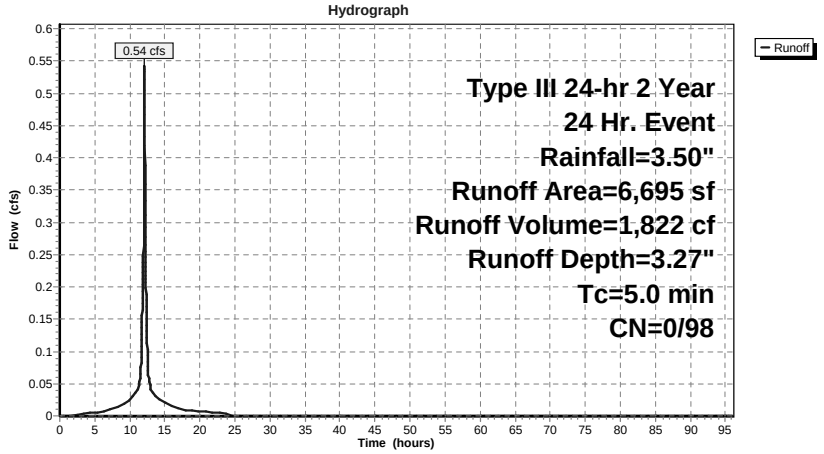
	Area (sf)	CN	Description	Land Use
*	6,695	98	Pavers	Pavement
	6,695	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
6,695	Pavement	261.60	0.85	3.18	10.13
6,695	Total	261.60	0.85	3.18	10.13

Subcatchment 1C: DA8C-1C



Hydrograph for Subcatchment 1C: DA8C-1C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.02
12.00	1.75	0.00	1.53	**0.37**
14.00	2.84	0.00	2.61	**0.03**
16.00	3.10	0.00	2.87	0.01
18.00	3.25	0.00	3.02	0.01
20.00	3.35	0.00	3.12	0.01
22.00	3.43	0.00	3.20	0.01
24.00	**3.50**	0.00	**3.27**	0.00
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00
74.00	3.50	0.00	3.27	0.00
76.00	3.50	0.00	3.27	0.00
78.00	3.50	0.00	3.27	0.00
80.00	3.50	0.00	3.27	0.00
82.00	3.50	0.00	3.27	0.00
84.00	3.50	0.00	3.27	0.00
86.00	3.50	0.00	3.27	0.00
88.00	3.50	0.00	3.27	0.00
90.00	3.50	0.00	3.27	0.00
92.00	3.50	0.00	3.27	0.00
94.00	3.50	0.00	3.27	0.00
96.00	3.50	0.00	3.27	0.00

Summary for Pond 8-B: Micropool Ext Det Basin

Inflow Area = 887,048 sf, 45.00% Impervious, Inflow Depth = 0.78" for 2 Year, 24 Hr. Event event
Inflow = 12.62 cfs @ 12.14 hrs, Volume= 57,684 cf
Outflow = 0.77 cfs @ 16.82 hrs, Volume= 56,324 cf, Atten= 94%, Lag= 281.1 min
Primary = 0.77 cfs @ 16.82 hrs, Volume= 56,324 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 590.75' Surf.Area= 17,970 sf Storage= 45,195 cf
Peak Elev= 592.43' @ 16.82 hrs Surf.Area= 27,658 sf Storage= 82,727 cf (37,532 cf above start)

Plug-Flow detention time= 3,174.7 min calculated for 11,129 cf (19% of inflow)
Center-of-Mass det. time= 1,180.1 min (2,020.1 - 840.0)

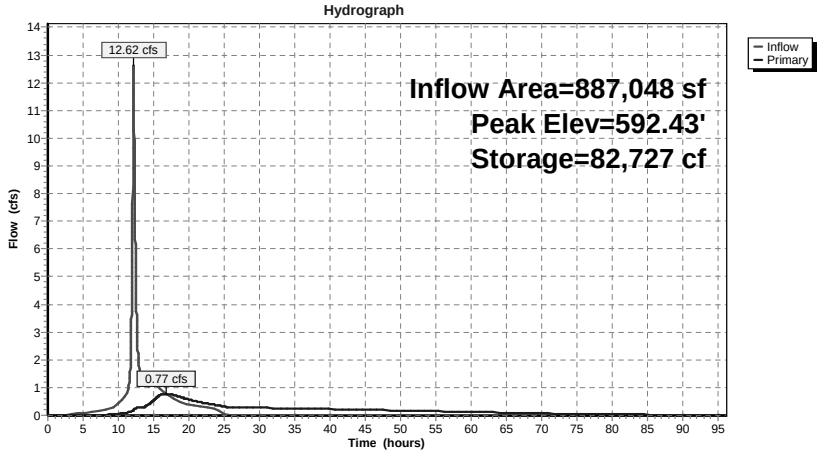
Volume	Invert	Avail.Storage	Storage Description
#1	586.75'	301,176 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
586.75	0	0	0
588.00	10,403	6,502	6,502
590.00	13,760	24,163	30,665
592.00	24,987	38,747	69,412
594.00	37,525	62,512	131,924
596.00	42,446	79,971	211,895
598.00	46,835	89,281	301,176

Device	Routing	Invert	Outlet Devices
#1	Primary	586.00'	**24.0" Round Culvert** L= 290.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 586.00' / 550.00' S= 0.1241 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	590.75'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	592.25'	**24.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	595.00'	**48.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=0.77 cfs @ 16.82 hrs HW=592.43' TW=590.15' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.77 cfs of 16.82 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.29 cfs @ 6.00 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.47 cfs @ 1.35 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 8-B: Micropool Ext Det Basin



Hydrograph for Pond 8-B: Micropool Ext Det Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	45,195	590.75	0.00
2.00	0.00	45,196	590.75	0.00
4.00	0.05	45,374	590.76	0.00
6.00	0.10	45,915	590.79	0.00
8.00	0.18	46,837	590.83	0.01
10.00	0.42	48,636	590.93	0.05
12.00	**5.88**	56,198	591.32	0.16
14.00	**1.03**	78,702	592.30	0.35
16.00	0.95	**82,469**	**592.42**	**0.73**
18.00	0.57	**82,372**	**592.41**	**0.72**
20.00	0.39	81,059	592.37	0.56
22.00	0.30	79,921	592.34	0.45
24.00	0.24	78,953	592.31	0.37
26.00	0.01	77,173	592.25	0.28
28.00	0.00	75,229	592.19	0.27
30.00	0.00	73,310	592.12	0.26
32.00	0.00	71,433	592.06	0.26
34.00	0.00	69,601	592.01	0.25
36.00	0.00	67,827	591.92	0.24
38.00	0.00	66,127	591.83	0.23
40.00	0.00	64,502	591.75	0.22
42.00	0.00	62,951	591.67	0.21
44.00	0.00	61,475	591.59	0.20
46.00	0.00	60,074	591.52	0.19
48.00	0.00	58,748	591.45	0.18
50.00	0.00	57,496	591.38	0.17
52.00	0.00	56,320	591.32	0.16
54.00	0.00	55,218	591.27	0.15
56.00	0.00	54,191	591.21	0.14
58.00	0.00	53,241	591.17	0.13
60.00	0.00	52,363	591.12	0.12
62.00	0.00	51,558	591.08	0.11
64.00	0.00	50,828	591.04	0.10
66.00	0.00	50,174	591.01	0.09
68.00	0.00	49,590	590.98	0.08
70.00	0.00	49,085	590.95	0.06
72.00	0.00	48,659	590.93	0.05
74.00	0.00	48,303	590.91	0.05
76.00	0.00	48,002	590.89	0.04
78.00	0.00	47,749	590.88	0.03
80.00	0.00	47,532	590.87	0.03
82.00	0.00	47,347	590.86	0.02
84.00	0.00	47,187	590.85	0.02
86.00	0.00	47,047	590.85	0.02
88.00	0.00	46,924	590.84	0.02
90.00	0.00	46,815	590.83	0.01
92.00	0.00	46,719	590.83	0.01
94.00	0.00	46,633	590.82	0.01
96.00	0.00	46,556	590.82	0.01

Summary for Pond 8-F: Forebay

Inflow Area = 887,048 sf, 45.00% Impervious, Inflow Depth = 0.78" for 2 Year, 24 Hr. Event event
Inflow = 13.45 cfs @ 12.10 hrs, Volume= 57,684 cf
Outflow = 12.62 cfs @ 12.14 hrs, Volume= 57,684 cf, Atten= 6%, Lag= 2.1 min
Primary = 12.62 cfs @ 12.14 hrs, Volume= 57,684 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 592.75' Surf.Area= 9,839 sf Storage= 19,484 cf
Peak Elev= 593.03' @ 12.14 hrs Surf.Area= 11,260 sf Storage= 22,420 cf (2,936 cf above start)

Plug-Flow detention time= 226.9 min calculated for 38,200 cf (66% of inflow)
Center-of-Mass det. time= 11.4 min (840.0 - 828.6)

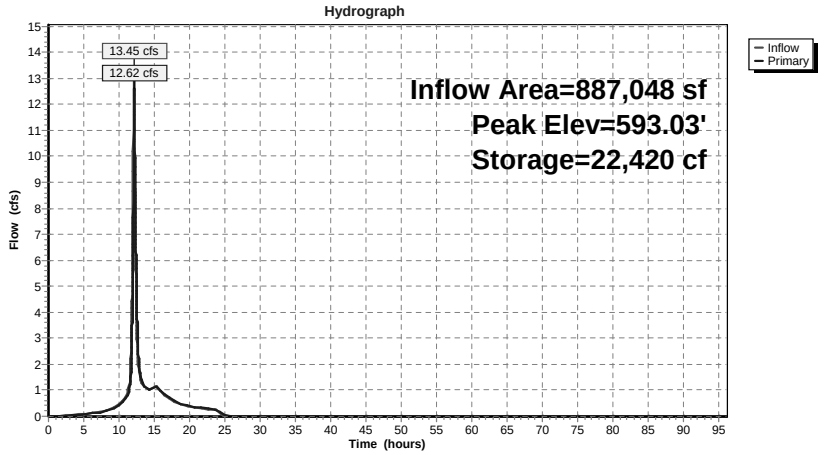
Volume	Invert	Avail.Storage	Storage Description
#1	587.25'	117,643 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
587.25	0	0	0
588.00	1,342	503	503
590.00	2,844	4,186	4,689
592.00	6,008	8,852	13,541
594.00	16,223	22,231	35,772
596.00	20,068	36,291	72,063
598.00	25,512	45,580	117,643

Device	Routing	Invert	Outlet Devices
#1	Primary	592.75'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**
			Head (feet) 0.00 1.25 4.00
			Width (feet) 12.00 172.00 204.00

Primary OutFlow Max=12.62 cfs @ 12.14 hrs HW=593.03' TW=591.56' (Dynamic Tailwater)
↳**1=Custom Weir/Orifice** (Weir Controls 12.62 cfs @ 1.52 fps)

Pond 8-F: Forebay



Hydrograph for Pond 8-F: Forebay

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	19,484	592.75	0.00
2.00	0.01	19,496	592.75	0.00
4.00	0.06	19,600	592.76	0.05
6.00	0.10	19,657	592.77	0.10
8.00	0.19	19,740	592.78	0.18
10.00	0.45	19,915	592.79	0.42
12.00	**7.41**	**21,442**	**592.94**	**5.88**
14.00	**1.02**	**20,223**	**592.82**	**1.03**
16.00	0.91	20,188	592.82	0.95
18.00	0.54	20,000	592.80	0.57
20.00	0.38	19,897	592.79	0.39
22.00	0.30	19,838	592.79	0.30
24.00	0.23	19,787	592.78	0.24
26.00	0.00	19,519	592.75	0.01
28.00	0.00	19,494	592.75	0.00
30.00	0.00	19,489	592.75	0.00
32.00	0.00	19,486	592.75	0.00
34.00	0.00	19,485	592.75	0.00
36.00	0.00	19,485	592.75	0.00
38.00	0.00	19,484	592.75	0.00
40.00	0.00	19,484	592.75	0.00
42.00	0.00	19,484	592.75	0.00
44.00	0.00	19,484	592.75	0.00
46.00	0.00	19,484	592.75	0.00
48.00	0.00	19,484	592.75	0.00
50.00	0.00	19,484	592.75	0.00
52.00	0.00	19,484	592.75	0.00
54.00	0.00	19,484	592.75	0.00
56.00	0.00	19,484	592.75	0.00
58.00	0.00	19,484	592.75	0.00
60.00	0.00	19,484	592.75	0.00
62.00	0.00	19,484	592.75	0.00
64.00	0.00	19,484	592.75	0.00
66.00	0.00	19,484	592.75	0.00
68.00	0.00	19,484	592.75	0.00
70.00	0.00	19,484	592.75	0.00
72.00	0.00	19,484	592.75	0.00
74.00	0.00	19,484	592.75	0.00
76.00	0.00	19,484	592.75	0.00
78.00	0.00	19,484	592.75	0.00
80.00	0.00	19,484	592.75	0.00
82.00	0.00	19,484	592.75	0.00
84.00	0.00	19,484	592.75	0.00
86.00	0.00	19,484	592.75	0.00
88.00	0.00	19,484	592.75	0.00
90.00	0.00	19,484	592.75	0.00
92.00	0.00	19,484	592.75	0.00
94.00	0.00	19,484	592.75	0.00
96.00	0.00	19,484	592.75	0.00

Summary for Subcatchment 8A1: DA-8A1

Runoff = 6.62 cfs @ 12.13 hrs, Volume= 23,704 cf, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

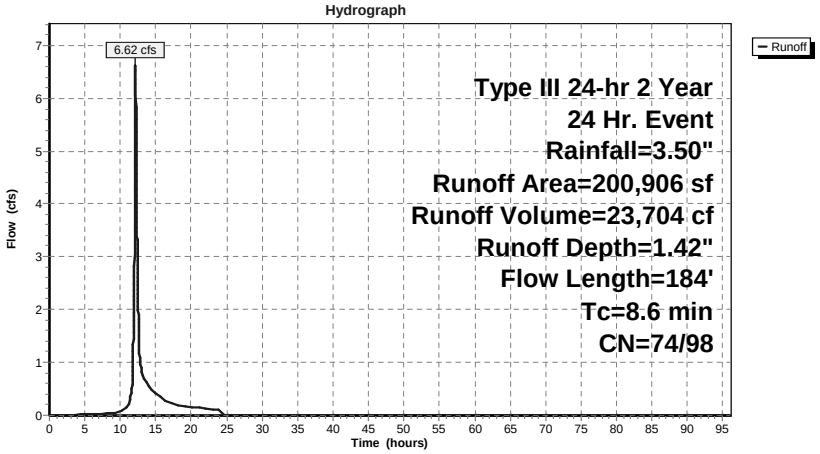
Area (sf)	CN	Description	Land Use
183,464	74	>75% Grass cover, Good, HSG C	Open Space
17,442	98	Unconnected pavement, HSG C	Pavement
200,906	76	Weighted Average	
183,464	74	91.32% Pervious Area	
17,442	98	8.68% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0760	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.0	5	0.0760	1.93		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	79	0.0940	2.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 8.68% Impervious, Rv= 0.128, Runoff= 5.86"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
183,464	Open Space	3,364.57	11.74	50.86	6.87
17,442	Pavement	91.92	0.30	1.12	3.56
200,906	Total	3,456.49	12.03	51.98	10.43

Subcatchment 8A1: DA-8A1



Hydrograph for Subcatchment 8A1: DA-8A1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.02
8.00	0.40	0.00	0.23	0.03
10.00	0.66	0.00	0.47	0.06
12.00	1.75	0.24	1.53	**3.04**
14.00	2.84	0.81	2.61	**0.55**
16.00	3.10	0.97	2.87	0.30
18.00	3.25	1.07	3.02	0.19
20.00	3.35	1.14	3.12	0.15
22.00	3.43	1.19	3.20	0.13
24.00	**3.50**	**1.24**	**3.27**	0.10
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00
74.00	3.50	1.24	3.27	0.00
76.00	3.50	1.24	3.27	0.00
78.00	3.50	1.24	3.27	0.00
80.00	3.50	1.24	3.27	0.00
82.00	3.50	1.24	3.27	0.00
84.00	3.50	1.24	3.27	0.00
86.00	3.50	1.24	3.27	0.00
88.00	3.50	1.24	3.27	0.00
90.00	3.50	1.24	3.27	0.00
92.00	3.50	1.24	3.27	0.00
94.00	3.50	1.24	3.27	0.00
96.00	3.50	1.24	3.27	0.00

Summary for Subcatchment 8A2: DA-8A2

Runoff = 4.57 cfs @ 12.11 hrs, Volume= 15,046 cf, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

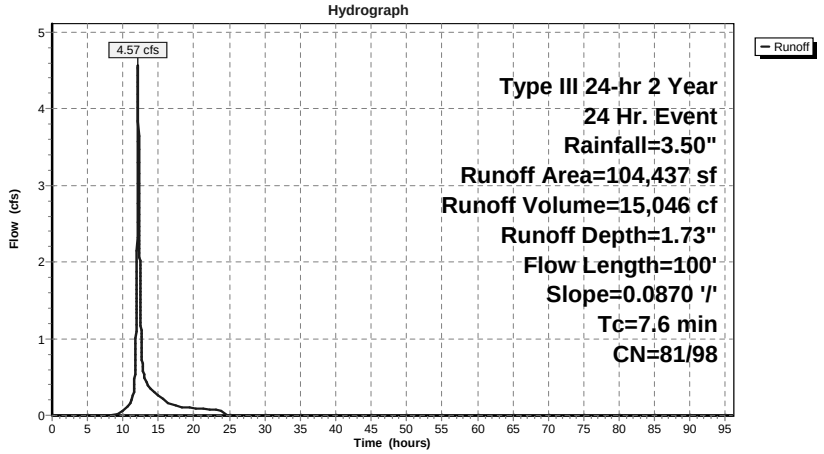
Area (sf)	CN	Description	Land Use
1,358	98	Paved parking, HSG C	Pavement
71,762	74	>75% Grass cover, Good, HSG C	Open Space
31,317	98	Water Surface, 0% imp, HSG C	Open Water
104,437	82	Weighted Average	
103,079	81	98.70% Pervious Area	
1,358	98	1.30% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.0870	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 1.30% Impervious, Rv= 0.062, Runoff= 2.82"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
71,762	Open Space	633.74	2.21	9.58	1.29
31,317	Open Water	0.00	0.00	0.00	0.00
1,358	Pavement	3.45	0.01	0.04	0.13
104,437	Total	637.18	2.22	9.62	1.43

Subcatchment 8A2: DA-8A2



Hydrograph for Subcatchment 8A2: DA-8A2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.01	0.47	0.06
12.00	1.75	0.45	1.53	**2.32**
14.00	2.84	1.19	2.61	**0.33**
16.00	3.10	1.39	2.87	0.18
18.00	3.25	1.51	3.02	0.11
20.00	3.35	1.59	3.12	0.09
22.00	3.43	1.65	3.20	0.07
24.00	**3.50**	**1.71**	**3.27**	0.06
26.00	3.50	1.71	3.27	0.00
28.00	3.50	1.71	3.27	0.00
30.00	3.50	1.71	3.27	0.00
32.00	3.50	1.71	3.27	0.00
34.00	3.50	1.71	3.27	0.00
36.00	3.50	1.71	3.27	0.00
38.00	3.50	1.71	3.27	0.00
40.00	3.50	1.71	3.27	0.00
42.00	3.50	1.71	3.27	0.00
44.00	3.50	1.71	3.27	0.00
46.00	3.50	1.71	3.27	0.00
48.00	3.50	1.71	3.27	0.00
50.00	3.50	1.71	3.27	0.00
52.00	3.50	1.71	3.27	0.00
54.00	3.50	1.71	3.27	0.00
56.00	3.50	1.71	3.27	0.00
58.00	3.50	1.71	3.27	0.00
60.00	3.50	1.71	3.27	0.00
62.00	3.50	1.71	3.27	0.00
64.00	3.50	1.71	3.27	0.00
66.00	3.50	1.71	3.27	0.00
68.00	3.50	1.71	3.27	0.00
70.00	3.50	1.71	3.27	0.00
72.00	3.50	1.71	3.27	0.00
74.00	3.50	1.71	3.27	0.00
76.00	3.50	1.71	3.27	0.00
78.00	3.50	1.71	3.27	0.00
80.00	3.50	1.71	3.27	0.00
82.00	3.50	1.71	3.27	0.00
84.00	3.50	1.71	3.27	0.00
86.00	3.50	1.71	3.27	0.00
88.00	3.50	1.71	3.27	0.00
90.00	3.50	1.71	3.27	0.00
92.00	3.50	1.71	3.27	0.00
94.00	3.50	1.71	3.27	0.00
96.00	3.50	1.71	3.27	0.00

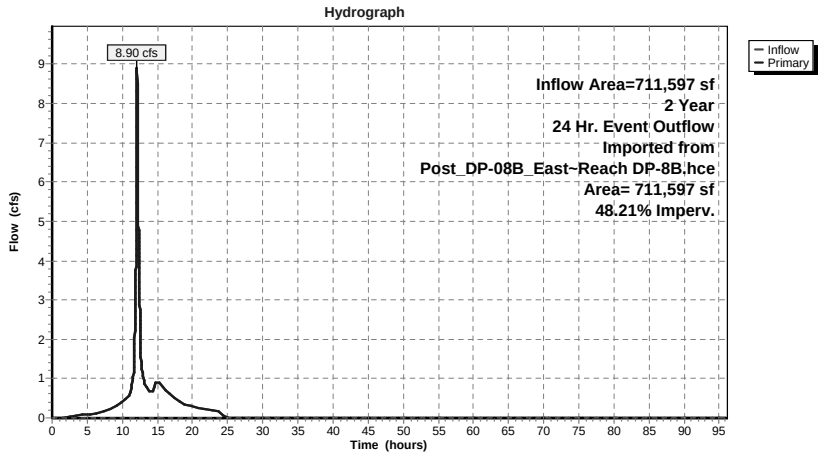
Summary for Link 8B: DA-8B Inflow

Inflow Area = 711,597 sf, 48.21% Impervious, Inflow Depth = 0.72" for 2 Year, 24 Hr. Event event
Inflow = 8.90 cfs @ 12.10 hrs, Volume= 42,638 cf
Primary = 8.90 cfs @ 12.10 hrs, Volume= 42,638 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

2 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_East~Reach DP-8B.hce

Link 8B: DA-8B Inflow



Hydrograph for Link 8B: DA-8B Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.04	0.00	0.04	55.00	0.00	0.00	0.00
4.00	0.06	0.00	0.06	56.00	0.00	0.00	0.00
5.00	0.08	0.00	0.08	57.00	0.00	0.00	0.00
6.00	0.10	0.00	0.10	58.00	0.00	0.00	0.00
7.00	0.14	0.00	0.14	59.00	0.00	0.00	0.00
8.00	0.19	0.00	0.19	60.00	0.00	0.00	0.00
9.00	0.29	0.00	0.29	61.00	0.00	0.00	0.00
10.00	0.39	0.00	0.39	62.00	0.00	0.00	0.00
11.00	0.60	0.00	0.60	63.00	0.00	0.00	0.00
12.00	**5.09**	0.00	**5.09**	64.00	0.00	0.00	0.00
13.00	**1.00**	0.00	**1.00**	65.00	0.00	0.00	0.00
14.00	0.69	0.00	0.69	66.00	0.00	0.00	0.00
15.00	0.92	0.00	0.92	67.00	0.00	0.00	0.00
16.00	0.73	0.00	0.73	68.00	0.00	0.00	0.00
17.00	0.57	0.00	0.57	69.00	0.00	0.00	0.00
18.00	0.43	0.00	0.43	70.00	0.00	0.00	0.00
19.00	0.34	0.00	0.34	71.00	0.00	0.00	0.00
20.00	0.29	0.00	0.29	72.00	0.00	0.00	0.00
21.00	0.25	0.00	0.25	73.00	0.00	0.00	0.00
22.00	0.22	0.00	0.22	74.00	0.00	0.00	0.00
23.00	0.20	0.00	0.20	75.00	0.00	0.00	0.00
24.00	0.17	0.00	0.17	76.00	0.00	0.00	0.00
25.00	0.01	0.00	0.01	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Reach 8C: DA-8C Inflow

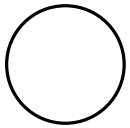
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 71,014 sf, 77.06% Impervious, Inflow Depth = 0.00" for 2 Year, 24 Hr. Event event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

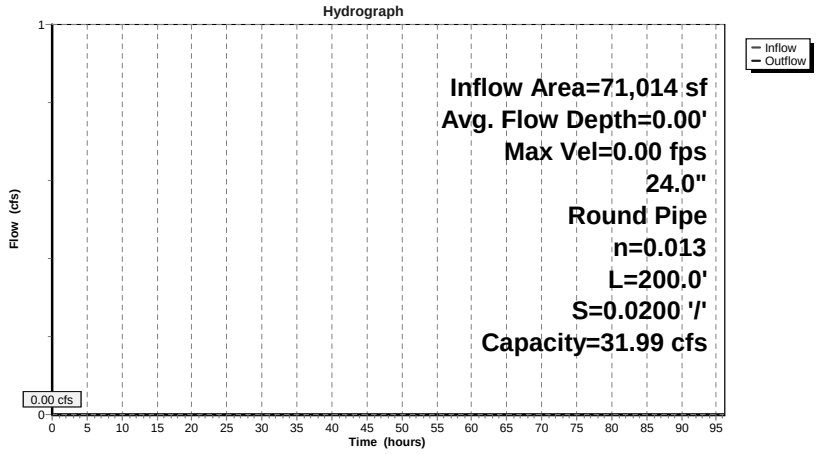
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 31.99 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 200.0' Slope= 0.0200 '/'
Inlet Invert= 600.00', Outlet Invert= 596.00'



Reach 8C: DA-8C Inflow



Hydrograph for Reach 8C: DA-8C Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	**0.00**	**600.00**	**0.00**	52.00	0.00	600.00	0.00
1.00	0.00	600.00	0.00	53.00	0.00	600.00	0.00
2.00	0.00	600.00	0.00	54.00	0.00	600.00	0.00
3.00	0.00	600.00	0.00	55.00	0.00	600.00	0.00
4.00	0.00	600.00	0.00	56.00	0.00	600.00	0.00
5.00	0.00	600.00	0.00	57.00	0.00	600.00	0.00
6.00	0.00	600.00	0.00	58.00	0.00	600.00	0.00
7.00	0.00	600.00	0.00	59.00	0.00	600.00	0.00
8.00	0.00	600.00	0.00	60.00	0.00	600.00	0.00
9.00	0.00	600.00	0.00	61.00	0.00	600.00	0.00
10.00	0.00	600.00	0.00	62.00	0.00	600.00	0.00
11.00	0.00	600.00	0.00	63.00	0.00	600.00	0.00
12.00	0.00	600.00	0.00	64.00	0.00	600.00	0.00
13.00	0.00	600.00	0.00	65.00	0.00	600.00	0.00
14.00	0.00	600.00	0.00	66.00	0.00	600.00	0.00
15.00	0.00	600.00	0.00	67.00	0.00	600.00	0.00
16.00	0.00	600.00	0.00	68.00	0.00	600.00	0.00
17.00	0.00	600.00	0.00	69.00	0.00	600.00	0.00
18.00	0.00	600.00	0.00	70.00	0.00	600.00	0.00
19.00	0.00	600.00	0.00	71.00	0.00	600.00	0.00
20.00	0.00	600.00	0.00	72.00	0.00	600.00	0.00
21.00	0.00	600.00	0.00	73.00	0.00	600.00	0.00
22.00	0.00	600.00	0.00	74.00	0.00	600.00	0.00
23.00	0.00	600.00	0.00	75.00	0.00	600.00	0.00
24.00	0.00	600.00	0.00	76.00	0.00	600.00	0.00
25.00	0.00	600.00	0.00	77.00	0.00	600.00	0.00
26.00	0.00	600.00	0.00	78.00	0.00	600.00	0.00
27.00	0.00	600.00	0.00	79.00	0.00	600.00	0.00
28.00	0.00	600.00	0.00	80.00	0.00	600.00	0.00
29.00	0.00	600.00	0.00	81.00	0.00	600.00	0.00
30.00	0.00	600.00	0.00	82.00	0.00	600.00	0.00
31.00	0.00	600.00	0.00	83.00	0.00	600.00	0.00
32.00	0.00	600.00	0.00	84.00	0.00	600.00	0.00
33.00	0.00	600.00	0.00	85.00	0.00	600.00	0.00
34.00	0.00	600.00	0.00	86.00	0.00	600.00	0.00
35.00	0.00	600.00	0.00	87.00	0.00	600.00	0.00
36.00	0.00	600.00	0.00	88.00	0.00	600.00	0.00
37.00	0.00	600.00	0.00	89.00	0.00	600.00	0.00
38.00	0.00	600.00	0.00	90.00	0.00	600.00	0.00
39.00	0.00	600.00	0.00	91.00	0.00	600.00	0.00
40.00	0.00	600.00	0.00	92.00	0.00	600.00	0.00
41.00	0.00	600.00	0.00	93.00	0.00	600.00	0.00
42.00	0.00	600.00	0.00	94.00	0.00	600.00	0.00
43.00	0.00	600.00	0.00	95.00	0.00	600.00	0.00
44.00	0.00	600.00	0.00	96.00	0.00	600.00	0.00
45.00	0.00	600.00	0.00				
46.00	0.00	600.00	0.00				
47.00	0.00	600.00	0.00				
48.00	0.00	600.00	0.00				
49.00	0.00	600.00	0.00				
50.00	0.00	600.00	0.00				
51.00	0.00	600.00	0.00				

Summary for Pond BIO-1A: 8C-1A Bioretention

Inflow Area = 27,975 sf, 75.07% Impervious, Inflow Depth = 2.76" for 2 Year, 24 Hr. Event event
Inflow = 1.93 cfs @ 12.07 hrs, Volume= 6,437 cf
Outflow = 0.03 cfs @ 12.21 hrs, Volume= 5,552 cf, Atten= 98%, Lag= 8.3 min
Discarded = 0.03 cfs @ 12.21 hrs, Volume= 5,552 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 603.31' @ 18.32 hrs Surf.Area= 5,594 sf Storage= 4,842 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,658.4 min (2,423.4 - 765.1)

Volume	Invert	Avail.Storage	Storage Description
#1	598.75'	8,702 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

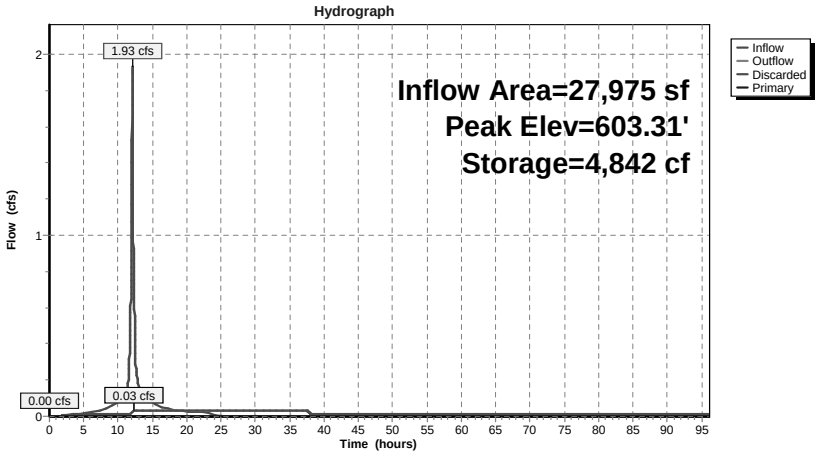
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
598.75	1,811	0.0	0	0
598.76	1,811	40.0	7	7
602.99	1,811	40.0	3,064	3,071
603.00	5,594	100.0	37	3,108
603.50	5,594	100.0	2,797	5,905
604.00	5,594	100.0	2,797	8,702

Device	Routing	Invert	Outlet Devices
#1	Discarded	598.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	603.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.21 hrs HW=603.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=598.75' TW=600.00' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond BIO-1A: 8C-1A Bioretention



Hydrograph for Pond BIO-1A: 8C-1A Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	598.75	0.00	0.00	**0.00**
2.00	0.00	0	598.75	0.00	0.00	0.00
4.00	0.01	2	598.75	0.01	0.01	0.00
6.00	0.02	45	598.81	0.01	0.01	0.00
8.00	0.04	176	598.99	0.01	0.01	0.00
10.00	0.08	508	599.45	0.01	0.01	0.00
12.00	**1.28**	1,988	601.49	**0.01**	**0.01**	0.00
14.00	**0.10**	4,423	603.23	**0.03**	**0.03**	0.00
16.00	0.06	4,757	603.29	0.03	0.03	0.00
18.00	0.03	**4,842**	**603.31**	0.03	0.03	0.00
20.00	0.03	**4,827**	**603.31**	0.03	0.03	0.00
22.00	0.02	4,773	603.30	0.03	0.03	0.00
24.00	0.02	4,686	603.28	0.03	0.03	0.00
26.00	0.00	4,457	603.24	0.03	0.03	0.00
28.00	0.00	4,224	603.20	0.03	0.03	0.00
30.00	0.00	3,991	603.16	0.03	0.03	0.00
32.00	0.00	3,758	603.12	0.03	0.03	0.00
34.00	0.00	3,525	603.07	0.03	0.03	0.00
36.00	0.00	3,292	603.03	0.03	0.03	0.00
38.00	0.00	3,074	602.99	0.01	0.01	0.00
40.00	0.00	2,998	602.89	0.01	0.01	0.00
42.00	0.00	2,923	602.78	0.01	0.01	0.00
44.00	0.00	2,847	602.68	0.01	0.01	0.00
46.00	0.00	2,772	602.58	0.01	0.01	0.00
48.00	0.00	2,696	602.47	0.01	0.01	0.00
50.00	0.00	2,621	602.37	0.01	0.01	0.00
52.00	0.00	2,545	602.26	0.01	0.01	0.00
54.00	0.00	2,470	602.16	0.01	0.01	0.00
56.00	0.00	2,394	602.06	0.01	0.01	0.00
58.00	0.00	2,319	601.95	0.01	0.01	0.00
60.00	0.00	2,243	601.85	0.01	0.01	0.00
62.00	0.00	2,168	601.74	0.01	0.01	0.00
64.00	0.00	2,093	601.64	0.01	0.01	0.00
66.00	0.00	2,017	601.53	0.01	0.01	0.00
68.00	0.00	1,942	601.43	0.01	0.01	0.00
70.00	0.00	1,866	601.33	0.01	0.01	0.00
72.00	0.00	1,791	601.22	0.01	0.01	0.00
74.00	0.00	1,715	601.12	0.01	0.01	0.00
76.00	0.00	1,640	601.01	0.01	0.01	0.00
78.00	0.00	1,564	600.91	0.01	0.01	0.00
80.00	0.00	1,489	600.81	0.01	0.01	0.00
82.00	0.00	1,413	600.70	0.01	0.01	0.00
84.00	0.00	1,338	600.60	0.01	0.01	0.00
86.00	0.00	1,263	600.49	0.01	0.01	0.00
88.00	0.00	1,187	600.39	0.01	0.01	0.00
90.00	0.00	1,112	600.28	0.01	0.01	0.00
92.00	0.00	1,036	600.18	0.01	0.01	0.00
94.00	0.00	961	600.08	0.01	0.01	0.00
96.00	0.00	885	599.97	0.01	0.01	0.00

Summary for Pond BIO-1B: 8C-1B Bioretention

Inflow Area = 36,344 sf, 74.37% Impervious, Inflow Depth = 2.75" for 2 Year, 24 Hr. Event event
Inflow = 2.50 cfs @ 12.07 hrs, Volume= 8,320 cf
Outflow = 0.02 cfs @ 24.03 hrs, Volume= 6,064 cf, Atten= 99%, Lag= 717.7 min
Discarded = 0.02 cfs @ 24.03 hrs, Volume= 6,064 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 606.56' @ 24.03 hrs Surf.Area= 3,713 sf Storage= 6,865 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2,113.9 min (2,879.4 - 765.4)

Volume	Invert	Avail.Storage	Storage Description
#1	601.75'	27,051 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

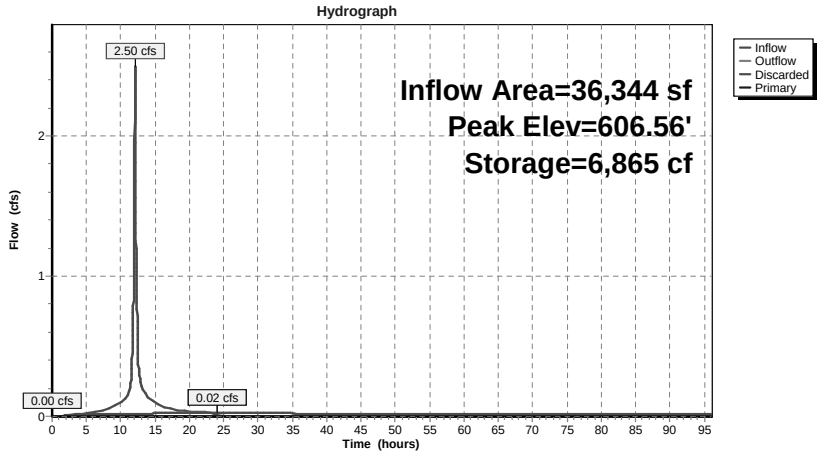
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
601.75	2,925	0.0	0	0
601.76	2,925	40.0	12	12
605.99	2,925	40.0	4,949	4,961
609.00	7,061	100.0	15,029	19,990
609.50	7,061	100.0	3,531	23,520
610.00	7,061	100.0	3,531	27,051

Device	Routing	Invert	Outlet Devices
#1	Discarded	601.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	609.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 24.03 hrs HW=606.56' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=601.75' TW=600.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond BIO-1B: 8C-1B Bioretention



Hydrograph for Pond BIO-1B: 8C-1B Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	601.75	0.00	0.00	**0.00**
2.00	0.00	0	601.75	0.00	0.00	0.00
4.00	0.02	0	601.75	0.02	0.02	0.00
6.00	0.03	31	601.78	0.02	0.02	0.00
8.00	0.05	175	601.90	0.02	0.02	0.00
10.00	0.10	577	602.24	0.02	0.02	0.00
12.00	**1.66**	2,462	603.85	0.02	0.02	0.00
14.00	**0.13**	5,766	606.25	0.02	0.02	0.00
16.00	0.07	6,358	606.42	0.02	0.02	0.00
18.00	0.04	6,621	606.50	0.02	0.02	0.00
20.00	0.04	6,752	606.53	0.02	0.02	0.00
22.00	0.03	6,831	606.55	0.02	0.02	0.00
24.00	0.02	**6,865**	**606.56**	**0.02**	**0.02**	0.00
26.00	0.00	**6,718**	**606.52**	**0.02**	**0.02**	0.00
28.00	0.00	6,567	606.48	0.02	0.02	0.00
30.00	0.00	6,418	606.44	0.02	0.02	0.00
32.00	0.00	6,271	606.40	0.02	0.02	0.00
34.00	0.00	6,127	606.36	0.02	0.02	0.00
36.00	0.00	5,986	606.32	0.02	0.02	0.00
38.00	0.00	5,846	606.27	0.02	0.02	0.00
40.00	0.00	5,709	606.23	0.02	0.02	0.00
42.00	0.00	5,575	606.19	0.02	0.02	0.00
44.00	0.00	5,443	606.15	0.02	0.02	0.00
46.00	0.00	5,313	606.11	0.02	0.02	0.00
48.00	0.00	5,185	606.07	0.02	0.02	0.00
50.00	0.00	5,060	606.02	0.02	0.02	0.00
52.00	0.00	4,938	605.97	0.02	0.02	0.00
54.00	0.00	4,816	605.87	0.02	0.02	0.00
56.00	0.00	4,694	605.76	0.02	0.02	0.00
58.00	0.00	4,572	605.66	0.02	0.02	0.00
60.00	0.00	4,450	605.55	0.02	0.02	0.00
62.00	0.00	4,328	605.45	0.02	0.02	0.00
64.00	0.00	4,206	605.35	0.02	0.02	0.00
66.00	0.00	4,085	605.24	0.02	0.02	0.00
68.00	0.00	3,963	605.14	0.02	0.02	0.00
70.00	0.00	3,841	605.03	0.02	0.02	0.00
72.00	0.00	3,719	604.93	0.02	0.02	0.00
74.00	0.00	3,597	604.82	0.02	0.02	0.00
76.00	0.00	3,475	604.72	0.02	0.02	0.00
78.00	0.00	3,353	604.62	0.02	0.02	0.00
80.00	0.00	3,231	604.51	0.02	0.02	0.00
82.00	0.00	3,110	604.41	0.02	0.02	0.00
84.00	0.00	2,988	604.30	0.02	0.02	0.00
86.00	0.00	2,866	604.20	0.02	0.02	0.00
88.00	0.00	2,744	604.10	0.02	0.02	0.00
90.00	0.00	2,622	603.99	0.02	0.02	0.00
92.00	0.00	2,500	603.89	0.02	0.02	0.00
94.00	0.00	2,378	603.78	0.02	0.02	0.00
96.00	0.00	2,256	603.68	0.02	0.02	0.00

Summary for Reach DP-8: Det Basin Outflow

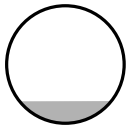
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1,087,954 sf, 38.29% Impervious, Inflow Depth > 0.88" for 2 Year, 24 Hr. Event event
Inflow = 6.81 cfs @ 12.13 hrs, Volume= 80,028 cf
Outflow = 6.80 cfs @ 12.13 hrs, Volume= 80,026 cf, Atten= 0%, Lag= 0.3 min

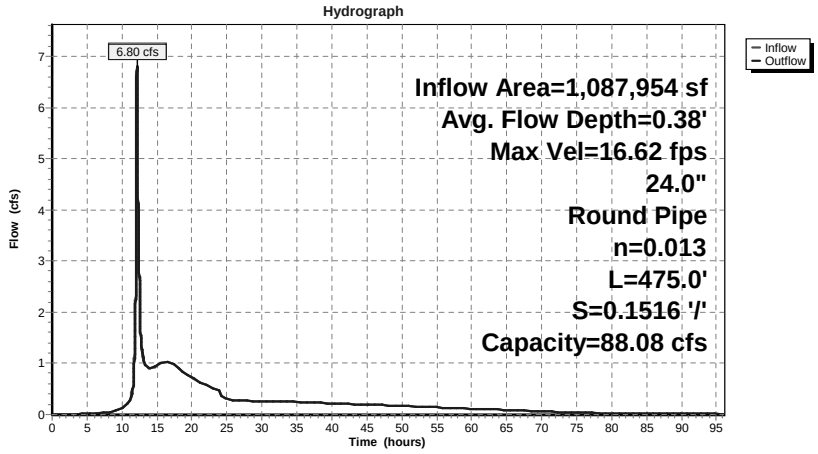
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 16.62 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 5.13 fps, Avg. Travel Time= 1.5 min

Peak Storage= 194 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 88.08 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 475.0' Slope= 0.1516 '/'
Inlet Invert= 590.00', Outlet Invert= 518.00'



Reach DP-8: Det Basin Outflow



Hydrograph for Reach DP-8: Det Basin Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	590.00	0.00
2.00	0.00	1	590.00	0.00
4.00	0.01	2	590.02	0.01
6.00	0.02	3	590.02	0.02
8.00	0.05	6	590.03	0.04
10.00	0.12	11	590.05	0.12
12.00	**3.20**	**110**	**590.25**	**3.04**
14.00	**0.89**	**47**	**590.14**	**0.89**
16.00	1.04	52	590.15	1.04
18.00	0.91	48	590.14	0.91
20.00	0.72	40	590.13	0.72
22.00	0.57	34	590.12	0.58
24.00	0.47	30	590.10	0.47
26.00	0.28	21	590.08	0.28
28.00	0.27	20	590.08	0.27
30.00	0.26	20	590.08	0.26
32.00	0.26	20	590.08	0.26
34.00	0.25	19	590.08	0.25
36.00	0.24	19	590.08	0.24
38.00	0.23	18	590.07	0.23
40.00	0.22	18	590.07	0.22
42.00	0.21	17	590.07	0.21
44.00	0.20	16	590.07	0.20
46.00	0.19	16	590.07	0.19
48.00	0.18	15	590.07	0.18
50.00	0.17	15	590.06	0.17
52.00	0.16	14	590.06	0.16
54.00	0.15	13	590.06	0.15
56.00	0.14	13	590.06	0.14
58.00	0.13	12	590.06	0.13
60.00	0.12	11	590.05	0.12
62.00	0.11	11	590.05	0.11
64.00	0.10	10	590.05	0.10
66.00	0.09	9	590.05	0.09
68.00	0.08	8	590.04	0.08
70.00	0.06	8	590.04	0.06
72.00	0.05	7	590.04	0.05
74.00	0.05	6	590.03	0.05
76.00	0.04	5	590.03	0.04
78.00	0.03	4	590.03	0.03
80.00	0.03	4	590.03	0.03
82.00	0.02	4	590.02	0.02
84.00	0.02	3	590.02	0.02
86.00	0.02	3	590.02	0.02
88.00	0.02	3	590.02	0.02
90.00	0.01	3	590.02	0.01
92.00	0.01	2	590.02	0.01
94.00	0.01	2	590.02	0.01
96.00	0.01	2	590.02	0.01

Summary for Pond P-1C: 8C-1C Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 6,695 sf,100.00% Impervious, Inflow Depth = 3.27" for 2 Year, 24 Hr. Event event
Inflow = 0.54 cfs @ 12.07 hrs, Volume= 1,822 cf
Outflow = 0.04 cfs @ 11.48 hrs, Volume= 1,823 cf, Atten= 93%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.48 hrs, Volume= 1,823 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.51' @ 13.13 hrs Surf.Area= 6,695 sf Storage= 683 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 129.4 min (883.0 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1	608.00'	8,757 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

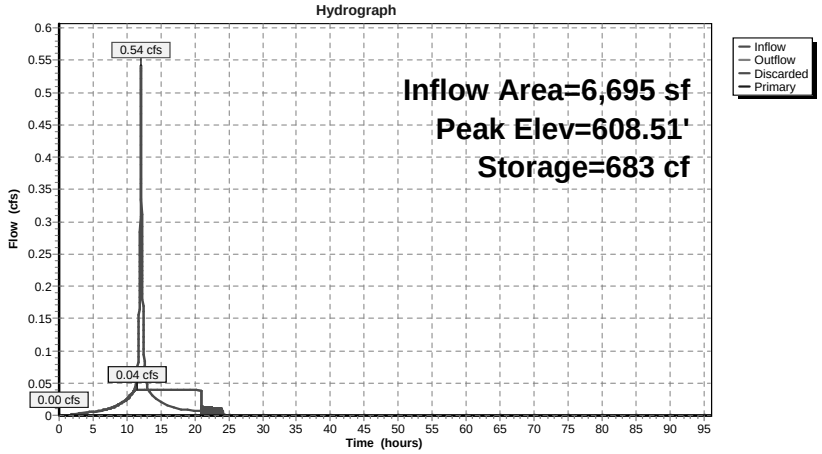
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.00	6,695	0.0	0	0
608.01	6,695	20.0	13	13
611.99	6,695	20.0	5,329	5,343
612.00	6,695	100.0	67	5,410
612.50	6,695	100.0	3,348	8,757

Device	Routing	Invert	Outlet Devices
#1	Primary	612.00'	**12.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	608.00'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.04 cfs @ 11.48 hrs HW=608.01' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=608.00' TW=600.00' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-1C: 8C-1C Pavers



Hydrograph for Pond P-1C: 8C-1C Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	608.00	0.00	0.00	**0.00**
2.00	0.00	0	608.00	0.00	0.00	0.00
4.00	0.00	0	608.00	0.00	0.00	0.00
6.00	0.01	0	608.00	0.01	0.01	0.00
8.00	0.01	0	608.00	0.01	0.01	0.00
10.00	0.02	0	608.00	**0.02**	**0.02**	0.00
12.00	**0.37**	**219**	**608.16**	**0.04**	**0.04**	0.00
14.00	**0.03**	**666**	**608.50**	0.04	0.04	0.00
16.00	0.01	536	608.40	0.04	0.04	0.00
18.00	0.01	340	608.25	0.04	0.04	0.00
20.00	0.01	118	608.09	0.04	0.04	0.00
22.00	0.01	0	608.00	0.00	0.00	0.00
24.00	0.00	0	608.00	0.00	0.00	0.00
26.00	0.00	0	608.00	0.00	0.00	0.00
28.00	0.00	0	608.00	0.00	0.00	0.00
30.00	0.00	0	608.00	0.00	0.00	0.00
32.00	0.00	0	608.00	0.00	0.00	0.00
34.00	0.00	0	608.00	0.00	0.00	0.00
36.00	0.00	0	608.00	0.00	0.00	0.00
38.00	0.00	0	608.00	0.00	0.00	0.00
40.00	0.00	0	608.00	0.00	0.00	0.00
42.00	0.00	0	608.00	0.00	0.00	0.00
44.00	0.00	0	608.00	0.00	0.00	0.00
46.00	0.00	0	608.00	0.00	0.00	0.00
48.00	0.00	0	608.00	0.00	0.00	0.00
50.00	0.00	0	608.00	0.00	0.00	0.00
52.00	0.00	0	608.00	0.00	0.00	0.00
54.00	0.00	0	608.00	0.00	0.00	0.00
56.00	0.00	0	608.00	0.00	0.00	0.00
58.00	0.00	0	608.00	0.00	0.00	0.00
60.00	0.00	0	608.00	0.00	0.00	0.00
62.00	0.00	0	608.00	0.00	0.00	0.00
64.00	0.00	0	608.00	0.00	0.00	0.00
66.00	0.00	0	608.00	0.00	0.00	0.00
68.00	0.00	0	608.00	0.00	0.00	0.00
70.00	0.00	0	608.00	0.00	0.00	0.00
72.00	0.00	0	608.00	0.00	0.00	0.00
74.00	0.00	0	608.00	0.00	0.00	0.00
76.00	0.00	0	608.00	0.00	0.00	0.00
78.00	0.00	0	608.00	0.00	0.00	0.00
80.00	0.00	0	608.00	0.00	0.00	0.00
82.00	0.00	0	608.00	0.00	0.00	0.00
84.00	0.00	0	608.00	0.00	0.00	0.00
86.00	0.00	0	608.00	0.00	0.00	0.00
88.00	0.00	0	608.00	0.00	0.00	0.00
90.00	0.00	0	608.00	0.00	0.00	0.00
92.00	0.00	0	608.00	0.00	0.00	0.00
94.00	0.00	0	608.00	0.00	0.00	0.00
96.00	0.00	0	608.00	0.00	0.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: DA8C-1A Runoff Area=27,975 sf 75.07% Impervious Runoff Depth=4.64"
Tc=5.0 min CN=74/98 Runoff=3.23 cfs 10,819 cf

Subcatchment 1B: DA8C-1B Runoff Area=36,344 sf 74.37% Impervious Runoff Depth=4.62"
Tc=5.0 min CN=74/98 Runoff=4.18 cfs 14,003 cf

Subcatchment 1C: DA8C-1C Runoff Area=6,695 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=0.86 cfs 2,936 cf

Pond 8-B: Micropool Ext Det Basin Peak Elev=593.31' Storage=110,392 cf Inflow=24.75 cfs 161,646 cf
Outflow=7.29 cfs 160,214 cf

Pond 8-F: Forebay Peak Elev=593.31' Storage=25,847 cf Inflow=25.37 cfs 161,646 cf
Outflow=24.75 cfs 161,646 cf

Subcatchment 8A1: DA-8A1 Runoff Area=200,906 sf 8.68% Impervious Runoff Depth=2.99"
Flow Length=184' Tc=8.6 min CN=74/98 Runoff=14.45 cfs 49,986 cf

Subcatchment 8A2: DA-8A2 Runoff Area=104,437 sf 1.30% Impervious Runoff Depth=3.45"
Flow Length=100' Slope=0.0870 '/' Tc=7.6 min CN=81/98 Runoff=9.13 cfs 30,068 cf

Link 10-Year, 24 Hr. Event Outflow Imported from Post_DP-08B_East~Reach DP-8B.hce Inflow=19.29 cfs 128,486 cf
Area= 711,597 sf 48.21% Imperv. Primary=19.29 cfs 128,486 cf

Reach 8C: DA-8C Inflow Avg. Flow Depth=0.18' Max Vel=3.87 fps Inflow=0.56 cfs 3,091 cf
24.0" Round Pipe n=0.013 L=200.0' S=0.0200 '/' Capacity=31.99 cfs Outflow=0.56 cfs 3,091 cf

Pond BIO-1A: 8C-1A Bioretention Peak Elev=603.58' Storage=6,335 cf Inflow=3.23 cfs 10,819 cf
Discarded=0.03 cfs 6,446 cf Primary=0.56 cfs 3,091 cf Outflow=0.59 cfs 9,537 cf

Pond BIO-1B: 8C-1B Bioretention Peak Elev=607.72' Storage=12,091 cf Inflow=4.18 cfs 14,003 cf
Discarded=0.03 cfs 8,319 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 8,319 cf

Reach DP-8: Det Basin Outflow Avg. Flow Depth=0.55' Max Vel=20.79 fps Inflow=14.72 cfs 210,200 cf
24.0" Round Pipe n=0.013 L=475.0' S=0.1516 '/' Capacity=88.08 cfs Outflow=14.70 cfs 210,198 cf

Pond P-1C: 8C-1C Pavers Peak Elev=609.00' Storage=1,339 cf Inflow=0.86 cfs 2,936 cf
Discarded=0.04 cfs 2,936 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 2,936 cf

Total Runoff Area = 376,357 sf Runoff Volume = 107,812 cf Average Runoff Depth = 3.44"
80.46% Pervious = 302,834 sf 19.54% Impervious = 73,523 sf

Summary for Subcatchment 1A: DA8C-1A

Runoff = 3.23 cfs @ 12.07 hrs, Volume= 10,819 cf, Depth= 4.64"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

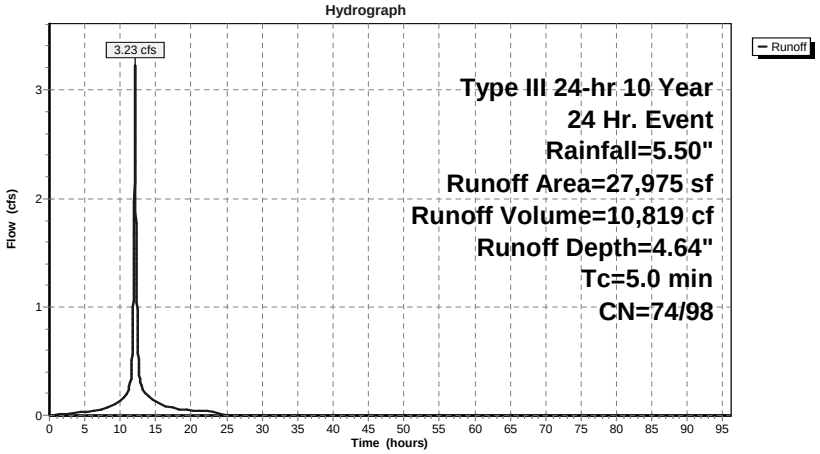
	Area (sf)	CN	Description	Land Use
	21,000	98	Paved parking, HSG C	Pavement
	1,381	74	>75% Grass cover, Good, HSG C	Open Space
*	5,594	74	Bioretention	Brush
	27,975	92	Weighted Average	
	6,975	74	24.93% Pervious Area	
	21,000	98	75.07% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 75.07% Impervious, Rv= 0.726, Runoff= 33.16"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,594	Brush	35.71	0.00	0.00	1.19
1,381	Open Space	143.42	0.50	2.17	0.29
21,000	Pavement	626.73	2.03	7.61	24.27
27,975	Total	805.85	2.53	9.78	25.75

Subcatchment 1A: DA8C-1A



Hydrograph for Subcatchment 1A: DA8C-1A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.03
6.00	0.40	0.00	0.23	0.04
8.00	0.63	0.00	0.43	0.06
10.00	1.04	0.03	0.83	0.13
12.00	2.75	0.75	2.52	**2.15**
14.00	4.46	1.94	4.22	**0.17**
16.00	4.87	2.26	4.64	0.09
18.00	5.10	2.45	4.87	0.06
20.00	5.26	2.58	5.03	0.04
22.00	5.39	2.68	5.16	0.04
24.00	**5.50**	**2.77**	**5.26**	0.03
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00
74.00	5.50	2.77	5.26	0.00
76.00	5.50	2.77	5.26	0.00
78.00	5.50	2.77	5.26	0.00
80.00	5.50	2.77	5.26	0.00
82.00	5.50	2.77	5.26	0.00
84.00	5.50	2.77	5.26	0.00
86.00	5.50	2.77	5.26	0.00
88.00	5.50	2.77	5.26	0.00
90.00	5.50	2.77	5.26	0.00
92.00	5.50	2.77	5.26	0.00
94.00	5.50	2.77	5.26	0.00
96.00	5.50	2.77	5.26	0.00

Summary for Subcatchment 1B: DA8C-1B

Runoff = 4.18 cfs @ 12.07 hrs, Volume= 14,003 cf, Depth= 4.62"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

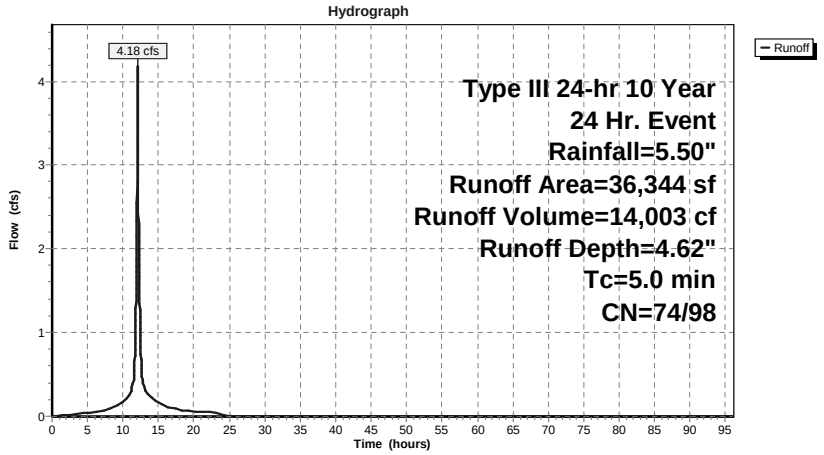
	Area (sf)	CN	Description	Land Use
	27,028	98	Paved parking, HSG C	Pavement
	2,256	74	>75% Grass cover, Good, HSG C	Open Space
*	7,060	74	Bioretention	Brush
	36,344	92	Weighted Average	
	9,316	74	25.63% Pervious Area	
	27,028	98	74.37% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.37% Impervious, Rv= 0.719, Runoff= 32.87"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,060	Brush	44.67	0.00	0.00	1.49
2,256	Open Space	232.25	0.81	3.51	0.47
27,028	Pavement	799.63	2.59	9.71	30.97
36,344	Total	1,076.55	3.40	13.22	32.93

Subcatchment 1B: DA8C-1B



Hydrograph for Subcatchment 1B: DA8C-1B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.03
6.00	0.40	0.00	0.23	0.05
8.00	0.63	0.00	0.43	0.08
10.00	1.04	0.03	0.83	0.17
12.00	2.75	0.75	2.52	**2.78**
14.00	4.46	1.94	4.22	**0.22**
16.00	4.87	2.26	4.64	0.12
18.00	5.10	2.45	4.87	0.07
20.00	5.26	2.58	5.03	0.06
22.00	5.39	2.68	5.16	0.05
24.00	**5.50**	**2.77**	**5.26**	0.04
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00
74.00	5.50	2.77	5.26	0.00
76.00	5.50	2.77	5.26	0.00
78.00	5.50	2.77	5.26	0.00
80.00	5.50	2.77	5.26	0.00
82.00	5.50	2.77	5.26	0.00
84.00	5.50	2.77	5.26	0.00
86.00	5.50	2.77	5.26	0.00
88.00	5.50	2.77	5.26	0.00
90.00	5.50	2.77	5.26	0.00
92.00	5.50	2.77	5.26	0.00
94.00	5.50	2.77	5.26	0.00
96.00	5.50	2.77	5.26	0.00

Summary for Subcatchment 1C: DA8C-1C

Runoff = 0.86 cfs @ 12.07 hrs, Volume= 2,936 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

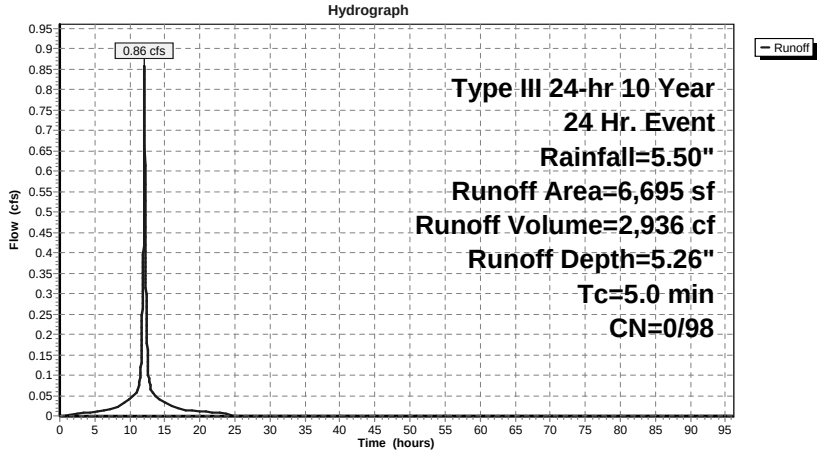
	Area (sf)	CN	Description	Land Use
*	6,695	98	Pavers	Pavement
	6,695	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
6,695	Pavement	261.60	0.85	3.18	10.13
6,695	Total	261.60	0.85	3.18	10.13

Subcatchment 1C: DA8C-1C



Hydrograph for Subcatchment 1C: DA8C-1C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.02
10.00	1.04	0.00	0.83	0.04
12.00	2.75	0.00	2.52	**0.58**
14.00	4.46	0.00	4.22	**0.04**
16.00	4.87	0.00	4.64	0.02
18.00	5.10	0.00	4.87	0.01
20.00	5.26	0.00	5.03	0.01
22.00	5.39	0.00	5.16	0.01
24.00	**5.50**	0.00	**5.26**	0.01
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00
74.00	5.50	0.00	5.26	0.00
76.00	5.50	0.00	5.26	0.00
78.00	5.50	0.00	5.26	0.00
80.00	5.50	0.00	5.26	0.00
82.00	5.50	0.00	5.26	0.00
84.00	5.50	0.00	5.26	0.00
86.00	5.50	0.00	5.26	0.00
88.00	5.50	0.00	5.26	0.00
90.00	5.50	0.00	5.26	0.00
92.00	5.50	0.00	5.26	0.00
94.00	5.50	0.00	5.26	0.00
96.00	5.50	0.00	5.26	0.00

Summary for Pond 8-B: Micropool Ext Det Basin

Inflow Area = 887,048 sf, 45.00% Impervious, Inflow Depth = 2.19" for 10 Year, 24 Hr. Event event
Inflow = 24.75 cfs @ 12.15 hrs, Volume= 161,646 cf
Outflow = 7.29 cfs @ 13.07 hrs, Volume= 160,214 cf, Atten= 71%, Lag= 55.5 min
Primary = 7.29 cfs @ 13.07 hrs, Volume= 160,214 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 590.75' Surf.Area= 17,970 sf Storage= 45,195 cf
Peak Elev= 593.31' @ 13.07 hrs Surf.Area= 33,206 sf Storage= 110,392 cf (65,197 cf above start)

Plug-Flow detention time= 814.1 min calculated for 115,007 cf (71% of inflow)
Center-of-Mass det. time= 501.4 min (1,338.1 - 836.7)

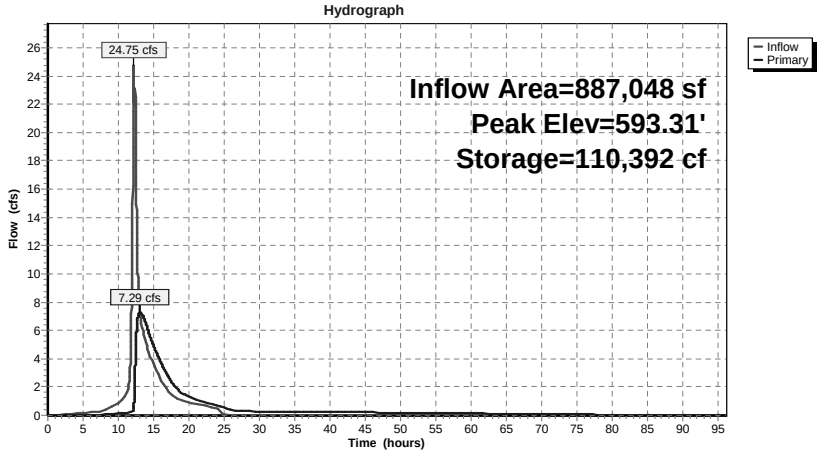
Volume	Invert	Avail.Storage	Storage Description
#1	586.75'	301,176 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
586.75	0	0	0
588.00	10,403	6,502	6,502
590.00	13,760	24,163	30,665
592.00	24,987	38,747	69,412
594.00	37,525	62,512	131,924
596.00	42,446	79,971	211,895
598.00	46,835	89,281	301,176

Device	Routing	Invert	Outlet Devices
#1	Primary	586.00'	**24.0" Round Culvert** L= 290.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 586.00' / 550.00' S= 0.1241 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	590.75'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	592.25'	**24.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	595.00'	**48.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=7.29 cfs @ 13.07 hrs HW=593.31' TW=590.43' (Dynamic Tailwater)
└─**1=Culvert** (Passes 7.29 cfs of 18.93 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.37 cfs @ 7.52 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 6.92 cfs @ 3.46 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 8-B: Micropool Ext Det Basin



Hydrograph for Pond 8-B: Micropool Ext Det Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	45,195	590.75	0.00
2.00	0.03	45,226	590.75	0.00
4.00	0.12	45,776	590.78	0.00
6.00	0.18	46,824	590.83	0.01
8.00	0.35	48,411	590.92	0.05
10.00	0.85	51,894	591.10	0.11
12.00	**11.36**	**67,266**	**591.89**	**0.24**
14.00	**4.95**	**107,036**	**593.20**	**6.34**
16.00	2.56	97,736	592.91	3.75
18.00	1.27	90,393	592.67	2.07
20.00	0.89	86,190	592.54	1.29
22.00	0.68	83,933	592.46	0.94
24.00	0.50	82,307	592.41	0.71
26.00	0.01	79,288	592.32	0.39
28.00	0.00	77,043	592.24	0.28
30.00	0.00	75,082	592.18	0.27
32.00	0.00	73,162	592.12	0.26
34.00	0.00	71,288	592.06	0.26
36.00	0.00	69,460	592.00	0.25
38.00	0.00	67,691	591.91	0.24
40.00	0.00	65,997	591.82	0.23
42.00	0.00	64,377	591.74	0.22
44.00	0.00	62,832	591.66	0.21
46.00	0.00	61,362	591.58	0.20
48.00	0.00	59,967	591.51	0.19
50.00	0.00	58,647	591.44	0.18
52.00	0.00	57,401	591.38	0.17
54.00	0.00	56,230	591.32	0.16
56.00	0.00	55,135	591.26	0.15
58.00	0.00	54,114	591.21	0.14
60.00	0.00	53,169	591.16	0.13
62.00	0.00	52,297	591.12	0.12
64.00	0.00	51,498	591.08	0.11
66.00	0.00	50,774	591.04	0.09
68.00	0.00	50,125	591.00	0.09
70.00	0.00	49,547	590.97	0.08
72.00	0.00	49,049	590.95	0.06
74.00	0.00	48,629	590.93	0.05
76.00	0.00	48,277	590.91	0.05
78.00	0.00	47,981	590.89	0.04
80.00	0.00	47,730	590.88	0.03
82.00	0.00	47,517	590.87	0.03
84.00	0.00	47,334	590.86	0.02
86.00	0.00	47,175	590.85	0.02
88.00	0.00	47,036	590.85	0.02
90.00	0.00	46,915	590.84	0.02
92.00	0.00	46,807	590.83	0.01
94.00	0.00	46,712	590.83	0.01
96.00	0.00	46,627	590.82	0.01

Summary for Pond 8-F: Forebay

Inflow Area = 887,048 sf, 45.00% Impervious, Inflow Depth = 2.19" for 10 Year, 24 Hr. Event event
Inflow = 25.37 cfs @ 12.12 hrs, Volume= 161,646 cf
Outflow = 24.75 cfs @ 12.15 hrs, Volume= 161,646 cf, Atten= 2%, Lag= 1.5 min
Primary = 24.75 cfs @ 12.15 hrs, Volume= 161,646 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 592.75' Surf.Area= 9,839 sf Storage= 19,484 cf
Peak Elev= 593.31' @ 13.07 hrs Surf.Area= 12,720 sf Storage= 25,847 cf (6,363 cf above start)

Plug-Flow detention time= 98.9 min calculated for 142,162 cf (88% of inflow)
Center-of-Mass det. time= 10.5 min (836.7 - 826.2)

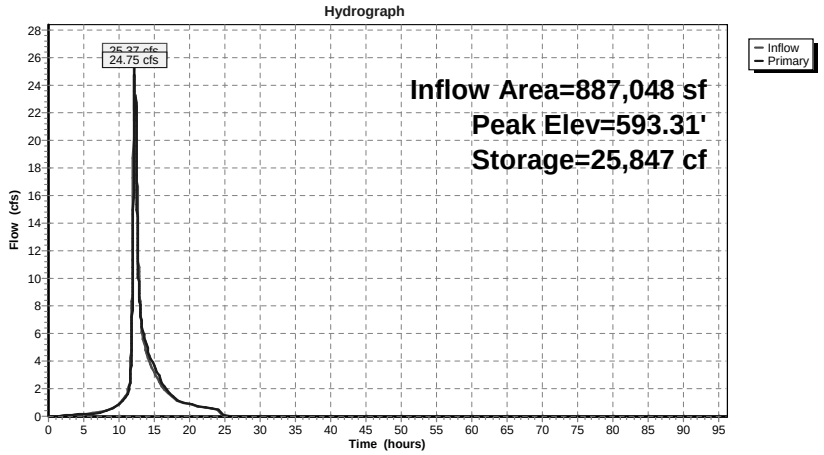
Volume	Invert	Avail.Storage	Storage Description
#1	587.25'	117,643 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
587.25	0	0	0
588.00	1,342	503	503
590.00	2,844	4,186	4,689
592.00	6,008	8,852	13,541
594.00	16,223	22,231	35,772
596.00	20,068	36,291	72,063
598.00	25,512	45,580	117,643

Device	Routing	Invert	Outlet Devices
#1	Primary	592.75'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.25 4.00 Width (feet) 12.00 172.00 204.00

Primary OutFlow Max=24.74 cfs @ 12.15 hrs HW=593.13' TW=592.25' (Dynamic Tailwater)
↳**1=Custom Weir/Orifice** (Weir Controls 24.74 cfs @ 1.76 fps)

Pond 8-F: Forebay



Hydrograph for Pond 8-F: Forebay

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	19,484	592.75	0.00
2.00	0.06	19,562	592.76	0.03
4.00	0.13	19,680	592.77	0.12
6.00	0.19	19,742	592.78	0.18
8.00	0.37	19,866	592.79	0.35
10.00	0.89	20,141	592.82	0.85
12.00	**13.59**	**22,262**	**593.01**	**11.36**
14.00	**4.41**	**24,510**	**593.21**	**4.95**
16.00	2.23	21,280	592.92	2.56
18.00	1.23	20,318	592.83	1.27
20.00	0.87	20,160	592.82	0.89
22.00	0.67	20,063	592.81	0.68
24.00	0.49	19,965	592.80	0.50
26.00	0.00	19,527	592.75	0.01
28.00	0.00	19,496	592.75	0.00
30.00	0.00	19,489	592.75	0.00
32.00	0.00	19,487	592.75	0.00
34.00	0.00	19,486	592.75	0.00
36.00	0.00	19,485	592.75	0.00
38.00	0.00	19,484	592.75	0.00
40.00	0.00	19,484	592.75	0.00
42.00	0.00	19,484	592.75	0.00
44.00	0.00	19,484	592.75	0.00
46.00	0.00	19,484	592.75	0.00
48.00	0.00	19,484	592.75	0.00
50.00	0.00	19,484	592.75	0.00
52.00	0.00	19,484	592.75	0.00
54.00	0.00	19,484	592.75	0.00
56.00	0.00	19,484	592.75	0.00
58.00	0.00	19,484	592.75	0.00
60.00	0.00	19,484	592.75	0.00
62.00	0.00	19,484	592.75	0.00
64.00	0.00	19,484	592.75	0.00
66.00	0.00	19,484	592.75	0.00
68.00	0.00	19,484	592.75	0.00
70.00	0.00	19,484	592.75	0.00
72.00	0.00	19,484	592.75	0.00
74.00	0.00	19,484	592.75	0.00
76.00	0.00	19,484	592.75	0.00
78.00	0.00	19,484	592.75	0.00
80.00	0.00	19,484	592.75	0.00
82.00	0.00	19,484	592.75	0.00
84.00	0.00	19,484	592.75	0.00
86.00	0.00	19,484	592.75	0.00
88.00	0.00	19,484	592.75	0.00
90.00	0.00	19,484	592.75	0.00
92.00	0.00	19,484	592.75	0.00
94.00	0.00	19,484	592.75	0.00
96.00	0.00	19,484	592.75	0.00

Summary for Subcatchment 8A1: DA-8A1

Runoff = 14.45 cfs @ 12.12 hrs, Volume= 49,986 cf, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

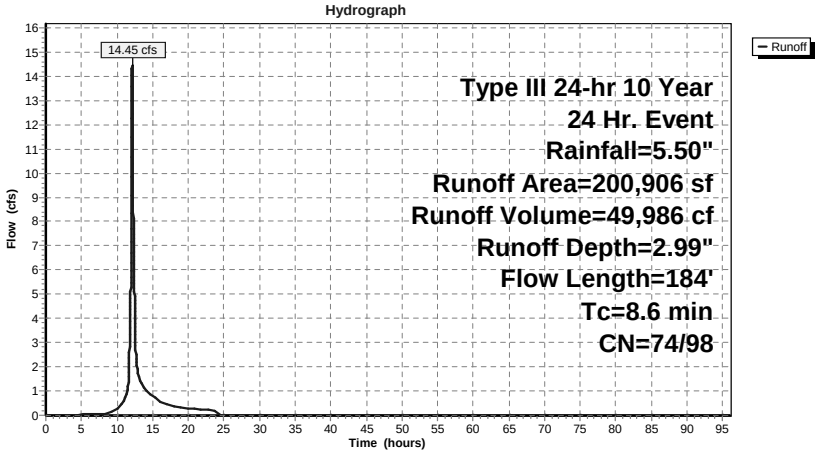
Area (sf)	CN	Description	Land Use
183,464	74	>75% Grass cover, Good, HSG C	Open Space
17,442	98	Unconnected pavement, HSG C	Pavement
200,906	76	Weighted Average	
183,464	74	91.32% Pervious Area	
17,442	98	8.68% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0760	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.0	5	0.0760	1.93		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	79	0.0940	2.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 8.68% Impervious, Rv= 0.128, Runoff= 5.86"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
183,464	Open Space	3,364.57	11.74	50.86	6.87
17,442	Pavement	91.92	0.30	1.12	3.56
200,906	Total	3,456.49	12.03	51.98	10.43

Subcatchment 8A1: DA-8A1



Hydrograph for Subcatchment 8A1: DA-8A1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.02
6.00	0.40	0.00	0.23	0.03
8.00	0.63	0.00	0.43	0.05
10.00	1.04	0.03	0.83	0.27
12.00	2.75	0.75	2.52	**7.16**
14.00	4.46	1.94	4.22	**1.05**
16.00	4.87	2.26	4.64	0.57
18.00	5.10	2.45	4.87	0.35
20.00	5.26	2.58	5.03	0.28
22.00	5.39	2.68	5.16	0.23
24.00	**5.50**	**2.77**	**5.26**	0.19
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00
74.00	5.50	2.77	5.26	0.00
76.00	5.50	2.77	5.26	0.00
78.00	5.50	2.77	5.26	0.00
80.00	5.50	2.77	5.26	0.00
82.00	5.50	2.77	5.26	0.00
84.00	5.50	2.77	5.26	0.00
86.00	5.50	2.77	5.26	0.00
88.00	5.50	2.77	5.26	0.00
90.00	5.50	2.77	5.26	0.00
92.00	5.50	2.77	5.26	0.00
94.00	5.50	2.77	5.26	0.00
96.00	5.50	2.77	5.26	0.00

Summary for Subcatchment 8A2: DA-8A2

Runoff = 9.13 cfs @ 12.11 hrs, Volume= 30,068 cf, Depth= 3.45"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

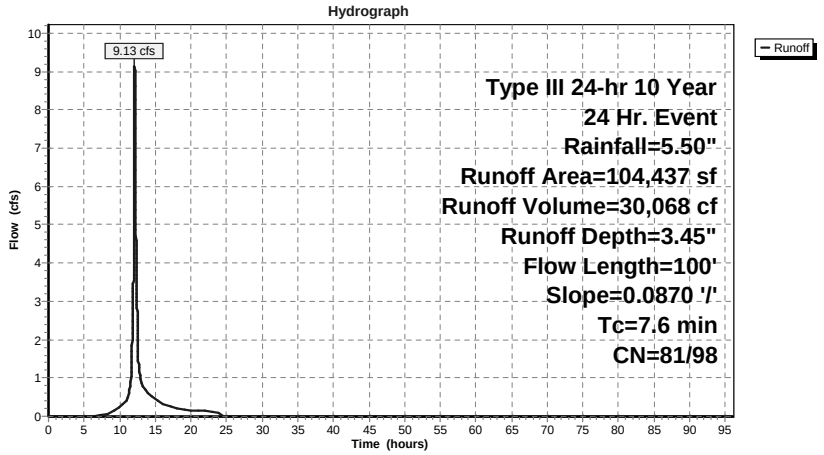
Area (sf)	CN	Description	Land Use
1,358	98	Paved parking, HSG C	Pavement
71,762	74	>75% Grass cover, Good, HSG C	Open Space
31,317	98	Water Surface, 0% imp, HSG C	Open Water
104,437	82	Weighted Average	
103,079	81	98.70% Pervious Area	
1,358	98	1.30% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.0870	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 1.30% Impervious, Rv= 0.062, Runoff= 2.82"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
71,762	Open Space	633.74	2.21	9.58	1.29
31,317	Open Water	0.00	0.00	0.00	0.00
1,358	Pavement	3.45	0.01	0.04	0.13
104,437	Total	637.18	2.22	9.62	1.43

Subcatchment 8A2: DA-8A2



Hydrograph for Subcatchment 8A2: DA-8A2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.01	0.43	0.04
10.00	1.04	0.11	0.83	0.22
12.00	2.75	1.12	2.52	**4.90**
14.00	4.46	2.51	4.22	**0.59**
16.00	4.87	2.87	4.64	0.32
18.00	5.10	3.08	4.87	0.20
20.00	5.26	3.22	5.03	0.16
22.00	5.39	3.34	5.16	0.13
24.00	**5.50**	**3.43**	**5.26**	0.10
26.00	5.50	3.43	5.26	0.00
28.00	5.50	3.43	5.26	0.00
30.00	5.50	3.43	5.26	0.00
32.00	5.50	3.43	5.26	0.00
34.00	5.50	3.43	5.26	0.00
36.00	5.50	3.43	5.26	0.00
38.00	5.50	3.43	5.26	0.00
40.00	5.50	3.43	5.26	0.00
42.00	5.50	3.43	5.26	0.00
44.00	5.50	3.43	5.26	0.00
46.00	5.50	3.43	5.26	0.00
48.00	5.50	3.43	5.26	0.00
50.00	5.50	3.43	5.26	0.00
52.00	5.50	3.43	5.26	0.00
54.00	5.50	3.43	5.26	0.00
56.00	5.50	3.43	5.26	0.00
58.00	5.50	3.43	5.26	0.00
60.00	5.50	3.43	5.26	0.00
62.00	5.50	3.43	5.26	0.00
64.00	5.50	3.43	5.26	0.00
66.00	5.50	3.43	5.26	0.00
68.00	5.50	3.43	5.26	0.00
70.00	5.50	3.43	5.26	0.00
72.00	5.50	3.43	5.26	0.00
74.00	5.50	3.43	5.26	0.00
76.00	5.50	3.43	5.26	0.00
78.00	5.50	3.43	5.26	0.00
80.00	5.50	3.43	5.26	0.00
82.00	5.50	3.43	5.26	0.00
84.00	5.50	3.43	5.26	0.00
86.00	5.50	3.43	5.26	0.00
88.00	5.50	3.43	5.26	0.00
90.00	5.50	3.43	5.26	0.00
92.00	5.50	3.43	5.26	0.00
94.00	5.50	3.43	5.26	0.00
96.00	5.50	3.43	5.26	0.00

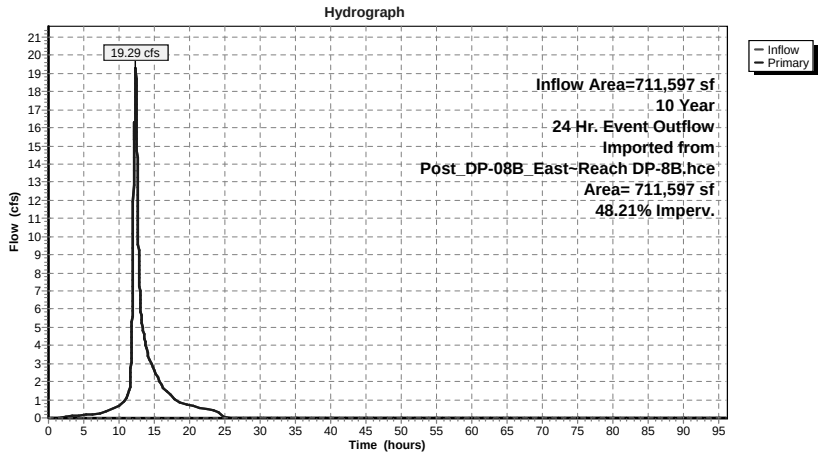
Summary for Link 8B: DA-8B Inflow

Inflow Area = 711,597 sf, 48.21% Impervious, Inflow Depth = 2.17" for 10 Year, 24 Hr. Event event
Inflow = 19.29 cfs @ 12.36 hrs, Volume= 128,486 cf
Primary = 19.29 cfs @ 12.36 hrs, Volume= 128,486 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

10 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_East~Reach DP-8B.hce

Link 8B: DA-8B Inflow



Hydrograph for Link 8B: DA-8B Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.06	0.00	0.06	54.00	0.00	0.00	0.00
3.00	0.09	0.00	0.09	55.00	0.00	0.00	0.00
4.00	0.13	0.00	0.13	56.00	0.00	0.00	0.00
5.00	0.16	0.00	0.16	57.00	0.00	0.00	0.00
6.00	0.19	0.00	0.19	58.00	0.00	0.00	0.00
7.00	0.25	0.00	0.25	59.00	0.00	0.00	0.00
8.00	0.33	0.00	0.33	60.00	0.00	0.00	0.00
9.00	0.48	0.00	0.48	61.00	0.00	0.00	0.00
10.00	0.67	0.00	0.67	62.00	0.00	0.00	0.00
11.00	1.04	0.00	1.04	63.00	0.00	0.00	0.00
12.00	**8.69**	0.00	**8.69**	64.00	0.00	0.00	0.00
13.00	**6.68**	0.00	**6.68**	65.00	0.00	0.00	0.00
14.00	3.66	0.00	3.66	66.00	0.00	0.00	0.00
15.00	2.63	0.00	2.63	67.00	0.00	0.00	0.00
16.00	1.84	0.00	1.84	68.00	0.00	0.00	0.00
17.00	1.35	0.00	1.35	69.00	0.00	0.00	0.00
18.00	1.00	0.00	1.00	70.00	0.00	0.00	0.00
19.00	0.81	0.00	0.81	71.00	0.00	0.00	0.00
20.00	0.70	0.00	0.70	72.00	0.00	0.00	0.00
21.00	0.61	0.00	0.61	73.00	0.00	0.00	0.00
22.00	0.53	0.00	0.53	74.00	0.00	0.00	0.00
23.00	0.46	0.00	0.46	75.00	0.00	0.00	0.00
24.00	0.39	0.00	0.39	76.00	0.00	0.00	0.00
25.00	0.01	0.00	0.01	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Reach 8C: DA-8C Inflow

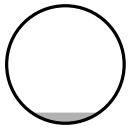
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 71,014 sf, 77.06% Impervious, Inflow Depth = 0.52" for 10 Year, 24 Hr. Event event
Inflow = 0.56 cfs @ 12.51 hrs, Volume= 3,091 cf
Outflow = 0.56 cfs @ 12.52 hrs, Volume= 3,091 cf, Atten= 0%, Lag= 0.6 min

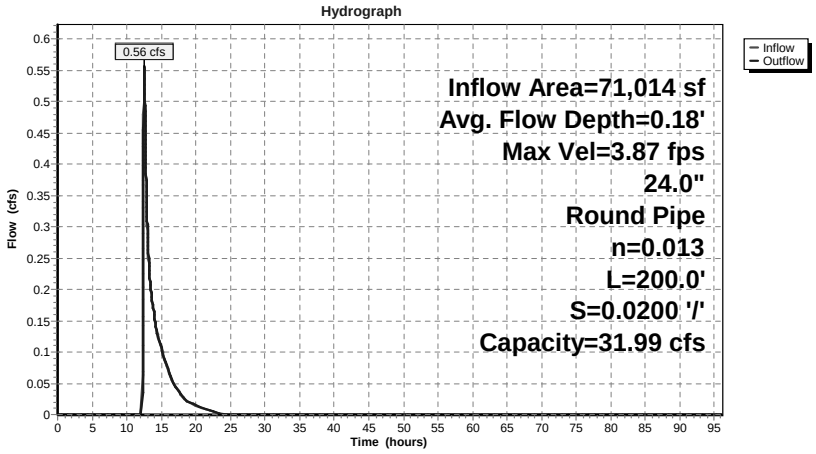
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 3.87 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.76 fps, Avg. Travel Time= 1.9 min

Peak Storage= 29 cf @ 12.52 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 31.99 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 200.0' Slope= 0.0200 '/'
Inlet Invert= 600.00', Outlet Invert= 596.00'



Reach 8C: DA-8C Inflow



Hydrograph for Reach 8C: DA-8C Inflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	600.00	0.00
2.00	0.00	0	600.00	0.00
4.00	0.00	0	600.00	0.00
6.00	0.00	0	600.00	0.00
8.00	0.00	0	600.00	0.00
10.00	0.00	0	600.00	0.00
12.00	**0.00**	**0**	**600.00**	**0.00**
14.00	**0.16**	**12**	**600.10**	**0.16**
16.00	0.07	7	600.07	0.07
18.00	0.03	4	600.05	0.03
20.00	0.01	2	600.03	0.01
22.00	0.01	1	600.02	0.01
24.00	0.00	0	600.00	0.00
26.00	0.00	0	600.00	0.00
28.00	0.00	0	600.00	0.00
30.00	0.00	0	600.00	0.00
32.00	0.00	0	600.00	0.00
34.00	0.00	0	600.00	0.00
36.00	0.00	0	600.00	0.00
38.00	0.00	0	600.00	0.00
40.00	0.00	0	600.00	0.00
42.00	0.00	0	600.00	0.00
44.00	0.00	0	600.00	0.00
46.00	0.00	0	600.00	0.00
48.00	0.00	0	600.00	0.00
50.00	0.00	0	600.00	0.00
52.00	0.00	0	600.00	0.00
54.00	0.00	0	600.00	0.00
56.00	0.00	0	600.00	0.00
58.00	0.00	0	600.00	0.00
60.00	0.00	0	600.00	0.00
62.00	0.00	0	600.00	0.00
64.00	0.00	0	600.00	0.00
66.00	0.00	0	600.00	0.00
68.00	0.00	0	600.00	0.00
70.00	0.00	0	600.00	0.00
72.00	0.00	0	600.00	0.00
74.00	0.00	0	600.00	0.00
76.00	0.00	0	600.00	0.00
78.00	0.00	0	600.00	0.00
80.00	0.00	0	600.00	0.00
82.00	0.00	0	600.00	0.00
84.00	0.00	0	600.00	0.00
86.00	0.00	0	600.00	0.00
88.00	0.00	0	600.00	0.00
90.00	0.00	0	600.00	0.00
92.00	0.00	0	600.00	0.00
94.00	0.00	0	600.00	0.00
96.00	0.00	0	600.00	0.00

Summary for Pond BIO-1A: 8C-1A Bioretention

Inflow Area = 27,975 sf, 75.07% Impervious, Inflow Depth = 4.64" for 10 Year, 24 Hr. Event event
Inflow = 3.23 cfs @ 12.07 hrs, Volume= 10,819 cf
Outflow = 0.59 cfs @ 12.51 hrs, Volume= 9,537 cf, Atten= 82%, Lag= 26.3 min
Discarded = 0.03 cfs @ 11.90 hrs, Volume= 6,446 cf
Primary = 0.56 cfs @ 12.51 hrs, Volume= 3,091 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 603.58' @ 12.51 hrs Surf.Area= 5,594 sf Storage= 6,335 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,159.9 min (1,918.3 - 758.4)

Volume	Invert	Avail.Storage	Storage Description
#1	598.75'	8,702 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

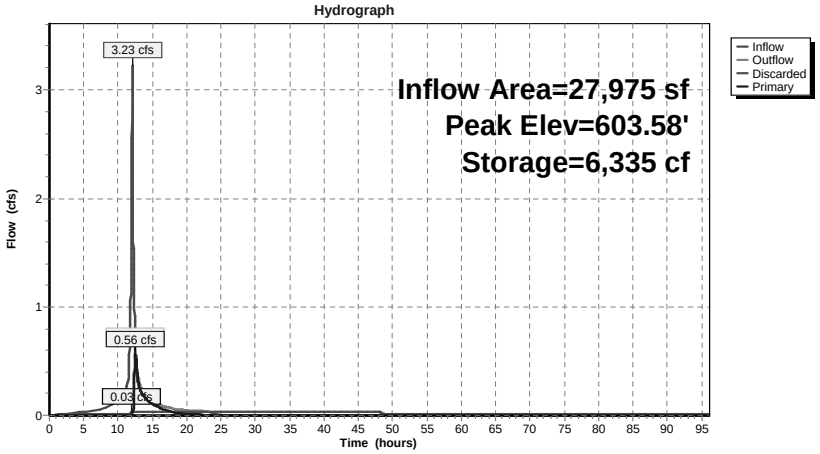
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
598.75	1,811	0.0	0	0
598.76	1,811	40.0	7	7
602.99	1,811	40.0	3,064	3,071
603.00	5,594	100.0	37	3,108
603.50	5,594	100.0	2,797	5,905
604.00	5,594	100.0	2,797	8,702

Device	Routing	Invert	Outlet Devices
#1	Discarded	598.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	603.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 11.90 hrs HW=603.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.56 cfs @ 12.51 hrs HW=603.58' TW=600.18' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.56 cfs @ 0.91 fps)

Pond BIO-1A: 8C-1A Bioretention



Hydrograph for Pond BIO-1A: 8C-1A Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	598.75	0.00	0.00	0.00
2.00	0.01	0	598.75	0.01	0.01	0.00
4.00	0.03	58	598.83	0.01	0.01	0.00
6.00	0.04	206	599.03	0.01	0.01	0.00
8.00	0.06	489	599.43	0.01	0.01	0.00
10.00	0.13	1,102	600.27	0.01	**0.01**	0.00
12.00	**2.15**	**3,663**	**603.10**	**0.03**	**0.03**	**0.00**
14.00	**0.17**	**6,089**	**603.53**	**0.19**	0.03	**0.16**
16.00	0.09	6,012	603.52	0.10	0.03	0.07
18.00	0.06	5,966	603.51	0.06	0.03	0.03
20.00	0.04	5,943	603.51	0.05	0.03	0.01
22.00	0.04	5,928	603.50	0.04	0.03	0.01
24.00	0.03	5,908	603.50	0.03	0.03	0.00
26.00	0.00	5,683	603.46	0.03	0.03	0.00
28.00	0.00	5,450	603.42	0.03	0.03	0.00
30.00	0.00	5,217	603.38	0.03	0.03	0.00
32.00	0.00	4,984	603.34	0.03	0.03	0.00
34.00	0.00	4,751	603.29	0.03	0.03	0.00
36.00	0.00	4,518	603.25	0.03	0.03	0.00
38.00	0.00	4,285	603.21	0.03	0.03	0.00
40.00	0.00	4,052	603.17	0.03	0.03	0.00
42.00	0.00	3,819	603.13	0.03	0.03	0.00
44.00	0.00	3,586	603.09	0.03	0.03	0.00
46.00	0.00	3,353	603.04	0.03	0.03	0.00
48.00	0.00	3,120	603.00	0.03	0.03	0.00
50.00	0.00	3,018	602.92	0.01	0.01	0.00
52.00	0.00	2,942	602.81	0.01	0.01	0.00
54.00	0.00	2,867	602.71	0.01	0.01	0.00
56.00	0.00	2,791	602.60	0.01	0.01	0.00
58.00	0.00	2,716	602.50	0.01	0.01	0.00
60.00	0.00	2,640	602.39	0.01	0.01	0.00
62.00	0.00	2,565	602.29	0.01	0.01	0.00
64.00	0.00	2,489	602.19	0.01	0.01	0.00
66.00	0.00	2,414	602.08	0.01	0.01	0.00
68.00	0.00	2,339	601.98	0.01	0.01	0.00
70.00	0.00	2,263	601.87	0.01	0.01	0.00
72.00	0.00	2,188	601.77	0.01	0.01	0.00
74.00	0.00	2,112	601.67	0.01	0.01	0.00
76.00	0.00	2,037	601.56	0.01	0.01	0.00
78.00	0.00	1,961	601.46	0.01	0.01	0.00
80.00	0.00	1,886	601.35	0.01	0.01	0.00
82.00	0.00	1,810	601.25	0.01	0.01	0.00
84.00	0.00	1,735	601.14	0.01	0.01	0.00
86.00	0.00	1,659	601.04	0.01	0.01	0.00
88.00	0.00	1,584	600.94	0.01	0.01	0.00
90.00	0.00	1,509	600.83	0.01	0.01	0.00
92.00	0.00	1,433	600.73	0.01	0.01	0.00
94.00	0.00	1,358	600.62	0.01	0.01	0.00
96.00	0.00	1,282	600.52	0.01	0.01	0.00

Summary for Pond BIO-1B: 8C-1B Bioretention

Inflow Area = 36,344 sf, 74.37% Impervious, Inflow Depth = 4.62" for 10 Year, 24 Hr. Event event
Inflow = 4.18 cfs @ 12.07 hrs, Volume= 14,003 cf
Outflow = 0.03 cfs @ 24.05 hrs, Volume= 8,319 cf, Atten= 99%, Lag= 718.5 min
Discarded = 0.03 cfs @ 24.05 hrs, Volume= 8,319 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 607.72' @ 24.05 hrs Surf.Area= 5,306 sf Storage= 12,091 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2,080.8 min (2,839.6 - 758.8)

Volume	Invert	Avail.Storage	Storage Description
#1	601.75'	27,051 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

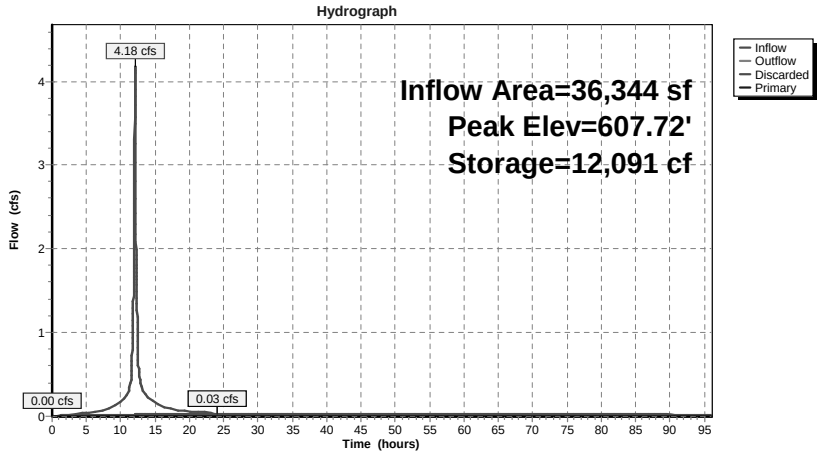
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
601.75	2,925	0.0	0	0
601.76	2,925	40.0	12	12
605.99	2,925	40.0	4,949	4,961
609.00	7,061	100.0	15,029	19,990
609.50	7,061	100.0	3,531	23,520
610.00	7,061	100.0	3,531	27,051

Device	Routing	Invert	Outlet Devices
#1	Discarded	601.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	609.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 24.05 hrs HW=607.72' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=601.75' TW=600.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond BIO-1B: 8C-1B Bioretention



Hydrograph for Pond BIO-1B: 8C-1B Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	601.75	0.00	0.00	**0.00**
2.00	0.01	0	601.75	0.01	0.01	0.00
4.00	0.03	51	601.79	0.02	0.02	0.00
6.00	0.05	217	601.94	0.02	0.02	0.00
8.00	0.08	557	602.23	0.02	0.02	0.00
10.00	0.17	1,321	602.88	0.02	0.02	0.00
12.00	**2.78**	4,618	605.70	0.02	0.02	0.00
14.00	**0.22**	10,137	607.33	0.03	0.03	0.00
16.00	0.12	11,136	607.54	0.03	0.03	0.00
18.00	0.07	11,598	607.63	0.03	0.03	0.00
20.00	0.06	11,843	607.68	0.03	0.03	0.00
22.00	0.05	12,003	607.71	0.03	0.03	0.00
24.00	0.04	**12,091**	**607.72**	**0.03**	**0.03**	0.00
26.00	0.00	**11,881**	**607.68**	**0.03**	**0.03**	0.00
28.00	0.00	11,663	607.64	0.03	0.03	0.00
30.00	0.00	11,448	607.60	0.03	0.03	0.00
32.00	0.00	11,235	607.56	0.03	0.03	0.00
34.00	0.00	11,025	607.52	0.03	0.03	0.00
36.00	0.00	10,817	607.47	0.03	0.03	0.00
38.00	0.00	10,611	607.43	0.03	0.03	0.00
40.00	0.00	10,408	607.39	0.03	0.03	0.00
42.00	0.00	10,207	607.35	0.03	0.03	0.00
44.00	0.00	10,009	607.31	0.03	0.03	0.00
46.00	0.00	9,812	607.27	0.03	0.03	0.00
48.00	0.00	9,619	607.22	0.03	0.03	0.00
50.00	0.00	9,427	607.18	0.03	0.03	0.00
52.00	0.00	9,238	607.14	0.03	0.03	0.00
54.00	0.00	9,052	607.10	0.03	0.03	0.00
56.00	0.00	8,868	607.06	0.03	0.03	0.00
58.00	0.00	8,686	607.02	0.03	0.03	0.00
60.00	0.00	8,506	606.97	0.02	0.02	0.00
62.00	0.00	8,329	606.93	0.02	0.02	0.00
64.00	0.00	8,155	606.89	0.02	0.02	0.00
66.00	0.00	7,982	606.85	0.02	0.02	0.00
68.00	0.00	7,812	606.81	0.02	0.02	0.00
70.00	0.00	7,645	606.77	0.02	0.02	0.00
72.00	0.00	7,480	606.72	0.02	0.02	0.00
74.00	0.00	7,317	606.68	0.02	0.02	0.00
76.00	0.00	7,157	606.64	0.02	0.02	0.00
78.00	0.00	6,999	606.60	0.02	0.02	0.00
80.00	0.00	6,843	606.56	0.02	0.02	0.00
82.00	0.00	6,690	606.52	0.02	0.02	0.00
84.00	0.00	6,539	606.47	0.02	0.02	0.00
86.00	0.00	6,391	606.43	0.02	0.02	0.00
88.00	0.00	6,245	606.39	0.02	0.02	0.00
90.00	0.00	6,101	606.35	0.02	0.02	0.00
92.00	0.00	5,960	606.31	0.02	0.02	0.00
94.00	0.00	5,821	606.27	0.02	0.02	0.00
96.00	0.00	5,684	606.22	0.02	0.02	0.00

Summary for Reach DP-8: Det Basin Outflow

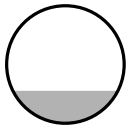
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1,087,954 sf, 38.29% Impervious, Inflow Depth > 2.32" for 10 Year, 24 Hr. Event event
Inflow = 14.72 cfs @ 12.12 hrs, Volume= 210,200 cf
Outflow = 14.70 cfs @ 12.13 hrs, Volume= 210,198 cf, Atten= 0%, Lag= 0.3 min

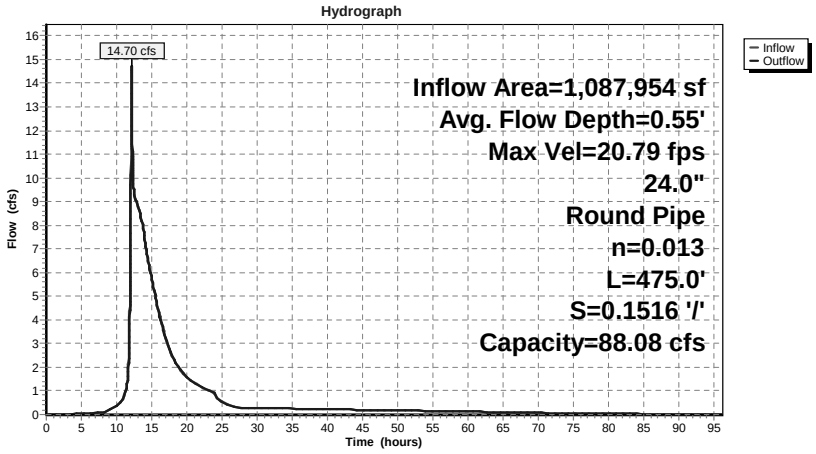
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 20.79 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.85 fps, Avg. Travel Time= 1.4 min

Peak Storage= 336 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 88.08 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 475.0' Slope= 0.1516 '/'
Inlet Invert= 590.00', Outlet Invert= 518.00'



Reach DP-8: Det Basin Outflow



Hydrograph for Reach DP-8: Det Basin Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	590.00	0.00
2.00	0.01	2	590.01	0.01
4.00	0.02	3	590.02	0.02
6.00	0.04	6	590.03	0.04
8.00	0.10	10	590.05	0.10
10.00	0.38	26	590.09	0.38
12.00	**7.40**	**201**	**590.38**	**7.14**
14.00	**7.39**	**206**	**590.39**	**7.40**
16.00	4.32	141	590.30	4.33
18.00	2.42	94	590.23	2.43
20.00	1.57	70	590.19	1.57
22.00	1.17	57	590.16	1.17
24.00	0.90	47	590.14	0.90
26.00	0.39	26	590.10	0.39
28.00	0.28	21	590.08	0.28
30.00	0.27	20	590.08	0.27
32.00	0.26	20	590.08	0.26
34.00	0.26	20	590.08	0.26
36.00	0.25	19	590.08	0.25
38.00	0.24	19	590.08	0.24
40.00	0.23	18	590.07	0.23
42.00	0.22	18	590.07	0.22
44.00	0.21	17	590.07	0.21
46.00	0.20	16	590.07	0.20
48.00	0.19	16	590.07	0.19
50.00	0.18	15	590.07	0.18
52.00	0.17	15	590.06	0.17
54.00	0.16	14	590.06	0.16
56.00	0.15	13	590.06	0.15
58.00	0.14	13	590.06	0.14
60.00	0.13	12	590.06	0.13
62.00	0.12	11	590.05	0.12
64.00	0.11	10	590.05	0.11
66.00	0.09	10	590.05	0.10
68.00	0.09	9	590.05	0.09
70.00	0.08	8	590.04	0.08
72.00	0.06	7	590.04	0.06
74.00	0.05	7	590.04	0.05
76.00	0.05	6	590.03	0.05
78.00	0.04	5	590.03	0.04
80.00	0.03	4	590.03	0.03
82.00	0.03	4	590.03	0.03
84.00	0.02	4	590.02	0.02
86.00	0.02	3	590.02	0.02
88.00	0.02	3	590.02	0.02
90.00	0.02	3	590.02	0.02
92.00	0.01	3	590.02	0.01
94.00	0.01	2	590.02	0.01
96.00	0.01	2	590.02	0.01

Summary for Pond P-1C: 8C-1C Pavers

Inflow Area = 6,695 sf,100.00% Impervious, Inflow Depth = 5.26" for 10 Year, 24 Hr. Event event
Inflow = 0.86 cfs @ 12.07 hrs, Volume= 2,936 cf
Outflow = 0.04 cfs @ 10.59 hrs, Volume= 2,936 cf, Atten= 95%, Lag= 0.0 min
Discarded = 0.04 cfs @ 10.59 hrs, Volume= 2,936 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 609.00' @ 14.38 hrs Surf.Area= 6,695 sf Storage= 1,339 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 281.4 min (1,027.0 - 745.5)

Volume	Invert	Avail.Storage	Storage Description
#1	608.00'	8,757 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

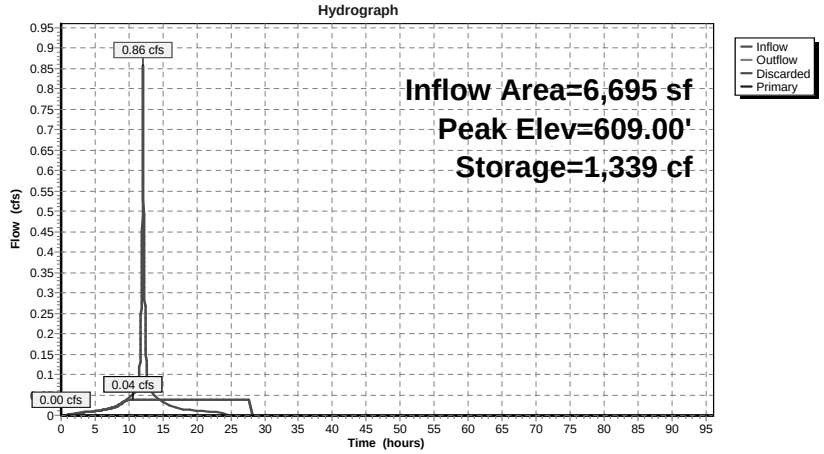
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.00	6,695	0.0	0	0
608.01	6,695	20.0	13	13
611.99	6,695	20.0	5,329	5,343
612.00	6,695	100.0	67	5,410
612.50	6,695	100.0	3,348	8,757

Device	Routing	Invert	Outlet Devices
#1	Primary	612.00'	**12.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	608.00'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.04 cfs @ 10.59 hrs HW=608.01' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=608.00' TW=600.00' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-1C: 8C-1C Pavers



Hydrograph for Pond P-1C: 8C-1C Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	608.00	0.00	0.00	**0.00**
2.00	0.00	0	608.00	0.00	0.00	0.00
4.00	0.01	0	608.00	0.01	0.01	0.00
6.00	0.01	0	608.00	0.01	0.01	0.00
8.00	0.02	0	608.00	0.02	0.02	0.00
10.00	0.04	0	608.00	**0.04**	**0.04**	0.00
12.00	**0.58**	469	608.35	**0.04**	**0.04**	0.00
14.00	**0.04**	**1,336**	**609.00**	0.04	0.04	0.00
16.00	0.02	**1,292**	**608.97**	0.04	0.04	0.00
18.00	0.01	1,144	608.85	0.04	0.04	0.00
20.00	0.01	955	608.71	0.04	0.04	0.00
22.00	0.01	750	608.56	0.04	0.04	0.00
24.00	0.01	530	608.40	0.04	0.04	0.00
26.00	0.00	253	608.19	0.04	0.04	0.00
28.00	0.00	0	608.00	0.00	0.00	0.00
30.00	0.00	0	608.00	0.00	0.00	0.00
32.00	0.00	0	608.00	0.00	0.00	0.00
34.00	0.00	0	608.00	0.00	0.00	0.00
36.00	0.00	0	608.00	0.00	0.00	0.00
38.00	0.00	0	608.00	0.00	0.00	0.00
40.00	0.00	0	608.00	0.00	0.00	0.00
42.00	0.00	0	608.00	0.00	0.00	0.00
44.00	0.00	0	608.00	0.00	0.00	0.00
46.00	0.00	0	608.00	0.00	0.00	0.00
48.00	0.00	0	608.00	0.00	0.00	0.00
50.00	0.00	0	608.00	0.00	0.00	0.00
52.00	0.00	0	608.00	0.00	0.00	0.00
54.00	0.00	0	608.00	0.00	0.00	0.00
56.00	0.00	0	608.00	0.00	0.00	0.00
58.00	0.00	0	608.00	0.00	0.00	0.00
60.00	0.00	0	608.00	0.00	0.00	0.00
62.00	0.00	0	608.00	0.00	0.00	0.00
64.00	0.00	0	608.00	0.00	0.00	0.00
66.00	0.00	0	608.00	0.00	0.00	0.00
68.00	0.00	0	608.00	0.00	0.00	0.00
70.00	0.00	0	608.00	0.00	0.00	0.00
72.00	0.00	0	608.00	0.00	0.00	0.00
74.00	0.00	0	608.00	0.00	0.00	0.00
76.00	0.00	0	608.00	0.00	0.00	0.00
78.00	0.00	0	608.00	0.00	0.00	0.00
80.00	0.00	0	608.00	0.00	0.00	0.00
82.00	0.00	0	608.00	0.00	0.00	0.00
84.00	0.00	0	608.00	0.00	0.00	0.00
86.00	0.00	0	608.00	0.00	0.00	0.00
88.00	0.00	0	608.00	0.00	0.00	0.00
90.00	0.00	0	608.00	0.00	0.00	0.00
92.00	0.00	0	608.00	0.00	0.00	0.00
94.00	0.00	0	608.00	0.00	0.00	0.00
96.00	0.00	0	608.00	0.00	0.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: DA8C-1A Runoff Area=27,975 sf 75.07% Impervious Runoff Depth=5.12"
Tc=5.0 min CN=74/98 Runoff=3.56 cfs 11,934 cf

Subcatchment 1B: DA8C-1B Runoff Area=36,344 sf 74.37% Impervious Runoff Depth=5.10"
Tc=5.0 min CN=74/98 Runoff=4.61 cfs 15,450 cf

Subcatchment 1C: DA8C-1C Runoff Area=6,695 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=0.94 cfs 3,215 cf

Pond 8-B: Micropool Ext Det Basin Peak Elev=593.61' Storage=119,680 cf Inflow=32.46 cfs 191,229 cf
Outflow=9.18 cfs 189,787 cf

Pond 8-F: Forebay Peak Elev=593.61' Storage=29,824 cf Inflow=33.25 cfs 191,229 cf
Outflow=32.46 cfs 191,229 cf

Subcatchment 8A1: DA-8A1 Runoff Area=200,906 sf 8.68% Impervious Runoff Depth=3.41"
Flow Length=184' Tc=8.6 min CN=74/98 Runoff=16.53 cfs 57,067 cf

Subcatchment 8A2: DA-8A2 Runoff Area=104,437 sf 1.30% Impervious Runoff Depth=3.91"
Flow Length=100' Slope=0.0870 '/' Tc=7.6 min CN=81/98 Runoff=10.30 cfs 34,013 cf

Link 25 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_East~Reach DP-8B.hce Inflow=27.59 cfs 153,030 cf
Area= 711,597 sf 48.21% Imperv. Primary=27.59 cfs 153,030 cf

Reach 8C: DA-8C Inflow Avg. Flow Depth=0.24' Max Vel=4.56 fps Inflow=0.96 cfs 4,185 cf
24.0" Round Pipe n=0.013 L=200.0' S=0.0200 '/' Capacity=31.99 cfs Outflow=0.96 cfs 4,185 cf

Pond BIO-1A: 8C-1A Bioretention Peak Elev=603.61' Storage=6,524 cf Inflow=3.56 cfs 11,934 cf
Discarded=0.03 cfs 6,464 cf Primary=0.96 cfs 4,185 cf Outflow=0.99 cfs 10,650 cf

Pond BIO-1B: 8C-1B Bioretention Peak Elev=607.97' Storage=13,446 cf Inflow=4.61 cfs 15,450 cf
Discarded=0.03 cfs 8,921 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 8,921 cf

Reach DP-8: Det Basin Outflow Avg. Flow Depth=0.59' Max Vel=21.65 fps Inflow=16.95 cfs 246,854 cf
24.0" Round Pipe n=0.013 L=475.0' S=0.1516 '/' Capacity=88.08 cfs Outflow=16.93 cfs 246,852 cf

Pond P-1C: 8C-1C Pavers Peak Elev=609.14' Storage=1,524 cf Inflow=0.94 cfs 3,215 cf
Discarded=0.04 cfs 3,215 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 3,215 cf

Total Runoff Area = 376,357 sf Runoff Volume = 121,680 cf Average Runoff Depth = 3.88"
80.46% Pervious = 302,834 sf 19.54% Impervious = 73,523 sf

Summary for Subcatchment 1A: DA8C-1A

Runoff = 3.56 cfs @ 12.07 hrs, Volume= 11,934 cf, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

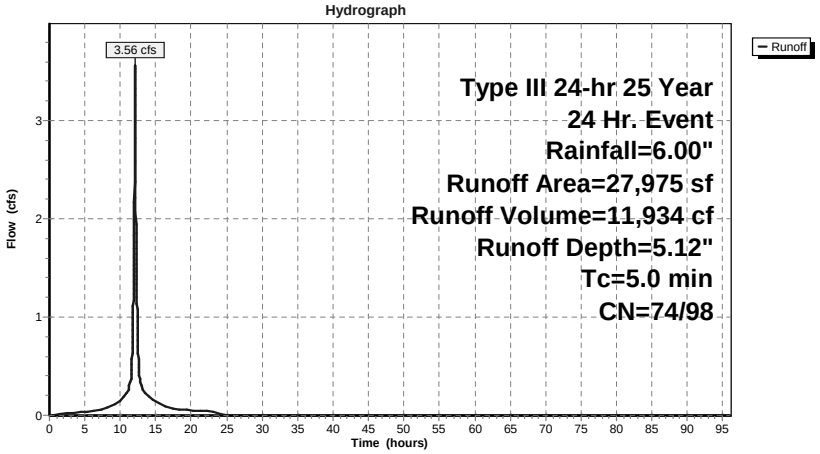
	Area (sf)	CN	Description	Land Use
	21,000	98	Paved parking, HSG C	Pavement
	1,381	74	>75% Grass cover, Good, HSG C	Open Space
*	5,594	74	Bioretention	Brush
	27,975	92	Weighted Average	
	6,975	74	24.93% Pervious Area	
	21,000	98	75.07% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 75.07% Impervious, Rv= 0.726, Runoff= 33.16"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,594	Brush	35.71	0.00	0.00	1.19
1,381	Open Space	143.42	0.50	2.17	0.29
21,000	Pavement	626.73	2.03	7.61	24.27
27,975	Total	805.85	2.53	9.78	25.75

Subcatchment 1A: DA8C-1A



Hydrograph for Subcatchment 1A: DA8C-1A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.03
6.00	0.43	0.00	0.26	0.04
8.00	0.68	0.00	0.49	0.07
10.00	1.13	0.05	0.92	0.15
12.00	3.00	0.91	2.77	**2.37**
14.00	4.87	2.26	4.63	**0.19**
16.00	5.32	2.62	5.08	0.10
18.00	5.57	2.83	5.33	0.06
20.00	5.74	2.97	5.50	0.05
22.00	5.88	3.09	5.65	0.04
24.00	**6.00**	**3.18**	**5.76**	0.03
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00
74.00	6.00	3.18	5.76	0.00
76.00	6.00	3.18	5.76	0.00
78.00	6.00	3.18	5.76	0.00
80.00	6.00	3.18	5.76	0.00
82.00	6.00	3.18	5.76	0.00
84.00	6.00	3.18	5.76	0.00
86.00	6.00	3.18	5.76	0.00
88.00	6.00	3.18	5.76	0.00
90.00	6.00	3.18	5.76	0.00
92.00	6.00	3.18	5.76	0.00
94.00	6.00	3.18	5.76	0.00
96.00	6.00	3.18	5.76	0.00

Summary for Subcatchment 1B: DA8C-1B

Runoff = 4.61 cfs @ 12.07 hrs, Volume= 15,450 cf, Depth= 5.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

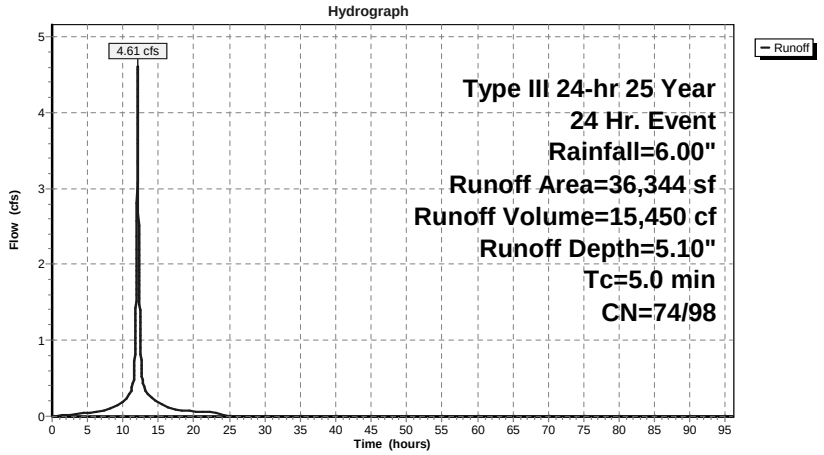
	Area (sf)	CN	Description	Land Use
	27,028	98	Paved parking, HSG C	Pavement
	2,256	74	>75% Grass cover, Good, HSG C	Open Space
*	7,060	74	Bioretention	Brush
	36,344	92	Weighted Average	
	9,316	74	25.63% Pervious Area	
	27,028	98	74.37% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.37% Impervious, Rv= 0.719, Runoff= 32.87"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,060	Brush	44.67	0.00	0.00	1.49
2,256	Open Space	232.25	0.81	3.51	0.47
27,028	Pavement	799.63	2.59	9.71	30.97
36,344	Total	1,076.55	3.40	13.22	32.93

Subcatchment 1B: DA8C-1B



Hydrograph for Subcatchment 1B: DA8C-1B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.02
4.00	0.26	0.00	0.11	0.04
6.00	0.43	0.00	0.26	0.05
8.00	0.68	0.00	0.49	0.09
10.00	1.13	0.05	0.92	0.19
12.00	3.00	0.91	2.77	**3.07**
14.00	4.87	2.26	4.63	**0.24**
16.00	5.32	2.62	5.08	0.13
18.00	5.57	2.83	5.33	0.08
20.00	5.74	2.97	5.50	0.06
22.00	5.88	3.09	5.65	0.05
24.00	**6.00**	**3.18**	**5.76**	0.04
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00
74.00	6.00	3.18	5.76	0.00
76.00	6.00	3.18	5.76	0.00
78.00	6.00	3.18	5.76	0.00
80.00	6.00	3.18	5.76	0.00
82.00	6.00	3.18	5.76	0.00
84.00	6.00	3.18	5.76	0.00
86.00	6.00	3.18	5.76	0.00
88.00	6.00	3.18	5.76	0.00
90.00	6.00	3.18	5.76	0.00
92.00	6.00	3.18	5.76	0.00
94.00	6.00	3.18	5.76	0.00
96.00	6.00	3.18	5.76	0.00

Summary for Subcatchment 1C: DA8C-1C

Runoff = 0.94 cfs @ 12.07 hrs, Volume= 3,215 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

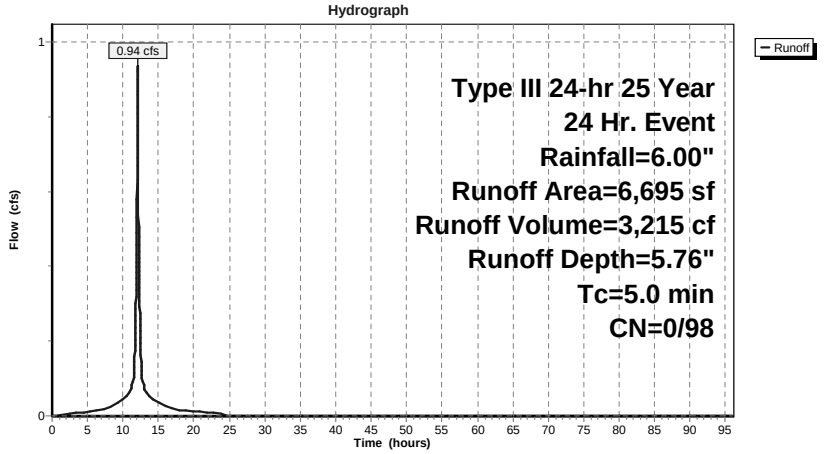
	Area (sf)	CN	Description	Land Use
*	6,695	98	Pavers	Pavement
	6,695	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
6,695	Pavement	261.60	0.85	3.18	10.13
6,695	Total	261.60	0.85	3.18	10.13

Subcatchment 1C: DA8C-1C



Hydrograph for Subcatchment 1C: DA8C-1C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.02
10.00	1.13	0.00	0.92	0.04
12.00	3.00	0.00	2.77	**0.63**
14.00	4.87	0.00	4.63	**0.05**
16.00	5.32	0.00	5.08	0.02
18.00	5.57	0.00	5.33	0.02
20.00	5.74	0.00	5.50	0.01
22.00	5.88	0.00	5.65	0.01
24.00	**6.00**	0.00	**5.76**	0.01
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00
74.00	6.00	0.00	5.76	0.00
76.00	6.00	0.00	5.76	0.00
78.00	6.00	0.00	5.76	0.00
80.00	6.00	0.00	5.76	0.00
82.00	6.00	0.00	5.76	0.00
84.00	6.00	0.00	5.76	0.00
86.00	6.00	0.00	5.76	0.00
88.00	6.00	0.00	5.76	0.00
90.00	6.00	0.00	5.76	0.00
92.00	6.00	0.00	5.76	0.00
94.00	6.00	0.00	5.76	0.00
96.00	6.00	0.00	5.76	0.00

Summary for Pond 8-B: Micropool Ext Det Basin

Inflow Area = 887,048 sf, 45.00% Impervious, Inflow Depth = 2.59" for 25 Year, 24 Hr. Event event
Inflow = 32.46 cfs @ 12.29 hrs, Volume= 191,229 cf
Outflow = 9.18 cfs @ 12.97 hrs, Volume= 189,787 cf, Atten= 72%, Lag= 41.3 min
Primary = 9.18 cfs @ 12.97 hrs, Volume= 189,787 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 590.75' Surf.Area= 17,970 sf Storage= 45,195 cf
Peak Elev= 593.61' @ 12.97 hrs Surf.Area= 35,069 sf Storage= 119,680 cf (74,485 cf above start)

Plug-Flow detention time= 681.8 min calculated for 144,577 cf (76% of inflow)
Center-of-Mass det. time= 438.8 min (1,273.9 - 835.0)

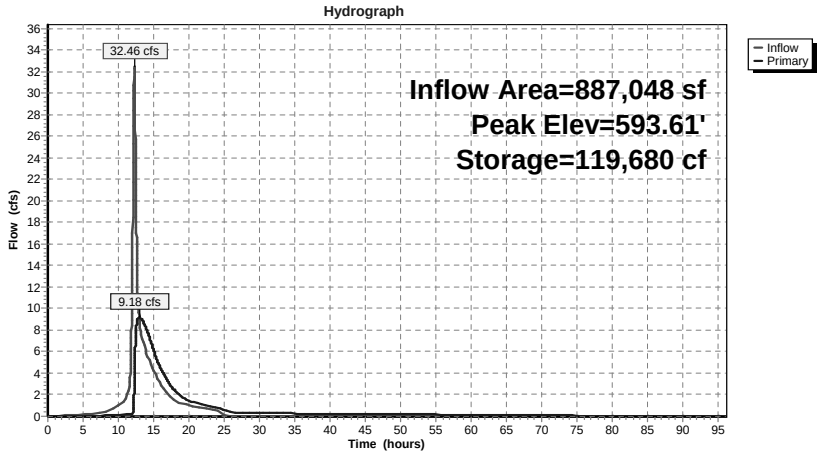
Volume	Invert	Avail.Storage	Storage Description
#1	586.75'	301,176 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
586.75	0	0	0
588.00	10,403	6,502	6,502
590.00	13,760	24,163	30,665
592.00	24,987	38,747	69,412
594.00	37,525	62,512	131,924
596.00	42,446	79,971	211,895
598.00	46,835	89,281	301,176

Device	Routing	Invert	Outlet Devices
#1	Primary	586.00'	**24.0" Round Culvert** L= 290.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 586.00' / 550.00' S= 0.1241 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	590.75'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	592.25'	**24.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	595.00'	**48.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=9.18 cfs @ 12.97 hrs HW=593.61' TW=590.48' (Dynamic Tailwater)
└─**1=Culvert** (Passes 9.18 cfs of 19.72 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.39 cfs @ 7.96 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 8.79 cfs @ 4.39 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 8-B: Micropool Ext Det Basin



Hydrograph for Pond 8-B: Micropool Ext Det Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	45,195	590.75	0.00
2.00	0.04	45,243	590.75	0.00
4.00	0.14	45,896	590.79	0.00
6.00	0.20	47,065	590.85	0.02
8.00	0.39	48,845	590.94	0.06
10.00	0.97	52,835	591.14	0.12
12.00	**12.84**	**70,357**	**592.03**	**0.25**
14.00	**5.86**	**113,744**	**593.42**	**8.04**
16.00	2.99	100,429	592.99	4.45
18.00	1.44	91,908	592.72	2.39
20.00	1.02	87,146	592.57	1.46
22.00	0.79	84,732	592.49	1.06
24.00	0.58	83,011	592.44	0.81
26.00	0.01	79,671	592.33	0.43
28.00	0.00	77,302	592.25	0.28
30.00	0.00	75,335	592.19	0.27
32.00	0.00	73,410	592.13	0.26
34.00	0.00	71,530	592.07	0.26
36.00	0.00	69,695	592.01	0.25
38.00	0.00	67,917	591.92	0.24
40.00	0.00	66,213	591.83	0.23
42.00	0.00	64,584	591.75	0.22
44.00	0.00	63,029	591.67	0.21
46.00	0.00	61,550	591.59	0.20
48.00	0.00	60,145	591.52	0.19
50.00	0.00	58,814	591.45	0.18
52.00	0.00	57,559	591.39	0.17
54.00	0.00	56,378	591.33	0.16
56.00	0.00	55,273	591.27	0.15
58.00	0.00	54,242	591.22	0.14
60.00	0.00	53,288	591.17	0.13
62.00	0.00	52,406	591.12	0.12
64.00	0.00	51,598	591.08	0.11
66.00	0.00	50,864	591.04	0.10
68.00	0.00	50,206	591.01	0.09
70.00	0.00	49,618	590.98	0.08
72.00	0.00	49,109	590.95	0.07
74.00	0.00	48,679	590.93	0.05
76.00	0.00	48,320	590.91	0.05
78.00	0.00	48,016	590.90	0.04
80.00	0.00	47,761	590.88	0.03
82.00	0.00	47,543	590.87	0.03
84.00	0.00	47,356	590.86	0.02
86.00	0.00	47,194	590.85	0.02
88.00	0.00	47,053	590.85	0.02
90.00	0.00	46,930	590.84	0.02
92.00	0.00	46,821	590.83	0.01
94.00	0.00	46,724	590.83	0.01
96.00	0.00	46,637	590.82	0.01

Summary for Pond 8-F: Forebay

Inflow Area = 887,048 sf, 45.00% Impervious, Inflow Depth = 2.59" for 25 Year, 24 Hr. Event event
Inflow = 33.25 cfs @ 12.30 hrs, Volume= 191,229 cf
Outflow = 32.46 cfs @ 12.29 hrs, Volume= 191,229 cf, Atten= 2%, Lag= 0.0 min
Primary = 32.46 cfs @ 12.29 hrs, Volume= 191,229 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 592.75' Surf.Area= 9,839 sf Storage= 19,484 cf
Peak Elev= 593.61' @ 12.97 hrs Surf.Area= 14,228 sf Storage= 29,824 cf (10,340 cf above start)

Plug-Flow detention time= 90.1 min calculated for 171,727 cf (90% of inflow)
Center-of-Mass det. time= 12.1 min (835.0 - 822.9)

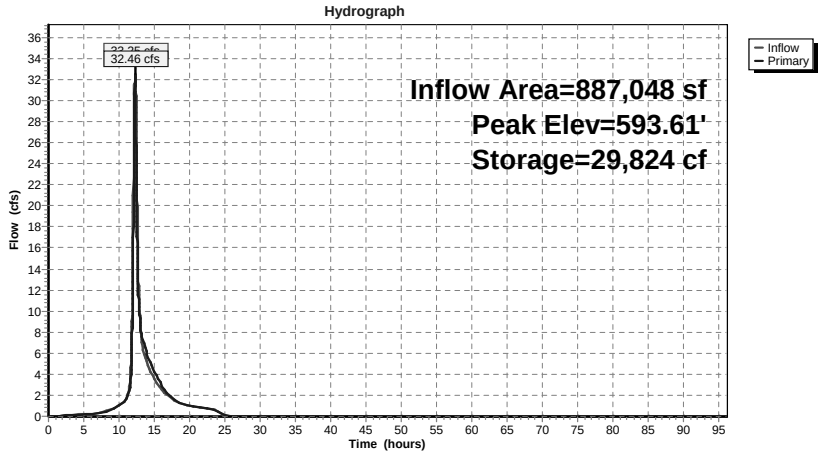
Volume	Invert	Avail.Storage	Storage Description
#1	587.25'	117,643 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
587.25	0	0	0
588.00	1,342	503	503
590.00	2,844	4,186	4,689
592.00	6,008	8,852	13,541
594.00	16,223	22,231	35,772
596.00	20,068	36,291	72,063
598.00	25,512	45,580	117,643

Device	Routing	Invert	Outlet Devices
#1	Primary	592.75'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**
			Head (feet) 0.00 1.25 4.00
			Width (feet) 12.00 172.00 204.00

Primary OutFlow Max=32.47 cfs @ 12.29 hrs HW=593.19' TW=592.87' (Dynamic Tailwater)
↳**1=Custom Weir/Orifice** (Weir Controls 32.47 cfs @ 1.84 fps)

Pond 8-F: Forebay



Hydrograph for Pond 8-F: Forebay

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	19,484	592.75	0.00
2.00	0.07	19,580	592.76	0.04
4.00	0.15	19,697	592.77	0.14
6.00	0.21	19,760	592.78	0.20
8.00	0.42	19,899	592.79	0.39
10.00	1.01	20,194	592.82	0.97
12.00	**15.24**	**22,446**	**593.03**	**12.84**
14.00	**4.94**	**27,219**	**593.42**	**5.86**
16.00	2.50	22,105	593.00	2.99
18.00	1.39	20,380	592.84	1.44
20.00	1.00	20,216	592.82	1.02
22.00	0.78	20,114	592.81	0.79
24.00	0.57	20,010	592.80	0.58
26.00	0.00	19,528	592.75	0.01
28.00	0.00	19,496	592.75	0.00
30.00	0.00	19,489	592.75	0.00
32.00	0.00	19,487	592.75	0.00
34.00	0.00	19,486	592.75	0.00
36.00	0.00	19,485	592.75	0.00
38.00	0.00	19,484	592.75	0.00
40.00	0.00	19,484	592.75	0.00
42.00	0.00	19,484	592.75	0.00
44.00	0.00	19,484	592.75	0.00
46.00	0.00	19,484	592.75	0.00
48.00	0.00	19,484	592.75	0.00
50.00	0.00	19,484	592.75	0.00
52.00	0.00	19,484	592.75	0.00
54.00	0.00	19,484	592.75	0.00
56.00	0.00	19,484	592.75	0.00
58.00	0.00	19,484	592.75	0.00
60.00	0.00	19,484	592.75	0.00
62.00	0.00	19,484	592.75	0.00
64.00	0.00	19,484	592.75	0.00
66.00	0.00	19,484	592.75	0.00
68.00	0.00	19,484	592.75	0.00
70.00	0.00	19,484	592.75	0.00
72.00	0.00	19,484	592.75	0.00
74.00	0.00	19,484	592.75	0.00
76.00	0.00	19,484	592.75	0.00
78.00	0.00	19,484	592.75	0.00
80.00	0.00	19,484	592.75	0.00
82.00	0.00	19,484	592.75	0.00
84.00	0.00	19,484	592.75	0.00
86.00	0.00	19,484	592.75	0.00
88.00	0.00	19,484	592.75	0.00
90.00	0.00	19,484	592.75	0.00
92.00	0.00	19,484	592.75	0.00
94.00	0.00	19,484	592.75	0.00
96.00	0.00	19,484	592.75	0.00

Summary for Subcatchment 8A1: DA-8A1

Runoff = 16.53 cfs @ 12.12 hrs, Volume= 57,067 cf, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

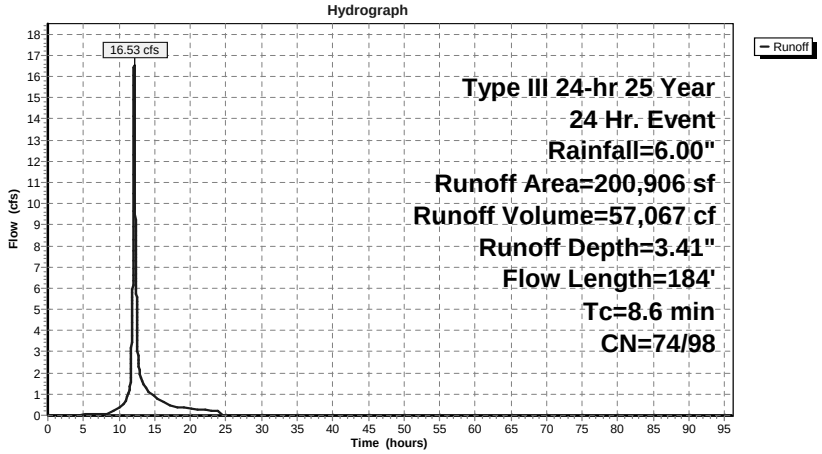
Area (sf)	CN	Description	Land Use
183,464	74	>75% Grass cover, Good, HSG C	Open Space
17,442	98	Unconnected pavement, HSG C	Pavement
200,906	76	Weighted Average	
183,464	74	91.32% Pervious Area	
17,442	98	8.68% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0760	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.0	5	0.0760	1.93		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	79	0.0940	2.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 8.68% Impervious, Rv= 0.128, Runoff= 5.86"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
183,464	Open Space	3,364.57	11.74	50.86	6.87
17,442	Pavement	91.92	0.30	1.12	3.56
200,906	Total	3,456.49	12.03	51.98	10.43

Subcatchment 8A1: DA-8A1



Hydrograph for Subcatchment 8A1: DA-8A1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.02
6.00	0.43	0.00	0.26	0.03
8.00	0.68	0.00	0.49	0.06
10.00	1.13	0.05	0.92	0.34
12.00	3.00	0.91	2.77	**8.28**
14.00	4.87	2.26	4.63	**1.17**
16.00	5.32	2.62	5.08	0.64
18.00	5.57	2.83	5.33	0.39
20.00	5.74	2.97	5.50	0.31
22.00	5.88	3.09	5.65	0.26
24.00	**6.00**	**3.18**	**5.76**	0.21
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00
74.00	6.00	3.18	5.76	0.00
76.00	6.00	3.18	5.76	0.00
78.00	6.00	3.18	5.76	0.00
80.00	6.00	3.18	5.76	0.00
82.00	6.00	3.18	5.76	0.00
84.00	6.00	3.18	5.76	0.00
86.00	6.00	3.18	5.76	0.00
88.00	6.00	3.18	5.76	0.00
90.00	6.00	3.18	5.76	0.00
92.00	6.00	3.18	5.76	0.00
94.00	6.00	3.18	5.76	0.00
96.00	6.00	3.18	5.76	0.00

Summary for Subcatchment 8A2: DA-8A2

Runoff = 10.30 cfs @ 12.11 hrs, Volume= 34,013 cf, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

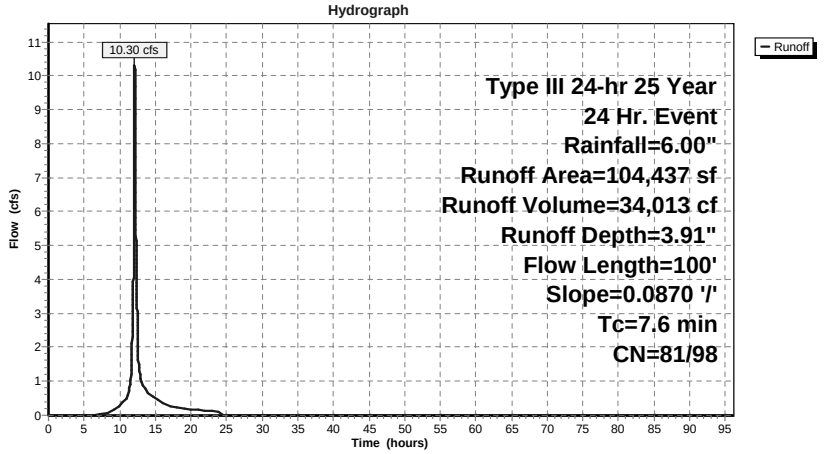
Area (sf)	CN	Description	Land Use
1,358	98	Paved parking, HSG C	Pavement
71,762	74	>75% Grass cover, Good, HSG C	Open Space
31,317	98	Water Surface, 0% imp, HSG C	Open Water
104,437	82	Weighted Average	
103,079	81	98.70% Pervious Area	
1,358	98	1.30% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.0870	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 1.30% Impervious, Rv= 0.062, Runoff= 2.82"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
71,762	Open Space	633.74	2.21	9.58	1.29
31,317	Open Water	0.00	0.00	0.00	0.00
1,358	Pavement	3.45	0.01	0.04	0.13
104,437	Total	637.18	2.22	9.62	1.43

Subcatchment 8A2: DA-8A2



Hydrograph for Subcatchment 8A2: DA-8A2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.02	0.49	0.06
10.00	1.13	0.15	0.92	0.27
12.00	3.00	1.31	2.77	**5.57**
14.00	4.87	2.87	4.63	**0.66**
16.00	5.32	3.27	5.08	0.35
18.00	5.57	3.49	5.33	0.22
20.00	5.74	3.65	5.50	0.17
22.00	5.88	3.78	5.65	0.14
24.00	**6.00**	**3.88**	**5.76**	0.11
26.00	6.00	3.88	5.76	0.00
28.00	6.00	3.88	5.76	0.00
30.00	6.00	3.88	5.76	0.00
32.00	6.00	3.88	5.76	0.00
34.00	6.00	3.88	5.76	0.00
36.00	6.00	3.88	5.76	0.00
38.00	6.00	3.88	5.76	0.00
40.00	6.00	3.88	5.76	0.00
42.00	6.00	3.88	5.76	0.00
44.00	6.00	3.88	5.76	0.00
46.00	6.00	3.88	5.76	0.00
48.00	6.00	3.88	5.76	0.00
50.00	6.00	3.88	5.76	0.00
52.00	6.00	3.88	5.76	0.00
54.00	6.00	3.88	5.76	0.00
56.00	6.00	3.88	5.76	0.00
58.00	6.00	3.88	5.76	0.00
60.00	6.00	3.88	5.76	0.00
62.00	6.00	3.88	5.76	0.00
64.00	6.00	3.88	5.76	0.00
66.00	6.00	3.88	5.76	0.00
68.00	6.00	3.88	5.76	0.00
70.00	6.00	3.88	5.76	0.00
72.00	6.00	3.88	5.76	0.00
74.00	6.00	3.88	5.76	0.00
76.00	6.00	3.88	5.76	0.00
78.00	6.00	3.88	5.76	0.00
80.00	6.00	3.88	5.76	0.00
82.00	6.00	3.88	5.76	0.00
84.00	6.00	3.88	5.76	0.00
86.00	6.00	3.88	5.76	0.00
88.00	6.00	3.88	5.76	0.00
90.00	6.00	3.88	5.76	0.00
92.00	6.00	3.88	5.76	0.00
94.00	6.00	3.88	5.76	0.00
96.00	6.00	3.88	5.76	0.00

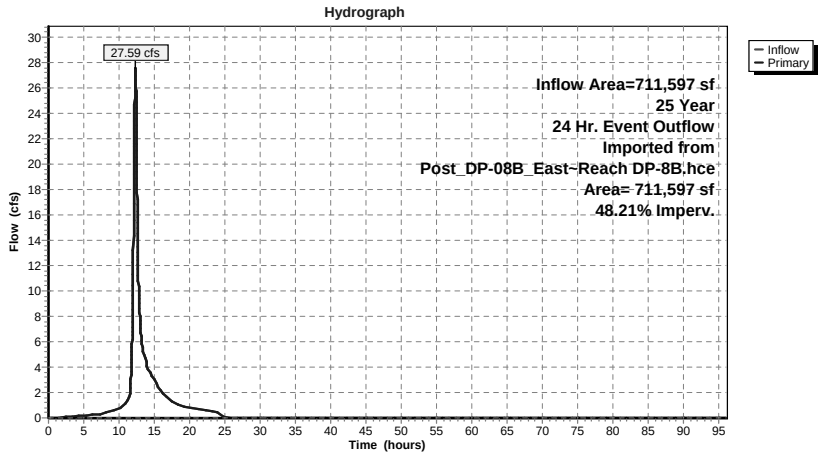
Summary for Link 8B: DA-8B Inflow

Inflow Area = 711,597 sf, 48.21% Impervious, Inflow Depth = 2.58" for 25 Year, 24 Hr. Event event
Inflow = 27.59 cfs @ 12.32 hrs, Volume= 153,030 cf
Primary = 27.59 cfs @ 12.32 hrs, Volume= 153,030 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

25 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_East~Reach DP-8B.hce

Link 8B: DA-8B Inflow



Hydrograph for Link 8B: DA-8B Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.01	0.00	0.01	53.00	0.00	0.00	0.00
2.00	0.07	0.00	0.07	54.00	0.00	0.00	0.00
3.00	0.11	0.00	0.11	55.00	0.00	0.00	0.00
4.00	0.15	0.00	0.15	56.00	0.00	0.00	0.00
5.00	0.18	0.00	0.18	57.00	0.00	0.00	0.00
6.00	0.21	0.00	0.21	58.00	0.00	0.00	0.00
7.00	0.28	0.00	0.28	59.00	0.00	0.00	0.00
8.00	0.36	0.00	0.36	60.00	0.00	0.00	0.00
9.00	0.53	0.00	0.53	61.00	0.00	0.00	0.00
10.00	0.74	0.00	0.74	62.00	0.00	0.00	0.00
11.00	1.16	0.00	1.16	63.00	0.00	0.00	0.00
12.00	**9.67**	0.00	**9.67**	64.00	0.00	0.00	0.00
13.00	**7.51**	0.00	**7.51**	65.00	0.00	0.00	0.00
14.00	4.11	0.00	4.11	66.00	0.00	0.00	0.00
15.00	2.96	0.00	2.96	67.00	0.00	0.00	0.00
16.00	2.07	0.00	2.07	68.00	0.00	0.00	0.00
17.00	1.53	0.00	1.53	69.00	0.00	0.00	0.00
18.00	1.14	0.00	1.14	70.00	0.00	0.00	0.00
19.00	0.93	0.00	0.93	71.00	0.00	0.00	0.00
20.00	0.81	0.00	0.81	72.00	0.00	0.00	0.00
21.00	0.71	0.00	0.71	73.00	0.00	0.00	0.00
22.00	0.62	0.00	0.62	74.00	0.00	0.00	0.00
23.00	0.54	0.00	0.54	75.00	0.00	0.00	0.00
24.00	0.45	0.00	0.45	76.00	0.00	0.00	0.00
25.00	0.01	0.00	0.01	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Reach 8C: DA-8C Inflow

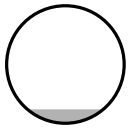
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 71,014 sf, 77.06% Impervious, Inflow Depth = 0.71" for 25 Year, 24 Hr. Event event
Inflow = 0.96 cfs @ 12.40 hrs, Volume= 4,185 cf
Outflow = 0.96 cfs @ 12.41 hrs, Volume= 4,185 cf, Atten= 0%, Lag= 0.5 min

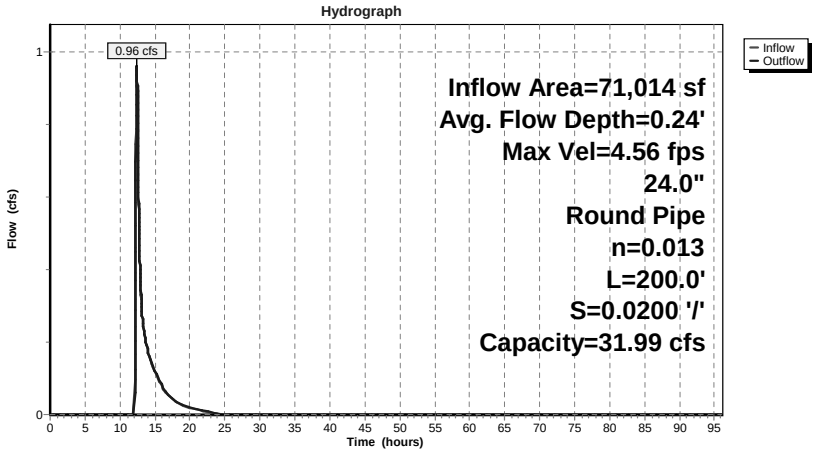
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 4.56 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.88 fps, Avg. Travel Time= 1.8 min

Peak Storage= 42 cf @ 12.41 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 31.99 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 200.0' Slope= 0.0200 '/'
Inlet Invert= 600.00', Outlet Invert= 596.00'



Reach 8C: DA-8C Inflow



Hydrograph for Reach 8C: DA-8C Inflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	600.00	0.00
2.00	0.00	0	600.00	0.00
4.00	0.00	0	600.00	0.00
6.00	0.00	0	600.00	0.00
8.00	0.00	0	600.00	0.00
10.00	0.00	0	600.00	0.00
12.00	**0.00**	**0**	**600.00**	**0.00**
14.00	**0.17**	**13**	**600.11**	**0.17**
16.00	0.08	7	600.07	0.08
18.00	0.03	4	600.05	0.04
20.00	0.02	3	600.04	0.02
22.00	0.01	2	600.03	0.01
24.00	0.00	1	600.01	0.00
26.00	0.00	0	600.00	0.00
28.00	0.00	0	600.00	0.00
30.00	0.00	0	600.00	0.00
32.00	0.00	0	600.00	0.00
34.00	0.00	0	600.00	0.00
36.00	0.00	0	600.00	0.00
38.00	0.00	0	600.00	0.00
40.00	0.00	0	600.00	0.00
42.00	0.00	0	600.00	0.00
44.00	0.00	0	600.00	0.00
46.00	0.00	0	600.00	0.00
48.00	0.00	0	600.00	0.00
50.00	0.00	0	600.00	0.00
52.00	0.00	0	600.00	0.00
54.00	0.00	0	600.00	0.00
56.00	0.00	0	600.00	0.00
58.00	0.00	0	600.00	0.00
60.00	0.00	0	600.00	0.00
62.00	0.00	0	600.00	0.00
64.00	0.00	0	600.00	0.00
66.00	0.00	0	600.00	0.00
68.00	0.00	0	600.00	0.00
70.00	0.00	0	600.00	0.00
72.00	0.00	0	600.00	0.00
74.00	0.00	0	600.00	0.00
76.00	0.00	0	600.00	0.00
78.00	0.00	0	600.00	0.00
80.00	0.00	0	600.00	0.00
82.00	0.00	0	600.00	0.00
84.00	0.00	0	600.00	0.00
86.00	0.00	0	600.00	0.00
88.00	0.00	0	600.00	0.00
90.00	0.00	0	600.00	0.00
92.00	0.00	0	600.00	0.00
94.00	0.00	0	600.00	0.00
96.00	0.00	0	600.00	0.00

Summary for Pond BIO-1A: 8C-1A Bioretention

Inflow Area = 27,975 sf, 75.07% Impervious, Inflow Depth = 5.12" for 25 Year, 24 Hr. Event event
Inflow = 3.56 cfs @ 12.07 hrs, Volume= 11,934 cf
Outflow = 0.99 cfs @ 12.40 hrs, Volume= 10,650 cf, Atten= 72%, Lag= 19.8 min
Discarded = 0.03 cfs @ 11.81 hrs, Volume= 6,464 cf
Primary = 0.96 cfs @ 12.40 hrs, Volume= 4,185 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 603.61' @ 12.40 hrs Surf.Area= 5,594 sf Storage= 6,524 cf

Plug-Flow detention time= 1,099.0 min calculated for 10,649 cf (89% of inflow)
Center-of-Mass det. time= 1,046.5 min (1,803.6 - 757.2)

Volume	Invert	Avail.Storage	Storage Description
#1	598.75'	8,702 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

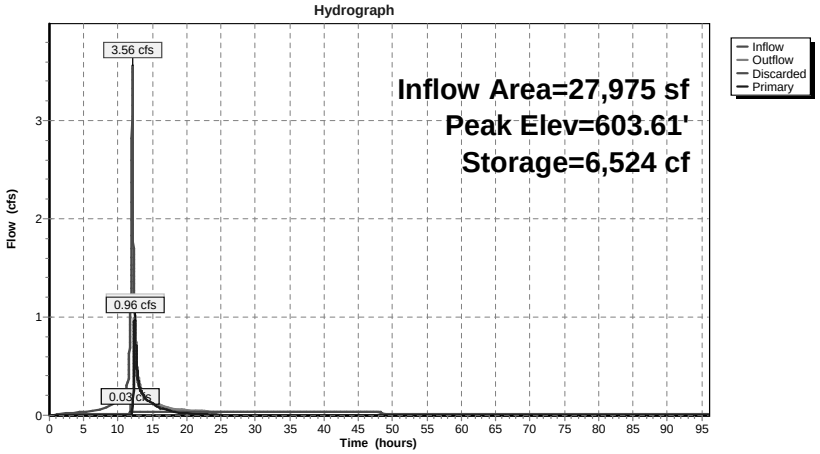
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
598.75	1,811	0.0	0	0
598.76	1,811	40.0	7	7
602.99	1,811	40.0	3,064	3,071
603.00	5,594	100.0	37	3,108
603.50	5,594	100.0	2,797	5,905
604.00	5,594	100.0	2,797	8,702

Device	Routing	Invert	Outlet Devices
#1	Discarded	598.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	603.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 11.81 hrs HW=603.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.96 cfs @ 12.40 hrs HW=603.61' TW=600.24' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.96 cfs @ 1.09 fps)

Pond BIO-1A: 8C-1A Bioretention



Hydrograph for Pond BIO-1A: 8C-1A Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	598.75	0.00	0.00	0.00
2.00	0.01	2	598.75	0.01	0.01	0.00
4.00	0.03	80	598.86	0.01	0.01	0.00
6.00	0.04	255	599.10	0.01	0.01	0.00
8.00	0.07	576	599.54	0.01	0.01	0.00
10.00	0.15	1,264	600.50	0.01	**0.01**	0.00
12.00	**2.37**	**4,097**	**603.18**	**0.03**	**0.03**	**0.00**
14.00	**0.19**	**6,102**	**603.54**	**0.21**	0.03	**0.17**
16.00	0.10	6,022	603.52	0.11	0.03	0.08
18.00	0.06	5,973	603.51	0.07	0.03	0.03
20.00	0.05	5,950	603.51	0.05	0.03	0.02
22.00	0.04	5,935	603.51	0.04	0.03	0.01
24.00	0.03	5,917	603.50	0.03	0.03	0.00
26.00	0.00	5,692	603.46	0.03	0.03	0.00
28.00	0.00	5,459	603.42	0.03	0.03	0.00
30.00	0.00	5,226	603.38	0.03	0.03	0.00
32.00	0.00	4,993	603.34	0.03	0.03	0.00
34.00	0.00	4,760	603.30	0.03	0.03	0.00
36.00	0.00	4,527	603.25	0.03	0.03	0.00
38.00	0.00	4,294	603.21	0.03	0.03	0.00
40.00	0.00	4,061	603.17	0.03	0.03	0.00
42.00	0.00	3,828	603.13	0.03	0.03	0.00
44.00	0.00	3,594	603.09	0.03	0.03	0.00
46.00	0.00	3,361	603.05	0.03	0.03	0.00
48.00	0.00	3,128	603.00	0.03	0.03	0.00
50.00	0.00	3,021	602.92	0.01	0.01	0.00
52.00	0.00	2,945	602.82	0.01	0.01	0.00
54.00	0.00	2,870	602.71	0.01	0.01	0.00
56.00	0.00	2,794	602.61	0.01	0.01	0.00
58.00	0.00	2,719	602.50	0.01	0.01	0.00
60.00	0.00	2,643	602.40	0.01	0.01	0.00
62.00	0.00	2,568	602.29	0.01	0.01	0.00
64.00	0.00	2,492	602.19	0.01	0.01	0.00
66.00	0.00	2,417	602.09	0.01	0.01	0.00
68.00	0.00	2,341	601.98	0.01	0.01	0.00
70.00	0.00	2,266	601.88	0.01	0.01	0.00
72.00	0.00	2,190	601.77	0.01	0.01	0.00
74.00	0.00	2,115	601.67	0.01	0.01	0.00
76.00	0.00	2,040	601.57	0.01	0.01	0.00
78.00	0.00	1,964	601.46	0.01	0.01	0.00
80.00	0.00	1,889	601.36	0.01	0.01	0.00
82.00	0.00	1,813	601.25	0.01	0.01	0.00
84.00	0.00	1,738	601.15	0.01	0.01	0.00
86.00	0.00	1,662	601.04	0.01	0.01	0.00
88.00	0.00	1,587	600.94	0.01	0.01	0.00
90.00	0.00	1,511	600.84	0.01	0.01	0.00
92.00	0.00	1,436	600.73	0.01	0.01	0.00
94.00	0.00	1,360	600.63	0.01	0.01	0.00
96.00	0.00	1,285	600.52	0.01	0.01	0.00

Summary for Pond BIO-1B: 8C-1B Bioretention

Inflow Area = 36,344 sf, 74.37% Impervious, Inflow Depth = 5.10" for 25 Year, 24 Hr. Event event
Inflow = 4.61 cfs @ 12.07 hrs, Volume= 15,450 cf
Outflow = 0.03 cfs @ 24.05 hrs, Volume= 8,921 cf, Atten= 99%, Lag= 718.6 min
Discarded = 0.03 cfs @ 24.05 hrs, Volume= 8,921 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 607.97' @ 24.05 hrs Surf.Area= 5,646 sf Storage= 13,446 cf

Plug-Flow detention time= 2,221.8 min calculated for 8,921 cf (58% of inflow)
Center-of-Mass det. time= 2,106.2 min (2,863.8 - 757.6)

Volume	Invert	Avail.Storage	Storage Description
#1	601.75'	27,051 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

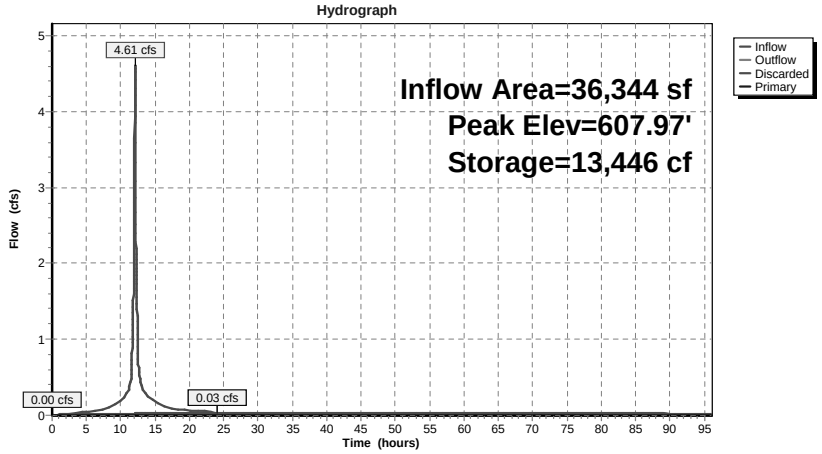
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
601.75	2,925	0.0	0	0
601.76	2,925	40.0	12	12
605.99	2,925	40.0	4,949	4,961
609.00	7,061	100.0	15,029	19,990
609.50	7,061	100.0	3,531	23,520
610.00	7,061	100.0	3,531	27,051

Device	Routing	Invert	Outlet Devices
#1	Discarded	601.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	609.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 24.05 hrs HW=607.97' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=601.75' TW=600.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond BIO-1B: 8C-1B Bioretention



Hydrograph for Pond BIO-1B: 8C-1B Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	601.75	0.00	0.00	**0.00**
2.00	0.02	0	601.75	0.02	0.02	0.00
4.00	0.04	75	601.81	0.02	0.02	0.00
6.00	0.05	276	601.99	0.02	0.02	0.00
8.00	0.09	664	602.32	0.02	0.02	0.00
10.00	0.19	1,526	603.05	0.02	0.02	0.00
12.00	**3.07**	5,185	606.07	0.02	0.02	0.00
14.00	**0.24**	11,264	607.56	0.03	0.03	0.00
16.00	0.13	12,369	607.77	0.03	0.03	0.00
18.00	0.08	12,883	607.87	0.03	0.03	0.00
20.00	0.06	13,159	607.92	0.03	0.03	0.00
22.00	0.05	13,342	607.95	0.03	0.03	0.00
24.00	0.04	**13,445**	**607.97**	**0.03**	**0.03**	0.00
26.00	0.00	**13,222**	**607.93**	**0.03**	**0.03**	0.00
28.00	0.00	12,991	607.89	0.03	0.03	0.00
30.00	0.00	12,761	607.85	0.03	0.03	0.00
32.00	0.00	12,534	607.81	0.03	0.03	0.00
34.00	0.00	12,310	607.76	0.03	0.03	0.00
36.00	0.00	12,087	607.72	0.03	0.03	0.00
38.00	0.00	11,867	607.68	0.03	0.03	0.00
40.00	0.00	11,650	607.64	0.03	0.03	0.00
42.00	0.00	11,435	607.60	0.03	0.03	0.00
44.00	0.00	11,222	607.56	0.03	0.03	0.00
46.00	0.00	11,012	607.51	0.03	0.03	0.00
48.00	0.00	10,804	607.47	0.03	0.03	0.00
50.00	0.00	10,599	607.43	0.03	0.03	0.00
52.00	0.00	10,395	607.39	0.03	0.03	0.00
54.00	0.00	10,195	607.35	0.03	0.03	0.00
56.00	0.00	9,996	607.31	0.03	0.03	0.00
58.00	0.00	9,800	607.26	0.03	0.03	0.00
60.00	0.00	9,607	607.22	0.03	0.03	0.00
62.00	0.00	9,415	607.18	0.03	0.03	0.00
64.00	0.00	9,227	607.14	0.03	0.03	0.00
66.00	0.00	9,040	607.10	0.03	0.03	0.00
68.00	0.00	8,856	607.06	0.03	0.03	0.00
70.00	0.00	8,674	607.01	0.03	0.03	0.00
72.00	0.00	8,495	606.97	0.02	0.02	0.00
74.00	0.00	8,318	606.93	0.02	0.02	0.00
76.00	0.00	8,144	606.89	0.02	0.02	0.00
78.00	0.00	7,972	606.85	0.02	0.02	0.00
80.00	0.00	7,802	606.81	0.02	0.02	0.00
82.00	0.00	7,635	606.76	0.02	0.02	0.00
84.00	0.00	7,470	606.72	0.02	0.02	0.00
86.00	0.00	7,307	606.68	0.02	0.02	0.00
88.00	0.00	7,147	606.64	0.02	0.02	0.00
90.00	0.00	6,989	606.60	0.02	0.02	0.00
92.00	0.00	6,834	606.56	0.02	0.02	0.00
94.00	0.00	6,681	606.51	0.02	0.02	0.00
96.00	0.00	6,530	606.47	0.02	0.02	0.00

Summary for Reach DP-8: Det Basin Outflow

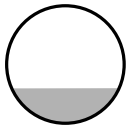
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1,087,954 sf, 38.29% Impervious, Inflow Depth > 2.72" for 25 Year, 24 Hr. Event event
Inflow = 16.95 cfs @ 12.13 hrs, Volume= 246,854 cf
Outflow = 16.93 cfs @ 12.13 hrs, Volume= 246,852 cf, Atten= 0%, Lag= 0.3 min

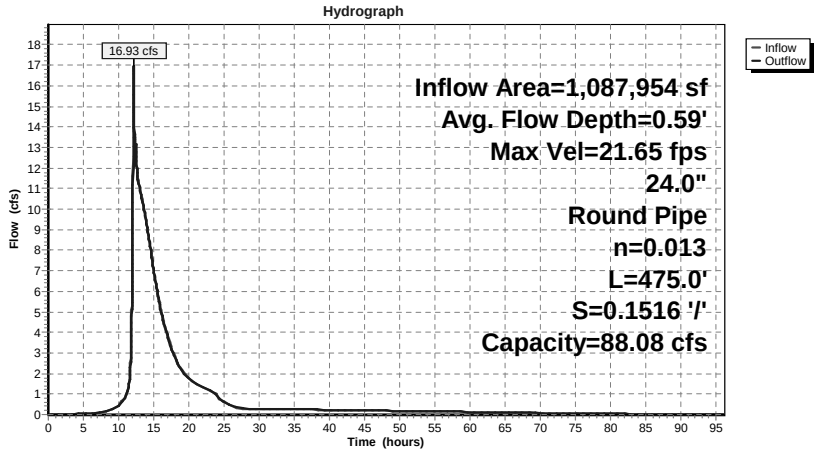
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 21.65 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.97 fps, Avg. Travel Time= 1.3 min

Peak Storage= 372 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.59'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 88.08 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 475.0' Slope= 0.1516 '/'
Inlet Invert= 590.00', Outlet Invert= 518.00'



Reach DP-8: Det Basin Outflow



Hydrograph for Reach DP-8: Det Basin Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	590.00	0.00
2.00	0.01	2	590.02	0.01
4.00	0.03	4	590.03	0.03
6.00	0.05	6	590.04	0.05
8.00	0.12	11	590.05	0.12
10.00	0.47	30	590.10	0.46
12.00	**8.53**	**223**	**590.41**	**8.25**
14.00	**9.22**	**241**	**590.44**	**9.23**
16.00	5.09	159	590.33	5.10
18.00	2.78	104	590.24	2.78
20.00	1.77	76	590.20	1.77
22.00	1.31	61	590.17	1.32
24.00	1.01	51	590.15	1.01
26.00	0.43	28	590.10	0.43
28.00	0.28	21	590.08	0.28
30.00	0.27	20	590.08	0.27
32.00	0.26	20	590.08	0.26
34.00	0.26	20	590.08	0.26
36.00	0.25	19	590.08	0.25
38.00	0.24	19	590.08	0.24
40.00	0.23	18	590.07	0.23
42.00	0.22	18	590.07	0.22
44.00	0.21	17	590.07	0.21
46.00	0.20	16	590.07	0.20
48.00	0.19	16	590.07	0.19
50.00	0.18	15	590.07	0.18
52.00	0.17	15	590.06	0.17
54.00	0.16	14	590.06	0.16
56.00	0.15	13	590.06	0.15
58.00	0.14	13	590.06	0.14
60.00	0.13	12	590.06	0.13
62.00	0.12	11	590.05	0.12
64.00	0.11	11	590.05	0.11
66.00	0.10	10	590.05	0.10
68.00	0.09	9	590.05	0.09
70.00	0.08	8	590.04	0.08
72.00	0.07	8	590.04	0.07
74.00	0.05	7	590.04	0.05
76.00	0.05	6	590.03	0.05
78.00	0.04	5	590.03	0.04
80.00	0.03	4	590.03	0.03
82.00	0.03	4	590.03	0.03
84.00	0.02	4	590.02	0.02
86.00	0.02	3	590.02	0.02
88.00	0.02	3	590.02	0.02
90.00	0.02	3	590.02	0.02
92.00	0.01	3	590.02	0.01
94.00	0.01	2	590.02	0.01
96.00	0.01	2	590.02	0.01

Summary for Pond P-1C: 8C-1C Pavers

Inflow Area = 6,695 sf,100.00% Impervious, Inflow Depth = 5.76" for 25 Year, 24 Hr. Event event
Inflow = 0.94 cfs @ 12.07 hrs, Volume= 3,215 cf
Outflow = 0.04 cfs @ 10.34 hrs, Volume= 3,215 cf, Atten= 96%, Lag= 0.0 min
Discarded = 0.04 cfs @ 10.34 hrs, Volume= 3,215 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 609.14' @ 14.71 hrs Surf.Area= 6,695 sf Storage= 1,524 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 323.6 min (1,067.8 - 744.2)

Volume	Invert	Avail.Storage	Storage Description
#1	608.00'	8,757 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

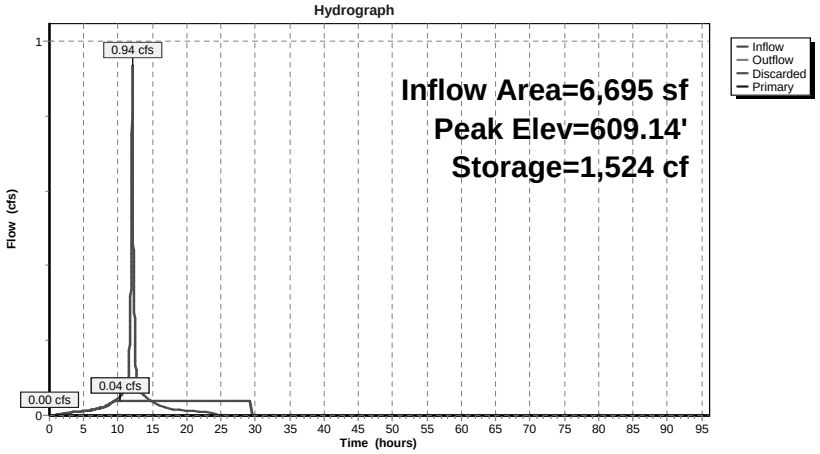
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.00	6,695	0.0	0	0
608.01	6,695	20.0	13	13
611.99	6,695	20.0	5,329	5,343
612.00	6,695	100.0	67	5,410
612.50	6,695	100.0	3,348	8,757

Device	Routing	Invert	Outlet Devices
#1	Primary	612.00'	**12.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	608.00'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.04 cfs @ 10.34 hrs HW=608.01' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=608.00' TW=600.00' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-1C: 8C-1C Pavers



Hydrograph for Pond P-1C: 8C-1C Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	608.00	0.00	0.00	**0.00**
2.00	0.00	0	608.00	0.00	0.00	0.00
4.00	0.01	0	608.00	0.01	0.01	0.00
6.00	0.01	0	608.00	0.01	0.01	0.00
8.00	0.02	0	608.00	0.02	0.02	0.00
10.00	0.04	4	608.00	**0.04**	**0.04**	0.00
12.00	**0.63**	542	608.40	**0.04**	**0.04**	0.00
14.00	**0.05**	**1,514**	**609.13**	0.04	0.04	0.00
16.00	0.02	**1,492**	**609.11**	0.04	0.04	0.00
18.00	0.02	1,356	609.01	0.04	0.04	0.00
20.00	0.01	1,175	608.88	0.04	0.04	0.00
22.00	0.01	976	608.73	0.04	0.04	0.00
24.00	0.01	762	608.57	0.04	0.04	0.00
26.00	0.00	485	608.36	0.04	0.04	0.00
28.00	0.00	206	608.15	0.04	0.04	0.00
30.00	0.00	0	608.00	0.00	0.00	0.00
32.00	0.00	0	608.00	0.00	0.00	0.00
34.00	0.00	0	608.00	0.00	0.00	0.00
36.00	0.00	0	608.00	0.00	0.00	0.00
38.00	0.00	0	608.00	0.00	0.00	0.00
40.00	0.00	0	608.00	0.00	0.00	0.00
42.00	0.00	0	608.00	0.00	0.00	0.00
44.00	0.00	0	608.00	0.00	0.00	0.00
46.00	0.00	0	608.00	0.00	0.00	0.00
48.00	0.00	0	608.00	0.00	0.00	0.00
50.00	0.00	0	608.00	0.00	0.00	0.00
52.00	0.00	0	608.00	0.00	0.00	0.00
54.00	0.00	0	608.00	0.00	0.00	0.00
56.00	0.00	0	608.00	0.00	0.00	0.00
58.00	0.00	0	608.00	0.00	0.00	0.00
60.00	0.00	0	608.00	0.00	0.00	0.00
62.00	0.00	0	608.00	0.00	0.00	0.00
64.00	0.00	0	608.00	0.00	0.00	0.00
66.00	0.00	0	608.00	0.00	0.00	0.00
68.00	0.00	0	608.00	0.00	0.00	0.00
70.00	0.00	0	608.00	0.00	0.00	0.00
72.00	0.00	0	608.00	0.00	0.00	0.00
74.00	0.00	0	608.00	0.00	0.00	0.00
76.00	0.00	0	608.00	0.00	0.00	0.00
78.00	0.00	0	608.00	0.00	0.00	0.00
80.00	0.00	0	608.00	0.00	0.00	0.00
82.00	0.00	0	608.00	0.00	0.00	0.00
84.00	0.00	0	608.00	0.00	0.00	0.00
86.00	0.00	0	608.00	0.00	0.00	0.00
88.00	0.00	0	608.00	0.00	0.00	0.00
90.00	0.00	0	608.00	0.00	0.00	0.00
92.00	0.00	0	608.00	0.00	0.00	0.00
94.00	0.00	0	608.00	0.00	0.00	0.00
96.00	0.00	0	608.00	0.00	0.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: DA8C-1A Runoff Area=27,975 sf 75.07% Impervious Runoff Depth=8.52"
Tc=5.0 min CN=74/98 Runoff=5.87 cfs 19,858 cf

Subcatchment 1B: DA8C-1B Runoff Area=36,344 sf 74.37% Impervious Runoff Depth=8.50"
Tc=5.0 min CN=74/98 Runoff=7.62 cfs 25,736 cf

Subcatchment 1C: DA8C-1C Runoff Area=6,695 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=1.49 cfs 5,166 cf

Pond 8-B: Micropool Ext Det Basin Peak Elev=595.54' Storage=193,352 cf Inflow=87.50 cfs 408,680 cf
Outflow=24.30 cfs 407,192 cf

Pond 8-F: Forebay Peak Elev=595.54' Storage=62,966 cf Inflow=115.81 cfs 408,680 cf
Outflow=87.50 cfs 408,680 cf

Subcatchment 8A1: DA-8A1 Runoff Area=200,906 sf 8.68% Impervious Runoff Depth=6.54"
Flow Length=184' Tc=8.6 min CN=74/98 Runoff=31.60 cfs 109,571 cf

Subcatchment 8A2: DA-8A2 Runoff Area=104,437 sf 1.30% Impervious Runoff Depth=7.20"
Flow Length=100' Slope=0.0870 '/' Tc=7.6 min CN=81/98 Runoff=18.56 cfs 62,628 cf

Link 10-Year, 24 Hr. Event Outflow Imported from Post_DP-08B_East~Reach DP-8B.hce Inflow=93.65 cfs 334,086 cf
Area= 711,597 sf 48.21% Imperv. Primary=93.65 cfs 334,086 cf

Reach 8C: DA-8C Inflow Avg. Flow Depth=0.51' Max Vel=7.23 fps Inflow=4.60 cfs 11,967 cf
24.0" Round Pipe n=0.013 L=200.0' S=0.0200 '/' Capacity=31.99 cfs Outflow=4.59 cfs 11,967 cf

Pond BIO-1A: 8C-1A Bioretention Peak Elev=603.81' Storage=7,660 cf Inflow=5.87 cfs 19,858 cf
Discarded=0.03 cfs 6,597 cf Primary=4.60 cfs 11,967 cf Outflow=4.63 cfs 18,564 cf

Pond BIO-1B: 8C-1B Bioretention Peak Elev=609.47' Storage=23,284 cf Inflow=7.62 cfs 25,736 cf
Discarded=0.04 cfs 12,298 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 12,298 cf

Reach DP-8: Det Basin Outflow Avg. Flow Depth=0.98' Max Vel=27.76 fps Inflow=42.37 cfs 516,763 cf
24.0" Round Pipe n=0.013 L=475.0' S=0.1516 '/' Capacity=88.08 cfs Outflow=42.34 cfs 516,761 cf

Pond P-1C: 8C-1C Pavers Peak Elev=610.21' Storage=2,960 cf Inflow=1.49 cfs 5,166 cf
Discarded=0.04 cfs 5,167 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 5,167 cf

Total Runoff Area = 376,357 sf Runoff Volume = 222,959 cf Average Runoff Depth = 7.11"
80.46% Pervious = 302,834 sf 19.54% Impervious = 73,523 sf

Summary for Subcatchment 1A: DA8C-1A

Runoff = 5.87 cfs @ 12.07 hrs, Volume= 19,858 cf, Depth= 8.52"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

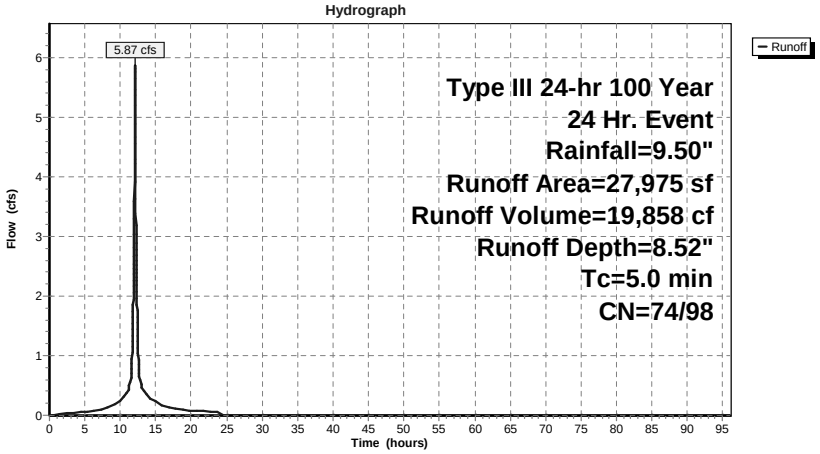
	Area (sf)	CN	Description	Land Use
	21,000	98	Paved parking, HSG C	Pavement
	1,381	74	>75% Grass cover, Good, HSG C	Open Space
*	5,594	74	Bioretention	Brush
	27,975	92	Weighted Average	
	6,975	74	24.93% Pervious Area	
	21,000	98	75.07% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 75.07% Impervious, Rv= 0.726, Runoff= 33.16"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,594	Brush	35.71	0.00	0.00	1.19
1,381	Open Space	143.42	0.50	2.17	0.29
21,000	Pavement	626.73	2.03	7.61	24.27
27,975	Total	805.85	2.53	9.78	25.75

Subcatchment 1A: DA8C-1A



Hydrograph for Subcatchment 1A: DA8C-1A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.03
4.00	0.41	0.00	0.24	0.05
6.00	0.68	0.00	0.49	0.07
8.00	1.08	0.04	0.87	0.12
10.00	1.80	0.26	1.57	0.25
12.00	4.75	2.17	4.51	**3.94**
14.00	7.70	4.66	7.46	**0.30**
16.00	8.42	5.30	8.18	0.16
18.00	8.82	5.66	8.58	0.10
20.00	9.09	5.91	8.85	0.08
22.00	9.32	6.12	9.08	0.07
24.00	**9.50**	**6.29**	**9.26**	0.05
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00
74.00	9.50	6.29	9.26	0.00
76.00	9.50	6.29	9.26	0.00
78.00	9.50	6.29	9.26	0.00
80.00	9.50	6.29	9.26	0.00
82.00	9.50	6.29	9.26	0.00
84.00	9.50	6.29	9.26	0.00
86.00	9.50	6.29	9.26	0.00
88.00	9.50	6.29	9.26	0.00
90.00	9.50	6.29	9.26	0.00
92.00	9.50	6.29	9.26	0.00
94.00	9.50	6.29	9.26	0.00
96.00	9.50	6.29	9.26	0.00

Summary for Subcatchment 1B: DA8C-1B

Runoff = 7.62 cfs @ 12.07 hrs, Volume= 25,736 cf, Depth= 8.50"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

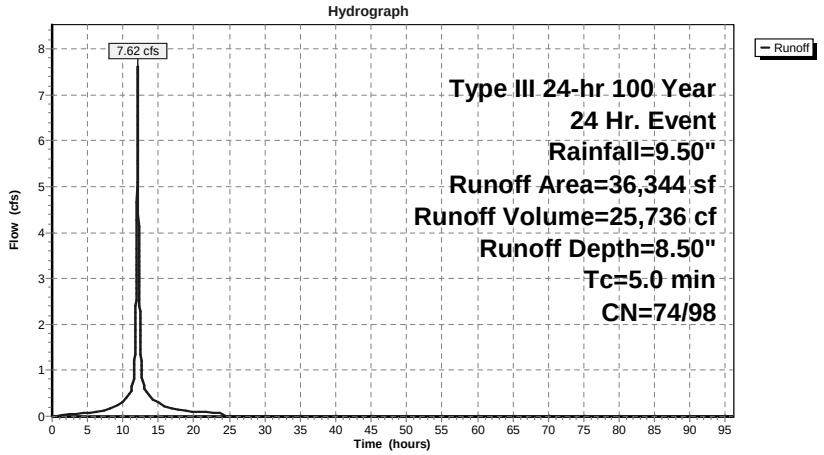
	Area (sf)	CN	Description	Land Use
	27,028	98	Paved parking, HSG C	Pavement
	2,256	74	>75% Grass cover, Good, HSG C	Open Space
*	7,060	74	Bioretention	Brush
	36,344	92	Weighted Average	
	9,316	74	25.63% Pervious Area	
	27,028	98	74.37% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.37% Impervious, Rv= 0.719, Runoff= 32.87"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,060	Brush	44.67	0.00	0.00	1.49
2,256	Open Space	232.25	0.81	3.51	0.47
27,028	Pavement	799.63	2.59	9.71	30.97
36,344	Total	1,076.55	3.40	13.22	32.93

Subcatchment 1B: DA8C-1B



Hydrograph for Subcatchment 1B: DA8C-1B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.04
4.00	0.41	0.00	0.24	0.07
6.00	0.68	0.00	0.49	0.09
8.00	1.08	0.04	0.87	0.16
10.00	1.80	0.26	1.57	0.32
12.00	4.75	2.17	4.51	**5.10**
14.00	7.70	4.66	7.46	**0.39**
16.00	8.42	5.30	8.18	0.21
18.00	8.82	5.66	8.58	0.13
20.00	9.09	5.91	8.85	0.10
22.00	9.32	6.12	9.08	0.08
24.00	**9.50**	**6.29**	**9.26**	0.07
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00
74.00	9.50	6.29	9.26	0.00
76.00	9.50	6.29	9.26	0.00
78.00	9.50	6.29	9.26	0.00
80.00	9.50	6.29	9.26	0.00
82.00	9.50	6.29	9.26	0.00
84.00	9.50	6.29	9.26	0.00
86.00	9.50	6.29	9.26	0.00
88.00	9.50	6.29	9.26	0.00
90.00	9.50	6.29	9.26	0.00
92.00	9.50	6.29	9.26	0.00
94.00	9.50	6.29	9.26	0.00
96.00	9.50	6.29	9.26	0.00

Summary for Subcatchment 1C: DA8C-1C

Runoff = 1.49 cfs @ 12.07 hrs, Volume= 5,166 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

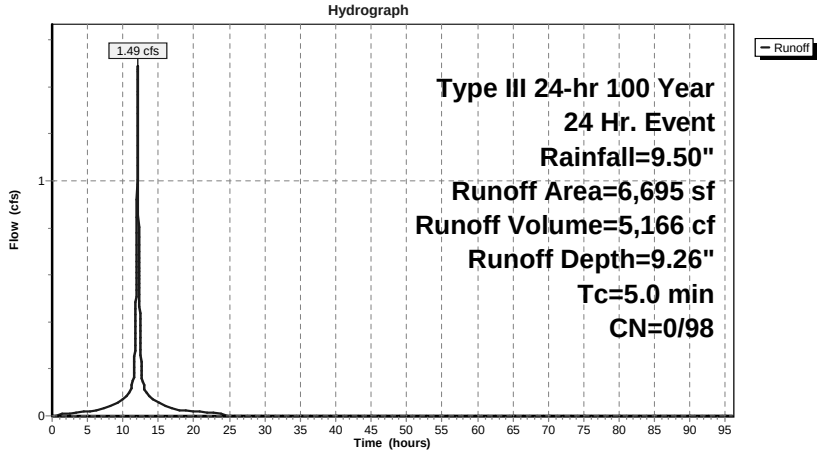
	Area (sf)	CN	Description	Land Use
*	6,695	98	Pavers	Pavement
	6,695	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
6,695	Pavement	261.60	0.85	3.18	10.13
6,695	Total	261.60	0.85	3.18	10.13

Subcatchment 1C: DA8C-1C



Hydrograph for Subcatchment 1C: DA8C-1C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.02
6.00	0.68	0.00	0.49	0.02
8.00	1.08	0.00	0.87	0.04
10.00	1.80	0.00	1.57	0.07
12.00	4.75	0.00	4.51	**1.01**
14.00	7.70	0.00	7.46	**0.07**
16.00	8.42	0.00	8.18	0.04
18.00	8.82	0.00	8.58	0.02
20.00	9.09	0.00	8.85	0.02
22.00	9.32	0.00	9.08	0.02
24.00	**9.50**	0.00	**9.26**	0.01
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00
74.00	9.50	0.00	9.26	0.00
76.00	9.50	0.00	9.26	0.00
78.00	9.50	0.00	9.26	0.00
80.00	9.50	0.00	9.26	0.00
82.00	9.50	0.00	9.26	0.00
84.00	9.50	0.00	9.26	0.00
86.00	9.50	0.00	9.26	0.00
88.00	9.50	0.00	9.26	0.00
90.00	9.50	0.00	9.26	0.00
92.00	9.50	0.00	9.26	0.00
94.00	9.50	0.00	9.26	0.00
96.00	9.50	0.00	9.26	0.00

Summary for Pond 8-B: Micropool Ext Det Basin

[80] Warning: Exceeded Pond 8-F by 0.01' @ 12.31 hrs (120.30 cfs 170,682 cf)

Inflow Area = 887,048 sf, 45.00% Impervious, Inflow Depth = 5.53" for 100 Year, 24 Hr. Event event
Inflow = 87.50 cfs @ 12.15 hrs, Volume= 408,680 cf
Outflow = 24.30 cfs @ 12.73 hrs, Volume= 407,192 cf, Atten= 72%, Lag= 34.9 min
Primary = 24.30 cfs @ 12.73 hrs, Volume= 407,192 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 590.75' Surf.Area= 17,970 sf Storage= 45,195 cf
Peak Elev= 595.54' @ 12.70 hrs Surf.Area= 41,305 sf Storage= 193,352 cf (148,157 cf above start)

Plug-Flow detention time= 361.3 min calculated for 361,959 cf (89% of inflow)
Center-of-Mass det. time= 264.5 min (1,097.4 - 833.0)

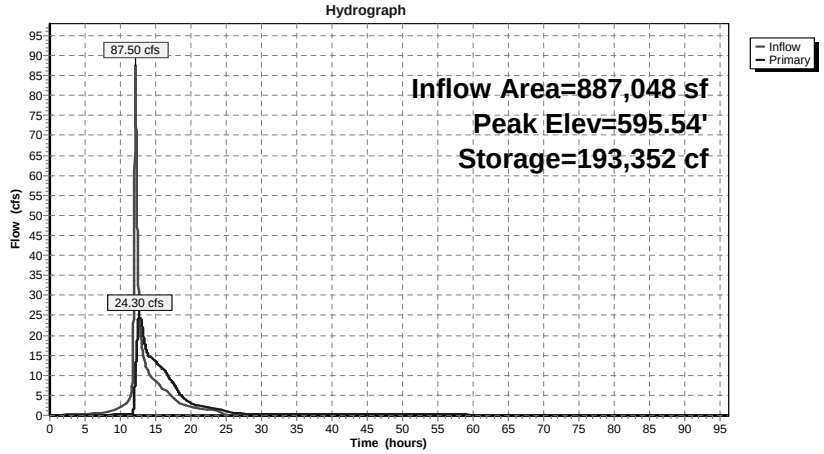
Volume	Invert	Avail.Storage	Storage Description
#1	586.75'	301,176 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
586.75	0	0	0
588.00	10,403	6,502	6,502
590.00	13,760	24,163	30,665
592.00	24,987	38,747	69,412
594.00	37,525	62,512	131,924
596.00	42,446	79,971	211,895
598.00	46,835	89,281	301,176

Device	Routing	Invert	Outlet Devices
#1	Primary	586.00'	**24.0" Round Culvert** L= 290.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 586.00' / 550.00' S= 0.1241 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	590.75'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	592.25'	**24.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	595.00'	**48.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=24.30 cfs @ 12.73 hrs HW=595.53' TW=590.79' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 24.30 cfs @ 7.73 fps)
  ├─**2=Orifice/Grate** (Passes < 0.51 cfs potential flow)
  ├─**3=Orifice/Grate** (Passes < 16.05 cfs potential flow)
  └─**4=Orifice/Grate** (Passes < 10.05 cfs potential flow)

Pond 8-B: Micropool Ext Det Basin



Hydrograph for Pond 8-B: Micropool Ext Det Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	45,195	590.75	0.00
2.00	0.13	45,454	590.76	0.00
4.00	0.26	46,836	590.83	0.01
6.00	0.40	48,889	590.94	0.06
8.00	0.80	52,389	591.12	0.12
10.00	1.90	60,572	591.54	0.19
12.00	**46.17**	**102,284**	**593.05**	**4.96**
14.00	**10.61**	**171,723**	**595.00**	**14.88**
16.00	6.56	136,647	594.12	11.63
18.00	3.67	107,656	593.22	6.53
20.00	2.07	95,171	592.82	3.12
22.00	1.54	90,018	592.66	2.00
24.00	1.18	87,367	592.57	1.49
26.00	0.02	81,742	592.39	0.64
28.00	0.00	78,493	592.29	0.33
30.00	0.00	76,416	592.22	0.27
32.00	0.00	74,465	592.16	0.27
34.00	0.00	72,559	592.10	0.26
36.00	0.00	70,700	592.04	0.26
38.00	0.00	68,887	591.97	0.25
40.00	0.00	67,142	591.88	0.24
42.00	0.00	65,471	591.80	0.23
44.00	0.00	63,876	591.71	0.22
46.00	0.00	62,355	591.64	0.21
48.00	0.00	60,908	591.56	0.20
50.00	0.00	59,537	591.49	0.19
52.00	0.00	58,241	591.42	0.17
54.00	0.00	57,019	591.36	0.16
56.00	0.00	55,872	591.30	0.15
58.00	0.00	54,800	591.25	0.14
60.00	0.00	53,804	591.19	0.13
62.00	0.00	52,883	591.15	0.12
64.00	0.00	52,034	591.10	0.11
66.00	0.00	51,259	591.06	0.10
68.00	0.00	50,559	591.03	0.09
70.00	0.00	49,933	590.99	0.08
72.00	0.00	49,379	590.97	0.07
74.00	0.00	48,906	590.94	0.06
76.00	0.00	48,509	590.92	0.05
78.00	0.00	48,177	590.90	0.04
80.00	0.00	47,896	590.89	0.04
82.00	0.00	47,658	590.88	0.03
84.00	0.00	47,455	590.87	0.03
86.00	0.00	47,280	590.86	0.02
88.00	0.00	47,129	590.85	0.02
90.00	0.00	46,996	590.84	0.02
92.00	0.00	46,879	590.84	0.02
94.00	0.00	46,776	590.83	0.01
96.00	0.00	46,684	590.83	0.01

Summary for Pond 8-F: Forebay

Inflow Area = 887,048 sf, 45.00% Impervious, Inflow Depth = 5.53" for 100 Year, 24 Hr. Event event
Inflow = 115.81 cfs @ 12.13 hrs, Volume= 408,680 cf
Outflow = 87.50 cfs @ 12.15 hrs, Volume= 408,680 cf, Atten= 24%, Lag= 1.1 min
Primary = 87.50 cfs @ 12.15 hrs, Volume= 408,680 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 592.75' Surf.Area= 9,839 sf Storage= 19,484 cf
Peak Elev= 595.54' @ 12.71 hrs Surf.Area= 19,177 sf Storage= 62,966 cf (43,482 cf above start)

Plug-Flow detention time= 68.6 min calculated for 389,197 cf (95% of inflow)
Center-of-Mass det. time= 23.9 min (833.0 - 809.1)

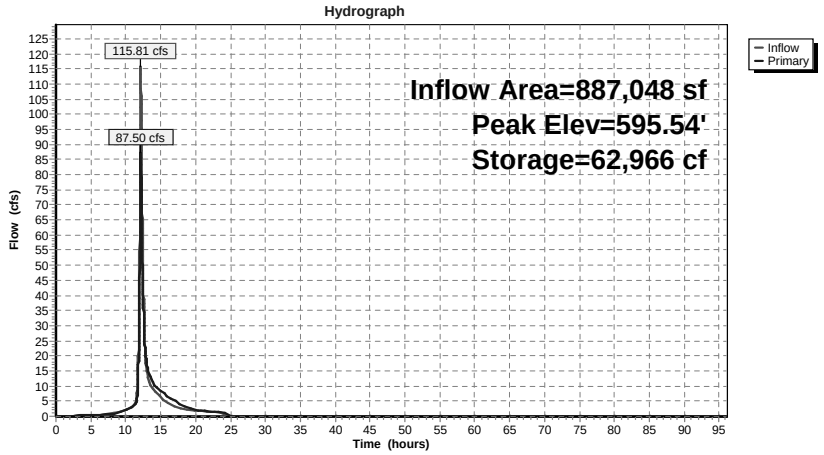
Volume	Invert	Avail.Storage	Storage Description
#1	587.25'	117,643 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
587.25	0	0	0
588.00	1,342	503	503
590.00	2,844	4,186	4,689
592.00	6,008	8,852	13,541
594.00	16,223	22,231	35,772
596.00	20,068	36,291	72,063
598.00	25,512	45,580	117,643

Device	Routing	Invert	Outlet Devices
#1	Primary	592.75'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.25 4.00 Width (feet) 12.00 172.00 204.00

Primary OutFlow Max=69.01 cfs @ 12.15 hrs HW=594.12' TW=594.10' (Dynamic Tailwater)
↳**1=Custom Weir/Orifice** (Weir Controls 69.01 cfs @ 0.51 fps)

Pond 8-F: Forebay



Hydrograph for Pond 8-F: Forebay

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	19,484	592.75	0.00
2.00	0.15	19,691	592.77	0.13
4.00	0.27	19,802	592.78	0.26
6.00	0.41	19,901	592.79	0.40
8.00	0.84	20,121	592.81	0.80
10.00	1.96	20,533	592.85	1.90
12.00	**54.48**	**25,517**	**593.29**	**46.17**
14.00	**8.66**	**52,892**	**595.00**	**10.61**
16.00	4.47	37,719	594.12	6.56
18.00	2.56	24,736	593.23	3.67
20.00	1.91	20,700	592.87	2.07
22.00	1.52	20,415	592.84	1.54
24.00	1.16	20,281	592.83	1.18
26.00	0.00	19,537	592.76	0.02
28.00	0.00	19,498	592.75	0.00
30.00	0.00	19,490	592.75	0.00
32.00	0.00	19,487	592.75	0.00
34.00	0.00	19,486	592.75	0.00
36.00	0.00	19,485	592.75	0.00
38.00	0.00	19,484	592.75	0.00
40.00	0.00	19,484	592.75	0.00
42.00	0.00	19,484	592.75	0.00
44.00	0.00	19,484	592.75	0.00
46.00	0.00	19,484	592.75	0.00
48.00	0.00	19,484	592.75	0.00
50.00	0.00	19,484	592.75	0.00
52.00	0.00	19,484	592.75	0.00
54.00	0.00	19,484	592.75	0.00
56.00	0.00	19,484	592.75	0.00
58.00	0.00	19,484	592.75	0.00
60.00	0.00	19,484	592.75	0.00
62.00	0.00	19,484	592.75	0.00
64.00	0.00	19,484	592.75	0.00
66.00	0.00	19,484	592.75	0.00
68.00	0.00	19,484	592.75	0.00
70.00	0.00	19,484	592.75	0.00
72.00	0.00	19,484	592.75	0.00
74.00	0.00	19,484	592.75	0.00
76.00	0.00	19,484	592.75	0.00
78.00	0.00	19,484	592.75	0.00
80.00	0.00	19,484	592.75	0.00
82.00	0.00	19,484	592.75	0.00
84.00	0.00	19,484	592.75	0.00
86.00	0.00	19,484	592.75	0.00
88.00	0.00	19,484	592.75	0.00
90.00	0.00	19,484	592.75	0.00
92.00	0.00	19,484	592.75	0.00
94.00	0.00	19,484	592.75	0.00
96.00	0.00	19,484	592.75	0.00

Summary for Subcatchment 8A1: DA-8A1

Runoff = 31.60 cfs @ 12.12 hrs, Volume= 109,571 cf, Depth= 6.54"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

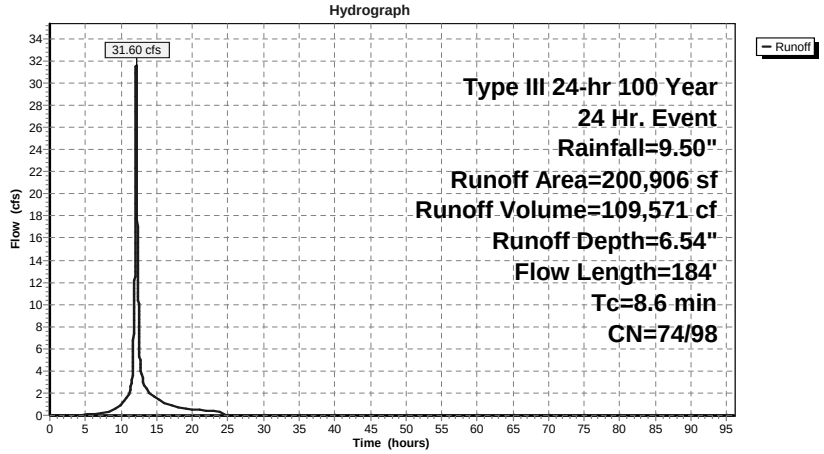
Area (sf)	CN	Description	Land Use
183,464	74	>75% Grass cover, Good, HSG C	Open Space
17,442	98	Unconnected pavement, HSG C	Pavement
200,906	76	Weighted Average	
183,464	74	91.32% Pervious Area	
17,442	98	8.68% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0760	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.0	5	0.0760	1.93		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	79	0.0940	2.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 8.68% Impervious, Rv= 0.128, Runoff= 5.86"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
183,464	Open Space	3,364.57	11.74	50.86	6.87
17,442	Pavement	91.92	0.30	1.12	3.56
200,906	Total	3,456.49	12.03	51.98	10.43

Subcatchment 8A1: DA-8A1



Hydrograph for Subcatchment 8A1: DA-8A1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.02
4.00	0.41	0.00	0.24	0.04
6.00	0.68	0.00	0.49	0.06
8.00	1.08	0.04	0.87	0.27
10.00	1.80	0.26	1.57	0.95
12.00	4.75	2.17	4.51	**16.53**
14.00	7.70	4.66	7.46	**2.07**
16.00	8.42	5.30	8.18	1.11
18.00	8.82	5.66	8.58	0.67
20.00	9.09	5.91	8.85	0.54
22.00	9.32	6.12	9.08	0.44
24.00	**9.50**	**6.29**	**9.26**	0.35
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00
74.00	9.50	6.29	9.26	0.00
76.00	9.50	6.29	9.26	0.00
78.00	9.50	6.29	9.26	0.00
80.00	9.50	6.29	9.26	0.00
82.00	9.50	6.29	9.26	0.00
84.00	9.50	6.29	9.26	0.00
86.00	9.50	6.29	9.26	0.00
88.00	9.50	6.29	9.26	0.00
90.00	9.50	6.29	9.26	0.00
92.00	9.50	6.29	9.26	0.00
94.00	9.50	6.29	9.26	0.00
96.00	9.50	6.29	9.26	0.00

Summary for Subcatchment 8A2: DA-8A2

Runoff = 18.56 cfs @ 12.11 hrs, Volume= 62,628 cf, Depth= 7.20"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

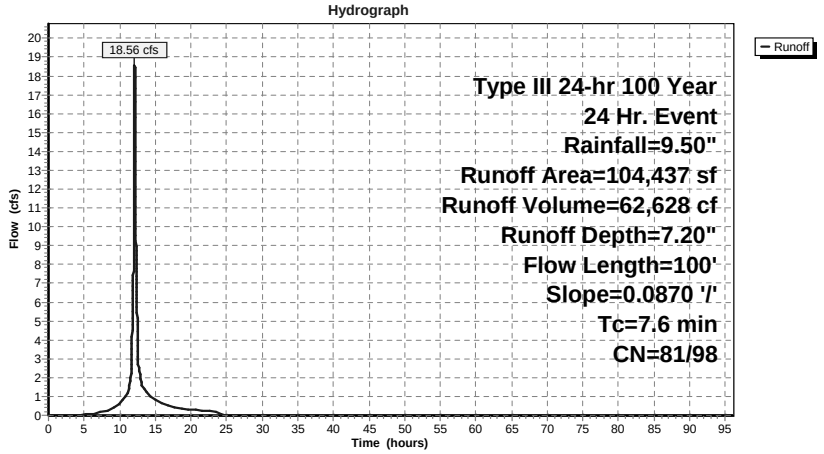
Area (sf)	CN	Description	Land Use
1,358	98	Paved parking, HSG C	Pavement
71,762	74	>75% Grass cover, Good, HSG C	Open Space
31,317	98	Water Surface, 0% imp, HSG C	Open Water
104,437	82	Weighted Average	
103,079	81	98.70% Pervious Area	
1,358	98	1.30% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.0870	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 1.30% Impervious, Rv= 0.062, Runoff= 2.82"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
71,762	Open Space	633.74	2.21	9.58	1.29
31,317	Open Water	0.00	0.00	0.00	0.00
1,358	Pavement	3.45	0.01	0.04	0.13
104,437	Total	637.18	2.22	9.62	1.43

Subcatchment 8A2: DA-8A2



Hydrograph for Subcatchment 8A2: DA-8A2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.00
6.00	0.68	0.02	0.49	0.06
8.00	1.08	0.13	0.87	0.21
10.00	1.80	0.48	1.57	0.64
12.00	4.75	2.77	4.51	**10.35**
14.00	7.70	5.46	7.46	**1.12**
16.00	8.42	6.14	8.18	0.60
18.00	8.82	6.52	8.58	0.36
20.00	9.09	6.78	8.85	0.29
22.00	9.32	6.99	9.08	0.24
24.00	**9.50**	**7.17**	**9.26**	0.19
26.00	9.50	7.17	9.26	0.00
28.00	9.50	7.17	9.26	0.00
30.00	9.50	7.17	9.26	0.00
32.00	9.50	7.17	9.26	0.00
34.00	9.50	7.17	9.26	0.00
36.00	9.50	7.17	9.26	0.00
38.00	9.50	7.17	9.26	0.00
40.00	9.50	7.17	9.26	0.00
42.00	9.50	7.17	9.26	0.00
44.00	9.50	7.17	9.26	0.00
46.00	9.50	7.17	9.26	0.00
48.00	9.50	7.17	9.26	0.00
50.00	9.50	7.17	9.26	0.00
52.00	9.50	7.17	9.26	0.00
54.00	9.50	7.17	9.26	0.00
56.00	9.50	7.17	9.26	0.00
58.00	9.50	7.17	9.26	0.00
60.00	9.50	7.17	9.26	0.00
62.00	9.50	7.17	9.26	0.00
64.00	9.50	7.17	9.26	0.00
66.00	9.50	7.17	9.26	0.00
68.00	9.50	7.17	9.26	0.00
70.00	9.50	7.17	9.26	0.00
72.00	9.50	7.17	9.26	0.00
74.00	9.50	7.17	9.26	0.00
76.00	9.50	7.17	9.26	0.00
78.00	9.50	7.17	9.26	0.00
80.00	9.50	7.17	9.26	0.00
82.00	9.50	7.17	9.26	0.00
84.00	9.50	7.17	9.26	0.00
86.00	9.50	7.17	9.26	0.00
88.00	9.50	7.17	9.26	0.00
90.00	9.50	7.17	9.26	0.00
92.00	9.50	7.17	9.26	0.00
94.00	9.50	7.17	9.26	0.00
96.00	9.50	7.17	9.26	0.00

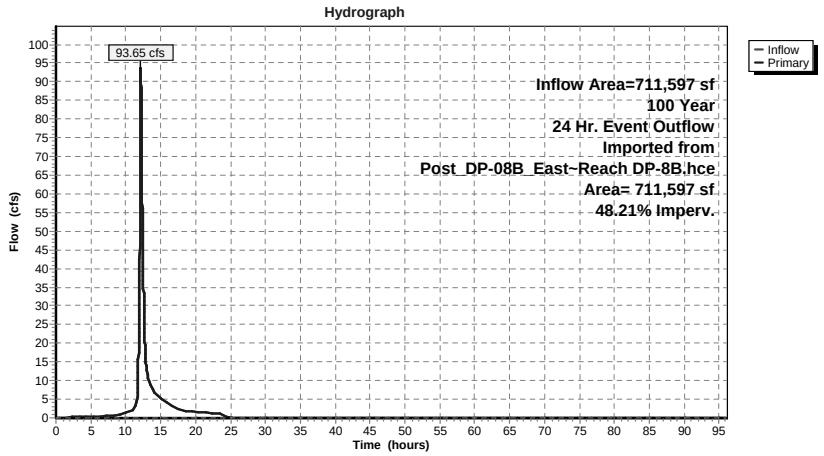
Summary for Link 8B: DA-8B Inflow

Inflow Area = 711,597 sf, 48.21% Impervious, Inflow Depth = 5.63" for 100 Year, 24 Hr. Event event
Inflow = 93.65 cfs @ 12.14 hrs, Volume= 334,086 cf
Primary = 93.65 cfs @ 12.14 hrs, Volume= 334,086 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

100 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_East~Reach DP-8B.hce

Link 8B: DA-8B Inflow



Hydrograph for Link 8B: DA-8B Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.07	0.00	0.07	53.00	0.00	0.00	0.00
2.00	0.15	0.00	0.15	54.00	0.00	0.00	0.00
3.00	0.21	0.00	0.21	55.00	0.00	0.00	0.00
4.00	0.26	0.00	0.26	56.00	0.00	0.00	0.00
5.00	0.31	0.00	0.31	57.00	0.00	0.00	0.00
6.00	0.36	0.00	0.36	58.00	0.00	0.00	0.00
7.00	0.47	0.00	0.47	59.00	0.00	0.00	0.00
8.00	0.62	0.00	0.62	60.00	0.00	0.00	0.00
9.00	0.93	0.00	0.93	61.00	0.00	0.00	0.00
10.00	1.32	0.00	1.32	62.00	0.00	0.00	0.00
11.00	2.09	0.00	2.09	63.00	0.00	0.00	0.00
12.00	**42.49**	0.00	**42.49**	64.00	0.00	0.00	0.00
13.00	**12.85**	0.00	**12.85**	65.00	0.00	0.00	0.00
14.00	7.24	0.00	7.24	66.00	0.00	0.00	0.00
15.00	5.28	0.00	5.28	67.00	0.00	0.00	0.00
16.00	3.73	0.00	3.73	68.00	0.00	0.00	0.00
17.00	2.80	0.00	2.80	69.00	0.00	0.00	0.00
18.00	2.12	0.00	2.12	70.00	0.00	0.00	0.00
19.00	1.77	0.00	1.77	71.00	0.00	0.00	0.00
20.00	1.57	0.00	1.57	72.00	0.00	0.00	0.00
21.00	1.40	0.00	1.40	73.00	0.00	0.00	0.00
22.00	1.25	0.00	1.25	74.00	0.00	0.00	0.00
23.00	1.10	0.00	1.10	75.00	0.00	0.00	0.00
24.00	0.94	0.00	0.94	76.00	0.00	0.00	0.00
25.00	0.02	0.00	0.02	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Reach 8C: DA-8C Inflow

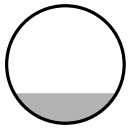
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 71,014 sf, 77.06% Impervious, Inflow Depth = 2.02" for 100 Year, 24 Hr. Event event
Inflow = 4.60 cfs @ 12.13 hrs, Volume= 11,967 cf
Outflow = 4.59 cfs @ 12.13 hrs, Volume= 11,967 cf, Atten= 0%, Lag= 0.3 min

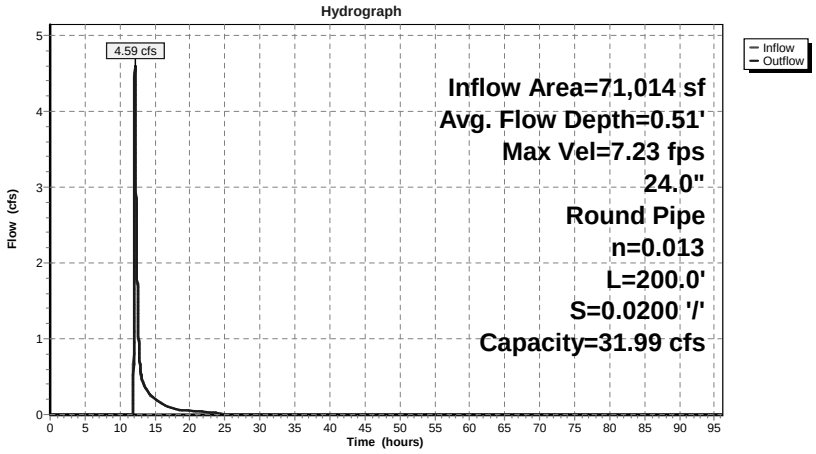
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 7.23 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.44 fps, Avg. Travel Time= 1.4 min

Peak Storage= 127 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.51'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 31.99 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 200.0' Slope= 0.0200 '/'
Inlet Invert= 600.00', Outlet Invert= 596.00'



Reach 8C: DA-8C Inflow



Hydrograph for Reach 8C: DA-8C Inflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	600.00	0.00
2.00	0.00	0	600.00	0.00
4.00	0.00	0	600.00	0.00
6.00	0.00	0	600.00	0.00
8.00	0.00	0	600.00	0.00
10.00	0.00	0	600.00	0.00
12.00	**1.80**	**62**	**600.31**	**1.65**
14.00	**0.30**	**19**	**600.14**	**0.30**
16.00	0.14	11	600.10	0.14
18.00	0.07	7	600.07	0.07
20.00	0.05	5	600.06	0.05
22.00	0.04	4	600.05	0.04
24.00	0.02	3	600.04	0.02
26.00	0.00	0	600.00	0.00
28.00	0.00	0	600.00	0.00
30.00	0.00	0	600.00	0.00
32.00	0.00	0	600.00	0.00
34.00	0.00	0	600.00	0.00
36.00	0.00	0	600.00	0.00
38.00	0.00	0	600.00	0.00
40.00	0.00	0	600.00	0.00
42.00	0.00	0	600.00	0.00
44.00	0.00	0	600.00	0.00
46.00	0.00	0	600.00	0.00
48.00	0.00	0	600.00	0.00
50.00	0.00	0	600.00	0.00
52.00	0.00	0	600.00	0.00
54.00	0.00	0	600.00	0.00
56.00	0.00	0	600.00	0.00
58.00	0.00	0	600.00	0.00
60.00	0.00	0	600.00	0.00
62.00	0.00	0	600.00	0.00
64.00	0.00	0	600.00	0.00
66.00	0.00	0	600.00	0.00
68.00	0.00	0	600.00	0.00
70.00	0.00	0	600.00	0.00
72.00	0.00	0	600.00	0.00
74.00	0.00	0	600.00	0.00
76.00	0.00	0	600.00	0.00
78.00	0.00	0	600.00	0.00
80.00	0.00	0	600.00	0.00
82.00	0.00	0	600.00	0.00
84.00	0.00	0	600.00	0.00
86.00	0.00	0	600.00	0.00
88.00	0.00	0	600.00	0.00
90.00	0.00	0	600.00	0.00
92.00	0.00	0	600.00	0.00
94.00	0.00	0	600.00	0.00
96.00	0.00	0	600.00	0.00

Summary for Pond BIO-1A: 8C-1A Bioretention

Inflow Area = 27,975 sf, 75.07% Impervious, Inflow Depth = 8.52" for 100 Year, 24 Hr. Event event
Inflow = 5.87 cfs @ 12.07 hrs, Volume= 19,858 cf
Outflow = 4.63 cfs @ 12.13 hrs, Volume= 18,564 cf, Atten= 21%, Lag= 3.5 min
Discarded = 0.03 cfs @ 10.64 hrs, Volume= 6,597 cf
Primary = 4.60 cfs @ 12.13 hrs, Volume= 11,967 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 603.81' @ 12.13 hrs Surf.Area= 5,594 sf Storage= 7,660 cf

Plug-Flow detention time= 664.9 min calculated for 18,564 cf (93% of inflow)
Center-of-Mass det. time= 628.4 min (1,379.6 - 751.2)

Volume	Invert	Avail.Storage	Storage Description
#1	598.75'	8,702 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

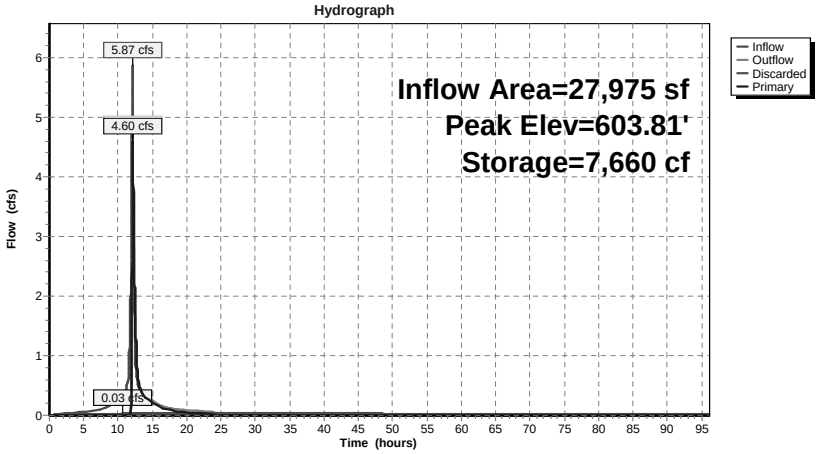
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
598.75	1,811	0.0	0	0
598.76	1,811	40.0	7	7
602.99	1,811	40.0	3,064	3,071
603.00	5,594	100.0	37	3,108
603.50	5,594	100.0	2,797	5,905
604.00	5,594	100.0	2,797	8,702

Device	Routing	Invert	Outlet Devices
#1	Discarded	598.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	603.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 10.64 hrs HW=603.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=4.59 cfs @ 12.13 hrs HW=603.81' TW=600.51' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 4.59 cfs @ 1.83 fps)

Pond BIO-1A: 8C-1A Bioretention



Hydrograph for Pond BIO-1A: 8C-1A Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	598.75	0.00	0.00	0.00
2.00	0.03	51	598.82	0.01	0.01	0.00
4.00	0.05	273	599.13	0.01	0.01	0.00
6.00	0.07	633	599.62	0.01	0.01	0.00
8.00	0.12	1,235	600.45	0.01	0.01	0.00
10.00	0.25	2,478	602.17	0.01	**0.01**	0.00
12.00	**3.94**	**6,845**	**603.67**	**1.83**	**0.03**	**1.80**
14.00	**0.30**	**6,188**	**603.55**	**0.33**	0.03	**0.30**
16.00	0.16	6,080	603.53	0.18	0.03	0.14
18.00	0.10	6,018	603.52	0.11	0.03	0.07
20.00	0.08	5,991	603.52	0.08	0.03	0.05
22.00	0.07	5,974	603.51	0.07	0.03	0.04
24.00	0.05	5,955	603.51	0.05	0.03	0.02
26.00	0.00	5,721	603.47	0.03	0.03	0.00
28.00	0.00	5,488	603.43	0.03	0.03	0.00
30.00	0.00	5,255	603.38	0.03	0.03	0.00
32.00	0.00	5,022	603.34	0.03	0.03	0.00
34.00	0.00	4,789	603.30	0.03	0.03	0.00
36.00	0.00	4,556	603.26	0.03	0.03	0.00
38.00	0.00	4,323	603.22	0.03	0.03	0.00
40.00	0.00	4,090	603.18	0.03	0.03	0.00
42.00	0.00	3,857	603.13	0.03	0.03	0.00
44.00	0.00	3,624	603.09	0.03	0.03	0.00
46.00	0.00	3,391	603.05	0.03	0.03	0.00
48.00	0.00	3,157	603.01	0.03	0.03	0.00
50.00	0.00	3,030	602.93	0.01	0.01	0.00
52.00	0.00	2,955	602.83	0.01	0.01	0.00
54.00	0.00	2,879	602.72	0.01	0.01	0.00
56.00	0.00	2,804	602.62	0.01	0.01	0.00
58.00	0.00	2,728	602.52	0.01	0.01	0.00
60.00	0.00	2,653	602.41	0.01	0.01	0.00
62.00	0.00	2,577	602.31	0.01	0.01	0.00
64.00	0.00	2,502	602.20	0.01	0.01	0.00
66.00	0.00	2,426	602.10	0.01	0.01	0.00
68.00	0.00	2,351	602.00	0.01	0.01	0.00
70.00	0.00	2,275	601.89	0.01	0.01	0.00
72.00	0.00	2,200	601.79	0.01	0.01	0.00
74.00	0.00	2,124	601.68	0.01	0.01	0.00
76.00	0.00	2,049	601.58	0.01	0.01	0.00
78.00	0.00	1,974	601.47	0.01	0.01	0.00
80.00	0.00	1,898	601.37	0.01	0.01	0.00
82.00	0.00	1,823	601.27	0.01	0.01	0.00
84.00	0.00	1,747	601.16	0.01	0.01	0.00
86.00	0.00	1,672	601.06	0.01	0.01	0.00
88.00	0.00	1,596	600.95	0.01	0.01	0.00
90.00	0.00	1,521	600.85	0.01	0.01	0.00
92.00	0.00	1,445	600.75	0.01	0.01	0.00
94.00	0.00	1,370	600.64	0.01	0.01	0.00
96.00	0.00	1,294	600.54	0.01	0.01	0.00

Summary for Pond BIO-1B: 8C-1B Bioretention

Inflow Area = 36,344 sf, 74.37% Impervious, Inflow Depth = 8.50" for 100 Year, 24 Hr. Event event
Inflow = 7.62 cfs @ 12.07 hrs, Volume= 25,736 cf
Outflow = 0.04 cfs @ 14.55 hrs, Volume= 12,298 cf, Atten= 99%, Lag= 148.8 min
Discarded = 0.04 cfs @ 14.55 hrs, Volume= 12,298 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 609.47' @ 24.06 hrs Surf.Area= 7,061 sf Storage= 23,284 cf

Plug-Flow detention time= 2,376.7 min calculated for 12,297 cf (48% of inflow)
Center-of-Mass det. time= 2,240.9 min (2,992.4 - 751.6)

Volume	Invert	Avail.Storage	Storage Description
#1	601.75'	27,051 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

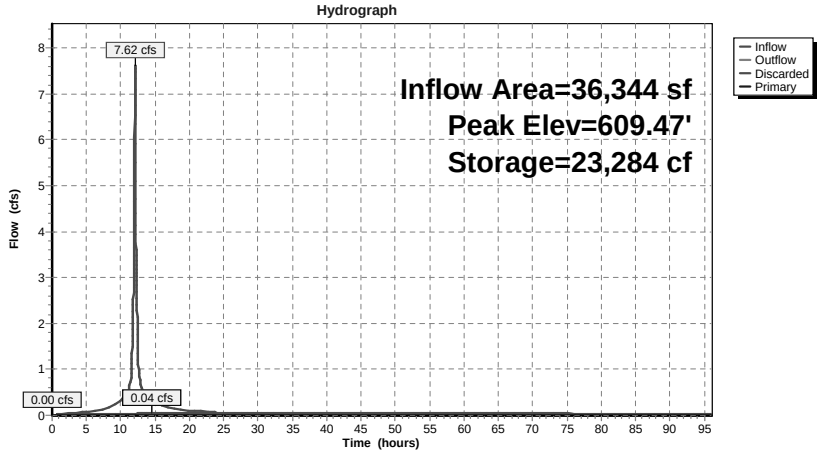
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
601.75	2,925	0.0	0	0
601.76	2,925	40.0	12	12
605.99	2,925	40.0	4,949	4,961
609.00	7,061	100.0	15,029	19,990
609.50	7,061	100.0	3,531	23,520
610.00	7,061	100.0	3,531	27,051

Device	Routing	Invert	Outlet Devices
#1	Discarded	601.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	609.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.04 cfs @ 14.55 hrs HW=609.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=601.75' TW=600.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond BIO-1B: 8C-1B Bioretention



Hydrograph for Pond BIO-1B: 8C-1B Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	601.75	0.00	0.00	**0.00**
2.00	0.04	51	601.79	0.02	0.02	0.00
4.00	0.07	312	602.02	0.02	0.02	0.00
6.00	0.09	751	602.39	0.02	0.02	0.00
8.00	0.16	1,502	603.03	0.02	0.02	0.00
10.00	0.32	3,083	604.39	0.02	0.02	0.00
12.00	**5.10**	9,324	607.16	0.03	0.03	0.00
14.00	**0.39**	19,358	608.91	**0.04**	**0.04**	0.00
16.00	0.21	21,214	609.17	**0.04**	**0.04**	0.00
18.00	0.13	22,121	609.30	0.04	0.04	0.00
20.00	0.10	22,649	609.38	0.04	0.04	0.00
22.00	0.08	23,027	609.43	0.04	0.04	0.00
24.00	0.07	**23,280**	**609.47**	0.04	0.04	0.00
26.00	0.00	**23,004**	**609.43**	0.04	0.04	0.00
28.00	0.00	22,710	609.39	0.04	0.04	0.00
30.00	0.00	22,416	609.34	0.04	0.04	0.00
32.00	0.00	22,122	609.30	0.04	0.04	0.00
34.00	0.00	21,828	609.26	0.04	0.04	0.00
36.00	0.00	21,533	609.22	0.04	0.04	0.00
38.00	0.00	21,239	609.18	0.04	0.04	0.00
40.00	0.00	20,945	609.14	0.04	0.04	0.00
42.00	0.00	20,651	609.09	0.04	0.04	0.00
44.00	0.00	20,357	609.05	0.04	0.04	0.00
46.00	0.00	20,062	609.01	0.04	0.04	0.00
48.00	0.00	19,769	608.97	0.04	0.04	0.00
50.00	0.00	19,478	608.93	0.04	0.04	0.00
52.00	0.00	19,189	608.89	0.04	0.04	0.00
54.00	0.00	18,902	608.84	0.04	0.04	0.00
56.00	0.00	18,618	608.80	0.04	0.04	0.00
58.00	0.00	18,337	608.76	0.04	0.04	0.00
60.00	0.00	18,057	608.72	0.04	0.04	0.00
62.00	0.00	17,780	608.68	0.04	0.04	0.00
64.00	0.00	17,506	608.64	0.04	0.04	0.00
66.00	0.00	17,234	608.59	0.04	0.04	0.00
68.00	0.00	16,964	608.55	0.04	0.04	0.00
70.00	0.00	16,697	608.51	0.04	0.04	0.00
72.00	0.00	16,432	608.47	0.04	0.04	0.00
74.00	0.00	16,169	608.43	0.04	0.04	0.00
76.00	0.00	15,909	608.39	0.04	0.04	0.00
78.00	0.00	15,651	608.34	0.04	0.04	0.00
80.00	0.00	15,396	608.30	0.04	0.04	0.00
82.00	0.00	15,143	608.26	0.03	0.03	0.00
84.00	0.00	14,892	608.22	0.03	0.03	0.00
86.00	0.00	14,644	608.18	0.03	0.03	0.00
88.00	0.00	14,398	608.14	0.03	0.03	0.00
90.00	0.00	14,154	608.09	0.03	0.03	0.00
92.00	0.00	13,913	608.05	0.03	0.03	0.00
94.00	0.00	13,674	608.01	0.03	0.03	0.00
96.00	0.00	13,438	607.97	0.03	0.03	0.00

Summary for Reach DP-8: Det Basin Outflow

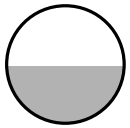
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1,087,954 sf, 38.29% Impervious, Inflow Depth > 5.70" for 100 Year, 24 Hr. Event event
Inflow = 42.37 cfs @ 12.13 hrs, Volume= 516,763 cf
Outflow = 42.34 cfs @ 12.13 hrs, Volume= 516,761 cf, Atten= 0%, Lag= 0.2 min

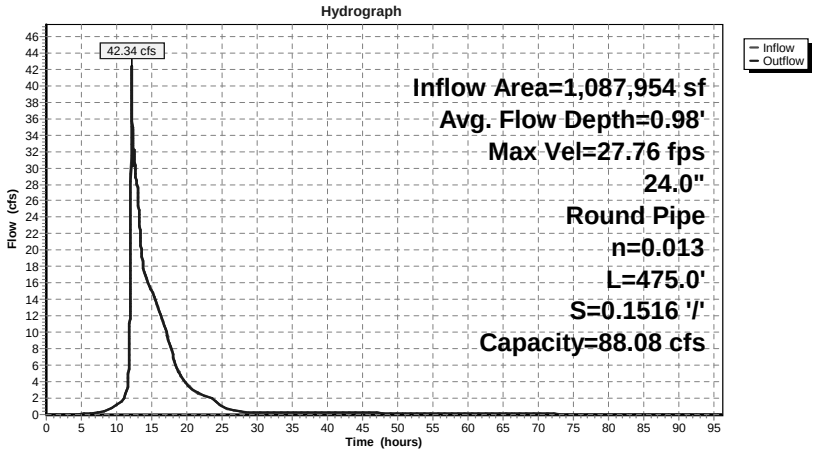
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 27.76 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 6.68 fps, Avg. Travel Time= 1.2 min

Peak Storage= 724 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.98'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 88.08 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 475.0' Slope= 0.1516 '/'
Inlet Invert= 590.00', Outlet Invert= 518.00'



Reach DP-8: Det Basin Outflow



Hydrograph for Reach DP-8: Det Basin Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	590.00	0.00
2.00	0.02	4	590.02	0.02
4.00	0.06	7	590.04	0.06
6.00	0.12	11	590.05	0.12
8.00	0.39	26	590.10	0.38
10.00	1.14	56	590.16	1.14
12.00	**21.49**	**432**	**590.66**	**20.90**
14.00	**16.95**	**372**	**590.59**	**16.96**
16.00	12.73	303	590.51	12.74
18.00	7.20	203	590.39	7.22
20.00	3.66	126	590.28	3.67
22.00	2.44	95	590.23	2.44
24.00	1.85	78	590.20	1.85
26.00	0.64	37	590.12	0.65
28.00	0.33	24	590.09	0.33
30.00	0.27	21	590.08	0.27
32.00	0.27	20	590.08	0.27
34.00	0.26	20	590.08	0.26
36.00	0.26	20	590.08	0.26
38.00	0.25	19	590.08	0.25
40.00	0.24	19	590.08	0.24
42.00	0.23	18	590.07	0.23
44.00	0.22	17	590.07	0.22
46.00	0.21	17	590.07	0.21
48.00	0.20	16	590.07	0.20
50.00	0.19	16	590.07	0.19
52.00	0.17	15	590.07	0.17
54.00	0.16	14	590.06	0.16
56.00	0.15	14	590.06	0.15
58.00	0.14	13	590.06	0.14
60.00	0.13	12	590.06	0.13
62.00	0.12	12	590.06	0.12
64.00	0.11	11	590.05	0.11
66.00	0.10	10	590.05	0.10
68.00	0.09	9	590.05	0.09
70.00	0.08	9	590.05	0.08
72.00	0.07	8	590.04	0.07
74.00	0.06	7	590.04	0.06
76.00	0.05	6	590.04	0.05
78.00	0.04	5	590.03	0.04
80.00	0.04	5	590.03	0.04
82.00	0.03	4	590.03	0.03
84.00	0.03	4	590.03	0.03
86.00	0.02	3	590.02	0.02
88.00	0.02	3	590.02	0.02
90.00	0.02	3	590.02	0.02
92.00	0.02	3	590.02	0.02
94.00	0.01	3	590.02	0.01
96.00	0.01	2	590.02	0.01

Summary for Pond P-1C: 8C-1C Pavers

Inflow Area = 6,695 sf,100.00% Impervious, Inflow Depth = 9.26" for 100 Year, 24 Hr. Event event
Inflow = 1.49 cfs @ 12.07 hrs, Volume= 5,166 cf
Outflow = 0.04 cfs @ 8.83 hrs, Volume= 5,167 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.04 cfs @ 8.83 hrs, Volume= 5,167 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 610.21' @ 16.05 hrs Surf.Area= 6,695 sf Storage= 2,960 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 643.1 min (1,381.4 - 738.3)

Volume	Invert	Avail.Storage	Storage Description
#1	608.00'	8,757 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

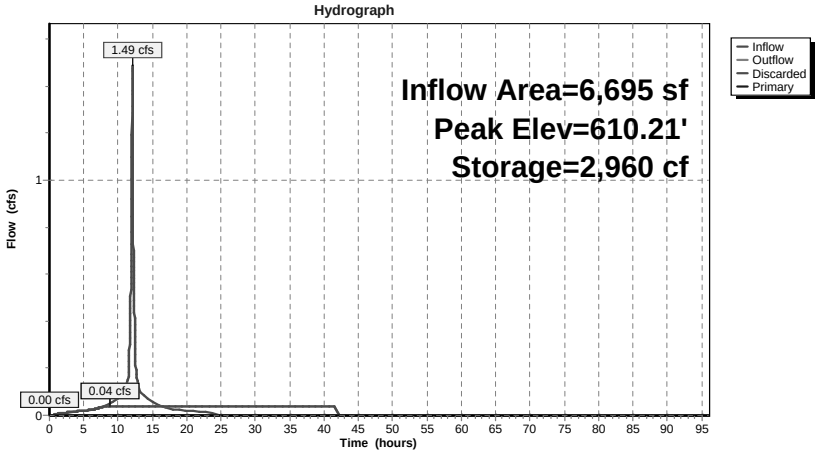
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.00	6,695	0.0	0	0
608.01	6,695	20.0	13	13
611.99	6,695	20.0	5,329	5,343
612.00	6,695	100.0	67	5,410
612.50	6,695	100.0	3,348	8,757

Device	Routing	Invert	Outlet Devices
#1	Primary	612.00'	**12.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	608.00'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.04 cfs @ 8.83 hrs HW=608.01' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.04 cfs)

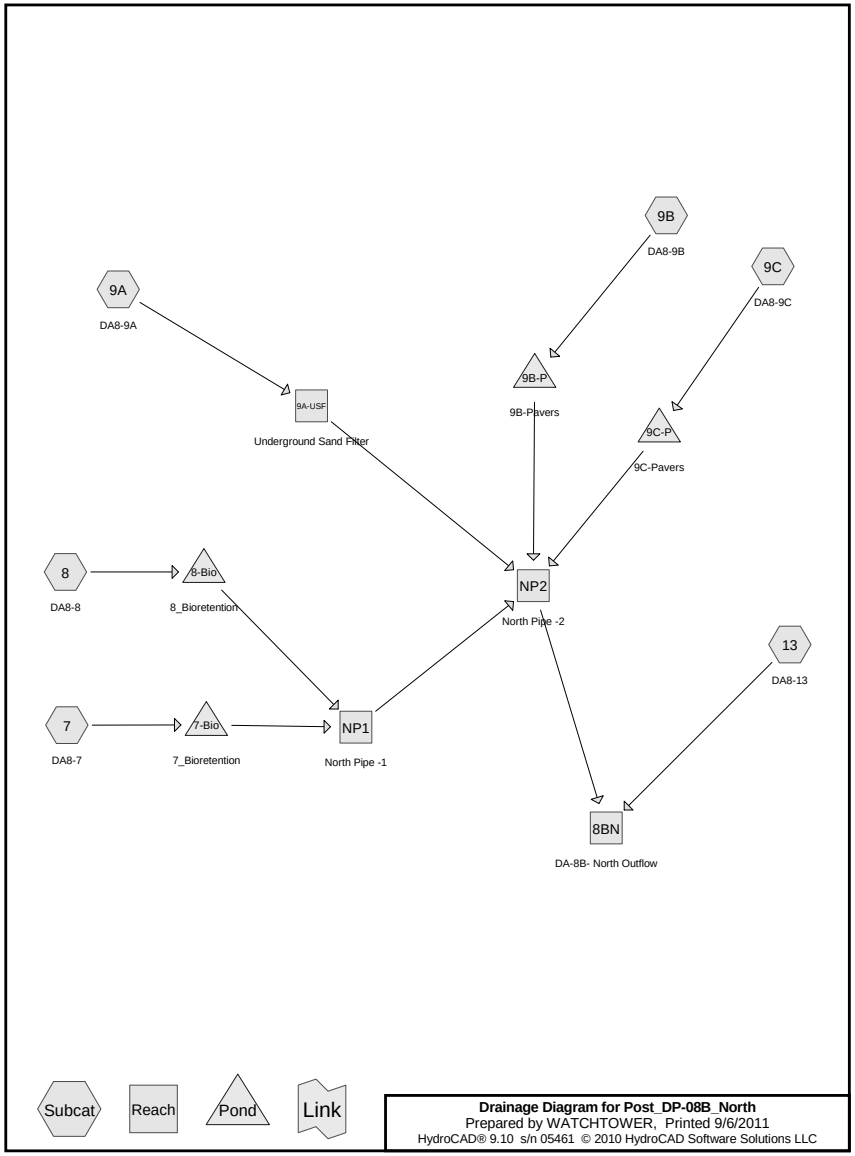
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=608.00' TW=600.00' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-1C: 8C-1C Pavers



Hydrograph for Pond P-1C: 8C-1C Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	608.00	0.00	0.00	**0.00**
2.00	0.01	0	608.00	0.01	0.01	0.00
4.00	0.02	0	608.00	0.02	0.02	0.00
6.00	0.02	0	608.00	0.02	0.02	0.00
8.00	0.04	0	608.00	**0.04**	**0.04**	0.00
10.00	0.07	103	608.08	**0.04**	**0.04**	0.00
12.00	**1.01**	1,127	608.84	0.04	0.04	0.00
14.00	**0.07**	2,832	610.12	0.04	0.04	0.00
16.00	0.04	**2,960**	**610.21**	0.04	0.04	0.00
18.00	0.02	**2,908**	**610.17**	0.04	0.04	0.00
20.00	0.02	2,784	610.08	0.04	0.04	0.00
22.00	0.02	2,632	609.97	0.04	0.04	0.00
24.00	0.01	2,456	609.83	0.04	0.04	0.00
26.00	0.00	2,180	609.63	0.04	0.04	0.00
28.00	0.00	1,901	609.42	0.04	0.04	0.00
30.00	0.00	1,622	609.21	0.04	0.04	0.00
32.00	0.00	1,343	609.00	0.04	0.04	0.00
34.00	0.00	1,064	608.79	0.04	0.04	0.00
36.00	0.00	785	608.59	0.04	0.04	0.00
38.00	0.00	506	608.38	0.04	0.04	0.00
40.00	0.00	227	608.17	0.04	0.04	0.00
42.00	0.00	0	608.00	0.00	0.00	0.00
44.00	0.00	0	608.00	0.00	0.00	0.00
46.00	0.00	0	608.00	0.00	0.00	0.00
48.00	0.00	0	608.00	0.00	0.00	0.00
50.00	0.00	0	608.00	0.00	0.00	0.00
52.00	0.00	0	608.00	0.00	0.00	0.00
54.00	0.00	0	608.00	0.00	0.00	0.00
56.00	0.00	0	608.00	0.00	0.00	0.00
58.00	0.00	0	608.00	0.00	0.00	0.00
60.00	0.00	0	608.00	0.00	0.00	0.00
62.00	0.00	0	608.00	0.00	0.00	0.00
64.00	0.00	0	608.00	0.00	0.00	0.00
66.00	0.00	0	608.00	0.00	0.00	0.00
68.00	0.00	0	608.00	0.00	0.00	0.00
70.00	0.00	0	608.00	0.00	0.00	0.00
72.00	0.00	0	608.00	0.00	0.00	0.00
74.00	0.00	0	608.00	0.00	0.00	0.00
76.00	0.00	0	608.00	0.00	0.00	0.00
78.00	0.00	0	608.00	0.00	0.00	0.00
80.00	0.00	0	608.00	0.00	0.00	0.00
82.00	0.00	0	608.00	0.00	0.00	0.00
84.00	0.00	0	608.00	0.00	0.00	0.00
86.00	0.00	0	608.00	0.00	0.00	0.00
88.00	0.00	0	608.00	0.00	0.00	0.00
90.00	0.00	0	608.00	0.00	0.00	0.00
92.00	0.00	0	608.00	0.00	0.00	0.00
94.00	0.00	0	608.00	0.00	0.00	0.00
96.00	0.00	0	608.00	0.00	0.00	0.00



Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
9,421	Brush	7, 8
56,199	Open Space	7, 8, 9A, 9B, 9C, 13
64,620	Pavement	7, 8, 9A, 9B, 9C, 13
12,784	Roofs	9A, 9C
143,024	**TOTAL**	

Pollutant Concentrations

Line#	Land Use	TSS (mg/l)	TP (mg/l)	TN (mg/l)	BOD (mg/l)
1	Brush	37.00	0.00	0.00	1.23
2	Open Space	602.00	2.10	9.10	1.23
3	Pavement	173.00	0.56	2.10	6.70
4	Roofs	19.00	0.11	1.50	7.40

Subcatchment Loading

Line#	Subcat Number	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1	7	**0.00**	**0.00**	**0.00**	**0.00**
2	8	0.00	0.00	0.00	0.00
3	9A	0.00	0.00	0.00	0.00
4	9B	0.00	0.00	0.00	0.00
5	9C	0.00	0.00	0.00	0.00
6	13	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 7: DA8-7 Runoff Area=21,303 sf 37.77% Impervious Runoff Depth=1.36"
Tc=5.0 min CN=62/98 Runoff=0.67 cfs 2,408 cf

Pond 7-Bio: 7_Bioretention Peak Elev=735.23' Storage=1,613 cf Inflow=0.67 cfs 2,408 cf
Discarded=0.02 cfs 2,251 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 2,251 cf

Subcatchment 8: DA8-8 Runoff Area=25,906 sf 59.21% Impervious Runoff Depth=1.86"
Tc=5.0 min CN=61/98 Runoff=1.16 cfs 4,021 cf

Pond 8-Bio: 8_Bioretention Peak Elev=734.26' Storage=2,798 cf Inflow=1.16 cfs 4,021 cf
Discarded=0.03 cfs 3,792 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 3,792 cf

Reach 8BN: DA-8B- North Outflow Avg. Flow Depth=0.28' Max Vel=9.36 fps Inflow=3.15 cfs 11,469 cf
36.0" Round Pipe n=0.013 L=152.0' S=0.0658 '/' Capacity=171.08 cfs Outflow=3.15 cfs 11,469 cf

Subcatchment 9A: DA8-9A Runoff Area=46,781 sf 67.17% Impervious Runoff Depth=2.21"
Tc=5.0 min CN=72/98 Runoff=2.58 cfs 8,621 cf

Reach 9A-USF: Underground Sand Filter Inflow=2.58 cfs 8,621 cf
Outflow=2.58 cfs 8,621 cf

Subcatchment 9B: DA8-9B Runoff Area=8,994 sf 92.17% Impervious Runoff Depth=2.72"
Tc=5.0 min CN=74/98 Runoff=0.61 cfs 2,038 cf

Pond 9B-P: 9B-Pavers Peak Elev=729.61' Storage=790 cf Inflow=0.61 cfs 2,038 cf
Discarded=0.04 cfs 2,039 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 2,039 cf

Subcatchment 9C: DA8-9C Runoff Area=11,926 sf 89.68% Impervious Runoff Depth=2.67"
Tc=5.0 min CN=74/98 Runoff=0.80 cfs 2,656 cf

Pond 9C-P: 9C-Pavers Peak Elev=733.07' Storage=1,445 cf Inflow=0.80 cfs 2,656 cf
Discarded=0.03 cfs 2,656 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 2,656 cf

Subcatchment 13: DA8-13 Runoff Area=28,114 sf 12.84% Impervious Runoff Depth=1.22"
Flow Length=194' Slope=0.0500 '/' Tc=10.5 min CN=74/98 Runoff=0.73 cfs 2,848 cf

Reach NP1: North Pipe -1 Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
24.0" Round Pipe n=0.013 L=400.0' S=0.0100 '/' Capacity=22.62 cfs Outflow=0.00 cfs 0 cf

Reach NP2: North Pipe -2 Avg. Flow Depth=0.31' Max Vel=8.38 fps Inflow=2.58 cfs 8,621 cf
24.0" Round Pipe n=0.013 L=406.0' S=0.0493 '/' Capacity=50.21 cfs Outflow=2.56 cfs 8,621 cf

Total Runoff Area = 143,024 sf Runoff Volume = 22,592 cf Average Runoff Depth = 1.90"
45.88% Pervious = 65,620 sf 54.12% Impervious = 77,404 sf

Summary for Subcatchment 7: DA8-7

Runoff = 0.67 cfs @ 12.08 hrs, Volume= 2,408 cf, Depth= 1.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

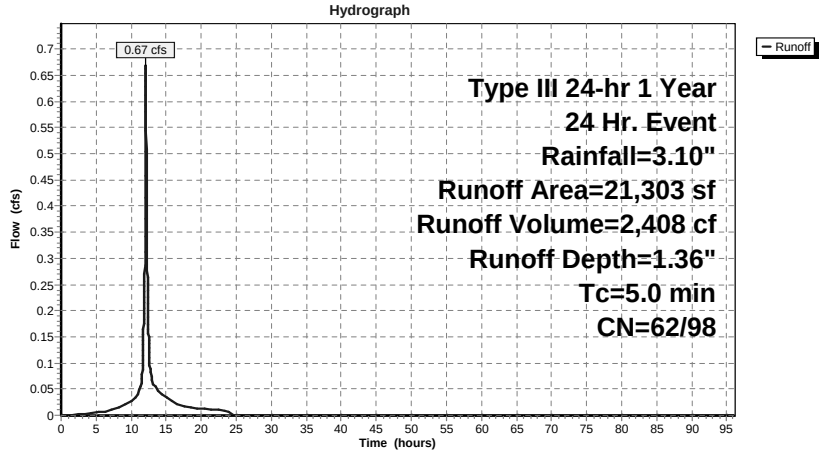
	Area (sf)	CN	Description	Land Use
	8,046	98	Paved parking, HSG B	Pavement
	9,082	61	>75% Grass cover, Good, HSG B	Open Space
	641	74	>75% Grass cover, Good, HSG C	Open Space
*	3,301	61	Bioretention, HSG B	Brush
*	233	74	Bioretention, HSG C	Brush
	21,303	76	Weighted Average	
	13,257	62	62.23% Pervious Area	
	8,046	98	37.77% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 37.77% Impervious, Rv= 0.390, Runoff= 17.82"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,534	Brush	12.12	0.00	0.00	0.40
9,723	Open Space	542.61	1.89	8.20	1.11
8,046	Pavement	129.04	0.42	1.57	5.00
21,303	Total	683.77	2.31	9.77	6.51

Subcatchment 7: DA8-7



Hydrograph for Subcatchment 7: DA8-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.03
12.00	1.55	0.02	1.33	**0.42**
14.00	2.51	0.22	2.28	**0.04**
16.00	2.75	0.30	2.52	0.02
18.00	2.88	0.35	2.65	0.02
20.00	2.97	0.39	2.74	0.01
22.00	3.04	0.41	2.81	0.01
24.00	**3.10**	**0.44**	**2.87**	0.01
26.00	3.10	0.44	2.87	0.00
28.00	3.10	0.44	2.87	0.00
30.00	3.10	0.44	2.87	0.00
32.00	3.10	0.44	2.87	0.00
34.00	3.10	0.44	2.87	0.00
36.00	3.10	0.44	2.87	0.00
38.00	3.10	0.44	2.87	0.00
40.00	3.10	0.44	2.87	0.00
42.00	3.10	0.44	2.87	0.00
44.00	3.10	0.44	2.87	0.00
46.00	3.10	0.44	2.87	0.00
48.00	3.10	0.44	2.87	0.00
50.00	3.10	0.44	2.87	0.00
52.00	3.10	0.44	2.87	0.00
54.00	3.10	0.44	2.87	0.00
56.00	3.10	0.44	2.87	0.00
58.00	3.10	0.44	2.87	0.00
60.00	3.10	0.44	2.87	0.00
62.00	3.10	0.44	2.87	0.00
64.00	3.10	0.44	2.87	0.00
66.00	3.10	0.44	2.87	0.00
68.00	3.10	0.44	2.87	0.00
70.00	3.10	0.44	2.87	0.00
72.00	3.10	0.44	2.87	0.00
74.00	3.10	0.44	2.87	0.00
76.00	3.10	0.44	2.87	0.00
78.00	3.10	0.44	2.87	0.00
80.00	3.10	0.44	2.87	0.00
82.00	3.10	0.44	2.87	0.00
84.00	3.10	0.44	2.87	0.00
86.00	3.10	0.44	2.87	0.00
88.00	3.10	0.44	2.87	0.00
90.00	3.10	0.44	2.87	0.00
92.00	3.10	0.44	2.87	0.00
94.00	3.10	0.44	2.87	0.00
96.00	3.10	0.44	2.87	0.00

Summary for Pond 7-Bio: 7_Bioretention

Inflow Area = 21,303 sf, 37.77% Impervious, Inflow Depth = 1.36" for 1 Year, 24 Hr. Event event
Inflow = 0.67 cfs @ 12.08 hrs, Volume= 2,408 cf
Outflow = 0.02 cfs @ 12.04 hrs, Volume= 2,251 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.02 cfs @ 12.04 hrs, Volume= 2,251 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 735.23' @ 16.47 hrs Surf.Area= 3,823 sf Storage= 1,613 cf

Plug-Flow detention time= 1,170.4 min calculated for 2,251 cf (93% of inflow)
Center-of-Mass det. time= 1,133.9 min (1,921.5 - 787.6)

Volume	Invert	Avail.Storage	Storage Description
#1	730.75'	4,561 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

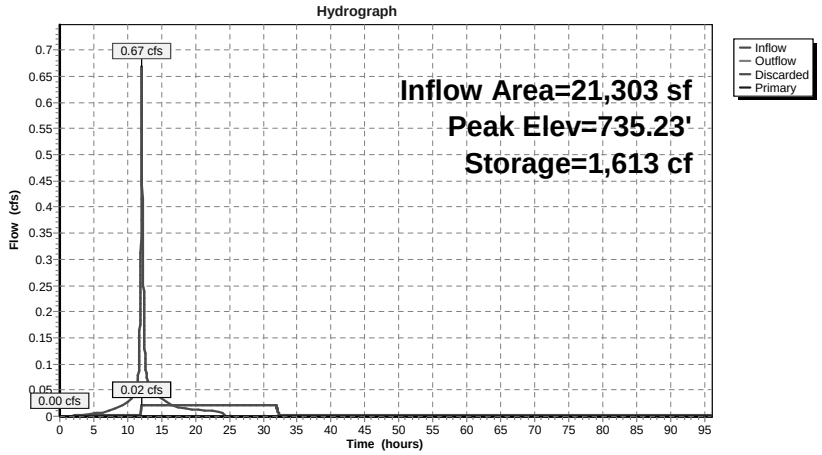
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
730.75	424	0.0	0	0	424
730.76	424	40.0	2	2	425
734.99	424	40.0	717	719	773
735.00	3,823	100.0	18	738	4,172
735.50	3,823	100.0	1,912	2,649	4,296
736.00	3,823	100.0	1,912	4,561	4,420

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	735.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 12.04 hrs HW=735.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=730.75' TW=726.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 7-Bio: 7_Bioretention



Hydrograph for Pond 7-Bio: 7_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.75	0.00	0.00	**0.00**
2.00	0.00	0	730.75	0.00	0.00	0.00
4.00	0.00	2	730.76	0.00	0.00	0.00
6.00	0.01	22	730.88	0.00	0.00	0.00
8.00	0.01	72	731.18	0.00	0.00	0.00
10.00	0.03	190	731.87	0.00	0.00	0.00
12.00	**0.42**	670	734.70	**0.00**	**0.00**	0.00
14.00	**0.04**	1,523	735.21	**0.02**	**0.02**	0.00
16.00	0.02	**1,611**	**735.23**	0.02	0.02	0.00
18.00	0.02	**1,595**	**735.22**	0.02	0.02	0.00
20.00	0.01	1,535	735.21	0.02	0.02	0.00
22.00	0.01	1,457	735.19	0.02	0.02	0.00
24.00	0.01	1,366	735.16	0.02	0.02	0.00
26.00	0.00	1,209	735.12	0.02	0.02	0.00
28.00	0.00	1,049	735.08	0.02	0.02	0.00
30.00	0.00	890	735.04	0.02	0.02	0.00
32.00	0.00	731	735.00	0.02	0.02	0.00
34.00	0.00	705	734.91	0.00	0.00	0.00
36.00	0.00	687	734.80	0.00	0.00	0.00
38.00	0.00	670	734.70	0.00	0.00	0.00
40.00	0.00	652	734.59	0.00	0.00	0.00
42.00	0.00	634	734.49	0.00	0.00	0.00
44.00	0.00	617	734.39	0.00	0.00	0.00
46.00	0.00	599	734.28	0.00	0.00	0.00
48.00	0.00	581	734.18	0.00	0.00	0.00
50.00	0.00	564	734.07	0.00	0.00	0.00
52.00	0.00	546	733.97	0.00	0.00	0.00
54.00	0.00	528	733.86	0.00	0.00	0.00
56.00	0.00	511	733.76	0.00	0.00	0.00
58.00	0.00	493	733.66	0.00	0.00	0.00
60.00	0.00	475	733.55	0.00	0.00	0.00
62.00	0.00	458	733.45	0.00	0.00	0.00
64.00	0.00	440	733.34	0.00	0.00	0.00
66.00	0.00	422	733.24	0.00	0.00	0.00
68.00	0.00	405	733.14	0.00	0.00	0.00
70.00	0.00	387	733.03	0.00	0.00	0.00
72.00	0.00	369	732.93	0.00	0.00	0.00
74.00	0.00	352	732.82	0.00	0.00	0.00
76.00	0.00	334	732.72	0.00	0.00	0.00
78.00	0.00	316	732.61	0.00	0.00	0.00
80.00	0.00	299	732.51	0.00	0.00	0.00
82.00	0.00	281	732.41	0.00	0.00	0.00
84.00	0.00	263	732.30	0.00	0.00	0.00
86.00	0.00	246	732.20	0.00	0.00	0.00
88.00	0.00	228	732.09	0.00	0.00	0.00
90.00	0.00	210	731.99	0.00	0.00	0.00
92.00	0.00	193	731.89	0.00	0.00	0.00
94.00	0.00	175	731.78	0.00	0.00	0.00
96.00	0.00	157	731.68	0.00	0.00	0.00

Summary for Subcatchment 8: DA8-8

Runoff = 1.16 cfs @ 12.07 hrs, Volume= 4,021 cf, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

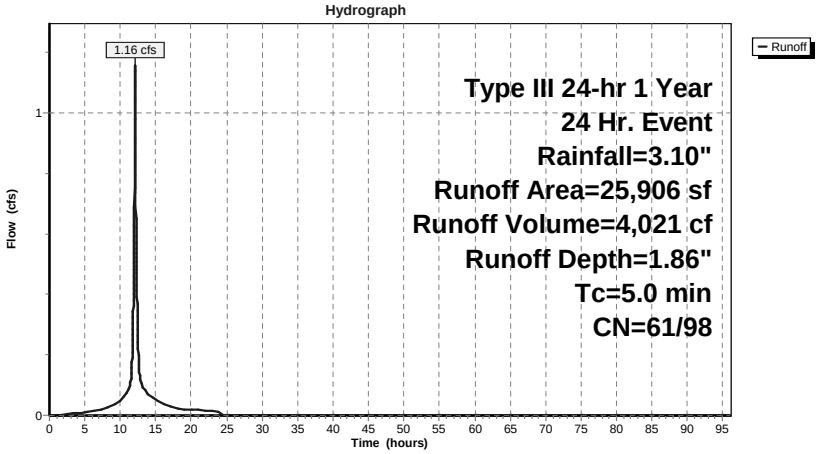
	Area (sf)	CN	Description	Land Use
	4,680	61	>75% Grass cover, Good, HSG B	Open Space
*	5,887	61	Bioretention, HSG B	Brush
	15,339	98	Paved parking, HSG B	Pavement
	25,906	83	Weighted Average	
	10,567	61	40.79% Pervious Area	
	15,339	98	59.21% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.21% Impervious, Rv= 0.583, Runoff= 26.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,887	Brush	30.19	0.00	0.00	1.00
4,680	Open Space	390.43	1.36	5.90	0.80
15,339	Pavement	367.74	1.19	4.46	14.24
25,906	Total	788.36	2.55	10.37	16.04

Subcatchment 8: DA8-8



Hydrograph for Subcatchment 8: DA8-8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.02
10.00	0.59	0.00	0.40	0.05
12.00	1.55	0.01	1.33	**0.75**
14.00	2.51	0.20	2.28	**0.07**
16.00	2.75	0.27	2.52	0.04
18.00	2.88	0.32	2.65	0.02
20.00	2.97	0.35	2.74	0.02
22.00	3.04	0.38	2.81	0.02
24.00	**3.10**	**0.40**	**2.87**	0.01
26.00	3.10	0.40	2.87	0.00
28.00	3.10	0.40	2.87	0.00
30.00	3.10	0.40	2.87	0.00
32.00	3.10	0.40	2.87	0.00
34.00	3.10	0.40	2.87	0.00
36.00	3.10	0.40	2.87	0.00
38.00	3.10	0.40	2.87	0.00
40.00	3.10	0.40	2.87	0.00
42.00	3.10	0.40	2.87	0.00
44.00	3.10	0.40	2.87	0.00
46.00	3.10	0.40	2.87	0.00
48.00	3.10	0.40	2.87	0.00
50.00	3.10	0.40	2.87	0.00
52.00	3.10	0.40	2.87	0.00
54.00	3.10	0.40	2.87	0.00
56.00	3.10	0.40	2.87	0.00
58.00	3.10	0.40	2.87	0.00
60.00	3.10	0.40	2.87	0.00
62.00	3.10	0.40	2.87	0.00
64.00	3.10	0.40	2.87	0.00
66.00	3.10	0.40	2.87	0.00
68.00	3.10	0.40	2.87	0.00
70.00	3.10	0.40	2.87	0.00
72.00	3.10	0.40	2.87	0.00
74.00	3.10	0.40	2.87	0.00
76.00	3.10	0.40	2.87	0.00
78.00	3.10	0.40	2.87	0.00
80.00	3.10	0.40	2.87	0.00
82.00	3.10	0.40	2.87	0.00
84.00	3.10	0.40	2.87	0.00
86.00	3.10	0.40	2.87	0.00
88.00	3.10	0.40	2.87	0.00
90.00	3.10	0.40	2.87	0.00
92.00	3.10	0.40	2.87	0.00
94.00	3.10	0.40	2.87	0.00
96.00	3.10	0.40	2.87	0.00

Summary for Pond 8-Bio: 8_Bioretention

Inflow Area = 25,906 sf, 59.21% Impervious, Inflow Depth = 1.86" for 1 Year, 24 Hr. Event event
Inflow = 1.16 cfs @ 12.07 hrs, Volume= 4,021 cf
Outflow = 0.03 cfs @ 12.00 hrs, Volume= 3,792 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.03 cfs @ 12.00 hrs, Volume= 3,792 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 734.26' @ 16.24 hrs Surf.Area= 5,887 sf Storage= 2,798 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,221.0 min (1,991.5 - 770.5)

Volume	Invert	Avail.Storage	Storage Description
#1	730.00'	7,151 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

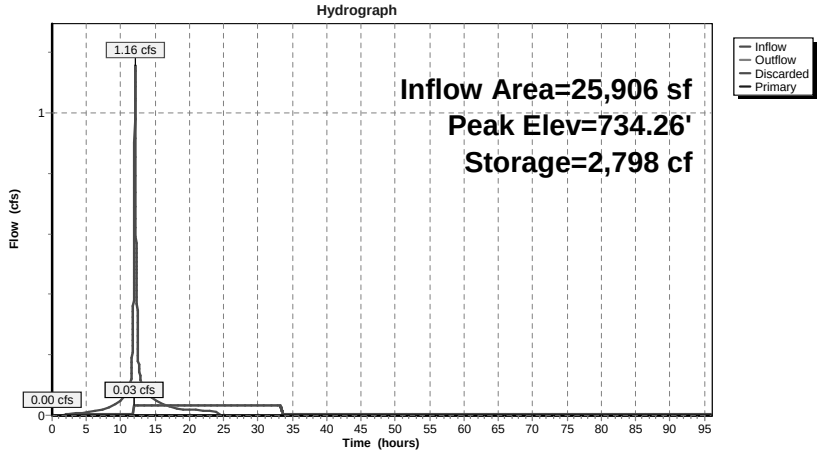
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
730.00	771	0.0	0	0
730.01	771	40.0	3	3
733.99	771	40.0	1,227	1,231
734.00	5,887	100.0	33	1,264
734.50	5,887	100.0	2,944	4,207
735.00	5,887	100.0	2,944	7,151

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	734.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.00 hrs HW=734.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=730.00' TW=726.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 8-Bio: 8_Bioretention



Hydrograph for Pond 8-Bio: 8_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.00	0.00	0.00	**0.00**
2.00	0.00	0	730.00	0.00	0.00	0.00
4.00	0.01	5	730.02	0.00	0.00	0.00
6.00	0.01	45	730.15	0.00	0.00	0.00
8.00	0.02	141	730.46	0.00	0.00	0.00
10.00	0.05	367	731.19	0.00	0.00	0.00
12.00	**0.75**	1,277	734.00	**0.03**	**0.03**	0.00
14.00	**0.07**	2,674	734.24	0.03	0.03	0.00
16.00	0.04	**2,798**	**734.26**	0.03	0.03	0.00
18.00	0.02	**2,762**	**734.25**	0.03	0.03	0.00
20.00	0.02	2,661	734.24	0.03	0.03	0.00
22.00	0.02	2,535	734.22	0.03	0.03	0.00
24.00	0.01	2,387	734.19	0.03	0.03	0.00
26.00	0.00	2,145	734.15	0.03	0.03	0.00
28.00	0.00	1,900	734.11	0.03	0.03	0.00
30.00	0.00	1,654	734.07	0.03	0.03	0.00
32.00	0.00	1,409	734.02	0.03	0.03	0.00
34.00	0.00	1,225	733.97	0.00	0.00	0.00
36.00	0.00	1,193	733.87	0.00	0.00	0.00
38.00	0.00	1,161	733.76	0.00	0.00	0.00
40.00	0.00	1,129	733.66	0.00	0.00	0.00
42.00	0.00	1,097	733.56	0.00	0.00	0.00
44.00	0.00	1,065	733.45	0.00	0.00	0.00
46.00	0.00	1,032	733.35	0.00	0.00	0.00
48.00	0.00	1,000	733.24	0.00	0.00	0.00
50.00	0.00	968	733.14	0.00	0.00	0.00
52.00	0.00	936	733.04	0.00	0.00	0.00
54.00	0.00	904	732.93	0.00	0.00	0.00
56.00	0.00	872	732.83	0.00	0.00	0.00
58.00	0.00	840	732.72	0.00	0.00	0.00
60.00	0.00	808	732.62	0.00	0.00	0.00
62.00	0.00	775	732.51	0.00	0.00	0.00
64.00	0.00	743	732.41	0.00	0.00	0.00
66.00	0.00	711	732.31	0.00	0.00	0.00
68.00	0.00	679	732.20	0.00	0.00	0.00
70.00	0.00	647	732.10	0.00	0.00	0.00
72.00	0.00	615	731.99	0.00	0.00	0.00
74.00	0.00	583	731.89	0.00	0.00	0.00
76.00	0.00	551	731.79	0.00	0.00	0.00
78.00	0.00	518	731.68	0.00	0.00	0.00
80.00	0.00	486	731.58	0.00	0.00	0.00
82.00	0.00	454	731.47	0.00	0.00	0.00
84.00	0.00	422	731.37	0.00	0.00	0.00
86.00	0.00	390	731.26	0.00	0.00	0.00
88.00	0.00	358	731.16	0.00	0.00	0.00
90.00	0.00	326	731.06	0.00	0.00	0.00
92.00	0.00	294	730.95	0.00	0.00	0.00
94.00	0.00	261	730.85	0.00	0.00	0.00
96.00	0.00	229	730.74	0.00	0.00	0.00

Summary for Reach 8BN: DA-8B- North Outflow

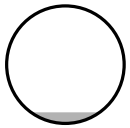
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach NP2 OUTLET depth by 0.01' @ 12.56 hrs

Inflow Area = 143,024 sf, 54.12% Impervious, Inflow Depth = 0.96" for 1 Year, 24 Hr. Event event
Inflow = 3.15 cfs @ 12.09 hrs, Volume= 11,469 cf
Outflow = 3.15 cfs @ 12.09 hrs, Volume= 11,469 cf, Atten= 0%, Lag= 0.2 min

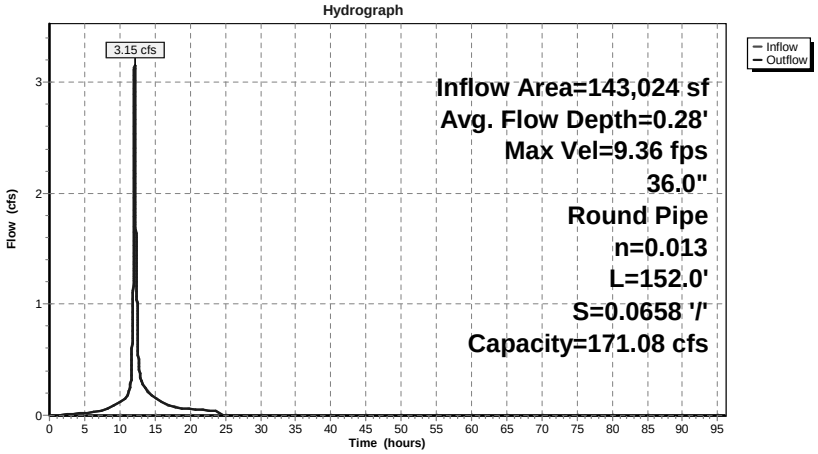
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 9.36 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.17 fps, Avg. Travel Time= 0.8 min

Peak Storage= 51 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 171.08 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 152.0' Slope= 0.0658 '/'
Inlet Invert= 700.00', Outlet Invert= 690.00'



Reach 8BN: DA-8B- North Outflow



Hydrograph for Reach 8BN: DA-8B- North Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	700.00	0.00
2.00	0.00	0	700.00	0.00
4.00	0.02	1	700.02	0.02
6.00	0.03	2	700.03	0.03
8.00	0.05	3	700.04	0.05
10.00	0.11	5	700.06	0.11
12.00	**1.85**	**35**	**700.22**	**1.79**
14.00	**0.21**	**8**	**700.08**	**0.21**
16.00	0.11	5	700.06	0.11
18.00	0.07	3	700.05	0.07
20.00	0.06	3	700.04	0.06
22.00	0.05	3	700.04	0.05
24.00	0.04	2	700.03	0.04
26.00	0.00	0	700.00	0.00
28.00	0.00	0	700.00	0.00
30.00	0.00	0	700.00	0.00
32.00	0.00	0	700.00	0.00
34.00	0.00	0	700.00	0.00
36.00	0.00	0	700.00	0.00
38.00	0.00	0	700.00	0.00
40.00	0.00	0	700.00	0.00
42.00	0.00	0	700.00	0.00
44.00	0.00	0	700.00	0.00
46.00	0.00	0	700.00	0.00
48.00	0.00	0	700.00	0.00
50.00	0.00	0	700.00	0.00
52.00	0.00	0	700.00	0.00
54.00	0.00	0	700.00	0.00
56.00	0.00	0	700.00	0.00
58.00	0.00	0	700.00	0.00
60.00	0.00	0	700.00	0.00
62.00	0.00	0	700.00	0.00
64.00	0.00	0	700.00	0.00
66.00	0.00	0	700.00	0.00
68.00	0.00	0	700.00	0.00
70.00	0.00	0	700.00	0.00
72.00	0.00	0	700.00	0.00
74.00	0.00	0	700.00	0.00
76.00	0.00	0	700.00	0.00
78.00	0.00	0	700.00	0.00
80.00	0.00	0	700.00	0.00
82.00	0.00	0	700.00	0.00
84.00	0.00	0	700.00	0.00
86.00	0.00	0	700.00	0.00
88.00	0.00	0	700.00	0.00
90.00	0.00	0	700.00	0.00
92.00	0.00	0	700.00	0.00
94.00	0.00	0	700.00	0.00
96.00	0.00	0	700.00	0.00

Summary for Subcatchment 9A: DA8-9A

Runoff = 2.58 cfs @ 12.07 hrs, Volume= 8,621 cf, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

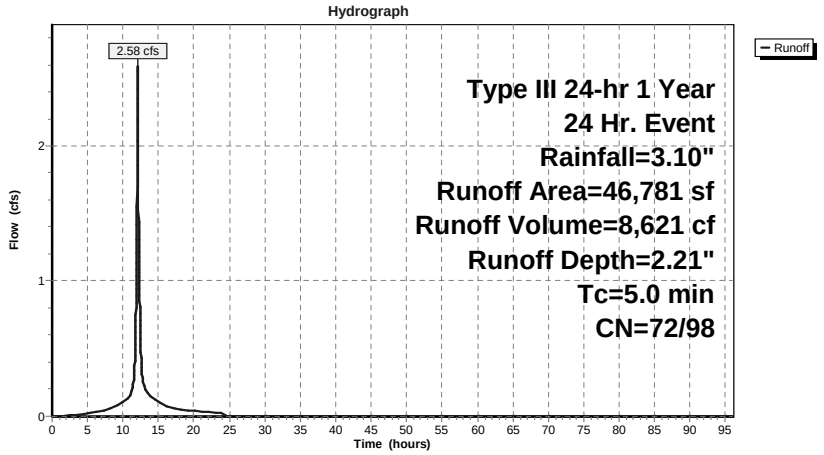
Area (sf)	CN	Description	Land Use
23,784	98	Paved parking, HSG C	Pavement
2,331	61	>75% Grass cover, Good, HSG B	Open Space
13,026	74	>75% Grass cover, Good, HSG C	Open Space
7,640	98	Unconnected roofs, HSG C	Roofs
46,781	89	Weighted Average	
15,357	72	32.83% Pervious Area	
31,424	98	67.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 67.17% Impervious, Rv= 0.655, Runoff= 29.91"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
15,357	Open Space	1,438.67	5.02	21.75	2.94
23,784	Pavement	640.31	2.07	7.77	24.80
7,640	Roofs	22.59	0.13	1.78	8.80
46,781	Total	2,101.57	7.22	31.30	36.54

Subcatchment 9A: DA8-9A



Hydrograph for Subcatchment 9A: DA8-9A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.02
6.00	0.22	0.00	0.09	0.03
8.00	0.35	0.00	0.19	0.05
10.00	0.59	0.00	0.40	0.10
12.00	1.55	0.13	1.33	**1.70**
14.00	2.51	0.54	2.28	**0.14**
16.00	2.75	0.66	2.52	0.08
18.00	2.88	0.74	2.65	0.05
20.00	2.97	0.79	2.74	0.04
22.00	3.04	0.83	2.81	0.03
24.00	**3.10**	**0.87**	**2.87**	0.03
26.00	3.10	0.87	2.87	0.00
28.00	3.10	0.87	2.87	0.00
30.00	3.10	0.87	2.87	0.00
32.00	3.10	0.87	2.87	0.00
34.00	3.10	0.87	2.87	0.00
36.00	3.10	0.87	2.87	0.00
38.00	3.10	0.87	2.87	0.00
40.00	3.10	0.87	2.87	0.00
42.00	3.10	0.87	2.87	0.00
44.00	3.10	0.87	2.87	0.00
46.00	3.10	0.87	2.87	0.00
48.00	3.10	0.87	2.87	0.00
50.00	3.10	0.87	2.87	0.00
52.00	3.10	0.87	2.87	0.00
54.00	3.10	0.87	2.87	0.00
56.00	3.10	0.87	2.87	0.00
58.00	3.10	0.87	2.87	0.00
60.00	3.10	0.87	2.87	0.00
62.00	3.10	0.87	2.87	0.00
64.00	3.10	0.87	2.87	0.00
66.00	3.10	0.87	2.87	0.00
68.00	3.10	0.87	2.87	0.00
70.00	3.10	0.87	2.87	0.00
72.00	3.10	0.87	2.87	0.00
74.00	3.10	0.87	2.87	0.00
76.00	3.10	0.87	2.87	0.00
78.00	3.10	0.87	2.87	0.00
80.00	3.10	0.87	2.87	0.00
82.00	3.10	0.87	2.87	0.00
84.00	3.10	0.87	2.87	0.00
86.00	3.10	0.87	2.87	0.00
88.00	3.10	0.87	2.87	0.00
90.00	3.10	0.87	2.87	0.00
92.00	3.10	0.87	2.87	0.00
94.00	3.10	0.87	2.87	0.00
96.00	3.10	0.87	2.87	0.00

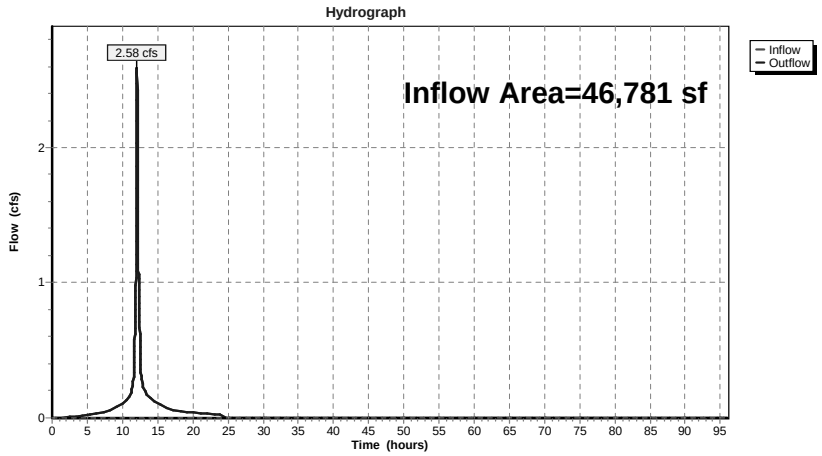
Summary for Reach 9A-USF: Underground Sand Filter

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 46,781 sf, 67.17% Impervious, Inflow Depth = 2.21" for 1 Year, 24 Hr. Event event
Inflow = 2.58 cfs @ 12.07 hrs, Volume= 8,621 cf
Outflow = 2.58 cfs @ 12.07 hrs, Volume= 8,621 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3

Reach 9A-USF: Underground Sand Filter



Hydrograph for Reach 9A-USF: Underground Sand Filter

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.02		0.02	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.03		0.03	58.00	0.00		0.00
7.00	0.04		0.04	59.00	0.00		0.00
8.00	0.05		0.05	60.00	0.00		0.00
9.00	0.07		0.07	61.00	0.00		0.00
10.00	0.10		0.10	62.00	0.00		0.00
11.00	0.15		0.15	63.00	0.00		0.00
12.00	**1.70**		**1.70**	64.00	0.00		0.00
13.00	**0.22**		**0.22**	65.00	0.00		0.00
14.00	0.14		0.14	66.00	0.00		0.00
15.00	0.11		0.11	67.00	0.00		0.00
16.00	0.08		0.08	68.00	0.00		0.00
17.00	0.06		0.06	69.00	0.00		0.00
18.00	0.05		0.05	70.00	0.00		0.00
19.00	0.04		0.04	71.00	0.00		0.00
20.00	0.04		0.04	72.00	0.00		0.00
21.00	0.03		0.03	73.00	0.00		0.00
22.00	0.03		0.03	74.00	0.00		0.00
23.00	0.03		0.03	75.00	0.00		0.00
24.00	0.03		0.03	76.00	0.00		0.00
25.00	0.00		0.00	77.00	0.00		0.00
26.00	0.00		0.00	78.00	0.00		0.00
27.00	0.00		0.00	79.00	0.00		0.00
28.00	0.00		0.00	80.00	0.00		0.00
29.00	0.00		0.00	81.00	0.00		0.00
30.00	0.00		0.00	82.00	0.00		0.00
31.00	0.00		0.00	83.00	0.00		0.00
32.00	0.00		0.00	84.00	0.00		0.00
33.00	0.00		0.00	85.00	0.00		0.00
34.00	0.00		0.00	86.00	0.00		0.00
35.00	0.00		0.00	87.00	0.00		0.00
36.00	0.00		0.00	88.00	0.00		0.00
37.00	0.00		0.00	89.00	0.00		0.00
38.00	0.00		0.00	90.00	0.00		0.00
39.00	0.00		0.00	91.00	0.00		0.00
40.00	0.00		0.00	92.00	0.00		0.00
41.00	0.00		0.00	93.00	0.00		0.00
42.00	0.00		0.00	94.00	0.00		0.00
43.00	0.00		0.00	95.00	0.00		0.00
44.00	0.00		0.00	96.00	0.00		0.00
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 9B: DA8-9B

Runoff = 0.61 cfs @ 12.07 hrs, Volume= 2,038 cf, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

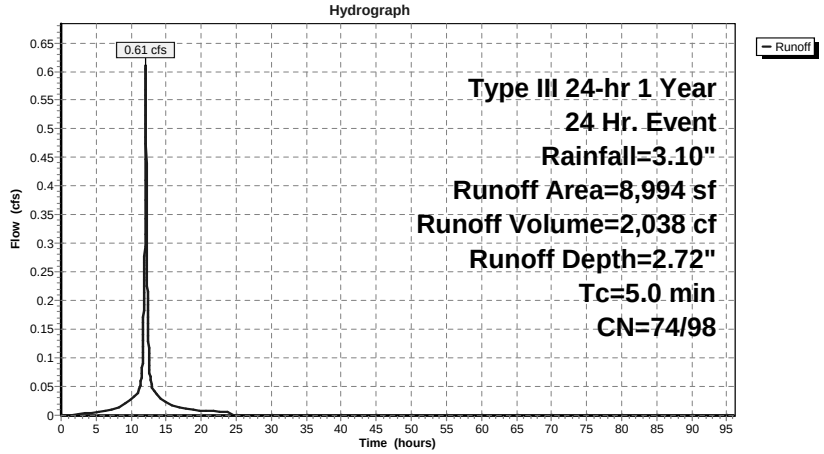
	Area (sf)	CN	Description	Land Use
	1,240	98	Paved parking, HSG C	Pavement
	704	74	>75% Grass cover, Good, HSG C	Open Space
*	225	98	Pavers, HSG B	Pavement
*	6,825	98	Pavers, HSG C	Pavement
	8,994	96	Weighted Average	
	704	74	7.83% Pervious Area	
	8,290	98	92.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 92.17% Impervious, Rv= 0.880, Runoff= 40.20"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
704	Open Space	88.62	0.31	1.34	0.18
8,290	Pavement	299.90	0.97	3.64	11.61
8,994	Total	388.52	1.28	4.98	11.80

Subcatchment 9B: DA8-9B



Hydrograph for Subcatchment 9B: DA8-9B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.03
12.00	1.55	0.16	1.33	**0.41**
14.00	2.51	0.62	2.28	**0.03**
16.00	2.75	0.75	2.52	0.02
18.00	2.88	0.83	2.65	0.01
20.00	2.97	0.89	2.74	0.01
22.00	3.04	0.93	2.81	0.01
24.00	**3.10**	**0.97**	**2.87**	0.01
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00
74.00	3.10	0.97	2.87	0.00
76.00	3.10	0.97	2.87	0.00
78.00	3.10	0.97	2.87	0.00
80.00	3.10	0.97	2.87	0.00
82.00	3.10	0.97	2.87	0.00
84.00	3.10	0.97	2.87	0.00
86.00	3.10	0.97	2.87	0.00
88.00	3.10	0.97	2.87	0.00
90.00	3.10	0.97	2.87	0.00
92.00	3.10	0.97	2.87	0.00
94.00	3.10	0.97	2.87	0.00
96.00	3.10	0.97	2.87	0.00

Summary for Pond 9B-P: 9B-Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 8,994 sf, 92.17% Impervious, Inflow Depth = 2.72" for 1 Year, 24 Hr. Event event
Inflow = 0.61 cfs @ 12.07 hrs, Volume= 2,038 cf
Outflow = 0.04 cfs @ 11.51 hrs, Volume= 2,039 cf, Atten= 93%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.51 hrs, Volume= 2,039 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 729.61' @ 13.37 hrs Surf.Area= 7,048 sf Storage= 790 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 147.5 min (906.7 - 759.1)

Volume	Invert	Avail.Storage	Storage Description
#1	729.33'	1,889 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

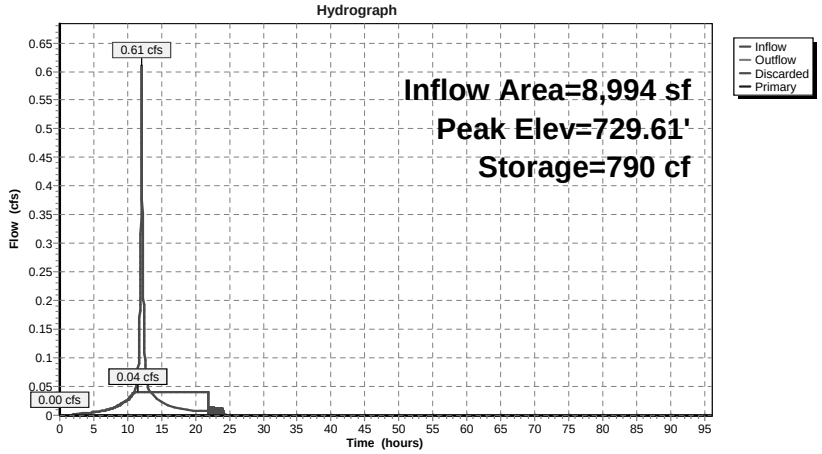
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
729.33	7,048	0.0	0	0
730.00	7,048	40.0	1,889	1,889

Device	Routing	Invert	Outlet Devices
#1	Primary	729.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	729.33'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.04 cfs @ 11.51 hrs HW=729.34' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=729.33' TW=720.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9B-P: 9B-Pavers



Hydrograph for Pond 9B-P: 9B-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	729.33	0.00	0.00	**0.00**
2.00	0.00	0	729.33	0.00	0.00	0.00
4.00	0.00	0	729.33	0.00	0.00	0.00
6.00	0.01	0	729.33	0.01	0.01	0.00
8.00	0.01	0	729.33	0.01	0.01	0.00
10.00	0.03	0	729.33	**0.03**	**0.03**	0.00
12.00	**0.41**	**249**	**729.42**	**0.04**	**0.04**	0.00
14.00	**0.03**	**780**	**729.61**	0.04	0.04	0.00
16.00	0.02	658	729.56	0.04	0.04	0.00
18.00	0.01	460	729.49	0.04	0.04	0.00
20.00	0.01	232	729.41	0.04	0.04	0.00
22.00	0.01	0	729.33	0.01	0.01	0.00
24.00	0.01	0	729.33	0.01	0.01	0.00
26.00	0.00	0	729.33	0.00	0.00	0.00
28.00	0.00	0	729.33	0.00	0.00	0.00
30.00	0.00	0	729.33	0.00	0.00	0.00
32.00	0.00	0	729.33	0.00	0.00	0.00
34.00	0.00	0	729.33	0.00	0.00	0.00
36.00	0.00	0	729.33	0.00	0.00	0.00
38.00	0.00	0	729.33	0.00	0.00	0.00
40.00	0.00	0	729.33	0.00	0.00	0.00
42.00	0.00	0	729.33	0.00	0.00	0.00
44.00	0.00	0	729.33	0.00	0.00	0.00
46.00	0.00	0	729.33	0.00	0.00	0.00
48.00	0.00	0	729.33	0.00	0.00	0.00
50.00	0.00	0	729.33	0.00	0.00	0.00
52.00	0.00	0	729.33	0.00	0.00	0.00
54.00	0.00	0	729.33	0.00	0.00	0.00
56.00	0.00	0	729.33	0.00	0.00	0.00
58.00	0.00	0	729.33	0.00	0.00	0.00
60.00	0.00	0	729.33	0.00	0.00	0.00
62.00	0.00	0	729.33	0.00	0.00	0.00
64.00	0.00	0	729.33	0.00	0.00	0.00
66.00	0.00	0	729.33	0.00	0.00	0.00
68.00	0.00	0	729.33	0.00	0.00	0.00
70.00	0.00	0	729.33	0.00	0.00	0.00
72.00	0.00	0	729.33	0.00	0.00	0.00
74.00	0.00	0	729.33	0.00	0.00	0.00
76.00	0.00	0	729.33	0.00	0.00	0.00
78.00	0.00	0	729.33	0.00	0.00	0.00
80.00	0.00	0	729.33	0.00	0.00	0.00
82.00	0.00	0	729.33	0.00	0.00	0.00
84.00	0.00	0	729.33	0.00	0.00	0.00
86.00	0.00	0	729.33	0.00	0.00	0.00
88.00	0.00	0	729.33	0.00	0.00	0.00
90.00	0.00	0	729.33	0.00	0.00	0.00
92.00	0.00	0	729.33	0.00	0.00	0.00
94.00	0.00	0	729.33	0.00	0.00	0.00
96.00	0.00	0	729.33	0.00	0.00	0.00

Summary for Subcatchment 9C: DA8-9C

Runoff = 0.80 cfs @ 12.07 hrs, Volume= 2,656 cf, Depth= 2.67"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

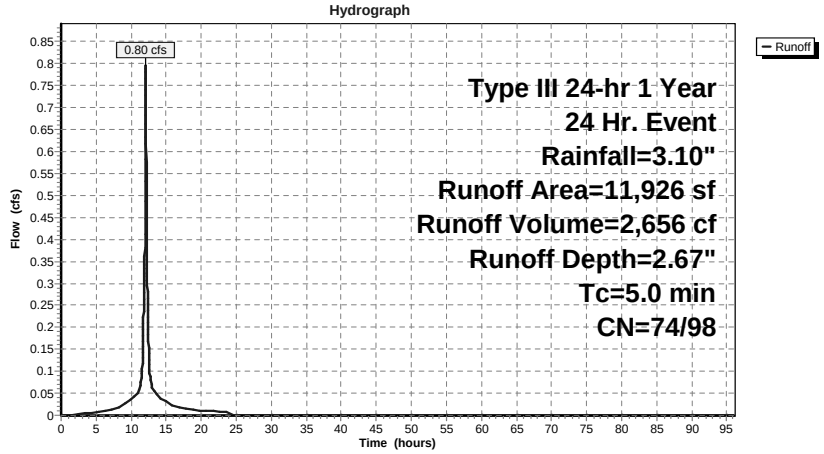
	Area (sf)	CN	Description	Land Use
	1,213	98	Paved parking, HSG C	Pavement
	1,231	74	>75% Grass cover, Good, HSG C	Open Space
	5,144	98	Roofs, HSG C	Roofs
*	4,338	98	Pavers, HSG C	Pavement
	11,926	96	Weighted Average	
	1,231	74	10.32% Pervious Area	
	10,695	98	89.68% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 89.68% Impervious, Rv= 0.857, Runoff= 39.17"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,231	Open Space	151.01	0.53	2.28	0.31
5,551	Pavement	195.69	0.63	2.38	7.58
5,144	Roofs	19.92	0.12	1.57	7.76
11,926	Total	366.61	1.28	6.23	15.64

Subcatchment 9C: DA8-9C



Hydrograph for Subcatchment 9C: DA8-9C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.02
10.00	0.59	0.00	0.40	0.03
12.00	1.55	0.16	1.33	**0.53**
14.00	2.51	0.62	2.28	**0.04**
16.00	2.75	0.75	2.52	0.02
18.00	2.88	0.83	2.65	0.01
20.00	2.97	0.89	2.74	0.01
22.00	3.04	0.93	2.81	0.01
24.00	**3.10**	**0.97**	**2.87**	0.01
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00
74.00	3.10	0.97	2.87	0.00
76.00	3.10	0.97	2.87	0.00
78.00	3.10	0.97	2.87	0.00
80.00	3.10	0.97	2.87	0.00
82.00	3.10	0.97	2.87	0.00
84.00	3.10	0.97	2.87	0.00
86.00	3.10	0.97	2.87	0.00
88.00	3.10	0.97	2.87	0.00
90.00	3.10	0.97	2.87	0.00
92.00	3.10	0.97	2.87	0.00
94.00	3.10	0.97	2.87	0.00
96.00	3.10	0.97	2.87	0.00

Summary for Pond 9C-P: 9C-Pavers

Inflow Area = 11,926 sf, 89.68% Impervious, Inflow Depth = 2.67" for 1 Year, 24 Hr. Event event
Inflow = 0.80 cfs @ 12.07 hrs, Volume= 2,656 cf
Outflow = 0.03 cfs @ 11.03 hrs, Volume= 2,656 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.03 cfs @ 11.03 hrs, Volume= 2,656 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 733.07' @ 15.66 hrs Surf.Area= 4,339 sf Storage= 1,445 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 498.4 min (1,258.5 - 760.2)

Volume	Invert	Avail.Storage	Storage Description
#1	732.33'	18,519 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

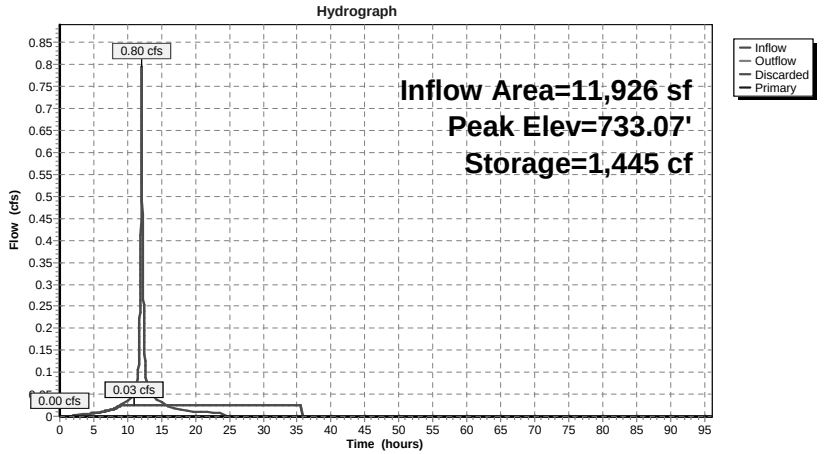
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
732.33	4,339	0.0	0	0
733.00	4,339	40.0	1,163	1,163
737.00	4,339	100.0	17,356	18,519

Device	Routing	Invert	Outlet Devices
#1	Primary	736.50'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	732.33'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 11.03 hrs HW=732.38' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=732.33' TW=720.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9C-P: 9C-Pavers



Hydrograph for Pond 9C-P: 9C-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	732.33	0.00	0.00	**0.00**
2.00	0.00	0	732.33	0.00	0.00	0.00
4.00	0.01	0	732.33	0.01	0.01	0.00
6.00	0.01	0	732.33	0.01	0.01	0.00
8.00	0.02	0	732.33	0.02	0.02	0.00
10.00	0.03	16	732.34	**0.03**	**0.03**	0.00
12.00	**0.53**	502	732.62	**0.03**	**0.03**	0.00
14.00	**0.04**	**1,398**	**733.05**	0.03	0.03	0.00
16.00	0.02	**1,443**	**733.06**	0.03	0.03	0.00
18.00	0.01	1,388	733.05	0.03	0.03	0.00
20.00	0.01	1,294	733.03	0.03	0.03	0.00
22.00	0.01	1,183	733.00	0.03	0.03	0.00
24.00	0.01	1,060	732.94	0.03	0.03	0.00
26.00	0.00	881	732.84	0.03	0.03	0.00
28.00	0.00	700	732.73	0.03	0.03	0.00
30.00	0.00	520	732.63	0.03	0.03	0.00
32.00	0.00	339	732.53	0.03	0.03	0.00
34.00	0.00	158	732.42	0.03	0.03	0.00
36.00	0.00	0	732.33	0.00	0.00	0.00
38.00	0.00	0	732.33	0.00	0.00	0.00
40.00	0.00	0	732.33	0.00	0.00	0.00
42.00	0.00	0	732.33	0.00	0.00	0.00
44.00	0.00	0	732.33	0.00	0.00	0.00
46.00	0.00	0	732.33	0.00	0.00	0.00
48.00	0.00	0	732.33	0.00	0.00	0.00
50.00	0.00	0	732.33	0.00	0.00	0.00
52.00	0.00	0	732.33	0.00	0.00	0.00
54.00	0.00	0	732.33	0.00	0.00	0.00
56.00	0.00	0	732.33	0.00	0.00	0.00
58.00	0.00	0	732.33	0.00	0.00	0.00
60.00	0.00	0	732.33	0.00	0.00	0.00
62.00	0.00	0	732.33	0.00	0.00	0.00
64.00	0.00	0	732.33	0.00	0.00	0.00
66.00	0.00	0	732.33	0.00	0.00	0.00
68.00	0.00	0	732.33	0.00	0.00	0.00
70.00	0.00	0	732.33	0.00	0.00	0.00
72.00	0.00	0	732.33	0.00	0.00	0.00
74.00	0.00	0	732.33	0.00	0.00	0.00
76.00	0.00	0	732.33	0.00	0.00	0.00
78.00	0.00	0	732.33	0.00	0.00	0.00
80.00	0.00	0	732.33	0.00	0.00	0.00
82.00	0.00	0	732.33	0.00	0.00	0.00
84.00	0.00	0	732.33	0.00	0.00	0.00
86.00	0.00	0	732.33	0.00	0.00	0.00
88.00	0.00	0	732.33	0.00	0.00	0.00
90.00	0.00	0	732.33	0.00	0.00	0.00
92.00	0.00	0	732.33	0.00	0.00	0.00
94.00	0.00	0	732.33	0.00	0.00	0.00
96.00	0.00	0	732.33	0.00	0.00	0.00

Summary for Subcatchment 13: DA8-13

Runoff = 0.73 cfs @ 12.15 hrs, Volume= 2,848 cf, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

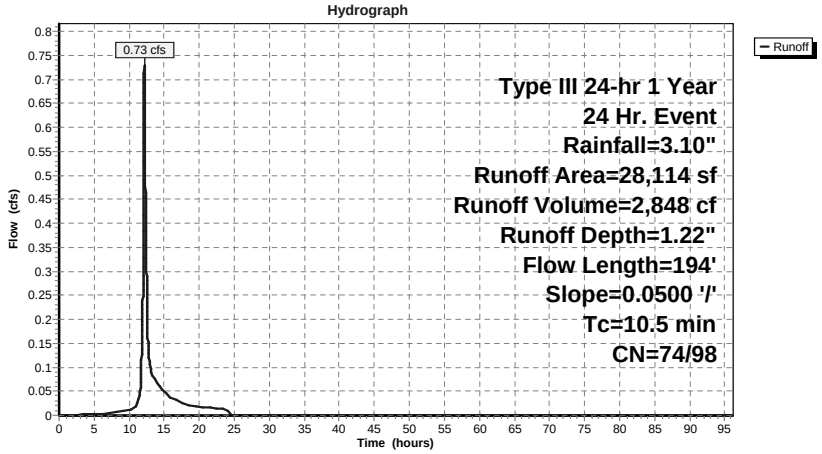
Area (sf)	CN	Description	Land Use
3,610	98	Unconnected pavement, HSG C	Pavement
24,504	74	>75% Grass cover, Good, HSG C	Open Space
28,114	77	Weighted Average	
24,504	74	87.16% Pervious Area	
3,610	98	12.84% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0500	0.18		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.0	94	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.5	194	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 12.84% Impervious, Rv= 0.166, Runoff= 7.57"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
24,504	Open Space	580.65	2.03	8.78	1.19
3,610	Pavement	24.58	0.08	0.30	0.95
28,114	Total	605.24	2.11	9.08	2.14

Subcatchment 13: DA8-13



Hydrograph for Subcatchment 13: DA8-13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.16	1.33	**0.31**
14.00	2.51	0.62	2.28	**0.07**
16.00	2.75	0.75	2.52	0.04
18.00	2.88	0.83	2.65	0.02
20.00	2.97	0.89	2.74	0.02
22.00	3.04	0.93	2.81	0.02
24.00	**3.10**	**0.97**	**2.87**	0.01
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00
74.00	3.10	0.97	2.87	0.00
76.00	3.10	0.97	2.87	0.00
78.00	3.10	0.97	2.87	0.00
80.00	3.10	0.97	2.87	0.00
82.00	3.10	0.97	2.87	0.00
84.00	3.10	0.97	2.87	0.00
86.00	3.10	0.97	2.87	0.00
88.00	3.10	0.97	2.87	0.00
90.00	3.10	0.97	2.87	0.00
92.00	3.10	0.97	2.87	0.00
94.00	3.10	0.97	2.87	0.00
96.00	3.10	0.97	2.87	0.00

Summary for Reach NP1: North Pipe -1

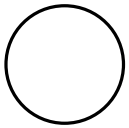
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 47,209 sf, 49.54% Impervious, Inflow Depth = 0.00" for 1 Year, 24 Hr. Event event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

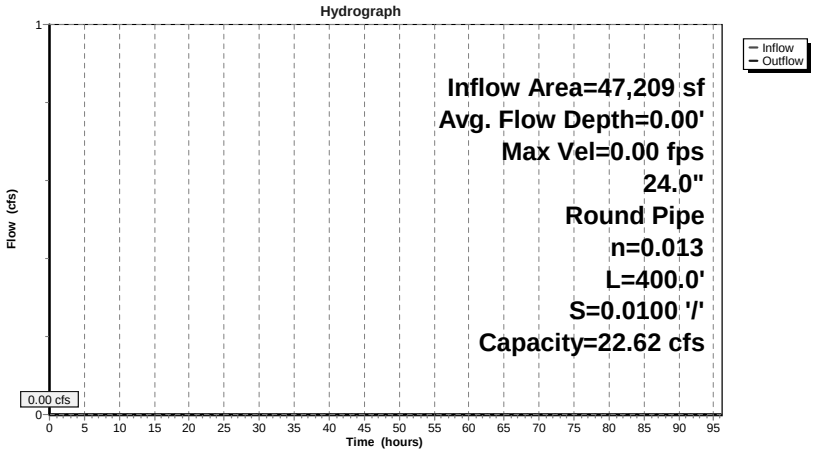
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 400.0' Slope= 0.0100 '/'
Inlet Invert= 726.00', Outlet Invert= 722.00'



Reach NP1: North Pipe -1



Hydrograph for Reach NP1: North Pipe -1

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	**0.00**	**726.00**	**0.00**	52.00	0.00	726.00	0.00
1.00	0.00	726.00	0.00	53.00	0.00	726.00	0.00
2.00	0.00	726.00	0.00	54.00	0.00	726.00	0.00
3.00	0.00	726.00	0.00	55.00	0.00	726.00	0.00
4.00	0.00	726.00	0.00	56.00	0.00	726.00	0.00
5.00	0.00	726.00	0.00	57.00	0.00	726.00	0.00
6.00	0.00	726.00	0.00	58.00	0.00	726.00	0.00
7.00	0.00	726.00	0.00	59.00	0.00	726.00	0.00
8.00	0.00	726.00	0.00	60.00	0.00	726.00	0.00
9.00	0.00	726.00	0.00	61.00	0.00	726.00	0.00
10.00	0.00	726.00	0.00	62.00	0.00	726.00	0.00
11.00	0.00	726.00	0.00	63.00	0.00	726.00	0.00
12.00	0.00	726.00	0.00	64.00	0.00	726.00	0.00
13.00	0.00	726.00	0.00	65.00	0.00	726.00	0.00
14.00	0.00	726.00	0.00	66.00	0.00	726.00	0.00
15.00	0.00	726.00	0.00	67.00	0.00	726.00	0.00
16.00	0.00	726.00	0.00	68.00	0.00	726.00	0.00
17.00	0.00	726.00	0.00	69.00	0.00	726.00	0.00
18.00	0.00	726.00	0.00	70.00	0.00	726.00	0.00
19.00	0.00	726.00	0.00	71.00	0.00	726.00	0.00
20.00	0.00	726.00	0.00	72.00	0.00	726.00	0.00
21.00	0.00	726.00	0.00	73.00	0.00	726.00	0.00
22.00	0.00	726.00	0.00	74.00	0.00	726.00	0.00
23.00	0.00	726.00	0.00	75.00	0.00	726.00	0.00
24.00	0.00	726.00	0.00	76.00	0.00	726.00	0.00
25.00	0.00	726.00	0.00	77.00	0.00	726.00	0.00
26.00	0.00	726.00	0.00	78.00	0.00	726.00	0.00
27.00	0.00	726.00	0.00	79.00	0.00	726.00	0.00
28.00	0.00	726.00	0.00	80.00	0.00	726.00	0.00
29.00	0.00	726.00	0.00	81.00	0.00	726.00	0.00
30.00	0.00	726.00	0.00	82.00	0.00	726.00	0.00
31.00	0.00	726.00	0.00	83.00	0.00	726.00	0.00
32.00	0.00	726.00	0.00	84.00	0.00	726.00	0.00
33.00	0.00	726.00	0.00	85.00	0.00	726.00	0.00
34.00	0.00	726.00	0.00	86.00	0.00	726.00	0.00
35.00	0.00	726.00	0.00	87.00	0.00	726.00	0.00
36.00	0.00	726.00	0.00	88.00	0.00	726.00	0.00
37.00	0.00	726.00	0.00	89.00	0.00	726.00	0.00
38.00	0.00	726.00	0.00	90.00	0.00	726.00	0.00
39.00	0.00	726.00	0.00	91.00	0.00	726.00	0.00
40.00	0.00	726.00	0.00	92.00	0.00	726.00	0.00
41.00	0.00	726.00	0.00	93.00	0.00	726.00	0.00
42.00	0.00	726.00	0.00	94.00	0.00	726.00	0.00
43.00	0.00	726.00	0.00	95.00	0.00	726.00	0.00
44.00	0.00	726.00	0.00	96.00	0.00	726.00	0.00
45.00	0.00	726.00	0.00				
46.00	0.00	726.00	0.00				
47.00	0.00	726.00	0.00				
48.00	0.00	726.00	0.00				
49.00	0.00	726.00	0.00				
50.00	0.00	726.00	0.00				
51.00	0.00	726.00	0.00				

Summary for Reach NP2: North Pipe -2

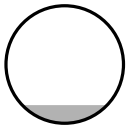
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 114,910 sf, 64.22% Impervious, Inflow Depth = 0.90" for 1 Year, 24 Hr. Event event
Inflow = 2.58 cfs @ 12.07 hrs, Volume= 8,621 cf
Outflow = 2.56 cfs @ 12.08 hrs, Volume= 8,621 cf, Atten= 1%, Lag= 0.6 min

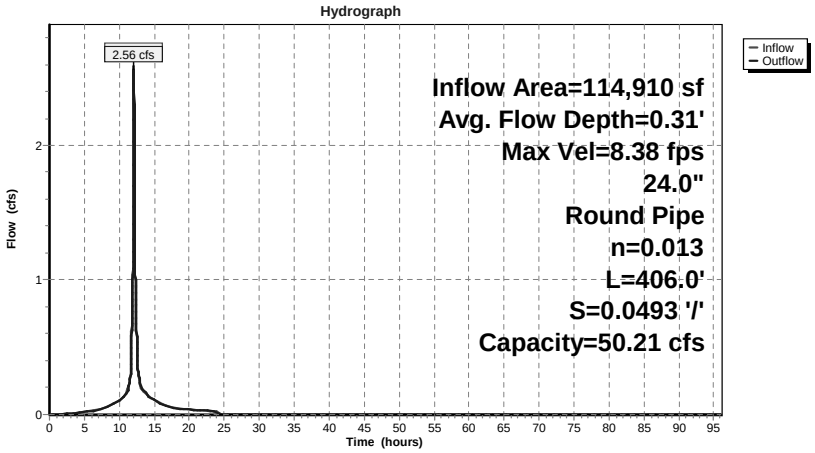
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 8.38 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.70 fps, Avg. Travel Time= 2.5 min

Peak Storage= 124 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 50.21 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 406.0' Slope= 0.0493 '/'
Inlet Invert= 720.00', Outlet Invert= 700.00'



Reach NP2: North Pipe -2



Hydrograph for Reach NP2: North Pipe -2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	720.00	0.00
2.00	0.00	1	720.01	0.00
4.00	0.02	3	720.03	0.01
6.00	0.03	5	720.03	0.03
8.00	0.05	8	720.05	0.05
10.00	0.10	13	720.07	0.10
12.00	**1.70**	**87**	**720.24**	**1.54**
14.00	**0.14**	**17**	**720.08**	**0.14**
16.00	0.08	11	720.06	0.08
18.00	0.05	8	720.05	0.05
20.00	0.04	7	720.04	0.04
22.00	0.03	6	720.04	0.03
24.00	0.03	5	720.03	0.03
26.00	0.00	0	720.00	0.00
28.00	0.00	0	720.00	0.00
30.00	0.00	0	720.00	0.00
32.00	0.00	0	720.00	0.00
34.00	0.00	0	720.00	0.00
36.00	0.00	0	720.00	0.00
38.00	0.00	0	720.00	0.00
40.00	0.00	0	720.00	0.00
42.00	0.00	0	720.00	0.00
44.00	0.00	0	720.00	0.00
46.00	0.00	0	720.00	0.00
48.00	0.00	0	720.00	0.00
50.00	0.00	0	720.00	0.00
52.00	0.00	0	720.00	0.00
54.00	0.00	0	720.00	0.00
56.00	0.00	0	720.00	0.00
58.00	0.00	0	720.00	0.00
60.00	0.00	0	720.00	0.00
62.00	0.00	0	720.00	0.00
64.00	0.00	0	720.00	0.00
66.00	0.00	0	720.00	0.00
68.00	0.00	0	720.00	0.00
70.00	0.00	0	720.00	0.00
72.00	0.00	0	720.00	0.00
74.00	0.00	0	720.00	0.00
76.00	0.00	0	720.00	0.00
78.00	0.00	0	720.00	0.00
80.00	0.00	0	720.00	0.00
82.00	0.00	0	720.00	0.00
84.00	0.00	0	720.00	0.00
86.00	0.00	0	720.00	0.00
88.00	0.00	0	720.00	0.00
90.00	0.00	0	720.00	0.00
92.00	0.00	0	720.00	0.00
94.00	0.00	0	720.00	0.00
96.00	0.00	0	720.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 7: DA8-7 Runoff Area=21,303 sf 37.77% Impervious Runoff Depth=1.62"
Tc=5.0 min CN=62/98 Runoff=0.81 cfs 2,870 cf

Pond 7-Bio: 7_Bioretention Peak Elev=735.33' Storage=2,006 cf Inflow=0.81 cfs 2,870 cf
Discarded=0.02 cfs 2,663 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 2,663 cf

Subcatchment 8: DA8-8 Runoff Area=25,906 sf 59.21% Impervious Runoff Depth=2.17"
Tc=5.0 min CN=61/98 Runoff=1.36 cfs 4,680 cf

Pond 8-Bio: 8_Bioretention Peak Elev=734.36' Storage=3,359 cf Inflow=1.36 cfs 4,680 cf
Discarded=0.03 cfs 4,366 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 4,366 cf

Reach 8BN: DA-8B- North Outflow Avg. Flow Depth=0.31' Max Vel=9.83 fps Inflow=3.72 cfs 13,503 cf
36.0" Round Pipe n=0.013 L=152.0' S=0.0658 '/' Capacity=171.08 cfs Outflow=3.72 cfs 13,503 cf

Subcatchment 9A: DA8-9A Runoff Area=46,781 sf 67.17% Impervious Runoff Depth=2.56"
Tc=5.0 min CN=72/98 Runoff=2.99 cfs 9,988 cf

Reach 9A-USF: Underground Sand Filter Inflow=2.99 cfs 9,988 cf
Outflow=2.99 cfs 9,988 cf

Subcatchment 9B: DA8-9B Runoff Area=8,994 sf 92.17% Impervious Runoff Depth=3.11"
Tc=5.0 min CN=74/98 Runoff=0.69 cfs 2,329 cf

Pond 9B-P: 9B-Pavers Peak Elev=729.67' Storage=954 cf Inflow=0.69 cfs 2,329 cf
Discarded=0.04 cfs 2,330 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 2,330 cf

Subcatchment 9C: DA8-9C Runoff Area=11,926 sf 89.68% Impervious Runoff Depth=3.06"
Tc=5.0 min CN=74/98 Runoff=0.91 cfs 3,038 cf

Pond 9C-P: 9C-Pavers Peak Elev=733.13' Storage=1,736 cf Inflow=0.91 cfs 3,038 cf
Discarded=0.03 cfs 3,039 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 3,039 cf

Subcatchment 13: DA8-13 Runoff Area=28,114 sf 12.84% Impervious Runoff Depth=1.50"
Flow Length=194' Slope=0.0500 '/' Tc=10.5 min CN=74/98 Runoff=0.92 cfs 3,515 cf

Reach NP1: North Pipe -1 Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
24.0" Round Pipe n=0.013 L=400.0' S=0.0100 '/' Capacity=22.62 cfs Outflow=0.00 cfs 0 cf

Reach NP2: North Pipe -2 Avg. Flow Depth=0.33' Max Vel=8.76 fps Inflow=2.99 cfs 9,988 cf
24.0" Round Pipe n=0.013 L=406.0' S=0.0493 '/' Capacity=50.21 cfs Outflow=2.97 cfs 9,988 cf

Total Runoff Area = 143,024 sf Runoff Volume = 26,420 cf Average Runoff Depth = 2.22"
45.88% Pervious = 65,620 sf 54.12% Impervious = 77,404 sf

Summary for Subcatchment 7: DA8-7

Runoff = 0.81 cfs @ 12.08 hrs, Volume= 2,870 cf, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

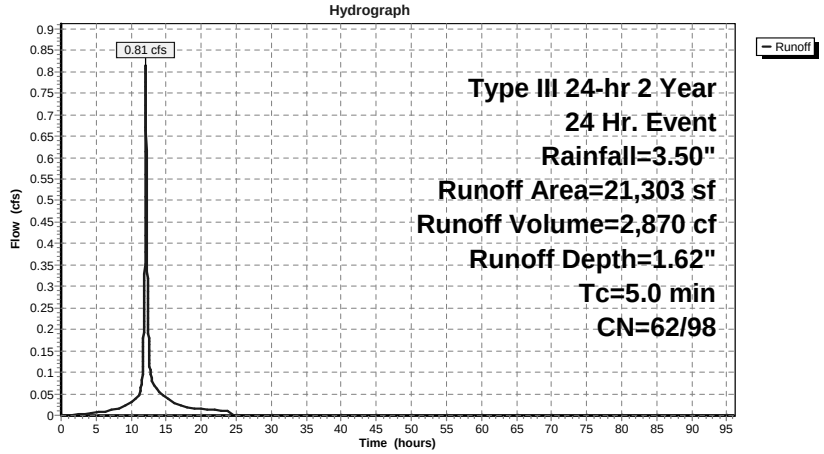
	Area (sf)	CN	Description	Land Use
	8,046	98	Paved parking, HSG B	Pavement
	9,082	61	>75% Grass cover, Good, HSG B	Open Space
	641	74	>75% Grass cover, Good, HSG C	Open Space
*	3,301	61	Bioretention, HSG B	Brush
*	233	74	Bioretention, HSG C	Brush
	21,303	76	Weighted Average	
	13,257	62	62.23% Pervious Area	
	8,046	98	37.77% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 37.77% Impervious, Rv= 0.390, Runoff= 17.82"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,534	Brush	12.12	0.00	0.00	0.40
9,723	Open Space	542.61	1.89	8.20	1.11
8,046	Pavement	129.04	0.42	1.57	5.00
21,303	Total	683.77	2.31	9.77	6.51

Subcatchment 7: DA8-7



Hydrograph for Subcatchment 7: DA8-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.03
12.00	1.75	0.04	1.53	**0.51**
14.00	2.84	0.34	2.61	**0.05**
16.00	3.10	0.44	2.87	0.03
18.00	3.25	0.50	3.02	0.02
20.00	3.35	0.55	3.12	0.01
22.00	3.43	0.58	3.20	0.01
24.00	**3.50**	**0.62**	**3.27**	0.01
26.00	3.50	0.62	3.27	0.00
28.00	3.50	0.62	3.27	0.00
30.00	3.50	0.62	3.27	0.00
32.00	3.50	0.62	3.27	0.00
34.00	3.50	0.62	3.27	0.00
36.00	3.50	0.62	3.27	0.00
38.00	3.50	0.62	3.27	0.00
40.00	3.50	0.62	3.27	0.00
42.00	3.50	0.62	3.27	0.00
44.00	3.50	0.62	3.27	0.00
46.00	3.50	0.62	3.27	0.00
48.00	3.50	0.62	3.27	0.00
50.00	3.50	0.62	3.27	0.00
52.00	3.50	0.62	3.27	0.00
54.00	3.50	0.62	3.27	0.00
56.00	3.50	0.62	3.27	0.00
58.00	3.50	0.62	3.27	0.00
60.00	3.50	0.62	3.27	0.00
62.00	3.50	0.62	3.27	0.00
64.00	3.50	0.62	3.27	0.00
66.00	3.50	0.62	3.27	0.00
68.00	3.50	0.62	3.27	0.00
70.00	3.50	0.62	3.27	0.00
72.00	3.50	0.62	3.27	0.00
74.00	3.50	0.62	3.27	0.00
76.00	3.50	0.62	3.27	0.00
78.00	3.50	0.62	3.27	0.00
80.00	3.50	0.62	3.27	0.00
82.00	3.50	0.62	3.27	0.00
84.00	3.50	0.62	3.27	0.00
86.00	3.50	0.62	3.27	0.00
88.00	3.50	0.62	3.27	0.00
90.00	3.50	0.62	3.27	0.00
92.00	3.50	0.62	3.27	0.00
94.00	3.50	0.62	3.27	0.00
96.00	3.50	0.62	3.27	0.00

Summary for Pond 7-Bio: 7_Bioretention

Inflow Area = 21,303 sf, 37.77% Impervious, Inflow Depth = 1.62" for 2 Year, 24 Hr. Event event
Inflow = 0.81 cfs @ 12.08 hrs, Volume= 2,870 cf
Outflow = 0.02 cfs @ 11.97 hrs, Volume= 2,663 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.97 hrs, Volume= 2,663 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 735.33' @ 17.29 hrs Surf.Area= 3,823 sf Storage= 2,006 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,156.1 min (1,944.0 - 788.0)

Volume	Invert	Avail.Storage	Storage Description
#1	730.75'	4,561 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

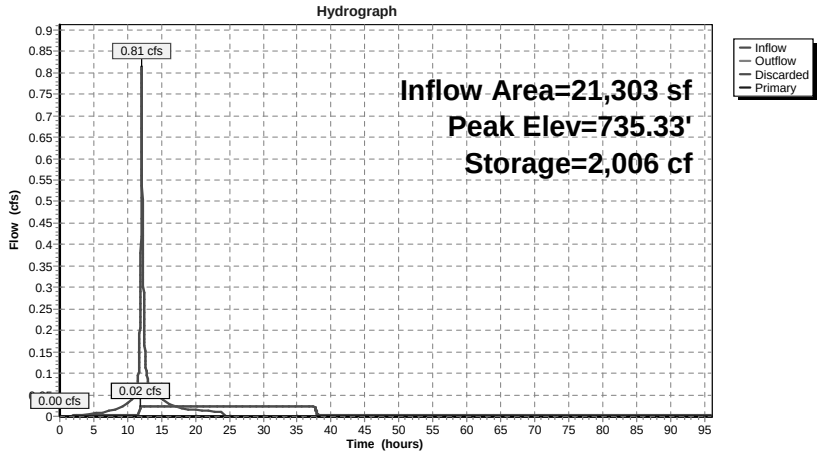
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
730.75	424	0.0	0	0	424
730.76	424	40.0	2	2	425
734.99	424	40.0	717	719	773
735.00	3,823	100.0	18	738	4,172
735.50	3,823	100.0	1,912	2,649	4,296
736.00	3,823	100.0	1,912	4,561	4,420

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	735.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 11.97 hrs HW=735.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=730.75' TW=726.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 7-Bio: 7_Bioretention



Hydrograph for Pond 7-Bio: 7_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.75	0.00	0.00	**0.00**
2.00	0.00	0	730.75	0.00	0.00	0.00
4.00	0.00	6	730.78	0.00	0.00	0.00
6.00	0.01	34	730.95	0.00	0.00	0.00
8.00	0.01	95	731.31	0.00	0.00	0.00
10.00	0.03	233	732.13	**0.00**	**0.00**	0.00
12.00	**0.51**	790	735.01	**0.02**	**0.02**	0.00
14.00	**0.05**	1,853	735.29	0.02	0.02	0.00
16.00	0.03	**1,990**	**735.33**	0.02	0.02	0.00
18.00	0.02	**2,001**	**735.33**	0.02	0.02	0.00
20.00	0.01	1,960	735.32	0.02	0.02	0.00
22.00	0.01	1,898	735.30	0.02	0.02	0.00
24.00	0.01	1,819	735.28	0.02	0.02	0.00
26.00	0.00	1,663	735.24	0.02	0.02	0.00
28.00	0.00	1,503	735.20	0.02	0.02	0.00
30.00	0.00	1,344	735.16	0.02	0.02	0.00
32.00	0.00	1,185	735.12	0.02	0.02	0.00
34.00	0.00	1,026	735.08	0.02	0.02	0.00
36.00	0.00	866	735.03	0.02	0.02	0.00
38.00	0.00	720	734.99	0.00	0.00	0.00
40.00	0.00	702	734.89	0.00	0.00	0.00
42.00	0.00	685	734.79	0.00	0.00	0.00
44.00	0.00	667	734.68	0.00	0.00	0.00
46.00	0.00	649	734.58	0.00	0.00	0.00
48.00	0.00	632	734.47	0.00	0.00	0.00
50.00	0.00	614	734.37	0.00	0.00	0.00
52.00	0.00	596	734.27	0.00	0.00	0.00
54.00	0.00	579	734.16	0.00	0.00	0.00
56.00	0.00	561	734.06	0.00	0.00	0.00
58.00	0.00	543	733.95	0.00	0.00	0.00
60.00	0.00	526	733.85	0.00	0.00	0.00
62.00	0.00	508	733.75	0.00	0.00	0.00
64.00	0.00	490	733.64	0.00	0.00	0.00
66.00	0.00	473	733.54	0.00	0.00	0.00
68.00	0.00	455	733.43	0.00	0.00	0.00
70.00	0.00	437	733.33	0.00	0.00	0.00
72.00	0.00	420	733.22	0.00	0.00	0.00
74.00	0.00	402	733.12	0.00	0.00	0.00
76.00	0.00	384	733.02	0.00	0.00	0.00
78.00	0.00	367	732.91	0.00	0.00	0.00
80.00	0.00	349	732.81	0.00	0.00	0.00
82.00	0.00	331	732.70	0.00	0.00	0.00
84.00	0.00	314	732.60	0.00	0.00	0.00
86.00	0.00	296	732.50	0.00	0.00	0.00
88.00	0.00	278	732.39	0.00	0.00	0.00
90.00	0.00	261	732.29	0.00	0.00	0.00
92.00	0.00	243	732.18	0.00	0.00	0.00
94.00	0.00	225	732.08	0.00	0.00	0.00
96.00	0.00	208	731.97	0.00	0.00	0.00

Summary for Subcatchment 8: DA8-8

Runoff = 1.36 cfs @ 12.07 hrs, Volume= 4,680 cf, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

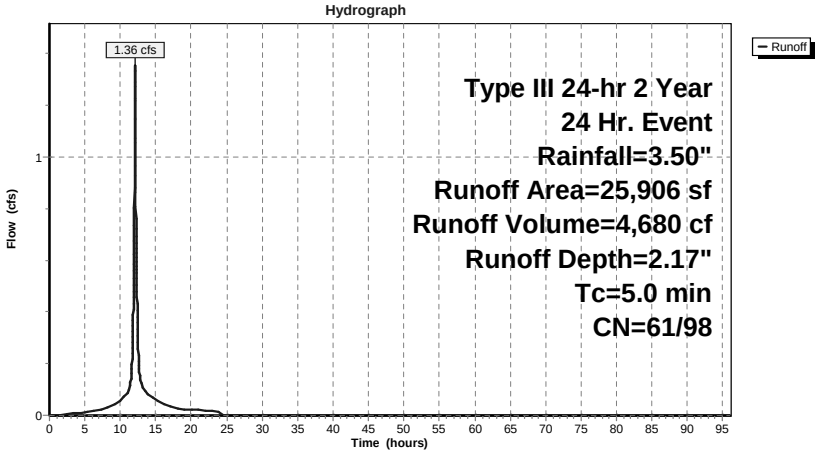
	Area (sf)	CN	Description	Land Use
	4,680	61	>75% Grass cover, Good, HSG B	Open Space
*	5,887	61	Bioretention, HSG B	Brush
	15,339	98	Paved parking, HSG B	Pavement
	25,906	83	Weighted Average	
	10,567	61	40.79% Pervious Area	
	15,339	98	59.21% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.21% Impervious, Rv= 0.583, Runoff= 26.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,887	Brush	30.19	0.00	0.00	1.00
4,680	Open Space	390.43	1.36	5.90	0.80
15,339	Pavement	367.74	1.19	4.46	14.24
25,906	Total	788.36	2.55	10.37	16.04

Subcatchment 8: DA8-8



Hydrograph for Subcatchment 8: DA8-8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.03
10.00	0.66	0.00	0.47	0.06
12.00	1.75	0.03	1.53	**0.88**
14.00	2.84	0.31	2.61	**0.08**
16.00	3.10	0.40	2.87	0.04
18.00	3.25	0.46	3.02	0.03
20.00	3.35	0.51	3.12	0.02
22.00	3.43	0.54	3.20	0.02
24.00	**3.50**	**0.57**	**3.27**	0.01
26.00	3.50	0.57	3.27	0.00
28.00	3.50	0.57	3.27	0.00
30.00	3.50	0.57	3.27	0.00
32.00	3.50	0.57	3.27	0.00
34.00	3.50	0.57	3.27	0.00
36.00	3.50	0.57	3.27	0.00
38.00	3.50	0.57	3.27	0.00
40.00	3.50	0.57	3.27	0.00
42.00	3.50	0.57	3.27	0.00
44.00	3.50	0.57	3.27	0.00
46.00	3.50	0.57	3.27	0.00
48.00	3.50	0.57	3.27	0.00
50.00	3.50	0.57	3.27	0.00
52.00	3.50	0.57	3.27	0.00
54.00	3.50	0.57	3.27	0.00
56.00	3.50	0.57	3.27	0.00
58.00	3.50	0.57	3.27	0.00
60.00	3.50	0.57	3.27	0.00
62.00	3.50	0.57	3.27	0.00
64.00	3.50	0.57	3.27	0.00
66.00	3.50	0.57	3.27	0.00
68.00	3.50	0.57	3.27	0.00
70.00	3.50	0.57	3.27	0.00
72.00	3.50	0.57	3.27	0.00
74.00	3.50	0.57	3.27	0.00
76.00	3.50	0.57	3.27	0.00
78.00	3.50	0.57	3.27	0.00
80.00	3.50	0.57	3.27	0.00
82.00	3.50	0.57	3.27	0.00
84.00	3.50	0.57	3.27	0.00
86.00	3.50	0.57	3.27	0.00
88.00	3.50	0.57	3.27	0.00
90.00	3.50	0.57	3.27	0.00
92.00	3.50	0.57	3.27	0.00
94.00	3.50	0.57	3.27	0.00
96.00	3.50	0.57	3.27	0.00

Summary for Pond 8-Bio: 8_Bioretention

Inflow Area = 25,906 sf, 59.21% Impervious, Inflow Depth = 2.17" for 2 Year, 24 Hr. Event event
Inflow = 1.36 cfs @ 12.07 hrs, Volume= 4,680 cf
Outflow = 0.03 cfs @ 11.90 hrs, Volume= 4,366 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.03 cfs @ 11.90 hrs, Volume= 4,366 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 734.36' @ 16.98 hrs Surf.Area= 5,887 sf Storage= 3,359 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,238.3 min (2,008.0 - 769.7)

Volume	Invert	Avail.Storage	Storage Description
#1	730.00'	7,151 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

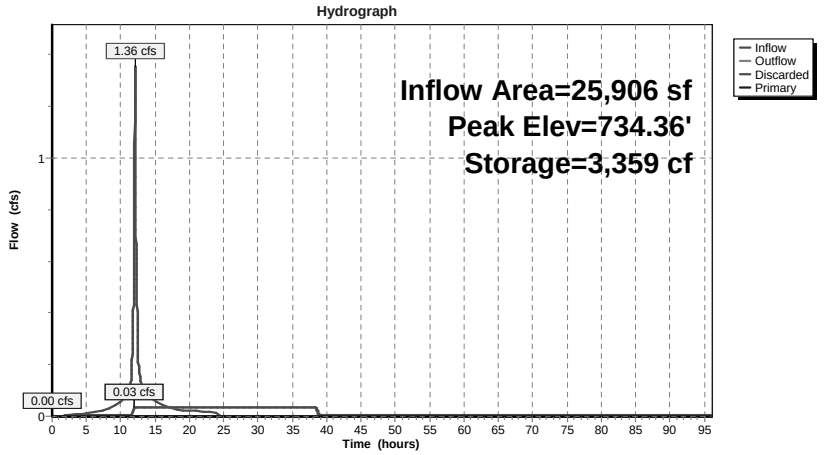
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
730.00	771	0.0	0	0
730.01	771	40.0	3	3
733.99	771	40.0	1,227	1,231
734.00	5,887	100.0	33	1,264
734.50	5,887	100.0	2,944	4,207
735.00	5,887	100.0	2,944	7,151

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	734.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 11.90 hrs HW=734.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=730.00' TW=726.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 8-Bio: 8_Bioretention



Hydrograph for Pond 8-Bio: 8_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.00	0.00	0.00	**0.00**
2.00	0.00	0	730.00	0.00	0.00	0.00
4.00	0.01	12	730.04	0.00	0.00	0.00
6.00	0.01	67	730.22	0.00	0.00	0.00
8.00	0.03	185	730.60	0.00	0.00	0.00
10.00	0.06	451	731.46	**0.00**	**0.00**	0.00
12.00	**0.88**	1,486	734.04	**0.03**	**0.03**	0.00
14.00	**0.08**	3,160	734.32	0.03	0.03	0.00
16.00	0.04	**3,345**	**734.35**	0.03	0.03	0.00
18.00	0.03	**3,344**	**734.35**	0.03	0.03	0.00
20.00	0.02	3,267	734.34	0.03	0.03	0.00
22.00	0.02	3,161	734.32	0.03	0.03	0.00
24.00	0.01	3,029	734.30	0.03	0.03	0.00
26.00	0.00	2,787	734.26	0.03	0.03	0.00
28.00	0.00	2,542	734.22	0.03	0.03	0.00
30.00	0.00	2,297	734.18	0.03	0.03	0.00
32.00	0.00	2,051	734.13	0.03	0.03	0.00
34.00	0.00	1,806	734.09	0.03	0.03	0.00
36.00	0.00	1,561	734.05	0.03	0.03	0.00
38.00	0.00	1,316	734.01	0.03	0.03	0.00
40.00	0.00	1,213	733.93	0.00	0.00	0.00
42.00	0.00	1,181	733.83	0.00	0.00	0.00
44.00	0.00	1,149	733.72	0.00	0.00	0.00
46.00	0.00	1,117	733.62	0.00	0.00	0.00
48.00	0.00	1,084	733.52	0.00	0.00	0.00
50.00	0.00	1,052	733.41	0.00	0.00	0.00
52.00	0.00	1,020	733.31	0.00	0.00	0.00
54.00	0.00	988	733.20	0.00	0.00	0.00
56.00	0.00	956	733.10	0.00	0.00	0.00
58.00	0.00	924	733.00	0.00	0.00	0.00
60.00	0.00	892	732.89	0.00	0.00	0.00
62.00	0.00	860	732.79	0.00	0.00	0.00
64.00	0.00	827	732.68	0.00	0.00	0.00
66.00	0.00	795	732.58	0.00	0.00	0.00
68.00	0.00	763	732.47	0.00	0.00	0.00
70.00	0.00	731	732.37	0.00	0.00	0.00
72.00	0.00	699	732.27	0.00	0.00	0.00
74.00	0.00	667	732.16	0.00	0.00	0.00
76.00	0.00	635	732.06	0.00	0.00	0.00
78.00	0.00	603	731.95	0.00	0.00	0.00
80.00	0.00	570	731.85	0.00	0.00	0.00
82.00	0.00	538	731.75	0.00	0.00	0.00
84.00	0.00	506	731.64	0.00	0.00	0.00
86.00	0.00	474	731.54	0.00	0.00	0.00
88.00	0.00	442	731.43	0.00	0.00	0.00
90.00	0.00	410	731.33	0.00	0.00	0.00
92.00	0.00	378	731.22	0.00	0.00	0.00
94.00	0.00	346	731.12	0.00	0.00	0.00
96.00	0.00	313	731.02	0.00	0.00	0.00

Summary for Reach 8BN: DA-8B- North Outflow

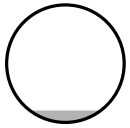
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach NP2 OUTLET depth by 0.01' @ 12.55 hrs

Inflow Area = 143,024 sf, 54.12% Impervious, Inflow Depth = 1.13" for 2 Year, 24 Hr. Event event
Inflow = 3.72 cfs @ 12.09 hrs, Volume= 13,503 cf
Outflow = 3.72 cfs @ 12.09 hrs, Volume= 13,503 cf, Atten= 0%, Lag= 0.2 min

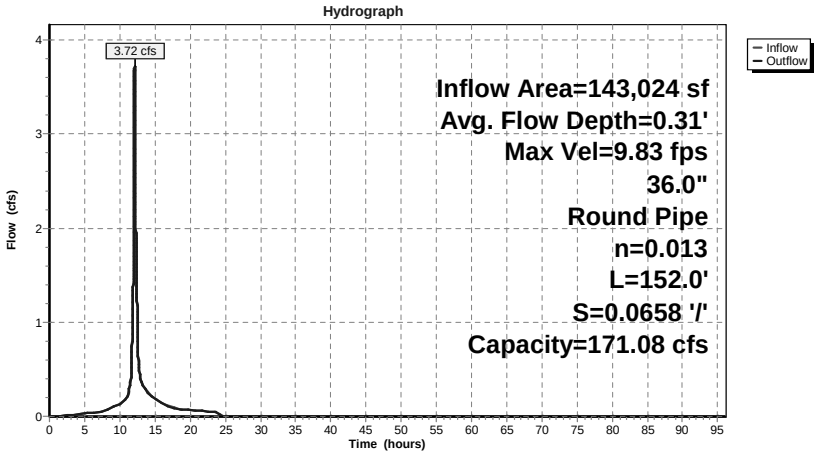
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 9.83 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.30 fps, Avg. Travel Time= 0.8 min

Peak Storage= 57 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 171.08 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 152.0' Slope= 0.0658 '/'
Inlet Invert= 700.00', Outlet Invert= 690.00'



Reach 8BN: DA-8B- North Outflow



Hydrograph for Reach 8BN: DA-8B- North Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	700.00	0.00
2.00	0.01	0	700.01	0.01
4.00	0.02	1	700.02	0.02
6.00	0.03	2	700.03	0.03
8.00	0.06	3	700.04	0.06
10.00	0.13	5	700.06	0.13
12.00	**2.20**	**39**	**700.23**	**2.13**
14.00	**0.25**	**9**	**700.08**	**0.25**
16.00	0.13	6	700.06	0.13
18.00	0.08	4	700.05	0.08
20.00	0.07	3	700.04	0.07
22.00	0.05	3	700.04	0.05
24.00	0.04	2	700.04	0.04
26.00	0.00	0	700.00	0.00
28.00	0.00	0	700.00	0.00
30.00	0.00	0	700.00	0.00
32.00	0.00	0	700.00	0.00
34.00	0.00	0	700.00	0.00
36.00	0.00	0	700.00	0.00
38.00	0.00	0	700.00	0.00
40.00	0.00	0	700.00	0.00
42.00	0.00	0	700.00	0.00
44.00	0.00	0	700.00	0.00
46.00	0.00	0	700.00	0.00
48.00	0.00	0	700.00	0.00
50.00	0.00	0	700.00	0.00
52.00	0.00	0	700.00	0.00
54.00	0.00	0	700.00	0.00
56.00	0.00	0	700.00	0.00
58.00	0.00	0	700.00	0.00
60.00	0.00	0	700.00	0.00
62.00	0.00	0	700.00	0.00
64.00	0.00	0	700.00	0.00
66.00	0.00	0	700.00	0.00
68.00	0.00	0	700.00	0.00
70.00	0.00	0	700.00	0.00
72.00	0.00	0	700.00	0.00
74.00	0.00	0	700.00	0.00
76.00	0.00	0	700.00	0.00
78.00	0.00	0	700.00	0.00
80.00	0.00	0	700.00	0.00
82.00	0.00	0	700.00	0.00
84.00	0.00	0	700.00	0.00
86.00	0.00	0	700.00	0.00
88.00	0.00	0	700.00	0.00
90.00	0.00	0	700.00	0.00
92.00	0.00	0	700.00	0.00
94.00	0.00	0	700.00	0.00
96.00	0.00	0	700.00	0.00

Summary for Subcatchment 9A: DA8-9A

Runoff = 2.99 cfs @ 12.07 hrs, Volume= 9,988 cf, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

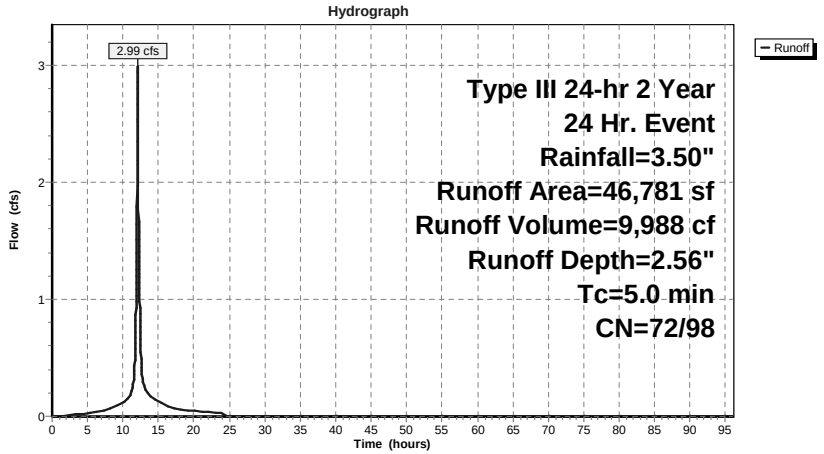
Area (sf)	CN	Description	Land Use
23,784	98	Paved parking, HSG C	Pavement
2,331	61	>75% Grass cover, Good, HSG B	Open Space
13,026	74	>75% Grass cover, Good, HSG C	Open Space
7,640	98	Unconnected roofs, HSG C	Roofs
46,781	89	Weighted Average	
15,357	72	32.83% Pervious Area	
31,424	98	67.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 67.17% Impervious, Rv= 0.655, Runoff= 29.91"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
15,357	Open Space	1,438.67	5.02	21.75	2.94
23,784	Pavement	640.31	2.07	7.77	24.80
7,640	Roofs	22.59	0.13	1.78	8.80
46,781	Total	2,101.57	7.22	31.30	36.54

Subcatchment 9A: DA8-9A



Hydrograph for Subcatchment 9A: DA8-9A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.01
4.00	0.15	0.00	0.04	0.02
6.00	0.25	0.00	0.11	0.03
8.00	0.40	0.00	0.23	0.06
10.00	0.66	0.00	0.47	0.11
12.00	1.75	0.19	1.53	**1.97**
14.00	2.84	0.71	2.61	**0.16**
16.00	3.10	0.87	2.87	0.09
18.00	3.25	0.96	3.02	0.05
20.00	3.35	1.02	3.12	0.04
22.00	3.43	1.08	3.20	0.04
24.00	**3.50**	**1.12**	**3.27**	0.03
26.00	3.50	1.12	3.27	0.00
28.00	3.50	1.12	3.27	0.00
30.00	3.50	1.12	3.27	0.00
32.00	3.50	1.12	3.27	0.00
34.00	3.50	1.12	3.27	0.00
36.00	3.50	1.12	3.27	0.00
38.00	3.50	1.12	3.27	0.00
40.00	3.50	1.12	3.27	0.00
42.00	3.50	1.12	3.27	0.00
44.00	3.50	1.12	3.27	0.00
46.00	3.50	1.12	3.27	0.00
48.00	3.50	1.12	3.27	0.00
50.00	3.50	1.12	3.27	0.00
52.00	3.50	1.12	3.27	0.00
54.00	3.50	1.12	3.27	0.00
56.00	3.50	1.12	3.27	0.00
58.00	3.50	1.12	3.27	0.00
60.00	3.50	1.12	3.27	0.00
62.00	3.50	1.12	3.27	0.00
64.00	3.50	1.12	3.27	0.00
66.00	3.50	1.12	3.27	0.00
68.00	3.50	1.12	3.27	0.00
70.00	3.50	1.12	3.27	0.00
72.00	3.50	1.12	3.27	0.00
74.00	3.50	1.12	3.27	0.00
76.00	3.50	1.12	3.27	0.00
78.00	3.50	1.12	3.27	0.00
80.00	3.50	1.12	3.27	0.00
82.00	3.50	1.12	3.27	0.00
84.00	3.50	1.12	3.27	0.00
86.00	3.50	1.12	3.27	0.00
88.00	3.50	1.12	3.27	0.00
90.00	3.50	1.12	3.27	0.00
92.00	3.50	1.12	3.27	0.00
94.00	3.50	1.12	3.27	0.00
96.00	3.50	1.12	3.27	0.00

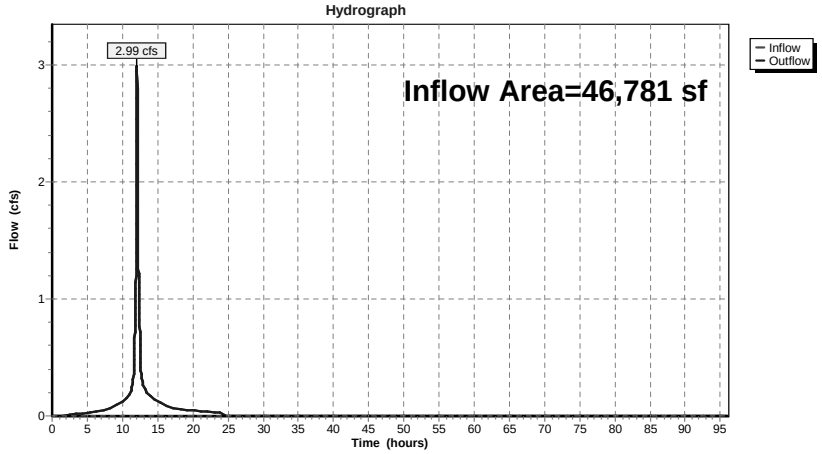
Summary for Reach 9A-USF: Underground Sand Filter

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 46,781 sf, 67.17% Impervious, Inflow Depth = 2.56" for 2 Year, 24 Hr. Event event
Inflow = 2.99 cfs @ 12.07 hrs, Volume= 9,988 cf
Outflow = 2.99 cfs @ 12.07 hrs, Volume= 9,988 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3

Reach 9A-USF: Underground Sand Filter



Hydrograph for Reach 9A-USF: Underground Sand Filter

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.02		0.02	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.03		0.03	58.00	0.00		0.00
7.00	0.04		0.04	59.00	0.00		0.00
8.00	0.06		0.06	60.00	0.00		0.00
9.00	0.08		0.08	61.00	0.00		0.00
10.00	0.11		0.11	62.00	0.00		0.00
11.00	0.18		0.18	63.00	0.00		0.00
12.00	**1.97**		**1.97**	64.00	0.00		0.00
13.00	**0.26**		**0.26**	65.00	0.00		0.00
14.00	0.16		0.16	66.00	0.00		0.00
15.00	0.13		0.13	67.00	0.00		0.00
16.00	0.09		0.09	68.00	0.00		0.00
17.00	0.07		0.07	69.00	0.00		0.00
18.00	0.05		0.05	70.00	0.00		0.00
19.00	0.05		0.05	71.00	0.00		0.00
20.00	0.04		0.04	72.00	0.00		0.00
21.00	0.04		0.04	73.00	0.00		0.00
22.00	0.04		0.04	74.00	0.00		0.00
23.00	0.03		0.03	75.00	0.00		0.00
24.00	0.03		0.03	76.00	0.00		0.00
25.00	0.00		0.00	77.00	0.00		0.00
26.00	0.00		0.00	78.00	0.00		0.00
27.00	0.00		0.00	79.00	0.00		0.00
28.00	0.00		0.00	80.00	0.00		0.00
29.00	0.00		0.00	81.00	0.00		0.00
30.00	0.00		0.00	82.00	0.00		0.00
31.00	0.00		0.00	83.00	0.00		0.00
32.00	0.00		0.00	84.00	0.00		0.00
33.00	0.00		0.00	85.00	0.00		0.00
34.00	0.00		0.00	86.00	0.00		0.00
35.00	0.00		0.00	87.00	0.00		0.00
36.00	0.00		0.00	88.00	0.00		0.00
37.00	0.00		0.00	89.00	0.00		0.00
38.00	0.00		0.00	90.00	0.00		0.00
39.00	0.00		0.00	91.00	0.00		0.00
40.00	0.00		0.00	92.00	0.00		0.00
41.00	0.00		0.00	93.00	0.00		0.00
42.00	0.00		0.00	94.00	0.00		0.00
43.00	0.00		0.00	95.00	0.00		0.00
44.00	0.00		0.00	96.00	0.00		0.00
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 9B: DA8-9B

Runoff = 0.69 cfs @ 12.07 hrs, Volume= 2,329 cf, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

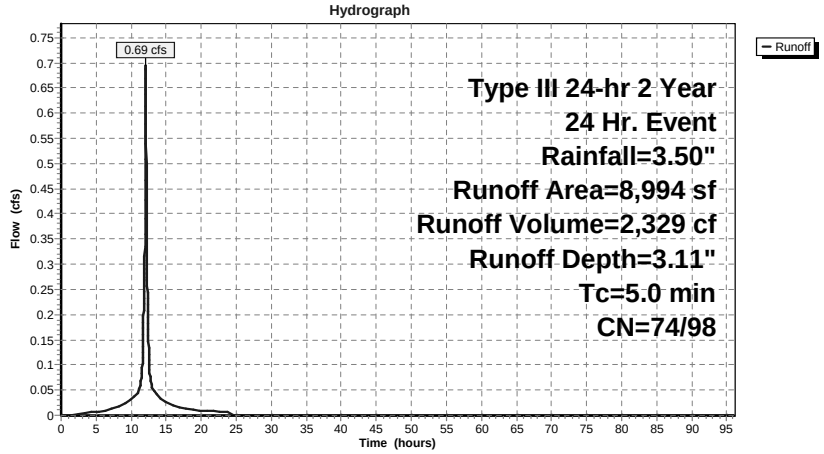
	Area (sf)	CN	Description	Land Use
	1,240	98	Paved parking, HSG C	Pavement
	704	74	>75% Grass cover, Good, HSG C	Open Space
*	225	98	Pavers, HSG B	Pavement
*	6,825	98	Pavers, HSG C	Pavement
	8,994	96	Weighted Average	
	704	74	7.83% Pervious Area	
	8,290	98	92.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 92.17% Impervious, Rv= 0.880, Runoff= 40.20"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
704	Open Space	88.62	0.31	1.34	0.18
8,290	Pavement	299.90	0.97	3.64	11.61
8,994	Total	388.52	1.28	4.98	11.80

Subcatchment 9B: DA8-9B



Hydrograph for Subcatchment 9B: DA8-9B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.03
12.00	1.75	0.24	1.53	**0.47**
14.00	2.84	0.81	2.61	**0.04**
16.00	3.10	0.97	2.87	0.02
18.00	3.25	1.07	3.02	0.01
20.00	3.35	1.14	3.12	0.01
22.00	3.43	1.19	3.20	0.01
24.00	**3.50**	**1.24**	**3.27**	0.01
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00
74.00	3.50	1.24	3.27	0.00
76.00	3.50	1.24	3.27	0.00
78.00	3.50	1.24	3.27	0.00
80.00	3.50	1.24	3.27	0.00
82.00	3.50	1.24	3.27	0.00
84.00	3.50	1.24	3.27	0.00
86.00	3.50	1.24	3.27	0.00
88.00	3.50	1.24	3.27	0.00
90.00	3.50	1.24	3.27	0.00
92.00	3.50	1.24	3.27	0.00
94.00	3.50	1.24	3.27	0.00
96.00	3.50	1.24	3.27	0.00

Summary for Pond 9B-P: 9B-Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 8,994 sf, 92.17% Impervious, Inflow Depth = 3.11" for 2 Year, 24 Hr. Event event
Inflow = 0.69 cfs @ 12.07 hrs, Volume= 2,329 cf
Outflow = 0.04 cfs @ 11.34 hrs, Volume= 2,330 cf, Atten= 94%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.34 hrs, Volume= 2,330 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 729.67' @ 13.70 hrs Surf.Area= 7,048 sf Storage= 954 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 184.1 min (940.9 - 756.8)

Volume	Invert	Avail.Storage	Storage Description
#1	729.33'	1,889 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

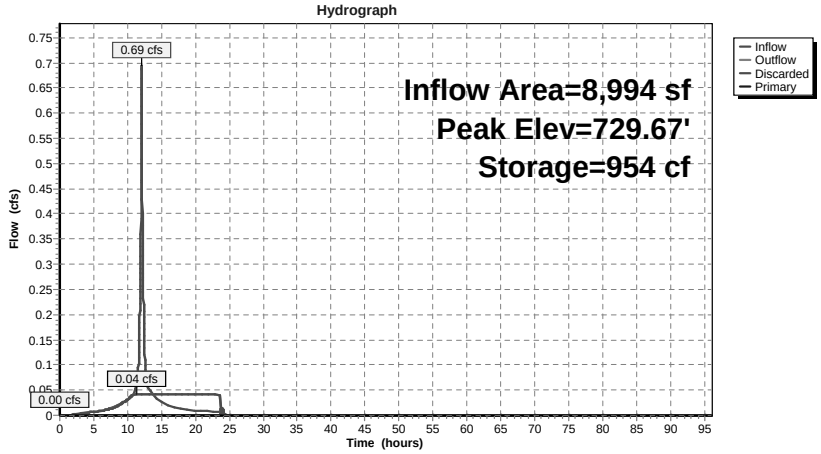
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
729.33	7,048	0.0	0	0
730.00	7,048	40.0	1,889	1,889

Device	Routing	Invert	Outlet Devices
#1	Primary	729.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	729.33'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.04 cfs @ 11.34 hrs HW=729.34' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=729.33' TW=720.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9B-P: 9B-Pavers



Hydrograph for Pond 9B-P: 9B-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	729.33	0.00	0.00	**0.00**
2.00	0.00	0	729.33	0.00	0.00	0.00
4.00	0.00	0	729.33	0.00	0.00	0.00
6.00	0.01	0	729.33	0.01	0.01	0.00
8.00	0.01	0	729.33	0.01	0.01	0.00
10.00	0.03	0	729.33	**0.03**	**0.03**	0.00
12.00	**0.47**	**308**	**729.44**	**0.04**	**0.04**	0.00
14.00	**0.04**	**951**	**729.67**	0.04	0.04	0.00
16.00	0.02	852	729.63	0.04	0.04	0.00
18.00	0.01	667	729.57	0.04	0.04	0.00
20.00	0.01	448	729.49	0.04	0.04	0.00
22.00	0.01	216	729.41	0.04	0.04	0.00
24.00	0.01	0	729.33	0.00	0.00	0.00
26.00	0.00	0	729.33	0.00	0.00	0.00
28.00	0.00	0	729.33	0.00	0.00	0.00
30.00	0.00	0	729.33	0.00	0.00	0.00
32.00	0.00	0	729.33	0.00	0.00	0.00
34.00	0.00	0	729.33	0.00	0.00	0.00
36.00	0.00	0	729.33	0.00	0.00	0.00
38.00	0.00	0	729.33	0.00	0.00	0.00
40.00	0.00	0	729.33	0.00	0.00	0.00
42.00	0.00	0	729.33	0.00	0.00	0.00
44.00	0.00	0	729.33	0.00	0.00	0.00
46.00	0.00	0	729.33	0.00	0.00	0.00
48.00	0.00	0	729.33	0.00	0.00	0.00
50.00	0.00	0	729.33	0.00	0.00	0.00
52.00	0.00	0	729.33	0.00	0.00	0.00
54.00	0.00	0	729.33	0.00	0.00	0.00
56.00	0.00	0	729.33	0.00	0.00	0.00
58.00	0.00	0	729.33	0.00	0.00	0.00
60.00	0.00	0	729.33	0.00	0.00	0.00
62.00	0.00	0	729.33	0.00	0.00	0.00
64.00	0.00	0	729.33	0.00	0.00	0.00
66.00	0.00	0	729.33	0.00	0.00	0.00
68.00	0.00	0	729.33	0.00	0.00	0.00
70.00	0.00	0	729.33	0.00	0.00	0.00
72.00	0.00	0	729.33	0.00	0.00	0.00
74.00	0.00	0	729.33	0.00	0.00	0.00
76.00	0.00	0	729.33	0.00	0.00	0.00
78.00	0.00	0	729.33	0.00	0.00	0.00
80.00	0.00	0	729.33	0.00	0.00	0.00
82.00	0.00	0	729.33	0.00	0.00	0.00
84.00	0.00	0	729.33	0.00	0.00	0.00
86.00	0.00	0	729.33	0.00	0.00	0.00
88.00	0.00	0	729.33	0.00	0.00	0.00
90.00	0.00	0	729.33	0.00	0.00	0.00
92.00	0.00	0	729.33	0.00	0.00	0.00
94.00	0.00	0	729.33	0.00	0.00	0.00
96.00	0.00	0	729.33	0.00	0.00	0.00

Summary for Subcatchment 9C: DA8-9C

Runoff = 0.91 cfs @ 12.07 hrs, Volume= 3,038 cf, Depth= 3.06"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

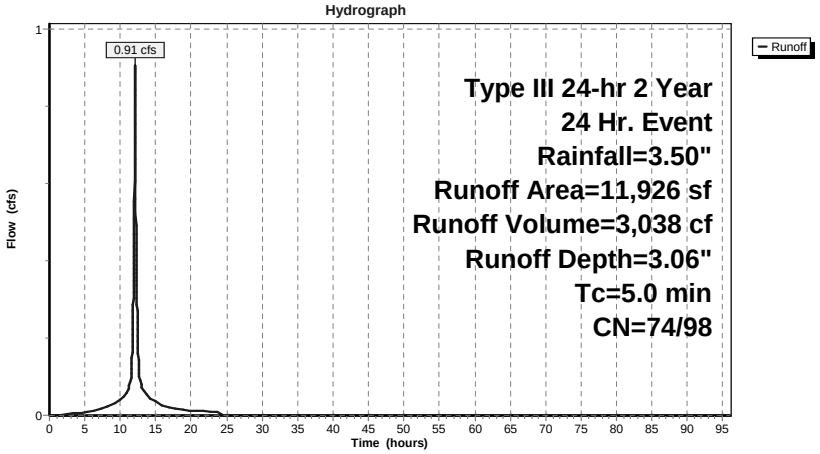
	Area (sf)	CN	Description	Land Use
	1,213	98	Paved parking, HSG C	Pavement
	1,231	74	>75% Grass cover, Good, HSG C	Open Space
	5,144	98	Roofs, HSG C	Roofs
*	4,338	98	Pavers, HSG C	Pavement
	11,926	96	Weighted Average	
	1,231	74	10.32% Pervious Area	
	10,695	98	89.68% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 89.68% Impervious, Rv= 0.857, Runoff= 39.17"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,231	Open Space	151.01	0.53	2.28	0.31
5,551	Pavement	195.69	0.63	2.38	7.58
5,144	Roofs	19.92	0.12	1.57	7.76
11,926	Total	366.61	1.28	6.23	15.64

Subcatchment 9C: DA8-9C



Hydrograph for Subcatchment 9C: DA8-9C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.02
10.00	0.66	0.00	0.47	0.04
12.00	1.75	0.24	1.53	**0.61**
14.00	2.84	0.81	2.61	**0.05**
16.00	3.10	0.97	2.87	0.02
18.00	3.25	1.07	3.02	0.02
20.00	3.35	1.14	3.12	0.01
22.00	3.43	1.19	3.20	0.01
24.00	**3.50**	**1.24**	**3.27**	0.01
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00
74.00	3.50	1.24	3.27	0.00
76.00	3.50	1.24	3.27	0.00
78.00	3.50	1.24	3.27	0.00
80.00	3.50	1.24	3.27	0.00
82.00	3.50	1.24	3.27	0.00
84.00	3.50	1.24	3.27	0.00
86.00	3.50	1.24	3.27	0.00
88.00	3.50	1.24	3.27	0.00
90.00	3.50	1.24	3.27	0.00
92.00	3.50	1.24	3.27	0.00
94.00	3.50	1.24	3.27	0.00
96.00	3.50	1.24	3.27	0.00

Summary for Pond 9C-P: 9C-Pavers

Inflow Area = 11,926 sf, 89.68% Impervious, Inflow Depth = 3.06" for 2 Year, 24 Hr. Event event
Inflow = 0.91 cfs @ 12.07 hrs, Volume= 3,038 cf
Outflow = 0.03 cfs @ 10.66 hrs, Volume= 3,039 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.03 cfs @ 10.66 hrs, Volume= 3,039 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 733.13' @ 15.98 hrs Surf.Area= 4,339 sf Storage= 1,736 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 599.4 min (1,357.3 - 757.9)

Volume	Invert	Avail.Storage	Storage Description
#1	732.33'	18,519 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

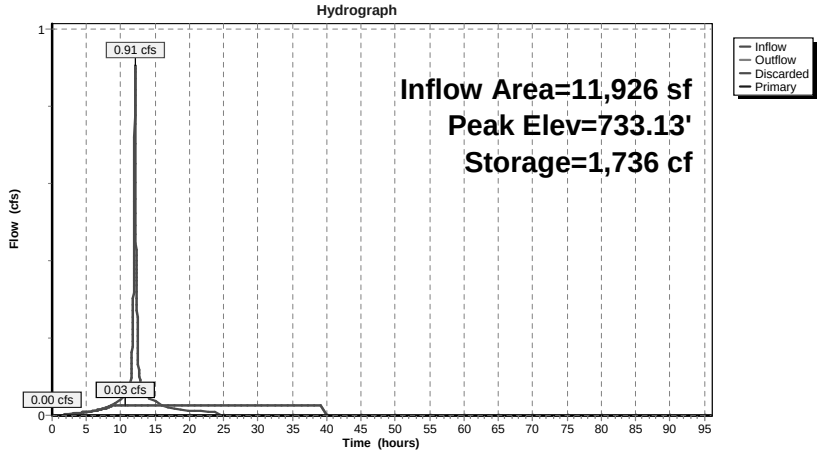
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
732.33	4,339	0.0	0	0
733.00	4,339	40.0	1,163	1,163
737.00	4,339	100.0	17,356	18,519

Device	Routing	Invert	Outlet Devices
#1	Primary	736.50'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	732.33'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 10.66 hrs HW=732.38' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=732.33' TW=720.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9C-P: 9C-Pavers



Hydrograph for Pond 9C-P: 9C-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	732.33	0.00	0.00	**0.00**
2.00	0.00	0	732.33	0.00	0.00	0.00
4.00	0.01	0	732.33	0.01	0.01	0.00
6.00	0.01	0	732.33	0.01	0.01	0.00
8.00	0.02	0	732.33	0.02	0.02	0.00
10.00	0.04	34	732.35	**0.03**	**0.03**	0.00
12.00	**0.61**	616	732.68	**0.03**	**0.03**	0.00
14.00	**0.05**	**1,661**	**733.11**	0.03	0.03	0.00
16.00	0.02	**1,736**	**733.13**	0.03	0.03	0.00
18.00	0.02	1,698	733.12	0.03	0.03	0.00
20.00	0.01	1,615	733.10	0.03	0.03	0.00
22.00	0.01	1,515	733.08	0.03	0.03	0.00
24.00	0.01	1,399	733.05	0.03	0.03	0.00
26.00	0.00	1,221	733.01	0.03	0.03	0.00
28.00	0.00	1,040	732.93	0.03	0.03	0.00
30.00	0.00	859	732.82	0.03	0.03	0.00
32.00	0.00	678	732.72	0.03	0.03	0.00
34.00	0.00	497	732.62	0.03	0.03	0.00
36.00	0.00	317	732.51	0.03	0.03	0.00
38.00	0.00	136	732.41	0.03	0.03	0.00
40.00	0.00	0	732.33	0.00	0.00	0.00
42.00	0.00	0	732.33	0.00	0.00	0.00
44.00	0.00	0	732.33	0.00	0.00	0.00
46.00	0.00	0	732.33	0.00	0.00	0.00
48.00	0.00	0	732.33	0.00	0.00	0.00
50.00	0.00	0	732.33	0.00	0.00	0.00
52.00	0.00	0	732.33	0.00	0.00	0.00
54.00	0.00	0	732.33	0.00	0.00	0.00
56.00	0.00	0	732.33	0.00	0.00	0.00
58.00	0.00	0	732.33	0.00	0.00	0.00
60.00	0.00	0	732.33	0.00	0.00	0.00
62.00	0.00	0	732.33	0.00	0.00	0.00
64.00	0.00	0	732.33	0.00	0.00	0.00
66.00	0.00	0	732.33	0.00	0.00	0.00
68.00	0.00	0	732.33	0.00	0.00	0.00
70.00	0.00	0	732.33	0.00	0.00	0.00
72.00	0.00	0	732.33	0.00	0.00	0.00
74.00	0.00	0	732.33	0.00	0.00	0.00
76.00	0.00	0	732.33	0.00	0.00	0.00
78.00	0.00	0	732.33	0.00	0.00	0.00
80.00	0.00	0	732.33	0.00	0.00	0.00
82.00	0.00	0	732.33	0.00	0.00	0.00
84.00	0.00	0	732.33	0.00	0.00	0.00
86.00	0.00	0	732.33	0.00	0.00	0.00
88.00	0.00	0	732.33	0.00	0.00	0.00
90.00	0.00	0	732.33	0.00	0.00	0.00
92.00	0.00	0	732.33	0.00	0.00	0.00
94.00	0.00	0	732.33	0.00	0.00	0.00
96.00	0.00	0	732.33	0.00	0.00	0.00

Summary for Subcatchment 13: DA8-13

Runoff = 0.92 cfs @ 12.15 hrs, Volume= 3,515 cf, Depth= 1.50"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

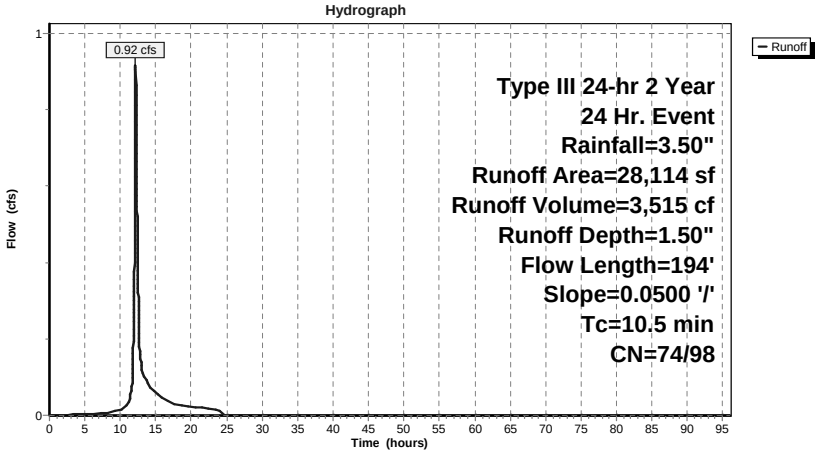
Area (sf)	CN	Description	Land Use
3,610	98	Unconnected pavement, HSG C	Pavement
24,504	74	>75% Grass cover, Good, HSG C	Open Space
28,114	77	Weighted Average	
24,504	74	87.16% Pervious Area	
3,610	98	12.84% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0500	0.18		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.0	94	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.5	194	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 12.84% Impervious, Rv= 0.166, Runoff= 7.57"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
24,504	Open Space	580.65	2.03	8.78	1.19
3,610	Pavement	24.58	0.08	0.30	0.95
28,114	Total	605.24	2.11	9.08	2.14

Subcatchment 13: DA8-13



Hydrograph for Subcatchment 13: DA8-13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.24	1.53	**0.40**
14.00	2.84	0.81	2.61	**0.08**
16.00	3.10	0.97	2.87	0.04
18.00	3.25	1.07	3.02	0.03
20.00	3.35	1.14	3.12	0.02
22.00	3.43	1.19	3.20	0.02
24.00	**3.50**	**1.24**	**3.27**	0.01
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00
74.00	3.50	1.24	3.27	0.00
76.00	3.50	1.24	3.27	0.00
78.00	3.50	1.24	3.27	0.00
80.00	3.50	1.24	3.27	0.00
82.00	3.50	1.24	3.27	0.00
84.00	3.50	1.24	3.27	0.00
86.00	3.50	1.24	3.27	0.00
88.00	3.50	1.24	3.27	0.00
90.00	3.50	1.24	3.27	0.00
92.00	3.50	1.24	3.27	0.00
94.00	3.50	1.24	3.27	0.00
96.00	3.50	1.24	3.27	0.00

Summary for Reach NP1: North Pipe -1

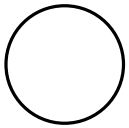
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 47,209 sf, 49.54% Impervious, Inflow Depth = 0.00" for 2 Year, 24 Hr. Event event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

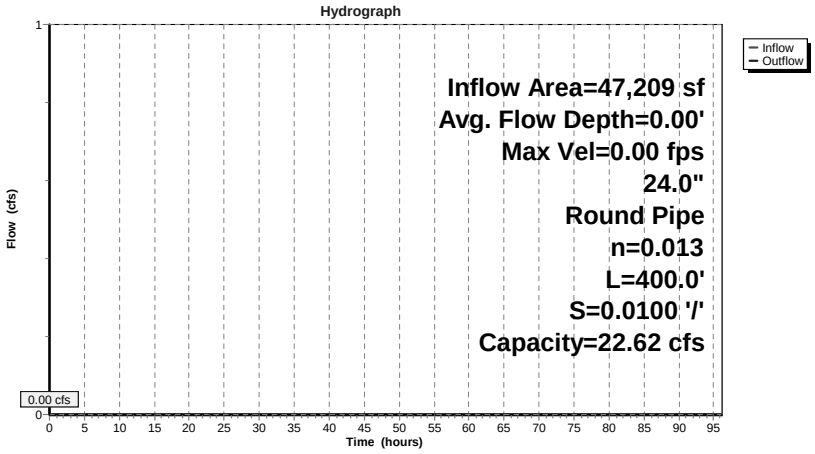
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 400.0' Slope= 0.0100 '/'
Inlet Invert= 726.00', Outlet Invert= 722.00'



Reach NP1: North Pipe -1



Hydrograph for Reach NP1: North Pipe -1

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	**0.00**	**726.00**	**0.00**	52.00	0.00	726.00	0.00
1.00	0.00	726.00	0.00	53.00	0.00	726.00	0.00
2.00	0.00	726.00	0.00	54.00	0.00	726.00	0.00
3.00	0.00	726.00	0.00	55.00	0.00	726.00	0.00
4.00	0.00	726.00	0.00	56.00	0.00	726.00	0.00
5.00	0.00	726.00	0.00	57.00	0.00	726.00	0.00
6.00	0.00	726.00	0.00	58.00	0.00	726.00	0.00
7.00	0.00	726.00	0.00	59.00	0.00	726.00	0.00
8.00	0.00	726.00	0.00	60.00	0.00	726.00	0.00
9.00	0.00	726.00	0.00	61.00	0.00	726.00	0.00
10.00	0.00	726.00	0.00	62.00	0.00	726.00	0.00
11.00	0.00	726.00	0.00	63.00	0.00	726.00	0.00
12.00	0.00	726.00	0.00	64.00	0.00	726.00	0.00
13.00	0.00	726.00	0.00	65.00	0.00	726.00	0.00
14.00	0.00	726.00	0.00	66.00	0.00	726.00	0.00
15.00	0.00	726.00	0.00	67.00	0.00	726.00	0.00
16.00	0.00	726.00	0.00	68.00	0.00	726.00	0.00
17.00	0.00	726.00	0.00	69.00	0.00	726.00	0.00
18.00	0.00	726.00	0.00	70.00	0.00	726.00	0.00
19.00	0.00	726.00	0.00	71.00	0.00	726.00	0.00
20.00	0.00	726.00	0.00	72.00	0.00	726.00	0.00
21.00	0.00	726.00	0.00	73.00	0.00	726.00	0.00
22.00	0.00	726.00	0.00	74.00	0.00	726.00	0.00
23.00	0.00	726.00	0.00	75.00	0.00	726.00	0.00
24.00	0.00	726.00	0.00	76.00	0.00	726.00	0.00
25.00	0.00	726.00	0.00	77.00	0.00	726.00	0.00
26.00	0.00	726.00	0.00	78.00	0.00	726.00	0.00
27.00	0.00	726.00	0.00	79.00	0.00	726.00	0.00
28.00	0.00	726.00	0.00	80.00	0.00	726.00	0.00
29.00	0.00	726.00	0.00	81.00	0.00	726.00	0.00
30.00	0.00	726.00	0.00	82.00	0.00	726.00	0.00
31.00	0.00	726.00	0.00	83.00	0.00	726.00	0.00
32.00	0.00	726.00	0.00	84.00	0.00	726.00	0.00
33.00	0.00	726.00	0.00	85.00	0.00	726.00	0.00
34.00	0.00	726.00	0.00	86.00	0.00	726.00	0.00
35.00	0.00	726.00	0.00	87.00	0.00	726.00	0.00
36.00	0.00	726.00	0.00	88.00	0.00	726.00	0.00
37.00	0.00	726.00	0.00	89.00	0.00	726.00	0.00
38.00	0.00	726.00	0.00	90.00	0.00	726.00	0.00
39.00	0.00	726.00	0.00	91.00	0.00	726.00	0.00
40.00	0.00	726.00	0.00	92.00	0.00	726.00	0.00
41.00	0.00	726.00	0.00	93.00	0.00	726.00	0.00
42.00	0.00	726.00	0.00	94.00	0.00	726.00	0.00
43.00	0.00	726.00	0.00	95.00	0.00	726.00	0.00
44.00	0.00	726.00	0.00	96.00	0.00	726.00	0.00
45.00	0.00	726.00	0.00				
46.00	0.00	726.00	0.00				
47.00	0.00	726.00	0.00				
48.00	0.00	726.00	0.00				
49.00	0.00	726.00	0.00				
50.00	0.00	726.00	0.00				
51.00	0.00	726.00	0.00				

Summary for Reach NP2: North Pipe -2

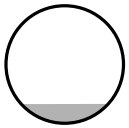
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 114,910 sf, 64.22% Impervious, Inflow Depth = 1.04" for 2 Year, 24 Hr. Event event
Inflow = 2.99 cfs @ 12.07 hrs, Volume= 9,988 cf
Outflow = 2.97 cfs @ 12.08 hrs, Volume= 9,988 cf, Atten= 1%, Lag= 0.6 min

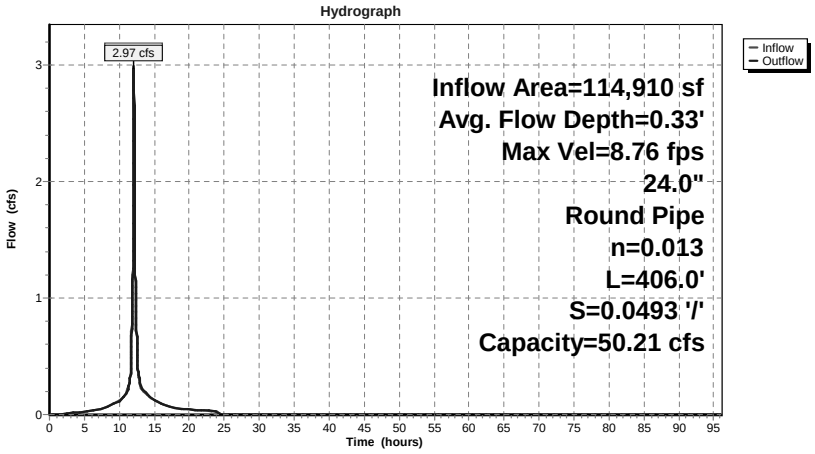
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 8.76 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.81 fps, Avg. Travel Time= 2.4 min

Peak Storage= 138 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 50.21 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 406.0' Slope= 0.0493 '/'
Inlet Invert= 720.00', Outlet Invert= 700.00'



Reach NP2: North Pipe -2



Hydrograph for Reach NP2: North Pipe -2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	720.00	0.00
2.00	0.01	1	720.01	0.01
4.00	0.02	4	720.03	0.02
6.00	0.03	6	720.04	0.03
8.00	0.06	8	720.05	0.06
10.00	0.11	14	720.07	0.11
12.00	**1.97**	**97**	**720.26**	**1.80**
14.00	**0.16**	**18**	**720.08**	**0.17**
16.00	0.09	12	720.06	0.09
18.00	0.05	8	720.05	0.05
20.00	0.04	7	720.04	0.04
22.00	0.04	6	720.04	0.04
24.00	0.03	5	720.04	0.03
26.00	0.00	0	720.00	0.00
28.00	0.00	0	720.00	0.00
30.00	0.00	0	720.00	0.00
32.00	0.00	0	720.00	0.00
34.00	0.00	0	720.00	0.00
36.00	0.00	0	720.00	0.00
38.00	0.00	0	720.00	0.00
40.00	0.00	0	720.00	0.00
42.00	0.00	0	720.00	0.00
44.00	0.00	0	720.00	0.00
46.00	0.00	0	720.00	0.00
48.00	0.00	0	720.00	0.00
50.00	0.00	0	720.00	0.00
52.00	0.00	0	720.00	0.00
54.00	0.00	0	720.00	0.00
56.00	0.00	0	720.00	0.00
58.00	0.00	0	720.00	0.00
60.00	0.00	0	720.00	0.00
62.00	0.00	0	720.00	0.00
64.00	0.00	0	720.00	0.00
66.00	0.00	0	720.00	0.00
68.00	0.00	0	720.00	0.00
70.00	0.00	0	720.00	0.00
72.00	0.00	0	720.00	0.00
74.00	0.00	0	720.00	0.00
76.00	0.00	0	720.00	0.00
78.00	0.00	0	720.00	0.00
80.00	0.00	0	720.00	0.00
82.00	0.00	0	720.00	0.00
84.00	0.00	0	720.00	0.00
86.00	0.00	0	720.00	0.00
88.00	0.00	0	720.00	0.00
90.00	0.00	0	720.00	0.00
92.00	0.00	0	720.00	0.00
94.00	0.00	0	720.00	0.00
96.00	0.00	0	720.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 7: DA8-7 Runoff Area=21,303 sf 37.77% Impervious Runoff Depth=3.08"
Tc=5.0 min CN=62/98 Runoff=1.64 cfs 5,468 cf

Pond 7-Bio: 7_Bioretention Peak Elev=735.56' Storage=2,861 cf Inflow=1.64 cfs 5,468 cf
Discarded=0.02 cfs 3,456 cf Primary=0.34 cfs 1,713 cf Outflow=0.36 cfs 5,170 cf

Subcatchment 8: DA8-8 Runoff Area=25,906 sf 59.21% Impervious Runoff Depth=3.80"
Tc=5.0 min CN=61/98 Runoff=2.42 cfs 8,205 cf

Pond 8-Bio: 8_Bioretention Peak Elev=734.57' Storage=4,592 cf Inflow=2.42 cfs 8,205 cf
Discarded=0.03 cfs 5,465 cf Primary=0.44 cfs 2,278 cf Outflow=0.47 cfs 7,744 cf

Reach 8BN: DA-8B- North Outflow Avg. Flow Depth=0.41' Max Vel=11.75 fps Inflow=6.73 cfs 28,629 cf
36.0" Round Pipe n=0.013 L=152.0' S=0.0658 '/' Capacity=171.08 cfs Outflow=6.73 cfs 28,629 cf

Subcatchment 9A: DA8-9A Runoff Area=46,781 sf 67.17% Impervious Runoff Depth=4.39"
Tc=5.0 min CN=72/98 Runoff=5.13 cfs 17,095 cf

Reach 9A-USF: Underground Sand Filter Inflow=5.13 cfs 17,095 cf
Outflow=5.13 cfs 17,095 cf

Subcatchment 9B: DA8-9B Runoff Area=8,994 sf 92.17% Impervious Runoff Depth=5.07"
Tc=5.0 min CN=74/98 Runoff=1.12 cfs 3,798 cf

Pond 9B-P: 9B-Pavers Peak Elev=729.91' Storage=1,632 cf Inflow=1.12 cfs 3,798 cf
Discarded=0.04 cfs 3,493 cf Primary=0.12 cfs 305 cf Outflow=0.16 cfs 3,799 cf

Subcatchment 9C: DA8-9C Runoff Area=11,926 sf 89.68% Impervious Runoff Depth=5.01"
Tc=5.0 min CN=74/98 Runoff=1.46 cfs 4,974 cf

Pond 9C-P: 9C-Pavers Peak Elev=733.50' Storage=3,314 cf Inflow=1.46 cfs 4,974 cf
Discarded=0.03 cfs 4,974 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 4,974 cf

Subcatchment 13: DA8-13 Runoff Area=28,114 sf 12.84% Impervious Runoff Depth=3.09"
Flow Length=194' Slope=0.0500 '/' Tc=10.5 min CN=74/98 Runoff=1.95 cfs 7,238 cf

Reach NP1: North Pipe -1 Avg. Flow Depth=0.25' Max Vel=3.35 fps Inflow=0.78 cfs 3,992 cf
24.0" Round Pipe n=0.013 L=400.0' S=0.0100 '/' Capacity=22.62 cfs Outflow=0.77 cfs 3,992 cf

Reach NP2: North Pipe -2 Avg. Flow Depth=0.43' Max Vel=10.27 fps Inflow=5.13 cfs 21,392 cf
24.0" Round Pipe n=0.013 L=406.0' S=0.0493 '/' Capacity=50.21 cfs Outflow=5.10 cfs 21,392 cf

Total Runoff Area = 143,024 sf Runoff Volume = 46,778 cf Average Runoff Depth = 3.92"
45.88% Pervious = 65,620 sf 54.12% Impervious = 77,404 sf

Summary for Subcatchment 7: DA8-7

Runoff = 1.64 cfs @ 12.07 hrs, Volume= 5,468 cf, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

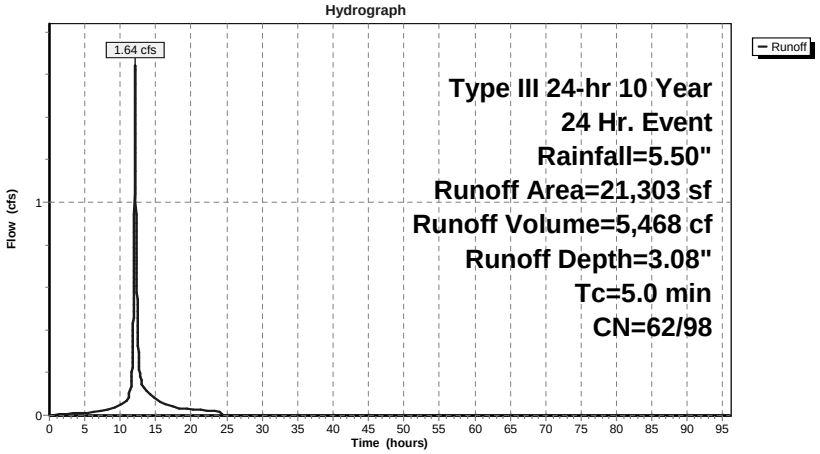
	Area (sf)	CN	Description	Land Use
	8,046	98	Paved parking, HSG B	Pavement
	9,082	61	>75% Grass cover, Good, HSG B	Open Space
	641	74	>75% Grass cover, Good, HSG C	Open Space
*	3,301	61	Bioretention, HSG B	Brush
*	233	74	Bioretention, HSG C	Brush
	21,303	76	Weighted Average	
	13,257	62	62.23% Pervious Area	
	8,046	98	37.77% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 37.77% Impervious, Rv= 0.390, Runoff= 17.82"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,534	Brush	12.12	0.00	0.00	0.40
9,723	Open Space	542.61	1.89	8.20	1.11
8,046	Pavement	129.04	0.42	1.57	5.00
21,303	Total	683.77	2.31	9.77	6.51

Subcatchment 7: DA8-7



Hydrograph for Subcatchment 7: DA8-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.02
10.00	1.04	0.00	0.83	0.05
12.00	2.75	0.30	2.52	**1.04**
14.00	4.46	1.12	4.22	**0.10**
16.00	4.87	1.36	4.64	0.05
18.00	5.10	1.50	4.87	0.03
20.00	5.26	1.60	5.03	0.03
22.00	5.39	1.69	5.16	0.02
24.00	**5.50**	**1.76**	**5.26**	0.02
26.00	5.50	1.76	5.26	0.00
28.00	5.50	1.76	5.26	0.00
30.00	5.50	1.76	5.26	0.00
32.00	5.50	1.76	5.26	0.00
34.00	5.50	1.76	5.26	0.00
36.00	5.50	1.76	5.26	0.00
38.00	5.50	1.76	5.26	0.00
40.00	5.50	1.76	5.26	0.00
42.00	5.50	1.76	5.26	0.00
44.00	5.50	1.76	5.26	0.00
46.00	5.50	1.76	5.26	0.00
48.00	5.50	1.76	5.26	0.00
50.00	5.50	1.76	5.26	0.00
52.00	5.50	1.76	5.26	0.00
54.00	5.50	1.76	5.26	0.00
56.00	5.50	1.76	5.26	0.00
58.00	5.50	1.76	5.26	0.00
60.00	5.50	1.76	5.26	0.00
62.00	5.50	1.76	5.26	0.00
64.00	5.50	1.76	5.26	0.00
66.00	5.50	1.76	5.26	0.00
68.00	5.50	1.76	5.26	0.00
70.00	5.50	1.76	5.26	0.00
72.00	5.50	1.76	5.26	0.00
74.00	5.50	1.76	5.26	0.00
76.00	5.50	1.76	5.26	0.00
78.00	5.50	1.76	5.26	0.00
80.00	5.50	1.76	5.26	0.00
82.00	5.50	1.76	5.26	0.00
84.00	5.50	1.76	5.26	0.00
86.00	5.50	1.76	5.26	0.00
88.00	5.50	1.76	5.26	0.00
90.00	5.50	1.76	5.26	0.00
92.00	5.50	1.76	5.26	0.00
94.00	5.50	1.76	5.26	0.00
96.00	5.50	1.76	5.26	0.00

Summary for Pond 7-Bio: 7_Bioretention

Inflow Area = 21,303 sf, 37.77% Impervious, Inflow Depth = 3.08" for 10 Year, 24 Hr. Event event
Inflow = 1.64 cfs @ 12.07 hrs, Volume= 5,468 cf
Outflow = 0.36 cfs @ 12.49 hrs, Volume= 5,170 cf, Atten= 78%, Lag= 25.0 min
Discarded = 0.02 cfs @ 11.24 hrs, Volume= 3,456 cf
Primary = 0.34 cfs @ 12.49 hrs, Volume= 1,713 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 735.56' @ 12.49 hrs Surf.Area= 3,823 sf Storage= 2,861 cf

Plug-Flow detention time= 901.8 min calculated for 5,169 cf (95% of inflow)
Center-of-Mass det. time= 870.9 min (1,657.8 - 786.9)

Volume	Invert	Avail.Storage	Storage Description
#1	730.75'	4,561 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

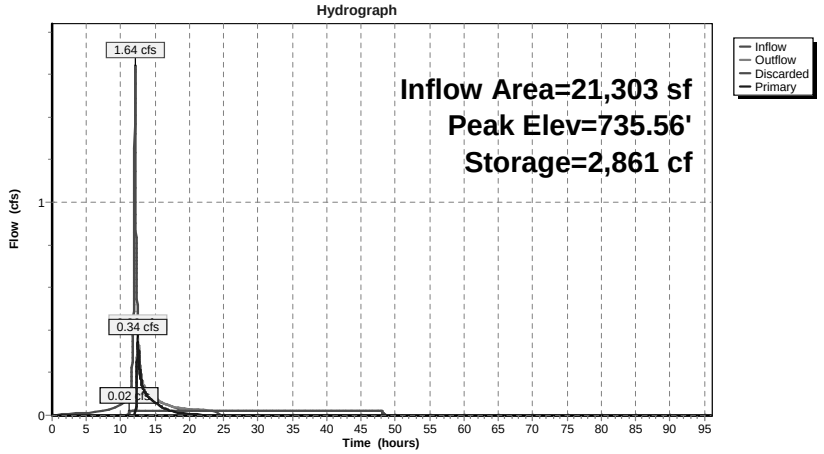
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
730.75	424	0.0	0	0	424
730.76	424	40.0	2	2	425
734.99	424	40.0	717	719	773
735.00	3,823	100.0	18	738	4,172
735.50	3,823	100.0	1,912	2,649	4,296
736.00	3,823	100.0	1,912	4,561	4,420

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	735.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 11.24 hrs HW=735.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.34 cfs @ 12.49 hrs HW=735.56' TW=726.25' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.34 cfs @ 0.77 fps)

Pond 7-Bio: 7_Bioretention



Hydrograph for Pond 7-Bio: 7_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.75	0.00	0.00	0.00
2.00	0.00	2	730.76	0.00	0.00	0.00
4.00	0.01	36	730.96	0.00	0.00	0.00
6.00	0.01	104	731.36	0.00	0.00	0.00
8.00	0.02	223	732.07	0.00	0.00	0.00
10.00	0.05	464	733.48	0.00	**0.00**	0.00
12.00	**1.04**	**1,491**	**735.20**	**0.02**	**0.02**	**0.00**
14.00	**0.10**	**2,734**	**735.52**	**0.11**	0.02	**0.09**
16.00	0.05	2,698	735.51	0.06	0.02	0.04
18.00	0.03	2,675	735.51	0.04	0.02	0.02
20.00	0.03	2,664	735.50	0.03	0.02	0.01
22.00	0.02	2,656	735.50	0.02	0.02	0.00
24.00	0.02	2,641	735.50	0.02	0.02	0.00
26.00	0.00	2,487	735.46	0.02	0.02	0.00
28.00	0.00	2,327	735.42	0.02	0.02	0.00
30.00	0.00	2,168	735.37	0.02	0.02	0.00
32.00	0.00	2,009	735.33	0.02	0.02	0.00
34.00	0.00	1,849	735.29	0.02	0.02	0.00
36.00	0.00	1,690	735.25	0.02	0.02	0.00
38.00	0.00	1,531	735.21	0.02	0.02	0.00
40.00	0.00	1,372	735.17	0.02	0.02	0.00
42.00	0.00	1,212	735.12	0.02	0.02	0.00
44.00	0.00	1,053	735.08	0.02	0.02	0.00
46.00	0.00	894	735.04	0.02	0.02	0.00
48.00	0.00	735	735.00	0.02	0.02	0.00
50.00	0.00	705	734.91	0.00	0.00	0.00
52.00	0.00	688	734.80	0.00	0.00	0.00
54.00	0.00	670	734.70	0.00	0.00	0.00
56.00	0.00	652	734.60	0.00	0.00	0.00
58.00	0.00	635	734.49	0.00	0.00	0.00
60.00	0.00	617	734.39	0.00	0.00	0.00
62.00	0.00	599	734.28	0.00	0.00	0.00
64.00	0.00	582	734.18	0.00	0.00	0.00
66.00	0.00	564	734.08	0.00	0.00	0.00
68.00	0.00	546	733.97	0.00	0.00	0.00
70.00	0.00	529	733.87	0.00	0.00	0.00
72.00	0.00	511	733.76	0.00	0.00	0.00
74.00	0.00	493	733.66	0.00	0.00	0.00
76.00	0.00	476	733.55	0.00	0.00	0.00
78.00	0.00	458	733.45	0.00	0.00	0.00
80.00	0.00	440	733.35	0.00	0.00	0.00
82.00	0.00	423	733.24	0.00	0.00	0.00
84.00	0.00	405	733.14	0.00	0.00	0.00
86.00	0.00	387	733.03	0.00	0.00	0.00
88.00	0.00	370	732.93	0.00	0.00	0.00
90.00	0.00	352	732.83	0.00	0.00	0.00
92.00	0.00	334	732.72	0.00	0.00	0.00
94.00	0.00	317	732.62	0.00	0.00	0.00
96.00	0.00	299	732.51	0.00	0.00	0.00

Summary for Subcatchment 8: DA8-8

Runoff = 2.42 cfs @ 12.07 hrs, Volume= 8,205 cf, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

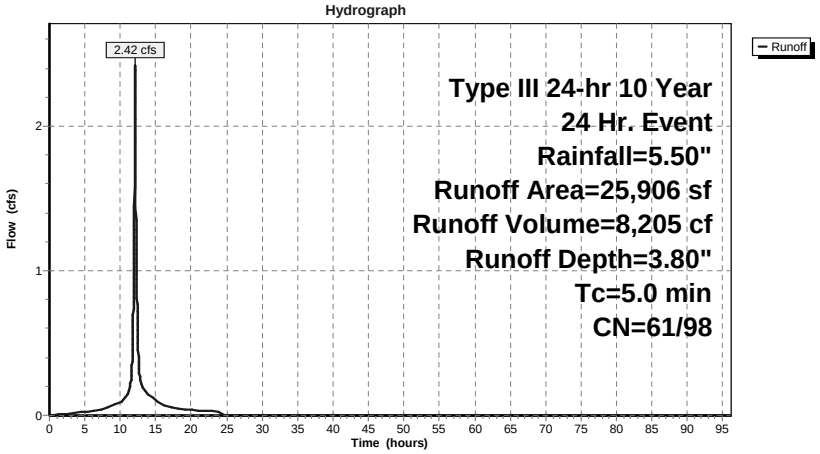
	Area (sf)	CN	Description	Land Use
	4,680	61	>75% Grass cover, Good, HSG B	Open Space
*	5,887	61	Bioretention, HSG B	Brush
	15,339	98	Paved parking, HSG B	Pavement
	25,906	83	Weighted Average	
	10,567	61	40.79% Pervious Area	
	15,339	98	59.21% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.21% Impervious, Rv= 0.583, Runoff= 26.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,887	Brush	30.19	0.00	0.00	1.00
4,680	Open Space	390.43	1.36	5.90	0.80
15,339	Pavement	367.74	1.19	4.46	14.24
25,906	Total	788.36	2.55	10.37	16.04

Subcatchment 8: DA8-8



Hydrograph for Subcatchment 8: DA8-8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.02
6.00	0.40	0.00	0.23	0.03
8.00	0.63	0.00	0.43	0.05
10.00	1.04	0.00	0.83	0.09
12.00	2.75	0.28	2.52	**1.58**
14.00	4.46	1.06	4.22	**0.14**
16.00	4.87	1.29	4.64	0.07
18.00	5.10	1.43	4.87	0.05
20.00	5.26	1.53	5.03	0.04
22.00	5.39	1.61	5.16	0.03
24.00	**5.50**	**1.68**	**5.26**	0.02
26.00	5.50	1.68	5.26	0.00
28.00	5.50	1.68	5.26	0.00
30.00	5.50	1.68	5.26	0.00
32.00	5.50	1.68	5.26	0.00
34.00	5.50	1.68	5.26	0.00
36.00	5.50	1.68	5.26	0.00
38.00	5.50	1.68	5.26	0.00
40.00	5.50	1.68	5.26	0.00
42.00	5.50	1.68	5.26	0.00
44.00	5.50	1.68	5.26	0.00
46.00	5.50	1.68	5.26	0.00
48.00	5.50	1.68	5.26	0.00
50.00	5.50	1.68	5.26	0.00
52.00	5.50	1.68	5.26	0.00
54.00	5.50	1.68	5.26	0.00
56.00	5.50	1.68	5.26	0.00
58.00	5.50	1.68	5.26	0.00
60.00	5.50	1.68	5.26	0.00
62.00	5.50	1.68	5.26	0.00
64.00	5.50	1.68	5.26	0.00
66.00	5.50	1.68	5.26	0.00
68.00	5.50	1.68	5.26	0.00
70.00	5.50	1.68	5.26	0.00
72.00	5.50	1.68	5.26	0.00
74.00	5.50	1.68	5.26	0.00
76.00	5.50	1.68	5.26	0.00
78.00	5.50	1.68	5.26	0.00
80.00	5.50	1.68	5.26	0.00
82.00	5.50	1.68	5.26	0.00
84.00	5.50	1.68	5.26	0.00
86.00	5.50	1.68	5.26	0.00
88.00	5.50	1.68	5.26	0.00
90.00	5.50	1.68	5.26	0.00
92.00	5.50	1.68	5.26	0.00
94.00	5.50	1.68	5.26	0.00
96.00	5.50	1.68	5.26	0.00

Summary for Pond 8-Bio: 8_Bioretention

Inflow Area = 25,906 sf, 59.21% Impervious, Inflow Depth = 3.80" for 10 Year, 24 Hr. Event event
Inflow = 2.42 cfs @ 12.07 hrs, Volume= 8,205 cf
Outflow = 0.47 cfs @ 12.51 hrs, Volume= 7,744 cf, Atten= 81%, Lag= 26.1 min
Discarded = 0.03 cfs @ 10.98 hrs, Volume= 5,465 cf
Primary = 0.44 cfs @ 12.51 hrs, Volume= 2,278 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 734.57' @ 12.51 hrs Surf.Area= 5,887 sf Storage= 4,592 cf

Plug-Flow detention time= 984.5 min calculated for 7,743 cf (94% of inflow)
Center-of-Mass det. time= 952.5 min (1,719.6 - 767.0)

Volume	Invert	Avail.Storage	Storage Description
#1	730.00'	7,151 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

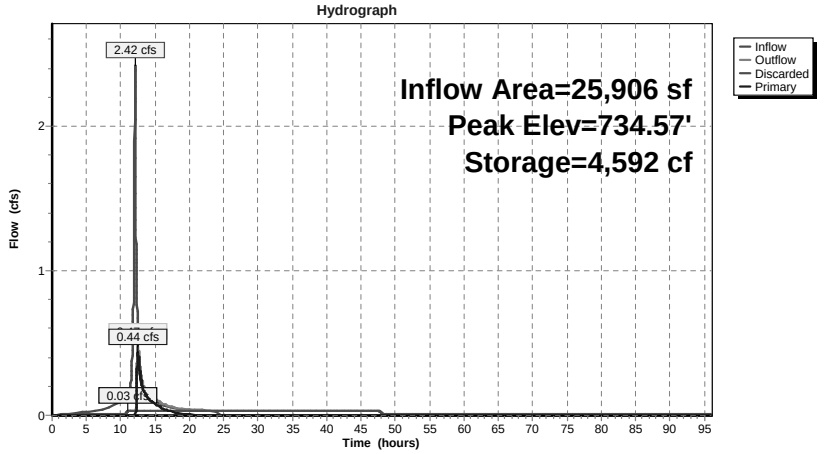
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
730.00	771	0.0	0	0
730.01	771	40.0	3	3
733.99	771	40.0	1,227	1,231
734.00	5,887	100.0	33	1,264
734.50	5,887	100.0	2,944	4,207
735.00	5,887	100.0	2,944	7,151

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	734.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 10.98 hrs HW=734.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.44 cfs @ 12.51 hrs HW=734.57' TW=726.25' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.44 cfs @ 0.84 fps)

Pond 8-Bio: 8_Bioretention



Hydrograph for Pond 8-Bio: 8_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.00	0.00	0.00	0.00
2.00	0.01	5	730.02	0.00	0.00	0.00
4.00	0.02	70	730.23	0.00	0.00	0.00
6.00	0.03	201	730.65	0.00	0.00	0.00
8.00	0.05	431	731.40	0.00	0.00	0.00
10.00	0.09	891	732.89	0.00	**0.00**	0.00
12.00	**1.58**	**2,600**	**734.23**	**0.03**	**0.03**	**0.00**
14.00	**0.14**	**4,369**	**734.53**	**0.15**	0.03	**0.12**
16.00	0.07	4,297	734.52	0.08	0.03	0.05
18.00	0.05	4,252	734.51	0.05	0.03	0.02
20.00	0.04	4,227	734.50	0.04	0.03	0.01
22.00	0.03	4,207	734.50	0.03	0.03	0.00
24.00	0.02	4,158	734.49	0.03	0.03	0.00
26.00	0.00	3,919	734.45	0.03	0.03	0.00
28.00	0.00	3,674	734.41	0.03	0.03	0.00
30.00	0.00	3,428	734.37	0.03	0.03	0.00
32.00	0.00	3,183	734.33	0.03	0.03	0.00
34.00	0.00	2,938	734.28	0.03	0.03	0.00
36.00	0.00	2,692	734.24	0.03	0.03	0.00
38.00	0.00	2,447	734.20	0.03	0.03	0.00
40.00	0.00	2,202	734.16	0.03	0.03	0.00
42.00	0.00	1,957	734.12	0.03	0.03	0.00
44.00	0.00	1,711	734.08	0.03	0.03	0.00
46.00	0.00	1,466	734.03	0.03	0.03	0.00
48.00	0.00	1,234	733.99	0.01	0.01	0.00
50.00	0.00	1,200	733.89	0.00	0.00	0.00
52.00	0.00	1,168	733.79	0.00	0.00	0.00
54.00	0.00	1,136	733.68	0.00	0.00	0.00
56.00	0.00	1,104	733.58	0.00	0.00	0.00
58.00	0.00	1,072	733.48	0.00	0.00	0.00
60.00	0.00	1,040	733.37	0.00	0.00	0.00
62.00	0.00	1,008	733.27	0.00	0.00	0.00
64.00	0.00	976	733.16	0.00	0.00	0.00
66.00	0.00	943	733.06	0.00	0.00	0.00
68.00	0.00	911	732.96	0.00	0.00	0.00
70.00	0.00	879	732.85	0.00	0.00	0.00
72.00	0.00	847	732.75	0.00	0.00	0.00
74.00	0.00	815	732.64	0.00	0.00	0.00
76.00	0.00	783	732.54	0.00	0.00	0.00
78.00	0.00	751	732.43	0.00	0.00	0.00
80.00	0.00	719	732.33	0.00	0.00	0.00
82.00	0.00	686	732.23	0.00	0.00	0.00
84.00	0.00	654	732.12	0.00	0.00	0.00
86.00	0.00	622	732.02	0.00	0.00	0.00
88.00	0.00	590	731.91	0.00	0.00	0.00
90.00	0.00	558	731.81	0.00	0.00	0.00
92.00	0.00	526	731.71	0.00	0.00	0.00
94.00	0.00	494	731.60	0.00	0.00	0.00
96.00	0.00	462	731.50	0.00	0.00	0.00

Summary for Reach 8BN: DA-8B- North Outflow

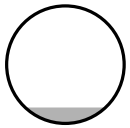
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach NP2 OUTLET depth by 0.02' @ 12.21 hrs

Inflow Area = 143,024 sf, 54.12% Impervious, Inflow Depth = 2.40" for 10 Year, 24 Hr. Event event
Inflow = 6.73 cfs @ 12.09 hrs, Volume= 28,629 cf
Outflow = 6.73 cfs @ 12.09 hrs, Volume= 28,629 cf, Atten= 0%, Lag= 0.2 min

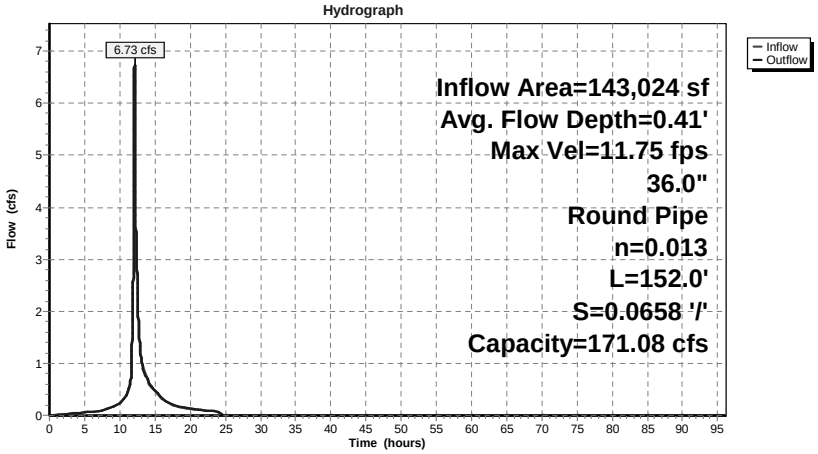
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 11.75 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.97 fps, Avg. Travel Time= 0.6 min

Peak Storage= 87 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.41'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 171.08 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 152.0' Slope= 0.0658 '/'
Inlet Invert= 700.00', Outlet Invert= 690.00'



Reach 8BN: DA-8B- North Outflow



Hydrograph for Reach 8BN: DA-8B- North Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	700.00	0.00
2.00	0.02	1	700.02	0.02
4.00	0.04	2	700.04	0.04
6.00	0.06	3	700.04	0.06
8.00	0.11	5	700.06	0.11
10.00	0.24	8	700.08	0.24
12.00	**4.05**	**60**	**700.31**	**3.95**
14.00	**0.66**	**17**	**700.13**	**0.66**
16.00	0.32	10	700.10	0.32
18.00	0.18	7	700.07	0.18
20.00	0.12	5	700.06	0.12
22.00	0.10	4	700.05	0.10
24.00	0.07	4	700.05	0.07
26.00	0.00	0	700.00	0.00
28.00	0.00	0	700.00	0.00
30.00	0.00	0	700.00	0.00
32.00	0.00	0	700.00	0.00
34.00	0.00	0	700.00	0.00
36.00	0.00	0	700.00	0.00
38.00	0.00	0	700.00	0.00
40.00	0.00	0	700.00	0.00
42.00	0.00	0	700.00	0.00
44.00	0.00	0	700.00	0.00
46.00	0.00	0	700.00	0.00
48.00	0.00	0	700.00	0.00
50.00	0.00	0	700.00	0.00
52.00	0.00	0	700.00	0.00
54.00	0.00	0	700.00	0.00
56.00	0.00	0	700.00	0.00
58.00	0.00	0	700.00	0.00
60.00	0.00	0	700.00	0.00
62.00	0.00	0	700.00	0.00
64.00	0.00	0	700.00	0.00
66.00	0.00	0	700.00	0.00
68.00	0.00	0	700.00	0.00
70.00	0.00	0	700.00	0.00
72.00	0.00	0	700.00	0.00
74.00	0.00	0	700.00	0.00
76.00	0.00	0	700.00	0.00
78.00	0.00	0	700.00	0.00
80.00	0.00	0	700.00	0.00
82.00	0.00	0	700.00	0.00
84.00	0.00	0	700.00	0.00
86.00	0.00	0	700.00	0.00
88.00	0.00	0	700.00	0.00
90.00	0.00	0	700.00	0.00
92.00	0.00	0	700.00	0.00
94.00	0.00	0	700.00	0.00
96.00	0.00	0	700.00	0.00

Summary for Subcatchment 9A: DA8-9A

Runoff = 5.13 cfs @ 12.07 hrs, Volume= 17,095 cf, Depth= 4.39"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

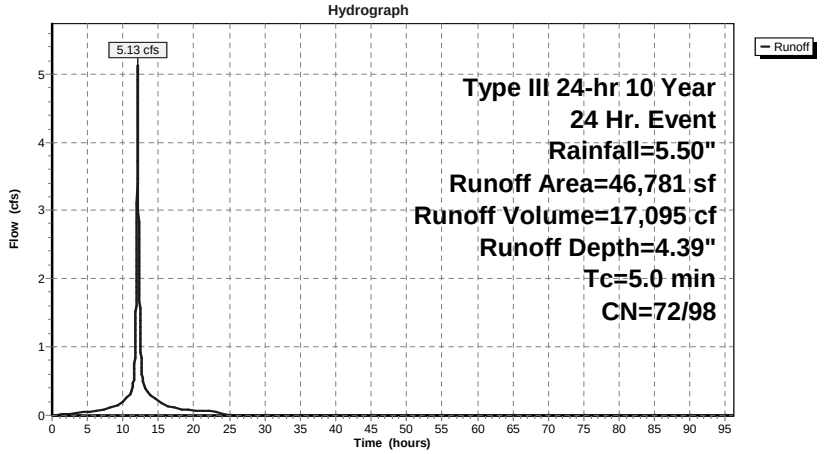
Area (sf)	CN	Description	Land Use
23,784	98	Paved parking, HSG C	Pavement
2,331	61	>75% Grass cover, Good, HSG B	Open Space
13,026	74	>75% Grass cover, Good, HSG C	Open Space
7,640	98	Unconnected roofs, HSG C	Roofs
46,781	89	Weighted Average	
15,357	72	32.83% Pervious Area	
31,424	98	67.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 67.17% Impervious, Rv= 0.655, Runoff= 29.91"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
15,357	Open Space	1,438.67	5.02	21.75	2.94
23,784	Pavement	640.31	2.07	7.77	24.80
7,640	Roofs	22.59	0.13	1.78	8.80
46,781	Total	2,101.57	7.22	31.30	36.54

Subcatchment 9A: DA8-9A



Hydrograph for Subcatchment 9A: DA8-9A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.02
4.00	0.24	0.00	0.10	0.04
6.00	0.40	0.00	0.23	0.05
8.00	0.63	0.00	0.43	0.10
10.00	1.04	0.02	0.83	0.20
12.00	2.75	0.66	2.52	**3.39**
14.00	4.46	1.79	4.22	**0.28**
16.00	4.87	2.10	4.64	0.15
18.00	5.10	2.28	4.87	0.09
20.00	5.26	2.40	5.03	0.07
22.00	5.39	2.51	5.16	0.06
24.00	**5.50**	**2.59**	**5.26**	0.05
26.00	5.50	2.59	5.26	0.00
28.00	5.50	2.59	5.26	0.00
30.00	5.50	2.59	5.26	0.00
32.00	5.50	2.59	5.26	0.00
34.00	5.50	2.59	5.26	0.00
36.00	5.50	2.59	5.26	0.00
38.00	5.50	2.59	5.26	0.00
40.00	5.50	2.59	5.26	0.00
42.00	5.50	2.59	5.26	0.00
44.00	5.50	2.59	5.26	0.00
46.00	5.50	2.59	5.26	0.00
48.00	5.50	2.59	5.26	0.00
50.00	5.50	2.59	5.26	0.00
52.00	5.50	2.59	5.26	0.00
54.00	5.50	2.59	5.26	0.00
56.00	5.50	2.59	5.26	0.00
58.00	5.50	2.59	5.26	0.00
60.00	5.50	2.59	5.26	0.00
62.00	5.50	2.59	5.26	0.00
64.00	5.50	2.59	5.26	0.00
66.00	5.50	2.59	5.26	0.00
68.00	5.50	2.59	5.26	0.00
70.00	5.50	2.59	5.26	0.00
72.00	5.50	2.59	5.26	0.00
74.00	5.50	2.59	5.26	0.00
76.00	5.50	2.59	5.26	0.00
78.00	5.50	2.59	5.26	0.00
80.00	5.50	2.59	5.26	0.00
82.00	5.50	2.59	5.26	0.00
84.00	5.50	2.59	5.26	0.00
86.00	5.50	2.59	5.26	0.00
88.00	5.50	2.59	5.26	0.00
90.00	5.50	2.59	5.26	0.00
92.00	5.50	2.59	5.26	0.00
94.00	5.50	2.59	5.26	0.00
96.00	5.50	2.59	5.26	0.00

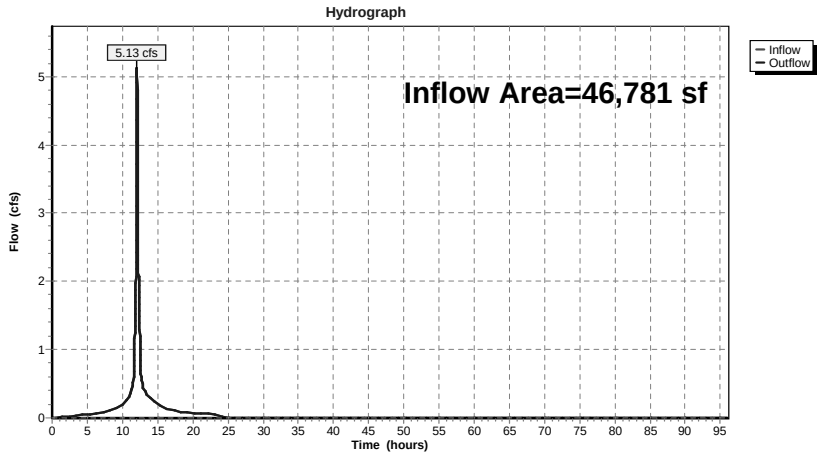
Summary for Reach 9A-USF: Underground Sand Filter

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 46,781 sf, 67.17% Impervious, Inflow Depth = 4.39" for 10 Year, 24 Hr. Event event
Inflow = 5.13 cfs @ 12.07 hrs, Volume= 17,095 cf
Outflow = 5.13 cfs @ 12.07 hrs, Volume= 17,095 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3

Reach 9A-USF: Underground Sand Filter



Hydrograph for Reach 9A-USF: Underground Sand Filter

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.03		0.03	55.00	0.00		0.00
4.00	0.04		0.04	56.00	0.00		0.00
5.00	0.05		0.05	57.00	0.00		0.00
6.00	0.05		0.05	58.00	0.00		0.00
7.00	0.07		0.07	59.00	0.00		0.00
8.00	0.10		0.10	60.00	0.00		0.00
9.00	0.14		0.14	61.00	0.00		0.00
10.00	0.20		0.20	62.00	0.00		0.00
11.00	0.31		0.31	63.00	0.00		0.00
12.00	**3.39**		**3.39**	64.00	0.00		0.00
13.00	**0.43**		**0.43**	65.00	0.00		0.00
14.00	0.28		0.28	66.00	0.00		0.00
15.00	0.21		0.21	67.00	0.00		0.00
16.00	0.15		0.15	68.00	0.00		0.00
17.00	0.12		0.12	69.00	0.00		0.00
18.00	0.09		0.09	70.00	0.00		0.00
19.00	0.08		0.08	71.00	0.00		0.00
20.00	0.07		0.07	72.00	0.00		0.00
21.00	0.07		0.07	73.00	0.00		0.00
22.00	0.06		0.06	74.00	0.00		0.00
23.00	0.05		0.05	75.00	0.00		0.00
24.00	0.05		0.05	76.00	0.00		0.00
25.00	0.00		0.00	77.00	0.00		0.00
26.00	0.00		0.00	78.00	0.00		0.00
27.00	0.00		0.00	79.00	0.00		0.00
28.00	0.00		0.00	80.00	0.00		0.00
29.00	0.00		0.00	81.00	0.00		0.00
30.00	0.00		0.00	82.00	0.00		0.00
31.00	0.00		0.00	83.00	0.00		0.00
32.00	0.00		0.00	84.00	0.00		0.00
33.00	0.00		0.00	85.00	0.00		0.00
34.00	0.00		0.00	86.00	0.00		0.00
35.00	0.00		0.00	87.00	0.00		0.00
36.00	0.00		0.00	88.00	0.00		0.00
37.00	0.00		0.00	89.00	0.00		0.00
38.00	0.00		0.00	90.00	0.00		0.00
39.00	0.00		0.00	91.00	0.00		0.00
40.00	0.00		0.00	92.00	0.00		0.00
41.00	0.00		0.00	93.00	0.00		0.00
42.00	0.00		0.00	94.00	0.00		0.00
43.00	0.00		0.00	95.00	0.00		0.00
44.00	0.00		0.00	96.00	0.00		0.00
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 9B: DA8-9B

Runoff = 1.12 cfs @ 12.07 hrs, Volume= 3,798 cf, Depth= 5.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

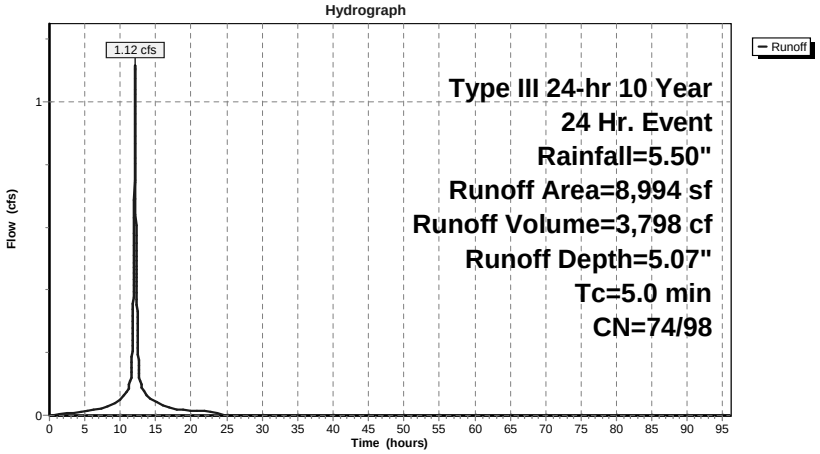
	Area (sf)	CN	Description	Land Use
	1,240	98	Paved parking, HSG C	Pavement
	704	74	>75% Grass cover, Good, HSG C	Open Space
*	225	98	Pavers, HSG B	Pavement
*	6,825	98	Pavers, HSG C	Pavement
	8,994	96	Weighted Average	
	704	74	7.83% Pervious Area	
	8,290	98	92.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 92.17% Impervious, Rv= 0.880, Runoff= 40.20"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
704	Open Space	88.62	0.31	1.34	0.18
8,290	Pavement	299.90	0.97	3.64	11.61
8,994	Total	388.52	1.28	4.98	11.80

Subcatchment 9B: DA8-9B



Hydrograph for Subcatchment 9B: DA8-9B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.03
10.00	1.04	0.03	0.83	0.05
12.00	2.75	0.75	2.52	**0.75**
14.00	4.46	1.94	4.22	**0.06**
16.00	4.87	2.26	4.64	0.03
18.00	5.10	2.45	4.87	0.02
20.00	5.26	2.58	5.03	0.01
22.00	5.39	2.68	5.16	0.01
24.00	**5.50**	**2.77**	**5.26**	0.01
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00
74.00	5.50	2.77	5.26	0.00
76.00	5.50	2.77	5.26	0.00
78.00	5.50	2.77	5.26	0.00
80.00	5.50	2.77	5.26	0.00
82.00	5.50	2.77	5.26	0.00
84.00	5.50	2.77	5.26	0.00
86.00	5.50	2.77	5.26	0.00
88.00	5.50	2.77	5.26	0.00
90.00	5.50	2.77	5.26	0.00
92.00	5.50	2.77	5.26	0.00
94.00	5.50	2.77	5.26	0.00
96.00	5.50	2.77	5.26	0.00

Summary for Pond 9B-P: 9B-Pavers

Inflow Area = 8,994 sf, 92.17% Impervious, Inflow Depth = 5.07" for 10 Year, 24 Hr. Event event
Inflow = 1.12 cfs @ 12.07 hrs, Volume= 3,798 cf
Outflow = 0.16 cfs @ 12.56 hrs, Volume= 3,799 cf, Atten= 86%, Lag= 29.3 min
Discarded = 0.04 cfs @ 10.19 hrs, Volume= 3,493 cf
Primary = 0.12 cfs @ 12.56 hrs, Volume= 305 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 729.91' @ 12.56 hrs Surf.Area= 7,048 sf Storage= 1,632 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 308.3 min (1,057.5 - 749.2)

Volume	Invert	Avail.Storage	Storage Description
#1	729.33'	1,889 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

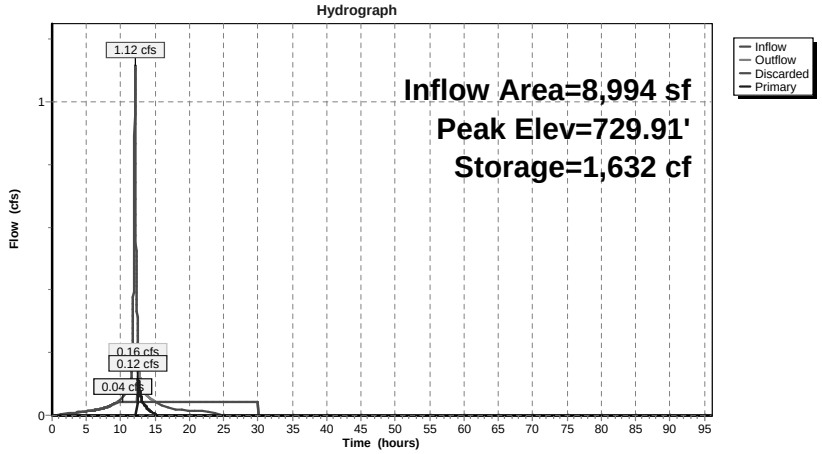
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
729.33	7,048	0.0	0	0
730.00	7,048	40.0	1,889	1,889

Device	Routing	Invert	Outlet Devices
#1	Primary	729.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	729.33'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.04 cfs @ 10.19 hrs HW=729.34' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.12 cfs @ 12.56 hrs HW=729.91' TW=720.25' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.12 cfs @ 0.26 fps)

Pond 9B-P: 9B-Pavers



Hydrograph for Pond 9B-P: 9B-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	729.33	0.00	0.00	0.00
2.00	0.00	0	729.33	0.00	0.00	0.00
4.00	0.01	0	729.33	0.01	0.01	0.00
6.00	0.01	0	729.33	0.01	0.01	0.00
8.00	0.03	0	729.33	0.03	0.03	0.00
10.00	0.05	12	729.33	0.04	**0.04**	0.00
12.00	**0.75**	**674**	**729.57**	**0.04**	**0.04**	**0.00**
14.00	**0.06**	**1,614**	**729.90**	**0.06**	0.04	**0.02**
16.00	0.03	1,592	729.89	0.04	0.04	0.00
18.00	0.02	1,472	729.85	0.04	0.04	0.00
20.00	0.01	1,297	729.79	0.04	0.04	0.00
22.00	0.01	1,100	729.72	0.04	0.04	0.00
24.00	0.01	886	729.64	0.04	0.04	0.00
26.00	0.00	595	729.54	0.04	0.04	0.00
28.00	0.00	301	729.44	0.04	0.04	0.00
30.00	0.00	7	729.33	0.04	0.04	0.00
32.00	0.00	0	729.33	0.00	0.00	0.00
34.00	0.00	0	729.33	0.00	0.00	0.00
36.00	0.00	0	729.33	0.00	0.00	0.00
38.00	0.00	0	729.33	0.00	0.00	0.00
40.00	0.00	0	729.33	0.00	0.00	0.00
42.00	0.00	0	729.33	0.00	0.00	0.00
44.00	0.00	0	729.33	0.00	0.00	0.00
46.00	0.00	0	729.33	0.00	0.00	0.00
48.00	0.00	0	729.33	0.00	0.00	0.00
50.00	0.00	0	729.33	0.00	0.00	0.00
52.00	0.00	0	729.33	0.00	0.00	0.00
54.00	0.00	0	729.33	0.00	0.00	0.00
56.00	0.00	0	729.33	0.00	0.00	0.00
58.00	0.00	0	729.33	0.00	0.00	0.00
60.00	0.00	0	729.33	0.00	0.00	0.00
62.00	0.00	0	729.33	0.00	0.00	0.00
64.00	0.00	0	729.33	0.00	0.00	0.00
66.00	0.00	0	729.33	0.00	0.00	0.00
68.00	0.00	0	729.33	0.00	0.00	0.00
70.00	0.00	0	729.33	0.00	0.00	0.00
72.00	0.00	0	729.33	0.00	0.00	0.00
74.00	0.00	0	729.33	0.00	0.00	0.00
76.00	0.00	0	729.33	0.00	0.00	0.00
78.00	0.00	0	729.33	0.00	0.00	0.00
80.00	0.00	0	729.33	0.00	0.00	0.00
82.00	0.00	0	729.33	0.00	0.00	0.00
84.00	0.00	0	729.33	0.00	0.00	0.00
86.00	0.00	0	729.33	0.00	0.00	0.00
88.00	0.00	0	729.33	0.00	0.00	0.00
90.00	0.00	0	729.33	0.00	0.00	0.00
92.00	0.00	0	729.33	0.00	0.00	0.00
94.00	0.00	0	729.33	0.00	0.00	0.00
96.00	0.00	0	729.33	0.00	0.00	0.00

Summary for Subcatchment 9C: DA8-9C

Runoff = 1.46 cfs @ 12.07 hrs, Volume= 4,974 cf, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

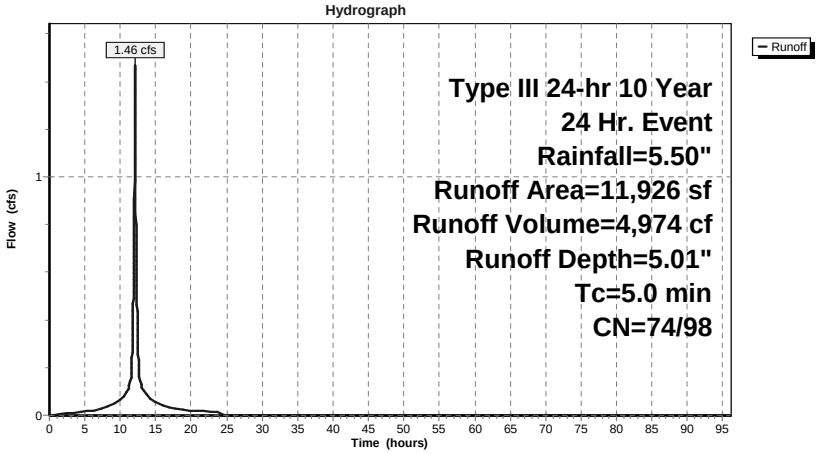
	Area (sf)	CN	Description	Land Use
	1,213	98	Paved parking, HSG C	Pavement
	1,231	74	>75% Grass cover, Good, HSG C	Open Space
	5,144	98	Roofs, HSG C	Roofs
*	4,338	98	Pavers, HSG C	Pavement
	11,926	96	Weighted Average	
	1,231	74	10.32% Pervious Area	
	10,695	98	89.68% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 89.68% Impervious, Rv= 0.857, Runoff= 39.17"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,231	Open Space	151.01	0.53	2.28	0.31
5,551	Pavement	195.69	0.63	2.38	7.58
5,144	Roofs	19.92	0.12	1.57	7.76
11,926	Total	366.61	1.28	6.23	15.64

Subcatchment 9C: DA8-9C



Hydrograph for Subcatchment 9C: DA8-9C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.02
8.00	0.63	0.00	0.43	0.03
10.00	1.04	0.03	0.83	0.06
12.00	2.75	0.75	2.52	**0.98**
14.00	4.46	1.94	4.22	**0.08**
16.00	4.87	2.26	4.64	0.04
18.00	5.10	2.45	4.87	0.02
20.00	5.26	2.58	5.03	0.02
22.00	5.39	2.68	5.16	0.02
24.00	**5.50**	**2.77**	**5.26**	0.01
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00
74.00	5.50	2.77	5.26	0.00
76.00	5.50	2.77	5.26	0.00
78.00	5.50	2.77	5.26	0.00
80.00	5.50	2.77	5.26	0.00
82.00	5.50	2.77	5.26	0.00
84.00	5.50	2.77	5.26	0.00
86.00	5.50	2.77	5.26	0.00
88.00	5.50	2.77	5.26	0.00
90.00	5.50	2.77	5.26	0.00
92.00	5.50	2.77	5.26	0.00
94.00	5.50	2.77	5.26	0.00
96.00	5.50	2.77	5.26	0.00

Summary for Pond 9C-P: 9C-Pavers

Inflow Area = 11,926 sf, 89.68% Impervious, Inflow Depth = 5.01" for 10 Year, 24 Hr. Event event
Inflow = 1.46 cfs @ 12.07 hrs, Volume= 4,974 cf
Outflow = 0.03 cfs @ 9.17 hrs, Volume= 4,974 cf, Atten= 98%, Lag= 0.0 min
Discarded = 0.03 cfs @ 9.17 hrs, Volume= 4,974 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 733.50' @ 17.90 hrs Surf.Area= 4,339 sf Storage= 3,314 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,136.1 min (1,886.6 - 750.5)

Volume	Invert	Avail.Storage	Storage Description
#1	732.33'	18,519 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

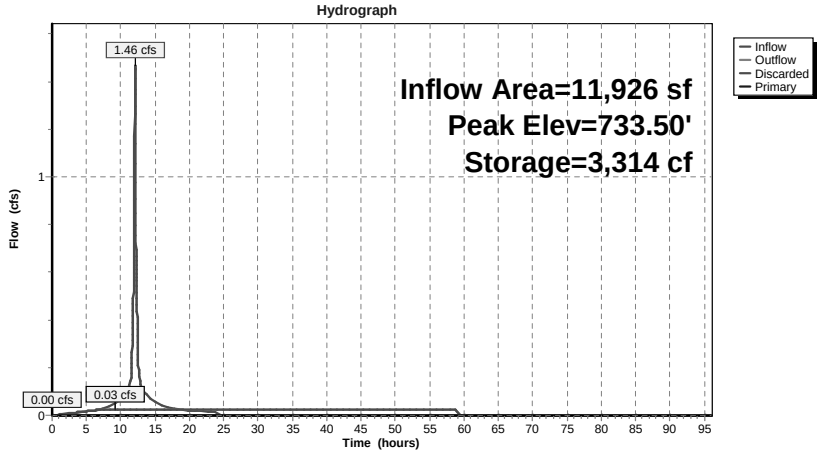
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
732.33	4,339	0.0	0	0
733.00	4,339	40.0	1,163	1,163
737.00	4,339	100.0	17,356	18,519

Device	Routing	Invert	Outlet Devices
#1	Primary	736.50'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	732.33'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 9.17 hrs HW=732.38' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=732.33' TW=720.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9C-P: 9C-Pavers



Hydrograph for Pond 9C-P: 9C-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	732.33	0.00	0.00	**0.00**
2.00	0.01	0	732.33	0.01	0.01	0.00
4.00	0.01	0	732.33	0.01	0.01	0.00
6.00	0.02	0	732.33	0.02	0.02	0.00
8.00	0.03	14	732.34	**0.03**	**0.03**	0.00
10.00	0.06	178	732.43	**0.03**	**0.03**	0.00
12.00	**0.98**	1,245	733.02	0.03	0.03	0.00
14.00	**0.08**	3,037	733.43	0.03	0.03	0.00
16.00	0.04	**3,265**	**733.48**	0.03	0.03	0.00
18.00	0.02	**3,313**	**733.50**	0.03	0.03	0.00
20.00	0.02	3,289	733.49	0.03	0.03	0.00
22.00	0.02	3,236	733.48	0.03	0.03	0.00
24.00	0.01	3,160	733.46	0.03	0.03	0.00
26.00	0.00	2,982	733.42	0.03	0.03	0.00
28.00	0.00	2,802	733.38	0.03	0.03	0.00
30.00	0.00	2,621	733.34	0.03	0.03	0.00
32.00	0.00	2,440	733.29	0.03	0.03	0.00
34.00	0.00	2,259	733.25	0.03	0.03	0.00
36.00	0.00	2,078	733.21	0.03	0.03	0.00
38.00	0.00	1,898	733.17	0.03	0.03	0.00
40.00	0.00	1,717	733.13	0.03	0.03	0.00
42.00	0.00	1,536	733.09	0.03	0.03	0.00
44.00	0.00	1,355	733.04	0.03	0.03	0.00
46.00	0.00	1,174	733.00	0.03	0.03	0.00
48.00	0.00	994	732.90	0.03	0.03	0.00
50.00	0.00	813	732.80	0.03	0.03	0.00
52.00	0.00	632	732.69	0.03	0.03	0.00
54.00	0.00	451	732.59	0.03	0.03	0.00
56.00	0.00	270	732.49	0.03	0.03	0.00
58.00	0.00	90	732.38	0.03	0.03	0.00
60.00	0.00	0	732.33	0.00	0.00	0.00
62.00	0.00	0	732.33	0.00	0.00	0.00
64.00	0.00	0	732.33	0.00	0.00	0.00
66.00	0.00	0	732.33	0.00	0.00	0.00
68.00	0.00	0	732.33	0.00	0.00	0.00
70.00	0.00	0	732.33	0.00	0.00	0.00
72.00	0.00	0	732.33	0.00	0.00	0.00
74.00	0.00	0	732.33	0.00	0.00	0.00
76.00	0.00	0	732.33	0.00	0.00	0.00
78.00	0.00	0	732.33	0.00	0.00	0.00
80.00	0.00	0	732.33	0.00	0.00	0.00
82.00	0.00	0	732.33	0.00	0.00	0.00
84.00	0.00	0	732.33	0.00	0.00	0.00
86.00	0.00	0	732.33	0.00	0.00	0.00
88.00	0.00	0	732.33	0.00	0.00	0.00
90.00	0.00	0	732.33	0.00	0.00	0.00
92.00	0.00	0	732.33	0.00	0.00	0.00
94.00	0.00	0	732.33	0.00	0.00	0.00
96.00	0.00	0	732.33	0.00	0.00	0.00

Summary for Subcatchment 13: DA8-13

Runoff = 1.95 cfs @ 12.15 hrs, Volume= 7,238 cf, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

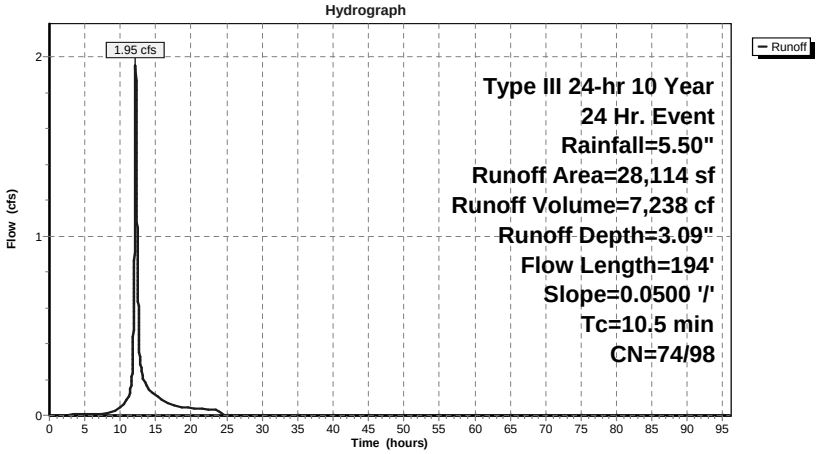
Area (sf)	CN	Description	Land Use
3,610	98	Unconnected pavement, HSG C	Pavement
24,504	74	>75% Grass cover, Good, HSG C	Open Space
28,114	77	Weighted Average	
24,504	74	87.16% Pervious Area	
3,610	98	12.84% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0500	0.18		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.0	94	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.5	194	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 12.84% Impervious, Rv= 0.166, Runoff= 7.57"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
24,504	Open Space	580.65	2.03	8.78	1.19
3,610	Pavement	24.58	0.08	0.30	0.95
28,114	Total	605.24	2.11	9.08	2.14

Subcatchment 13: DA8-13



Hydrograph for Subcatchment 13: DA8-13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.03	0.83	0.04
12.00	2.75	0.75	2.52	**0.91**
14.00	4.46	1.94	4.22	**0.15**
16.00	4.87	2.26	4.64	0.08
18.00	5.10	2.45	4.87	0.05
20.00	5.26	2.58	5.03	0.04
22.00	5.39	2.68	5.16	0.03
24.00	**5.50**	**2.77**	**5.26**	0.03
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00
74.00	5.50	2.77	5.26	0.00
76.00	5.50	2.77	5.26	0.00
78.00	5.50	2.77	5.26	0.00
80.00	5.50	2.77	5.26	0.00
82.00	5.50	2.77	5.26	0.00
84.00	5.50	2.77	5.26	0.00
86.00	5.50	2.77	5.26	0.00
88.00	5.50	2.77	5.26	0.00
90.00	5.50	2.77	5.26	0.00
92.00	5.50	2.77	5.26	0.00
94.00	5.50	2.77	5.26	0.00
96.00	5.50	2.77	5.26	0.00

Summary for Reach NP1: North Pipe -1

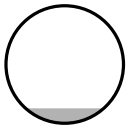
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 47,209 sf, 49.54% Impervious, Inflow Depth = 1.01" for 10 Year, 24 Hr. Event event
Inflow = 0.78 cfs @ 12.50 hrs, Volume= 3,992 cf
Outflow = 0.77 cfs @ 12.53 hrs, Volume= 3,992 cf, Atten= 1%, Lag= 1.6 min

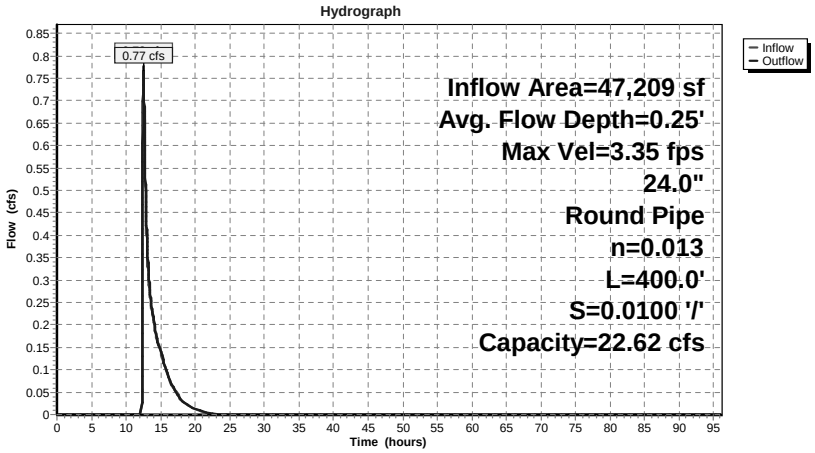
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 3.35 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 1.47 fps, Avg. Travel Time= 4.5 min

Peak Storage= 92 cf @ 12.53 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 400.0' Slope= 0.0100 '/'
Inlet Invert= 726.00', Outlet Invert= 722.00'



Reach NP1: North Pipe -1



Hydrograph for Reach NP1: North Pipe -1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	726.00	0.00
2.00	0.00	0	726.00	0.00
4.00	0.00	0	726.00	0.00
6.00	0.00	0	726.00	0.00
8.00	0.00	0	726.00	0.00
10.00	0.00	0	726.00	0.00
12.00	**0.00**	**0**	**726.00**	**0.00**
14.00	**0.21**	**37**	**726.14**	**0.21**
16.00	0.09	20	726.09	0.09
18.00	0.03	10	726.06	0.03
20.00	0.01	5	726.04	0.01
22.00	0.00	2	726.01	0.00
24.00	0.00	0	726.00	0.00
26.00	0.00	0	726.00	0.00
28.00	0.00	0	726.00	0.00
30.00	0.00	0	726.00	0.00
32.00	0.00	0	726.00	0.00
34.00	0.00	0	726.00	0.00
36.00	0.00	0	726.00	0.00
38.00	0.00	0	726.00	0.00
40.00	0.00	0	726.00	0.00
42.00	0.00	0	726.00	0.00
44.00	0.00	0	726.00	0.00
46.00	0.00	0	726.00	0.00
48.00	0.00	0	726.00	0.00
50.00	0.00	0	726.00	0.00
52.00	0.00	0	726.00	0.00
54.00	0.00	0	726.00	0.00
56.00	0.00	0	726.00	0.00
58.00	0.00	0	726.00	0.00
60.00	0.00	0	726.00	0.00
62.00	0.00	0	726.00	0.00
64.00	0.00	0	726.00	0.00
66.00	0.00	0	726.00	0.00
68.00	0.00	0	726.00	0.00
70.00	0.00	0	726.00	0.00
72.00	0.00	0	726.00	0.00
74.00	0.00	0	726.00	0.00
76.00	0.00	0	726.00	0.00
78.00	0.00	0	726.00	0.00
80.00	0.00	0	726.00	0.00
82.00	0.00	0	726.00	0.00
84.00	0.00	0	726.00	0.00
86.00	0.00	0	726.00	0.00
88.00	0.00	0	726.00	0.00
90.00	0.00	0	726.00	0.00
92.00	0.00	0	726.00	0.00
94.00	0.00	0	726.00	0.00
96.00	0.00	0	726.00	0.00

Summary for Reach NP2: North Pipe -2

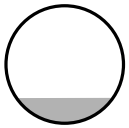
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 114,910 sf, 64.22% Impervious, Inflow Depth = 2.23" for 10 Year, 24 Hr. Event event
Inflow = 5.13 cfs @ 12.07 hrs, Volume= 21,392 cf
Outflow = 5.10 cfs @ 12.08 hrs, Volume= 21,392 cf, Atten= 1%, Lag= 0.5 min

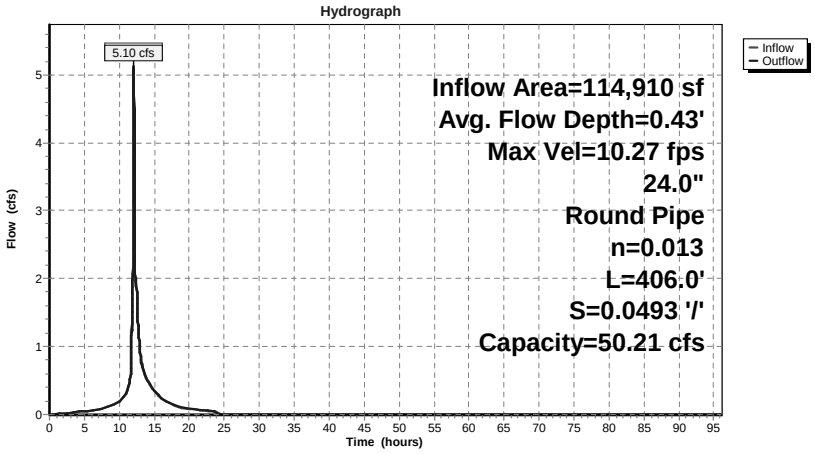
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 10.27 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 3.47 fps, Avg. Travel Time= 2.0 min

Peak Storage= 202 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 50.21 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 406.0' Slope= 0.0493 '/'
Inlet Invert= 720.00', Outlet Invert= 700.00'



Reach NP2: North Pipe -2



Hydrograph for Reach NP2: North Pipe -2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	720.00	0.00
2.00	0.02	4	720.03	0.02
4.00	0.04	6	720.04	0.04
6.00	0.05	8	720.05	0.05
8.00	0.10	12	720.06	0.09
10.00	0.20	21	720.09	0.20
12.00	**3.39**	**143**	**720.34**	**3.14**
14.00	**0.50**	**40**	**720.14**	**0.51**
16.00	0.24	24	720.10	0.24
18.00	0.12	15	720.07	0.13
20.00	0.08	12	720.06	0.09
22.00	0.06	9	720.05	0.06
24.00	0.05	8	720.05	0.05
26.00	0.00	0	720.00	0.00
28.00	0.00	0	720.00	0.00
30.00	0.00	0	720.00	0.00
32.00	0.00	0	720.00	0.00
34.00	0.00	0	720.00	0.00
36.00	0.00	0	720.00	0.00
38.00	0.00	0	720.00	0.00
40.00	0.00	0	720.00	0.00
42.00	0.00	0	720.00	0.00
44.00	0.00	0	720.00	0.00
46.00	0.00	0	720.00	0.00
48.00	0.00	0	720.00	0.00
50.00	0.00	0	720.00	0.00
52.00	0.00	0	720.00	0.00
54.00	0.00	0	720.00	0.00
56.00	0.00	0	720.00	0.00
58.00	0.00	0	720.00	0.00
60.00	0.00	0	720.00	0.00
62.00	0.00	0	720.00	0.00
64.00	0.00	0	720.00	0.00
66.00	0.00	0	720.00	0.00
68.00	0.00	0	720.00	0.00
70.00	0.00	0	720.00	0.00
72.00	0.00	0	720.00	0.00
74.00	0.00	0	720.00	0.00
76.00	0.00	0	720.00	0.00
78.00	0.00	0	720.00	0.00
80.00	0.00	0	720.00	0.00
82.00	0.00	0	720.00	0.00
84.00	0.00	0	720.00	0.00
86.00	0.00	0	720.00	0.00
88.00	0.00	0	720.00	0.00
90.00	0.00	0	720.00	0.00
92.00	0.00	0	720.00	0.00
94.00	0.00	0	720.00	0.00
96.00	0.00	0	720.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 7: DA8-7 Runoff Area=21,303 sf 37.77% Impervious Runoff Depth=3.48"
Tc=5.0 min CN=62/98 Runoff=1.86 cfs 6,173 cf

Pond 7-Bio: 7_Bioretention Peak Elev=735.58' Storage=2,950 cf Inflow=1.86 cfs 6,173 cf
Discarded=0.02 cfs 3,487 cf Primary=0.58 cfs 2,385 cf Outflow=0.60 cfs 5,873 cf

Subcatchment 8: DA8-8 Runoff Area=25,906 sf 59.21% Impervious Runoff Depth=4.23"
Tc=5.0 min CN=61/98 Runoff=2.70 cfs 9,131 cf

Pond 8-Bio: 8_Bioretention Peak Elev=734.59' Storage=4,750 cf Inflow=2.70 cfs 9,131 cf
Discarded=0.03 cfs 5,526 cf Primary=0.73 cfs 3,140 cf Outflow=0.77 cfs 8,666 cf

Reach 8BN: DA-8B- North Outflow Avg. Flow Depth=0.43' Max Vel=12.13 fps Inflow=7.51 cfs 33,254 cf
36.0" Round Pipe n=0.013 L=152.0' S=0.0658 '/' Capacity=171.08 cfs Outflow=7.50 cfs 33,254 cf

Subcatchment 9A: DA8-9A Runoff Area=46,781 sf 67.17% Impervious Runoff Depth=4.85"
Tc=5.0 min CN=72/98 Runoff=5.67 cfs 18,919 cf

Reach 9A-USF: Underground Sand Filter Inflow=5.67 cfs 18,919 cf
Outflow=5.67 cfs 18,919 cf

Subcatchment 9B: DA8-9B Runoff Area=8,994 sf 92.17% Impervious Runoff Depth=5.56"
Tc=5.0 min CN=74/98 Runoff=1.22 cfs 4,167 cf

Pond 9B-P: 9B-Pavers Peak Elev=729.92' Storage=1,657 cf Inflow=1.22 cfs 4,167 cf
Discarded=0.04 cfs 3,595 cf Primary=0.31 cfs 573 cf Outflow=0.35 cfs 4,168 cf

Subcatchment 9C: DA8-9C Runoff Area=11,926 sf 89.68% Impervious Runoff Depth=5.50"
Tc=5.0 min CN=74/98 Runoff=1.60 cfs 5,462 cf

Pond 9C-P: 9C-Pavers Peak Elev=733.59' Storage=3,731 cf Inflow=1.60 cfs 5,462 cf
Discarded=0.03 cfs 5,462 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 5,462 cf

Subcatchment 13: DA8-13 Runoff Area=28,114 sf 12.84% Impervious Runoff Depth=3.52"
Flow Length=194' Slope=0.0500 '/' Tc=10.5 min CN=74/98 Runoff=2.23 cfs 8,237 cf

Reach NP1: North Pipe -1 Avg. Flow Depth=0.33' Max Vel=3.91 fps Inflow=1.31 cfs 5,525 cf
24.0" Round Pipe n=0.013 L=400.0' S=0.0100 '/' Capacity=22.62 cfs Outflow=1.30 cfs 5,525 cf

Reach NP2: North Pipe -2 Avg. Flow Depth=0.45' Max Vel=10.57 fps Inflow=5.67 cfs 25,017 cf
24.0" Round Pipe n=0.013 L=406.0' S=0.0493 '/' Capacity=50.21 cfs Outflow=5.64 cfs 25,017 cf

Total Runoff Area = 143,024 sf Runoff Volume = 52,089 cf Average Runoff Depth = 4.37"
45.88% Pervious = 65,620 sf 54.12% Impervious = 77,404 sf

Summary for Subcatchment 7: DA8-7

Runoff = 1.86 cfs @ 12.07 hrs, Volume= 6,173 cf, Depth= 3.48"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

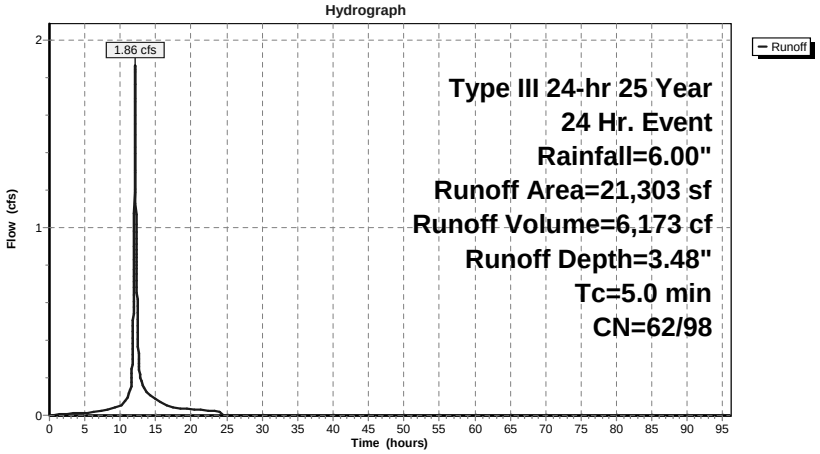
	Area (sf)	CN	Description	Land Use
	8,046	98	Paved parking, HSG B	Pavement
	9,082	61	>75% Grass cover, Good, HSG B	Open Space
	641	74	>75% Grass cover, Good, HSG C	Open Space
*	3,301	61	Bioretention, HSG B	Brush
*	233	74	Bioretention, HSG C	Brush
	21,303	76	Weighted Average	
	13,257	62	62.23% Pervious Area	
	8,046	98	37.77% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 37.77% Impervious, Rv= 0.390, Runoff= 17.82"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,534	Brush	12.12	0.00	0.00	0.40
9,723	Open Space	542.61	1.89	8.20	1.11
8,046	Pavement	129.04	0.42	1.57	5.00
21,303	Total	683.77	2.31	9.77	6.51

Subcatchment 7: DA8-7



Hydrograph for Subcatchment 7: DA8-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.02
8.00	0.68	0.00	0.49	0.03
10.00	1.13	0.00	0.92	0.05
12.00	3.00	0.40	2.77	**1.19**
14.00	4.87	1.36	4.63	**0.11**
16.00	5.32	1.64	5.08	0.06
18.00	5.57	1.80	5.33	0.04
20.00	5.74	1.92	5.50	0.03
22.00	5.88	2.01	5.65	0.03
24.00	**6.00**	**2.09**	**5.76**	0.02
26.00	6.00	2.09	5.76	0.00
28.00	6.00	2.09	5.76	0.00
30.00	6.00	2.09	5.76	0.00
32.00	6.00	2.09	5.76	0.00
34.00	6.00	2.09	5.76	0.00
36.00	6.00	2.09	5.76	0.00
38.00	6.00	2.09	5.76	0.00
40.00	6.00	2.09	5.76	0.00
42.00	6.00	2.09	5.76	0.00
44.00	6.00	2.09	5.76	0.00
46.00	6.00	2.09	5.76	0.00
48.00	6.00	2.09	5.76	0.00
50.00	6.00	2.09	5.76	0.00
52.00	6.00	2.09	5.76	0.00
54.00	6.00	2.09	5.76	0.00
56.00	6.00	2.09	5.76	0.00
58.00	6.00	2.09	5.76	0.00
60.00	6.00	2.09	5.76	0.00
62.00	6.00	2.09	5.76	0.00
64.00	6.00	2.09	5.76	0.00
66.00	6.00	2.09	5.76	0.00
68.00	6.00	2.09	5.76	0.00
70.00	6.00	2.09	5.76	0.00
72.00	6.00	2.09	5.76	0.00
74.00	6.00	2.09	5.76	0.00
76.00	6.00	2.09	5.76	0.00
78.00	6.00	2.09	5.76	0.00
80.00	6.00	2.09	5.76	0.00
82.00	6.00	2.09	5.76	0.00
84.00	6.00	2.09	5.76	0.00
86.00	6.00	2.09	5.76	0.00
88.00	6.00	2.09	5.76	0.00
90.00	6.00	2.09	5.76	0.00
92.00	6.00	2.09	5.76	0.00
94.00	6.00	2.09	5.76	0.00
96.00	6.00	2.09	5.76	0.00

Summary for Pond 7-Bio: 7_Bioretention

Inflow Area = 21,303 sf, 37.77% Impervious, Inflow Depth = 3.48" for 25 Year, 24 Hr. Event event
Inflow = 1.86 cfs @ 12.07 hrs, Volume= 6,173 cf
Outflow = 0.60 cfs @ 12.38 hrs, Volume= 5,873 cf, Atten= 68%, Lag= 18.6 min
Discarded = 0.02 cfs @ 10.95 hrs, Volume= 3,487 cf
Primary = 0.58 cfs @ 12.38 hrs, Volume= 2,385 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 735.58' @ 12.38 hrs Surf.Area= 3,823 sf Storage= 2,950 cf

Plug-Flow detention time= 802.1 min calculated for 5,872 cf (95% of inflow)
Center-of-Mass det. time= 774.4 min (1,560.7 - 786.3)

Volume	Invert	Avail.Storage	Storage Description
#1	730.75'	4,561 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

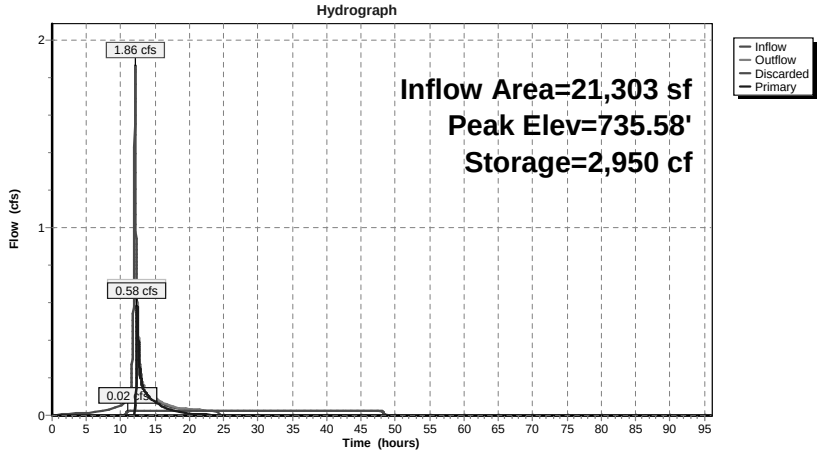
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
730.75	424	0.0	0	0	424
730.76	424	40.0	2	2	425
734.99	424	40.0	717	719	773
735.00	3,823	100.0	18	738	4,172
735.50	3,823	100.0	1,912	2,649	4,296
736.00	3,823	100.0	1,912	4,561	4,420

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	735.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 10.95 hrs HW=735.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.58 cfs @ 12.38 hrs HW=735.58' TW=726.32' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.58 cfs @ 0.92 fps)

Pond 7-Bio: 7_Bioretention



Hydrograph for Pond 7-Bio: 7_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.75	0.00	0.00	0.00
2.00	0.01	4	730.78	0.00	0.00	0.00
4.00	0.01	45	731.02	0.00	0.00	0.00
6.00	0.02	124	731.48	0.00	0.00	0.00
8.00	0.03	258	732.27	0.00	0.00	0.00
10.00	0.05	523	733.83	0.00	**0.00**	0.00
12.00	**1.19**	**1,687**	**735.25**	**0.02**	**0.02**	**0.00**
14.00	**0.11**	**2,742**	**735.52**	**0.12**	0.02	**0.10**
16.00	0.06	2,704	735.51	0.07	0.02	0.05
18.00	0.04	2,680	735.51	0.04	0.02	0.02
20.00	0.03	2,669	735.51	0.03	0.02	0.01
22.00	0.03	2,661	735.50	0.03	0.02	0.00
24.00	0.02	2,651	735.50	0.02	0.02	0.00
26.00	0.00	2,497	735.46	0.02	0.02	0.00
28.00	0.00	2,338	735.42	0.02	0.02	0.00
30.00	0.00	2,178	735.38	0.02	0.02	0.00
32.00	0.00	2,019	735.34	0.02	0.02	0.00
34.00	0.00	1,860	735.29	0.02	0.02	0.00
36.00	0.00	1,701	735.25	0.02	0.02	0.00
38.00	0.00	1,541	735.21	0.02	0.02	0.00
40.00	0.00	1,382	735.17	0.02	0.02	0.00
42.00	0.00	1,223	735.13	0.02	0.02	0.00
44.00	0.00	1,063	735.09	0.02	0.02	0.00
46.00	0.00	904	735.04	0.02	0.02	0.00
48.00	0.00	745	735.00	0.02	0.02	0.00
50.00	0.00	706	734.92	0.00	0.00	0.00
52.00	0.00	689	734.81	0.00	0.00	0.00
54.00	0.00	671	734.71	0.00	0.00	0.00
56.00	0.00	653	734.60	0.00	0.00	0.00
58.00	0.00	636	734.50	0.00	0.00	0.00
60.00	0.00	618	734.39	0.00	0.00	0.00
62.00	0.00	600	734.29	0.00	0.00	0.00
64.00	0.00	583	734.19	0.00	0.00	0.00
66.00	0.00	565	734.08	0.00	0.00	0.00
68.00	0.00	547	733.98	0.00	0.00	0.00
70.00	0.00	530	733.87	0.00	0.00	0.00
72.00	0.00	512	733.77	0.00	0.00	0.00
74.00	0.00	494	733.67	0.00	0.00	0.00
76.00	0.00	477	733.56	0.00	0.00	0.00
78.00	0.00	459	733.46	0.00	0.00	0.00
80.00	0.00	441	733.35	0.00	0.00	0.00
82.00	0.00	424	733.25	0.00	0.00	0.00
84.00	0.00	406	733.14	0.00	0.00	0.00
86.00	0.00	388	733.04	0.00	0.00	0.00
88.00	0.00	371	732.94	0.00	0.00	0.00
90.00	0.00	353	732.83	0.00	0.00	0.00
92.00	0.00	335	732.73	0.00	0.00	0.00
94.00	0.00	318	732.62	0.00	0.00	0.00
96.00	0.00	300	732.52	0.00	0.00	0.00

Summary for Subcatchment 8: DA8-8

Runoff = 2.70 cfs @ 12.07 hrs, Volume= 9,131 cf, Depth= 4.23"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

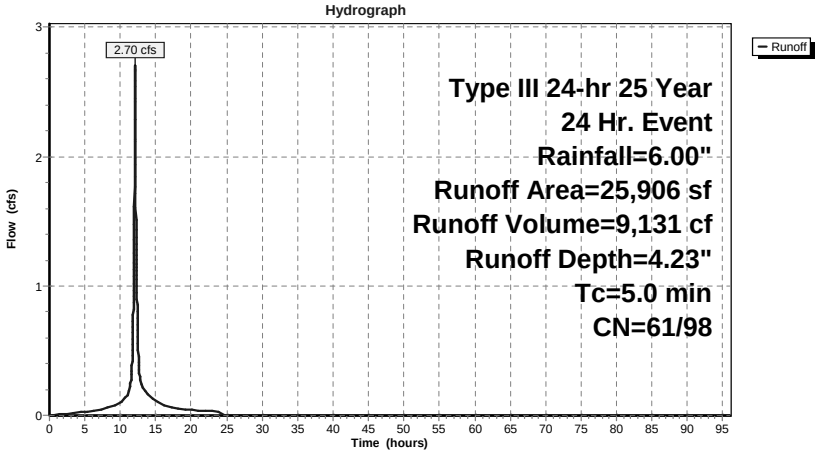
	Area (sf)	CN	Description	Land Use
	4,680	61	>75% Grass cover, Good, HSG B	Open Space
*	5,887	61	Bioretention, HSG B	Brush
	15,339	98	Paved parking, HSG B	Pavement
	25,906	83	Weighted Average	
	10,567	61	40.79% Pervious Area	
	15,339	98	59.21% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.21% Impervious, Rv= 0.583, Runoff= 26.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,887	Brush	30.19	0.00	0.00	1.00
4,680	Open Space	390.43	1.36	5.90	0.80
15,339	Pavement	367.74	1.19	4.46	14.24
25,906	Total	788.36	2.55	10.37	16.04

Subcatchment 8: DA8-8



Hydrograph for Subcatchment 8: DA8-8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.02
6.00	0.43	0.00	0.26	0.03
8.00	0.68	0.00	0.49	0.05
10.00	1.13	0.00	0.92	0.10
12.00	3.00	0.37	2.77	**1.77**
14.00	4.87	1.29	4.63	**0.15**
16.00	5.32	1.56	5.08	0.08
18.00	5.57	1.72	5.33	0.05
20.00	5.74	1.83	5.50	0.04
22.00	5.88	1.93	5.65	0.03
24.00	**6.00**	**2.01**	**5.76**	0.03
26.00	6.00	2.01	5.76	0.00
28.00	6.00	2.01	5.76	0.00
30.00	6.00	2.01	5.76	0.00
32.00	6.00	2.01	5.76	0.00
34.00	6.00	2.01	5.76	0.00
36.00	6.00	2.01	5.76	0.00
38.00	6.00	2.01	5.76	0.00
40.00	6.00	2.01	5.76	0.00
42.00	6.00	2.01	5.76	0.00
44.00	6.00	2.01	5.76	0.00
46.00	6.00	2.01	5.76	0.00
48.00	6.00	2.01	5.76	0.00
50.00	6.00	2.01	5.76	0.00
52.00	6.00	2.01	5.76	0.00
54.00	6.00	2.01	5.76	0.00
56.00	6.00	2.01	5.76	0.00
58.00	6.00	2.01	5.76	0.00
60.00	6.00	2.01	5.76	0.00
62.00	6.00	2.01	5.76	0.00
64.00	6.00	2.01	5.76	0.00
66.00	6.00	2.01	5.76	0.00
68.00	6.00	2.01	5.76	0.00
70.00	6.00	2.01	5.76	0.00
72.00	6.00	2.01	5.76	0.00
74.00	6.00	2.01	5.76	0.00
76.00	6.00	2.01	5.76	0.00
78.00	6.00	2.01	5.76	0.00
80.00	6.00	2.01	5.76	0.00
82.00	6.00	2.01	5.76	0.00
84.00	6.00	2.01	5.76	0.00
86.00	6.00	2.01	5.76	0.00
88.00	6.00	2.01	5.76	0.00
90.00	6.00	2.01	5.76	0.00
92.00	6.00	2.01	5.76	0.00
94.00	6.00	2.01	5.76	0.00
96.00	6.00	2.01	5.76	0.00

Summary for Pond 8-Bio: 8_Bioretention

Inflow Area = 25,906 sf, 59.21% Impervious, Inflow Depth = 4.23" for 25 Year, 24 Hr. Event event
Inflow = 2.70 cfs @ 12.07 hrs, Volume= 9,131 cf
Outflow = 0.77 cfs @ 12.41 hrs, Volume= 8,666 cf, Atten= 72%, Lag= 20.2 min
Discarded = 0.03 cfs @ 10.67 hrs, Volume= 5,526 cf
Primary = 0.73 cfs @ 12.41 hrs, Volume= 3,140 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 734.59' @ 12.41 hrs Surf.Area= 5,887 sf Storage= 4,750 cf

Plug-Flow detention time= 891.3 min calculated for 8,665 cf (95% of inflow)
Center-of-Mass det. time= 862.0 min (1,628.4 - 766.5)

Volume	Invert	Avail.Storage	Storage Description
#1	730.00'	7,151 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

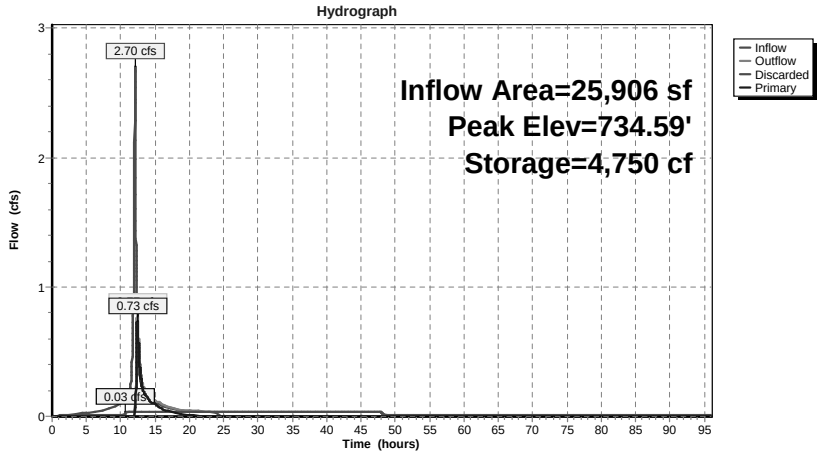
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
730.00	771	0.0	0	0
730.01	771	40.0	3	3
733.99	771	40.0	1,227	1,231
734.00	5,887	100.0	33	1,264
734.50	5,887	100.0	2,944	4,207
735.00	5,887	100.0	2,944	7,151

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	734.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 10.67 hrs HW=734.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.73 cfs @ 12.41 hrs HW=734.59' TW=726.33' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.73 cfs @ 0.99 fps)

Pond 8-Bio: 8_Bioretention



Hydrograph for Pond 8-Bio: 8_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.00	0.00	0.00	0.00
2.00	0.01	9	730.03	0.00	0.00	0.00
4.00	0.02	88	730.29	0.00	0.00	0.00
6.00	0.03	239	730.78	0.00	0.00	0.00
8.00	0.05	497	731.61	0.00	0.00	0.00
10.00	0.10	1,004	733.26	0.00	**0.00**	0.00
12.00	**1.77**	**2,895**	**734.28**	**0.03**	**0.03**	**0.00**
14.00	**0.15**	**4,383**	**734.53**	**0.17**	0.03	**0.13**
16.00	0.08	4,308	734.52	0.09	0.03	0.06
18.00	0.05	4,260	734.51	0.06	0.03	0.02
20.00	0.04	4,236	734.50	0.04	0.03	0.01
22.00	0.03	4,219	734.50	0.04	0.03	0.00
24.00	0.03	4,187	734.50	0.03	0.03	0.00
26.00	0.00	3,949	734.46	0.03	0.03	0.00
28.00	0.00	3,704	734.41	0.03	0.03	0.00
30.00	0.00	3,459	734.37	0.03	0.03	0.00
32.00	0.00	3,213	734.33	0.03	0.03	0.00
34.00	0.00	2,968	734.29	0.03	0.03	0.00
36.00	0.00	2,723	734.25	0.03	0.03	0.00
38.00	0.00	2,477	734.21	0.03	0.03	0.00
40.00	0.00	2,232	734.16	0.03	0.03	0.00
42.00	0.00	1,987	734.12	0.03	0.03	0.00
44.00	0.00	1,741	734.08	0.03	0.03	0.00
46.00	0.00	1,496	734.04	0.03	0.03	0.00
48.00	0.00	1,252	734.00	0.03	0.03	0.00
50.00	0.00	1,204	733.91	0.00	0.00	0.00
52.00	0.00	1,172	733.80	0.00	0.00	0.00
54.00	0.00	1,140	733.70	0.00	0.00	0.00
56.00	0.00	1,108	733.59	0.00	0.00	0.00
58.00	0.00	1,076	733.49	0.00	0.00	0.00
60.00	0.00	1,044	733.38	0.00	0.00	0.00
62.00	0.00	1,012	733.28	0.00	0.00	0.00
64.00	0.00	980	733.18	0.00	0.00	0.00
66.00	0.00	947	733.07	0.00	0.00	0.00
68.00	0.00	915	732.97	0.00	0.00	0.00
70.00	0.00	883	732.86	0.00	0.00	0.00
72.00	0.00	851	732.76	0.00	0.00	0.00
74.00	0.00	819	732.66	0.00	0.00	0.00
76.00	0.00	787	732.55	0.00	0.00	0.00
78.00	0.00	755	732.45	0.00	0.00	0.00
80.00	0.00	723	732.34	0.00	0.00	0.00
82.00	0.00	690	732.24	0.00	0.00	0.00
84.00	0.00	658	732.13	0.00	0.00	0.00
86.00	0.00	626	732.03	0.00	0.00	0.00
88.00	0.00	594	731.93	0.00	0.00	0.00
90.00	0.00	562	731.82	0.00	0.00	0.00
92.00	0.00	530	731.72	0.00	0.00	0.00
94.00	0.00	498	731.61	0.00	0.00	0.00
96.00	0.00	466	731.51	0.00	0.00	0.00

Summary for Reach 8BN: DA-8B- North Outflow

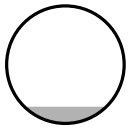
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach NP2 OUTLET depth by 0.02' @ 12.20 hrs

Inflow Area = 143,024 sf, 54.12% Impervious, Inflow Depth = 2.79" for 25 Year, 24 Hr. Event event
Inflow = 7.51 cfs @ 12.09 hrs, Volume= 33,254 cf
Outflow = 7.50 cfs @ 12.09 hrs, Volume= 33,254 cf, Atten= 0%, Lag= 0.1 min

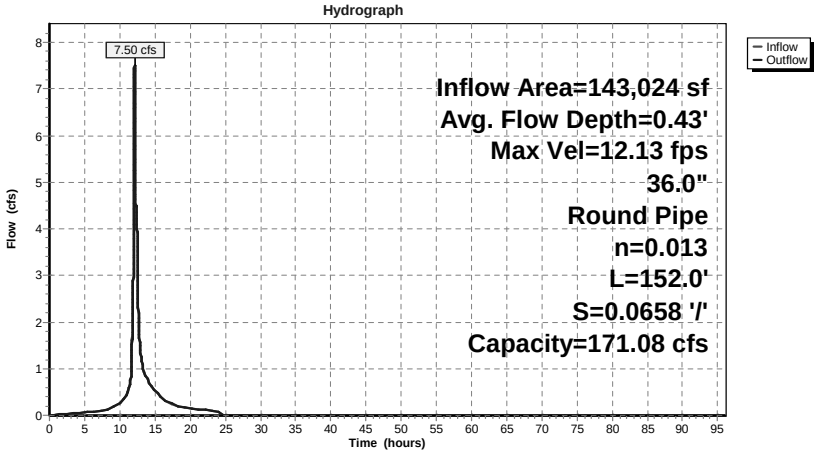
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 12.13 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.12 fps, Avg. Travel Time= 0.6 min

Peak Storage= 94 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 171.08 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 152.0' Slope= 0.0658 '/'
Inlet Invert= 700.00', Outlet Invert= 690.00'



Reach 8BN: DA-8B- North Outflow



Hydrograph for Reach 8BN: DA-8B- North Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	700.00	0.00
2.00	0.02	2	700.03	0.02
4.00	0.05	3	700.04	0.05
6.00	0.07	3	700.04	0.07
8.00	0.12	5	700.06	0.12
10.00	0.27	9	700.09	0.27
12.00	**4.54**	**65**	**700.33**	**4.43**
14.00	**0.74**	**19**	**700.14**	**0.74**
16.00	0.36	11	700.10	0.36
18.00	0.20	7	700.08	0.20
20.00	0.14	6	700.07	0.14
22.00	0.11	5	700.06	0.11
24.00	0.08	4	700.05	0.08
26.00	0.00	0	700.00	0.00
28.00	0.00	0	700.00	0.00
30.00	0.00	0	700.00	0.00
32.00	0.00	0	700.00	0.00
34.00	0.00	0	700.00	0.00
36.00	0.00	0	700.00	0.00
38.00	0.00	0	700.00	0.00
40.00	0.00	0	700.00	0.00
42.00	0.00	0	700.00	0.00
44.00	0.00	0	700.00	0.00
46.00	0.00	0	700.00	0.00
48.00	0.00	0	700.00	0.00
50.00	0.00	0	700.00	0.00
52.00	0.00	0	700.00	0.00
54.00	0.00	0	700.00	0.00
56.00	0.00	0	700.00	0.00
58.00	0.00	0	700.00	0.00
60.00	0.00	0	700.00	0.00
62.00	0.00	0	700.00	0.00
64.00	0.00	0	700.00	0.00
66.00	0.00	0	700.00	0.00
68.00	0.00	0	700.00	0.00
70.00	0.00	0	700.00	0.00
72.00	0.00	0	700.00	0.00
74.00	0.00	0	700.00	0.00
76.00	0.00	0	700.00	0.00
78.00	0.00	0	700.00	0.00
80.00	0.00	0	700.00	0.00
82.00	0.00	0	700.00	0.00
84.00	0.00	0	700.00	0.00
86.00	0.00	0	700.00	0.00
88.00	0.00	0	700.00	0.00
90.00	0.00	0	700.00	0.00
92.00	0.00	0	700.00	0.00
94.00	0.00	0	700.00	0.00
96.00	0.00	0	700.00	0.00

Summary for Subcatchment 9A: DA8-9A

Runoff = 5.67 cfs @ 12.07 hrs, Volume= 18,919 cf, Depth= 4.85"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

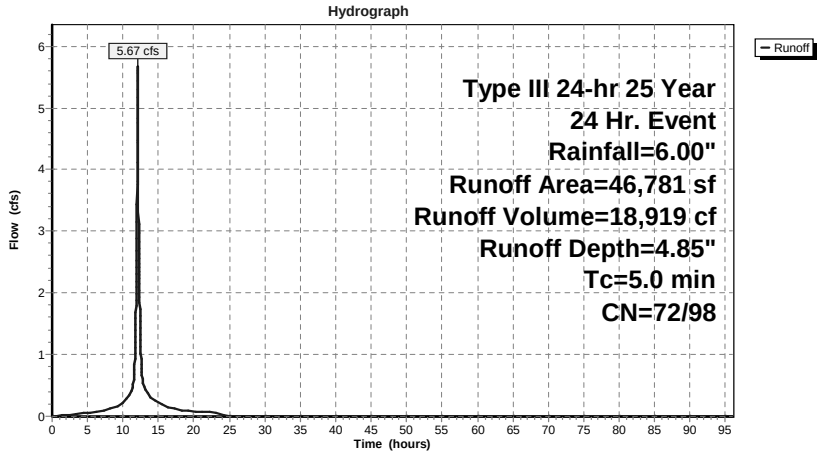
Area (sf)	CN	Description	Land Use
23,784	98	Paved parking, HSG C	Pavement
2,331	61	>75% Grass cover, Good, HSG B	Open Space
13,026	74	>75% Grass cover, Good, HSG C	Open Space
7,640	98	Unconnected roofs, HSG C	Roofs
46,781	89	Weighted Average	
15,357	72	32.83% Pervious Area	
31,424	98	67.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 67.17% Impervious, Rv= 0.655, Runoff= 29.91"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
15,357	Open Space	1,438.67	5.02	21.75	2.94
23,784	Pavement	640.31	2.07	7.77	24.80
7,640	Roofs	22.59	0.13	1.78	8.80
46,781	Total	2,101.57	7.22	31.30	36.54

Subcatchment 9A: DA8-9A



Hydrograph for Subcatchment 9A: DA8-9A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.02
4.00	0.26	0.00	0.11	0.04
6.00	0.43	0.00	0.26	0.06
8.00	0.68	0.00	0.49	0.11
10.00	1.13	0.03	0.92	0.22
12.00	3.00	0.81	2.77	**3.76**
14.00	4.87	2.10	4.63	**0.30**
16.00	5.32	2.44	5.08	0.16
18.00	5.57	2.64	5.33	0.10
20.00	5.74	2.78	5.50	0.08
22.00	5.88	2.90	5.65	0.07
24.00	**6.00**	**2.99**	**5.76**	0.05
26.00	6.00	2.99	5.76	0.00
28.00	6.00	2.99	5.76	0.00
30.00	6.00	2.99	5.76	0.00
32.00	6.00	2.99	5.76	0.00
34.00	6.00	2.99	5.76	0.00
36.00	6.00	2.99	5.76	0.00
38.00	6.00	2.99	5.76	0.00
40.00	6.00	2.99	5.76	0.00
42.00	6.00	2.99	5.76	0.00
44.00	6.00	2.99	5.76	0.00
46.00	6.00	2.99	5.76	0.00
48.00	6.00	2.99	5.76	0.00
50.00	6.00	2.99	5.76	0.00
52.00	6.00	2.99	5.76	0.00
54.00	6.00	2.99	5.76	0.00
56.00	6.00	2.99	5.76	0.00
58.00	6.00	2.99	5.76	0.00
60.00	6.00	2.99	5.76	0.00
62.00	6.00	2.99	5.76	0.00
64.00	6.00	2.99	5.76	0.00
66.00	6.00	2.99	5.76	0.00
68.00	6.00	2.99	5.76	0.00
70.00	6.00	2.99	5.76	0.00
72.00	6.00	2.99	5.76	0.00
74.00	6.00	2.99	5.76	0.00
76.00	6.00	2.99	5.76	0.00
78.00	6.00	2.99	5.76	0.00
80.00	6.00	2.99	5.76	0.00
82.00	6.00	2.99	5.76	0.00
84.00	6.00	2.99	5.76	0.00
86.00	6.00	2.99	5.76	0.00
88.00	6.00	2.99	5.76	0.00
90.00	6.00	2.99	5.76	0.00
92.00	6.00	2.99	5.76	0.00
94.00	6.00	2.99	5.76	0.00
96.00	6.00	2.99	5.76	0.00

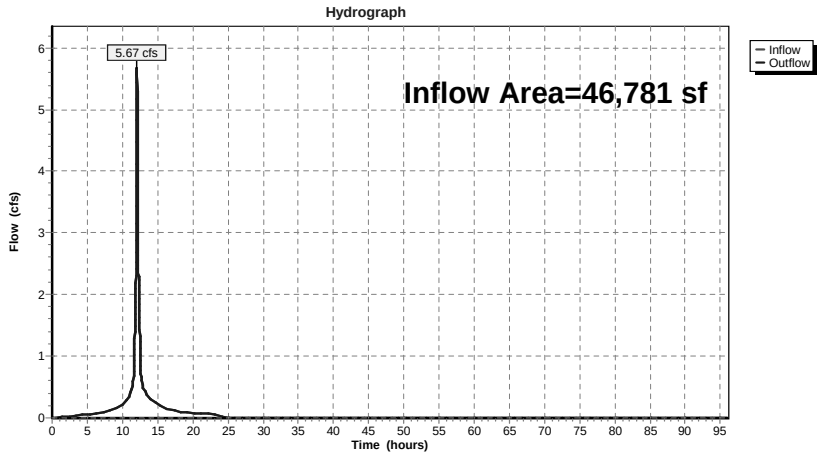
Summary for Reach 9A-USF: Underground Sand Filter

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 46,781 sf, 67.17% Impervious, Inflow Depth = 4.85" for 25 Year, 24 Hr. Event event
Inflow = 5.67 cfs @ 12.07 hrs, Volume= 18,919 cf
Outflow = 5.67 cfs @ 12.07 hrs, Volume= 18,919 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3

Reach 9A-USF: Underground Sand Filter



Hydrograph for Reach 9A-USF: Underground Sand Filter

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.01		0.01	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.03		0.03	55.00	0.00		0.00
4.00	0.04		0.04	56.00	0.00		0.00
5.00	0.05		0.05	57.00	0.00		0.00
6.00	0.06		0.06	58.00	0.00		0.00
7.00	0.08		0.08	59.00	0.00		0.00
8.00	0.11		0.11	60.00	0.00		0.00
9.00	0.16		0.16	61.00	0.00		0.00
10.00	0.22		0.22	62.00	0.00		0.00
11.00	0.35		0.35	63.00	0.00		0.00
12.00	**3.76**		**3.76**	64.00	0.00		0.00
13.00	**0.47**		**0.47**	65.00	0.00		0.00
14.00	0.30		0.30	66.00	0.00		0.00
15.00	0.23		0.23	67.00	0.00		0.00
16.00	0.16		0.16	68.00	0.00		0.00
17.00	0.13		0.13	69.00	0.00		0.00
18.00	0.10		0.10	70.00	0.00		0.00
19.00	0.09		0.09	71.00	0.00		0.00
20.00	0.08		0.08	72.00	0.00		0.00
21.00	0.07		0.07	73.00	0.00		0.00
22.00	0.07		0.07	74.00	0.00		0.00
23.00	0.06		0.06	75.00	0.00		0.00
24.00	0.05		0.05	76.00	0.00		0.00
25.00	0.00		0.00	77.00	0.00		0.00
26.00	0.00		0.00	78.00	0.00		0.00
27.00	0.00		0.00	79.00	0.00		0.00
28.00	0.00		0.00	80.00	0.00		0.00
29.00	0.00		0.00	81.00	0.00		0.00
30.00	0.00		0.00	82.00	0.00		0.00
31.00	0.00		0.00	83.00	0.00		0.00
32.00	0.00		0.00	84.00	0.00		0.00
33.00	0.00		0.00	85.00	0.00		0.00
34.00	0.00		0.00	86.00	0.00		0.00
35.00	0.00		0.00	87.00	0.00		0.00
36.00	0.00		0.00	88.00	0.00		0.00
37.00	0.00		0.00	89.00	0.00		0.00
38.00	0.00		0.00	90.00	0.00		0.00
39.00	0.00		0.00	91.00	0.00		0.00
40.00	0.00		0.00	92.00	0.00		0.00
41.00	0.00		0.00	93.00	0.00		0.00
42.00	0.00		0.00	94.00	0.00		0.00
43.00	0.00		0.00	95.00	0.00		0.00
44.00	0.00		0.00	96.00	0.00		0.00
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 9B: DA8-9B

Runoff = 1.22 cfs @ 12.07 hrs, Volume= 4,167 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

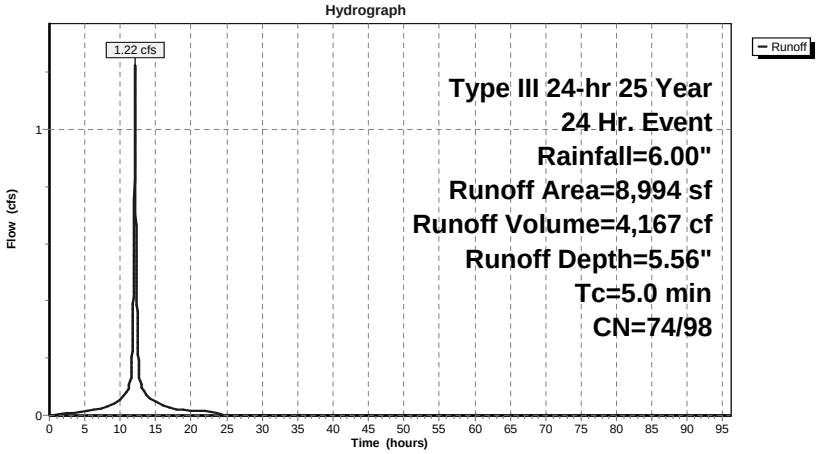
	Area (sf)	CN	Description	Land Use
	1,240	98	Paved parking, HSG C	Pavement
	704	74	>75% Grass cover, Good, HSG C	Open Space
*	225	98	Pavers, HSG B	Pavement
*	6,825	98	Pavers, HSG C	Pavement
	8,994	96	Weighted Average	
	704	74	7.83% Pervious Area	
	8,290	98	92.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 92.17% Impervious, Rv= 0.880, Runoff= 40.20"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
704	Open Space	88.62	0.31	1.34	0.18
8,290	Pavement	299.90	0.97	3.64	11.61
8,994	Total	388.52	1.28	4.98	11.80

Subcatchment 9B: DA8-9B



Hydrograph for Subcatchment 9B: DA8-9B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.02
8.00	0.68	0.00	0.49	0.03
10.00	1.13	0.05	0.92	0.05
12.00	3.00	0.91	2.77	**0.82**
14.00	4.87	2.26	4.63	**0.06**
16.00	5.32	2.62	5.08	0.03
18.00	5.57	2.83	5.33	0.02
20.00	5.74	2.97	5.50	0.02
22.00	5.88	3.09	5.65	0.01
24.00	**6.00**	**3.18**	**5.76**	0.01
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00
74.00	6.00	3.18	5.76	0.00
76.00	6.00	3.18	5.76	0.00
78.00	6.00	3.18	5.76	0.00
80.00	6.00	3.18	5.76	0.00
82.00	6.00	3.18	5.76	0.00
84.00	6.00	3.18	5.76	0.00
86.00	6.00	3.18	5.76	0.00
88.00	6.00	3.18	5.76	0.00
90.00	6.00	3.18	5.76	0.00
92.00	6.00	3.18	5.76	0.00
94.00	6.00	3.18	5.76	0.00
96.00	6.00	3.18	5.76	0.00

Summary for Pond 9B-P: 9B-Pavers

Inflow Area = 8,994 sf, 92.17% Impervious, Inflow Depth = 5.56" for 25 Year, 24 Hr. Event event
Inflow = 1.22 cfs @ 12.07 hrs, Volume= 4,167 cf
Outflow = 0.35 cfs @ 12.38 hrs, Volume= 4,168 cf, Atten= 71%, Lag= 18.8 min
Discarded = 0.04 cfs @ 9.87 hrs, Volume= 3,595 cf
Primary = 0.31 cfs @ 12.38 hrs, Volume= 573 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 729.92' @ 12.38 hrs Surf.Area= 7,048 sf Storage= 1,657 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 291.8 min (1,039.8 - 748.0)

Volume	Invert	Avail.Storage	Storage Description
#1	729.33'	1,889 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

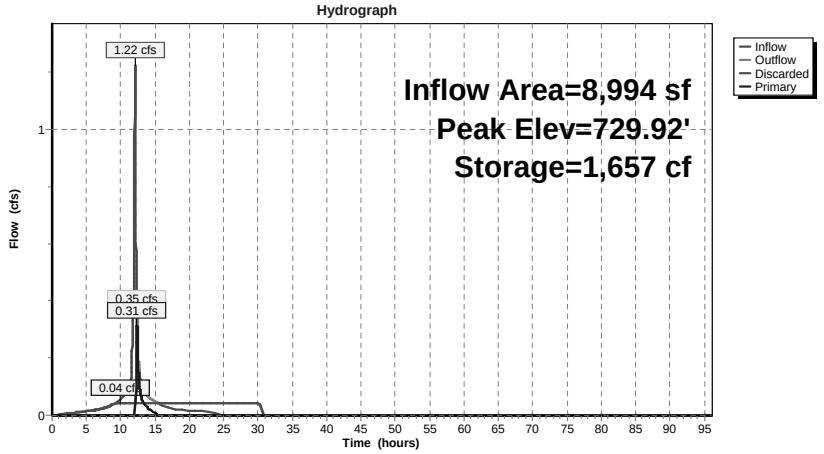
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
729.33	7,048	0.0	0	0
730.00	7,048	40.0	1,889	1,889

Device	Routing	Invert	Outlet Devices
#1	Primary	729.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	729.33'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.04 cfs @ 9.87 hrs HW=729.34' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.31 cfs @ 12.38 hrs HW=729.92' TW=720.35' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.31 cfs @ 0.36 fps)

Pond 9B-P: 9B-Pavers



Hydrograph for Pond 9B-P: 9B-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	729.33	0.00	0.00	0.00
2.00	0.01	0	729.33	0.01	0.01	0.00
4.00	0.01	0	729.33	0.01	0.01	0.00
6.00	0.02	0	729.33	0.02	0.02	0.00
8.00	0.03	0	729.33	0.03	**0.03**	0.00
10.00	0.05	25	729.34	0.04	**0.04**	0.00
12.00	**0.82**	**780**	**729.61**	**0.04**	0.04	**0.00**
14.00	**0.06**	**1,616**	**729.90**	**0.06**	0.04	**0.02**
16.00	0.03	1,600	729.90	0.04	0.04	0.00
18.00	0.02	1,496	729.86	0.04	0.04	0.00
20.00	0.02	1,332	729.80	0.04	0.04	0.00
22.00	0.01	1,145	729.74	0.04	0.04	0.00
24.00	0.01	937	729.66	0.04	0.04	0.00
26.00	0.00	646	729.56	0.04	0.04	0.00
28.00	0.00	353	729.46	0.04	0.04	0.00
30.00	0.00	59	729.35	0.04	0.04	0.00
32.00	0.00	0	729.33	0.00	0.00	0.00
34.00	0.00	0	729.33	0.00	0.00	0.00
36.00	0.00	0	729.33	0.00	0.00	0.00
38.00	0.00	0	729.33	0.00	0.00	0.00
40.00	0.00	0	729.33	0.00	0.00	0.00
42.00	0.00	0	729.33	0.00	0.00	0.00
44.00	0.00	0	729.33	0.00	0.00	0.00
46.00	0.00	0	729.33	0.00	0.00	0.00
48.00	0.00	0	729.33	0.00	0.00	0.00
50.00	0.00	0	729.33	0.00	0.00	0.00
52.00	0.00	0	729.33	0.00	0.00	0.00
54.00	0.00	0	729.33	0.00	0.00	0.00
56.00	0.00	0	729.33	0.00	0.00	0.00
58.00	0.00	0	729.33	0.00	0.00	0.00
60.00	0.00	0	729.33	0.00	0.00	0.00
62.00	0.00	0	729.33	0.00	0.00	0.00
64.00	0.00	0	729.33	0.00	0.00	0.00
66.00	0.00	0	729.33	0.00	0.00	0.00
68.00	0.00	0	729.33	0.00	0.00	0.00
70.00	0.00	0	729.33	0.00	0.00	0.00
72.00	0.00	0	729.33	0.00	0.00	0.00
74.00	0.00	0	729.33	0.00	0.00	0.00
76.00	0.00	0	729.33	0.00	0.00	0.00
78.00	0.00	0	729.33	0.00	0.00	0.00
80.00	0.00	0	729.33	0.00	0.00	0.00
82.00	0.00	0	729.33	0.00	0.00	0.00
84.00	0.00	0	729.33	0.00	0.00	0.00
86.00	0.00	0	729.33	0.00	0.00	0.00
88.00	0.00	0	729.33	0.00	0.00	0.00
90.00	0.00	0	729.33	0.00	0.00	0.00
92.00	0.00	0	729.33	0.00	0.00	0.00
94.00	0.00	0	729.33	0.00	0.00	0.00
96.00	0.00	0	729.33	0.00	0.00	0.00

Summary for Subcatchment 9C: DA8-9C

Runoff = 1.60 cfs @ 12.07 hrs, Volume= 5,462 cf, Depth= 5.50"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

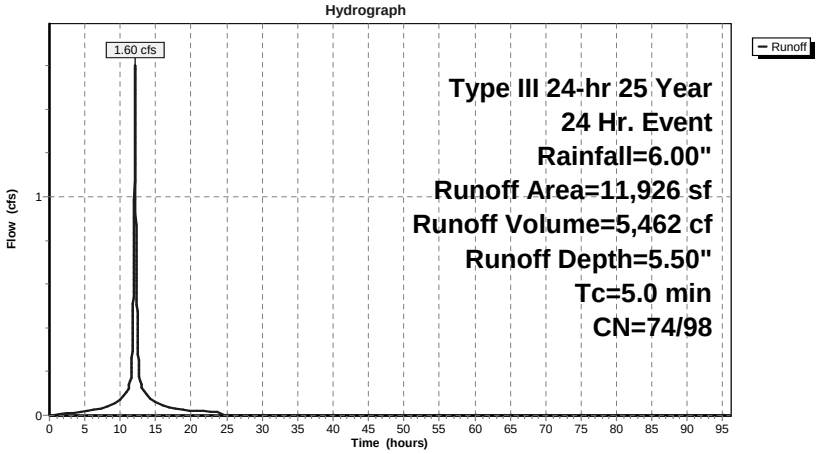
	Area (sf)	CN	Description	Land Use
	1,213	98	Paved parking, HSG C	Pavement
	1,231	74	>75% Grass cover, Good, HSG C	Open Space
	5,144	98	Roofs, HSG C	Roofs
*	4,338	98	Pavers, HSG C	Pavement
	11,926	96	Weighted Average	
	1,231	74	10.32% Pervious Area	
	10,695	98	89.68% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 89.68% Impervious, Rv= 0.857, Runoff= 39.17"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,231	Open Space	151.01	0.53	2.28	0.31
5,551	Pavement	195.69	0.63	2.38	7.58
5,144	Roofs	19.92	0.12	1.57	7.76
11,926	Total	366.61	1.28	6.23	15.64

Subcatchment 9C: DA8-9C



Hydrograph for Subcatchment 9C: DA8-9C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.02
8.00	0.68	0.00	0.49	0.04
10.00	1.13	0.05	0.92	0.07
12.00	3.00	0.91	2.77	**1.08**
14.00	4.87	2.26	4.63	**0.08**
16.00	5.32	2.62	5.08	0.04
18.00	5.57	2.83	5.33	0.03
20.00	5.74	2.97	5.50	0.02
22.00	5.88	3.09	5.65	0.02
24.00	**6.00**	**3.18**	**5.76**	0.01
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00
74.00	6.00	3.18	5.76	0.00
76.00	6.00	3.18	5.76	0.00
78.00	6.00	3.18	5.76	0.00
80.00	6.00	3.18	5.76	0.00
82.00	6.00	3.18	5.76	0.00
84.00	6.00	3.18	5.76	0.00
86.00	6.00	3.18	5.76	0.00
88.00	6.00	3.18	5.76	0.00
90.00	6.00	3.18	5.76	0.00
92.00	6.00	3.18	5.76	0.00
94.00	6.00	3.18	5.76	0.00
96.00	6.00	3.18	5.76	0.00

Summary for Pond 9C-P: 9C-Pavers

Inflow Area = 11,926 sf, 89.68% Impervious, Inflow Depth = 5.50" for 25 Year, 24 Hr. Event event
Inflow = 1.60 cfs @ 12.07 hrs, Volume= 5,462 cf
Outflow = 0.03 cfs @ 8.87 hrs, Volume= 5,462 cf, Atten= 98%, Lag= 0.0 min
Discarded = 0.03 cfs @ 8.87 hrs, Volume= 5,462 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 733.59' @ 18.44 hrs Surf.Area= 4,339 sf Storage= 3,731 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,277.1 min (2,026.3 - 749.2)

Volume	Invert	Avail.Storage	Storage Description
#1	732.33'	18,519 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

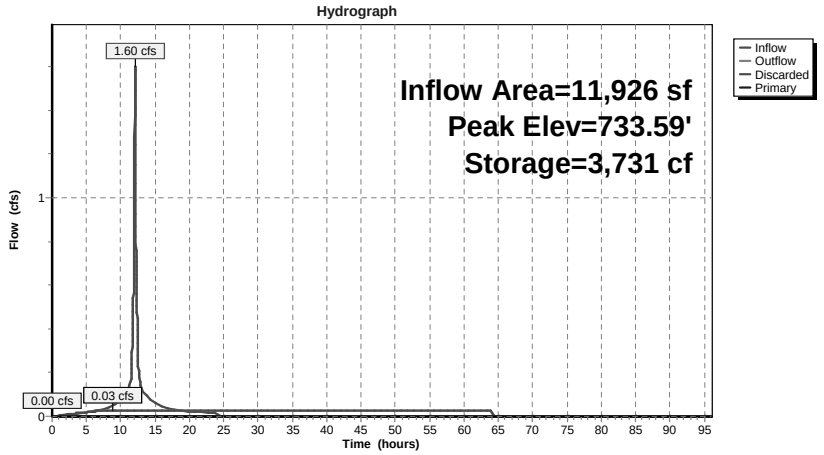
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
732.33	4,339	0.0	0	0
733.00	4,339	40.0	1,163	1,163
737.00	4,339	100.0	17,356	18,519

Device	Routing	Invert	Outlet Devices
#1	Primary	736.50'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	732.33'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 8.87 hrs HW=732.38' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=732.33' TW=720.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9C-P: 9C-Pavers



Hydrograph for Pond 9C-P: 9C-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	732.33	0.00	0.00	**0.00**
2.00	0.01	0	732.33	0.01	0.01	0.00
4.00	0.01	0	732.33	0.01	0.01	0.00
6.00	0.02	0	732.33	0.02	0.02	0.00
8.00	0.04	26	732.35	**0.03**	**0.03**	0.00
10.00	0.07	226	732.46	**0.03**	**0.03**	0.00
12.00	**1.08**	1,415	733.06	0.03	0.03	0.00
14.00	**0.08**	3,394	733.51	0.03	0.03	0.00
16.00	0.04	3,661	733.58	0.03	0.03	0.00
18.00	0.03	**3,730**	**733.59**	0.03	0.03	0.00
20.00	0.02	**3,721**	**733.59**	0.03	0.03	0.00
22.00	0.02	3,680	733.58	0.03	0.03	0.00
24.00	0.01	3,613	733.56	0.03	0.03	0.00
26.00	0.00	3,436	733.52	0.03	0.03	0.00
28.00	0.00	3,255	733.48	0.03	0.03	0.00
30.00	0.00	3,074	733.44	0.03	0.03	0.00
32.00	0.00	2,894	733.40	0.03	0.03	0.00
34.00	0.00	2,713	733.36	0.03	0.03	0.00
36.00	0.00	2,532	733.32	0.03	0.03	0.00
38.00	0.00	2,351	733.27	0.03	0.03	0.00
40.00	0.00	2,171	733.23	0.03	0.03	0.00
42.00	0.00	1,990	733.19	0.03	0.03	0.00
44.00	0.00	1,809	733.15	0.03	0.03	0.00
46.00	0.00	1,628	733.11	0.03	0.03	0.00
48.00	0.00	1,447	733.07	0.03	0.03	0.00
50.00	0.00	1,267	733.02	0.03	0.03	0.00
52.00	0.00	1,086	732.96	0.03	0.03	0.00
54.00	0.00	905	732.85	0.03	0.03	0.00
56.00	0.00	724	732.75	0.03	0.03	0.00
58.00	0.00	543	732.64	0.03	0.03	0.00
60.00	0.00	363	732.54	0.03	0.03	0.00
62.00	0.00	182	732.43	0.03	0.03	0.00
64.00	0.00	1	732.33	0.03	0.03	0.00
66.00	0.00	0	732.33	0.00	0.00	0.00
68.00	0.00	0	732.33	0.00	0.00	0.00
70.00	0.00	0	732.33	0.00	0.00	0.00
72.00	0.00	0	732.33	0.00	0.00	0.00
74.00	0.00	0	732.33	0.00	0.00	0.00
76.00	0.00	0	732.33	0.00	0.00	0.00
78.00	0.00	0	732.33	0.00	0.00	0.00
80.00	0.00	0	732.33	0.00	0.00	0.00
82.00	0.00	0	732.33	0.00	0.00	0.00
84.00	0.00	0	732.33	0.00	0.00	0.00
86.00	0.00	0	732.33	0.00	0.00	0.00
88.00	0.00	0	732.33	0.00	0.00	0.00
90.00	0.00	0	732.33	0.00	0.00	0.00
92.00	0.00	0	732.33	0.00	0.00	0.00
94.00	0.00	0	732.33	0.00	0.00	0.00
96.00	0.00	0	732.33	0.00	0.00	0.00

Summary for Subcatchment 13: DA8-13

Runoff = 2.23 cfs @ 12.15 hrs, Volume= 8,237 cf, Depth= 3.52"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

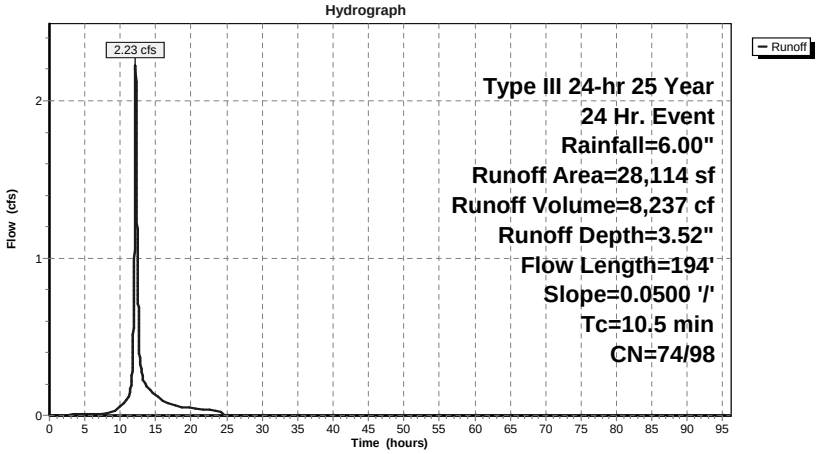
Area (sf)	CN	Description	Land Use
3,610	98	Unconnected pavement, HSG C	Pavement
24,504	74	>75% Grass cover, Good, HSG C	Open Space
28,114	77	Weighted Average	
24,504	74	87.16% Pervious Area	
3,610	98	12.84% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0500	0.18		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.0	94	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.5	194	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 12.84% Impervious, Rv= 0.166, Runoff= 7.57"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
24,504	Open Space	580.65	2.03	8.78	1.19
3,610	Pavement	24.58	0.08	0.30	0.95
28,114	Total	605.24	2.11	9.08	2.14

Subcatchment 13: DA8-13



Hydrograph for Subcatchment 13: DA8-13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.05	0.92	0.05
12.00	3.00	0.91	2.77	**1.05**
14.00	4.87	2.26	4.63	**0.17**
16.00	5.32	2.62	5.08	0.09
18.00	5.57	2.83	5.33	0.06
20.00	5.74	2.97	5.50	0.04
22.00	5.88	3.09	5.65	0.04
24.00	**6.00**	**3.18**	**5.76**	0.03
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00
74.00	6.00	3.18	5.76	0.00
76.00	6.00	3.18	5.76	0.00
78.00	6.00	3.18	5.76	0.00
80.00	6.00	3.18	5.76	0.00
82.00	6.00	3.18	5.76	0.00
84.00	6.00	3.18	5.76	0.00
86.00	6.00	3.18	5.76	0.00
88.00	6.00	3.18	5.76	0.00
90.00	6.00	3.18	5.76	0.00
92.00	6.00	3.18	5.76	0.00
94.00	6.00	3.18	5.76	0.00
96.00	6.00	3.18	5.76	0.00

Summary for Reach NP1: North Pipe -1

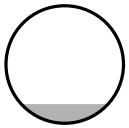
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 47,209 sf, 49.54% Impervious, Inflow Depth = 1.40" for 25 Year, 24 Hr. Event event
Inflow = 1.31 cfs @ 12.40 hrs, Volume= 5,525 cf
Outflow = 1.30 cfs @ 12.42 hrs, Volume= 5,525 cf, Atten= 1%, Lag= 1.3 min

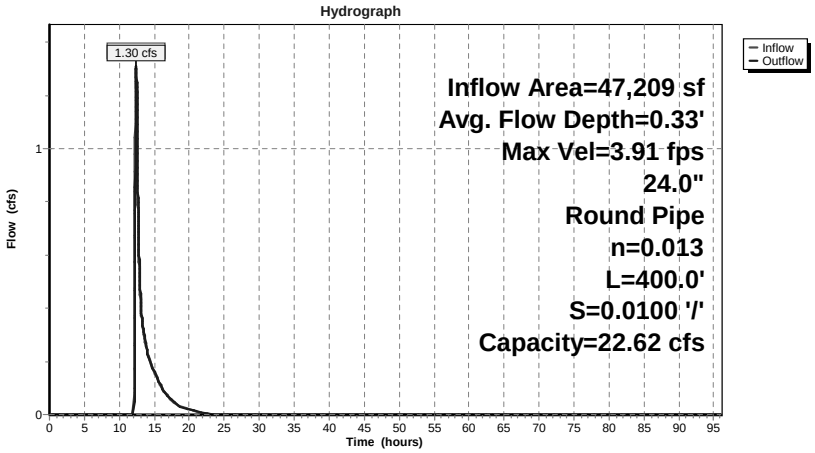
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 3.91 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.53 fps, Avg. Travel Time= 4.3 min

Peak Storage= 133 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 400.0' Slope= 0.0100 '/'
Inlet Invert= 726.00', Outlet Invert= 722.00'



Reach NP1: North Pipe -1



Hydrograph for Reach NP1: North Pipe -1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	726.00	0.00
2.00	0.00	0	726.00	0.00
4.00	0.00	0	726.00	0.00
6.00	0.00	0	726.00	0.00
8.00	0.00	0	726.00	0.00
10.00	0.00	0	726.00	0.00
12.00	**0.00**	**0**	**726.00**	**0.00**
14.00	**0.23**	**41**	**726.14**	**0.24**
16.00	0.10	23	726.10	0.11
18.00	0.04	12	726.06	0.04
20.00	0.02	7	726.04	0.02
22.00	0.01	3	726.03	0.01
24.00	0.00	0	726.00	0.00
26.00	0.00	0	726.00	0.00
28.00	0.00	0	726.00	0.00
30.00	0.00	0	726.00	0.00
32.00	0.00	0	726.00	0.00
34.00	0.00	0	726.00	0.00
36.00	0.00	0	726.00	0.00
38.00	0.00	0	726.00	0.00
40.00	0.00	0	726.00	0.00
42.00	0.00	0	726.00	0.00
44.00	0.00	0	726.00	0.00
46.00	0.00	0	726.00	0.00
48.00	0.00	0	726.00	0.00
50.00	0.00	0	726.00	0.00
52.00	0.00	0	726.00	0.00
54.00	0.00	0	726.00	0.00
56.00	0.00	0	726.00	0.00
58.00	0.00	0	726.00	0.00
60.00	0.00	0	726.00	0.00
62.00	0.00	0	726.00	0.00
64.00	0.00	0	726.00	0.00
66.00	0.00	0	726.00	0.00
68.00	0.00	0	726.00	0.00
70.00	0.00	0	726.00	0.00
72.00	0.00	0	726.00	0.00
74.00	0.00	0	726.00	0.00
76.00	0.00	0	726.00	0.00
78.00	0.00	0	726.00	0.00
80.00	0.00	0	726.00	0.00
82.00	0.00	0	726.00	0.00
84.00	0.00	0	726.00	0.00
86.00	0.00	0	726.00	0.00
88.00	0.00	0	726.00	0.00
90.00	0.00	0	726.00	0.00
92.00	0.00	0	726.00	0.00
94.00	0.00	0	726.00	0.00
96.00	0.00	0	726.00	0.00

Summary for Reach NP2: North Pipe -2

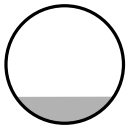
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 114,910 sf, 64.22% Impervious, Inflow Depth = 2.61" for 25 Year, 24 Hr. Event event
Inflow = 5.67 cfs @ 12.07 hrs, Volume= 25,017 cf
Outflow = 5.64 cfs @ 12.08 hrs, Volume= 25,017 cf, Atten= 1%, Lag= 0.5 min

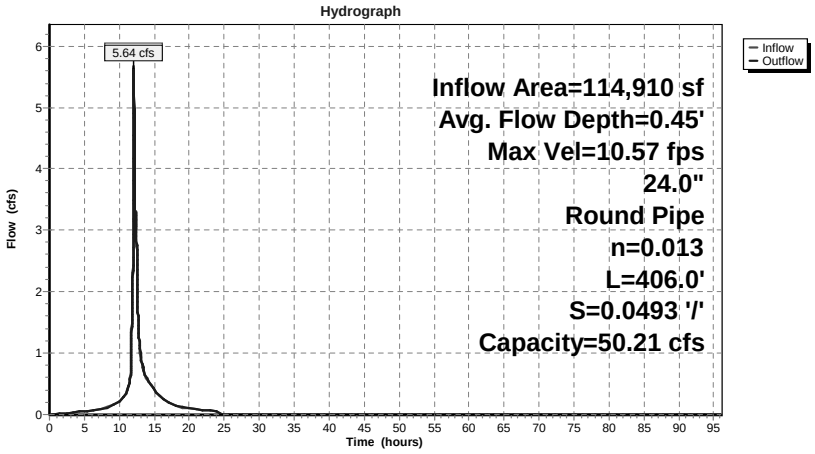
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 10.57 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 3.60 fps, Avg. Travel Time= 1.9 min

Peak Storage= 217 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.45'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 50.21 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 406.0' Slope= 0.0493 '/'
Inlet Invert= 720.00', Outlet Invert= 700.00'



Reach NP2: North Pipe -2



Hydrograph for Reach NP2: North Pipe -2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	720.00	0.00
2.00	0.02	4	720.03	0.02
4.00	0.04	7	720.04	0.04
6.00	0.06	9	720.05	0.06
8.00	0.11	13	720.07	0.10
10.00	0.22	22	720.10	0.22
12.00	**3.76**	**154**	**720.36**	**3.48**
14.00	**0.57**	**43**	**720.15**	**0.57**
16.00	0.27	26	720.11	0.27
18.00	0.14	17	720.08	0.14
20.00	0.10	13	720.07	0.10
22.00	0.07	10	720.06	0.07
24.00	0.05	8	720.05	0.05
26.00	0.00	0	720.00	0.00
28.00	0.00	0	720.00	0.00
30.00	0.00	0	720.00	0.00
32.00	0.00	0	720.00	0.00
34.00	0.00	0	720.00	0.00
36.00	0.00	0	720.00	0.00
38.00	0.00	0	720.00	0.00
40.00	0.00	0	720.00	0.00
42.00	0.00	0	720.00	0.00
44.00	0.00	0	720.00	0.00
46.00	0.00	0	720.00	0.00
48.00	0.00	0	720.00	0.00
50.00	0.00	0	720.00	0.00
52.00	0.00	0	720.00	0.00
54.00	0.00	0	720.00	0.00
56.00	0.00	0	720.00	0.00
58.00	0.00	0	720.00	0.00
60.00	0.00	0	720.00	0.00
62.00	0.00	0	720.00	0.00
64.00	0.00	0	720.00	0.00
66.00	0.00	0	720.00	0.00
68.00	0.00	0	720.00	0.00
70.00	0.00	0	720.00	0.00
72.00	0.00	0	720.00	0.00
74.00	0.00	0	720.00	0.00
76.00	0.00	0	720.00	0.00
78.00	0.00	0	720.00	0.00
80.00	0.00	0	720.00	0.00
82.00	0.00	0	720.00	0.00
84.00	0.00	0	720.00	0.00
86.00	0.00	0	720.00	0.00
88.00	0.00	0	720.00	0.00
90.00	0.00	0	720.00	0.00
92.00	0.00	0	720.00	0.00
94.00	0.00	0	720.00	0.00
96.00	0.00	0	720.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 7: DA8-7 Runoff Area=21,303 sf 37.77% Impervious Runoff Depth=6.46"
Tc=5.0 min CN=62/98 Runoff=3.54 cfs 11,460 cf

Pond 7-Bio: 7_Bioretention Peak Elev=735.73' Storage=3,537 cf Inflow=3.54 cfs 11,460 cf
Discarded=0.02 cfs 3,633 cf Primary=2.93 cfs 7,524 cf Outflow=2.95 cfs 11,157 cf

Subcatchment 8: DA8-8 Runoff Area=25,906 sf 59.21% Impervious Runoff Depth=7.37"
Tc=5.0 min CN=61/98 Runoff=4.76 cfs 15,908 cf

Pond 8-Bio: 8_Bioretention Peak Elev=734.76' Storage=5,755 cf Inflow=4.76 cfs 15,908 cf
Discarded=0.03 cfs 5,772 cf Primary=3.53 cfs 9,663 cf Outflow=3.56 cfs 15,436 cf

Reach 8BN: DA-8B- North Outflow Avg. Flow Depth=0.70' Max Vel=16.28 fps Inflow=20.35 cfs 67,377 cf
36.0" Round Pipe n=0.013 L=152.0' S=0.0658 '/' Capacity=171.08 cfs Outflow=20.35 cfs 67,377 cf

Subcatchment 9A: DA8-9A Runoff Area=46,781 sf 67.17% Impervious Runoff Depth=8.20"
Tc=5.0 min CN=72/98 Runoff=9.55 cfs 31,967 cf

Reach 9A-USF: Underground Sand Filter Inflow=9.55 cfs 31,967 cf
Outflow=9.55 cfs 31,967 cf

Subcatchment 9B: DA8-9B Runoff Area=8,994 sf 92.17% Impervious Runoff Depth=9.03"
Tc=5.0 min CN=74/98 Runoff=1.96 cfs 6,766 cf

Pond 9B-P: 9B-Pavers Peak Elev=729.96' Storage=1,770 cf Inflow=1.96 cfs 6,766 cf
Discarded=0.04 cfs 4,167 cf Primary=1.86 cfs 2,599 cf Outflow=1.90 cfs 6,766 cf

Subcatchment 9C: DA8-9C Runoff Area=11,926 sf 89.68% Impervious Runoff Depth=8.95"
Tc=5.0 min CN=74/98 Runoff=2.59 cfs 8,897 cf

Pond 9C-P: 9C-Pavers Peak Elev=734.32' Storage=6,885 cf Inflow=2.59 cfs 8,897 cf
Discarded=0.03 cfs 8,520 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 8,520 cf

Subcatchment 13: DA8-13 Runoff Area=28,114 sf 12.84% Impervious Runoff Depth=6.67"
Flow Length=194' Slope=0.0500 '/' Tc=10.5 min CN=74/98 Runoff=4.21 cfs 15,623 cf

Reach NP1: North Pipe -1 Avg. Flow Depth=0.73' Max Vel=6.19 fps Inflow=6.44 cfs 17,188 cf
24.0" Round Pipe n=0.013 L=400.0' S=0.0100 '/' Capacity=22.62 cfs Outflow=6.38 cfs 17,188 cf

Reach NP2: North Pipe -2 Avg. Flow Depth=0.79' Max Vel=14.31 fps Inflow=16.48 cfs 51,754 cf
24.0" Round Pipe n=0.013 L=406.0' S=0.0493 '/' Capacity=50.21 cfs Outflow=16.44 cfs 51,754 cf

Total Runoff Area = 143,024 sf Runoff Volume = 90,621 cf Average Runoff Depth = 7.60"
45.88% Pervious = 65,620 sf 54.12% Impervious = 77,404 sf

Summary for Subcatchment 7: DA8-7

Runoff = 3.54 cfs @ 12.07 hrs, Volume= 11,460 cf, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

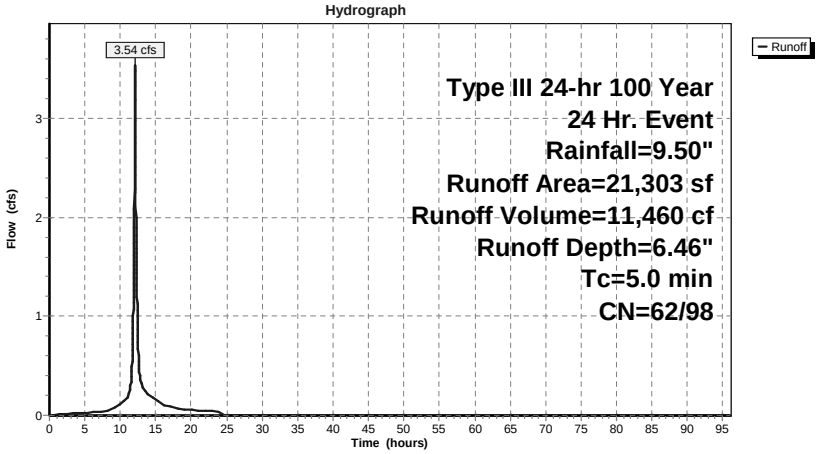
	Area (sf)	CN	Description	Land Use
	8,046	98	Paved parking, HSG B	Pavement
	9,082	61	>75% Grass cover, Good, HSG B	Open Space
	641	74	>75% Grass cover, Good, HSG C	Open Space
*	3,301	61	Bioretention, HSG B	Brush
*	233	74	Bioretention, HSG C	Brush
	21,303	76	Weighted Average	
	13,257	62	62.23% Pervious Area	
	8,046	98	37.77% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 37.77% Impervious, Rv= 0.390, Runoff= 17.82"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,534	Brush	12.12	0.00	0.00	0.40
9,723	Open Space	542.61	1.89	8.20	1.11
8,046	Pavement	129.04	0.42	1.57	5.00
21,303	Total	683.77	2.31	9.77	6.51

Subcatchment 7: DA8-7



Hydrograph for Subcatchment 7: DA8-7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.02
6.00	0.68	0.00	0.49	0.03
8.00	1.08	0.00	0.87	0.04
10.00	1.80	0.05	1.57	0.11
12.00	4.75	1.29	4.51	**2.29**
14.00	7.70	3.33	7.46	**0.20**
16.00	8.42	3.88	8.18	0.11
18.00	8.82	4.20	8.58	0.07
20.00	9.09	4.42	8.85	0.05
22.00	9.32	4.60	9.08	0.04
24.00	**9.50**	**4.75**	**9.26**	0.04
26.00	9.50	4.75	9.26	0.00
28.00	9.50	4.75	9.26	0.00
30.00	9.50	4.75	9.26	0.00
32.00	9.50	4.75	9.26	0.00
34.00	9.50	4.75	9.26	0.00
36.00	9.50	4.75	9.26	0.00
38.00	9.50	4.75	9.26	0.00
40.00	9.50	4.75	9.26	0.00
42.00	9.50	4.75	9.26	0.00
44.00	9.50	4.75	9.26	0.00
46.00	9.50	4.75	9.26	0.00
48.00	9.50	4.75	9.26	0.00
50.00	9.50	4.75	9.26	0.00
52.00	9.50	4.75	9.26	0.00
54.00	9.50	4.75	9.26	0.00
56.00	9.50	4.75	9.26	0.00
58.00	9.50	4.75	9.26	0.00
60.00	9.50	4.75	9.26	0.00
62.00	9.50	4.75	9.26	0.00
64.00	9.50	4.75	9.26	0.00
66.00	9.50	4.75	9.26	0.00
68.00	9.50	4.75	9.26	0.00
70.00	9.50	4.75	9.26	0.00
72.00	9.50	4.75	9.26	0.00
74.00	9.50	4.75	9.26	0.00
76.00	9.50	4.75	9.26	0.00
78.00	9.50	4.75	9.26	0.00
80.00	9.50	4.75	9.26	0.00
82.00	9.50	4.75	9.26	0.00
84.00	9.50	4.75	9.26	0.00
86.00	9.50	4.75	9.26	0.00
88.00	9.50	4.75	9.26	0.00
90.00	9.50	4.75	9.26	0.00
92.00	9.50	4.75	9.26	0.00
94.00	9.50	4.75	9.26	0.00
96.00	9.50	4.75	9.26	0.00

Summary for Pond 7-Bio: 7_Bioretention

Inflow Area = 21,303 sf, 37.77% Impervious, Inflow Depth = 6.46" for 100 Year, 24 Hr. Event event
Inflow = 3.54 cfs @ 12.07 hrs, Volume= 11,460 cf
Outflow = 2.95 cfs @ 12.12 hrs, Volume= 11,157 cf, Atten= 17%, Lag= 3.0 min
Discarded = 0.02 cfs @ 9.20 hrs, Volume= 3,633 cf
Primary = 2.93 cfs @ 12.12 hrs, Volume= 7,524 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 735.73' @ 12.12 hrs Surf.Area= 3,823 sf Storage= 3,537 cf

Plug-Flow detention time= 444.7 min calculated for 11,157 cf (97% of inflow)
Center-of-Mass det. time= 428.5 min (1,209.9 - 781.4)

Volume	Invert	Avail.Storage	Storage Description
#1	730.75'	4,561 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

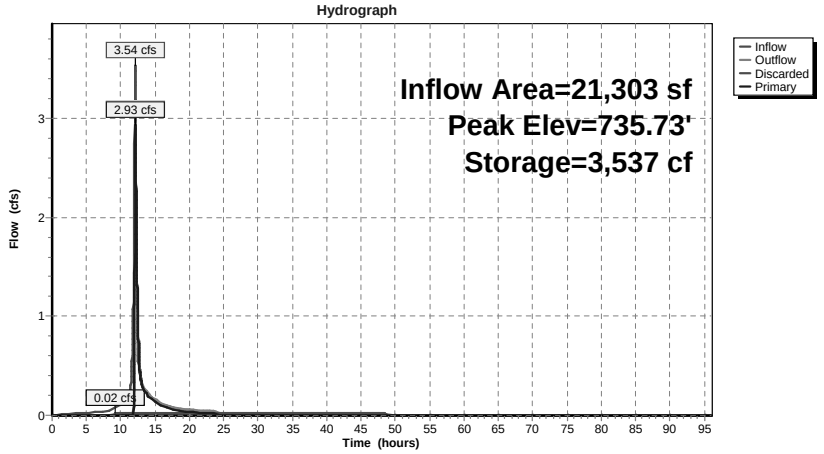
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
730.75	424	0.0	0	0	424
730.76	424	40.0	2	2	425
734.99	424	40.0	717	719	773
735.00	3,823	100.0	18	738	4,172
735.50	3,823	100.0	1,912	2,649	4,296
736.00	3,823	100.0	1,912	4,561	4,420

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	735.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 9.20 hrs HW=735.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=2.93 cfs @ 12.12 hrs HW=735.73' TW=726.72' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 2.93 cfs @ 1.58 fps)

Pond 7-Bio: 7_Bioretention



Hydrograph for Pond 7-Bio: 7_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.75	0.00	0.00	0.00
2.00	0.01	26	730.91	0.00	0.00	0.00
4.00	0.02	123	731.47	0.00	0.00	0.00
6.00	0.03	272	732.35	0.00	0.00	0.00
8.00	0.04	507	733.74	0.00	**0.00**	0.00
10.00	0.11	934	735.05	0.02	**0.02**	0.00
12.00	**2.29**	**3,115**	**735.62**	**1.13**	0.02	**1.11**
14.00	**0.20**	**2,794**	**735.54**	**0.22**	0.02	**0.19**
16.00	0.11	2,739	735.52	0.12	0.02	0.10
18.00	0.07	2,707	735.52	0.07	0.02	0.05
20.00	0.05	2,694	735.51	0.06	0.02	0.03
22.00	0.04	2,685	735.51	0.05	0.02	0.02
24.00	0.04	2,675	735.51	0.04	0.02	0.02
26.00	0.00	2,517	735.47	0.02	0.02	0.00
28.00	0.00	2,358	735.42	0.02	0.02	0.00
30.00	0.00	2,198	735.38	0.02	0.02	0.00
32.00	0.00	2,039	735.34	0.02	0.02	0.00
34.00	0.00	1,880	735.30	0.02	0.02	0.00
36.00	0.00	1,721	735.26	0.02	0.02	0.00
38.00	0.00	1,561	735.22	0.02	0.02	0.00
40.00	0.00	1,402	735.17	0.02	0.02	0.00
42.00	0.00	1,243	735.13	0.02	0.02	0.00
44.00	0.00	1,083	735.09	0.02	0.02	0.00
46.00	0.00	924	735.05	0.02	0.02	0.00
48.00	0.00	765	735.01	0.02	0.02	0.00
50.00	0.00	709	734.93	0.00	0.00	0.00
52.00	0.00	691	734.82	0.00	0.00	0.00
54.00	0.00	673	734.72	0.00	0.00	0.00
56.00	0.00	656	734.62	0.00	0.00	0.00
58.00	0.00	638	734.51	0.00	0.00	0.00
60.00	0.00	620	734.41	0.00	0.00	0.00
62.00	0.00	603	734.30	0.00	0.00	0.00
64.00	0.00	585	734.20	0.00	0.00	0.00
66.00	0.00	567	734.10	0.00	0.00	0.00
68.00	0.00	550	733.99	0.00	0.00	0.00
70.00	0.00	532	733.89	0.00	0.00	0.00
72.00	0.00	514	733.78	0.00	0.00	0.00
74.00	0.00	497	733.68	0.00	0.00	0.00
76.00	0.00	479	733.57	0.00	0.00	0.00
78.00	0.00	461	733.47	0.00	0.00	0.00
80.00	0.00	444	733.37	0.00	0.00	0.00
82.00	0.00	426	733.26	0.00	0.00	0.00
84.00	0.00	408	733.16	0.00	0.00	0.00
86.00	0.00	391	733.05	0.00	0.00	0.00
88.00	0.00	373	732.95	0.00	0.00	0.00
90.00	0.00	355	732.85	0.00	0.00	0.00
92.00	0.00	338	732.74	0.00	0.00	0.00
94.00	0.00	320	732.64	0.00	0.00	0.00
96.00	0.00	302	732.53	0.00	0.00	0.00

Summary for Subcatchment 8: DA8-8

Runoff = 4.76 cfs @ 12.07 hrs, Volume= 15,908 cf, Depth= 7.37"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

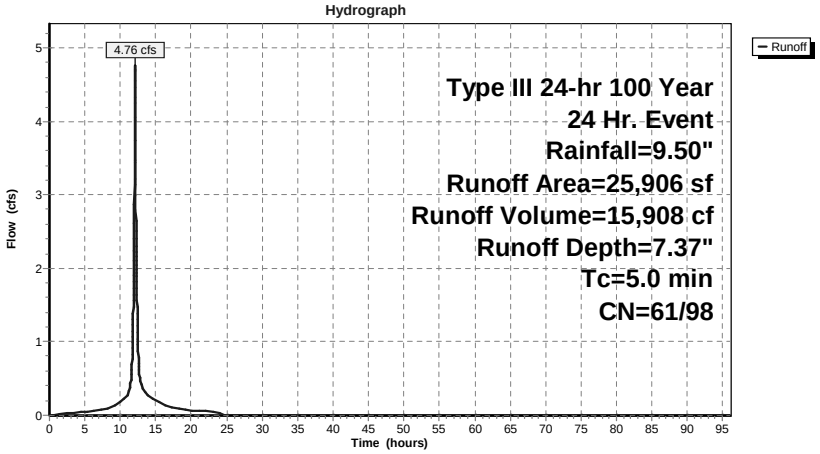
	Area (sf)	CN	Description	Land Use
	4,680	61	>75% Grass cover, Good, HSG B	Open Space
*	5,887	61	Bioretention, HSG B	Brush
	15,339	98	Paved parking, HSG B	Pavement
	25,906	83	Weighted Average	
	10,567	61	40.79% Pervious Area	
	15,339	98	59.21% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.21% Impervious, Rv= 0.583, Runoff= 26.64"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,887	Brush	30.19	0.00	0.00	1.00
4,680	Open Space	390.43	1.36	5.90	0.80
15,339	Pavement	367.74	1.19	4.46	14.24
25,906	Total	788.36	2.55	10.37	16.04

Subcatchment 8: DA8-8



Hydrograph for Subcatchment 8: DA8-8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.02
4.00	0.41	0.00	0.24	0.04
6.00	0.68	0.00	0.49	0.05
8.00	1.08	0.00	0.87	0.08
10.00	1.80	0.04	1.57	0.18
12.00	4.75	1.22	4.51	**3.14**
14.00	7.70	3.22	7.46	**0.26**
16.00	8.42	3.77	8.18	0.14
18.00	8.82	4.08	8.58	0.09
20.00	9.09	4.30	8.85	0.07
22.00	9.32	4.48	9.08	0.06
24.00	**9.50**	**4.62**	**9.26**	0.05
26.00	9.50	4.62	9.26	0.00
28.00	9.50	4.62	9.26	0.00
30.00	9.50	4.62	9.26	0.00
32.00	9.50	4.62	9.26	0.00
34.00	9.50	4.62	9.26	0.00
36.00	9.50	4.62	9.26	0.00
38.00	9.50	4.62	9.26	0.00
40.00	9.50	4.62	9.26	0.00
42.00	9.50	4.62	9.26	0.00
44.00	9.50	4.62	9.26	0.00
46.00	9.50	4.62	9.26	0.00
48.00	9.50	4.62	9.26	0.00
50.00	9.50	4.62	9.26	0.00
52.00	9.50	4.62	9.26	0.00
54.00	9.50	4.62	9.26	0.00
56.00	9.50	4.62	9.26	0.00
58.00	9.50	4.62	9.26	0.00
60.00	9.50	4.62	9.26	0.00
62.00	9.50	4.62	9.26	0.00
64.00	9.50	4.62	9.26	0.00
66.00	9.50	4.62	9.26	0.00
68.00	9.50	4.62	9.26	0.00
70.00	9.50	4.62	9.26	0.00
72.00	9.50	4.62	9.26	0.00
74.00	9.50	4.62	9.26	0.00
76.00	9.50	4.62	9.26	0.00
78.00	9.50	4.62	9.26	0.00
80.00	9.50	4.62	9.26	0.00
82.00	9.50	4.62	9.26	0.00
84.00	9.50	4.62	9.26	0.00
86.00	9.50	4.62	9.26	0.00
88.00	9.50	4.62	9.26	0.00
90.00	9.50	4.62	9.26	0.00
92.00	9.50	4.62	9.26	0.00
94.00	9.50	4.62	9.26	0.00
96.00	9.50	4.62	9.26	0.00

Summary for Pond 8-Bio: 8_Bioretention

Inflow Area = 25,906 sf, 59.21% Impervious, Inflow Depth = 7.37" for 100 Year, 24 Hr. Event event
Inflow = 4.76 cfs @ 12.07 hrs, Volume= 15,908 cf
Outflow = 3.56 cfs @ 12.14 hrs, Volume= 15,436 cf, Atten= 25%, Lag= 3.9 min
Discarded = 0.03 cfs @ 8.88 hrs, Volume= 5,772 cf
Primary = 3.53 cfs @ 12.14 hrs, Volume= 9,663 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 734.76' @ 12.14 hrs Surf.Area= 5,887 sf Storage= 5,755 cf

Plug-Flow detention time= 530.1 min calculated for 15,436 cf (97% of inflow)
Center-of-Mass det. time= 511.7 min (1,274.5 - 762.9)

Volume	Invert	Avail.Storage	Storage Description
#1	730.00'	7,151 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

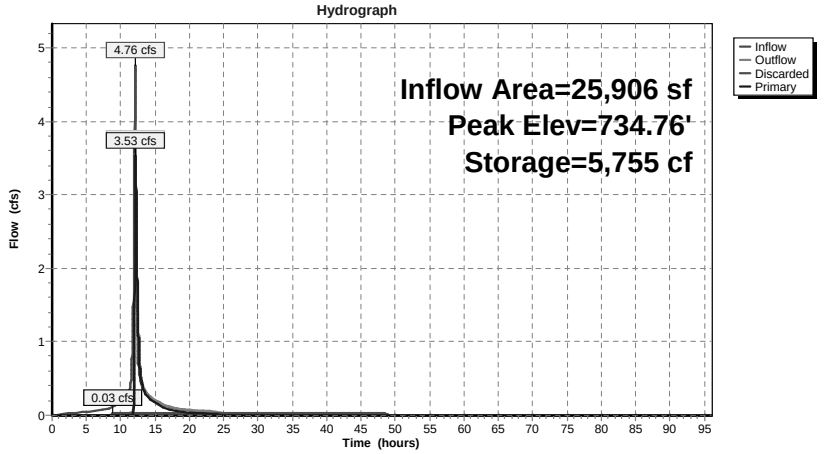
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
730.00	771	0.0	0	0
730.01	771	40.0	3	3
733.99	771	40.0	1,227	1,231
734.00	5,887	100.0	33	1,264
734.50	5,887	100.0	2,944	4,207
735.00	5,887	100.0	2,944	7,151

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	734.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 8.88 hrs HW=734.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=3.52 cfs @ 12.14 hrs HW=734.76' TW=726.73' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 3.52 cfs @ 1.68 fps)

Pond 8-Bio: 8_Bioretention



Hydrograph for Pond 8-Bio: 8_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.00	0.00	0.00	0.00
2.00	0.02	52	730.17	0.00	0.00	0.00
4.00	0.04	237	730.77	0.00	0.00	0.00
6.00	0.05	523	731.70	0.00	0.00	0.00
8.00	0.08	971	733.15	0.00	**0.00**	0.00
10.00	0.18	1,716	734.08	0.03	**0.03**	0.00
12.00	**3.14**	**4,966**	**734.63**	**1.24**	0.03	**1.21**
14.00	**0.26**	**4,472**	**734.54**	**0.28**	0.03	**0.25**
16.00	0.14	4,369	734.53	0.15	0.03	0.12
18.00	0.09	4,309	734.52	0.09	0.03	0.06
20.00	0.07	4,282	734.51	0.07	0.03	0.04
22.00	0.06	4,265	734.51	0.06	0.03	0.03
24.00	0.05	4,246	734.51	0.05	0.03	0.01
26.00	0.00	4,005	734.47	0.03	0.03	0.00
28.00	0.00	3,759	734.42	0.03	0.03	0.00
30.00	0.00	3,514	734.38	0.03	0.03	0.00
32.00	0.00	3,269	734.34	0.03	0.03	0.00
34.00	0.00	3,023	734.30	0.03	0.03	0.00
36.00	0.00	2,778	734.26	0.03	0.03	0.00
38.00	0.00	2,533	734.22	0.03	0.03	0.00
40.00	0.00	2,288	734.17	0.03	0.03	0.00
42.00	0.00	2,042	734.13	0.03	0.03	0.00
44.00	0.00	1,797	734.09	0.03	0.03	0.00
46.00	0.00	1,552	734.05	0.03	0.03	0.00
48.00	0.00	1,306	734.01	0.03	0.03	0.00
50.00	0.00	1,212	733.93	0.00	0.00	0.00
52.00	0.00	1,180	733.82	0.00	0.00	0.00
54.00	0.00	1,147	733.72	0.00	0.00	0.00
56.00	0.00	1,115	733.62	0.00	0.00	0.00
58.00	0.00	1,083	733.51	0.00	0.00	0.00
60.00	0.00	1,051	733.41	0.00	0.00	0.00
62.00	0.00	1,019	733.30	0.00	0.00	0.00
64.00	0.00	987	733.20	0.00	0.00	0.00
66.00	0.00	955	733.10	0.00	0.00	0.00
68.00	0.00	923	732.99	0.00	0.00	0.00
70.00	0.00	890	732.89	0.00	0.00	0.00
72.00	0.00	858	732.78	0.00	0.00	0.00
74.00	0.00	826	732.68	0.00	0.00	0.00
76.00	0.00	794	732.57	0.00	0.00	0.00
78.00	0.00	762	732.47	0.00	0.00	0.00
80.00	0.00	730	732.37	0.00	0.00	0.00
82.00	0.00	698	732.26	0.00	0.00	0.00
84.00	0.00	666	732.16	0.00	0.00	0.00
86.00	0.00	633	732.05	0.00	0.00	0.00
88.00	0.00	601	731.95	0.00	0.00	0.00
90.00	0.00	569	731.85	0.00	0.00	0.00
92.00	0.00	537	731.74	0.00	0.00	0.00
94.00	0.00	505	731.64	0.00	0.00	0.00
96.00	0.00	473	731.53	0.00	0.00	0.00

Summary for Reach 8BN: DA-8B- North Outflow

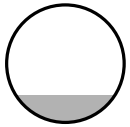
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach NP2 OUTLET depth by 0.01' @ 24.11 hrs

Inflow Area = 143,024 sf, 54.12% Impervious, Inflow Depth = 5.65" for 100 Year, 24 Hr. Event event
Inflow = 20.35 cfs @ 12.11 hrs, Volume= 67,377 cf
Outflow = 20.35 cfs @ 12.11 hrs, Volume= 67,377 cf, Atten= 0%, Lag= 0.1 min

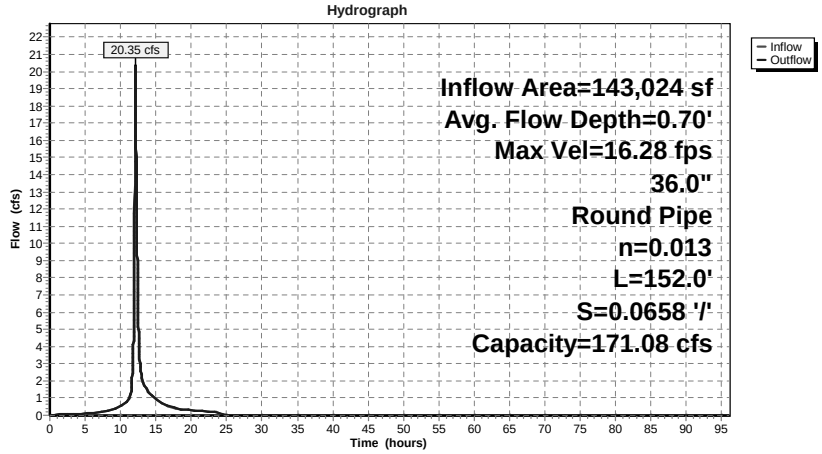
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 16.28 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.88 fps, Avg. Travel Time= 0.5 min

Peak Storage= 190 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.70'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 171.08 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 152.0' Slope= 0.0658 '/'
Inlet Invert= 700.00', Outlet Invert= 690.00'



Reach 8BN: DA-8B- North Outflow



Hydrograph for Reach 8BN: DA-8B- North Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	700.00	0.00
2.00	0.05	3	700.04	0.05
4.00	0.09	4	700.05	0.09
6.00	0.11	5	700.06	0.11
8.00	0.22	8	700.08	0.22
10.00	0.52	15	700.12	0.52
12.00	**9.68**	**111**	**700.48**	**9.47**
14.00	**1.31**	**28**	**700.19**	**1.31**
16.00	0.66	17	700.13	0.66
18.00	0.37	11	700.10	0.37
20.00	0.28	9	700.09	0.28
22.00	0.22	8	700.08	0.22
24.00	0.17	6	700.07	0.17
26.00	0.00	0	700.00	0.00
28.00	0.00	0	700.00	0.00
30.00	0.00	0	700.00	0.00
32.00	0.00	0	700.00	0.00
34.00	0.00	0	700.00	0.00
36.00	0.00	0	700.00	0.00
38.00	0.00	0	700.00	0.00
40.00	0.00	0	700.00	0.00
42.00	0.00	0	700.00	0.00
44.00	0.00	0	700.00	0.00
46.00	0.00	0	700.00	0.00
48.00	0.00	0	700.00	0.00
50.00	0.00	0	700.00	0.00
52.00	0.00	0	700.00	0.00
54.00	0.00	0	700.00	0.00
56.00	0.00	0	700.00	0.00
58.00	0.00	0	700.00	0.00
60.00	0.00	0	700.00	0.00
62.00	0.00	0	700.00	0.00
64.00	0.00	0	700.00	0.00
66.00	0.00	0	700.00	0.00
68.00	0.00	0	700.00	0.00
70.00	0.00	0	700.00	0.00
72.00	0.00	0	700.00	0.00
74.00	0.00	0	700.00	0.00
76.00	0.00	0	700.00	0.00
78.00	0.00	0	700.00	0.00
80.00	0.00	0	700.00	0.00
82.00	0.00	0	700.00	0.00
84.00	0.00	0	700.00	0.00
86.00	0.00	0	700.00	0.00
88.00	0.00	0	700.00	0.00
90.00	0.00	0	700.00	0.00
92.00	0.00	0	700.00	0.00
94.00	0.00	0	700.00	0.00
96.00	0.00	0	700.00	0.00

Summary for Subcatchment 9A: DA8-9A

Runoff = 9.55 cfs @ 12.07 hrs, Volume= 31,967 cf, Depth= 8.20"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

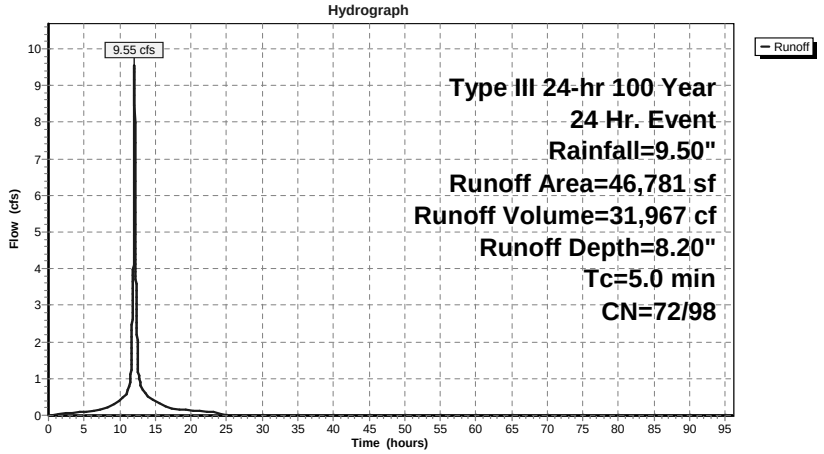
Area (sf)	CN	Description	Land Use
23,784	98	Paved parking, HSG C	Pavement
2,331	61	>75% Grass cover, Good, HSG B	Open Space
13,026	74	>75% Grass cover, Good, HSG C	Open Space
7,640	98	Unconnected roofs, HSG C	Roofs
46,781	89	Weighted Average	
15,357	72	32.83% Pervious Area	
31,424	98	67.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 67.17% Impervious, Rv= 0.655, Runoff= 29.91"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
15,357	Open Space	1,438.67	5.02	21.75	2.94
23,784	Pavement	640.31	2.07	7.77	24.80
7,640	Roofs	22.59	0.13	1.78	8.80
46,781	Total	2,101.57	7.22	31.30	36.54

Subcatchment 9A: DA8-9A



Hydrograph for Subcatchment 9A: DA8-9A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.05
4.00	0.41	0.00	0.24	0.08
6.00	0.68	0.00	0.49	0.10
8.00	1.08	0.02	0.87	0.18
10.00	1.80	0.21	1.57	0.39
12.00	4.75	2.01	4.51	**6.37**
14.00	7.70	4.44	7.46	**0.50**
16.00	8.42	5.06	8.18	0.27
18.00	8.82	5.42	8.58	0.16
20.00	9.09	5.66	8.85	0.13
22.00	9.32	5.87	9.08	0.11
24.00	**9.50**	**6.03**	**9.26**	0.09
26.00	9.50	6.03	9.26	0.00
28.00	9.50	6.03	9.26	0.00
30.00	9.50	6.03	9.26	0.00
32.00	9.50	6.03	9.26	0.00
34.00	9.50	6.03	9.26	0.00
36.00	9.50	6.03	9.26	0.00
38.00	9.50	6.03	9.26	0.00
40.00	9.50	6.03	9.26	0.00
42.00	9.50	6.03	9.26	0.00
44.00	9.50	6.03	9.26	0.00
46.00	9.50	6.03	9.26	0.00
48.00	9.50	6.03	9.26	0.00
50.00	9.50	6.03	9.26	0.00
52.00	9.50	6.03	9.26	0.00
54.00	9.50	6.03	9.26	0.00
56.00	9.50	6.03	9.26	0.00
58.00	9.50	6.03	9.26	0.00
60.00	9.50	6.03	9.26	0.00
62.00	9.50	6.03	9.26	0.00
64.00	9.50	6.03	9.26	0.00
66.00	9.50	6.03	9.26	0.00
68.00	9.50	6.03	9.26	0.00
70.00	9.50	6.03	9.26	0.00
72.00	9.50	6.03	9.26	0.00
74.00	9.50	6.03	9.26	0.00
76.00	9.50	6.03	9.26	0.00
78.00	9.50	6.03	9.26	0.00
80.00	9.50	6.03	9.26	0.00
82.00	9.50	6.03	9.26	0.00
84.00	9.50	6.03	9.26	0.00
86.00	9.50	6.03	9.26	0.00
88.00	9.50	6.03	9.26	0.00
90.00	9.50	6.03	9.26	0.00
92.00	9.50	6.03	9.26	0.00
94.00	9.50	6.03	9.26	0.00
96.00	9.50	6.03	9.26	0.00

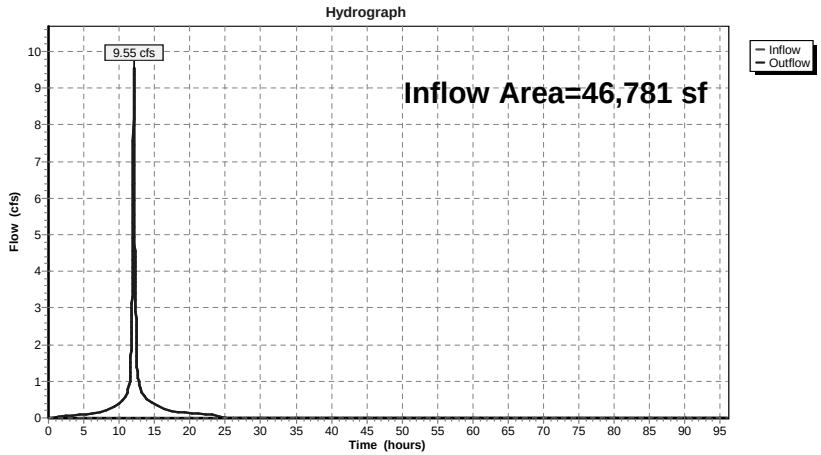
Summary for Reach 9A-USF: Underground Sand Filter

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 46,781 sf, 67.17% Impervious, Inflow Depth = 8.20" for 100 Year, 24 Hr. Event event
Inflow = 9.55 cfs @ 12.07 hrs, Volume= 31,967 cf
Outflow = 9.55 cfs @ 12.07 hrs, Volume= 31,967 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3

Reach 9A-USF: Underground Sand Filter



Hydrograph for Reach 9A-USF: Underground Sand Filter

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.02		0.02	53.00	0.00		0.00
2.00	0.05		0.05	54.00	0.00		0.00
3.00	0.06		0.06	55.00	0.00		0.00
4.00	0.08		0.08	56.00	0.00		0.00
5.00	0.09		0.09	57.00	0.00		0.00
6.00	0.10		0.10	58.00	0.00		0.00
7.00	0.14		0.14	59.00	0.00		0.00
8.00	0.18		0.18	60.00	0.00		0.00
9.00	0.28		0.28	61.00	0.00		0.00
10.00	0.39		0.39	62.00	0.00		0.00
11.00	0.61		0.61	63.00	0.00		0.00
12.00	**6.37**		**6.37**	64.00	0.00		0.00
13.00	**0.78**		**0.78**	65.00	0.00		0.00
14.00	0.50		0.50	66.00	0.00		0.00
15.00	0.38		0.38	67.00	0.00		0.00
16.00	0.27		0.27	68.00	0.00		0.00
17.00	0.21		0.21	69.00	0.00		0.00
18.00	0.16		0.16	70.00	0.00		0.00
19.00	0.15		0.15	71.00	0.00		0.00
20.00	0.13		0.13	72.00	0.00		0.00
21.00	0.12		0.12	73.00	0.00		0.00
22.00	0.11		0.11	74.00	0.00		0.00
23.00	0.10		0.10	75.00	0.00		0.00
24.00	0.09		0.09	76.00	0.00		0.00
25.00	0.00		0.00	77.00	0.00		0.00
26.00	0.00		0.00	78.00	0.00		0.00
27.00	0.00		0.00	79.00	0.00		0.00
28.00	0.00		0.00	80.00	0.00		0.00
29.00	0.00		0.00	81.00	0.00		0.00
30.00	0.00		0.00	82.00	0.00		0.00
31.00	0.00		0.00	83.00	0.00		0.00
32.00	0.00		0.00	84.00	0.00		0.00
33.00	0.00		0.00	85.00	0.00		0.00
34.00	0.00		0.00	86.00	0.00		0.00
35.00	0.00		0.00	87.00	0.00		0.00
36.00	0.00		0.00	88.00	0.00		0.00
37.00	0.00		0.00	89.00	0.00		0.00
38.00	0.00		0.00	90.00	0.00		0.00
39.00	0.00		0.00	91.00	0.00		0.00
40.00	0.00		0.00	92.00	0.00		0.00
41.00	0.00		0.00	93.00	0.00		0.00
42.00	0.00		0.00	94.00	0.00		0.00
43.00	0.00		0.00	95.00	0.00		0.00
44.00	0.00		0.00	96.00	0.00		0.00
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Subcatchment 9B: DA8-9B

Runoff = 1.96 cfs @ 12.07 hrs, Volume= 6,766 cf, Depth= 9.03"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

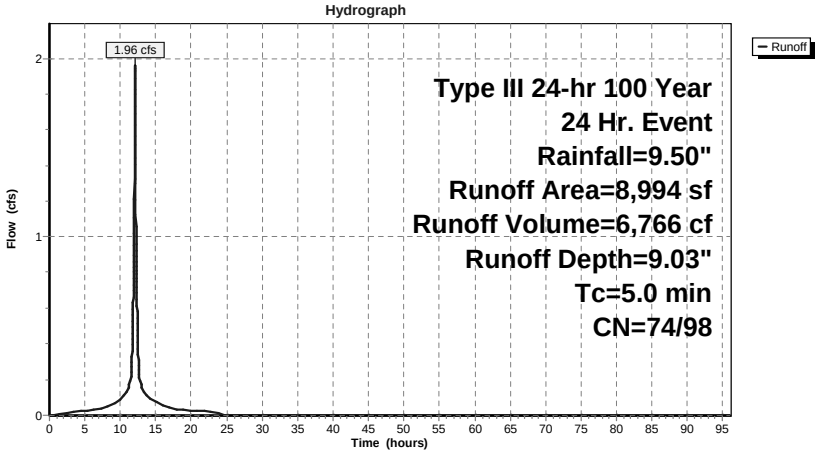
	Area (sf)	CN	Description	Land Use
	1,240	98	Paved parking, HSG C	Pavement
	704	74	>75% Grass cover, Good, HSG C	Open Space
*	225	98	Pavers, HSG B	Pavement
*	6,825	98	Pavers, HSG C	Pavement
	8,994	96	Weighted Average	
	704	74	7.83% Pervious Area	
	8,290	98	92.17% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 92.17% Impervious, Rv= 0.880, Runoff= 40.20"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
704	Open Space	88.62	0.31	1.34	0.18
8,290	Pavement	299.90	0.97	3.64	11.61
8,994	Total	388.52	1.28	4.98	11.80

Subcatchment 9B: DA8-9B



Hydrograph for Subcatchment 9B: DA8-9B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.02
6.00	0.68	0.00	0.49	0.03
8.00	1.08	0.04	0.87	0.05
10.00	1.80	0.26	1.57	0.09
12.00	4.75	2.17	4.51	**1.32**
14.00	7.70	4.66	7.46	**0.10**
16.00	8.42	5.30	8.18	0.05
18.00	8.82	5.66	8.58	0.03
20.00	9.09	5.91	8.85	0.03
22.00	9.32	6.12	9.08	0.02
24.00	**9.50**	**6.29**	**9.26**	0.02
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00
74.00	9.50	6.29	9.26	0.00
76.00	9.50	6.29	9.26	0.00
78.00	9.50	6.29	9.26	0.00
80.00	9.50	6.29	9.26	0.00
82.00	9.50	6.29	9.26	0.00
84.00	9.50	6.29	9.26	0.00
86.00	9.50	6.29	9.26	0.00
88.00	9.50	6.29	9.26	0.00
90.00	9.50	6.29	9.26	0.00
92.00	9.50	6.29	9.26	0.00
94.00	9.50	6.29	9.26	0.00
96.00	9.50	6.29	9.26	0.00

Summary for Pond 9B-P: 9B-Pavers

Inflow Area = 8,994 sf, 92.17% Impervious, Inflow Depth = 9.03" for 100 Year, 24 Hr. Event event
Inflow = 1.96 cfs @ 12.07 hrs, Volume= 6,766 cf
Outflow = 1.90 cfs @ 12.09 hrs, Volume= 6,766 cf, Atten= 3%, Lag= 1.2 min
Discarded = 0.04 cfs @ 8.42 hrs, Volume= 4,167 cf
Primary = 1.86 cfs @ 12.09 hrs, Volume= 2,599 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 729.96' @ 12.09 hrs Surf.Area= 7,048 sf Storage= 1,770 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 219.7 min (961.8 - 742.1)

Volume	Invert	Avail.Storage	Storage Description
#1	729.33'	1,889 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

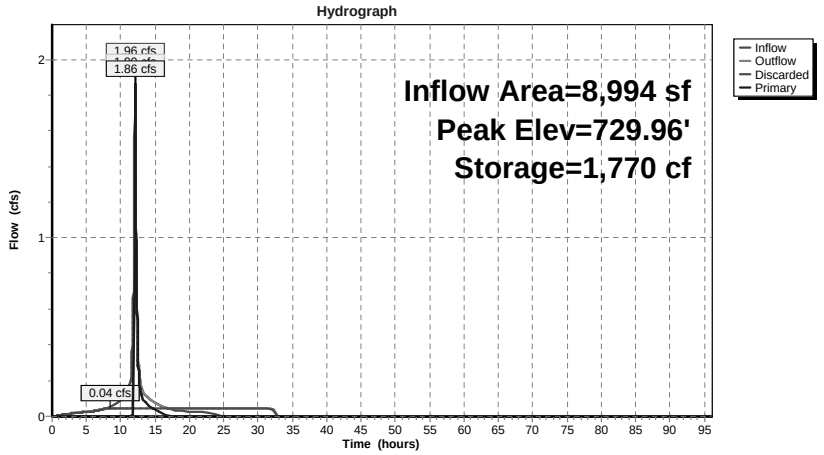
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
729.33	7,048	0.0	0	0
730.00	7,048	40.0	1,889	1,889

Device	Routing	Invert	Outlet Devices
#1	Primary	729.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	729.33'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.04 cfs @ 8.42 hrs HW=729.34' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=1.86 cfs @ 12.09 hrs HW=729.96' TW=720.78' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 1.86 cfs @ 0.64 fps)

Pond 9B-P: 9B-Pavers



Hydrograph for Pond 9B-P: 9B-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	729.33	0.00	0.00	0.00
2.00	0.01	0	729.33	0.01	0.01	0.00
4.00	0.02	0	729.33	0.02	0.02	0.00
6.00	0.03	0	729.33	0.03	0.03	0.00
8.00	0.05	5	729.33	0.04	**0.04**	0.00
10.00	0.09	196	729.40	0.04	**0.04**	0.00
12.00	**1.32**	**1,600**	**729.90**	**0.04**	0.04	**0.00**
14.00	**0.10**	**1,624**	**729.91**	**0.10**	0.04	**0.06**
16.00	0.05	1,613	729.90	0.05	0.04	0.01
18.00	0.03	1,594	729.90	0.04	0.04	0.00
20.00	0.03	1,507	729.86	0.04	0.04	0.00
22.00	0.02	1,383	729.82	0.04	0.04	0.00
24.00	0.02	1,226	729.76	0.04	0.04	0.00
26.00	0.00	937	729.66	0.04	0.04	0.00
28.00	0.00	644	729.56	0.04	0.04	0.00
30.00	0.00	350	729.45	0.04	0.04	0.00
32.00	0.00	56	729.35	0.04	0.04	0.00
34.00	0.00	0	729.33	0.00	0.00	0.00
36.00	0.00	0	729.33	0.00	0.00	0.00
38.00	0.00	0	729.33	0.00	0.00	0.00
40.00	0.00	0	729.33	0.00	0.00	0.00
42.00	0.00	0	729.33	0.00	0.00	0.00
44.00	0.00	0	729.33	0.00	0.00	0.00
46.00	0.00	0	729.33	0.00	0.00	0.00
48.00	0.00	0	729.33	0.00	0.00	0.00
50.00	0.00	0	729.33	0.00	0.00	0.00
52.00	0.00	0	729.33	0.00	0.00	0.00
54.00	0.00	0	729.33	0.00	0.00	0.00
56.00	0.00	0	729.33	0.00	0.00	0.00
58.00	0.00	0	729.33	0.00	0.00	0.00
60.00	0.00	0	729.33	0.00	0.00	0.00
62.00	0.00	0	729.33	0.00	0.00	0.00
64.00	0.00	0	729.33	0.00	0.00	0.00
66.00	0.00	0	729.33	0.00	0.00	0.00
68.00	0.00	0	729.33	0.00	0.00	0.00
70.00	0.00	0	729.33	0.00	0.00	0.00
72.00	0.00	0	729.33	0.00	0.00	0.00
74.00	0.00	0	729.33	0.00	0.00	0.00
76.00	0.00	0	729.33	0.00	0.00	0.00
78.00	0.00	0	729.33	0.00	0.00	0.00
80.00	0.00	0	729.33	0.00	0.00	0.00
82.00	0.00	0	729.33	0.00	0.00	0.00
84.00	0.00	0	729.33	0.00	0.00	0.00
86.00	0.00	0	729.33	0.00	0.00	0.00
88.00	0.00	0	729.33	0.00	0.00	0.00
90.00	0.00	0	729.33	0.00	0.00	0.00
92.00	0.00	0	729.33	0.00	0.00	0.00
94.00	0.00	0	729.33	0.00	0.00	0.00
96.00	0.00	0	729.33	0.00	0.00	0.00

Summary for Subcatchment 9C: DA8-9C

Runoff = 2.59 cfs @ 12.07 hrs, Volume= 8,897 cf, Depth= 8.95"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

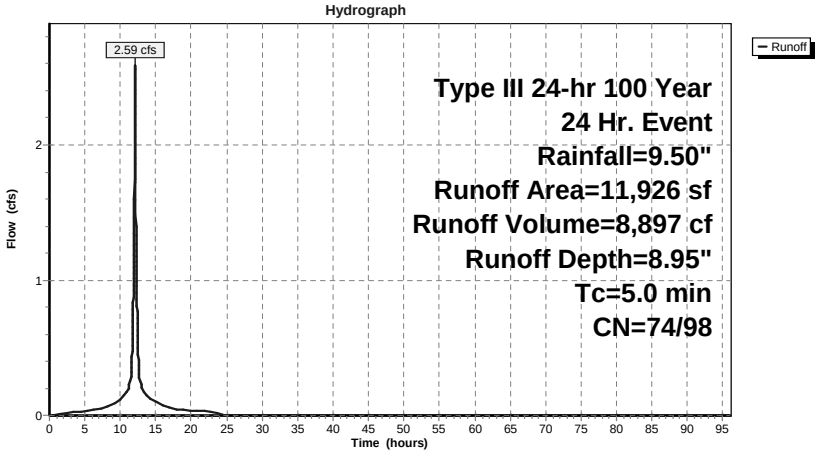
	Area (sf)	CN	Description	Land Use
	1,213	98	Paved parking, HSG C	Pavement
	1,231	74	>75% Grass cover, Good, HSG C	Open Space
	5,144	98	Roofs, HSG C	Roofs
*	4,338	98	Pavers, HSG C	Pavement
	11,926	96	Weighted Average	
	1,231	74	10.32% Pervious Area	
	10,695	98	89.68% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 89.68% Impervious, Rv= 0.857, Runoff= 39.17"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,231	Open Space	151.01	0.53	2.28	0.31
5,551	Pavement	195.69	0.63	2.38	7.58
5,144	Roofs	19.92	0.12	1.57	7.76
11,926	Total	366.61	1.28	6.23	15.64

Subcatchment 9C: DA8-9C



Hydrograph for Subcatchment 9C: DA8-9C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.02
4.00	0.41	0.00	0.24	0.03
6.00	0.68	0.00	0.49	0.04
8.00	1.08	0.04	0.87	0.06
10.00	1.80	0.26	1.57	0.12
12.00	4.75	2.17	4.51	**1.74**
14.00	7.70	4.66	7.46	**0.13**
16.00	8.42	5.30	8.18	0.07
18.00	8.82	5.66	8.58	0.04
20.00	9.09	5.91	8.85	0.03
22.00	9.32	6.12	9.08	0.03
24.00	**9.50**	**6.29**	**9.26**	0.02
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00
74.00	9.50	6.29	9.26	0.00
76.00	9.50	6.29	9.26	0.00
78.00	9.50	6.29	9.26	0.00
80.00	9.50	6.29	9.26	0.00
82.00	9.50	6.29	9.26	0.00
84.00	9.50	6.29	9.26	0.00
86.00	9.50	6.29	9.26	0.00
88.00	9.50	6.29	9.26	0.00
90.00	9.50	6.29	9.26	0.00
92.00	9.50	6.29	9.26	0.00
94.00	9.50	6.29	9.26	0.00
96.00	9.50	6.29	9.26	0.00

Summary for Pond 9C-P: 9C-Pavers

Inflow Area = 11,926 sf, 89.68% Impervious, Inflow Depth = 8.95" for 100 Year, 24 Hr. Event event
Inflow = 2.59 cfs @ 12.07 hrs, Volume= 8,897 cf
Outflow = 0.03 cfs @ 6.78 hrs, Volume= 8,520 cf, Atten= 99%, Lag= 0.0 min
Discarded = 0.03 cfs @ 6.78 hrs, Volume= 8,520 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 734.32' @ 23.05 hrs Surf.Area= 4,339 sf Storage= 6,885 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2,189.2 min (2,932.6 - 743.4)

Volume	Invert	Avail.Storage	Storage Description
#1	732.33'	18,519 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

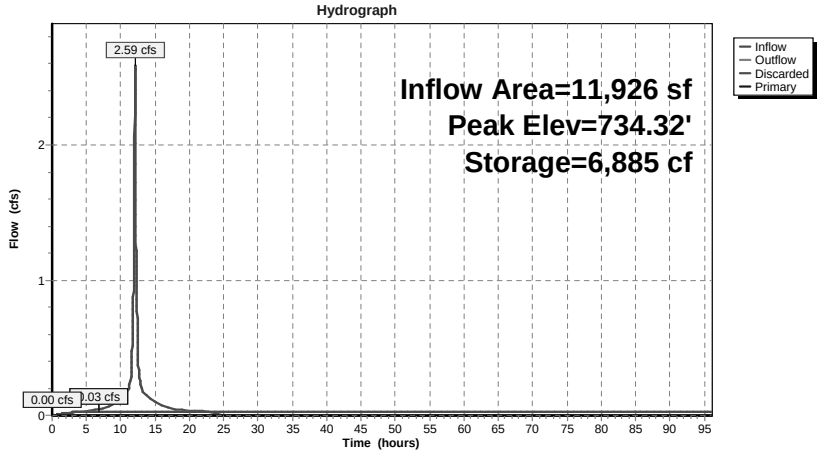
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
732.33	4,339	0.0	0	0
733.00	4,339	40.0	1,163	1,163
737.00	4,339	100.0	17,356	18,519

Device	Routing	Invert	Outlet Devices
#1	Primary	736.50'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	732.33'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 6.78 hrs HW=732.38' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=732.33' TW=720.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9C-P: 9C-Pavers



Hydrograph for Pond 9C-P: 9C-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	732.33	0.00	0.00	**0.00**
2.00	0.02	0	732.33	0.02	0.02	0.00
4.00	0.03	1	732.33	0.03	0.03	0.00
6.00	0.04	42	732.35	**0.03**	**0.03**	0.00
8.00	0.06	199	732.44	**0.03**	**0.03**	0.00
10.00	0.12	650	732.70	0.03	0.03	0.00
12.00	**1.74**	2,697	733.35	0.03	0.03	0.00
14.00	**0.13**	5,988	734.11	0.03	0.03	0.00
16.00	0.07	6,525	734.24	0.03	0.03	0.00
18.00	0.04	6,744	734.29	0.03	0.03	0.00
20.00	0.03	6,837	734.31	0.03	0.03	0.00
22.00	0.03	**6,880**	**734.32**	0.03	0.03	0.00
24.00	0.02	**6,880**	**734.32**	0.03	0.03	0.00
26.00	0.00	6,706	734.28	0.03	0.03	0.00
28.00	0.00	6,525	734.24	0.03	0.03	0.00
30.00	0.00	6,344	734.19	0.03	0.03	0.00
32.00	0.00	6,163	734.15	0.03	0.03	0.00
34.00	0.00	5,983	734.11	0.03	0.03	0.00
36.00	0.00	5,802	734.07	0.03	0.03	0.00
38.00	0.00	5,621	734.03	0.03	0.03	0.00
40.00	0.00	5,440	733.99	0.03	0.03	0.00
42.00	0.00	5,260	733.94	0.03	0.03	0.00
44.00	0.00	5,079	733.90	0.03	0.03	0.00
46.00	0.00	4,898	733.86	0.03	0.03	0.00
48.00	0.00	4,717	733.82	0.03	0.03	0.00
50.00	0.00	4,536	733.78	0.03	0.03	0.00
52.00	0.00	4,356	733.74	0.03	0.03	0.00
54.00	0.00	4,175	733.69	0.03	0.03	0.00
56.00	0.00	3,994	733.65	0.03	0.03	0.00
58.00	0.00	3,813	733.61	0.03	0.03	0.00
60.00	0.00	3,632	733.57	0.03	0.03	0.00
62.00	0.00	3,452	733.53	0.03	0.03	0.00
64.00	0.00	3,271	733.49	0.03	0.03	0.00
66.00	0.00	3,090	733.44	0.03	0.03	0.00
68.00	0.00	2,909	733.40	0.03	0.03	0.00
70.00	0.00	2,728	733.36	0.03	0.03	0.00
72.00	0.00	2,548	733.32	0.03	0.03	0.00
74.00	0.00	2,367	733.28	0.03	0.03	0.00
76.00	0.00	2,186	733.24	0.03	0.03	0.00
78.00	0.00	2,005	733.19	0.03	0.03	0.00
80.00	0.00	1,824	733.15	0.03	0.03	0.00
82.00	0.00	1,644	733.11	0.03	0.03	0.00
84.00	0.00	1,463	733.07	0.03	0.03	0.00
86.00	0.00	1,282	733.03	0.03	0.03	0.00
88.00	0.00	1,101	732.96	0.03	0.03	0.00
90.00	0.00	921	732.86	0.03	0.03	0.00
92.00	0.00	740	732.76	0.03	0.03	0.00
94.00	0.00	559	732.65	0.03	0.03	0.00
96.00	0.00	378	732.55	0.03	0.03	0.00

Summary for Subcatchment 13: DA8-13

Runoff = 4.21 cfs @ 12.14 hrs, Volume= 15,623 cf, Depth= 6.67"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

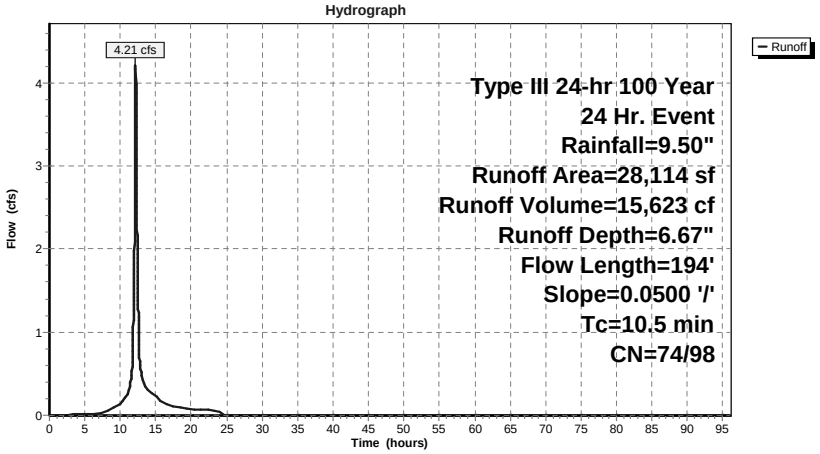
Area (sf)	CN	Description	Land Use
3,610	98	Unconnected pavement, HSG C	Pavement
24,504	74	>75% Grass cover, Good, HSG C	Open Space
28,114	77	Weighted Average	
24,504	74	87.16% Pervious Area	
3,610	98	12.84% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0500	0.18		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.0	94	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.5	194	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 12.84% Impervious, Rv= 0.166, Runoff= 7.57"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
24,504	Open Space	580.65	2.03	8.78	1.19
3,610	Pavement	24.58	0.08	0.30	0.95
28,114	Total	605.24	2.11	9.08	2.14

Subcatchment 13: DA8-13



Hydrograph for Subcatchment 13: DA8-13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.04	0.87	0.04
10.00	1.80	0.26	1.57	0.14
12.00	4.75	2.17	4.51	**2.08**
14.00	7.70	4.66	7.46	**0.29**
16.00	8.42	5.30	8.18	0.16
18.00	8.82	5.66	8.58	0.10
20.00	9.09	5.91	8.85	0.08
22.00	9.32	6.12	9.08	0.06
24.00	**9.50**	**6.29**	**9.26**	0.05
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00
74.00	9.50	6.29	9.26	0.00
76.00	9.50	6.29	9.26	0.00
78.00	9.50	6.29	9.26	0.00
80.00	9.50	6.29	9.26	0.00
82.00	9.50	6.29	9.26	0.00
84.00	9.50	6.29	9.26	0.00
86.00	9.50	6.29	9.26	0.00
88.00	9.50	6.29	9.26	0.00
90.00	9.50	6.29	9.26	0.00
92.00	9.50	6.29	9.26	0.00
94.00	9.50	6.29	9.26	0.00
96.00	9.50	6.29	9.26	0.00

Summary for Reach NP1: North Pipe -1

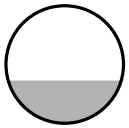
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 47,209 sf, 49.54% Impervious, Inflow Depth = 4.37" for 100 Year, 24 Hr. Event event
Inflow = 6.44 cfs @ 12.13 hrs, Volume= 17,188 cf
Outflow = 6.38 cfs @ 12.14 hrs, Volume= 17,188 cf, Atten= 1%, Lag= 0.8 min

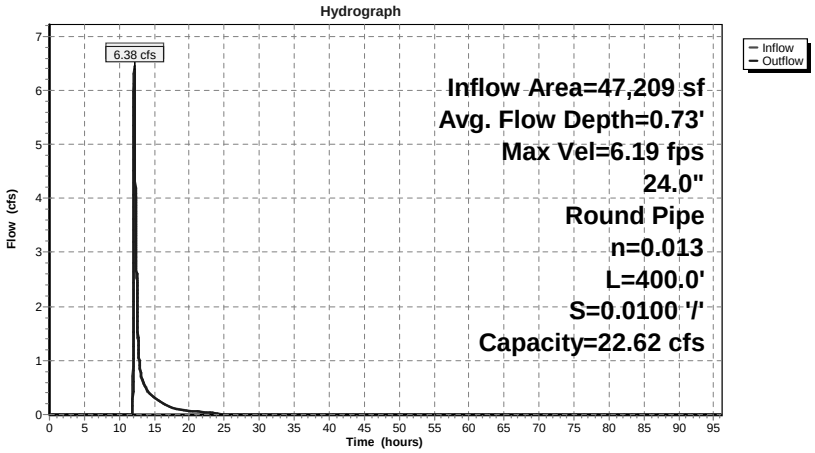
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 6.19 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 2.08 fps, Avg. Travel Time= 3.2 min

Peak Storage= 412 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.73'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 400.0' Slope= 0.0100 '/'
Inlet Invert= 726.00', Outlet Invert= 722.00'



Reach NP1: North Pipe -1



Hydrograph for Reach NP1: North Pipe -1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	726.00	0.00
2.00	0.00	0	726.00	0.00
4.00	0.00	0	726.00	0.00
6.00	0.00	0	726.00	0.00
8.00	0.00	0	726.00	0.00
10.00	0.00	0	726.00	0.00
12.00	**2.32**	**167**	**726.38**	**1.80**
14.00	**0.44**	**63**	**726.19**	**0.45**
16.00	0.21	38	726.14	0.22
18.00	0.11	24	726.10	0.11
20.00	0.07	17	726.08	0.07
22.00	0.05	13	726.07	0.05
24.00	0.03	9	726.05	0.03
26.00	0.00	0	726.00	0.00
28.00	0.00	0	726.00	0.00
30.00	0.00	0	726.00	0.00
32.00	0.00	0	726.00	0.00
34.00	0.00	0	726.00	0.00
36.00	0.00	0	726.00	0.00
38.00	0.00	0	726.00	0.00
40.00	0.00	0	726.00	0.00
42.00	0.00	0	726.00	0.00
44.00	0.00	0	726.00	0.00
46.00	0.00	0	726.00	0.00
48.00	0.00	0	726.00	0.00
50.00	0.00	0	726.00	0.00
52.00	0.00	0	726.00	0.00
54.00	0.00	0	726.00	0.00
56.00	0.00	0	726.00	0.00
58.00	0.00	0	726.00	0.00
60.00	0.00	0	726.00	0.00
62.00	0.00	0	726.00	0.00
64.00	0.00	0	726.00	0.00
66.00	0.00	0	726.00	0.00
68.00	0.00	0	726.00	0.00
70.00	0.00	0	726.00	0.00
72.00	0.00	0	726.00	0.00
74.00	0.00	0	726.00	0.00
76.00	0.00	0	726.00	0.00
78.00	0.00	0	726.00	0.00
80.00	0.00	0	726.00	0.00
82.00	0.00	0	726.00	0.00
84.00	0.00	0	726.00	0.00
86.00	0.00	0	726.00	0.00
88.00	0.00	0	726.00	0.00
90.00	0.00	0	726.00	0.00
92.00	0.00	0	726.00	0.00
94.00	0.00	0	726.00	0.00
96.00	0.00	0	726.00	0.00

Summary for Reach NP2: North Pipe -2

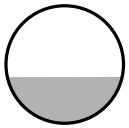
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 114,910 sf, 64.22% Impervious, Inflow Depth = 5.40" for 100 Year, 24 Hr. Event event
Inflow = 16.48 cfs @ 12.09 hrs, Volume= 51,754 cf
Outflow = 16.44 cfs @ 12.10 hrs, Volume= 51,754 cf, Atten= 0%, Lag= 0.4 min

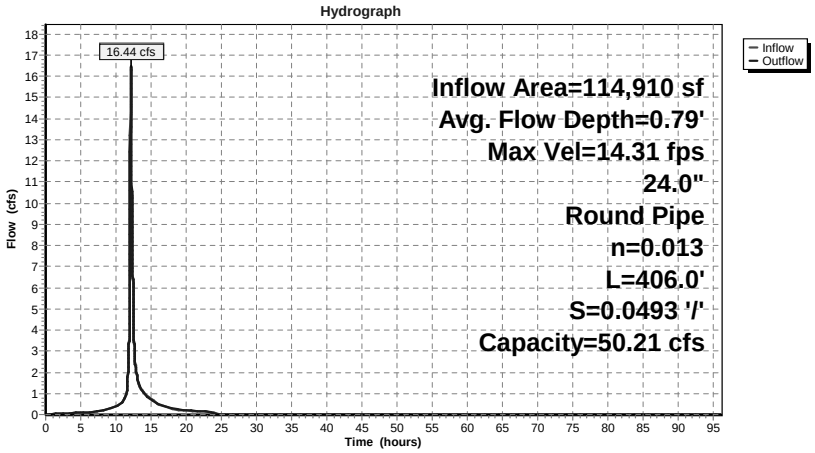
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 14.31 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 4.27 fps, Avg. Travel Time= 1.6 min

Peak Storage= 467 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.79'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 50.21 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 406.0' Slope= 0.0493 '/'
Inlet Invert= 720.00', Outlet Invert= 700.00'

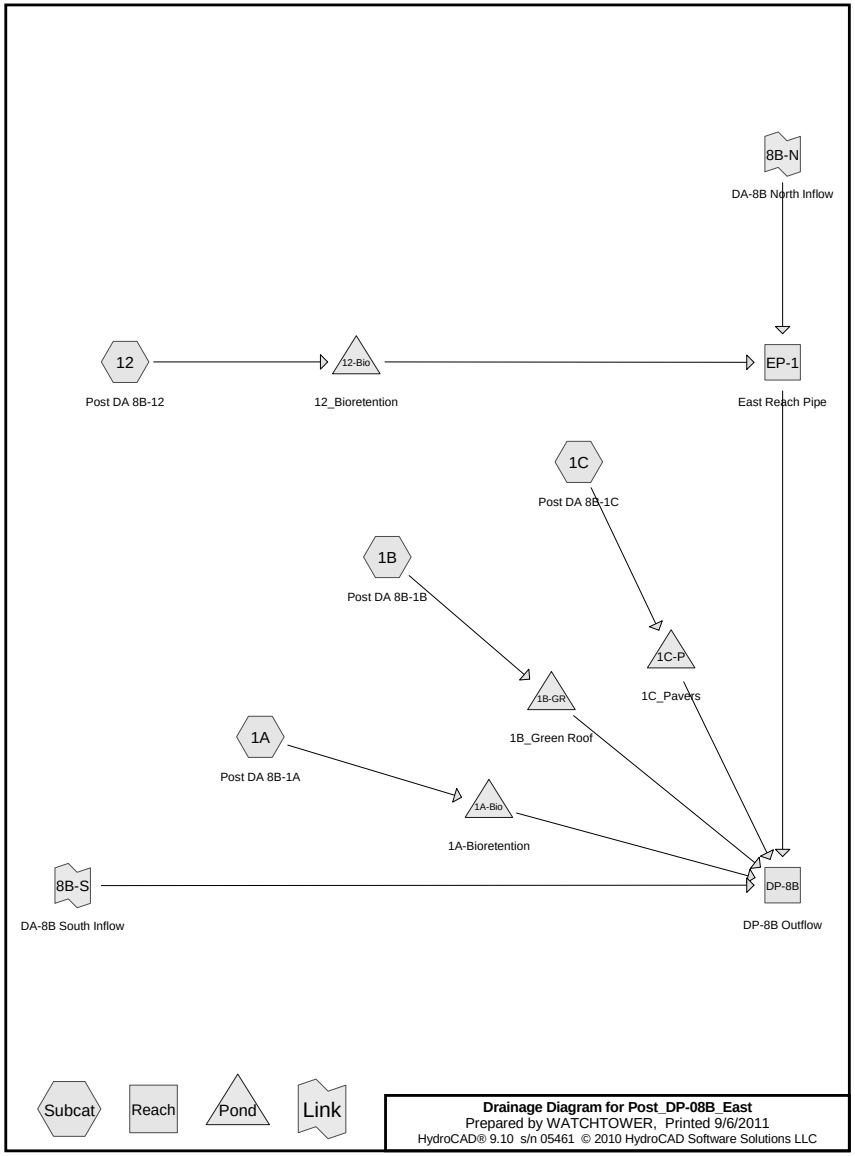


Reach NP2: North Pipe -2



Hydrograph for Reach NP2: North Pipe -2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	720.00	0.00
2.00	0.05	7	720.04	0.04
4.00	0.08	11	720.06	0.08
6.00	0.10	13	720.07	0.10
8.00	0.18	20	720.09	0.18
10.00	0.39	33	720.12	0.39
12.00	**8.17**	**268**	**720.53**	**7.59**
14.00	**1.01**	**65**	**720.20**	**1.02**
16.00	0.50	40	720.14	0.50
18.00	0.27	26	720.11	0.27
20.00	0.20	21	720.09	0.20
22.00	0.16	18	720.08	0.16
24.00	0.12	14	720.07	0.12
26.00	0.00	0	720.00	0.00
28.00	0.00	0	720.00	0.00
30.00	0.00	0	720.00	0.00
32.00	0.00	0	720.00	0.00
34.00	0.00	0	720.00	0.00
36.00	0.00	0	720.00	0.00
38.00	0.00	0	720.00	0.00
40.00	0.00	0	720.00	0.00
42.00	0.00	0	720.00	0.00
44.00	0.00	0	720.00	0.00
46.00	0.00	0	720.00	0.00
48.00	0.00	0	720.00	0.00
50.00	0.00	0	720.00	0.00
52.00	0.00	0	720.00	0.00
54.00	0.00	0	720.00	0.00
56.00	0.00	0	720.00	0.00
58.00	0.00	0	720.00	0.00
60.00	0.00	0	720.00	0.00
62.00	0.00	0	720.00	0.00
64.00	0.00	0	720.00	0.00
66.00	0.00	0	720.00	0.00
68.00	0.00	0	720.00	0.00
70.00	0.00	0	720.00	0.00
72.00	0.00	0	720.00	0.00
74.00	0.00	0	720.00	0.00
76.00	0.00	0	720.00	0.00
78.00	0.00	0	720.00	0.00
80.00	0.00	0	720.00	0.00
82.00	0.00	0	720.00	0.00
84.00	0.00	0	720.00	0.00
86.00	0.00	0	720.00	0.00
88.00	0.00	0	720.00	0.00
90.00	0.00	0	720.00	0.00
92.00	0.00	0	720.00	0.00
94.00	0.00	0	720.00	0.00
96.00	0.00	0	720.00	0.00



Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
12,205	Landscaped	1B, 12
34,890	Open Space	1A, 12
40,548	Pavement	1A, 1C, 12
15,500	Roofs	1B, 12
103,143	**TOTAL**	

Pollutant Concentrations

Line#	Land Use	TSS (mg/l)	TP (mg/l)	TN (mg/l)	BOD (mg/l)
1	Landscaped	37.00	0.00	0.00	1.23
2	Open Space	602.00	2.10	9.10	1.23
3	Pavement	173.00	0.56	2.10	6.70
4	Roofs	19.00	0.11	1.50	7.40

Subcatchment Loading

Line#	Subcat Number	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1	1A	**0.00**	**0.00**	**0.00**	**0.00**
2	1B	0.00	0.00	0.00	0.00
3	1C	0.00	0.00	0.00	0.00
4	12	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: Post DA 8B-1A Runoff Area=38,425 sf 40.95% Impervious Runoff Depth=1.75"
Flow Length=219' Tc=5.2 min CN=74/98 Runoff=1.69 cfs 5,599 cf

Pond 1A-Bio: 1A-Bioretention Peak Elev=659.46' Storage=3,970 cf Inflow=1.69 cfs 5,599 cf
Discarded=0.03 cfs 5,599 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 5,599 cf

Subcatchment 1B: Post DA 8B-1B Runoff Area=19,332 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=1.38 cfs 4,620 cf

Pond 1B-GR: 1B_Green Roof Peak Elev=800.78' Storage=195 cf Inflow=1.38 cfs 4,620 cf
24.0" Round Culvert x 2.00 n=0.013 L=20.0' S=0.0250 '/' Outflow=0.95 cfs 4,613 cf

Subcatchment 1C: Post DA 8B-1C Runoff Area=2,112 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.15 cfs 505 cf

Pond 1C-P: 1C_Pavers Peak Elev=661.21' Storage=180 cf Inflow=0.15 cfs 505 cf
Discarded=0.01 cfs 505 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 505 cf

Link 2 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_North~Reach 8BN.hce Inflow=3.15 cfs 11,469 cf
Area= 143,024 sf 54.12% Imperv. Primary=3.15 cfs 11,469 cf

Link 1 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_South~Reach SR-1.hce Inflow=3.86 cfs 15,517 cf
Area= 465,430 sf 43.59% Imperv. Primary=3.86 cfs 15,517 cf

Subcatchment 12: Post DA 8B-12 Runoff Area=43,274 sf 59.24% Impervious Runoff Depth=2.01"
Tc=5.0 min CN=70/98 Runoff=2.16 cfs 7,259 cf

Pond 12-Bio: 12_Bioretention Peak Elev=689.35' Storage=5,490 cf Inflow=2.16 cfs 7,259 cf
Discarded=0.03 cfs 6,314 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 6,314 cf

Reach DP-8B: DP-8B Outflow Avg. Flow Depth=0.44' Max Vel=12.11 fps Inflow=7.81 cfs 31,600 cf
36.0" Round Pipe n=0.013 L=800.0' S=0.0638 '/' Capacity=168.41 cfs Outflow=7.73 cfs 31,600 cf

Reach EP-1: East Reach Pipe Avg. Flow Depth=0.32' Max Vel=9.70 fps Inflow=3.15 cfs 11,469 cf
24.0" Round Pipe n=0.013 L=350.0' S=0.0629 '/' Capacity=56.72 cfs Outflow=3.14 cfs 11,469 cf

Total Runoff Area = 103,143 sf Runoff Volume = 17,983 cf Average Runoff Depth = 2.09"
39.10% Pervious = 40,329 sf 60.90% Impervious = 62,814 sf

Summary for Subcatchment 1A: Post DA 8B-1A

Runoff = 1.69 cfs @ 12.08 hrs, Volume= 5,599 cf, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

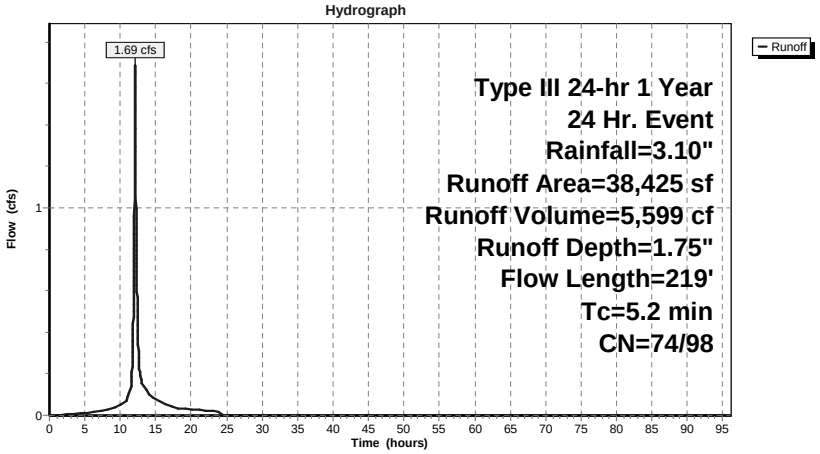
Area (sf)	CN	Description	Land Use
15,734	98	Paved parking, HSG C	Pavement
22,691	74	>75% Grass cover, Good, HSG C	Open Space
38,425	84	Weighted Average	
22,691	74	59.05% Pervious Area	
15,734	98	40.95% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	47	0.0640	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	23	0.0430	1.45		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	149		15.00		**Direct Entry,**
5.2	219	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 40.95% Impervious, Rv= 0.419, Runoff= 19.13"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
22,691	Open Space	1,359.21	4.74	20.55	2.78
15,734	Pavement	270.85	0.88	3.29	10.49
38,425	Total	1,630.05	5.62	23.83	13.27

Subcatchment 1A: Post DA 8B-1A



Hydrograph for Subcatchment 1A: Post DA 8B-1A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.02
10.00	0.59	0.00	0.40	0.05
12.00	1.55	0.16	1.33	**1.06**
14.00	2.51	0.62	2.28	**0.10**
16.00	2.75	0.75	2.52	0.06
18.00	2.88	0.83	2.65	0.03
20.00	2.97	0.89	2.74	0.03
22.00	3.04	0.93	2.81	0.02
24.00	**3.10**	**0.97**	**2.87**	0.02
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00
74.00	3.10	0.97	2.87	0.00
76.00	3.10	0.97	2.87	0.00
78.00	3.10	0.97	2.87	0.00
80.00	3.10	0.97	2.87	0.00
82.00	3.10	0.97	2.87	0.00
84.00	3.10	0.97	2.87	0.00
86.00	3.10	0.97	2.87	0.00
88.00	3.10	0.97	2.87	0.00
90.00	3.10	0.97	2.87	0.00
92.00	3.10	0.97	2.87	0.00
94.00	3.10	0.97	2.87	0.00
96.00	3.10	0.97	2.87	0.00

Summary for Pond 1A-Bio: 1A-Bioretention

Inflow Area = 38,425 sf, 40.95% Impervious, Inflow Depth = 1.75" for 1 Year, 24 Hr. Event event
Inflow = 1.69 cfs @ 12.08 hrs, Volume= 5,599 cf
Outflow = 0.03 cfs @ 12.77 hrs, Volume= 5,599 cf, Atten= 98%, Lag= 41.6 min
Discarded = 0.03 cfs @ 12.77 hrs, Volume= 5,599 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 659.46' @ 20.73 hrs Surf.Area= 2,285 sf Storage= 3,970 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,477.4 min (2,268.9 - 791.5)

Volume	Invert	Avail.Storage	Storage Description
#1	655.00'	5,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

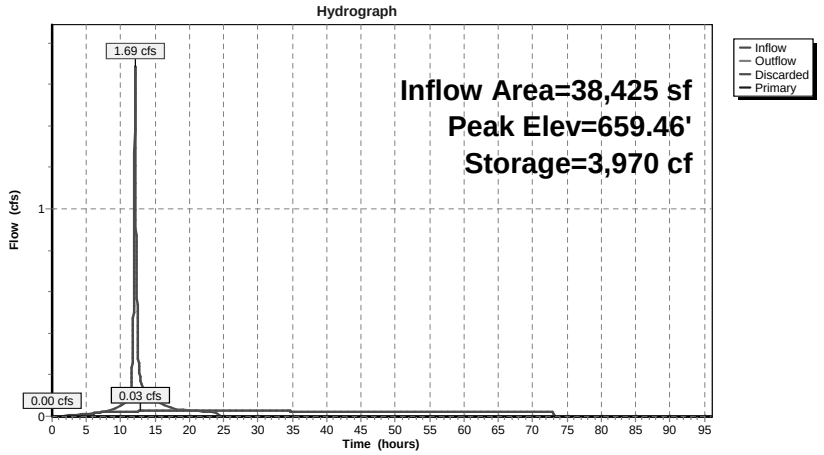
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
655.00	1,817	0.0	0	0
655.01	1,817	40.0	7	7
658.99	1,817	40.0	2,893	2,900
659.00	2,285	100.0	21	2,920
659.50	2,285	100.0	1,143	4,063
660.00	2,285	100.0	1,143	5,205

Device	Routing	Invert	Outlet Devices
#1	Discarded	655.00'	**0.500 in/hr Exfiltration over Horizontal area**
#2	Primary	659.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.77 hrs HW=659.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=655.00' TW=647.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 1A-Bio: 1A-Bioretention



Hydrograph for Pond 1A-Bio: 1A-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	655.00	0.00	0.00	**0.00**
2.00	0.00	0	655.00	0.00	0.00	0.00
4.00	0.01	0	655.00	0.01	0.01	0.00
6.00	0.01	0	655.00	0.01	0.01	0.00
8.00	0.02	3	655.00	0.02	0.02	0.00
10.00	0.05	116	655.16	0.02	0.02	0.00
12.00	**1.06**	1,108	656.52	**0.02**	**0.02**	0.00
14.00	**0.10**	3,415	659.22	**0.03**	**0.03**	0.00
16.00	0.06	3,797	659.38	0.03	0.03	0.00
18.00	0.03	3,933	659.44	0.03	0.03	0.00
20.00	0.03	**3,968**	**659.46**	0.03	0.03	0.00
22.00	0.02	**3,963**	**659.46**	0.03	0.03	0.00
24.00	0.02	3,925	659.44	0.03	0.03	0.00
26.00	0.00	3,740	659.36	0.03	0.03	0.00
28.00	0.00	3,549	659.28	0.03	0.03	0.00
30.00	0.00	3,359	659.19	0.03	0.03	0.00
32.00	0.00	3,169	659.11	0.03	0.03	0.00
34.00	0.00	2,978	659.03	0.03	0.03	0.00
36.00	0.00	2,813	658.87	0.02	0.02	0.00
38.00	0.00	2,661	658.66	0.02	0.02	0.00
40.00	0.00	2,510	658.45	0.02	0.02	0.00
42.00	0.00	2,358	658.24	0.02	0.02	0.00
44.00	0.00	2,207	658.04	0.02	0.02	0.00
46.00	0.00	2,055	657.83	0.02	0.02	0.00
48.00	0.00	1,904	657.62	0.02	0.02	0.00
50.00	0.00	1,753	657.41	0.02	0.02	0.00
52.00	0.00	1,601	657.20	0.02	0.02	0.00
54.00	0.00	1,450	656.99	0.02	0.02	0.00
56.00	0.00	1,298	656.79	0.02	0.02	0.00
58.00	0.00	1,147	656.58	0.02	0.02	0.00
60.00	0.00	996	656.37	0.02	0.02	0.00
62.00	0.00	844	656.16	0.02	0.02	0.00
64.00	0.00	693	655.95	0.02	0.02	0.00
66.00	0.00	541	655.74	0.02	0.02	0.00
68.00	0.00	390	655.54	0.02	0.02	0.00
70.00	0.00	238	655.33	0.02	0.02	0.00
72.00	0.00	87	655.12	0.02	0.02	0.00
74.00	0.00	0	655.00	0.00	0.00	0.00
76.00	0.00	0	655.00	0.00	0.00	0.00
78.00	0.00	0	655.00	0.00	0.00	0.00
80.00	0.00	0	655.00	0.00	0.00	0.00
82.00	0.00	0	655.00	0.00	0.00	0.00
84.00	0.00	0	655.00	0.00	0.00	0.00
86.00	0.00	0	655.00	0.00	0.00	0.00
88.00	0.00	0	655.00	0.00	0.00	0.00
90.00	0.00	0	655.00	0.00	0.00	0.00
92.00	0.00	0	655.00	0.00	0.00	0.00
94.00	0.00	0	655.00	0.00	0.00	0.00
96.00	0.00	0	655.00	0.00	0.00	0.00

Summary for Subcatchment 1B: Post DA 8B-1B

Runoff = 1.38 cfs @ 12.07 hrs, Volume= 4,620 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

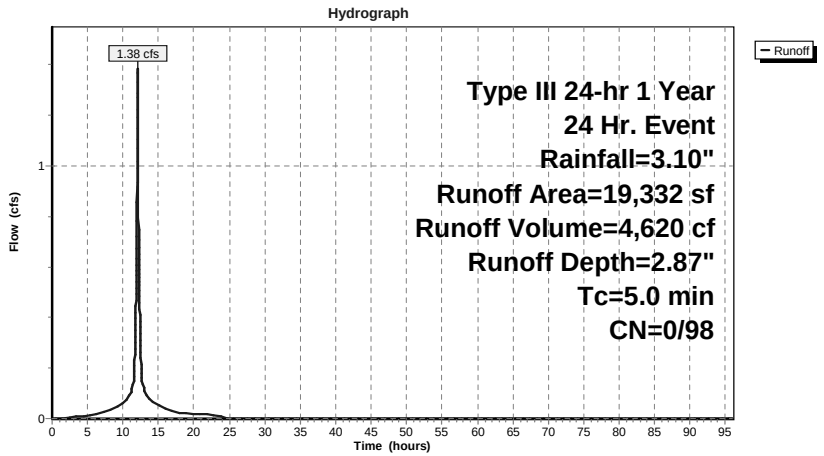
	Area (sf)	CN	Description	Land Use
	12,566	98	Roofs, HSG C	Roofs
*	6,766	98	Green Roof, HSG A	Landscaped
	19,332	98	Weighted Average	
	19,332	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
6,766	Landscaped	56.54	0.00	0.00	1.88
12,566	Roofs	53.92	0.31	4.26	21.00
19,332	Total	110.47	0.31	4.26	22.88

Subcatchment 1B: Post DA 8B-1B



Hydrograph for Subcatchment 1B: Post DA 8B-1B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.02
8.00	0.35	0.00	0.19	0.03
10.00	0.59	0.00	0.40	0.06
12.00	1.55	0.00	1.33	**0.93**
14.00	2.51	0.00	2.28	**0.07**
16.00	2.75	0.00	2.52	0.04
18.00	2.88	0.00	2.65	0.02
20.00	2.97	0.00	2.74	0.02
22.00	3.04	0.00	2.81	0.01
24.00	**3.10**	0.00	**2.87**	0.01
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00
74.00	3.10	0.00	2.87	0.00
76.00	3.10	0.00	2.87	0.00
78.00	3.10	0.00	2.87	0.00
80.00	3.10	0.00	2.87	0.00
82.00	3.10	0.00	2.87	0.00
84.00	3.10	0.00	2.87	0.00
86.00	3.10	0.00	2.87	0.00
88.00	3.10	0.00	2.87	0.00
90.00	3.10	0.00	2.87	0.00
92.00	3.10	0.00	2.87	0.00
94.00	3.10	0.00	2.87	0.00
96.00	3.10	0.00	2.87	0.00

Summary for Pond 1B-GR: 1B_Green Roof

Inflow Area = 19,332 sf,100.00% Impervious, Inflow Depth = 2.87" for 1 Year, 24 Hr. Event event
Inflow = 1.38 cfs @ 12.07 hrs, Volume= 4,620 cf
Outflow = 0.95 cfs @ 12.15 hrs, Volume= 4,613 cf, Atten= 32%, Lag= 4.6 min
Primary = 0.95 cfs @ 12.15 hrs, Volume= 4,613 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 800.78' @ 12.15 hrs Surf.Area= 6,766 sf Storage= 195 cf

Plug-Flow detention time= 2.7 min calculated for 4,613 cf (100% of inflow)
Center-of-Mass det. time= 1.6 min (757.8 - 756.1)

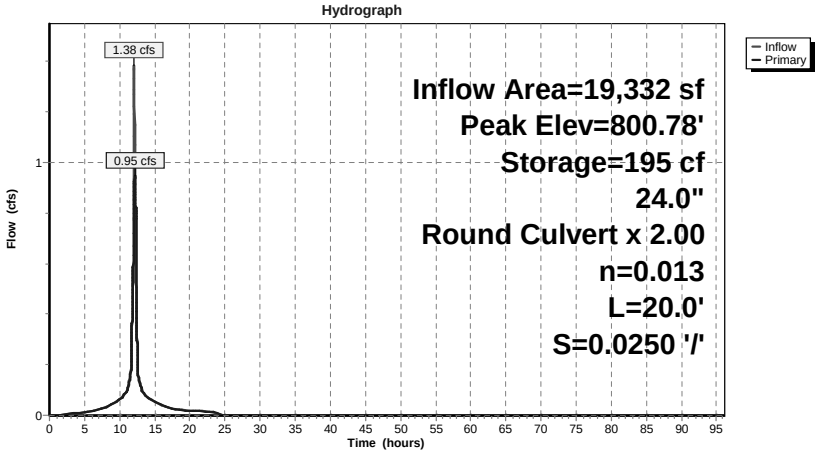
Volume	Invert	Avail.Storage	Storage Description
#1	800.00'	3,393 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
800.00	6,766	0.0	0	0
800.25	6,766	0.2	3	3
800.75	6,766	0.2	7	10
801.25	6,766	100.0	3,383	3,393

Device	Routing	Invert	Outlet Devices
#1	Primary	800.50'	**24.0" Round Culvert X 2.00** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 800.50' / 800.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.94 cfs @ 12.15 hrs HW=800.78' TW=647.42' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 0.94 cfs @ 1.79 fps)

Pond 1B-GR: 1B_Green Roof



Hydrograph for Pond 1B-GR: 1B_Green Roof

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	800.00	0.00
2.00	0.00	3	800.19	0.00
4.00	0.01	7	800.53	0.01
6.00	0.02	7	800.54	0.02
8.00	0.03	7	800.55	0.03
10.00	0.06	8	800.57	0.06
12.00	**0.93**	**16**	**800.75**	**0.78**
14.00	**0.07**	**8**	**800.57**	**0.07**
16.00	0.04	7	800.55	0.04
18.00	0.02	7	800.54	0.02
20.00	0.02	7	800.54	0.02
22.00	0.01	7	800.53	0.01
24.00	0.01	7	800.53	0.01
26.00	0.00	7	800.50	0.00
28.00	0.00	7	800.50	0.00
30.00	0.00	7	800.50	0.00
32.00	0.00	7	800.50	0.00
34.00	0.00	7	800.50	0.00
36.00	0.00	7	800.50	0.00
38.00	0.00	7	800.50	0.00
40.00	0.00	7	800.50	0.00
42.00	0.00	7	800.50	0.00
44.00	0.00	7	800.50	0.00
46.00	0.00	7	800.50	0.00
48.00	0.00	7	800.50	0.00
50.00	0.00	7	800.50	0.00
52.00	0.00	7	800.50	0.00
54.00	0.00	7	800.50	0.00
56.00	0.00	7	800.50	0.00
58.00	0.00	7	800.50	0.00
60.00	0.00	7	800.50	0.00
62.00	0.00	7	800.50	0.00
64.00	0.00	7	800.50	0.00
66.00	0.00	7	800.50	0.00
68.00	0.00	7	800.50	0.00
70.00	0.00	7	800.50	0.00
72.00	0.00	7	800.50	0.00
74.00	0.00	7	800.50	0.00
76.00	0.00	7	800.50	0.00
78.00	0.00	7	800.50	0.00
80.00	0.00	7	800.50	0.00
82.00	0.00	7	800.50	0.00
84.00	0.00	7	800.50	0.00
86.00	0.00	7	800.50	0.00
88.00	0.00	7	800.50	0.00
90.00	0.00	7	800.50	0.00
92.00	0.00	7	800.50	0.00
94.00	0.00	7	800.50	0.00
96.00	0.00	7	800.50	0.00

Summary for Subcatchment 1C: Post DA 8B-1C

Runoff = 0.15 cfs @ 12.07 hrs, Volume= 505 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

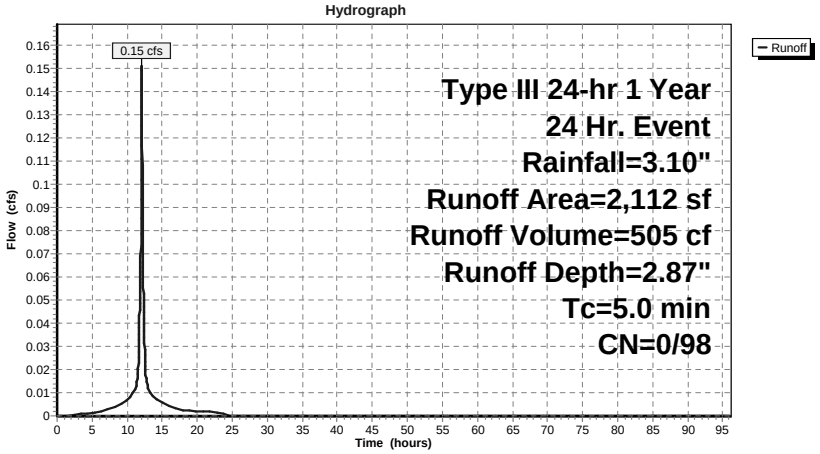
	Area (sf)	CN	Description	Land Use
*	2,112	98	Pavers, HSG C	Pavement
	2,112	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User defined min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,112	Pavement	82.52	0.27	1.00	3.20
2,112	Total	82.52	0.27	1.00	3.20

Subcatchment 1C: Post DA 8B-1C



Hydrograph for Subcatchment 1C: Post DA 8B-1C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.00	1.33	**0.10**
14.00	2.51	0.00	2.28	**0.01**
16.00	2.75	0.00	2.52	0.00
18.00	2.88	0.00	2.65	0.00
20.00	2.97	0.00	2.74	0.00
22.00	3.04	0.00	2.81	0.00
24.00	**3.10**	0.00	**2.87**	0.00
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00
74.00	3.10	0.00	2.87	0.00
76.00	3.10	0.00	2.87	0.00
78.00	3.10	0.00	2.87	0.00
80.00	3.10	0.00	2.87	0.00
82.00	3.10	0.00	2.87	0.00
84.00	3.10	0.00	2.87	0.00
86.00	3.10	0.00	2.87	0.00
88.00	3.10	0.00	2.87	0.00
90.00	3.10	0.00	2.87	0.00
92.00	3.10	0.00	2.87	0.00
94.00	3.10	0.00	2.87	0.00
96.00	3.10	0.00	2.87	0.00

Summary for Pond 1C-P: 1C_Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 2,112 sf,100.00% Impervious, Inflow Depth = 2.87" for 1 Year, 24 Hr. Event event
Inflow = 0.15 cfs @ 12.07 hrs, Volume= 505 cf
Outflow = 0.01 cfs @ 11.85 hrs, Volume= 505 cf, Atten= 92%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.85 hrs, Volume= 505 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 661.21' @ 12.99 hrs Surf.Area= 2,112 sf Storage= 180 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 104.4 min (860.5 - 756.1)

Volume	Invert	Avail.Storage	Storage Description
#1	661.00'	3,802 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

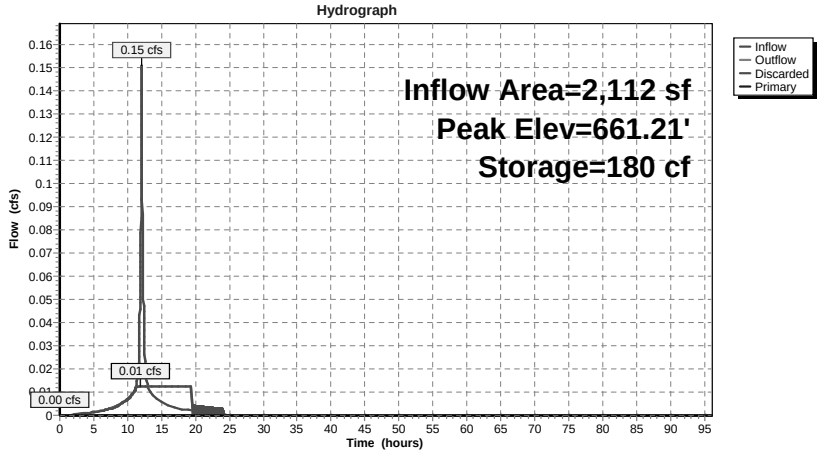
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
661.00	2,112	0.0	0	0
663.00	2,112	40.0	1,690	1,690
664.00	2,112	100.0	2,112	3,802

Device	Routing	Invert	Outlet Devices
#1	Primary	662.50'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	661.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 11.85 hrs HW=661.03' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=661.00' TW=647.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-P: 1C_Pavers



Hydrograph for Pond 1C-P: 1C_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	661.00	0.00	0.00	**0.00**
2.00	0.00	0	661.00	0.00	0.00	0.00
4.00	0.00	0	661.00	0.00	0.00	0.00
6.00	0.00	0	661.00	0.00	0.00	0.00
8.00	0.00	0	661.00	0.00	0.00	0.00
10.00	0.01	0	661.00	**0.01**	**0.01**	0.00
12.00	**0.10**	**56**	**661.07**	**0.01**	**0.01**	0.00
14.00	**0.01**	**171**	**661.20**	0.01	0.01	0.00
16.00	0.00	124	661.15	0.01	0.01	0.00
18.00	0.00	60	661.07	0.01	0.01	0.00
20.00	0.00	0	661.00	0.00	0.00	0.00
22.00	0.00	0	661.00	0.00	0.00	0.00
24.00	0.00	0	661.00	0.00	0.00	0.00
26.00	0.00	0	661.00	0.00	0.00	0.00
28.00	0.00	0	661.00	0.00	0.00	0.00
30.00	0.00	0	661.00	0.00	0.00	0.00
32.00	0.00	0	661.00	0.00	0.00	0.00
34.00	0.00	0	661.00	0.00	0.00	0.00
36.00	0.00	0	661.00	0.00	0.00	0.00
38.00	0.00	0	661.00	0.00	0.00	0.00
40.00	0.00	0	661.00	0.00	0.00	0.00
42.00	0.00	0	661.00	0.00	0.00	0.00
44.00	0.00	0	661.00	0.00	0.00	0.00
46.00	0.00	0	661.00	0.00	0.00	0.00
48.00	0.00	0	661.00	0.00	0.00	0.00
50.00	0.00	0	661.00	0.00	0.00	0.00
52.00	0.00	0	661.00	0.00	0.00	0.00
54.00	0.00	0	661.00	0.00	0.00	0.00
56.00	0.00	0	661.00	0.00	0.00	0.00
58.00	0.00	0	661.00	0.00	0.00	0.00
60.00	0.00	0	661.00	0.00	0.00	0.00
62.00	0.00	0	661.00	0.00	0.00	0.00
64.00	0.00	0	661.00	0.00	0.00	0.00
66.00	0.00	0	661.00	0.00	0.00	0.00
68.00	0.00	0	661.00	0.00	0.00	0.00
70.00	0.00	0	661.00	0.00	0.00	0.00
72.00	0.00	0	661.00	0.00	0.00	0.00
74.00	0.00	0	661.00	0.00	0.00	0.00
76.00	0.00	0	661.00	0.00	0.00	0.00
78.00	0.00	0	661.00	0.00	0.00	0.00
80.00	0.00	0	661.00	0.00	0.00	0.00
82.00	0.00	0	661.00	0.00	0.00	0.00
84.00	0.00	0	661.00	0.00	0.00	0.00
86.00	0.00	0	661.00	0.00	0.00	0.00
88.00	0.00	0	661.00	0.00	0.00	0.00
90.00	0.00	0	661.00	0.00	0.00	0.00
92.00	0.00	0	661.00	0.00	0.00	0.00
94.00	0.00	0	661.00	0.00	0.00	0.00
96.00	0.00	0	661.00	0.00	0.00	0.00

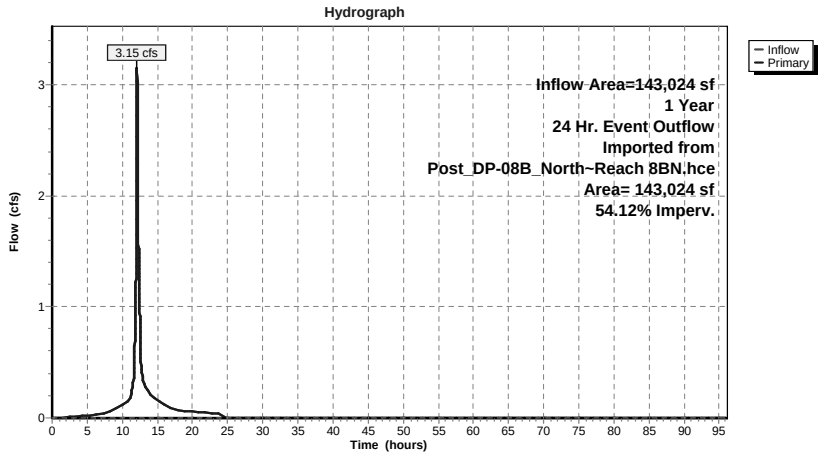
Summary for Link 8B-N: DA-8B North Inflow

Inflow Area = 143,024 sf, 54.12% Impervious, Inflow Depth = 0.96" for 1 Year, 24 Hr. Event event
Inflow = 3.15 cfs @ 12.09 hrs, Volume= 11,469 cf
Primary = 3.15 cfs @ 12.09 hrs, Volume= 11,469 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

1 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_North~Reach 8BN.hce

Link 8B-N: DA-8B North Inflow



Hydrograph for Link 8B-N: DA-8B North Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.02	0.00	0.02	56.00	0.00	0.00	0.00
5.00	0.02	0.00	0.02	57.00	0.00	0.00	0.00
6.00	0.03	0.00	0.03	58.00	0.00	0.00	0.00
7.00	0.04	0.00	0.04	59.00	0.00	0.00	0.00
8.00	0.05	0.00	0.05	60.00	0.00	0.00	0.00
9.00	0.08	0.00	0.08	61.00	0.00	0.00	0.00
10.00	0.11	0.00	0.11	62.00	0.00	0.00	0.00
11.00	0.17	0.00	0.17	63.00	0.00	0.00	0.00
12.00	**1.79**	0.00	**1.79**	64.00	0.00	0.00	0.00
13.00	**0.33**	0.00	**0.33**	65.00	0.00	0.00	0.00
14.00	0.21	0.00	0.21	66.00	0.00	0.00	0.00
15.00	0.16	0.00	0.16	67.00	0.00	0.00	0.00
16.00	0.11	0.00	0.11	68.00	0.00	0.00	0.00
17.00	0.09	0.00	0.09	69.00	0.00	0.00	0.00
18.00	0.07	0.00	0.07	70.00	0.00	0.00	0.00
19.00	0.06	0.00	0.06	71.00	0.00	0.00	0.00
20.00	0.06	0.00	0.06	72.00	0.00	0.00	0.00
21.00	0.05	0.00	0.05	73.00	0.00	0.00	0.00
22.00	0.05	0.00	0.05	74.00	0.00	0.00	0.00
23.00	0.04	0.00	0.04	75.00	0.00	0.00	0.00
24.00	0.04	0.00	0.04	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

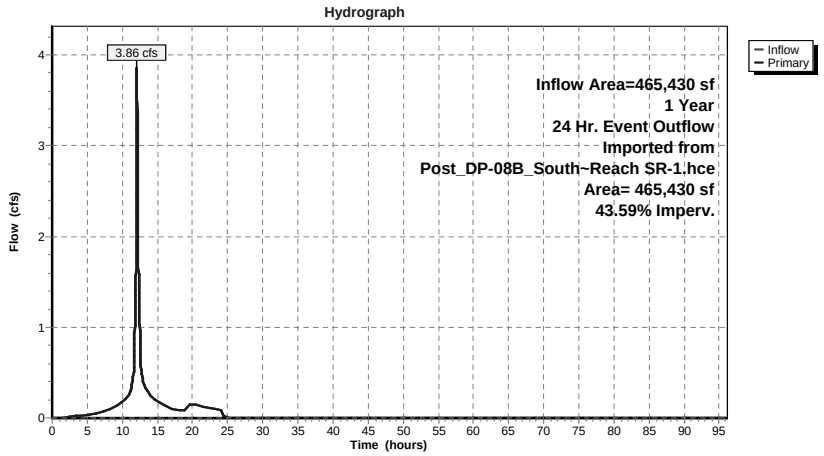
Summary for Link 8B-S: DA-8B South Inflow

Inflow Area = 465,430 sf, 43.59% Impervious, Inflow Depth = 0.40" for 1 Year, 24 Hr. Event event
Inflow = 3.86 cfs @ 12.08 hrs, Volume= 15,517 cf
Primary = 3.86 cfs @ 12.08 hrs, Volume= 15,517 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

1 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_South~Reach SR-1.hce

Link 8B-S: DA-8B South Inflow



Hydrograph for Link 8B-S: DA-8B South Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.02	0.00	0.02	55.00	0.00	0.00	0.00
4.00	0.03	0.00	0.03	56.00	0.00	0.00	0.00
5.00	0.04	0.00	0.04	57.00	0.00	0.00	0.00
6.00	0.04	0.00	0.04	58.00	0.00	0.00	0.00
7.00	0.06	0.00	0.06	59.00	0.00	0.00	0.00
8.00	0.08	0.00	0.08	60.00	0.00	0.00	0.00
9.00	0.13	0.00	0.13	61.00	0.00	0.00	0.00
10.00	0.17	0.00	0.17	62.00	0.00	0.00	0.00
11.00	0.26	0.00	0.26	63.00	0.00	0.00	0.00
12.00	**2.47**	0.00	**2.47**	64.00	0.00	0.00	0.00
13.00	**0.38**	0.00	**0.38**	65.00	0.00	0.00	0.00
14.00	0.24	0.00	0.24	66.00	0.00	0.00	0.00
15.00	0.18	0.00	0.18	67.00	0.00	0.00	0.00
16.00	0.13	0.00	0.13	68.00	0.00	0.00	0.00
17.00	0.10	0.00	0.10	69.00	0.00	0.00	0.00
18.00	0.08	0.00	0.08	70.00	0.00	0.00	0.00
19.00	0.11	0.00	0.11	71.00	0.00	0.00	0.00
20.00	0.15	0.00	0.15	72.00	0.00	0.00	0.00
21.00	0.13	0.00	0.13	73.00	0.00	0.00	0.00
22.00	0.12	0.00	0.12	74.00	0.00	0.00	0.00
23.00	0.11	0.00	0.11	75.00	0.00	0.00	0.00
24.00	0.09	0.00	0.09	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 12: Post DA 8B-12

Runoff = 2.16 cfs @ 12.07 hrs, Volume= 7,259 cf, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

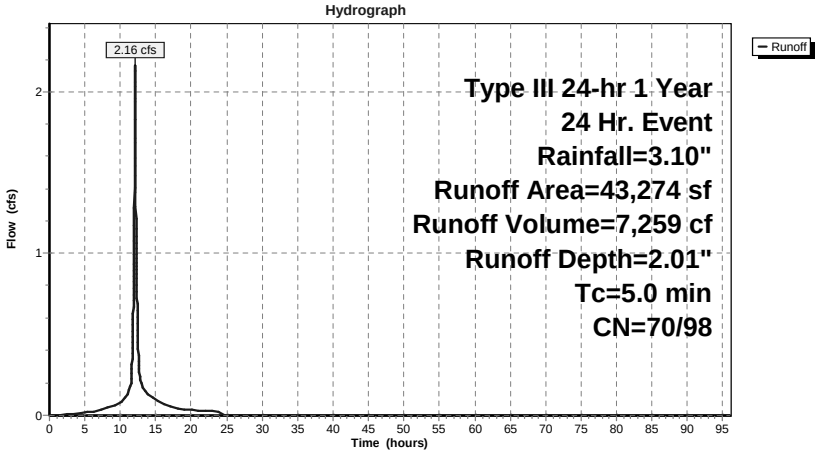
	Area (sf)	CN	Description	Land Use
	12,199	74	>75% Grass cover, Good, HSG C	Open Space
*	5,439	61	Bioretention, HSG C	Landscaped
	2,934	98	Unconnected roofs, HSG C	Roofs
	22,702	98	Paved parking, HSG C	Pavement
	43,274	87	Weighted Average	
	17,638	70	40.76% Pervious Area	
	25,636	98	59.24% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.24% Impervious, Rv= 0.583, Runoff= 26.65"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,439	Landscaped	27.90	0.00	0.00	0.93
12,199	Open Space	1,018.19	3.55	15.39	2.08
22,702	Pavement	544.53	1.76	6.61	21.09
2,934	Roofs	7.73	0.04	0.61	3.01
43,274	Total	1,598.35	5.36	22.61	27.11

Subcatchment 12: Post DA 8B-12



Hydrograph for Subcatchment 12: Post DA 8B-12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.02
8.00	0.35	0.00	0.19	0.04
10.00	0.59	0.00	0.40	0.08
12.00	1.55	0.10	1.33	**1.41**
14.00	2.51	0.46	2.28	**0.12**
16.00	2.75	0.58	2.52	0.07
18.00	2.88	0.65	2.65	0.04
20.00	2.97	0.70	2.74	0.03
22.00	3.04	0.74	2.81	0.03
24.00	**3.10**	**0.77**	**2.87**	0.02
26.00	3.10	0.77	2.87	0.00
28.00	3.10	0.77	2.87	0.00
30.00	3.10	0.77	2.87	0.00
32.00	3.10	0.77	2.87	0.00
34.00	3.10	0.77	2.87	0.00
36.00	3.10	0.77	2.87	0.00
38.00	3.10	0.77	2.87	0.00
40.00	3.10	0.77	2.87	0.00
42.00	3.10	0.77	2.87	0.00
44.00	3.10	0.77	2.87	0.00
46.00	3.10	0.77	2.87	0.00
48.00	3.10	0.77	2.87	0.00
50.00	3.10	0.77	2.87	0.00
52.00	3.10	0.77	2.87	0.00
54.00	3.10	0.77	2.87	0.00
56.00	3.10	0.77	2.87	0.00
58.00	3.10	0.77	2.87	0.00
60.00	3.10	0.77	2.87	0.00
62.00	3.10	0.77	2.87	0.00
64.00	3.10	0.77	2.87	0.00
66.00	3.10	0.77	2.87	0.00
68.00	3.10	0.77	2.87	0.00
70.00	3.10	0.77	2.87	0.00
72.00	3.10	0.77	2.87	0.00
74.00	3.10	0.77	2.87	0.00
76.00	3.10	0.77	2.87	0.00
78.00	3.10	0.77	2.87	0.00
80.00	3.10	0.77	2.87	0.00
82.00	3.10	0.77	2.87	0.00
84.00	3.10	0.77	2.87	0.00
86.00	3.10	0.77	2.87	0.00
88.00	3.10	0.77	2.87	0.00
90.00	3.10	0.77	2.87	0.00
92.00	3.10	0.77	2.87	0.00
94.00	3.10	0.77	2.87	0.00
96.00	3.10	0.77	2.87	0.00

Summary for Pond 12-Bio: 12_Bioretention

Inflow Area = 43,274 sf, 59.24% Impervious, Inflow Depth = 2.01" for 1 Year, 24 Hr. Event event
Inflow = 2.16 cfs @ 12.07 hrs, Volume= 7,259 cf
Outflow = 0.03 cfs @ 12.24 hrs, Volume= 6,314 cf, Atten= 98%, Lag= 10.0 min
Discarded = 0.03 cfs @ 12.24 hrs, Volume= 6,314 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 689.35' @ 19.83 hrs Surf.Area= 5,839 sf Storage= 5,490 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,707.0 min (2,482.1 - 775.0)

Volume	Invert	Avail.Storage	Storage Description
#1	685.00'	9,261 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

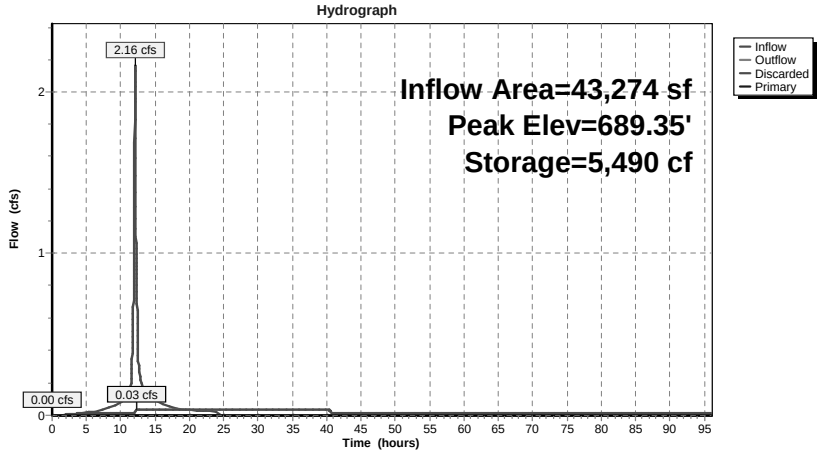
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
685.00	2,120	0.0	0	0	2,120
685.01	2,120	40.0	8	8	2,122
688.99	2,120	40.0	3,375	3,384	2,855
689.00	5,839	100.0	38	3,422	6,574
689.50	5,839	100.0	2,920	6,341	6,727
690.00	5,839	100.0	2,920	9,261	6,880

Device	Routing	Invert	Outlet Devices
#1	Discarded	685.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	689.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.24 hrs HW=689.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=685.00' TW=670.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 12-Bio: 12_Bioretention



Hydrograph for Pond 12-Bio: 12_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	685.00	0.00	0.00	**0.00**
2.00	0.00	0	685.00	0.00	0.00	0.00
4.00	0.01	0	685.00	0.01	0.01	0.00
6.00	0.02	32	685.04	0.01	0.01	0.00
8.00	0.04	158	685.19	0.01	0.01	0.00
10.00	0.08	501	685.59	0.01	0.01	0.00
12.00	**1.41**	2,061	687.43	**0.01**	**0.01**	0.00
14.00	**0.12**	4,889	689.25	**0.03**	**0.03**	0.00
16.00	0.07	5,326	689.33	0.03	0.03	0.00
18.00	0.04	**5,468**	**689.35**	0.03	0.03	0.00
20.00	0.03	**5,490**	**689.35**	0.03	0.03	0.00
22.00	0.03	5,465	689.35	0.03	0.03	0.00
24.00	0.02	5,400	689.34	0.03	0.03	0.00
26.00	0.00	5,162	689.30	0.03	0.03	0.00
28.00	0.00	4,919	689.26	0.03	0.03	0.00
30.00	0.00	4,676	689.21	0.03	0.03	0.00
32.00	0.00	4,433	689.17	0.03	0.03	0.00
34.00	0.00	4,189	689.13	0.03	0.03	0.00
36.00	0.00	3,946	689.09	0.03	0.03	0.00
38.00	0.00	3,703	689.05	0.03	0.03	0.00
40.00	0.00	3,459	689.01	0.03	0.03	0.00
42.00	0.00	3,330	688.93	0.01	0.01	0.00
44.00	0.00	3,242	688.82	0.01	0.01	0.00
46.00	0.00	3,153	688.72	0.01	0.01	0.00
48.00	0.00	3,065	688.61	0.01	0.01	0.00
50.00	0.00	2,977	688.51	0.01	0.01	0.00
52.00	0.00	2,888	688.41	0.01	0.01	0.00
54.00	0.00	2,800	688.30	0.01	0.01	0.00
56.00	0.00	2,712	688.20	0.01	0.01	0.00
58.00	0.00	2,623	688.09	0.01	0.01	0.00
60.00	0.00	2,535	687.99	0.01	0.01	0.00
62.00	0.00	2,447	687.89	0.01	0.01	0.00
64.00	0.00	2,358	687.78	0.01	0.01	0.00
66.00	0.00	2,270	687.68	0.01	0.01	0.00
68.00	0.00	2,182	687.57	0.01	0.01	0.00
70.00	0.00	2,093	687.47	0.01	0.01	0.00
72.00	0.00	2,005	687.36	0.01	0.01	0.00
74.00	0.00	1,917	687.26	0.01	0.01	0.00
76.00	0.00	1,828	687.16	0.01	0.01	0.00
78.00	0.00	1,740	687.05	0.01	0.01	0.00
80.00	0.00	1,652	686.95	0.01	0.01	0.00
82.00	0.00	1,563	686.84	0.01	0.01	0.00
84.00	0.00	1,475	686.74	0.01	0.01	0.00
86.00	0.00	1,387	686.64	0.01	0.01	0.00
88.00	0.00	1,298	686.53	0.01	0.01	0.00
90.00	0.00	1,210	686.43	0.01	0.01	0.00
92.00	0.00	1,122	686.32	0.01	0.01	0.00
94.00	0.00	1,033	686.22	0.01	0.01	0.00
96.00	0.00	945	686.11	0.01	0.01	0.00

Summary for Reach DP-8B: DP-8B Outflow

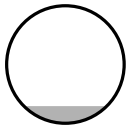
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 711,597 sf, 48.21% Impervious, Inflow Depth = 0.53" for 1 Year, 24 Hr. Event event
Inflow = 7.81 cfs @ 12.09 hrs, Volume= 31,600 cf
Outflow = 7.73 cfs @ 12.10 hrs, Volume= 31,600 cf, Atten= 1%, Lag= 0.8 min

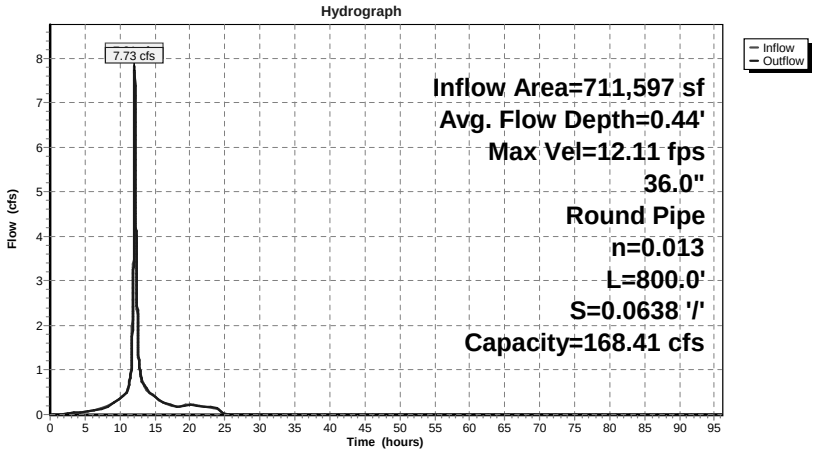
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 12.11 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 4.01 fps, Avg. Travel Time= 3.3 min

Peak Storage= 511 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 168.41 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 800.0' Slope= 0.0638 '/'
Inlet Invert= 647.00', Outlet Invert= 596.00'



Reach DP-8B: DP-8B Outflow



Hydrograph for Reach DP-8B: DP-8B Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	647.00	0.00
2.00	0.01	3	647.01	0.01
4.00	0.05	14	647.04	0.05
6.00	0.09	22	647.05	0.09
8.00	0.17	34	647.07	0.16
10.00	0.34	57	647.10	0.34
12.00	**4.92**	**347**	**647.34**	**4.46**
14.00	**0.52**	**79**	**647.12**	**0.53**
16.00	0.28	51	647.09	0.29
18.00	0.17	36	647.07	0.18
20.00	0.22	42	647.08	0.22
22.00	0.18	37	647.07	0.18
24.00	0.14	31	647.07	0.14
26.00	0.00	0	647.00	0.00
28.00	0.00	0	647.00	0.00
30.00	0.00	0	647.00	0.00
32.00	0.00	0	647.00	0.00
34.00	0.00	0	647.00	0.00
36.00	0.00	0	647.00	0.00
38.00	0.00	0	647.00	0.00
40.00	0.00	0	647.00	0.00
42.00	0.00	0	647.00	0.00
44.00	0.00	0	647.00	0.00
46.00	0.00	0	647.00	0.00
48.00	0.00	0	647.00	0.00
50.00	0.00	0	647.00	0.00
52.00	0.00	0	647.00	0.00
54.00	0.00	0	647.00	0.00
56.00	0.00	0	647.00	0.00
58.00	0.00	0	647.00	0.00
60.00	0.00	0	647.00	0.00
62.00	0.00	0	647.00	0.00
64.00	0.00	0	647.00	0.00
66.00	0.00	0	647.00	0.00
68.00	0.00	0	647.00	0.00
70.00	0.00	0	647.00	0.00
72.00	0.00	0	647.00	0.00
74.00	0.00	0	647.00	0.00
76.00	0.00	0	647.00	0.00
78.00	0.00	0	647.00	0.00
80.00	0.00	0	647.00	0.00
82.00	0.00	0	647.00	0.00
84.00	0.00	0	647.00	0.00
86.00	0.00	0	647.00	0.00
88.00	0.00	0	647.00	0.00
90.00	0.00	0	647.00	0.00
92.00	0.00	0	647.00	0.00
94.00	0.00	0	647.00	0.00
96.00	0.00	0	647.00	0.00

Summary for Reach EP-1: East Reach Pipe

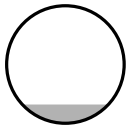
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 186,298 sf, 55.31% Impervious, Inflow Depth = 0.74" for 1 Year, 24 Hr. Event event
Inflow = 3.15 cfs @ 12.09 hrs, Volume= 11,469 cf
Outflow = 3.14 cfs @ 12.10 hrs, Volume= 11,469 cf, Atten= 0%, Lag= 0.5 min

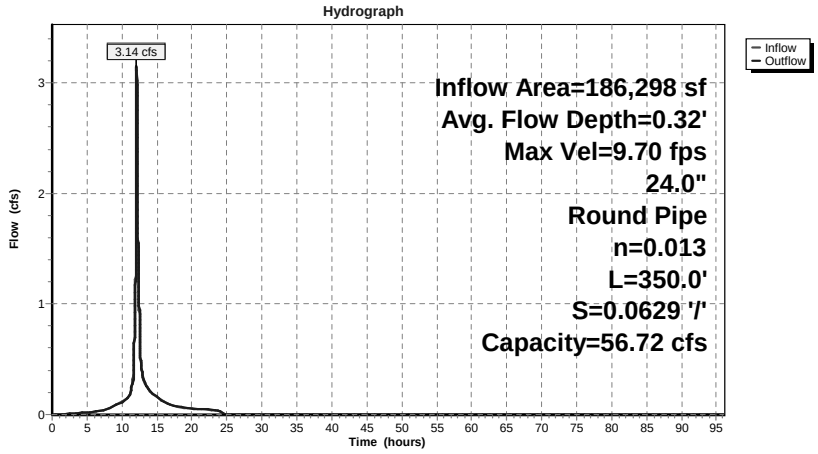
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 9.70 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 3.19 fps, Avg. Travel Time= 1.8 min

Peak Storage= 113 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 56.72 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 350.0' Slope= 0.0629 '/'
Inlet Invert= 670.00', Outlet Invert= 648.00'



Reach EP-1: East Reach Pipe



Hydrograph for Reach EP-1: East Reach Pipe

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	670.00	0.00
2.00	0.00	1	670.01	0.00
4.00	0.02	3	670.03	0.02
6.00	0.03	4	670.03	0.03
8.00	0.05	6	670.05	0.05
10.00	0.11	11	670.06	0.11
12.00	**1.79**	**73**	**670.24**	**1.68**
14.00	**0.21**	**17**	**670.09**	**0.21**
16.00	0.11	11	670.07	0.12
18.00	0.07	8	670.05	0.07
20.00	0.06	7	670.05	0.06
22.00	0.05	6	670.04	0.05
24.00	0.04	5	670.04	0.04
26.00	0.00	0	670.00	0.00
28.00	0.00	0	670.00	0.00
30.00	0.00	0	670.00	0.00
32.00	0.00	0	670.00	0.00
34.00	0.00	0	670.00	0.00
36.00	0.00	0	670.00	0.00
38.00	0.00	0	670.00	0.00
40.00	0.00	0	670.00	0.00
42.00	0.00	0	670.00	0.00
44.00	0.00	0	670.00	0.00
46.00	0.00	0	670.00	0.00
48.00	0.00	0	670.00	0.00
50.00	0.00	0	670.00	0.00
52.00	0.00	0	670.00	0.00
54.00	0.00	0	670.00	0.00
56.00	0.00	0	670.00	0.00
58.00	0.00	0	670.00	0.00
60.00	0.00	0	670.00	0.00
62.00	0.00	0	670.00	0.00
64.00	0.00	0	670.00	0.00
66.00	0.00	0	670.00	0.00
68.00	0.00	0	670.00	0.00
70.00	0.00	0	670.00	0.00
72.00	0.00	0	670.00	0.00
74.00	0.00	0	670.00	0.00
76.00	0.00	0	670.00	0.00
78.00	0.00	0	670.00	0.00
80.00	0.00	0	670.00	0.00
82.00	0.00	0	670.00	0.00
84.00	0.00	0	670.00	0.00
86.00	0.00	0	670.00	0.00
88.00	0.00	0	670.00	0.00
90.00	0.00	0	670.00	0.00
92.00	0.00	0	670.00	0.00
94.00	0.00	0	670.00	0.00
96.00	0.00	0	670.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: Post DA 8B-1A Runoff Area=38,425 sf 40.95% Impervious Runoff Depth=2.07"
Flow Length=219' Tc=5.2 min CN=74/98 Runoff=2.01 cfs 6,627 cf

Pond 1A-Bio: 1A-Bioretention Peak Elev=659.52' Storage=4,114 cf Inflow=2.01 cfs 6,627 cf
Discarded=0.03 cfs 5,774 cf Primary=0.09 cfs 854 cf Outflow=0.11 cfs 6,628 cf

Subcatchment 1B: Post DA 8B-1B Runoff Area=19,332 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=1.57 cfs 5,262 cf

Pond 1B-GR: 1B_Green Roof Peak Elev=800.79' Storage=268 cf Inflow=1.57 cfs 5,262 cf
24.0" Round Culvert x 2.00 n=0.013 L=20.0' S=0.0250 '/' Outflow=1.02 cfs 5,256 cf

Subcatchment 1C: Post DA 8B-1C Runoff Area=2,112 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=0.17 cfs 575 cf

Pond 1C-P: 1C_Pavers Peak Elev=661.26' Storage=216 cf Inflow=0.17 cfs 575 cf
Discarded=0.01 cfs 575 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 575 cf

Link 2 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_North~Reach 8BN.hce Inflow=3.72 cfs 13,503 cf
Area= 143,024 sf 54.12% Imperv. Primary=3.72 cfs 13,503 cf

Link 1 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_South~Reach SR-1.hce Inflow=4.41 cfs 22,761 cf
Area= 465,430 sf 43.59% Imperv. Primary=4.41 cfs 22,761 cf

Subcatchment 12: Post DA 8B-12 Runoff Area=43,274 sf 59.24% Impervious Runoff Depth=2.35"
Tc=5.0 min CN=70/98 Runoff=2.53 cfs 8,460 cf

Pond 12-Bio: 12_Bioretention Peak Elev=689.51' Storage=6,402 cf Inflow=2.53 cfs 8,460 cf
Discarded=0.03 cfs 6,920 cf Primary=0.03 cfs 264 cf Outflow=0.06 cfs 7,184 cf

Reach DP-8B: DP-8B Outflow Avg. Flow Depth=0.47' Max Vel=12.63 fps Inflow=8.99 cfs 42,638 cf
36.0" Round Pipe n=0.013 L=800.0' S=0.0638 '/' Capacity=168.41 cfs Outflow=8.90 cfs 42,638 cf

Reach EP-1: East Reach Pipe Avg. Flow Depth=0.35' Max Vel=10.19 fps Inflow=3.72 cfs 13,767 cf
24.0" Round Pipe n=0.013 L=350.0' S=0.0629 '/' Capacity=56.72 cfs Outflow=3.71 cfs 13,767 cf

Total Runoff Area = 103,143 sf Runoff Volume = 20,925 cf Average Runoff Depth = 2.43"
39.10% Pervious = 40,329 sf 60.90% Impervious = 62,814 sf

Summary for Subcatchment 1A: Post DA 8B-1A

Runoff = 2.01 cfs @ 12.08 hrs, Volume= 6,627 cf, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

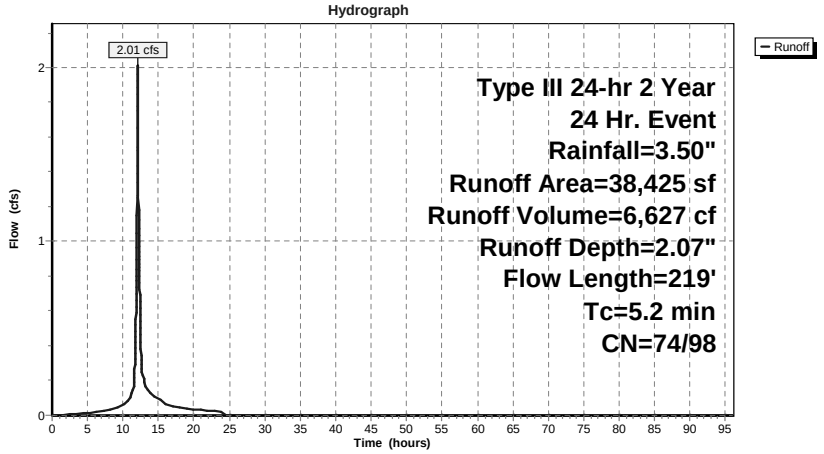
Area (sf)	CN	Description	Land Use
15,734	98	Paved parking, HSG C	Pavement
22,691	74	>75% Grass cover, Good, HSG C	Open Space
38,425	84	Weighted Average	
22,691	74	59.05% Pervious Area	
15,734	98	40.95% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	47	0.0640	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	23	0.0430	1.45		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	149		15.00		**Direct Entry,**
5.2	219	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 40.95% Impervious, Rv= 0.419, Runoff= 19.13"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
22,691	Open Space	1,359.21	4.74	20.55	2.78
15,734	Pavement	270.85	0.88	3.29	10.49
38,425	Total	1,630.05	5.62	23.83	13.27

Subcatchment 1A: Post DA 8B-1A



Hydrograph for Subcatchment 1A: Post DA 8B-1A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.02
8.00	0.40	0.00	0.23	0.03
10.00	0.66	0.00	0.47	0.06
12.00	1.75	0.24	1.53	**1.26**
14.00	2.84	0.81	2.61	**0.12**
16.00	3.10	0.97	2.87	0.07
18.00	3.25	1.07	3.02	0.04
20.00	3.35	1.14	3.12	0.03
22.00	3.43	1.19	3.20	0.03
24.00	**3.50**	**1.24**	**3.27**	0.02
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00
74.00	3.50	1.24	3.27	0.00
76.00	3.50	1.24	3.27	0.00
78.00	3.50	1.24	3.27	0.00
80.00	3.50	1.24	3.27	0.00
82.00	3.50	1.24	3.27	0.00
84.00	3.50	1.24	3.27	0.00
86.00	3.50	1.24	3.27	0.00
88.00	3.50	1.24	3.27	0.00
90.00	3.50	1.24	3.27	0.00
92.00	3.50	1.24	3.27	0.00
94.00	3.50	1.24	3.27	0.00
96.00	3.50	1.24	3.27	0.00

Summary for Pond 1A-Bio: 1A-Bioretention

Inflow Area = 38,425 sf, 40.95% Impervious, Inflow Depth = 2.07" for 2 Year, 24 Hr. Event event
Inflow = 2.01 cfs @ 12.08 hrs, Volume= 6,627 cf
Outflow = 0.11 cfs @ 14.19 hrs, Volume= 6,628 cf, Atten= 94%, Lag= 126.7 min
Discarded = 0.03 cfs @ 12.32 hrs, Volume= 5,774 cf
Primary = 0.09 cfs @ 14.19 hrs, Volume= 854 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 659.52' @ 14.19 hrs Surf.Area= 2,285 sf Storage= 4,114 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,328.4 min (2,118.4 - 789.9)

Volume	Invert	Avail.Storage	Storage Description
#1	655.00'	5,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

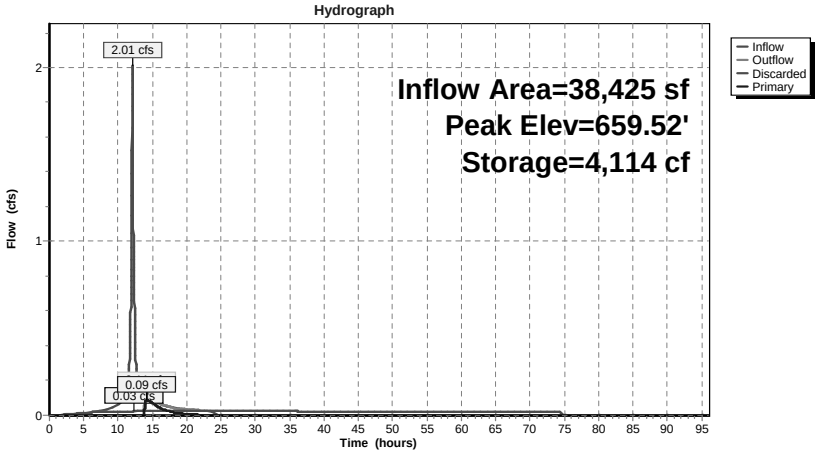
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
655.00	1,817	0.0	0	0
655.01	1,817	40.0	7	7
658.99	1,817	40.0	2,893	2,900
659.00	2,285	100.0	21	2,920
659.50	2,285	100.0	1,143	4,063
660.00	2,285	100.0	1,143	5,205

Device	Routing	Invert	Outlet Devices
#1	Discarded	655.00'	**0.500 in/hr Exfiltration over Horizontal area**
#2	Primary	659.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.32 hrs HW=659.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.09 cfs @ 14.19 hrs HW=659.52' TW=647.14' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.09 cfs @ 0.49 fps)

Pond 1A-Bio: 1A-Bioretention



Hydrograph for Pond 1A-Bio: 1A-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	655.00	0.00	0.00	0.00
2.00	0.00	0	655.00	0.00	0.00	0.00
4.00	0.01	0	655.00	0.01	0.01	0.00
6.00	0.02	0	655.00	0.02	0.02	0.00
8.00	0.03	14	655.02	0.02	0.02	0.00
10.00	0.06	167	655.23	0.02	0.02	0.00
12.00	**1.26**	1,392	656.91	0.02	**0.02**	0.00
14.00	**0.12**	**4,111**	**659.52**	**0.11**	**0.03**	**0.08**
16.00	0.07	**4,095**	**659.51**	**0.07**	0.03	**0.04**
18.00	0.04	4,080	659.51	0.04	0.03	0.02
20.00	0.03	4,073	659.50	0.03	0.03	0.01
22.00	0.03	4,067	659.50	0.03	0.03	0.00
24.00	0.02	4,051	659.49	0.03	0.03	0.00
26.00	0.00	3,867	659.41	0.03	0.03	0.00
28.00	0.00	3,676	659.33	0.03	0.03	0.00
30.00	0.00	3,486	659.25	0.03	0.03	0.00
32.00	0.00	3,295	659.16	0.03	0.03	0.00
34.00	0.00	3,105	659.08	0.03	0.03	0.00
36.00	0.00	2,915	659.00	0.03	0.03	0.00
38.00	0.00	2,762	658.80	0.02	0.02	0.00
40.00	0.00	2,611	658.59	0.02	0.02	0.00
42.00	0.00	2,459	658.38	0.02	0.02	0.00
44.00	0.00	2,308	658.18	0.02	0.02	0.00
46.00	0.00	2,156	657.97	0.02	0.02	0.00
48.00	0.00	2,005	657.76	0.02	0.02	0.00
50.00	0.00	1,854	657.55	0.02	0.02	0.00
52.00	0.00	1,702	657.34	0.02	0.02	0.00
54.00	0.00	1,551	657.13	0.02	0.02	0.00
56.00	0.00	1,399	656.93	0.02	0.02	0.00
58.00	0.00	1,248	656.72	0.02	0.02	0.00
60.00	0.00	1,096	656.51	0.02	0.02	0.00
62.00	0.00	945	656.30	0.02	0.02	0.00
64.00	0.00	794	656.09	0.02	0.02	0.00
66.00	0.00	642	655.88	0.02	0.02	0.00
68.00	0.00	491	655.68	0.02	0.02	0.00
70.00	0.00	339	655.47	0.02	0.02	0.00
72.00	0.00	188	655.26	0.02	0.02	0.00
74.00	0.00	37	655.05	0.02	0.02	0.00
76.00	0.00	0	655.00	0.00	0.00	0.00
78.00	0.00	0	655.00	0.00	0.00	0.00
80.00	0.00	0	655.00	0.00	0.00	0.00
82.00	0.00	0	655.00	0.00	0.00	0.00
84.00	0.00	0	655.00	0.00	0.00	0.00
86.00	0.00	0	655.00	0.00	0.00	0.00
88.00	0.00	0	655.00	0.00	0.00	0.00
90.00	0.00	0	655.00	0.00	0.00	0.00
92.00	0.00	0	655.00	0.00	0.00	0.00
94.00	0.00	0	655.00	0.00	0.00	0.00
96.00	0.00	0	655.00	0.00	0.00	0.00

Summary for Subcatchment 1B: Post DA 8B-1B

Runoff = 1.57 cfs @ 12.07 hrs, Volume= 5,262 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

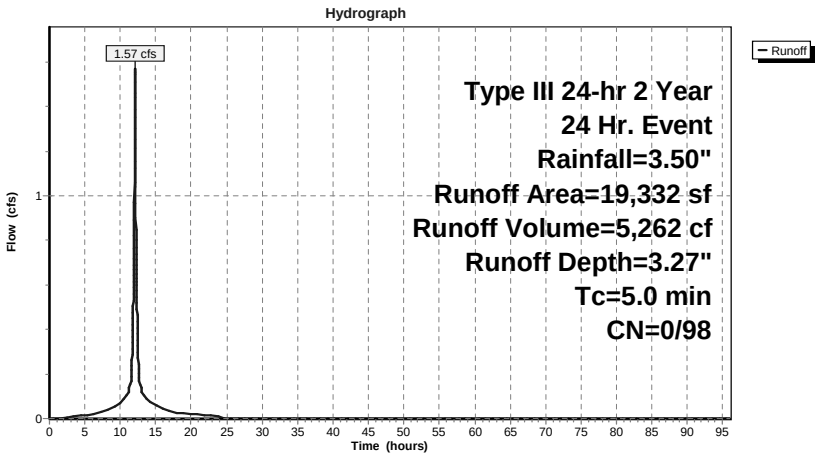
	Area (sf)	CN	Description	Land Use
	12,566	98	Roofs, HSG C	Roofs
*	6,766	98	Green Roof, HSG A	Landscaped
	19,332	98	Weighted Average	
	19,332	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
6,766	Landscaped	56.54	0.00	0.00	1.88
12,566	Roofs	53.92	0.31	4.26	21.00
19,332	Total	110.47	0.31	4.26	22.88

Subcatchment 1B: Post DA 8B-1B



Hydrograph for Subcatchment 1B: Post DA 8B-1B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.02
8.00	0.40	0.00	0.23	0.03
10.00	0.66	0.00	0.47	0.07
12.00	1.75	0.00	1.53	**1.06**
14.00	2.84	0.00	2.61	**0.08**
16.00	3.10	0.00	2.87	0.04
18.00	3.25	0.00	3.02	0.03
20.00	3.35	0.00	3.12	0.02
22.00	3.43	0.00	3.20	0.02
24.00	**3.50**	0.00	**3.27**	0.01
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00
74.00	3.50	0.00	3.27	0.00
76.00	3.50	0.00	3.27	0.00
78.00	3.50	0.00	3.27	0.00
80.00	3.50	0.00	3.27	0.00
82.00	3.50	0.00	3.27	0.00
84.00	3.50	0.00	3.27	0.00
86.00	3.50	0.00	3.27	0.00
88.00	3.50	0.00	3.27	0.00
90.00	3.50	0.00	3.27	0.00
92.00	3.50	0.00	3.27	0.00
94.00	3.50	0.00	3.27	0.00
96.00	3.50	0.00	3.27	0.00

Summary for Pond 1B-GR: 1B_Green Roof

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 19,332 sf,100.00% Impervious, Inflow Depth = 3.27" for 2 Year, 24 Hr. Event event
Inflow = 1.57 cfs @ 12.07 hrs, Volume= 5,262 cf
Outflow = 1.02 cfs @ 12.15 hrs, Volume= 5,256 cf, Atten= 35%, Lag= 5.0 min
Primary = 1.02 cfs @ 12.15 hrs, Volume= 5,256 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 800.79' @ 12.15 hrs Surf.Area= 6,766 sf Storage= 268 cf

Plug-Flow detention time= 2.6 min calculated for 5,256 cf (100% of inflow)
Center-of-Mass det. time= 1.7 min (755.4 - 753.6)

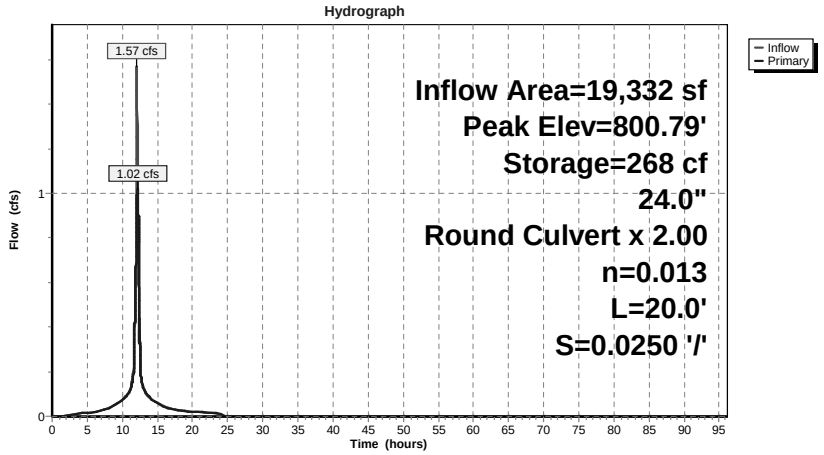
Volume	Invert	Avail.Storage	Storage Description
#1	800.00'	3,393 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
800.00	6,766	0.0	0	0
800.25	6,766	0.2	3	3
800.75	6,766	0.2	7	10
801.25	6,766	100.0	3,383	3,393

Device	Routing	Invert	Outlet Devices
#1	Primary	800.50'	**24.0" Round Culvert X 2.00** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 800.50' / 800.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.02 cfs @ 12.15 hrs HW=800.79' TW=647.44' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.02 cfs @ 1.83 fps)

Pond 1B-GR: 1B_Green Roof



Hydrograph for Pond 1B-GR: 1B_Green Roof

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	800.00	0.00
2.00	0.00	5	800.36	0.00
4.00	0.01	7	800.53	0.01
6.00	0.02	7	800.54	0.02
8.00	0.03	7	800.55	0.03
10.00	0.07	8	800.57	0.07
12.00	**1.06**	**27**	**800.75**	**0.79**
14.00	**0.08**	**8**	**800.58**	**0.08**
16.00	0.04	8	800.56	0.04
18.00	0.03	7	800.54	0.03
20.00	0.02	7	800.54	0.02
22.00	0.02	7	800.54	0.02
24.00	0.01	7	800.53	0.01
26.00	0.00	7	800.50	0.00
28.00	0.00	7	800.50	0.00
30.00	0.00	7	800.50	0.00
32.00	0.00	7	800.50	0.00
34.00	0.00	7	800.50	0.00
36.00	0.00	7	800.50	0.00
38.00	0.00	7	800.50	0.00
40.00	0.00	7	800.50	0.00
42.00	0.00	7	800.50	0.00
44.00	0.00	7	800.50	0.00
46.00	0.00	7	800.50	0.00
48.00	0.00	7	800.50	0.00
50.00	0.00	7	800.50	0.00
52.00	0.00	7	800.50	0.00
54.00	0.00	7	800.50	0.00
56.00	0.00	7	800.50	0.00
58.00	0.00	7	800.50	0.00
60.00	0.00	7	800.50	0.00
62.00	0.00	7	800.50	0.00
64.00	0.00	7	800.50	0.00
66.00	0.00	7	800.50	0.00
68.00	0.00	7	800.50	0.00
70.00	0.00	7	800.50	0.00
72.00	0.00	7	800.50	0.00
74.00	0.00	7	800.50	0.00
76.00	0.00	7	800.50	0.00
78.00	0.00	7	800.50	0.00
80.00	0.00	7	800.50	0.00
82.00	0.00	7	800.50	0.00
84.00	0.00	7	800.50	0.00
86.00	0.00	7	800.50	0.00
88.00	0.00	7	800.50	0.00
90.00	0.00	7	800.50	0.00
92.00	0.00	7	800.50	0.00
94.00	0.00	7	800.50	0.00
96.00	0.00	7	800.50	0.00

Summary for Subcatchment 1C: Post DA 8B-1C

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 575 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

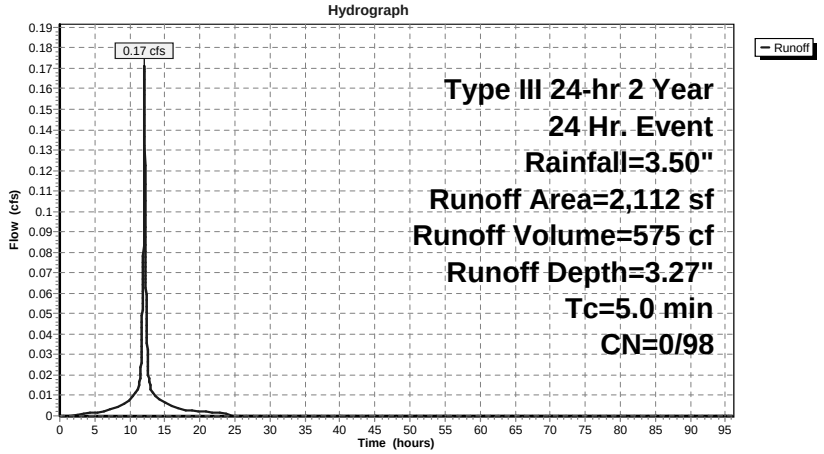
	Area (sf)	CN	Description	Land Use
*	2,112	98	Pavers, HSG C	Pavement
	2,112	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User defined min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,112	Pavement	82.52	0.27	1.00	3.20
2,112	Total	82.52	0.27	1.00	3.20

Subcatchment 1C: Post DA 8B-1C



Hydrograph for Subcatchment 1C: Post DA 8B-1C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.00	1.53	**0.12**
14.00	2.84	0.00	2.61	**0.01**
16.00	3.10	0.00	2.87	0.00
18.00	3.25	0.00	3.02	0.00
20.00	3.35	0.00	3.12	0.00
22.00	3.43	0.00	3.20	0.00
24.00	**3.50**	0.00	**3.27**	0.00
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00
74.00	3.50	0.00	3.27	0.00
76.00	3.50	0.00	3.27	0.00
78.00	3.50	0.00	3.27	0.00
80.00	3.50	0.00	3.27	0.00
82.00	3.50	0.00	3.27	0.00
84.00	3.50	0.00	3.27	0.00
86.00	3.50	0.00	3.27	0.00
88.00	3.50	0.00	3.27	0.00
90.00	3.50	0.00	3.27	0.00
92.00	3.50	0.00	3.27	0.00
94.00	3.50	0.00	3.27	0.00
96.00	3.50	0.00	3.27	0.00

Summary for Pond 1C-P: 1C_Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 2,112 sf,100.00% Impervious, Inflow Depth = 3.27" for 2 Year, 24 Hr. Event event
Inflow = 0.17 cfs @ 12.07 hrs, Volume= 575 cf
Outflow = 0.01 cfs @ 11.80 hrs, Volume= 575 cf, Atten= 93%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.80 hrs, Volume= 575 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 661.26' @ 13.13 hrs Surf.Area= 2,112 sf Storage= 216 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 129.4 min (883.0 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1	661.00'	3,802 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

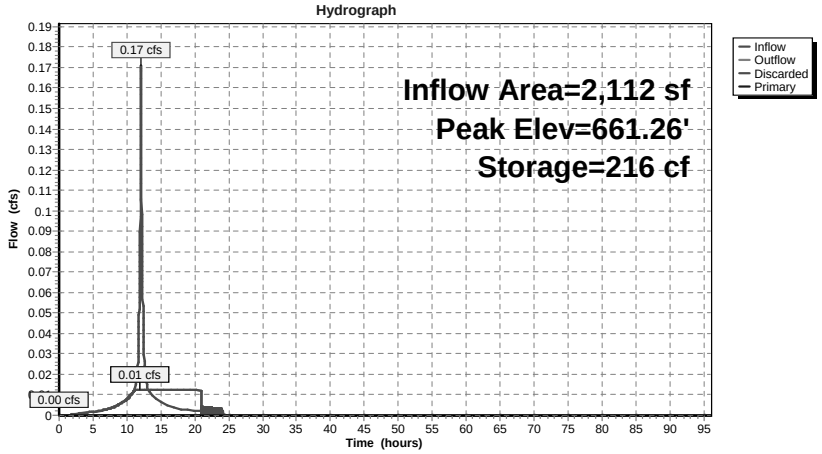
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
661.00	2,112	0.0	0	0
663.00	2,112	40.0	1,690	1,690
664.00	2,112	100.0	2,112	3,802

Device	Routing	Invert	Outlet Devices
#1	Primary	662.50'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	661.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 11.80 hrs HW=661.03' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=661.00' TW=647.00' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-P: 1C_Pavers



Hydrograph for Pond 1C-P: 1C_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	661.00	0.00	0.00	**0.00**
2.00	0.00	0	661.00	0.00	0.00	0.00
4.00	0.00	0	661.00	0.00	0.00	0.00
6.00	0.00	0	661.00	0.00	0.00	0.00
8.00	0.00	0	661.00	0.00	0.00	0.00
10.00	0.01	0	661.00	**0.01**	**0.01**	0.00
12.00	**0.12**	**69**	**661.08**	**0.01**	**0.01**	0.00
14.00	**0.01**	**210**	**661.25**	0.01	0.01	0.00
16.00	0.00	169	661.20	0.01	0.01	0.00
18.00	0.00	107	661.13	0.01	0.01	0.00
20.00	0.00	37	661.04	0.01	0.01	0.00
22.00	0.00	0	661.00	0.00	0.00	0.00
24.00	0.00	0	661.00	0.00	0.00	0.00
26.00	0.00	0	661.00	0.00	0.00	0.00
28.00	0.00	0	661.00	0.00	0.00	0.00
30.00	0.00	0	661.00	0.00	0.00	0.00
32.00	0.00	0	661.00	0.00	0.00	0.00
34.00	0.00	0	661.00	0.00	0.00	0.00
36.00	0.00	0	661.00	0.00	0.00	0.00
38.00	0.00	0	661.00	0.00	0.00	0.00
40.00	0.00	0	661.00	0.00	0.00	0.00
42.00	0.00	0	661.00	0.00	0.00	0.00
44.00	0.00	0	661.00	0.00	0.00	0.00
46.00	0.00	0	661.00	0.00	0.00	0.00
48.00	0.00	0	661.00	0.00	0.00	0.00
50.00	0.00	0	661.00	0.00	0.00	0.00
52.00	0.00	0	661.00	0.00	0.00	0.00
54.00	0.00	0	661.00	0.00	0.00	0.00
56.00	0.00	0	661.00	0.00	0.00	0.00
58.00	0.00	0	661.00	0.00	0.00	0.00
60.00	0.00	0	661.00	0.00	0.00	0.00
62.00	0.00	0	661.00	0.00	0.00	0.00
64.00	0.00	0	661.00	0.00	0.00	0.00
66.00	0.00	0	661.00	0.00	0.00	0.00
68.00	0.00	0	661.00	0.00	0.00	0.00
70.00	0.00	0	661.00	0.00	0.00	0.00
72.00	0.00	0	661.00	0.00	0.00	0.00
74.00	0.00	0	661.00	0.00	0.00	0.00
76.00	0.00	0	661.00	0.00	0.00	0.00
78.00	0.00	0	661.00	0.00	0.00	0.00
80.00	0.00	0	661.00	0.00	0.00	0.00
82.00	0.00	0	661.00	0.00	0.00	0.00
84.00	0.00	0	661.00	0.00	0.00	0.00
86.00	0.00	0	661.00	0.00	0.00	0.00
88.00	0.00	0	661.00	0.00	0.00	0.00
90.00	0.00	0	661.00	0.00	0.00	0.00
92.00	0.00	0	661.00	0.00	0.00	0.00
94.00	0.00	0	661.00	0.00	0.00	0.00
96.00	0.00	0	661.00	0.00	0.00	0.00

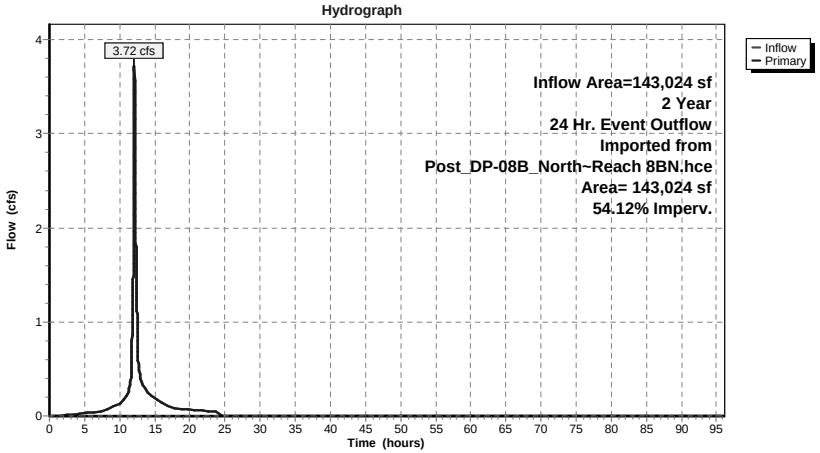
Summary for Link 8B-N: DA-8B North Inflow

Inflow Area = 143,024 sf, 54.12% Impervious, Inflow Depth = 1.13" for 2 Year, 24 Hr. Event event
Inflow = 3.72 cfs @ 12.09 hrs, Volume= 13,503 cf
Primary = 3.72 cfs @ 12.09 hrs, Volume= 13,503 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

2 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_North~Reach 8BN.hce

Link 8B-N: DA-8B North Inflow



Hydrograph for Link 8B-N: DA-8B North Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.02	0.00	0.02	56.00	0.00	0.00	0.00
5.00	0.03	0.00	0.03	57.00	0.00	0.00	0.00
6.00	0.03	0.00	0.03	58.00	0.00	0.00	0.00
7.00	0.05	0.00	0.05	59.00	0.00	0.00	0.00
8.00	0.06	0.00	0.06	60.00	0.00	0.00	0.00
9.00	0.09	0.00	0.09	61.00	0.00	0.00	0.00
10.00	0.13	0.00	0.13	62.00	0.00	0.00	0.00
11.00	0.20	0.00	0.20	63.00	0.00	0.00	0.00
12.00	**2.13**	0.00	**2.13**	64.00	0.00	0.00	0.00
13.00	**0.39**	0.00	**0.39**	65.00	0.00	0.00	0.00
14.00	0.25	0.00	0.25	66.00	0.00	0.00	0.00
15.00	0.19	0.00	0.19	67.00	0.00	0.00	0.00
16.00	0.13	0.00	0.13	68.00	0.00	0.00	0.00
17.00	0.11	0.00	0.11	69.00	0.00	0.00	0.00
18.00	0.08	0.00	0.08	70.00	0.00	0.00	0.00
19.00	0.07	0.00	0.07	71.00	0.00	0.00	0.00
20.00	0.07	0.00	0.07	72.00	0.00	0.00	0.00
21.00	0.06	0.00	0.06	73.00	0.00	0.00	0.00
22.00	0.05	0.00	0.05	74.00	0.00	0.00	0.00
23.00	0.05	0.00	0.05	75.00	0.00	0.00	0.00
24.00	0.04	0.00	0.04	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

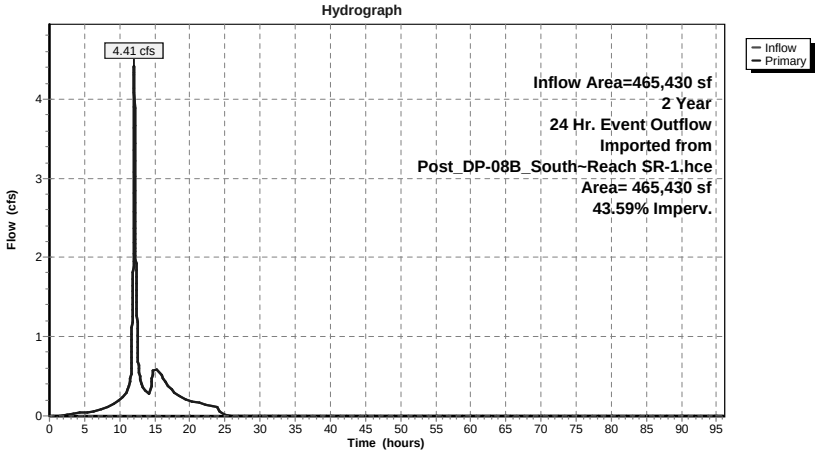
Summary for Link 8B-S: DA-8B South Inflow

Inflow Area = 465,430 sf, 43.59% Impervious, Inflow Depth = 0.59" for 2 Year, 24 Hr. Event event
Inflow = 4.41 cfs @ 12.08 hrs, Volume= 22,761 cf
Primary = 4.41 cfs @ 12.08 hrs, Volume= 22,761 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

2 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_South~Reach SR-1.hce

Link 8B-S: DA-8B South Inflow



Hydrograph for Link 8B-S: DA-8B South Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.02	0.00	0.02	55.00	0.00	0.00	0.00
4.00	0.03	0.00	0.03	56.00	0.00	0.00	0.00
5.00	0.04	0.00	0.04	57.00	0.00	0.00	0.00
6.00	0.05	0.00	0.05	58.00	0.00	0.00	0.00
7.00	0.07	0.00	0.07	59.00	0.00	0.00	0.00
8.00	0.10	0.00	0.10	60.00	0.00	0.00	0.00
9.00	0.15	0.00	0.15	61.00	0.00	0.00	0.00
10.00	0.20	0.00	0.20	62.00	0.00	0.00	0.00
11.00	0.30	0.00	0.30	63.00	0.00	0.00	0.00
12.00	**2.81**	0.00	**2.81**	64.00	0.00	0.00	0.00
13.00	**0.45**	0.00	**0.45**	65.00	0.00	0.00	0.00
14.00	0.28	0.00	0.28	66.00	0.00	0.00	0.00
15.00	0.61	0.00	0.61	67.00	0.00	0.00	0.00
16.00	0.50	0.00	0.50	68.00	0.00	0.00	0.00
17.00	0.37	0.00	0.37	69.00	0.00	0.00	0.00
18.00	0.28	0.00	0.28	70.00	0.00	0.00	0.00
19.00	0.22	0.00	0.22	71.00	0.00	0.00	0.00
20.00	0.19	0.00	0.19	72.00	0.00	0.00	0.00
21.00	0.17	0.00	0.17	73.00	0.00	0.00	0.00
22.00	0.15	0.00	0.15	74.00	0.00	0.00	0.00
23.00	0.13	0.00	0.13	75.00	0.00	0.00	0.00
24.00	0.11	0.00	0.11	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 12: Post DA 8B-12

Runoff = 2.53 cfs @ 12.07 hrs, Volume= 8,460 cf, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

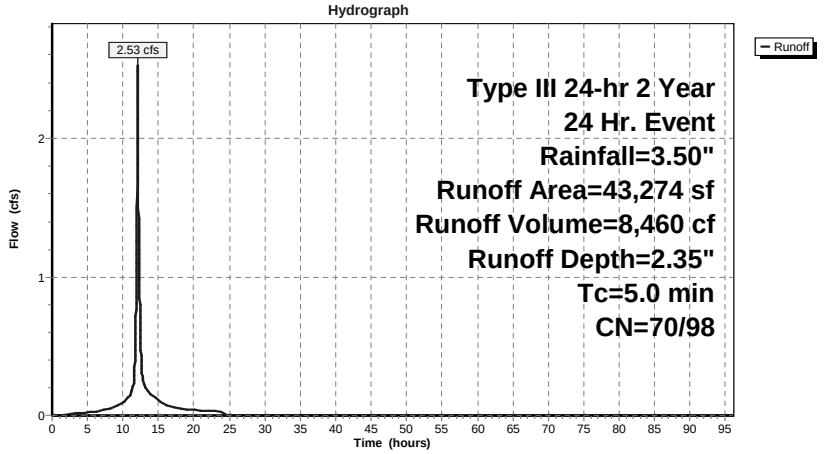
	Area (sf)	CN	Description	Land Use
	12,199	74	>75% Grass cover, Good, HSG C	Open Space
*	5,439	61	Bioretention, HSG C	Landscaped
	2,934	98	Unconnected roofs, HSG C	Roofs
	22,702	98	Paved parking, HSG C	Pavement
	43,274	87	Weighted Average	
	17,638	70	40.76% Pervious Area	
	25,636	98	59.24% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.24% Impervious, Rv= 0.583, Runoff= 26.65"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,439	Landscaped	27.90	0.00	0.00	0.93
12,199	Open Space	1,018.19	3.55	15.39	2.08
22,702	Pavement	544.53	1.76	6.61	21.09
2,934	Roofs	7.73	0.04	0.61	3.01
43,274	Total	1,598.35	5.36	22.61	27.11

Subcatchment 12: Post DA 8B-12



Hydrograph for Subcatchment 12: Post DA 8B-12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.02
6.00	0.25	0.00	0.11	0.02
8.00	0.40	0.00	0.23	0.05
10.00	0.66	0.00	0.47	0.09
12.00	1.75	0.15	1.53	**1.65**
14.00	2.84	0.63	2.61	**0.14**
16.00	3.10	0.77	2.87	0.08
18.00	3.25	0.86	3.02	0.05
20.00	3.35	0.92	3.12	0.04
22.00	3.43	0.97	3.20	0.03
24.00	**3.50**	**1.01**	**3.27**	0.03
26.00	3.50	1.01	3.27	0.00
28.00	3.50	1.01	3.27	0.00
30.00	3.50	1.01	3.27	0.00
32.00	3.50	1.01	3.27	0.00
34.00	3.50	1.01	3.27	0.00
36.00	3.50	1.01	3.27	0.00
38.00	3.50	1.01	3.27	0.00
40.00	3.50	1.01	3.27	0.00
42.00	3.50	1.01	3.27	0.00
44.00	3.50	1.01	3.27	0.00
46.00	3.50	1.01	3.27	0.00
48.00	3.50	1.01	3.27	0.00
50.00	3.50	1.01	3.27	0.00
52.00	3.50	1.01	3.27	0.00
54.00	3.50	1.01	3.27	0.00
56.00	3.50	1.01	3.27	0.00
58.00	3.50	1.01	3.27	0.00
60.00	3.50	1.01	3.27	0.00
62.00	3.50	1.01	3.27	0.00
64.00	3.50	1.01	3.27	0.00
66.00	3.50	1.01	3.27	0.00
68.00	3.50	1.01	3.27	0.00
70.00	3.50	1.01	3.27	0.00
72.00	3.50	1.01	3.27	0.00
74.00	3.50	1.01	3.27	0.00
76.00	3.50	1.01	3.27	0.00
78.00	3.50	1.01	3.27	0.00
80.00	3.50	1.01	3.27	0.00
82.00	3.50	1.01	3.27	0.00
84.00	3.50	1.01	3.27	0.00
86.00	3.50	1.01	3.27	0.00
88.00	3.50	1.01	3.27	0.00
90.00	3.50	1.01	3.27	0.00
92.00	3.50	1.01	3.27	0.00
94.00	3.50	1.01	3.27	0.00
96.00	3.50	1.01	3.27	0.00

Summary for Pond 12-Bio: 12_Bioretention

Inflow Area = 43,274 sf, 59.24% Impervious, Inflow Depth = 2.35" for 2 Year, 24 Hr. Event event
Inflow = 2.53 cfs @ 12.07 hrs, Volume= 8,460 cf
Outflow = 0.06 cfs @ 17.05 hrs, Volume= 7,184 cf, Atten= 98%, Lag= 298.4 min
Discarded = 0.03 cfs @ 12.12 hrs, Volume= 6,920 cf
Primary = 0.03 cfs @ 17.05 hrs, Volume= 264 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 689.51' @ 17.05 hrs Surf.Area= 5,839 sf Storage= 6,402 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,663.5 min (2,437.3 - 773.7)

Volume	Invert	Avail.Storage	Storage Description
#1	685.00'	9,261 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

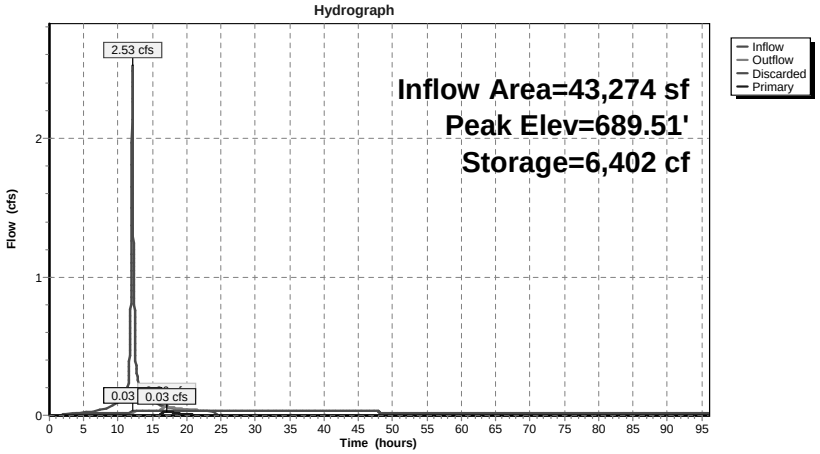
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
685.00	2,120	0.0	0	0	2,120
685.01	2,120	40.0	8	8	2,122
688.99	2,120	40.0	3,375	3,384	2,855
689.00	5,839	100.0	38	3,422	6,574
689.50	5,839	100.0	2,920	6,341	6,727
690.00	5,839	100.0	2,920	9,261	6,880

Device	Routing	Invert	Outlet Devices
#1	Discarded	685.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	689.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.12 hrs HW=689.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.03 cfs @ 17.05 hrs HW=689.51' TW=670.07' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.03 cfs @ 0.33 fps)

Pond 12-Bio: 12_Bioretention



Hydrograph for Pond 12-Bio: 12_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	685.00	0.00	0.00	0.00
2.00	0.00	0	685.00	0.00	0.00	0.00
4.00	0.02	3	685.00	0.01	0.01	0.00
6.00	0.02	59	685.07	0.01	0.01	0.00
8.00	0.05	223	685.26	0.01	0.01	0.00
10.00	0.09	632	685.75	0.01	0.01	0.00
12.00	**1.65**	2,464	687.91	0.01	**0.01**	0.00
14.00	**0.14**	5,789	689.41	0.03	**0.03**	0.00
16.00	0.08	**6,335**	**689.50**	**0.03**	0.03	**0.00**
18.00	0.05	**6,389**	**689.51**	**0.05**	0.03	**0.02**
20.00	0.04	6,366	689.50	0.04	0.03	0.01
22.00	0.03	6,348	689.50	0.03	0.03	0.00
24.00	0.03	6,310	689.49	0.03	0.03	0.00
26.00	0.00	6,073	689.45	0.03	0.03	0.00
28.00	0.00	5,830	689.41	0.03	0.03	0.00
30.00	0.00	5,587	689.37	0.03	0.03	0.00
32.00	0.00	5,344	689.33	0.03	0.03	0.00
34.00	0.00	5,100	689.29	0.03	0.03	0.00
36.00	0.00	4,857	689.25	0.03	0.03	0.00
38.00	0.00	4,614	689.20	0.03	0.03	0.00
40.00	0.00	4,370	689.16	0.03	0.03	0.00
42.00	0.00	4,127	689.12	0.03	0.03	0.00
44.00	0.00	3,884	689.08	0.03	0.03	0.00
46.00	0.00	3,641	689.04	0.03	0.03	0.00
48.00	0.00	3,401	689.00	0.02	0.02	0.00
50.00	0.00	3,307	688.90	0.01	0.01	0.00
52.00	0.00	3,219	688.80	0.01	0.01	0.00
54.00	0.00	3,131	688.69	0.01	0.01	0.00
56.00	0.00	3,042	688.59	0.01	0.01	0.00
58.00	0.00	2,954	688.48	0.01	0.01	0.00
60.00	0.00	2,866	688.38	0.01	0.01	0.00
62.00	0.00	2,777	688.28	0.01	0.01	0.00
64.00	0.00	2,689	688.17	0.01	0.01	0.00
66.00	0.00	2,601	688.07	0.01	0.01	0.00
68.00	0.00	2,512	687.96	0.01	0.01	0.00
70.00	0.00	2,424	687.86	0.01	0.01	0.00
72.00	0.00	2,336	687.75	0.01	0.01	0.00
74.00	0.00	2,247	687.65	0.01	0.01	0.00
76.00	0.00	2,159	687.55	0.01	0.01	0.00
78.00	0.00	2,071	687.44	0.01	0.01	0.00
80.00	0.00	1,982	687.34	0.01	0.01	0.00
82.00	0.00	1,894	687.23	0.01	0.01	0.00
84.00	0.00	1,806	687.13	0.01	0.01	0.00
86.00	0.00	1,717	687.03	0.01	0.01	0.00
88.00	0.00	1,629	686.92	0.01	0.01	0.00
90.00	0.00	1,541	686.82	0.01	0.01	0.00
92.00	0.00	1,452	686.71	0.01	0.01	0.00
94.00	0.00	1,364	686.61	0.01	0.01	0.00
96.00	0.00	1,276	686.50	0.01	0.01	0.00

Summary for Reach DP-8B: DP-8B Outflow

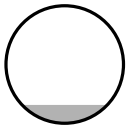
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 711,597 sf, 48.21% Impervious, Inflow Depth = 0.72" for 2 Year, 24 Hr. Event event
Inflow = 8.99 cfs @ 12.09 hrs, Volume= 42,638 cf
Outflow = 8.90 cfs @ 12.10 hrs, Volume= 42,638 cf, Atten= 1%, Lag= 0.8 min

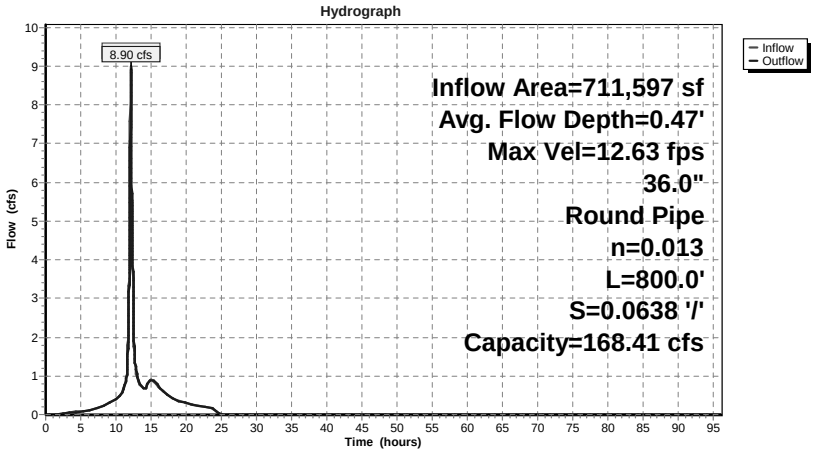
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 12.63 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 4.39 fps, Avg. Travel Time= 3.0 min

Peak Storage= 564 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 168.41 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 800.0' Slope= 0.0638 '/'
Inlet Invert= 647.00', Outlet Invert= 596.00'



Reach DP-8B: DP-8B Outflow



Hydrograph for Reach DP-8B: DP-8B Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	647.00	0.00
2.00	0.01	5	647.01	0.01
4.00	0.06	17	647.04	0.06
6.00	0.10	25	647.06	0.10
8.00	0.19	38	647.07	0.19
10.00	0.39	63	647.11	0.39
12.00	**5.60**	**381**	**647.36**	**5.09**
14.00	**0.69**	**94**	**647.14**	**0.69**
16.00	0.72	98	647.14	0.73
18.00	0.42	67	647.11	0.43
20.00	0.29	52	647.09	0.29
22.00	0.22	43	647.08	0.22
24.00	0.17	35	647.07	0.17
26.00	0.00	0	647.00	0.00
28.00	0.00	0	647.00	0.00
30.00	0.00	0	647.00	0.00
32.00	0.00	0	647.00	0.00
34.00	0.00	0	647.00	0.00
36.00	0.00	0	647.00	0.00
38.00	0.00	0	647.00	0.00
40.00	0.00	0	647.00	0.00
42.00	0.00	0	647.00	0.00
44.00	0.00	0	647.00	0.00
46.00	0.00	0	647.00	0.00
48.00	0.00	0	647.00	0.00
50.00	0.00	0	647.00	0.00
52.00	0.00	0	647.00	0.00
54.00	0.00	0	647.00	0.00
56.00	0.00	0	647.00	0.00
58.00	0.00	0	647.00	0.00
60.00	0.00	0	647.00	0.00
62.00	0.00	0	647.00	0.00
64.00	0.00	0	647.00	0.00
66.00	0.00	0	647.00	0.00
68.00	0.00	0	647.00	0.00
70.00	0.00	0	647.00	0.00
72.00	0.00	0	647.00	0.00
74.00	0.00	0	647.00	0.00
76.00	0.00	0	647.00	0.00
78.00	0.00	0	647.00	0.00
80.00	0.00	0	647.00	0.00
82.00	0.00	0	647.00	0.00
84.00	0.00	0	647.00	0.00
86.00	0.00	0	647.00	0.00
88.00	0.00	0	647.00	0.00
90.00	0.00	0	647.00	0.00
92.00	0.00	0	647.00	0.00
94.00	0.00	0	647.00	0.00
96.00	0.00	0	647.00	0.00

Summary for Reach EP-1: East Reach Pipe

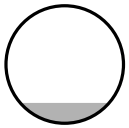
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 186,298 sf, 55.31% Impervious, Inflow Depth = 0.89" for 2 Year, 24 Hr. Event event
Inflow = 3.72 cfs @ 12.09 hrs, Volume= 13,767 cf
Outflow = 3.71 cfs @ 12.10 hrs, Volume= 13,767 cf, Atten= 0%, Lag= 0.4 min

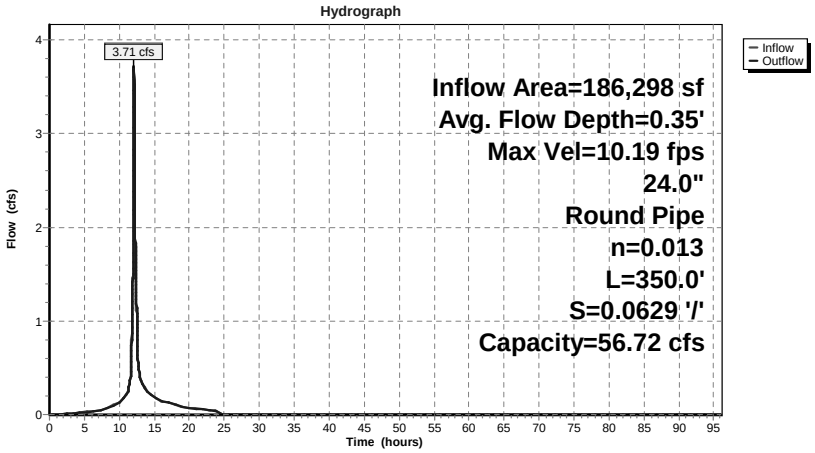
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 10.19 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 3.36 fps, Avg. Travel Time= 1.7 min

Peak Storage= 127 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 56.72 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 350.0' Slope= 0.0629 '/'
Inlet Invert= 670.00', Outlet Invert= 648.00'



Reach EP-1: East Reach Pipe



Hydrograph for Reach EP-1: East Reach Pipe

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	670.00	0.00
2.00	0.01	1	670.01	0.01
4.00	0.02	3	670.03	0.02
6.00	0.03	5	670.04	0.03
8.00	0.06	7	670.05	0.06
10.00	0.13	12	670.07	0.13
12.00	**2.13**	**83**	**670.26**	**2.00**
14.00	**0.25**	**19**	**670.10**	**0.25**
16.00	0.13	12	670.07	0.13
18.00	0.10	10	670.06	0.10
20.00	0.07	8	670.05	0.07
22.00	0.06	7	670.05	0.06
24.00	0.04	6	670.04	0.04
26.00	0.00	0	670.00	0.00
28.00	0.00	0	670.00	0.00
30.00	0.00	0	670.00	0.00
32.00	0.00	0	670.00	0.00
34.00	0.00	0	670.00	0.00
36.00	0.00	0	670.00	0.00
38.00	0.00	0	670.00	0.00
40.00	0.00	0	670.00	0.00
42.00	0.00	0	670.00	0.00
44.00	0.00	0	670.00	0.00
46.00	0.00	0	670.00	0.00
48.00	0.00	0	670.00	0.00
50.00	0.00	0	670.00	0.00
52.00	0.00	0	670.00	0.00
54.00	0.00	0	670.00	0.00
56.00	0.00	0	670.00	0.00
58.00	0.00	0	670.00	0.00
60.00	0.00	0	670.00	0.00
62.00	0.00	0	670.00	0.00
64.00	0.00	0	670.00	0.00
66.00	0.00	0	670.00	0.00
68.00	0.00	0	670.00	0.00
70.00	0.00	0	670.00	0.00
72.00	0.00	0	670.00	0.00
74.00	0.00	0	670.00	0.00
76.00	0.00	0	670.00	0.00
78.00	0.00	0	670.00	0.00
80.00	0.00	0	670.00	0.00
82.00	0.00	0	670.00	0.00
84.00	0.00	0	670.00	0.00
86.00	0.00	0	670.00	0.00
88.00	0.00	0	670.00	0.00
90.00	0.00	0	670.00	0.00
92.00	0.00	0	670.00	0.00
94.00	0.00	0	670.00	0.00
96.00	0.00	0	670.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: Post DA 8B-1A Runoff Area=38,425 sf 40.95% Impervious Runoff Depth=3.79"
Flow Length=219' Tc=5.2 min CN=74/98 Runoff=3.74 cfs 12,136 cf

Pond 1A-Bio: 1A-Bioretention Peak Elev=659.70' Storage=4,522 cf Inflow=3.74 cfs 12,136 cf
Discarded=0.03 cfs 5,950 cf Primary=2.36 cfs 6,187 cf Outflow=2.39 cfs 12,136 cf

Subcatchment 1B: Post DA 8B-1B Runoff Area=19,332 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=2.48 cfs 8,478 cf

Pond 1B-GR: 1B_Green Roof Peak Elev=800.85' Storage=678 cf Inflow=2.48 cfs 8,478 cf
24.0" Round Culvert x 2.00 n=0.013 L=20.0' S=0.0250 '/' Outflow=1.48 cfs 8,471 cf

Subcatchment 1C: Post DA 8B-1C Runoff Area=2,112 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=0.27 cfs 926 cf

Pond 1C-P: 1C_Pavers Peak Elev=661.50' Storage=422 cf Inflow=0.27 cfs 926 cf
Discarded=0.01 cfs 926 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 926 cf

Link 1C: 10 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_North~Reach 8BN.hce Inflow=6.73 cfs 28,629 cf
Area= 143,024 sf 54.12% Imperv. Primary=6.73 cfs 28,629 cf

Link Year, 24 Hr. Event Outflow Imported from Post_DP-08B_South~Reach SR-1.hce Inflow=12.27 cfs 78,739 cf
Area= 465,430 sf 43.59% Imperv. Primary=12.27 cfs 78,739 cf

Subcatchment 12: Post DA 8B-12 Runoff Area=43,274 sf 59.24% Impervious Runoff Depth=4.10"
Tc=5.0 min CN=70/98 Runoff=4.46 cfs 14,791 cf

Pond 12-Bio: 12_Bioretention Peak Elev=689.65' Storage=7,234 cf Inflow=4.46 cfs 14,791 cf
Discarded=0.03 cfs 7,032 cf Primary=1.56 cfs 6,460 cf Outflow=1.60 cfs 13,492 cf

Reach DP-8B: DP-8B Outflow Avg. Flow Depth=0.69' Max Vel=15.85 fps Inflow=19.30 cfs 128,486 cf
36.0" Round Pipe n=0.013 L=800.0' S=0.0638 '/' Capacity=168.41 cfs Outflow=19.29 cfs 128,486 cf

Reach EP-1: East Reach Pipe Avg. Flow Depth=0.46' Max Vel=12.13 fps Inflow=6.73 cfs 35,089 cf
24.0" Round Pipe n=0.013 L=350.0' S=0.0629 '/' Capacity=56.72 cfs Outflow=6.71 cfs 35,089 cf

Total Runoff Area = 103,143 sf Runoff Volume = 36,331 cf Average Runoff Depth = 4.23"
39.10% Pervious = 40,329 sf 60.90% Impervious = 62,814 sf

Summary for Subcatchment 1A: Post DA 8B-1A

Runoff = 3.74 cfs @ 12.08 hrs, Volume= 12,136 cf, Depth= 3.79"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

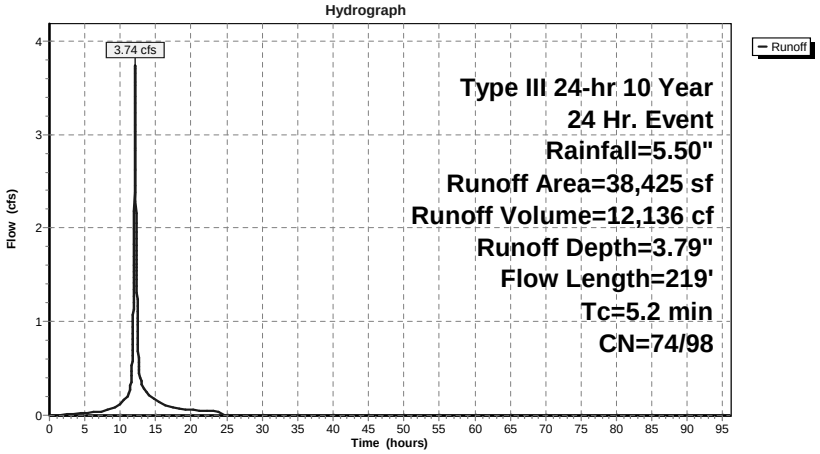
Area (sf)	CN	Description	Land Use
15,734	98	Paved parking, HSG C	Pavement
22,691	74	>75% Grass cover, Good, HSG C	Open Space
38,425	84	Weighted Average	
22,691	74	59.05% Pervious Area	
15,734	98	40.95% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	47	0.0640	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	23	0.0430	1.45		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	149		15.00		**Direct Entry,**
5.2	219	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 40.95% Impervious, Rv= 0.419, Runoff= 19.13"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
22,691	Open Space	1,359.21	4.74	20.55	2.78
15,734	Pavement	270.85	0.88	3.29	10.49
38,425	Total	1,630.05	5.62	23.83	13.27

Subcatchment 1A: Post DA 8B-1A



Hydrograph for Subcatchment 1A: Post DA 8B-1A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.02
6.00	0.40	0.00	0.23	0.03
8.00	0.63	0.00	0.43	0.05
10.00	1.04	0.03	0.83	0.12
12.00	2.75	0.75	2.52	**2.39**
14.00	4.46	1.94	4.22	**0.21**
16.00	4.87	2.26	4.64	0.12
18.00	5.10	2.45	4.87	0.07
20.00	5.26	2.58	5.03	0.06
22.00	5.39	2.68	5.16	0.05
24.00	**5.50**	**2.77**	**5.26**	0.04
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00
74.00	5.50	2.77	5.26	0.00
76.00	5.50	2.77	5.26	0.00
78.00	5.50	2.77	5.26	0.00
80.00	5.50	2.77	5.26	0.00
82.00	5.50	2.77	5.26	0.00
84.00	5.50	2.77	5.26	0.00
86.00	5.50	2.77	5.26	0.00
88.00	5.50	2.77	5.26	0.00
90.00	5.50	2.77	5.26	0.00
92.00	5.50	2.77	5.26	0.00
94.00	5.50	2.77	5.26	0.00
96.00	5.50	2.77	5.26	0.00

Summary for Pond 1A-Bio: 1A-Bioretention

Inflow Area = 38,425 sf, 40.95% Impervious, Inflow Depth = 3.79" for 10 Year, 24 Hr. Event event
Inflow = 3.74 cfs @ 12.08 hrs, Volume= 12,136 cf
Outflow = 2.39 cfs @ 12.16 hrs, Volume= 12,136 cf, Atten= 36%, Lag= 5.3 min
Discarded = 0.03 cfs @ 11.98 hrs, Volume= 5,950 cf
Primary = 2.36 cfs @ 12.16 hrs, Volume= 6,187 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 659.70' @ 12.16 hrs Surf.Area= 2,285 sf Storage= 4,522 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 748.9 min (1,531.9 - 783.0)

Volume	Invert	Avail.Storage	Storage Description
#1	655.00'	5,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

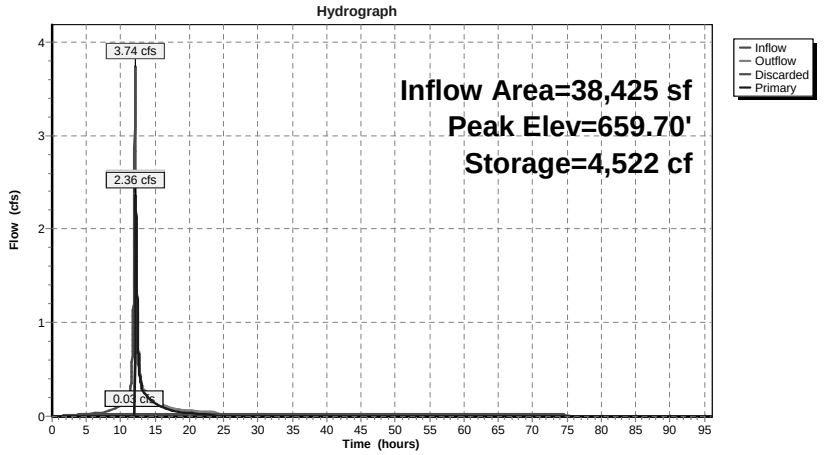
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
655.00	1,817	0.0	0	0
655.01	1,817	40.0	7	7
658.99	1,817	40.0	2,893	2,900
659.00	2,285	100.0	21	2,920
659.50	2,285	100.0	1,143	4,063
660.00	2,285	100.0	1,143	5,205

Device	Routing	Invert	Outlet Devices
#1	Discarded	655.00'	**0.500 in/hr Exfiltration over Horizontal area**
#2	Primary	659.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 11.98 hrs HW=659.01' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=2.35 cfs @ 12.16 hrs HW=659.70' TW=647.63' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 2.35 cfs @ 1.47 fps)

Pond 1A-Bio: 1A-Bioretention



Hydrograph for Pond 1A-Bio: 1A-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	655.00	0.00	0.00	0.00
2.00	0.01	0	655.00	0.01	0.01	0.00
4.00	0.02	0	655.00	0.02	0.02	0.00
6.00	0.03	18	655.02	0.02	0.02	0.00
8.00	0.05	135	655.19	0.02	0.02	0.00
10.00	0.12	537	655.74	0.02	**0.02**	0.00
12.00	**2.39**	**3,095**	**659.08**	**0.03**	**0.03**	**0.00**
14.00	**0.21**	**4,150**	**659.54**	**0.22**	0.03	**0.20**
16.00	0.12	4,117	659.52	0.12	0.03	0.09
18.00	0.07	4,097	659.51	0.07	0.03	0.05
20.00	0.06	4,089	659.51	0.06	0.03	0.03
22.00	0.05	4,083	659.51	0.05	0.03	0.02
24.00	0.04	4,077	659.51	0.04	0.03	0.01
26.00	0.00	3,892	659.43	0.03	0.03	0.00
28.00	0.00	3,702	659.34	0.03	0.03	0.00
30.00	0.00	3,511	659.26	0.03	0.03	0.00
32.00	0.00	3,321	659.18	0.03	0.03	0.00
34.00	0.00	3,130	659.09	0.03	0.03	0.00
36.00	0.00	2,940	659.01	0.03	0.03	0.00
38.00	0.00	2,782	658.83	0.02	0.02	0.00
40.00	0.00	2,631	658.62	0.02	0.02	0.00
42.00	0.00	2,479	658.41	0.02	0.02	0.00
44.00	0.00	2,328	658.20	0.02	0.02	0.00
46.00	0.00	2,176	657.99	0.02	0.02	0.00
48.00	0.00	2,025	657.79	0.02	0.02	0.00
50.00	0.00	1,874	657.58	0.02	0.02	0.00
52.00	0.00	1,722	657.37	0.02	0.02	0.00
54.00	0.00	1,571	657.16	0.02	0.02	0.00
56.00	0.00	1,419	656.95	0.02	0.02	0.00
58.00	0.00	1,268	656.74	0.02	0.02	0.00
60.00	0.00	1,117	656.54	0.02	0.02	0.00
62.00	0.00	965	656.33	0.02	0.02	0.00
64.00	0.00	814	656.12	0.02	0.02	0.00
66.00	0.00	662	655.91	0.02	0.02	0.00
68.00	0.00	511	655.70	0.02	0.02	0.00
70.00	0.00	359	655.49	0.02	0.02	0.00
72.00	0.00	208	655.29	0.02	0.02	0.00
74.00	0.00	57	655.08	0.02	0.02	0.00
76.00	0.00	0	655.00	0.00	0.00	0.00
78.00	0.00	0	655.00	0.00	0.00	0.00
80.00	0.00	0	655.00	0.00	0.00	0.00
82.00	0.00	0	655.00	0.00	0.00	0.00
84.00	0.00	0	655.00	0.00	0.00	0.00
86.00	0.00	0	655.00	0.00	0.00	0.00
88.00	0.00	0	655.00	0.00	0.00	0.00
90.00	0.00	0	655.00	0.00	0.00	0.00
92.00	0.00	0	655.00	0.00	0.00	0.00
94.00	0.00	0	655.00	0.00	0.00	0.00
96.00	0.00	0	655.00	0.00	0.00	0.00

Summary for Subcatchment 1B: Post DA 8B-1B

Runoff = 2.48 cfs @ 12.07 hrs, Volume= 8,478 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

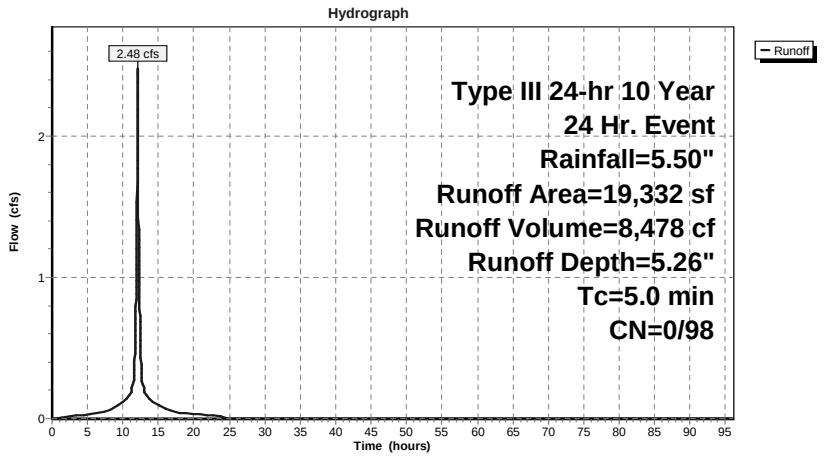
	Area (sf)	CN	Description	Land Use
	12,566	98	Roofs, HSG C	Roofs
*	6,766	98	Green Roof, HSG A	Landscaped
	19,332	98	Weighted Average	
	19,332	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
6,766	Landscaped	56.54	0.00	0.00	1.88
12,566	Roofs	53.92	0.31	4.26	21.00
19,332	Total	110.47	0.31	4.26	22.88

Subcatchment 1B: Post DA 8B-1B



Hydrograph for Subcatchment 1B: Post DA 8B-1B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.02
6.00	0.40	0.00	0.23	0.03
8.00	0.63	0.00	0.43	0.06
10.00	1.04	0.00	0.83	0.11
12.00	2.75	0.00	2.52	**1.67**
14.00	4.46	0.00	4.22	**0.12**
16.00	4.87	0.00	4.64	0.07
18.00	5.10	0.00	4.87	0.04
20.00	5.26	0.00	5.03	0.03
22.00	5.39	0.00	5.16	0.03
24.00	**5.50**	0.00	**5.26**	0.02
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00
74.00	5.50	0.00	5.26	0.00
76.00	5.50	0.00	5.26	0.00
78.00	5.50	0.00	5.26	0.00
80.00	5.50	0.00	5.26	0.00
82.00	5.50	0.00	5.26	0.00
84.00	5.50	0.00	5.26	0.00
86.00	5.50	0.00	5.26	0.00
88.00	5.50	0.00	5.26	0.00
90.00	5.50	0.00	5.26	0.00
92.00	5.50	0.00	5.26	0.00
94.00	5.50	0.00	5.26	0.00
96.00	5.50	0.00	5.26	0.00

Summary for Pond 1B-GR: 1B_Green Roof

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 19,332 sf,100.00% Impervious, Inflow Depth = 5.26" for 10 Year, 24 Hr. Event event
Inflow = 2.48 cfs @ 12.07 hrs, Volume= 8,478 cf
Outflow = 1.48 cfs @ 12.16 hrs, Volume= 8,471 cf, Atten= 40%, Lag= 5.7 min
Primary = 1.48 cfs @ 12.16 hrs, Volume= 8,471 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 800.85' @ 12.16 hrs Surf.Area= 6,766 sf Storage= 678 cf

Plug-Flow detention time= 3.1 min calculated for 8,471 cf (100% of inflow)
Center-of-Mass det. time= 2.5 min (748.0 - 745.5)

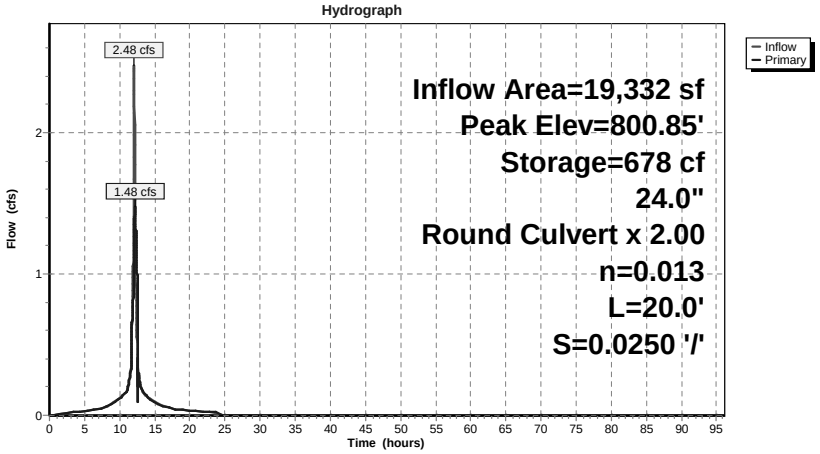
Volume	Invert	Avail.Storage	Storage Description
#1	800.00'	3,393 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
800.00	6,766	0.0	0	0
800.25	6,766	0.2	3	3
800.75	6,766	0.2	7	10
801.25	6,766	100.0	3,383	3,393

Device	Routing	Invert	Outlet Devices
#1	Primary	800.50'	**24.0" Round Culvert X 2.00** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 800.50' / 800.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.48 cfs @ 12.16 hrs HW=800.85' TW=647.63' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 1.48 cfs @ 2.01 fps)

Pond 1B-GR: 1B_Green Roof



Hydrograph for Pond 1B-GR: 1B_Green Roof

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	800.00	0.00
2.00	0.01	7	800.53	0.01
4.00	0.02	7	800.54	0.02
6.00	0.03	7	800.55	0.03
8.00	0.06	8	800.57	0.06
10.00	0.11	8	800.60	0.11
12.00	**1.67**	**174**	**800.77**	**0.92**
14.00	**0.12**	**8**	**800.60**	**0.12**
16.00	0.07	8	800.57	0.07
18.00	0.04	8	800.56	0.04
20.00	0.03	7	800.55	0.03
22.00	0.03	7	800.55	0.03
24.00	0.02	7	800.54	0.02
26.00	0.00	7	800.50	0.00
28.00	0.00	7	800.50	0.00
30.00	0.00	7	800.50	0.00
32.00	0.00	7	800.50	0.00
34.00	0.00	7	800.50	0.00
36.00	0.00	7	800.50	0.00
38.00	0.00	7	800.50	0.00
40.00	0.00	7	800.50	0.00
42.00	0.00	7	800.50	0.00
44.00	0.00	7	800.50	0.00
46.00	0.00	7	800.50	0.00
48.00	0.00	7	800.50	0.00
50.00	0.00	7	800.50	0.00
52.00	0.00	7	800.50	0.00
54.00	0.00	7	800.50	0.00
56.00	0.00	7	800.50	0.00
58.00	0.00	7	800.50	0.00
60.00	0.00	7	800.50	0.00
62.00	0.00	7	800.50	0.00
64.00	0.00	7	800.50	0.00
66.00	0.00	7	800.50	0.00
68.00	0.00	7	800.50	0.00
70.00	0.00	7	800.50	0.00
72.00	0.00	7	800.50	0.00
74.00	0.00	7	800.50	0.00
76.00	0.00	7	800.50	0.00
78.00	0.00	7	800.50	0.00
80.00	0.00	7	800.50	0.00
82.00	0.00	7	800.50	0.00
84.00	0.00	7	800.50	0.00
86.00	0.00	7	800.50	0.00
88.00	0.00	7	800.50	0.00
90.00	0.00	7	800.50	0.00
92.00	0.00	7	800.50	0.00
94.00	0.00	7	800.50	0.00
96.00	0.00	7	800.50	0.00

Summary for Subcatchment 1C: Post DA 8B-1C

Runoff = 0.27 cfs @ 12.07 hrs, Volume= 926 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

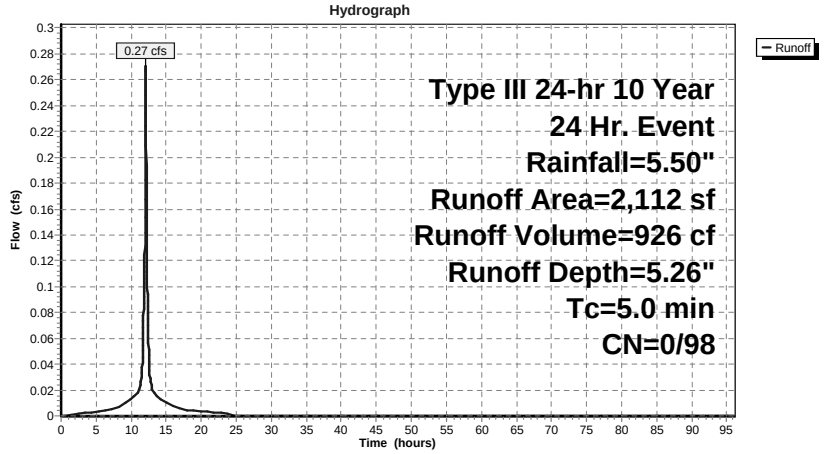
	Area (sf)	CN	Description	Land Use
*	2,112	98	Pavers, HSG C	Pavement
	2,112	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User defined min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,112	Pavement	82.52	0.27	1.00	3.20
2,112	Total	82.52	0.27	1.00	3.20

Subcatchment 1C: Post DA 8B-1C



Hydrograph for Subcatchment 1C: Post DA 8B-1C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.00	0.83	0.01
12.00	2.75	0.00	2.52	**0.18**
14.00	4.46	0.00	4.22	**0.01**
16.00	4.87	0.00	4.64	0.01
18.00	5.10	0.00	4.87	0.00
20.00	5.26	0.00	5.03	0.00
22.00	5.39	0.00	5.16	0.00
24.00	**5.50**	0.00	**5.26**	0.00
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00
74.00	5.50	0.00	5.26	0.00
76.00	5.50	0.00	5.26	0.00
78.00	5.50	0.00	5.26	0.00
80.00	5.50	0.00	5.26	0.00
82.00	5.50	0.00	5.26	0.00
84.00	5.50	0.00	5.26	0.00
86.00	5.50	0.00	5.26	0.00
88.00	5.50	0.00	5.26	0.00
90.00	5.50	0.00	5.26	0.00
92.00	5.50	0.00	5.26	0.00
94.00	5.50	0.00	5.26	0.00
96.00	5.50	0.00	5.26	0.00

Summary for Pond 1C-P: 1C_Pavers

Inflow Area = 2,112 sf,100.00% Impervious, Inflow Depth = 5.26" for 10 Year, 24 Hr. Event event
Inflow = 0.27 cfs @ 12.07 hrs, Volume= 926 cf
Outflow = 0.01 cfs @ 11.38 hrs, Volume= 926 cf, Atten= 95%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.38 hrs, Volume= 926 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 661.50' @ 14.38 hrs Surf.Area= 2,112 sf Storage= 422 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 281.4 min (1,027.0 - 745.5)

Volume	Invert	Avail.Storage	Storage Description
#1	661.00'	3,802 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

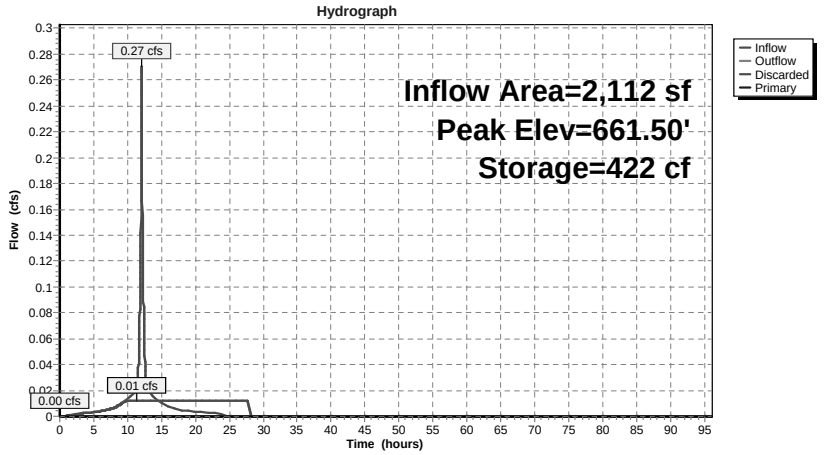
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
661.00	2,112	0.0	0	0
663.00	2,112	40.0	1,690	1,690
664.00	2,112	100.0	2,112	3,802

Device	Routing	Invert	Outlet Devices
#1	Primary	662.50'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	661.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 11.38 hrs HW=661.03' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=661.00' TW=647.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-P: 1C_Pavers



Hydrograph for Pond 1C-P: 1C_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	661.00	0.00	0.00	**0.00**
2.00	0.00	0	661.00	0.00	0.00	0.00
4.00	0.00	0	661.00	0.00	0.00	0.00
6.00	0.00	0	661.00	0.00	0.00	0.00
8.00	0.01	0	661.00	0.01	0.01	0.00
10.00	0.01	0	661.00	**0.01**	**0.01**	0.00
12.00	**0.18**	148	661.18	**0.01**	**0.01**	0.00
14.00	**0.01**	**421**	**661.50**	0.01	0.01	0.00
16.00	0.01	**408**	**661.48**	0.01	0.01	0.00
18.00	0.00	361	661.43	0.01	0.01	0.00
20.00	0.00	301	661.36	0.01	0.01	0.00
22.00	0.00	236	661.28	0.01	0.01	0.00
24.00	0.00	167	661.20	0.01	0.01	0.00
26.00	0.00	80	661.09	0.01	0.01	0.00
28.00	0.00	0	661.00	0.00	0.00	0.00
30.00	0.00	0	661.00	0.00	0.00	0.00
32.00	0.00	0	661.00	0.00	0.00	0.00
34.00	0.00	0	661.00	0.00	0.00	0.00
36.00	0.00	0	661.00	0.00	0.00	0.00
38.00	0.00	0	661.00	0.00	0.00	0.00
40.00	0.00	0	661.00	0.00	0.00	0.00
42.00	0.00	0	661.00	0.00	0.00	0.00
44.00	0.00	0	661.00	0.00	0.00	0.00
46.00	0.00	0	661.00	0.00	0.00	0.00
48.00	0.00	0	661.00	0.00	0.00	0.00
50.00	0.00	0	661.00	0.00	0.00	0.00
52.00	0.00	0	661.00	0.00	0.00	0.00
54.00	0.00	0	661.00	0.00	0.00	0.00
56.00	0.00	0	661.00	0.00	0.00	0.00
58.00	0.00	0	661.00	0.00	0.00	0.00
60.00	0.00	0	661.00	0.00	0.00	0.00
62.00	0.00	0	661.00	0.00	0.00	0.00
64.00	0.00	0	661.00	0.00	0.00	0.00
66.00	0.00	0	661.00	0.00	0.00	0.00
68.00	0.00	0	661.00	0.00	0.00	0.00
70.00	0.00	0	661.00	0.00	0.00	0.00
72.00	0.00	0	661.00	0.00	0.00	0.00
74.00	0.00	0	661.00	0.00	0.00	0.00
76.00	0.00	0	661.00	0.00	0.00	0.00
78.00	0.00	0	661.00	0.00	0.00	0.00
80.00	0.00	0	661.00	0.00	0.00	0.00
82.00	0.00	0	661.00	0.00	0.00	0.00
84.00	0.00	0	661.00	0.00	0.00	0.00
86.00	0.00	0	661.00	0.00	0.00	0.00
88.00	0.00	0	661.00	0.00	0.00	0.00
90.00	0.00	0	661.00	0.00	0.00	0.00
92.00	0.00	0	661.00	0.00	0.00	0.00
94.00	0.00	0	661.00	0.00	0.00	0.00
96.00	0.00	0	661.00	0.00	0.00	0.00

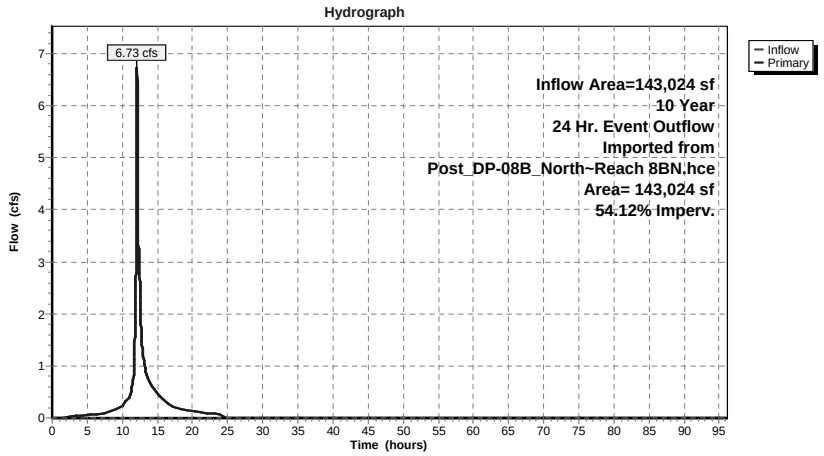
Summary for Link 8B-N: DA-8B North Inflow

Inflow Area = 143,024 sf, 54.12% Impervious, Inflow Depth = 2.40" for 10 Year, 24 Hr. Event event
Inflow = 6.73 cfs @ 12.09 hrs, Volume= 28,629 cf
Primary = 6.73 cfs @ 12.09 hrs, Volume= 28,629 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

10 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_North~Reach 8BN.hce

Link 8B-N: DA-8B North Inflow



Hydrograph for Link 8B-N: DA-8B North Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.02	0.00	0.02	54.00	0.00	0.00	0.00
3.00	0.03	0.00	0.03	55.00	0.00	0.00	0.00
4.00	0.04	0.00	0.04	56.00	0.00	0.00	0.00
5.00	0.05	0.00	0.05	57.00	0.00	0.00	0.00
6.00	0.06	0.00	0.06	58.00	0.00	0.00	0.00
7.00	0.08	0.00	0.08	59.00	0.00	0.00	0.00
8.00	0.11	0.00	0.11	60.00	0.00	0.00	0.00
9.00	0.16	0.00	0.16	61.00	0.00	0.00	0.00
10.00	0.24	0.00	0.24	62.00	0.00	0.00	0.00
11.00	0.40	0.00	0.40	63.00	0.00	0.00	0.00
12.00	**3.95**	0.00	**3.95**	64.00	0.00	0.00	0.00
13.00	**1.15**	0.00	**1.15**	65.00	0.00	0.00	0.00
14.00	0.66	0.00	0.66	66.00	0.00	0.00	0.00
15.00	0.47	0.00	0.47	67.00	0.00	0.00	0.00
16.00	0.32	0.00	0.32	68.00	0.00	0.00	0.00
17.00	0.24	0.00	0.24	69.00	0.00	0.00	0.00
18.00	0.18	0.00	0.18	70.00	0.00	0.00	0.00
19.00	0.14	0.00	0.14	71.00	0.00	0.00	0.00
20.00	0.12	0.00	0.12	72.00	0.00	0.00	0.00
21.00	0.11	0.00	0.11	73.00	0.00	0.00	0.00
22.00	0.10	0.00	0.10	74.00	0.00	0.00	0.00
23.00	0.08	0.00	0.08	75.00	0.00	0.00	0.00
24.00	0.07	0.00	0.07	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

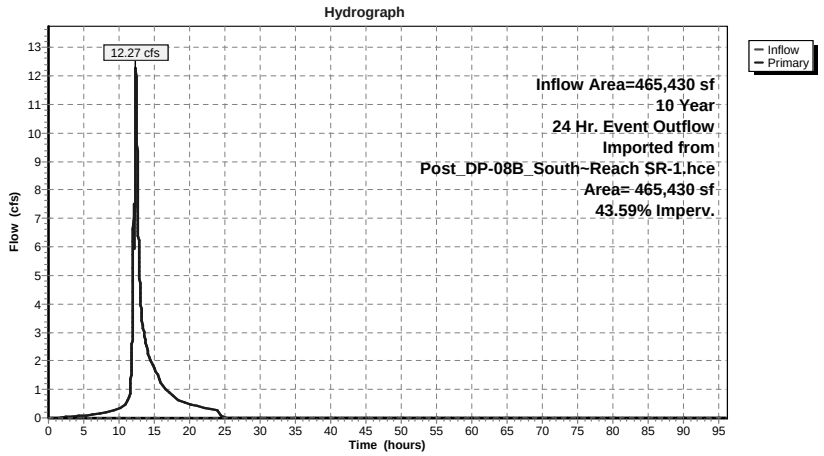
Summary for Link 8B-S: DA-8B South Inflow

Inflow Area = 465,430 sf, 43.59% Impervious, Inflow Depth = 2.03" for 10 Year, 24 Hr. Event event
Inflow = 12.27 cfs @ 12.38 hrs, Volume= 78,739 cf
Primary = 12.27 cfs @ 12.38 hrs, Volume= 78,739 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

10 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_South~Reach SR-1.hce

Link 8B-S: DA-8B South Inflow



Hydrograph for Link 8B-S: DA-8B South Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.03	0.00	0.03	54.00	0.00	0.00	0.00
3.00	0.05	0.00	0.05	55.00	0.00	0.00	0.00
4.00	0.06	0.00	0.06	56.00	0.00	0.00	0.00
5.00	0.08	0.00	0.08	57.00	0.00	0.00	0.00
6.00	0.09	0.00	0.09	58.00	0.00	0.00	0.00
7.00	0.13	0.00	0.13	59.00	0.00	0.00	0.00
8.00	0.16	0.00	0.16	60.00	0.00	0.00	0.00
9.00	0.24	0.00	0.24	61.00	0.00	0.00	0.00
10.00	0.32	0.00	0.32	62.00	0.00	0.00	0.00
11.00	0.48	0.00	0.48	63.00	0.00	0.00	0.00
12.00	**4.81**	0.00	**4.81**	64.00	0.00	0.00	0.00
13.00	**4.44**	0.00	**4.44**	65.00	0.00	0.00	0.00
14.00	2.42	0.00	2.42	66.00	0.00	0.00	0.00
15.00	1.74	0.00	1.74	67.00	0.00	0.00	0.00
16.00	1.23	0.00	1.23	68.00	0.00	0.00	0.00
17.00	0.91	0.00	0.91	69.00	0.00	0.00	0.00
18.00	0.68	0.00	0.68	70.00	0.00	0.00	0.00
19.00	0.55	0.00	0.55	71.00	0.00	0.00	0.00
20.00	0.48	0.00	0.48	72.00	0.00	0.00	0.00
21.00	0.42	0.00	0.42	73.00	0.00	0.00	0.00
22.00	0.37	0.00	0.37	74.00	0.00	0.00	0.00
23.00	0.31	0.00	0.31	75.00	0.00	0.00	0.00
24.00	0.26	0.00	0.26	76.00	0.00	0.00	0.00
25.00	0.01	0.00	0.01	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 12: Post DA 8B-12

Runoff = 4.46 cfs @ 12.07 hrs, Volume= 14,791 cf, Depth= 4.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

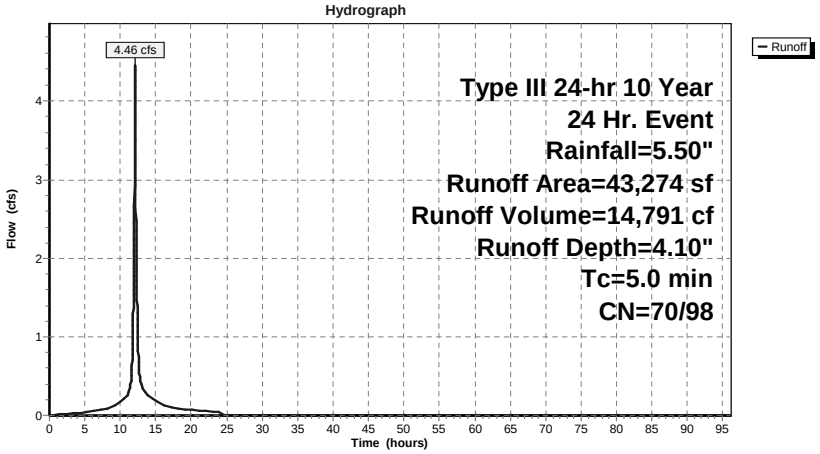
	Area (sf)	CN	Description	Land Use
	12,199	74	>75% Grass cover, Good, HSG C	Open Space
*	5,439	61	Bioretention, HSG C	Landscaped
	2,934	98	Unconnected roofs, HSG C	Roofs
	22,702	98	Paved parking, HSG C	Pavement
	43,274	87	Weighted Average	
	17,638	70	40.76% Pervious Area	
	25,636	98	59.24% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.24% Impervious, Rv= 0.583, Runoff= 26.65"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,439	Landscaped	27.90	0.00	0.00	0.93
12,199	Open Space	1,018.19	3.55	15.39	2.08
22,702	Pavement	544.53	1.76	6.61	21.09
2,934	Roofs	7.73	0.04	0.61	3.01
43,274	Total	1,598.35	5.36	22.61	27.11

Subcatchment 12: Post DA 8B-12



Hydrograph for Subcatchment 12: Post DA 8B-12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.03
6.00	0.40	0.00	0.23	0.04
8.00	0.63	0.00	0.43	0.08
10.00	1.04	0.01	0.83	0.16
12.00	2.75	0.58	2.52	**2.93**
14.00	4.46	1.65	4.22	**0.25**
16.00	4.87	1.94	4.64	0.13
18.00	5.10	2.11	4.87	0.08
20.00	5.26	2.23	5.03	0.07
22.00	5.39	2.33	5.16	0.05
24.00	**5.50**	**2.41**	**5.26**	0.04
26.00	5.50	2.41	5.26	0.00
28.00	5.50	2.41	5.26	0.00
30.00	5.50	2.41	5.26	0.00
32.00	5.50	2.41	5.26	0.00
34.00	5.50	2.41	5.26	0.00
36.00	5.50	2.41	5.26	0.00
38.00	5.50	2.41	5.26	0.00
40.00	5.50	2.41	5.26	0.00
42.00	5.50	2.41	5.26	0.00
44.00	5.50	2.41	5.26	0.00
46.00	5.50	2.41	5.26	0.00
48.00	5.50	2.41	5.26	0.00
50.00	5.50	2.41	5.26	0.00
52.00	5.50	2.41	5.26	0.00
54.00	5.50	2.41	5.26	0.00
56.00	5.50	2.41	5.26	0.00
58.00	5.50	2.41	5.26	0.00
60.00	5.50	2.41	5.26	0.00
62.00	5.50	2.41	5.26	0.00
64.00	5.50	2.41	5.26	0.00
66.00	5.50	2.41	5.26	0.00
68.00	5.50	2.41	5.26	0.00
70.00	5.50	2.41	5.26	0.00
72.00	5.50	2.41	5.26	0.00
74.00	5.50	2.41	5.26	0.00
76.00	5.50	2.41	5.26	0.00
78.00	5.50	2.41	5.26	0.00
80.00	5.50	2.41	5.26	0.00
82.00	5.50	2.41	5.26	0.00
84.00	5.50	2.41	5.26	0.00
86.00	5.50	2.41	5.26	0.00
88.00	5.50	2.41	5.26	0.00
90.00	5.50	2.41	5.26	0.00
92.00	5.50	2.41	5.26	0.00
94.00	5.50	2.41	5.26	0.00
96.00	5.50	2.41	5.26	0.00

Summary for Pond 12-Bio: 12_Bioretention

Inflow Area = 43,274 sf, 59.24% Impervious, Inflow Depth = 4.10" for 10 Year, 24 Hr. Event event
Inflow = 4.46 cfs @ 12.07 hrs, Volume= 14,791 cf
Outflow = 1.60 cfs @ 12.32 hrs, Volume= 13,492 cf, Atten= 64%, Lag= 15.0 min
Discarded = 0.03 cfs @ 11.80 hrs, Volume= 7,032 cf
Primary = 1.56 cfs @ 12.32 hrs, Volume= 6,460 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 689.65' @ 12.32 hrs Surf.Area= 5,839 sf Storage= 7,234 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 928.2 min (1,696.8 - 768.6)

Volume	Invert	Avail.Storage	Storage Description
#1	685.00'	9,261 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

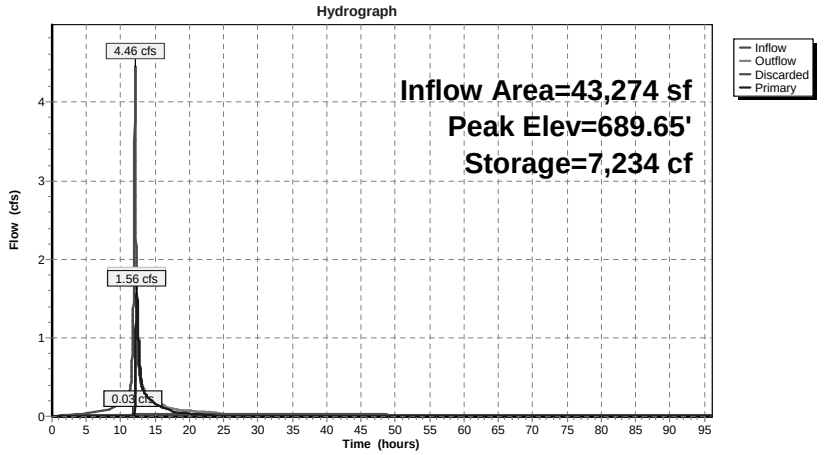
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
685.00	2,120	0.0	0	0	2,120
685.01	2,120	40.0	8	8	2,122
688.99	2,120	40.0	3,375	3,384	2,855
689.00	5,839	100.0	38	3,422	6,574
689.50	5,839	100.0	2,920	6,341	6,727
690.00	5,839	100.0	2,920	9,261	6,880

Device	Routing	Invert	Outlet Devices
#1	Discarded	685.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	689.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 11.80 hrs HW=689.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=1.56 cfs @ 12.32 hrs HW=689.65' TW=670.39' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 1.56 cfs @ 1.28 fps)

Pond 12-Bio: 12_Bioretention



Hydrograph for Pond 12-Bio: 12_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	685.00	0.00	0.00	0.00
2.00	0.01	1	685.00	0.01	0.01	0.00
4.00	0.03	75	685.09	0.01	0.01	0.00
6.00	0.04	260	685.31	0.01	0.01	0.00
8.00	0.08	609	685.72	0.01	0.01	0.00
10.00	0.16	1,351	686.59	0.01	**0.01**	0.00
12.00	**2.93**	**4,688**	**689.22**	**0.03**	**0.03**	**0.00**
14.00	**0.25**	**6,593**	**689.54**	**0.27**	0.03	**0.23**
16.00	0.13	6,495	689.53	0.15	0.03	0.11
18.00	0.08	6,437	689.52	0.09	0.03	0.05
20.00	0.07	6,411	689.51	0.07	0.03	0.03
22.00	0.05	6,394	689.51	0.06	0.03	0.02
24.00	0.04	6,376	689.51	0.05	0.03	0.01
26.00	0.00	6,137	689.47	0.03	0.03	0.00
28.00	0.00	5,894	689.42	0.03	0.03	0.00
30.00	0.00	5,651	689.38	0.03	0.03	0.00
32.00	0.00	5,408	689.34	0.03	0.03	0.00
34.00	0.00	5,164	689.30	0.03	0.03	0.00
36.00	0.00	4,921	689.26	0.03	0.03	0.00
38.00	0.00	4,678	689.22	0.03	0.03	0.00
40.00	0.00	4,434	689.17	0.03	0.03	0.00
42.00	0.00	4,191	689.13	0.03	0.03	0.00
44.00	0.00	3,948	689.09	0.03	0.03	0.00
46.00	0.00	3,704	689.05	0.03	0.03	0.00
48.00	0.00	3,461	689.01	0.03	0.03	0.00
50.00	0.00	3,331	688.93	0.01	0.01	0.00
52.00	0.00	3,242	688.82	0.01	0.01	0.00
54.00	0.00	3,154	688.72	0.01	0.01	0.00
56.00	0.00	3,066	688.62	0.01	0.01	0.00
58.00	0.00	2,977	688.51	0.01	0.01	0.00
60.00	0.00	2,889	688.41	0.01	0.01	0.00
62.00	0.00	2,801	688.30	0.01	0.01	0.00
64.00	0.00	2,712	688.20	0.01	0.01	0.00
66.00	0.00	2,624	688.09	0.01	0.01	0.00
68.00	0.00	2,536	687.99	0.01	0.01	0.00
70.00	0.00	2,447	687.89	0.01	0.01	0.00
72.00	0.00	2,359	687.78	0.01	0.01	0.00
74.00	0.00	2,271	687.68	0.01	0.01	0.00
76.00	0.00	2,182	687.57	0.01	0.01	0.00
78.00	0.00	2,094	687.47	0.01	0.01	0.00
80.00	0.00	2,006	687.37	0.01	0.01	0.00
82.00	0.00	1,917	687.26	0.01	0.01	0.00
84.00	0.00	1,829	687.16	0.01	0.01	0.00
86.00	0.00	1,741	687.05	0.01	0.01	0.00
88.00	0.00	1,652	686.95	0.01	0.01	0.00
90.00	0.00	1,564	686.84	0.01	0.01	0.00
92.00	0.00	1,476	686.74	0.01	0.01	0.00
94.00	0.00	1,387	686.64	0.01	0.01	0.00
96.00	0.00	1,299	686.53	0.01	0.01	0.00

Summary for Reach DP-8B: DP-8B Outflow

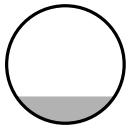
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 711,597 sf, 48.21% Impervious, Inflow Depth = 2.17" for 10 Year, 24 Hr. Event event
Inflow = 19.30 cfs @ 12.35 hrs, Volume= 128,486 cf
Outflow = 19.29 cfs @ 12.36 hrs, Volume= 128,486 cf, Atten= 0%, Lag= 0.6 min

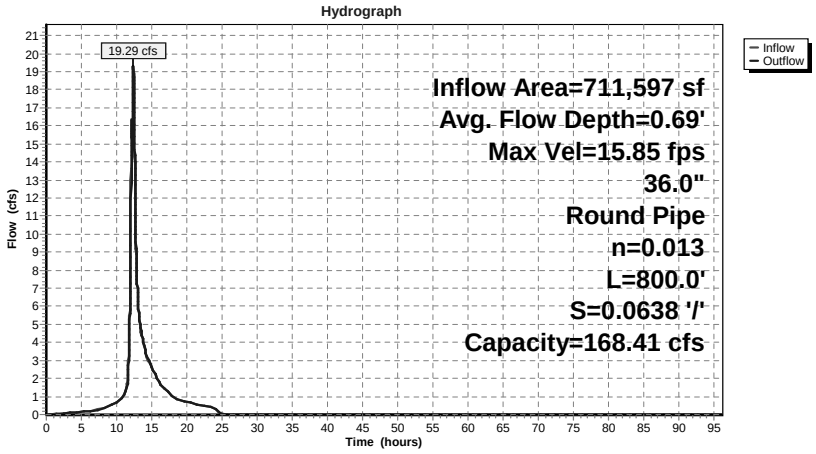
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 15.85 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 5.62 fps, Avg. Travel Time= 2.4 min

Peak Storage= 974 cf @ 12.36 hrs
Average Depth at Peak Storage= 0.69'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 168.41 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 800.0' Slope= 0.0638 '/'
Inlet Invert= 647.00', Outlet Invert= 596.00'



Reach DP-8B: DP-8B Outflow



Hydrograph for Reach DP-8B: DP-8B Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	647.00	0.00
2.00	0.06	15	647.04	0.06
4.00	0.13	29	647.06	0.13
6.00	0.19	38	647.07	0.19
8.00	0.33	56	647.10	0.33
10.00	0.67	92	647.14	0.67
12.00	**9.49**	**555**	**647.46**	**8.69**
14.00	**3.64**	**303**	**647.31**	**3.66**
16.00	1.82	187	647.22	1.84
18.00	1.00	122	647.17	1.00
20.00	0.70	95	647.14	0.70
22.00	0.53	79	647.12	0.53
24.00	0.38	63	647.11	0.39
26.00	0.00	1	647.00	0.00
28.00	0.00	0	647.00	0.00
30.00	0.00	0	647.00	0.00
32.00	0.00	0	647.00	0.00
34.00	0.00	0	647.00	0.00
36.00	0.00	0	647.00	0.00
38.00	0.00	0	647.00	0.00
40.00	0.00	0	647.00	0.00
42.00	0.00	0	647.00	0.00
44.00	0.00	0	647.00	0.00
46.00	0.00	0	647.00	0.00
48.00	0.00	0	647.00	0.00
50.00	0.00	0	647.00	0.00
52.00	0.00	0	647.00	0.00
54.00	0.00	0	647.00	0.00
56.00	0.00	0	647.00	0.00
58.00	0.00	0	647.00	0.00
60.00	0.00	0	647.00	0.00
62.00	0.00	0	647.00	0.00
64.00	0.00	0	647.00	0.00
66.00	0.00	0	647.00	0.00
68.00	0.00	0	647.00	0.00
70.00	0.00	0	647.00	0.00
72.00	0.00	0	647.00	0.00
74.00	0.00	0	647.00	0.00
76.00	0.00	0	647.00	0.00
78.00	0.00	0	647.00	0.00
80.00	0.00	0	647.00	0.00
82.00	0.00	0	647.00	0.00
84.00	0.00	0	647.00	0.00
86.00	0.00	0	647.00	0.00
88.00	0.00	0	647.00	0.00
90.00	0.00	0	647.00	0.00
92.00	0.00	0	647.00	0.00
94.00	0.00	0	647.00	0.00
96.00	0.00	0	647.00	0.00

Summary for Reach EP-1: East Reach Pipe

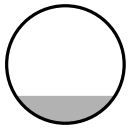
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 186,298 sf, 55.31% Impervious, Inflow Depth = 2.26" for 10 Year, 24 Hr. Event event
Inflow = 6.73 cfs @ 12.09 hrs, Volume= 35,089 cf
Outflow = 6.71 cfs @ 12.10 hrs, Volume= 35,089 cf, Atten= 0%, Lag= 0.4 min

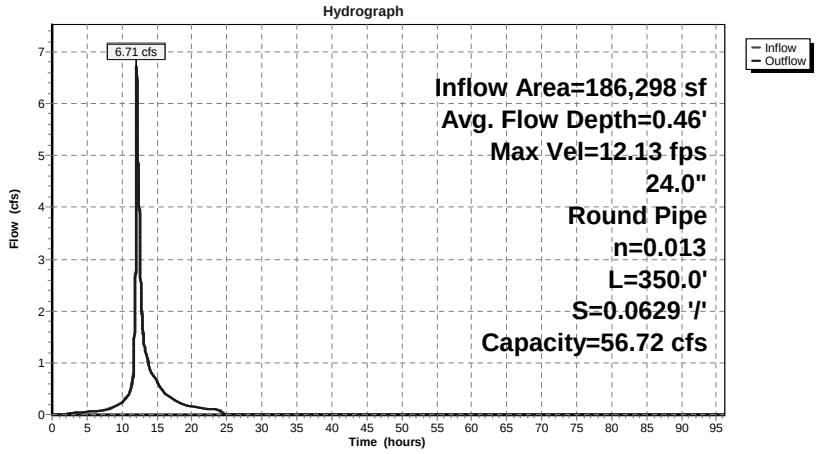
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 12.13 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 4.27 fps, Avg. Travel Time= 1.4 min

Peak Storage= 194 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.46'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 56.72 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 350.0' Slope= 0.0629 '/'
Inlet Invert= 670.00', Outlet Invert= 648.00'



Reach EP-1: East Reach Pipe



Hydrograph for Reach EP-1: East Reach Pipe

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	670.00	0.00
2.00	0.02	3	670.03	0.02
4.00	0.04	6	670.04	0.04
6.00	0.06	7	670.05	0.06
8.00	0.11	11	670.06	0.11
10.00	0.24	19	670.09	0.24
12.00	**3.95**	**128**	**670.35**	**3.75**
14.00	**0.89**	**47**	**670.18**	**0.90**
16.00	0.43	28	670.12	0.44
18.00	0.23	18	670.09	0.23
20.00	0.16	14	670.08	0.16
22.00	0.12	11	670.07	0.12
24.00	0.09	9	670.06	0.09
26.00	0.00	0	670.00	0.00
28.00	0.00	0	670.00	0.00
30.00	0.00	0	670.00	0.00
32.00	0.00	0	670.00	0.00
34.00	0.00	0	670.00	0.00
36.00	0.00	0	670.00	0.00
38.00	0.00	0	670.00	0.00
40.00	0.00	0	670.00	0.00
42.00	0.00	0	670.00	0.00
44.00	0.00	0	670.00	0.00
46.00	0.00	0	670.00	0.00
48.00	0.00	0	670.00	0.00
50.00	0.00	0	670.00	0.00
52.00	0.00	0	670.00	0.00
54.00	0.00	0	670.00	0.00
56.00	0.00	0	670.00	0.00
58.00	0.00	0	670.00	0.00
60.00	0.00	0	670.00	0.00
62.00	0.00	0	670.00	0.00
64.00	0.00	0	670.00	0.00
66.00	0.00	0	670.00	0.00
68.00	0.00	0	670.00	0.00
70.00	0.00	0	670.00	0.00
72.00	0.00	0	670.00	0.00
74.00	0.00	0	670.00	0.00
76.00	0.00	0	670.00	0.00
78.00	0.00	0	670.00	0.00
80.00	0.00	0	670.00	0.00
82.00	0.00	0	670.00	0.00
84.00	0.00	0	670.00	0.00
86.00	0.00	0	670.00	0.00
88.00	0.00	0	670.00	0.00
90.00	0.00	0	670.00	0.00
92.00	0.00	0	670.00	0.00
94.00	0.00	0	670.00	0.00
96.00	0.00	0	670.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: Post DA 8B-1A Runoff Area=38,425 sf 40.95% Impervious Runoff Depth=4.24"
Flow Length=219' Tc=5.2 min CN=74/98 Runoff=4.18 cfs 13,577 cf

Pond 1A-Bio: 1A-Bioretention Peak Elev=659.75' Storage=4,645 cf Inflow=4.18 cfs 13,577 cf
Discarded=0.03 cfs 5,975 cf Primary=3.36 cfs 7,602 cf Outflow=3.39 cfs 13,577 cf

Subcatchment 1B: Post DA 8B-1B Runoff Area=19,332 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=2.70 cfs 9,282 cf

Pond 1B-GR: 1B_Green Roof Peak Elev=800.86' Storage=786 cf Inflow=2.70 cfs 9,282 cf
24.0" Round Culvert x 2.00 n=0.013 L=20.0' S=0.0250 '/' Outflow=1.61 cfs 9,276 cf

Subcatchment 1C: Post DA 8B-1C Runoff Area=2,112 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=0.30 cfs 1,014 cf

Pond 1C-P: 1C_Pavers Peak Elev=661.57' Storage=481 cf Inflow=0.30 cfs 1,014 cf
Discarded=0.01 cfs 1,014 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 1,014 cf

Link 25 25 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_North~Reach 8BN.hce Inflow=7.50 cfs 33,254 cf
Area= 143,024 sf 54.12% Imperv. Primary=7.50 cfs 33,254 cf

Link 25 25 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_South~Reach SR-1.hce Inflow=17.97 cfs 94,818 cf
Area= 465,430 sf 43.59% Imperv. Primary=17.97 cfs 94,818 cf

Subcatchment 12: Post DA 8B-12 Runoff Area=43,274 sf 59.24% Impervious Runoff Depth=4.56"
Tc=5.0 min CN=70/98 Runoff=4.95 cfs 16,432 cf

Pond 12-Bio: 12_Bioretention Peak Elev=689.69' Storage=7,476 cf Inflow=4.95 cfs 16,432 cf
Discarded=0.03 cfs 7,051 cf Primary=2.24 cfs 8,081 cf Outflow=2.28 cfs 15,132 cf

Reach DP-8B: DP-8B Outflow Avg. Flow Depth=0.82' Max Vel=17.58 fps Inflow=27.61 cfs 153,030 cf
36.0" Round Pipe n=0.013 L=800.0' S=0.0638 '/' Capacity=168.41 cfs Outflow=27.59 cfs 153,030 cf

Reach EP-1: East Reach Pipe Avg. Flow Depth=0.52' Max Vel=12.93 fps Inflow=8.40 cfs 41,335 cf
24.0" Round Pipe n=0.013 L=350.0' S=0.0629 '/' Capacity=56.72 cfs Outflow=8.38 cfs 41,335 cf

Total Runoff Area = 103,143 sf Runoff Volume = 40,306 cf Average Runoff Depth = 4.69"
39.10% Pervious = 40,329 sf 60.90% Impervious = 62,814 sf

Summary for Subcatchment 1A: Post DA 8B-1A

Runoff = 4.18 cfs @ 12.08 hrs, Volume= 13,577 cf, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

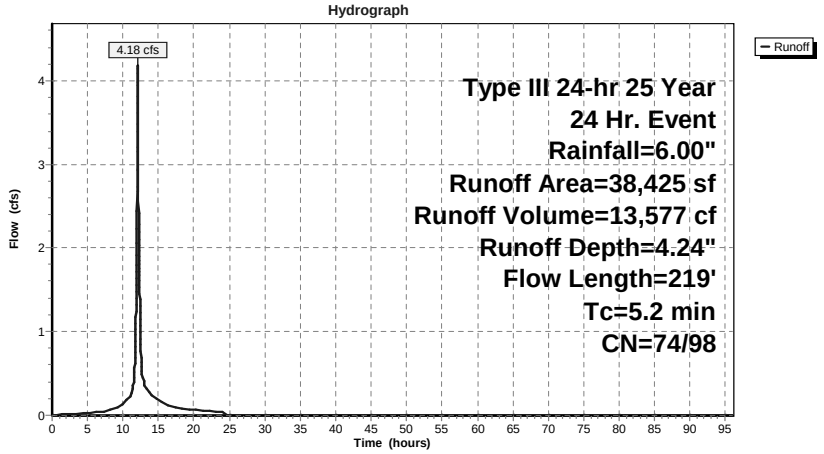
Area (sf)	CN	Description	Land Use
15,734	98	Paved parking, HSG C	Pavement
22,691	74	>75% Grass cover, Good, HSG C	Open Space
38,425	84	Weighted Average	
22,691	74	59.05% Pervious Area	
15,734	98	40.95% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	47	0.0640	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	23	0.0430	1.45		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	149		15.00		**Direct Entry,**
5.2	219	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 40.95% Impervious, Rv= 0.419, Runoff= 19.13"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
22,691	Open Space	1,359.21	4.74	20.55	2.78
15,734	Pavement	270.85	0.88	3.29	10.49
38,425	Total	1,630.05	5.62	23.83	13.27

Subcatchment 1A: Post DA 8B-1A



Hydrograph for Subcatchment 1A: Post DA 8B-1A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.02
6.00	0.43	0.00	0.26	0.03
8.00	0.68	0.00	0.49	0.05
10.00	1.13	0.05	0.92	0.13
12.00	3.00	0.91	2.77	**2.68**
14.00	4.87	2.26	4.63	**0.24**
16.00	5.32	2.62	5.08	0.13
18.00	5.57	2.83	5.33	0.08
20.00	5.74	2.97	5.50	0.06
22.00	5.88	3.09	5.65	0.05
24.00	**6.00**	**3.18**	**5.76**	0.04
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00
74.00	6.00	3.18	5.76	0.00
76.00	6.00	3.18	5.76	0.00
78.00	6.00	3.18	5.76	0.00
80.00	6.00	3.18	5.76	0.00
82.00	6.00	3.18	5.76	0.00
84.00	6.00	3.18	5.76	0.00
86.00	6.00	3.18	5.76	0.00
88.00	6.00	3.18	5.76	0.00
90.00	6.00	3.18	5.76	0.00
92.00	6.00	3.18	5.76	0.00
94.00	6.00	3.18	5.76	0.00
96.00	6.00	3.18	5.76	0.00

Summary for Pond 1A-Bio: 1A-Bioretention

Inflow Area = 38,425 sf, 40.95% Impervious, Inflow Depth = 4.24" for 25 Year, 24 Hr. Event event
Inflow = 4.18 cfs @ 12.08 hrs, Volume= 13,577 cf
Outflow = 3.39 cfs @ 12.13 hrs, Volume= 13,577 cf, Atten= 19%, Lag= 3.3 min
Discarded = 0.03 cfs @ 11.91 hrs, Volume= 5,975 cf
Primary = 3.36 cfs @ 12.13 hrs, Volume= 7,602 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 659.75' @ 12.13 hrs Surf.Area= 2,285 sf Storage= 4,645 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 673.4 min (1,454.9 - 781.5)

Volume	Invert	Avail.Storage	Storage Description
#1	655.00'	5,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

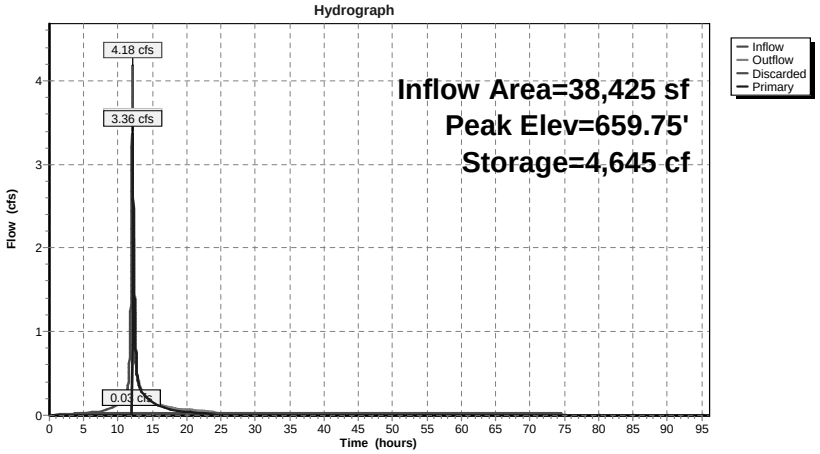
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
655.00	1,817	0.0	0	0
655.01	1,817	40.0	7	7
658.99	1,817	40.0	2,893	2,900
659.00	2,285	100.0	21	2,920
659.50	2,285	100.0	1,143	4,063
660.00	2,285	100.0	1,143	5,205

Device	Routing	Invert	Outlet Devices
#1	Discarded	655.00'	**0.500 in/hr Exfiltration over Horizontal area**
#2	Primary	659.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 11.91 hrs HW=659.02' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=3.36 cfs @ 12.13 hrs HW=659.75' TW=647.73' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 3.36 cfs @ 1.65 fps)

Pond 1A-Bio: 1A-Bioretention



Hydrograph for Pond 1A-Bio: 1A-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	655.00	0.00	0.00	0.00
2.00	0.01	0	655.00	0.01	0.01	0.00
4.00	0.02	0	655.00	0.02	0.02	0.00
6.00	0.03	36	655.05	0.02	0.02	0.00
8.00	0.05	182	655.25	0.02	0.02	0.00
10.00	0.13	664	655.91	0.02	**0.02**	0.00
12.00	**2.68**	**3,579**	**659.29**	**0.03**	**0.03**	**0.00**
14.00	**0.24**	**4,157**	**659.54**	**0.25**	0.03	**0.22**
16.00	0.13	4,121	659.53	0.13	0.03	0.11
18.00	0.08	4,100	659.52	0.08	0.03	0.05
20.00	0.06	4,092	659.51	0.06	0.03	0.04
22.00	0.05	4,086	659.51	0.05	0.03	0.03
24.00	0.04	4,079	659.51	0.04	0.03	0.02
26.00	0.00	3,894	659.43	0.03	0.03	0.00
28.00	0.00	3,703	659.34	0.03	0.03	0.00
30.00	0.00	3,513	659.26	0.03	0.03	0.00
32.00	0.00	3,323	659.18	0.03	0.03	0.00
34.00	0.00	3,132	659.09	0.03	0.03	0.00
36.00	0.00	2,942	659.01	0.03	0.03	0.00
38.00	0.00	2,784	658.83	0.02	0.02	0.00
40.00	0.00	2,632	658.62	0.02	0.02	0.00
42.00	0.00	2,481	658.41	0.02	0.02	0.00
44.00	0.00	2,329	658.21	0.02	0.02	0.00
46.00	0.00	2,178	658.00	0.02	0.02	0.00
48.00	0.00	2,027	657.79	0.02	0.02	0.00
50.00	0.00	1,875	657.58	0.02	0.02	0.00
52.00	0.00	1,724	657.37	0.02	0.02	0.00
54.00	0.00	1,572	657.16	0.02	0.02	0.00
56.00	0.00	1,421	656.96	0.02	0.02	0.00
58.00	0.00	1,270	656.75	0.02	0.02	0.00
60.00	0.00	1,118	656.54	0.02	0.02	0.00
62.00	0.00	967	656.33	0.02	0.02	0.00
64.00	0.00	815	656.12	0.02	0.02	0.00
66.00	0.00	664	655.91	0.02	0.02	0.00
68.00	0.00	512	655.71	0.02	0.02	0.00
70.00	0.00	361	655.50	0.02	0.02	0.00
72.00	0.00	210	655.29	0.02	0.02	0.00
74.00	0.00	58	655.08	0.02	0.02	0.00
76.00	0.00	0	655.00	0.00	0.00	0.00
78.00	0.00	0	655.00	0.00	0.00	0.00
80.00	0.00	0	655.00	0.00	0.00	0.00
82.00	0.00	0	655.00	0.00	0.00	0.00
84.00	0.00	0	655.00	0.00	0.00	0.00
86.00	0.00	0	655.00	0.00	0.00	0.00
88.00	0.00	0	655.00	0.00	0.00	0.00
90.00	0.00	0	655.00	0.00	0.00	0.00
92.00	0.00	0	655.00	0.00	0.00	0.00
94.00	0.00	0	655.00	0.00	0.00	0.00
96.00	0.00	0	655.00	0.00	0.00	0.00

Summary for Subcatchment 1B: Post DA 8B-1B

Runoff = 2.70 cfs @ 12.07 hrs, Volume= 9,282 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

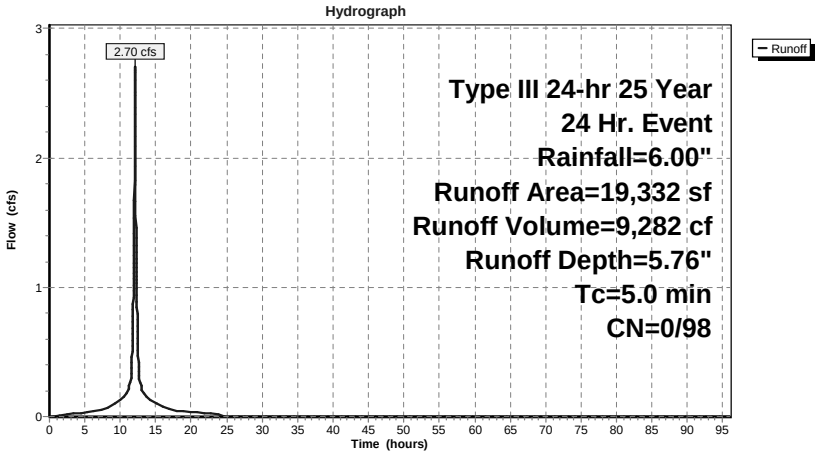
	Area (sf)	CN	Description	Land Use
	12,566	98	Roofs, HSG C	Roofs
*	6,766	98	Green Roof, HSG A	Landscaped
	19,332	98	Weighted Average	
	19,332	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
6,766	Landscaped	56.54	0.00	0.00	1.88
12,566	Roofs	53.92	0.31	4.26	21.00
19,332	Total	110.47	0.31	4.26	22.88

Subcatchment 1B: Post DA 8B-1B



Hydrograph for Subcatchment 1B: Post DA 8B-1B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.03
6.00	0.43	0.00	0.26	0.04
8.00	0.68	0.00	0.49	0.06
10.00	1.13	0.00	0.92	0.13
12.00	3.00	0.00	2.77	**1.83**
14.00	4.87	0.00	4.63	**0.14**
16.00	5.32	0.00	5.08	0.07
18.00	5.57	0.00	5.33	0.04
20.00	5.74	0.00	5.50	0.04
22.00	5.88	0.00	5.65	0.03
24.00	**6.00**	0.00	**5.76**	0.02
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00
74.00	6.00	0.00	5.76	0.00
76.00	6.00	0.00	5.76	0.00
78.00	6.00	0.00	5.76	0.00
80.00	6.00	0.00	5.76	0.00
82.00	6.00	0.00	5.76	0.00
84.00	6.00	0.00	5.76	0.00
86.00	6.00	0.00	5.76	0.00
88.00	6.00	0.00	5.76	0.00
90.00	6.00	0.00	5.76	0.00
92.00	6.00	0.00	5.76	0.00
94.00	6.00	0.00	5.76	0.00
96.00	6.00	0.00	5.76	0.00

Summary for Pond 1B-GR: 1B_Green Roof

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 19,332 sf,100.00% Impervious, Inflow Depth = 5.76" for 25 Year, 24 Hr. Event event
Inflow = 2.70 cfs @ 12.07 hrs, Volume= 9,282 cf
Outflow = 1.61 cfs @ 12.16 hrs, Volume= 9,276 cf, Atten= 40%, Lag= 5.7 min
Primary = 1.61 cfs @ 12.16 hrs, Volume= 9,276 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 800.86' @ 12.16 hrs Surf.Area= 6,766 sf Storage= 786 cf

Plug-Flow detention time= 3.2 min calculated for 9,276 cf (100% of inflow)
Center-of-Mass det. time= 2.7 min (746.9 - 744.2)

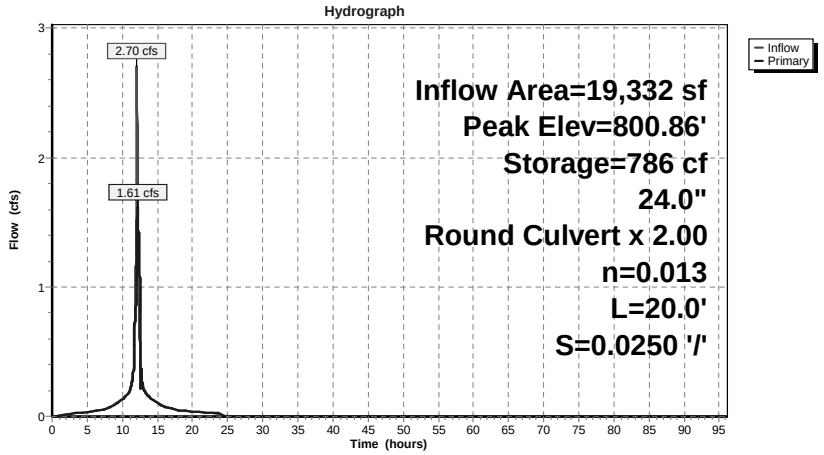
Volume	Invert	Avail.Storage	Storage Description
#1	800.00'	3,393 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
800.00	6,766	0.0	0	0
800.25	6,766	0.2	3	3
800.75	6,766	0.2	7	10
801.25	6,766	100.0	3,383	3,393

Device	Routing	Invert	Outlet Devices
#1	Primary	800.50'	**24.0" Round Culvert X 2.00** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 800.50' / 800.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.61 cfs @ 12.16 hrs HW=800.86' TW=647.73' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.61 cfs @ 2.06 fps)

Pond 1B-GR: 1B_Green Roof



Hydrograph for Pond 1B-GR: 1B_Green Roof

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	800.00	0.00
2.00	0.01	7	800.53	0.01
4.00	0.03	7	800.55	0.03
6.00	0.04	8	800.55	0.04
8.00	0.06	8	800.57	0.06
10.00	0.13	8	800.60	0.13
12.00	**1.83**	**228**	**800.78**	**0.98**
14.00	**0.14**	**8**	**800.60**	**0.14**
16.00	0.07	8	800.58	0.07
18.00	0.04	8	800.56	0.04
20.00	0.04	7	800.55	0.04
22.00	0.03	7	800.55	0.03
24.00	0.02	7	800.54	0.02
26.00	0.00	7	800.50	0.00
28.00	0.00	7	800.50	0.00
30.00	0.00	7	800.50	0.00
32.00	0.00	7	800.50	0.00
34.00	0.00	7	800.50	0.00
36.00	0.00	7	800.50	0.00
38.00	0.00	7	800.50	0.00
40.00	0.00	7	800.50	0.00
42.00	0.00	7	800.50	0.00
44.00	0.00	7	800.50	0.00
46.00	0.00	7	800.50	0.00
48.00	0.00	7	800.50	0.00
50.00	0.00	7	800.50	0.00
52.00	0.00	7	800.50	0.00
54.00	0.00	7	800.50	0.00
56.00	0.00	7	800.50	0.00
58.00	0.00	7	800.50	0.00
60.00	0.00	7	800.50	0.00
62.00	0.00	7	800.50	0.00
64.00	0.00	7	800.50	0.00
66.00	0.00	7	800.50	0.00
68.00	0.00	7	800.50	0.00
70.00	0.00	7	800.50	0.00
72.00	0.00	7	800.50	0.00
74.00	0.00	7	800.50	0.00
76.00	0.00	7	800.50	0.00
78.00	0.00	7	800.50	0.00
80.00	0.00	7	800.50	0.00
82.00	0.00	7	800.50	0.00
84.00	0.00	7	800.50	0.00
86.00	0.00	7	800.50	0.00
88.00	0.00	7	800.50	0.00
90.00	0.00	7	800.50	0.00
92.00	0.00	7	800.50	0.00
94.00	0.00	7	800.50	0.00
96.00	0.00	7	800.50	0.00

Summary for Subcatchment 1C: Post DA 8B-1C

Runoff = 0.30 cfs @ 12.07 hrs, Volume= 1,014 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

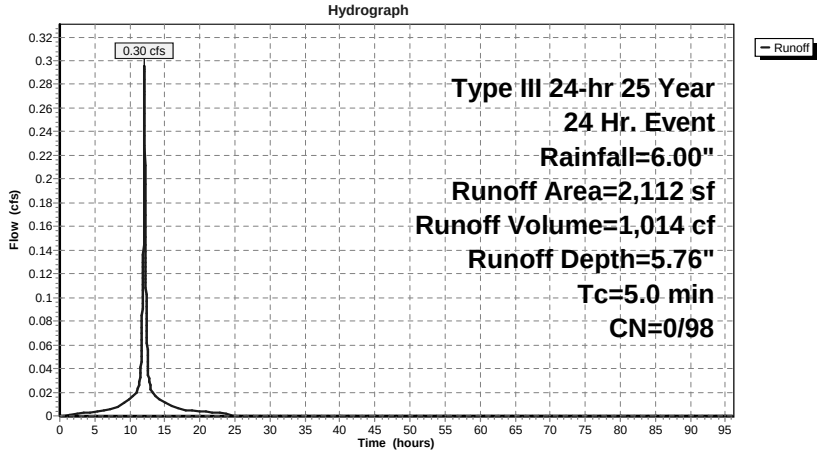
	Area (sf)	CN	Description	Land Use
*	2,112	98	Pavers, HSG C	Pavement
	2,112	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User defined min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,112	Pavement	82.52	0.27	1.00	3.20
2,112	Total	82.52	0.27	1.00	3.20

Subcatchment 1C: Post DA 8B-1C



Hydrograph for Subcatchment 1C: Post DA 8B-1C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.00	0.92	0.01
12.00	3.00	0.00	2.77	**0.20**
14.00	4.87	0.00	4.63	**0.01**
16.00	5.32	0.00	5.08	0.01
18.00	5.57	0.00	5.33	0.00
20.00	5.74	0.00	5.50	0.00
22.00	5.88	0.00	5.65	0.00
24.00	**6.00**	0.00	**5.76**	0.00
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00
74.00	6.00	0.00	5.76	0.00
76.00	6.00	0.00	5.76	0.00
78.00	6.00	0.00	5.76	0.00
80.00	6.00	0.00	5.76	0.00
82.00	6.00	0.00	5.76	0.00
84.00	6.00	0.00	5.76	0.00
86.00	6.00	0.00	5.76	0.00
88.00	6.00	0.00	5.76	0.00
90.00	6.00	0.00	5.76	0.00
92.00	6.00	0.00	5.76	0.00
94.00	6.00	0.00	5.76	0.00
96.00	6.00	0.00	5.76	0.00

Summary for Pond 1C-P: 1C_Pavers

Inflow Area = 2,112 sf,100.00% Impervious, Inflow Depth = 5.76" for 25 Year, 24 Hr. Event event
Inflow = 0.30 cfs @ 12.07 hrs, Volume= 1,014 cf
Outflow = 0.01 cfs @ 11.20 hrs, Volume= 1,014 cf, Atten= 96%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.20 hrs, Volume= 1,014 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 661.57' @ 14.71 hrs Surf.Area= 2,112 sf Storage= 481 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 323.6 min (1,067.8 - 744.2)

Volume	Invert	Avail.Storage	Storage Description
#1	661.00'	3,802 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

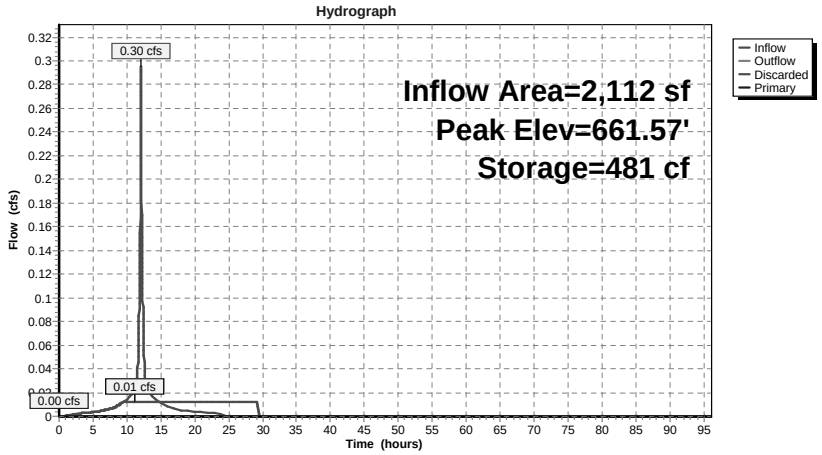
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
661.00	2,112	0.0	0	0
663.00	2,112	40.0	1,690	1,690
664.00	2,112	100.0	2,112	3,802

Device	Routing	Invert	Outlet Devices
#1	Primary	662.50'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	661.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 11.20 hrs HW=661.03' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=661.00' TW=647.00' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-P: 1C_Pavers



Hydrograph for Pond 1C-P: 1C_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	661.00	0.00	0.00	**0.00**
2.00	0.00	0	661.00	0.00	0.00	0.00
4.00	0.00	0	661.00	0.00	0.00	0.00
6.00	0.00	0	661.00	0.00	0.00	0.00
8.00	0.01	0	661.00	0.01	0.01	0.00
10.00	0.01	1	661.00	**0.01**	**0.01**	0.00
12.00	**0.20**	171	661.20	**0.01**	**0.01**	0.00
14.00	**0.01**	**478**	**661.57**	0.01	0.01	0.00
16.00	0.01	**471**	**661.56**	0.01	0.01	0.00
18.00	0.00	428	661.51	0.01	0.01	0.00
20.00	0.00	371	661.44	0.01	0.01	0.00
22.00	0.00	308	661.36	0.01	0.01	0.00
24.00	0.00	240	661.28	0.01	0.01	0.00
26.00	0.00	153	661.18	0.01	0.01	0.00
28.00	0.00	65	661.08	0.01	0.01	0.00
30.00	0.00	0	661.00	0.00	0.00	0.00
32.00	0.00	0	661.00	0.00	0.00	0.00
34.00	0.00	0	661.00	0.00	0.00	0.00
36.00	0.00	0	661.00	0.00	0.00	0.00
38.00	0.00	0	661.00	0.00	0.00	0.00
40.00	0.00	0	661.00	0.00	0.00	0.00
42.00	0.00	0	661.00	0.00	0.00	0.00
44.00	0.00	0	661.00	0.00	0.00	0.00
46.00	0.00	0	661.00	0.00	0.00	0.00
48.00	0.00	0	661.00	0.00	0.00	0.00
50.00	0.00	0	661.00	0.00	0.00	0.00
52.00	0.00	0	661.00	0.00	0.00	0.00
54.00	0.00	0	661.00	0.00	0.00	0.00
56.00	0.00	0	661.00	0.00	0.00	0.00
58.00	0.00	0	661.00	0.00	0.00	0.00
60.00	0.00	0	661.00	0.00	0.00	0.00
62.00	0.00	0	661.00	0.00	0.00	0.00
64.00	0.00	0	661.00	0.00	0.00	0.00
66.00	0.00	0	661.00	0.00	0.00	0.00
68.00	0.00	0	661.00	0.00	0.00	0.00
70.00	0.00	0	661.00	0.00	0.00	0.00
72.00	0.00	0	661.00	0.00	0.00	0.00
74.00	0.00	0	661.00	0.00	0.00	0.00
76.00	0.00	0	661.00	0.00	0.00	0.00
78.00	0.00	0	661.00	0.00	0.00	0.00
80.00	0.00	0	661.00	0.00	0.00	0.00
82.00	0.00	0	661.00	0.00	0.00	0.00
84.00	0.00	0	661.00	0.00	0.00	0.00
86.00	0.00	0	661.00	0.00	0.00	0.00
88.00	0.00	0	661.00	0.00	0.00	0.00
90.00	0.00	0	661.00	0.00	0.00	0.00
92.00	0.00	0	661.00	0.00	0.00	0.00
94.00	0.00	0	661.00	0.00	0.00	0.00
96.00	0.00	0	661.00	0.00	0.00	0.00

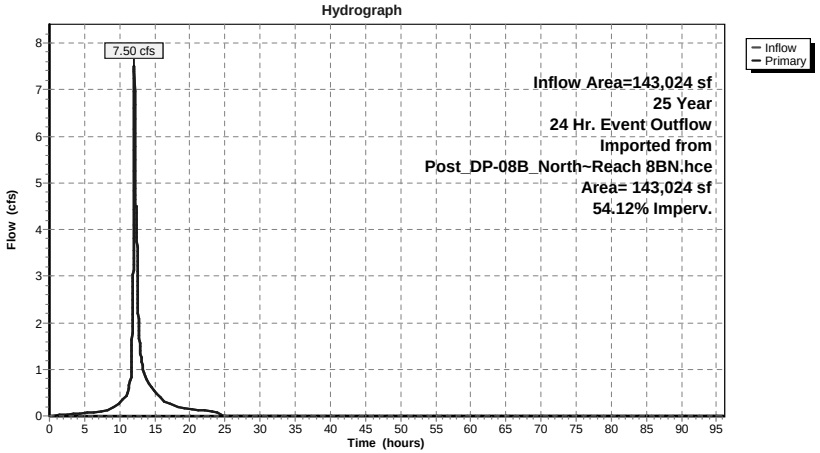
Summary for Link 8B-N: DA-8B North Inflow

Inflow Area = 143,024 sf, 54.12% Impervious, Inflow Depth = 2.79" for 25 Year, 24 Hr. Event event
Inflow = 7.50 cfs @ 12.09 hrs, Volume= 33,254 cf
Primary = 7.50 cfs @ 12.09 hrs, Volume= 33,254 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

25 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_North~Reach 8BN.hce

Link 8B-N: DA-8B North Inflow



Hydrograph for Link 8B-N: DA-8B North Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.02	0.00	0.02	54.00	0.00	0.00	0.00
3.00	0.04	0.00	0.04	55.00	0.00	0.00	0.00
4.00	0.05	0.00	0.05	56.00	0.00	0.00	0.00
5.00	0.06	0.00	0.06	57.00	0.00	0.00	0.00
6.00	0.07	0.00	0.07	58.00	0.00	0.00	0.00
7.00	0.09	0.00	0.09	59.00	0.00	0.00	0.00
8.00	0.12	0.00	0.12	60.00	0.00	0.00	0.00
9.00	0.18	0.00	0.18	61.00	0.00	0.00	0.00
10.00	0.27	0.00	0.27	62.00	0.00	0.00	0.00
11.00	0.45	0.00	0.45	63.00	0.00	0.00	0.00
12.00	**4.43**	0.00	**4.43**	64.00	0.00	0.00	0.00
13.00	**1.30**	0.00	**1.30**	65.00	0.00	0.00	0.00
14.00	0.74	0.00	0.74	66.00	0.00	0.00	0.00
15.00	0.53	0.00	0.53	67.00	0.00	0.00	0.00
16.00	0.36	0.00	0.36	68.00	0.00	0.00	0.00
17.00	0.27	0.00	0.27	69.00	0.00	0.00	0.00
18.00	0.20	0.00	0.20	70.00	0.00	0.00	0.00
19.00	0.17	0.00	0.17	71.00	0.00	0.00	0.00
20.00	0.14	0.00	0.14	72.00	0.00	0.00	0.00
21.00	0.13	0.00	0.13	73.00	0.00	0.00	0.00
22.00	0.11	0.00	0.11	74.00	0.00	0.00	0.00
23.00	0.10	0.00	0.10	75.00	0.00	0.00	0.00
24.00	0.08	0.00	0.08	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

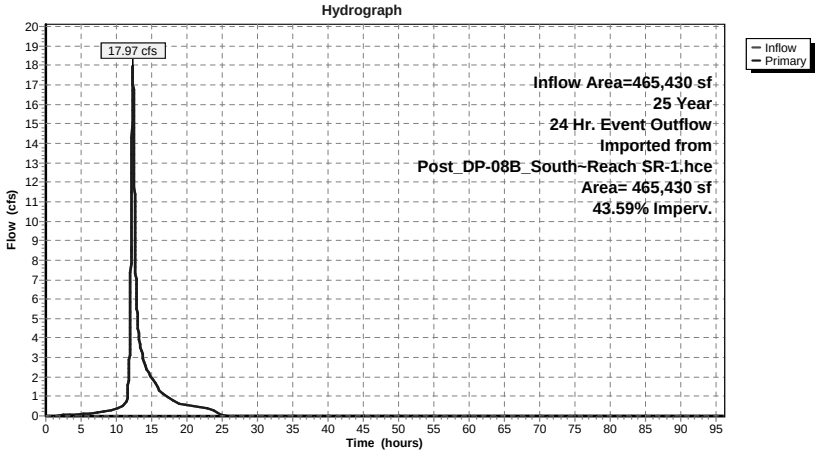
Summary for Link 8B-S: DA-8B South Inflow

Inflow Area = 465,430 sf, 43.59% Impervious, Inflow Depth = 2.44" for 25 Year, 24 Hr. Event event
Inflow = 17.97 cfs @ 12.33 hrs, Volume= 94,818 cf
Primary = 17.97 cfs @ 12.33 hrs, Volume= 94,818 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

25 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_South~Reach SR-1.hce

Link 8B-S: DA-8B South Inflow



Hydrograph for Link 8B-S: DA-8B South Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.01	0.00	0.01	53.00	0.00	0.00	0.00
2.00	0.03	0.00	0.03	54.00	0.00	0.00	0.00
3.00	0.05	0.00	0.05	55.00	0.00	0.00	0.00
4.00	0.07	0.00	0.07	56.00	0.00	0.00	0.00
5.00	0.09	0.00	0.09	57.00	0.00	0.00	0.00
6.00	0.11	0.00	0.11	58.00	0.00	0.00	0.00
7.00	0.14	0.00	0.14	59.00	0.00	0.00	0.00
8.00	0.18	0.00	0.18	60.00	0.00	0.00	0.00
9.00	0.26	0.00	0.26	61.00	0.00	0.00	0.00
10.00	0.35	0.00	0.35	62.00	0.00	0.00	0.00
11.00	0.53	0.00	0.53	63.00	0.00	0.00	0.00
12.00	**5.34**	0.00	**5.34**	64.00	0.00	0.00	0.00
13.00	**5.01**	0.00	**5.01**	65.00	0.00	0.00	0.00
14.00	2.72	0.00	2.72	66.00	0.00	0.00	0.00
15.00	1.96	0.00	1.96	67.00	0.00	0.00	0.00
16.00	1.38	0.00	1.38	68.00	0.00	0.00	0.00
17.00	1.03	0.00	1.03	69.00	0.00	0.00	0.00
18.00	0.77	0.00	0.77	70.00	0.00	0.00	0.00
19.00	0.63	0.00	0.63	71.00	0.00	0.00	0.00
20.00	0.55	0.00	0.55	72.00	0.00	0.00	0.00
21.00	0.48	0.00	0.48	73.00	0.00	0.00	0.00
22.00	0.43	0.00	0.43	74.00	0.00	0.00	0.00
23.00	0.37	0.00	0.37	75.00	0.00	0.00	0.00
24.00	0.31	0.00	0.31	76.00	0.00	0.00	0.00
25.00	0.01	0.00	0.01	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 12: Post DA 8B-12

Runoff = 4.95 cfs @ 12.07 hrs, Volume= 16,432 cf, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

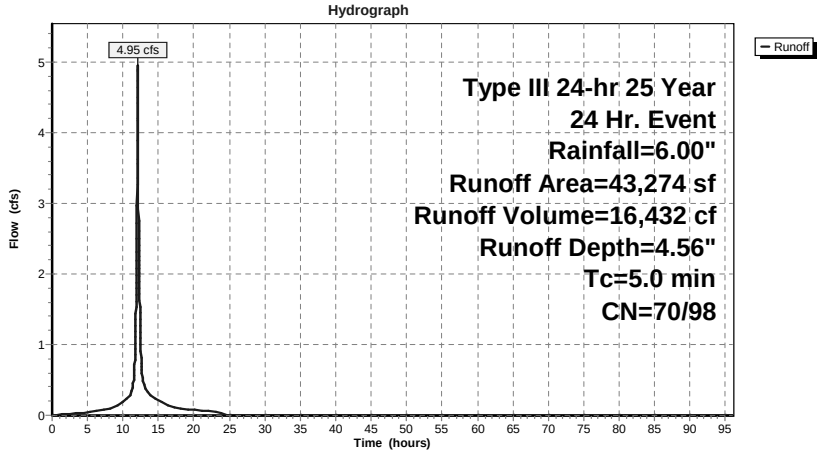
	Area (sf)	CN	Description	Land Use
	12,199	74	>75% Grass cover, Good, HSG C	Open Space
*	5,439	61	Bioretention, HSG C	Landscaped
	2,934	98	Unconnected roofs, HSG C	Roofs
	22,702	98	Paved parking, HSG C	Pavement
	43,274	87	Weighted Average	
	17,638	70	40.76% Pervious Area	
	25,636	98	59.24% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.24% Impervious, Rv= 0.583, Runoff= 26.65"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,439	Landscaped	27.90	0.00	0.00	0.93
12,199	Open Space	1,018.19	3.55	15.39	2.08
22,702	Pavement	544.53	1.76	6.61	21.09
2,934	Roofs	7.73	0.04	0.61	3.01
43,274	Total	1,598.35	5.36	22.61	27.11

Subcatchment 12: Post DA 8B-12



Hydrograph for Subcatchment 12: Post DA 8B-12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.02
4.00	0.26	0.00	0.11	0.03
6.00	0.43	0.00	0.26	0.05
8.00	0.68	0.00	0.49	0.09
10.00	1.13	0.02	0.92	0.18
12.00	3.00	0.71	2.77	**3.26**
14.00	4.87	1.94	4.63	**0.27**
16.00	5.32	2.27	5.08	0.15
18.00	5.57	2.47	5.33	0.09
20.00	5.74	2.60	5.50	0.07
22.00	5.88	2.71	5.65	0.06
24.00	**6.00**	**2.81**	**5.76**	0.05
26.00	6.00	2.81	5.76	0.00
28.00	6.00	2.81	5.76	0.00
30.00	6.00	2.81	5.76	0.00
32.00	6.00	2.81	5.76	0.00
34.00	6.00	2.81	5.76	0.00
36.00	6.00	2.81	5.76	0.00
38.00	6.00	2.81	5.76	0.00
40.00	6.00	2.81	5.76	0.00
42.00	6.00	2.81	5.76	0.00
44.00	6.00	2.81	5.76	0.00
46.00	6.00	2.81	5.76	0.00
48.00	6.00	2.81	5.76	0.00
50.00	6.00	2.81	5.76	0.00
52.00	6.00	2.81	5.76	0.00
54.00	6.00	2.81	5.76	0.00
56.00	6.00	2.81	5.76	0.00
58.00	6.00	2.81	5.76	0.00
60.00	6.00	2.81	5.76	0.00
62.00	6.00	2.81	5.76	0.00
64.00	6.00	2.81	5.76	0.00
66.00	6.00	2.81	5.76	0.00
68.00	6.00	2.81	5.76	0.00
70.00	6.00	2.81	5.76	0.00
72.00	6.00	2.81	5.76	0.00
74.00	6.00	2.81	5.76	0.00
76.00	6.00	2.81	5.76	0.00
78.00	6.00	2.81	5.76	0.00
80.00	6.00	2.81	5.76	0.00
82.00	6.00	2.81	5.76	0.00
84.00	6.00	2.81	5.76	0.00
86.00	6.00	2.81	5.76	0.00
88.00	6.00	2.81	5.76	0.00
90.00	6.00	2.81	5.76	0.00
92.00	6.00	2.81	5.76	0.00
94.00	6.00	2.81	5.76	0.00
96.00	6.00	2.81	5.76	0.00

Summary for Pond 12-Bio: 12_Bioretention

Inflow Area = 43,274 sf, 59.24% Impervious, Inflow Depth = 4.56" for 25 Year, 24 Hr. Event event
Inflow = 4.95 cfs @ 12.07 hrs, Volume= 16,432 cf
Outflow = 2.28 cfs @ 12.23 hrs, Volume= 15,132 cf, Atten= 54%, Lag= 9.3 min
Discarded = 0.03 cfs @ 11.69 hrs, Volume= 7,051 cf
Primary = 2.24 cfs @ 12.23 hrs, Volume= 8,081 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 689.69' @ 12.23 hrs Surf.Area= 5,839 sf Storage= 7,476 cf

Plug-Flow detention time= 876.2 min calculated for 15,132 cf (92% of inflow)
Center-of-Mass det. time= 833.8 min (1,601.4 - 767.6)

Volume	Invert	Avail.Storage	Storage Description
#1	685.00'	9,261 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

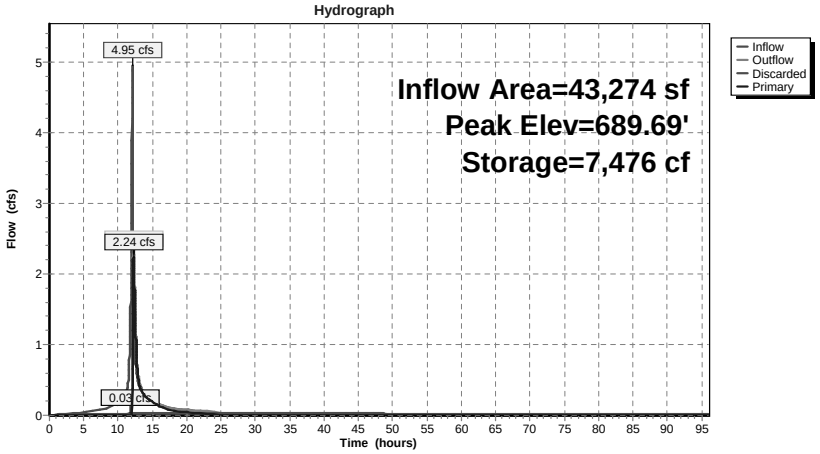
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
685.00	2,120	0.0	0	0	2,120
685.01	2,120	40.0	8	8	2,122
688.99	2,120	40.0	3,375	3,384	2,855
689.00	5,839	100.0	38	3,422	6,574
689.50	5,839	100.0	2,920	6,341	6,727
690.00	5,839	100.0	2,920	9,261	6,880

Device	Routing	Invert	Outlet Devices
#1	Discarded	685.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	689.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 11.69 hrs HW=689.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=2.24 cfs @ 12.23 hrs HW=689.69' TW=670.47' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 2.24 cfs @ 1.44 fps)

Pond 12-Bio: 12_Bioretention



Hydrograph for Pond 12-Bio: 12_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	685.00	0.00	0.00	0.00
2.00	0.02	4	685.00	0.01	0.01	0.00
4.00	0.03	102	685.12	0.01	0.01	0.00
6.00	0.05	320	685.38	0.01	0.01	0.00
8.00	0.09	715	685.84	0.01	0.01	0.00
10.00	0.18	1,550	686.83	0.01	**0.01**	0.00
12.00	**3.26**	**5,283**	**689.32**	**0.03**	**0.03**	**0.00**
14.00	**0.27**	**6,612**	**689.55**	**0.30**	0.03	**0.26**
16.00	0.15	6,508	689.53	0.16	0.03	0.13
18.00	0.09	6,447	689.52	0.10	0.03	0.06
20.00	0.07	6,420	689.51	0.07	0.03	0.04
22.00	0.06	6,402	689.51	0.06	0.03	0.03
24.00	0.05	6,384	689.51	0.05	0.03	0.02
26.00	0.00	6,143	689.47	0.03	0.03	0.00
28.00	0.00	5,900	689.42	0.03	0.03	0.00
30.00	0.00	5,657	689.38	0.03	0.03	0.00
32.00	0.00	5,413	689.34	0.03	0.03	0.00
34.00	0.00	5,170	689.30	0.03	0.03	0.00
36.00	0.00	4,927	689.26	0.03	0.03	0.00
38.00	0.00	4,683	689.22	0.03	0.03	0.00
40.00	0.00	4,440	689.17	0.03	0.03	0.00
42.00	0.00	4,197	689.13	0.03	0.03	0.00
44.00	0.00	3,954	689.09	0.03	0.03	0.00
46.00	0.00	3,710	689.05	0.03	0.03	0.00
48.00	0.00	3,467	689.01	0.03	0.03	0.00
50.00	0.00	3,333	688.93	0.01	0.01	0.00
52.00	0.00	3,244	688.83	0.01	0.01	0.00
54.00	0.00	3,156	688.72	0.01	0.01	0.00
56.00	0.00	3,068	688.62	0.01	0.01	0.00
58.00	0.00	2,979	688.51	0.01	0.01	0.00
60.00	0.00	2,891	688.41	0.01	0.01	0.00
62.00	0.00	2,803	688.31	0.01	0.01	0.00
64.00	0.00	2,714	688.20	0.01	0.01	0.00
66.00	0.00	2,626	688.10	0.01	0.01	0.00
68.00	0.00	2,538	687.99	0.01	0.01	0.00
70.00	0.00	2,449	687.89	0.01	0.01	0.00
72.00	0.00	2,361	687.78	0.01	0.01	0.00
74.00	0.00	2,273	687.68	0.01	0.01	0.00
76.00	0.00	2,184	687.58	0.01	0.01	0.00
78.00	0.00	2,096	687.47	0.01	0.01	0.00
80.00	0.00	2,008	687.37	0.01	0.01	0.00
82.00	0.00	1,919	687.26	0.01	0.01	0.00
84.00	0.00	1,831	687.16	0.01	0.01	0.00
86.00	0.00	1,743	687.06	0.01	0.01	0.00
88.00	0.00	1,654	686.95	0.01	0.01	0.00
90.00	0.00	1,566	686.85	0.01	0.01	0.00
92.00	0.00	1,478	686.74	0.01	0.01	0.00
94.00	0.00	1,389	686.64	0.01	0.01	0.00
96.00	0.00	1,301	686.53	0.01	0.01	0.00

Summary for Reach DP-8B: DP-8B Outflow

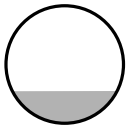
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 711,597 sf, 48.21% Impervious, Inflow Depth = 2.58" for 25 Year, 24 Hr. Event event
Inflow = 27.61 cfs @ 12.31 hrs, Volume= 153,030 cf
Outflow = 27.59 cfs @ 12.32 hrs, Volume= 153,030 cf, Atten= 0%, Lag= 0.6 min

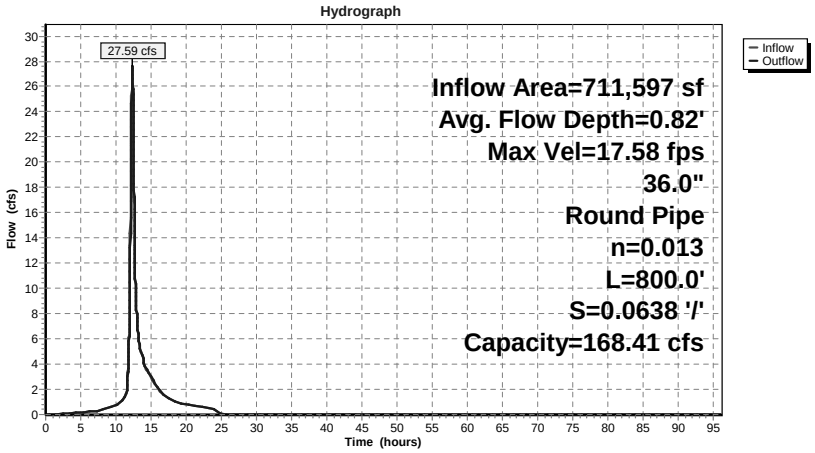
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 17.58 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 5.82 fps, Avg. Travel Time= 2.3 min

Peak Storage= 1,256 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.82'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 168.41 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 800.0' Slope= 0.0638 '/'
Inlet Invert= 647.00', Outlet Invert= 596.00'



Reach DP-8B: DP-8B Outflow



Hydrograph for Reach DP-8B: DP-8B Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	647.00	0.00
2.00	0.07	18	647.04	0.07
4.00	0.15	32	647.07	0.15
6.00	0.21	41	647.08	0.21
8.00	0.36	60	647.10	0.36
10.00	0.75	99	647.14	0.74
12.00	**10.53**	**598**	**647.49**	**9.67**
14.00	**4.08**	**328**	**647.32**	**4.11**
16.00	2.05	203	647.23	2.07
18.00	1.13	134	647.18	1.14
20.00	0.81	106	647.15	0.81
22.00	0.62	88	647.13	0.62
24.00	0.45	70	647.11	0.45
26.00	0.00	1	647.00	0.00
28.00	0.00	0	647.00	0.00
30.00	0.00	0	647.00	0.00
32.00	0.00	0	647.00	0.00
34.00	0.00	0	647.00	0.00
36.00	0.00	0	647.00	0.00
38.00	0.00	0	647.00	0.00
40.00	0.00	0	647.00	0.00
42.00	0.00	0	647.00	0.00
44.00	0.00	0	647.00	0.00
46.00	0.00	0	647.00	0.00
48.00	0.00	0	647.00	0.00
50.00	0.00	0	647.00	0.00
52.00	0.00	0	647.00	0.00
54.00	0.00	0	647.00	0.00
56.00	0.00	0	647.00	0.00
58.00	0.00	0	647.00	0.00
60.00	0.00	0	647.00	0.00
62.00	0.00	0	647.00	0.00
64.00	0.00	0	647.00	0.00
66.00	0.00	0	647.00	0.00
68.00	0.00	0	647.00	0.00
70.00	0.00	0	647.00	0.00
72.00	0.00	0	647.00	0.00
74.00	0.00	0	647.00	0.00
76.00	0.00	0	647.00	0.00
78.00	0.00	0	647.00	0.00
80.00	0.00	0	647.00	0.00
82.00	0.00	0	647.00	0.00
84.00	0.00	0	647.00	0.00
86.00	0.00	0	647.00	0.00
88.00	0.00	0	647.00	0.00
90.00	0.00	0	647.00	0.00
92.00	0.00	0	647.00	0.00
94.00	0.00	0	647.00	0.00
96.00	0.00	0	647.00	0.00

Summary for Reach EP-1: East Reach Pipe

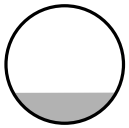
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 186,298 sf, 55.31% Impervious, Inflow Depth = 2.66" for 25 Year, 24 Hr. Event event
Inflow = 8.40 cfs @ 12.13 hrs, Volume= 41,335 cf
Outflow = 8.38 cfs @ 12.13 hrs, Volume= 41,335 cf, Atten= 0%, Lag= 0.3 min

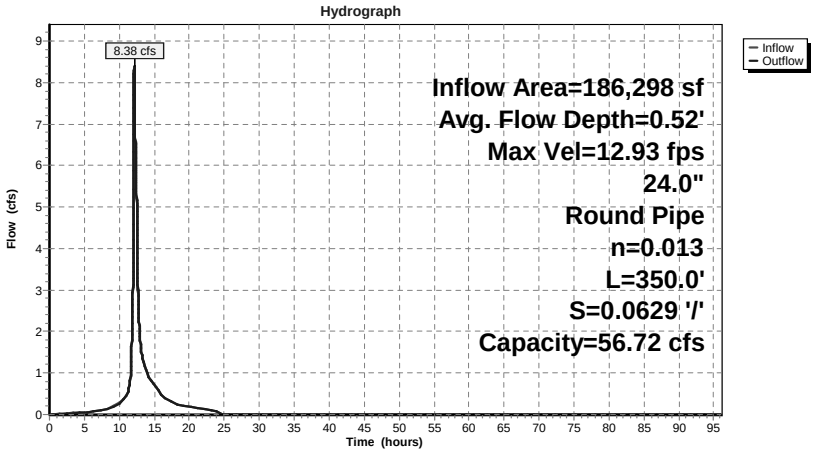
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 12.93 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 4.44 fps, Avg. Travel Time= 1.3 min

Peak Storage= 227 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.52'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 56.72 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 350.0' Slope= 0.0629 '/'
Inlet Invert= 670.00', Outlet Invert= 648.00'



Reach EP-1: East Reach Pipe



Hydrograph for Reach EP-1: East Reach Pipe

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	670.00	0.00
2.00	0.02	3	670.03	0.02
4.00	0.05	6	670.04	0.05
6.00	0.07	8	670.05	0.07
8.00	0.12	11	670.07	0.12
10.00	0.27	20	670.10	0.27
12.00	**4.43**	**139**	**670.37**	**4.21**
14.00	**1.00**	**51**	**670.18**	**1.01**
16.00	0.49	31	670.13	0.49
18.00	0.26	20	670.10	0.26
20.00	0.18	16	670.08	0.19
22.00	0.14	13	670.07	0.14
24.00	0.10	10	670.06	0.10
26.00	0.00	0	670.00	0.00
28.00	0.00	0	670.00	0.00
30.00	0.00	0	670.00	0.00
32.00	0.00	0	670.00	0.00
34.00	0.00	0	670.00	0.00
36.00	0.00	0	670.00	0.00
38.00	0.00	0	670.00	0.00
40.00	0.00	0	670.00	0.00
42.00	0.00	0	670.00	0.00
44.00	0.00	0	670.00	0.00
46.00	0.00	0	670.00	0.00
48.00	0.00	0	670.00	0.00
50.00	0.00	0	670.00	0.00
52.00	0.00	0	670.00	0.00
54.00	0.00	0	670.00	0.00
56.00	0.00	0	670.00	0.00
58.00	0.00	0	670.00	0.00
60.00	0.00	0	670.00	0.00
62.00	0.00	0	670.00	0.00
64.00	0.00	0	670.00	0.00
66.00	0.00	0	670.00	0.00
68.00	0.00	0	670.00	0.00
70.00	0.00	0	670.00	0.00
72.00	0.00	0	670.00	0.00
74.00	0.00	0	670.00	0.00
76.00	0.00	0	670.00	0.00
78.00	0.00	0	670.00	0.00
80.00	0.00	0	670.00	0.00
82.00	0.00	0	670.00	0.00
84.00	0.00	0	670.00	0.00
86.00	0.00	0	670.00	0.00
88.00	0.00	0	670.00	0.00
90.00	0.00	0	670.00	0.00
92.00	0.00	0	670.00	0.00
94.00	0.00	0	670.00	0.00
96.00	0.00	0	670.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1A: Post DA 8B-1A Runoff Area=38,425 sf 40.95% Impervious Runoff Depth=7.50"
Flow Length=219' Tc=5.2 min CN=74/98 Runoff=7.39 cfs 24,028 cf

Pond 1A-Bio: 1A-Bioretention Peak Elev=659.92' Storage=5,013 cf Inflow=7.39 cfs 24,028 cf
Discarded=0.03 cfs 6,088 cf Primary=7.01 cfs 17,941 cf Outflow=7.04 cfs 24,028 cf

Subcatchment 1B: Post DA 8B-1B Runoff Area=19,332 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=4.29 cfs 14,917 cf

Pond 1B-GR: 1B_Green Roof Peak Elev=800.97' Storage=1,518 cf Inflow=4.29 cfs 14,917 cf
24.0" Round Culvert x 2.00 n=0.013 L=20.0' S=0.0250 '/' Outflow=2.66 cfs 14,910 cf

Subcatchment 1C: Post DA 8B-1C Runoff Area=2,112 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=0.47 cfs 1,630 cf

Pond 1C-P: 1C_Pavers Peak Elev=662.11' Storage=934 cf Inflow=0.47 cfs 1,630 cf
Discarded=0.01 cfs 1,630 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 1,630 cf

Link 100 100 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_North~Reach 8BN.hce Inflow=20.35 cfs 67,377 cf
Area= 143,024 sf 54.12% Imperv. Primary=20.35 cfs 67,377 cf

Link 10 10 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_South~Reach SR-1.hce Inflow=58.44 cfs 214,092 cf
Area= 465,430 sf 43.59% Imperv. Primary=58.44 cfs 214,092 cf

Subcatchment 12: Post DA 8B-12 Runoff Area=43,274 sf 59.24% Impervious Runoff Depth=7.84"
Tc=5.0 min CN=70/98 Runoff=8.53 cfs 28,274 cf

Pond 12-Bio: 12_Bioretention Peak Elev=689.92' Storage=8,779 cf Inflow=8.53 cfs 28,274 cf
Discarded=0.03 cfs 7,198 cf Primary=7.06 cfs 19,766 cf Outflow=7.09 cfs 26,964 cf

Reach DP-8B: DP-8B Outflow Avg. Flow Depth=1.60' Max Vel=24.46 fps Inflow=93.80 cfs 334,086 cf
36.0" Round Pipe n=0.013 L=800.0' S=0.0638 '/' Capacity=168.41 cfs Outflow=93.65 cfs 334,086 cf

Reach EP-1: East Reach Pipe Avg. Flow Depth=0.98' Max Vel=17.89 fps Inflow=27.37 cfs 87,143 cf
24.0" Round Pipe n=0.013 L=350.0' S=0.0629 '/' Capacity=56.72 cfs Outflow=27.35 cfs 87,143 cf

Total Runoff Area = 103,143 sf Runoff Volume = 68,848 cf Average Runoff Depth = 8.01"
39.10% Pervious = 40,329 sf 60.90% Impervious = 62,814 sf

Summary for Subcatchment 1A: Post DA 8B-1A

Runoff = 7.39 cfs @ 12.07 hrs, Volume= 24,028 cf, Depth= 7.50"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

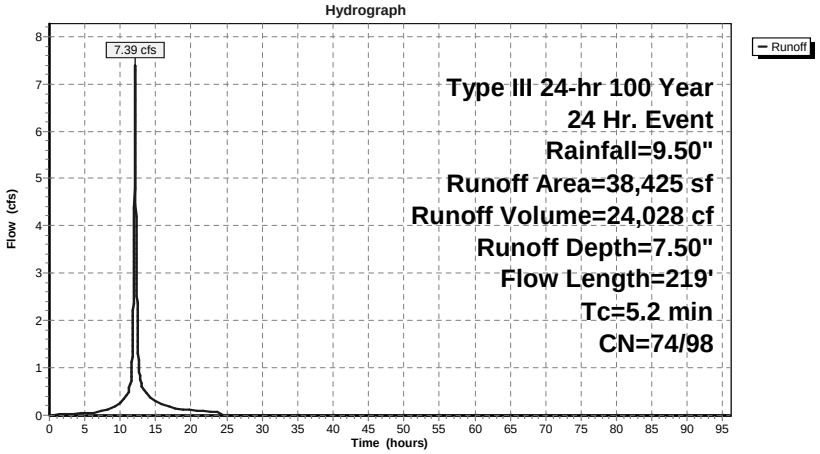
Area (sf)	CN	Description	Land Use
15,734	98	Paved parking, HSG C	Pavement
22,691	74	>75% Grass cover, Good, HSG C	Open Space
38,425	84	Weighted Average	
22,691	74	59.05% Pervious Area	
15,734	98	40.95% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	47	0.0640	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	23	0.0430	1.45		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	149		15.00		**Direct Entry,**
5.2	219	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 40.95% Impervious, Rv= 0.419, Runoff= 19.13"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
22,691	Open Space	1,359.21	4.74	20.55	2.78
15,734	Pavement	270.85	0.88	3.29	10.49
38,425	Total	1,630.05	5.62	23.83	13.27

Subcatchment 1A: Post DA 8B-1A



Hydrograph for Subcatchment 1A: Post DA 8B-1A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.02
4.00	0.41	0.00	0.24	0.04
6.00	0.68	0.00	0.49	0.05
8.00	1.08	0.04	0.87	0.11
10.00	1.80	0.26	1.57	0.26
12.00	4.75	2.17	4.51	**4.80**
14.00	7.70	4.66	7.46	**0.40**
16.00	8.42	5.30	8.18	0.21
18.00	8.82	5.66	8.58	0.13
20.00	9.09	5.91	8.85	0.11
22.00	9.32	6.12	9.08	0.09
24.00	**9.50**	**6.29**	**9.26**	0.07
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00
74.00	9.50	6.29	9.26	0.00
76.00	9.50	6.29	9.26	0.00
78.00	9.50	6.29	9.26	0.00
80.00	9.50	6.29	9.26	0.00
82.00	9.50	6.29	9.26	0.00
84.00	9.50	6.29	9.26	0.00
86.00	9.50	6.29	9.26	0.00
88.00	9.50	6.29	9.26	0.00
90.00	9.50	6.29	9.26	0.00
92.00	9.50	6.29	9.26	0.00
94.00	9.50	6.29	9.26	0.00
96.00	9.50	6.29	9.26	0.00

Summary for Pond 1A-Bio: 1A-Bioretention

Inflow Area = 38,425 sf, 40.95% Impervious, Inflow Depth = 7.50" for 100 Year, 24 Hr. Event event
Inflow = 7.39 cfs @ 12.07 hrs, Volume= 24,028 cf
Outflow = 7.04 cfs @ 12.10 hrs, Volume= 24,028 cf, Atten= 5%, Lag= 1.5 min
Discarded = 0.03 cfs @ 10.98 hrs, Volume= 6,088 cf
Primary = 7.01 cfs @ 12.10 hrs, Volume= 17,941 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 659.92' @ 12.10 hrs Surf.Area= 2,285 sf Storage= 5,013 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 397.1 min (1,170.3 - 773.2)

Volume	Invert	Avail.Storage	Storage Description
#1	655.00'	5,205 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

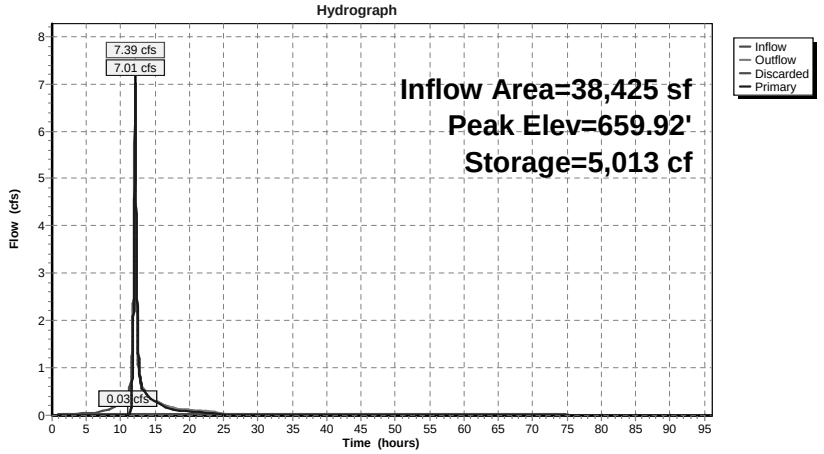
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
655.00	1,817	0.0	0	0
655.01	1,817	40.0	7	7
658.99	1,817	40.0	2,893	2,900
659.00	2,285	100.0	21	2,920
659.50	2,285	100.0	1,143	4,063
660.00	2,285	100.0	1,143	5,205

Device	Routing	Invert	Outlet Devices
#1	Discarded	655.00'	**0.500 in/hr Exfiltration over Horizontal area**
#2	Primary	659.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 10.98 hrs HW=659.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=7.01 cfs @ 12.10 hrs HW=659.92' TW=648.53' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 7.01 cfs @ 2.11 fps)

Pond 1A-Bio: 1A-Bioretention



Hydrograph for Pond 1A-Bio: 1A-Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	655.00	0.00	0.00	0.00
2.00	0.02	1	655.00	0.02	0.02	0.00
4.00	0.04	72	655.10	0.02	0.02	0.00
6.00	0.05	247	655.34	0.02	0.02	0.00
8.00	0.11	651	655.90	0.02	0.02	0.00
10.00	0.26	1,793	657.47	0.02	**0.02**	0.00
12.00	**4.80**	**4,698**	**659.78**	**3.86**	**0.03**	**3.84**
14.00	**0.40**	**4,201**	**659.56**	**0.41**	0.03	**0.39**
16.00	0.21	4,150	659.54	0.22	0.03	0.20
18.00	0.13	4,122	659.53	0.14	0.03	0.11
20.00	0.11	4,111	659.52	0.11	0.03	0.08
22.00	0.09	4,103	659.52	0.09	0.03	0.06
24.00	0.07	4,095	659.51	0.07	0.03	0.04
26.00	0.00	3,902	659.43	0.03	0.03	0.00
28.00	0.00	3,711	659.35	0.03	0.03	0.00
30.00	0.00	3,521	659.26	0.03	0.03	0.00
32.00	0.00	3,331	659.18	0.03	0.03	0.00
34.00	0.00	3,140	659.10	0.03	0.03	0.00
36.00	0.00	2,950	659.01	0.03	0.03	0.00
38.00	0.00	2,790	658.84	0.02	0.02	0.00
40.00	0.00	2,639	658.63	0.02	0.02	0.00
42.00	0.00	2,487	658.42	0.02	0.02	0.00
44.00	0.00	2,336	658.21	0.02	0.02	0.00
46.00	0.00	2,184	658.01	0.02	0.02	0.00
48.00	0.00	2,033	657.80	0.02	0.02	0.00
50.00	0.00	1,881	657.59	0.02	0.02	0.00
52.00	0.00	1,730	657.38	0.02	0.02	0.00
54.00	0.00	1,579	657.17	0.02	0.02	0.00
56.00	0.00	1,427	656.96	0.02	0.02	0.00
58.00	0.00	1,276	656.76	0.02	0.02	0.00
60.00	0.00	1,124	656.55	0.02	0.02	0.00
62.00	0.00	973	656.34	0.02	0.02	0.00
64.00	0.00	822	656.13	0.02	0.02	0.00
66.00	0.00	670	655.92	0.02	0.02	0.00
68.00	0.00	519	655.71	0.02	0.02	0.00
70.00	0.00	367	655.51	0.02	0.02	0.00
72.00	0.00	216	655.30	0.02	0.02	0.00
74.00	0.00	64	655.09	0.02	0.02	0.00
76.00	0.00	0	655.00	0.00	0.00	0.00
78.00	0.00	0	655.00	0.00	0.00	0.00
80.00	0.00	0	655.00	0.00	0.00	0.00
82.00	0.00	0	655.00	0.00	0.00	0.00
84.00	0.00	0	655.00	0.00	0.00	0.00
86.00	0.00	0	655.00	0.00	0.00	0.00
88.00	0.00	0	655.00	0.00	0.00	0.00
90.00	0.00	0	655.00	0.00	0.00	0.00
92.00	0.00	0	655.00	0.00	0.00	0.00
94.00	0.00	0	655.00	0.00	0.00	0.00
96.00	0.00	0	655.00	0.00	0.00	0.00

Summary for Subcatchment 1B: Post DA 8B-1B

Runoff = 4.29 cfs @ 12.07 hrs, Volume= 14,917 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

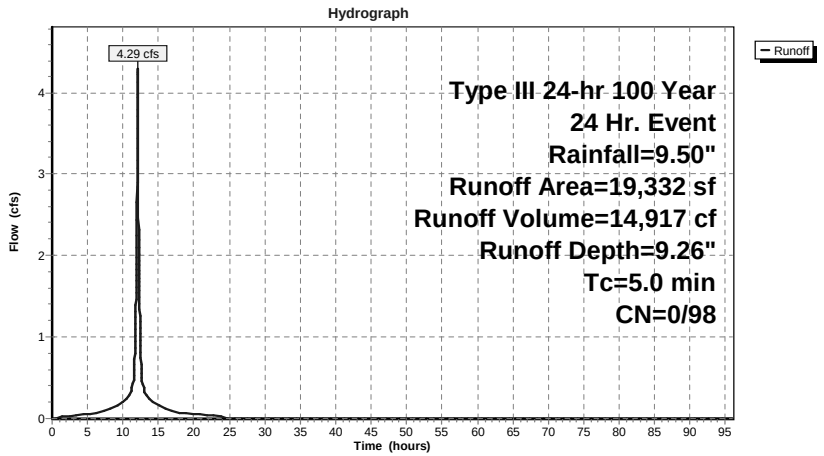
	Area (sf)	CN	Description	Land Use
	12,566	98	Roofs, HSG C	Roofs
*	6,766	98	Green Roof, HSG A	Landscaped
	19,332	98	Weighted Average	
	19,332	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
6,766	Landscaped	56.54	0.00	0.00	1.88
12,566	Roofs	53.92	0.31	4.26	21.00
19,332	Total	110.47	0.31	4.26	22.88

Subcatchment 1B: Post DA 8B-1B



Hydrograph for Subcatchment 1B: Post DA 8B-1B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.03
4.00	0.41	0.00	0.24	0.05
6.00	0.68	0.00	0.49	0.06
8.00	1.08	0.00	0.87	0.11
10.00	1.80	0.00	1.57	0.20
12.00	4.75	0.00	4.51	**2.90**
14.00	7.70	0.00	7.46	**0.22**
16.00	8.42	0.00	8.18	0.11
18.00	8.82	0.00	8.58	0.07
20.00	9.09	0.00	8.85	0.06
22.00	9.32	0.00	9.08	0.05
24.00	**9.50**	0.00	**9.26**	0.04
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00
74.00	9.50	0.00	9.26	0.00
76.00	9.50	0.00	9.26	0.00
78.00	9.50	0.00	9.26	0.00
80.00	9.50	0.00	9.26	0.00
82.00	9.50	0.00	9.26	0.00
84.00	9.50	0.00	9.26	0.00
86.00	9.50	0.00	9.26	0.00
88.00	9.50	0.00	9.26	0.00
90.00	9.50	0.00	9.26	0.00
92.00	9.50	0.00	9.26	0.00
94.00	9.50	0.00	9.26	0.00
96.00	9.50	0.00	9.26	0.00

Summary for Pond 1B-GR: 1B_Green Roof

Inflow Area = 19,332 sf,100.00% Impervious, Inflow Depth = 9.26" for 100 Year, 24 Hr. Event event
Inflow = 4.29 cfs @ 12.07 hrs, Volume= 14,917 cf
Outflow = 2.66 cfs @ 12.16 hrs, Volume= 14,910 cf, Atten= 38%, Lag= 5.4 min
Primary = 2.66 cfs @ 12.16 hrs, Volume= 14,910 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 800.97' @ 12.16 hrs Surf.Area= 6,766 sf Storage= 1,518 cf

Plug-Flow detention time= 3.8 min calculated for 14,910 cf (100% of inflow)
Center-of-Mass det. time= 3.5 min (741.8 - 738.3)

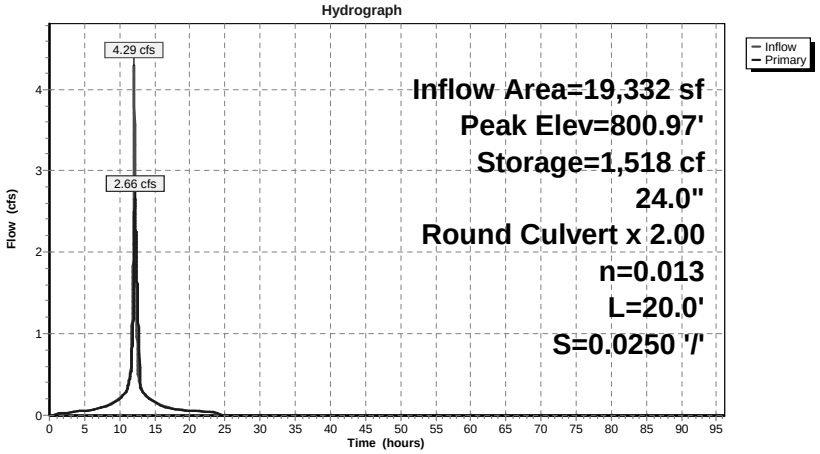
Volume	Invert	Avail.Storage	Storage Description
#1	800.00'	3,393 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
800.00	6,766	0.0	0	0
800.25	6,766	0.2	3	3
800.75	6,766	0.2	7	10
801.25	6,766	100.0	3,383	3,393

Device	Routing	Invert	Outlet Devices
#1	Primary	800.50'	**24.0" Round Culvert X 2.00** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 800.50' / 800.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.66 cfs @ 12.16 hrs HW=800.97' TW=648.59' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 2.66 cfs @ 2.34 fps)

Pond 1B-GR: 1B_Green Roof



Hydrograph for Pond 1B-GR: 1B_Green Roof

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	800.00	0.00
2.00	0.03	7	800.55	0.03
4.00	0.05	8	800.56	0.05
6.00	0.06	8	800.57	0.06
8.00	0.11	8	800.59	0.11
10.00	0.20	8	800.63	0.20
12.00	**2.90**	**646**	**800.84**	**1.44**
14.00	**0.22**	**9**	**800.63**	**0.22**
16.00	0.11	8	800.60	0.11
18.00	0.07	8	800.57	0.07
20.00	0.06	8	800.57	0.06
22.00	0.05	8	800.56	0.05
24.00	0.04	7	800.55	0.04
26.00	0.00	7	800.50	0.00
28.00	0.00	7	800.50	0.00
30.00	0.00	7	800.50	0.00
32.00	0.00	7	800.50	0.00
34.00	0.00	7	800.50	0.00
36.00	0.00	7	800.50	0.00
38.00	0.00	7	800.50	0.00
40.00	0.00	7	800.50	0.00
42.00	0.00	7	800.50	0.00
44.00	0.00	7	800.50	0.00
46.00	0.00	7	800.50	0.00
48.00	0.00	7	800.50	0.00
50.00	0.00	7	800.50	0.00
52.00	0.00	7	800.50	0.00
54.00	0.00	7	800.50	0.00
56.00	0.00	7	800.50	0.00
58.00	0.00	7	800.50	0.00
60.00	0.00	7	800.50	0.00
62.00	0.00	7	800.50	0.00
64.00	0.00	7	800.50	0.00
66.00	0.00	7	800.50	0.00
68.00	0.00	7	800.50	0.00
70.00	0.00	7	800.50	0.00
72.00	0.00	7	800.50	0.00
74.00	0.00	7	800.50	0.00
76.00	0.00	7	800.50	0.00
78.00	0.00	7	800.50	0.00
80.00	0.00	7	800.50	0.00
82.00	0.00	7	800.50	0.00
84.00	0.00	7	800.50	0.00
86.00	0.00	7	800.50	0.00
88.00	0.00	7	800.50	0.00
90.00	0.00	7	800.50	0.00
92.00	0.00	7	800.50	0.00
94.00	0.00	7	800.50	0.00
96.00	0.00	7	800.50	0.00

Summary for Subcatchment 1C: Post DA 8B-1C

Runoff = 0.47 cfs @ 12.07 hrs, Volume= 1,630 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

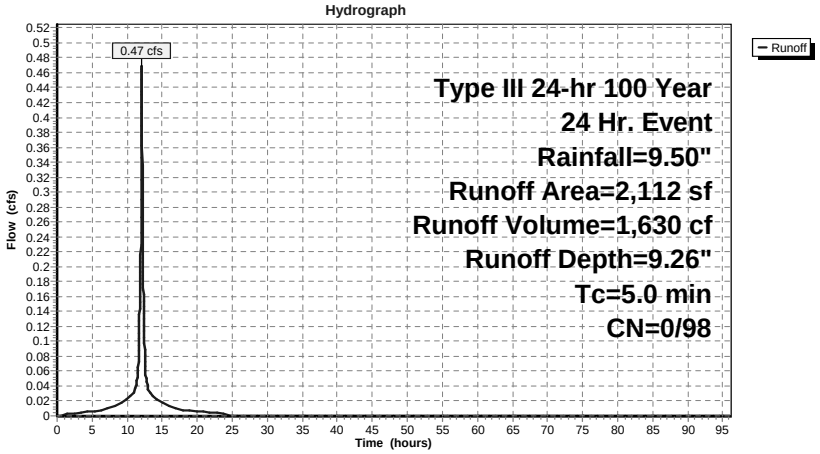
	Area (sf)	CN	Description	Land Use
*	2,112	98	Pavers, HSG C	Pavement
	2,112	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User defined min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,112	Pavement	82.52	0.27	1.00	3.20
2,112	Total	82.52	0.27	1.00	3.20

Subcatchment 1C: Post DA 8B-1C



Hydrograph for Subcatchment 1C: Post DA 8B-1C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.00	0.87	0.01
10.00	1.80	0.00	1.57	0.02
12.00	4.75	0.00	4.51	**0.32**
14.00	7.70	0.00	7.46	**0.02**
16.00	8.42	0.00	8.18	0.01
18.00	8.82	0.00	8.58	0.01
20.00	9.09	0.00	8.85	0.01
22.00	9.32	0.00	9.08	0.01
24.00	**9.50**	0.00	**9.26**	0.00
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00
74.00	9.50	0.00	9.26	0.00
76.00	9.50	0.00	9.26	0.00
78.00	9.50	0.00	9.26	0.00
80.00	9.50	0.00	9.26	0.00
82.00	9.50	0.00	9.26	0.00
84.00	9.50	0.00	9.26	0.00
86.00	9.50	0.00	9.26	0.00
88.00	9.50	0.00	9.26	0.00
90.00	9.50	0.00	9.26	0.00
92.00	9.50	0.00	9.26	0.00
94.00	9.50	0.00	9.26	0.00
96.00	9.50	0.00	9.26	0.00

Summary for Pond 1C-P: 1C_Pavers

Inflow Area = 2,112 sf,100.00% Impervious, Inflow Depth = 9.26" for 100 Year, 24 Hr. Event event
Inflow = 0.47 cfs @ 12.07 hrs, Volume= 1,630 cf
Outflow = 0.01 cfs @ 9.79 hrs, Volume= 1,630 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.79 hrs, Volume= 1,630 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 662.11' @ 16.05 hrs Surf.Area= 2,112 sf Storage= 934 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 643.1 min (1,381.4 - 738.3)

Volume	Invert	Avail.Storage	Storage Description
#1	661.00'	3,802 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

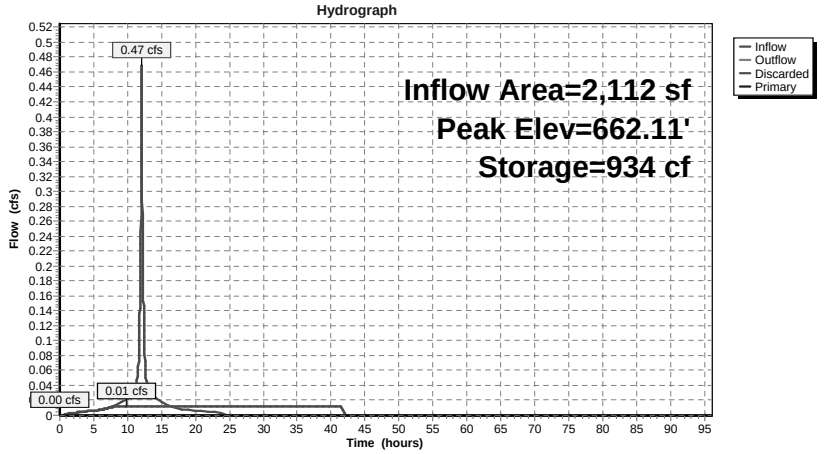
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
661.00	2,112	0.0	0	0
663.00	2,112	40.0	1,690	1,690
664.00	2,112	100.0	2,112	3,802

Device	Routing	Invert	Outlet Devices
#1	Primary	662.50'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	661.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 9.79 hrs HW=661.03' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=661.00' TW=647.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-P: 1C_Pavers



Hydrograph for Pond 1C-P: 1C_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	661.00	0.00	0.00	**0.00**
2.00	0.00	0	661.00	0.00	0.00	0.00
4.00	0.01	0	661.00	0.01	0.01	0.00
6.00	0.01	0	661.00	0.01	0.01	0.00
8.00	0.01	0	661.00	**0.01**	**0.01**	0.00
10.00	0.02	33	661.04	**0.01**	**0.01**	0.00
12.00	**0.32**	356	661.42	0.01	0.01	0.00
14.00	**0.02**	893	662.06	0.01	0.01	0.00
16.00	0.01	**934**	**662.11**	0.01	0.01	0.00
18.00	0.01	**917**	**662.09**	0.01	0.01	0.00
20.00	0.01	878	662.04	0.01	0.01	0.00
22.00	0.01	830	661.98	0.01	0.01	0.00
24.00	0.00	775	661.92	0.01	0.01	0.00
26.00	0.00	688	661.81	0.01	0.01	0.00
28.00	0.00	600	661.71	0.01	0.01	0.00
30.00	0.00	512	661.61	0.01	0.01	0.00
32.00	0.00	424	661.50	0.01	0.01	0.00
34.00	0.00	336	661.40	0.01	0.01	0.00
36.00	0.00	248	661.29	0.01	0.01	0.00
38.00	0.00	160	661.19	0.01	0.01	0.00
40.00	0.00	72	661.08	0.01	0.01	0.00
42.00	0.00	0	661.00	0.00	0.00	0.00
44.00	0.00	0	661.00	0.00	0.00	0.00
46.00	0.00	0	661.00	0.00	0.00	0.00
48.00	0.00	0	661.00	0.00	0.00	0.00
50.00	0.00	0	661.00	0.00	0.00	0.00
52.00	0.00	0	661.00	0.00	0.00	0.00
54.00	0.00	0	661.00	0.00	0.00	0.00
56.00	0.00	0	661.00	0.00	0.00	0.00
58.00	0.00	0	661.00	0.00	0.00	0.00
60.00	0.00	0	661.00	0.00	0.00	0.00
62.00	0.00	0	661.00	0.00	0.00	0.00
64.00	0.00	0	661.00	0.00	0.00	0.00
66.00	0.00	0	661.00	0.00	0.00	0.00
68.00	0.00	0	661.00	0.00	0.00	0.00
70.00	0.00	0	661.00	0.00	0.00	0.00
72.00	0.00	0	661.00	0.00	0.00	0.00
74.00	0.00	0	661.00	0.00	0.00	0.00
76.00	0.00	0	661.00	0.00	0.00	0.00
78.00	0.00	0	661.00	0.00	0.00	0.00
80.00	0.00	0	661.00	0.00	0.00	0.00
82.00	0.00	0	661.00	0.00	0.00	0.00
84.00	0.00	0	661.00	0.00	0.00	0.00
86.00	0.00	0	661.00	0.00	0.00	0.00
88.00	0.00	0	661.00	0.00	0.00	0.00
90.00	0.00	0	661.00	0.00	0.00	0.00
92.00	0.00	0	661.00	0.00	0.00	0.00
94.00	0.00	0	661.00	0.00	0.00	0.00
96.00	0.00	0	661.00	0.00	0.00	0.00

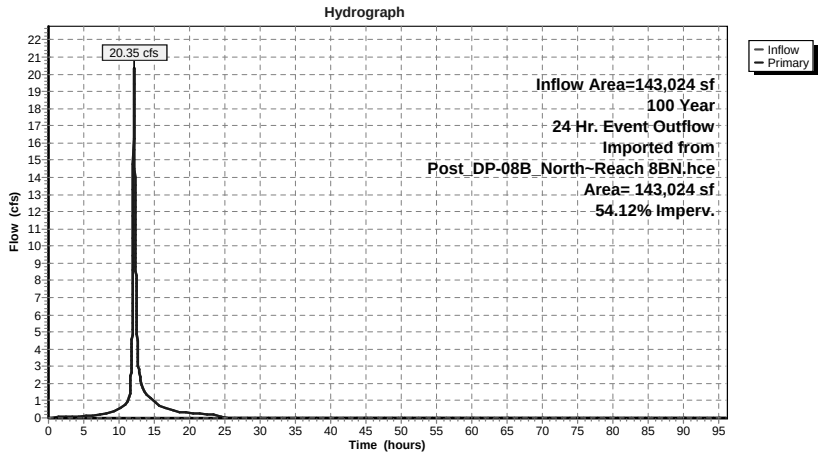
Summary for Link 8B-N: DA-8B North Inflow

Inflow Area = 143,024 sf, 54.12% Impervious, Inflow Depth = 5.65" for 100 Year, 24 Hr. Event event
Inflow = 20.35 cfs @ 12.11 hrs, Volume= 67,377 cf
Primary = 20.35 cfs @ 12.11 hrs, Volume= 67,377 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

100 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_North~Reach 8BN.hce

Link 8B-N: DA-8B North Inflow



Hydrograph for Link 8B-N: DA-8B North Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.02	0.00	0.02	53.00	0.00	0.00	0.00
2.00	0.05	0.00	0.05	54.00	0.00	0.00	0.00
3.00	0.07	0.00	0.07	55.00	0.00	0.00	0.00
4.00	0.09	0.00	0.09	56.00	0.00	0.00	0.00
5.00	0.10	0.00	0.10	57.00	0.00	0.00	0.00
6.00	0.11	0.00	0.11	58.00	0.00	0.00	0.00
7.00	0.16	0.00	0.16	59.00	0.00	0.00	0.00
8.00	0.22	0.00	0.22	60.00	0.00	0.00	0.00
9.00	0.36	0.00	0.36	61.00	0.00	0.00	0.00
10.00	0.52	0.00	0.52	62.00	0.00	0.00	0.00
11.00	0.85	0.00	0.85	63.00	0.00	0.00	0.00
12.00	**9.47**	0.00	**9.47**	64.00	0.00	0.00	0.00
13.00	**2.24**	0.00	**2.24**	65.00	0.00	0.00	0.00
14.00	1.31	0.00	1.31	66.00	0.00	0.00	0.00
15.00	0.96	0.00	0.96	67.00	0.00	0.00	0.00
16.00	0.66	0.00	0.66	68.00	0.00	0.00	0.00
17.00	0.50	0.00	0.50	69.00	0.00	0.00	0.00
18.00	0.37	0.00	0.37	70.00	0.00	0.00	0.00
19.00	0.32	0.00	0.32	71.00	0.00	0.00	0.00
20.00	0.28	0.00	0.28	72.00	0.00	0.00	0.00
21.00	0.25	0.00	0.25	73.00	0.00	0.00	0.00
22.00	0.22	0.00	0.22	74.00	0.00	0.00	0.00
23.00	0.19	0.00	0.19	75.00	0.00	0.00	0.00
24.00	0.17	0.00	0.17	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

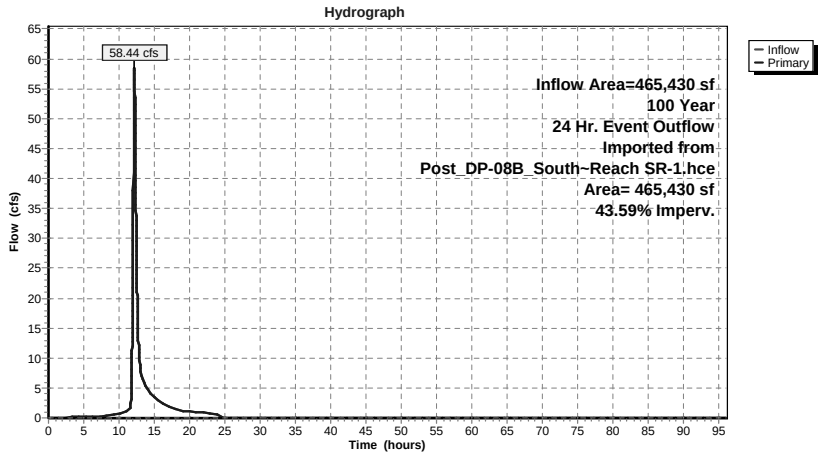
Summary for Link 8B-S: DA-8B South Inflow

Inflow Area = 465,430 sf, 43.59% Impervious, Inflow Depth = 5.52" for 100 Year, 24 Hr. Event event
Inflow = 58.44 cfs @ 12.16 hrs, Volume= 214,092 cf
Primary = 58.44 cfs @ 12.16 hrs, Volume= 214,092 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

100 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_South~Reach SR-1.hce

Link 8B-S: DA-8B South Inflow



Hydrograph for Link 8B-S: DA-8B South Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.04	0.00	0.04	53.00	0.00	0.00	0.00
2.00	0.08	0.00	0.08	54.00	0.00	0.00	0.00
3.00	0.11	0.00	0.11	55.00	0.00	0.00	0.00
4.00	0.13	0.00	0.13	56.00	0.00	0.00	0.00
5.00	0.16	0.00	0.16	57.00	0.00	0.00	0.00
6.00	0.18	0.00	0.18	58.00	0.00	0.00	0.00
7.00	0.24	0.00	0.24	59.00	0.00	0.00	0.00
8.00	0.30	0.00	0.30	60.00	0.00	0.00	0.00
9.00	0.43	0.00	0.43	61.00	0.00	0.00	0.00
10.00	0.60	0.00	0.60	62.00	0.00	0.00	0.00
11.00	0.96	0.00	0.96	63.00	0.00	0.00	0.00
12.00	**27.38**	0.00	**27.38**	64.00	0.00	0.00	0.00
13.00	**8.64**	0.00	**8.64**	65.00	0.00	0.00	0.00
14.00	4.82	0.00	4.82	66.00	0.00	0.00	0.00
15.00	3.52	0.00	3.52	67.00	0.00	0.00	0.00
16.00	2.50	0.00	2.50	68.00	0.00	0.00	0.00
17.00	1.88	0.00	1.88	69.00	0.00	0.00	0.00
18.00	1.43	0.00	1.43	70.00	0.00	0.00	0.00
19.00	1.20	0.00	1.20	71.00	0.00	0.00	0.00
20.00	1.06	0.00	1.06	72.00	0.00	0.00	0.00
21.00	0.95	0.00	0.95	73.00	0.00	0.00	0.00
22.00	0.85	0.00	0.85	74.00	0.00	0.00	0.00
23.00	0.75	0.00	0.75	75.00	0.00	0.00	0.00
24.00	0.65	0.00	0.65	76.00	0.00	0.00	0.00
25.00	0.02	0.00	0.02	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 12: Post DA 8B-12

Runoff = 8.53 cfs @ 12.07 hrs, Volume= 28,274 cf, Depth= 7.84"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

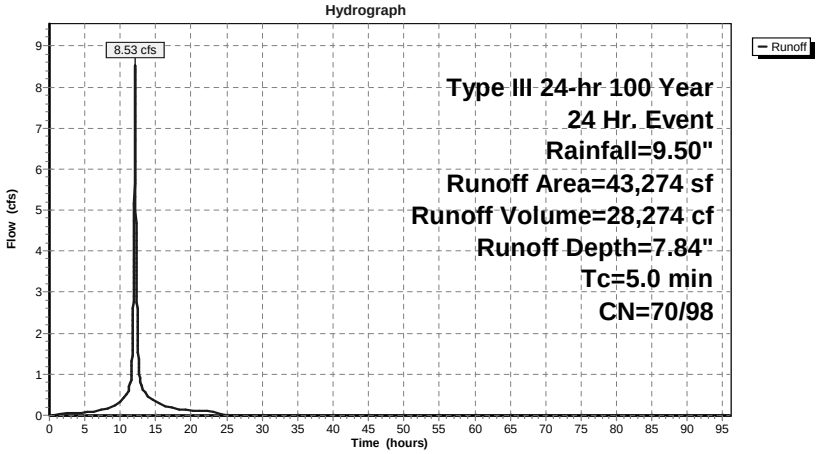
	Area (sf)	CN	Description	Land Use
	12,199	74	>75% Grass cover, Good, HSG C	Open Space
*	5,439	61	Bioretention, HSG C	Landscaped
	2,934	98	Unconnected roofs, HSG C	Roofs
	22,702	98	Paved parking, HSG C	Pavement
	43,274	87	Weighted Average	
	17,638	70	40.76% Pervious Area	
	25,636	98	59.24% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.24% Impervious, Rv= 0.583, Runoff= 26.65"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
5,439	Landscaped	27.90	0.00	0.00	0.93
12,199	Open Space	1,018.19	3.55	15.39	2.08
22,702	Pavement	544.53	1.76	6.61	21.09
2,934	Roofs	7.73	0.04	0.61	3.01
43,274	Total	1,598.35	5.36	22.61	27.11

Subcatchment 12: Post DA 8B-12



Hydrograph for Subcatchment 12: Post DA 8B-12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.04
4.00	0.41	0.00	0.24	0.06
6.00	0.68	0.00	0.49	0.08
8.00	1.08	0.01	0.87	0.15
10.00	1.80	0.17	1.57	0.33
12.00	4.75	1.85	4.51	**5.66**
14.00	7.70	4.21	7.46	**0.45**
16.00	8.42	4.82	8.18	0.24
18.00	8.82	5.17	8.58	0.15
20.00	9.09	5.42	8.85	0.12
22.00	9.32	5.62	9.08	0.10
24.00	**9.50**	**5.78**	**9.26**	0.08
26.00	9.50	5.78	9.26	0.00
28.00	9.50	5.78	9.26	0.00
30.00	9.50	5.78	9.26	0.00
32.00	9.50	5.78	9.26	0.00
34.00	9.50	5.78	9.26	0.00
36.00	9.50	5.78	9.26	0.00
38.00	9.50	5.78	9.26	0.00
40.00	9.50	5.78	9.26	0.00
42.00	9.50	5.78	9.26	0.00
44.00	9.50	5.78	9.26	0.00
46.00	9.50	5.78	9.26	0.00
48.00	9.50	5.78	9.26	0.00
50.00	9.50	5.78	9.26	0.00
52.00	9.50	5.78	9.26	0.00
54.00	9.50	5.78	9.26	0.00
56.00	9.50	5.78	9.26	0.00
58.00	9.50	5.78	9.26	0.00
60.00	9.50	5.78	9.26	0.00
62.00	9.50	5.78	9.26	0.00
64.00	9.50	5.78	9.26	0.00
66.00	9.50	5.78	9.26	0.00
68.00	9.50	5.78	9.26	0.00
70.00	9.50	5.78	9.26	0.00
72.00	9.50	5.78	9.26	0.00
74.00	9.50	5.78	9.26	0.00
76.00	9.50	5.78	9.26	0.00
78.00	9.50	5.78	9.26	0.00
80.00	9.50	5.78	9.26	0.00
82.00	9.50	5.78	9.26	0.00
84.00	9.50	5.78	9.26	0.00
86.00	9.50	5.78	9.26	0.00
88.00	9.50	5.78	9.26	0.00
90.00	9.50	5.78	9.26	0.00
92.00	9.50	5.78	9.26	0.00
94.00	9.50	5.78	9.26	0.00
96.00	9.50	5.78	9.26	0.00

Summary for Pond 12-Bio: 12_Bioretention

Inflow Area = 43,274 sf, 59.24% Impervious, Inflow Depth = 7.84" for 100 Year, 24 Hr. Event event
Inflow = 8.53 cfs @ 12.07 hrs, Volume= 28,274 cf
Outflow = 7.09 cfs @ 12.12 hrs, Volume= 26,964 cf, Atten= 17%, Lag= 3.0 min
Discarded = 0.03 cfs @ 10.27 hrs, Volume= 7,198 cf
Primary = 7.06 cfs @ 12.12 hrs, Volume= 19,766 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 689.92' @ 12.12 hrs Surf.Area= 5,839 sf Storage= 8,779 cf

Plug-Flow detention time= 518.3 min calculated for 26,961 cf (95% of inflow)
Center-of-Mass det. time= 491.4 min (1,253.2 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	685.00'	9,261 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

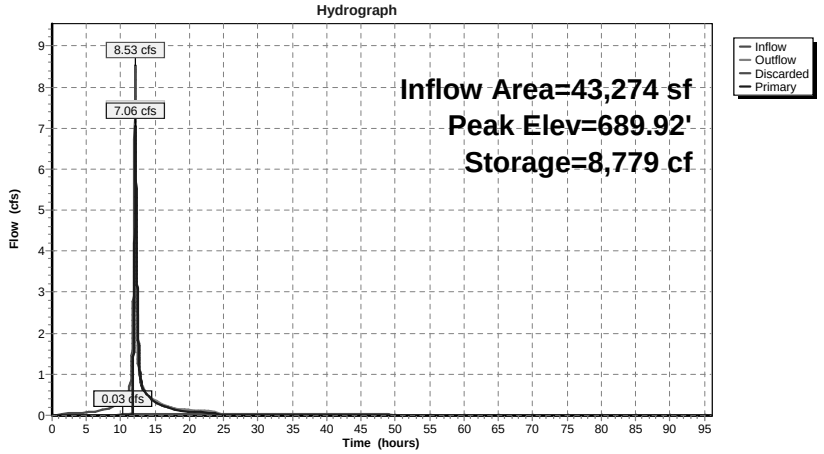
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
685.00	2,120	0.0	0	0	2,120
685.01	2,120	40.0	8	8	2,122
688.99	2,120	40.0	3,375	3,384	2,855
689.00	5,839	100.0	38	3,422	6,574
689.50	5,839	100.0	2,920	6,341	6,727
690.00	5,839	100.0	2,920	9,261	6,880

Device	Routing	Invert	Outlet Devices
#1	Discarded	685.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	689.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 10.27 hrs HW=689.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=7.05 cfs @ 12.12 hrs HW=689.92' TW=670.98' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 7.05 cfs @ 2.11 fps)

Pond 12-Bio: 12_Bioretention



Hydrograph for Pond 12-Bio: 12_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	685.00	0.00	0.00	0.00
2.00	0.04	64	685.08	0.01	0.01	0.00
4.00	0.06	339	685.40	0.01	0.01	0.00
6.00	0.08	783	685.92	0.01	0.01	0.00
8.00	0.15	1,511	686.78	0.01	0.01	0.00
10.00	0.33	3,100	688.66	0.01	**0.01**	0.00
12.00	**5.66**	**7,900**	**689.77**	**3.64**	**0.03**	**3.61**
14.00	**0.45**	**6,732**	**689.57**	**0.49**	0.03	**0.45**
16.00	0.24	6,589	689.54	0.26	0.03	0.23
18.00	0.15	6,507	689.53	0.16	0.03	0.13
20.00	0.12	6,473	689.52	0.12	0.03	0.09
22.00	0.10	6,451	689.52	0.10	0.03	0.07
24.00	0.08	6,428	689.51	0.08	0.03	0.05
26.00	0.00	6,167	689.47	0.03	0.03	0.00
28.00	0.00	5,924	689.43	0.03	0.03	0.00
30.00	0.00	5,680	689.39	0.03	0.03	0.00
32.00	0.00	5,437	689.35	0.03	0.03	0.00
34.00	0.00	5,194	689.30	0.03	0.03	0.00
36.00	0.00	4,951	689.26	0.03	0.03	0.00
38.00	0.00	4,707	689.22	0.03	0.03	0.00
40.00	0.00	4,464	689.18	0.03	0.03	0.00
42.00	0.00	4,221	689.14	0.03	0.03	0.00
44.00	0.00	3,977	689.10	0.03	0.03	0.00
46.00	0.00	3,734	689.05	0.03	0.03	0.00
48.00	0.00	3,491	689.01	0.03	0.03	0.00
50.00	0.00	3,341	688.94	0.01	0.01	0.00
52.00	0.00	3,253	688.84	0.01	0.01	0.00
54.00	0.00	3,165	688.73	0.01	0.01	0.00
56.00	0.00	3,076	688.63	0.01	0.01	0.00
58.00	0.00	2,988	688.52	0.01	0.01	0.00
60.00	0.00	2,900	688.42	0.01	0.01	0.00
62.00	0.00	2,811	688.32	0.01	0.01	0.00
64.00	0.00	2,723	688.21	0.01	0.01	0.00
66.00	0.00	2,635	688.11	0.01	0.01	0.00
68.00	0.00	2,546	688.00	0.01	0.01	0.00
70.00	0.00	2,458	687.90	0.01	0.01	0.00
72.00	0.00	2,370	687.79	0.01	0.01	0.00
74.00	0.00	2,281	687.69	0.01	0.01	0.00
76.00	0.00	2,193	687.59	0.01	0.01	0.00
78.00	0.00	2,105	687.48	0.01	0.01	0.00
80.00	0.00	2,016	687.38	0.01	0.01	0.00
82.00	0.00	1,928	687.27	0.01	0.01	0.00
84.00	0.00	1,840	687.17	0.01	0.01	0.00
86.00	0.00	1,751	687.07	0.01	0.01	0.00
88.00	0.00	1,663	686.96	0.01	0.01	0.00
90.00	0.00	1,575	686.86	0.01	0.01	0.00
92.00	0.00	1,486	686.75	0.01	0.01	0.00
94.00	0.00	1,398	686.65	0.01	0.01	0.00
96.00	0.00	1,310	686.54	0.01	0.01	0.00

Summary for Reach DP-8B: DP-8B Outflow

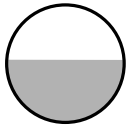
[52] Hint: Inlet/Outlet conditions not evaluated
[61] Hint: Exceeded Reach EP-1 outlet invert by 0.60' @ 12.14 hrs

Inflow Area = 711,597 sf, 48.21% Impervious, Inflow Depth = 5.63" for 100 Year, 24 Hr. Event event
Inflow = 93.80 cfs @ 12.13 hrs, Volume= 334,086 cf
Outflow = 93.65 cfs @ 12.14 hrs, Volume= 334,086 cf, Atten= 0%, Lag= 0.4 min

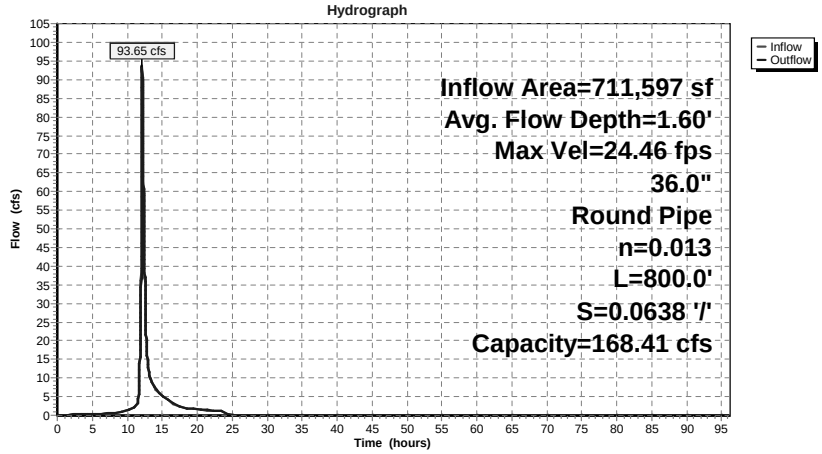
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 24.46 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 6.94 fps, Avg. Travel Time= 1.9 min

Peak Storage= 3,063 cf @ 12.14 hrs
Average Depth at Peak Storage= 1.60'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 168.41 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 800.0' Slope= 0.0638 '/'
Inlet Invert= 647.00', Outlet Invert= 596.00'



Reach DP-8B: DP-8B Outflow



Hydrograph for Reach DP-8B: DP-8B Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	647.00	0.00
2.00	0.15	33	647.07	0.15
4.00	0.27	48	647.09	0.26
6.00	0.36	59	647.10	0.36
8.00	0.63	88	647.13	0.62
10.00	1.33	148	647.19	1.32
12.00	**45.19**	**1,712**	**648.03**	**42.49**
14.00	**7.20**	**488**	**647.42**	**7.24**
16.00	3.70	306	647.31	3.73
18.00	2.11	207	647.24	2.12
20.00	1.56	167	647.20	1.57
22.00	1.24	143	647.18	1.25
24.00	0.94	117	647.16	0.94
26.00	0.00	1	647.00	0.00
28.00	0.00	0	647.00	0.00
30.00	0.00	0	647.00	0.00
32.00	0.00	0	647.00	0.00
34.00	0.00	0	647.00	0.00
36.00	0.00	0	647.00	0.00
38.00	0.00	0	647.00	0.00
40.00	0.00	0	647.00	0.00
42.00	0.00	0	647.00	0.00
44.00	0.00	0	647.00	0.00
46.00	0.00	0	647.00	0.00
48.00	0.00	0	647.00	0.00
50.00	0.00	0	647.00	0.00
52.00	0.00	0	647.00	0.00
54.00	0.00	0	647.00	0.00
56.00	0.00	0	647.00	0.00
58.00	0.00	0	647.00	0.00
60.00	0.00	0	647.00	0.00
62.00	0.00	0	647.00	0.00
64.00	0.00	0	647.00	0.00
66.00	0.00	0	647.00	0.00
68.00	0.00	0	647.00	0.00
70.00	0.00	0	647.00	0.00
72.00	0.00	0	647.00	0.00
74.00	0.00	0	647.00	0.00
76.00	0.00	0	647.00	0.00
78.00	0.00	0	647.00	0.00
80.00	0.00	0	647.00	0.00
82.00	0.00	0	647.00	0.00
84.00	0.00	0	647.00	0.00
86.00	0.00	0	647.00	0.00
88.00	0.00	0	647.00	0.00
90.00	0.00	0	647.00	0.00
92.00	0.00	0	647.00	0.00
94.00	0.00	0	647.00	0.00
96.00	0.00	0	647.00	0.00

Summary for Reach EP-1: East Reach Pipe

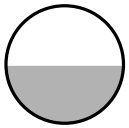
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 186,298 sf, 55.31% Impervious, Inflow Depth = 5.61" for 100 Year, 24 Hr. Event event
Inflow = 27.37 cfs @ 12.11 hrs, Volume= 87,143 cf
Outflow = 27.35 cfs @ 12.12 hrs, Volume= 87,143 cf, Atten= 0%, Lag= 0.2 min

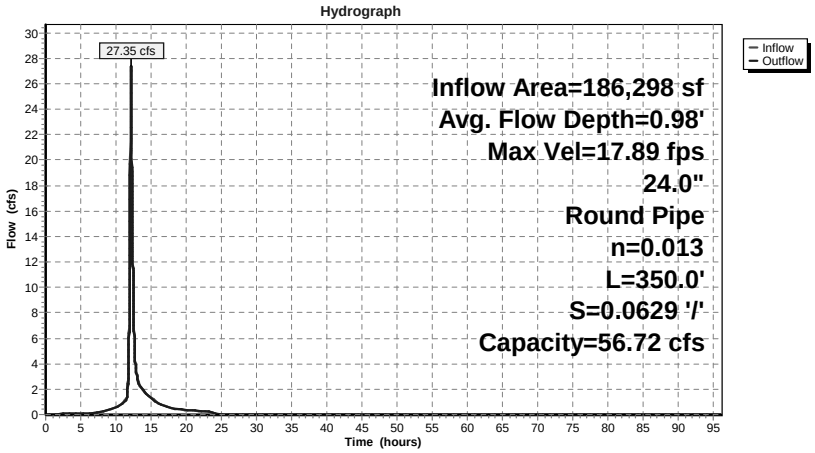
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 17.89 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 5.30 fps, Avg. Travel Time= 1.1 min

Peak Storage= 535 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.98'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 56.72 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 350.0' Slope= 0.0629 '/'
Inlet Invert= 670.00', Outlet Invert= 648.00'

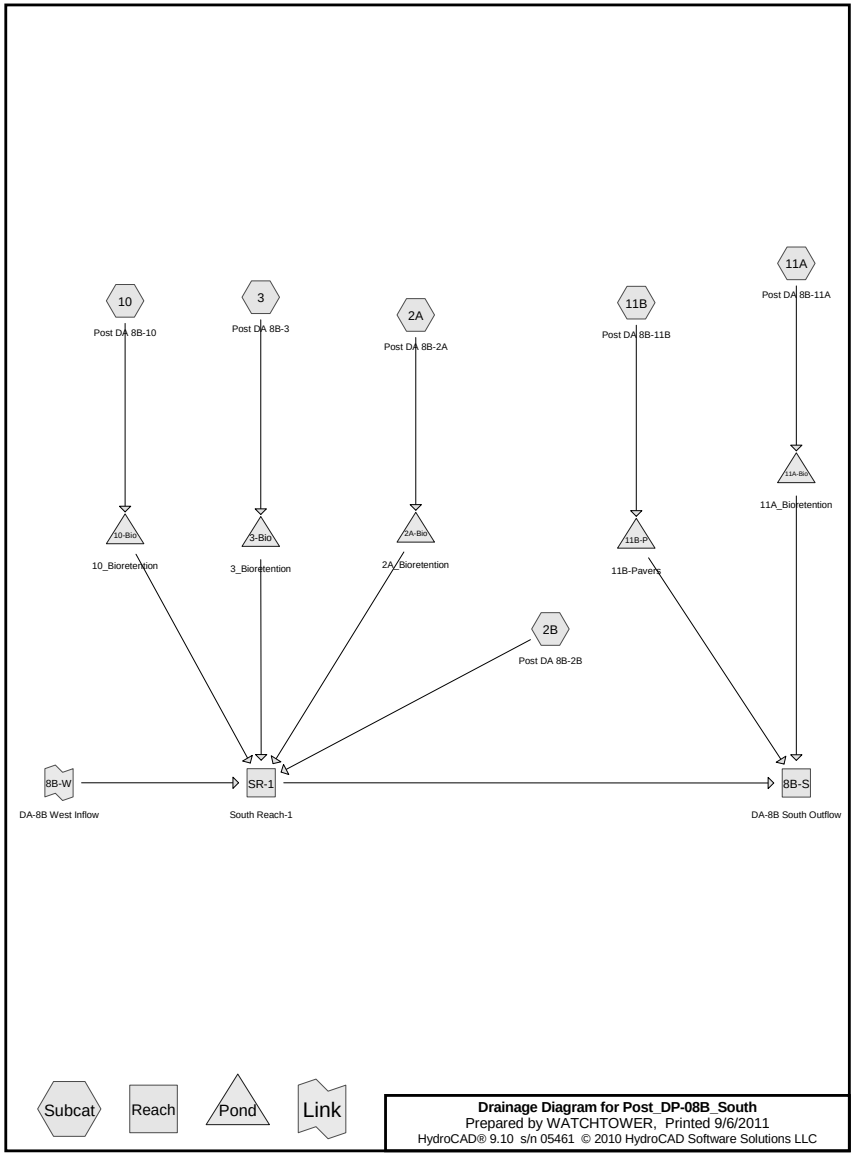


Reach EP-1: East Reach Pipe



Hydrograph for Reach EP-1: East Reach Pipe

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	670.00	0.00
2.00	0.05	6	670.04	0.05
4.00	0.09	9	670.06	0.09
6.00	0.11	11	670.07	0.11
8.00	0.22	18	670.09	0.22
10.00	0.52	32	670.14	0.52
12.00	**13.08**	**303**	**670.64**	**12.54**
14.00	**1.77**	**76**	**670.24**	**1.77**
16.00	0.89	47	670.17	0.89
18.00	0.50	31	670.13	0.50
20.00	0.37	25	670.11	0.37
22.00	0.29	21	670.10	0.29
24.00	0.21	17	670.09	0.21
26.00	0.00	0	670.00	0.00
28.00	0.00	0	670.00	0.00
30.00	0.00	0	670.00	0.00
32.00	0.00	0	670.00	0.00
34.00	0.00	0	670.00	0.00
36.00	0.00	0	670.00	0.00
38.00	0.00	0	670.00	0.00
40.00	0.00	0	670.00	0.00
42.00	0.00	0	670.00	0.00
44.00	0.00	0	670.00	0.00
46.00	0.00	0	670.00	0.00
48.00	0.00	0	670.00	0.00
50.00	0.00	0	670.00	0.00
52.00	0.00	0	670.00	0.00
54.00	0.00	0	670.00	0.00
56.00	0.00	0	670.00	0.00
58.00	0.00	0	670.00	0.00
60.00	0.00	0	670.00	0.00
62.00	0.00	0	670.00	0.00
64.00	0.00	0	670.00	0.00
66.00	0.00	0	670.00	0.00
68.00	0.00	0	670.00	0.00
70.00	0.00	0	670.00	0.00
72.00	0.00	0	670.00	0.00
74.00	0.00	0	670.00	0.00
76.00	0.00	0	670.00	0.00
78.00	0.00	0	670.00	0.00
80.00	0.00	0	670.00	0.00
82.00	0.00	0	670.00	0.00
84.00	0.00	0	670.00	0.00
86.00	0.00	0	670.00	0.00
88.00	0.00	0	670.00	0.00
90.00	0.00	0	670.00	0.00
92.00	0.00	0	670.00	0.00
94.00	0.00	0	670.00	0.00
96.00	0.00	0	670.00	0.00



Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
47,087	Landscaped	2A, 2B, 3, 10, 11A
165,730	Open Space	2A, 3, 10, 11A, 11B
88,783	Pavement	2A, 3, 10, 11A, 11B
45,066	Roofs	2B, 3
346,666	**TOTAL**	

Pollutant Concentrations

Line#	Land Use	TSS (mg/l)	TP (mg/l)	TN (mg/l)	BOD (mg/l)
1	Landscaped	0.00	0.00	0.00	0.00
2	Open Space	602.00	2.10	9.10	1.23
3	Pavement	173.00	0.56	2.10	6.70
4	Roofs	19.00	0.11	1.50	7.40

Subcatchment Loading

Line#	Subcat Number	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1	2A	**0.00**	**0.00**	**0.00**	**0.00**
2	2B	0.00	0.00	0.00	0.00
3	3	0.00	0.00	0.00	0.00
4	10	0.00	0.00	0.00	0.00
5	11A	0.00	0.00	0.00	0.00
6	11B	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2A: Post DA 8B-2A Runoff Area=46,563 sf 59.62% Impervious Runoff Depth=2.10"
Tc=5.0 min CN=74/98 Runoff=2.46 cfs 8,158 cf

Pond 2A-Bio: 2A_Bioretention Peak Elev=672.63' Storage=6,028 cf Inflow=2.46 cfs 8,158 cf
Discarded=0.03 cfs 8,158 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 8,158 cf

Subcatchment 2B: Post DA 8B-2B Runoff Area=53,291 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=3.81 cfs 12,736 cf

Subcatchment 3: Post DA 8B-3 Runoff Area=187,200 sf 19.40% Impervious Runoff Depth=1.07"
Flow Length=420' Tc=11.8 min CN=67/98 Runoff=3.76 cfs 16,668 cf

Pond 3-Bio: 3_Bioretention Peak Elev=688.51' Storage=13,345 cf Inflow=3.76 cfs 16,668 cf
Discarded=0.03 cfs 9,961 cf Primary=0.08 cfs 1,189 cf Outflow=0.11 cfs 11,151 cf

Reach 8B-S: DA-8B South Outflow Avg. Flow Depth=0.39' Max Vel=7.24 fps Inflow=3.86 cfs 15,517 cf
36.0" Round Pipe n=0.013 L=150.0' S=0.0267 '/' Capacity=108.92 cfs Outflow=3.85 cfs 15,517 cf

Link Linear, 24 Hr. Event Outflow Imported from Post_DP-08B_West~Reach 8BW-Out.hce Inflow=0.19 cfs 1,592 cf
Area= 157,153 sf 46.55% Imperv. Primary=0.19 cfs 1,592 cf

Subcatchment 10: Post DA 8B-10 Runoff Area=21,223 sf 58.09% Impervious Runoff Depth=2.07"
Tc=5.0 min CN=74/98 Runoff=1.11 cfs 3,667 cf

Pond 10-Bio: 10_Bioretention Peak Elev=692.07' Storage=2,804 cf Inflow=1.11 cfs 3,667 cf
Discarded=0.02 cfs 3,390 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 3,390 cf

Subcatchment 11A: Post DA 8B-11A Runoff Area=32,946 sf 53.55% Impervious Runoff Depth=1.99"
Tc=5.0 min CN=74/98 Runoff=1.65 cfs 5,456 cf

Pond 11A-Bio: 11A_Bioretention Peak Elev=667.25' Storage=4,097 cf Inflow=1.65 cfs 5,456 cf
Discarded=0.03 cfs 4,815 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 4,815 cf

Subcatchment 11B: Post DA 8B-11B Runoff Area=5,443 sf 94.86% Impervious Runoff Depth=2.77"
Tc=5.0 min CN=74/98 Runoff=0.38 cfs 1,257 cf

Pond 11B-P: 11B-Pavers Peak Elev=666.55' Storage=484 cf Inflow=0.38 cfs 1,257 cf
Discarded=0.03 cfs 1,257 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 1,257 cf

Reach SR-1: South Reach-1 Avg. Flow Depth=0.39' Max Vel=7.21 fps Inflow=3.86 cfs 15,517 cf
36.0" Round Pipe n=0.013 L=190.0' S=0.0263 '/' Capacity=108.20 cfs Outflow=3.86 cfs 15,517 cf

Total Runoff Area = 346,666 sf Runoff Volume = 47,941 cf Average Runoff Depth = 1.66"
56.01% Pervious = 194,165 sf 43.99% Impervious = 152,501 sf

Summary for Subcatchment 2A: Post DA 8B-2A

Runoff = 2.46 cfs @ 12.07 hrs, Volume= 8,158 cf, Depth= 2.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

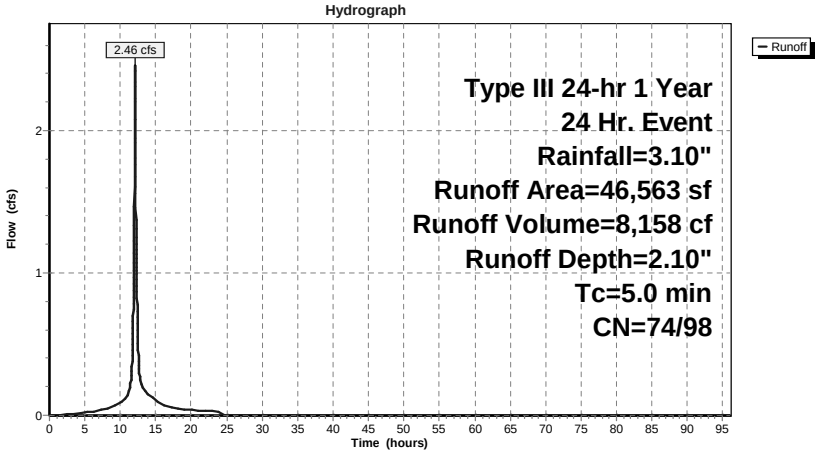
	Area (sf)	CN	Description	Land Use
	27,761	98	Paved parking, HSG C	Pavement
	3,136	74	>75% Grass cover, Good, HSG C	Open Space
*	15,666	74	Bioretention, HSG C	Landscaped
	46,563	88	Weighted Average	
	18,802	74	40.38% Pervious Area	
	27,761	98	59.62% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.62% Impervious, Rv= 0.587, Runoff= 26.81"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
15,666	Landscaped	0.00	0.00	0.00	0.00
3,136	Open Space	263.28	0.92	3.98	0.54
27,761	Pavement	669.77	2.17	8.13	25.94
46,563	Total	933.05	3.09	12.11	26.48

Subcatchment 2A: Post DA 8B-2A



Hydrograph for Subcatchment 2A: Post DA 8B-2A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.02
8.00	0.35	0.00	0.19	0.04
10.00	0.59	0.00	0.40	0.09
12.00	1.55	0.16	1.33	**1.61**
14.00	2.51	0.62	2.28	**0.14**
16.00	2.75	0.75	2.52	0.08
18.00	2.88	0.83	2.65	0.05
20.00	2.97	0.89	2.74	0.04
22.00	3.04	0.93	2.81	0.03
24.00	**3.10**	**0.97**	**2.87**	0.02
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00
74.00	3.10	0.97	2.87	0.00
76.00	3.10	0.97	2.87	0.00
78.00	3.10	0.97	2.87	0.00
80.00	3.10	0.97	2.87	0.00
82.00	3.10	0.97	2.87	0.00
84.00	3.10	0.97	2.87	0.00
86.00	3.10	0.97	2.87	0.00
88.00	3.10	0.97	2.87	0.00
90.00	3.10	0.97	2.87	0.00
92.00	3.10	0.97	2.87	0.00
94.00	3.10	0.97	2.87	0.00
96.00	3.10	0.97	2.87	0.00

Summary for Pond 2A-Bio: 2A_Bioretention

Inflow Area = 46,563 sf, 59.62% Impervious, Inflow Depth = 2.10" for 1 Year, 24 Hr. Event event
Inflow = 2.46 cfs @ 12.07 hrs, Volume= 8,158 cf
Outflow = 0.03 cfs @ 7.87 hrs, Volume= 8,158 cf, Atten= 99%, Lag= 0.0 min
Discarded = 0.03 cfs @ 7.87 hrs, Volume= 8,158 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 672.63' @ 22.19 hrs Surf.Area= 5,228 sf Storage= 6,028 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,730.3 min (2,506.4 - 776.1)

Volume	Invert	Avail.Storage	Storage Description
#1	669.75'	12,461 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

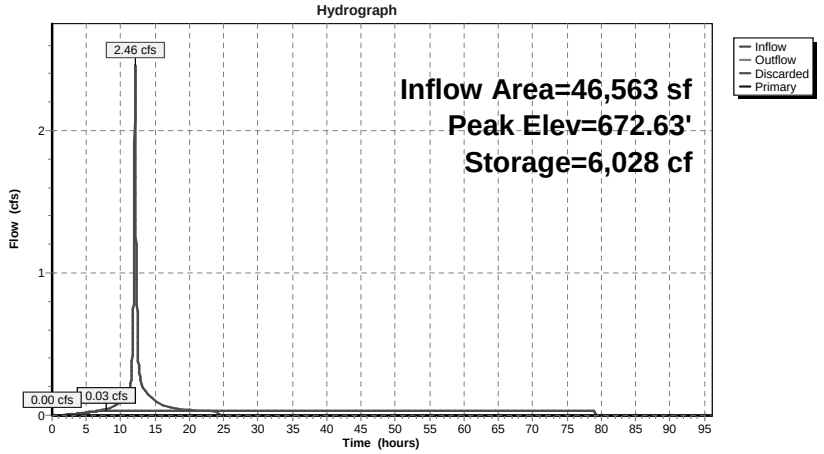
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
669.75	5,228	0.0	0	0
669.76	5,228	40.0	21	21
673.99	5,228	40.0	8,846	8,867
674.00	7,066	100.0	61	8,928
674.50	7,066	100.0	3,533	12,461

Device	Routing	Invert	Outlet Devices
#1	Discarded	669.75'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	674.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 7.87 hrs HW=669.76' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=669.75' TW=668.00' (Dynamic Tailwater)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 2A-Bio: 2A_Bioretention



Hydrograph for Pond 2A-Bio: 2A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	669.75	0.00	0.00	**0.00**
2.00	0.00	0	669.75	0.00	0.00	0.00
4.00	0.01	0	669.75	0.01	0.01	0.00
6.00	0.02	0	669.75	**0.02**	**0.02**	0.00
8.00	0.04	27	669.76	**0.03**	**0.03**	0.00
10.00	0.09	276	669.88	0.03	0.03	0.00
12.00	**1.61**	1,918	670.67	0.03	0.03	0.00
14.00	**0.14**	5,161	672.22	0.03	0.03	0.00
16.00	0.08	5,708	672.48	0.03	0.03	0.00
18.00	0.05	5,922	672.58	0.03	0.03	0.00
20.00	0.04	6,001	672.62	0.03	0.03	0.00
22.00	0.03	**6,028**	**672.63**	0.03	0.03	0.00
24.00	0.02	**6,010**	**672.62**	0.03	0.03	0.00
26.00	0.00	5,799	672.52	0.03	0.03	0.00
28.00	0.00	5,581	672.42	0.03	0.03	0.00
30.00	0.00	5,363	672.31	0.03	0.03	0.00
32.00	0.00	5,145	672.21	0.03	0.03	0.00
34.00	0.00	4,927	672.11	0.03	0.03	0.00
36.00	0.00	4,710	672.00	0.03	0.03	0.00
38.00	0.00	4,492	671.90	0.03	0.03	0.00
40.00	0.00	4,274	671.79	0.03	0.03	0.00
42.00	0.00	4,056	671.69	0.03	0.03	0.00
44.00	0.00	3,838	671.59	0.03	0.03	0.00
46.00	0.00	3,620	671.48	0.03	0.03	0.00
48.00	0.00	3,403	671.38	0.03	0.03	0.00
50.00	0.00	3,185	671.27	0.03	0.03	0.00
52.00	0.00	2,967	671.17	0.03	0.03	0.00
54.00	0.00	2,749	671.06	0.03	0.03	0.00
56.00	0.00	2,531	670.96	0.03	0.03	0.00
58.00	0.00	2,313	670.86	0.03	0.03	0.00
60.00	0.00	2,096	670.75	0.03	0.03	0.00
62.00	0.00	1,878	670.65	0.03	0.03	0.00
64.00	0.00	1,660	670.54	0.03	0.03	0.00
66.00	0.00	1,442	670.44	0.03	0.03	0.00
68.00	0.00	1,224	670.34	0.03	0.03	0.00
70.00	0.00	1,006	670.23	0.03	0.03	0.00
72.00	0.00	789	670.13	0.03	0.03	0.00
74.00	0.00	571	670.02	0.03	0.03	0.00
76.00	0.00	353	669.92	0.03	0.03	0.00
78.00	0.00	135	669.81	0.03	0.03	0.00
80.00	0.00	0	669.75	0.00	0.00	0.00
82.00	0.00	0	669.75	0.00	0.00	0.00
84.00	0.00	0	669.75	0.00	0.00	0.00
86.00	0.00	0	669.75	0.00	0.00	0.00
88.00	0.00	0	669.75	0.00	0.00	0.00
90.00	0.00	0	669.75	0.00	0.00	0.00
92.00	0.00	0	669.75	0.00	0.00	0.00
94.00	0.00	0	669.75	0.00	0.00	0.00
96.00	0.00	0	669.75	0.00	0.00	0.00

Summary for Subcatchment 2B: Post DA 8B-2B

Runoff = 3.81 cfs @ 12.07 hrs, Volume= 12,736 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

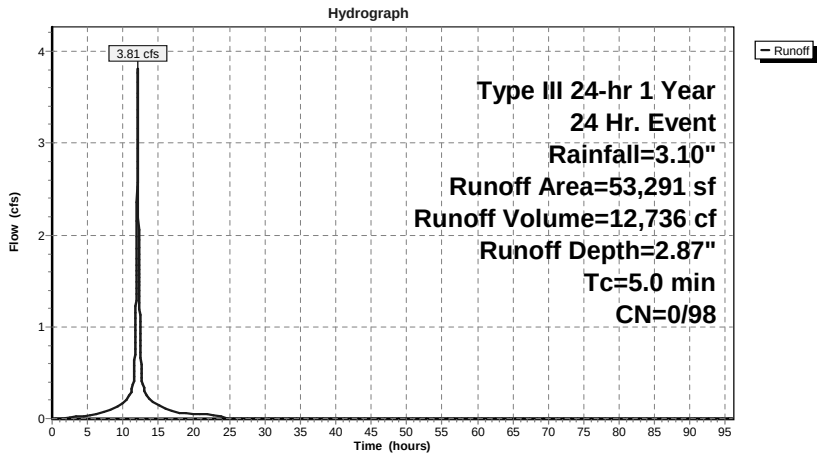
	Area (sf)	CN	Description	Land Use
	34,639	98	Roofs, HSG C	Roofs
*	18,652	98	Green Roof, HSG B	Landscaped
	53,291	98	Weighted Average	
	53,291	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
18,652	Landscaped	0.00	0.00	0.00	0.00
34,639	Roofs	148.65	0.86	11.74	57.89
53,291	Total	148.65	0.86	11.74	57.89

Subcatchment 2B: Post DA 8B-2B



Hydrograph for Subcatchment 2B: Post DA 8B-2B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.01
4.00	0.13	0.00	0.03	0.03
6.00	0.22	0.00	0.09	0.04
8.00	0.35	0.00	0.19	0.08
10.00	0.59	0.00	0.40	0.17
12.00	1.55	0.00	1.33	**2.57**
14.00	2.51	0.00	2.28	**0.19**
16.00	2.75	0.00	2.52	0.10
18.00	2.88	0.00	2.65	0.06
20.00	2.97	0.00	2.74	0.05
22.00	3.04	0.00	2.81	0.04
24.00	**3.10**	0.00	**2.87**	0.03
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00
74.00	3.10	0.00	2.87	0.00
76.00	3.10	0.00	2.87	0.00
78.00	3.10	0.00	2.87	0.00
80.00	3.10	0.00	2.87	0.00
82.00	3.10	0.00	2.87	0.00
84.00	3.10	0.00	2.87	0.00
86.00	3.10	0.00	2.87	0.00
88.00	3.10	0.00	2.87	0.00
90.00	3.10	0.00	2.87	0.00
92.00	3.10	0.00	2.87	0.00
94.00	3.10	0.00	2.87	0.00
96.00	3.10	0.00	2.87	0.00

Summary for Subcatchment 3: Post DA 8B-3

Runoff = 3.76 cfs @ 12.17 hrs, Volume= 16,668 cf, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

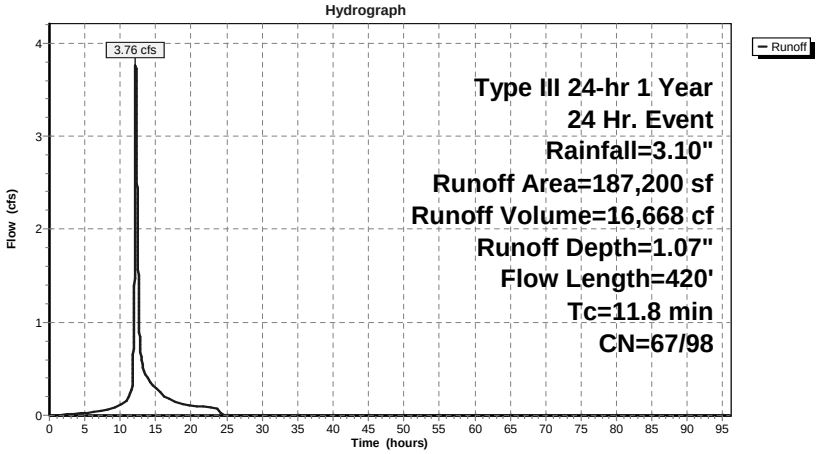
	Area (sf)	CN	Description	Land Use
	69,479	74	>75% Grass cover, Good, HSG C	Open Space
	72,736	61	>75% Grass cover, Good, HSG B	Open Space
	25,889	98	Paved parking, HSG C	Pavement
*	8,669	61	Bioretention, HSG B	Landscaped
	10,427	98	Roofs, HSG C	Roofs
	187,200	73	Weighted Average	
	150,884	67	80.60% Pervious Area	
	36,316	98	19.40% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	64	0.0312	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.4	36	0.2000	0.25		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	150	0.2057	3.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	170		5.00		**Direct Entry,**
11.8	420	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 19.40% Impervious, Rv= 0.225, Runoff= 10.26"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
8,669	Landscaped	0.00	0.00	0.00	0.00
142,215	Open Space	4,571.50	15.95	69.10	9.34
25,889	Pavement	239.15	0.77	2.90	9.26
10,427	Roofs	10.58	0.06	0.84	4.12
187,200	Total	4,821.23	16.78	72.84	22.72

Subcatchment 3: Post DA 8B-3



Hydrograph for Subcatchment 3: Post DA 8B-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.02
6.00	0.22	0.00	0.09	0.03
8.00	0.35	0.00	0.19	0.05
10.00	0.59	0.00	0.40	0.11
12.00	1.55	0.06	1.33	**1.47**
14.00	2.51	0.36	2.28	**0.38**
16.00	2.75	0.46	2.52	0.21
18.00	2.88	0.52	2.65	0.13
20.00	2.97	0.57	2.74	0.10
22.00	3.04	0.61	2.81	0.09
24.00	**3.10**	**0.64**	**2.87**	0.07
26.00	3.10	0.64	2.87	0.00
28.00	3.10	0.64	2.87	0.00
30.00	3.10	0.64	2.87	0.00
32.00	3.10	0.64	2.87	0.00
34.00	3.10	0.64	2.87	0.00
36.00	3.10	0.64	2.87	0.00
38.00	3.10	0.64	2.87	0.00
40.00	3.10	0.64	2.87	0.00
42.00	3.10	0.64	2.87	0.00
44.00	3.10	0.64	2.87	0.00
46.00	3.10	0.64	2.87	0.00
48.00	3.10	0.64	2.87	0.00
50.00	3.10	0.64	2.87	0.00
52.00	3.10	0.64	2.87	0.00
54.00	3.10	0.64	2.87	0.00
56.00	3.10	0.64	2.87	0.00
58.00	3.10	0.64	2.87	0.00
60.00	3.10	0.64	2.87	0.00
62.00	3.10	0.64	2.87	0.00
64.00	3.10	0.64	2.87	0.00
66.00	3.10	0.64	2.87	0.00
68.00	3.10	0.64	2.87	0.00
70.00	3.10	0.64	2.87	0.00
72.00	3.10	0.64	2.87	0.00
74.00	3.10	0.64	2.87	0.00
76.00	3.10	0.64	2.87	0.00
78.00	3.10	0.64	2.87	0.00
80.00	3.10	0.64	2.87	0.00
82.00	3.10	0.64	2.87	0.00
84.00	3.10	0.64	2.87	0.00
86.00	3.10	0.64	2.87	0.00
88.00	3.10	0.64	2.87	0.00
90.00	3.10	0.64	2.87	0.00
92.00	3.10	0.64	2.87	0.00
94.00	3.10	0.64	2.87	0.00
96.00	3.10	0.64	2.87	0.00

Summary for Pond 3-Bio: 3_Bioretention

Inflow Area = 187,200 sf, 19.40% Impervious, Inflow Depth = 1.07" for 1 Year, 24 Hr. Event event
Inflow = 3.76 cfs @ 12.17 hrs, Volume= 16,668 cf
Outflow = 0.11 cfs @ 19.93 hrs, Volume= 11,151 cf, Atten= 97%, Lag= 465.3 min
Discarded = 0.03 cfs @ 7.14 hrs, Volume= 9,961 cf
Primary = 0.08 cfs @ 19.93 hrs, Volume= 1,189 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 688.51' @ 19.93 hrs Surf.Area= 9,121 sf Storage= 13,345 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,984.5 min (2,810.6 - 826.1)

Volume	Invert	Avail.Storage	Storage Description
#1	684.00'	22,330 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

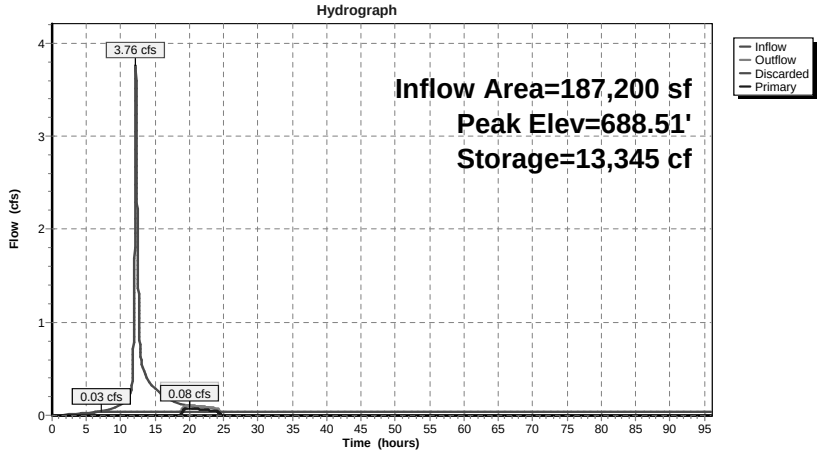
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
684.00	5,374	0.0	0	0	5,374
684.01	5,374	40.0	21	21	5,377
687.99	5,374	40.0	8,555	8,577	6,544
688.00	9,121	100.0	72	8,649	10,291
688.50	9,121	100.0	4,561	13,209	10,482
689.00	9,121	100.0	4,561	17,770	10,673
689.50	9,121	100.0	4,561	22,330	10,864

Device	Routing	Invert	Outlet Devices
#1	Discarded	684.00'	**0.03 cfs Exfiltration at all elevations**
#2	Primary	688.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 36.00 columns** X 36 rows C= 0.600 in 38.0" x 38.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 7.14 hrs HW=684.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.08 cfs @ 19.93 hrs HW=688.51' TW=668.08' (Dynamic Tailwater)
2=Orifice/Grate (Weir Controls 0.08 cfs @ 0.40 fps)

Pond 3-Bio: 3_Bioretention



Hydrograph for Pond 3-Bio: 3_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	684.00	0.00	0.00	0.00
2.00	0.00	0	684.00	0.00	0.00	0.00
4.00	0.02	0	684.00	0.02	0.02	0.00
6.00	0.03	0	684.00	0.03	**0.03**	0.00
8.00	0.05	79	684.04	0.03	**0.03**	0.00
10.00	0.11	452	684.21	0.03	0.03	0.00
12.00	**1.47**	2,192	685.02	0.03	0.03	0.00
14.00	**0.38**	10,124	688.16	0.03	0.03	0.00
16.00	0.21	11,993	688.37	0.03	0.03	0.00
18.00	0.13	**12,986**	**688.48**	**0.03**	0.03	**0.00**
20.00	0.10	**13,345**	**688.51**	**0.11**	0.03	**0.08**
22.00	0.09	13,327	688.51	0.09	0.03	0.06
24.00	0.07	13,304	688.51	0.07	0.03	0.04
26.00	0.00	13,077	688.49	0.03	0.03	0.00
28.00	0.00	12,861	688.46	0.03	0.03	0.00
30.00	0.00	12,645	688.44	0.03	0.03	0.00
32.00	0.00	12,429	688.41	0.03	0.03	0.00
34.00	0.00	12,213	688.39	0.03	0.03	0.00
36.00	0.00	11,997	688.37	0.03	0.03	0.00
38.00	0.00	11,781	688.34	0.03	0.03	0.00
40.00	0.00	11,565	688.32	0.03	0.03	0.00
42.00	0.00	11,349	688.30	0.03	0.03	0.00
44.00	0.00	11,133	688.27	0.03	0.03	0.00
46.00	0.00	10,917	688.25	0.03	0.03	0.00
48.00	0.00	10,701	688.23	0.03	0.03	0.00
50.00	0.00	10,485	688.20	0.03	0.03	0.00
52.00	0.00	10,269	688.18	0.03	0.03	0.00
54.00	0.00	10,053	688.15	0.03	0.03	0.00
56.00	0.00	9,837	688.13	0.03	0.03	0.00
58.00	0.00	9,621	688.11	0.03	0.03	0.00
60.00	0.00	9,405	688.08	0.03	0.03	0.00
62.00	0.00	9,189	688.06	0.03	0.03	0.00
64.00	0.00	8,973	688.04	0.03	0.03	0.00
66.00	0.00	8,757	688.01	0.03	0.03	0.00
68.00	0.00	8,541	687.97	0.03	0.03	0.00
70.00	0.00	8,325	687.87	0.03	0.03	0.00
72.00	0.00	8,109	687.77	0.03	0.03	0.00
74.00	0.00	7,893	687.67	0.03	0.03	0.00
76.00	0.00	7,677	687.57	0.03	0.03	0.00
78.00	0.00	7,461	687.47	0.03	0.03	0.00
80.00	0.00	7,245	687.37	0.03	0.03	0.00
82.00	0.00	7,029	687.27	0.03	0.03	0.00
84.00	0.00	6,813	687.17	0.03	0.03	0.00
86.00	0.00	6,597	687.07	0.03	0.03	0.00
88.00	0.00	6,381	686.97	0.03	0.03	0.00
90.00	0.00	6,165	686.87	0.03	0.03	0.00
92.00	0.00	5,949	686.77	0.03	0.03	0.00
94.00	0.00	5,733	686.67	0.03	0.03	0.00
96.00	0.00	5,517	686.57	0.03	0.03	0.00

Summary for Reach 8B-S: DA-8B South Outflow

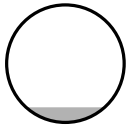
[52] Hint: Inlet/Outlet conditions not evaluated
[61] Hint: Exceeded Reach SR-1 outlet invert by 0.39' @ 12.08 hrs

Inflow Area = 503,819 sf, 44.79% Impervious, Inflow Depth = 0.37" for 1 Year, 24 Hr. Event event
Inflow = 3.86 cfs @ 12.08 hrs, Volume= 15,517 cf
Outflow = 3.85 cfs @ 12.08 hrs, Volume= 15,517 cf, Atten= 0%, Lag= 0.3 min

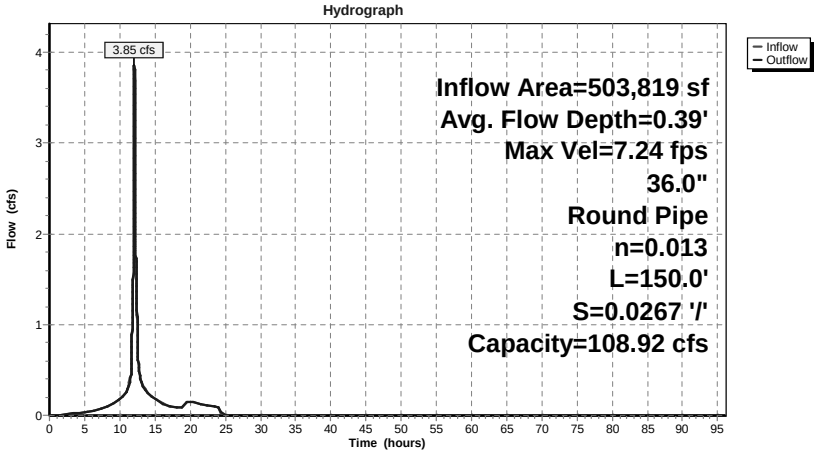
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 7.24 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.43 fps, Avg. Travel Time= 1.0 min

Peak Storage= 80 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 108.92 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 150.0' Slope= 0.0267 '/'
Inlet Invert= 663.00', Outlet Invert= 659.00'



Reach 8B-S: DA-8B South Outflow



Hydrograph for Reach 8B-S: DA-8B South Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	663.00	0.00
2.00	0.01	1	663.01	0.01
4.00	0.03	2	663.03	0.03
6.00	0.04	3	663.04	0.04
8.00	0.08	5	663.06	0.08
10.00	0.17	9	663.09	0.17
12.00	**2.47**	**57**	**663.31**	**2.37**
14.00	**0.24**	**11**	**663.10**	**0.24**
16.00	0.13	7	663.08	0.13
18.00	0.08	5	663.06	0.08
20.00	0.15	8	663.08	0.15
22.00	0.12	7	663.07	0.12
24.00	0.09	6	663.07	0.09
26.00	0.00	0	663.00	0.00
28.00	0.00	0	663.00	0.00
30.00	0.00	0	663.00	0.00
32.00	0.00	0	663.00	0.00
34.00	0.00	0	663.00	0.00
36.00	0.00	0	663.00	0.00
38.00	0.00	0	663.00	0.00
40.00	0.00	0	663.00	0.00
42.00	0.00	0	663.00	0.00
44.00	0.00	0	663.00	0.00
46.00	0.00	0	663.00	0.00
48.00	0.00	0	663.00	0.00
50.00	0.00	0	663.00	0.00
52.00	0.00	0	663.00	0.00
54.00	0.00	0	663.00	0.00
56.00	0.00	0	663.00	0.00
58.00	0.00	0	663.00	0.00
60.00	0.00	0	663.00	0.00
62.00	0.00	0	663.00	0.00
64.00	0.00	0	663.00	0.00
66.00	0.00	0	663.00	0.00
68.00	0.00	0	663.00	0.00
70.00	0.00	0	663.00	0.00
72.00	0.00	0	663.00	0.00
74.00	0.00	0	663.00	0.00
76.00	0.00	0	663.00	0.00
78.00	0.00	0	663.00	0.00
80.00	0.00	0	663.00	0.00
82.00	0.00	0	663.00	0.00
84.00	0.00	0	663.00	0.00
86.00	0.00	0	663.00	0.00
88.00	0.00	0	663.00	0.00
90.00	0.00	0	663.00	0.00
92.00	0.00	0	663.00	0.00
94.00	0.00	0	663.00	0.00
96.00	0.00	0	663.00	0.00

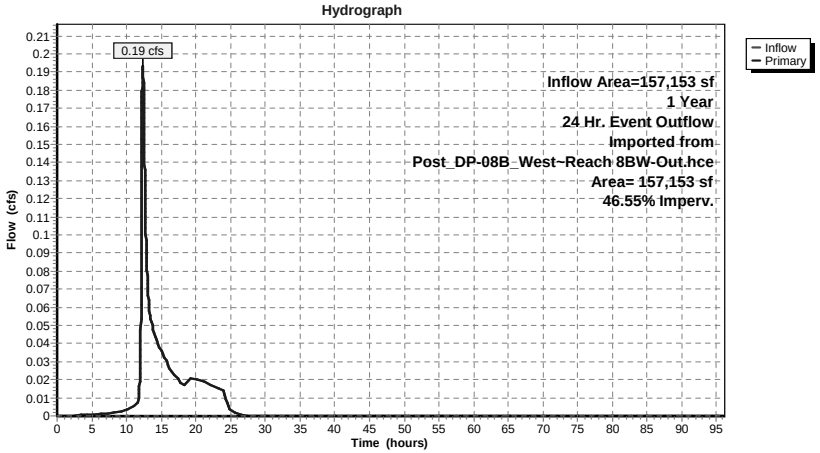
Summary for Link 8B-W: DA-8B West Inflow

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 0.12" for 1 Year, 24 Hr. Event event
Inflow = 0.19 cfs @ 12.35 hrs, Volume= 1,592 cf
Primary = 0.19 cfs @ 12.35 hrs, Volume= 1,592 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

1 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_West~Reach 8BW-Out.hce

Link 8B-W: DA-8B West Inflow



Hydrograph for Link 8B-W: DA-8B West Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	**0.03**	0.00	**0.03**	64.00	0.00	0.00	0.00
13.00	**0.08**	0.00	**0.08**	65.00	0.00	0.00	0.00
14.00	0.05	0.00	0.05	66.00	0.00	0.00	0.00
15.00	0.04	0.00	0.04	67.00	0.00	0.00	0.00
16.00	0.03	0.00	0.03	68.00	0.00	0.00	0.00
17.00	0.02	0.00	0.02	69.00	0.00	0.00	0.00
18.00	0.02	0.00	0.02	70.00	0.00	0.00	0.00
19.00	0.02	0.00	0.02	71.00	0.00	0.00	0.00
20.00	0.02	0.00	0.02	72.00	0.00	0.00	0.00
21.00	0.02	0.00	0.02	73.00	0.00	0.00	0.00
22.00	0.02	0.00	0.02	74.00	0.00	0.00	0.00
23.00	0.02	0.00	0.02	75.00	0.00	0.00	0.00
24.00	0.01	0.00	0.01	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 10: Post DA 8B-10

Runoff = 1.11 cfs @ 12.07 hrs, Volume= 3,667 cf, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

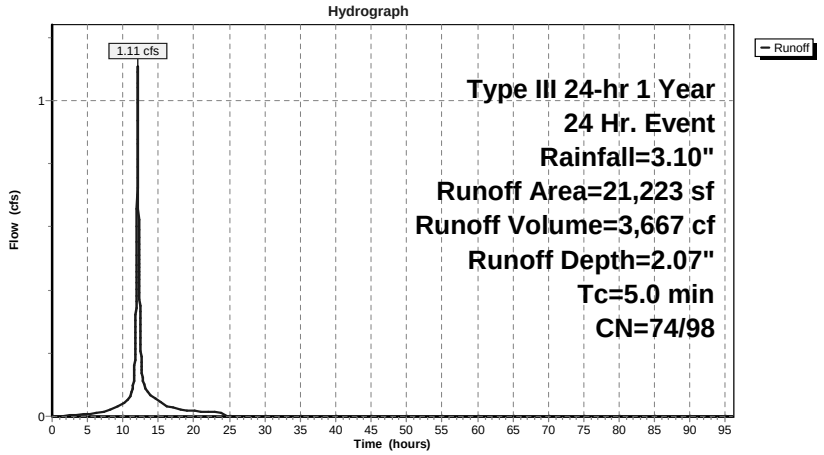
	Area (sf)	CN	Description	Land Use
	12,329	98	Unconnected pavement, HSG C	Pavement
	7,873	74	>75% Grass cover, Good, HSG C	Open Space
*	1,021	74	Bioretention, HSG C	Landscaped
	21,223	88	Weighted Average	
	8,894	74	41.91% Pervious Area	
	12,329	98	58.09% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 58.09% Impervious, Rv= 0.573, Runoff= 26.18"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,021	Landscaped	0.00	0.00	0.00	0.00
7,873	Open Space	645.47	2.25	9.76	1.32
12,329	Pavement	290.48	0.94	3.53	11.25
21,223	Total	935.96	3.19	13.28	12.57

Subcatchment 10: Post DA 8B-10



Hydrograph for Subcatchment 10: Post DA 8B-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.02
10.00	0.59	0.00	0.40	0.04
12.00	1.55	0.16	1.33	**0.72**
14.00	2.51	0.62	2.28	**0.06**
16.00	2.75	0.75	2.52	0.03
18.00	2.88	0.83	2.65	0.02
20.00	2.97	0.89	2.74	0.02
22.00	3.04	0.93	2.81	0.01
24.00	**3.10**	**0.97**	**2.87**	0.01
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00
74.00	3.10	0.97	2.87	0.00
76.00	3.10	0.97	2.87	0.00
78.00	3.10	0.97	2.87	0.00
80.00	3.10	0.97	2.87	0.00
82.00	3.10	0.97	2.87	0.00
84.00	3.10	0.97	2.87	0.00
86.00	3.10	0.97	2.87	0.00
88.00	3.10	0.97	2.87	0.00
90.00	3.10	0.97	2.87	0.00
92.00	3.10	0.97	2.87	0.00
94.00	3.10	0.97	2.87	0.00
96.00	3.10	0.97	2.87	0.00

Summary for Pond 10-Bio: 10_Bioretention

Inflow Area = 21,223 sf, 58.09% Impervious, Inflow Depth = 2.07" for 1 Year, 24 Hr. Event event
Inflow = 1.11 cfs @ 12.07 hrs, Volume= 3,667 cf
Outflow = 0.02 cfs @ 15.18 hrs, Volume= 3,390 cf, Atten= 99%, Lag= 186.4 min
Discarded = 0.02 cfs @ 15.18 hrs, Volume= 3,390 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 692.07' @ 21.12 hrs Surf.Area= 2,629 sf Storage= 2,804 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2,077.7 min (2,854.9 - 777.2)

Volume	Invert	Avail.Storage	Storage Description
#1	688.00'	5,245 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

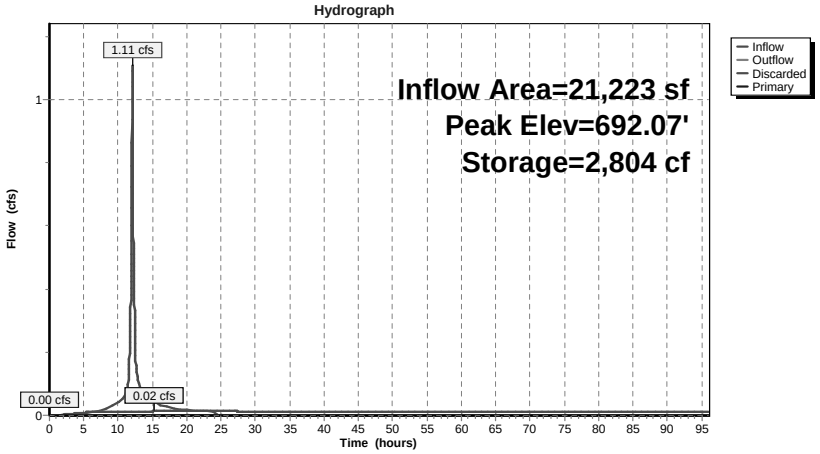
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
688.00	1,626	0.0	0	0
688.01	1,626	40.0	7	7
691.99	1,626	40.0	2,589	2,595
692.00	2,629	100.0	21	2,616
692.50	2,629	100.0	1,315	3,931
693.00	2,629	100.0	1,315	5,245

Device	Routing	Invert	Outlet Devices
#1	Discarded	688.00'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	692.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 15.18 hrs HW=692.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=688.00' TW=668.00' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 10-Bio: 10_Bioretention



Hydrograph for Pond 10-Bio: 10_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	688.00	0.00	0.00	**0.00**
2.00	0.00	0	688.00	0.00	0.00	0.00
4.00	0.01	0	688.00	0.01	0.01	0.00
6.00	0.01	0	688.00	0.01	0.01	0.00
8.00	0.02	36	688.06	0.01	0.01	0.00
10.00	0.04	176	688.27	0.01	0.01	0.00
12.00	**0.72**	939	689.44	0.01	0.01	0.00
14.00	**0.06**	2,431	691.74	**0.01**	**0.01**	0.00
16.00	0.03	2,690	692.03	**0.02**	**0.02**	0.00
18.00	0.02	2,776	692.06	0.02	0.02	0.00
20.00	0.02	**2,801**	**692.07**	0.02	0.02	0.00
22.00	0.01	**2,802**	**692.07**	0.02	0.02	0.00
24.00	0.01	2,783	692.06	0.02	0.02	0.00
26.00	0.00	2,676	692.02	0.02	0.02	0.00
28.00	0.00	2,581	691.97	0.01	0.01	0.00
30.00	0.00	2,513	691.86	0.01	0.01	0.00
32.00	0.00	2,445	691.76	0.01	0.01	0.00
34.00	0.00	2,377	691.66	0.01	0.01	0.00
36.00	0.00	2,310	691.55	0.01	0.01	0.00
38.00	0.00	2,242	691.45	0.01	0.01	0.00
40.00	0.00	2,174	691.34	0.01	0.01	0.00
42.00	0.00	2,106	691.24	0.01	0.01	0.00
44.00	0.00	2,039	691.13	0.01	0.01	0.00
46.00	0.00	1,971	691.03	0.01	0.01	0.00
48.00	0.00	1,903	690.93	0.01	0.01	0.00
50.00	0.00	1,835	690.82	0.01	0.01	0.00
52.00	0.00	1,768	690.72	0.01	0.01	0.00
54.00	0.00	1,700	690.61	0.01	0.01	0.00
56.00	0.00	1,632	690.51	0.01	0.01	0.00
58.00	0.00	1,564	690.41	0.01	0.01	0.00
60.00	0.00	1,497	690.30	0.01	0.01	0.00
62.00	0.00	1,429	690.20	0.01	0.01	0.00
64.00	0.00	1,361	690.09	0.01	0.01	0.00
66.00	0.00	1,293	689.99	0.01	0.01	0.00
68.00	0.00	1,226	689.88	0.01	0.01	0.00
70.00	0.00	1,158	689.78	0.01	0.01	0.00
72.00	0.00	1,090	689.68	0.01	0.01	0.00
74.00	0.00	1,022	689.57	0.01	0.01	0.00
76.00	0.00	955	689.47	0.01	0.01	0.00
78.00	0.00	887	689.36	0.01	0.01	0.00
80.00	0.00	819	689.26	0.01	0.01	0.00
82.00	0.00	751	689.16	0.01	0.01	0.00
84.00	0.00	684	689.05	0.01	0.01	0.00
86.00	0.00	616	688.95	0.01	0.01	0.00
88.00	0.00	548	688.84	0.01	0.01	0.00
90.00	0.00	480	688.74	0.01	0.01	0.00
92.00	0.00	413	688.63	0.01	0.01	0.00
94.00	0.00	345	688.53	0.01	0.01	0.00
96.00	0.00	277	688.43	0.01	0.01	0.00

Summary for Subcatchment 11A: Post DA 8B-11A

Runoff = 1.65 cfs @ 12.07 hrs, Volume= 5,456 cf, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

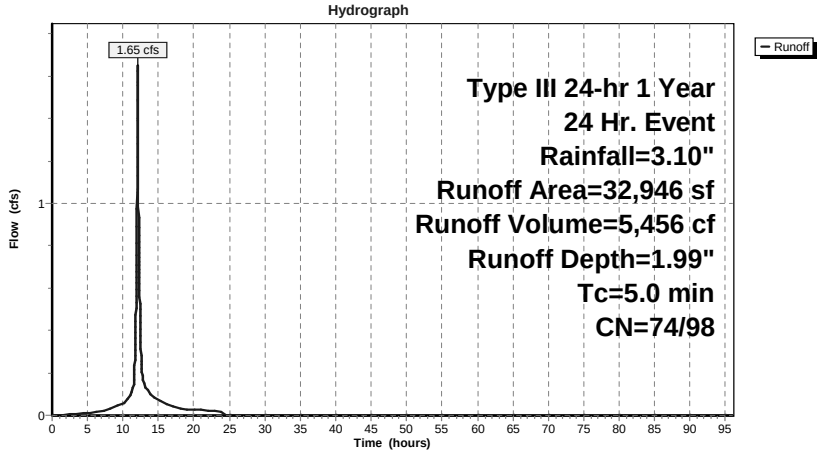
	Area (sf)	CN	Description	Land Use
	17,641	98	Unconnected pavement, HSG C	Pavement
	12,226	74	>75% Grass cover, Good, HSG C	Open Space
*	3,079	74	Bioretention, HSG C	Landscaped
	32,946	87	Weighted Average	
	15,305	74	46.45% Pervious Area	
	17,641	98	53.55% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 53.55% Impervious, Rv= 0.532, Runoff= 24.31"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,079	Landscaped	0.00	0.00	0.00	0.00
12,226	Open Space	930.74	3.25	14.07	1.90
17,641	Pavement	385.94	1.25	4.68	14.95
32,946	Total	1,316.68	4.50	18.75	16.85

Subcatchment 11A: Post DA 8B-11A



Hydrograph for Subcatchment 11A: Post DA 8B-11A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.03
10.00	0.59	0.00	0.40	0.06
12.00	1.55	0.16	1.33	**1.07**
14.00	2.51	0.62	2.28	**0.10**
16.00	2.75	0.75	2.52	0.05
18.00	2.88	0.83	2.65	0.03
20.00	2.97	0.89	2.74	0.03
22.00	3.04	0.93	2.81	0.02
24.00	**3.10**	**0.97**	**2.87**	0.02
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00
74.00	3.10	0.97	2.87	0.00
76.00	3.10	0.97	2.87	0.00
78.00	3.10	0.97	2.87	0.00
80.00	3.10	0.97	2.87	0.00
82.00	3.10	0.97	2.87	0.00
84.00	3.10	0.97	2.87	0.00
86.00	3.10	0.97	2.87	0.00
88.00	3.10	0.97	2.87	0.00
90.00	3.10	0.97	2.87	0.00
92.00	3.10	0.97	2.87	0.00
94.00	3.10	0.97	2.87	0.00
96.00	3.10	0.97	2.87	0.00

Summary for Pond 11A-Bio: 11A_Bioretention

Inflow Area = 32,946 sf, 53.55% Impervious, Inflow Depth = 1.99" for 1 Year, 24 Hr. Event event
Inflow = 1.65 cfs @ 12.07 hrs, Volume= 5,456 cf
Outflow = 0.03 cfs @ 12.53 hrs, Volume= 4,815 cf, Atten= 98%, Lag= 27.4 min
Discarded = 0.03 cfs @ 12.53 hrs, Volume= 4,815 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 667.25' @ 20.13 hrs Surf.Area= 4,369 sf Storage= 4,097 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,807.6 min (2,588.1 - 780.5)

Volume	Invert	Avail.Storage	Storage Description
#1	663.00'	7,372 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

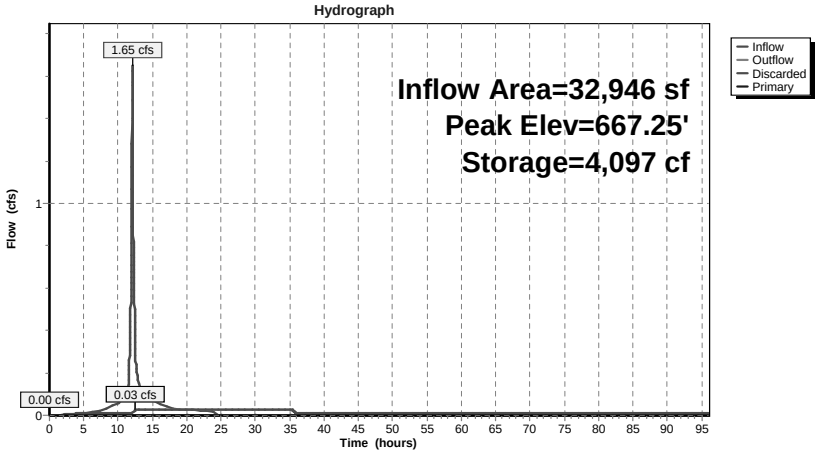
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
663.00	1,862	0.0	0	0
663.01	1,862	40.0	7	7
666.99	1,862	40.0	2,964	2,972
667.00	4,369	100.0	31	3,003
667.50	4,369	100.0	2,185	5,187
668.00	4,369	100.0	2,185	7,372

Device	Routing	Invert	Outlet Devices
#1	Discarded	663.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	667.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.53 hrs HW=667.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=663.00' TW=663.00' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 11A-Bio: 11A_Bioretention



Hydrograph for Pond 11A-Bio: 11A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	663.00	0.00	0.00	**0.00**
2.00	0.00	0	663.00	0.00	0.00	0.00
4.00	0.01	0	663.00	0.01	0.01	0.00
6.00	0.01	8	663.01	0.01	0.01	0.00
8.00	0.03	78	663.11	0.01	0.01	0.00
10.00	0.06	298	663.40	0.01	0.01	0.00
12.00	**1.07**	1,430	664.92	**0.01**	**0.01**	0.00
14.00	**0.10**	3,616	667.14	**0.03**	**0.03**	0.00
16.00	0.05	3,959	667.22	0.03	0.03	0.00
18.00	0.03	4,074	667.25	0.03	0.03	0.00
20.00	0.03	**4,097**	**667.25**	0.03	0.03	0.00
22.00	0.02	**4,083**	**667.25**	0.03	0.03	0.00
24.00	0.02	4,039	667.24	0.03	0.03	0.00
26.00	0.00	3,861	667.20	0.03	0.03	0.00
28.00	0.00	3,679	667.15	0.03	0.03	0.00
30.00	0.00	3,497	667.11	0.03	0.03	0.00
32.00	0.00	3,315	667.07	0.03	0.03	0.00
34.00	0.00	3,133	667.03	0.03	0.03	0.00
36.00	0.00	2,968	666.99	0.01	0.01	0.00
38.00	0.00	2,891	666.88	0.01	0.01	0.00
40.00	0.00	2,813	666.78	0.01	0.01	0.00
42.00	0.00	2,736	666.67	0.01	0.01	0.00
44.00	0.00	2,658	666.57	0.01	0.01	0.00
46.00	0.00	2,580	666.46	0.01	0.01	0.00
48.00	0.00	2,503	666.36	0.01	0.01	0.00
50.00	0.00	2,425	666.26	0.01	0.01	0.00
52.00	0.00	2,348	666.15	0.01	0.01	0.00
54.00	0.00	2,270	666.05	0.01	0.01	0.00
56.00	0.00	2,192	665.94	0.01	0.01	0.00
58.00	0.00	2,115	665.84	0.01	0.01	0.00
60.00	0.00	2,037	665.74	0.01	0.01	0.00
62.00	0.00	1,960	665.63	0.01	0.01	0.00
64.00	0.00	1,882	665.53	0.01	0.01	0.00
66.00	0.00	1,805	665.42	0.01	0.01	0.00
68.00	0.00	1,727	665.32	0.01	0.01	0.00
70.00	0.00	1,649	665.21	0.01	0.01	0.00
72.00	0.00	1,572	665.11	0.01	0.01	0.00
74.00	0.00	1,494	665.01	0.01	0.01	0.00
76.00	0.00	1,417	664.90	0.01	0.01	0.00
78.00	0.00	1,339	664.80	0.01	0.01	0.00
80.00	0.00	1,261	664.69	0.01	0.01	0.00
82.00	0.00	1,184	664.59	0.01	0.01	0.00
84.00	0.00	1,106	664.49	0.01	0.01	0.00
86.00	0.00	1,029	664.38	0.01	0.01	0.00
88.00	0.00	951	664.28	0.01	0.01	0.00
90.00	0.00	874	664.17	0.01	0.01	0.00
92.00	0.00	796	664.07	0.01	0.01	0.00
94.00	0.00	718	663.96	0.01	0.01	0.00
96.00	0.00	641	663.86	0.01	0.01	0.00

Summary for Subcatchment 11B: Post DA 8B-11B

Runoff = 0.38 cfs @ 12.07 hrs, Volume= 1,257 cf, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

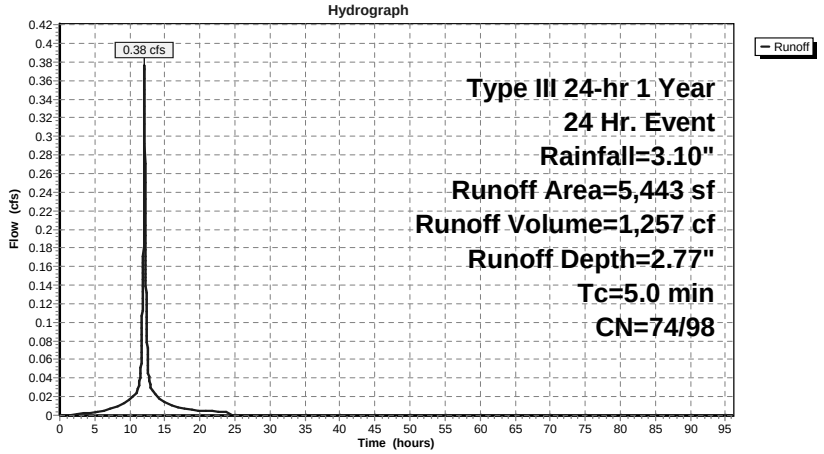
	Area (sf)	CN	Description	Land Use
	753	98	Unconnected pavement, HSG C	Pavement
	280	74	>75% Grass cover, Good, HSG C	Open Space
*	4,410	98	Pavers, HSG C	Pavement
	5,443	97	Weighted Average	
	280	74	5.14% Pervious Area	
	5,163	98	94.86% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 94.86% Impervious, Rv= 0.904, Runoff= 41.30"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
280	Open Space	36.22	0.13	0.55	0.07
5,163	Pavement	191.91	0.62	2.33	7.43
5,443	Total	228.12	0.75	2.88	7.51

Subcatchment 11B: Post DA 8B-11B



Hydrograph for Subcatchment 11B: Post DA 8B-11B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.02
12.00	1.55	0.16	1.33	**0.25**
14.00	2.51	0.62	2.28	**0.02**
16.00	2.75	0.75	2.52	0.01
18.00	2.88	0.83	2.65	0.01
20.00	2.97	0.89	2.74	0.01
22.00	3.04	0.93	2.81	0.00
24.00	**3.10**	**0.97**	**2.87**	0.00
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00
74.00	3.10	0.97	2.87	0.00
76.00	3.10	0.97	2.87	0.00
78.00	3.10	0.97	2.87	0.00
80.00	3.10	0.97	2.87	0.00
82.00	3.10	0.97	2.87	0.00
84.00	3.10	0.97	2.87	0.00
86.00	3.10	0.97	2.87	0.00
88.00	3.10	0.97	2.87	0.00
90.00	3.10	0.97	2.87	0.00
92.00	3.10	0.97	2.87	0.00
94.00	3.10	0.97	2.87	0.00
96.00	3.10	0.97	2.87	0.00

Summary for Pond 11B-P: 11B-Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 5,443 sf, 94.86% Impervious, Inflow Depth = 2.77" for 1 Year, 24 Hr. Event event
Inflow = 0.38 cfs @ 12.07 hrs, Volume= 1,257 cf
Outflow = 0.03 cfs @ 11.67 hrs, Volume= 1,257 cf, Atten= 93%, Lag= 0.0 min
Discarded = 0.03 cfs @ 11.67 hrs, Volume= 1,257 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 666.55' @ 13.31 hrs Surf.Area= 4,410 sf Storage= 484 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 143.2 min (901.3 - 758.1)

Volume	Invert	Avail.Storage	Storage Description
#1	666.00'	6,174 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

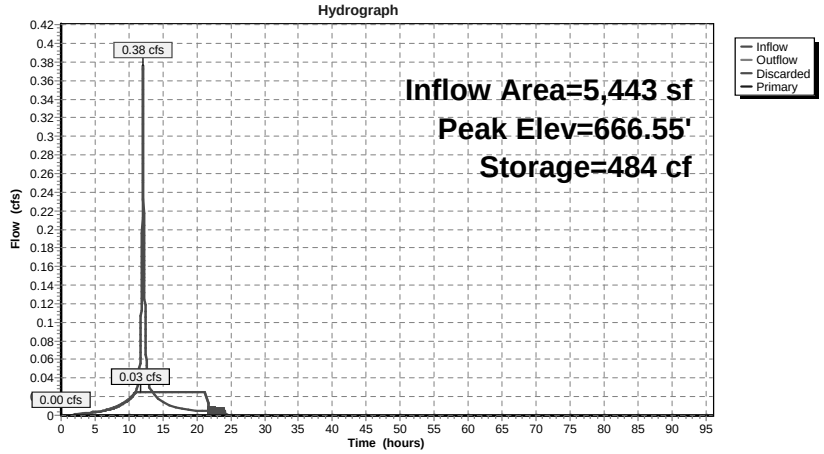
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
666.00	4,410	0.0	0	0
668.00	4,410	20.0	1,764	1,764
669.00	4,410	100.0	4,410	6,174

Device	Routing	Invert	Outlet Devices
#1	Discarded	666.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	668.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 11.67 hrs HW=666.03' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=666.00' TW=663.00' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 11B-P: 11B-Pavers



Hydrograph for Pond 11B-P: 11B-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	666.00	0.00	0.00	**0.00**
2.00	0.00	0	666.00	0.00	0.00	0.00
4.00	0.00	0	666.00	0.00	0.00	0.00
6.00	0.00	0	666.00	0.00	0.00	0.00
8.00	0.01	0	666.00	0.01	0.01	0.00
10.00	0.02	0	666.00	**0.02**	**0.02**	0.00
12.00	**0.25**	**154**	**666.17**	**0.03**	**0.03**	0.00
14.00	**0.02**	**476**	**666.54**	0.03	0.03	0.00
16.00	0.01	398	666.45	0.03	0.03	0.00
18.00	0.01	273	666.31	0.03	0.03	0.00
20.00	0.01	129	666.15	0.03	0.03	0.00
22.00	0.00	0	666.00	0.01	0.01	0.00
24.00	0.00	0	666.00	0.01	0.01	0.00
26.00	0.00	0	666.00	0.00	0.00	0.00
28.00	0.00	0	666.00	0.00	0.00	0.00
30.00	0.00	0	666.00	0.00	0.00	0.00
32.00	0.00	0	666.00	0.00	0.00	0.00
34.00	0.00	0	666.00	0.00	0.00	0.00
36.00	0.00	0	666.00	0.00	0.00	0.00
38.00	0.00	0	666.00	0.00	0.00	0.00
40.00	0.00	0	666.00	0.00	0.00	0.00
42.00	0.00	0	666.00	0.00	0.00	0.00
44.00	0.00	0	666.00	0.00	0.00	0.00
46.00	0.00	0	666.00	0.00	0.00	0.00
48.00	0.00	0	666.00	0.00	0.00	0.00
50.00	0.00	0	666.00	0.00	0.00	0.00
52.00	0.00	0	666.00	0.00	0.00	0.00
54.00	0.00	0	666.00	0.00	0.00	0.00
56.00	0.00	0	666.00	0.00	0.00	0.00
58.00	0.00	0	666.00	0.00	0.00	0.00
60.00	0.00	0	666.00	0.00	0.00	0.00
62.00	0.00	0	666.00	0.00	0.00	0.00
64.00	0.00	0	666.00	0.00	0.00	0.00
66.00	0.00	0	666.00	0.00	0.00	0.00
68.00	0.00	0	666.00	0.00	0.00	0.00
70.00	0.00	0	666.00	0.00	0.00	0.00
72.00	0.00	0	666.00	0.00	0.00	0.00
74.00	0.00	0	666.00	0.00	0.00	0.00
76.00	0.00	0	666.00	0.00	0.00	0.00
78.00	0.00	0	666.00	0.00	0.00	0.00
80.00	0.00	0	666.00	0.00	0.00	0.00
82.00	0.00	0	666.00	0.00	0.00	0.00
84.00	0.00	0	666.00	0.00	0.00	0.00
86.00	0.00	0	666.00	0.00	0.00	0.00
88.00	0.00	0	666.00	0.00	0.00	0.00
90.00	0.00	0	666.00	0.00	0.00	0.00
92.00	0.00	0	666.00	0.00	0.00	0.00
94.00	0.00	0	666.00	0.00	0.00	0.00
96.00	0.00	0	666.00	0.00	0.00	0.00

Summary for Reach SR-1: South Reach-1

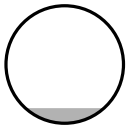
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 465,430 sf, 43.59% Impervious, Inflow Depth = 0.40" for 1 Year, 24 Hr. Event event
Inflow = 3.86 cfs @ 12.07 hrs, Volume= 15,517 cf
Outflow = 3.86 cfs @ 12.08 hrs, Volume= 15,517 cf, Atten= 0%, Lag= 0.3 min

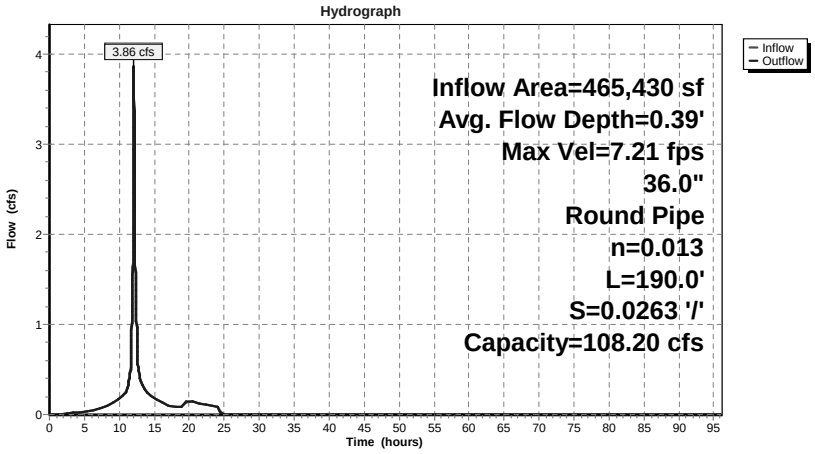
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 7.21 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.42 fps, Avg. Travel Time= 1.3 min

Peak Storage= 102 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 108.20 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 190.0' Slope= 0.0263 '/'
Inlet Invert= 668.00', Outlet Invert= 663.00'



Reach SR-1: South Reach-1



Hydrograph for Reach SR-1: South Reach-1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	668.00	0.00
2.00	0.01	1	668.01	0.01
4.00	0.03	3	668.04	0.03
6.00	0.04	4	668.04	0.04
8.00	0.08	7	668.06	0.08
10.00	0.17	12	668.09	0.17
12.00	**2.60**	**74**	**668.31**	**2.47**
14.00	**0.24**	**15**	**668.10**	**0.24**
16.00	0.13	9	668.08	0.13
18.00	0.08	7	668.06	0.08
20.00	0.15	10	668.08	0.15
22.00	0.12	9	668.07	0.12
24.00	0.09	7	668.07	0.09
26.00	0.00	0	668.00	0.00
28.00	0.00	0	668.00	0.00
30.00	0.00	0	668.00	0.00
32.00	0.00	0	668.00	0.00
34.00	0.00	0	668.00	0.00
36.00	0.00	0	668.00	0.00
38.00	0.00	0	668.00	0.00
40.00	0.00	0	668.00	0.00
42.00	0.00	0	668.00	0.00
44.00	0.00	0	668.00	0.00
46.00	0.00	0	668.00	0.00
48.00	0.00	0	668.00	0.00
50.00	0.00	0	668.00	0.00
52.00	0.00	0	668.00	0.00
54.00	0.00	0	668.00	0.00
56.00	0.00	0	668.00	0.00
58.00	0.00	0	668.00	0.00
60.00	0.00	0	668.00	0.00
62.00	0.00	0	668.00	0.00
64.00	0.00	0	668.00	0.00
66.00	0.00	0	668.00	0.00
68.00	0.00	0	668.00	0.00
70.00	0.00	0	668.00	0.00
72.00	0.00	0	668.00	0.00
74.00	0.00	0	668.00	0.00
76.00	0.00	0	668.00	0.00
78.00	0.00	0	668.00	0.00
80.00	0.00	0	668.00	0.00
82.00	0.00	0	668.00	0.00
84.00	0.00	0	668.00	0.00
86.00	0.00	0	668.00	0.00
88.00	0.00	0	668.00	0.00
90.00	0.00	0	668.00	0.00
92.00	0.00	0	668.00	0.00
94.00	0.00	0	668.00	0.00
96.00	0.00	0	668.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2A: Post DA 8B-2A Runoff Area=46,563 sf 59.62% Impervious Runoff Depth=2.45"
Tc=5.0 min CN=74/98 Runoff=2.87 cfs 9,499 cf

Pond 2A-Bio: 2A_Bioretention Peak Elev=673.24' Storage=7,294 cf Inflow=2.87 cfs 9,499 cf
Discarded=0.03 cfs 9,500 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 9,500 cf

Subcatchment 2B: Post DA 8B-2B Runoff Area=53,291 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=4.31 cfs 14,506 cf

Subcatchment 3: Post DA 8B-3 Runoff Area=187,200 sf 19.40% Impervious Runoff Depth=1.32"
Flow Length=420' Tc=11.8 min CN=67/98 Runoff=4.80 cfs 20,574 cf

Pond 3-Bio: 3_Bioretention Peak Elev=688.54' Storage=13,567 cf Inflow=4.80 cfs 20,574 cf
Discarded=0.03 cfs 10,017 cf Primary=0.32 cfs 5,033 cf Outflow=0.35 cfs 15,049 cf

Reach 8B-S: DA-8B South Outflow Avg. Flow Depth=0.41' Max Vel=7.54 fps Inflow=4.41 cfs 22,761 cf
36.0" Round Pipe n=0.013 L=150.0' S=0.0267 '/' Capacity=108.92 cfs Outflow=4.41 cfs 22,761 cf

Link Linear, 24 Hr. Event Outflow Imported from Post_DP-08B_West~Reach 8BW-Out.hce Inflow=0.31 cfs 3,223 cf
Area= 157,153 sf 46.55% Imperv. Primary=0.31 cfs 3,223 cf

Subcatchment 10: Post DA 8B-10 Runoff Area=21,223 sf 58.09% Impervious Runoff Depth=2.42"
Tc=5.0 min CN=74/98 Runoff=1.29 cfs 4,275 cf

Pond 10-Bio: 10_Bioretention Peak Elev=692.27' Storage=3,337 cf Inflow=1.29 cfs 4,275 cf
Discarded=0.02 cfs 3,659 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 3,659 cf

Subcatchment 11A: Post DA 8B-11A Runoff Area=32,946 sf 53.55% Impervious Runoff Depth=2.33"
Tc=5.0 min CN=74/98 Runoff=1.94 cfs 6,383 cf

Pond 11A-Bio: 11A_Bioretention Peak Elev=667.45' Storage=4,958 cf Inflow=1.94 cfs 6,383 cf
Discarded=0.03 cfs 5,361 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 5,361 cf

Subcatchment 11B: Post DA 8B-11B Runoff Area=5,443 sf 94.86% Impervious Runoff Depth=3.16"
Tc=5.0 min CN=74/98 Runoff=0.43 cfs 1,434 cf

Pond 11B-P: 11B-Pavers Peak Elev=666.66' Storage=583 cf Inflow=0.43 cfs 1,434 cf
Discarded=0.03 cfs 1,435 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 1,435 cf

Reach SR-1: South Reach-1 Avg. Flow Depth=0.41' Max Vel=7.51 fps Inflow=4.42 cfs 22,761 cf
36.0" Round Pipe n=0.013 L=190.0' S=0.0263 '/' Capacity=108.20 cfs Outflow=4.41 cfs 22,761 cf

Total Runoff Area = 346,666 sf Runoff Volume = 56,672 cf Average Runoff Depth = 1.96"
56.01% Pervious = 194,165 sf 43.99% Impervious = 152,501 sf

Summary for Subcatchment 2A: Post DA 8B-2A

Runoff = 2.87 cfs @ 12.07 hrs, Volume= 9,499 cf, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

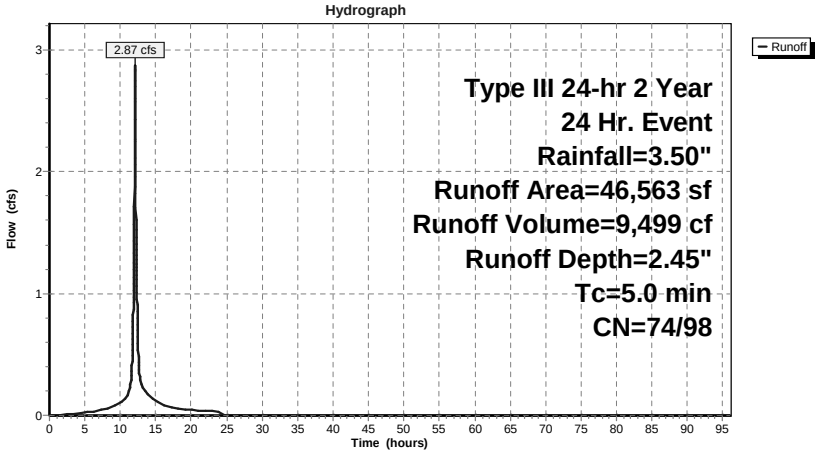
	Area (sf)	CN	Description	Land Use
	27,761	98	Paved parking, HSG C	Pavement
	3,136	74	>75% Grass cover, Good, HSG C	Open Space
*	15,666	74	Bioretention, HSG C	Landscaped
	46,563	88	Weighted Average	
	18,802	74	40.38% Pervious Area	
	27,761	98	59.62% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.62% Impervious, Rv= 0.587, Runoff= 26.81"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
15,666	Landscaped	0.00	0.00	0.00	0.00
3,136	Open Space	263.28	0.92	3.98	0.54
27,761	Pavement	669.77	2.17	8.13	25.94
46,563	Total	933.05	3.09	12.11	26.48

Subcatchment 2A: Post DA 8B-2A



Hydrograph for Subcatchment 2A: Post DA 8B-2A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.02
6.00	0.25	0.00	0.11	0.03
8.00	0.40	0.00	0.23	0.05
10.00	0.66	0.00	0.47	0.10
12.00	1.75	0.24	1.53	**1.88**
14.00	2.84	0.81	2.61	**0.16**
16.00	3.10	0.97	2.87	0.09
18.00	3.25	1.07	3.02	0.05
20.00	3.35	1.14	3.12	0.04
22.00	3.43	1.19	3.20	0.04
24.00	**3.50**	**1.24**	**3.27**	0.03
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00
74.00	3.50	1.24	3.27	0.00
76.00	3.50	1.24	3.27	0.00
78.00	3.50	1.24	3.27	0.00
80.00	3.50	1.24	3.27	0.00
82.00	3.50	1.24	3.27	0.00
84.00	3.50	1.24	3.27	0.00
86.00	3.50	1.24	3.27	0.00
88.00	3.50	1.24	3.27	0.00
90.00	3.50	1.24	3.27	0.00
92.00	3.50	1.24	3.27	0.00
94.00	3.50	1.24	3.27	0.00
96.00	3.50	1.24	3.27	0.00

Summary for Pond 2A-Bio: 2A_Bioretention

Inflow Area = 46,563 sf, 59.62% Impervious, Inflow Depth = 2.45" for 2 Year, 24 Hr. Event event
Inflow = 2.87 cfs @ 12.07 hrs, Volume= 9,499 cf
Outflow = 0.03 cfs @ 7.35 hrs, Volume= 9,500 cf, Atten= 99%, Lag= 0.0 min
Discarded = 0.03 cfs @ 7.35 hrs, Volume= 9,500 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 673.24' @ 23.46 hrs Surf.Area= 5,228 sf Storage= 7,294 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2,069.9 min (2,844.4 - 774.5)

Volume	Invert	Avail.Storage	Storage Description
#1	669.75'	12,461 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

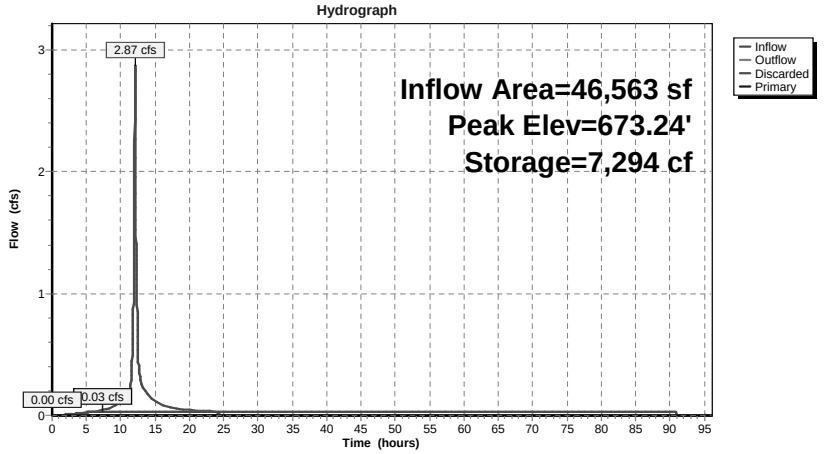
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
669.75	5,228	0.0	0	0
669.76	5,228	40.0	21	21
673.99	5,228	40.0	8,846	8,867
674.00	7,066	100.0	61	8,928
674.50	7,066	100.0	3,533	12,461

Device	Routing	Invert	Outlet Devices
#1	Discarded	669.75'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	674.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 7.35 hrs HW=669.76' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=669.75' TW=668.00' (Dynamic Tailwater)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 2A-Bio: 2A_Bioretention



Hydrograph for Pond 2A-Bio: 2A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	669.75	0.00	0.00	**0.00**
2.00	0.00	0	669.75	0.00	0.00	0.00
4.00	0.02	0	669.75	0.02	0.02	0.00
6.00	0.03	0	669.75	**0.03**	**0.03**	0.00
8.00	0.05	58	669.78	**0.03**	**0.03**	0.00
10.00	0.10	378	669.93	0.03	0.03	0.00
12.00	**1.88**	2,339	670.87	0.03	0.03	0.00
14.00	**0.16**	6,143	672.69	0.03	0.03	0.00
16.00	0.09	6,810	673.01	0.03	0.03	0.00
18.00	0.05	7,091	673.14	0.03	0.03	0.00
20.00	0.04	7,216	673.20	0.03	0.03	0.00
22.00	0.04	**7,280**	**673.23**	0.03	0.03	0.00
24.00	0.03	**7,293**	**673.24**	0.03	0.03	0.00
26.00	0.00	7,083	673.14	0.03	0.03	0.00
28.00	0.00	6,865	673.03	0.03	0.03	0.00
30.00	0.00	6,647	672.93	0.03	0.03	0.00
32.00	0.00	6,429	672.82	0.03	0.03	0.00
34.00	0.00	6,211	672.72	0.03	0.03	0.00
36.00	0.00	5,993	672.62	0.03	0.03	0.00
38.00	0.00	5,776	672.51	0.03	0.03	0.00
40.00	0.00	5,558	672.41	0.03	0.03	0.00
42.00	0.00	5,340	672.30	0.03	0.03	0.00
44.00	0.00	5,122	672.20	0.03	0.03	0.00
46.00	0.00	4,904	672.10	0.03	0.03	0.00
48.00	0.00	4,686	671.99	0.03	0.03	0.00
50.00	0.00	4,469	671.89	0.03	0.03	0.00
52.00	0.00	4,251	671.78	0.03	0.03	0.00
54.00	0.00	4,033	671.68	0.03	0.03	0.00
56.00	0.00	3,815	671.57	0.03	0.03	0.00
58.00	0.00	3,597	671.47	0.03	0.03	0.00
60.00	0.00	3,379	671.37	0.03	0.03	0.00
62.00	0.00	3,162	671.26	0.03	0.03	0.00
64.00	0.00	2,944	671.16	0.03	0.03	0.00
66.00	0.00	2,726	671.05	0.03	0.03	0.00
68.00	0.00	2,508	670.95	0.03	0.03	0.00
70.00	0.00	2,290	670.85	0.03	0.03	0.00
72.00	0.00	2,072	670.74	0.03	0.03	0.00
74.00	0.00	1,855	670.64	0.03	0.03	0.00
76.00	0.00	1,637	670.53	0.03	0.03	0.00
78.00	0.00	1,419	670.43	0.03	0.03	0.00
80.00	0.00	1,201	670.32	0.03	0.03	0.00
82.00	0.00	983	670.22	0.03	0.03	0.00
84.00	0.00	765	670.12	0.03	0.03	0.00
86.00	0.00	548	670.01	0.03	0.03	0.00
88.00	0.00	330	669.91	0.03	0.03	0.00
90.00	0.00	112	669.80	0.03	0.03	0.00
92.00	0.00	0	669.75	0.00	0.00	0.00
94.00	0.00	0	669.75	0.00	0.00	0.00
96.00	0.00	0	669.75	0.00	0.00	0.00

Summary for Subcatchment 2B: Post DA 8B-2B

Runoff = 4.31 cfs @ 12.07 hrs, Volume= 14,506 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

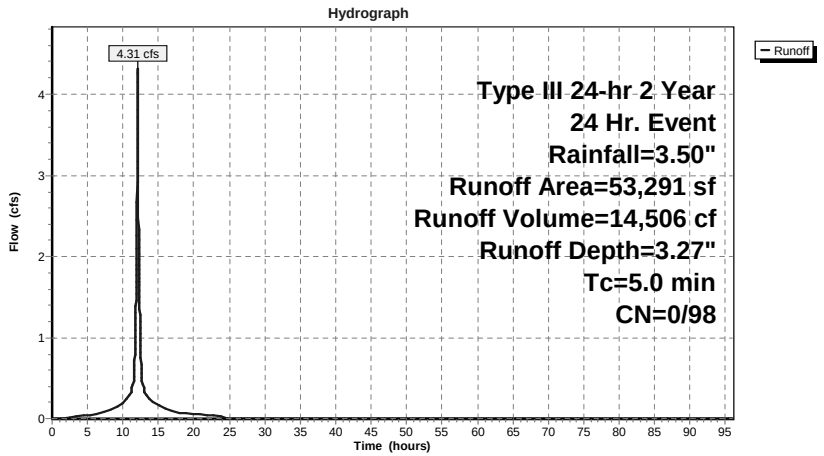
	Area (sf)	CN	Description	Land Use
	34,639	98	Roofs, HSG C	Roofs
*	18,652	98	Green Roof, HSG B	Landscaped
	53,291	98	Weighted Average	
	53,291	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
18,652	Landscaped	0.00	0.00	0.00	0.00
34,639	Roofs	148.65	0.86	11.74	57.89
53,291	Total	148.65	0.86	11.74	57.89

Subcatchment 2B: Post DA 8B-2B



Hydrograph for Subcatchment 2B: Post DA 8B-2B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.01
4.00	0.15	0.00	0.04	0.03
6.00	0.25	0.00	0.11	0.05
8.00	0.40	0.00	0.23	0.10
10.00	0.66	0.00	0.47	0.19
12.00	1.75	0.00	1.53	**2.91**
14.00	2.84	0.00	2.61	**0.22**
16.00	3.10	0.00	2.87	0.12
18.00	3.25	0.00	3.02	0.07
20.00	3.35	0.00	3.12	0.06
22.00	3.43	0.00	3.20	0.05
24.00	**3.50**	0.00	**3.27**	0.04
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00
74.00	3.50	0.00	3.27	0.00
76.00	3.50	0.00	3.27	0.00
78.00	3.50	0.00	3.27	0.00
80.00	3.50	0.00	3.27	0.00
82.00	3.50	0.00	3.27	0.00
84.00	3.50	0.00	3.27	0.00
86.00	3.50	0.00	3.27	0.00
88.00	3.50	0.00	3.27	0.00
90.00	3.50	0.00	3.27	0.00
92.00	3.50	0.00	3.27	0.00
94.00	3.50	0.00	3.27	0.00
96.00	3.50	0.00	3.27	0.00

Summary for Subcatchment 3: Post DA 8B-3

Runoff = 4.80 cfs @ 12.17 hrs, Volume= 20,574 cf, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

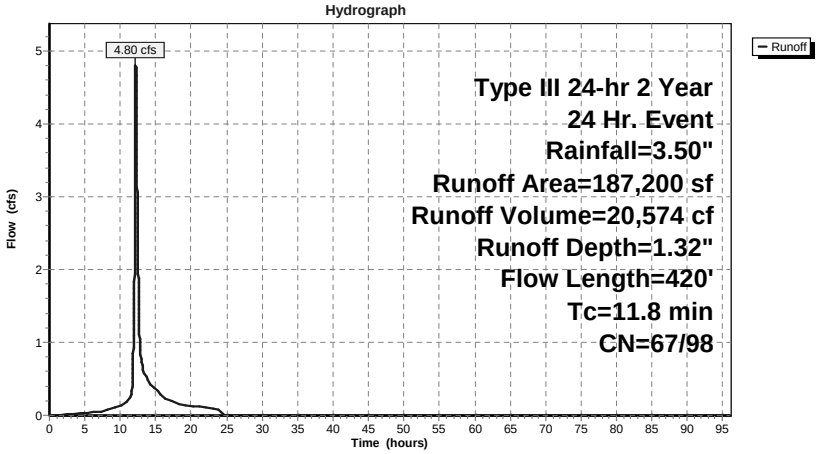
	Area (sf)	CN	Description	Land Use
	69,479	74	>75% Grass cover, Good, HSG C	Open Space
	72,736	61	>75% Grass cover, Good, HSG B	Open Space
	25,889	98	Paved parking, HSG C	Pavement
*	8,669	61	Bioretention, HSG B	Landscaped
	10,427	98	Roofs, HSG C	Roofs
	187,200	73	Weighted Average	
	150,884	67	80.60% Pervious Area	
	36,316	98	19.40% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	64	0.0312	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.4	36	0.2000	0.25		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	150	0.2057	3.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	170		5.00		**Direct Entry,**
11.8	420	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 19.40% Impervious, Rv= 0.225, Runoff= 10.26"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
8,669	Landscaped	0.00	0.00	0.00	0.00
142,215	Open Space	4,571.50	15.95	69.10	9.34
25,889	Pavement	239.15	0.77	2.90	9.26
10,427	Roofs	10.58	0.06	0.84	4.12
187,200	Total	4,821.23	16.78	72.84	22.72

Subcatchment 3: Post DA 8B-3



Hydrograph for Subcatchment 3: Post DA 8B-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.01
4.00	0.15	0.00	0.04	0.02
6.00	0.25	0.00	0.11	0.03
8.00	0.40	0.00	0.23	0.06
10.00	0.66	0.00	0.47	0.13
12.00	1.75	0.10	1.53	**1.94**
14.00	2.84	0.51	2.61	**0.46**
16.00	3.10	0.64	2.87	0.26
18.00	3.25	0.71	3.02	0.16
20.00	3.35	0.77	3.12	0.13
22.00	3.43	0.81	3.20	0.11
24.00	**3.50**	**0.85**	**3.27**	0.09
26.00	3.50	0.85	3.27	0.00
28.00	3.50	0.85	3.27	0.00
30.00	3.50	0.85	3.27	0.00
32.00	3.50	0.85	3.27	0.00
34.00	3.50	0.85	3.27	0.00
36.00	3.50	0.85	3.27	0.00
38.00	3.50	0.85	3.27	0.00
40.00	3.50	0.85	3.27	0.00
42.00	3.50	0.85	3.27	0.00
44.00	3.50	0.85	3.27	0.00
46.00	3.50	0.85	3.27	0.00
48.00	3.50	0.85	3.27	0.00
50.00	3.50	0.85	3.27	0.00
52.00	3.50	0.85	3.27	0.00
54.00	3.50	0.85	3.27	0.00
56.00	3.50	0.85	3.27	0.00
58.00	3.50	0.85	3.27	0.00
60.00	3.50	0.85	3.27	0.00
62.00	3.50	0.85	3.27	0.00
64.00	3.50	0.85	3.27	0.00
66.00	3.50	0.85	3.27	0.00
68.00	3.50	0.85	3.27	0.00
70.00	3.50	0.85	3.27	0.00
72.00	3.50	0.85	3.27	0.00
74.00	3.50	0.85	3.27	0.00
76.00	3.50	0.85	3.27	0.00
78.00	3.50	0.85	3.27	0.00
80.00	3.50	0.85	3.27	0.00
82.00	3.50	0.85	3.27	0.00
84.00	3.50	0.85	3.27	0.00
86.00	3.50	0.85	3.27	0.00
88.00	3.50	0.85	3.27	0.00
90.00	3.50	0.85	3.27	0.00
92.00	3.50	0.85	3.27	0.00
94.00	3.50	0.85	3.27	0.00
96.00	3.50	0.85	3.27	0.00

Summary for Pond 3-Bio: 3_Bioretention

Inflow Area = 187,200 sf, 19.40% Impervious, Inflow Depth = 1.32" for 2 Year, 24 Hr. Event event
Inflow = 4.80 cfs @ 12.17 hrs, Volume= 20,574 cf
Outflow = 0.35 cfs @ 15.02 hrs, Volume= 15,049 cf, Atten= 93%, Lag= 170.7 min
Discarded = 0.03 cfs @ 6.59 hrs, Volume= 10,017 cf
Primary = 0.32 cfs @ 15.02 hrs, Volume= 5,033 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 688.54' @ 15.02 hrs Surf.Area= 9,121 sf Storage= 13,567 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,516.7 min (2,341.6 - 824.9)

Volume	Invert	Avail.Storage	Storage Description
#1	684.00'	22,330 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

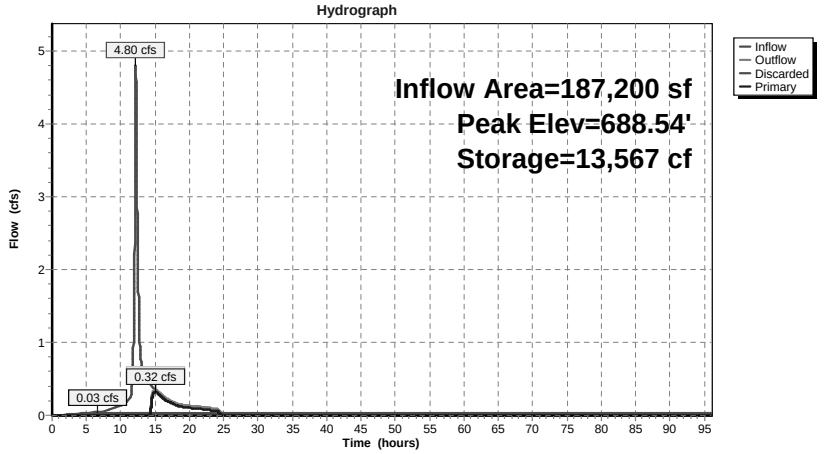
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
684.00	5,374	0.0	0	0	5,374
684.01	5,374	40.0	21	21	5,377
687.99	5,374	40.0	8,555	8,577	6,544
688.00	9,121	100.0	72	8,649	10,291
688.50	9,121	100.0	4,561	13,209	10,482
689.00	9,121	100.0	4,561	17,770	10,673
689.50	9,121	100.0	4,561	22,330	10,864

Device	Routing	Invert	Outlet Devices
#1	Discarded	684.00'	**0.03 cfs Exfiltration at all elevations**
#2	Primary	688.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 36.00 columns** X 36 rows C= 0.600 in 38.0" x 38.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 6.59 hrs HW=684.01' (Free Discharge)
↳**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.32 cfs @ 15.02 hrs HW=688.54' TW=668.16' (Dynamic Tailwater)
↳**2=Orifice/Grate** (Weir Controls 0.32 cfs @ 0.65 fps)

Pond 3-Bio: 3_Bioretention



Hydrograph for Pond 3-Bio: 3_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	684.00	0.00	0.00	0.00
2.00	0.01	0	684.00	0.01	0.01	0.00
4.00	0.02	0	684.00	0.02	0.02	0.00
6.00	0.03	6	684.00	0.03	**0.03**	0.00
8.00	0.06	136	684.06	0.03	**0.03**	0.00
10.00	0.13	599	684.28	0.03	0.03	0.00
12.00	**1.94**	2,798	685.30	0.03	0.03	0.00
14.00	**0.46**	**12,809**	**688.46**	**0.03**	0.03	**0.00**
16.00	0.26	**13,510**	**688.53**	**0.28**	0.03	**0.25**
18.00	0.16	13,415	688.52	0.17	0.03	0.14
20.00	0.13	13,374	688.52	0.13	0.03	0.10
22.00	0.11	13,350	688.52	0.11	0.03	0.08
24.00	0.09	13,324	688.51	0.09	0.03	0.06
26.00	0.00	13,085	688.49	0.03	0.03	0.00
28.00	0.00	12,869	688.46	0.03	0.03	0.00
30.00	0.00	12,653	688.44	0.03	0.03	0.00
32.00	0.00	12,437	688.42	0.03	0.03	0.00
34.00	0.00	12,221	688.39	0.03	0.03	0.00
36.00	0.00	12,005	688.37	0.03	0.03	0.00
38.00	0.00	11,789	688.34	0.03	0.03	0.00
40.00	0.00	11,573	688.32	0.03	0.03	0.00
42.00	0.00	11,357	688.30	0.03	0.03	0.00
44.00	0.00	11,141	688.27	0.03	0.03	0.00
46.00	0.00	10,925	688.25	0.03	0.03	0.00
48.00	0.00	10,709	688.23	0.03	0.03	0.00
50.00	0.00	10,493	688.20	0.03	0.03	0.00
52.00	0.00	10,277	688.18	0.03	0.03	0.00
54.00	0.00	10,061	688.15	0.03	0.03	0.00
56.00	0.00	9,845	688.13	0.03	0.03	0.00
58.00	0.00	9,629	688.11	0.03	0.03	0.00
60.00	0.00	9,413	688.08	0.03	0.03	0.00
62.00	0.00	9,197	688.06	0.03	0.03	0.00
64.00	0.00	8,981	688.04	0.03	0.03	0.00
66.00	0.00	8,765	688.01	0.03	0.03	0.00
68.00	0.00	8,549	687.98	0.03	0.03	0.00
70.00	0.00	8,333	687.88	0.03	0.03	0.00
72.00	0.00	8,117	687.78	0.03	0.03	0.00
74.00	0.00	7,901	687.68	0.03	0.03	0.00
76.00	0.00	7,685	687.58	0.03	0.03	0.00
78.00	0.00	7,469	687.47	0.03	0.03	0.00
80.00	0.00	7,253	687.37	0.03	0.03	0.00
82.00	0.00	7,037	687.27	0.03	0.03	0.00
84.00	0.00	6,821	687.17	0.03	0.03	0.00
86.00	0.00	6,605	687.07	0.03	0.03	0.00
88.00	0.00	6,389	686.97	0.03	0.03	0.00
90.00	0.00	6,173	686.87	0.03	0.03	0.00
92.00	0.00	5,957	686.77	0.03	0.03	0.00
94.00	0.00	5,741	686.67	0.03	0.03	0.00
96.00	0.00	5,525	686.57	0.03	0.03	0.00

Summary for Reach 8B-S: DA-8B South Outflow

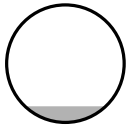
[52] Hint: Inlet/Outlet conditions not evaluated
[61] Hint: Exceeded Reach SR-1 outlet invert by 0.41' @ 12.08 hrs

Inflow Area = 503,819 sf, 44.79% Impervious, Inflow Depth = 0.54" for 2 Year, 24 Hr. Event event
Inflow = 4.41 cfs @ 12.08 hrs, Volume= 22,761 cf
Outflow = 4.41 cfs @ 12.08 hrs, Volume= 22,761 cf, Atten= 0%, Lag= 0.2 min

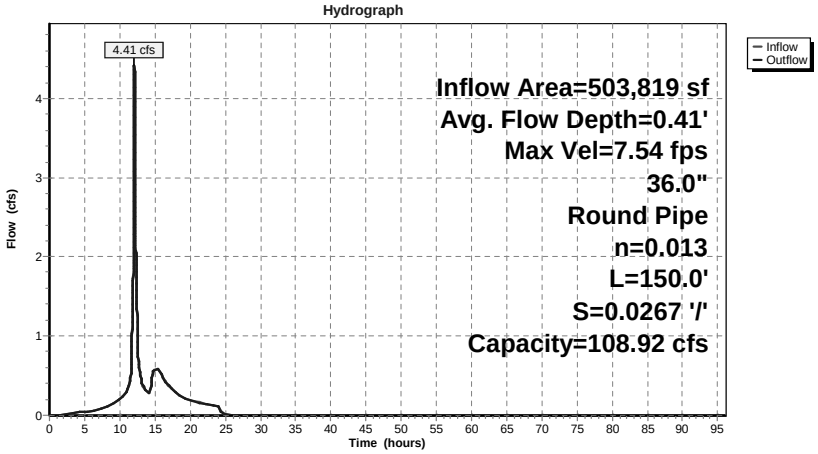
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 7.54 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.72 fps, Avg. Travel Time= 0.9 min

Peak Storage= 88 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.41'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 108.92 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 150.0' Slope= 0.0267 '/'
Inlet Invert= 663.00', Outlet Invert= 659.00'



Reach 8B-S: DA-8B South Outflow



Hydrograph for Reach 8B-S: DA-8B South Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	663.00	0.00
2.00	0.01	1	663.02	0.01
4.00	0.03	3	663.04	0.03
6.00	0.05	4	663.05	0.05
8.00	0.10	6	663.07	0.10
10.00	0.20	10	663.09	0.20
12.00	**2.81**	**62**	**663.33**	**2.70**
14.00	**0.28**	**13**	**663.11**	**0.28**
16.00	0.50	19	663.15	0.50
18.00	0.28	13	663.11	0.28
20.00	0.19	10	663.09	0.19
22.00	0.15	8	663.08	0.15
24.00	0.11	7	663.07	0.11
26.00	0.00	0	663.00	0.00
28.00	0.00	0	663.00	0.00
30.00	0.00	0	663.00	0.00
32.00	0.00	0	663.00	0.00
34.00	0.00	0	663.00	0.00
36.00	0.00	0	663.00	0.00
38.00	0.00	0	663.00	0.00
40.00	0.00	0	663.00	0.00
42.00	0.00	0	663.00	0.00
44.00	0.00	0	663.00	0.00
46.00	0.00	0	663.00	0.00
48.00	0.00	0	663.00	0.00
50.00	0.00	0	663.00	0.00
52.00	0.00	0	663.00	0.00
54.00	0.00	0	663.00	0.00
56.00	0.00	0	663.00	0.00
58.00	0.00	0	663.00	0.00
60.00	0.00	0	663.00	0.00
62.00	0.00	0	663.00	0.00
64.00	0.00	0	663.00	0.00
66.00	0.00	0	663.00	0.00
68.00	0.00	0	663.00	0.00
70.00	0.00	0	663.00	0.00
72.00	0.00	0	663.00	0.00
74.00	0.00	0	663.00	0.00
76.00	0.00	0	663.00	0.00
78.00	0.00	0	663.00	0.00
80.00	0.00	0	663.00	0.00
82.00	0.00	0	663.00	0.00
84.00	0.00	0	663.00	0.00
86.00	0.00	0	663.00	0.00
88.00	0.00	0	663.00	0.00
90.00	0.00	0	663.00	0.00
92.00	0.00	0	663.00	0.00
94.00	0.00	0	663.00	0.00
96.00	0.00	0	663.00	0.00

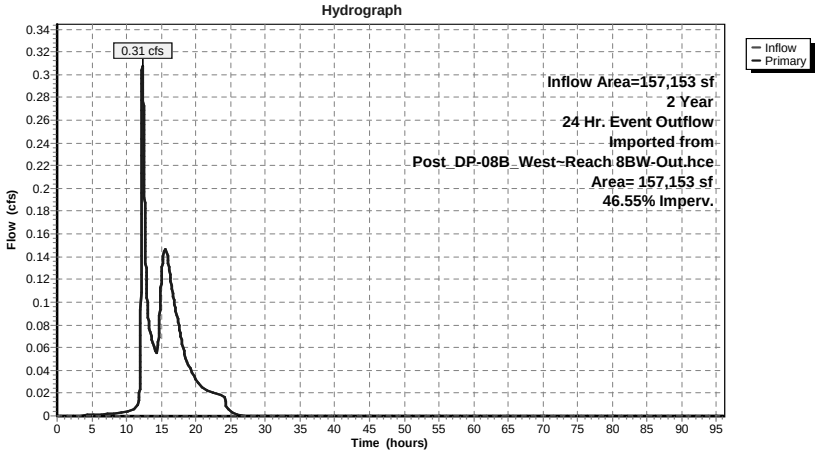
Summary for Link 8B-W: DA-8B West Inflow

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 0.25" for 2 Year, 24 Hr. Event event
Inflow = 0.31 cfs @ 12.27 hrs, Volume= 3,223 cf
Primary = 0.31 cfs @ 12.27 hrs, Volume= 3,223 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

2 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_West~Reach 8BW-Out.hce

Link 8B-W: DA-8B West Inflow



Hydrograph for Link 8B-W: DA-8B West Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.01	0.00	0.01	63.00	0.00	0.00	0.00
12.00	**0.04**	0.00	**0.04**	64.00	0.00	0.00	0.00
13.00	**0.10**	0.00	**0.10**	65.00	0.00	0.00	0.00
14.00	0.06	0.00	0.06	66.00	0.00	0.00	0.00
15.00	0.12	0.00	0.12	67.00	0.00	0.00	0.00
16.00	0.14	0.00	0.14	68.00	0.00	0.00	0.00
17.00	0.10	0.00	0.10	69.00	0.00	0.00	0.00
18.00	0.06	0.00	0.06	70.00	0.00	0.00	0.00
19.00	0.04	0.00	0.04	71.00	0.00	0.00	0.00
20.00	0.03	0.00	0.03	72.00	0.00	0.00	0.00
21.00	0.02	0.00	0.02	73.00	0.00	0.00	0.00
22.00	0.02	0.00	0.02	74.00	0.00	0.00	0.00
23.00	0.02	0.00	0.02	75.00	0.00	0.00	0.00
24.00	0.02	0.00	0.02	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 10: Post DA 8B-10

Runoff = 1.29 cfs @ 12.07 hrs, Volume= 4,275 cf, Depth= 2.42"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

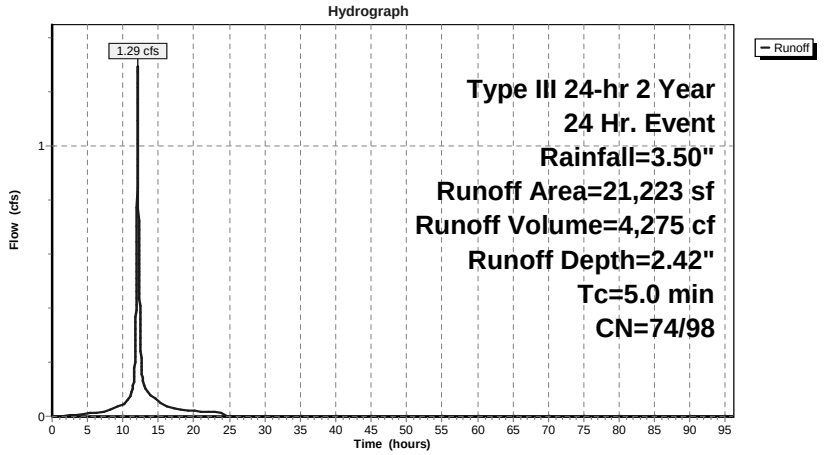
	Area (sf)	CN	Description	Land Use
	12,329	98	Unconnected pavement, HSG C	Pavement
	7,873	74	>75% Grass cover, Good, HSG C	Open Space
*	1,021	74	Bioretention, HSG C	Landscaped
	21,223	88	Weighted Average	
	8,894	74	41.91% Pervious Area	
	12,329	98	58.09% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 58.09% Impervious, Rv= 0.573, Runoff= 26.18"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,021	Landscaped	0.00	0.00	0.00	0.00
7,873	Open Space	645.47	2.25	9.76	1.32
12,329	Pavement	290.48	0.94	3.53	11.25
21,223	Total	935.96	3.19	13.28	12.57

Subcatchment 10: Post DA 8B-10



Hydrograph for Subcatchment 10: Post DA 8B-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.02
10.00	0.66	0.00	0.47	0.05
12.00	1.75	0.24	1.53	**0.84**
14.00	2.84	0.81	2.61	**0.07**
16.00	3.10	0.97	2.87	0.04
18.00	3.25	1.07	3.02	0.02
20.00	3.35	1.14	3.12	0.02
22.00	3.43	1.19	3.20	0.02
24.00	**3.50**	**1.24**	**3.27**	0.01
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00
74.00	3.50	1.24	3.27	0.00
76.00	3.50	1.24	3.27	0.00
78.00	3.50	1.24	3.27	0.00
80.00	3.50	1.24	3.27	0.00
82.00	3.50	1.24	3.27	0.00
84.00	3.50	1.24	3.27	0.00
86.00	3.50	1.24	3.27	0.00
88.00	3.50	1.24	3.27	0.00
90.00	3.50	1.24	3.27	0.00
92.00	3.50	1.24	3.27	0.00
94.00	3.50	1.24	3.27	0.00
96.00	3.50	1.24	3.27	0.00

Summary for Pond 10-Bio: 10_Bioretention

Inflow Area = 21,223 sf, 58.09% Impervious, Inflow Depth = 2.42" for 2 Year, 24 Hr. Event event
Inflow = 1.29 cfs @ 12.07 hrs, Volume= 4,275 cf
Outflow = 0.02 cfs @ 13.07 hrs, Volume= 3,659 cf, Atten= 99%, Lag= 59.9 min
Discarded = 0.02 cfs @ 13.07 hrs, Volume= 3,659 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 692.27' @ 22.55 hrs Surf.Area= 2,629 sf Storage= 3,337 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,991.5 min (2,767.1 - 775.6)

Volume	Invert	Avail.Storage	Storage Description
#1	688.00'	5,245 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

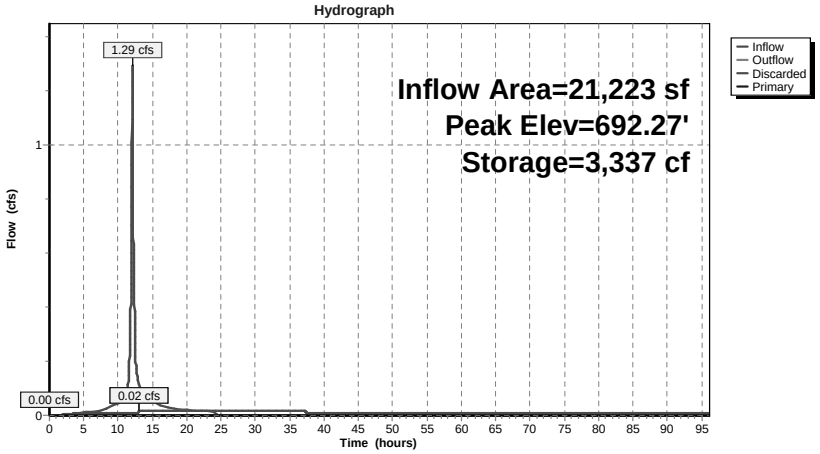
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
688.00	1,626	0.0	0	0
688.01	1,626	40.0	7	7
691.99	1,626	40.0	2,589	2,595
692.00	2,629	100.0	21	2,616
692.50	2,629	100.0	1,315	3,931
693.00	2,629	100.0	1,315	5,245

Device	Routing	Invert	Outlet Devices
#1	Discarded	688.00'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	692.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 13.07 hrs HW=692.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=688.00' TW=668.00' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 10-Bio: 10_Bioretention



Hydrograph for Pond 10-Bio: 10_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	688.00	0.00	0.00	**0.00**
2.00	0.00	0	688.00	0.00	0.00	0.00
4.00	0.01	0	688.00	0.01	0.01	0.00
6.00	0.01	5	688.01	0.01	0.01	0.00
8.00	0.02	59	688.09	0.01	0.01	0.00
10.00	0.05	230	688.35	0.01	0.01	0.00
12.00	**0.84**	1,137	689.75	**0.01**	**0.01**	0.00
14.00	**0.07**	2,864	692.09	**0.02**	**0.02**	0.00
16.00	0.04	3,155	692.20	0.02	0.02	0.00
18.00	0.02	3,272	692.25	0.02	0.02	0.00
20.00	0.02	3,318	692.27	0.02	0.02	0.00
22.00	0.02	**3,336**	**692.27**	0.02	0.02	0.00
24.00	0.01	**3,331**	**692.27**	0.02	0.02	0.00
26.00	0.00	3,225	692.23	0.02	0.02	0.00
28.00	0.00	3,115	692.19	0.02	0.02	0.00
30.00	0.00	3,006	692.15	0.02	0.02	0.00
32.00	0.00	2,896	692.11	0.02	0.02	0.00
34.00	0.00	2,786	692.06	0.02	0.02	0.00
36.00	0.00	2,677	692.02	0.02	0.02	0.00
38.00	0.00	2,581	691.97	0.01	0.01	0.00
40.00	0.00	2,513	691.86	0.01	0.01	0.00
42.00	0.00	2,446	691.76	0.01	0.01	0.00
44.00	0.00	2,378	691.66	0.01	0.01	0.00
46.00	0.00	2,310	691.55	0.01	0.01	0.00
48.00	0.00	2,242	691.45	0.01	0.01	0.00
50.00	0.00	2,175	691.34	0.01	0.01	0.00
52.00	0.00	2,107	691.24	0.01	0.01	0.00
54.00	0.00	2,039	691.14	0.01	0.01	0.00
56.00	0.00	1,971	691.03	0.01	0.01	0.00
58.00	0.00	1,904	690.93	0.01	0.01	0.00
60.00	0.00	1,836	690.82	0.01	0.01	0.00
62.00	0.00	1,768	690.72	0.01	0.01	0.00
64.00	0.00	1,700	690.61	0.01	0.01	0.00
66.00	0.00	1,633	690.51	0.01	0.01	0.00
68.00	0.00	1,565	690.41	0.01	0.01	0.00
70.00	0.00	1,497	690.30	0.01	0.01	0.00
72.00	0.00	1,429	690.20	0.01	0.01	0.00
74.00	0.00	1,362	690.09	0.01	0.01	0.00
76.00	0.00	1,294	689.99	0.01	0.01	0.00
78.00	0.00	1,226	689.89	0.01	0.01	0.00
80.00	0.00	1,158	689.78	0.01	0.01	0.00
82.00	0.00	1,091	689.68	0.01	0.01	0.00
84.00	0.00	1,023	689.57	0.01	0.01	0.00
86.00	0.00	955	689.47	0.01	0.01	0.00
88.00	0.00	887	689.36	0.01	0.01	0.00
90.00	0.00	820	689.26	0.01	0.01	0.00
92.00	0.00	752	689.16	0.01	0.01	0.00
94.00	0.00	684	689.05	0.01	0.01	0.00
96.00	0.00	616	688.95	0.01	0.01	0.00

Summary for Subcatchment 11A: Post DA 8B-11A

Runoff = 1.94 cfs @ 12.07 hrs, Volume= 6,383 cf, Depth= 2.33"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

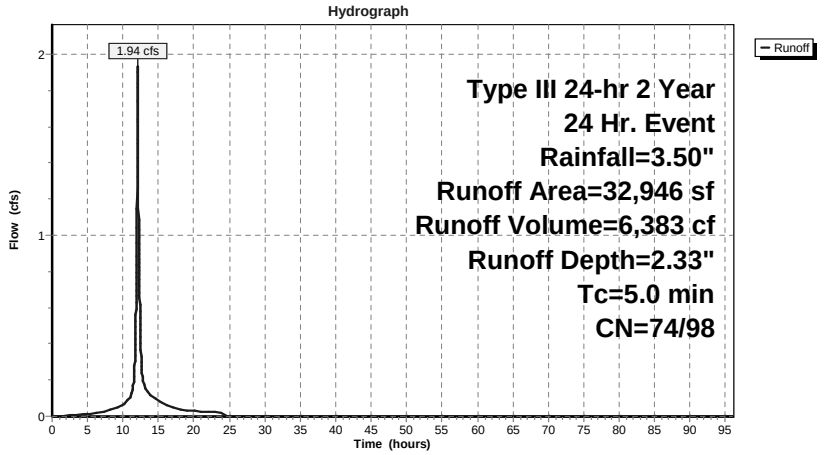
	Area (sf)	CN	Description	Land Use
	17,641	98	Unconnected pavement, HSG C	Pavement
	12,226	74	>75% Grass cover, Good, HSG C	Open Space
*	3,079	74	Bioretention, HSG C	Landscaped
	32,946	87	Weighted Average	
	15,305	74	46.45% Pervious Area	
	17,641	98	53.55% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 53.55% Impervious, Rv= 0.532, Runoff= 24.31"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,079	Landscaped	0.00	0.00	0.00	0.00
12,226	Open Space	930.74	3.25	14.07	1.90
17,641	Pavement	385.94	1.25	4.68	14.95
32,946	Total	1,316.68	4.50	18.75	16.85

Subcatchment 11A: Post DA 8B-11A



Hydrograph for Subcatchment 11A: Post DA 8B-11A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.02
8.00	0.40	0.00	0.23	0.03
10.00	0.66	0.00	0.47	0.06
12.00	1.75	0.24	1.53	**1.26**
14.00	2.84	0.81	2.61	**0.11**
16.00	3.10	0.97	2.87	0.06
18.00	3.25	1.07	3.02	0.04
20.00	3.35	1.14	3.12	0.03
22.00	3.43	1.19	3.20	0.02
24.00	**3.50**	**1.24**	**3.27**	0.02
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00
74.00	3.50	1.24	3.27	0.00
76.00	3.50	1.24	3.27	0.00
78.00	3.50	1.24	3.27	0.00
80.00	3.50	1.24	3.27	0.00
82.00	3.50	1.24	3.27	0.00
84.00	3.50	1.24	3.27	0.00
86.00	3.50	1.24	3.27	0.00
88.00	3.50	1.24	3.27	0.00
90.00	3.50	1.24	3.27	0.00
92.00	3.50	1.24	3.27	0.00
94.00	3.50	1.24	3.27	0.00
96.00	3.50	1.24	3.27	0.00

Summary for Pond 11A-Bio: 11A_Bioretention

Inflow Area = 32,946 sf, 53.55% Impervious, Inflow Depth = 2.33" for 2 Year, 24 Hr. Event event
Inflow = 1.94 cfs @ 12.07 hrs, Volume= 6,383 cf
Outflow = 0.03 cfs @ 12.26 hrs, Volume= 5,361 cf, Atten= 99%, Lag= 11.2 min
Discarded = 0.03 cfs @ 12.26 hrs, Volume= 5,361 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 667.45' @ 21.73 hrs Surf.Area= 4,369 sf Storage= 4,958 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,782.4 min (2,561.3 - 778.9)

Volume	Invert	Avail.Storage	Storage Description
#1	663.00'	7,372 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

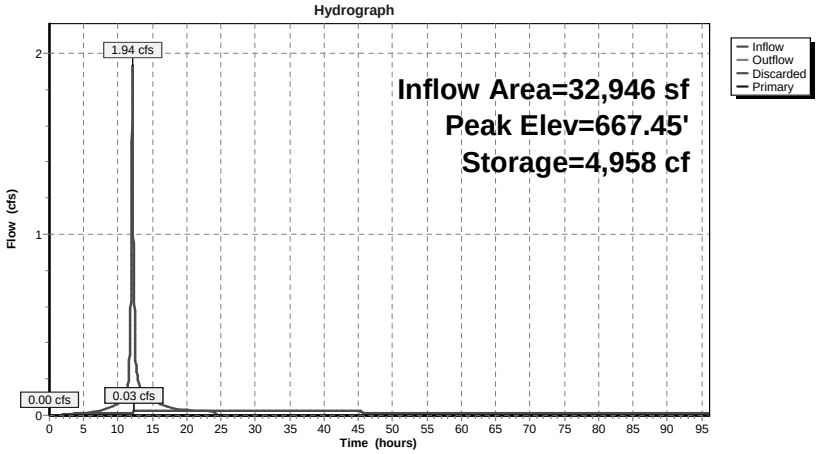
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
663.00	1,862	0.0	0	0
663.01	1,862	40.0	7	7
666.99	1,862	40.0	2,964	2,972
667.00	4,369	100.0	31	3,003
667.50	4,369	100.0	2,185	5,187
668.00	4,369	100.0	2,185	7,372

Device	Routing	Invert	Outlet Devices
#1	Discarded	663.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	667.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.26 hrs HW=667.01' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=663.00' TW=663.00' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 11A-Bio: 11A_Bioretention



Hydrograph for Pond 11A-Bio: 11A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	663.00	0.00	0.00	**0.00**
2.00	0.00	0	663.00	0.00	0.00	0.00
4.00	0.01	0	663.00	0.01	0.01	0.00
6.00	0.02	22	663.03	0.01	0.01	0.00
8.00	0.03	118	663.16	0.01	0.01	0.00
10.00	0.06	383	663.51	0.01	0.01	0.00
12.00	**1.26**	1,732	665.33	**0.01**	**0.01**	0.00
14.00	**0.11**	4,300	667.30	**0.03**	**0.03**	0.00
16.00	0.06	4,727	667.39	0.03	0.03	0.00
18.00	0.04	4,889	667.43	0.03	0.03	0.00
20.00	0.03	**4,945**	**667.44**	0.03	0.03	0.00
22.00	0.02	**4,958**	**667.45**	0.03	0.03	0.00
24.00	0.02	4,935	667.44	0.03	0.03	0.00
26.00	0.00	4,758	667.40	0.03	0.03	0.00
28.00	0.00	4,576	667.36	0.03	0.03	0.00
30.00	0.00	4,394	667.32	0.03	0.03	0.00
32.00	0.00	4,212	667.28	0.03	0.03	0.00
34.00	0.00	4,030	667.24	0.03	0.03	0.00
36.00	0.00	3,848	667.19	0.03	0.03	0.00
38.00	0.00	3,666	667.15	0.03	0.03	0.00
40.00	0.00	3,484	667.11	0.03	0.03	0.00
42.00	0.00	3,302	667.07	0.03	0.03	0.00
44.00	0.00	3,120	667.03	0.03	0.03	0.00
46.00	0.00	2,963	666.98	0.01	0.01	0.00
48.00	0.00	2,885	666.87	0.01	0.01	0.00
50.00	0.00	2,807	666.77	0.01	0.01	0.00
52.00	0.00	2,730	666.67	0.01	0.01	0.00
54.00	0.00	2,652	666.56	0.01	0.01	0.00
56.00	0.00	2,575	666.46	0.01	0.01	0.00
58.00	0.00	2,497	666.35	0.01	0.01	0.00
60.00	0.00	2,420	666.25	0.01	0.01	0.00
62.00	0.00	2,342	666.14	0.01	0.01	0.00
64.00	0.00	2,264	666.04	0.01	0.01	0.00
66.00	0.00	2,187	665.94	0.01	0.01	0.00
68.00	0.00	2,109	665.83	0.01	0.01	0.00
70.00	0.00	2,032	665.73	0.01	0.01	0.00
72.00	0.00	1,954	665.62	0.01	0.01	0.00
74.00	0.00	1,876	665.52	0.01	0.01	0.00
76.00	0.00	1,799	665.42	0.01	0.01	0.00
78.00	0.00	1,721	665.31	0.01	0.01	0.00
80.00	0.00	1,644	665.21	0.01	0.01	0.00
82.00	0.00	1,566	665.10	0.01	0.01	0.00
84.00	0.00	1,489	665.00	0.01	0.01	0.00
86.00	0.00	1,411	664.89	0.01	0.01	0.00
88.00	0.00	1,333	664.79	0.01	0.01	0.00
90.00	0.00	1,256	664.69	0.01	0.01	0.00
92.00	0.00	1,178	664.58	0.01	0.01	0.00
94.00	0.00	1,101	664.48	0.01	0.01	0.00
96.00	0.00	1,023	664.37	0.01	0.01	0.00

Summary for Subcatchment 11B: Post DA 8B-11B

Runoff = 0.43 cfs @ 12.07 hrs, Volume= 1,434 cf, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

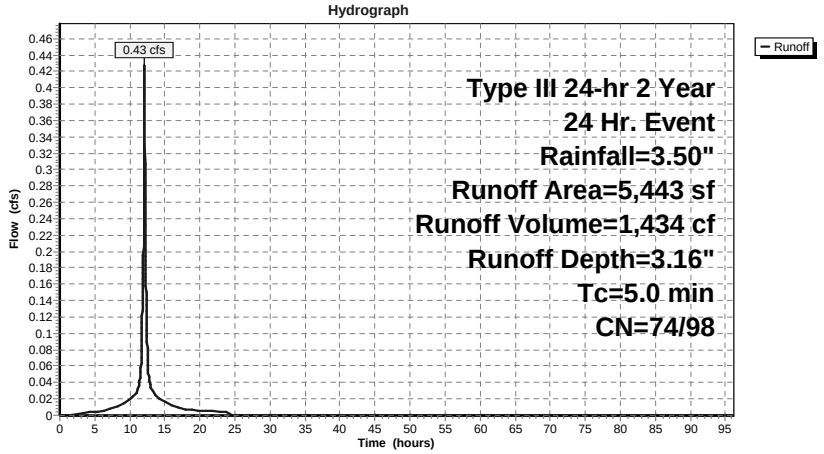
	Area (sf)	CN	Description	Land Use
	753	98	Unconnected pavement, HSG C	Pavement
	280	74	>75% Grass cover, Good, HSG C	Open Space
*	4,410	98	Pavers, HSG C	Pavement
	5,443	97	Weighted Average	
	280	74	5.14% Pervious Area	
	5,163	98	94.86% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 94.86% Impervious, Rv= 0.904, Runoff= 41.30"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
280	Open Space	36.22	0.13	0.55	0.07
5,163	Pavement	191.91	0.62	2.33	7.43
5,443	Total	228.12	0.75	2.88	7.51

Subcatchment 11B: Post DA 8B-11B



Hydrograph for Subcatchment 11B: Post DA 8B-11B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.02
12.00	1.75	0.24	1.53	**0.29**
14.00	2.84	0.81	2.61	**0.02**
16.00	3.10	0.97	2.87	0.01
18.00	3.25	1.07	3.02	0.01
20.00	3.35	1.14	3.12	0.01
22.00	3.43	1.19	3.20	0.00
24.00	**3.50**	**1.24**	**3.27**	0.00
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00
74.00	3.50	1.24	3.27	0.00
76.00	3.50	1.24	3.27	0.00
78.00	3.50	1.24	3.27	0.00
80.00	3.50	1.24	3.27	0.00
82.00	3.50	1.24	3.27	0.00
84.00	3.50	1.24	3.27	0.00
86.00	3.50	1.24	3.27	0.00
88.00	3.50	1.24	3.27	0.00
90.00	3.50	1.24	3.27	0.00
92.00	3.50	1.24	3.27	0.00
94.00	3.50	1.24	3.27	0.00
96.00	3.50	1.24	3.27	0.00

Summary for Pond 11B-P: 11B-Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 5,443 sf, 94.86% Impervious, Inflow Depth = 3.16" for 2 Year, 24 Hr. Event event
Inflow = 0.43 cfs @ 12.07 hrs, Volume= 1,434 cf
Outflow = 0.03 cfs @ 11.57 hrs, Volume= 1,435 cf, Atten= 94%, Lag= 0.0 min
Discarded = 0.03 cfs @ 11.57 hrs, Volume= 1,435 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 666.66' @ 13.65 hrs Surf.Area= 4,410 sf Storage= 583 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 178.3 min (934.0 - 755.7)

Volume	Invert	Avail.Storage	Storage Description
#1	666.00'	6,174 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

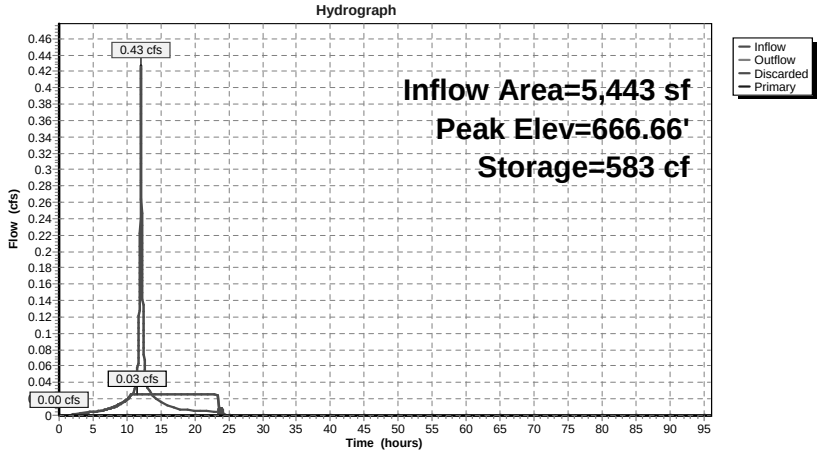
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
666.00	4,410	0.0	0	0
668.00	4,410	20.0	1,764	1,764
669.00	4,410	100.0	4,410	6,174

Device	Routing	Invert	Outlet Devices
#1	Discarded	666.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	668.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 11.57 hrs HW=666.03' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=666.00' TW=663.00' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 11B-P: 11B-Pavers



Hydrograph for Pond 11B-P: 11B-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	666.00	0.00	0.00	**0.00**
2.00	0.00	0	666.00	0.00	0.00	0.00
4.00	0.00	0	666.00	0.00	0.00	0.00
6.00	0.01	0	666.00	0.01	0.01	0.00
8.00	0.01	0	666.00	0.01	0.01	0.00
10.00	0.02	0	666.00	**0.02**	**0.02**	0.00
12.00	**0.29**	**189**	**666.21**	**0.03**	**0.03**	0.00
14.00	**0.02**	**580**	**666.66**	0.03	0.03	0.00
16.00	0.01	516	666.58	0.03	0.03	0.00
18.00	0.01	399	666.45	0.03	0.03	0.00
20.00	0.01	260	666.30	0.03	0.03	0.00
22.00	0.00	114	666.13	0.03	0.03	0.00
24.00	0.00	0	666.00	0.00	0.00	0.00
26.00	0.00	0	666.00	0.00	0.00	0.00
28.00	0.00	0	666.00	0.00	0.00	0.00
30.00	0.00	0	666.00	0.00	0.00	0.00
32.00	0.00	0	666.00	0.00	0.00	0.00
34.00	0.00	0	666.00	0.00	0.00	0.00
36.00	0.00	0	666.00	0.00	0.00	0.00
38.00	0.00	0	666.00	0.00	0.00	0.00
40.00	0.00	0	666.00	0.00	0.00	0.00
42.00	0.00	0	666.00	0.00	0.00	0.00
44.00	0.00	0	666.00	0.00	0.00	0.00
46.00	0.00	0	666.00	0.00	0.00	0.00
48.00	0.00	0	666.00	0.00	0.00	0.00
50.00	0.00	0	666.00	0.00	0.00	0.00
52.00	0.00	0	666.00	0.00	0.00	0.00
54.00	0.00	0	666.00	0.00	0.00	0.00
56.00	0.00	0	666.00	0.00	0.00	0.00
58.00	0.00	0	666.00	0.00	0.00	0.00
60.00	0.00	0	666.00	0.00	0.00	0.00
62.00	0.00	0	666.00	0.00	0.00	0.00
64.00	0.00	0	666.00	0.00	0.00	0.00
66.00	0.00	0	666.00	0.00	0.00	0.00
68.00	0.00	0	666.00	0.00	0.00	0.00
70.00	0.00	0	666.00	0.00	0.00	0.00
72.00	0.00	0	666.00	0.00	0.00	0.00
74.00	0.00	0	666.00	0.00	0.00	0.00
76.00	0.00	0	666.00	0.00	0.00	0.00
78.00	0.00	0	666.00	0.00	0.00	0.00
80.00	0.00	0	666.00	0.00	0.00	0.00
82.00	0.00	0	666.00	0.00	0.00	0.00
84.00	0.00	0	666.00	0.00	0.00	0.00
86.00	0.00	0	666.00	0.00	0.00	0.00
88.00	0.00	0	666.00	0.00	0.00	0.00
90.00	0.00	0	666.00	0.00	0.00	0.00
92.00	0.00	0	666.00	0.00	0.00	0.00
94.00	0.00	0	666.00	0.00	0.00	0.00
96.00	0.00	0	666.00	0.00	0.00	0.00

Summary for Reach SR-1: South Reach-1

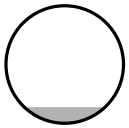
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 465,430 sf, 43.59% Impervious, Inflow Depth = 0.59" for 2 Year, 24 Hr. Event event
Inflow = 4.42 cfs @ 12.07 hrs, Volume= 22,761 cf
Outflow = 4.41 cfs @ 12.08 hrs, Volume= 22,761 cf, Atten= 0%, Lag= 0.3 min

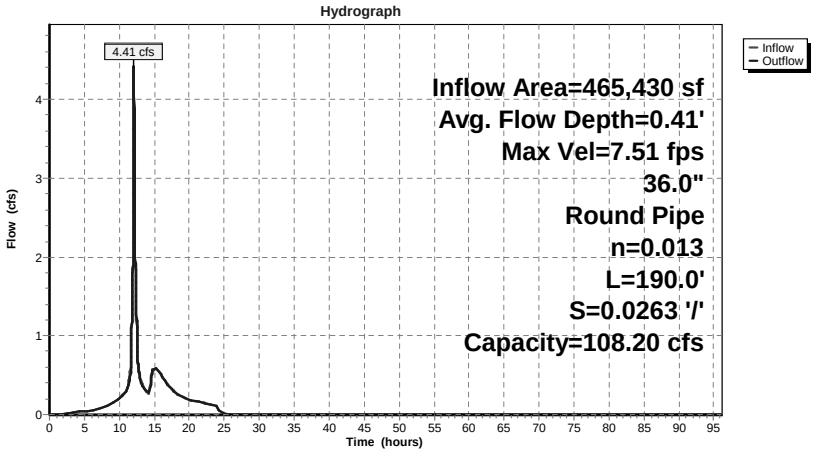
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 7.51 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.70 fps, Avg. Travel Time= 1.2 min

Peak Storage= 112 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.41'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 108.20 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 190.0' Slope= 0.0263 '/'
Inlet Invert= 668.00', Outlet Invert= 663.00'



Reach SR-1: South Reach-1



Hydrograph for Reach SR-1: South Reach-1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	668.00	0.00
2.00	0.01	1	668.02	0.01
4.00	0.03	3	668.04	0.03
6.00	0.05	5	668.05	0.05
8.00	0.10	8	668.07	0.10
10.00	0.20	13	668.09	0.20
12.00	**2.96**	**81**	**668.33**	**2.81**
14.00	**0.28**	**16**	**668.11**	**0.28**
16.00	0.50	24	668.15	0.50
18.00	0.28	16	668.11	0.28
20.00	0.19	12	668.09	0.19
22.00	0.15	10	668.08	0.15
24.00	0.11	9	668.07	0.11
26.00	0.00	0	668.00	0.00
28.00	0.00	0	668.00	0.00
30.00	0.00	0	668.00	0.00
32.00	0.00	0	668.00	0.00
34.00	0.00	0	668.00	0.00
36.00	0.00	0	668.00	0.00
38.00	0.00	0	668.00	0.00
40.00	0.00	0	668.00	0.00
42.00	0.00	0	668.00	0.00
44.00	0.00	0	668.00	0.00
46.00	0.00	0	668.00	0.00
48.00	0.00	0	668.00	0.00
50.00	0.00	0	668.00	0.00
52.00	0.00	0	668.00	0.00
54.00	0.00	0	668.00	0.00
56.00	0.00	0	668.00	0.00
58.00	0.00	0	668.00	0.00
60.00	0.00	0	668.00	0.00
62.00	0.00	0	668.00	0.00
64.00	0.00	0	668.00	0.00
66.00	0.00	0	668.00	0.00
68.00	0.00	0	668.00	0.00
70.00	0.00	0	668.00	0.00
72.00	0.00	0	668.00	0.00
74.00	0.00	0	668.00	0.00
76.00	0.00	0	668.00	0.00
78.00	0.00	0	668.00	0.00
80.00	0.00	0	668.00	0.00
82.00	0.00	0	668.00	0.00
84.00	0.00	0	668.00	0.00
86.00	0.00	0	668.00	0.00
88.00	0.00	0	668.00	0.00
90.00	0.00	0	668.00	0.00
92.00	0.00	0	668.00	0.00
94.00	0.00	0	668.00	0.00
96.00	0.00	0	668.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2A: Post DA 8B-2A Runoff Area=46,563 sf 59.62% Impervious Runoff Depth=4.26"
Tc=5.0 min CN=74/98 Runoff=5.00 cfs 16,513 cf

Pond 2A-Bio: 2A_Bioretention Peak Elev=674.07' Storage=9,441 cf Inflow=5.00 cfs 16,513 cf
Discarded=0.04 cfs 10,696 cf Primary=0.51 cfs 4,707 cf Outflow=0.55 cfs 15,403 cf

Subcatchment 2B: Post DA 8B-2B Runoff Area=53,291 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=6.83 cfs 23,370 cf

Subcatchment 3: Post DA 8B-3 Runoff Area=187,200 sf 19.40% Impervious Runoff Depth=2.76"
Flow Length=420' Tc=11.8 min CN=67/98 Runoff=10.77 cfs 43,076 cf

Pond 3-Bio: 3_Bioretention Peak Elev=688.78' Storage=15,793 cf Inflow=10.77 cfs 43,076 cf
Discarded=0.03 cfs 10,173 cf Primary=6.24 cfs 27,356 cf Outflow=6.27 cfs 37,530 cf

Reach 8B-S: DA-8B South Outflow Avg. Flow Depth=0.71' Max Vel=10.45 fps Inflow=13.33 cfs 83,287 cf
36.0" Round Pipe n=0.013 L=150.0' S=0.0267 '/' Capacity=108.92 cfs Outflow=13.33 cfs 83,287 cf

10-Year, 24 Hr. Event Outflow Imported from Post_DP-08B_West~Reach 8BW-Out.hce Inflow=3.72 cfs 20,799 cf
Link Area= 157,153 sf 46.55% Imperv. Primary=3.72 cfs 20,799 cf

Subcatchment 10: Post DA 8B-10 Runoff Area=21,223 sf 58.09% Impervious Runoff Depth=4.22"
Tc=5.0 min CN=74/98 Runoff=2.26 cfs 7,459 cf

Pond 10-Bio: 10_Bioretention Peak Elev=692.57' Storage=4,118 cf Inflow=2.26 cfs 7,459 cf
Discarded=0.02 cfs 3,959 cf Primary=0.50 cfs 2,507 cf Outflow=0.51 cfs 6,466 cf

Subcatchment 11A: Post DA 8B-11A Runoff Area=32,946 sf 53.55% Impervious Runoff Depth=4.10"
Tc=5.0 min CN=74/98 Runoff=3.44 cfs 11,268 cf

Pond 11A-Bio: 11A_Bioretention Peak Elev=667.62' Storage=5,704 cf Inflow=3.44 cfs 11,268 cf
Discarded=0.03 cfs 5,581 cf Primary=1.06 cfs 4,548 cf Outflow=1.09 cfs 10,129 cf

Subcatchment 11B: Post DA 8B-11B Runoff Area=5,443 sf 94.86% Impervious Runoff Depth=5.13"
Tc=5.0 min CN=74/98 Runoff=0.68 cfs 2,329 cf

Pond 11B-P: 11B-Pavers Peak Elev=667.32' Storage=1,161 cf Inflow=0.68 cfs 2,329 cf
Discarded=0.03 cfs 2,329 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 2,329 cf

Reach SR-1: South Reach-1 Avg. Flow Depth=0.68' Max Vel=10.15 fps Inflow=12.27 cfs 78,739 cf
36.0" Round Pipe n=0.013 L=190.0' S=0.0263 '/' Capacity=108.20 cfs Outflow=12.27 cfs 78,739 cf

Total Runoff Area = 346,666 sf Runoff Volume = 104,016 cf Average Runoff Depth = 3.60"
56.01% Pervious = 194,165 sf 43.99% Impervious = 152,501 sf

Summary for Subcatchment 2A: Post DA 8B-2A

Runoff = 5.00 cfs @ 12.07 hrs, Volume= 16,513 cf, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

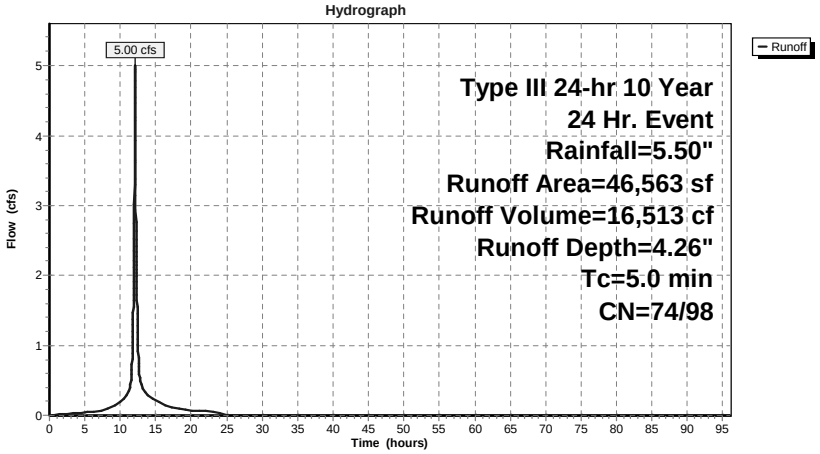
	Area (sf)	CN	Description	Land Use
	27,761	98	Paved parking, HSG C	Pavement
	3,136	74	>75% Grass cover, Good, HSG C	Open Space
*	15,666	74	Bioretention, HSG C	Landscaped
	46,563	88	Weighted Average	
	18,802	74	40.38% Pervious Area	
	27,761	98	59.62% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.62% Impervious, Rv= 0.587, Runoff= 26.81"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
15,666	Landscaped	0.00	0.00	0.00	0.00
3,136	Open Space	263.28	0.92	3.98	0.54
27,761	Pavement	669.77	2.17	8.13	25.94
46,563	Total	933.05	3.09	12.11	26.48

Subcatchment 2A: Post DA 8B-2A



Hydrograph for Subcatchment 2A: Post DA 8B-2A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.03
6.00	0.40	0.00	0.23	0.05
8.00	0.63	0.00	0.43	0.08
10.00	1.04	0.03	0.83	0.18
12.00	2.75	0.75	2.52	**3.30**
14.00	4.46	1.94	4.22	**0.27**
16.00	4.87	2.26	4.64	0.15
18.00	5.10	2.45	4.87	0.09
20.00	5.26	2.58	5.03	0.07
22.00	5.39	2.68	5.16	0.06
24.00	**5.50**	**2.77**	**5.26**	0.05
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00
74.00	5.50	2.77	5.26	0.00
76.00	5.50	2.77	5.26	0.00
78.00	5.50	2.77	5.26	0.00
80.00	5.50	2.77	5.26	0.00
82.00	5.50	2.77	5.26	0.00
84.00	5.50	2.77	5.26	0.00
86.00	5.50	2.77	5.26	0.00
88.00	5.50	2.77	5.26	0.00
90.00	5.50	2.77	5.26	0.00
92.00	5.50	2.77	5.26	0.00
94.00	5.50	2.77	5.26	0.00
96.00	5.50	2.77	5.26	0.00

Summary for Pond 2A-Bio: 2A_Bioretention

Inflow Area = 46,563 sf, 59.62% Impervious, Inflow Depth = 4.26" for 10 Year, 24 Hr. Event event
Inflow = 5.00 cfs @ 12.07 hrs, Volume= 16,513 cf
Outflow = 0.55 cfs @ 12.73 hrs, Volume= 15,403 cf, Atten= 89%, Lag= 39.6 min
Discarded = 0.04 cfs @ 12.40 hrs, Volume= 10,696 cf
Primary = 0.51 cfs @ 12.73 hrs, Volume= 4,707 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 674.07' @ 12.73 hrs Surf.Area= 7,066 sf Storage= 9,441 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,496.1 min (2,264.4 - 768.2)

Volume	Invert	Avail.Storage	Storage Description
#1	669.75'	12,461 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

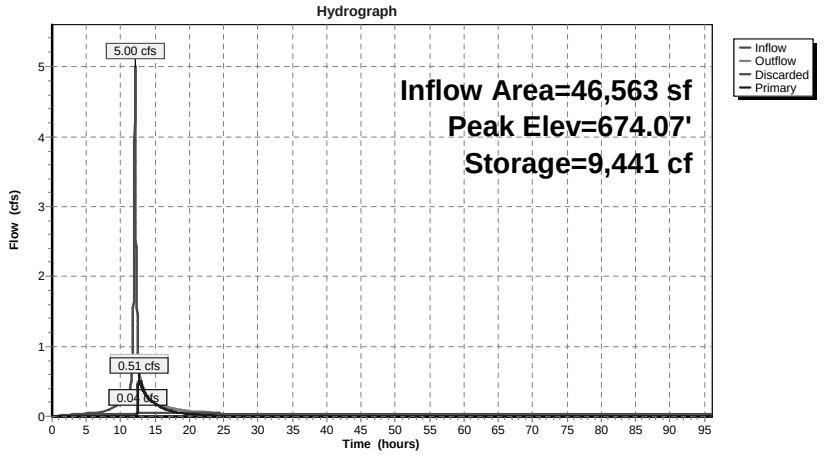
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
669.75	5,228	0.0	0	0
669.76	5,228	40.0	21	21
673.99	5,228	40.0	8,846	8,867
674.00	7,066	100.0	61	8,928
674.50	7,066	100.0	3,533	12,461

Device	Routing	Invert	Outlet Devices
#1	Discarded	669.75'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	674.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.04 cfs @ 12.40 hrs HW=674.00' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.51 cfs @ 12.73 hrs HW=674.07' TW=668.50' (Dynamic Tailwater)
└**2=Orifice/Grate** (Weir Controls 0.51 cfs @ 0.88 fps)

Pond 2A-Bio: 2A_Bioretention



Hydrograph for Pond 2A-Bio: 2A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	669.75	0.00	0.00	0.00
2.00	0.01	0	669.75	0.01	0.01	0.00
4.00	0.03	2	669.75	0.03	0.03	0.00
6.00	0.05	80	669.79	0.03	0.03	0.00
8.00	0.08	336	669.91	0.03	0.03	0.00
10.00	0.18	1,049	670.25	0.03	0.03	0.00
12.00	**3.30**	**4,740**	**672.02**	**0.03**	**0.03**	**0.00**
14.00	**0.27**	**9,255**	**674.05**	**0.30**	**0.04**	**0.26**
16.00	0.15	9,126	674.03	0.16	0.04	0.12
18.00	0.09	9,049	674.02	0.10	0.04	0.06
20.00	0.07	9,013	674.01	0.08	0.04	0.03
22.00	0.06	8,990	674.01	0.06	0.04	0.02
24.00	0.05	8,966	674.01	0.05	0.04	0.01
26.00	0.00	8,734	673.93	0.03	0.03	0.00
28.00	0.00	8,516	673.82	0.03	0.03	0.00
30.00	0.00	8,299	673.72	0.03	0.03	0.00
32.00	0.00	8,081	673.61	0.03	0.03	0.00
34.00	0.00	7,863	673.51	0.03	0.03	0.00
36.00	0.00	7,645	673.41	0.03	0.03	0.00
38.00	0.00	7,427	673.30	0.03	0.03	0.00
40.00	0.00	7,209	673.20	0.03	0.03	0.00
42.00	0.00	6,992	673.09	0.03	0.03	0.00
44.00	0.00	6,774	672.99	0.03	0.03	0.00
46.00	0.00	6,556	672.89	0.03	0.03	0.00
48.00	0.00	6,338	672.78	0.03	0.03	0.00
50.00	0.00	6,120	672.68	0.03	0.03	0.00
52.00	0.00	5,902	672.57	0.03	0.03	0.00
54.00	0.00	5,685	672.47	0.03	0.03	0.00
56.00	0.00	5,467	672.36	0.03	0.03	0.00
58.00	0.00	5,249	672.26	0.03	0.03	0.00
60.00	0.00	5,031	672.16	0.03	0.03	0.00
62.00	0.00	4,813	672.05	0.03	0.03	0.00
64.00	0.00	4,595	671.95	0.03	0.03	0.00
66.00	0.00	4,378	671.84	0.03	0.03	0.00
68.00	0.00	4,160	671.74	0.03	0.03	0.00
70.00	0.00	3,942	671.64	0.03	0.03	0.00
72.00	0.00	3,724	671.53	0.03	0.03	0.00
74.00	0.00	3,506	671.43	0.03	0.03	0.00
76.00	0.00	3,288	671.32	0.03	0.03	0.00
78.00	0.00	3,071	671.22	0.03	0.03	0.00
80.00	0.00	2,853	671.11	0.03	0.03	0.00
82.00	0.00	2,635	671.01	0.03	0.03	0.00
84.00	0.00	2,417	670.91	0.03	0.03	0.00
86.00	0.00	2,199	670.80	0.03	0.03	0.00
88.00	0.00	1,981	670.70	0.03	0.03	0.00
90.00	0.00	1,764	670.59	0.03	0.03	0.00
92.00	0.00	1,546	670.49	0.03	0.03	0.00
94.00	0.00	1,328	670.39	0.03	0.03	0.00
96.00	0.00	1,110	670.28	0.03	0.03	0.00

Summary for Subcatchment 2B: Post DA 8B-2B

Runoff = 6.83 cfs @ 12.07 hrs, Volume= 23,370 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

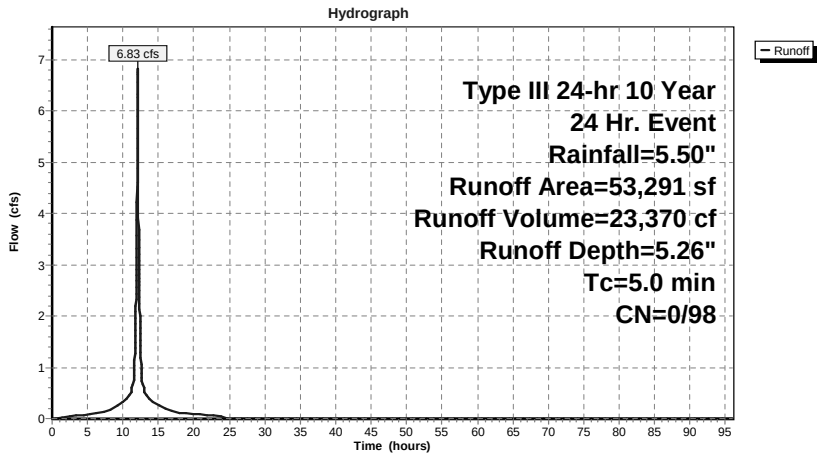
	Area (sf)	CN	Description	Land Use
	34,639	98	Roofs, HSG C	Roofs
*	18,652	98	Green Roof, HSG B	Landscaped
	53,291	98	Weighted Average	
	53,291	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
18,652	Landscaped	0.00	0.00	0.00	0.00
34,639	Roofs	148.65	0.86	11.74	57.89
53,291	Total	148.65	0.86	11.74	57.89

Subcatchment 2B: Post DA 8B-2B



Hydrograph for Subcatchment 2B: Post DA 8B-2B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.03
4.00	0.24	0.00	0.10	0.06
6.00	0.40	0.00	0.23	0.09
8.00	0.63	0.00	0.43	0.16
10.00	1.04	0.00	0.83	0.32
12.00	2.75	0.00	2.52	**4.62**
14.00	4.46	0.00	4.22	**0.34**
16.00	4.87	0.00	4.64	0.18
18.00	5.10	0.00	4.87	0.11
20.00	5.26	0.00	5.03	0.09
22.00	5.39	0.00	5.16	0.07
24.00	**5.50**	0.00	**5.26**	0.06
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00
74.00	5.50	0.00	5.26	0.00
76.00	5.50	0.00	5.26	0.00
78.00	5.50	0.00	5.26	0.00
80.00	5.50	0.00	5.26	0.00
82.00	5.50	0.00	5.26	0.00
84.00	5.50	0.00	5.26	0.00
86.00	5.50	0.00	5.26	0.00
88.00	5.50	0.00	5.26	0.00
90.00	5.50	0.00	5.26	0.00
92.00	5.50	0.00	5.26	0.00
94.00	5.50	0.00	5.26	0.00
96.00	5.50	0.00	5.26	0.00

Summary for Subcatchment 3: Post DA 8B-3

Runoff = 10.77 cfs @ 12.16 hrs, Volume= 43,076 cf, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

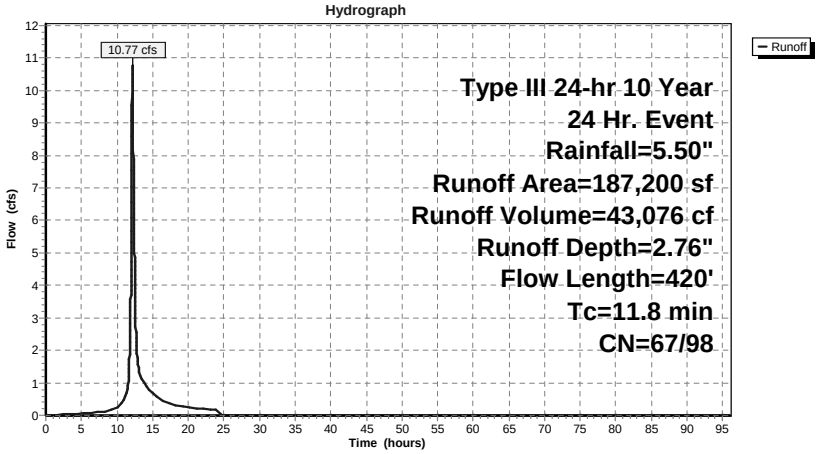
	Area (sf)	CN	Description	Land Use
	69,479	74	>75% Grass cover, Good, HSG C	Open Space
	72,736	61	>75% Grass cover, Good, HSG B	Open Space
	25,889	98	Paved parking, HSG C	Pavement
*	8,669	61	Bioretention, HSG B	Landscaped
	10,427	98	Roofs, HSG C	Roofs
	187,200	73	Weighted Average	
	150,884	67	80.60% Pervious Area	
	36,316	98	19.40% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	64	0.0312	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.4	36	0.2000	0.25		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	150	0.2057	3.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	170		5.00		**Direct Entry,**
11.8	420	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 19.40% Impervious, Rv= 0.225, Runoff= 10.26"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
8,669	Landscaped	0.00	0.00	0.00	0.00
142,215	Open Space	4,571.50	15.95	69.10	9.34
25,889	Pavement	239.15	0.77	2.90	9.26
10,427	Roofs	10.58	0.06	0.84	4.12
187,200	Total	4,821.23	16.78	72.84	22.72

Subcatchment 3: Post DA 8B-3



Hydrograph for Subcatchment 3: Post DA 8B-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.02
4.00	0.24	0.00	0.10	0.04
6.00	0.40	0.00	0.23	0.06
8.00	0.63	0.00	0.43	0.11
10.00	1.04	0.00	0.83	0.21
12.00	2.75	0.47	2.52	**4.74**
14.00	4.46	1.44	4.22	**0.91**
16.00	4.87	1.72	4.64	0.50
18.00	5.10	1.88	4.87	0.31
20.00	5.26	1.99	5.03	0.24
22.00	5.39	2.08	5.16	0.20
24.00	**5.50**	**2.16**	**5.26**	0.16
26.00	5.50	2.16	5.26	0.00
28.00	5.50	2.16	5.26	0.00
30.00	5.50	2.16	5.26	0.00
32.00	5.50	2.16	5.26	0.00
34.00	5.50	2.16	5.26	0.00
36.00	5.50	2.16	5.26	0.00
38.00	5.50	2.16	5.26	0.00
40.00	5.50	2.16	5.26	0.00
42.00	5.50	2.16	5.26	0.00
44.00	5.50	2.16	5.26	0.00
46.00	5.50	2.16	5.26	0.00
48.00	5.50	2.16	5.26	0.00
50.00	5.50	2.16	5.26	0.00
52.00	5.50	2.16	5.26	0.00
54.00	5.50	2.16	5.26	0.00
56.00	5.50	2.16	5.26	0.00
58.00	5.50	2.16	5.26	0.00
60.00	5.50	2.16	5.26	0.00
62.00	5.50	2.16	5.26	0.00
64.00	5.50	2.16	5.26	0.00
66.00	5.50	2.16	5.26	0.00
68.00	5.50	2.16	5.26	0.00
70.00	5.50	2.16	5.26	0.00
72.00	5.50	2.16	5.26	0.00
74.00	5.50	2.16	5.26	0.00
76.00	5.50	2.16	5.26	0.00
78.00	5.50	2.16	5.26	0.00
80.00	5.50	2.16	5.26	0.00
82.00	5.50	2.16	5.26	0.00
84.00	5.50	2.16	5.26	0.00
86.00	5.50	2.16	5.26	0.00
88.00	5.50	2.16	5.26	0.00
90.00	5.50	2.16	5.26	0.00
92.00	5.50	2.16	5.26	0.00
94.00	5.50	2.16	5.26	0.00
96.00	5.50	2.16	5.26	0.00

Summary for Pond 3-Bio: 3_Bioretention

Inflow Area = 187,200 sf, 19.40% Impervious, Inflow Depth = 2.76" for 10 Year, 24 Hr. Event event
Inflow = 10.77 cfs @ 12.16 hrs, Volume= 43,076 cf
Outflow = 6.27 cfs @ 12.37 hrs, Volume= 37,530 cf, Atten= 42%, Lag= 12.6 min
Discarded = 0.03 cfs @ 3.93 hrs, Volume= 10,173 cf
Primary = 6.24 cfs @ 12.37 hrs, Volume= 27,356 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 688.78' @ 12.37 hrs Surf.Area= 9,121 sf Storage= 15,793 cf

Plug-Flow detention time= 691.9 min calculated for 37,530 cf (87% of inflow)
Center-of-Mass det. time= 631.3 min (1,448.4 - 817.1)

Volume	Invert	Avail.Storage	Storage Description
#1	684.00'	22,330 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

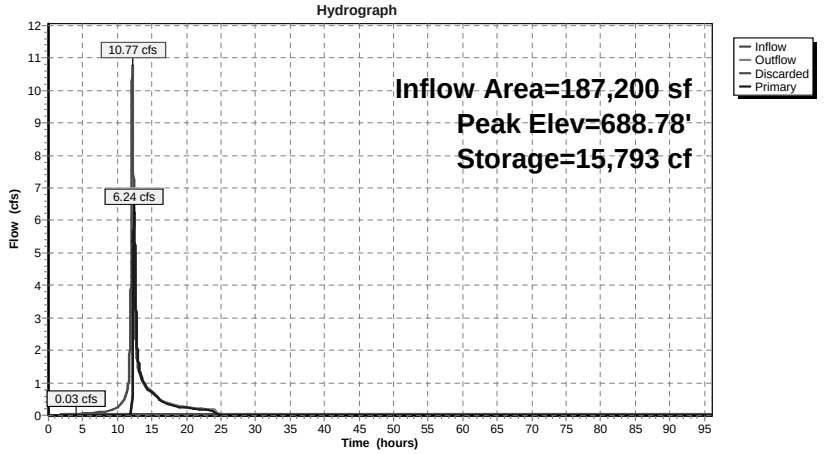
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
684.00	5,374	0.0	0	0	5,374
684.01	5,374	40.0	21	21	5,377
687.99	5,374	40.0	8,555	8,577	6,544
688.00	9,121	100.0	72	8,649	10,291
688.50	9,121	100.0	4,561	13,209	10,482
689.00	9,121	100.0	4,561	17,770	10,673
689.50	9,121	100.0	4,561	22,330	10,864

Device	Routing	Invert	Outlet Devices
#1	Discarded	684.00'	**0.03 cfs Exfiltration at all elevations**
#2	Primary	688.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 36.00 columns** X 36 rows C= 0.600 in 38.0" x 38.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 3.93 hrs HW=684.01' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=6.24 cfs @ 12.37 hrs HW=688.78' TW=668.68' (Dynamic Tailwater)
└**2=Orifice/Grate** (Weir Controls 6.24 cfs @ 1.74 fps)

Pond 3-Bio: 3_Bioretention



Hydrograph for Pond 3-Bio: 3_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	684.00	0.00	0.00	0.00
2.00	0.02	0	684.00	0.02	**0.02**	0.00
4.00	0.04	25	684.01	0.03	**0.03**	0.00
6.00	0.06	188	684.09	0.03	0.03	0.00
8.00	0.11	575	684.27	0.03	0.03	0.00
10.00	0.21	1,485	684.69	0.03	0.03	0.00
12.00	**4.74**	**7,286**	**687.39**	**0.03**	0.03	**0.00**
14.00	**0.91**	**13,940**	**688.58**	**0.97**	0.03	**0.94**
16.00	0.50	13,692	688.55	0.53	0.03	0.50
18.00	0.31	13,546	688.54	0.32	0.03	0.29
20.00	0.24	13,486	688.53	0.25	0.03	0.22
22.00	0.20	13,449	688.53	0.21	0.03	0.18
24.00	0.16	13,412	688.52	0.17	0.03	0.14
26.00	0.00	13,107	688.49	0.03	0.03	0.00
28.00	0.00	12,891	688.47	0.03	0.03	0.00
30.00	0.00	12,675	688.44	0.03	0.03	0.00
32.00	0.00	12,459	688.42	0.03	0.03	0.00
34.00	0.00	12,243	688.39	0.03	0.03	0.00
36.00	0.00	12,027	688.37	0.03	0.03	0.00
38.00	0.00	11,811	688.35	0.03	0.03	0.00
40.00	0.00	11,595	688.32	0.03	0.03	0.00
42.00	0.00	11,379	688.30	0.03	0.03	0.00
44.00	0.00	11,163	688.28	0.03	0.03	0.00
46.00	0.00	10,947	688.25	0.03	0.03	0.00
48.00	0.00	10,731	688.23	0.03	0.03	0.00
50.00	0.00	10,515	688.20	0.03	0.03	0.00
52.00	0.00	10,299	688.18	0.03	0.03	0.00
54.00	0.00	10,083	688.16	0.03	0.03	0.00
56.00	0.00	9,867	688.13	0.03	0.03	0.00
58.00	0.00	9,651	688.11	0.03	0.03	0.00
60.00	0.00	9,435	688.09	0.03	0.03	0.00
62.00	0.00	9,219	688.06	0.03	0.03	0.00
64.00	0.00	9,003	688.04	0.03	0.03	0.00
66.00	0.00	8,787	688.02	0.03	0.03	0.00
68.00	0.00	8,571	687.99	0.03	0.03	0.00
70.00	0.00	8,355	687.89	0.03	0.03	0.00
72.00	0.00	8,139	687.79	0.03	0.03	0.00
74.00	0.00	7,923	687.69	0.03	0.03	0.00
76.00	0.00	7,707	687.59	0.03	0.03	0.00
78.00	0.00	7,491	687.48	0.03	0.03	0.00
80.00	0.00	7,275	687.38	0.03	0.03	0.00
82.00	0.00	7,059	687.28	0.03	0.03	0.00
84.00	0.00	6,843	687.18	0.03	0.03	0.00
86.00	0.00	6,627	687.08	0.03	0.03	0.00
88.00	0.00	6,411	686.98	0.03	0.03	0.00
90.00	0.00	6,195	686.88	0.03	0.03	0.00
92.00	0.00	5,979	686.78	0.03	0.03	0.00
94.00	0.00	5,763	686.68	0.03	0.03	0.00
96.00	0.00	5,547	686.58	0.03	0.03	0.00

Summary for Reach 8B-S: DA-8B South Outflow

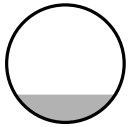
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach SR-1 OUTLET depth by 0.03' @ 12.40 hrs

Inflow Area = 503,819 sf, 44.79% Impervious, Inflow Depth = 1.98" for 10 Year, 24 Hr. Event event
Inflow = 13.33 cfs @ 12.38 hrs, Volume= 83,287 cf
Outflow = 13.33 cfs @ 12.38 hrs, Volume= 83,287 cf, Atten= 0%, Lag= 0.2 min

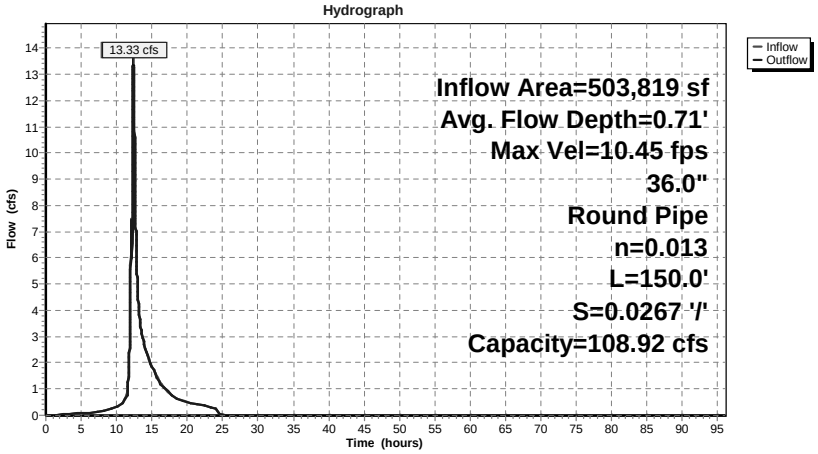
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 10.45 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.58 fps, Avg. Travel Time= 0.7 min

Peak Storage= 191 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.71'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 108.92 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 150.0' Slope= 0.0267 '/'
Inlet Invert= 663.00', Outlet Invert= 659.00'



Reach 8B-S: DA-8B South Outflow



Hydrograph for Reach 8B-S: DA-8B South Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	663.00	0.00
2.00	0.03	2	663.04	0.03
4.00	0.06	5	663.06	0.06
6.00	0.09	6	663.07	0.09
8.00	0.16	9	663.09	0.16
10.00	0.32	14	663.12	0.32
12.00	**4.81**	**91**	**663.42**	**4.65**
14.00	**2.60**	**61**	**663.32**	**2.60**
16.00	1.31	38	663.23	1.32
18.00	0.72	25	663.17	0.72
20.00	0.50	19	663.15	0.50
22.00	0.38	16	663.13	0.38
24.00	0.27	13	663.11	0.27
26.00	0.00	0	663.00	0.00
28.00	0.00	0	663.00	0.00
30.00	0.00	0	663.00	0.00
32.00	0.00	0	663.00	0.00
34.00	0.00	0	663.00	0.00
36.00	0.00	0	663.00	0.00
38.00	0.00	0	663.00	0.00
40.00	0.00	0	663.00	0.00
42.00	0.00	0	663.00	0.00
44.00	0.00	0	663.00	0.00
46.00	0.00	0	663.00	0.00
48.00	0.00	0	663.00	0.00
50.00	0.00	0	663.00	0.00
52.00	0.00	0	663.00	0.00
54.00	0.00	0	663.00	0.00
56.00	0.00	0	663.00	0.00
58.00	0.00	0	663.00	0.00
60.00	0.00	0	663.00	0.00
62.00	0.00	0	663.00	0.00
64.00	0.00	0	663.00	0.00
66.00	0.00	0	663.00	0.00
68.00	0.00	0	663.00	0.00
70.00	0.00	0	663.00	0.00
72.00	0.00	0	663.00	0.00
74.00	0.00	0	663.00	0.00
76.00	0.00	0	663.00	0.00
78.00	0.00	0	663.00	0.00
80.00	0.00	0	663.00	0.00
82.00	0.00	0	663.00	0.00
84.00	0.00	0	663.00	0.00
86.00	0.00	0	663.00	0.00
88.00	0.00	0	663.00	0.00
90.00	0.00	0	663.00	0.00
92.00	0.00	0	663.00	0.00
94.00	0.00	0	663.00	0.00
96.00	0.00	0	663.00	0.00

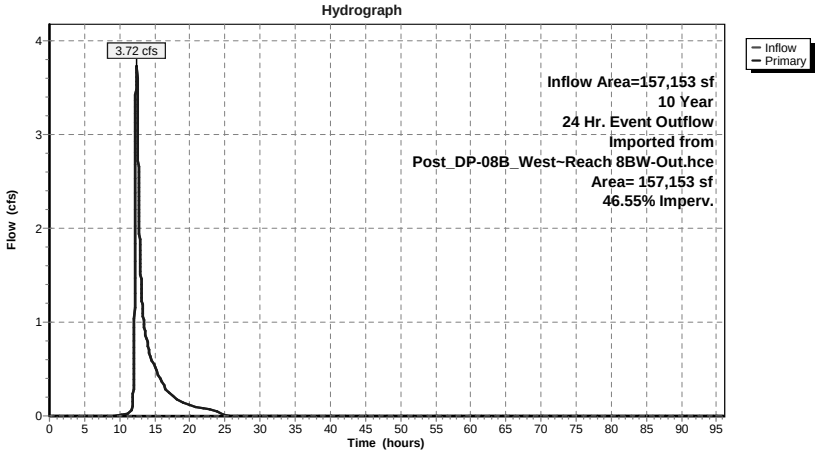
Summary for Link 8B-W: DA-8B West Inflow

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 1.59" for 10 Year, 24 Hr. Event event
Inflow = 3.72 cfs @ 12.42 hrs, Volume= 20,799 cf
Primary = 3.72 cfs @ 12.42 hrs, Volume= 20,799 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

10 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_West~Reach 8BW-Out.hce

Link 8B-W: DA-8B West Inflow



Hydrograph for Link 8B-W: DA-8B West Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.01	0.00	0.01	62.00	0.00	0.00	0.00
11.00	0.01	0.00	0.01	63.00	0.00	0.00	0.00
12.00	**0.40**	0.00	**0.40**	64.00	0.00	0.00	0.00
13.00	**1.51**	0.00	**1.51**	65.00	0.00	0.00	0.00
14.00	0.75	0.00	0.75	66.00	0.00	0.00	0.00
15.00	0.52	0.00	0.52	67.00	0.00	0.00	0.00
16.00	0.36	0.00	0.36	68.00	0.00	0.00	0.00
17.00	0.25	0.00	0.25	69.00	0.00	0.00	0.00
18.00	0.18	0.00	0.18	70.00	0.00	0.00	0.00
19.00	0.14	0.00	0.14	71.00	0.00	0.00	0.00
20.00	0.12	0.00	0.12	72.00	0.00	0.00	0.00
21.00	0.10	0.00	0.10	73.00	0.00	0.00	0.00
22.00	0.08	0.00	0.08	74.00	0.00	0.00	0.00
23.00	0.07	0.00	0.07	75.00	0.00	0.00	0.00
24.00	0.05	0.00	0.05	76.00	0.00	0.00	0.00
25.00	0.01	0.00	0.01	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 10: Post DA 8B-10

Runoff = 2.26 cfs @ 12.07 hrs, Volume= 7,459 cf, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

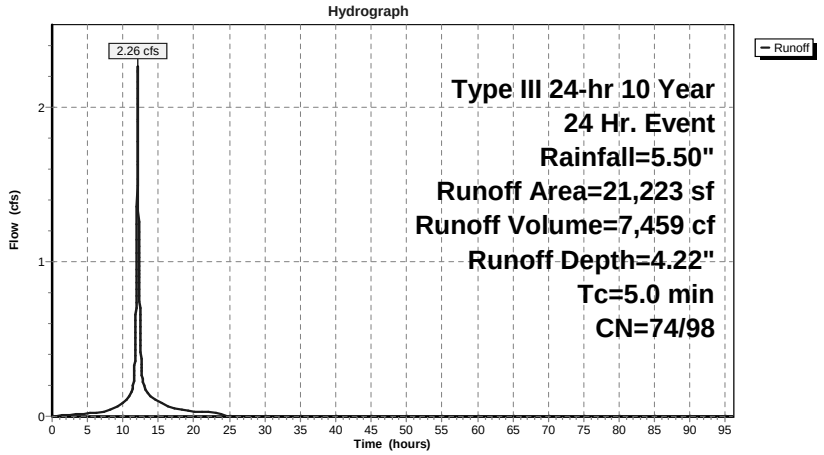
	Area (sf)	CN	Description	Land Use
	12,329	98	Unconnected pavement, HSG C	Pavement
	7,873	74	>75% Grass cover, Good, HSG C	Open Space
*	1,021	74	Bioretention, HSG C	Landscaped
	21,223	88	Weighted Average	
	8,894	74	41.91% Pervious Area	
	12,329	98	58.09% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 58.09% Impervious, Rv= 0.573, Runoff= 26.18"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,021	Landscaped	0.00	0.00	0.00	0.00
7,873	Open Space	645.47	2.25	9.76	1.32
12,329	Pavement	290.48	0.94	3.53	11.25
21,223	Total	935.96	3.19	13.28	12.57

Subcatchment 10: Post DA 8B-10



Hydrograph for Subcatchment 10: Post DA 8B-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.02
8.00	0.63	0.00	0.43	0.04
10.00	1.04	0.03	0.83	0.08
12.00	2.75	0.75	2.52	**1.49**
14.00	4.46	1.94	4.22	**0.12**
16.00	4.87	2.26	4.64	0.07
18.00	5.10	2.45	4.87	0.04
20.00	5.26	2.58	5.03	0.03
22.00	5.39	2.68	5.16	0.03
24.00	**5.50**	**2.77**	**5.26**	0.02
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00
74.00	5.50	2.77	5.26	0.00
76.00	5.50	2.77	5.26	0.00
78.00	5.50	2.77	5.26	0.00
80.00	5.50	2.77	5.26	0.00
82.00	5.50	2.77	5.26	0.00
84.00	5.50	2.77	5.26	0.00
86.00	5.50	2.77	5.26	0.00
88.00	5.50	2.77	5.26	0.00
90.00	5.50	2.77	5.26	0.00
92.00	5.50	2.77	5.26	0.00
94.00	5.50	2.77	5.26	0.00
96.00	5.50	2.77	5.26	0.00

Summary for Pond 10-Bio: 10_Bioretention

Inflow Area = 21,223 sf, 58.09% Impervious, Inflow Depth = 4.22" for 10 Year, 24 Hr. Event event
Inflow = 2.26 cfs @ 12.07 hrs, Volume= 7,459 cf
Outflow = 0.51 cfs @ 12.47 hrs, Volume= 6,466 cf, Atten= 77%, Lag= 23.8 min
Discarded = 0.02 cfs @ 12.06 hrs, Volume= 3,959 cf
Primary = 0.50 cfs @ 12.47 hrs, Volume= 2,507 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 692.57' @ 12.47 hrs Surf.Area= 2,629 sf Storage= 4,118 cf

Plug-Flow detention time= 1,300.5 min calculated for 6,466 cf (87% of inflow)
Center-of-Mass det. time= 1,239.2 min (2,008.5 - 769.3)

Volume	Invert	Avail.Storage	Storage Description
#1	688.00'	5,245 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

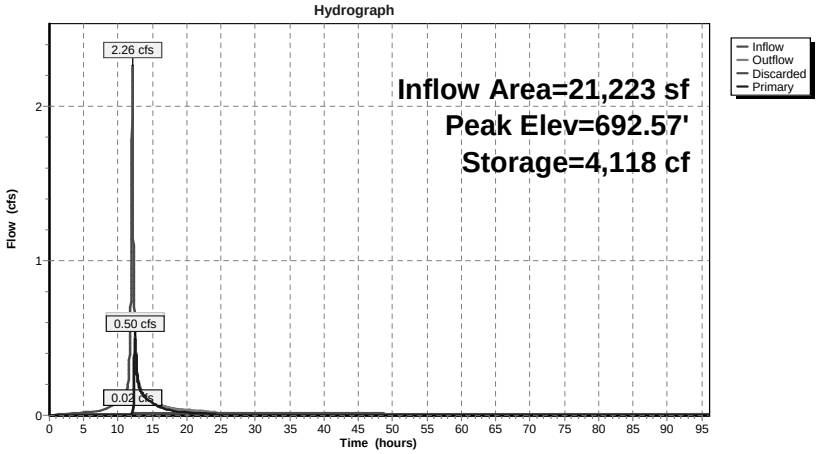
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
688.00	1,626	0.0	0	0
688.01	1,626	40.0	7	7
691.99	1,626	40.0	2,589	2,595
692.00	2,629	100.0	21	2,616
692.50	2,629	100.0	1,315	3,931
693.00	2,629	100.0	1,315	5,245

Device	Routing	Invert	Outlet Devices
#1	Discarded	688.00'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	692.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 12.06 hrs HW=692.02' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.50 cfs @ 12.47 hrs HW=692.57' TW=668.66' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.50 cfs @ 0.87 fps)

Pond 10-Bio: 10_Bioretention



Hydrograph for Pond 10-Bio: 10_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	688.00	0.00	0.00	0.00
2.00	0.01	0	688.00	0.01	0.01	0.00
4.00	0.01	14	688.02	0.01	0.01	0.00
6.00	0.02	77	688.12	0.01	0.01	0.00
8.00	0.04	220	688.34	0.01	0.01	0.00
10.00	0.08	567	688.87	0.01	0.01	0.00
12.00	**1.49**	**2,258**	**691.47**	**0.01**	**0.01**	**0.00**
14.00	**0.12**	**4,001**	**692.53**	**0.13**	**0.02**	**0.11**
16.00	0.07	3,974	692.52	0.07	0.02	0.05
18.00	0.04	3,958	692.51	0.04	0.02	0.03
20.00	0.03	3,951	692.51	0.03	0.02	0.02
22.00	0.03	3,947	692.51	0.03	0.02	0.01
24.00	0.02	3,942	692.50	0.02	0.02	0.01
26.00	0.00	3,835	692.46	0.02	0.02	0.00
28.00	0.00	3,725	692.42	0.02	0.02	0.00
30.00	0.00	3,616	692.38	0.02	0.02	0.00
32.00	0.00	3,506	692.34	0.02	0.02	0.00
34.00	0.00	3,397	692.30	0.02	0.02	0.00
36.00	0.00	3,287	692.26	0.02	0.02	0.00
38.00	0.00	3,178	692.21	0.02	0.02	0.00
40.00	0.00	3,068	692.17	0.02	0.02	0.00
42.00	0.00	2,959	692.13	0.02	0.02	0.00
44.00	0.00	2,849	692.09	0.02	0.02	0.00
46.00	0.00	2,739	692.05	0.02	0.02	0.00
48.00	0.00	2,630	692.01	0.02	0.02	0.00
50.00	0.00	2,552	691.92	0.01	0.01	0.00
52.00	0.00	2,484	691.82	0.01	0.01	0.00
54.00	0.00	2,416	691.72	0.01	0.01	0.00
56.00	0.00	2,349	691.61	0.01	0.01	0.00
58.00	0.00	2,281	691.51	0.01	0.01	0.00
60.00	0.00	2,213	691.40	0.01	0.01	0.00
62.00	0.00	2,145	691.30	0.01	0.01	0.00
64.00	0.00	2,078	691.19	0.01	0.01	0.00
66.00	0.00	2,010	691.09	0.01	0.01	0.00
68.00	0.00	1,942	690.99	0.01	0.01	0.00
70.00	0.00	1,874	690.88	0.01	0.01	0.00
72.00	0.00	1,807	690.78	0.01	0.01	0.00
74.00	0.00	1,739	690.67	0.01	0.01	0.00
76.00	0.00	1,671	690.57	0.01	0.01	0.00
78.00	0.00	1,603	690.47	0.01	0.01	0.00
80.00	0.00	1,536	690.36	0.01	0.01	0.00
82.00	0.00	1,468	690.26	0.01	0.01	0.00
84.00	0.00	1,400	690.15	0.01	0.01	0.00
86.00	0.00	1,332	690.05	0.01	0.01	0.00
88.00	0.00	1,265	689.94	0.01	0.01	0.00
90.00	0.00	1,197	689.84	0.01	0.01	0.00
92.00	0.00	1,129	689.74	0.01	0.01	0.00
94.00	0.00	1,061	689.63	0.01	0.01	0.00
96.00	0.00	994	689.53	0.01	0.01	0.00

Summary for Subcatchment 11A: Post DA 8B-11A

Runoff = 3.44 cfs @ 12.07 hrs, Volume= 11,268 cf, Depth= 4.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

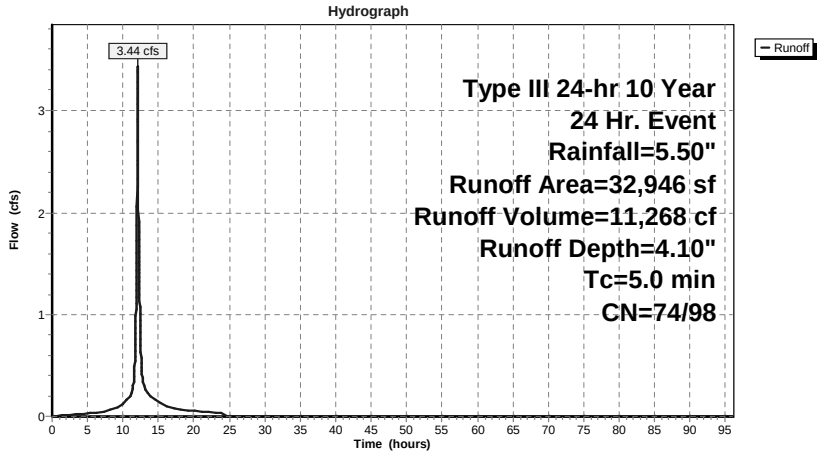
	Area (sf)	CN	Description	Land Use
	17,641	98	Unconnected pavement, HSG C	Pavement
	12,226	74	>75% Grass cover, Good, HSG C	Open Space
*	3,079	74	Bioretention, HSG C	Landscaped
	32,946	87	Weighted Average	
	15,305	74	46.45% Pervious Area	
	17,641	98	53.55% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 53.55% Impervious, Rv= 0.532, Runoff= 24.31"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,079	Landscaped	0.00	0.00	0.00	0.00
12,226	Open Space	930.74	3.25	14.07	1.90
17,641	Pavement	385.94	1.25	4.68	14.95
32,946	Total	1,316.68	4.50	18.75	16.85

Subcatchment 11A: Post DA 8B-11A



Hydrograph for Subcatchment 11A: Post DA 8B-11A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.02
6.00	0.40	0.00	0.23	0.03
8.00	0.63	0.00	0.43	0.05
10.00	1.04	0.03	0.83	0.12
12.00	2.75	0.75	2.52	**2.26**
14.00	4.46	1.94	4.22	**0.19**
16.00	4.87	2.26	4.64	0.10
18.00	5.10	2.45	4.87	0.06
20.00	5.26	2.58	5.03	0.05
22.00	5.39	2.68	5.16	0.04
24.00	**5.50**	**2.77**	**5.26**	0.03
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00
74.00	5.50	2.77	5.26	0.00
76.00	5.50	2.77	5.26	0.00
78.00	5.50	2.77	5.26	0.00
80.00	5.50	2.77	5.26	0.00
82.00	5.50	2.77	5.26	0.00
84.00	5.50	2.77	5.26	0.00
86.00	5.50	2.77	5.26	0.00
88.00	5.50	2.77	5.26	0.00
90.00	5.50	2.77	5.26	0.00
92.00	5.50	2.77	5.26	0.00
94.00	5.50	2.77	5.26	0.00
96.00	5.50	2.77	5.26	0.00

Summary for Pond 11A-Bio: 11A_Bioretention

Inflow Area = 32,946 sf, 53.55% Impervious, Inflow Depth = 4.10" for 10 Year, 24 Hr. Event event
Inflow = 3.44 cfs @ 12.07 hrs, Volume= 11,268 cf
Outflow = 1.09 cfs @ 12.37 hrs, Volume= 10,129 cf, Atten= 68%, Lag= 17.8 min
Discarded = 0.03 cfs @ 11.93 hrs, Volume= 5,581 cf
Primary = 1.06 cfs @ 12.37 hrs, Volume= 4,548 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 667.62' @ 12.37 hrs Surf.Area= 4,369 sf Storage= 5,704 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,017.8 min (1,790.4 - 772.6)

Volume	Invert	Avail.Storage	Storage Description
#1	663.00'	7,372 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

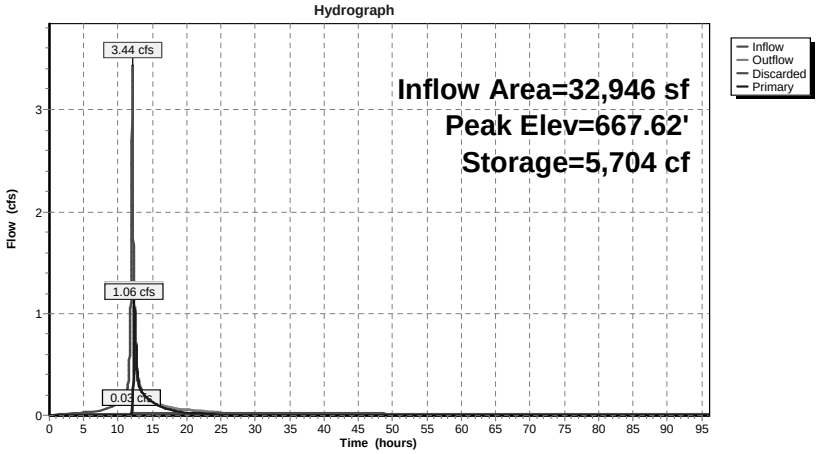
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
663.00	1,862	0.0	0	0
663.01	1,862	40.0	7	7
666.99	1,862	40.0	2,964	2,972
667.00	4,369	100.0	31	3,003
667.50	4,369	100.0	2,185	5,187
668.00	4,369	100.0	2,185	7,372

Device	Routing	Invert	Outlet Devices
#1	Discarded	663.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	667.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 11.93 hrs HW=667.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=1.06 cfs @ 12.37 hrs HW=667.62' TW=663.71' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 1.06 cfs @ 1.12 fps)

Pond 11A-Bio: 11A_Bioretention



Hydrograph for Pond 11A-Bio: 11A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	663.00	0.00	0.00	0.00
2.00	0.01	0	663.00	0.01	0.01	0.00
4.00	0.02	35	663.05	0.01	0.01	0.00
6.00	0.03	145	663.20	0.01	0.01	0.00
8.00	0.05	369	663.50	0.01	0.01	0.00
10.00	0.12	890	664.20	0.01	**0.01**	0.00
12.00	**2.26**	**3,437**	**667.10**	**0.03**	**0.03**	**0.00**
14.00	**0.19**	**5,345**	**667.54**	**0.20**	0.03	**0.18**
16.00	0.10	5,283	667.52	0.11	0.03	0.09
18.00	0.06	5,247	667.51	0.07	0.03	0.04
20.00	0.05	5,232	667.51	0.05	0.03	0.03
22.00	0.04	5,221	667.51	0.04	0.03	0.02
24.00	0.03	5,210	667.51	0.03	0.03	0.01
26.00	0.00	5,032	667.46	0.03	0.03	0.00
28.00	0.00	4,850	667.42	0.03	0.03	0.00
30.00	0.00	4,668	667.38	0.03	0.03	0.00
32.00	0.00	4,486	667.34	0.03	0.03	0.00
34.00	0.00	4,303	667.30	0.03	0.03	0.00
36.00	0.00	4,121	667.26	0.03	0.03	0.00
38.00	0.00	3,939	667.21	0.03	0.03	0.00
40.00	0.00	3,757	667.17	0.03	0.03	0.00
42.00	0.00	3,575	667.13	0.03	0.03	0.00
44.00	0.00	3,393	667.09	0.03	0.03	0.00
46.00	0.00	3,211	667.05	0.03	0.03	0.00
48.00	0.00	3,029	667.01	0.03	0.03	0.00
50.00	0.00	2,924	666.93	0.01	0.01	0.00
52.00	0.00	2,846	666.82	0.01	0.01	0.00
54.00	0.00	2,769	666.72	0.01	0.01	0.00
56.00	0.00	2,691	666.61	0.01	0.01	0.00
58.00	0.00	2,614	666.51	0.01	0.01	0.00
60.00	0.00	2,536	666.41	0.01	0.01	0.00
62.00	0.00	2,458	666.30	0.01	0.01	0.00
64.00	0.00	2,381	666.20	0.01	0.01	0.00
66.00	0.00	2,303	666.09	0.01	0.01	0.00
68.00	0.00	2,226	665.99	0.01	0.01	0.00
70.00	0.00	2,148	665.88	0.01	0.01	0.00
72.00	0.00	2,071	665.78	0.01	0.01	0.00
74.00	0.00	1,993	665.68	0.01	0.01	0.00
76.00	0.00	1,915	665.57	0.01	0.01	0.00
78.00	0.00	1,838	665.47	0.01	0.01	0.00
80.00	0.00	1,760	665.36	0.01	0.01	0.00
82.00	0.00	1,683	665.26	0.01	0.01	0.00
84.00	0.00	1,605	665.16	0.01	0.01	0.00
86.00	0.00	1,527	665.05	0.01	0.01	0.00
88.00	0.00	1,450	664.95	0.01	0.01	0.00
90.00	0.00	1,372	664.84	0.01	0.01	0.00
92.00	0.00	1,295	664.74	0.01	0.01	0.00
94.00	0.00	1,217	664.63	0.01	0.01	0.00
96.00	0.00	1,140	664.53	0.01	0.01	0.00

Summary for Subcatchment 11B: Post DA 8B-11B

Runoff = 0.68 cfs @ 12.07 hrs, Volume= 2,329 cf, Depth= 5.13"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

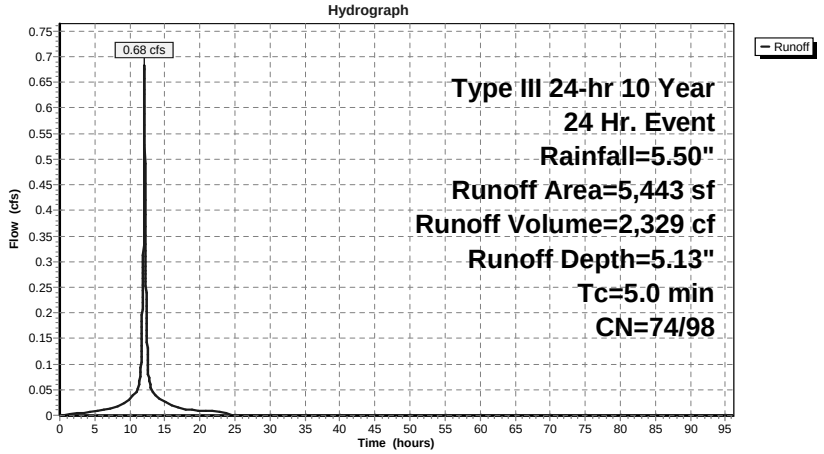
	Area (sf)	CN	Description	Land Use
	753	98	Unconnected pavement, HSG C	Pavement
	280	74	>75% Grass cover, Good, HSG C	Open Space
*	4,410	98	Pavers, HSG C	Pavement
	5,443	97	Weighted Average	
	280	74	5.14% Pervious Area	
	5,163	98	94.86% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 94.86% Impervious, Rv= 0.904, Runoff= 41.30"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
280	Open Space	36.22	0.13	0.55	0.07
5,163	Pavement	191.91	0.62	2.33	7.43
5,443	Total	228.12	0.75	2.88	7.51

Subcatchment 11B: Post DA 8B-11B



Hydrograph for Subcatchment 11B: Post DA 8B-11B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.02
10.00	1.04	0.03	0.83	0.03
12.00	2.75	0.75	2.52	**0.46**
14.00	4.46	1.94	4.22	**0.03**
16.00	4.87	2.26	4.64	0.02
18.00	5.10	2.45	4.87	0.01
20.00	5.26	2.58	5.03	0.01
22.00	5.39	2.68	5.16	0.01
24.00	**5.50**	**2.77**	**5.26**	0.01
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00
74.00	5.50	2.77	5.26	0.00
76.00	5.50	2.77	5.26	0.00
78.00	5.50	2.77	5.26	0.00
80.00	5.50	2.77	5.26	0.00
82.00	5.50	2.77	5.26	0.00
84.00	5.50	2.77	5.26	0.00
86.00	5.50	2.77	5.26	0.00
88.00	5.50	2.77	5.26	0.00
90.00	5.50	2.77	5.26	0.00
92.00	5.50	2.77	5.26	0.00
94.00	5.50	2.77	5.26	0.00
96.00	5.50	2.77	5.26	0.00

Summary for Pond 11B-P: 11B-Pavers

Inflow Area = 5,443 sf, 94.86% Impervious, Inflow Depth = 5.13" for 10 Year, 24 Hr. Event event
Inflow = 0.68 cfs @ 12.07 hrs, Volume= 2,329 cf
Outflow = 0.03 cfs @ 10.58 hrs, Volume= 2,329 cf, Atten= 96%, Lag= 0.0 min
Discarded = 0.03 cfs @ 10.58 hrs, Volume= 2,329 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 667.32' @ 15.09 hrs Surf.Area= 4,410 sf Storage= 1,161 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 380.9 min (1,128.8 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1	666.00'	6,174 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

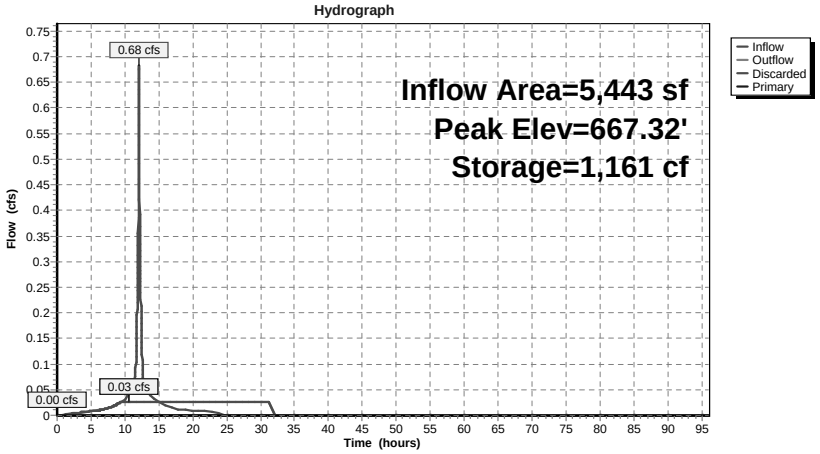
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
666.00	4,410	0.0	0	0
668.00	4,410	20.0	1,764	1,764
669.00	4,410	100.0	4,410	6,174

Device	Routing	Invert	Outlet Devices
#1	Discarded	666.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	668.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 10.58 hrs HW=666.03' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=666.00' TW=663.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 11B-P: 11B-Pavers



Hydrograph for Pond 11B-P: 11B-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	666.00	0.00	0.00	**0.00**
2.00	0.00	0	666.00	0.00	0.00	0.00
4.00	0.01	0	666.00	0.01	0.01	0.00
6.00	0.01	0	666.00	0.01	0.01	0.00
8.00	0.02	0	666.00	0.02	0.02	0.00
10.00	0.03	7	666.01	**0.03**	**0.03**	0.00
12.00	**0.46**	412	666.47	**0.03**	**0.03**	0.00
14.00	**0.03**	**1,144**	**667.30**	0.03	0.03	0.00
16.00	0.02	**1,149**	**667.30**	0.03	0.03	0.00
18.00	0.01	1,071	667.21	0.03	0.03	0.00
20.00	0.01	959	667.09	0.03	0.03	0.00
22.00	0.01	835	666.95	0.03	0.03	0.00
24.00	0.01	699	666.79	0.03	0.03	0.00
26.00	0.00	517	666.59	0.03	0.03	0.00
28.00	0.00	333	666.38	0.03	0.03	0.00
30.00	0.00	149	666.17	0.03	0.03	0.00
32.00	0.00	0	666.00	0.00	0.00	0.00
34.00	0.00	0	666.00	0.00	0.00	0.00
36.00	0.00	0	666.00	0.00	0.00	0.00
38.00	0.00	0	666.00	0.00	0.00	0.00
40.00	0.00	0	666.00	0.00	0.00	0.00
42.00	0.00	0	666.00	0.00	0.00	0.00
44.00	0.00	0	666.00	0.00	0.00	0.00
46.00	0.00	0	666.00	0.00	0.00	0.00
48.00	0.00	0	666.00	0.00	0.00	0.00
50.00	0.00	0	666.00	0.00	0.00	0.00
52.00	0.00	0	666.00	0.00	0.00	0.00
54.00	0.00	0	666.00	0.00	0.00	0.00
56.00	0.00	0	666.00	0.00	0.00	0.00
58.00	0.00	0	666.00	0.00	0.00	0.00
60.00	0.00	0	666.00	0.00	0.00	0.00
62.00	0.00	0	666.00	0.00	0.00	0.00
64.00	0.00	0	666.00	0.00	0.00	0.00
66.00	0.00	0	666.00	0.00	0.00	0.00
68.00	0.00	0	666.00	0.00	0.00	0.00
70.00	0.00	0	666.00	0.00	0.00	0.00
72.00	0.00	0	666.00	0.00	0.00	0.00
74.00	0.00	0	666.00	0.00	0.00	0.00
76.00	0.00	0	666.00	0.00	0.00	0.00
78.00	0.00	0	666.00	0.00	0.00	0.00
80.00	0.00	0	666.00	0.00	0.00	0.00
82.00	0.00	0	666.00	0.00	0.00	0.00
84.00	0.00	0	666.00	0.00	0.00	0.00
86.00	0.00	0	666.00	0.00	0.00	0.00
88.00	0.00	0	666.00	0.00	0.00	0.00
90.00	0.00	0	666.00	0.00	0.00	0.00
92.00	0.00	0	666.00	0.00	0.00	0.00
94.00	0.00	0	666.00	0.00	0.00	0.00
96.00	0.00	0	666.00	0.00	0.00	0.00

Summary for Reach SR-1: South Reach-1

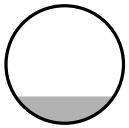
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 465,430 sf, 43.59% Impervious, Inflow Depth = 2.03" for 10 Year, 24 Hr. Event event
Inflow = 12.27 cfs @ 12.37 hrs, Volume= 78,739 cf
Outflow = 12.27 cfs @ 12.38 hrs, Volume= 78,739 cf, Atten= 0%, Lag= 0.2 min

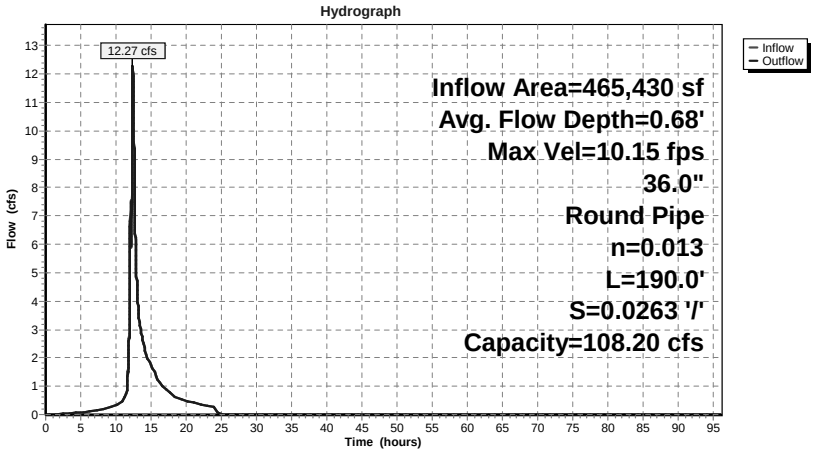
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 10.15 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.52 fps, Avg. Travel Time= 0.9 min

Peak Storage= 230 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.68'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 108.20 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 190.0' Slope= 0.0263 '/'
Inlet Invert= 668.00', Outlet Invert= 663.00'



Reach SR-1: South Reach-1



Hydrograph for Reach SR-1: South Reach-1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	668.00	0.00
2.00	0.03	3	668.04	0.03
4.00	0.07	6	668.06	0.06
6.00	0.10	8	668.07	0.09
8.00	0.17	11	668.09	0.16
10.00	0.32	18	668.12	0.32
12.00	**5.01**	**119**	**668.43**	**4.81**
14.00	**2.41**	**73**	**668.31**	**2.42**
16.00	1.22	46	668.22	1.23
18.00	0.67	30	668.17	0.68
20.00	0.48	24	668.14	0.48
22.00	0.37	20	668.13	0.37
24.00	0.26	16	668.11	0.26
26.00	0.00	0	668.00	0.00
28.00	0.00	0	668.00	0.00
30.00	0.00	0	668.00	0.00
32.00	0.00	0	668.00	0.00
34.00	0.00	0	668.00	0.00
36.00	0.00	0	668.00	0.00
38.00	0.00	0	668.00	0.00
40.00	0.00	0	668.00	0.00
42.00	0.00	0	668.00	0.00
44.00	0.00	0	668.00	0.00
46.00	0.00	0	668.00	0.00
48.00	0.00	0	668.00	0.00
50.00	0.00	0	668.00	0.00
52.00	0.00	0	668.00	0.00
54.00	0.00	0	668.00	0.00
56.00	0.00	0	668.00	0.00
58.00	0.00	0	668.00	0.00
60.00	0.00	0	668.00	0.00
62.00	0.00	0	668.00	0.00
64.00	0.00	0	668.00	0.00
66.00	0.00	0	668.00	0.00
68.00	0.00	0	668.00	0.00
70.00	0.00	0	668.00	0.00
72.00	0.00	0	668.00	0.00
74.00	0.00	0	668.00	0.00
76.00	0.00	0	668.00	0.00
78.00	0.00	0	668.00	0.00
80.00	0.00	0	668.00	0.00
82.00	0.00	0	668.00	0.00
84.00	0.00	0	668.00	0.00
86.00	0.00	0	668.00	0.00
88.00	0.00	0	668.00	0.00
90.00	0.00	0	668.00	0.00
92.00	0.00	0	668.00	0.00
94.00	0.00	0	668.00	0.00
96.00	0.00	0	668.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2A: Post DA 8B-2A Runoff Area=46,563 sf 59.62% Impervious Runoff Depth=4.72"
Tc=5.0 min CN=74/98 Runoff=5.55 cfs 18,320 cf

Pond 2A-Bio: 2A_Bioretention Peak Elev=674.12' Storage=9,808 cf Inflow=5.55 cfs 18,320 cf
Discarded=0.04 cfs 10,732 cf Primary=1.15 cfs 6,472 cf Outflow=1.19 cfs 17,204 cf

Subcatchment 2B: Post DA 8B-2B Runoff Area=53,291 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=7.45 cfs 25,588 cf

Subcatchment 3: Post DA 8B-3 Runoff Area=187,200 sf 19.40% Impervious Runoff Depth=3.16"
Flow Length=420' Tc=11.8 min CN=67/98 Runoff=12.40 cfs 49,249 cf

Pond 3-Bio: 3_Bioretention Peak Elev=688.85' Storage=16,399 cf Inflow=12.40 cfs 49,249 cf
Discarded=0.03 cfs 10,196 cf Primary=8.57 cfs 33,503 cf Outflow=8.60 cfs 43,699 cf

Reach 8B-S: DA-8B South Outflow Avg. Flow Depth=0.86' Max Vel=11.65 fps Inflow=19.46 cfs 100,615 cf
36.0" Round Pipe n=0.013 L=150.0' S=0.0267 '/' Capacity=108.92 cfs Outflow=19.46 cfs 100,615 cf

25 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_West~Reach 8BW-Out.hce Inflow=5.54 cfs 25,935 cf
Area= 157,153 sf 46.55% Imperv. Primary=5.54 cfs 25,935 cf

Subcatchment 10: Post DA 8B-10 Runoff Area=21,223 sf 58.09% Impervious Runoff Depth=4.68"
Tc=5.0 min CN=74/98 Runoff=2.51 cfs 8,280 cf

Pond 10-Bio: 10_Bioretention Peak Elev=692.60' Storage=4,196 cf Inflow=2.51 cfs 8,280 cf
Discarded=0.02 cfs 3,967 cf Primary=0.84 cfs 3,319 cf Outflow=0.85 cfs 7,286 cf

Subcatchment 11A: Post DA 8B-11A Runoff Area=32,946 sf 53.55% Impervious Runoff Depth=4.56"
Tc=5.0 min CN=74/98 Runoff=3.83 cfs 12,532 cf

Pond 11A-Bio: 11A_Bioretention Peak Elev=667.65' Storage=5,852 cf Inflow=3.83 cfs 12,532 cf
Discarded=0.03 cfs 5,594 cf Primary=1.55 cfs 5,798 cf Outflow=1.58 cfs 11,392 cf

Subcatchment 11B: Post DA 8B-11B Runoff Area=5,443 sf 94.86% Impervious Runoff Depth=5.63"
Tc=5.0 min CN=74/98 Runoff=0.75 cfs 2,553 cf

Pond 11B-P: 11B-Pavers Peak Elev=667.50' Storage=1,323 cf Inflow=0.75 cfs 2,553 cf
Discarded=0.03 cfs 2,554 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 2,554 cf

Reach SR-1: South Reach-1 Avg. Flow Depth=0.83' Max Vel=11.34 fps Inflow=17.97 cfs 94,818 cf
36.0" Round Pipe n=0.013 L=190.0' S=0.0263 '/' Capacity=108.20 cfs Outflow=17.97 cfs 94,818 cf

Total Runoff Area = 346,666 sf Runoff Volume = 116,523 cf Average Runoff Depth = 4.03"
56.01% Pervious = 194,165 sf 43.99% Impervious = 152,501 sf

Summary for Subcatchment 2A: Post DA 8B-2A

Runoff = 5.55 cfs @ 12.07 hrs, Volume= 18,320 cf, Depth= 4.72"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

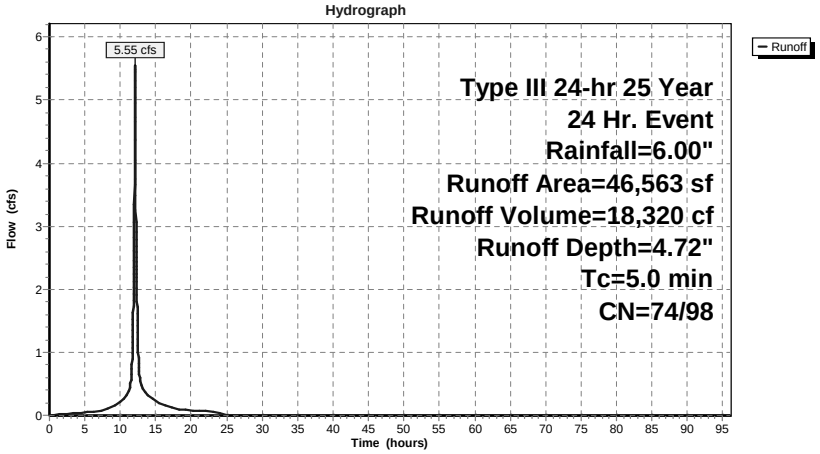
	Area (sf)	CN	Description	Land Use
	27,761	98	Paved parking, HSG C	Pavement
	3,136	74	>75% Grass cover, Good, HSG C	Open Space
*	15,666	74	Bioretention, HSG C	Landscaped
	46,563	88	Weighted Average	
	18,802	74	40.38% Pervious Area	
	27,761	98	59.62% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.62% Impervious, Rv= 0.587, Runoff= 26.81"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
15,666	Landscaped	0.00	0.00	0.00	0.00
3,136	Open Space	263.28	0.92	3.98	0.54
27,761	Pavement	669.77	2.17	8.13	25.94
46,563	Total	933.05	3.09	12.11	26.48

Subcatchment 2A: Post DA 8B-2A



Hydrograph for Subcatchment 2A: Post DA 8B-2A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.02
4.00	0.26	0.00	0.11	0.04
6.00	0.43	0.00	0.26	0.05
8.00	0.68	0.00	0.49	0.09
10.00	1.13	0.05	0.92	0.21
12.00	3.00	0.91	2.77	**3.67**
14.00	4.87	2.26	4.63	**0.30**
16.00	5.32	2.62	5.08	0.16
18.00	5.57	2.83	5.33	0.10
20.00	5.74	2.97	5.50	0.08
22.00	5.88	3.09	5.65	0.07
24.00	**6.00**	**3.18**	**5.76**	0.05
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00
74.00	6.00	3.18	5.76	0.00
76.00	6.00	3.18	5.76	0.00
78.00	6.00	3.18	5.76	0.00
80.00	6.00	3.18	5.76	0.00
82.00	6.00	3.18	5.76	0.00
84.00	6.00	3.18	5.76	0.00
86.00	6.00	3.18	5.76	0.00
88.00	6.00	3.18	5.76	0.00
90.00	6.00	3.18	5.76	0.00
92.00	6.00	3.18	5.76	0.00
94.00	6.00	3.18	5.76	0.00
96.00	6.00	3.18	5.76	0.00

Summary for Pond 2A-Bio: 2A_Bioretention

Inflow Area = 46,563 sf, 59.62% Impervious, Inflow Depth = 4.72" for 25 Year, 24 Hr. Event event
Inflow = 5.55 cfs @ 12.07 hrs, Volume= 18,320 cf
Outflow = 1.19 cfs @ 12.48 hrs, Volume= 17,204 cf, Atten= 79%, Lag= 24.4 min
Discarded = 0.04 cfs @ 12.25 hrs, Volume= 10,732 cf
Primary = 1.15 cfs @ 12.48 hrs, Volume= 6,472 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 674.12' @ 12.48 hrs Surf.Area= 7,066 sf Storage= 9,808 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,345.6 min (2,112.6 - 767.0)

Volume	Invert	Avail.Storage	Storage Description
#1	669.75'	12,461 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

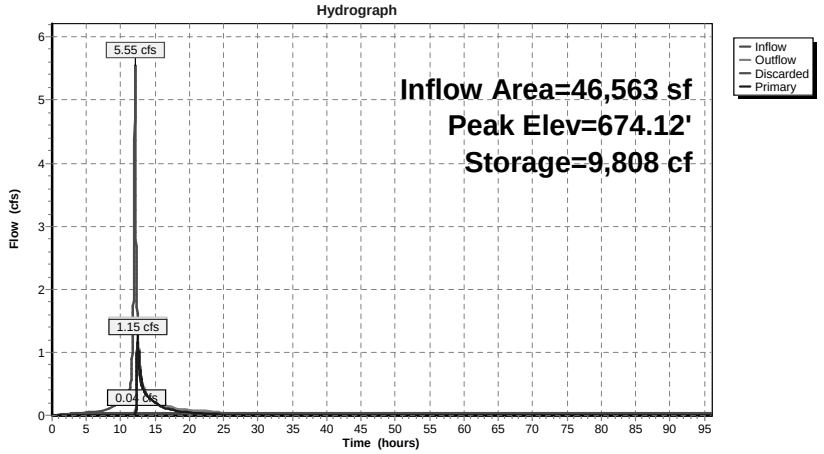
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
669.75	5,228	0.0	0	0
669.76	5,228	40.0	21	21
673.99	5,228	40.0	8,846	8,867
674.00	7,066	100.0	61	8,928
674.50	7,066	100.0	3,533	12,461

Device	Routing	Invert	Outlet Devices
#1	Discarded	669.75'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	674.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.04 cfs @ 12.25 hrs HW=674.01' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=1.15 cfs @ 12.48 hrs HW=674.12' TW=668.75' (Dynamic Tailwater)
└**2=Orifice/Grate** (Weir Controls 1.15 cfs @ 1.15 fps)

Pond 2A-Bio: 2A_Bioretention



Hydrograph for Pond 2A-Bio: 2A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	669.75	0.00	0.00	0.00
2.00	0.02	0	669.75	0.02	0.02	0.00
4.00	0.04	11	669.76	0.03	0.03	0.00
6.00	0.05	124	669.81	0.03	0.03	0.00
8.00	0.09	430	669.96	0.03	0.03	0.00
10.00	0.21	1,256	670.35	0.03	0.03	0.00
12.00	**3.67**	**5,399**	**672.33**	**0.03**	**0.03**	**0.00**
14.00	**0.30**	**9,280**	**674.05**	**0.33**	**0.04**	**0.29**
16.00	0.16	9,143	674.03	0.18	0.04	0.14
18.00	0.10	9,062	674.02	0.11	0.04	0.07
20.00	0.08	9,025	674.01	0.08	0.04	0.04
22.00	0.07	9,002	674.01	0.07	0.04	0.03
24.00	0.05	8,977	674.01	0.06	0.04	0.01
26.00	0.00	8,741	673.93	0.03	0.03	0.00
28.00	0.00	8,523	673.83	0.03	0.03	0.00
30.00	0.00	8,305	673.72	0.03	0.03	0.00
32.00	0.00	8,087	673.62	0.03	0.03	0.00
34.00	0.00	7,869	673.51	0.03	0.03	0.00
36.00	0.00	7,651	673.41	0.03	0.03	0.00
38.00	0.00	7,434	673.30	0.03	0.03	0.00
40.00	0.00	7,216	673.20	0.03	0.03	0.00
42.00	0.00	6,998	673.10	0.03	0.03	0.00
44.00	0.00	6,780	672.99	0.03	0.03	0.00
46.00	0.00	6,562	672.89	0.03	0.03	0.00
48.00	0.00	6,344	672.78	0.03	0.03	0.00
50.00	0.00	6,127	672.68	0.03	0.03	0.00
52.00	0.00	5,909	672.58	0.03	0.03	0.00
54.00	0.00	5,691	672.47	0.03	0.03	0.00
56.00	0.00	5,473	672.37	0.03	0.03	0.00
58.00	0.00	5,255	672.26	0.03	0.03	0.00
60.00	0.00	5,037	672.16	0.03	0.03	0.00
62.00	0.00	4,820	672.05	0.03	0.03	0.00
64.00	0.00	4,602	671.95	0.03	0.03	0.00
66.00	0.00	4,384	671.85	0.03	0.03	0.00
68.00	0.00	4,166	671.74	0.03	0.03	0.00
70.00	0.00	3,948	671.64	0.03	0.03	0.00
72.00	0.00	3,730	671.53	0.03	0.03	0.00
74.00	0.00	3,513	671.43	0.03	0.03	0.00
76.00	0.00	3,295	671.33	0.03	0.03	0.00
78.00	0.00	3,077	671.22	0.03	0.03	0.00
80.00	0.00	2,859	671.12	0.03	0.03	0.00
82.00	0.00	2,641	671.01	0.03	0.03	0.00
84.00	0.00	2,423	670.91	0.03	0.03	0.00
86.00	0.00	2,206	670.80	0.03	0.03	0.00
88.00	0.00	1,988	670.70	0.03	0.03	0.00
90.00	0.00	1,770	670.60	0.03	0.03	0.00
92.00	0.00	1,552	670.49	0.03	0.03	0.00
94.00	0.00	1,334	670.39	0.03	0.03	0.00
96.00	0.00	1,116	670.28	0.03	0.03	0.00

Summary for Subcatchment 2B: Post DA 8B-2B

Runoff = 7.45 cfs @ 12.07 hrs, Volume= 25,588 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

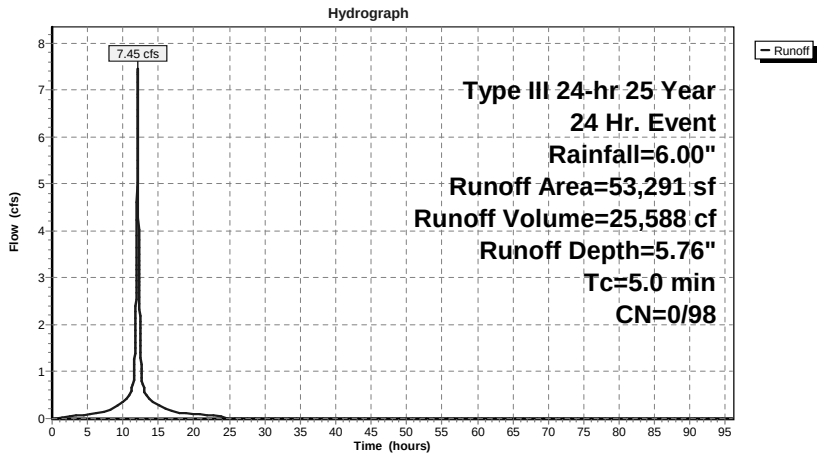
	Area (sf)	CN	Description	Land Use
	34,639	98	Roofs, HSG C	Roofs
*	18,652	98	Green Roof, HSG B	Landscaped
	53,291	98	Weighted Average	
	53,291	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
18,652	Landscaped	0.00	0.00	0.00	0.00
34,639	Roofs	148.65	0.86	11.74	57.89
53,291	Total	148.65	0.86	11.74	57.89

Subcatchment 2B: Post DA 8B-2B



Hydrograph for Subcatchment 2B: Post DA 8B-2B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.03
4.00	0.26	0.00	0.11	0.07
6.00	0.43	0.00	0.26	0.10
8.00	0.68	0.00	0.49	0.18
10.00	1.13	0.00	0.92	0.35
12.00	3.00	0.00	2.77	**5.04**
14.00	4.87	0.00	4.63	**0.38**
16.00	5.32	0.00	5.08	0.20
18.00	5.57	0.00	5.33	0.12
20.00	5.74	0.00	5.50	0.10
22.00	5.88	0.00	5.65	0.08
24.00	**6.00**	0.00	**5.76**	0.06
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00
74.00	6.00	0.00	5.76	0.00
76.00	6.00	0.00	5.76	0.00
78.00	6.00	0.00	5.76	0.00
80.00	6.00	0.00	5.76	0.00
82.00	6.00	0.00	5.76	0.00
84.00	6.00	0.00	5.76	0.00
86.00	6.00	0.00	5.76	0.00
88.00	6.00	0.00	5.76	0.00
90.00	6.00	0.00	5.76	0.00
92.00	6.00	0.00	5.76	0.00
94.00	6.00	0.00	5.76	0.00
96.00	6.00	0.00	5.76	0.00

Summary for Subcatchment 3: Post DA 8B-3

Runoff = 12.40 cfs @ 12.16 hrs, Volume= 49,249 cf, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

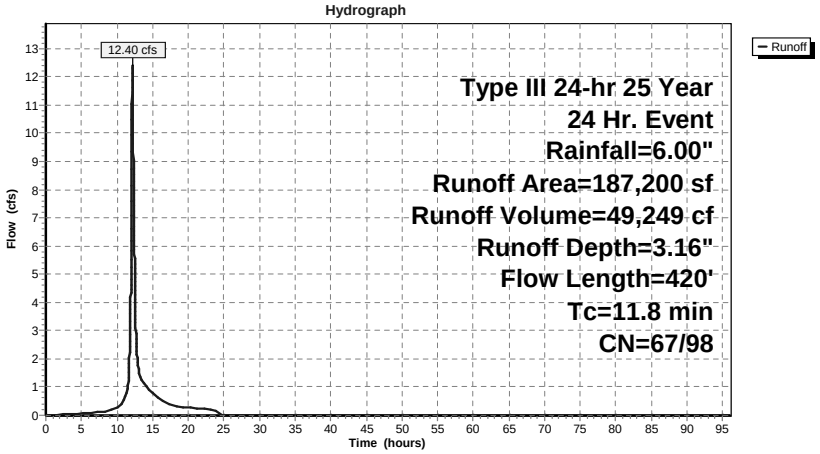
	Area (sf)	CN	Description	Land Use
	69,479	74	>75% Grass cover, Good, HSG C	Open Space
	72,736	61	>75% Grass cover, Good, HSG B	Open Space
	25,889	98	Paved parking, HSG C	Pavement
*	8,669	61	Bioretention, HSG B	Landscaped
	10,427	98	Roofs, HSG C	Roofs
	187,200	73	Weighted Average	
	150,884	67	80.60% Pervious Area	
	36,316	98	19.40% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	64	0.0312	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.4	36	0.2000	0.25		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	150	0.2057	3.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	170		5.00		**Direct Entry,**
11.8	420	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 19.40% Impervious, Rv= 0.225, Runoff= 10.26"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
8,669	Landscaped	0.00	0.00	0.00	0.00
142,215	Open Space	4,571.50	15.95	69.10	9.34
25,889	Pavement	239.15	0.77	2.90	9.26
10,427	Roofs	10.58	0.06	0.84	4.12
187,200	Total	4,821.23	16.78	72.84	22.72

Subcatchment 3: Post DA 8B-3



Hydrograph for Subcatchment 3: Post DA 8B-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.02
4.00	0.26	0.00	0.11	0.05
6.00	0.43	0.00	0.26	0.07
8.00	0.68	0.00	0.49	0.12
10.00	1.13	0.00	0.92	0.27
12.00	3.00	0.58	2.77	**5.52**
14.00	4.87	1.71	4.63	**1.03**
16.00	5.32	2.03	5.08	0.56
18.00	5.57	2.21	5.33	0.34
20.00	5.74	2.34	5.50	0.27
22.00	5.88	2.44	5.65	0.23
24.00	**6.00**	**2.53**	**5.76**	0.18
26.00	6.00	2.53	5.76	0.00
28.00	6.00	2.53	5.76	0.00
30.00	6.00	2.53	5.76	0.00
32.00	6.00	2.53	5.76	0.00
34.00	6.00	2.53	5.76	0.00
36.00	6.00	2.53	5.76	0.00
38.00	6.00	2.53	5.76	0.00
40.00	6.00	2.53	5.76	0.00
42.00	6.00	2.53	5.76	0.00
44.00	6.00	2.53	5.76	0.00
46.00	6.00	2.53	5.76	0.00
48.00	6.00	2.53	5.76	0.00
50.00	6.00	2.53	5.76	0.00
52.00	6.00	2.53	5.76	0.00
54.00	6.00	2.53	5.76	0.00
56.00	6.00	2.53	5.76	0.00
58.00	6.00	2.53	5.76	0.00
60.00	6.00	2.53	5.76	0.00
62.00	6.00	2.53	5.76	0.00
64.00	6.00	2.53	5.76	0.00
66.00	6.00	2.53	5.76	0.00
68.00	6.00	2.53	5.76	0.00
70.00	6.00	2.53	5.76	0.00
72.00	6.00	2.53	5.76	0.00
74.00	6.00	2.53	5.76	0.00
76.00	6.00	2.53	5.76	0.00
78.00	6.00	2.53	5.76	0.00
80.00	6.00	2.53	5.76	0.00
82.00	6.00	2.53	5.76	0.00
84.00	6.00	2.53	5.76	0.00
86.00	6.00	2.53	5.76	0.00
88.00	6.00	2.53	5.76	0.00
90.00	6.00	2.53	5.76	0.00
92.00	6.00	2.53	5.76	0.00
94.00	6.00	2.53	5.76	0.00
96.00	6.00	2.53	5.76	0.00

Summary for Pond 3-Bio: 3_Bioretention

Inflow Area = 187,200 sf, 19.40% Impervious, Inflow Depth = 3.16" for 25 Year, 24 Hr. Event event
Inflow = 12.40 cfs @ 12.16 hrs, Volume= 49,249 cf
Outflow = 8.60 cfs @ 12.31 hrs, Volume= 43,699 cf, Atten= 31%, Lag= 8.6 min
Discarded = 0.03 cfs @ 3.53 hrs, Volume= 10,196 cf
Primary = 8.57 cfs @ 12.31 hrs, Volume= 33,503 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 688.85' @ 12.31 hrs Surf.Area= 9,121 sf Storage= 16,399 cf

Plug-Flow detention time= 600.7 min calculated for 43,699 cf (89% of inflow)
Center-of-Mass det. time= 545.9 min (1,361.1 - 815.2)

Volume	Invert	Avail.Storage	Storage Description
#1	684.00'	22,330 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

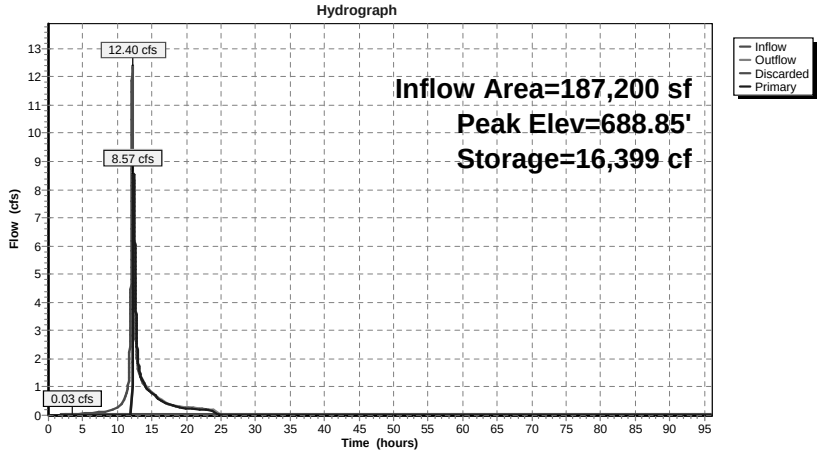
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
684.00	5,374	0.0	0	0	5,374
684.01	5,374	40.0	21	21	5,377
687.99	5,374	40.0	8,555	8,577	6,544
688.00	9,121	100.0	72	8,649	10,291
688.50	9,121	100.0	4,561	13,209	10,482
689.00	9,121	100.0	4,561	17,770	10,673
689.50	9,121	100.0	4,561	22,330	10,864

Device	Routing	Invert	Outlet Devices
#1	Discarded	684.00'	**0.03 cfs Exfiltration at all elevations**
#2	Primary	688.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 36.00 columns** X 36 rows C= 0.600 in 38.0" x 38.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 3.53 hrs HW=684.01' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=8.56 cfs @ 12.31 hrs HW=688.85' TW=668.82' (Dynamic Tailwater)
└**2=Orifice/Grate** (Weir Controls 8.56 cfs @ 1.93 fps)

Pond 3-Bio: 3_Bioretention



Hydrograph for Pond 3-Bio: 3_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	684.00	0.00	0.00	0.00
2.00	0.02	0	684.00	0.02	**0.02**	0.00
4.00	0.05	47	684.02	0.03	**0.03**	0.00
6.00	0.07	257	684.12	0.03	0.03	0.00
8.00	0.12	707	684.33	0.03	0.03	0.00
10.00	0.27	1,752	684.81	0.03	0.03	0.00
12.00	**5.52**	**8,708**	**688.01**	**0.03**	0.03	**0.00**
14.00	**1.03**	**14,002**	**688.59**	**1.09**	0.03	**1.06**
16.00	0.56	13,733	688.56	0.60	0.03	0.57
18.00	0.34	13,576	688.54	0.36	0.03	0.33
20.00	0.27	13,511	688.53	0.28	0.03	0.25
22.00	0.23	13,472	688.53	0.23	0.03	0.20
24.00	0.18	13,431	688.52	0.19	0.03	0.16
26.00	0.00	13,111	688.49	0.03	0.03	0.00
28.00	0.00	12,895	688.47	0.03	0.03	0.00
30.00	0.00	12,679	688.44	0.03	0.03	0.00
32.00	0.00	12,463	688.42	0.03	0.03	0.00
34.00	0.00	12,247	688.39	0.03	0.03	0.00
36.00	0.00	12,031	688.37	0.03	0.03	0.00
38.00	0.00	11,815	688.35	0.03	0.03	0.00
40.00	0.00	11,599	688.32	0.03	0.03	0.00
42.00	0.00	11,383	688.30	0.03	0.03	0.00
44.00	0.00	11,167	688.28	0.03	0.03	0.00
46.00	0.00	10,951	688.25	0.03	0.03	0.00
48.00	0.00	10,735	688.23	0.03	0.03	0.00
50.00	0.00	10,519	688.21	0.03	0.03	0.00
52.00	0.00	10,303	688.18	0.03	0.03	0.00
54.00	0.00	10,087	688.16	0.03	0.03	0.00
56.00	0.00	9,871	688.13	0.03	0.03	0.00
58.00	0.00	9,655	688.11	0.03	0.03	0.00
60.00	0.00	9,439	688.09	0.03	0.03	0.00
62.00	0.00	9,223	688.06	0.03	0.03	0.00
64.00	0.00	9,007	688.04	0.03	0.03	0.00
66.00	0.00	8,791	688.02	0.03	0.03	0.00
68.00	0.00	8,575	687.99	0.03	0.03	0.00
70.00	0.00	8,359	687.89	0.03	0.03	0.00
72.00	0.00	8,143	687.79	0.03	0.03	0.00
74.00	0.00	7,927	687.69	0.03	0.03	0.00
76.00	0.00	7,711	687.59	0.03	0.03	0.00
78.00	0.00	7,495	687.49	0.03	0.03	0.00
80.00	0.00	7,279	687.39	0.03	0.03	0.00
82.00	0.00	7,063	687.29	0.03	0.03	0.00
84.00	0.00	6,847	687.19	0.03	0.03	0.00
86.00	0.00	6,631	687.08	0.03	0.03	0.00
88.00	0.00	6,415	686.98	0.03	0.03	0.00
90.00	0.00	6,199	686.88	0.03	0.03	0.00
92.00	0.00	5,983	686.78	0.03	0.03	0.00
94.00	0.00	5,767	686.68	0.03	0.03	0.00
96.00	0.00	5,551	686.58	0.03	0.03	0.00

Summary for Reach 8B-S: DA-8B South Outflow

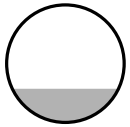
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach SR-1 OUTLET depth by 0.03' @ 12.29 hrs

Inflow Area = 503,819 sf, 44.79% Impervious, Inflow Depth = 2.40" for 25 Year, 24 Hr. Event event
Inflow = 19.46 cfs @ 12.32 hrs, Volume= 100,615 cf
Outflow = 19.46 cfs @ 12.33 hrs, Volume= 100,615 cf, Atten= 0%, Lag= 0.2 min

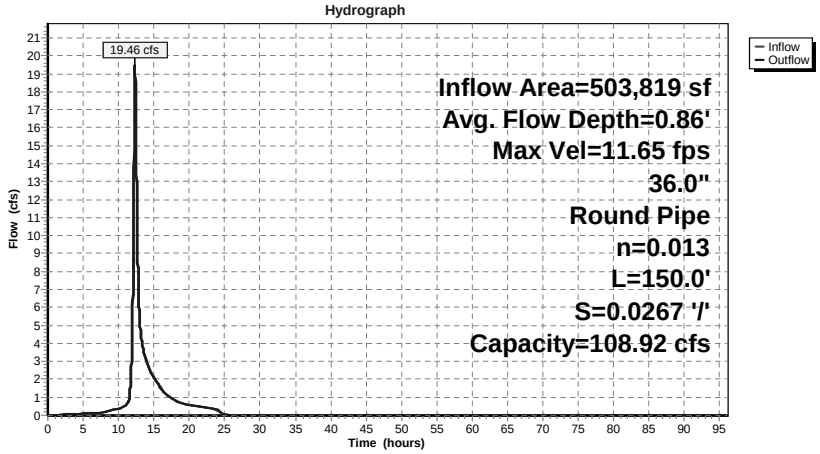
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 11.65 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.72 fps, Avg. Travel Time= 0.7 min

Peak Storage= 250 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.86'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 108.92 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 150.0' Slope= 0.0267 '/'
Inlet Invert= 663.00', Outlet Invert= 659.00'



Reach 8B-S: DA-8B South Outflow



Hydrograph for Reach 8B-S: DA-8B South Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	663.00	0.00
2.00	0.03	3	663.04	0.03
4.00	0.07	5	663.06	0.07
6.00	0.11	6	663.07	0.11
8.00	0.18	9	663.09	0.18
10.00	0.35	15	663.12	0.35
12.00	**5.34**	**98**	**663.44**	**5.18**
14.00	**2.91**	**66**	**663.34**	**2.92**
16.00	1.48	41	663.24	1.48
18.00	0.82	27	663.18	0.82
20.00	0.58	21	663.16	0.58
22.00	0.45	18	663.14	0.45
24.00	0.32	14	663.12	0.32
26.00	0.00	0	663.00	0.00
28.00	0.00	0	663.00	0.00
30.00	0.00	0	663.00	0.00
32.00	0.00	0	663.00	0.00
34.00	0.00	0	663.00	0.00
36.00	0.00	0	663.00	0.00
38.00	0.00	0	663.00	0.00
40.00	0.00	0	663.00	0.00
42.00	0.00	0	663.00	0.00
44.00	0.00	0	663.00	0.00
46.00	0.00	0	663.00	0.00
48.00	0.00	0	663.00	0.00
50.00	0.00	0	663.00	0.00
52.00	0.00	0	663.00	0.00
54.00	0.00	0	663.00	0.00
56.00	0.00	0	663.00	0.00
58.00	0.00	0	663.00	0.00
60.00	0.00	0	663.00	0.00
62.00	0.00	0	663.00	0.00
64.00	0.00	0	663.00	0.00
66.00	0.00	0	663.00	0.00
68.00	0.00	0	663.00	0.00
70.00	0.00	0	663.00	0.00
72.00	0.00	0	663.00	0.00
74.00	0.00	0	663.00	0.00
76.00	0.00	0	663.00	0.00
78.00	0.00	0	663.00	0.00
80.00	0.00	0	663.00	0.00
82.00	0.00	0	663.00	0.00
84.00	0.00	0	663.00	0.00
86.00	0.00	0	663.00	0.00
88.00	0.00	0	663.00	0.00
90.00	0.00	0	663.00	0.00
92.00	0.00	0	663.00	0.00
94.00	0.00	0	663.00	0.00
96.00	0.00	0	663.00	0.00

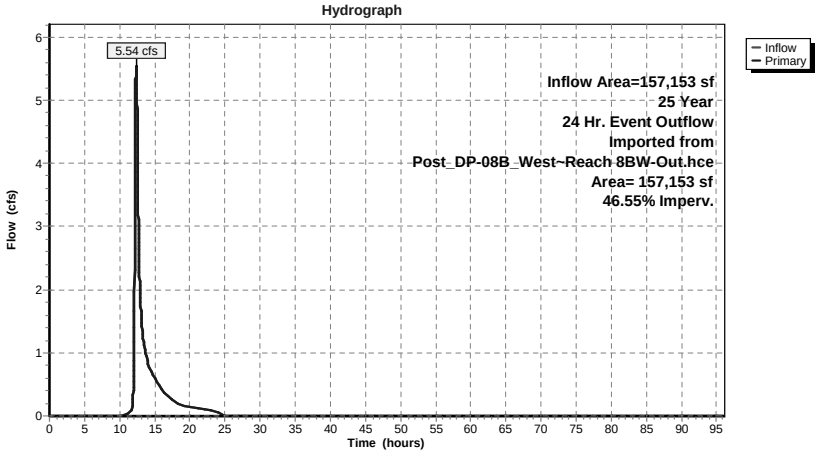
Summary for Link 8B-W: DA-8B West Inflow

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 1.98" for 25 Year, 24 Hr. Event event
Inflow = 5.54 cfs @ 12.35 hrs, Volume= 25,935 cf
Primary = 5.54 cfs @ 12.35 hrs, Volume= 25,935 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

25 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_West~Reach 8BW-Out.hce

Link 8B-W: DA-8B West Inflow



Hydrograph for Link 8B-W: DA-8B West Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.01	0.00	0.01	62.00	0.00	0.00	0.00
11.00	0.02	0.00	0.02	63.00	0.00	0.00	0.00
12.00	**0.52**	0.00	**0.52**	64.00	0.00	0.00	0.00
13.00	**1.70**	0.00	**1.70**	65.00	0.00	0.00	0.00
14.00	0.85	0.00	0.85	66.00	0.00	0.00	0.00
15.00	0.60	0.00	0.60	67.00	0.00	0.00	0.00
16.00	0.41	0.00	0.41	68.00	0.00	0.00	0.00
17.00	0.29	0.00	0.29	69.00	0.00	0.00	0.00
18.00	0.21	0.00	0.21	70.00	0.00	0.00	0.00
19.00	0.16	0.00	0.16	71.00	0.00	0.00	0.00
20.00	0.14	0.00	0.14	72.00	0.00	0.00	0.00
21.00	0.12	0.00	0.12	73.00	0.00	0.00	0.00
22.00	0.10	0.00	0.10	74.00	0.00	0.00	0.00
23.00	0.08	0.00	0.08	75.00	0.00	0.00	0.00
24.00	0.07	0.00	0.07	76.00	0.00	0.00	0.00
25.00	0.01	0.00	0.01	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 10: Post DA 8B-10

Runoff = 2.51 cfs @ 12.07 hrs, Volume= 8,280 cf, Depth= 4.68"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

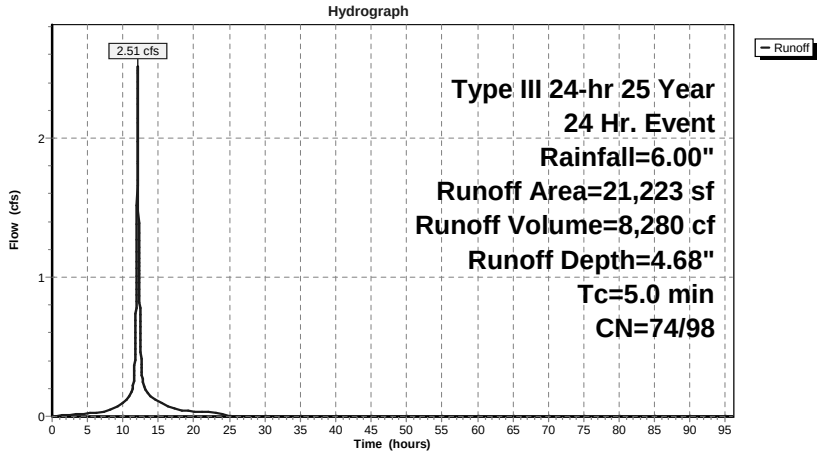
	Area (sf)	CN	Description	Land Use
	12,329	98	Unconnected pavement, HSG C	Pavement
	7,873	74	>75% Grass cover, Good, HSG C	Open Space
*	1,021	74	Bioretention, HSG C	Landscaped
	21,223	88	Weighted Average	
	8,894	74	41.91% Pervious Area	
	12,329	98	58.09% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 58.09% Impervious, Rv= 0.573, Runoff= 26.18"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,021	Landscaped	0.00	0.00	0.00	0.00
7,873	Open Space	645.47	2.25	9.76	1.32
12,329	Pavement	290.48	0.94	3.53	11.25
21,223	Total	935.96	3.19	13.28	12.57

Subcatchment 10: Post DA 8B-10



Hydrograph for Subcatchment 10: Post DA 8B-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.02
6.00	0.43	0.00	0.26	0.02
8.00	0.68	0.00	0.49	0.04
10.00	1.13	0.05	0.92	0.09
12.00	3.00	0.91	2.77	**1.66**
14.00	4.87	2.26	4.63	**0.14**
16.00	5.32	2.62	5.08	0.07
18.00	5.57	2.83	5.33	0.04
20.00	5.74	2.97	5.50	0.04
22.00	5.88	3.09	5.65	0.03
24.00	**6.00**	**3.18**	**5.76**	0.02
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00
74.00	6.00	3.18	5.76	0.00
76.00	6.00	3.18	5.76	0.00
78.00	6.00	3.18	5.76	0.00
80.00	6.00	3.18	5.76	0.00
82.00	6.00	3.18	5.76	0.00
84.00	6.00	3.18	5.76	0.00
86.00	6.00	3.18	5.76	0.00
88.00	6.00	3.18	5.76	0.00
90.00	6.00	3.18	5.76	0.00
92.00	6.00	3.18	5.76	0.00
94.00	6.00	3.18	5.76	0.00
96.00	6.00	3.18	5.76	0.00

Summary for Pond 10-Bio: 10_Bioretention

Inflow Area = 21,223 sf, 58.09% Impervious, Inflow Depth = 4.68" for 25 Year, 24 Hr. Event event
Inflow = 2.51 cfs @ 12.07 hrs, Volume= 8,280 cf
Outflow = 0.85 cfs @ 12.34 hrs, Volume= 7,286 cf, Atten= 66%, Lag= 16.2 min
Discarded = 0.02 cfs @ 12.01 hrs, Volume= 3,967 cf
Primary = 0.84 cfs @ 12.34 hrs, Volume= 3,319 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 692.60' @ 12.34 hrs Surf.Area= 2,629 sf Storage= 4,196 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,105.6 min (1,873.7 - 768.1)

Volume	Invert	Avail.Storage	Storage Description
#1	688.00'	5,245 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

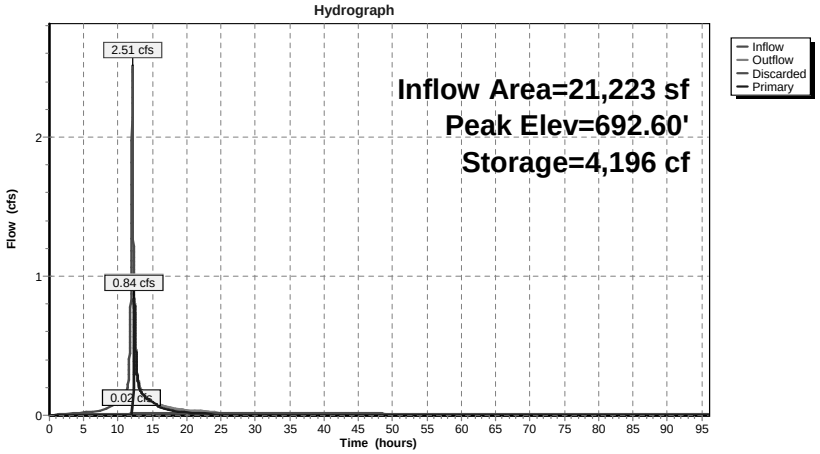
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
688.00	1,626	0.0	0	0
688.01	1,626	40.0	7	7
691.99	1,626	40.0	2,589	2,595
692.00	2,629	100.0	21	2,616
692.50	2,629	100.0	1,315	3,931
693.00	2,629	100.0	1,315	5,245

Device	Routing	Invert	Outlet Devices
#1	Discarded	688.00'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	692.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 12.01 hrs HW=692.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.84 cfs @ 12.34 hrs HW=692.60' TW=668.83' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.84 cfs @ 1.04 fps)

Pond 10-Bio: 10_Bioretention



Hydrograph for Pond 10-Bio: 10_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	688.00	0.00	0.00	0.00
2.00	0.01	0	688.00	0.01	0.01	0.00
4.00	0.02	23	688.04	0.01	0.01	0.00
6.00	0.02	102	688.16	0.01	0.01	0.00
8.00	0.04	267	688.41	0.01	0.01	0.00
10.00	0.09	665	689.02	0.01	0.01	0.00
12.00	**1.66**	**2,562**	**691.94**	**0.01**	**0.01**	**0.00**
14.00	**0.14**	**4,007**	**692.53**	**0.14**	**0.02**	**0.13**
16.00	0.07	3,978	692.52	0.08	0.02	0.06
18.00	0.04	3,961	692.51	0.05	0.02	0.03
20.00	0.04	3,954	692.51	0.04	0.02	0.02
22.00	0.03	3,949	692.51	0.03	0.02	0.02
24.00	0.02	3,944	692.50	0.02	0.02	0.01
26.00	0.00	3,836	692.46	0.02	0.02	0.00
28.00	0.00	3,727	692.42	0.02	0.02	0.00
30.00	0.00	3,617	692.38	0.02	0.02	0.00
32.00	0.00	3,508	692.34	0.02	0.02	0.00
34.00	0.00	3,398	692.30	0.02	0.02	0.00
36.00	0.00	3,289	692.26	0.02	0.02	0.00
38.00	0.00	3,179	692.21	0.02	0.02	0.00
40.00	0.00	3,070	692.17	0.02	0.02	0.00
42.00	0.00	2,960	692.13	0.02	0.02	0.00
44.00	0.00	2,850	692.09	0.02	0.02	0.00
46.00	0.00	2,741	692.05	0.02	0.02	0.00
48.00	0.00	2,631	692.01	0.02	0.02	0.00
50.00	0.00	2,553	691.93	0.01	0.01	0.00
52.00	0.00	2,485	691.82	0.01	0.01	0.00
54.00	0.00	2,417	691.72	0.01	0.01	0.00
56.00	0.00	2,350	691.61	0.01	0.01	0.00
58.00	0.00	2,282	691.51	0.01	0.01	0.00
60.00	0.00	2,214	691.40	0.01	0.01	0.00
62.00	0.00	2,146	691.30	0.01	0.01	0.00
64.00	0.00	2,079	691.20	0.01	0.01	0.00
66.00	0.00	2,011	691.09	0.01	0.01	0.00
68.00	0.00	1,943	690.99	0.01	0.01	0.00
70.00	0.00	1,875	690.88	0.01	0.01	0.00
72.00	0.00	1,808	690.78	0.01	0.01	0.00
74.00	0.00	1,740	690.68	0.01	0.01	0.00
76.00	0.00	1,672	690.57	0.01	0.01	0.00
78.00	0.00	1,604	690.47	0.01	0.01	0.00
80.00	0.00	1,537	690.36	0.01	0.01	0.00
82.00	0.00	1,469	690.26	0.01	0.01	0.00
84.00	0.00	1,401	690.15	0.01	0.01	0.00
86.00	0.00	1,333	690.05	0.01	0.01	0.00
88.00	0.00	1,266	689.95	0.01	0.01	0.00
90.00	0.00	1,198	689.84	0.01	0.01	0.00
92.00	0.00	1,130	689.74	0.01	0.01	0.00
94.00	0.00	1,062	689.63	0.01	0.01	0.00
96.00	0.00	995	689.53	0.01	0.01	0.00

Summary for Subcatchment 11A: Post DA 8B-11A

Runoff = 3.83 cfs @ 12.07 hrs, Volume= 12,532 cf, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

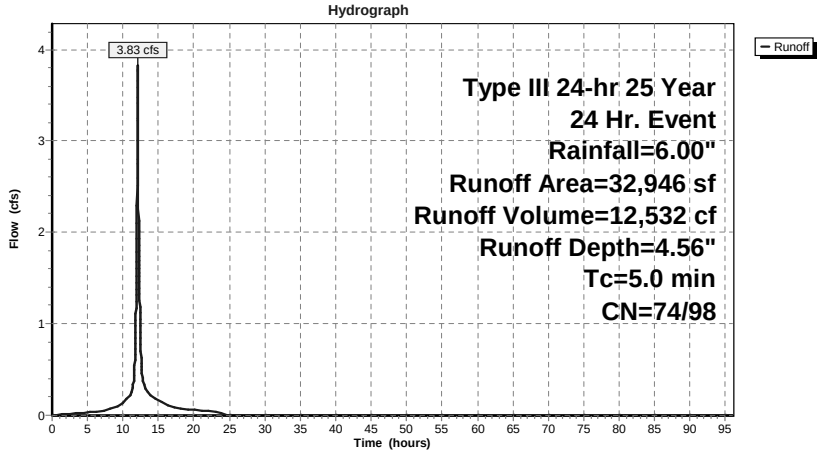
	Area (sf)	CN	Description	Land Use
	17,641	98	Unconnected pavement, HSG C	Pavement
	12,226	74	>75% Grass cover, Good, HSG C	Open Space
*	3,079	74	Bioretention, HSG C	Landscaped
	32,946	87	Weighted Average	
	15,305	74	46.45% Pervious Area	
	17,641	98	53.55% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 53.55% Impervious, Rv= 0.532, Runoff= 24.31"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,079	Landscaped	0.00	0.00	0.00	0.00
12,226	Open Space	930.74	3.25	14.07	1.90
17,641	Pavement	385.94	1.25	4.68	14.95
32,946	Total	1,316.68	4.50	18.75	16.85

Subcatchment 11A: Post DA 8B-11A



Hydrograph for Subcatchment 11A: Post DA 8B-11A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.02
6.00	0.43	0.00	0.26	0.03
8.00	0.68	0.00	0.49	0.06
10.00	1.13	0.05	0.92	0.14
12.00	3.00	0.91	2.77	**2.52**
14.00	4.87	2.26	4.63	**0.21**
16.00	5.32	2.62	5.08	0.11
18.00	5.57	2.83	5.33	0.07
20.00	5.74	2.97	5.50	0.06
22.00	5.88	3.09	5.65	0.05
24.00	**6.00**	**3.18**	**5.76**	0.04
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00
74.00	6.00	3.18	5.76	0.00
76.00	6.00	3.18	5.76	0.00
78.00	6.00	3.18	5.76	0.00
80.00	6.00	3.18	5.76	0.00
82.00	6.00	3.18	5.76	0.00
84.00	6.00	3.18	5.76	0.00
86.00	6.00	3.18	5.76	0.00
88.00	6.00	3.18	5.76	0.00
90.00	6.00	3.18	5.76	0.00
92.00	6.00	3.18	5.76	0.00
94.00	6.00	3.18	5.76	0.00
96.00	6.00	3.18	5.76	0.00

Summary for Pond 11A-Bio: 11A_Bioretention

Inflow Area = 32,946 sf, 53.55% Impervious, Inflow Depth = 4.56" for 25 Year, 24 Hr. Event event
Inflow = 3.83 cfs @ 12.07 hrs, Volume= 12,532 cf
Outflow = 1.58 cfs @ 12.27 hrs, Volume= 11,392 cf, Atten= 59%, Lag= 11.6 min
Discarded = 0.03 cfs @ 11.85 hrs, Volume= 5,594 cf
Primary = 1.55 cfs @ 12.27 hrs, Volume= 5,798 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 667.65' @ 12.27 hrs Surf.Area= 4,369 sf Storage= 5,852 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 910.8 min (1,682.1 - 771.3)

Volume	Invert	Avail.Storage	Storage Description
#1	663.00'	7,372 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

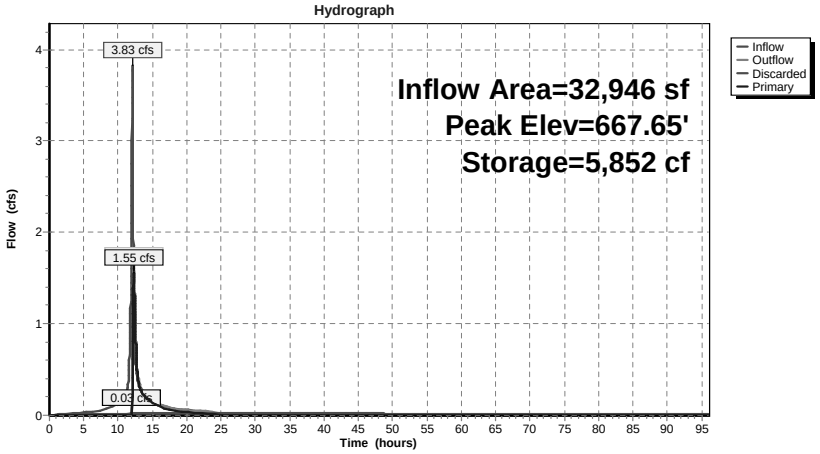
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
663.00	1,862	0.0	0	0
663.01	1,862	40.0	7	7
666.99	1,862	40.0	2,964	2,972
667.00	4,369	100.0	31	3,003
667.50	4,369	100.0	2,185	5,187
668.00	4,369	100.0	2,185	7,372

Device	Routing	Invert	Outlet Devices
#1	Discarded	663.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	667.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 11.85 hrs HW=667.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=1.55 cfs @ 12.27 hrs HW=667.65' TW=663.83' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 1.55 cfs @ 1.28 fps)

Pond 11A-Bio: 11A_Bioretention



Hydrograph for Pond 11A-Bio: 11A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	663.00	0.00	0.00	0.00
2.00	0.01	0	663.00	0.01	0.01	0.00
4.00	0.02	51	663.07	0.01	0.01	0.00
6.00	0.03	184	663.25	0.01	0.01	0.00
8.00	0.06	439	663.59	0.01	0.01	0.00
10.00	0.14	1,037	664.39	0.01	**0.01**	0.00
12.00	**2.52**	**3,896**	**667.20**	**0.03**	**0.03**	**0.00**
14.00	**0.21**	**5,357**	**667.54**	**0.22**	0.03	**0.20**
16.00	0.11	5,291	667.52	0.12	0.03	0.10
18.00	0.07	5,253	667.52	0.07	0.03	0.05
20.00	0.06	5,237	667.51	0.06	0.03	0.03
22.00	0.05	5,226	667.51	0.05	0.03	0.02
24.00	0.04	5,215	667.51	0.04	0.03	0.01
26.00	0.00	5,035	667.47	0.03	0.03	0.00
28.00	0.00	4,853	667.42	0.03	0.03	0.00
30.00	0.00	4,671	667.38	0.03	0.03	0.00
32.00	0.00	4,489	667.34	0.03	0.03	0.00
34.00	0.00	4,307	667.30	0.03	0.03	0.00
36.00	0.00	4,125	667.26	0.03	0.03	0.00
38.00	0.00	3,943	667.22	0.03	0.03	0.00
40.00	0.00	3,761	667.17	0.03	0.03	0.00
42.00	0.00	3,579	667.13	0.03	0.03	0.00
44.00	0.00	3,397	667.09	0.03	0.03	0.00
46.00	0.00	3,215	667.05	0.03	0.03	0.00
48.00	0.00	3,033	667.01	0.03	0.03	0.00
50.00	0.00	2,925	666.93	0.01	0.01	0.00
52.00	0.00	2,848	666.82	0.01	0.01	0.00
54.00	0.00	2,770	666.72	0.01	0.01	0.00
56.00	0.00	2,693	666.62	0.01	0.01	0.00
58.00	0.00	2,615	666.51	0.01	0.01	0.00
60.00	0.00	2,538	666.41	0.01	0.01	0.00
62.00	0.00	2,460	666.30	0.01	0.01	0.00
64.00	0.00	2,382	666.20	0.01	0.01	0.00
66.00	0.00	2,305	666.09	0.01	0.01	0.00
68.00	0.00	2,227	665.99	0.01	0.01	0.00
70.00	0.00	2,150	665.89	0.01	0.01	0.00
72.00	0.00	2,072	665.78	0.01	0.01	0.00
74.00	0.00	1,994	665.68	0.01	0.01	0.00
76.00	0.00	1,917	665.57	0.01	0.01	0.00
78.00	0.00	1,839	665.47	0.01	0.01	0.00
80.00	0.00	1,762	665.37	0.01	0.01	0.00
82.00	0.00	1,684	665.26	0.01	0.01	0.00
84.00	0.00	1,607	665.16	0.01	0.01	0.00
86.00	0.00	1,529	665.05	0.01	0.01	0.00
88.00	0.00	1,451	664.95	0.01	0.01	0.00
90.00	0.00	1,374	664.84	0.01	0.01	0.00
92.00	0.00	1,296	664.74	0.01	0.01	0.00
94.00	0.00	1,219	664.64	0.01	0.01	0.00
96.00	0.00	1,141	664.53	0.01	0.01	0.00

Summary for Subcatchment 11B: Post DA 8B-11B

Runoff = 0.75 cfs @ 12.07 hrs, Volume= 2,553 cf, Depth= 5.63"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

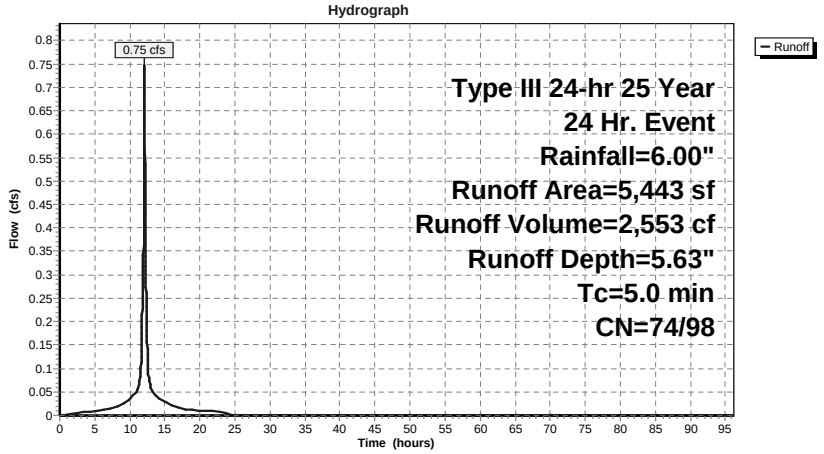
	Area (sf)	CN	Description	Land Use
	753	98	Unconnected pavement, HSG C	Pavement
	280	74	>75% Grass cover, Good, HSG C	Open Space
*	4,410	98	Pavers, HSG C	Pavement
	5,443	97	Weighted Average	
	280	74	5.14% Pervious Area	
	5,163	98	94.86% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 94.86% Impervious, Rv= 0.904, Runoff= 41.30"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
280	Open Space	36.22	0.13	0.55	0.07
5,163	Pavement	191.91	0.62	2.33	7.43
5,443	Total	228.12	0.75	2.88	7.51

Subcatchment 11B: Post DA 8B-11B



Hydrograph for Subcatchment 11B: Post DA 8B-11B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.02
10.00	1.13	0.05	0.92	0.03
12.00	3.00	0.91	2.77	**0.50**
14.00	4.87	2.26	4.63	**0.04**
16.00	5.32	2.62	5.08	0.02
18.00	5.57	2.83	5.33	0.01
20.00	5.74	2.97	5.50	0.01
22.00	5.88	3.09	5.65	0.01
24.00	**6.00**	**3.18**	**5.76**	0.01
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00
74.00	6.00	3.18	5.76	0.00
76.00	6.00	3.18	5.76	0.00
78.00	6.00	3.18	5.76	0.00
80.00	6.00	3.18	5.76	0.00
82.00	6.00	3.18	5.76	0.00
84.00	6.00	3.18	5.76	0.00
86.00	6.00	3.18	5.76	0.00
88.00	6.00	3.18	5.76	0.00
90.00	6.00	3.18	5.76	0.00
92.00	6.00	3.18	5.76	0.00
94.00	6.00	3.18	5.76	0.00
96.00	6.00	3.18	5.76	0.00

Summary for Pond 11B-P: 11B-Pavers

Inflow Area = 5,443 sf, 94.86% Impervious, Inflow Depth = 5.63" for 25 Year, 24 Hr. Event event
Inflow = 0.75 cfs @ 12.07 hrs, Volume= 2,553 cf
Outflow = 0.03 cfs @ 10.31 hrs, Volume= 2,554 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.03 cfs @ 10.31 hrs, Volume= 2,554 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 667.50' @ 15.37 hrs Surf.Area= 4,410 sf Storage= 1,323 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 436.1 min (1,182.7 - 746.7)

Volume	Invert	Avail.Storage	Storage Description
#1	666.00'	6,174 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

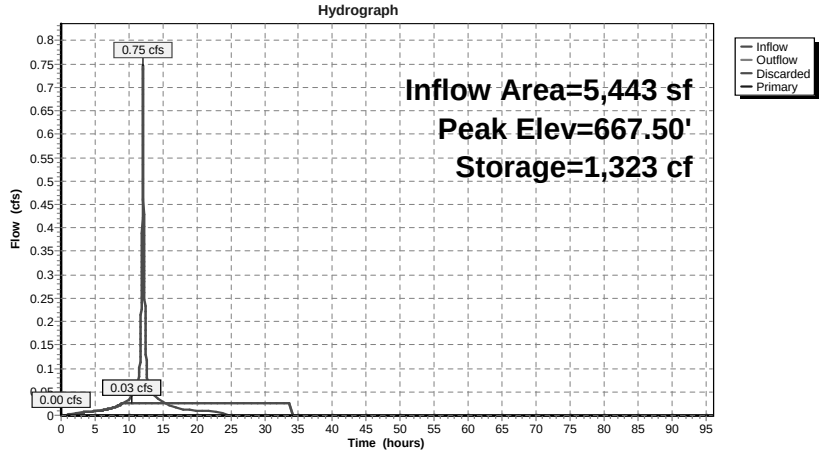
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
666.00	4,410	0.0	0	0
668.00	4,410	20.0	1,764	1,764
669.00	4,410	100.0	4,410	6,174

Device	Routing	Invert	Outlet Devices
#1	Discarded	666.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	668.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 10.31 hrs HW=666.03' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=666.00' TW=663.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 11B-P: 11B-Pavers



Hydrograph for Pond 11B-P: 11B-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	666.00	0.00	0.00	**0.00**
2.00	0.00	0	666.00	0.00	0.00	0.00
4.00	0.01	0	666.00	0.01	0.01	0.00
6.00	0.01	0	666.00	0.01	0.01	0.00
8.00	0.02	0	666.00	0.02	0.02	0.00
10.00	0.03	15	666.02	**0.03**	**0.03**	0.00
12.00	**0.50**	476	666.54	**0.03**	**0.03**	0.00
14.00	**0.04**	**1,294**	**667.47**	0.03	0.03	0.00
16.00	0.02	**1,316**	**667.49**	0.03	0.03	0.00
18.00	0.01	1,248	667.41	0.03	0.03	0.00
20.00	0.01	1,143	667.30	0.03	0.03	0.00
22.00	0.01	1,024	667.16	0.03	0.03	0.00
24.00	0.01	892	667.01	0.03	0.03	0.00
26.00	0.00	710	666.81	0.03	0.03	0.00
28.00	0.00	527	666.60	0.03	0.03	0.00
30.00	0.00	343	666.39	0.03	0.03	0.00
32.00	0.00	159	666.18	0.03	0.03	0.00
34.00	0.00	0	666.00	0.00	0.00	0.00
36.00	0.00	0	666.00	0.00	0.00	0.00
38.00	0.00	0	666.00	0.00	0.00	0.00
40.00	0.00	0	666.00	0.00	0.00	0.00
42.00	0.00	0	666.00	0.00	0.00	0.00
44.00	0.00	0	666.00	0.00	0.00	0.00
46.00	0.00	0	666.00	0.00	0.00	0.00
48.00	0.00	0	666.00	0.00	0.00	0.00
50.00	0.00	0	666.00	0.00	0.00	0.00
52.00	0.00	0	666.00	0.00	0.00	0.00
54.00	0.00	0	666.00	0.00	0.00	0.00
56.00	0.00	0	666.00	0.00	0.00	0.00
58.00	0.00	0	666.00	0.00	0.00	0.00
60.00	0.00	0	666.00	0.00	0.00	0.00
62.00	0.00	0	666.00	0.00	0.00	0.00
64.00	0.00	0	666.00	0.00	0.00	0.00
66.00	0.00	0	666.00	0.00	0.00	0.00
68.00	0.00	0	666.00	0.00	0.00	0.00
70.00	0.00	0	666.00	0.00	0.00	0.00
72.00	0.00	0	666.00	0.00	0.00	0.00
74.00	0.00	0	666.00	0.00	0.00	0.00
76.00	0.00	0	666.00	0.00	0.00	0.00
78.00	0.00	0	666.00	0.00	0.00	0.00
80.00	0.00	0	666.00	0.00	0.00	0.00
82.00	0.00	0	666.00	0.00	0.00	0.00
84.00	0.00	0	666.00	0.00	0.00	0.00
86.00	0.00	0	666.00	0.00	0.00	0.00
88.00	0.00	0	666.00	0.00	0.00	0.00
90.00	0.00	0	666.00	0.00	0.00	0.00
92.00	0.00	0	666.00	0.00	0.00	0.00
94.00	0.00	0	666.00	0.00	0.00	0.00
96.00	0.00	0	666.00	0.00	0.00	0.00

Summary for Reach SR-1: South Reach-1

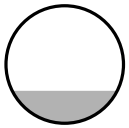
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 465,430 sf, 43.59% Impervious, Inflow Depth = 2.44" for 25 Year, 24 Hr. Event event
Inflow = 17.97 cfs @ 12.32 hrs, Volume= 94,818 cf
Outflow = 17.97 cfs @ 12.33 hrs, Volume= 94,818 cf, Atten= 0%, Lag= 0.2 min

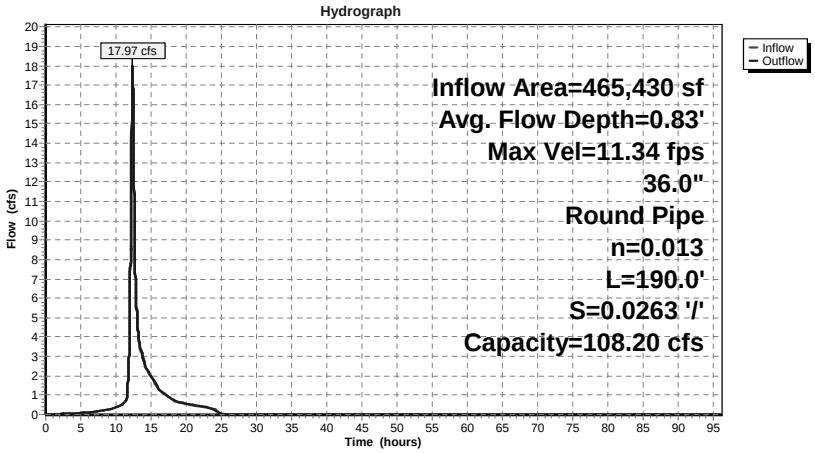
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 11.34 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.66 fps, Avg. Travel Time= 0.9 min

Peak Storage= 301 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.83'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 108.20 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 190.0' Slope= 0.0263 '/'
Inlet Invert= 668.00', Outlet Invert= 663.00'



Reach SR-1: South Reach-1



Hydrograph for Reach SR-1: South Reach-1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	668.00	0.00
2.00	0.03	4	668.04	0.03
4.00	0.07	6	668.06	0.07
6.00	0.11	8	668.07	0.11
8.00	0.18	12	668.09	0.18
10.00	0.35	19	668.12	0.35
12.00	**5.56**	**128**	**668.45**	**5.34**
14.00	**2.71**	**79**	**668.33**	**2.72**
16.00	1.38	50	668.24	1.38
18.00	0.77	33	668.18	0.77
20.00	0.55	26	668.15	0.55
22.00	0.42	22	668.14	0.43
24.00	0.31	18	668.12	0.31
26.00	0.00	0	668.00	0.00
28.00	0.00	0	668.00	0.00
30.00	0.00	0	668.00	0.00
32.00	0.00	0	668.00	0.00
34.00	0.00	0	668.00	0.00
36.00	0.00	0	668.00	0.00
38.00	0.00	0	668.00	0.00
40.00	0.00	0	668.00	0.00
42.00	0.00	0	668.00	0.00
44.00	0.00	0	668.00	0.00
46.00	0.00	0	668.00	0.00
48.00	0.00	0	668.00	0.00
50.00	0.00	0	668.00	0.00
52.00	0.00	0	668.00	0.00
54.00	0.00	0	668.00	0.00
56.00	0.00	0	668.00	0.00
58.00	0.00	0	668.00	0.00
60.00	0.00	0	668.00	0.00
62.00	0.00	0	668.00	0.00
64.00	0.00	0	668.00	0.00
66.00	0.00	0	668.00	0.00
68.00	0.00	0	668.00	0.00
70.00	0.00	0	668.00	0.00
72.00	0.00	0	668.00	0.00
74.00	0.00	0	668.00	0.00
76.00	0.00	0	668.00	0.00
78.00	0.00	0	668.00	0.00
80.00	0.00	0	668.00	0.00
82.00	0.00	0	668.00	0.00
84.00	0.00	0	668.00	0.00
86.00	0.00	0	668.00	0.00
88.00	0.00	0	668.00	0.00
90.00	0.00	0	668.00	0.00
92.00	0.00	0	668.00	0.00
94.00	0.00	0	668.00	0.00
96.00	0.00	0	668.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2A: Post DA 8B-2A Runoff Area=46,563 sf 59.62% Impervious Runoff Depth=8.06"
Tc=5.0 min CN=74/98 Runoff=9.43 cfs 31,271 cf

Pond 2A-Bio: 2A_Bioretention Peak Elev=674.41' Storage=11,842 cf Inflow=9.43 cfs 31,271 cf
Discarded=0.04 cfs 10,857 cf Primary=6.93 cfs 19,273 cf Outflow=6.97 cfs 30,130 cf

Subcatchment 2B: Post DA 8B-2B Runoff Area=53,291 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=11.83 cfs 41,120 cf

Subcatchment 3: Post DA 8B-3 Runoff Area=187,200 sf 19.40% Impervious Runoff Depth=6.14"
Flow Length=420' Tc=11.8 min CN=67/98 Runoff=24.58 cfs 95,851 cf

Pond 3-Bio: 3_Bioretention Peak Elev=689.17' Storage=19,329 cf Inflow=24.58 cfs 95,851 cf
Discarded=0.03 cfs 10,276 cf Primary=22.77 cfs 80,010 cf Outflow=22.80 cfs 90,286 cf

Reach 8B-S: DA-8B South Outflow Avg. Flow Depth=1.65' Max Vel=16.01 fps Inflow=63.73 cfs 229,666 cf
36.0" Round Pipe n=0.013 L=150.0' S=0.0267 '/' Capacity=108.92 cfs Outflow=63.72 cfs 229,666 cf

100 Year 24 Hr. Event Outflow Imported from Post_DP-08B_West~Reach 8BW-Out.hce Inflow=19.99 cfs 64,519 cf
Link Area= 157,153 sf 46.55% Imperv. Primary=19.99 cfs 64,519 cf

Subcatchment 10: Post DA 8B-10 Runoff Area=21,223 sf 58.09% Impervious Runoff Depth=8.01"
Tc=5.0 min CN=74/98 Runoff=4.28 cfs 14,173 cf

Pond 10-Bio: 10_Bioretention Peak Elev=692.78' Storage=4,672 cf Inflow=4.28 cfs 14,173 cf
Discarded=0.02 cfs 4,006 cf Primary=3.92 cfs 9,169 cf Outflow=3.93 cfs 13,174 cf

Subcatchment 11A: Post DA 8B-11A Runoff Area=32,946 sf 53.55% Impervious Runoff Depth=7.88"
Tc=5.0 min CN=74/98 Runoff=6.58 cfs 21,630 cf

Pond 11A-Bio: 11A_Bioretention Peak Elev=667.86' Storage=6,766 cf Inflow=6.58 cfs 21,630 cf
Discarded=0.03 cfs 5,682 cf Primary=5.68 cfs 14,801 cf Outflow=5.71 cfs 20,483 cf

Subcatchment 11B: Post DA 8B-11B Runoff Area=5,443 sf 94.86% Impervious Runoff Depth=9.11"
Tc=5.0 min CN=74/98 Runoff=1.19 cfs 4,131 cf

Pond 11B-P: 11B-Pavers Peak Elev=668.04' Storage=1,928 cf Inflow=1.19 cfs 4,131 cf
Discarded=0.03 cfs 3,358 cf Primary=0.19 cfs 772 cf Outflow=0.21 cfs 4,131 cf

Reach SR-1: South Reach-1 Avg. Flow Depth=1.57' Max Vel=15.60 fps Inflow=58.45 cfs 214,092 cf
36.0" Round Pipe n=0.013 L=190.0' S=0.0263 '/' Capacity=108.20 cfs Outflow=58.44 cfs 214,092 cf

Total Runoff Area = 346,666 sf Runoff Volume = 208,175 cf Average Runoff Depth = 7.21"
56.01% Pervious = 194,165 sf 43.99% Impervious = 152,501 sf

Summary for Subcatchment 2A: Post DA 8B-2A

Runoff = 9.43 cfs @ 12.07 hrs, Volume= 31,271 cf, Depth= 8.06"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

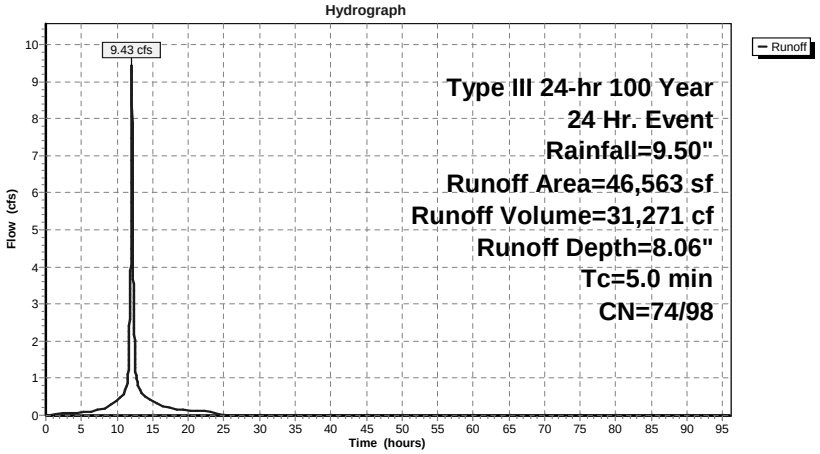
	Area (sf)	CN	Description	Land Use
	27,761	98	Paved parking, HSG C	Pavement
	3,136	74	>75% Grass cover, Good, HSG C	Open Space
*	15,666	74	Bioretention, HSG C	Landscaped
	46,563	88	Weighted Average	
	18,802	74	40.38% Pervious Area	
	27,761	98	59.62% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 59.62% Impervious, Rv= 0.587, Runoff= 26.81"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
15,666	Landscaped	0.00	0.00	0.00	0.00
3,136	Open Space	263.28	0.92	3.98	0.54
27,761	Pavement	669.77	2.17	8.13	25.94
46,563	Total	933.05	3.09	12.11	26.48

Subcatchment 2A: Post DA 8B-2A



Hydrograph for Subcatchment 2A: Post DA 8B-2A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.04
4.00	0.41	0.00	0.24	0.07
6.00	0.68	0.00	0.49	0.09
8.00	1.08	0.04	0.87	0.17
10.00	1.80	0.26	1.57	0.37
12.00	4.75	2.17	4.51	**6.28**
14.00	7.70	4.66	7.46	**0.50**
16.00	8.42	5.30	8.18	0.26
18.00	8.82	5.66	8.58	0.16
20.00	9.09	5.91	8.85	0.13
22.00	9.32	6.12	9.08	0.11
24.00	**9.50**	**6.29**	**9.26**	0.09
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00
74.00	9.50	6.29	9.26	0.00
76.00	9.50	6.29	9.26	0.00
78.00	9.50	6.29	9.26	0.00
80.00	9.50	6.29	9.26	0.00
82.00	9.50	6.29	9.26	0.00
84.00	9.50	6.29	9.26	0.00
86.00	9.50	6.29	9.26	0.00
88.00	9.50	6.29	9.26	0.00
90.00	9.50	6.29	9.26	0.00
92.00	9.50	6.29	9.26	0.00
94.00	9.50	6.29	9.26	0.00
96.00	9.50	6.29	9.26	0.00

Summary for Pond 2A-Bio: 2A_Bioretention

Inflow Area = 46,563 sf, 59.62% Impervious, Inflow Depth = 8.06" for 100 Year, 24 Hr. Event event
Inflow = 9.43 cfs @ 12.07 hrs, Volume= 31,271 cf
Outflow = 6.97 cfs @ 12.14 hrs, Volume= 30,130 cf, Atten= 26%, Lag= 4.0 min
Discarded = 0.04 cfs @ 11.92 hrs, Volume= 10,857 cf
Primary = 6.93 cfs @ 12.14 hrs, Volume= 19,273 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 674.41' @ 12.14 hrs Surf.Area= 7,066 sf Storage= 11,842 cf

Plug-Flow detention time= 813.4 min calculated for 30,126 cf (96% of inflow)
Center-of-Mass det. time= 791.6 min (1,552.0 - 760.4)

Volume	Invert	Avail.Storage	Storage Description
#1	669.75'	12,461 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

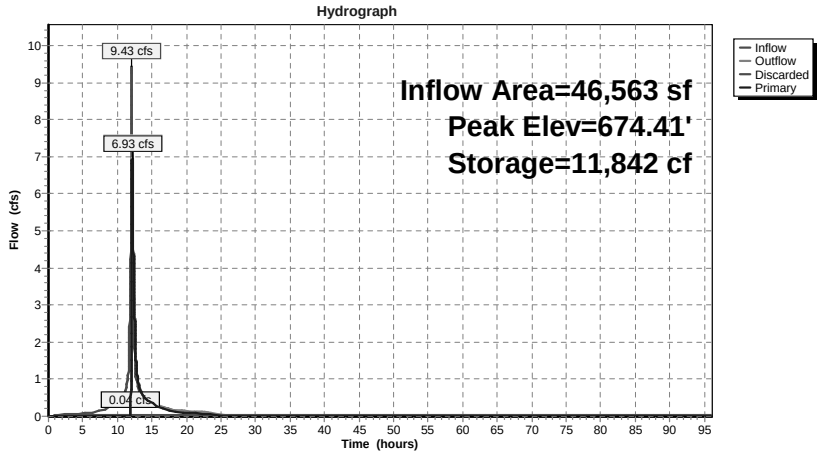
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
669.75	5,228	0.0	0	0
669.76	5,228	40.0	21	21
673.99	5,228	40.0	8,846	8,867
674.00	7,066	100.0	61	8,928
674.50	7,066	100.0	3,533	12,461

Device	Routing	Invert	Outlet Devices
#1	Discarded	669.75'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	674.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.04 cfs @ 11.92 hrs HW=674.01' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=6.92 cfs @ 12.14 hrs HW=674.41' TW=669.56' (Dynamic Tailwater)
└**2=Orifice/Grate** (Weir Controls 6.92 cfs @ 2.10 fps)

Pond 2A-Bio: 2A_Bioretention



Hydrograph for Pond 2A-Bio: 2A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	669.75	0.00	0.00	0.00
2.00	0.04	12	669.76	0.03	0.03	0.00
4.00	0.07	187	669.84	0.03	0.03	0.00
6.00	0.09	545	670.01	0.03	0.03	0.00
8.00	0.17	1,250	670.35	0.03	0.03	0.00
10.00	0.37	2,944	671.16	0.03	**0.03**	0.00
12.00	**6.28**	**10,142**	**674.17**	**1.90**	**0.04**	**1.86**
14.00	**0.50**	**9,432**	**674.07**	**0.54**	0.04	**0.50**
16.00	0.26	9,246	674.04	0.29	0.04	0.25
18.00	0.16	9,139	674.03	0.18	0.04	0.13
20.00	0.13	9,093	674.02	0.13	0.04	0.09
22.00	0.11	9,065	674.02	0.11	0.04	0.07
24.00	0.09	9,035	674.02	0.09	0.04	0.05
26.00	0.00	8,766	673.94	0.03	0.03	0.00
28.00	0.00	8,548	673.84	0.03	0.03	0.00
30.00	0.00	8,330	673.73	0.03	0.03	0.00
32.00	0.00	8,112	673.63	0.03	0.03	0.00
34.00	0.00	7,895	673.53	0.03	0.03	0.00
36.00	0.00	7,677	673.42	0.03	0.03	0.00
38.00	0.00	7,459	673.32	0.03	0.03	0.00
40.00	0.00	7,241	673.21	0.03	0.03	0.00
42.00	0.00	7,023	673.11	0.03	0.03	0.00
44.00	0.00	6,805	673.00	0.03	0.03	0.00
46.00	0.00	6,588	672.90	0.03	0.03	0.00
48.00	0.00	6,370	672.80	0.03	0.03	0.00
50.00	0.00	6,152	672.69	0.03	0.03	0.00
52.00	0.00	5,934	672.59	0.03	0.03	0.00
54.00	0.00	5,716	672.48	0.03	0.03	0.00
56.00	0.00	5,498	672.38	0.03	0.03	0.00
58.00	0.00	5,281	672.28	0.03	0.03	0.00
60.00	0.00	5,063	672.17	0.03	0.03	0.00
62.00	0.00	4,845	672.07	0.03	0.03	0.00
64.00	0.00	4,627	671.96	0.03	0.03	0.00
66.00	0.00	4,409	671.86	0.03	0.03	0.00
68.00	0.00	4,191	671.75	0.03	0.03	0.00
70.00	0.00	3,974	671.65	0.03	0.03	0.00
72.00	0.00	3,756	671.55	0.03	0.03	0.00
74.00	0.00	3,538	671.44	0.03	0.03	0.00
76.00	0.00	3,320	671.34	0.03	0.03	0.00
78.00	0.00	3,102	671.23	0.03	0.03	0.00
80.00	0.00	2,884	671.13	0.03	0.03	0.00
82.00	0.00	2,667	671.03	0.03	0.03	0.00
84.00	0.00	2,449	670.92	0.03	0.03	0.00
86.00	0.00	2,231	670.82	0.03	0.03	0.00
88.00	0.00	2,013	670.71	0.03	0.03	0.00
90.00	0.00	1,795	670.61	0.03	0.03	0.00
92.00	0.00	1,577	670.50	0.03	0.03	0.00
94.00	0.00	1,360	670.40	0.03	0.03	0.00
96.00	0.00	1,142	670.30	0.03	0.03	0.00

Summary for Subcatchment 2B: Post DA 8B-2B

Runoff = 11.83 cfs @ 12.07 hrs, Volume= 41,120 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

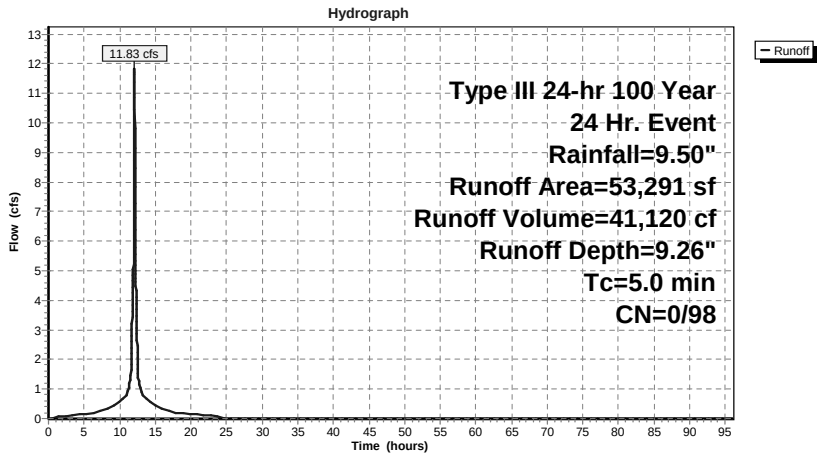
	Area (sf)	CN	Description	Land Use
	34,639	98	Roofs, HSG C	Roofs
*	18,652	98	Green Roof, HSG B	Landscaped
	53,291	98	Weighted Average	
	53,291	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
18,652	Landscaped	0.00	0.00	0.00	0.00
34,639	Roofs	148.65	0.86	11.74	57.89
53,291	Total	148.65	0.86	11.74	57.89

Subcatchment 2B: Post DA 8B-2B



Hydrograph for Subcatchment 2B: Post DA 8B-2B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.08
4.00	0.41	0.00	0.24	0.13
6.00	0.68	0.00	0.49	0.18
8.00	1.08	0.00	0.87	0.29
10.00	1.80	0.00	1.57	0.56
12.00	4.75	0.00	4.51	**8.00**
14.00	7.70	0.00	7.46	**0.60**
16.00	8.42	0.00	8.18	0.31
18.00	8.82	0.00	8.58	0.19
20.00	9.09	0.00	8.85	0.15
22.00	9.32	0.00	9.08	0.13
24.00	**9.50**	0.00	**9.26**	0.10
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00
74.00	9.50	0.00	9.26	0.00
76.00	9.50	0.00	9.26	0.00
78.00	9.50	0.00	9.26	0.00
80.00	9.50	0.00	9.26	0.00
82.00	9.50	0.00	9.26	0.00
84.00	9.50	0.00	9.26	0.00
86.00	9.50	0.00	9.26	0.00
88.00	9.50	0.00	9.26	0.00
90.00	9.50	0.00	9.26	0.00
92.00	9.50	0.00	9.26	0.00
94.00	9.50	0.00	9.26	0.00
96.00	9.50	0.00	9.26	0.00

Summary for Subcatchment 3: Post DA 8B-3

Runoff = 24.58 cfs @ 12.16 hrs, Volume= 95,851 cf, Depth= 6.14"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

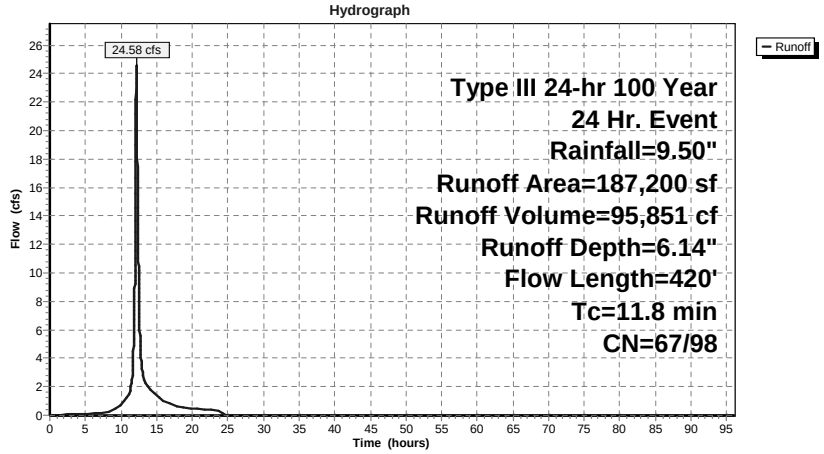
	Area (sf)	CN	Description	Land Use
	69,479	74	>75% Grass cover, Good, HSG C	Open Space
	72,736	61	>75% Grass cover, Good, HSG B	Open Space
	25,889	98	Paved parking, HSG C	Pavement
*	8,669	61	Bioretention, HSG B	Landscaped
	10,427	98	Roofs, HSG C	Roofs
	187,200	73	Weighted Average	
	150,884	67	80.60% Pervious Area	
	36,316	98	19.40% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	64	0.0312	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.4	36	0.2000	0.25		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	150	0.2057	3.17		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	170		5.00		**Direct Entry,**
11.8	420	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 19.40% Impervious, Rv= 0.225, Runoff= 10.26"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
8,669	Landscaped	0.00	0.00	0.00	0.00
142,215	Open Space	4,571.50	15.95	69.10	9.34
25,889	Pavement	239.15	0.77	2.90	9.26
10,427	Roofs	10.58	0.06	0.84	4.12
187,200	Total	4,821.23	16.78	72.84	22.72

Subcatchment 3: Post DA 8B-3



Hydrograph for Subcatchment 3: Post DA 8B-3

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.05
4.00	0.41	0.00	0.24	0.09
6.00	0.68	0.00	0.49	0.12
8.00	1.08	0.00	0.87	0.21
10.00	1.80	0.11	1.57	0.75
12.00	4.75	1.63	4.51	**11.54**
14.00	7.70	3.88	7.46	**1.87**
16.00	8.42	4.47	8.18	1.01
18.00	8.82	4.81	8.58	0.61
20.00	9.09	5.04	8.85	0.48
22.00	9.32	5.24	9.08	0.40
24.00	**9.50**	**5.39**	**9.26**	0.32
26.00	9.50	5.39	9.26	0.00
28.00	9.50	5.39	9.26	0.00
30.00	9.50	5.39	9.26	0.00
32.00	9.50	5.39	9.26	0.00
34.00	9.50	5.39	9.26	0.00
36.00	9.50	5.39	9.26	0.00
38.00	9.50	5.39	9.26	0.00
40.00	9.50	5.39	9.26	0.00
42.00	9.50	5.39	9.26	0.00
44.00	9.50	5.39	9.26	0.00
46.00	9.50	5.39	9.26	0.00
48.00	9.50	5.39	9.26	0.00
50.00	9.50	5.39	9.26	0.00
52.00	9.50	5.39	9.26	0.00
54.00	9.50	5.39	9.26	0.00
56.00	9.50	5.39	9.26	0.00
58.00	9.50	5.39	9.26	0.00
60.00	9.50	5.39	9.26	0.00
62.00	9.50	5.39	9.26	0.00
64.00	9.50	5.39	9.26	0.00
66.00	9.50	5.39	9.26	0.00
68.00	9.50	5.39	9.26	0.00
70.00	9.50	5.39	9.26	0.00
72.00	9.50	5.39	9.26	0.00
74.00	9.50	5.39	9.26	0.00
76.00	9.50	5.39	9.26	0.00
78.00	9.50	5.39	9.26	0.00
80.00	9.50	5.39	9.26	0.00
82.00	9.50	5.39	9.26	0.00
84.00	9.50	5.39	9.26	0.00
86.00	9.50	5.39	9.26	0.00
88.00	9.50	5.39	9.26	0.00
90.00	9.50	5.39	9.26	0.00
92.00	9.50	5.39	9.26	0.00
94.00	9.50	5.39	9.26	0.00
96.00	9.50	5.39	9.26	0.00

Summary for Pond 3-Bio: 3_Bioretention

Inflow Area = 187,200 sf, 19.40% Impervious, Inflow Depth = 6.14" for 100 Year, 24 Hr. Event event
Inflow = 24.58 cfs @ 12.16 hrs, Volume= 95,851 cf
Outflow = 22.80 cfs @ 12.21 hrs, Volume= 90,286 cf, Atten= 7%, Lag= 3.0 min
Discarded = 0.03 cfs @ 1.82 hrs, Volume= 10,276 cf
Primary = 22.77 cfs @ 12.21 hrs, Volume= 80,010 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 689.17' @ 12.21 hrs Surf.Area= 9,121 sf Storage= 19,329 cf

Plug-Flow detention time= 309.7 min calculated for 90,277 cf (94% of inflow)
Center-of-Mass det. time= 278.0 min (1,082.2 - 804.1)

Volume	Invert	Avail.Storage	Storage Description
#1	684.00'	22,330 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

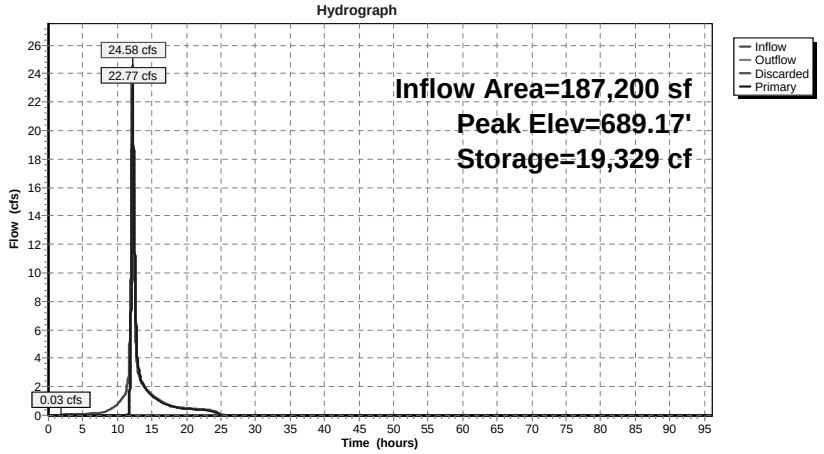
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
684.00	5,374	0.0	0	0	5,374
684.01	5,374	40.0	21	21	5,377
687.99	5,374	40.0	8,555	8,577	6,544
688.00	9,121	100.0	72	8,649	10,291
688.50	9,121	100.0	4,561	13,209	10,482
689.00	9,121	100.0	4,561	17,770	10,673
689.50	9,121	100.0	4,561	22,330	10,864

Device	Routing	Invert	Outlet Devices
#1	Discarded	684.00'	**0.03 cfs Exfiltration at all elevations**
#2	Primary	688.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 36.00 columns** X 36 rows C= 0.600 in 38.0" x 38.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 1.82 hrs HW=684.01' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=22.77 cfs @ 12.21 hrs HW=689.17' TW=669.52' (Dynamic Tailwater)
└**2=Orifice/Grate** (Weir Controls 22.77 cfs @ 2.68 fps)

Pond 3-Bio: 3_Bioretention



Hydrograph for Pond 3-Bio: 3_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	684.00	0.00	**0.00**	0.00
2.00	0.05	34	684.02	0.03	**0.03**	0.00
4.00	0.09	318	684.15	0.03	0.03	0.00
6.00	0.12	844	684.39	0.03	0.03	0.00
8.00	0.21	1,745	684.81	0.03	0.03	0.00
10.00	0.75	4,703	686.19	0.03	0.03	0.00
12.00	**11.54**	**16,472**	**688.86**	**8.89**	0.03	**8.86**
14.00	**1.87**	**14,392**	**688.63**	**1.97**	0.03	**1.94**
16.00	1.01	13,987	688.59	1.06	0.03	1.03
18.00	0.61	13,758	688.56	0.64	0.03	0.61
20.00	0.48	13,665	688.55	0.49	0.03	0.46
22.00	0.40	13,608	688.54	0.41	0.03	0.38
24.00	0.32	13,549	688.54	0.33	0.03	0.30
26.00	0.00	13,125	688.49	0.03	0.03	0.00
28.00	0.00	12,909	688.47	0.03	0.03	0.00
30.00	0.00	12,693	688.44	0.03	0.03	0.00
32.00	0.00	12,477	688.42	0.03	0.03	0.00
34.00	0.00	12,261	688.40	0.03	0.03	0.00
36.00	0.00	12,045	688.37	0.03	0.03	0.00
38.00	0.00	11,829	688.35	0.03	0.03	0.00
40.00	0.00	11,613	688.33	0.03	0.03	0.00
42.00	0.00	11,397	688.30	0.03	0.03	0.00
44.00	0.00	11,181	688.28	0.03	0.03	0.00
46.00	0.00	10,965	688.25	0.03	0.03	0.00
48.00	0.00	10,749	688.23	0.03	0.03	0.00
50.00	0.00	10,533	688.21	0.03	0.03	0.00
52.00	0.00	10,317	688.18	0.03	0.03	0.00
54.00	0.00	10,101	688.16	0.03	0.03	0.00
56.00	0.00	9,885	688.14	0.03	0.03	0.00
58.00	0.00	9,669	688.11	0.03	0.03	0.00
60.00	0.00	9,453	688.09	0.03	0.03	0.00
62.00	0.00	9,237	688.06	0.03	0.03	0.00
64.00	0.00	9,021	688.04	0.03	0.03	0.00
66.00	0.00	8,805	688.02	0.03	0.03	0.00
68.00	0.00	8,589	687.99	0.03	0.03	0.00
70.00	0.00	8,373	687.90	0.03	0.03	0.00
72.00	0.00	8,157	687.79	0.03	0.03	0.00
74.00	0.00	7,941	687.69	0.03	0.03	0.00
76.00	0.00	7,725	687.59	0.03	0.03	0.00
78.00	0.00	7,509	687.49	0.03	0.03	0.00
80.00	0.00	7,293	687.39	0.03	0.03	0.00
82.00	0.00	7,077	687.29	0.03	0.03	0.00
84.00	0.00	6,861	687.19	0.03	0.03	0.00
86.00	0.00	6,645	687.09	0.03	0.03	0.00
88.00	0.00	6,429	686.99	0.03	0.03	0.00
90.00	0.00	6,213	686.89	0.03	0.03	0.00
92.00	0.00	5,997	686.79	0.03	0.03	0.00
94.00	0.00	5,781	686.69	0.03	0.03	0.00
96.00	0.00	5,565	686.59	0.03	0.03	0.00

Summary for Reach 8B-S: DA-8B South Outflow

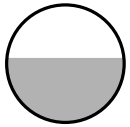
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach SR-1 OUTLET depth by 0.08' @ 12.13 hrs

Inflow Area = 503,819 sf, 44.79% Impervious, Inflow Depth = 5.47" for 100 Year, 24 Hr. Event event
Inflow = 63.73 cfs @ 12.15 hrs, Volume= 229,666 cf
Outflow = 63.72 cfs @ 12.15 hrs, Volume= 229,666 cf, Atten= 0%, Lag= 0.1 min

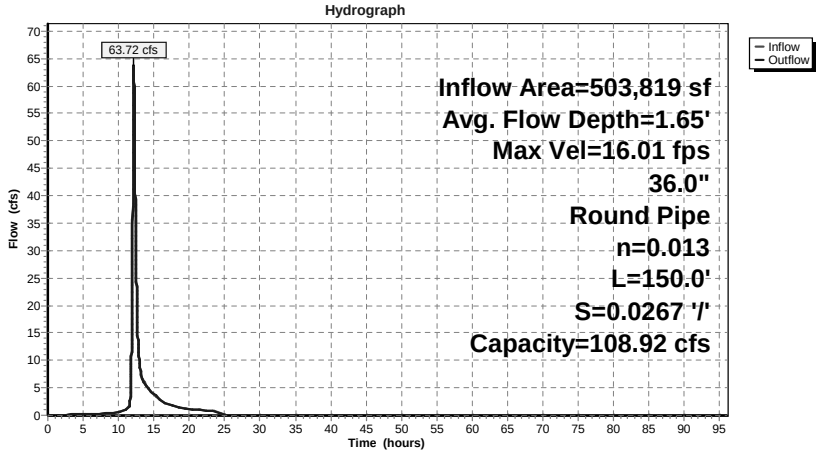
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 16.01 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.44 fps, Avg. Travel Time= 0.6 min

Peak Storage= 597 cf @ 12.15 hrs
Average Depth at Peak Storage= 1.65'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 108.92 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 150.0' Slope= 0.0267 '/'
Inlet Invert= 663.00', Outlet Invert= 659.00'



Reach 8B-S: DA-8B South Outflow



Hydrograph for Reach 8B-S: DA-8B South Outflow

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	663.00	0.00
2.00	0.08	5	663.06	0.08
4.00	0.13	8	663.08	0.13
6.00	0.18	9	663.09	0.18
8.00	0.30	13	663.11	0.30
10.00	0.60	22	663.16	0.60
12.00	**30.28**	**340**	**664.07**	**29.74**
14.00	**5.21**	**99**	**663.45**	**5.22**
16.00	2.69	62	663.32	2.69
18.00	1.53	42	663.25	1.53
20.00	1.13	34	663.22	1.13
22.00	0.90	29	663.19	0.90
24.00	0.68	24	663.17	0.68
26.00	0.00	0	663.00	0.00
28.00	0.00	0	663.00	0.00
30.00	0.00	0	663.00	0.00
32.00	0.00	0	663.00	0.00
34.00	0.00	0	663.00	0.00
36.00	0.00	0	663.00	0.00
38.00	0.00	0	663.00	0.00
40.00	0.00	0	663.00	0.00
42.00	0.00	0	663.00	0.00
44.00	0.00	0	663.00	0.00
46.00	0.00	0	663.00	0.00
48.00	0.00	0	663.00	0.00
50.00	0.00	0	663.00	0.00
52.00	0.00	0	663.00	0.00
54.00	0.00	0	663.00	0.00
56.00	0.00	0	663.00	0.00
58.00	0.00	0	663.00	0.00
60.00	0.00	0	663.00	0.00
62.00	0.00	0	663.00	0.00
64.00	0.00	0	663.00	0.00
66.00	0.00	0	663.00	0.00
68.00	0.00	0	663.00	0.00
70.00	0.00	0	663.00	0.00
72.00	0.00	0	663.00	0.00
74.00	0.00	0	663.00	0.00
76.00	0.00	0	663.00	0.00
78.00	0.00	0	663.00	0.00
80.00	0.00	0	663.00	0.00
82.00	0.00	0	663.00	0.00
84.00	0.00	0	663.00	0.00
86.00	0.00	0	663.00	0.00
88.00	0.00	0	663.00	0.00
90.00	0.00	0	663.00	0.00
92.00	0.00	0	663.00	0.00
94.00	0.00	0	663.00	0.00
96.00	0.00	0	663.00	0.00

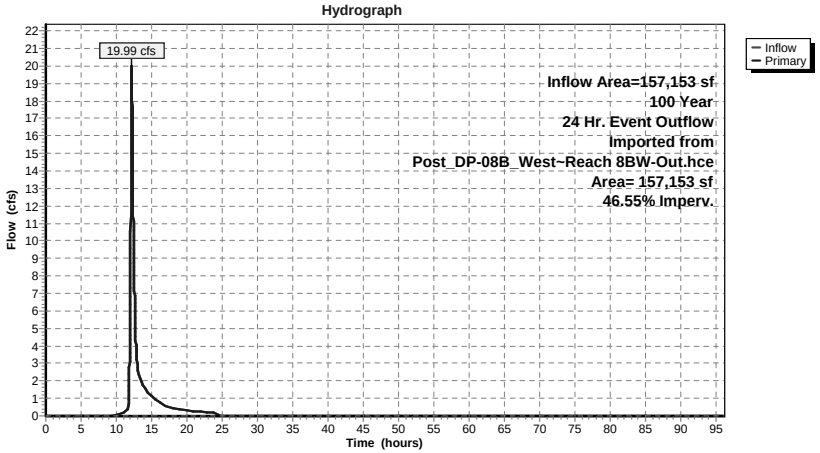
Summary for Link 8B-W: DA-8B West Inflow

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 4.93" for 100 Year, 24 Hr. Event event
Inflow = 19.99 cfs @ 12.16 hrs, Volume= 64,519 cf
Primary = 19.99 cfs @ 12.16 hrs, Volume= 64,519 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

100 Year, 24 Hr. Event Outflow Imported from Post_DP-08B_West~Reach 8BW-Out.hce

Link 8B-W: DA-8B West Inflow



Hydrograph for Link 8B-W: DA-8B West Inflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.05	0.00	0.05	62.00	0.00	0.00	0.00
11.00	0.14	0.00	0.14	63.00	0.00	0.00	0.00
12.00	**7.34**	0.00	**7.34**	64.00	0.00	0.00	0.00
13.00	**2.93**	0.00	**2.93**	65.00	0.00	0.00	0.00
14.00	1.56	0.00	1.56	66.00	0.00	0.00	0.00
15.00	1.12	0.00	1.12	67.00	0.00	0.00	0.00
16.00	0.79	0.00	0.79	68.00	0.00	0.00	0.00
17.00	0.57	0.00	0.57	69.00	0.00	0.00	0.00
18.00	0.43	0.00	0.43	70.00	0.00	0.00	0.00
19.00	0.35	0.00	0.35	71.00	0.00	0.00	0.00
20.00	0.30	0.00	0.30	72.00	0.00	0.00	0.00
21.00	0.27	0.00	0.27	73.00	0.00	0.00	0.00
22.00	0.24	0.00	0.24	74.00	0.00	0.00	0.00
23.00	0.21	0.00	0.21	75.00	0.00	0.00	0.00
24.00	0.17	0.00	0.17	76.00	0.00	0.00	0.00
25.00	0.01	0.00	0.01	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 10: Post DA 8B-10

Runoff = 4.28 cfs @ 12.07 hrs, Volume= 14,173 cf, Depth= 8.01"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

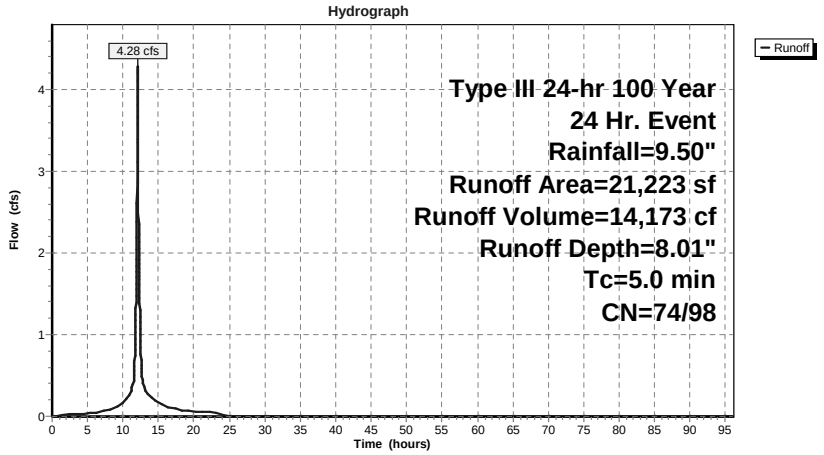
	Area (sf)	CN	Description	Land Use
	12,329	98	Unconnected pavement, HSG C	Pavement
	7,873	74	>75% Grass cover, Good, HSG C	Open Space
*	1,021	74	Bioretention, HSG C	Landscaped
	21,223	88	Weighted Average	
	8,894	74	41.91% Pervious Area	
	12,329	98	58.09% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 58.09% Impervious, Rv= 0.573, Runoff= 26.18"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,021	Landscaped	0.00	0.00	0.00	0.00
7,873	Open Space	645.47	2.25	9.76	1.32
12,329	Pavement	290.48	0.94	3.53	11.25
21,223	Total	935.96	3.19	13.28	12.57

Subcatchment 10: Post DA 8B-10



Hydrograph for Subcatchment 10: Post DA 8B-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.02
4.00	0.41	0.00	0.24	0.03
6.00	0.68	0.00	0.49	0.04
8.00	1.08	0.04	0.87	0.08
10.00	1.80	0.26	1.57	0.17
12.00	4.75	2.17	4.51	**2.85**
14.00	7.70	4.66	7.46	**0.23**
16.00	8.42	5.30	8.18	0.12
18.00	8.82	5.66	8.58	0.07
20.00	9.09	5.91	8.85	0.06
22.00	9.32	6.12	9.08	0.05
24.00	**9.50**	**6.29**	**9.26**	0.04
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00
74.00	9.50	6.29	9.26	0.00
76.00	9.50	6.29	9.26	0.00
78.00	9.50	6.29	9.26	0.00
80.00	9.50	6.29	9.26	0.00
82.00	9.50	6.29	9.26	0.00
84.00	9.50	6.29	9.26	0.00
86.00	9.50	6.29	9.26	0.00
88.00	9.50	6.29	9.26	0.00
90.00	9.50	6.29	9.26	0.00
92.00	9.50	6.29	9.26	0.00
94.00	9.50	6.29	9.26	0.00
96.00	9.50	6.29	9.26	0.00

Summary for Pond 10-Bio: 10_Bioretention

Inflow Area = 21,223 sf, 58.09% Impervious, Inflow Depth = 8.01" for 100 Year, 24 Hr. Event event
Inflow = 4.28 cfs @ 12.07 hrs, Volume= 14,173 cf
Outflow = 3.93 cfs @ 12.10 hrs, Volume= 13,174 cf, Atten= 8%, Lag= 2.0 min
Discarded = 0.02 cfs @ 11.39 hrs, Volume= 4,006 cf
Primary = 3.92 cfs @ 12.10 hrs, Volume= 9,169 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 692.78' @ 12.10 hrs Surf.Area= 2,629 sf Storage= 4,672 cf

Plug-Flow detention time= 672.2 min calculated for 13,173 cf (93% of inflow)
Center-of-Mass det. time= 634.1 min (1,395.4 - 761.3)

Volume	Invert	Avail.Storage	Storage Description
#1	688.00'	5,245 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

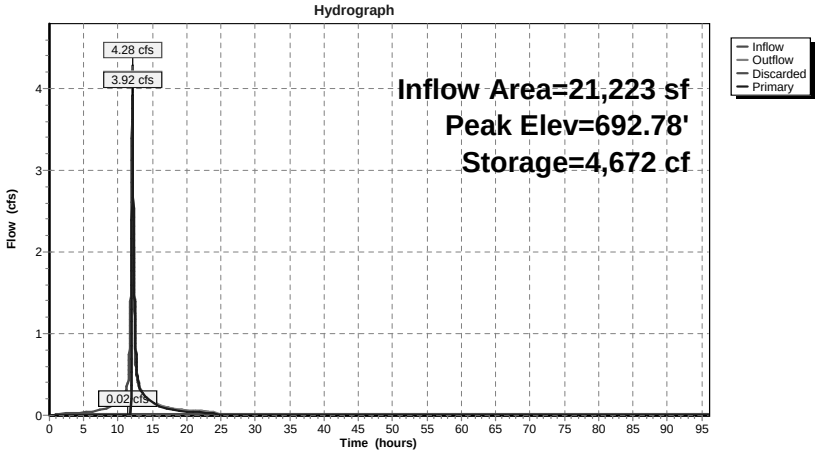
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
688.00	1,626	0.0	0	0
688.01	1,626	40.0	7	7
691.99	1,626	40.0	2,589	2,595
692.00	2,629	100.0	21	2,616
692.50	2,629	100.0	1,315	3,931
693.00	2,629	100.0	1,315	5,245

Device	Routing	Invert	Outlet Devices
#1	Discarded	688.00'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	692.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 11.39 hrs HW=692.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=3.91 cfs @ 12.10 hrs HW=692.78' TW=669.50' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 3.91 cfs @ 1.74 fps)

Pond 10-Bio: 10_Bioretention



Hydrograph for Pond 10-Bio: 10_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	688.00	0.00	0.00	0.00
2.00	0.02	17	688.03	0.01	0.01	0.00
4.00	0.03	124	688.19	0.01	0.01	0.00
6.00	0.04	312	688.48	0.01	0.01	0.00
8.00	0.08	655	689.01	0.01	0.01	0.00
10.00	0.17	1,446	690.22	0.01	**0.01**	0.00
12.00	**2.85**	**4,397**	**692.68**	**1.97**	**0.02**	**1.96**
14.00	**0.23**	**4,040**	**692.54**	**0.24**	0.02	**0.22**
16.00	0.12	4,000	692.53	0.13	0.02	0.11
18.00	0.07	3,977	692.52	0.08	0.02	0.06
20.00	0.06	3,968	692.51	0.06	0.02	0.04
22.00	0.05	3,962	692.51	0.05	0.02	0.03
24.00	0.04	3,956	692.51	0.04	0.02	0.02
26.00	0.00	3,842	692.47	0.02	0.02	0.00
28.00	0.00	3,733	692.42	0.02	0.02	0.00
30.00	0.00	3,623	692.38	0.02	0.02	0.00
32.00	0.00	3,514	692.34	0.02	0.02	0.00
34.00	0.00	3,404	692.30	0.02	0.02	0.00
36.00	0.00	3,295	692.26	0.02	0.02	0.00
38.00	0.00	3,185	692.22	0.02	0.02	0.00
40.00	0.00	3,076	692.17	0.02	0.02	0.00
42.00	0.00	2,966	692.13	0.02	0.02	0.00
44.00	0.00	2,856	692.09	0.02	0.02	0.00
46.00	0.00	2,747	692.05	0.02	0.02	0.00
48.00	0.00	2,637	692.01	0.02	0.02	0.00
50.00	0.00	2,557	691.93	0.01	0.01	0.00
52.00	0.00	2,489	691.83	0.01	0.01	0.00
54.00	0.00	2,421	691.72	0.01	0.01	0.00
56.00	0.00	2,353	691.62	0.01	0.01	0.00
58.00	0.00	2,286	691.51	0.01	0.01	0.00
60.00	0.00	2,218	691.41	0.01	0.01	0.00
62.00	0.00	2,150	691.31	0.01	0.01	0.00
64.00	0.00	2,082	691.20	0.01	0.01	0.00
66.00	0.00	2,015	691.10	0.01	0.01	0.00
68.00	0.00	1,947	690.99	0.01	0.01	0.00
70.00	0.00	1,879	690.89	0.01	0.01	0.00
72.00	0.00	1,811	690.78	0.01	0.01	0.00
74.00	0.00	1,744	690.68	0.01	0.01	0.00
76.00	0.00	1,676	690.58	0.01	0.01	0.00
78.00	0.00	1,608	690.47	0.01	0.01	0.00
80.00	0.00	1,540	690.37	0.01	0.01	0.00
82.00	0.00	1,473	690.26	0.01	0.01	0.00
84.00	0.00	1,405	690.16	0.01	0.01	0.00
86.00	0.00	1,337	690.06	0.01	0.01	0.00
88.00	0.00	1,269	689.95	0.01	0.01	0.00
90.00	0.00	1,202	689.85	0.01	0.01	0.00
92.00	0.00	1,134	689.74	0.01	0.01	0.00
94.00	0.00	1,066	689.64	0.01	0.01	0.00
96.00	0.00	998	689.53	0.01	0.01	0.00

Summary for Subcatchment 11A: Post DA 8B-11A

Runoff = 6.58 cfs @ 12.07 hrs, Volume= 21,630 cf, Depth= 7.88"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

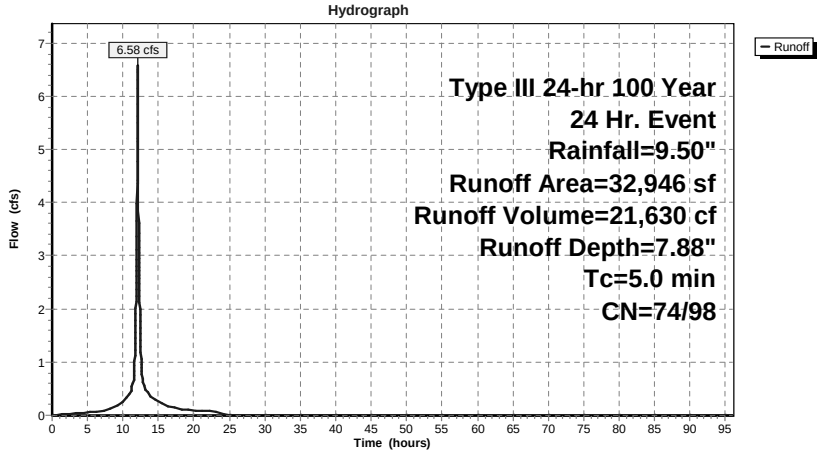
	Area (sf)	CN	Description	Land Use
	17,641	98	Unconnected pavement, HSG C	Pavement
	12,226	74	>75% Grass cover, Good, HSG C	Open Space
*	3,079	74	Bioretention, HSG C	Landscaped
	32,946	87	Weighted Average	
	15,305	74	46.45% Pervious Area	
	17,641	98	53.55% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 53.55% Impervious, Rv= 0.532, Runoff= 24.31"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,079	Landscaped	0.00	0.00	0.00	0.00
12,226	Open Space	930.74	3.25	14.07	1.90
17,641	Pavement	385.94	1.25	4.68	14.95
32,946	Total	1,316.68	4.50	18.75	16.85

Subcatchment 11A: Post DA 8B-11A



Hydrograph for Subcatchment 11A: Post DA 8B-11A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.03
4.00	0.41	0.00	0.24	0.04
6.00	0.68	0.00	0.49	0.06
8.00	1.08	0.04	0.87	0.11
10.00	1.80	0.26	1.57	0.25
12.00	4.75	2.17	4.51	**4.37**
14.00	7.70	4.66	7.46	**0.35**
16.00	8.42	5.30	8.18	0.19
18.00	8.82	5.66	8.58	0.11
20.00	9.09	5.91	8.85	0.09
22.00	9.32	6.12	9.08	0.08
24.00	**9.50**	**6.29**	**9.26**	0.06
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00
74.00	9.50	6.29	9.26	0.00
76.00	9.50	6.29	9.26	0.00
78.00	9.50	6.29	9.26	0.00
80.00	9.50	6.29	9.26	0.00
82.00	9.50	6.29	9.26	0.00
84.00	9.50	6.29	9.26	0.00
86.00	9.50	6.29	9.26	0.00
88.00	9.50	6.29	9.26	0.00
90.00	9.50	6.29	9.26	0.00
92.00	9.50	6.29	9.26	0.00
94.00	9.50	6.29	9.26	0.00
96.00	9.50	6.29	9.26	0.00

Summary for Pond 11A-Bio: 11A_Bioretention

Inflow Area = 32,946 sf, 53.55% Impervious, Inflow Depth = 7.88" for 100 Year, 24 Hr. Event event
Inflow = 6.58 cfs @ 12.07 hrs, Volume= 21,630 cf
Outflow = 5.71 cfs @ 12.11 hrs, Volume= 20,483 cf, Atten= 13%, Lag= 2.6 min
Discarded = 0.03 cfs @ 10.76 hrs, Volume= 5,682 cf
Primary = 5.68 cfs @ 12.11 hrs, Volume= 14,801 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 667.86' @ 12.11 hrs Surf.Area= 4,369 sf Storage= 6,766 cf

Plug-Flow detention time= 559.2 min calculated for 20,481 cf (95% of inflow)
Center-of-Mass det. time= 529.1 min (1,293.3 - 764.3)

Volume	Invert	Avail.Storage	Storage Description
#1	663.00'	7,372 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

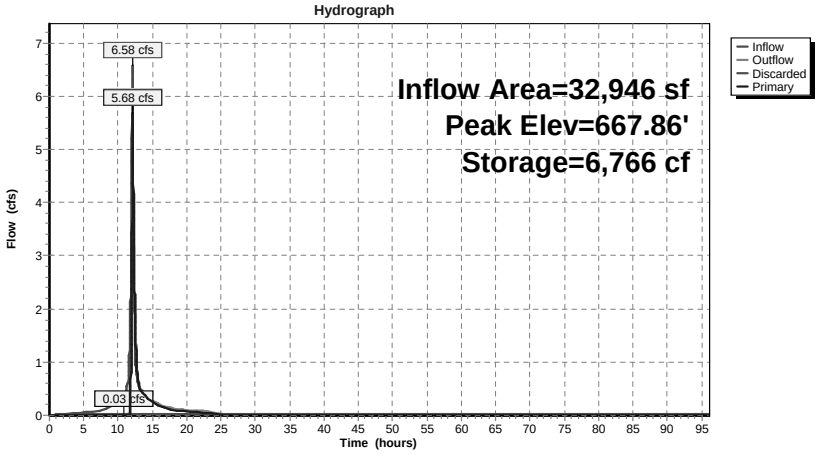
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
663.00	1,862	0.0	0	0
663.01	1,862	40.0	7	7
666.99	1,862	40.0	2,964	2,972
667.00	4,369	100.0	31	3,003
667.50	4,369	100.0	2,185	5,187
668.00	4,369	100.0	2,185	7,372

Device	Routing	Invert	Outlet Devices
#1	Discarded	663.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	667.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 10.76 hrs HW=667.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=5.67 cfs @ 12.11 hrs HW=667.86' TW=664.61' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 5.67 cfs @ 1.96 fps)

Pond 11A-Bio: 11A_Bioretention



Hydrograph for Pond 11A-Bio: 11A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	663.00	0.00	0.00	0.00
2.00	0.03	34	663.05	0.01	0.01	0.00
4.00	0.04	207	663.28	0.01	0.01	0.00
6.00	0.06	495	663.66	0.01	0.01	0.00
8.00	0.11	1,013	664.36	0.01	0.01	0.00
10.00	0.25	2,209	665.97	0.01	**0.01**	0.00
12.00	**4.37**	**6,196**	**667.73**	**2.93**	**0.03**	**2.90**
14.00	**0.35**	**5,431**	**667.56**	**0.37**	0.03	**0.34**
16.00	0.19	5,342	667.54	0.20	0.03	0.17
18.00	0.11	5,291	667.52	0.12	0.03	0.10
20.00	0.09	5,270	667.52	0.09	0.03	0.07
22.00	0.08	5,257	667.52	0.08	0.03	0.05
24.00	0.06	5,242	667.51	0.06	0.03	0.04
26.00	0.00	5,050	667.47	0.03	0.03	0.00
28.00	0.00	4,868	667.43	0.03	0.03	0.00
30.00	0.00	4,686	667.39	0.03	0.03	0.00
32.00	0.00	4,504	667.34	0.03	0.03	0.00
34.00	0.00	4,322	667.30	0.03	0.03	0.00
36.00	0.00	4,140	667.26	0.03	0.03	0.00
38.00	0.00	3,957	667.22	0.03	0.03	0.00
40.00	0.00	3,775	667.18	0.03	0.03	0.00
42.00	0.00	3,593	667.14	0.03	0.03	0.00
44.00	0.00	3,411	667.09	0.03	0.03	0.00
46.00	0.00	3,229	667.05	0.03	0.03	0.00
48.00	0.00	3,047	667.01	0.03	0.03	0.00
50.00	0.00	2,932	666.94	0.01	0.01	0.00
52.00	0.00	2,854	666.83	0.01	0.01	0.00
54.00	0.00	2,777	666.73	0.01	0.01	0.00
56.00	0.00	2,699	666.62	0.01	0.01	0.00
58.00	0.00	2,621	666.52	0.01	0.01	0.00
60.00	0.00	2,544	666.42	0.01	0.01	0.00
62.00	0.00	2,466	666.31	0.01	0.01	0.00
64.00	0.00	2,389	666.21	0.01	0.01	0.00
66.00	0.00	2,311	666.10	0.01	0.01	0.00
68.00	0.00	2,233	666.00	0.01	0.01	0.00
70.00	0.00	2,156	665.89	0.01	0.01	0.00
72.00	0.00	2,078	665.79	0.01	0.01	0.00
74.00	0.00	2,001	665.69	0.01	0.01	0.00
76.00	0.00	1,923	665.58	0.01	0.01	0.00
78.00	0.00	1,846	665.48	0.01	0.01	0.00
80.00	0.00	1,768	665.37	0.01	0.01	0.00
82.00	0.00	1,690	665.27	0.01	0.01	0.00
84.00	0.00	1,613	665.17	0.01	0.01	0.00
86.00	0.00	1,535	665.06	0.01	0.01	0.00
88.00	0.00	1,458	664.96	0.01	0.01	0.00
90.00	0.00	1,380	664.85	0.01	0.01	0.00
92.00	0.00	1,302	664.75	0.01	0.01	0.00
94.00	0.00	1,225	664.64	0.01	0.01	0.00
96.00	0.00	1,147	664.54	0.01	0.01	0.00

Summary for Subcatchment 11B: Post DA 8B-11B

Runoff = 1.19 cfs @ 12.07 hrs, Volume= 4,131 cf, Depth= 9.11"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

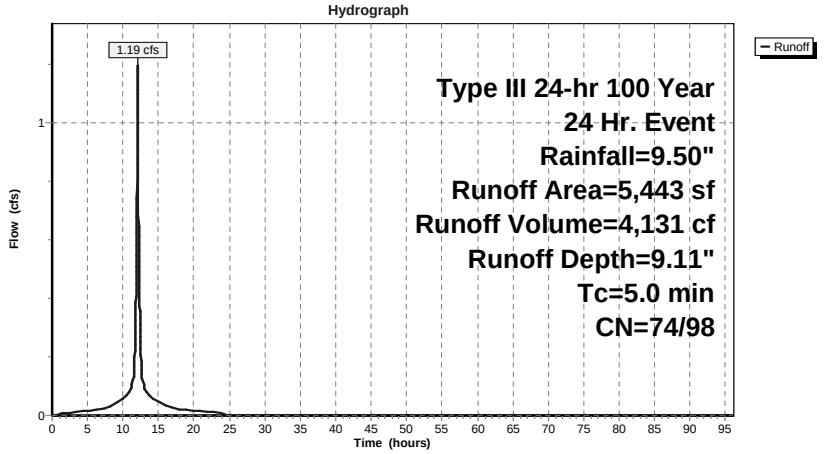
	Area (sf)	CN	Description	Land Use
	753	98	Unconnected pavement, HSG C	Pavement
	280	74	>75% Grass cover, Good, HSG C	Open Space
*	4,410	98	Pavers, HSG C	Pavement
	5,443	97	Weighted Average	
	280	74	5.14% Pervious Area	
	5,163	98	94.86% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 94.86% Impervious, Rv= 0.904, Runoff= 41.30"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
280	Open Space	36.22	0.13	0.55	0.07
5,163	Pavement	191.91	0.62	2.33	7.43
5,443	Total	228.12	0.75	2.88	7.51

Subcatchment 11B: Post DA 8B-11B



Hydrograph for Subcatchment 11B: Post DA 8B-11B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.02
8.00	1.08	0.04	0.87	0.03
10.00	1.80	0.26	1.57	0.06
12.00	4.75	2.17	4.51	**0.81**
14.00	7.70	4.66	7.46	**0.06**
16.00	8.42	5.30	8.18	0.03
18.00	8.82	5.66	8.58	0.02
20.00	9.09	5.91	8.85	0.02
22.00	9.32	6.12	9.08	0.01
24.00	**9.50**	**6.29**	**9.26**	0.01
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00
74.00	9.50	6.29	9.26	0.00
76.00	9.50	6.29	9.26	0.00
78.00	9.50	6.29	9.26	0.00
80.00	9.50	6.29	9.26	0.00
82.00	9.50	6.29	9.26	0.00
84.00	9.50	6.29	9.26	0.00
86.00	9.50	6.29	9.26	0.00
88.00	9.50	6.29	9.26	0.00
90.00	9.50	6.29	9.26	0.00
92.00	9.50	6.29	9.26	0.00
94.00	9.50	6.29	9.26	0.00
96.00	9.50	6.29	9.26	0.00

Summary for Pond 11B-P: 11B-Pavers

Inflow Area = 5,443 sf, 94.86% Impervious, Inflow Depth = 9.11" for 100 Year, 24 Hr. Event event
Inflow = 1.19 cfs @ 12.07 hrs, Volume= 4,131 cf
Outflow = 0.21 cfs @ 12.51 hrs, Volume= 4,131 cf, Atten= 82%, Lag= 26.3 min
Discarded = 0.03 cfs @ 8.83 hrs, Volume= 3,358 cf
Primary = 0.19 cfs @ 12.51 hrs, Volume= 772 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 668.04' @ 12.51 hrs Surf.Area= 4,410 sf Storage= 1,928 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 495.1 min (1,235.8 - 740.8)

Volume	Invert	Avail.Storage	Storage Description
#1	666.00'	6,174 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

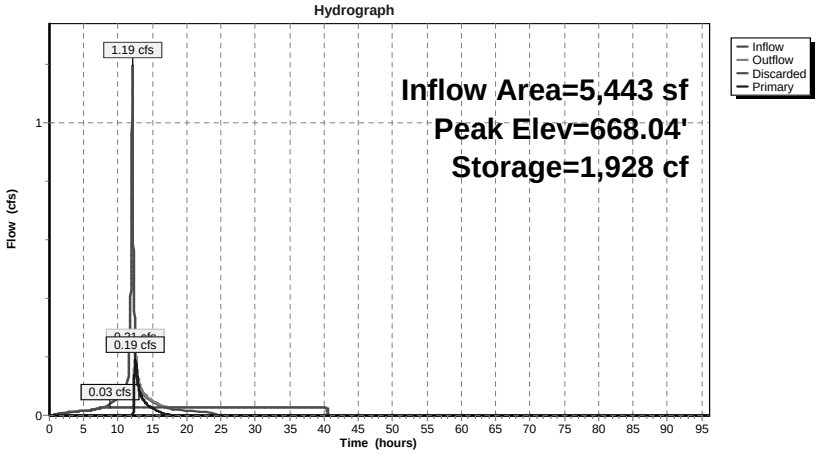
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
666.00	4,410	0.0	0	0
668.00	4,410	20.0	1,764	1,764
669.00	4,410	100.0	4,410	6,174

Device	Routing	Invert	Outlet Devices
#1	Discarded	666.00'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	668.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 8.83 hrs HW=666.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.19 cfs @ 12.51 hrs HW=668.04' TW=664.03' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Weir Controls 0.19 cfs @ 0.63 fps)

Pond 11B-P: 11B-Pavers



Hydrograph for Pond 11B-P: 11B-Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	666.00	0.00	0.00	0.00
2.00	0.01	0	666.00	0.01	0.01	0.00
4.00	0.01	0	666.00	0.01	0.01	0.00
6.00	0.02	0	666.00	0.02	0.02	0.00
8.00	0.03	3	666.00	0.03	**0.03**	0.00
10.00	0.06	118	666.13	0.03	**0.03**	0.00
12.00	**0.81**	**972**	**667.10**	**0.03**	0.03	**0.00**
14.00	**0.06**	**1,825**	**668.01**	**0.07**	0.03	**0.04**
16.00	0.03	1,790	668.01	0.04	0.03	0.01
18.00	0.02	1,760	668.00	0.03	0.03	0.00
20.00	0.02	1,702	667.93	0.03	0.03	0.00
22.00	0.01	1,621	667.84	0.03	0.03	0.00
24.00	0.01	1,520	667.72	0.03	0.03	0.00
26.00	0.00	1,339	667.52	0.03	0.03	0.00
28.00	0.00	1,156	667.31	0.03	0.03	0.00
30.00	0.00	972	667.10	0.03	0.03	0.00
32.00	0.00	788	666.89	0.03	0.03	0.00
34.00	0.00	604	666.69	0.03	0.03	0.00
36.00	0.00	421	666.48	0.03	0.03	0.00
38.00	0.00	237	666.27	0.03	0.03	0.00
40.00	0.00	53	666.06	0.03	0.03	0.00
42.00	0.00	0	666.00	0.00	0.00	0.00
44.00	0.00	0	666.00	0.00	0.00	0.00
46.00	0.00	0	666.00	0.00	0.00	0.00
48.00	0.00	0	666.00	0.00	0.00	0.00
50.00	0.00	0	666.00	0.00	0.00	0.00
52.00	0.00	0	666.00	0.00	0.00	0.00
54.00	0.00	0	666.00	0.00	0.00	0.00
56.00	0.00	0	666.00	0.00	0.00	0.00
58.00	0.00	0	666.00	0.00	0.00	0.00
60.00	0.00	0	666.00	0.00	0.00	0.00
62.00	0.00	0	666.00	0.00	0.00	0.00
64.00	0.00	0	666.00	0.00	0.00	0.00
66.00	0.00	0	666.00	0.00	0.00	0.00
68.00	0.00	0	666.00	0.00	0.00	0.00
70.00	0.00	0	666.00	0.00	0.00	0.00
72.00	0.00	0	666.00	0.00	0.00	0.00
74.00	0.00	0	666.00	0.00	0.00	0.00
76.00	0.00	0	666.00	0.00	0.00	0.00
78.00	0.00	0	666.00	0.00	0.00	0.00
80.00	0.00	0	666.00	0.00	0.00	0.00
82.00	0.00	0	666.00	0.00	0.00	0.00
84.00	0.00	0	666.00	0.00	0.00	0.00
86.00	0.00	0	666.00	0.00	0.00	0.00
88.00	0.00	0	666.00	0.00	0.00	0.00
90.00	0.00	0	666.00	0.00	0.00	0.00
92.00	0.00	0	666.00	0.00	0.00	0.00
94.00	0.00	0	666.00	0.00	0.00	0.00
96.00	0.00	0	666.00	0.00	0.00	0.00

Summary for Reach SR-1: South Reach-1

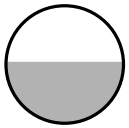
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 465,430 sf, 43.59% Impervious, Inflow Depth = 5.52" for 100 Year, 24 Hr. Event event
Inflow = 58.45 cfs @ 12.15 hrs, Volume= 214,092 cf
Outflow = 58.44 cfs @ 12.16 hrs, Volume= 214,092 cf, Atten= 0%, Lag= 0.2 min

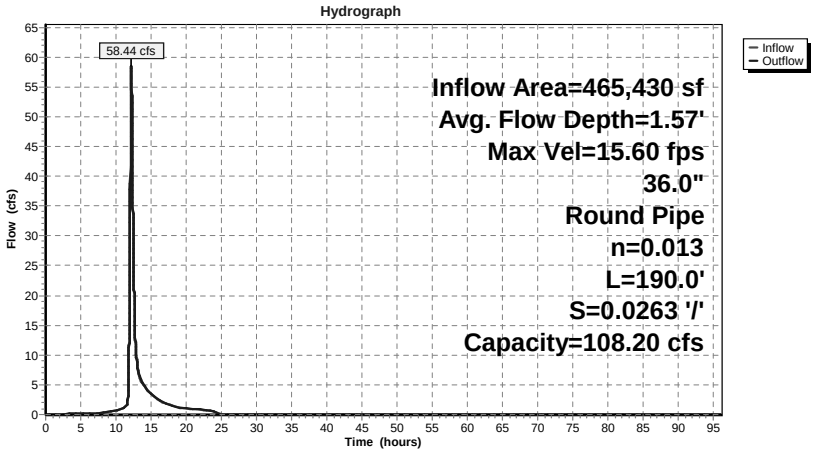
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 15.60 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.36 fps, Avg. Travel Time= 0.7 min

Peak Storage= 712 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.57'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 108.20 cfs

36.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 190.0' Slope= 0.0263 '/'
Inlet Invert= 668.00', Outlet Invert= 663.00'

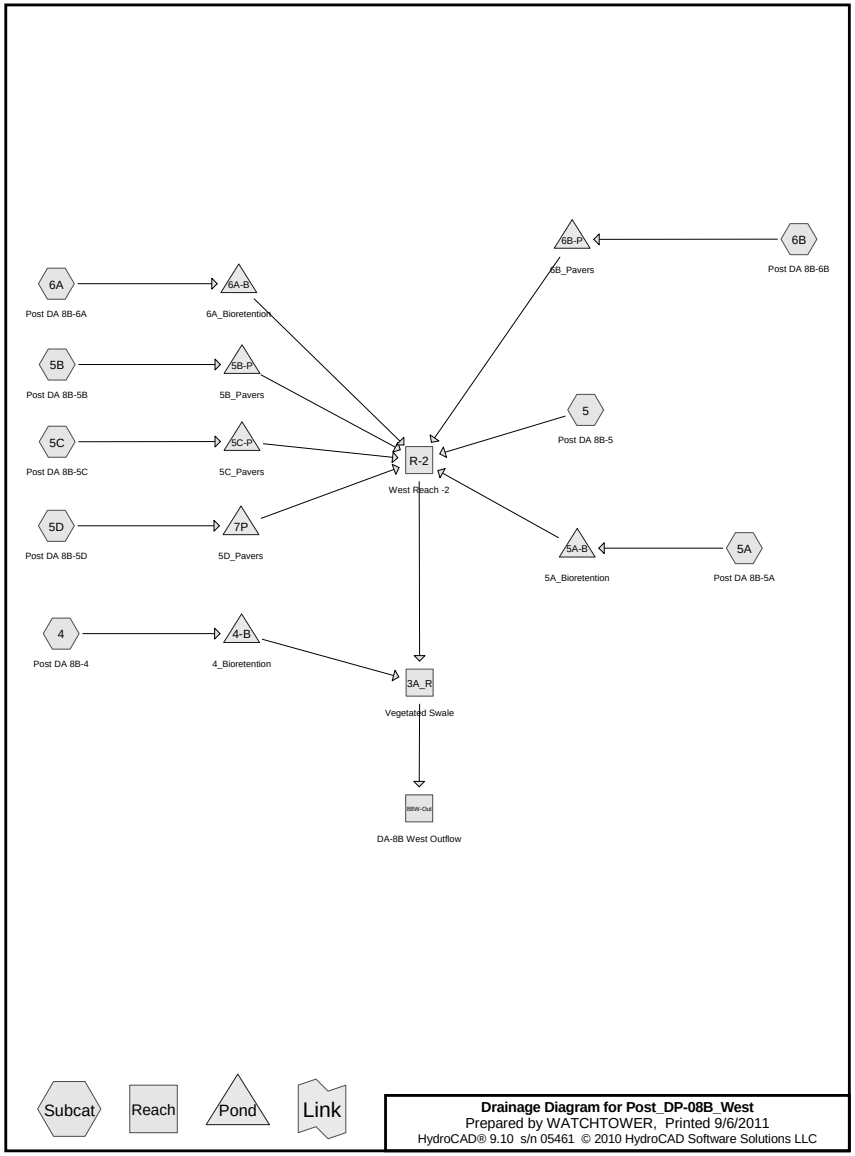


Reach SR-1: South Reach-1



Hydrograph for Reach SR-1: South Reach-1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	668.00	0.00
2.00	0.08	7	668.06	0.08
4.00	0.13	10	668.08	0.13
6.00	0.18	12	668.09	0.18
8.00	0.30	17	668.11	0.30
10.00	0.61	28	668.16	0.60
12.00	**28.02**	**407**	**669.03**	**27.38**
14.00	**4.81**	**119**	**668.43**	**4.82**
16.00	2.49	75	668.31	2.50
18.00	1.43	51	668.24	1.43
20.00	1.06	41	668.21	1.06
22.00	0.85	35	668.19	0.85
24.00	0.65	29	668.17	0.65
26.00	0.00	0	668.00	0.00
28.00	0.00	0	668.00	0.00
30.00	0.00	0	668.00	0.00
32.00	0.00	0	668.00	0.00
34.00	0.00	0	668.00	0.00
36.00	0.00	0	668.00	0.00
38.00	0.00	0	668.00	0.00
40.00	0.00	0	668.00	0.00
42.00	0.00	0	668.00	0.00
44.00	0.00	0	668.00	0.00
46.00	0.00	0	668.00	0.00
48.00	0.00	0	668.00	0.00
50.00	0.00	0	668.00	0.00
52.00	0.00	0	668.00	0.00
54.00	0.00	0	668.00	0.00
56.00	0.00	0	668.00	0.00
58.00	0.00	0	668.00	0.00
60.00	0.00	0	668.00	0.00
62.00	0.00	0	668.00	0.00
64.00	0.00	0	668.00	0.00
66.00	0.00	0	668.00	0.00
68.00	0.00	0	668.00	0.00
70.00	0.00	0	668.00	0.00
72.00	0.00	0	668.00	0.00
74.00	0.00	0	668.00	0.00
76.00	0.00	0	668.00	0.00
78.00	0.00	0	668.00	0.00
80.00	0.00	0	668.00	0.00
82.00	0.00	0	668.00	0.00
84.00	0.00	0	668.00	0.00
86.00	0.00	0	668.00	0.00
88.00	0.00	0	668.00	0.00
90.00	0.00	0	668.00	0.00
92.00	0.00	0	668.00	0.00
94.00	0.00	0	668.00	0.00
96.00	0.00	0	668.00	0.00



Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
21,550	Landscaped	4, 5A, 6A
62,442	Open Space	4, 5, 5A, 5C, 6A, 6B
1,217	Open Water	5D
31,792	Pavement	4, 5A, 5B, 5C, 5D, 6A, 6B
40,152	Roofs	4
157,153	**TOTAL**	

Pollutant Concentrations

Line#	Land Use	TSS (mg/l)	TP (mg/l)	TN (mg/l)	BOD (mg/l)
1	Landscaped	37.00	0.00	0.00	1.23
2	Open Space	602.00	2.10	9.10	1.23
3	Open Water	0.00	0.00	0.00	1.60
4	Pavement	173.00	0.56	2.10	6.70
5	Roofs	19.00	0.11	1.50	7.40

Subcatchment Loading

Line#	Subcat Number	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1	4	**0.00**	**0.00**	**0.00**	**0.00**
2	5	0.00	0.00	0.00	0.00
3	5A	0.00	0.00	0.00	0.00
4	5B	0.00	0.00	0.00	0.00
5	5C	0.00	0.00	0.00	0.00
6	5D	0.00	0.00	0.00	0.00
7	6A	0.00	0.00	0.00	0.00
8	6B	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 3A_R: Vegetated Swale Avg. Flow Depth=0.12' Max Vel=0.66 fps Inflow=0.28 cfs 1,592 cf
n=0.120 L=521.0' S=0.0576 '/' Capacity=50.42 cfs Outflow=0.19 cfs 1,592 cf

Subcatchment 4: Post DA 8B-4 Runoff Area=84,341 sf 55.72% Impervious Runoff Depth=1.78"
Tc=5.0 min CN=61/98 Runoff=3.57 cfs 12,487 cf

Pond 4-B: 4_Bioretention Peak Elev=729.42' Storage=9,392 cf Inflow=3.57 cfs 12,487 cf
Discarded=0.07 cfs 10,440 cf Primary=0.00 cfs 0 cf Outflow=0.07 cfs 10,440 cf

Subcatchment 5: Post DA 8B-5 Runoff Area=34,341 sf 0.00% Impervious Runoff Depth=0.40"
Flow Length=290' Tc=6.8 min CN=61/0 Runoff=0.21 cfs 1,156 cf

Subcatchment 5A: Post DA 8B-5A Runoff Area=13,174 sf 39.15% Impervious Runoff Depth=1.37"
Tc=5.0 min CN=61/98 Runoff=0.41 cfs 1,502 cf

Pond 5A-B: 5A_Bioretention Peak Elev=727.65' Storage=1,014 cf Inflow=0.41 cfs 1,502 cf
Discarded=0.01 cfs 1,382 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 1,382 cf

Subcatchment 5B: Post DA 8B-5B Runoff Area=1,318 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.09 cfs 315 cf

Pond 5B-P: 5B_Pavers Peak Elev=728.50' Storage=0 cf Inflow=0.09 cfs 315 cf
Discarded=0.00 cfs 0 cf Primary=0.09 cfs 315 cf Outflow=0.09 cfs 315 cf

Subcatchment 5C: Post DA 8B-5C Runoff Area=2,220 sf 87.70% Impervious Runoff Depth=2.56"
Tc=5.0 min CN=61/98 Runoff=0.14 cfs 474 cf

Pond 5C-P: 5C_Pavers Peak Elev=726.71' Storage=202 cf Inflow=0.14 cfs 474 cf
Discarded=0.01 cfs 475 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 475 cf

Subcatchment 5D: Post DA 8B-5D Runoff Area=5,835 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.42 cfs 1,394 cf

Subcatchment 6A: Post DA 8B-6A Runoff Area=7,973 sf 68.62% Impervious Runoff Depth=2.09"
Tc=5.0 min CN=61/98 Runoff=0.41 cfs 1,392 cf

Pond 6A-B: 6A_Bioretention Peak Elev=735.22' Storage=1,011 cf Inflow=0.41 cfs 1,392 cf
Discarded=0.01 cfs 1,267 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 1,267 cf

Subcatchment 6B: Post DA 8B-6B Runoff Area=7,951 sf 81.01% Impervious Runoff Depth=2.40"
Tc=5.0 min CN=61/98 Runoff=0.47 cfs 1,590 cf

Pond 6B-P: 6B_Pavers Peak Elev=739.90' Storage=1,472 cf Inflow=0.47 cfs 1,590 cf
Outflow=0.01 cfs 122 cf

Pond 7P: 5D_Pavers Peak Elev=737.63' Storage=551 cf Inflow=0.42 cfs 1,394 cf
Discarded=0.03 cfs 1,395 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 1,395 cf

Reach 8BW-Out: DA-8B West Outflow Inflow=0.19 cfs 1,592 cf
Outflow=0.19 cfs 1,592 cf

Reach R-2: West Reach -2 Avg. Flow Depth=0.11' Max Vel=4.09 fps Inflow=0.28 cfs 1,592 cf
24.0" Round Pipe n=0.013 L=144.0' S=0.0417 '/' Capacity=46.18 cfs Outflow=0.28 cfs 1,592 cf

Total Runoff Area = 157,153 sf Runoff Volume = 20,311 cf Average Runoff Depth = 1.55"
53.45% Pervious = 83,992 sf 46.55% Impervious = 73,161 sf

Summary for Reach 3A_R: Vegetated Swale

[62] Hint: Exceeded Reach R-2 OUTLET depth by 4.04' @ 12.57 hrs

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 0.12" for 1 Year, 24 Hr. Event event
Inflow = 0.28 cfs @ 12.13 hrs, Volume= 1,592 cf
Outflow = 0.19 cfs @ 12.35 hrs, Volume= 1,592 cf, Atten= 32%, Lag= 13.1 min

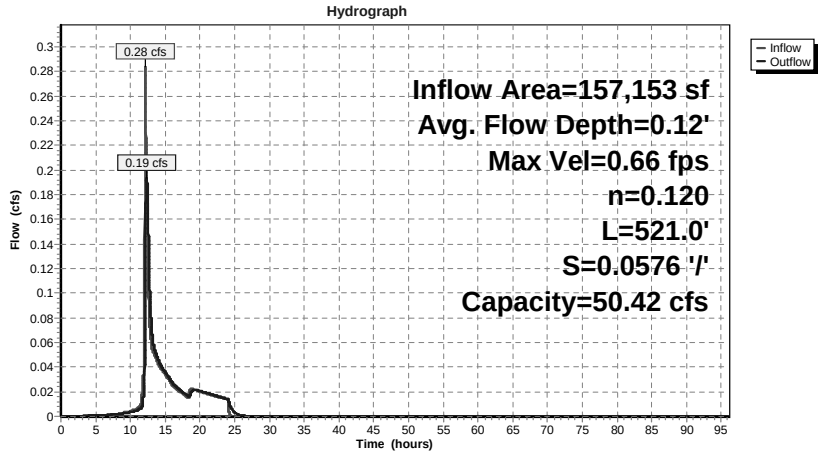
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.66 fps, Min. Travel Time= 13.1 min
Avg. Velocity = 0.27 fps, Avg. Travel Time= 31.8 min

Peak Storage= 152 cf @ 12.35 hrs
Average Depth at Peak Storage= 0.12'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 50.42 cfs

2.00' x 2.00' deep channel, n= 0.120 Earth, long dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 521.0' Slope= 0.0576 '/'
Inlet Invert= 718.00', Outlet Invert= 688.00'



Reach 3A_R: Vegetated Swale



Hydrograph for Reach 3A_R: Vegetated Swale

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	718.00	0.00
2.00	0.00	0	718.00	0.00
4.00	0.00	1	718.00	0.00
6.00	0.00	2	718.00	0.00
8.00	0.00	4	718.00	0.00
10.00	0.00	8	718.01	0.00
12.00	**0.07**	**41**	**718.04**	**0.03**
14.00	**0.04**	**59**	**718.05**	**0.05**
16.00	0.03	43	718.04	0.03
18.00	0.02	32	718.03	0.02
20.00	0.02	35	718.03	0.02
22.00	0.02	31	718.03	0.02
24.00	0.01	28	718.03	0.01
26.00	0.00	2	718.00	0.00
28.00	0.00	0	718.00	0.00
30.00	0.00	0	718.00	0.00
32.00	0.00	0	718.00	0.00
34.00	0.00	0	718.00	0.00
36.00	0.00	0	718.00	0.00
38.00	0.00	0	718.00	0.00
40.00	0.00	0	718.00	0.00
42.00	0.00	0	718.00	0.00
44.00	0.00	0	718.00	0.00
46.00	0.00	0	718.00	0.00
48.00	0.00	0	718.00	0.00
50.00	0.00	0	718.00	0.00
52.00	0.00	0	718.00	0.00
54.00	0.00	0	718.00	0.00
56.00	0.00	0	718.00	0.00
58.00	0.00	0	718.00	0.00
60.00	0.00	0	718.00	0.00
62.00	0.00	0	718.00	0.00
64.00	0.00	0	718.00	0.00
66.00	0.00	0	718.00	0.00
68.00	0.00	0	718.00	0.00
70.00	0.00	0	718.00	0.00
72.00	0.00	0	718.00	0.00
74.00	0.00	0	718.00	0.00
76.00	0.00	0	718.00	0.00
78.00	0.00	0	718.00	0.00
80.00	0.00	0	718.00	0.00
82.00	0.00	0	718.00	0.00
84.00	0.00	0	718.00	0.00
86.00	0.00	0	718.00	0.00
88.00	0.00	0	718.00	0.00
90.00	0.00	0	718.00	0.00
92.00	0.00	0	718.00	0.00
94.00	0.00	0	718.00	0.00
96.00	0.00	0	718.00	0.00

Summary for Subcatchment 4: Post DA 8B-4

Runoff = 3.57 cfs @ 12.07 hrs, Volume= 12,487 cf, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

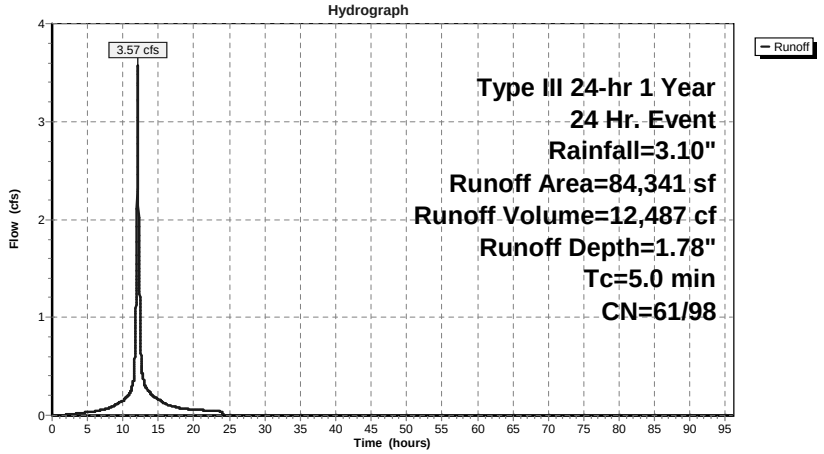
	Area (sf)	CN	Description	Land Use
	6,839	98	Paved parking, HSG C	Pavement
	20,756	61	>75% Grass cover, Good, HSG B	Open Space
*	16,594	61	Bioretention, HSG B	Landscaped
	40,152	98	Roofs, HSG B	Roofs
	84,341	82	Weighted Average	
	37,350	61	44.28% Pervious Area	
	46,991	98	55.72% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 55.72% Impervious, Rv= 0.551, Runoff= 25.20"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
16,594	Landscaped	80.49	0.00	0.00	2.68
20,756	Open Space	1,638.14	5.71	24.76	3.35
6,839	Pavement	155.11	0.50	1.88	6.01
40,152	Roofs	100.02	0.58	7.90	38.95
84,341	Total	1,973.77	6.80	34.54	50.98

Subcatchment 4: Post DA 8B-4



Hydrograph for Subcatchment 4: Post DA 8B-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.01
4.00	0.13	0.00	0.03	0.02
6.00	0.22	0.00	0.09	0.04
8.00	0.35	0.00	0.19	0.07
10.00	0.59	0.00	0.40	0.15
12.00	1.55	0.01	1.33	**2.31**
14.00	2.51	0.20	2.28	**0.21**
16.00	2.75	0.27	2.52	0.11
18.00	2.88	0.32	2.65	0.07
20.00	2.97	0.35	2.74	0.06
22.00	3.04	0.38	2.81	0.05
24.00	**3.10**	**0.40**	**2.87**	0.04
26.00	3.10	0.40	2.87	0.00
28.00	3.10	0.40	2.87	0.00
30.00	3.10	0.40	2.87	0.00
32.00	3.10	0.40	2.87	0.00
34.00	3.10	0.40	2.87	0.00
36.00	3.10	0.40	2.87	0.00
38.00	3.10	0.40	2.87	0.00
40.00	3.10	0.40	2.87	0.00
42.00	3.10	0.40	2.87	0.00
44.00	3.10	0.40	2.87	0.00
46.00	3.10	0.40	2.87	0.00
48.00	3.10	0.40	2.87	0.00
50.00	3.10	0.40	2.87	0.00
52.00	3.10	0.40	2.87	0.00
54.00	3.10	0.40	2.87	0.00
56.00	3.10	0.40	2.87	0.00
58.00	3.10	0.40	2.87	0.00
60.00	3.10	0.40	2.87	0.00
62.00	3.10	0.40	2.87	0.00
64.00	3.10	0.40	2.87	0.00
66.00	3.10	0.40	2.87	0.00
68.00	3.10	0.40	2.87	0.00
70.00	3.10	0.40	2.87	0.00
72.00	3.10	0.40	2.87	0.00
74.00	3.10	0.40	2.87	0.00
76.00	3.10	0.40	2.87	0.00
78.00	3.10	0.40	2.87	0.00
80.00	3.10	0.40	2.87	0.00
82.00	3.10	0.40	2.87	0.00
84.00	3.10	0.40	2.87	0.00
86.00	3.10	0.40	2.87	0.00
88.00	3.10	0.40	2.87	0.00
90.00	3.10	0.40	2.87	0.00
92.00	3.10	0.40	2.87	0.00
94.00	3.10	0.40	2.87	0.00
96.00	3.10	0.40	2.87	0.00

Summary for Pond 4-B: 4_Bioretention

Inflow Area = 84,341 sf, 55.72% Impervious, Inflow Depth = 1.78" for 1 Year, 24 Hr. Event event
Inflow = 3.57 cfs @ 12.07 hrs, Volume= 12,487 cf
Outflow = 0.07 cfs @ 12.05 hrs, Volume= 10,440 cf, Atten= 98%, Lag= 0.0 min
Discarded = 0.07 cfs @ 12.05 hrs, Volume= 10,440 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 729.42' @ 18.01 hrs Surf.Area= 12,192 sf Storage= 9,392 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,367.3 min (2,139.7 - 772.4)

Volume	Invert	Avail.Storage	Storage Description
#1	723.75'	16,484 cf	**Custom Stage Data (Prismatic)** Listed below

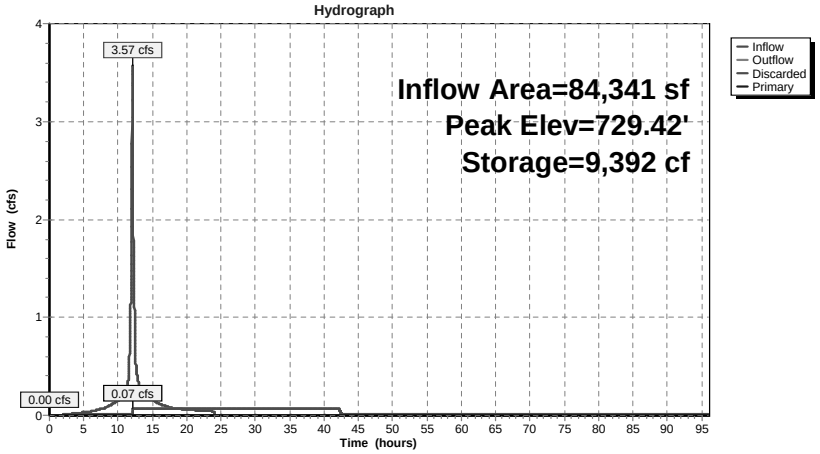
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
723.75	2,068	0.0	0	0
728.75	2,068	40.0	4,136	4,136
729.00	2,068	40.0	207	4,343
729.01	12,192	100.0	71	4,414
729.50	12,192	100.0	5,974	10,388
730.00	12,192	100.0	6,096	16,484

Device	Routing	Invert	Outlet Devices
#1	Discarded	723.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	729.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 24.00 columns** X 24 rows C= 0.600 in 30.0" x 30.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.07 cfs @ 12.05 hrs HW=729.02' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=723.75' TW=718.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 4-B: 4_Bioretention



Hydrograph for Pond 4-B: 4_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	723.75	0.00	0.00	**0.00**
2.00	0.01	0	723.75	0.01	0.01	0.00
4.00	0.02	23	723.78	0.01	0.01	0.00
6.00	0.04	157	723.94	0.01	0.01	0.00
8.00	0.07	465	724.31	0.01	0.01	0.00
10.00	0.15	1,169	725.16	0.01	0.01	0.00
12.00	**2.31**	3,973	728.55	**0.01**	**0.01**	0.00
14.00	**0.21**	8,585	729.35	**0.07**	**0.07**	0.00
16.00	0.11	9,239	729.41	0.07	0.07	0.00
18.00	0.07	**9,392**	**729.42**	0.07	0.07	0.00
20.00	0.06	**9,341**	**729.41**	0.07	0.07	0.00
22.00	0.05	9,210	729.40	0.07	0.07	0.00
24.00	0.04	9,009	729.39	0.07	0.07	0.00
26.00	0.00	8,512	729.35	0.07	0.07	0.00
28.00	0.00	8,004	729.30	0.07	0.07	0.00
30.00	0.00	7,496	729.26	0.07	0.07	0.00
32.00	0.00	6,988	729.22	0.07	0.07	0.00
34.00	0.00	6,480	729.18	0.07	0.07	0.00
36.00	0.00	5,972	729.14	0.07	0.07	0.00
38.00	0.00	5,464	729.10	0.07	0.07	0.00
40.00	0.00	4,956	729.05	0.07	0.07	0.00
42.00	0.00	4,448	729.01	0.07	0.07	0.00
44.00	0.00	4,288	728.93	0.01	0.01	0.00
46.00	0.00	4,202	728.83	0.01	0.01	0.00
48.00	0.00	4,116	728.73	0.01	0.01	0.00
50.00	0.00	4,030	728.62	0.01	0.01	0.00
52.00	0.00	3,944	728.52	0.01	0.01	0.00
54.00	0.00	3,857	728.41	0.01	0.01	0.00
56.00	0.00	3,771	728.31	0.01	0.01	0.00
58.00	0.00	3,685	728.20	0.01	0.01	0.00
60.00	0.00	3,599	728.10	0.01	0.01	0.00
62.00	0.00	3,513	728.00	0.01	0.01	0.00
64.00	0.00	3,427	727.89	0.01	0.01	0.00
66.00	0.00	3,340	727.79	0.01	0.01	0.00
68.00	0.00	3,254	727.68	0.01	0.01	0.00
70.00	0.00	3,168	727.58	0.01	0.01	0.00
72.00	0.00	3,082	727.48	0.01	0.01	0.00
74.00	0.00	2,996	727.37	0.01	0.01	0.00
76.00	0.00	2,910	727.27	0.01	0.01	0.00
78.00	0.00	2,823	727.16	0.01	0.01	0.00
80.00	0.00	2,737	727.06	0.01	0.01	0.00
82.00	0.00	2,651	726.95	0.01	0.01	0.00
84.00	0.00	2,565	726.85	0.01	0.01	0.00
86.00	0.00	2,479	726.75	0.01	0.01	0.00
88.00	0.00	2,393	726.64	0.01	0.01	0.00
90.00	0.00	2,306	726.54	0.01	0.01	0.00
92.00	0.00	2,220	726.43	0.01	0.01	0.00
94.00	0.00	2,134	726.33	0.01	0.01	0.00
96.00	0.00	2,048	726.23	0.01	0.01	0.00

Summary for Subcatchment 5: Post DA 8B-5

Runoff = 0.21 cfs @ 12.14 hrs, Volume= 1,156 cf, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

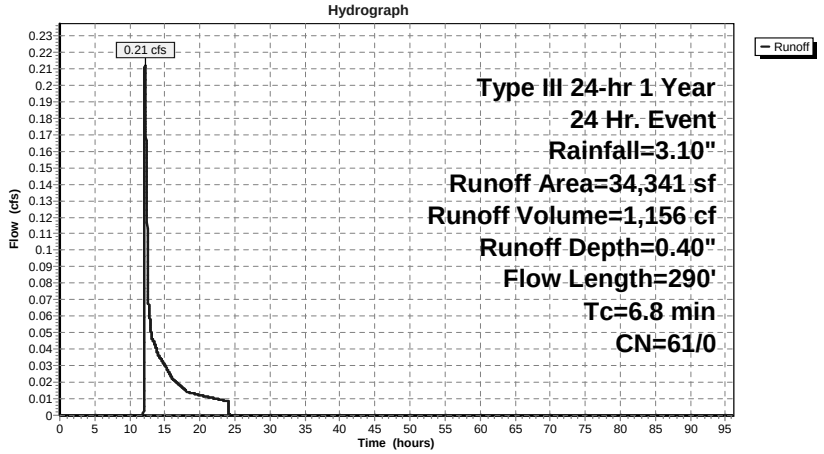
Area (sf)	CN	Description	Land Use
34,341	61	>75% Grass cover, Good, HSG B	Open Space
34,341	61	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.1900	0.30		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.1	120	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	70	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.8	290	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
34,341	Open Space	245.75	0.86	3.71	0.50
34,341	Total	245.75	0.86	3.71	0.50

Subcatchment 5: Post DA 8B-5



Hydrograph for Subcatchment 5: Post DA 8B-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.01	0.00	**0.02**
14.00	2.51	0.20	0.00	**0.04**
16.00	2.75	0.27	0.00	0.02
18.00	2.88	0.32	0.00	0.01
20.00	2.97	0.35	0.00	0.01
22.00	3.04	0.38	0.00	0.01
24.00	**3.10**	**0.40**	0.00	0.01
26.00	3.10	0.40	0.00	0.00
28.00	3.10	0.40	0.00	0.00
30.00	3.10	0.40	0.00	0.00
32.00	3.10	0.40	0.00	0.00
34.00	3.10	0.40	0.00	0.00
36.00	3.10	0.40	0.00	0.00
38.00	3.10	0.40	0.00	0.00
40.00	3.10	0.40	0.00	0.00
42.00	3.10	0.40	0.00	0.00
44.00	3.10	0.40	0.00	0.00
46.00	3.10	0.40	0.00	0.00
48.00	3.10	0.40	0.00	0.00
50.00	3.10	0.40	0.00	0.00
52.00	3.10	0.40	0.00	0.00
54.00	3.10	0.40	0.00	0.00
56.00	3.10	0.40	0.00	0.00
58.00	3.10	0.40	0.00	0.00
60.00	3.10	0.40	0.00	0.00
62.00	3.10	0.40	0.00	0.00
64.00	3.10	0.40	0.00	0.00
66.00	3.10	0.40	0.00	0.00
68.00	3.10	0.40	0.00	0.00
70.00	3.10	0.40	0.00	0.00
72.00	3.10	0.40	0.00	0.00
74.00	3.10	0.40	0.00	0.00
76.00	3.10	0.40	0.00	0.00
78.00	3.10	0.40	0.00	0.00
80.00	3.10	0.40	0.00	0.00
82.00	3.10	0.40	0.00	0.00
84.00	3.10	0.40	0.00	0.00
86.00	3.10	0.40	0.00	0.00
88.00	3.10	0.40	0.00	0.00
90.00	3.10	0.40	0.00	0.00
92.00	3.10	0.40	0.00	0.00
94.00	3.10	0.40	0.00	0.00
96.00	3.10	0.40	0.00	0.00

Summary for Subcatchment 5A: Post DA 8B-5A

Runoff = 0.41 cfs @ 12.08 hrs, Volume= 1,502 cf, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

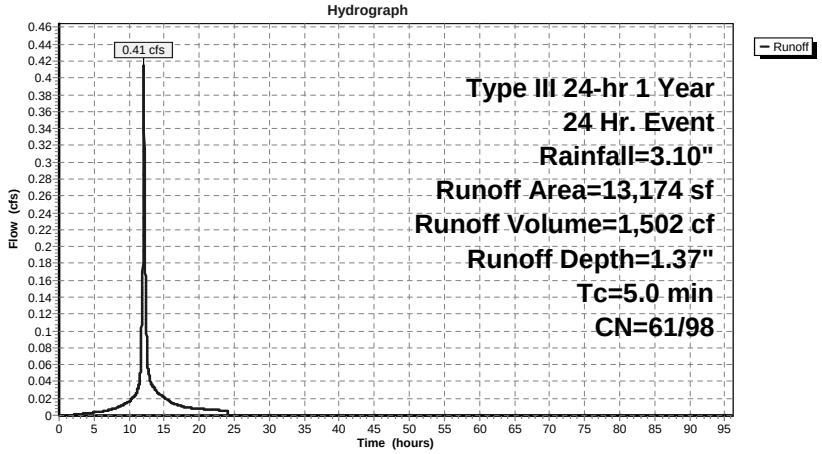
	Area (sf)	CN	Description	Land Use
	5,158	98	Paved parking, HSG B	Pavement
	4,478	61	>75% Grass cover, Good, HSG B	Open Space
*	3,538	61	Bioretention, HSG B	Landscaped
	13,174	75	Weighted Average	
	8,016	61	60.85% Pervious Area	
	5,158	98	39.15% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, user defined min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 39.15% Impervious, Rv= 0.402, Runoff= 18.39"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,538	Landscaped	12.52	0.00	0.00	0.42
4,478	Open Space	257.89	0.90	3.90	0.53
5,158	Pavement	85.36	0.28	1.04	3.31
13,174	Total	355.77	1.18	4.93	4.25

Subcatchment 5A: Post DA 8B-5A



Hydrograph for Subcatchment 5A: Post DA 8B-5A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.02
12.00	1.55	0.01	1.33	**0.26**
14.00	2.51	0.20	2.28	**0.03**
16.00	2.75	0.27	2.52	0.02
18.00	2.88	0.32	2.65	0.01
20.00	2.97	0.35	2.74	0.01
22.00	3.04	0.38	2.81	0.01
24.00	**3.10**	**0.40**	**2.87**	0.01
26.00	3.10	0.40	2.87	0.00
28.00	3.10	0.40	2.87	0.00
30.00	3.10	0.40	2.87	0.00
32.00	3.10	0.40	2.87	0.00
34.00	3.10	0.40	2.87	0.00
36.00	3.10	0.40	2.87	0.00
38.00	3.10	0.40	2.87	0.00
40.00	3.10	0.40	2.87	0.00
42.00	3.10	0.40	2.87	0.00
44.00	3.10	0.40	2.87	0.00
46.00	3.10	0.40	2.87	0.00
48.00	3.10	0.40	2.87	0.00
50.00	3.10	0.40	2.87	0.00
52.00	3.10	0.40	2.87	0.00
54.00	3.10	0.40	2.87	0.00
56.00	3.10	0.40	2.87	0.00
58.00	3.10	0.40	2.87	0.00
60.00	3.10	0.40	2.87	0.00
62.00	3.10	0.40	2.87	0.00
64.00	3.10	0.40	2.87	0.00
66.00	3.10	0.40	2.87	0.00
68.00	3.10	0.40	2.87	0.00
70.00	3.10	0.40	2.87	0.00
72.00	3.10	0.40	2.87	0.00
74.00	3.10	0.40	2.87	0.00
76.00	3.10	0.40	2.87	0.00
78.00	3.10	0.40	2.87	0.00
80.00	3.10	0.40	2.87	0.00
82.00	3.10	0.40	2.87	0.00
84.00	3.10	0.40	2.87	0.00
86.00	3.10	0.40	2.87	0.00
88.00	3.10	0.40	2.87	0.00
90.00	3.10	0.40	2.87	0.00
92.00	3.10	0.40	2.87	0.00
94.00	3.10	0.40	2.87	0.00
96.00	3.10	0.40	2.87	0.00

Summary for Pond 5A-B: 5A_Bioretention

Inflow Area = 13,174 sf, 39.15% Impervious, Inflow Depth = 1.37" for 1 Year, 24 Hr. Event event
Inflow = 0.41 cfs @ 12.08 hrs, Volume= 1,502 cf
Outflow = 0.01 cfs @ 12.30 hrs, Volume= 1,382 cf, Atten= 97%, Lag= 13.5 min
Discarded = 0.01 cfs @ 12.30 hrs, Volume= 1,382 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 727.65' @ 16.87 hrs Surf.Area= 2,168 sf Storage= 1,014 cf

Plug-Flow detention time= 1,478.0 min calculated for 1,382 cf (92% of inflow)
Center-of-Mass det. time= 1,434.7 min (2,219.9 - 785.2)

Volume	Invert	Avail.Storage	Storage Description
#1	723.25'	2,853 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

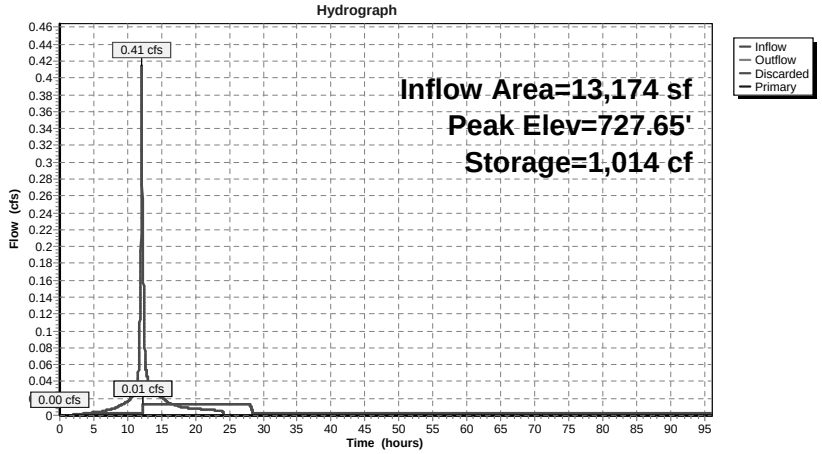
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
723.25	409	0.0	0	0	409
727.25	409	40.0	654	654	733
727.50	409	40.0	41	695	753
727.51	2,168	100.0	12	707	2,512
728.00	2,168	100.0	1,062	1,769	2,603
728.50	2,168	100.0	1,084	2,853	2,696

Device	Routing	Invert	Outlet Devices
#1	Discarded	723.25'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	728.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 12.30 hrs HW=727.51' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=723.25' TW=720.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 5A-B: 5A_Bioretention



Hydrograph for Pond 5A-B: 5A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	723.25	0.00	0.00	**0.00**
2.00	0.00	0	723.25	0.00	0.00	0.00
4.00	0.00	0	723.25	0.00	0.00	0.00
6.00	0.00	7	723.29	0.00	0.00	0.00
8.00	0.01	33	723.45	0.00	0.00	0.00
10.00	0.02	103	723.88	0.00	0.00	0.00
12.00	**0.26**	404	725.72	**0.00**	**0.00**	0.00
14.00	**0.03**	948	727.62	**0.01**	**0.01**	0.00
16.00	0.02	**1,010**	**727.65**	0.01	0.01	0.00
18.00	0.01	**1,008**	**727.65**	0.01	0.01	0.00
20.00	0.01	978	727.64	0.01	0.01	0.00
22.00	0.01	938	727.62	0.01	0.01	0.00
24.00	0.01	890	727.59	0.01	0.01	0.00
26.00	0.00	801	727.55	0.01	0.01	0.00
28.00	0.00	710	727.51	0.01	0.01	0.00
30.00	0.00	683	727.42	0.00	0.00	0.00
32.00	0.00	666	727.32	0.00	0.00	0.00
34.00	0.00	649	727.22	0.00	0.00	0.00
36.00	0.00	632	727.11	0.00	0.00	0.00
38.00	0.00	615	727.01	0.00	0.00	0.00
40.00	0.00	598	726.90	0.00	0.00	0.00
42.00	0.00	581	726.80	0.00	0.00	0.00
44.00	0.00	564	726.70	0.00	0.00	0.00
46.00	0.00	547	726.59	0.00	0.00	0.00
48.00	0.00	530	726.49	0.00	0.00	0.00
50.00	0.00	513	726.38	0.00	0.00	0.00
52.00	0.00	496	726.28	0.00	0.00	0.00
54.00	0.00	478	726.17	0.00	0.00	0.00
56.00	0.00	461	726.07	0.00	0.00	0.00
58.00	0.00	444	725.97	0.00	0.00	0.00
60.00	0.00	427	725.86	0.00	0.00	0.00
62.00	0.00	410	725.76	0.00	0.00	0.00
64.00	0.00	393	725.65	0.00	0.00	0.00
66.00	0.00	376	725.55	0.00	0.00	0.00
68.00	0.00	359	725.45	0.00	0.00	0.00
70.00	0.00	342	725.34	0.00	0.00	0.00
72.00	0.00	325	725.24	0.00	0.00	0.00
74.00	0.00	308	725.13	0.00	0.00	0.00
76.00	0.00	291	725.03	0.00	0.00	0.00
78.00	0.00	274	724.92	0.00	0.00	0.00
80.00	0.00	257	724.82	0.00	0.00	0.00
82.00	0.00	240	724.72	0.00	0.00	0.00
84.00	0.00	223	724.61	0.00	0.00	0.00
86.00	0.00	206	724.51	0.00	0.00	0.00
88.00	0.00	189	724.40	0.00	0.00	0.00
90.00	0.00	172	724.30	0.00	0.00	0.00
92.00	0.00	155	724.20	0.00	0.00	0.00
94.00	0.00	138	724.09	0.00	0.00	0.00
96.00	0.00	121	723.99	0.00	0.00	0.00

Summary for Subcatchment 5B: Post DA 8B-5B

Runoff = 0.09 cfs @ 12.07 hrs, Volume= 315 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

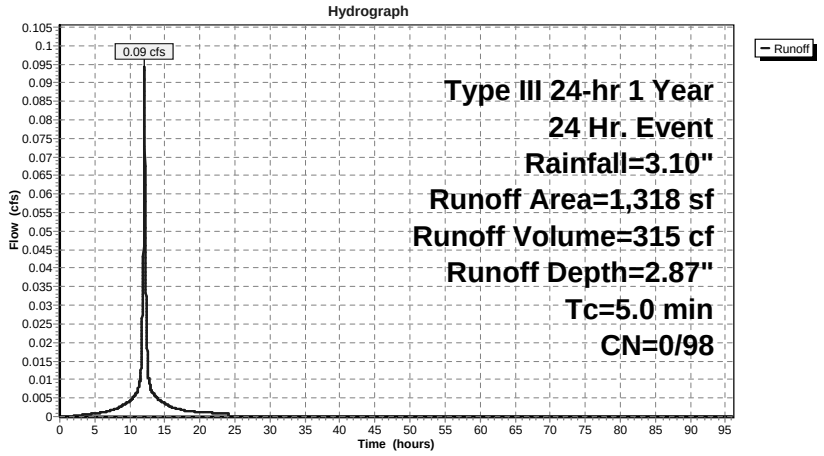
	Area (sf)	CN	Description	Land Use
	615	98	Paved parking, HSG B	Pavement
*	703	98	Pavers, HSG B	Pavement
	1,318	98	Weighted Average	
	1,318	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,318	Pavement	51.50	0.17	0.63	1.99
1,318	Total	51.50	0.17	0.63	1.99

Subcatchment 5B: Post DA 8B-5B



Hydrograph for Subcatchment 5B: Post DA 8B-5B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.00
12.00	1.55	0.00	1.33	**0.06**
14.00	2.51	0.00	2.28	**0.00**
16.00	2.75	0.00	2.52	0.00
18.00	2.88	0.00	2.65	0.00
20.00	2.97	0.00	2.74	0.00
22.00	3.04	0.00	2.81	0.00
24.00	**3.10**	0.00	**2.87**	0.00
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00
74.00	3.10	0.00	2.87	0.00
76.00	3.10	0.00	2.87	0.00
78.00	3.10	0.00	2.87	0.00
80.00	3.10	0.00	2.87	0.00
82.00	3.10	0.00	2.87	0.00
84.00	3.10	0.00	2.87	0.00
86.00	3.10	0.00	2.87	0.00
88.00	3.10	0.00	2.87	0.00
90.00	3.10	0.00	2.87	0.00
92.00	3.10	0.00	2.87	0.00
94.00	3.10	0.00	2.87	0.00
96.00	3.10	0.00	2.87	0.00

Summary for Pond 5B-P: 5B_Pavers

Inflow Area = 1,318 sf,100.00% Impervious, Inflow Depth = 2.87" for 1 Year, 24 Hr. Event event
Inflow = 0.09 cfs @ 12.07 hrs, Volume= 315 cf
Outflow = 0.09 cfs @ 12.07 hrs, Volume= 315 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.07 hrs, Volume= 0 cf
Primary = 0.09 cfs @ 12.07 hrs, Volume= 315 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 728.50' @ 0.00 hrs Surf.Area= 703 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (756.1 - 756.1)

Volume	Invert	Avail.Storage	Storage Description
#1	728.50'	281 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

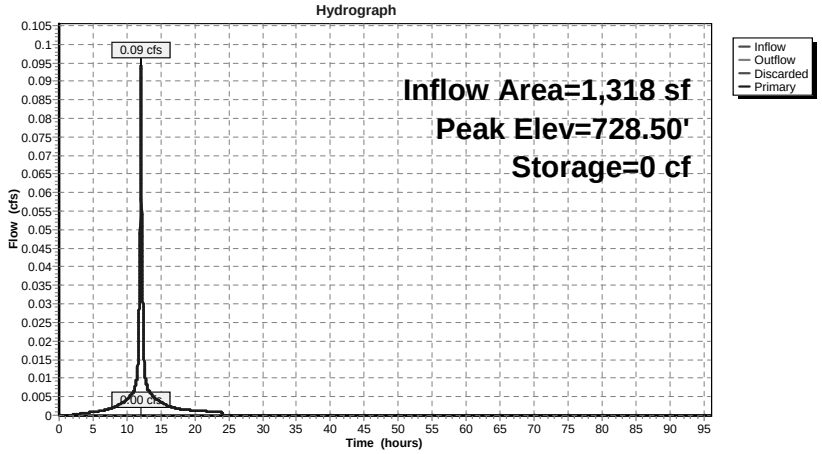
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
728.50	703	177.4	0.0	0	0	703
729.50	703	177.4	40.0	281	281	880

Device	Routing	Invert	Outlet Devices
#1	Primary	728.40'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	728.50'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 12.07 hrs HW=728.50' (Free Discharge)
↑└**2=Exfiltration** (Passes 0.00 cfs of 0.00 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=728.50' TW=720.10' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Passes 0.00 cfs of 4.24 cfs potential flow)

Pond 5B-P: 5B_Pavers



Hydrograph for Pond 5B-P: 5B_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	**728.50**	0.00	0.00	0.00
2.00	0.00	0	728.50	0.00	0.00	0.00
4.00	0.00	**0**	728.50	0.00	0.00	0.00
6.00	0.00	**0**	728.50	0.00	0.00	0.00
8.00	0.00	0	728.50	0.00	0.00	0.00
10.00	0.00	0	728.50	0.00	0.00	0.00
12.00	**0.06**	0	728.50	**0.06**	**0.00**	**0.06**
14.00	**0.00**	0	728.50	**0.00**	**0.00**	**0.00**
16.00	0.00	0	728.50	0.00	0.00	0.00
18.00	0.00	0	728.50	0.00	0.00	0.00
20.00	0.00	0	728.50	0.00	0.00	0.00
22.00	0.00	0	728.50	0.00	0.00	0.00
24.00	0.00	0	728.50	0.00	0.00	0.00
26.00	0.00	0	728.50	0.00	0.00	0.00
28.00	0.00	0	728.50	0.00	0.00	0.00
30.00	0.00	0	728.50	0.00	0.00	0.00
32.00	0.00	0	728.50	0.00	0.00	0.00
34.00	0.00	0	728.50	0.00	0.00	0.00
36.00	0.00	0	728.50	0.00	0.00	0.00
38.00	0.00	0	728.50	0.00	0.00	0.00
40.00	0.00	0	728.50	0.00	0.00	0.00
42.00	0.00	0	728.50	0.00	0.00	0.00
44.00	0.00	0	728.50	0.00	0.00	0.00
46.00	0.00	0	728.50	0.00	0.00	0.00
48.00	0.00	0	728.50	0.00	0.00	0.00
50.00	0.00	0	728.50	0.00	0.00	0.00
52.00	0.00	0	728.50	0.00	0.00	0.00
54.00	0.00	0	728.50	0.00	0.00	0.00
56.00	0.00	0	728.50	0.00	0.00	0.00
58.00	0.00	0	728.50	0.00	0.00	0.00
60.00	0.00	0	728.50	0.00	0.00	0.00
62.00	0.00	0	728.50	0.00	0.00	0.00
64.00	0.00	0	728.50	0.00	0.00	0.00
66.00	0.00	0	728.50	0.00	0.00	0.00
68.00	0.00	0	728.50	0.00	0.00	0.00
70.00	0.00	0	728.50	0.00	0.00	0.00
72.00	0.00	0	728.50	0.00	0.00	0.00
74.00	0.00	0	728.50	0.00	0.00	0.00
76.00	0.00	0	728.50	0.00	0.00	0.00
78.00	0.00	0	728.50	0.00	0.00	0.00
80.00	0.00	0	728.50	0.00	0.00	0.00
82.00	0.00	0	728.50	0.00	0.00	0.00
84.00	0.00	0	728.50	0.00	0.00	0.00
86.00	0.00	0	728.50	0.00	0.00	0.00
88.00	0.00	0	728.50	0.00	0.00	0.00
90.00	0.00	0	728.50	0.00	0.00	0.00
92.00	0.00	0	728.50	0.00	0.00	0.00
94.00	0.00	0	728.50	0.00	0.00	0.00
96.00	0.00	0	728.50	0.00	0.00	0.00

Summary for Subcatchment 5C: Post DA 8B-5C

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 474 cf, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

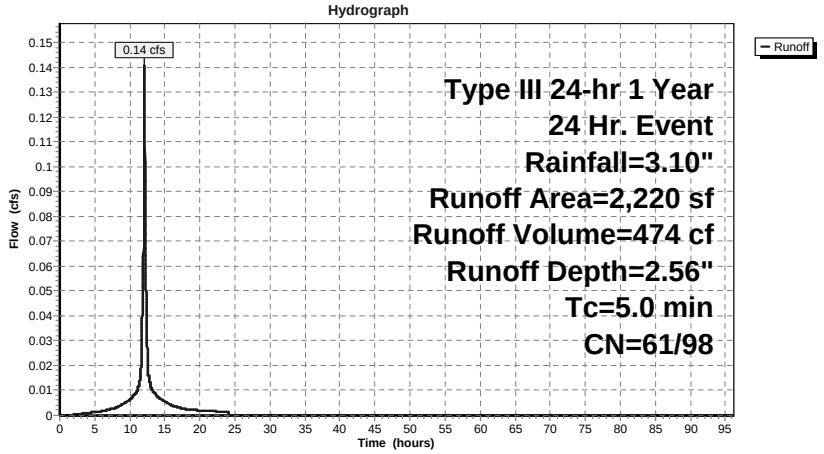
	Area (sf)	CN	Description	Land Use
	631	98	Paved parking, HSG B	Pavement
	273	61	>75% Grass cover, Good, HSG B	Open Space
*	1,316	98	Pavers, HSG B	Pavement
	2,220	93	Weighted Average	
	273	61	12.30% Pervious Area	
	1,947	98	87.70% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 87.70% Impervious, Rv= 0.839, Runoff= 38.36"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
273	Open Space	32.79	0.11	0.50	0.07
1,947	Pavement	67.21	0.22	0.82	2.60
2,220	Total	100.01	0.33	1.31	2.67

Subcatchment 5C: Post DA 8B-5C



Hydrograph for Subcatchment 5C: Post DA 8B-5C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.01	1.33	**0.09**
14.00	2.51	0.20	2.28	**0.01**
16.00	2.75	0.27	2.52	0.00
18.00	2.88	0.32	2.65	0.00
20.00	2.97	0.35	2.74	0.00
22.00	3.04	0.38	2.81	0.00
24.00	**3.10**	**0.40**	**2.87**	0.00
26.00	3.10	0.40	2.87	0.00
28.00	3.10	0.40	2.87	0.00
30.00	3.10	0.40	2.87	0.00
32.00	3.10	0.40	2.87	0.00
34.00	3.10	0.40	2.87	0.00
36.00	3.10	0.40	2.87	0.00
38.00	3.10	0.40	2.87	0.00
40.00	3.10	0.40	2.87	0.00
42.00	3.10	0.40	2.87	0.00
44.00	3.10	0.40	2.87	0.00
46.00	3.10	0.40	2.87	0.00
48.00	3.10	0.40	2.87	0.00
50.00	3.10	0.40	2.87	0.00
52.00	3.10	0.40	2.87	0.00
54.00	3.10	0.40	2.87	0.00
56.00	3.10	0.40	2.87	0.00
58.00	3.10	0.40	2.87	0.00
60.00	3.10	0.40	2.87	0.00
62.00	3.10	0.40	2.87	0.00
64.00	3.10	0.40	2.87	0.00
66.00	3.10	0.40	2.87	0.00
68.00	3.10	0.40	2.87	0.00
70.00	3.10	0.40	2.87	0.00
72.00	3.10	0.40	2.87	0.00
74.00	3.10	0.40	2.87	0.00
76.00	3.10	0.40	2.87	0.00
78.00	3.10	0.40	2.87	0.00
80.00	3.10	0.40	2.87	0.00
82.00	3.10	0.40	2.87	0.00
84.00	3.10	0.40	2.87	0.00
86.00	3.10	0.40	2.87	0.00
88.00	3.10	0.40	2.87	0.00
90.00	3.10	0.40	2.87	0.00
92.00	3.10	0.40	2.87	0.00
94.00	3.10	0.40	2.87	0.00
96.00	3.10	0.40	2.87	0.00

Summary for Pond 5C-P: 5C_Pavers

Inflow Area = 2,220 sf, 87.70% Impervious, Inflow Depth = 2.56" for 1 Year, 24 Hr. Event event
Inflow = 0.14 cfs @ 12.07 hrs, Volume= 474 cf
Outflow = 0.01 cfs @ 11.20 hrs, Volume= 475 cf, Atten= 95%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.20 hrs, Volume= 475 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 726.71' @ 13.92 hrs Surf.Area= 1,316 sf Storage= 202 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 215.4 min (974.6 - 759.3)

Volume	Invert	Avail.Storage	Storage Description
#1	726.33'	353 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

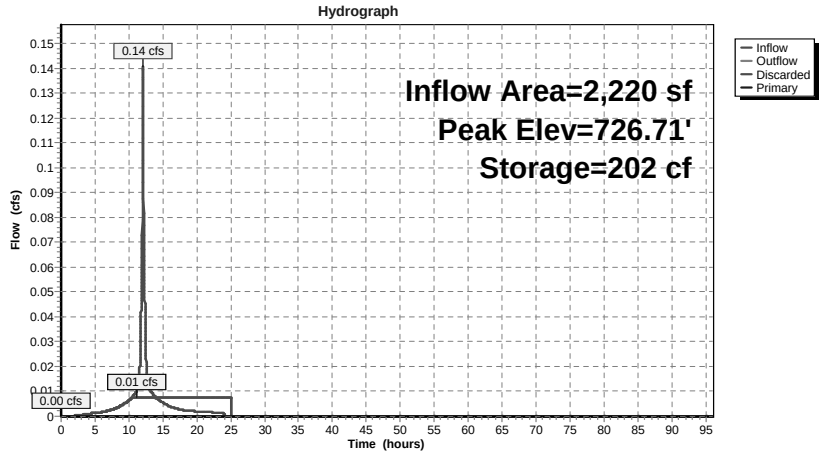
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
726.33	1,316	291.9	0.0	0	0	1,316
727.00	1,316	291.9	40.0	353	353	1,512

Device	Routing	Invert	Outlet Devices
#1	Primary	726.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	726.33'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 11.20 hrs HW=726.34' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=726.33' TW=720.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5C-P: 5C_Pavers



Hydrograph for Pond 5C-P: 5C_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	726.33	0.00	0.00	**0.00**
2.00	0.00	0	726.33	0.00	0.00	0.00
4.00	0.00	0	726.33	0.00	0.00	0.00
6.00	0.00	0	726.33	0.00	0.00	0.00
8.00	0.00	0	726.33	0.00	0.00	0.00
10.00	0.01	0	726.33	**0.01**	**0.01**	0.00
12.00	**0.09**	**66**	**726.46**	**0.01**	**0.01**	0.00
14.00	**0.01**	**202**	**726.71**	0.01	0.01	0.00
16.00	0.00	188	726.69	0.01	0.01	0.00
18.00	0.00	155	726.62	0.01	0.01	0.00
20.00	0.00	116	726.55	0.01	0.01	0.00
22.00	0.00	74	726.47	0.01	0.01	0.00
24.00	0.00	29	726.39	0.01	0.01	0.00
26.00	0.00	0	726.33	0.00	0.00	0.00
28.00	0.00	0	726.33	0.00	0.00	0.00
30.00	0.00	0	726.33	0.00	0.00	0.00
32.00	0.00	0	726.33	0.00	0.00	0.00
34.00	0.00	0	726.33	0.00	0.00	0.00
36.00	0.00	0	726.33	0.00	0.00	0.00
38.00	0.00	0	726.33	0.00	0.00	0.00
40.00	0.00	0	726.33	0.00	0.00	0.00
42.00	0.00	0	726.33	0.00	0.00	0.00
44.00	0.00	0	726.33	0.00	0.00	0.00
46.00	0.00	0	726.33	0.00	0.00	0.00
48.00	0.00	0	726.33	0.00	0.00	0.00
50.00	0.00	0	726.33	0.00	0.00	0.00
52.00	0.00	0	726.33	0.00	0.00	0.00
54.00	0.00	0	726.33	0.00	0.00	0.00
56.00	0.00	0	726.33	0.00	0.00	0.00
58.00	0.00	0	726.33	0.00	0.00	0.00
60.00	0.00	0	726.33	0.00	0.00	0.00
62.00	0.00	0	726.33	0.00	0.00	0.00
64.00	0.00	0	726.33	0.00	0.00	0.00
66.00	0.00	0	726.33	0.00	0.00	0.00
68.00	0.00	0	726.33	0.00	0.00	0.00
70.00	0.00	0	726.33	0.00	0.00	0.00
72.00	0.00	0	726.33	0.00	0.00	0.00
74.00	0.00	0	726.33	0.00	0.00	0.00
76.00	0.00	0	726.33	0.00	0.00	0.00
78.00	0.00	0	726.33	0.00	0.00	0.00
80.00	0.00	0	726.33	0.00	0.00	0.00
82.00	0.00	0	726.33	0.00	0.00	0.00
84.00	0.00	0	726.33	0.00	0.00	0.00
86.00	0.00	0	726.33	0.00	0.00	0.00
88.00	0.00	0	726.33	0.00	0.00	0.00
90.00	0.00	0	726.33	0.00	0.00	0.00
92.00	0.00	0	726.33	0.00	0.00	0.00
94.00	0.00	0	726.33	0.00	0.00	0.00
96.00	0.00	0	726.33	0.00	0.00	0.00

Summary for Subcatchment 5D: Post DA 8B-5D

Runoff = 0.42 cfs @ 12.07 hrs, Volume= 1,394 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

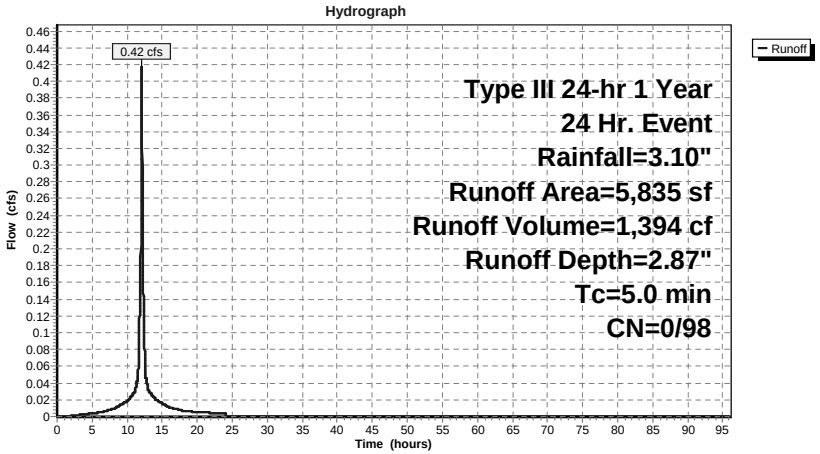
	Area (sf)	CN	Description	Land Use
	1,217	98	Water Surface, HSG B	Open Water
*	4,618	98	Pavers, HSG B	Pavement
	5,835	98	Weighted Average	
	5,835	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,217	Open Water	0.00	0.00	0.00	0.44
4,618	Pavement	180.44	0.58	2.19	6.99
5,835	Total	180.44	0.58	2.19	7.43

Subcatchment 5D: Post DA 8B-5D



Hydrograph for Subcatchment 5D: Post DA 8B-5D

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.02
12.00	1.55	0.00	1.33	**0.28**
14.00	2.51	0.00	2.28	**0.02**
16.00	2.75	0.00	2.52	0.01
18.00	2.88	0.00	2.65	0.01
20.00	2.97	0.00	2.74	0.01
22.00	3.04	0.00	2.81	0.00
24.00	**3.10**	0.00	**2.87**	0.00
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00
74.00	3.10	0.00	2.87	0.00
76.00	3.10	0.00	2.87	0.00
78.00	3.10	0.00	2.87	0.00
80.00	3.10	0.00	2.87	0.00
82.00	3.10	0.00	2.87	0.00
84.00	3.10	0.00	2.87	0.00
86.00	3.10	0.00	2.87	0.00
88.00	3.10	0.00	2.87	0.00
90.00	3.10	0.00	2.87	0.00
92.00	3.10	0.00	2.87	0.00
94.00	3.10	0.00	2.87	0.00
96.00	3.10	0.00	2.87	0.00

Summary for Subcatchment 6A: Post DA 8B-6A

Runoff = 0.41 cfs @ 12.07 hrs, Volume= 1,392 cf, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

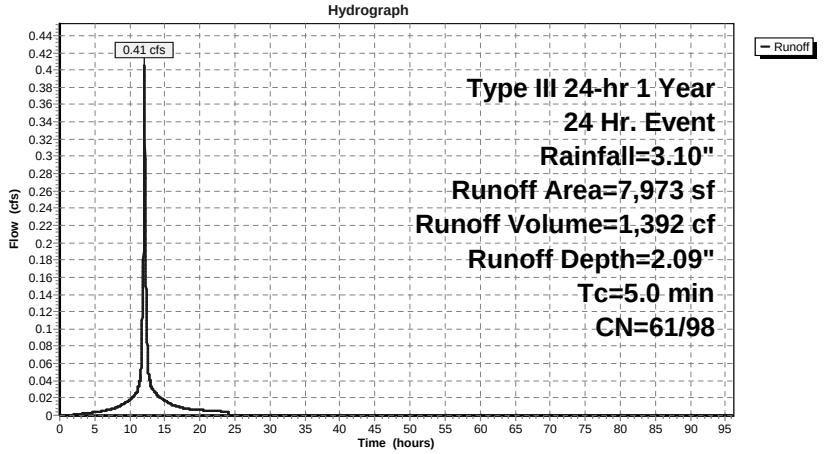
	Area (sf)	CN	Description	Land Use
	5,471	98	Paved parking, HSG B	Pavement
	1,084	61	>75% Grass cover, Good, HSG B	Open Space
*	1,418	61	Bioretention, HSG B	Landscaped
	7,973	86	Weighted Average	
	2,502	61	31.38% Pervious Area	
	5,471	98	68.62% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 68.62% Impervious, Rv= 0.668, Runoff= 30.51"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,418	Landscaped	8.33	0.00	0.00	0.28
1,084	Open Space	103.57	0.36	1.57	0.21
5,471	Pavement	150.22	0.49	1.82	5.82
7,973	Total	262.12	0.85	3.39	6.31

Subcatchment 6A: Post DA 8B-6A



Hydrograph for Subcatchment 6A: Post DA 8B-6A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.02
12.00	1.55	0.01	1.33	**0.27**
14.00	2.51	0.20	2.28	**0.02**
16.00	2.75	0.27	2.52	0.01
18.00	2.88	0.32	2.65	0.01
20.00	2.97	0.35	2.74	0.01
22.00	3.04	0.38	2.81	0.00
24.00	**3.10**	**0.40**	**2.87**	0.00
26.00	3.10	0.40	2.87	0.00
28.00	3.10	0.40	2.87	0.00
30.00	3.10	0.40	2.87	0.00
32.00	3.10	0.40	2.87	0.00
34.00	3.10	0.40	2.87	0.00
36.00	3.10	0.40	2.87	0.00
38.00	3.10	0.40	2.87	0.00
40.00	3.10	0.40	2.87	0.00
42.00	3.10	0.40	2.87	0.00
44.00	3.10	0.40	2.87	0.00
46.00	3.10	0.40	2.87	0.00
48.00	3.10	0.40	2.87	0.00
50.00	3.10	0.40	2.87	0.00
52.00	3.10	0.40	2.87	0.00
54.00	3.10	0.40	2.87	0.00
56.00	3.10	0.40	2.87	0.00
58.00	3.10	0.40	2.87	0.00
60.00	3.10	0.40	2.87	0.00
62.00	3.10	0.40	2.87	0.00
64.00	3.10	0.40	2.87	0.00
66.00	3.10	0.40	2.87	0.00
68.00	3.10	0.40	2.87	0.00
70.00	3.10	0.40	2.87	0.00
72.00	3.10	0.40	2.87	0.00
74.00	3.10	0.40	2.87	0.00
76.00	3.10	0.40	2.87	0.00
78.00	3.10	0.40	2.87	0.00
80.00	3.10	0.40	2.87	0.00
82.00	3.10	0.40	2.87	0.00
84.00	3.10	0.40	2.87	0.00
86.00	3.10	0.40	2.87	0.00
88.00	3.10	0.40	2.87	0.00
90.00	3.10	0.40	2.87	0.00
92.00	3.10	0.40	2.87	0.00
94.00	3.10	0.40	2.87	0.00
96.00	3.10	0.40	2.87	0.00

Summary for Pond 6A-B: 6A_Bioretention

Inflow Area = 7,973 sf, 68.62% Impervious, Inflow Depth = 2.09" for 1 Year, 24 Hr. Event event
Inflow = 0.41 cfs @ 12.07 hrs, Volume= 1,392 cf
Outflow = 0.01 cfs @ 12.15 hrs, Volume= 1,267 cf, Atten= 98%, Lag= 4.7 min
Discarded = 0.01 cfs @ 12.15 hrs, Volume= 1,267 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 735.22' @ 16.89 hrs Surf.Area= 1,718 sf Storage= 1,011 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,279.0 min (2,044.9 - 765.9)

Volume	Invert	Avail.Storage	Storage Description
#1	730.75'	2,343 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

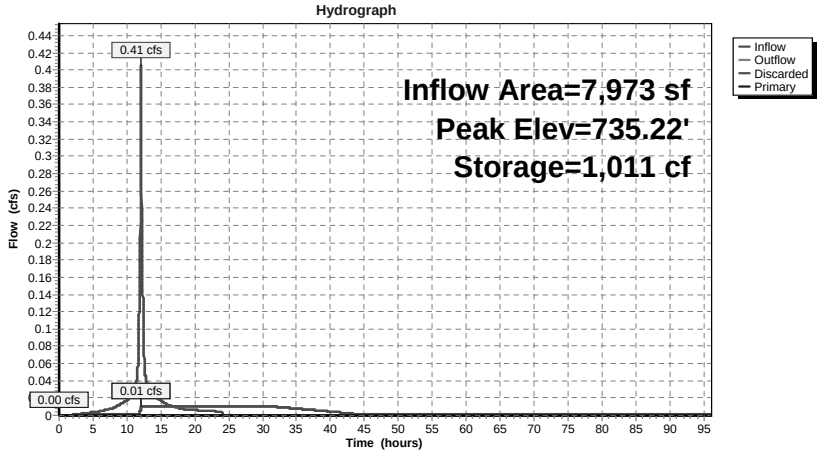
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
730.75	242	0.0	0	0
730.76	242	40.0	1	1
734.75	242	40.0	386	387
735.01	1,718	100.0	255	642
735.50	1,718	100.0	842	1,484
736.00	1,718	100.0	859	2,343

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.75'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	735.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 12.15 hrs HW=735.01' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=730.75' TW=720.00' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 6A-B: 6A_Bioretention



Hydrograph for Pond 6A-B: 6A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.75	0.00	0.00	**0.00**
2.00	0.00	0	730.75	0.00	0.00	0.00
4.00	0.00	3	730.78	0.00	0.00	0.00
6.00	0.00	18	730.94	0.00	0.00	0.00
8.00	0.01	54	731.31	0.00	0.00	0.00
10.00	0.02	136	732.15	0.00	0.00	0.00
12.00	**0.27**	461	734.87	**0.01**	**0.01**	0.00
14.00	**0.02**	956	735.19	**0.01**	**0.01**	0.00
16.00	0.01	**1,008**	**735.22**	0.01	0.01	0.00
18.00	0.01	**1,006**	**735.22**	0.01	0.01	0.00
20.00	0.01	983	735.21	0.01	0.01	0.00
22.00	0.00	951	735.19	0.01	0.01	0.00
24.00	0.00	911	735.17	0.01	0.01	0.00
26.00	0.00	841	735.13	0.01	0.01	0.00
28.00	0.00	769	735.08	0.01	0.01	0.00
30.00	0.00	698	735.04	0.01	0.01	0.00
32.00	0.00	626	735.00	0.01	0.01	0.00
34.00	0.00	562	734.96	0.01	0.01	0.00
36.00	0.00	507	734.92	0.01	0.01	0.00
38.00	0.00	462	734.88	0.01	0.01	0.00
40.00	0.00	428	734.83	0.00	0.00	0.00
42.00	0.00	403	734.79	0.00	0.00	0.00
44.00	0.00	387	734.75	0.00	0.00	0.00
46.00	0.00	377	734.65	0.00	0.00	0.00
48.00	0.00	367	734.54	0.00	0.00	0.00
50.00	0.00	357	734.44	0.00	0.00	0.00
52.00	0.00	347	734.33	0.00	0.00	0.00
54.00	0.00	337	734.23	0.00	0.00	0.00
56.00	0.00	327	734.13	0.00	0.00	0.00
58.00	0.00	317	734.02	0.00	0.00	0.00
60.00	0.00	307	733.92	0.00	0.00	0.00
62.00	0.00	297	733.81	0.00	0.00	0.00
64.00	0.00	287	733.71	0.00	0.00	0.00
66.00	0.00	276	733.61	0.00	0.00	0.00
68.00	0.00	266	733.50	0.00	0.00	0.00
70.00	0.00	256	733.40	0.00	0.00	0.00
72.00	0.00	246	733.29	0.00	0.00	0.00
74.00	0.00	236	733.19	0.00	0.00	0.00
76.00	0.00	226	733.08	0.00	0.00	0.00
78.00	0.00	216	732.98	0.00	0.00	0.00
80.00	0.00	206	732.88	0.00	0.00	0.00
82.00	0.00	196	732.77	0.00	0.00	0.00
84.00	0.00	186	732.67	0.00	0.00	0.00
86.00	0.00	176	732.56	0.00	0.00	0.00
88.00	0.00	166	732.46	0.00	0.00	0.00
90.00	0.00	155	732.36	0.00	0.00	0.00
92.00	0.00	145	732.25	0.00	0.00	0.00
94.00	0.00	135	732.15	0.00	0.00	0.00
96.00	0.00	125	732.04	0.00	0.00	0.00

Summary for Subcatchment 6B: Post DA 8B-6B

Runoff = 0.47 cfs @ 12.07 hrs, Volume= 1,590 cf, Depth= 2.40"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

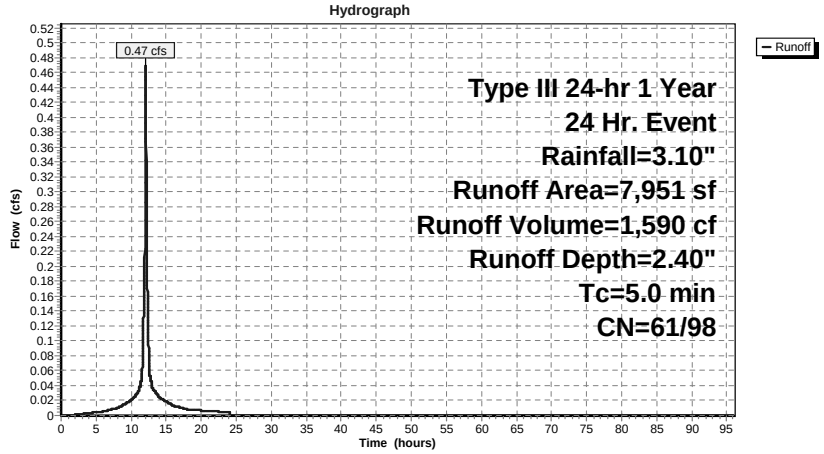
	Area (sf)	CN	Description	Land Use
	1,510	61	>75% Grass cover, Good, HSG B	Open Space
*	6,441	98	Pavers, HSG B	Pavement
	7,951	91	Weighted Average	
	1,510	61	18.99% Pervious Area	
	6,441	98	81.01% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 81.01% Impervious, Rv= 0.779, Runoff= 35.60"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,510	Open Space	168.37	0.59	2.55	0.34
6,441	Pavement	206.39	0.67	2.51	7.99
7,951	Total	374.76	1.26	5.05	8.34

Subcatchment 6B: Post DA 8B-6B



Hydrograph for Subcatchment 6B: Post DA 8B-6B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.02
12.00	1.55	0.01	1.33	**0.31**
14.00	2.51	0.20	2.28	**0.02**
16.00	2.75	0.27	2.52	0.01
18.00	2.88	0.32	2.65	0.01
20.00	2.97	0.35	2.74	0.01
22.00	3.04	0.38	2.81	0.01
24.00	**3.10**	**0.40**	**2.87**	0.00
26.00	3.10	0.40	2.87	0.00
28.00	3.10	0.40	2.87	0.00
30.00	3.10	0.40	2.87	0.00
32.00	3.10	0.40	2.87	0.00
34.00	3.10	0.40	2.87	0.00
36.00	3.10	0.40	2.87	0.00
38.00	3.10	0.40	2.87	0.00
40.00	3.10	0.40	2.87	0.00
42.00	3.10	0.40	2.87	0.00
44.00	3.10	0.40	2.87	0.00
46.00	3.10	0.40	2.87	0.00
48.00	3.10	0.40	2.87	0.00
50.00	3.10	0.40	2.87	0.00
52.00	3.10	0.40	2.87	0.00
54.00	3.10	0.40	2.87	0.00
56.00	3.10	0.40	2.87	0.00
58.00	3.10	0.40	2.87	0.00
60.00	3.10	0.40	2.87	0.00
62.00	3.10	0.40	2.87	0.00
64.00	3.10	0.40	2.87	0.00
66.00	3.10	0.40	2.87	0.00
68.00	3.10	0.40	2.87	0.00
70.00	3.10	0.40	2.87	0.00
72.00	3.10	0.40	2.87	0.00
74.00	3.10	0.40	2.87	0.00
76.00	3.10	0.40	2.87	0.00
78.00	3.10	0.40	2.87	0.00
80.00	3.10	0.40	2.87	0.00
82.00	3.10	0.40	2.87	0.00
84.00	3.10	0.40	2.87	0.00
86.00	3.10	0.40	2.87	0.00
88.00	3.10	0.40	2.87	0.00
90.00	3.10	0.40	2.87	0.00
92.00	3.10	0.40	2.87	0.00
94.00	3.10	0.40	2.87	0.00
96.00	3.10	0.40	2.87	0.00

Summary for Pond 6B-P: 6B_Pavers

Inflow Area = 7,951 sf, 81.01% Impervious, Inflow Depth = 2.40" for 1 Year, 24 Hr. Event event
Inflow = 0.47 cfs @ 12.07 hrs, Volume= 1,590 cf
Outflow = 0.01 cfs @ 18.83 hrs, Volume= 122 cf, Atten= 98%, Lag= 405.4 min
Primary = 0.01 cfs @ 18.83 hrs, Volume= 122 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 739.90' @ 18.83 hrs Surf.Area= 6,441 sf Storage= 1,472 cf

Plug-Flow detention time= 884.1 min calculated for 122 cf (8% of inflow)
Center-of-Mass det. time= 503.9 min (1,265.2 - 761.3)

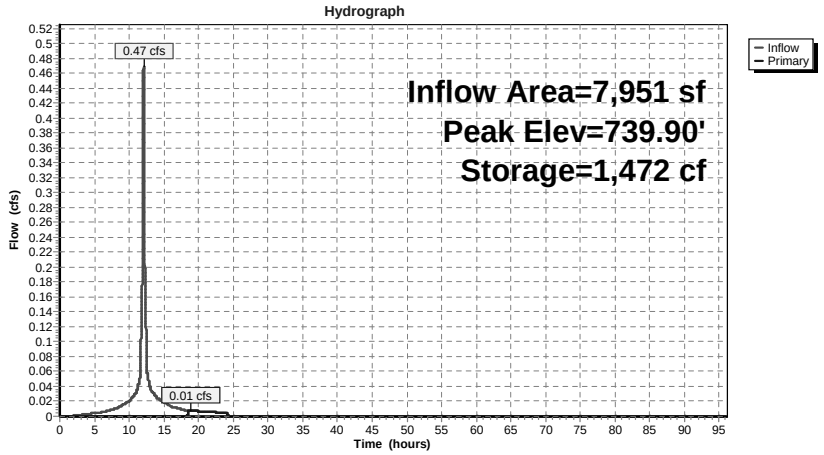
Volume	Invert	Avail.Storage	Storage Description
#1	739.33'	1,726 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
739.33	6,441	0.0	0	0
740.00	6,441	40.0	1,726	1,726

Device	Routing	Invert	Outlet Devices
#1	Primary	739.90'	**60.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.01 cfs @ 18.83 hrs HW=739.90' TW=720.03' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 0.01 cfs @ 0.10 fps)

Pond 6B-P: 6B_Pavers



Hydrograph for Pond 6B-P: 6B_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	739.33	0.00
2.00	0.00	1	739.33	0.00
4.00	0.00	15	739.34	0.00
6.00	0.01	45	739.35	0.00
8.00	0.01	99	739.37	0.00
10.00	0.02	207	739.41	0.00
12.00	**0.31**	603	739.56	0.00
14.00	**0.02**	1,245	739.81	0.00
16.00	0.01	1,381	739.87	0.00
18.00	0.01	**1,458**	**739.90**	**0.00**
20.00	0.01	**1,472**	**739.90**	**0.01**
22.00	0.01	1,471	739.90	0.01
24.00	0.00	1,471	739.90	0.00
26.00	0.00	1,469	739.90	0.00
28.00	0.00	1,469	739.90	0.00
30.00	0.00	1,469	739.90	0.00
32.00	0.00	1,469	739.90	0.00
34.00	0.00	1,469	739.90	0.00
36.00	0.00	1,469	739.90	0.00
38.00	0.00	1,469	739.90	0.00
40.00	0.00	1,469	739.90	0.00
42.00	0.00	1,469	739.90	0.00
44.00	0.00	1,469	739.90	0.00
46.00	0.00	1,469	739.90	0.00
48.00	0.00	1,469	739.90	0.00
50.00	0.00	1,469	739.90	0.00
52.00	0.00	1,469	739.90	0.00
54.00	0.00	1,469	739.90	0.00
56.00	0.00	1,469	739.90	0.00
58.00	0.00	1,469	739.90	0.00
60.00	0.00	1,469	739.90	0.00
62.00	0.00	1,469	739.90	0.00
64.00	0.00	1,469	739.90	0.00
66.00	0.00	1,469	739.90	0.00
68.00	0.00	1,469	739.90	0.00
70.00	0.00	1,469	739.90	0.00
72.00	0.00	1,469	739.90	0.00
74.00	0.00	1,469	739.90	0.00
76.00	0.00	1,469	739.90	0.00
78.00	0.00	1,469	739.90	0.00
80.00	0.00	1,469	739.90	0.00
82.00	0.00	1,469	739.90	0.00
84.00	0.00	1,469	739.90	0.00
86.00	0.00	1,469	739.90	0.00
88.00	0.00	1,469	739.90	0.00
90.00	0.00	1,469	739.90	0.00
92.00	0.00	1,469	739.90	0.00
94.00	0.00	1,469	739.90	0.00
96.00	0.00	1,469	739.90	0.00

Summary for Pond 7P: 5D_Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 5,835 sf,100.00% Impervious, Inflow Depth = 2.87" for 1 Year, 24 Hr. Event event
Inflow = 0.42 cfs @ 12.07 hrs, Volume= 1,394 cf
Outflow = 0.03 cfs @ 11.43 hrs, Volume= 1,395 cf, Atten= 94%, Lag= 0.0 min
Discarded = 0.03 cfs @ 11.43 hrs, Volume= 1,395 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 737.63' @ 13.44 hrs Surf.Area= 4,618 sf Storage= 551 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 157.7 min (913.8 - 756.1)

Volume	Invert	Avail.Storage	Storage Description
#1	737.33'	1,238 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

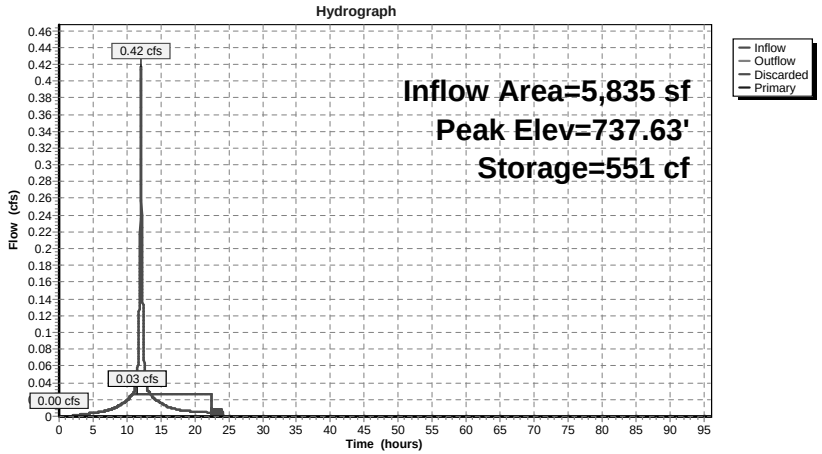
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
737.33	4,618	0.0	0	0
738.00	4,618	40.0	1,238	1,238

Device	Routing	Invert	Outlet Devices
#1	Primary	737.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	737.33'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.03 cfs @ 11.43 hrs HW=737.34' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=737.33' TW=720.00' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 7P: 5D_Pavers



Hydrograph for Pond 7P: 5D_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	737.33	0.00	0.00	**0.00**
2.00	0.00	0	737.33	0.00	0.00	0.00
4.00	0.00	0	737.33	0.00	0.00	0.00
6.00	0.00	0	737.33	0.00	0.00	0.00
8.00	0.01	0	737.33	0.01	0.01	0.00
10.00	0.02	0	737.33	**0.02**	**0.02**	0.00
12.00	**0.28**	**179**	**737.43**	**0.03**	**0.03**	0.00
14.00	**0.02**	**546**	**737.63**	0.03	0.03	0.00
16.00	0.01	468	737.58	0.03	0.03	0.00
18.00	0.01	340	737.51	0.03	0.03	0.00
20.00	0.01	192	737.43	0.03	0.03	0.00
22.00	0.00	35	737.35	0.03	0.03	0.00
24.00	0.00	0	737.33	0.01	0.01	0.00
26.00	0.00	0	737.33	0.00	0.00	0.00
28.00	0.00	0	737.33	0.00	0.00	0.00
30.00	0.00	0	737.33	0.00	0.00	0.00
32.00	0.00	0	737.33	0.00	0.00	0.00
34.00	0.00	0	737.33	0.00	0.00	0.00
36.00	0.00	0	737.33	0.00	0.00	0.00
38.00	0.00	0	737.33	0.00	0.00	0.00
40.00	0.00	0	737.33	0.00	0.00	0.00
42.00	0.00	0	737.33	0.00	0.00	0.00
44.00	0.00	0	737.33	0.00	0.00	0.00
46.00	0.00	0	737.33	0.00	0.00	0.00
48.00	0.00	0	737.33	0.00	0.00	0.00
50.00	0.00	0	737.33	0.00	0.00	0.00
52.00	0.00	0	737.33	0.00	0.00	0.00
54.00	0.00	0	737.33	0.00	0.00	0.00
56.00	0.00	0	737.33	0.00	0.00	0.00
58.00	0.00	0	737.33	0.00	0.00	0.00
60.00	0.00	0	737.33	0.00	0.00	0.00
62.00	0.00	0	737.33	0.00	0.00	0.00
64.00	0.00	0	737.33	0.00	0.00	0.00
66.00	0.00	0	737.33	0.00	0.00	0.00
68.00	0.00	0	737.33	0.00	0.00	0.00
70.00	0.00	0	737.33	0.00	0.00	0.00
72.00	0.00	0	737.33	0.00	0.00	0.00
74.00	0.00	0	737.33	0.00	0.00	0.00
76.00	0.00	0	737.33	0.00	0.00	0.00
78.00	0.00	0	737.33	0.00	0.00	0.00
80.00	0.00	0	737.33	0.00	0.00	0.00
82.00	0.00	0	737.33	0.00	0.00	0.00
84.00	0.00	0	737.33	0.00	0.00	0.00
86.00	0.00	0	737.33	0.00	0.00	0.00
88.00	0.00	0	737.33	0.00	0.00	0.00
90.00	0.00	0	737.33	0.00	0.00	0.00
92.00	0.00	0	737.33	0.00	0.00	0.00
94.00	0.00	0	737.33	0.00	0.00	0.00
96.00	0.00	0	737.33	0.00	0.00	0.00

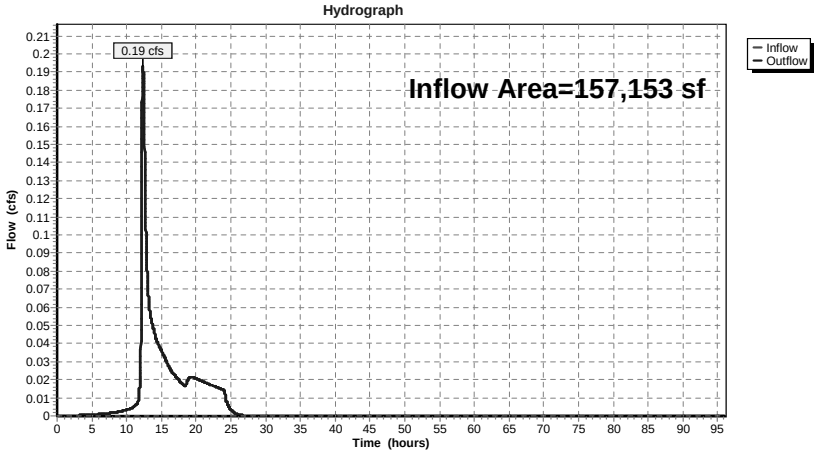
Summary for Reach 8BW-Out: DA-8B West Outflow

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 0.12" for 1 Year, 24 Hr. Event event
Inflow = 0.19 cfs @ 12.35 hrs, Volume= 1,592 cf
Outflow = 0.19 cfs @ 12.35 hrs, Volume= 1,592 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3

Reach 8BW-Out: DA-8B West Outflow



Hydrograph for Reach 8BW-Out: DA-8B West Outflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	**0.03**		**0.03**	64.00	0.00		0.00
13.00	**0.08**		**0.08**	65.00	0.00		0.00
14.00	0.05		0.05	66.00	0.00		0.00
15.00	0.04		0.04	67.00	0.00		0.00
16.00	0.03		0.03	68.00	0.00		0.00
17.00	0.02		0.02	69.00	0.00		0.00
18.00	0.02		0.02	70.00	0.00		0.00
19.00	0.02		0.02	71.00	0.00		0.00
20.00	0.02		0.02	72.00	0.00		0.00
21.00	0.02		0.02	73.00	0.00		0.00
22.00	0.02		0.02	74.00	0.00		0.00
23.00	0.02		0.02	75.00	0.00		0.00
24.00	0.01		0.01	76.00	0.00		0.00
25.00	0.00		0.00	77.00	0.00		0.00
26.00	0.00		0.00	78.00	0.00		0.00
27.00	0.00		0.00	79.00	0.00		0.00
28.00	0.00		0.00	80.00	0.00		0.00
29.00	0.00		0.00	81.00	0.00		0.00
30.00	0.00		0.00	82.00	0.00		0.00
31.00	0.00		0.00	83.00	0.00		0.00
32.00	0.00		0.00	84.00	0.00		0.00
33.00	0.00		0.00	85.00	0.00		0.00
34.00	0.00		0.00	86.00	0.00		0.00
35.00	0.00		0.00	87.00	0.00		0.00
36.00	0.00		0.00	88.00	0.00		0.00
37.00	0.00		0.00	89.00	0.00		0.00
38.00	0.00		0.00	90.00	0.00		0.00
39.00	0.00		0.00	91.00	0.00		0.00
40.00	0.00		0.00	92.00	0.00		0.00
41.00	0.00		0.00	93.00	0.00		0.00
42.00	0.00		0.00	94.00	0.00		0.00
43.00	0.00		0.00	95.00	0.00		0.00
44.00	0.00		0.00	96.00	0.00		0.00
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Reach R-2: West Reach -2

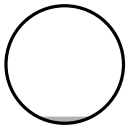
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 72,812 sf, 35.94% Impervious, Inflow Depth = 0.26" for 1 Year, 24 Hr. Event event
Inflow = 0.28 cfs @ 12.12 hrs, Volume= 1,592 cf
Outflow = 0.28 cfs @ 12.13 hrs, Volume= 1,592 cf, Atten= 0%, Lag= 0.4 min

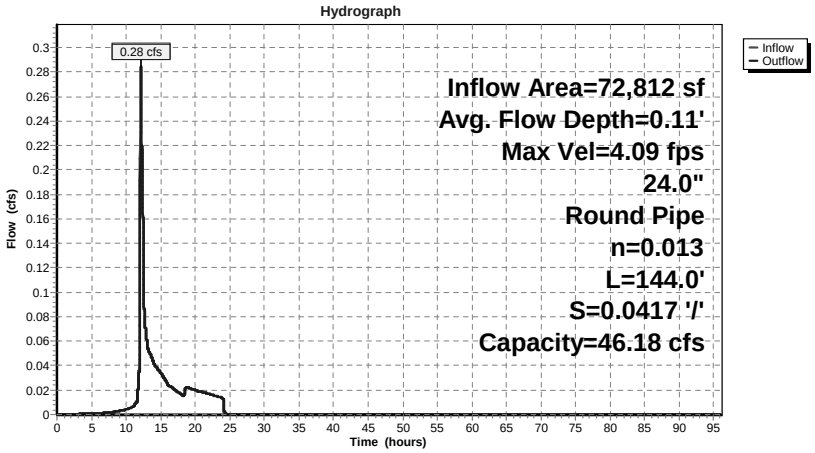
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 4.09 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.72 fps, Avg. Travel Time= 1.4 min

Peak Storage= 10 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 46.18 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 144.0' Slope= 0.0417 '/'
Inlet Invert= 720.00', Outlet Invert= 714.00'



Reach R-2: West Reach -2



Hydrograph for Reach R-2: West Reach -2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	720.00	0.00
2.00	0.00	0	720.00	0.00
4.00	0.00	0	720.00	0.00
6.00	0.00	0	720.00	0.00
8.00	0.00	0	720.01	0.00
10.00	0.00	0	720.01	0.00
12.00	**0.09**	**4**	**720.06**	**0.07**
14.00	**0.04**	**3**	**720.05**	**0.04**
16.00	0.03	2	720.04	0.03
18.00	0.02	1	720.03	0.02
20.00	0.02	2	720.03	0.02
22.00	0.02	1	720.03	0.02
24.00	0.01	1	720.03	0.01
26.00	0.00	0	720.00	0.00
28.00	0.00	0	720.00	0.00
30.00	0.00	0	720.00	0.00
32.00	0.00	0	720.00	0.00
34.00	0.00	0	720.00	0.00
36.00	0.00	0	720.00	0.00
38.00	0.00	0	720.00	0.00
40.00	0.00	0	720.00	0.00
42.00	0.00	0	720.00	0.00
44.00	0.00	0	720.00	0.00
46.00	0.00	0	720.00	0.00
48.00	0.00	0	720.00	0.00
50.00	0.00	0	720.00	0.00
52.00	0.00	0	720.00	0.00
54.00	0.00	0	720.00	0.00
56.00	0.00	0	720.00	0.00
58.00	0.00	0	720.00	0.00
60.00	0.00	0	720.00	0.00
62.00	0.00	0	720.00	0.00
64.00	0.00	0	720.00	0.00
66.00	0.00	0	720.00	0.00
68.00	0.00	0	720.00	0.00
70.00	0.00	0	720.00	0.00
72.00	0.00	0	720.00	0.00
74.00	0.00	0	720.00	0.00
76.00	0.00	0	720.00	0.00
78.00	0.00	0	720.00	0.00
80.00	0.00	0	720.00	0.00
82.00	0.00	0	720.00	0.00
84.00	0.00	0	720.00	0.00
86.00	0.00	0	720.00	0.00
88.00	0.00	0	720.00	0.00
90.00	0.00	0	720.00	0.00
92.00	0.00	0	720.00	0.00
94.00	0.00	0	720.00	0.00
96.00	0.00	0	720.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 3A_R: Vegetated Swale Avg. Flow Depth=0.16' Max Vel=0.77 fps Inflow=0.46 cfs 3,223 cf
n=0.120 L=521.0' S=0.0576 '/' Capacity=50.42 cfs Outflow=0.31 cfs 3,223 cf

Subcatchment 4: Post DA 8B-4 Runoff Area=84,341 sf 55.72% Impervious Runoff Depth=2.07"
Tc=5.0 min CN=61/98 Runoff=4.21 cfs 14,574 cf

Pond 4-B: 4_Bioretention Peak Elev=729.52' Storage=10,629 cf Inflow=4.21 cfs 14,574 cf
Discarded=0.07 cfs 11,456 cf Primary=0.09 cfs 868 cf Outflow=0.16 cfs 12,324 cf

Subcatchment 5: Post DA 8B-5 Runoff Area=34,341 sf 0.00% Impervious Runoff Depth=0.57"
Flow Length=290' Tc=6.8 min CN=61/0 Runoff=0.37 cfs 1,639 cf

Subcatchment 5A: Post DA 8B-5A Runoff Area=13,174 sf 39.15% Impervious Runoff Depth=1.63"
Tc=5.0 min CN=61/98 Runoff=0.50 cfs 1,787 cf

Pond 5A-B: 5A_Bioretention Peak Elev=727.76' Storage=1,255 cf Inflow=0.50 cfs 1,787 cf
Discarded=0.01 cfs 1,614 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 1,614 cf

Subcatchment 5B: Post DA 8B-5B Runoff Area=1,318 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=0.11 cfs 359 cf

Pond 5B-P: 5B_Pavers Peak Elev=728.50' Storage=0 cf Inflow=0.11 cfs 359 cf
Discarded=0.00 cfs 0 cf Primary=0.11 cfs 358 cf Outflow=0.11 cfs 359 cf

Subcatchment 5C: Post DA 8B-5C Runoff Area=2,220 sf 87.70% Impervious Runoff Depth=2.94"
Tc=5.0 min CN=61/98 Runoff=0.16 cfs 543 cf

Pond 5C-P: 5C_Pavers Peak Elev=726.80' Storage=245 cf Inflow=0.16 cfs 543 cf
Discarded=0.01 cfs 543 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 543 cf

Subcatchment 5D: Post DA 8B-5D Runoff Area=5,835 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=0.47 cfs 1,588 cf

Subcatchment 6A: Post DA 8B-6A Runoff Area=7,973 sf 68.62% Impervious Runoff Depth=2.42"
Tc=5.0 min CN=61/98 Runoff=0.47 cfs 1,609 cf

Pond 6A-B: 6A_Bioretention Peak Elev=735.34' Storage=1,201 cf Inflow=0.47 cfs 1,609 cf
Discarded=0.01 cfs 1,454 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 1,454 cf

Subcatchment 6B: Post DA 8B-6B Runoff Area=7,951 sf 81.01% Impervious Runoff Depth=2.75"
Tc=5.0 min CN=61/98 Runoff=0.54 cfs 1,825 cf

Pond 6B-P: 6B_Pavers Peak Elev=739.90' Storage=1,476 cf Inflow=0.54 cfs 1,825 cf
Outflow=0.02 cfs 357 cf

Pond 7P: 5D_Pavers Peak Elev=737.69' Storage=662 cf Inflow=0.47 cfs 1,588 cf
Discarded=0.03 cfs 1,588 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 1,588 cf

Reach 8BW-Out: DA-8B West Outflow Inflow=0.31 cfs 3,223 cf
Outflow=0.31 cfs 3,223 cf

Reach R-2: West Reach -2 Avg. Flow Depth=0.14' Max Vel=4.70 fps Inflow=0.46 cfs 2,354 cf
24.0" Round Pipe n=0.013 L=144.0' S=0.0417 '/' Capacity=46.18 cfs Outflow=0.46 cfs 2,354 cf

Total Runoff Area = 157,153 sf Runoff Volume = 23,924 cf Average Runoff Depth = 1.83"
53.45% Pervious = 83,992 sf 46.55% Impervious = 73,161 sf

Summary for Reach 3A_R: Vegetated Swale

[62] Hint: Exceeded Reach R-2 OUTLET depth by 4.05' @ 15.73 hrs

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 0.25" for 2 Year, 24 Hr. Event event
Inflow = 0.46 cfs @ 12.12 hrs, Volume= 3,223 cf
Outflow = 0.31 cfs @ 12.27 hrs, Volume= 3,223 cf, Atten= 32%, Lag= 9.2 min

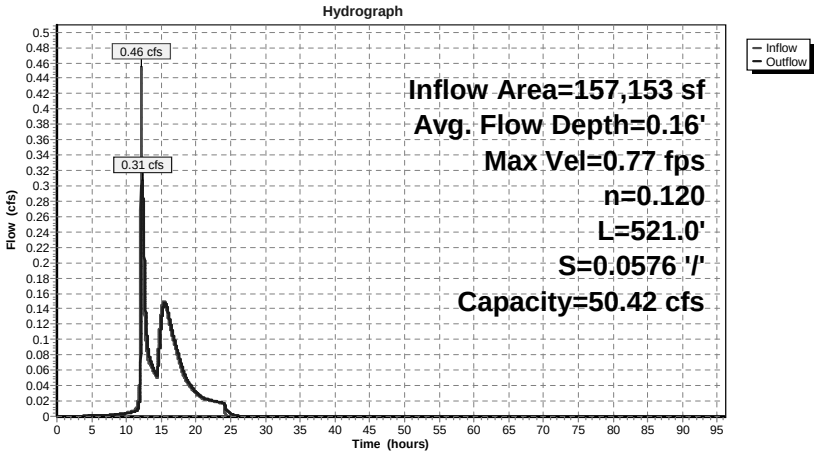
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 0.77 fps, Min. Travel Time= 11.3 min
Avg. Velocity = 0.32 fps, Avg. Travel Time= 27.5 min

Peak Storage= 208 cf @ 12.27 hrs
Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 50.42 cfs

2.00' x 2.00' deep channel, n= 0.120 Earth, long dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 521.0' Slope= 0.0576 '/'
Inlet Invert= 718.00', Outlet Invert= 688.00'



Reach 3A_R: Vegetated Swale



Hydrograph for Reach 3A_R: Vegetated Swale

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	718.00	0.00
2.00	0.00	0	718.00	0.00
4.00	0.00	1	718.00	0.00
6.00	0.00	3	718.00	0.00
8.00	0.00	5	718.00	0.00
10.00	0.00	10	718.01	0.00
12.00	**0.15**	**57**	**718.05**	**0.04**
14.00	**0.06**	**71**	**718.06**	**0.06**
16.00	0.13	121	718.10	0.14
18.00	0.06	74	718.06	0.06
20.00	0.03	47	718.04	0.03
22.00	0.02	36	718.03	0.02
24.00	0.02	31	718.03	0.02
26.00	0.00	2	718.00	0.00
28.00	0.00	0	718.00	0.00
30.00	0.00	0	718.00	0.00
32.00	0.00	0	718.00	0.00
34.00	0.00	0	718.00	0.00
36.00	0.00	0	718.00	0.00
38.00	0.00	0	718.00	0.00
40.00	0.00	0	718.00	0.00
42.00	0.00	0	718.00	0.00
44.00	0.00	0	718.00	0.00
46.00	0.00	0	718.00	0.00
48.00	0.00	0	718.00	0.00
50.00	0.00	0	718.00	0.00
52.00	0.00	0	718.00	0.00
54.00	0.00	0	718.00	0.00
56.00	0.00	0	718.00	0.00
58.00	0.00	0	718.00	0.00
60.00	0.00	0	718.00	0.00
62.00	0.00	0	718.00	0.00
64.00	0.00	0	718.00	0.00
66.00	0.00	0	718.00	0.00
68.00	0.00	0	718.00	0.00
70.00	0.00	0	718.00	0.00
72.00	0.00	0	718.00	0.00
74.00	0.00	0	718.00	0.00
76.00	0.00	0	718.00	0.00
78.00	0.00	0	718.00	0.00
80.00	0.00	0	718.00	0.00
82.00	0.00	0	718.00	0.00
84.00	0.00	0	718.00	0.00
86.00	0.00	0	718.00	0.00
88.00	0.00	0	718.00	0.00
90.00	0.00	0	718.00	0.00
92.00	0.00	0	718.00	0.00
94.00	0.00	0	718.00	0.00
96.00	0.00	0	718.00	0.00

Summary for Subcatchment 4: Post DA 8B-4

Runoff = 4.21 cfs @ 12.07 hrs, Volume= 14,574 cf, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

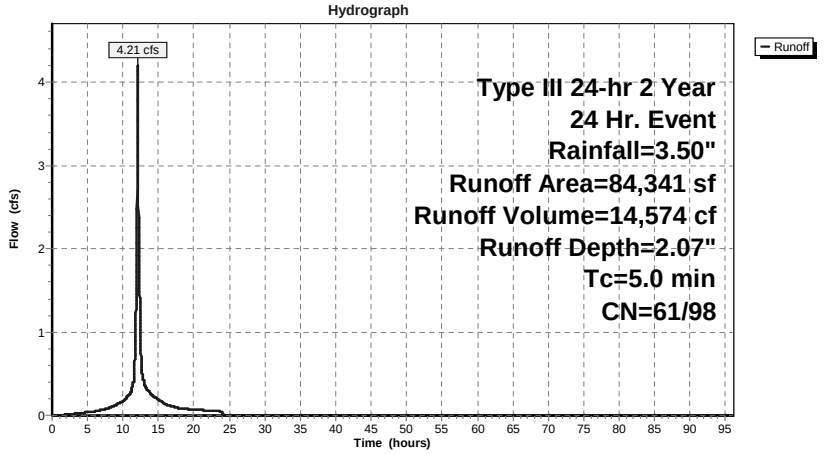
	Area (sf)	CN	Description	Land Use
	6,839	98	Paved parking, HSG C	Pavement
	20,756	61	>75% Grass cover, Good, HSG B	Open Space
*	16,594	61	Bioretention, HSG B	Landscaped
	40,152	98	Roofs, HSG B	Roofs
	84,341	82	Weighted Average	
	37,350	61	44.28% Pervious Area	
	46,991	98	55.72% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 55.72% Impervious, Rv= 0.551, Runoff= 25.20"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
16,594	Landscaped	80.49	0.00	0.00	2.68
20,756	Open Space	1,638.14	5.71	24.76	3.35
6,839	Pavement	155.11	0.50	1.88	6.01
40,152	Roofs	100.02	0.58	7.90	38.95
84,341	Total	1,973.77	6.80	34.54	50.98

Subcatchment 4: Post DA 8B-4



Hydrograph for Subcatchment 4: Post DA 8B-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.01
4.00	0.15	0.00	0.04	0.03
6.00	0.25	0.00	0.11	0.05
8.00	0.40	0.00	0.23	0.08
10.00	0.66	0.00	0.47	0.17
12.00	1.75	0.03	1.53	**2.72**
14.00	2.84	0.31	2.61	**0.25**
16.00	3.10	0.40	2.87	0.13
18.00	3.25	0.46	3.02	0.08
20.00	3.35	0.51	3.12	0.07
22.00	3.43	0.54	3.20	0.06
24.00	**3.50**	**0.57**	**3.27**	0.04
26.00	3.50	0.57	3.27	0.00
28.00	3.50	0.57	3.27	0.00
30.00	3.50	0.57	3.27	0.00
32.00	3.50	0.57	3.27	0.00
34.00	3.50	0.57	3.27	0.00
36.00	3.50	0.57	3.27	0.00
38.00	3.50	0.57	3.27	0.00
40.00	3.50	0.57	3.27	0.00
42.00	3.50	0.57	3.27	0.00
44.00	3.50	0.57	3.27	0.00
46.00	3.50	0.57	3.27	0.00
48.00	3.50	0.57	3.27	0.00
50.00	3.50	0.57	3.27	0.00
52.00	3.50	0.57	3.27	0.00
54.00	3.50	0.57	3.27	0.00
56.00	3.50	0.57	3.27	0.00
58.00	3.50	0.57	3.27	0.00
60.00	3.50	0.57	3.27	0.00
62.00	3.50	0.57	3.27	0.00
64.00	3.50	0.57	3.27	0.00
66.00	3.50	0.57	3.27	0.00
68.00	3.50	0.57	3.27	0.00
70.00	3.50	0.57	3.27	0.00
72.00	3.50	0.57	3.27	0.00
74.00	3.50	0.57	3.27	0.00
76.00	3.50	0.57	3.27	0.00
78.00	3.50	0.57	3.27	0.00
80.00	3.50	0.57	3.27	0.00
82.00	3.50	0.57	3.27	0.00
84.00	3.50	0.57	3.27	0.00
86.00	3.50	0.57	3.27	0.00
88.00	3.50	0.57	3.27	0.00
90.00	3.50	0.57	3.27	0.00
92.00	3.50	0.57	3.27	0.00
94.00	3.50	0.57	3.27	0.00
96.00	3.50	0.57	3.27	0.00

Summary for Pond 4-B: 4_Bioretention

Inflow Area = 84,341 sf, 55.72% Impervious, Inflow Depth = 2.07" for 2 Year, 24 Hr. Event event
Inflow = 4.21 cfs @ 12.07 hrs, Volume= 14,574 cf
Outflow = 0.16 cfs @ 15.51 hrs, Volume= 12,324 cf, Atten= 96%, Lag= 206.2 min
Discarded = 0.07 cfs @ 11.98 hrs, Volume= 11,456 cf
Primary = 0.09 cfs @ 15.51 hrs, Volume= 868 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 729.52' @ 15.51 hrs Surf.Area= 12,192 sf Storage= 10,629 cf

Plug-Flow detention time= 1,394.7 min calculated for 12,323 cf (85% of inflow)
Center-of-Mass det. time= 1,326.3 min (2,098.2 - 771.9)

Volume	Invert	Avail.Storage	Storage Description
#1	723.75'	16,484 cf	**Custom Stage Data (Prismatic)** Listed below

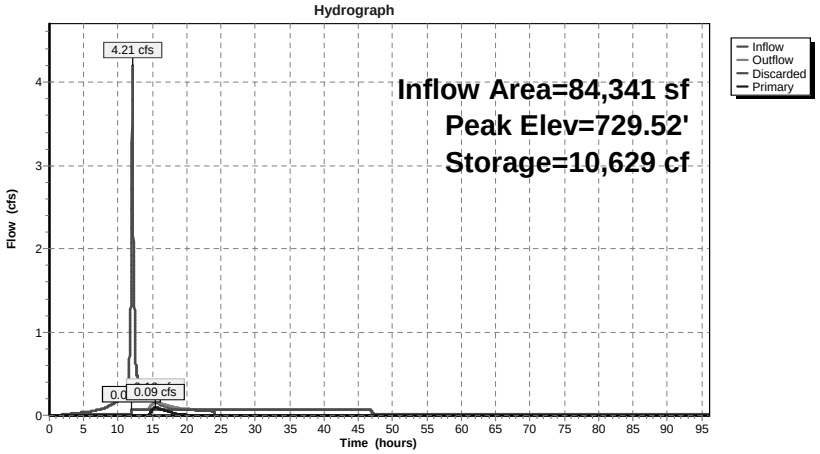
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
723.75	2,068	0.0	0	0
728.75	2,068	40.0	4,136	4,136
729.00	2,068	40.0	207	4,343
729.01	12,192	100.0	71	4,414
729.50	12,192	100.0	5,974	10,388
730.00	12,192	100.0	6,096	16,484

Device	Routing	Invert	Outlet Devices
#1	Discarded	723.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	729.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 24.00 columns** X 24 rows C= 0.600 in 30.0" x 30.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.07 cfs @ 11.98 hrs HW=729.01' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.09 cfs @ 15.51 hrs HW=729.52' TW=718.11' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.09 cfs @ 0.46 fps)

Pond 4-B: 4_Bioretention



Hydrograph for Pond 4-B: 4_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	723.75	0.00	0.00	0.00
2.00	0.01	0	723.75	0.01	0.01	0.00
4.00	0.03	47	723.81	0.01	0.01	0.00
6.00	0.05	226	724.02	0.01	0.01	0.00
8.00	0.08	602	724.48	0.01	0.01	0.00
10.00	0.17	1,427	725.48	0.01	**0.01**	0.00
12.00	**2.72**	4,645	729.03	0.07	**0.07**	0.00
14.00	**0.25**	**10,140**	**729.48**	**0.07**	0.07	**0.00**
16.00	0.13	**10,611**	**729.52**	**0.15**	0.07	**0.08**
18.00	0.08	10,499	729.51	0.10	0.07	0.03
20.00	0.07	10,423	729.50	0.08	0.07	0.00
22.00	0.06	10,347	729.50	0.07	0.07	0.00
24.00	0.04	10,198	729.48	0.07	0.07	0.00
26.00	0.00	9,703	729.44	0.07	0.07	0.00
28.00	0.00	9,195	729.40	0.07	0.07	0.00
30.00	0.00	8,687	729.36	0.07	0.07	0.00
32.00	0.00	8,179	729.32	0.07	0.07	0.00
34.00	0.00	7,671	729.28	0.07	0.07	0.00
36.00	0.00	7,163	729.24	0.07	0.07	0.00
38.00	0.00	6,655	729.19	0.07	0.07	0.00
40.00	0.00	6,147	729.15	0.07	0.07	0.00
42.00	0.00	5,639	729.11	0.07	0.07	0.00
44.00	0.00	5,131	729.07	0.07	0.07	0.00
46.00	0.00	4,623	729.03	0.07	0.07	0.00
48.00	0.00	4,318	728.97	0.01	0.01	0.00
50.00	0.00	4,232	728.87	0.01	0.01	0.00
52.00	0.00	4,145	728.76	0.01	0.01	0.00
54.00	0.00	4,059	728.66	0.01	0.01	0.00
56.00	0.00	3,973	728.55	0.01	0.01	0.00
58.00	0.00	3,887	728.45	0.01	0.01	0.00
60.00	0.00	3,801	728.34	0.01	0.01	0.00
62.00	0.00	3,715	728.24	0.01	0.01	0.00
64.00	0.00	3,628	728.14	0.01	0.01	0.00
66.00	0.00	3,542	728.03	0.01	0.01	0.00
68.00	0.00	3,456	727.93	0.01	0.01	0.00
70.00	0.00	3,370	727.82	0.01	0.01	0.00
72.00	0.00	3,284	727.72	0.01	0.01	0.00
74.00	0.00	3,198	727.62	0.01	0.01	0.00
76.00	0.00	3,111	727.51	0.01	0.01	0.00
78.00	0.00	3,025	727.41	0.01	0.01	0.00
80.00	0.00	2,939	727.30	0.01	0.01	0.00
82.00	0.00	2,853	727.20	0.01	0.01	0.00
84.00	0.00	2,767	727.09	0.01	0.01	0.00
86.00	0.00	2,681	726.99	0.01	0.01	0.00
88.00	0.00	2,594	726.89	0.01	0.01	0.00
90.00	0.00	2,508	726.78	0.01	0.01	0.00
92.00	0.00	2,422	726.68	0.01	0.01	0.00
94.00	0.00	2,336	726.57	0.01	0.01	0.00
96.00	0.00	2,250	726.47	0.01	0.01	0.00

Summary for Subcatchment 5: Post DA 8B-5

Runoff = 0.37 cfs @ 12.13 hrs, Volume= 1,639 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

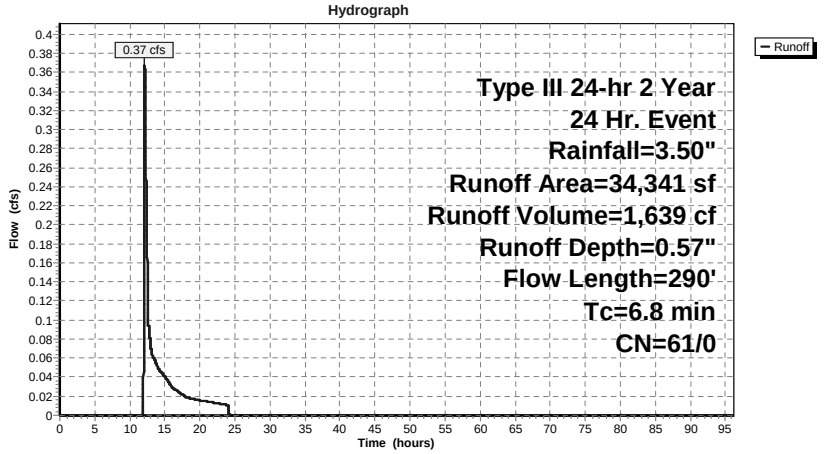
Area (sf)	CN	Description	Land Use
34,341	61	>75% Grass cover, Good, HSG B	Open Space
34,341	61	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.1900	0.30		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.1	120	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	70	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.8	290	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
34,341	Open Space	245.75	0.86	3.71	0.50
34,341	Total	245.75	0.86	3.71	0.50

Subcatchment 5: Post DA 8B-5



Hydrograph for Subcatchment 5: Post DA 8B-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.03	0.00	**0.10**
14.00	2.84	0.31	0.00	**0.05**
16.00	3.10	0.40	0.00	0.03
18.00	3.25	0.46	0.00	0.02
20.00	3.35	0.51	0.00	0.02
22.00	3.43	0.54	0.00	0.01
24.00	**3.50**	**0.57**	0.00	0.01
26.00	3.50	0.57	0.00	0.00
28.00	3.50	0.57	0.00	0.00
30.00	3.50	0.57	0.00	0.00
32.00	3.50	0.57	0.00	0.00
34.00	3.50	0.57	0.00	0.00
36.00	3.50	0.57	0.00	0.00
38.00	3.50	0.57	0.00	0.00
40.00	3.50	0.57	0.00	0.00
42.00	3.50	0.57	0.00	0.00
44.00	3.50	0.57	0.00	0.00
46.00	3.50	0.57	0.00	0.00
48.00	3.50	0.57	0.00	0.00
50.00	3.50	0.57	0.00	0.00
52.00	3.50	0.57	0.00	0.00
54.00	3.50	0.57	0.00	0.00
56.00	3.50	0.57	0.00	0.00
58.00	3.50	0.57	0.00	0.00
60.00	3.50	0.57	0.00	0.00
62.00	3.50	0.57	0.00	0.00
64.00	3.50	0.57	0.00	0.00
66.00	3.50	0.57	0.00	0.00
68.00	3.50	0.57	0.00	0.00
70.00	3.50	0.57	0.00	0.00
72.00	3.50	0.57	0.00	0.00
74.00	3.50	0.57	0.00	0.00
76.00	3.50	0.57	0.00	0.00
78.00	3.50	0.57	0.00	0.00
80.00	3.50	0.57	0.00	0.00
82.00	3.50	0.57	0.00	0.00
84.00	3.50	0.57	0.00	0.00
86.00	3.50	0.57	0.00	0.00
88.00	3.50	0.57	0.00	0.00
90.00	3.50	0.57	0.00	0.00
92.00	3.50	0.57	0.00	0.00
94.00	3.50	0.57	0.00	0.00
96.00	3.50	0.57	0.00	0.00

Summary for Subcatchment 5A: Post DA 8B-5A

Runoff = 0.50 cfs @ 12.08 hrs, Volume= 1,787 cf, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

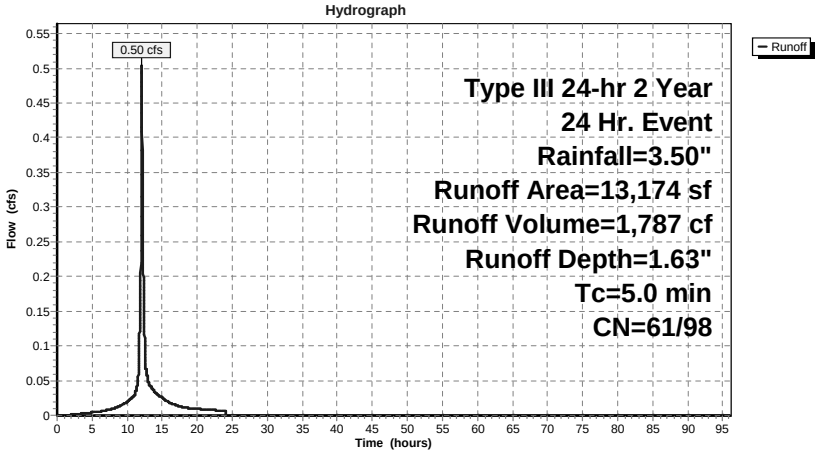
	Area (sf)	CN	Description	Land Use
	5,158	98	Paved parking, HSG B	Pavement
	4,478	61	>75% Grass cover, Good, HSG B	Open Space
*	3,538	61	Bioretention, HSG B	Landscaped
	13,174	75	Weighted Average	
	8,016	61	60.85% Pervious Area	
	5,158	98	39.15% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, user defined min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 39.15% Impervious, Rv= 0.402, Runoff= 18.39"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,538	Landscaped	12.52	0.00	0.00	0.42
4,478	Open Space	257.89	0.90	3.90	0.53
5,158	Pavement	85.36	0.28	1.04	3.31
13,174	Total	355.77	1.18	4.93	4.25

Subcatchment 5A: Post DA 8B-5A



Hydrograph for Subcatchment 5A: Post DA 8B-5A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.02
12.00	1.75	0.03	1.53	**0.32**
14.00	2.84	0.31	2.61	**0.03**
16.00	3.10	0.40	2.87	0.02
18.00	3.25	0.46	3.02	0.01
20.00	3.35	0.51	3.12	0.01
22.00	3.43	0.54	3.20	0.01
24.00	**3.50**	**0.57**	**3.27**	0.01
26.00	3.50	0.57	3.27	0.00
28.00	3.50	0.57	3.27	0.00
30.00	3.50	0.57	3.27	0.00
32.00	3.50	0.57	3.27	0.00
34.00	3.50	0.57	3.27	0.00
36.00	3.50	0.57	3.27	0.00
38.00	3.50	0.57	3.27	0.00
40.00	3.50	0.57	3.27	0.00
42.00	3.50	0.57	3.27	0.00
44.00	3.50	0.57	3.27	0.00
46.00	3.50	0.57	3.27	0.00
48.00	3.50	0.57	3.27	0.00
50.00	3.50	0.57	3.27	0.00
52.00	3.50	0.57	3.27	0.00
54.00	3.50	0.57	3.27	0.00
56.00	3.50	0.57	3.27	0.00
58.00	3.50	0.57	3.27	0.00
60.00	3.50	0.57	3.27	0.00
62.00	3.50	0.57	3.27	0.00
64.00	3.50	0.57	3.27	0.00
66.00	3.50	0.57	3.27	0.00
68.00	3.50	0.57	3.27	0.00
70.00	3.50	0.57	3.27	0.00
72.00	3.50	0.57	3.27	0.00
74.00	3.50	0.57	3.27	0.00
76.00	3.50	0.57	3.27	0.00
78.00	3.50	0.57	3.27	0.00
80.00	3.50	0.57	3.27	0.00
82.00	3.50	0.57	3.27	0.00
84.00	3.50	0.57	3.27	0.00
86.00	3.50	0.57	3.27	0.00
88.00	3.50	0.57	3.27	0.00
90.00	3.50	0.57	3.27	0.00
92.00	3.50	0.57	3.27	0.00
94.00	3.50	0.57	3.27	0.00
96.00	3.50	0.57	3.27	0.00

Summary for Pond 5A-B: 5A_Bioretention

Inflow Area = 13,174 sf, 39.15% Impervious, Inflow Depth = 1.63" for 2 Year, 24 Hr. Event event
Inflow = 0.50 cfs @ 12.08 hrs, Volume= 1,787 cf
Outflow = 0.01 cfs @ 12.15 hrs, Volume= 1,614 cf, Atten= 98%, Lag= 4.5 min
Discarded = 0.01 cfs @ 12.15 hrs, Volume= 1,614 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 727.76' @ 17.61 hrs Surf.Area= 2,168 sf Storage= 1,255 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,378.3 min (2,163.9 - 785.6)

Volume	Invert	Avail.Storage	Storage Description
#1	723.25'	2,853 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

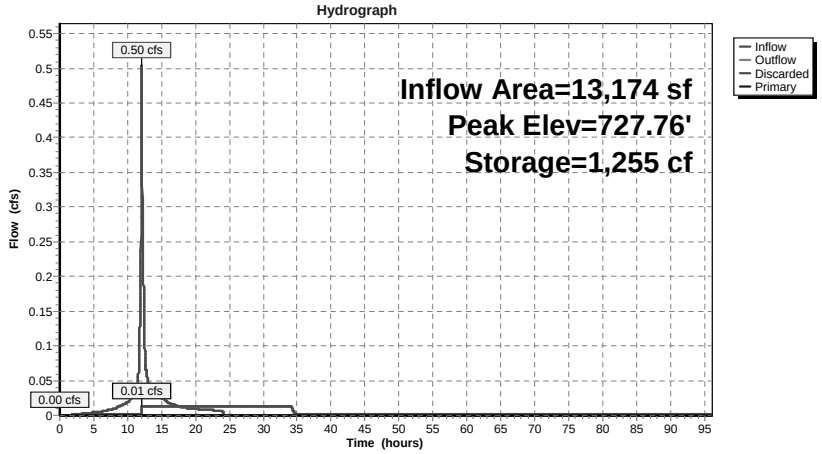
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
723.25	409	0.0	0	0	409
727.25	409	40.0	654	654	733
727.50	409	40.0	41	695	753
727.51	2,168	100.0	12	707	2,512
728.00	2,168	100.0	1,062	1,769	2,603
728.50	2,168	100.0	1,084	2,853	2,696

Device	Routing	Invert	Outlet Devices
#1	Discarded	723.25'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	728.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 12.15 hrs HW=727.51' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=723.25' TW=720.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 5A-B: 5A_Bioretention



Hydrograph for Pond 5A-B: 5A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	723.25	0.00	0.00	**0.00**
2.00	0.00	0	723.25	0.00	0.00	0.00
4.00	0.00	1	723.26	0.00	0.00	0.00
6.00	0.01	13	723.33	0.00	0.00	0.00
8.00	0.01	47	723.53	0.00	0.00	0.00
10.00	0.02	130	724.04	0.00	0.00	0.00
12.00	**0.32**	479	726.18	**0.00**	**0.00**	0.00
14.00	**0.03**	1,148	727.71	**0.01**	**0.01**	0.00
16.00	0.02	**1,240**	**727.76**	0.01	0.01	0.00
18.00	0.01	**1,254**	**727.76**	0.01	0.01	0.00
20.00	0.01	1,236	727.75	0.01	0.01	0.00
22.00	0.01	1,206	727.74	0.01	0.01	0.00
24.00	0.01	1,165	727.72	0.01	0.01	0.00
26.00	0.00	1,076	727.68	0.01	0.01	0.00
28.00	0.00	986	727.64	0.01	0.01	0.00
30.00	0.00	896	727.60	0.01	0.01	0.00
32.00	0.00	805	727.56	0.01	0.01	0.00
34.00	0.00	715	727.51	0.01	0.01	0.00
36.00	0.00	684	727.43	0.00	0.00	0.00
38.00	0.00	667	727.33	0.00	0.00	0.00
40.00	0.00	650	727.22	0.00	0.00	0.00
42.00	0.00	633	727.12	0.00	0.00	0.00
44.00	0.00	616	727.01	0.00	0.00	0.00
46.00	0.00	599	726.91	0.00	0.00	0.00
48.00	0.00	582	726.81	0.00	0.00	0.00
50.00	0.00	565	726.70	0.00	0.00	0.00
52.00	0.00	548	726.60	0.00	0.00	0.00
54.00	0.00	531	726.49	0.00	0.00	0.00
56.00	0.00	513	726.39	0.00	0.00	0.00
58.00	0.00	496	726.28	0.00	0.00	0.00
60.00	0.00	479	726.18	0.00	0.00	0.00
62.00	0.00	462	726.08	0.00	0.00	0.00
64.00	0.00	445	725.97	0.00	0.00	0.00
66.00	0.00	428	725.87	0.00	0.00	0.00
68.00	0.00	411	725.76	0.00	0.00	0.00
70.00	0.00	394	725.66	0.00	0.00	0.00
72.00	0.00	377	725.56	0.00	0.00	0.00
74.00	0.00	360	725.45	0.00	0.00	0.00
76.00	0.00	343	725.35	0.00	0.00	0.00
78.00	0.00	326	725.24	0.00	0.00	0.00
80.00	0.00	309	725.14	0.00	0.00	0.00
82.00	0.00	292	725.03	0.00	0.00	0.00
84.00	0.00	275	724.93	0.00	0.00	0.00
86.00	0.00	258	724.83	0.00	0.00	0.00
88.00	0.00	241	724.72	0.00	0.00	0.00
90.00	0.00	224	724.62	0.00	0.00	0.00
92.00	0.00	207	724.51	0.00	0.00	0.00
94.00	0.00	190	724.41	0.00	0.00	0.00
96.00	0.00	173	724.31	0.00	0.00	0.00

Summary for Subcatchment 5B: Post DA 8B-5B

Runoff = 0.11 cfs @ 12.07 hrs, Volume= 359 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

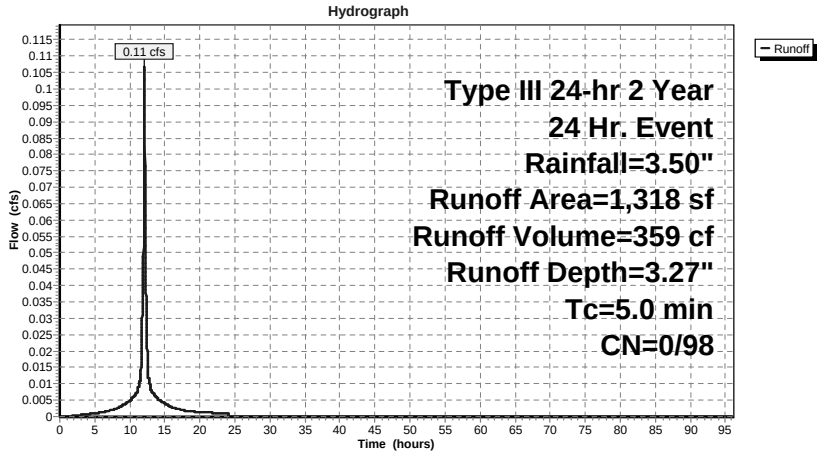
	Area (sf)	CN	Description	Land Use
	615	98	Paved parking, HSG B	Pavement
*	703	98	Pavers, HSG B	Pavement
	1,318	98	Weighted Average	
	1,318	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,318	Pavement	51.50	0.17	0.63	1.99
1,318	Total	51.50	0.17	0.63	1.99

Subcatchment 5B: Post DA 8B-5B



Hydrograph for Subcatchment 5B: Post DA 8B-5B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.00
12.00	1.75	0.00	1.53	**0.07**
14.00	2.84	0.00	2.61	**0.01**
16.00	3.10	0.00	2.87	0.00
18.00	3.25	0.00	3.02	0.00
20.00	3.35	0.00	3.12	0.00
22.00	3.43	0.00	3.20	0.00
24.00	**3.50**	0.00	**3.27**	0.00
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00
74.00	3.50	0.00	3.27	0.00
76.00	3.50	0.00	3.27	0.00
78.00	3.50	0.00	3.27	0.00
80.00	3.50	0.00	3.27	0.00
82.00	3.50	0.00	3.27	0.00
84.00	3.50	0.00	3.27	0.00
86.00	3.50	0.00	3.27	0.00
88.00	3.50	0.00	3.27	0.00
90.00	3.50	0.00	3.27	0.00
92.00	3.50	0.00	3.27	0.00
94.00	3.50	0.00	3.27	0.00
96.00	3.50	0.00	3.27	0.00

Summary for Pond 5B-P: 5B_Pavers

Inflow Area = 1,318 sf,100.00% Impervious, Inflow Depth = 3.27" for 2 Year, 24 Hr. Event event
Inflow = 0.11 cfs @ 12.07 hrs, Volume= 359 cf
Outflow = 0.11 cfs @ 12.07 hrs, Volume= 359 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.07 hrs, Volume= 0 cf
Primary = 0.11 cfs @ 12.07 hrs, Volume= 358 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 728.50' @ 0.00 hrs Surf.Area= 703 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (753.6 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1	728.50'	281 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

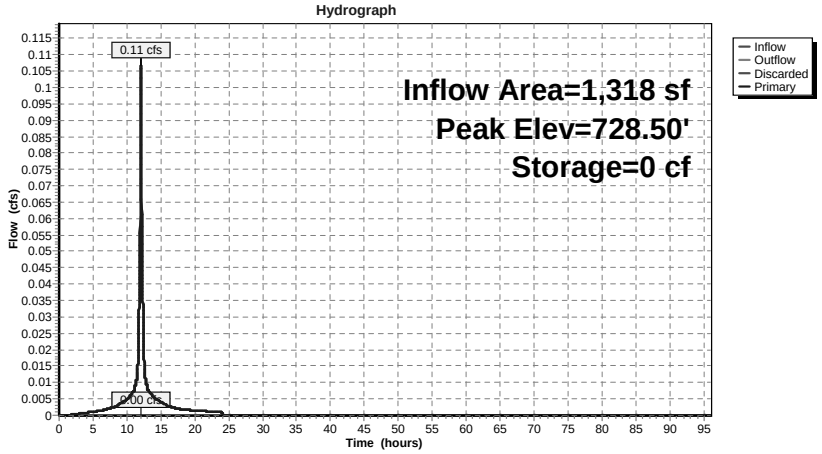
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
728.50	703	177.4	0.0	0	0	703
729.50	703	177.4	40.0	281	281	880

Device	Routing	Invert	Outlet Devices
#1	Primary	728.40'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	728.50'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 12.07 hrs HW=728.50' (Free Discharge)
2=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=728.50' TW=720.13' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Passes 0.00 cfs of 4.24 cfs potential flow)

Pond 5B-P: 5B_Pavers



Hydrograph for Pond 5B-P: 5B_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	**728.50**	0.00	0.00	0.00
2.00	0.00	0	728.50	0.00	0.00	0.00
4.00	0.00	**0**	728.50	0.00	0.00	0.00
6.00	0.00	**0**	728.50	0.00	0.00	0.00
8.00	0.00	0	728.50	0.00	0.00	0.00
10.00	0.00	0	728.50	0.00	0.00	0.00
12.00	**0.07**	0	728.50	**0.07**	**0.00**	**0.07**
14.00	**0.01**	0	728.50	**0.01**	**0.00**	**0.01**
16.00	0.00	0	728.50	0.00	0.00	0.00
18.00	0.00	0	728.50	0.00	0.00	0.00
20.00	0.00	0	728.50	0.00	0.00	0.00
22.00	0.00	0	728.50	0.00	0.00	0.00
24.00	0.00	0	728.50	0.00	0.00	0.00
26.00	0.00	0	728.50	0.00	0.00	0.00
28.00	0.00	0	728.50	0.00	0.00	0.00
30.00	0.00	0	728.50	0.00	0.00	0.00
32.00	0.00	0	728.50	0.00	0.00	0.00
34.00	0.00	0	728.50	0.00	0.00	0.00
36.00	0.00	0	728.50	0.00	0.00	0.00
38.00	0.00	0	728.50	0.00	0.00	0.00
40.00	0.00	0	728.50	0.00	0.00	0.00
42.00	0.00	0	728.50	0.00	0.00	0.00
44.00	0.00	0	728.50	0.00	0.00	0.00
46.00	0.00	0	728.50	0.00	0.00	0.00
48.00	0.00	0	728.50	0.00	0.00	0.00
50.00	0.00	0	728.50	0.00	0.00	0.00
52.00	0.00	0	728.50	0.00	0.00	0.00
54.00	0.00	0	728.50	0.00	0.00	0.00
56.00	0.00	0	728.50	0.00	0.00	0.00
58.00	0.00	0	728.50	0.00	0.00	0.00
60.00	0.00	0	728.50	0.00	0.00	0.00
62.00	0.00	0	728.50	0.00	0.00	0.00
64.00	0.00	0	728.50	0.00	0.00	0.00
66.00	0.00	0	728.50	0.00	0.00	0.00
68.00	0.00	0	728.50	0.00	0.00	0.00
70.00	0.00	0	728.50	0.00	0.00	0.00
72.00	0.00	0	728.50	0.00	0.00	0.00
74.00	0.00	0	728.50	0.00	0.00	0.00
76.00	0.00	0	728.50	0.00	0.00	0.00
78.00	0.00	0	728.50	0.00	0.00	0.00
80.00	0.00	0	728.50	0.00	0.00	0.00
82.00	0.00	0	728.50	0.00	0.00	0.00
84.00	0.00	0	728.50	0.00	0.00	0.00
86.00	0.00	0	728.50	0.00	0.00	0.00
88.00	0.00	0	728.50	0.00	0.00	0.00
90.00	0.00	0	728.50	0.00	0.00	0.00
92.00	0.00	0	728.50	0.00	0.00	0.00
94.00	0.00	0	728.50	0.00	0.00	0.00
96.00	0.00	0	728.50	0.00	0.00	0.00

Summary for Subcatchment 5C: Post DA 8B-5C

Runoff = 0.16 cfs @ 12.07 hrs, Volume= 543 cf, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

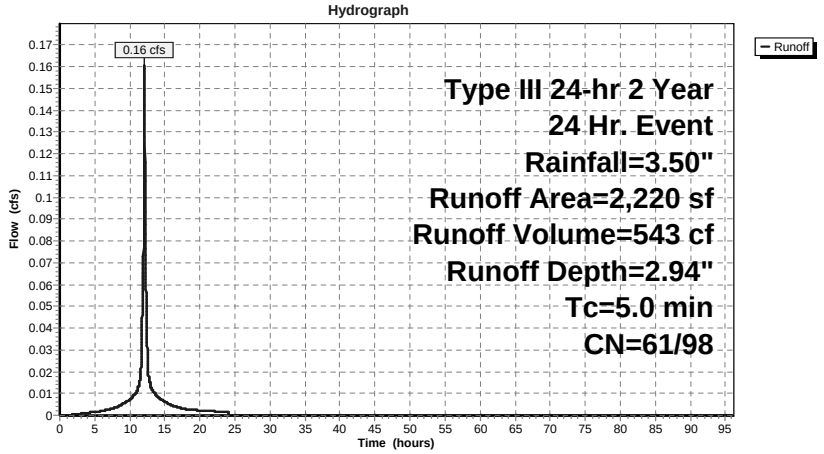
	Area (sf)	CN	Description	Land Use
	631	98	Paved parking, HSG B	Pavement
	273	61	>75% Grass cover, Good, HSG B	Open Space
*	1,316	98	Pavers, HSG B	Pavement
	2,220	93	Weighted Average	
	273	61	12.30% Pervious Area	
	1,947	98	87.70% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 87.70% Impervious, Rv= 0.839, Runoff= 38.36"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
273	Open Space	32.79	0.11	0.50	0.07
1,947	Pavement	67.21	0.22	0.82	2.60
2,220	Total	100.01	0.33	1.31	2.67

Subcatchment 5C: Post DA 8B-5C



Hydrograph for Subcatchment 5C: Post DA 8B-5C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.03	1.53	**0.11**
14.00	2.84	0.31	2.61	**0.01**
16.00	3.10	0.40	2.87	0.00
18.00	3.25	0.46	3.02	0.00
20.00	3.35	0.51	3.12	0.00
22.00	3.43	0.54	3.20	0.00
24.00	**3.50**	**0.57**	**3.27**	0.00
26.00	3.50	0.57	3.27	0.00
28.00	3.50	0.57	3.27	0.00
30.00	3.50	0.57	3.27	0.00
32.00	3.50	0.57	3.27	0.00
34.00	3.50	0.57	3.27	0.00
36.00	3.50	0.57	3.27	0.00
38.00	3.50	0.57	3.27	0.00
40.00	3.50	0.57	3.27	0.00
42.00	3.50	0.57	3.27	0.00
44.00	3.50	0.57	3.27	0.00
46.00	3.50	0.57	3.27	0.00
48.00	3.50	0.57	3.27	0.00
50.00	3.50	0.57	3.27	0.00
52.00	3.50	0.57	3.27	0.00
54.00	3.50	0.57	3.27	0.00
56.00	3.50	0.57	3.27	0.00
58.00	3.50	0.57	3.27	0.00
60.00	3.50	0.57	3.27	0.00
62.00	3.50	0.57	3.27	0.00
64.00	3.50	0.57	3.27	0.00
66.00	3.50	0.57	3.27	0.00
68.00	3.50	0.57	3.27	0.00
70.00	3.50	0.57	3.27	0.00
72.00	3.50	0.57	3.27	0.00
74.00	3.50	0.57	3.27	0.00
76.00	3.50	0.57	3.27	0.00
78.00	3.50	0.57	3.27	0.00
80.00	3.50	0.57	3.27	0.00
82.00	3.50	0.57	3.27	0.00
84.00	3.50	0.57	3.27	0.00
86.00	3.50	0.57	3.27	0.00
88.00	3.50	0.57	3.27	0.00
90.00	3.50	0.57	3.27	0.00
92.00	3.50	0.57	3.27	0.00
94.00	3.50	0.57	3.27	0.00
96.00	3.50	0.57	3.27	0.00

Summary for Pond 5C-P: 5C_Pavers

Inflow Area = 2,220 sf, 87.70% Impervious, Inflow Depth = 2.94" for 2 Year, 24 Hr. Event event
Inflow = 0.16 cfs @ 12.07 hrs, Volume= 543 cf
Outflow = 0.01 cfs @ 10.89 hrs, Volume= 543 cf, Atten= 95%, Lag= 0.0 min
Discarded = 0.01 cfs @ 10.89 hrs, Volume= 543 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 726.80' @ 14.32 hrs Surf.Area= 1,316 sf Storage= 245 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 266.6 min (1,023.8 - 757.2)

Volume	Invert	Avail.Storage	Storage Description
#1	726.33'	353 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

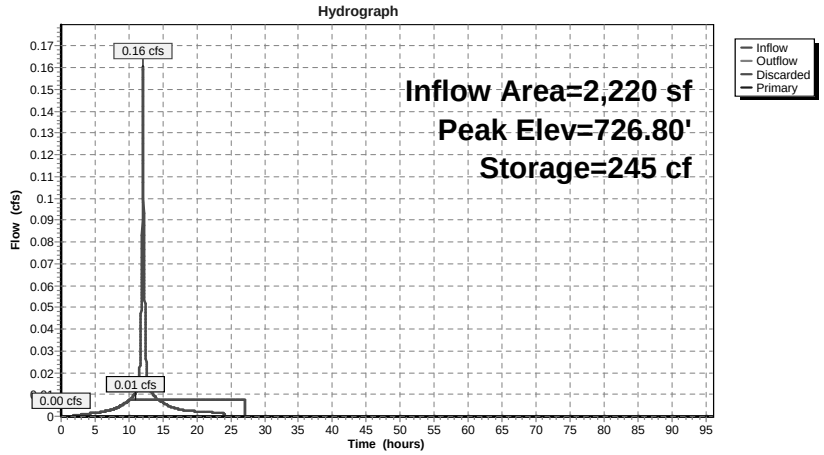
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
726.33	1,316	291.9	0.0	0	0	1,316
727.00	1,316	291.9	40.0	353	353	1,512

Device	Routing	Invert	Outlet Devices
#1	Primary	726.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	726.33'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 10.89 hrs HW=726.34' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=726.33' TW=720.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5C-P: 5C_Pavers



Hydrograph for Pond 5C-P: 5C_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	726.33	0.00	0.00	**0.00**
2.00	0.00	0	726.33	0.00	0.00	0.00
4.00	0.00	0	726.33	0.00	0.00	0.00
6.00	0.00	0	726.33	0.00	0.00	0.00
8.00	0.00	0	726.33	0.00	0.00	0.00
10.00	0.01	0	726.33	**0.01**	**0.01**	0.00
12.00	**0.11**	82	726.48	**0.01**	**0.01**	0.00
14.00	**0.01**	**244**	**726.79**	0.01	0.01	0.00
16.00	0.00	**235**	**726.78**	0.01	0.01	0.00
18.00	0.00	206	726.72	0.01	0.01	0.00
20.00	0.00	169	726.65	0.01	0.01	0.00
22.00	0.00	128	726.57	0.01	0.01	0.00
24.00	0.00	85	726.49	0.01	0.01	0.00
26.00	0.00	31	726.39	0.01	0.01	0.00
28.00	0.00	0	726.33	0.00	0.00	0.00
30.00	0.00	0	726.33	0.00	0.00	0.00
32.00	0.00	0	726.33	0.00	0.00	0.00
34.00	0.00	0	726.33	0.00	0.00	0.00
36.00	0.00	0	726.33	0.00	0.00	0.00
38.00	0.00	0	726.33	0.00	0.00	0.00
40.00	0.00	0	726.33	0.00	0.00	0.00
42.00	0.00	0	726.33	0.00	0.00	0.00
44.00	0.00	0	726.33	0.00	0.00	0.00
46.00	0.00	0	726.33	0.00	0.00	0.00
48.00	0.00	0	726.33	0.00	0.00	0.00
50.00	0.00	0	726.33	0.00	0.00	0.00
52.00	0.00	0	726.33	0.00	0.00	0.00
54.00	0.00	0	726.33	0.00	0.00	0.00
56.00	0.00	0	726.33	0.00	0.00	0.00
58.00	0.00	0	726.33	0.00	0.00	0.00
60.00	0.00	0	726.33	0.00	0.00	0.00
62.00	0.00	0	726.33	0.00	0.00	0.00
64.00	0.00	0	726.33	0.00	0.00	0.00
66.00	0.00	0	726.33	0.00	0.00	0.00
68.00	0.00	0	726.33	0.00	0.00	0.00
70.00	0.00	0	726.33	0.00	0.00	0.00
72.00	0.00	0	726.33	0.00	0.00	0.00
74.00	0.00	0	726.33	0.00	0.00	0.00
76.00	0.00	0	726.33	0.00	0.00	0.00
78.00	0.00	0	726.33	0.00	0.00	0.00
80.00	0.00	0	726.33	0.00	0.00	0.00
82.00	0.00	0	726.33	0.00	0.00	0.00
84.00	0.00	0	726.33	0.00	0.00	0.00
86.00	0.00	0	726.33	0.00	0.00	0.00
88.00	0.00	0	726.33	0.00	0.00	0.00
90.00	0.00	0	726.33	0.00	0.00	0.00
92.00	0.00	0	726.33	0.00	0.00	0.00
94.00	0.00	0	726.33	0.00	0.00	0.00
96.00	0.00	0	726.33	0.00	0.00	0.00

Summary for Subcatchment 5D: Post DA 8B-5D

Runoff = 0.47 cfs @ 12.07 hrs, Volume= 1,588 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

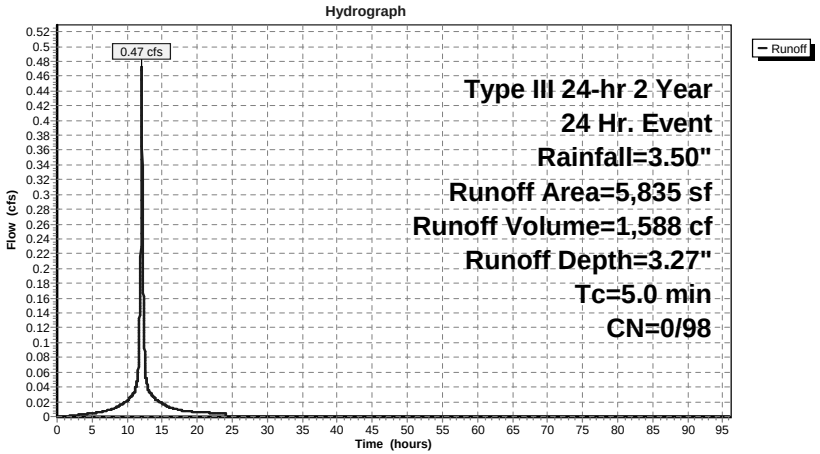
	Area (sf)	CN	Description	Land Use
	1,217	98	Water Surface, HSG B	Open Water
*	4,618	98	Pavers, HSG B	Pavement
	5,835	98	Weighted Average	
	5,835	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,217	Open Water	0.00	0.00	0.00	0.44
4,618	Pavement	180.44	0.58	2.19	6.99
5,835	Total	180.44	0.58	2.19	7.43

Subcatchment 5D: Post DA 8B-5D



Hydrograph for Subcatchment 5D: Post DA 8B-5D

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.02
12.00	1.75	0.00	1.53	**0.32**
14.00	2.84	0.00	2.61	**0.02**
16.00	3.10	0.00	2.87	0.01
18.00	3.25	0.00	3.02	0.01
20.00	3.35	0.00	3.12	0.01
22.00	3.43	0.00	3.20	0.01
24.00	**3.50**	0.00	**3.27**	0.00
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00
74.00	3.50	0.00	3.27	0.00
76.00	3.50	0.00	3.27	0.00
78.00	3.50	0.00	3.27	0.00
80.00	3.50	0.00	3.27	0.00
82.00	3.50	0.00	3.27	0.00
84.00	3.50	0.00	3.27	0.00
86.00	3.50	0.00	3.27	0.00
88.00	3.50	0.00	3.27	0.00
90.00	3.50	0.00	3.27	0.00
92.00	3.50	0.00	3.27	0.00
94.00	3.50	0.00	3.27	0.00
96.00	3.50	0.00	3.27	0.00

Summary for Subcatchment 6A: Post DA 8B-6A

Runoff = 0.47 cfs @ 12.07 hrs, Volume= 1,609 cf, Depth= 2.42"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

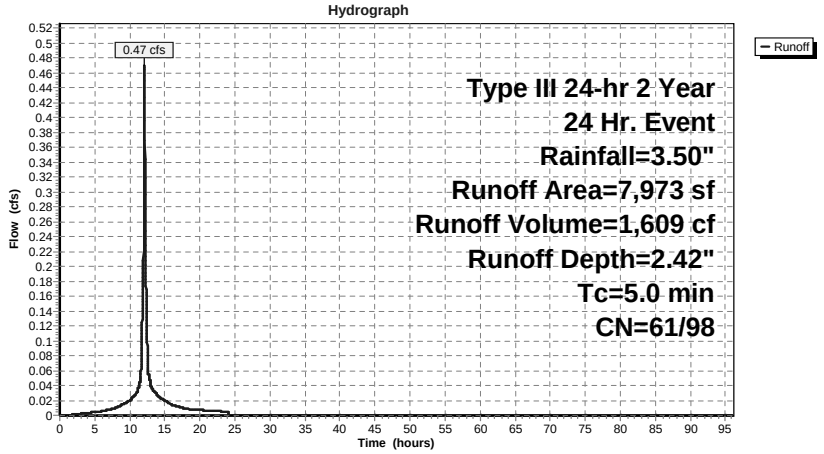
	Area (sf)	CN	Description	Land Use
	5,471	98	Paved parking, HSG B	Pavement
	1,084	61	>75% Grass cover, Good, HSG B	Open Space
*	1,418	61	Bioretention, HSG B	Landscaped
	7,973	86	Weighted Average	
	2,502	61	31.38% Pervious Area	
	5,471	98	68.62% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 68.62% Impervious, Rv= 0.668, Runoff= 30.51"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,418	Landscaped	8.33	0.00	0.00	0.28
1,084	Open Space	103.57	0.36	1.57	0.21
5,471	Pavement	150.22	0.49	1.82	5.82
7,973	Total	262.12	0.85	3.39	6.31

Subcatchment 6A: Post DA 8B-6A



Hydrograph for Subcatchment 6A: Post DA 8B-6A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.02
12.00	1.75	0.03	1.53	**0.31**
14.00	2.84	0.31	2.61	**0.03**
16.00	3.10	0.40	2.87	0.01
18.00	3.25	0.46	3.02	0.01
20.00	3.35	0.51	3.12	0.01
22.00	3.43	0.54	3.20	0.01
24.00	**3.50**	**0.57**	**3.27**	0.00
26.00	3.50	0.57	3.27	0.00
28.00	3.50	0.57	3.27	0.00
30.00	3.50	0.57	3.27	0.00
32.00	3.50	0.57	3.27	0.00
34.00	3.50	0.57	3.27	0.00
36.00	3.50	0.57	3.27	0.00
38.00	3.50	0.57	3.27	0.00
40.00	3.50	0.57	3.27	0.00
42.00	3.50	0.57	3.27	0.00
44.00	3.50	0.57	3.27	0.00
46.00	3.50	0.57	3.27	0.00
48.00	3.50	0.57	3.27	0.00
50.00	3.50	0.57	3.27	0.00
52.00	3.50	0.57	3.27	0.00
54.00	3.50	0.57	3.27	0.00
56.00	3.50	0.57	3.27	0.00
58.00	3.50	0.57	3.27	0.00
60.00	3.50	0.57	3.27	0.00
62.00	3.50	0.57	3.27	0.00
64.00	3.50	0.57	3.27	0.00
66.00	3.50	0.57	3.27	0.00
68.00	3.50	0.57	3.27	0.00
70.00	3.50	0.57	3.27	0.00
72.00	3.50	0.57	3.27	0.00
74.00	3.50	0.57	3.27	0.00
76.00	3.50	0.57	3.27	0.00
78.00	3.50	0.57	3.27	0.00
80.00	3.50	0.57	3.27	0.00
82.00	3.50	0.57	3.27	0.00
84.00	3.50	0.57	3.27	0.00
86.00	3.50	0.57	3.27	0.00
88.00	3.50	0.57	3.27	0.00
90.00	3.50	0.57	3.27	0.00
92.00	3.50	0.57	3.27	0.00
94.00	3.50	0.57	3.27	0.00
96.00	3.50	0.57	3.27	0.00

Summary for Pond 6A-B: 6A_Bioretention

Inflow Area = 7,973 sf, 68.62% Impervious, Inflow Depth = 2.42" for 2 Year, 24 Hr. Event event
Inflow = 0.47 cfs @ 12.07 hrs, Volume= 1,609 cf
Outflow = 0.01 cfs @ 12.08 hrs, Volume= 1,454 cf, Atten= 98%, Lag= 0.5 min
Discarded = 0.01 cfs @ 12.08 hrs, Volume= 1,454 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 735.34' @ 17.49 hrs Surf.Area= 1,718 sf Storage= 1,201 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,326.1 min (2,090.8 - 764.7)

Volume	Invert	Avail.Storage	Storage Description
#1	730.75'	2,343 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

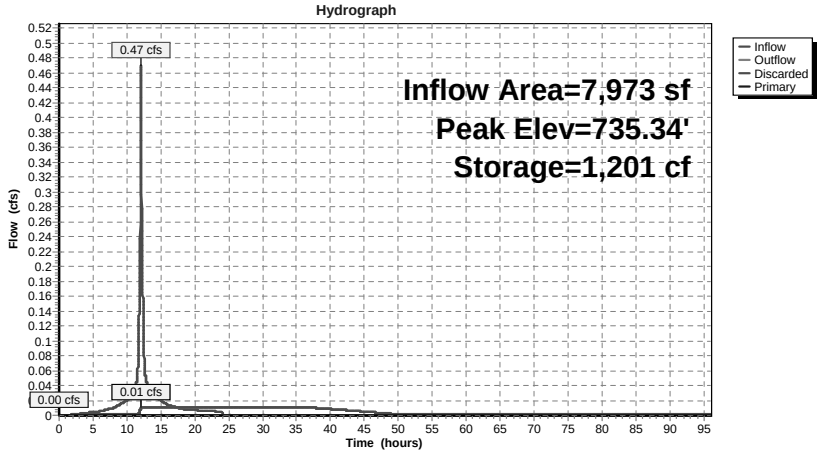
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
730.75	242	0.0	0	0
730.76	242	40.0	1	1
734.75	242	40.0	386	387
735.01	1,718	100.0	255	642
735.50	1,718	100.0	842	1,484
736.00	1,718	100.0	859	2,343

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.75'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	735.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 12.08 hrs HW=735.02' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=730.75' TW=720.00' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 6A-B: 6A_Bioretention



Hydrograph for Pond 6A-B: 6A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.75	0.00	0.00	**0.00**
2.00	0.00	0	730.75	0.00	0.00	0.00
4.00	0.00	5	730.81	0.00	0.00	0.00
6.00	0.01	26	731.02	0.00	0.00	0.00
8.00	0.01	70	731.47	0.00	0.00	0.00
10.00	0.02	166	732.46	0.00	0.00	0.00
12.00	**0.31**	537	734.94	**0.01**	**0.01**	0.00
14.00	**0.03**	1,120	735.29	**0.01**	**0.01**	0.00
16.00	0.01	**1,191**	**735.33**	0.01	0.01	0.00
18.00	0.01	**1,200**	**735.33**	0.01	0.01	0.00
20.00	0.01	1,184	735.33	0.01	0.01	0.00
22.00	0.01	1,158	735.31	0.01	0.01	0.00
24.00	0.00	1,124	735.29	0.01	0.01	0.00
26.00	0.00	1,053	735.25	0.01	0.01	0.00
28.00	0.00	982	735.21	0.01	0.01	0.00
30.00	0.00	910	735.17	0.01	0.01	0.00
32.00	0.00	839	735.12	0.01	0.01	0.00
34.00	0.00	767	735.08	0.01	0.01	0.00
36.00	0.00	695	735.04	0.01	0.01	0.00
38.00	0.00	624	735.00	0.01	0.01	0.00
40.00	0.00	560	734.96	0.01	0.01	0.00
42.00	0.00	506	734.92	0.01	0.01	0.00
44.00	0.00	461	734.87	0.01	0.01	0.00
46.00	0.00	427	734.83	0.00	0.00	0.00
48.00	0.00	402	734.79	0.00	0.00	0.00
50.00	0.00	387	734.75	0.00	0.00	0.00
52.00	0.00	377	734.64	0.00	0.00	0.00
54.00	0.00	367	734.54	0.00	0.00	0.00
56.00	0.00	357	734.44	0.00	0.00	0.00
58.00	0.00	347	734.33	0.00	0.00	0.00
60.00	0.00	337	734.23	0.00	0.00	0.00
62.00	0.00	327	734.12	0.00	0.00	0.00
64.00	0.00	316	734.02	0.00	0.00	0.00
66.00	0.00	306	733.92	0.00	0.00	0.00
68.00	0.00	296	733.81	0.00	0.00	0.00
70.00	0.00	286	733.71	0.00	0.00	0.00
72.00	0.00	276	733.60	0.00	0.00	0.00
74.00	0.00	266	733.50	0.00	0.00	0.00
76.00	0.00	256	733.39	0.00	0.00	0.00
78.00	0.00	246	733.29	0.00	0.00	0.00
80.00	0.00	236	733.19	0.00	0.00	0.00
82.00	0.00	226	733.08	0.00	0.00	0.00
84.00	0.00	216	732.98	0.00	0.00	0.00
86.00	0.00	206	732.87	0.00	0.00	0.00
88.00	0.00	195	732.77	0.00	0.00	0.00
90.00	0.00	185	732.67	0.00	0.00	0.00
92.00	0.00	175	732.56	0.00	0.00	0.00
94.00	0.00	165	732.46	0.00	0.00	0.00
96.00	0.00	155	732.35	0.00	0.00	0.00

Summary for Subcatchment 6B: Post DA 8B-6B

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 1,825 cf, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

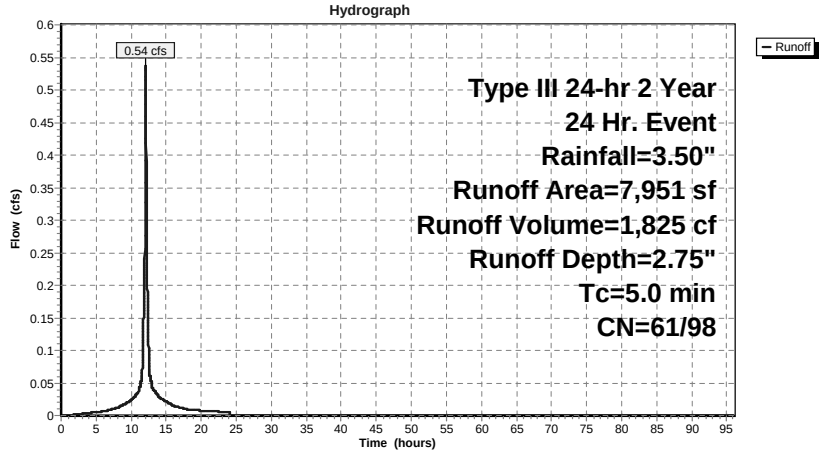
	Area (sf)	CN	Description	Land Use
	1,510	61	>75% Grass cover, Good, HSG B	Open Space
*	6,441	98	Pavers, HSG B	Pavement
	7,951	91	Weighted Average	
	1,510	61	18.99% Pervious Area	
	6,441	98	81.01% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 81.01% Impervious, Rv= 0.779, Runoff= 35.60"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,510	Open Space	168.37	0.59	2.55	0.34
6,441	Pavement	206.39	0.67	2.51	7.99
7,951	Total	374.76	1.26	5.05	8.34

Subcatchment 6B: Post DA 8B-6B



Hydrograph for Subcatchment 6B: Post DA 8B-6B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.02
12.00	1.75	0.03	1.53	**0.36**
14.00	2.84	0.31	2.61	**0.03**
16.00	3.10	0.40	2.87	0.02
18.00	3.25	0.46	3.02	0.01
20.00	3.35	0.51	3.12	0.01
22.00	3.43	0.54	3.20	0.01
24.00	**3.50**	**0.57**	**3.27**	0.00
26.00	3.50	0.57	3.27	0.00
28.00	3.50	0.57	3.27	0.00
30.00	3.50	0.57	3.27	0.00
32.00	3.50	0.57	3.27	0.00
34.00	3.50	0.57	3.27	0.00
36.00	3.50	0.57	3.27	0.00
38.00	3.50	0.57	3.27	0.00
40.00	3.50	0.57	3.27	0.00
42.00	3.50	0.57	3.27	0.00
44.00	3.50	0.57	3.27	0.00
46.00	3.50	0.57	3.27	0.00
48.00	3.50	0.57	3.27	0.00
50.00	3.50	0.57	3.27	0.00
52.00	3.50	0.57	3.27	0.00
54.00	3.50	0.57	3.27	0.00
56.00	3.50	0.57	3.27	0.00
58.00	3.50	0.57	3.27	0.00
60.00	3.50	0.57	3.27	0.00
62.00	3.50	0.57	3.27	0.00
64.00	3.50	0.57	3.27	0.00
66.00	3.50	0.57	3.27	0.00
68.00	3.50	0.57	3.27	0.00
70.00	3.50	0.57	3.27	0.00
72.00	3.50	0.57	3.27	0.00
74.00	3.50	0.57	3.27	0.00
76.00	3.50	0.57	3.27	0.00
78.00	3.50	0.57	3.27	0.00
80.00	3.50	0.57	3.27	0.00
82.00	3.50	0.57	3.27	0.00
84.00	3.50	0.57	3.27	0.00
86.00	3.50	0.57	3.27	0.00
88.00	3.50	0.57	3.27	0.00
90.00	3.50	0.57	3.27	0.00
92.00	3.50	0.57	3.27	0.00
94.00	3.50	0.57	3.27	0.00
96.00	3.50	0.57	3.27	0.00

Summary for Pond 6B-P: 6B_Pavers

Inflow Area = 7,951 sf, 81.01% Impervious, Inflow Depth = 2.75" for 2 Year, 24 Hr. Event event
Inflow = 0.54 cfs @ 12.07 hrs, Volume= 1,825 cf
Outflow = 0.02 cfs @ 14.67 hrs, Volume= 357 cf, Atten= 96%, Lag= 156.1 min
Primary = 0.02 cfs @ 14.67 hrs, Volume= 357 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 739.90' @ 14.67 hrs Surf.Area= 6,441 sf Storage= 1,476 cf

Plug-Flow detention time= 574.8 min calculated for 357 cf (20% of inflow)
Center-of-Mass det. time= 323.6 min (1,083.1 - 759.5)

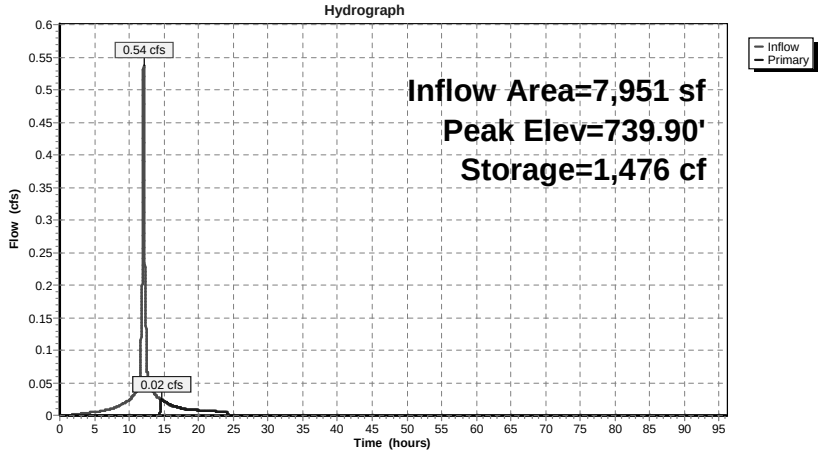
Volume	Invert	Avail.Storage	Storage Description
#1	739.33'	1,726 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
739.33	6,441	0.0	0	0
740.00	6,441	40.0	1,726	1,726

Device	Routing	Invert	Outlet Devices
#1	Primary	739.90'	**60.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.02 cfs @ 14.67 hrs HW=739.90' TW=720.06' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.02 cfs @ 0.14 fps)

Pond 6B-P: 6B_Pavers



Hydrograph for Pond 6B-P: 6B_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	739.33	0.00
2.00	0.00	2	739.33	0.00
4.00	0.00	20	739.34	0.00
6.00	0.01	56	739.35	0.00
8.00	0.01	119	739.38	0.00
10.00	0.02	244	739.42	0.00
12.00	**0.36**	695	739.60	0.00
14.00	**0.03**	**1,430**	**739.89**	**0.00**
16.00	0.02	**1,474**	**739.90**	**0.02**
18.00	0.01	1,472	739.90	0.01
20.00	0.01	1,472	739.90	0.01
22.00	0.01	1,472	739.90	0.01
24.00	0.00	1,471	739.90	0.00
26.00	0.00	1,469	739.90	0.00
28.00	0.00	1,469	739.90	0.00
30.00	0.00	1,469	739.90	0.00
32.00	0.00	1,469	739.90	0.00
34.00	0.00	1,469	739.90	0.00
36.00	0.00	1,469	739.90	0.00
38.00	0.00	1,469	739.90	0.00
40.00	0.00	1,469	739.90	0.00
42.00	0.00	1,469	739.90	0.00
44.00	0.00	1,469	739.90	0.00
46.00	0.00	1,469	739.90	0.00
48.00	0.00	1,469	739.90	0.00
50.00	0.00	1,469	739.90	0.00
52.00	0.00	1,469	739.90	0.00
54.00	0.00	1,469	739.90	0.00
56.00	0.00	1,469	739.90	0.00
58.00	0.00	1,469	739.90	0.00
60.00	0.00	1,469	739.90	0.00
62.00	0.00	1,469	739.90	0.00
64.00	0.00	1,469	739.90	0.00
66.00	0.00	1,469	739.90	0.00
68.00	0.00	1,469	739.90	0.00
70.00	0.00	1,469	739.90	0.00
72.00	0.00	1,469	739.90	0.00
74.00	0.00	1,469	739.90	0.00
76.00	0.00	1,469	739.90	0.00
78.00	0.00	1,469	739.90	0.00
80.00	0.00	1,469	739.90	0.00
82.00	0.00	1,469	739.90	0.00
84.00	0.00	1,469	739.90	0.00
86.00	0.00	1,469	739.90	0.00
88.00	0.00	1,469	739.90	0.00
90.00	0.00	1,469	739.90	0.00
92.00	0.00	1,469	739.90	0.00
94.00	0.00	1,469	739.90	0.00
96.00	0.00	1,469	739.90	0.00

Summary for Pond 7P: 5D_Pavers

Inflow Area = 5,835 sf,100.00% Impervious, Inflow Depth = 3.27" for 2 Year, 24 Hr. Event event
Inflow = 0.47 cfs @ 12.07 hrs, Volume= 1,588 cf
Outflow = 0.03 cfs @ 11.24 hrs, Volume= 1,588 cf, Atten= 94%, Lag= 0.0 min
Discarded = 0.03 cfs @ 11.24 hrs, Volume= 1,588 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 737.69' @ 13.75 hrs Surf.Area= 4,618 sf Storage= 662 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 195.5 min (949.1 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1	737.33'	1,238 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

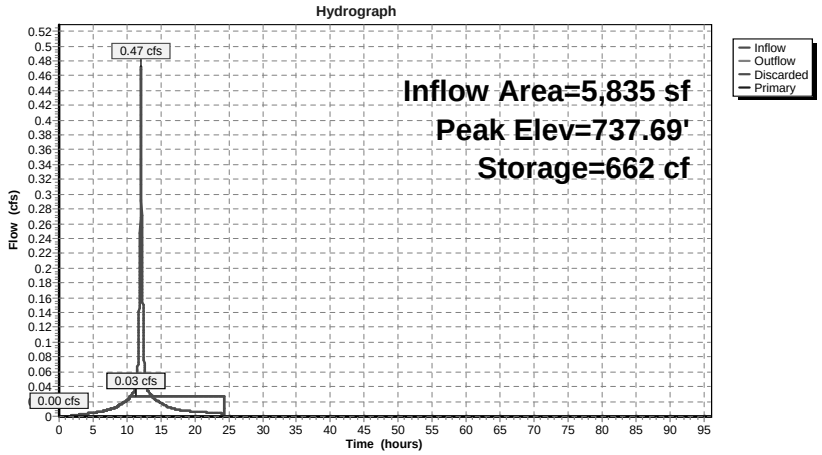
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
737.33	4,618	0.0	0	0
738.00	4,618	40.0	1,238	1,238

Device	Routing	Invert	Outlet Devices
#1	Primary	737.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	737.33'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.03 cfs @ 11.24 hrs HW=737.34' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=737.33' TW=720.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 7P: 5D_Pavers



Hydrograph for Pond 7P: 5D_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	737.33	0.00	0.00	**0.00**
2.00	0.00	0	737.33	0.00	0.00	0.00
4.00	0.00	0	737.33	0.00	0.00	0.00
6.00	0.01	0	737.33	0.01	0.01	0.00
8.00	0.01	0	737.33	0.01	0.01	0.00
10.00	0.02	0	737.33	**0.02**	**0.02**	0.00
12.00	**0.32**	**221**	**737.45**	**0.03**	**0.03**	0.00
14.00	**0.02**	**661**	**737.69**	0.03	0.03	0.00
16.00	0.01	599	737.65	0.03	0.03	0.00
18.00	0.01	479	737.59	0.03	0.03	0.00
20.00	0.01	336	737.51	0.03	0.03	0.00
22.00	0.01	184	737.43	0.03	0.03	0.00
24.00	0.00	25	737.34	0.03	0.03	0.00
26.00	0.00	0	737.33	0.00	0.00	0.00
28.00	0.00	0	737.33	0.00	0.00	0.00
30.00	0.00	0	737.33	0.00	0.00	0.00
32.00	0.00	0	737.33	0.00	0.00	0.00
34.00	0.00	0	737.33	0.00	0.00	0.00
36.00	0.00	0	737.33	0.00	0.00	0.00
38.00	0.00	0	737.33	0.00	0.00	0.00
40.00	0.00	0	737.33	0.00	0.00	0.00
42.00	0.00	0	737.33	0.00	0.00	0.00
44.00	0.00	0	737.33	0.00	0.00	0.00
46.00	0.00	0	737.33	0.00	0.00	0.00
48.00	0.00	0	737.33	0.00	0.00	0.00
50.00	0.00	0	737.33	0.00	0.00	0.00
52.00	0.00	0	737.33	0.00	0.00	0.00
54.00	0.00	0	737.33	0.00	0.00	0.00
56.00	0.00	0	737.33	0.00	0.00	0.00
58.00	0.00	0	737.33	0.00	0.00	0.00
60.00	0.00	0	737.33	0.00	0.00	0.00
62.00	0.00	0	737.33	0.00	0.00	0.00
64.00	0.00	0	737.33	0.00	0.00	0.00
66.00	0.00	0	737.33	0.00	0.00	0.00
68.00	0.00	0	737.33	0.00	0.00	0.00
70.00	0.00	0	737.33	0.00	0.00	0.00
72.00	0.00	0	737.33	0.00	0.00	0.00
74.00	0.00	0	737.33	0.00	0.00	0.00
76.00	0.00	0	737.33	0.00	0.00	0.00
78.00	0.00	0	737.33	0.00	0.00	0.00
80.00	0.00	0	737.33	0.00	0.00	0.00
82.00	0.00	0	737.33	0.00	0.00	0.00
84.00	0.00	0	737.33	0.00	0.00	0.00
86.00	0.00	0	737.33	0.00	0.00	0.00
88.00	0.00	0	737.33	0.00	0.00	0.00
90.00	0.00	0	737.33	0.00	0.00	0.00
92.00	0.00	0	737.33	0.00	0.00	0.00
94.00	0.00	0	737.33	0.00	0.00	0.00
96.00	0.00	0	737.33	0.00	0.00	0.00

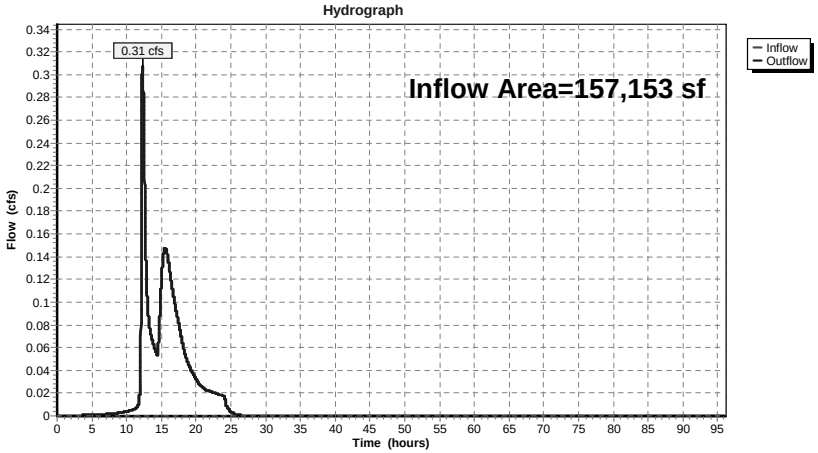
Summary for Reach 8BW-Out: DA-8B West Outflow

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 0.25" for 2 Year, 24 Hr. Event event
Inflow = 0.31 cfs @ 12.27 hrs, Volume= 3,223 cf
Outflow = 0.31 cfs @ 12.27 hrs, Volume= 3,223 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3

Reach 8BW-Out: DA-8B West Outflow



Hydrograph for Reach 8BW-Out: DA-8B West Outflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.01		0.01	63.00	0.00		0.00
12.00	**0.04**		**0.04**	64.00	0.00		0.00
13.00	**0.10**		**0.10**	65.00	0.00		0.00
14.00	0.06		0.06	66.00	0.00		0.00
15.00	0.12		0.12	67.00	0.00		0.00
16.00	0.14		0.14	68.00	0.00		0.00
17.00	0.10		0.10	69.00	0.00		0.00
18.00	0.06		0.06	70.00	0.00		0.00
19.00	0.04		0.04	71.00	0.00		0.00
20.00	0.03		0.03	72.00	0.00		0.00
21.00	0.02		0.02	73.00	0.00		0.00
22.00	0.02		0.02	74.00	0.00		0.00
23.00	0.02		0.02	75.00	0.00		0.00
24.00	0.02		0.02	76.00	0.00		0.00
25.00	0.00		0.00	77.00	0.00		0.00
26.00	0.00		0.00	78.00	0.00		0.00
27.00	0.00		0.00	79.00	0.00		0.00
28.00	0.00		0.00	80.00	0.00		0.00
29.00	0.00		0.00	81.00	0.00		0.00
30.00	0.00		0.00	82.00	0.00		0.00
31.00	0.00		0.00	83.00	0.00		0.00
32.00	0.00		0.00	84.00	0.00		0.00
33.00	0.00		0.00	85.00	0.00		0.00
34.00	0.00		0.00	86.00	0.00		0.00
35.00	0.00		0.00	87.00	0.00		0.00
36.00	0.00		0.00	88.00	0.00		0.00
37.00	0.00		0.00	89.00	0.00		0.00
38.00	0.00		0.00	90.00	0.00		0.00
39.00	0.00		0.00	91.00	0.00		0.00
40.00	0.00		0.00	92.00	0.00		0.00
41.00	0.00		0.00	93.00	0.00		0.00
42.00	0.00		0.00	94.00	0.00		0.00
43.00	0.00		0.00	95.00	0.00		0.00
44.00	0.00		0.00	96.00	0.00		0.00
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Reach R-2: West Reach -2

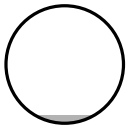
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 72,812 sf, 35.94% Impervious, Inflow Depth = 0.39" for 2 Year, 24 Hr. Event event
Inflow = 0.46 cfs @ 12.11 hrs, Volume= 2,354 cf
Outflow = 0.46 cfs @ 12.12 hrs, Volume= 2,354 cf, Atten= 0%, Lag= 0.4 min

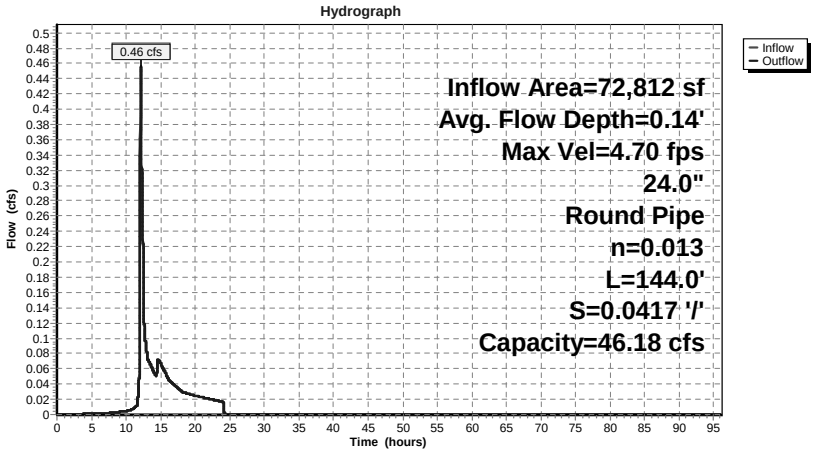
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 4.70 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.84 fps, Avg. Travel Time= 1.3 min

Peak Storage= 14 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 46.18 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 144.0' Slope= 0.0417 '/'
Inlet Invert= 720.00', Outlet Invert= 714.00'



Reach R-2: West Reach -2



Hydrograph for Reach R-2: West Reach -2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	720.00	0.00
2.00	0.00	0	720.00	0.00
4.00	0.00	0	720.00	0.00
6.00	0.00	0	720.00	0.00
8.00	0.00	0	720.01	0.00
10.00	0.00	1	720.01	0.00
12.00	**0.17**	**6**	**720.08**	**0.15**
14.00	**0.06**	**3**	**720.05**	**0.06**
16.00	0.05	3	720.05	0.05
18.00	0.03	2	720.04	0.03
20.00	0.02	2	720.03	0.02
22.00	0.02	2	720.03	0.02
24.00	0.02	1	720.03	0.02
26.00	0.00	0	720.00	0.00
28.00	0.00	0	720.00	0.00
30.00	0.00	0	720.00	0.00
32.00	0.00	0	720.00	0.00
34.00	0.00	0	720.00	0.00
36.00	0.00	0	720.00	0.00
38.00	0.00	0	720.00	0.00
40.00	0.00	0	720.00	0.00
42.00	0.00	0	720.00	0.00
44.00	0.00	0	720.00	0.00
46.00	0.00	0	720.00	0.00
48.00	0.00	0	720.00	0.00
50.00	0.00	0	720.00	0.00
52.00	0.00	0	720.00	0.00
54.00	0.00	0	720.00	0.00
56.00	0.00	0	720.00	0.00
58.00	0.00	0	720.00	0.00
60.00	0.00	0	720.00	0.00
62.00	0.00	0	720.00	0.00
64.00	0.00	0	720.00	0.00
66.00	0.00	0	720.00	0.00
68.00	0.00	0	720.00	0.00
70.00	0.00	0	720.00	0.00
72.00	0.00	0	720.00	0.00
74.00	0.00	0	720.00	0.00
76.00	0.00	0	720.00	0.00
78.00	0.00	0	720.00	0.00
80.00	0.00	0	720.00	0.00
82.00	0.00	0	720.00	0.00
84.00	0.00	0	720.00	0.00
86.00	0.00	0	720.00	0.00
88.00	0.00	0	720.00	0.00
90.00	0.00	0	720.00	0.00
92.00	0.00	0	720.00	0.00
94.00	0.00	0	720.00	0.00
96.00	0.00	0	720.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 3A_R: Vegetated Swale Avg. Flow Depth=0.61' Max Vel=1.61 fps Inflow=3.84 cfs 20,799 cf
n=0.120 L=521.0' S=0.0576 '/' Capacity=50.42 cfs Outflow=3.72 cfs 20,799 cf

Subcatchment 4: Post DA 8B-4 Runoff Area=84,341 sf 55.72% Impervious Runoff Depth=3.68"
Tc=5.0 min CN=61/98 Runoff=7.64 cfs 25,832 cf

Pond 4-B: 4_Bioretention Peak Elev=729.68' Storage=12,618 cf Inflow=7.64 cfs 25,832 cf
Discarded=0.07 cfs 11,860 cf Primary=2.56 cfs 11,678 cf Outflow=2.63 cfs 23,538 cf

Subcatchment 5: Post DA 8B-5 Runoff Area=34,341 sf 0.00% Impervious Runoff Depth=1.68"
Flow Length=290' Tc=6.8 min CN=61/0 Runoff=1.41 cfs 4,804 cf

Subcatchment 5A: Post DA 8B-5A Runoff Area=13,174 sf 39.15% Impervious Runoff Depth=3.08"
Tc=5.0 min CN=61/98 Runoff=1.01 cfs 3,383 cf

Pond 5A-B: 5A_Bioretention Peak Elev=728.03' Storage=1,845 cf Inflow=1.01 cfs 3,383 cf
Discarded=0.01 cfs 2,125 cf Primary=0.17 cfs 972 cf Outflow=0.18 cfs 3,097 cf

Subcatchment 5B: Post DA 8B-5B Runoff Area=1,318 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=0.17 cfs 578 cf

Pond 5B-P: 5B_Pavers Peak Elev=728.50' Storage=0 cf Inflow=0.17 cfs 578 cf
Discarded=0.00 cfs 1 cf Primary=0.17 cfs 577 cf Outflow=0.17 cfs 578 cf

Subcatchment 5C: Post DA 8B-5C Runoff Area=2,220 sf 87.70% Impervious Runoff Depth=4.82"
Tc=5.0 min CN=61/98 Runoff=0.26 cfs 892 cf

Pond 5C-P: 5C_Pavers Peak Elev=726.91' Storage=305 cf Inflow=0.26 cfs 892 cf
Discarded=0.01 cfs 699 cf Primary=0.13 cfs 194 cf Outflow=0.14 cfs 892 cf

Subcatchment 5D: Post DA 8B-5D Runoff Area=5,835 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=0.75 cfs 2,559 cf

Subcatchment 6A: Post DA 8B-6A Runoff Area=7,973 sf 68.62% Impervious Runoff Depth=4.14"
Tc=5.0 min CN=61/98 Runoff=0.81 cfs 2,749 cf

Pond 6A-B: 6A_Bioretention Peak Elev=735.54' Storage=1,551 cf Inflow=0.81 cfs 2,749 cf
Discarded=0.01 cfs 1,786 cf Primary=0.20 cfs 758 cf Outflow=0.21 cfs 2,544 cf

Subcatchment 6B: Post DA 8B-6B Runoff Area=7,951 sf 81.01% Impervious Runoff Depth=4.58"
Tc=5.0 min CN=61/98 Runoff=0.89 cfs 3,036 cf

Pond 6B-P: 6B_Pavers Peak Elev=739.92' Storage=1,529 cf Inflow=0.89 cfs 3,036 cf
Outflow=0.58 cfs 1,567 cf

Pond 7P: 5D_Pavers Peak Elev=737.91' Storage=1,071 cf Inflow=0.75 cfs 2,559 cf
Discarded=0.03 cfs 2,312 cf Primary=0.13 cfs 248 cf Outflow=0.16 cfs 2,559 cf

Reach 8BW-Out: DA-8B West Outflow Inflow=3.72 cfs 20,799 cf
Outflow=3.72 cfs 20,799 cf

Reach R-2: West Reach -2 Avg. Flow Depth=0.28' Max Vel=7.32 fps Inflow=1.99 cfs 9,120 cf
24.0" Round Pipe n=0.013 L=144.0' S=0.0417 '/' Capacity=46.18 cfs Outflow=1.99 cfs 9,120 cf

Total Runoff Area = 157,153 sf Runoff Volume = 43,834 cf Average Runoff Depth = 3.35"
53.45% Pervious = 83,992 sf 46.55% Impervious = 73,161 sf

Summary for Reach 3A_R: Vegetated Swale

[62] Hint: Exceeded Reach R-2 OUTLET depth by 4.38' @ 12.40 hrs

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 1.59" for 10 Year, 24 Hr. Event event
Inflow = 3.84 cfs @ 12.33 hrs, Volume= 20,799 cf
Outflow = 3.72 cfs @ 12.42 hrs, Volume= 20,799 cf, Atten= 3%, Lag= 5.2 min

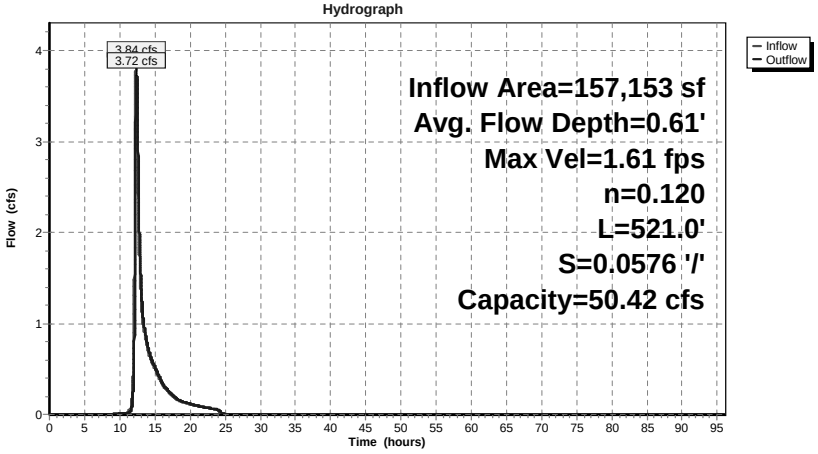
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.61 fps, Min. Travel Time= 5.4 min
Avg. Velocity = 0.45 fps, Avg. Travel Time= 19.1 min

Peak Storage= 1,208 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.61'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 50.42 cfs

2.00' x 2.00' deep channel, n= 0.120 Earth, long dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 521.0' Slope= 0.0576 '/'
Inlet Invert= 718.00', Outlet Invert= 688.00'



Reach 3A_R: Vegetated Swale



Hydrograph for Reach 3A_R: Vegetated Swale

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	718.00	0.00
2.00	0.00	1	718.00	0.00
4.00	0.00	3	718.00	0.00
6.00	0.00	5	718.00	0.00
8.00	0.00	8	718.01	0.00
10.00	0.01	16	718.01	0.01
12.00	**0.73**	**247**	**718.19**	**0.40**
14.00	**0.72**	**385**	**718.26**	**0.75**
16.00	0.34	231	718.18	0.36
18.00	0.17	147	718.12	0.18
20.00	0.11	108	718.09	0.12
22.00	0.08	85	718.07	0.08
24.00	0.05	64	718.06	0.05
26.00	0.00	3	718.00	0.00
28.00	0.00	0	718.00	0.00
30.00	0.00	0	718.00	0.00
32.00	0.00	0	718.00	0.00
34.00	0.00	0	718.00	0.00
36.00	0.00	0	718.00	0.00
38.00	0.00	0	718.00	0.00
40.00	0.00	0	718.00	0.00
42.00	0.00	0	718.00	0.00
44.00	0.00	0	718.00	0.00
46.00	0.00	0	718.00	0.00
48.00	0.00	0	718.00	0.00
50.00	0.00	0	718.00	0.00
52.00	0.00	0	718.00	0.00
54.00	0.00	0	718.00	0.00
56.00	0.00	0	718.00	0.00
58.00	0.00	0	718.00	0.00
60.00	0.00	0	718.00	0.00
62.00	0.00	0	718.00	0.00
64.00	0.00	0	718.00	0.00
66.00	0.00	0	718.00	0.00
68.00	0.00	0	718.00	0.00
70.00	0.00	0	718.00	0.00
72.00	0.00	0	718.00	0.00
74.00	0.00	0	718.00	0.00
76.00	0.00	0	718.00	0.00
78.00	0.00	0	718.00	0.00
80.00	0.00	0	718.00	0.00
82.00	0.00	0	718.00	0.00
84.00	0.00	0	718.00	0.00
86.00	0.00	0	718.00	0.00
88.00	0.00	0	718.00	0.00
90.00	0.00	0	718.00	0.00
92.00	0.00	0	718.00	0.00
94.00	0.00	0	718.00	0.00
96.00	0.00	0	718.00	0.00

Summary for Subcatchment 4: Post DA 8B-4

Runoff = 7.64 cfs @ 12.07 hrs, Volume= 25,832 cf, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

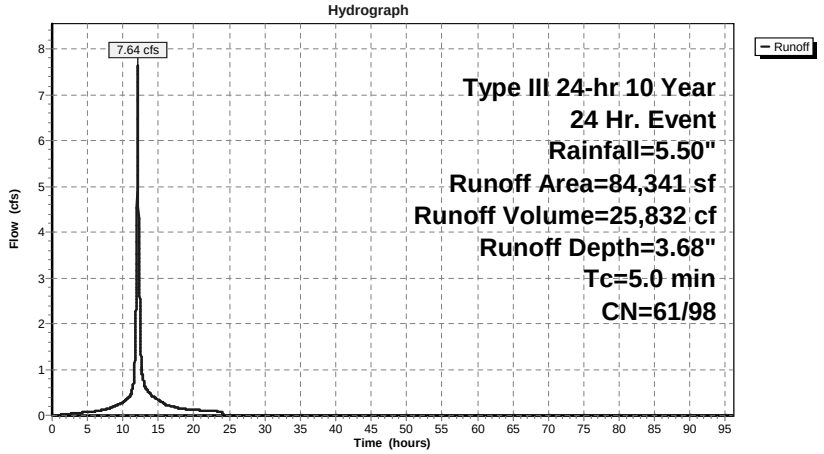
	Area (sf)	CN	Description	Land Use
	6,839	98	Paved parking, HSG C	Pavement
	20,756	61	>75% Grass cover, Good, HSG B	Open Space
*	16,594	61	Bioretention, HSG B	Landscaped
	40,152	98	Roofs, HSG B	Roofs
	84,341	82	Weighted Average	
	37,350	61	44.28% Pervious Area	
	46,991	98	55.72% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 55.72% Impervious, Rv= 0.551, Runoff= 25.20"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
16,594	Landscaped	80.49	0.00	0.00	2.68
20,756	Open Space	1,638.14	5.71	24.76	3.35
6,839	Pavement	155.11	0.50	1.88	6.01
40,152	Roofs	100.02	0.58	7.90	38.95
84,341	Total	1,973.77	6.80	34.54	50.98

Subcatchment 4: Post DA 8B-4



Hydrograph for Subcatchment 4: Post DA 8B-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.03
4.00	0.24	0.00	0.10	0.06
6.00	0.40	0.00	0.23	0.08
8.00	0.63	0.00	0.43	0.14
10.00	1.04	0.00	0.83	0.28
12.00	2.75	0.28	2.52	**4.97**
14.00	4.46	1.06	4.22	**0.44**
16.00	4.87	1.29	4.64	0.24
18.00	5.10	1.43	4.87	0.15
20.00	5.26	1.53	5.03	0.12
22.00	5.39	1.61	5.16	0.10
24.00	**5.50**	**1.68**	**5.26**	0.08
26.00	5.50	1.68	5.26	0.00
28.00	5.50	1.68	5.26	0.00
30.00	5.50	1.68	5.26	0.00
32.00	5.50	1.68	5.26	0.00
34.00	5.50	1.68	5.26	0.00
36.00	5.50	1.68	5.26	0.00
38.00	5.50	1.68	5.26	0.00
40.00	5.50	1.68	5.26	0.00
42.00	5.50	1.68	5.26	0.00
44.00	5.50	1.68	5.26	0.00
46.00	5.50	1.68	5.26	0.00
48.00	5.50	1.68	5.26	0.00
50.00	5.50	1.68	5.26	0.00
52.00	5.50	1.68	5.26	0.00
54.00	5.50	1.68	5.26	0.00
56.00	5.50	1.68	5.26	0.00
58.00	5.50	1.68	5.26	0.00
60.00	5.50	1.68	5.26	0.00
62.00	5.50	1.68	5.26	0.00
64.00	5.50	1.68	5.26	0.00
66.00	5.50	1.68	5.26	0.00
68.00	5.50	1.68	5.26	0.00
70.00	5.50	1.68	5.26	0.00
72.00	5.50	1.68	5.26	0.00
74.00	5.50	1.68	5.26	0.00
76.00	5.50	1.68	5.26	0.00
78.00	5.50	1.68	5.26	0.00
80.00	5.50	1.68	5.26	0.00
82.00	5.50	1.68	5.26	0.00
84.00	5.50	1.68	5.26	0.00
86.00	5.50	1.68	5.26	0.00
88.00	5.50	1.68	5.26	0.00
90.00	5.50	1.68	5.26	0.00
92.00	5.50	1.68	5.26	0.00
94.00	5.50	1.68	5.26	0.00
96.00	5.50	1.68	5.26	0.00

Summary for Pond 4-B: 4_Bioretention

Inflow Area = 84,341 sf, 55.72% Impervious, Inflow Depth = 3.68" for 10 Year, 24 Hr. Event event
Inflow = 7.64 cfs @ 12.07 hrs, Volume= 25,832 cf
Outflow = 2.63 cfs @ 12.35 hrs, Volume= 23,538 cf, Atten= 66%, Lag= 16.4 min
Discarded = 0.07 cfs @ 11.26 hrs, Volume= 11,860 cf
Primary = 2.56 cfs @ 12.35 hrs, Volume= 11,678 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 729.68' @ 12.35 hrs Surf.Area= 12,192 sf Storage= 12,618 cf

Plug-Flow detention time= 791.4 min calculated for 23,538 cf (91% of inflow)
Center-of-Mass det. time= 744.8 min (1,514.5 - 769.7)

Volume	Invert	Avail.Storage	Storage Description
#1	723.75'	16,484 cf	**Custom Stage Data (Prismatic)** Listed below

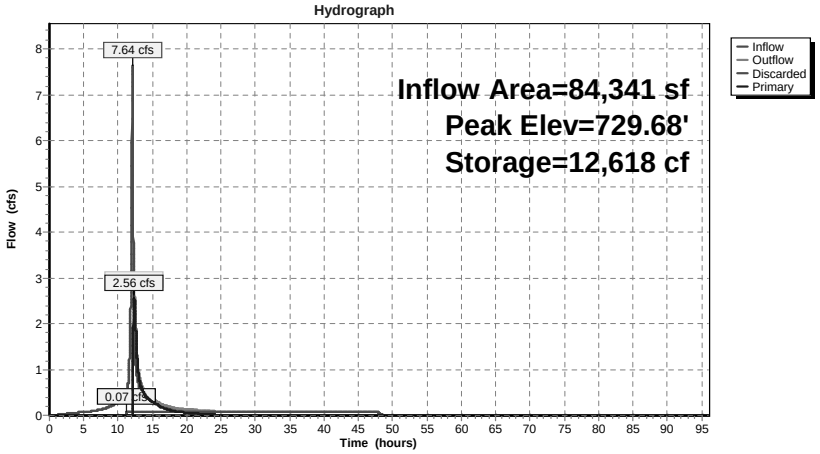
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
723.75	2,068	0.0	0	0
728.75	2,068	40.0	4,136	4,136
729.00	2,068	40.0	207	4,343
729.01	12,192	100.0	71	4,414
729.50	12,192	100.0	5,974	10,388
730.00	12,192	100.0	6,096	16,484

Device	Routing	Invert	Outlet Devices
#1	Discarded	723.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	729.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 24.00 columns** X 24 rows C= 0.600 in 30.0" x 30.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.07 cfs @ 11.26 hrs HW=729.01' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=2.56 cfs @ 12.35 hrs HW=729.68' TW=718.60' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 2.56 cfs @ 1.40 fps)

Pond 4-B: 4_Bioretention



Hydrograph for Pond 4-B: 4_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	723.75	0.00	0.00	0.00
2.00	0.03	19	723.77	0.01	0.01	0.00
4.00	0.06	231	724.03	0.01	0.01	0.00
6.00	0.08	646	724.53	0.01	0.01	0.00
8.00	0.14	1,362	725.40	0.01	0.01	0.00
10.00	0.28	2,782	727.11	0.01	**0.01**	0.00
12.00	**4.97**	**8,289**	**729.33**	**0.07**	**0.07**	**0.00**
14.00	**0.44**	**11,065**	**729.56**	**0.50**	0.07	**0.43**
16.00	0.24	10,797	729.53	0.27	0.07	0.20
18.00	0.15	10,636	729.52	0.17	0.07	0.09
20.00	0.12	10,559	729.51	0.12	0.07	0.05
22.00	0.10	10,511	729.51	0.10	0.07	0.03
24.00	0.08	10,460	729.51	0.09	0.07	0.01
26.00	0.00	9,964	729.47	0.07	0.07	0.00
28.00	0.00	9,456	729.42	0.07	0.07	0.00
30.00	0.00	8,948	729.38	0.07	0.07	0.00
32.00	0.00	8,440	729.34	0.07	0.07	0.00
34.00	0.00	7,932	729.30	0.07	0.07	0.00
36.00	0.00	7,424	729.26	0.07	0.07	0.00
38.00	0.00	6,916	729.22	0.07	0.07	0.00
40.00	0.00	6,408	729.17	0.07	0.07	0.00
42.00	0.00	5,900	729.13	0.07	0.07	0.00
44.00	0.00	5,392	729.09	0.07	0.07	0.00
46.00	0.00	4,884	729.05	0.07	0.07	0.00
48.00	0.00	4,384	729.01	0.05	0.05	0.00
50.00	0.00	4,276	728.92	0.01	0.01	0.00
52.00	0.00	4,190	728.82	0.01	0.01	0.00
54.00	0.00	4,104	728.71	0.01	0.01	0.00
56.00	0.00	4,018	728.61	0.01	0.01	0.00
58.00	0.00	3,931	728.50	0.01	0.01	0.00
60.00	0.00	3,845	728.40	0.01	0.01	0.00
62.00	0.00	3,759	728.29	0.01	0.01	0.00
64.00	0.00	3,673	728.19	0.01	0.01	0.00
66.00	0.00	3,587	728.09	0.01	0.01	0.00
68.00	0.00	3,501	727.98	0.01	0.01	0.00
70.00	0.00	3,414	727.88	0.01	0.01	0.00
72.00	0.00	3,328	727.77	0.01	0.01	0.00
74.00	0.00	3,242	727.67	0.01	0.01	0.00
76.00	0.00	3,156	727.57	0.01	0.01	0.00
78.00	0.00	3,070	727.46	0.01	0.01	0.00
80.00	0.00	2,984	727.36	0.01	0.01	0.00
82.00	0.00	2,897	727.25	0.01	0.01	0.00
84.00	0.00	2,811	727.15	0.01	0.01	0.00
86.00	0.00	2,725	727.04	0.01	0.01	0.00
88.00	0.00	2,639	726.94	0.01	0.01	0.00
90.00	0.00	2,553	726.84	0.01	0.01	0.00
92.00	0.00	2,467	726.73	0.01	0.01	0.00
94.00	0.00	2,380	726.63	0.01	0.01	0.00
96.00	0.00	2,294	726.52	0.01	0.01	0.00

Summary for Subcatchment 5: Post DA 8B-5

Runoff = 1.41 cfs @ 12.11 hrs, Volume= 4,804 cf, Depth= 1.68"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

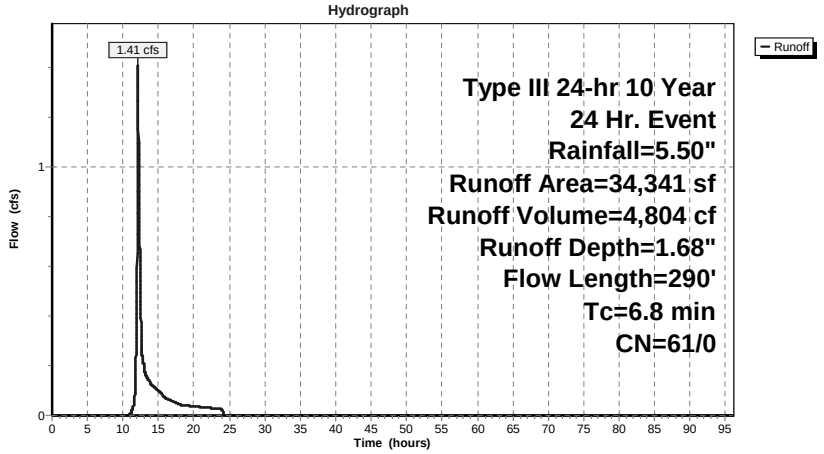
Area (sf)	CN	Description	Land Use
34,341	61	>75% Grass cover, Good, HSG B	Open Space
34,341	61	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.1900	0.30		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.1	120	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	70	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.8	290	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
34,341	Open Space	245.75	0.86	3.71	0.50
34,341	Total	245.75	0.86	3.71	0.50

Subcatchment 5: Post DA 8B-5



Hydrograph for Subcatchment 5: Post DA 8B-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.00	0.00	0.00
12.00	2.75	0.28	0.00	**0.65**
14.00	4.46	1.06	0.00	**0.12**
16.00	4.87	1.29	0.00	0.07
18.00	5.10	1.43	0.00	0.04
20.00	5.26	1.53	0.00	0.04
22.00	5.39	1.61	0.00	0.03
24.00	**5.50**	**1.68**	0.00	0.02
26.00	5.50	1.68	0.00	0.00
28.00	5.50	1.68	0.00	0.00
30.00	5.50	1.68	0.00	0.00
32.00	5.50	1.68	0.00	0.00
34.00	5.50	1.68	0.00	0.00
36.00	5.50	1.68	0.00	0.00
38.00	5.50	1.68	0.00	0.00
40.00	5.50	1.68	0.00	0.00
42.00	5.50	1.68	0.00	0.00
44.00	5.50	1.68	0.00	0.00
46.00	5.50	1.68	0.00	0.00
48.00	5.50	1.68	0.00	0.00
50.00	5.50	1.68	0.00	0.00
52.00	5.50	1.68	0.00	0.00
54.00	5.50	1.68	0.00	0.00
56.00	5.50	1.68	0.00	0.00
58.00	5.50	1.68	0.00	0.00
60.00	5.50	1.68	0.00	0.00
62.00	5.50	1.68	0.00	0.00
64.00	5.50	1.68	0.00	0.00
66.00	5.50	1.68	0.00	0.00
68.00	5.50	1.68	0.00	0.00
70.00	5.50	1.68	0.00	0.00
72.00	5.50	1.68	0.00	0.00
74.00	5.50	1.68	0.00	0.00
76.00	5.50	1.68	0.00	0.00
78.00	5.50	1.68	0.00	0.00
80.00	5.50	1.68	0.00	0.00
82.00	5.50	1.68	0.00	0.00
84.00	5.50	1.68	0.00	0.00
86.00	5.50	1.68	0.00	0.00
88.00	5.50	1.68	0.00	0.00
90.00	5.50	1.68	0.00	0.00
92.00	5.50	1.68	0.00	0.00
94.00	5.50	1.68	0.00	0.00
96.00	5.50	1.68	0.00	0.00

Summary for Subcatchment 5A: Post DA 8B-5A

Runoff = 1.01 cfs @ 12.07 hrs, Volume= 3,383 cf, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

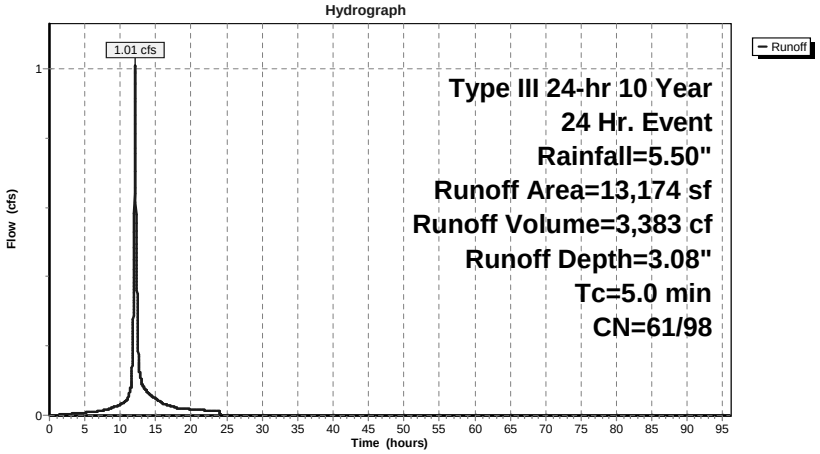
	Area (sf)	CN	Description	Land Use
	5,158	98	Paved parking, HSG B	Pavement
	4,478	61	>75% Grass cover, Good, HSG B	Open Space
*	3,538	61	Bioretention, HSG B	Landscaped
	13,174	75	Weighted Average	
	8,016	61	60.85% Pervious Area	
	5,158	98	39.15% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, user defined min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 39.15% Impervious, Rv= 0.402, Runoff= 18.39"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,538	Landscaped	12.52	0.00	0.00	0.42
4,478	Open Space	257.89	0.90	3.90	0.53
5,158	Pavement	85.36	0.28	1.04	3.31
13,174	Total	355.77	1.18	4.93	4.25

Subcatchment 5A: Post DA 8B-5A



Hydrograph for Subcatchment 5A: Post DA 8B-5A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.02
10.00	1.04	0.00	0.83	0.03
12.00	2.75	0.28	2.52	**0.64**
14.00	4.46	1.06	4.22	**0.06**
16.00	4.87	1.29	4.64	0.03
18.00	5.10	1.43	4.87	0.02
20.00	5.26	1.53	5.03	0.02
22.00	5.39	1.61	5.16	0.01
24.00	**5.50**	**1.68**	**5.26**	0.01
26.00	5.50	1.68	5.26	0.00
28.00	5.50	1.68	5.26	0.00
30.00	5.50	1.68	5.26	0.00
32.00	5.50	1.68	5.26	0.00
34.00	5.50	1.68	5.26	0.00
36.00	5.50	1.68	5.26	0.00
38.00	5.50	1.68	5.26	0.00
40.00	5.50	1.68	5.26	0.00
42.00	5.50	1.68	5.26	0.00
44.00	5.50	1.68	5.26	0.00
46.00	5.50	1.68	5.26	0.00
48.00	5.50	1.68	5.26	0.00
50.00	5.50	1.68	5.26	0.00
52.00	5.50	1.68	5.26	0.00
54.00	5.50	1.68	5.26	0.00
56.00	5.50	1.68	5.26	0.00
58.00	5.50	1.68	5.26	0.00
60.00	5.50	1.68	5.26	0.00
62.00	5.50	1.68	5.26	0.00
64.00	5.50	1.68	5.26	0.00
66.00	5.50	1.68	5.26	0.00
68.00	5.50	1.68	5.26	0.00
70.00	5.50	1.68	5.26	0.00
72.00	5.50	1.68	5.26	0.00
74.00	5.50	1.68	5.26	0.00
76.00	5.50	1.68	5.26	0.00
78.00	5.50	1.68	5.26	0.00
80.00	5.50	1.68	5.26	0.00
82.00	5.50	1.68	5.26	0.00
84.00	5.50	1.68	5.26	0.00
86.00	5.50	1.68	5.26	0.00
88.00	5.50	1.68	5.26	0.00
90.00	5.50	1.68	5.26	0.00
92.00	5.50	1.68	5.26	0.00
94.00	5.50	1.68	5.26	0.00
96.00	5.50	1.68	5.26	0.00

Summary for Pond 5A-B: 5A_Bioretention

Inflow Area = 13,174 sf, 39.15% Impervious, Inflow Depth = 3.08" for 10 Year, 24 Hr. Event event
Inflow = 1.01 cfs @ 12.07 hrs, Volume= 3,383 cf
Outflow = 0.18 cfs @ 12.53 hrs, Volume= 3,097 cf, Atten= 82%, Lag= 27.5 min
Discarded = 0.01 cfs @ 11.84 hrs, Volume= 2,125 cf
Primary = 0.17 cfs @ 12.53 hrs, Volume= 972 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 728.03' @ 12.53 hrs Surf.Area= 2,168 sf Storage= 1,845 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,010.0 min (1,795.1 - 785.1)

Volume	Invert	Avail.Storage	Storage Description
#1	723.25'	2,853 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

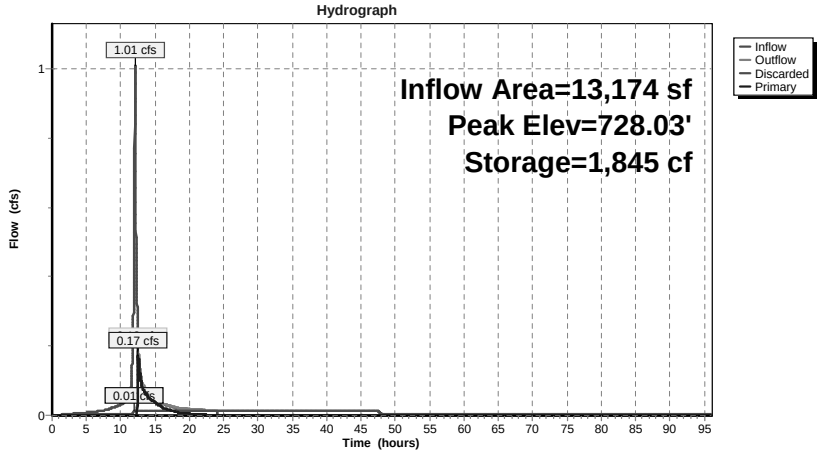
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
723.25	409	0.0	0	0	409
727.25	409	40.0	654	654	733
727.50	409	40.0	41	695	753
727.51	2,168	100.0	12	707	2,512
728.00	2,168	100.0	1,062	1,769	2,603
728.50	2,168	100.0	1,084	2,853	2,696

Device	Routing	Invert	Outlet Devices
#1	Discarded	723.25'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	728.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 11.84 hrs HW=727.51' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.17 cfs @ 12.53 hrs HW=728.03' TW=720.21' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.17 cfs @ 0.61 fps)

Pond 5A-B: 5A_Bioretention



Hydrograph for Pond 5A-B: 5A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	723.25	0.00	0.00	0.00
2.00	0.00	0	723.25	0.00	0.00	0.00
4.00	0.01	16	723.35	0.00	0.00	0.00
6.00	0.01	54	723.58	0.00	0.00	0.00
8.00	0.02	125	724.01	0.00	0.00	0.00
10.00	0.03	273	724.92	0.00	**0.00**	0.00
12.00	**0.64**	**934**	**727.61**	**0.01**	**0.01**	**0.00**
14.00	**0.06**	**1,804**	**728.02**	**0.07**	0.01	**0.05**
16.00	0.03	1,789	728.01	0.04	0.01	0.02
18.00	0.02	1,780	728.01	0.02	0.01	0.01
20.00	0.02	1,776	728.00	0.02	0.01	0.00
22.00	0.01	1,773	728.00	0.01	0.01	0.00
24.00	0.01	1,768	728.00	0.01	0.01	0.00
26.00	0.00	1,681	727.96	0.01	0.01	0.00
28.00	0.00	1,591	727.92	0.01	0.01	0.00
30.00	0.00	1,500	727.88	0.01	0.01	0.00
32.00	0.00	1,410	727.83	0.01	0.01	0.00
34.00	0.00	1,320	727.79	0.01	0.01	0.00
36.00	0.00	1,229	727.75	0.01	0.01	0.00
38.00	0.00	1,139	727.71	0.01	0.01	0.00
40.00	0.00	1,049	727.67	0.01	0.01	0.00
42.00	0.00	958	727.63	0.01	0.01	0.00
44.00	0.00	868	727.58	0.01	0.01	0.00
46.00	0.00	778	727.54	0.01	0.01	0.00
48.00	0.00	696	727.50	0.00	0.00	0.00
50.00	0.00	679	727.40	0.00	0.00	0.00
52.00	0.00	662	727.29	0.00	0.00	0.00
54.00	0.00	645	727.19	0.00	0.00	0.00
56.00	0.00	628	727.09	0.00	0.00	0.00
58.00	0.00	610	726.98	0.00	0.00	0.00
60.00	0.00	593	726.88	0.00	0.00	0.00
62.00	0.00	576	726.77	0.00	0.00	0.00
64.00	0.00	559	726.67	0.00	0.00	0.00
66.00	0.00	542	726.56	0.00	0.00	0.00
68.00	0.00	525	726.46	0.00	0.00	0.00
70.00	0.00	508	726.36	0.00	0.00	0.00
72.00	0.00	491	726.25	0.00	0.00	0.00
74.00	0.00	474	726.15	0.00	0.00	0.00
76.00	0.00	457	726.04	0.00	0.00	0.00
78.00	0.00	440	725.94	0.00	0.00	0.00
80.00	0.00	423	725.84	0.00	0.00	0.00
82.00	0.00	406	725.73	0.00	0.00	0.00
84.00	0.00	389	725.63	0.00	0.00	0.00
86.00	0.00	372	725.52	0.00	0.00	0.00
88.00	0.00	355	725.42	0.00	0.00	0.00
90.00	0.00	338	725.31	0.00	0.00	0.00
92.00	0.00	321	725.21	0.00	0.00	0.00
94.00	0.00	304	725.11	0.00	0.00	0.00
96.00	0.00	287	725.00	0.00	0.00	0.00

Summary for Subcatchment 5B: Post DA 8B-5B

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 578 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

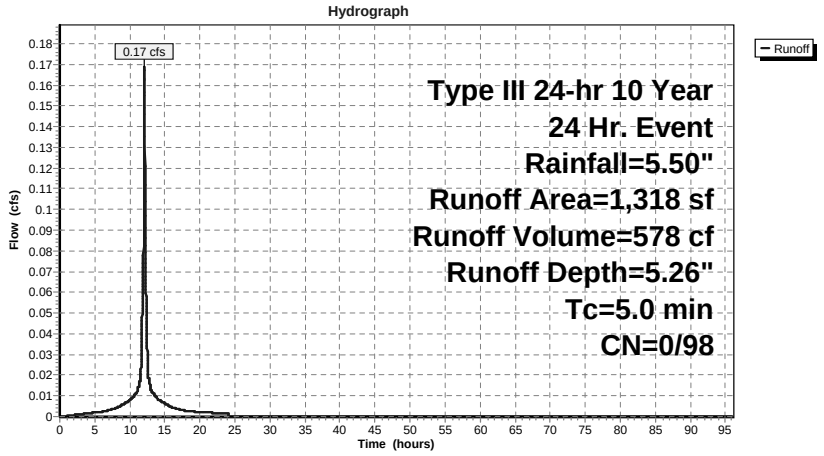
	Area (sf)	CN	Description	Land Use
	615	98	Paved parking, HSG B	Pavement
*	703	98	Pavers, HSG B	Pavement
	1,318	98	Weighted Average	
	1,318	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,318	Pavement	51.50	0.17	0.63	1.99
1,318	Total	51.50	0.17	0.63	1.99

Subcatchment 5B: Post DA 8B-5B



Hydrograph for Subcatchment 5B: Post DA 8B-5B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.00
10.00	1.04	0.00	0.83	0.01
12.00	2.75	0.00	2.52	**0.11**
14.00	4.46	0.00	4.22	**0.01**
16.00	4.87	0.00	4.64	0.00
18.00	5.10	0.00	4.87	0.00
20.00	5.26	0.00	5.03	0.00
22.00	5.39	0.00	5.16	0.00
24.00	**5.50**	0.00	**5.26**	0.00
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00
74.00	5.50	0.00	5.26	0.00
76.00	5.50	0.00	5.26	0.00
78.00	5.50	0.00	5.26	0.00
80.00	5.50	0.00	5.26	0.00
82.00	5.50	0.00	5.26	0.00
84.00	5.50	0.00	5.26	0.00
86.00	5.50	0.00	5.26	0.00
88.00	5.50	0.00	5.26	0.00
90.00	5.50	0.00	5.26	0.00
92.00	5.50	0.00	5.26	0.00
94.00	5.50	0.00	5.26	0.00
96.00	5.50	0.00	5.26	0.00

Summary for Pond 5B-P: 5B_Pavers

Inflow Area = 1,318 sf,100.00% Impervious, Inflow Depth = 5.26" for 10 Year, 24 Hr. Event event
Inflow = 0.17 cfs @ 12.07 hrs, Volume= 578 cf
Outflow = 0.17 cfs @ 12.07 hrs, Volume= 578 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.07 hrs, Volume= 1 cf
Primary = 0.17 cfs @ 12.07 hrs, Volume= 577 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 728.50' @ 0.00 hrs Surf.Area= 703 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (745.5 - 745.5)

Volume	Invert	Avail.Storage	Storage Description
#1	728.50'	281 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

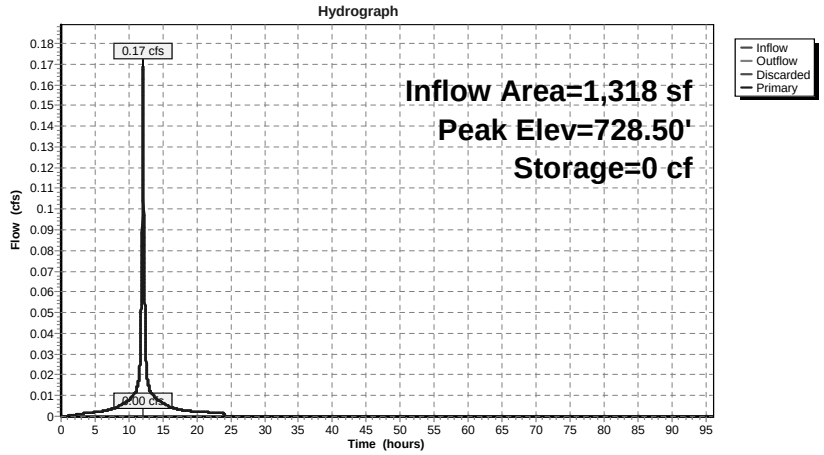
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
728.50	703	177.4	0.0	0	0	703
729.50	703	177.4	40.0	281	281	880

Device	Routing	Invert	Outlet Devices
#1	Primary	728.40'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	728.50'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 12.07 hrs HW=728.50' (Free Discharge)
↑**2=Exfiltration** (Passes 0.00 cfs of 0.00 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=728.50' TW=720.24' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Passes 0.00 cfs of 4.24 cfs potential flow)

Pond 5B-P: 5B_Pavers



Hydrograph for Pond 5B-P: 5B_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	**728.50**	0.00	0.00	0.00
2.00	0.00	0	728.50	0.00	0.00	0.00
4.00	0.00	0	728.50	0.00	0.00	0.00
6.00	0.00	0	728.50	0.00	0.00	0.00
8.00	0.00	**0**	728.50	0.00	0.00	0.00
10.00	0.01	**0**	728.50	0.01	0.00	0.01
12.00	**0.11**	0	728.50	**0.11**	**0.00**	**0.11**
14.00	**0.01**	0	728.50	**0.01**	**0.00**	**0.01**
16.00	0.00	0	728.50	0.00	0.00	0.00
18.00	0.00	0	728.50	0.00	0.00	0.00
20.00	0.00	0	728.50	0.00	0.00	0.00
22.00	0.00	0	728.50	0.00	0.00	0.00
24.00	0.00	0	728.50	0.00	0.00	0.00
26.00	0.00	0	728.50	0.00	0.00	0.00
28.00	0.00	0	728.50	0.00	0.00	0.00
30.00	0.00	0	728.50	0.00	0.00	0.00
32.00	0.00	0	728.50	0.00	0.00	0.00
34.00	0.00	0	728.50	0.00	0.00	0.00
36.00	0.00	0	728.50	0.00	0.00	0.00
38.00	0.00	0	728.50	0.00	0.00	0.00
40.00	0.00	0	728.50	0.00	0.00	0.00
42.00	0.00	0	728.50	0.00	0.00	0.00
44.00	0.00	0	728.50	0.00	0.00	0.00
46.00	0.00	0	728.50	0.00	0.00	0.00
48.00	0.00	0	728.50	0.00	0.00	0.00
50.00	0.00	0	728.50	0.00	0.00	0.00
52.00	0.00	0	728.50	0.00	0.00	0.00
54.00	0.00	0	728.50	0.00	0.00	0.00
56.00	0.00	0	728.50	0.00	0.00	0.00
58.00	0.00	0	728.50	0.00	0.00	0.00
60.00	0.00	0	728.50	0.00	0.00	0.00
62.00	0.00	0	728.50	0.00	0.00	0.00
64.00	0.00	0	728.50	0.00	0.00	0.00
66.00	0.00	0	728.50	0.00	0.00	0.00
68.00	0.00	0	728.50	0.00	0.00	0.00
70.00	0.00	0	728.50	0.00	0.00	0.00
72.00	0.00	0	728.50	0.00	0.00	0.00
74.00	0.00	0	728.50	0.00	0.00	0.00
76.00	0.00	0	728.50	0.00	0.00	0.00
78.00	0.00	0	728.50	0.00	0.00	0.00
80.00	0.00	0	728.50	0.00	0.00	0.00
82.00	0.00	0	728.50	0.00	0.00	0.00
84.00	0.00	0	728.50	0.00	0.00	0.00
86.00	0.00	0	728.50	0.00	0.00	0.00
88.00	0.00	0	728.50	0.00	0.00	0.00
90.00	0.00	0	728.50	0.00	0.00	0.00
92.00	0.00	0	728.50	0.00	0.00	0.00
94.00	0.00	0	728.50	0.00	0.00	0.00
96.00	0.00	0	728.50	0.00	0.00	0.00

Summary for Subcatchment 5C: Post DA 8B-5C

Runoff = 0.26 cfs @ 12.07 hrs, Volume= 892 cf, Depth= 4.82"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

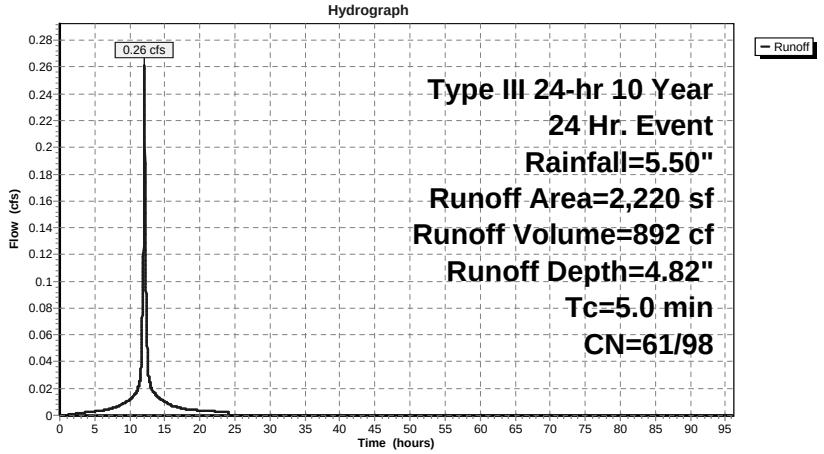
	Area (sf)	CN	Description	Land Use
	631	98	Paved parking, HSG B	Pavement
	273	61	>75% Grass cover, Good, HSG B	Open Space
*	1,316	98	Pavers, HSG B	Pavement
	2,220	93	Weighted Average	
	273	61	12.30% Pervious Area	
	1,947	98	87.70% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 87.70% Impervious, Rv= 0.839, Runoff= 38.36"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
273	Open Space	32.79	0.11	0.50	0.07
1,947	Pavement	67.21	0.22	0.82	2.60
2,220	Total	100.01	0.33	1.31	2.67

Subcatchment 5C: Post DA 8B-5C



Hydrograph for Subcatchment 5C: Post DA 8B-5C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.00	0.83	0.01
12.00	2.75	0.28	2.52	**0.18**
14.00	4.46	1.06	4.22	**0.01**
16.00	4.87	1.29	4.64	0.01
18.00	5.10	1.43	4.87	0.00
20.00	5.26	1.53	5.03	0.00
22.00	5.39	1.61	5.16	0.00
24.00	**5.50**	**1.68**	**5.26**	0.00
26.00	5.50	1.68	5.26	0.00
28.00	5.50	1.68	5.26	0.00
30.00	5.50	1.68	5.26	0.00
32.00	5.50	1.68	5.26	0.00
34.00	5.50	1.68	5.26	0.00
36.00	5.50	1.68	5.26	0.00
38.00	5.50	1.68	5.26	0.00
40.00	5.50	1.68	5.26	0.00
42.00	5.50	1.68	5.26	0.00
44.00	5.50	1.68	5.26	0.00
46.00	5.50	1.68	5.26	0.00
48.00	5.50	1.68	5.26	0.00
50.00	5.50	1.68	5.26	0.00
52.00	5.50	1.68	5.26	0.00
54.00	5.50	1.68	5.26	0.00
56.00	5.50	1.68	5.26	0.00
58.00	5.50	1.68	5.26	0.00
60.00	5.50	1.68	5.26	0.00
62.00	5.50	1.68	5.26	0.00
64.00	5.50	1.68	5.26	0.00
66.00	5.50	1.68	5.26	0.00
68.00	5.50	1.68	5.26	0.00
70.00	5.50	1.68	5.26	0.00
72.00	5.50	1.68	5.26	0.00
74.00	5.50	1.68	5.26	0.00
76.00	5.50	1.68	5.26	0.00
78.00	5.50	1.68	5.26	0.00
80.00	5.50	1.68	5.26	0.00
82.00	5.50	1.68	5.26	0.00
84.00	5.50	1.68	5.26	0.00
86.00	5.50	1.68	5.26	0.00
88.00	5.50	1.68	5.26	0.00
90.00	5.50	1.68	5.26	0.00
92.00	5.50	1.68	5.26	0.00
94.00	5.50	1.68	5.26	0.00
96.00	5.50	1.68	5.26	0.00

Summary for Pond 5C-P: 5C_Pavers

Inflow Area = 2,220 sf, 87.70% Impervious, Inflow Depth = 4.82" for 10 Year, 24 Hr. Event event
Inflow = 0.26 cfs @ 12.07 hrs, Volume= 892 cf
Outflow = 0.14 cfs @ 12.19 hrs, Volume= 892 cf, Atten= 47%, Lag= 7.1 min
Discarded = 0.01 cfs @ 9.47 hrs, Volume= 699 cf
Primary = 0.13 cfs @ 12.19 hrs, Volume= 194 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 726.91' @ 12.19 hrs Surf.Area= 1,316 sf Storage= 305 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 270.3 min (1,021.0 - 750.7)

Volume	Invert	Avail.Storage	Storage Description
#1	726.33'	353 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

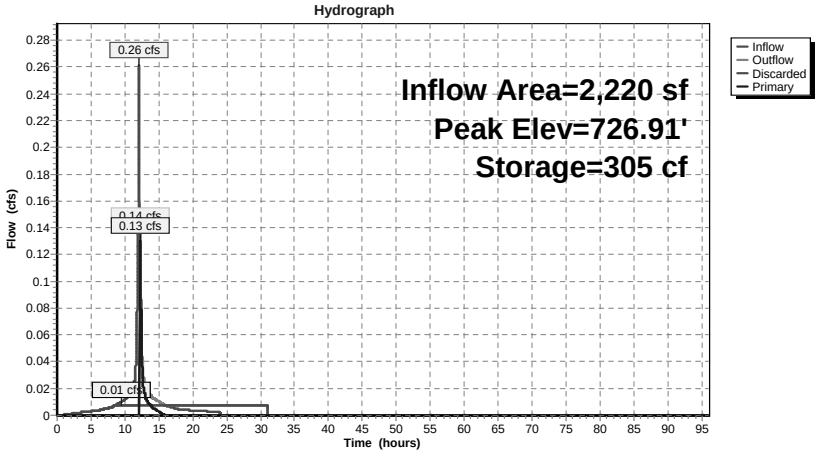
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
726.33	1,316	291.9	0.0	0	0	1,316
727.00	1,316	291.9	40.0	353	353	1,512

Device	Routing	Invert	Outlet Devices
#1	Primary	726.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	726.33'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 9.47 hrs HW=726.34' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.13 cfs @ 12.19 hrs HW=726.91' TW=720.27' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.13 cfs @ 0.27 fps)

Pond 5C-P: 5C_Pavers



Hydrograph for Pond 5C-P: 5C_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	726.33	0.00	0.00	0.00
2.00	0.00	0	726.33	0.00	0.00	0.00
4.00	0.00	0	726.33	0.00	0.00	0.00
6.00	0.00	0	726.33	0.00	0.00	0.00
8.00	0.01	0	726.33	0.01	**0.01**	0.00
10.00	0.01	10	726.35	0.01	**0.01**	0.00
12.00	**0.18**	**176**	**726.66**	**0.01**	0.01	**0.00**
14.00	**0.01**	**301**	**726.90**	**0.01**	0.01	**0.01**
16.00	0.01	300	726.90	0.01	0.01	0.00
18.00	0.00	286	726.87	0.01	0.01	0.00
20.00	0.00	260	726.82	0.01	0.01	0.00
22.00	0.00	228	726.76	0.01	0.01	0.00
24.00	0.00	192	726.70	0.01	0.01	0.00
26.00	0.00	138	726.59	0.01	0.01	0.00
28.00	0.00	83	726.49	0.01	0.01	0.00
30.00	0.00	28	726.38	0.01	0.01	0.00
32.00	0.00	0	726.33	0.00	0.00	0.00
34.00	0.00	0	726.33	0.00	0.00	0.00
36.00	0.00	0	726.33	0.00	0.00	0.00
38.00	0.00	0	726.33	0.00	0.00	0.00
40.00	0.00	0	726.33	0.00	0.00	0.00
42.00	0.00	0	726.33	0.00	0.00	0.00
44.00	0.00	0	726.33	0.00	0.00	0.00
46.00	0.00	0	726.33	0.00	0.00	0.00
48.00	0.00	0	726.33	0.00	0.00	0.00
50.00	0.00	0	726.33	0.00	0.00	0.00
52.00	0.00	0	726.33	0.00	0.00	0.00
54.00	0.00	0	726.33	0.00	0.00	0.00
56.00	0.00	0	726.33	0.00	0.00	0.00
58.00	0.00	0	726.33	0.00	0.00	0.00
60.00	0.00	0	726.33	0.00	0.00	0.00
62.00	0.00	0	726.33	0.00	0.00	0.00
64.00	0.00	0	726.33	0.00	0.00	0.00
66.00	0.00	0	726.33	0.00	0.00	0.00
68.00	0.00	0	726.33	0.00	0.00	0.00
70.00	0.00	0	726.33	0.00	0.00	0.00
72.00	0.00	0	726.33	0.00	0.00	0.00
74.00	0.00	0	726.33	0.00	0.00	0.00
76.00	0.00	0	726.33	0.00	0.00	0.00
78.00	0.00	0	726.33	0.00	0.00	0.00
80.00	0.00	0	726.33	0.00	0.00	0.00
82.00	0.00	0	726.33	0.00	0.00	0.00
84.00	0.00	0	726.33	0.00	0.00	0.00
86.00	0.00	0	726.33	0.00	0.00	0.00
88.00	0.00	0	726.33	0.00	0.00	0.00
90.00	0.00	0	726.33	0.00	0.00	0.00
92.00	0.00	0	726.33	0.00	0.00	0.00
94.00	0.00	0	726.33	0.00	0.00	0.00
96.00	0.00	0	726.33	0.00	0.00	0.00

Summary for Subcatchment 5D: Post DA 8B-5D

Runoff = 0.75 cfs @ 12.07 hrs, Volume= 2,559 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

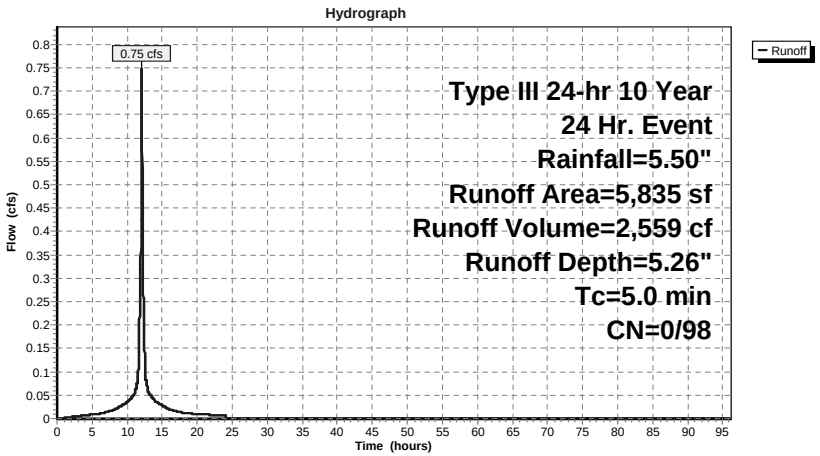
	Area (sf)	CN	Description	Land Use
	1,217	98	Water Surface, HSG B	Open Water
*	4,618	98	Pavers, HSG B	Pavement
	5,835	98	Weighted Average	
	5,835	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,217	Open Water	0.00	0.00	0.00	0.44
4,618	Pavement	180.44	0.58	2.19	6.99
5,835	Total	180.44	0.58	2.19	7.43

Subcatchment 5D: Post DA 8B-5D



Hydrograph for Subcatchment 5D: Post DA 8B-5D

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.02
10.00	1.04	0.00	0.83	0.03
12.00	2.75	0.00	2.52	**0.51**
14.00	4.46	0.00	4.22	**0.04**
16.00	4.87	0.00	4.64	0.02
18.00	5.10	0.00	4.87	0.01
20.00	5.26	0.00	5.03	0.01
22.00	5.39	0.00	5.16	0.01
24.00	**5.50**	0.00	**5.26**	0.01
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00
74.00	5.50	0.00	5.26	0.00
76.00	5.50	0.00	5.26	0.00
78.00	5.50	0.00	5.26	0.00
80.00	5.50	0.00	5.26	0.00
82.00	5.50	0.00	5.26	0.00
84.00	5.50	0.00	5.26	0.00
86.00	5.50	0.00	5.26	0.00
88.00	5.50	0.00	5.26	0.00
90.00	5.50	0.00	5.26	0.00
92.00	5.50	0.00	5.26	0.00
94.00	5.50	0.00	5.26	0.00
96.00	5.50	0.00	5.26	0.00

Summary for Subcatchment 6A: Post DA 8B-6A

Runoff = 0.81 cfs @ 12.07 hrs, Volume= 2,749 cf, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

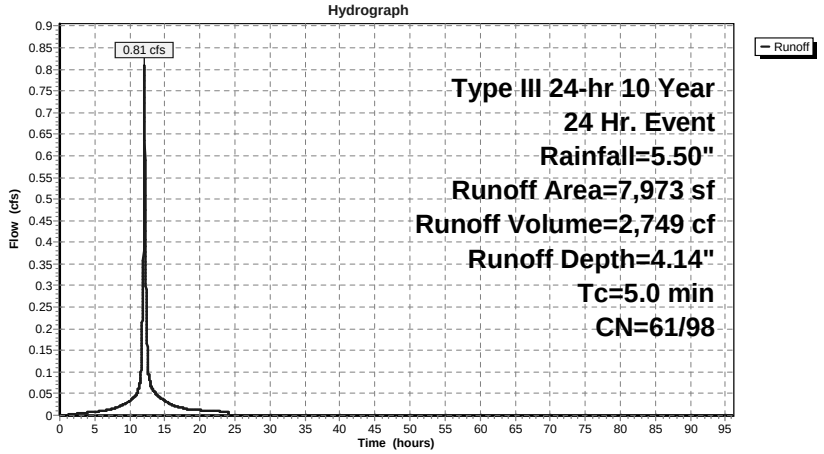
	Area (sf)	CN	Description	Land Use
	5,471	98	Paved parking, HSG B	Pavement
	1,084	61	>75% Grass cover, Good, HSG B	Open Space
*	1,418	61	Bioretention, HSG B	Landscaped
	7,973	86	Weighted Average	
	2,502	61	31.38% Pervious Area	
	5,471	98	68.62% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 68.62% Impervious, Rv= 0.668, Runoff= 30.51"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,418	Landscaped	8.33	0.00	0.00	0.28
1,084	Open Space	103.57	0.36	1.57	0.21
5,471	Pavement	150.22	0.49	1.82	5.82
7,973	Total	262.12	0.85	3.39	6.31

Subcatchment 6A: Post DA 8B-6A



Hydrograph for Subcatchment 6A: Post DA 8B-6A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.02
10.00	1.04	0.00	0.83	0.03
12.00	2.75	0.28	2.52	**0.53**
14.00	4.46	1.06	4.22	**0.04**
16.00	4.87	1.29	4.64	0.02
18.00	5.10	1.43	4.87	0.01
20.00	5.26	1.53	5.03	0.01
22.00	5.39	1.61	5.16	0.01
24.00	**5.50**	**1.68**	**5.26**	0.01
26.00	5.50	1.68	5.26	0.00
28.00	5.50	1.68	5.26	0.00
30.00	5.50	1.68	5.26	0.00
32.00	5.50	1.68	5.26	0.00
34.00	5.50	1.68	5.26	0.00
36.00	5.50	1.68	5.26	0.00
38.00	5.50	1.68	5.26	0.00
40.00	5.50	1.68	5.26	0.00
42.00	5.50	1.68	5.26	0.00
44.00	5.50	1.68	5.26	0.00
46.00	5.50	1.68	5.26	0.00
48.00	5.50	1.68	5.26	0.00
50.00	5.50	1.68	5.26	0.00
52.00	5.50	1.68	5.26	0.00
54.00	5.50	1.68	5.26	0.00
56.00	5.50	1.68	5.26	0.00
58.00	5.50	1.68	5.26	0.00
60.00	5.50	1.68	5.26	0.00
62.00	5.50	1.68	5.26	0.00
64.00	5.50	1.68	5.26	0.00
66.00	5.50	1.68	5.26	0.00
68.00	5.50	1.68	5.26	0.00
70.00	5.50	1.68	5.26	0.00
72.00	5.50	1.68	5.26	0.00
74.00	5.50	1.68	5.26	0.00
76.00	5.50	1.68	5.26	0.00
78.00	5.50	1.68	5.26	0.00
80.00	5.50	1.68	5.26	0.00
82.00	5.50	1.68	5.26	0.00
84.00	5.50	1.68	5.26	0.00
86.00	5.50	1.68	5.26	0.00
88.00	5.50	1.68	5.26	0.00
90.00	5.50	1.68	5.26	0.00
92.00	5.50	1.68	5.26	0.00
94.00	5.50	1.68	5.26	0.00
96.00	5.50	1.68	5.26	0.00

Summary for Pond 6A-B: 6A_Bioretention

Inflow Area = 7,973 sf, 68.62% Impervious, Inflow Depth = 4.14" for 10 Year, 24 Hr. Event event
Inflow = 0.81 cfs @ 12.07 hrs, Volume= 2,749 cf
Outflow = 0.21 cfs @ 12.43 hrs, Volume= 2,544 cf, Atten= 74%, Lag= 21.3 min
Discarded = 0.01 cfs @ 11.72 hrs, Volume= 1,786 cf
Primary = 0.20 cfs @ 12.43 hrs, Volume= 758 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 735.54' @ 12.43 hrs Surf.Area= 1,718 sf Storage= 1,551 cf

Plug-Flow detention time= 1,079.8 min calculated for 2,544 cf (93% of inflow)
Center-of-Mass det. time= 1,039.1 min (1,799.8 - 760.7)

Volume	Invert	Avail.Storage	Storage Description
#1	730.75'	2,343 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

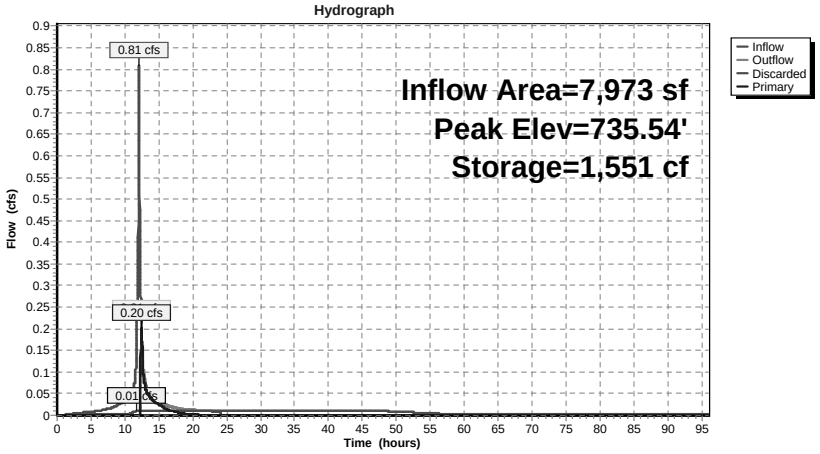
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
730.75	242	0.0	0	0
730.76	242	40.0	1	1
734.75	242	40.0	386	387
735.01	1,718	100.0	255	642
735.50	1,718	100.0	842	1,484
736.00	1,718	100.0	859	2,343

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.75'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	735.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 11.72 hrs HW=735.01' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.20 cfs @ 12.43 hrs HW=735.54' TW=720.23' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.20 cfs @ 0.65 fps)

Pond 6A-B: 6A_Bioretention



Hydrograph for Pond 6A-B: 6A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.75	0.00	0.00	0.00
2.00	0.00	2	730.77	0.00	0.00	0.00
4.00	0.01	27	731.03	0.00	0.00	0.00
6.00	0.01	75	731.53	0.00	0.00	0.00
8.00	0.02	158	732.39	0.00	0.00	0.00
10.00	0.03	324	734.09	0.00	**0.00**	0.00
12.00	**0.53**	**930**	**735.18**	**0.01**	**0.01**	**0.00**
14.00	**0.04**	**1,505**	**735.51**	**0.05**	0.01	**0.04**
16.00	0.02	1,496	735.51	0.03	0.01	0.02
18.00	0.01	1,490	735.50	0.02	0.01	0.01
20.00	0.01	1,487	735.50	0.01	0.01	0.00
22.00	0.01	1,485	735.50	0.01	0.01	0.00
24.00	0.01	1,476	735.50	0.01	0.01	0.00
26.00	0.00	1,406	735.45	0.01	0.01	0.00
28.00	0.00	1,335	735.41	0.01	0.01	0.00
30.00	0.00	1,263	735.37	0.01	0.01	0.00
32.00	0.00	1,191	735.33	0.01	0.01	0.00
34.00	0.00	1,120	735.29	0.01	0.01	0.00
36.00	0.00	1,048	735.25	0.01	0.01	0.00
38.00	0.00	977	735.20	0.01	0.01	0.00
40.00	0.00	905	735.16	0.01	0.01	0.00
42.00	0.00	833	735.12	0.01	0.01	0.00
44.00	0.00	762	735.08	0.01	0.01	0.00
46.00	0.00	690	735.04	0.01	0.01	0.00
48.00	0.00	619	735.00	0.01	0.01	0.00
50.00	0.00	556	734.95	0.01	0.01	0.00
52.00	0.00	502	734.91	0.01	0.01	0.00
54.00	0.00	458	734.87	0.01	0.01	0.00
56.00	0.00	425	734.83	0.00	0.00	0.00
58.00	0.00	401	734.79	0.00	0.00	0.00
60.00	0.00	386	734.74	0.00	0.00	0.00
62.00	0.00	376	734.64	0.00	0.00	0.00
64.00	0.00	366	734.53	0.00	0.00	0.00
66.00	0.00	356	734.43	0.00	0.00	0.00
68.00	0.00	346	734.32	0.00	0.00	0.00
70.00	0.00	336	734.22	0.00	0.00	0.00
72.00	0.00	326	734.12	0.00	0.00	0.00
74.00	0.00	316	734.01	0.00	0.00	0.00
76.00	0.00	306	733.91	0.00	0.00	0.00
78.00	0.00	296	733.80	0.00	0.00	0.00
80.00	0.00	286	733.70	0.00	0.00	0.00
82.00	0.00	275	733.60	0.00	0.00	0.00
84.00	0.00	265	733.49	0.00	0.00	0.00
86.00	0.00	255	733.39	0.00	0.00	0.00
88.00	0.00	245	733.28	0.00	0.00	0.00
90.00	0.00	235	733.18	0.00	0.00	0.00
92.00	0.00	225	733.07	0.00	0.00	0.00
94.00	0.00	215	732.97	0.00	0.00	0.00
96.00	0.00	205	732.87	0.00	0.00	0.00

Summary for Subcatchment 6B: Post DA 8B-6B

Runoff = 0.89 cfs @ 12.07 hrs, Volume= 3,036 cf, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

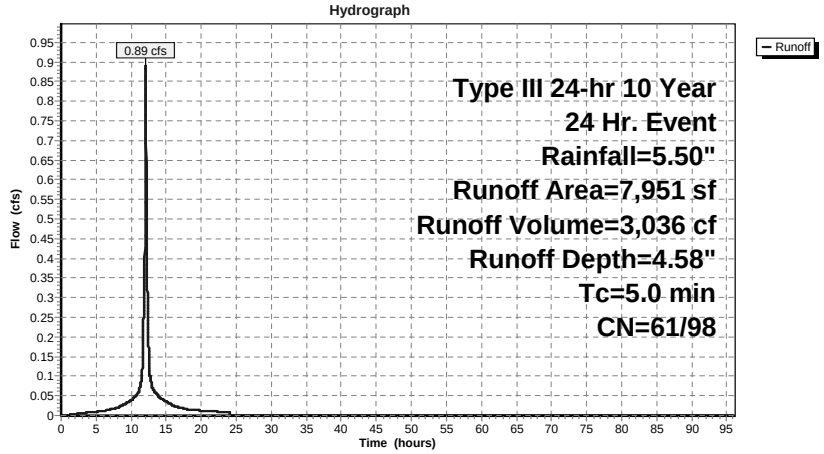
	Area (sf)	CN	Description	Land Use
	1,510	61	>75% Grass cover, Good, HSG B	Open Space
*	6,441	98	Pavers, HSG B	Pavement
	7,951	91	Weighted Average	
	1,510	61	18.99% Pervious Area	
	6,441	98	81.01% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 81.01% Impervious, Rv= 0.779, Runoff= 35.60"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,510	Open Space	168.37	0.59	2.55	0.34
6,441	Pavement	206.39	0.67	2.51	7.99
7,951	Total	374.76	1.26	5.05	8.34

Subcatchment 6B: Post DA 8B-6B



Hydrograph for Subcatchment 6B: Post DA 8B-6B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.02
10.00	1.04	0.00	0.83	0.04
12.00	2.75	0.28	2.52	**0.59**
14.00	4.46	1.06	4.22	**0.05**
16.00	4.87	1.29	4.64	0.03
18.00	5.10	1.43	4.87	0.02
20.00	5.26	1.53	5.03	0.01
22.00	5.39	1.61	5.16	0.01
24.00	**5.50**	**1.68**	**5.26**	0.01
26.00	5.50	1.68	5.26	0.00
28.00	5.50	1.68	5.26	0.00
30.00	5.50	1.68	5.26	0.00
32.00	5.50	1.68	5.26	0.00
34.00	5.50	1.68	5.26	0.00
36.00	5.50	1.68	5.26	0.00
38.00	5.50	1.68	5.26	0.00
40.00	5.50	1.68	5.26	0.00
42.00	5.50	1.68	5.26	0.00
44.00	5.50	1.68	5.26	0.00
46.00	5.50	1.68	5.26	0.00
48.00	5.50	1.68	5.26	0.00
50.00	5.50	1.68	5.26	0.00
52.00	5.50	1.68	5.26	0.00
54.00	5.50	1.68	5.26	0.00
56.00	5.50	1.68	5.26	0.00
58.00	5.50	1.68	5.26	0.00
60.00	5.50	1.68	5.26	0.00
62.00	5.50	1.68	5.26	0.00
64.00	5.50	1.68	5.26	0.00
66.00	5.50	1.68	5.26	0.00
68.00	5.50	1.68	5.26	0.00
70.00	5.50	1.68	5.26	0.00
72.00	5.50	1.68	5.26	0.00
74.00	5.50	1.68	5.26	0.00
76.00	5.50	1.68	5.26	0.00
78.00	5.50	1.68	5.26	0.00
80.00	5.50	1.68	5.26	0.00
82.00	5.50	1.68	5.26	0.00
84.00	5.50	1.68	5.26	0.00
86.00	5.50	1.68	5.26	0.00
88.00	5.50	1.68	5.26	0.00
90.00	5.50	1.68	5.26	0.00
92.00	5.50	1.68	5.26	0.00
94.00	5.50	1.68	5.26	0.00
96.00	5.50	1.68	5.26	0.00

Summary for Pond 6B-P: 6B_Pavers

Inflow Area = 7,951 sf, 81.01% Impervious, Inflow Depth = 4.58" for 10 Year, 24 Hr. Event event
Inflow = 0.89 cfs @ 12.07 hrs, Volume= 3,036 cf
Outflow = 0.58 cfs @ 12.15 hrs, Volume= 1,567 cf, Atten= 35%, Lag= 5.0 min
Primary = 0.58 cfs @ 12.15 hrs, Volume= 1,567 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 739.92' @ 12.15 hrs Surf.Area= 6,441 sf Storage= 1,529 cf

Plug-Flow detention time= 258.1 min calculated for 1,567 cf (52% of inflow)
Center-of-Mass det. time= 130.2 min (884.0 - 753.9)

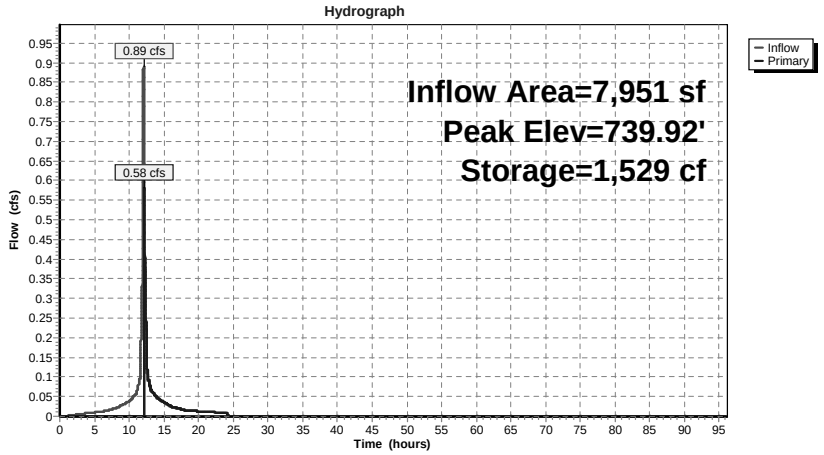
Volume	Invert	Avail.Storage	Storage Description
#1	739.33'	1,726 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
739.33	6,441	0.0	0	0
740.00	6,441	40.0	1,726	1,726

Device	Routing	Invert	Outlet Devices
#1	Primary	739.90'	**60.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.58 cfs @ 12.15 hrs HW=739.92' TW=720.28' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.58 cfs @ 0.41 fps)

Pond 6B-P: 6B_Pavers



Hydrograph for Pond 6B-P: 6B_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	739.33	0.00
2.00	0.00	8	739.33	0.00
4.00	0.01	49	739.35	0.00
6.00	0.01	118	739.38	0.00
8.00	0.02	228	739.42	0.00
10.00	0.04	434	739.50	0.00
12.00	**0.59**	**1,174**	**739.79**	**0.00**
14.00	**0.05**	**1,480**	**739.90**	**0.05**
16.00	0.03	1,476	739.90	0.03
18.00	0.02	1,474	739.90	0.02
20.00	0.01	1,473	739.90	0.01
22.00	0.01	1,473	739.90	0.01
24.00	0.01	1,472	739.90	0.01
26.00	0.00	1,469	739.90	0.00
28.00	0.00	1,469	739.90	0.00
30.00	0.00	1,469	739.90	0.00
32.00	0.00	1,469	739.90	0.00
34.00	0.00	1,469	739.90	0.00
36.00	0.00	1,469	739.90	0.00
38.00	0.00	1,469	739.90	0.00
40.00	0.00	1,469	739.90	0.00
42.00	0.00	1,469	739.90	0.00
44.00	0.00	1,469	739.90	0.00
46.00	0.00	1,469	739.90	0.00
48.00	0.00	1,469	739.90	0.00
50.00	0.00	1,469	739.90	0.00
52.00	0.00	1,469	739.90	0.00
54.00	0.00	1,469	739.90	0.00
56.00	0.00	1,469	739.90	0.00
58.00	0.00	1,469	739.90	0.00
60.00	0.00	1,469	739.90	0.00
62.00	0.00	1,469	739.90	0.00
64.00	0.00	1,469	739.90	0.00
66.00	0.00	1,469	739.90	0.00
68.00	0.00	1,469	739.90	0.00
70.00	0.00	1,469	739.90	0.00
72.00	0.00	1,469	739.90	0.00
74.00	0.00	1,469	739.90	0.00
76.00	0.00	1,469	739.90	0.00
78.00	0.00	1,469	739.90	0.00
80.00	0.00	1,469	739.90	0.00
82.00	0.00	1,469	739.90	0.00
84.00	0.00	1,469	739.90	0.00
86.00	0.00	1,469	739.90	0.00
88.00	0.00	1,469	739.90	0.00
90.00	0.00	1,469	739.90	0.00
92.00	0.00	1,469	739.90	0.00
94.00	0.00	1,469	739.90	0.00
96.00	0.00	1,469	739.90	0.00

Summary for Pond 7P: 5D_Pavers

Inflow Area = 5,835 sf,100.00% Impervious, Inflow Depth = 5.26" for 10 Year, 24 Hr. Event event
Inflow = 0.75 cfs @ 12.07 hrs, Volume= 2,559 cf
Outflow = 0.16 cfs @ 12.47 hrs, Volume= 2,559 cf, Atten= 79%, Lag= 23.9 min
Discarded = 0.03 cfs @ 9.98 hrs, Volume= 2,312 cf
Primary = 0.13 cfs @ 12.47 hrs, Volume= 248 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 737.91' @ 12.47 hrs Surf.Area= 4,618 sf Storage= 1,071 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 301.4 min (1,046.9 - 745.5)

Volume	Invert	Avail.Storage	Storage Description
#1	737.33'	1,238 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

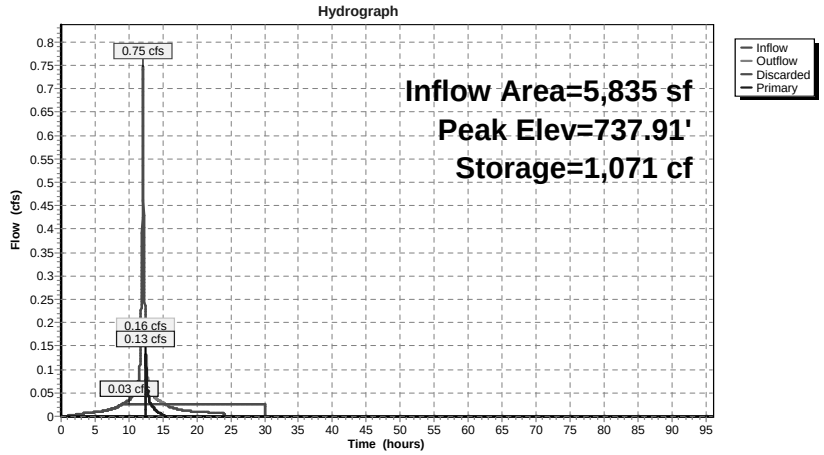
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
737.33	4,618	0.0	0	0
738.00	4,618	40.0	1,238	1,238

Device	Routing	Invert	Outlet Devices
#1	Primary	737.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	737.33'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.03 cfs @ 9.98 hrs HW=737.34' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.13 cfs @ 12.47 hrs HW=737.91' TW=720.23' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.13 cfs @ 0.27 fps)

Pond 7P: 5D_Pavers



Hydrograph for Pond 7P: 5D_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	737.33	0.00	0.00	0.00
2.00	0.00	0	737.33	0.00	0.00	0.00
4.00	0.01	0	737.33	0.01	0.01	0.00
6.00	0.01	0	737.33	0.01	0.01	0.00
8.00	0.02	0	737.33	0.02	**0.02**	0.00
10.00	0.03	13	737.34	0.03	**0.03**	0.00
12.00	**0.51**	**472**	**737.59**	**0.03**	0.03	**0.00**
14.00	**0.04**	**1,057**	**737.90**	**0.04**	0.03	**0.01**
16.00	0.02	1,044	737.89	0.03	0.03	0.00
18.00	0.01	965	737.85	0.03	0.03	0.00
20.00	0.01	851	737.79	0.03	0.03	0.00
22.00	0.01	723	737.72	0.03	0.03	0.00
24.00	0.01	582	737.65	0.03	0.03	0.00
26.00	0.00	391	737.54	0.03	0.03	0.00
28.00	0.00	199	737.44	0.03	0.03	0.00
30.00	0.00	7	737.33	0.03	0.03	0.00
32.00	0.00	0	737.33	0.00	0.00	0.00
34.00	0.00	0	737.33	0.00	0.00	0.00
36.00	0.00	0	737.33	0.00	0.00	0.00
38.00	0.00	0	737.33	0.00	0.00	0.00
40.00	0.00	0	737.33	0.00	0.00	0.00
42.00	0.00	0	737.33	0.00	0.00	0.00
44.00	0.00	0	737.33	0.00	0.00	0.00
46.00	0.00	0	737.33	0.00	0.00	0.00
48.00	0.00	0	737.33	0.00	0.00	0.00
50.00	0.00	0	737.33	0.00	0.00	0.00
52.00	0.00	0	737.33	0.00	0.00	0.00
54.00	0.00	0	737.33	0.00	0.00	0.00
56.00	0.00	0	737.33	0.00	0.00	0.00
58.00	0.00	0	737.33	0.00	0.00	0.00
60.00	0.00	0	737.33	0.00	0.00	0.00
62.00	0.00	0	737.33	0.00	0.00	0.00
64.00	0.00	0	737.33	0.00	0.00	0.00
66.00	0.00	0	737.33	0.00	0.00	0.00
68.00	0.00	0	737.33	0.00	0.00	0.00
70.00	0.00	0	737.33	0.00	0.00	0.00
72.00	0.00	0	737.33	0.00	0.00	0.00
74.00	0.00	0	737.33	0.00	0.00	0.00
76.00	0.00	0	737.33	0.00	0.00	0.00
78.00	0.00	0	737.33	0.00	0.00	0.00
80.00	0.00	0	737.33	0.00	0.00	0.00
82.00	0.00	0	737.33	0.00	0.00	0.00
84.00	0.00	0	737.33	0.00	0.00	0.00
86.00	0.00	0	737.33	0.00	0.00	0.00
88.00	0.00	0	737.33	0.00	0.00	0.00
90.00	0.00	0	737.33	0.00	0.00	0.00
92.00	0.00	0	737.33	0.00	0.00	0.00
94.00	0.00	0	737.33	0.00	0.00	0.00
96.00	0.00	0	737.33	0.00	0.00	0.00

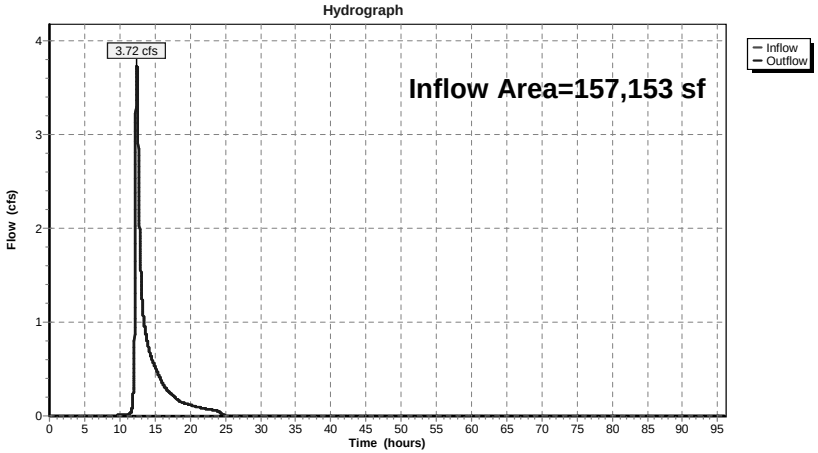
Summary for Reach 8BW-Out: DA-8B West Outflow

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 1.59" for 10 Year, 24 Hr. Event event
Inflow = 3.72 cfs @ 12.42 hrs, Volume= 20,799 cf
Outflow = 3.72 cfs @ 12.42 hrs, Volume= 20,799 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3

Reach 8BW-Out: DA-8B West Outflow



Hydrograph for Reach 8BW-Out: DA-8B West Outflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.01		0.01	62.00	0.00		0.00
11.00	0.01		0.01	63.00	0.00		0.00
12.00	**0.40**		**0.40**	64.00	0.00		0.00
13.00	**1.51**		**1.51**	65.00	0.00		0.00
14.00	0.75		0.75	66.00	0.00		0.00
15.00	0.52		0.52	67.00	0.00		0.00
16.00	0.36		0.36	68.00	0.00		0.00
17.00	0.25		0.25	69.00	0.00		0.00
18.00	0.18		0.18	70.00	0.00		0.00
19.00	0.14		0.14	71.00	0.00		0.00
20.00	0.12		0.12	72.00	0.00		0.00
21.00	0.10		0.10	73.00	0.00		0.00
22.00	0.08		0.08	74.00	0.00		0.00
23.00	0.07		0.07	75.00	0.00		0.00
24.00	0.05		0.05	76.00	0.00		0.00
25.00	0.01		0.01	77.00	0.00		0.00
26.00	0.00		0.00	78.00	0.00		0.00
27.00	0.00		0.00	79.00	0.00		0.00
28.00	0.00		0.00	80.00	0.00		0.00
29.00	0.00		0.00	81.00	0.00		0.00
30.00	0.00		0.00	82.00	0.00		0.00
31.00	0.00		0.00	83.00	0.00		0.00
32.00	0.00		0.00	84.00	0.00		0.00
33.00	0.00		0.00	85.00	0.00		0.00
34.00	0.00		0.00	86.00	0.00		0.00
35.00	0.00		0.00	87.00	0.00		0.00
36.00	0.00		0.00	88.00	0.00		0.00
37.00	0.00		0.00	89.00	0.00		0.00
38.00	0.00		0.00	90.00	0.00		0.00
39.00	0.00		0.00	91.00	0.00		0.00
40.00	0.00		0.00	92.00	0.00		0.00
41.00	0.00		0.00	93.00	0.00		0.00
42.00	0.00		0.00	94.00	0.00		0.00
43.00	0.00		0.00	95.00	0.00		0.00
44.00	0.00		0.00	96.00	0.00		0.00
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Reach R-2: West Reach -2

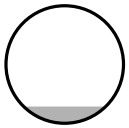
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 72,812 sf, 35.94% Impervious, Inflow Depth = 1.50" for 10 Year, 24 Hr. Event event
Inflow = 1.99 cfs @ 12.14 hrs, Volume= 9,120 cf
Outflow = 1.99 cfs @ 12.14 hrs, Volume= 9,120 cf, Atten= 0%, Lag= 0.2 min

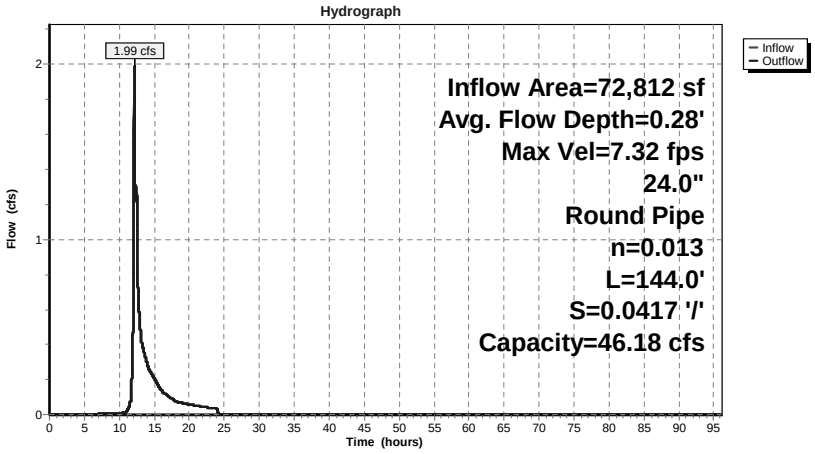
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 7.32 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.34 fps, Avg. Travel Time= 1.0 min

Peak Storage= 39 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 46.18 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 144.0' Slope= 0.0417 '/'
Inlet Invert= 720.00', Outlet Invert= 714.00'



Reach R-2: West Reach -2



Hydrograph for Reach R-2: West Reach -2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	720.00	0.00
2.00	0.00	0	720.00	0.00
4.00	0.00	0	720.00	0.00
6.00	0.00	0	720.01	0.00
8.00	0.00	0	720.01	0.00
10.00	0.01	1	720.02	0.01
12.00	**0.77**	**19**	**720.18**	**0.73**
14.00	**0.29**	**10**	**720.11**	**0.29**
16.00	0.14	6	720.08	0.14
18.00	0.08	4	720.06	0.08
20.00	0.06	3	720.05	0.06
22.00	0.04	3	720.05	0.04
24.00	0.03	2	720.04	0.03
26.00	0.00	0	720.00	0.00
28.00	0.00	0	720.00	0.00
30.00	0.00	0	720.00	0.00
32.00	0.00	0	720.00	0.00
34.00	0.00	0	720.00	0.00
36.00	0.00	0	720.00	0.00
38.00	0.00	0	720.00	0.00
40.00	0.00	0	720.00	0.00
42.00	0.00	0	720.00	0.00
44.00	0.00	0	720.00	0.00
46.00	0.00	0	720.00	0.00
48.00	0.00	0	720.00	0.00
50.00	0.00	0	720.00	0.00
52.00	0.00	0	720.00	0.00
54.00	0.00	0	720.00	0.00
56.00	0.00	0	720.00	0.00
58.00	0.00	0	720.00	0.00
60.00	0.00	0	720.00	0.00
62.00	0.00	0	720.00	0.00
64.00	0.00	0	720.00	0.00
66.00	0.00	0	720.00	0.00
68.00	0.00	0	720.00	0.00
70.00	0.00	0	720.00	0.00
72.00	0.00	0	720.00	0.00
74.00	0.00	0	720.00	0.00
76.00	0.00	0	720.00	0.00
78.00	0.00	0	720.00	0.00
80.00	0.00	0	720.00	0.00
82.00	0.00	0	720.00	0.00
84.00	0.00	0	720.00	0.00
86.00	0.00	0	720.00	0.00
88.00	0.00	0	720.00	0.00
90.00	0.00	0	720.00	0.00
92.00	0.00	0	720.00	0.00
94.00	0.00	0	720.00	0.00
96.00	0.00	0	720.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 3A_R: Vegetated Swale Avg. Flow Depth=0.74' Max Vel=1.79 fps Inflow=5.74 cfs 25,935 cf
n=0.120 L=521.0' S=0.0576 '/' Capacity=50.42 cfs Outflow=5.54 cfs 25,935 cf

Subcatchment 4: Post DA 8B-4 Runoff Area=84,341 sf 55.72% Impervious Runoff Depth=4.10"
Tc=5.0 min CN=61/98 Runoff=8.55 cfs 28,805 cf

Pond 4-B: 4_Bioretention Peak Elev=729.73' Storage=13,151 cf Inflow=8.55 cfs 28,805 cf
Discarded=0.07 cfs 11,942 cf Primary=3.53 cfs 14,566 cf Outflow=3.60 cfs 26,508 cf

Subcatchment 5: Post DA 8B-5 Runoff Area=34,341 sf 0.00% Impervious Runoff Depth=2.01"
Flow Length=290' Tc=6.8 min CN=61/0 Runoff=1.72 cfs 5,739 cf

Subcatchment 5A: Post DA 8B-5A Runoff Area=13,174 sf 39.15% Impervious Runoff Depth=3.48"
Tc=5.0 min CN=61/98 Runoff=1.15 cfs 3,816 cf

Pond 5A-B: 5A_Bioretention Peak Elev=728.06' Storage=1,892 cf Inflow=1.15 cfs 3,816 cf
Discarded=0.01 cfs 2,132 cf Primary=0.35 cfs 1,397 cf Outflow=0.36 cfs 3,529 cf

Subcatchment 5B: Post DA 8B-5B Runoff Area=1,318 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=0.18 cfs 633 cf

Pond 5B-P: 5B_Pavers Peak Elev=728.50' Storage=0 cf Inflow=0.18 cfs 633 cf
Discarded=0.00 cfs 1 cf Primary=0.18 cfs 632 cf Outflow=0.18 cfs 633 cf

Subcatchment 5C: Post DA 8B-5C Runoff Area=2,220 sf 87.70% Impervious Runoff Depth=5.30"
Tc=5.0 min CN=61/98 Runoff=0.29 cfs 980 cf

Pond 5C-P: 5C_Pavers Peak Elev=726.91' Storage=307 cf Inflow=0.29 cfs 980 cf
Discarded=0.01 cfs 719 cf Primary=0.22 cfs 262 cf Outflow=0.23 cfs 981 cf

Subcatchment 5D: Post DA 8B-5D Runoff Area=5,835 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=0.82 cfs 2,802 cf

Subcatchment 6A: Post DA 8B-6A Runoff Area=7,973 sf 68.62% Impervious Runoff Depth=4.58"
Tc=5.0 min CN=61/98 Runoff=0.90 cfs 3,045 cf

Pond 6A-B: 6A_Bioretention Peak Elev=735.55' Storage=1,575 cf Inflow=0.90 cfs 3,045 cf
Discarded=0.01 cfs 1,800 cf Primary=0.32 cfs 1,039 cf Outflow=0.33 cfs 2,839 cf

Subcatchment 6B: Post DA 8B-6B Runoff Area=7,951 sf 81.01% Impervious Runoff Depth=5.05"
Tc=5.0 min CN=61/98 Runoff=0.98 cfs 3,345 cf

Pond 6B-P: 6B_Pavers Peak Elev=739.93' Storage=1,547 cf Inflow=0.98 cfs 3,345 cf
Outflow=0.85 cfs 1,876 cf

Pond 7P: 5D_Pavers Peak Elev=737.92' Storage=1,081 cf Inflow=0.82 cfs 2,802 cf
Discarded=0.03 cfs 2,377 cf Primary=0.25 cfs 424 cf Outflow=0.28 cfs 2,802 cf

Reach 8BW-Out: DA-8B West Outflow Inflow=5.54 cfs 25,935 cf
Outflow=5.54 cfs 25,935 cf

Reach R-2: West Reach -2 Avg. Flow Depth=0.34' Max Vel=8.17 fps Inflow=2.88 cfs 11,370 cf
24.0" Round Pipe n=0.013 L=144.0' S=0.0417 '/' Capacity=46.18 cfs Outflow=2.87 cfs 11,370 cf

Total Runoff Area = 157,153 sf Runoff Volume = 49,166 cf Average Runoff Depth = 3.75"
53.45% Pervious = 83,992 sf 46.55% Impervious = 73,161 sf

Summary for Reach 3A_R: Vegetated Swale

[62] Hint: Exceeded Reach R-2 OUTLET depth by 4.45' @ 12.40 hrs

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 1.98" for 25 Year, 24 Hr. Event event
Inflow = 5.74 cfs @ 12.30 hrs, Volume= 25,935 cf
Outflow = 5.54 cfs @ 12.35 hrs, Volume= 25,935 cf, Atten= 3%, Lag= 3.0 min

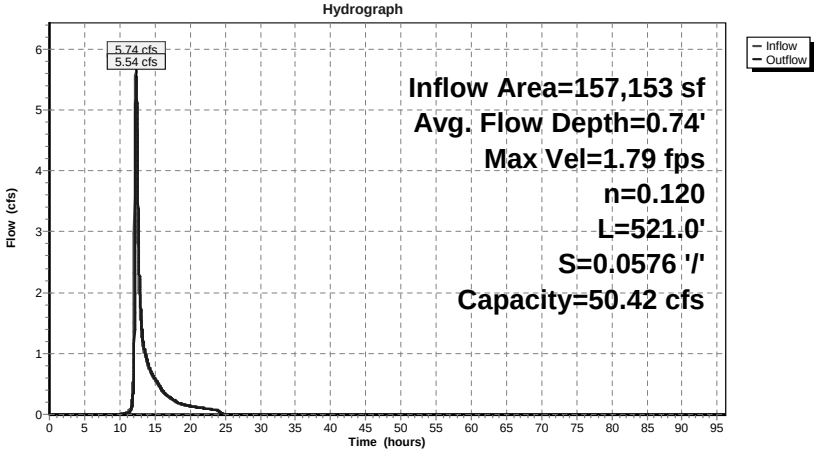
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.79 fps, Min. Travel Time= 4.9 min
Avg. Velocity = 0.47 fps, Avg. Travel Time= 18.3 min

Peak Storage= 1,616 cf @ 12.35 hrs
Average Depth at Peak Storage= 0.74'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 50.42 cfs

2.00' x 2.00' deep channel, n= 0.120 Earth, long dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 521.0' Slope= 0.0576 '/'
Inlet Invert= 718.00', Outlet Invert= 688.00'



Reach 3A_R: Vegetated Swale



Hydrograph for Reach 3A_R: Vegetated Swale

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	718.00	0.00
2.00	0.00	1	718.00	0.00
4.00	0.00	4	718.00	0.00
6.00	0.00	6	718.01	0.00
8.00	0.00	9	718.01	0.00
10.00	0.01	17	718.02	0.01
12.00	**0.91**	**297**	**718.22**	**0.52**
14.00	**0.81**	**419**	**718.28**	**0.85**
16.00	0.39	253	718.19	0.41
18.00	0.20	162	718.13	0.21
20.00	0.13	122	718.10	0.14
22.00	0.10	98	718.08	0.10
24.00	0.06	74	718.07	0.07
26.00	0.00	3	718.00	0.00
28.00	0.00	0	718.00	0.00
30.00	0.00	0	718.00	0.00
32.00	0.00	0	718.00	0.00
34.00	0.00	0	718.00	0.00
36.00	0.00	0	718.00	0.00
38.00	0.00	0	718.00	0.00
40.00	0.00	0	718.00	0.00
42.00	0.00	0	718.00	0.00
44.00	0.00	0	718.00	0.00
46.00	0.00	0	718.00	0.00
48.00	0.00	0	718.00	0.00
50.00	0.00	0	718.00	0.00
52.00	0.00	0	718.00	0.00
54.00	0.00	0	718.00	0.00
56.00	0.00	0	718.00	0.00
58.00	0.00	0	718.00	0.00
60.00	0.00	0	718.00	0.00
62.00	0.00	0	718.00	0.00
64.00	0.00	0	718.00	0.00
66.00	0.00	0	718.00	0.00
68.00	0.00	0	718.00	0.00
70.00	0.00	0	718.00	0.00
72.00	0.00	0	718.00	0.00
74.00	0.00	0	718.00	0.00
76.00	0.00	0	718.00	0.00
78.00	0.00	0	718.00	0.00
80.00	0.00	0	718.00	0.00
82.00	0.00	0	718.00	0.00
84.00	0.00	0	718.00	0.00
86.00	0.00	0	718.00	0.00
88.00	0.00	0	718.00	0.00
90.00	0.00	0	718.00	0.00
92.00	0.00	0	718.00	0.00
94.00	0.00	0	718.00	0.00
96.00	0.00	0	718.00	0.00

Summary for Subcatchment 4: Post DA 8B-4

Runoff = 8.55 cfs @ 12.07 hrs, Volume= 28,805 cf, Depth= 4.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

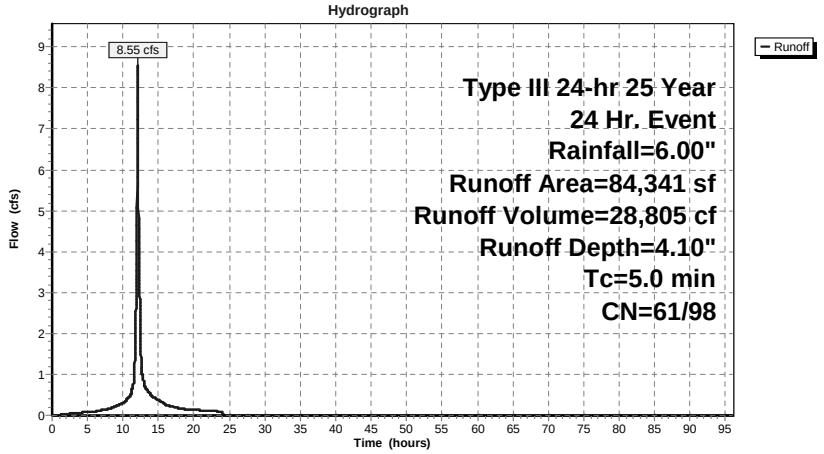
	Area (sf)	CN	Description	Land Use
	6,839	98	Paved parking, HSG C	Pavement
	20,756	61	>75% Grass cover, Good, HSG B	Open Space
*	16,594	61	Bioretention, HSG B	Landscaped
	40,152	98	Roofs, HSG B	Roofs
	84,341	82	Weighted Average	
	37,350	61	44.28% Pervious Area	
	46,991	98	55.72% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 55.72% Impervious, Rv= 0.551, Runoff= 25.20"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
16,594	Landscaped	80.49	0.00	0.00	2.68
20,756	Open Space	1,638.14	5.71	24.76	3.35
6,839	Pavement	155.11	0.50	1.88	6.01
40,152	Roofs	100.02	0.58	7.90	38.95
84,341	Total	1,973.77	6.80	34.54	50.98

Subcatchment 4: Post DA 8B-4



Hydrograph for Subcatchment 4: Post DA 8B-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.03
4.00	0.26	0.00	0.11	0.06
6.00	0.43	0.00	0.26	0.09
8.00	0.68	0.00	0.49	0.16
10.00	1.13	0.00	0.92	0.31
12.00	3.00	0.37	2.77	**5.57**
14.00	4.87	1.29	4.63	**0.49**
16.00	5.32	1.56	5.08	0.26
18.00	5.57	1.72	5.33	0.16
20.00	5.74	1.83	5.50	0.13
22.00	5.88	1.93	5.65	0.11
24.00	**6.00**	**2.01**	**5.76**	0.09
26.00	6.00	2.01	5.76	0.00
28.00	6.00	2.01	5.76	0.00
30.00	6.00	2.01	5.76	0.00
32.00	6.00	2.01	5.76	0.00
34.00	6.00	2.01	5.76	0.00
36.00	6.00	2.01	5.76	0.00
38.00	6.00	2.01	5.76	0.00
40.00	6.00	2.01	5.76	0.00
42.00	6.00	2.01	5.76	0.00
44.00	6.00	2.01	5.76	0.00
46.00	6.00	2.01	5.76	0.00
48.00	6.00	2.01	5.76	0.00
50.00	6.00	2.01	5.76	0.00
52.00	6.00	2.01	5.76	0.00
54.00	6.00	2.01	5.76	0.00
56.00	6.00	2.01	5.76	0.00
58.00	6.00	2.01	5.76	0.00
60.00	6.00	2.01	5.76	0.00
62.00	6.00	2.01	5.76	0.00
64.00	6.00	2.01	5.76	0.00
66.00	6.00	2.01	5.76	0.00
68.00	6.00	2.01	5.76	0.00
70.00	6.00	2.01	5.76	0.00
72.00	6.00	2.01	5.76	0.00
74.00	6.00	2.01	5.76	0.00
76.00	6.00	2.01	5.76	0.00
78.00	6.00	2.01	5.76	0.00
80.00	6.00	2.01	5.76	0.00
82.00	6.00	2.01	5.76	0.00
84.00	6.00	2.01	5.76	0.00
86.00	6.00	2.01	5.76	0.00
88.00	6.00	2.01	5.76	0.00
90.00	6.00	2.01	5.76	0.00
92.00	6.00	2.01	5.76	0.00
94.00	6.00	2.01	5.76	0.00
96.00	6.00	2.01	5.76	0.00

Summary for Pond 4-B: 4_Bioretention

Inflow Area = 84,341 sf, 55.72% Impervious, Inflow Depth = 4.10" for 25 Year, 24 Hr. Event event
Inflow = 8.55 cfs @ 12.07 hrs, Volume= 28,805 cf
Outflow = 3.60 cfs @ 12.26 hrs, Volume= 26,508 cf, Atten= 58%, Lag= 11.5 min
Discarded = 0.07 cfs @ 10.98 hrs, Volume= 11,942 cf
Primary = 3.53 cfs @ 12.26 hrs, Volume= 14,566 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 729.73' @ 12.26 hrs Surf.Area= 12,192 sf Storage= 13,151 cf

Plug-Flow detention time= 711.6 min calculated for 26,508 cf (92% of inflow)
Center-of-Mass det. time= 668.7 min (1,437.8 - 769.2)

Volume	Invert	Avail.Storage	Storage Description
#1	723.75'	16,484 cf	**Custom Stage Data (Prismatic)** Listed below

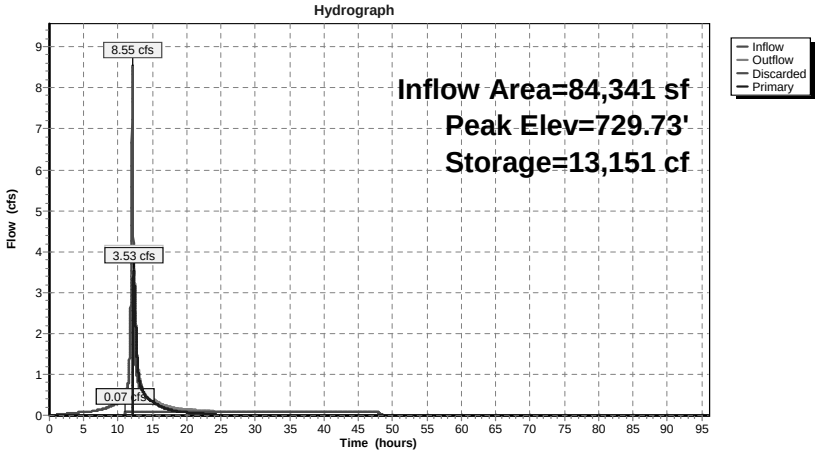
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
723.75	2,068	0.0	0	0
728.75	2,068	40.0	4,136	4,136
729.00	2,068	40.0	207	4,343
729.01	12,192	100.0	71	4,414
729.50	12,192	100.0	5,974	10,388
730.00	12,192	100.0	6,096	16,484

Device	Routing	Invert	Outlet Devices
#1	Discarded	723.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	729.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 24.00 columns** X 24 rows C= 0.600 in 30.0" x 30.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.07 cfs @ 10.98 hrs HW=729.01' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=3.53 cfs @ 12.26 hrs HW=729.73' TW=718.71' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 3.53 cfs @ 1.56 fps)

Pond 4-B: 4_Bioretention



Hydrograph for Pond 4-B: 4_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	723.75	0.00	0.00	0.00
2.00	0.03	32	723.79	0.01	0.01	0.00
4.00	0.06	288	724.10	0.01	0.01	0.00
6.00	0.09	763	724.67	0.01	0.01	0.00
8.00	0.16	1,563	725.64	0.01	0.01	0.00
10.00	0.31	3,131	727.53	0.01	**0.01**	0.00
12.00	**5.57**	**9,262**	**729.41**	**0.07**	**0.07**	**0.00**
14.00	**0.49**	**11,120**	**729.56**	**0.55**	0.07	**0.48**
16.00	0.26	10,835	729.54	0.30	0.07	0.23
18.00	0.16	10,665	729.52	0.18	0.07	0.11
20.00	0.13	10,585	729.52	0.14	0.07	0.07
22.00	0.11	10,537	729.51	0.11	0.07	0.04
24.00	0.09	10,485	729.51	0.09	0.07	0.02
26.00	0.00	9,985	729.47	0.07	0.07	0.00
28.00	0.00	9,477	729.43	0.07	0.07	0.00
30.00	0.00	8,969	729.38	0.07	0.07	0.00
32.00	0.00	8,461	729.34	0.07	0.07	0.00
34.00	0.00	7,953	729.30	0.07	0.07	0.00
36.00	0.00	7,445	729.26	0.07	0.07	0.00
38.00	0.00	6,937	729.22	0.07	0.07	0.00
40.00	0.00	6,429	729.18	0.07	0.07	0.00
42.00	0.00	5,921	729.13	0.07	0.07	0.00
44.00	0.00	5,413	729.09	0.07	0.07	0.00
46.00	0.00	4,905	729.05	0.07	0.07	0.00
48.00	0.00	4,398	729.01	0.06	0.06	0.00
50.00	0.00	4,279	728.92	0.01	0.01	0.00
52.00	0.00	4,193	728.82	0.01	0.01	0.00
54.00	0.00	4,107	728.72	0.01	0.01	0.00
56.00	0.00	4,021	728.61	0.01	0.01	0.00
58.00	0.00	3,935	728.51	0.01	0.01	0.00
60.00	0.00	3,849	728.40	0.01	0.01	0.00
62.00	0.00	3,762	728.30	0.01	0.01	0.00
64.00	0.00	3,676	728.19	0.01	0.01	0.00
66.00	0.00	3,590	728.09	0.01	0.01	0.00
68.00	0.00	3,504	727.99	0.01	0.01	0.00
70.00	0.00	3,418	727.88	0.01	0.01	0.00
72.00	0.00	3,332	727.78	0.01	0.01	0.00
74.00	0.00	3,245	727.67	0.01	0.01	0.00
76.00	0.00	3,159	727.57	0.01	0.01	0.00
78.00	0.00	3,073	727.47	0.01	0.01	0.00
80.00	0.00	2,987	727.36	0.01	0.01	0.00
82.00	0.00	2,901	727.26	0.01	0.01	0.00
84.00	0.00	2,815	727.15	0.01	0.01	0.00
86.00	0.00	2,728	727.05	0.01	0.01	0.00
88.00	0.00	2,642	726.94	0.01	0.01	0.00
90.00	0.00	2,556	726.84	0.01	0.01	0.00
92.00	0.00	2,470	726.74	0.01	0.01	0.00
94.00	0.00	2,384	726.63	0.01	0.01	0.00
96.00	0.00	2,298	726.53	0.01	0.01	0.00

Summary for Subcatchment 5: Post DA 8B-5

Runoff = 1.72 cfs @ 12.11 hrs, Volume= 5,739 cf, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

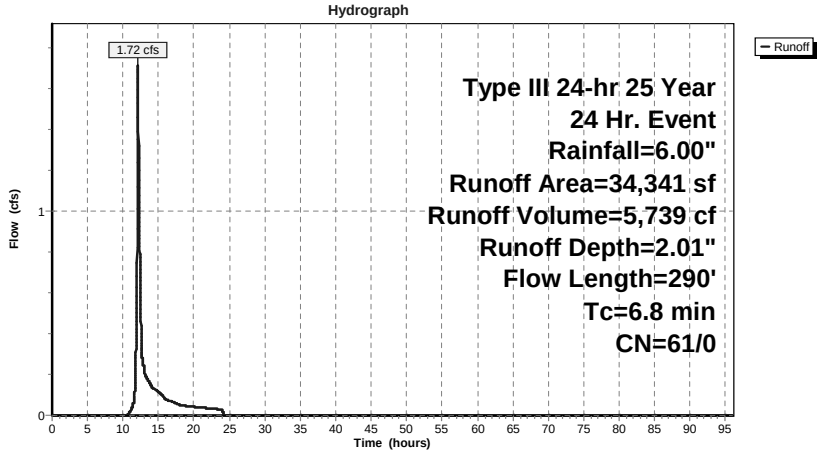
Area (sf)	CN	Description	Land Use
34,341	61	>75% Grass cover, Good, HSG B	Open Space
34,341	61	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.1900	0.30		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.1	120	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	70	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.8	290	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
34,341	Open Space	245.75	0.86	3.71	0.50
34,341	Total	245.75	0.86	3.71	0.50

Subcatchment 5: Post DA 8B-5



Hydrograph for Subcatchment 5: Post DA 8B-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.00	0.00	0.00
12.00	3.00	0.37	0.00	**0.82**
14.00	4.87	1.29	0.00	**0.14**
16.00	5.32	1.56	0.00	0.08
18.00	5.57	1.72	0.00	0.05
20.00	5.74	1.83	0.00	0.04
22.00	5.88	1.93	0.00	0.03
24.00	**6.00**	**2.01**	0.00	0.03
26.00	6.00	2.01	0.00	0.00
28.00	6.00	2.01	0.00	0.00
30.00	6.00	2.01	0.00	0.00
32.00	6.00	2.01	0.00	0.00
34.00	6.00	2.01	0.00	0.00
36.00	6.00	2.01	0.00	0.00
38.00	6.00	2.01	0.00	0.00
40.00	6.00	2.01	0.00	0.00
42.00	6.00	2.01	0.00	0.00
44.00	6.00	2.01	0.00	0.00
46.00	6.00	2.01	0.00	0.00
48.00	6.00	2.01	0.00	0.00
50.00	6.00	2.01	0.00	0.00
52.00	6.00	2.01	0.00	0.00
54.00	6.00	2.01	0.00	0.00
56.00	6.00	2.01	0.00	0.00
58.00	6.00	2.01	0.00	0.00
60.00	6.00	2.01	0.00	0.00
62.00	6.00	2.01	0.00	0.00
64.00	6.00	2.01	0.00	0.00
66.00	6.00	2.01	0.00	0.00
68.00	6.00	2.01	0.00	0.00
70.00	6.00	2.01	0.00	0.00
72.00	6.00	2.01	0.00	0.00
74.00	6.00	2.01	0.00	0.00
76.00	6.00	2.01	0.00	0.00
78.00	6.00	2.01	0.00	0.00
80.00	6.00	2.01	0.00	0.00
82.00	6.00	2.01	0.00	0.00
84.00	6.00	2.01	0.00	0.00
86.00	6.00	2.01	0.00	0.00
88.00	6.00	2.01	0.00	0.00
90.00	6.00	2.01	0.00	0.00
92.00	6.00	2.01	0.00	0.00
94.00	6.00	2.01	0.00	0.00
96.00	6.00	2.01	0.00	0.00

Summary for Subcatchment 5A: Post DA 8B-5A

Runoff = 1.15 cfs @ 12.07 hrs, Volume= 3,816 cf, Depth= 3.48"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

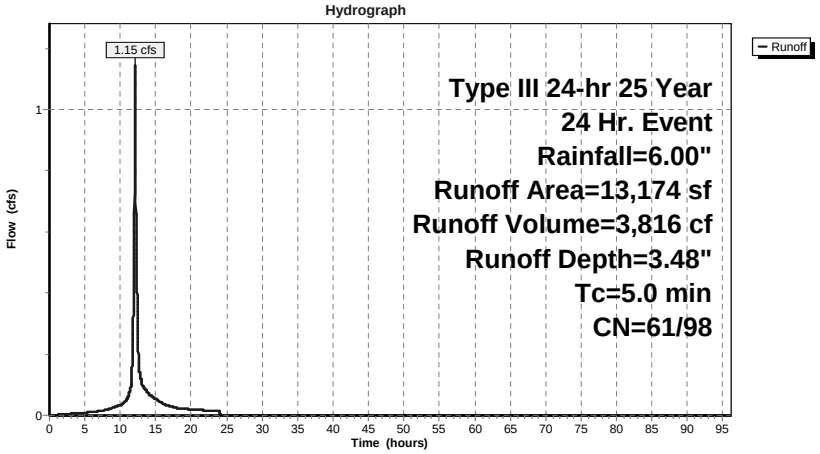
	Area (sf)	CN	Description	Land Use
	5,158	98	Paved parking, HSG B	Pavement
	4,478	61	>75% Grass cover, Good, HSG B	Open Space
*	3,538	61	Bioretention, HSG B	Landscaped
	13,174	75	Weighted Average	
	8,016	61	60.85% Pervious Area	
	5,158	98	39.15% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, user defined min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 39.15% Impervious, Rv= 0.402, Runoff= 18.39"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,538	Landscaped	12.52	0.00	0.00	0.42
4,478	Open Space	257.89	0.90	3.90	0.53
5,158	Pavement	85.36	0.28	1.04	3.31
13,174	Total	355.77	1.18	4.93	4.25

Subcatchment 5A: Post DA 8B-5A



Hydrograph for Subcatchment 5A: Post DA 8B-5A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.02
10.00	1.13	0.00	0.92	0.03
12.00	3.00	0.37	2.77	**0.73**
14.00	4.87	1.29	4.63	**0.07**
16.00	5.32	1.56	5.08	0.04
18.00	5.57	1.72	5.33	0.02
20.00	5.74	1.83	5.50	0.02
22.00	5.88	1.93	5.65	0.02
24.00	**6.00**	**2.01**	**5.76**	0.01
26.00	6.00	2.01	5.76	0.00
28.00	6.00	2.01	5.76	0.00
30.00	6.00	2.01	5.76	0.00
32.00	6.00	2.01	5.76	0.00
34.00	6.00	2.01	5.76	0.00
36.00	6.00	2.01	5.76	0.00
38.00	6.00	2.01	5.76	0.00
40.00	6.00	2.01	5.76	0.00
42.00	6.00	2.01	5.76	0.00
44.00	6.00	2.01	5.76	0.00
46.00	6.00	2.01	5.76	0.00
48.00	6.00	2.01	5.76	0.00
50.00	6.00	2.01	5.76	0.00
52.00	6.00	2.01	5.76	0.00
54.00	6.00	2.01	5.76	0.00
56.00	6.00	2.01	5.76	0.00
58.00	6.00	2.01	5.76	0.00
60.00	6.00	2.01	5.76	0.00
62.00	6.00	2.01	5.76	0.00
64.00	6.00	2.01	5.76	0.00
66.00	6.00	2.01	5.76	0.00
68.00	6.00	2.01	5.76	0.00
70.00	6.00	2.01	5.76	0.00
72.00	6.00	2.01	5.76	0.00
74.00	6.00	2.01	5.76	0.00
76.00	6.00	2.01	5.76	0.00
78.00	6.00	2.01	5.76	0.00
80.00	6.00	2.01	5.76	0.00
82.00	6.00	2.01	5.76	0.00
84.00	6.00	2.01	5.76	0.00
86.00	6.00	2.01	5.76	0.00
88.00	6.00	2.01	5.76	0.00
90.00	6.00	2.01	5.76	0.00
92.00	6.00	2.01	5.76	0.00
94.00	6.00	2.01	5.76	0.00
96.00	6.00	2.01	5.76	0.00

Summary for Pond 5A-B: 5A_Bioretention

Inflow Area = 13,174 sf, 39.15% Impervious, Inflow Depth = 3.48" for 25 Year, 24 Hr. Event event
Inflow = 1.15 cfs @ 12.07 hrs, Volume= 3,816 cf
Outflow = 0.36 cfs @ 12.39 hrs, Volume= 3,529 cf, Atten= 68%, Lag= 18.9 min
Discarded = 0.01 cfs @ 11.74 hrs, Volume= 2,132 cf
Primary = 0.35 cfs @ 12.39 hrs, Volume= 1,397 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 728.06' @ 12.39 hrs Surf.Area= 2,168 sf Storage= 1,892 cf

Plug-Flow detention time= 933.5 min calculated for 3,529 cf (92% of inflow)
Center-of-Mass det. time= 893.0 min (1,677.6 - 784.6)

Volume	Invert	Avail.Storage	Storage Description
#1	723.25'	2,853 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

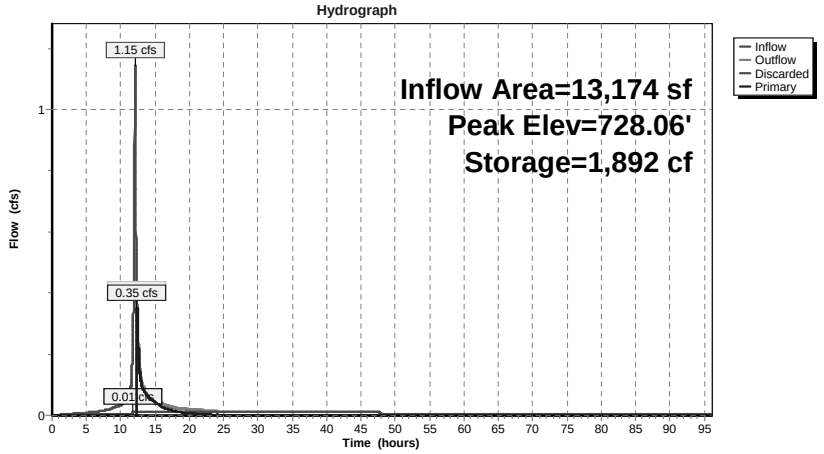
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
723.25	409	0.0	0	0	409
727.25	409	40.0	654	654	733
727.50	409	40.0	41	695	753
727.51	2,168	100.0	12	707	2,512
728.00	2,168	100.0	1,062	1,769	2,603
728.50	2,168	100.0	1,084	2,853	2,696

Device	Routing	Invert	Outlet Devices
#1	Discarded	723.25'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	728.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 11.74 hrs HW=727.51' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.35 cfs @ 12.39 hrs HW=728.06' TW=720.29' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.35 cfs @ 0.78 fps)

Pond 5A-B: 5A_Bioretention



Hydrograph for Pond 5A-B: 5A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	723.25	0.00	0.00	0.00
2.00	0.00	1	723.26	0.00	0.00	0.00
4.00	0.01	21	723.38	0.00	0.00	0.00
6.00	0.01	66	723.65	0.00	0.00	0.00
8.00	0.02	146	724.14	0.00	0.00	0.00
10.00	0.03	311	725.15	0.00	**0.00**	0.00
12.00	**0.73**	**1,064**	**727.67**	**0.01**	**0.01**	**0.00**
14.00	**0.07**	**1,807**	**728.02**	**0.07**	0.01	**0.06**
16.00	0.04	1,792	728.01	0.04	0.01	0.03
18.00	0.02	1,782	728.01	0.02	0.01	0.01
20.00	0.02	1,778	728.00	0.02	0.01	0.01
22.00	0.02	1,775	728.00	0.02	0.01	0.00
24.00	0.01	1,771	728.00	0.01	0.01	0.00
26.00	0.00	1,684	727.96	0.01	0.01	0.00
28.00	0.00	1,594	727.92	0.01	0.01	0.00
30.00	0.00	1,504	727.88	0.01	0.01	0.00
32.00	0.00	1,413	727.84	0.01	0.01	0.00
34.00	0.00	1,323	727.79	0.01	0.01	0.00
36.00	0.00	1,233	727.75	0.01	0.01	0.00
38.00	0.00	1,142	727.71	0.01	0.01	0.00
40.00	0.00	1,052	727.67	0.01	0.01	0.00
42.00	0.00	962	727.63	0.01	0.01	0.00
44.00	0.00	871	727.59	0.01	0.01	0.00
46.00	0.00	781	727.54	0.01	0.01	0.00
48.00	0.00	697	727.50	0.00	0.00	0.00
50.00	0.00	679	727.40	0.00	0.00	0.00
52.00	0.00	662	727.30	0.00	0.00	0.00
54.00	0.00	645	727.19	0.00	0.00	0.00
56.00	0.00	628	727.09	0.00	0.00	0.00
58.00	0.00	611	726.99	0.00	0.00	0.00
60.00	0.00	594	726.88	0.00	0.00	0.00
62.00	0.00	577	726.78	0.00	0.00	0.00
64.00	0.00	560	726.67	0.00	0.00	0.00
66.00	0.00	543	726.57	0.00	0.00	0.00
68.00	0.00	526	726.46	0.00	0.00	0.00
70.00	0.00	509	726.36	0.00	0.00	0.00
72.00	0.00	492	726.26	0.00	0.00	0.00
74.00	0.00	475	726.15	0.00	0.00	0.00
76.00	0.00	458	726.05	0.00	0.00	0.00
78.00	0.00	441	725.94	0.00	0.00	0.00
80.00	0.00	424	725.84	0.00	0.00	0.00
82.00	0.00	407	725.74	0.00	0.00	0.00
84.00	0.00	390	725.63	0.00	0.00	0.00
86.00	0.00	372	725.53	0.00	0.00	0.00
88.00	0.00	355	725.42	0.00	0.00	0.00
90.00	0.00	338	725.32	0.00	0.00	0.00
92.00	0.00	321	725.21	0.00	0.00	0.00
94.00	0.00	304	725.11	0.00	0.00	0.00
96.00	0.00	287	725.01	0.00	0.00	0.00

Summary for Subcatchment 5B: Post DA 8B-5B

Runoff = 0.18 cfs @ 12.07 hrs, Volume= 633 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

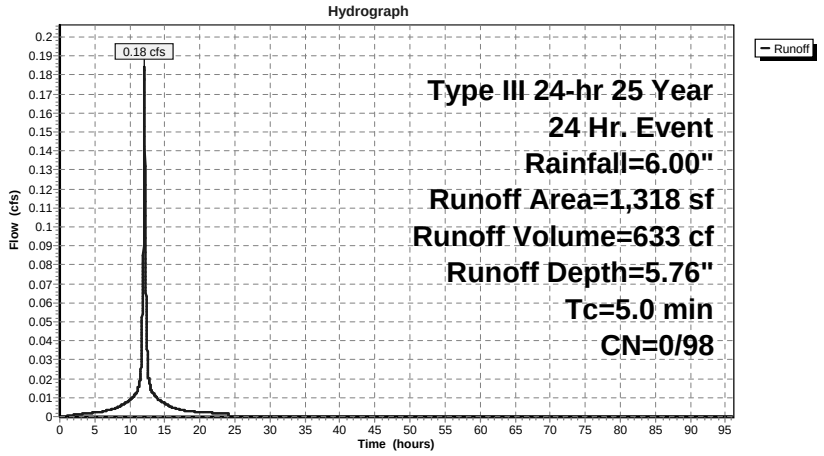
	Area (sf)	CN	Description	Land Use
	615	98	Paved parking, HSG B	Pavement
*	703	98	Pavers, HSG B	Pavement
	1,318	98	Weighted Average	
	1,318	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,318	Pavement	51.50	0.17	0.63	1.99
1,318	Total	51.50	0.17	0.63	1.99

Subcatchment 5B: Post DA 8B-5B



Hydrograph for Subcatchment 5B: Post DA 8B-5B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.00
10.00	1.13	0.00	0.92	0.01
12.00	3.00	0.00	2.77	**0.12**
14.00	4.87	0.00	4.63	**0.01**
16.00	5.32	0.00	5.08	0.00
18.00	5.57	0.00	5.33	0.00
20.00	5.74	0.00	5.50	0.00
22.00	5.88	0.00	5.65	0.00
24.00	**6.00**	0.00	**5.76**	0.00
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00
74.00	6.00	0.00	5.76	0.00
76.00	6.00	0.00	5.76	0.00
78.00	6.00	0.00	5.76	0.00
80.00	6.00	0.00	5.76	0.00
82.00	6.00	0.00	5.76	0.00
84.00	6.00	0.00	5.76	0.00
86.00	6.00	0.00	5.76	0.00
88.00	6.00	0.00	5.76	0.00
90.00	6.00	0.00	5.76	0.00
92.00	6.00	0.00	5.76	0.00
94.00	6.00	0.00	5.76	0.00
96.00	6.00	0.00	5.76	0.00

Summary for Pond 5B-P: 5B_Pavers

Inflow Area = 1,318 sf,100.00% Impervious, Inflow Depth = 5.76" for 25 Year, 24 Hr. Event event
Inflow = 0.18 cfs @ 12.07 hrs, Volume= 633 cf
Outflow = 0.18 cfs @ 12.07 hrs, Volume= 633 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.07 hrs, Volume= 1 cf
Primary = 0.18 cfs @ 12.07 hrs, Volume= 632 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 728.50' @ 0.00 hrs Surf.Area= 703 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (744.2 - 744.2)

Volume	Invert	Avail.Storage	Storage Description
#1	728.50'	281 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

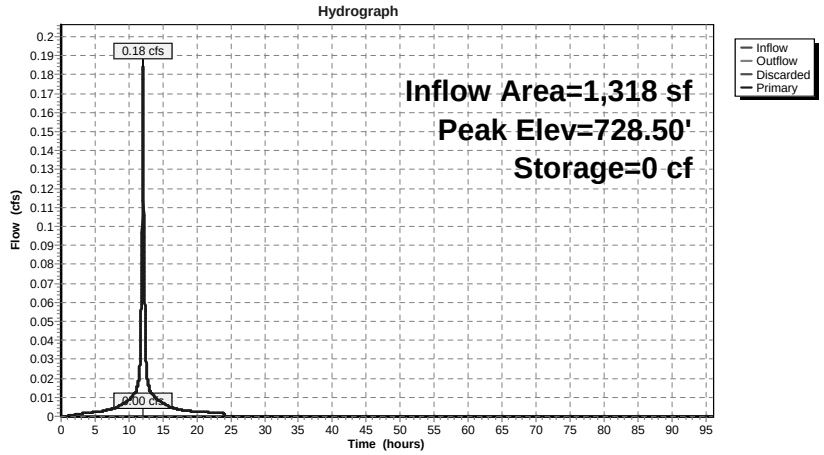
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
728.50	703	177.4	0.0	0	0	703
729.50	703	177.4	40.0	281	281	880

Device	Routing	Invert	Outlet Devices
#1	Primary	728.40'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	728.50'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 12.07 hrs HW=728.50' (Free Discharge)
2=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=728.50' TW=720.27' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Passes 0.00 cfs of 4.24 cfs potential flow)

Pond 5B-P: 5B_Pavers



Hydrograph for Pond 5B-P: 5B_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	**728.50**	0.00	0.00	0.00
2.00	0.00	0	728.50	0.00	0.00	0.00
4.00	0.00	0	728.50	0.00	0.00	0.00
6.00	0.00	0	728.50	0.00	0.00	0.00
8.00	0.00	**0**	728.50	0.00	0.00	0.00
10.00	0.01	**0**	728.50	0.01	0.00	0.01
12.00	**0.12**	0	728.50	**0.12**	**0.00**	**0.12**
14.00	**0.01**	0	728.50	**0.01**	**0.00**	**0.01**
16.00	0.00	0	728.50	0.00	0.00	0.00
18.00	0.00	0	728.50	0.00	0.00	0.00
20.00	0.00	0	728.50	0.00	0.00	0.00
22.00	0.00	0	728.50	0.00	0.00	0.00
24.00	0.00	0	728.50	0.00	0.00	0.00
26.00	0.00	0	728.50	0.00	0.00	0.00
28.00	0.00	0	728.50	0.00	0.00	0.00
30.00	0.00	0	728.50	0.00	0.00	0.00
32.00	0.00	0	728.50	0.00	0.00	0.00
34.00	0.00	0	728.50	0.00	0.00	0.00
36.00	0.00	0	728.50	0.00	0.00	0.00
38.00	0.00	0	728.50	0.00	0.00	0.00
40.00	0.00	0	728.50	0.00	0.00	0.00
42.00	0.00	0	728.50	0.00	0.00	0.00
44.00	0.00	0	728.50	0.00	0.00	0.00
46.00	0.00	0	728.50	0.00	0.00	0.00
48.00	0.00	0	728.50	0.00	0.00	0.00
50.00	0.00	0	728.50	0.00	0.00	0.00
52.00	0.00	0	728.50	0.00	0.00	0.00
54.00	0.00	0	728.50	0.00	0.00	0.00
56.00	0.00	0	728.50	0.00	0.00	0.00
58.00	0.00	0	728.50	0.00	0.00	0.00
60.00	0.00	0	728.50	0.00	0.00	0.00
62.00	0.00	0	728.50	0.00	0.00	0.00
64.00	0.00	0	728.50	0.00	0.00	0.00
66.00	0.00	0	728.50	0.00	0.00	0.00
68.00	0.00	0	728.50	0.00	0.00	0.00
70.00	0.00	0	728.50	0.00	0.00	0.00
72.00	0.00	0	728.50	0.00	0.00	0.00
74.00	0.00	0	728.50	0.00	0.00	0.00
76.00	0.00	0	728.50	0.00	0.00	0.00
78.00	0.00	0	728.50	0.00	0.00	0.00
80.00	0.00	0	728.50	0.00	0.00	0.00
82.00	0.00	0	728.50	0.00	0.00	0.00
84.00	0.00	0	728.50	0.00	0.00	0.00
86.00	0.00	0	728.50	0.00	0.00	0.00
88.00	0.00	0	728.50	0.00	0.00	0.00
90.00	0.00	0	728.50	0.00	0.00	0.00
92.00	0.00	0	728.50	0.00	0.00	0.00
94.00	0.00	0	728.50	0.00	0.00	0.00
96.00	0.00	0	728.50	0.00	0.00	0.00

Summary for Subcatchment 5C: Post DA 8B-5C

Runoff = 0.29 cfs @ 12.07 hrs, Volume= 980 cf, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

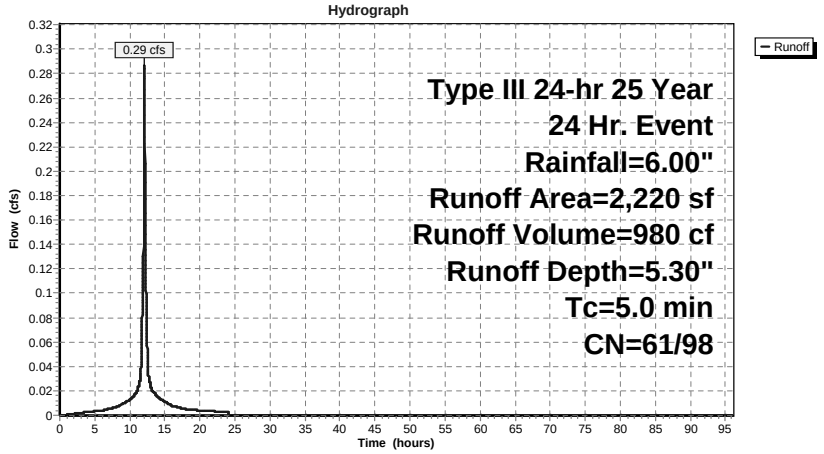
	Area (sf)	CN	Description	Land Use
	631	98	Paved parking, HSG B	Pavement
	273	61	>75% Grass cover, Good, HSG B	Open Space
*	1,316	98	Pavers, HSG B	Pavement
	2,220	93	Weighted Average	
	273	61	12.30% Pervious Area	
	1,947	98	87.70% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 87.70% Impervious, Rv= 0.839, Runoff= 38.36"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
273	Open Space	32.79	0.11	0.50	0.07
1,947	Pavement	67.21	0.22	0.82	2.60
2,220	Total	100.01	0.33	1.31	2.67

Subcatchment 5C: Post DA 8B-5C



Hydrograph for Subcatchment 5C: Post DA 8B-5C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.00	0.92	0.01
12.00	3.00	0.37	2.77	**0.19**
14.00	4.87	1.29	4.63	**0.01**
16.00	5.32	1.56	5.08	0.01
18.00	5.57	1.72	5.33	0.00
20.00	5.74	1.83	5.50	0.00
22.00	5.88	1.93	5.65	0.00
24.00	**6.00**	**2.01**	**5.76**	0.00
26.00	6.00	2.01	5.76	0.00
28.00	6.00	2.01	5.76	0.00
30.00	6.00	2.01	5.76	0.00
32.00	6.00	2.01	5.76	0.00
34.00	6.00	2.01	5.76	0.00
36.00	6.00	2.01	5.76	0.00
38.00	6.00	2.01	5.76	0.00
40.00	6.00	2.01	5.76	0.00
42.00	6.00	2.01	5.76	0.00
44.00	6.00	2.01	5.76	0.00
46.00	6.00	2.01	5.76	0.00
48.00	6.00	2.01	5.76	0.00
50.00	6.00	2.01	5.76	0.00
52.00	6.00	2.01	5.76	0.00
54.00	6.00	2.01	5.76	0.00
56.00	6.00	2.01	5.76	0.00
58.00	6.00	2.01	5.76	0.00
60.00	6.00	2.01	5.76	0.00
62.00	6.00	2.01	5.76	0.00
64.00	6.00	2.01	5.76	0.00
66.00	6.00	2.01	5.76	0.00
68.00	6.00	2.01	5.76	0.00
70.00	6.00	2.01	5.76	0.00
72.00	6.00	2.01	5.76	0.00
74.00	6.00	2.01	5.76	0.00
76.00	6.00	2.01	5.76	0.00
78.00	6.00	2.01	5.76	0.00
80.00	6.00	2.01	5.76	0.00
82.00	6.00	2.01	5.76	0.00
84.00	6.00	2.01	5.76	0.00
86.00	6.00	2.01	5.76	0.00
88.00	6.00	2.01	5.76	0.00
90.00	6.00	2.01	5.76	0.00
92.00	6.00	2.01	5.76	0.00
94.00	6.00	2.01	5.76	0.00
96.00	6.00	2.01	5.76	0.00

Summary for Pond 5C-P: 5C_Pavers

Inflow Area = 2,220 sf, 87.70% Impervious, Inflow Depth = 5.30" for 25 Year, 24 Hr. Event event
Inflow = 0.29 cfs @ 12.07 hrs, Volume= 980 cf
Outflow = 0.23 cfs @ 12.13 hrs, Volume= 981 cf, Atten= 21%, Lag= 3.7 min
Discarded = 0.01 cfs @ 9.19 hrs, Volume= 719 cf
Primary = 0.22 cfs @ 12.13 hrs, Volume= 262 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 726.91' @ 12.13 hrs Surf.Area= 1,316 sf Storage= 307 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 255.7 min (1,005.3 - 749.6)

Volume	Invert	Avail.Storage	Storage Description
#1	726.33'	353 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

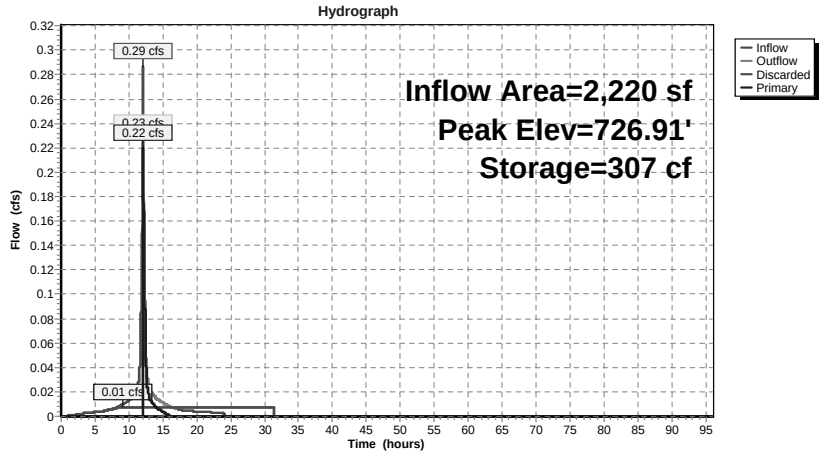
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
726.33	1,316	291.9	0.0	0	0	1,316
727.00	1,316	291.9	40.0	353	353	1,512

Device	Routing	Invert	Outlet Devices
#1	Primary	726.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	726.33'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 9.19 hrs HW=726.34' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.22 cfs @ 12.13 hrs HW=726.91' TW=720.34' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.22 cfs @ 0.31 fps)

Pond 5C-P: 5C_Pavers



Hydrograph for Pond 5C-P: 5C_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	726.33	0.00	0.00	0.00
2.00	0.00	0	726.33	0.00	0.00	0.00
4.00	0.00	0	726.33	0.00	0.00	0.00
6.00	0.00	0	726.33	0.00	0.00	0.00
8.00	0.01	0	726.33	0.01	**0.01**	0.00
10.00	0.01	15	726.36	0.01	**0.01**	0.00
12.00	**0.19**	**203**	**726.71**	**0.01**	0.01	**0.00**
14.00	**0.01**	**301**	**726.90**	**0.01**	0.01	**0.01**
16.00	0.01	300	726.90	0.01	0.01	0.00
18.00	0.00	291	726.88	0.01	0.01	0.00
20.00	0.00	267	726.84	0.01	0.01	0.00
22.00	0.00	237	726.78	0.01	0.01	0.00
24.00	0.00	203	726.72	0.01	0.01	0.00
26.00	0.00	149	726.61	0.01	0.01	0.00
28.00	0.00	94	726.51	0.01	0.01	0.00
30.00	0.00	39	726.40	0.01	0.01	0.00
32.00	0.00	0	726.33	0.00	0.00	0.00
34.00	0.00	0	726.33	0.00	0.00	0.00
36.00	0.00	0	726.33	0.00	0.00	0.00
38.00	0.00	0	726.33	0.00	0.00	0.00
40.00	0.00	0	726.33	0.00	0.00	0.00
42.00	0.00	0	726.33	0.00	0.00	0.00
44.00	0.00	0	726.33	0.00	0.00	0.00
46.00	0.00	0	726.33	0.00	0.00	0.00
48.00	0.00	0	726.33	0.00	0.00	0.00
50.00	0.00	0	726.33	0.00	0.00	0.00
52.00	0.00	0	726.33	0.00	0.00	0.00
54.00	0.00	0	726.33	0.00	0.00	0.00
56.00	0.00	0	726.33	0.00	0.00	0.00
58.00	0.00	0	726.33	0.00	0.00	0.00
60.00	0.00	0	726.33	0.00	0.00	0.00
62.00	0.00	0	726.33	0.00	0.00	0.00
64.00	0.00	0	726.33	0.00	0.00	0.00
66.00	0.00	0	726.33	0.00	0.00	0.00
68.00	0.00	0	726.33	0.00	0.00	0.00
70.00	0.00	0	726.33	0.00	0.00	0.00
72.00	0.00	0	726.33	0.00	0.00	0.00
74.00	0.00	0	726.33	0.00	0.00	0.00
76.00	0.00	0	726.33	0.00	0.00	0.00
78.00	0.00	0	726.33	0.00	0.00	0.00
80.00	0.00	0	726.33	0.00	0.00	0.00
82.00	0.00	0	726.33	0.00	0.00	0.00
84.00	0.00	0	726.33	0.00	0.00	0.00
86.00	0.00	0	726.33	0.00	0.00	0.00
88.00	0.00	0	726.33	0.00	0.00	0.00
90.00	0.00	0	726.33	0.00	0.00	0.00
92.00	0.00	0	726.33	0.00	0.00	0.00
94.00	0.00	0	726.33	0.00	0.00	0.00
96.00	0.00	0	726.33	0.00	0.00	0.00

Summary for Subcatchment 5D: Post DA 8B-5D

Runoff = 0.82 cfs @ 12.07 hrs, Volume= 2,802 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

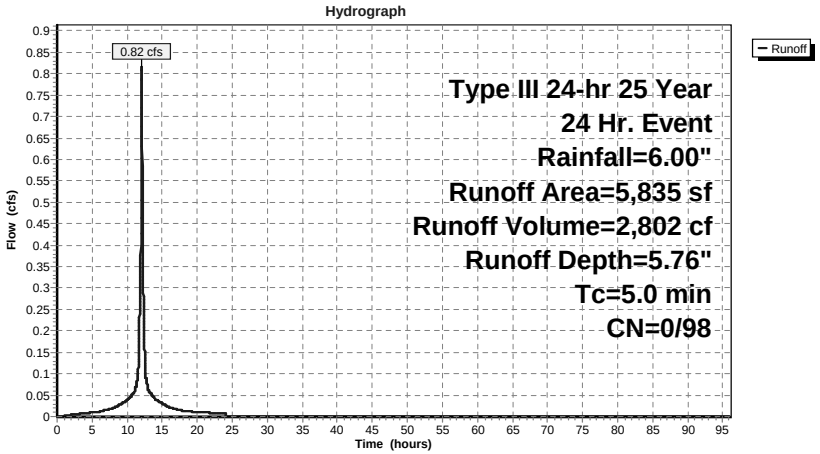
	Area (sf)	CN	Description	Land Use
	1,217	98	Water Surface, HSG B	Open Water
*	4,618	98	Pavers, HSG B	Pavement
	5,835	98	Weighted Average	
	5,835	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,217	Open Water	0.00	0.00	0.00	0.44
4,618	Pavement	180.44	0.58	2.19	6.99
5,835	Total	180.44	0.58	2.19	7.43

Subcatchment 5D: Post DA 8B-5D



Hydrograph for Subcatchment 5D: Post DA 8B-5D

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.02
10.00	1.13	0.00	0.92	0.04
12.00	3.00	0.00	2.77	**0.55**
14.00	4.87	0.00	4.63	**0.04**
16.00	5.32	0.00	5.08	0.02
18.00	5.57	0.00	5.33	0.01
20.00	5.74	0.00	5.50	0.01
22.00	5.88	0.00	5.65	0.01
24.00	**6.00**	0.00	**5.76**	0.01
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00
74.00	6.00	0.00	5.76	0.00
76.00	6.00	0.00	5.76	0.00
78.00	6.00	0.00	5.76	0.00
80.00	6.00	0.00	5.76	0.00
82.00	6.00	0.00	5.76	0.00
84.00	6.00	0.00	5.76	0.00
86.00	6.00	0.00	5.76	0.00
88.00	6.00	0.00	5.76	0.00
90.00	6.00	0.00	5.76	0.00
92.00	6.00	0.00	5.76	0.00
94.00	6.00	0.00	5.76	0.00
96.00	6.00	0.00	5.76	0.00

Summary for Subcatchment 6A: Post DA 8B-6A

Runoff = 0.90 cfs @ 12.07 hrs, Volume= 3,045 cf, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

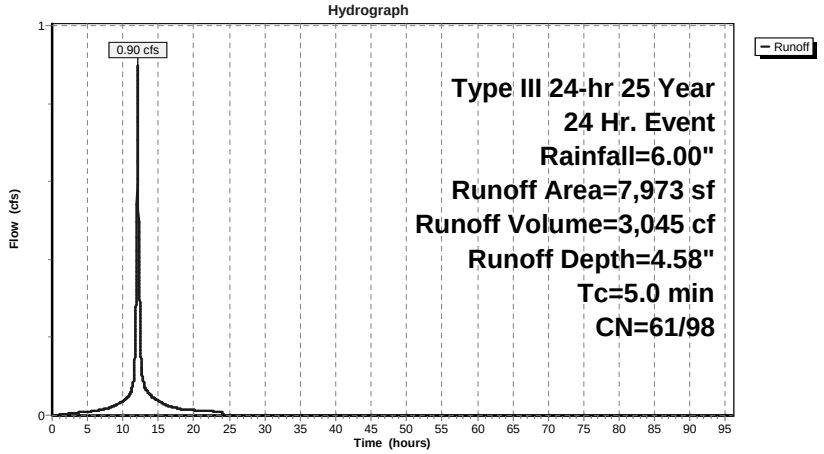
	Area (sf)	CN	Description	Land Use
	5,471	98	Paved parking, HSG B	Pavement
	1,084	61	>75% Grass cover, Good, HSG B	Open Space
*	1,418	61	Bioretention, HSG B	Landscaped
	7,973	86	Weighted Average	
	2,502	61	31.38% Pervious Area	
	5,471	98	68.62% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 68.62% Impervious, Rv= 0.668, Runoff= 30.51"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,418	Landscaped	8.33	0.00	0.00	0.28
1,084	Open Space	103.57	0.36	1.57	0.21
5,471	Pavement	150.22	0.49	1.82	5.82
7,973	Total	262.12	0.85	3.39	6.31

Subcatchment 6A: Post DA 8B-6A



Hydrograph for Subcatchment 6A: Post DA 8B-6A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.02
10.00	1.13	0.00	0.92	0.04
12.00	3.00	0.37	2.77	**0.59**
14.00	4.87	1.29	4.63	**0.05**
16.00	5.32	1.56	5.08	0.03
18.00	5.57	1.72	5.33	0.02
20.00	5.74	1.83	5.50	0.01
22.00	5.88	1.93	5.65	0.01
24.00	**6.00**	**2.01**	**5.76**	0.01
26.00	6.00	2.01	5.76	0.00
28.00	6.00	2.01	5.76	0.00
30.00	6.00	2.01	5.76	0.00
32.00	6.00	2.01	5.76	0.00
34.00	6.00	2.01	5.76	0.00
36.00	6.00	2.01	5.76	0.00
38.00	6.00	2.01	5.76	0.00
40.00	6.00	2.01	5.76	0.00
42.00	6.00	2.01	5.76	0.00
44.00	6.00	2.01	5.76	0.00
46.00	6.00	2.01	5.76	0.00
48.00	6.00	2.01	5.76	0.00
50.00	6.00	2.01	5.76	0.00
52.00	6.00	2.01	5.76	0.00
54.00	6.00	2.01	5.76	0.00
56.00	6.00	2.01	5.76	0.00
58.00	6.00	2.01	5.76	0.00
60.00	6.00	2.01	5.76	0.00
62.00	6.00	2.01	5.76	0.00
64.00	6.00	2.01	5.76	0.00
66.00	6.00	2.01	5.76	0.00
68.00	6.00	2.01	5.76	0.00
70.00	6.00	2.01	5.76	0.00
72.00	6.00	2.01	5.76	0.00
74.00	6.00	2.01	5.76	0.00
76.00	6.00	2.01	5.76	0.00
78.00	6.00	2.01	5.76	0.00
80.00	6.00	2.01	5.76	0.00
82.00	6.00	2.01	5.76	0.00
84.00	6.00	2.01	5.76	0.00
86.00	6.00	2.01	5.76	0.00
88.00	6.00	2.01	5.76	0.00
90.00	6.00	2.01	5.76	0.00
92.00	6.00	2.01	5.76	0.00
94.00	6.00	2.01	5.76	0.00
96.00	6.00	2.01	5.76	0.00

Summary for Pond 6A-B: 6A_Bioretention

Inflow Area = 7,973 sf, 68.62% Impervious, Inflow Depth = 4.58" for 25 Year, 24 Hr. Event event
Inflow = 0.90 cfs @ 12.07 hrs, Volume= 3,045 cf
Outflow = 0.33 cfs @ 12.31 hrs, Volume= 2,839 cf, Atten= 63%, Lag= 14.3 min
Discarded = 0.01 cfs @ 11.58 hrs, Volume= 1,800 cf
Primary = 0.32 cfs @ 12.31 hrs, Volume= 1,039 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 735.55' @ 12.31 hrs Surf.Area= 1,718 sf Storage= 1,575 cf

Plug-Flow detention time= 978.0 min calculated for 2,839 cf (93% of inflow)
Center-of-Mass det. time= 940.4 min (1,700.4 - 760.0)

Volume	Invert	Avail.Storage	Storage Description
#1	730.75'	2,343 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

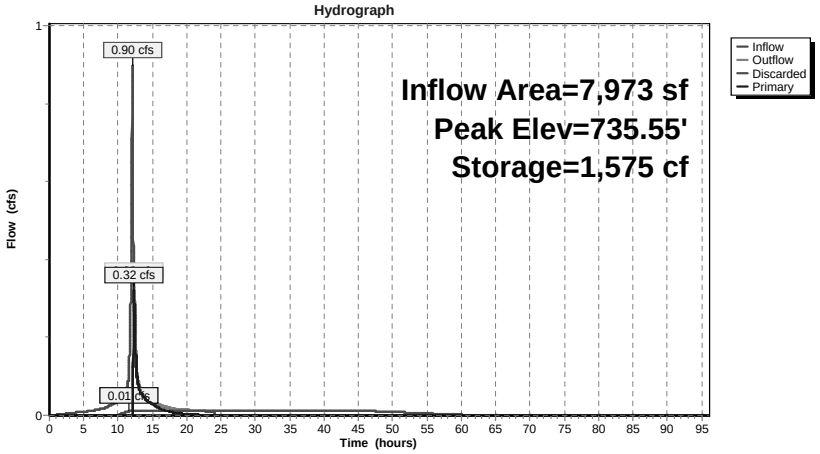
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
730.75	242	0.0	0	0
730.76	242	40.0	1	1
734.75	242	40.0	386	387
735.01	1,718	100.0	255	642
735.50	1,718	100.0	842	1,484
736.00	1,718	100.0	859	2,343

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.75'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	735.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 11.58 hrs HW=735.01' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.32 cfs @ 12.31 hrs HW=735.55' TW=720.30' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.32 cfs @ 0.75 fps)

Pond 6A-B: 6A_Bioretention



Hydrograph for Pond 6A-B: 6A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.75	0.00	0.00	0.00
2.00	0.00	4	730.79	0.00	0.00	0.00
4.00	0.01	33	731.10	0.00	0.00	0.00
6.00	0.01	89	731.67	0.00	0.00	0.00
8.00	0.02	182	732.63	0.00	0.00	0.00
10.00	0.04	364	734.51	0.00	**0.00**	0.00
12.00	**0.59**	**1,032**	**735.24**	**0.01**	**0.01**	**0.00**
14.00	**0.05**	**1,507**	**735.51**	**0.05**	0.01	**0.04**
16.00	0.03	1,497	735.51	0.03	0.01	0.02
18.00	0.02	1,491	735.50	0.02	0.01	0.01
20.00	0.01	1,488	735.50	0.01	0.01	0.00
22.00	0.01	1,486	735.50	0.01	0.01	0.00
24.00	0.01	1,481	735.50	0.01	0.01	0.00
26.00	0.00	1,412	735.46	0.01	0.01	0.00
28.00	0.00	1,340	735.42	0.01	0.01	0.00
30.00	0.00	1,269	735.37	0.01	0.01	0.00
32.00	0.00	1,197	735.33	0.01	0.01	0.00
34.00	0.00	1,126	735.29	0.01	0.01	0.00
36.00	0.00	1,054	735.25	0.01	0.01	0.00
38.00	0.00	982	735.21	0.01	0.01	0.00
40.00	0.00	911	735.17	0.01	0.01	0.00
42.00	0.00	839	735.12	0.01	0.01	0.00
44.00	0.00	768	735.08	0.01	0.01	0.00
46.00	0.00	696	735.04	0.01	0.01	0.00
48.00	0.00	625	735.00	0.01	0.01	0.00
50.00	0.00	561	734.96	0.01	0.01	0.00
52.00	0.00	506	734.92	0.01	0.01	0.00
54.00	0.00	462	734.87	0.01	0.01	0.00
56.00	0.00	427	734.83	0.00	0.00	0.00
58.00	0.00	402	734.79	0.00	0.00	0.00
60.00	0.00	387	734.75	0.00	0.00	0.00
62.00	0.00	377	734.65	0.00	0.00	0.00
64.00	0.00	367	734.54	0.00	0.00	0.00
66.00	0.00	357	734.44	0.00	0.00	0.00
68.00	0.00	347	734.33	0.00	0.00	0.00
70.00	0.00	337	734.23	0.00	0.00	0.00
72.00	0.00	327	734.12	0.00	0.00	0.00
74.00	0.00	317	734.02	0.00	0.00	0.00
76.00	0.00	306	733.92	0.00	0.00	0.00
78.00	0.00	296	733.81	0.00	0.00	0.00
80.00	0.00	286	733.71	0.00	0.00	0.00
82.00	0.00	276	733.60	0.00	0.00	0.00
84.00	0.00	266	733.50	0.00	0.00	0.00
86.00	0.00	256	733.40	0.00	0.00	0.00
88.00	0.00	246	733.29	0.00	0.00	0.00
90.00	0.00	236	733.19	0.00	0.00	0.00
92.00	0.00	226	733.08	0.00	0.00	0.00
94.00	0.00	216	732.98	0.00	0.00	0.00
96.00	0.00	206	732.87	0.00	0.00	0.00

Summary for Subcatchment 6B: Post DA 8B-6B

Runoff = 0.98 cfs @ 12.07 hrs, Volume= 3,345 cf, Depth= 5.05"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

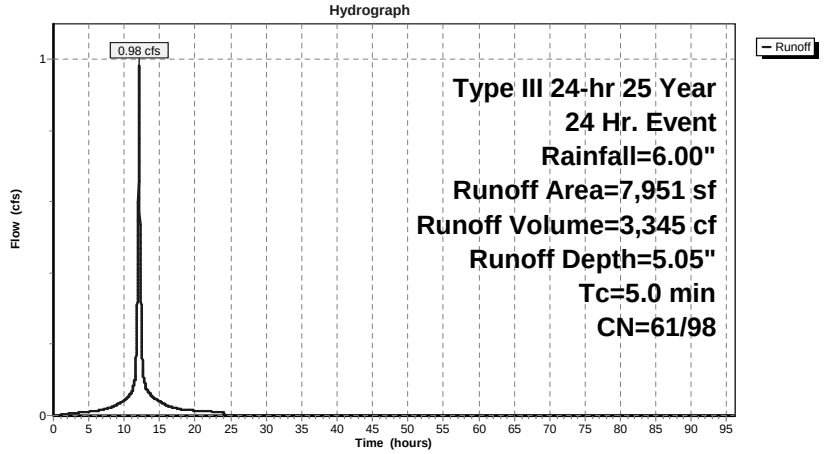
	Area (sf)	CN	Description	Land Use
	1,510	61	>75% Grass cover, Good, HSG B	Open Space
*	6,441	98	Pavers, HSG B	Pavement
	7,951	91	Weighted Average	
	1,510	61	18.99% Pervious Area	
	6,441	98	81.01% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 81.01% Impervious, Rv= 0.779, Runoff= 35.60"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,510	Open Space	168.37	0.59	2.55	0.34
6,441	Pavement	206.39	0.67	2.51	7.99
7,951	Total	374.76	1.26	5.05	8.34

Subcatchment 6B: Post DA 8B-6B



Hydrograph for Subcatchment 6B: Post DA 8B-6B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.02
10.00	1.13	0.00	0.92	0.04
12.00	3.00	0.37	2.77	**0.65**
14.00	4.87	1.29	4.63	**0.05**
16.00	5.32	1.56	5.08	0.03
18.00	5.57	1.72	5.33	0.02
20.00	5.74	1.83	5.50	0.01
22.00	5.88	1.93	5.65	0.01
24.00	**6.00**	**2.01**	**5.76**	0.01
26.00	6.00	2.01	5.76	0.00
28.00	6.00	2.01	5.76	0.00
30.00	6.00	2.01	5.76	0.00
32.00	6.00	2.01	5.76	0.00
34.00	6.00	2.01	5.76	0.00
36.00	6.00	2.01	5.76	0.00
38.00	6.00	2.01	5.76	0.00
40.00	6.00	2.01	5.76	0.00
42.00	6.00	2.01	5.76	0.00
44.00	6.00	2.01	5.76	0.00
46.00	6.00	2.01	5.76	0.00
48.00	6.00	2.01	5.76	0.00
50.00	6.00	2.01	5.76	0.00
52.00	6.00	2.01	5.76	0.00
54.00	6.00	2.01	5.76	0.00
56.00	6.00	2.01	5.76	0.00
58.00	6.00	2.01	5.76	0.00
60.00	6.00	2.01	5.76	0.00
62.00	6.00	2.01	5.76	0.00
64.00	6.00	2.01	5.76	0.00
66.00	6.00	2.01	5.76	0.00
68.00	6.00	2.01	5.76	0.00
70.00	6.00	2.01	5.76	0.00
72.00	6.00	2.01	5.76	0.00
74.00	6.00	2.01	5.76	0.00
76.00	6.00	2.01	5.76	0.00
78.00	6.00	2.01	5.76	0.00
80.00	6.00	2.01	5.76	0.00
82.00	6.00	2.01	5.76	0.00
84.00	6.00	2.01	5.76	0.00
86.00	6.00	2.01	5.76	0.00
88.00	6.00	2.01	5.76	0.00
90.00	6.00	2.01	5.76	0.00
92.00	6.00	2.01	5.76	0.00
94.00	6.00	2.01	5.76	0.00
96.00	6.00	2.01	5.76	0.00

Summary for Pond 6B-P: 6B_Pavers

Inflow Area = 7,951 sf, 81.01% Impervious, Inflow Depth = 5.05" for 25 Year, 24 Hr. Event event
Inflow = 0.98 cfs @ 12.07 hrs, Volume= 3,345 cf
Outflow = 0.85 cfs @ 12.11 hrs, Volume= 1,876 cf, Atten= 13%, Lag= 2.6 min
Primary = 0.85 cfs @ 12.11 hrs, Volume= 1,876 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 739.93' @ 12.11 hrs Surf.Area= 6,441 sf Storage= 1,547 cf

Plug-Flow detention time= 238.2 min calculated for 1,876 cf (56% of inflow)
Center-of-Mass det. time= 118.0 min (870.9 - 752.9)

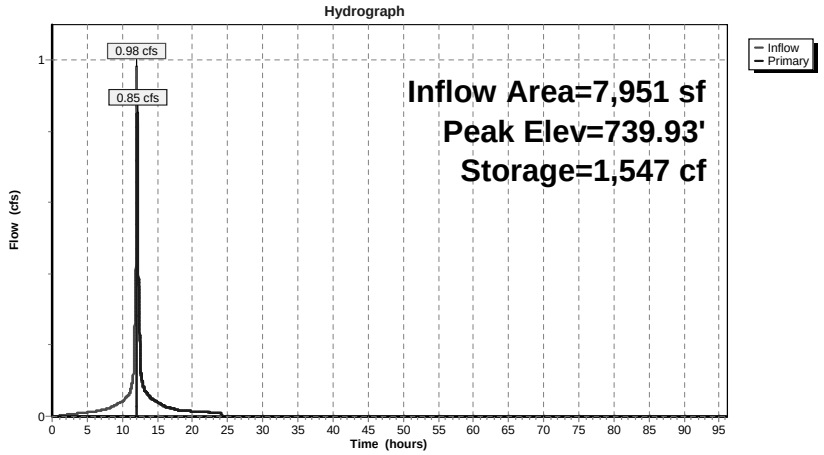
Volume	Invert	Avail.Storage	Storage Description
#1	739.33'	1,726 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
739.33	6,441	0.0	0	0
740.00	6,441	40.0	1,726	1,726

Device	Routing	Invert	Outlet Devices
#1	Primary	739.90'	**60.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.85 cfs @ 12.11 hrs HW=739.93' TW=720.33' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.85 cfs @ 0.47 fps)

Pond 6B-P: 6B_Pavers



Hydrograph for Pond 6B-P: 6B_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	739.33	0.00
2.00	0.00	11	739.33	0.00
4.00	0.01	58	739.35	0.00
6.00	0.01	134	739.38	0.00
8.00	0.02	256	739.43	0.00
10.00	0.04	483	739.52	0.00
12.00	**0.65**	**1,297**	**739.83**	**0.00**
14.00	**0.05**	**1,481**	**739.90**	**0.05**
16.00	0.03	1,477	739.90	0.03
18.00	0.02	1,474	739.90	0.02
20.00	0.01	1,474	739.90	0.01
22.00	0.01	1,473	739.90	0.01
24.00	0.01	1,472	739.90	0.01
26.00	0.00	1,469	739.90	0.00
28.00	0.00	1,469	739.90	0.00
30.00	0.00	1,469	739.90	0.00
32.00	0.00	1,469	739.90	0.00
34.00	0.00	1,469	739.90	0.00
36.00	0.00	1,469	739.90	0.00
38.00	0.00	1,469	739.90	0.00
40.00	0.00	1,469	739.90	0.00
42.00	0.00	1,469	739.90	0.00
44.00	0.00	1,469	739.90	0.00
46.00	0.00	1,469	739.90	0.00
48.00	0.00	1,469	739.90	0.00
50.00	0.00	1,469	739.90	0.00
52.00	0.00	1,469	739.90	0.00
54.00	0.00	1,469	739.90	0.00
56.00	0.00	1,469	739.90	0.00
58.00	0.00	1,469	739.90	0.00
60.00	0.00	1,469	739.90	0.00
62.00	0.00	1,469	739.90	0.00
64.00	0.00	1,469	739.90	0.00
66.00	0.00	1,469	739.90	0.00
68.00	0.00	1,469	739.90	0.00
70.00	0.00	1,469	739.90	0.00
72.00	0.00	1,469	739.90	0.00
74.00	0.00	1,469	739.90	0.00
76.00	0.00	1,469	739.90	0.00
78.00	0.00	1,469	739.90	0.00
80.00	0.00	1,469	739.90	0.00
82.00	0.00	1,469	739.90	0.00
84.00	0.00	1,469	739.90	0.00
86.00	0.00	1,469	739.90	0.00
88.00	0.00	1,469	739.90	0.00
90.00	0.00	1,469	739.90	0.00
92.00	0.00	1,469	739.90	0.00
94.00	0.00	1,469	739.90	0.00
96.00	0.00	1,469	739.90	0.00

Summary for Pond 7P: 5D_Pavers

Inflow Area = 5,835 sf,100.00% Impervious, Inflow Depth = 5.76" for 25 Year, 24 Hr. Event event
Inflow = 0.82 cfs @ 12.07 hrs, Volume= 2,802 cf
Outflow = 0.28 cfs @ 12.33 hrs, Volume= 2,802 cf, Atten= 66%, Lag= 15.3 min
Discarded = 0.03 cfs @ 9.67 hrs, Volume= 2,377 cf
Primary = 0.25 cfs @ 12.33 hrs, Volume= 424 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 737.92' @ 12.33 hrs Surf.Area= 4,618 sf Storage= 1,081 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 285.5 min (1,029.7 - 744.2)

Volume	Invert	Avail.Storage	Storage Description
#1	737.33'	1,238 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

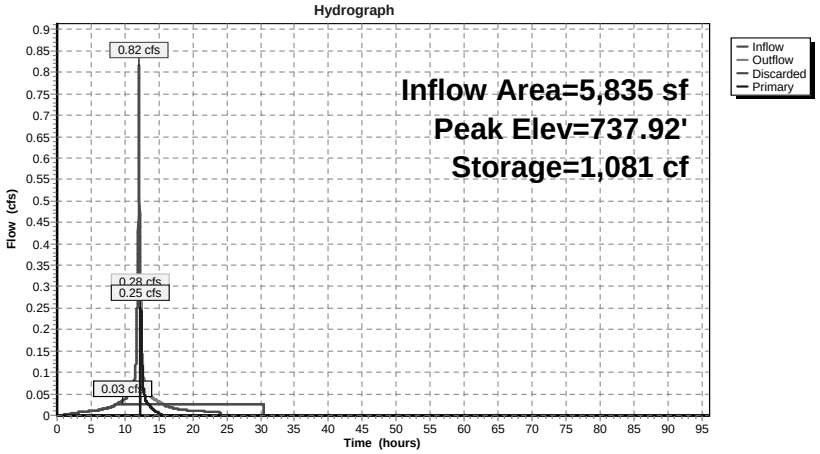
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
737.33	4,618	0.0	0	0
738.00	4,618	40.0	1,238	1,238

Device	Routing	Invert	Outlet Devices
#1	Primary	737.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	737.33'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.03 cfs @ 9.67 hrs HW=737.34' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.25 cfs @ 12.33 hrs HW=737.92' TW=720.30' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.25 cfs @ 0.33 fps)

Pond 7P: 5D_Pavers



Hydrograph for Pond 7P: 5D_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	737.33	0.00	0.00	0.00
2.00	0.00	0	737.33	0.00	0.00	0.00
4.00	0.01	0	737.33	0.01	0.01	0.00
6.00	0.01	0	737.33	0.01	0.01	0.00
8.00	0.02	0	737.33	0.02	**0.02**	0.00
10.00	0.04	24	737.34	0.03	**0.03**	0.00
12.00	**0.55**	**544**	**737.62**	**0.03**	0.03	**0.00**
14.00	**0.04**	**1,057**	**737.90**	**0.04**	0.03	**0.02**
16.00	0.02	1,049	737.90	0.03	0.03	0.00
18.00	0.01	981	737.86	0.03	0.03	0.00
20.00	0.01	874	737.80	0.03	0.03	0.00
22.00	0.01	751	737.74	0.03	0.03	0.00
24.00	0.01	615	737.66	0.03	0.03	0.00
26.00	0.00	425	737.56	0.03	0.03	0.00
28.00	0.00	232	737.46	0.03	0.03	0.00
30.00	0.00	40	737.35	0.03	0.03	0.00
32.00	0.00	0	737.33	0.00	0.00	0.00
34.00	0.00	0	737.33	0.00	0.00	0.00
36.00	0.00	0	737.33	0.00	0.00	0.00
38.00	0.00	0	737.33	0.00	0.00	0.00
40.00	0.00	0	737.33	0.00	0.00	0.00
42.00	0.00	0	737.33	0.00	0.00	0.00
44.00	0.00	0	737.33	0.00	0.00	0.00
46.00	0.00	0	737.33	0.00	0.00	0.00
48.00	0.00	0	737.33	0.00	0.00	0.00
50.00	0.00	0	737.33	0.00	0.00	0.00
52.00	0.00	0	737.33	0.00	0.00	0.00
54.00	0.00	0	737.33	0.00	0.00	0.00
56.00	0.00	0	737.33	0.00	0.00	0.00
58.00	0.00	0	737.33	0.00	0.00	0.00
60.00	0.00	0	737.33	0.00	0.00	0.00
62.00	0.00	0	737.33	0.00	0.00	0.00
64.00	0.00	0	737.33	0.00	0.00	0.00
66.00	0.00	0	737.33	0.00	0.00	0.00
68.00	0.00	0	737.33	0.00	0.00	0.00
70.00	0.00	0	737.33	0.00	0.00	0.00
72.00	0.00	0	737.33	0.00	0.00	0.00
74.00	0.00	0	737.33	0.00	0.00	0.00
76.00	0.00	0	737.33	0.00	0.00	0.00
78.00	0.00	0	737.33	0.00	0.00	0.00
80.00	0.00	0	737.33	0.00	0.00	0.00
82.00	0.00	0	737.33	0.00	0.00	0.00
84.00	0.00	0	737.33	0.00	0.00	0.00
86.00	0.00	0	737.33	0.00	0.00	0.00
88.00	0.00	0	737.33	0.00	0.00	0.00
90.00	0.00	0	737.33	0.00	0.00	0.00
92.00	0.00	0	737.33	0.00	0.00	0.00
94.00	0.00	0	737.33	0.00	0.00	0.00
96.00	0.00	0	737.33	0.00	0.00	0.00

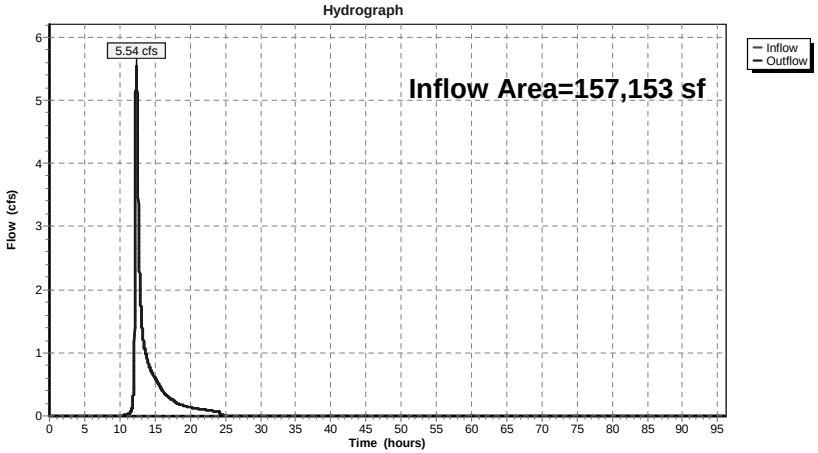
Summary for Reach 8BW-Out: DA-8B West Outflow

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 1.98" for 25 Year, 24 Hr. Event event
Inflow = 5.54 cfs @ 12.35 hrs, Volume= 25,935 cf
Outflow = 5.54 cfs @ 12.35 hrs, Volume= 25,935 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3

Reach 8BW-Out: DA-8B West Outflow



Hydrograph for Reach 8BW-Out: DA-8B West Outflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.01		0.01	61.00	0.00		0.00
10.00	0.01		0.01	62.00	0.00		0.00
11.00	0.02		0.02	63.00	0.00		0.00
12.00	**0.52**		**0.52**	64.00	0.00		0.00
13.00	**1.70**		**1.70**	65.00	0.00		0.00
14.00	0.85		0.85	66.00	0.00		0.00
15.00	0.60		0.60	67.00	0.00		0.00
16.00	0.41		0.41	68.00	0.00		0.00
17.00	0.29		0.29	69.00	0.00		0.00
18.00	0.21		0.21	70.00	0.00		0.00
19.00	0.16		0.16	71.00	0.00		0.00
20.00	0.14		0.14	72.00	0.00		0.00
21.00	0.12		0.12	73.00	0.00		0.00
22.00	0.10		0.10	74.00	0.00		0.00
23.00	0.08		0.08	75.00	0.00		0.00
24.00	0.07		0.07	76.00	0.00		0.00
25.00	0.01		0.01	77.00	0.00		0.00
26.00	0.00		0.00	78.00	0.00		0.00
27.00	0.00		0.00	79.00	0.00		0.00
28.00	0.00		0.00	80.00	0.00		0.00
29.00	0.00		0.00	81.00	0.00		0.00
30.00	0.00		0.00	82.00	0.00		0.00
31.00	0.00		0.00	83.00	0.00		0.00
32.00	0.00		0.00	84.00	0.00		0.00
33.00	0.00		0.00	85.00	0.00		0.00
34.00	0.00		0.00	86.00	0.00		0.00
35.00	0.00		0.00	87.00	0.00		0.00
36.00	0.00		0.00	88.00	0.00		0.00
37.00	0.00		0.00	89.00	0.00		0.00
38.00	0.00		0.00	90.00	0.00		0.00
39.00	0.00		0.00	91.00	0.00		0.00
40.00	0.00		0.00	92.00	0.00		0.00
41.00	0.00		0.00	93.00	0.00		0.00
42.00	0.00		0.00	94.00	0.00		0.00
43.00	0.00		0.00	95.00	0.00		0.00
44.00	0.00		0.00	96.00	0.00		0.00
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Reach R-2: West Reach -2

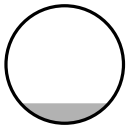
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 72,812 sf, 35.94% Impervious, Inflow Depth = 1.87" for 25 Year, 24 Hr. Event event
Inflow = 2.88 cfs @ 12.12 hrs, Volume= 11,370 cf
Outflow = 2.87 cfs @ 12.13 hrs, Volume= 11,370 cf, Atten= 1%, Lag= 0.3 min

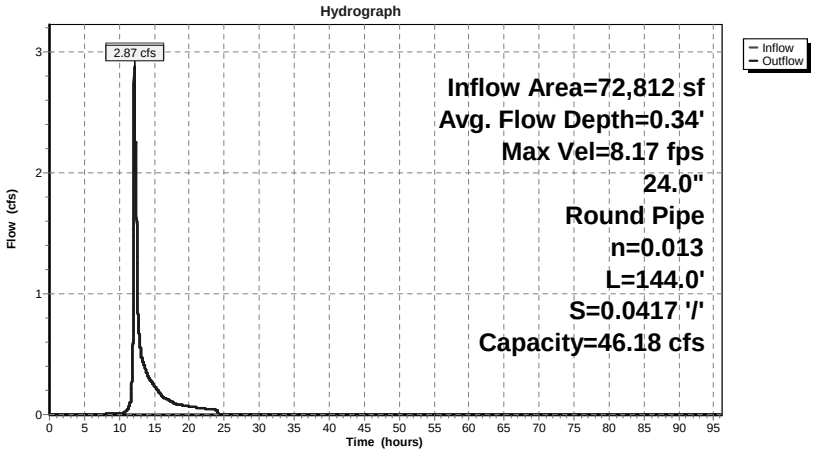
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 8.17 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.44 fps, Avg. Travel Time= 1.0 min

Peak Storage= 51 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 46.18 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 144.0' Slope= 0.0417 '/'
Inlet Invert= 720.00', Outlet Invert= 714.00'



Reach R-2: West Reach -2



Hydrograph for Reach R-2: West Reach -2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	720.00	0.00
2.00	0.00	0	720.00	0.00
4.00	0.00	0	720.01	0.00
6.00	0.00	0	720.01	0.00
8.00	0.00	0	720.01	0.00
10.00	0.01	1	720.02	0.01
12.00	**0.95**	**23**	**720.19**	**0.91**
14.00	**0.33**	**11**	**720.12**	**0.33**
16.00	0.16	7	720.09	0.16
18.00	0.09	4	720.07	0.09
20.00	0.07	4	720.06	0.07
22.00	0.05	3	720.05	0.05
24.00	0.04	2	720.04	0.04
26.00	0.00	0	720.00	0.00
28.00	0.00	0	720.00	0.00
30.00	0.00	0	720.00	0.00
32.00	0.00	0	720.00	0.00
34.00	0.00	0	720.00	0.00
36.00	0.00	0	720.00	0.00
38.00	0.00	0	720.00	0.00
40.00	0.00	0	720.00	0.00
42.00	0.00	0	720.00	0.00
44.00	0.00	0	720.00	0.00
46.00	0.00	0	720.00	0.00
48.00	0.00	0	720.00	0.00
50.00	0.00	0	720.00	0.00
52.00	0.00	0	720.00	0.00
54.00	0.00	0	720.00	0.00
56.00	0.00	0	720.00	0.00
58.00	0.00	0	720.00	0.00
60.00	0.00	0	720.00	0.00
62.00	0.00	0	720.00	0.00
64.00	0.00	0	720.00	0.00
66.00	0.00	0	720.00	0.00
68.00	0.00	0	720.00	0.00
70.00	0.00	0	720.00	0.00
72.00	0.00	0	720.00	0.00
74.00	0.00	0	720.00	0.00
76.00	0.00	0	720.00	0.00
78.00	0.00	0	720.00	0.00
80.00	0.00	0	720.00	0.00
82.00	0.00	0	720.00	0.00
84.00	0.00	0	720.00	0.00
86.00	0.00	0	720.00	0.00
88.00	0.00	0	720.00	0.00
90.00	0.00	0	720.00	0.00
92.00	0.00	0	720.00	0.00
94.00	0.00	0	720.00	0.00
96.00	0.00	0	720.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 3A_R: Vegetated Swale Avg. Flow Depth=1.34' Max Vel=2.49 fps Inflow=21.71 cfs 64,519 cf
n=0.120 L=521.0' S=0.0576 '/' Capacity=50.42 cfs Outflow=19.99 cfs 64,519 cf

Subcatchment 4: Post DA 8B-4 Runoff Area=84,341 sf 55.72% Impervious Runoff Depth=7.21"
Tc=5.0 min CN=61/98 Runoff=15.23 cfs 50,654 cf

Pond 4-B: 4_Bioretention Peak Elev=729.99' Storage=16,346 cf Inflow=15.23 cfs 50,654 cf
Discarded=0.07 cfs 12,391 cf Primary=11.17 cfs 35,951 cf Outflow=11.24 cfs 48,343 cf

Subcatchment 5: Post DA 8B-5 Runoff Area=34,341 sf 0.00% Impervious Runoff Depth=4.62"
Flow Length=290' Tc=6.8 min CN=61/0 Runoff=4.14 cfs 13,235 cf

Subcatchment 5A: Post DA 8B-5A Runoff Area=13,174 sf 39.15% Impervious Runoff Depth=6.44"
Tc=5.0 min CN=61/98 Runoff=2.17 cfs 7,069 cf

Pond 5A-B: 5A_Bioretention Peak Elev=728.18' Storage=2,155 cf Inflow=2.17 cfs 7,069 cf
Discarded=0.01 cfs 2,191 cf Primary=1.96 cfs 4,589 cf Outflow=1.97 cfs 6,781 cf

Subcatchment 5B: Post DA 8B-5B Runoff Area=1,318 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=0.29 cfs 1,017 cf

Pond 5B-P: 5B_Pavers Peak Elev=728.50' Storage=0 cf Inflow=0.29 cfs 1,017 cf
Discarded=0.00 cfs 1 cf Primary=0.29 cfs 1,016 cf Outflow=0.29 cfs 1,017 cf

Subcatchment 5C: Post DA 8B-5C Runoff Area=2,220 sf 87.70% Impervious Runoff Depth=8.69"
Tc=5.0 min CN=61/98 Runoff=0.47 cfs 1,608 cf

Pond 5C-P: 5C_Pavers Peak Elev=726.92' Storage=312 cf Inflow=0.47 cfs 1,608 cf
Discarded=0.01 cfs 831 cf Primary=0.46 cfs 777 cf Outflow=0.47 cfs 1,608 cf

Subcatchment 5D: Post DA 8B-5D Runoff Area=5,835 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=1.30 cfs 4,502 cf

Subcatchment 6A: Post DA 8B-6A Runoff Area=7,973 sf 68.62% Impervious Runoff Depth=7.81"
Tc=5.0 min CN=61/98 Runoff=1.54 cfs 5,186 cf

Pond 6A-B: 6A_Bioretention Peak Elev=735.64' Storage=1,730 cf Inflow=1.54 cfs 5,186 cf
Discarded=0.01 cfs 1,863 cf Primary=1.41 cfs 3,116 cf Outflow=1.42 cfs 4,979 cf

Subcatchment 6B: Post DA 8B-6B Runoff Area=7,951 sf 81.01% Impervious Runoff Depth=8.38"
Tc=5.0 min CN=61/98 Runoff=1.62 cfs 5,552 cf

Pond 6B-P: 6B_Pavers Peak Elev=739.95' Storage=1,588 cf Inflow=1.62 cfs 5,552 cf
Outflow=1.60 cfs 4,083 cf

Pond 7P: 5D_Pavers Peak Elev=737.94' Storage=1,135 cf Inflow=1.30 cfs 4,502 cf
Discarded=0.03 cfs 2,752 cf Primary=1.25 cfs 1,751 cf Outflow=1.28 cfs 4,503 cf

Reach 8BW-Out: DA-8B West Outflow Inflow=19.99 cfs 64,519 cf
Outflow=19.99 cfs 64,519 cf

Reach R-2: West Reach -2 Avg. Flow Depth=0.66' Max Vel=12.06 fps Inflow=11.01 cfs 28,568 cf
24.0" Round Pipe n=0.013 L=144.0' S=0.0417 '/' Capacity=46.18 cfs Outflow=11.01 cfs 28,568 cf

Total Runoff Area = 157,153 sf Runoff Volume = 88,823 cf Average Runoff Depth = 6.78"
53.45% Pervious = 83,992 sf 46.55% Impervious = 73,161 sf

Summary for Reach 3A_R: Vegetated Swale

[62] Hint: Exceeded Reach R-2 OUTLET depth by 4.78' @ 12.20 hrs

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 4.93" for 100 Year, 24 Hr. Event event
Inflow = 21.71 cfs @ 12.11 hrs, Volume= 64,519 cf
Outflow = 19.99 cfs @ 12.16 hrs, Volume= 64,519 cf, Atten= 8%, Lag= 2.6 min

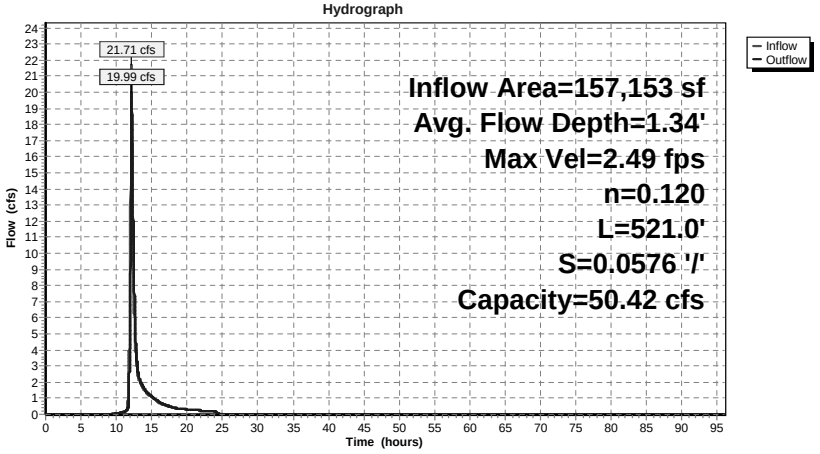
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 2.49 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.59 fps, Avg. Travel Time= 14.7 min

Peak Storage= 4,180 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.34'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 50.42 cfs

2.00' x 2.00' deep channel, n= 0.120 Earth, long dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 521.0' Slope= 0.0576 '/'
Inlet Invert= 718.00', Outlet Invert= 688.00'



Reach 3A_R: Vegetated Swale



Hydrograph for Reach 3A_R: Vegetated Swale

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	718.00	0.00
2.00	0.00	3	718.00	0.00
4.00	0.00	7	718.01	0.00
6.00	0.00	10	718.01	0.00
8.00	0.01	15	718.01	0.01
10.00	0.06	61	718.05	0.05
12.00	**10.53**	**1,988**	**718.84**	**7.34**
14.00	**1.50**	**644**	**718.39**	**1.56**
16.00	0.75	396	718.27	0.79
18.00	0.41	261	718.19	0.43
20.00	0.30	206	718.16	0.30
22.00	0.23	174	718.14	0.24
24.00	0.17	142	718.12	0.17
26.00	0.00	5	718.00	0.00
28.00	0.00	0	718.00	0.00
30.00	0.00	0	718.00	0.00
32.00	0.00	0	718.00	0.00
34.00	0.00	0	718.00	0.00
36.00	0.00	0	718.00	0.00
38.00	0.00	0	718.00	0.00
40.00	0.00	0	718.00	0.00
42.00	0.00	0	718.00	0.00
44.00	0.00	0	718.00	0.00
46.00	0.00	0	718.00	0.00
48.00	0.00	0	718.00	0.00
50.00	0.00	0	718.00	0.00
52.00	0.00	0	718.00	0.00
54.00	0.00	0	718.00	0.00
56.00	0.00	0	718.00	0.00
58.00	0.00	0	718.00	0.00
60.00	0.00	0	718.00	0.00
62.00	0.00	0	718.00	0.00
64.00	0.00	0	718.00	0.00
66.00	0.00	0	718.00	0.00
68.00	0.00	0	718.00	0.00
70.00	0.00	0	718.00	0.00
72.00	0.00	0	718.00	0.00
74.00	0.00	0	718.00	0.00
76.00	0.00	0	718.00	0.00
78.00	0.00	0	718.00	0.00
80.00	0.00	0	718.00	0.00
82.00	0.00	0	718.00	0.00
84.00	0.00	0	718.00	0.00
86.00	0.00	0	718.00	0.00
88.00	0.00	0	718.00	0.00
90.00	0.00	0	718.00	0.00
92.00	0.00	0	718.00	0.00
94.00	0.00	0	718.00	0.00
96.00	0.00	0	718.00	0.00

Summary for Subcatchment 4: Post DA 8B-4

Runoff = 15.23 cfs @ 12.07 hrs, Volume= 50,654 cf, Depth= 7.21"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

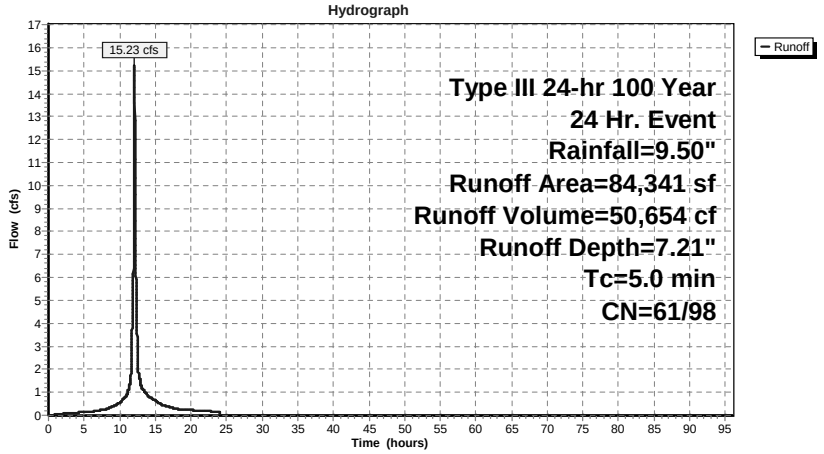
	Area (sf)	CN	Description	Land Use
	6,839	98	Paved parking, HSG C	Pavement
	20,756	61	>75% Grass cover, Good, HSG B	Open Space
*	16,594	61	Bioretention, HSG B	Landscaped
	40,152	98	Roofs, HSG B	Roofs
	84,341	82	Weighted Average	
	37,350	61	44.28% Pervious Area	
	46,991	98	55.72% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 55.72% Impervious, Rv= 0.551, Runoff= 25.20"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
16,594	Landscaped	80.49	0.00	0.00	2.68
20,756	Open Space	1,638.14	5.71	24.76	3.35
6,839	Pavement	155.11	0.50	1.88	6.01
40,152	Roofs	100.02	0.58	7.90	38.95
84,341	Total	1,973.77	6.80	34.54	50.98

Subcatchment 4: Post DA 8B-4



Hydrograph for Subcatchment 4: Post DA 8B-4

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.07
4.00	0.41	0.00	0.24	0.12
6.00	0.68	0.00	0.49	0.15
8.00	1.08	0.00	0.87	0.26
10.00	1.80	0.04	1.57	0.54
12.00	4.75	1.22	4.51	**10.01**
14.00	7.70	3.22	7.46	**0.84**
16.00	8.42	3.77	8.18	0.45
18.00	8.82	4.08	8.58	0.28
20.00	9.09	4.30	8.85	0.22
22.00	9.32	4.48	9.08	0.18
24.00	**9.50**	**4.62**	**9.26**	0.15
26.00	9.50	4.62	9.26	0.00
28.00	9.50	4.62	9.26	0.00
30.00	9.50	4.62	9.26	0.00
32.00	9.50	4.62	9.26	0.00
34.00	9.50	4.62	9.26	0.00
36.00	9.50	4.62	9.26	0.00
38.00	9.50	4.62	9.26	0.00
40.00	9.50	4.62	9.26	0.00
42.00	9.50	4.62	9.26	0.00
44.00	9.50	4.62	9.26	0.00
46.00	9.50	4.62	9.26	0.00
48.00	9.50	4.62	9.26	0.00
50.00	9.50	4.62	9.26	0.00
52.00	9.50	4.62	9.26	0.00
54.00	9.50	4.62	9.26	0.00
56.00	9.50	4.62	9.26	0.00
58.00	9.50	4.62	9.26	0.00
60.00	9.50	4.62	9.26	0.00
62.00	9.50	4.62	9.26	0.00
64.00	9.50	4.62	9.26	0.00
66.00	9.50	4.62	9.26	0.00
68.00	9.50	4.62	9.26	0.00
70.00	9.50	4.62	9.26	0.00
72.00	9.50	4.62	9.26	0.00
74.00	9.50	4.62	9.26	0.00
76.00	9.50	4.62	9.26	0.00
78.00	9.50	4.62	9.26	0.00
80.00	9.50	4.62	9.26	0.00
82.00	9.50	4.62	9.26	0.00
84.00	9.50	4.62	9.26	0.00
86.00	9.50	4.62	9.26	0.00
88.00	9.50	4.62	9.26	0.00
90.00	9.50	4.62	9.26	0.00
92.00	9.50	4.62	9.26	0.00
94.00	9.50	4.62	9.26	0.00
96.00	9.50	4.62	9.26	0.00

Summary for Pond 4-B: 4_Bioretention

Inflow Area = 84,341 sf, 55.72% Impervious, Inflow Depth = 7.21" for 100 Year, 24 Hr. Event event
Inflow = 15.23 cfs @ 12.07 hrs, Volume= 50,654 cf
Outflow = 11.24 cfs @ 12.14 hrs, Volume= 48,343 cf, Atten= 26%, Lag= 4.0 min
Discarded = 0.07 cfs @ 9.23 hrs, Volume= 12,391 cf
Primary = 11.17 cfs @ 12.14 hrs, Volume= 35,951 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 729.99' @ 12.14 hrs Surf.Area= 12,192 sf Storage= 16,346 cf

Plug-Flow detention time= 419.1 min calculated for 48,343 cf (95% of inflow)
Center-of-Mass det. time= 392.1 min (1,157.7 - 765.6)

Volume	Invert	Avail.Storage	Storage Description
#1	723.75'	16,484 cf	**Custom Stage Data (Prismatic)** Listed below

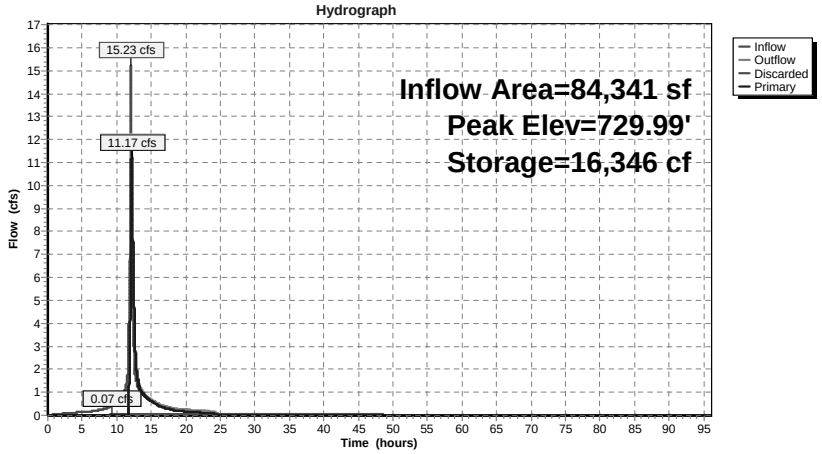
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
723.75	2,068	0.0	0	0
728.75	2,068	40.0	4,136	4,136
729.00	2,068	40.0	207	4,343
729.01	12,192	100.0	71	4,414
729.50	12,192	100.0	5,974	10,388
730.00	12,192	100.0	6,096	16,484

Device	Routing	Invert	Outlet Devices
#1	Discarded	723.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	729.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 24.00 columns** X 24 rows C= 0.600 in 30.0" x 30.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.07 cfs @ 9.23 hrs HW=729.01' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=11.17 cfs @ 12.14 hrs HW=729.99' TW=719.33' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 11.17 cfs @ 2.29 fps)

Pond 4-B: 4_Bioretention



Hydrograph for Pond 4-B: 4_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	723.75	0.00	0.00	0.00
2.00	0.07	166	723.95	0.01	0.01	0.00
4.00	0.12	746	724.65	0.01	0.01	0.00
6.00	0.15	1,635	725.73	0.01	0.01	0.00
8.00	0.26	3,021	727.40	0.01	**0.01**	0.00
10.00	0.54	5,548	729.10	0.07	**0.07**	0.00
12.00	**10.01**	**14,025**	**729.80**	**5.40**	0.07	**5.33**
14.00	**0.84**	**11,465**	**729.59**	**0.93**	0.07	**0.86**
16.00	0.45	11,069	729.56	0.50	0.07	0.43
18.00	0.28	10,841	729.54	0.30	0.07	0.23
20.00	0.22	10,741	729.53	0.23	0.07	0.16
22.00	0.18	10,680	729.52	0.19	0.07	0.12
24.00	0.15	10,618	729.52	0.15	0.07	0.08
26.00	0.00	10,063	729.47	0.07	0.07	0.00
28.00	0.00	9,555	729.43	0.07	0.07	0.00
30.00	0.00	9,047	729.39	0.07	0.07	0.00
32.00	0.00	8,539	729.35	0.07	0.07	0.00
34.00	0.00	8,031	729.31	0.07	0.07	0.00
36.00	0.00	7,523	729.27	0.07	0.07	0.00
38.00	0.00	7,015	729.22	0.07	0.07	0.00
40.00	0.00	6,507	729.18	0.07	0.07	0.00
42.00	0.00	5,999	729.14	0.07	0.07	0.00
44.00	0.00	5,491	729.10	0.07	0.07	0.00
46.00	0.00	4,983	729.06	0.07	0.07	0.00
48.00	0.00	4,475	729.02	0.07	0.07	0.00
50.00	0.00	4,293	728.94	0.01	0.01	0.00
52.00	0.00	4,207	728.84	0.01	0.01	0.00
54.00	0.00	4,121	728.73	0.01	0.01	0.00
56.00	0.00	4,034	728.63	0.01	0.01	0.00
58.00	0.00	3,948	728.52	0.01	0.01	0.00
60.00	0.00	3,862	728.42	0.01	0.01	0.00
62.00	0.00	3,776	728.31	0.01	0.01	0.00
64.00	0.00	3,690	728.21	0.01	0.01	0.00
66.00	0.00	3,604	728.11	0.01	0.01	0.00
68.00	0.00	3,517	728.00	0.01	0.01	0.00
70.00	0.00	3,431	727.90	0.01	0.01	0.00
72.00	0.00	3,345	727.79	0.01	0.01	0.00
74.00	0.00	3,259	727.69	0.01	0.01	0.00
76.00	0.00	3,173	727.59	0.01	0.01	0.00
78.00	0.00	3,087	727.48	0.01	0.01	0.00
80.00	0.00	3,000	727.38	0.01	0.01	0.00
82.00	0.00	2,914	727.27	0.01	0.01	0.00
84.00	0.00	2,828	727.17	0.01	0.01	0.00
86.00	0.00	2,742	727.06	0.01	0.01	0.00
88.00	0.00	2,656	726.96	0.01	0.01	0.00
90.00	0.00	2,570	726.86	0.01	0.01	0.00
92.00	0.00	2,483	726.75	0.01	0.01	0.00
94.00	0.00	2,397	726.65	0.01	0.01	0.00
96.00	0.00	2,311	726.54	0.01	0.01	0.00

Summary for Subcatchment 5: Post DA 8B-5

Runoff = 4.14 cfs @ 12.10 hrs, Volume= 13,235 cf, Depth= 4.62"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

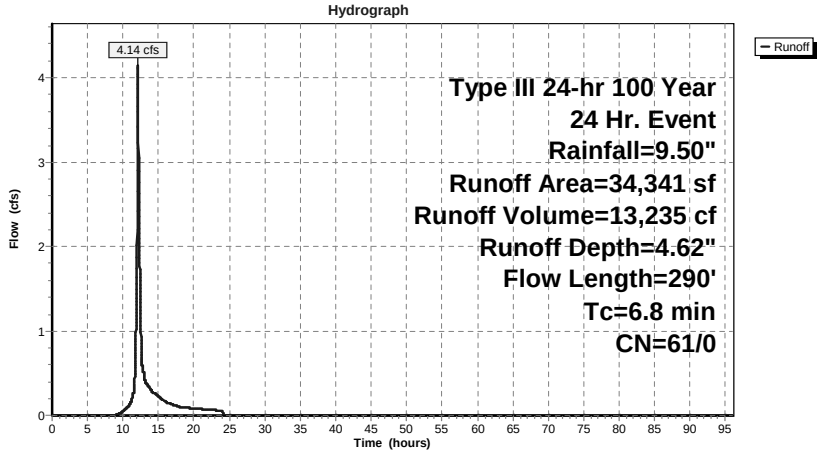
Area (sf)	CN	Description	Land Use
34,341	61	>75% Grass cover, Good, HSG B	Open Space
34,341	61	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.1900	0.30		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.1	120	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	70	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.8	290	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
34,341	Open Space	245.75	0.86	3.71	0.50
34,341	Total	245.75	0.86	3.71	0.50

Subcatchment 5: Post DA 8B-5



Hydrograph for Subcatchment 5: Post DA 8B-5

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.00	0.00	0.00
10.00	1.80	0.04	0.00	0.05
12.00	4.75	1.22	0.00	**2.20**
14.00	7.70	3.22	0.00	**0.29**
16.00	8.42	3.77	0.00	0.16
18.00	8.82	4.08	0.00	0.10
20.00	9.09	4.30	0.00	0.08
22.00	9.32	4.48	0.00	0.07
24.00	**9.50**	**4.62**	0.00	0.05
26.00	9.50	4.62	0.00	0.00
28.00	9.50	4.62	0.00	0.00
30.00	9.50	4.62	0.00	0.00
32.00	9.50	4.62	0.00	0.00
34.00	9.50	4.62	0.00	0.00
36.00	9.50	4.62	0.00	0.00
38.00	9.50	4.62	0.00	0.00
40.00	9.50	4.62	0.00	0.00
42.00	9.50	4.62	0.00	0.00
44.00	9.50	4.62	0.00	0.00
46.00	9.50	4.62	0.00	0.00
48.00	9.50	4.62	0.00	0.00
50.00	9.50	4.62	0.00	0.00
52.00	9.50	4.62	0.00	0.00
54.00	9.50	4.62	0.00	0.00
56.00	9.50	4.62	0.00	0.00
58.00	9.50	4.62	0.00	0.00
60.00	9.50	4.62	0.00	0.00
62.00	9.50	4.62	0.00	0.00
64.00	9.50	4.62	0.00	0.00
66.00	9.50	4.62	0.00	0.00
68.00	9.50	4.62	0.00	0.00
70.00	9.50	4.62	0.00	0.00
72.00	9.50	4.62	0.00	0.00
74.00	9.50	4.62	0.00	0.00
76.00	9.50	4.62	0.00	0.00
78.00	9.50	4.62	0.00	0.00
80.00	9.50	4.62	0.00	0.00
82.00	9.50	4.62	0.00	0.00
84.00	9.50	4.62	0.00	0.00
86.00	9.50	4.62	0.00	0.00
88.00	9.50	4.62	0.00	0.00
90.00	9.50	4.62	0.00	0.00
92.00	9.50	4.62	0.00	0.00
94.00	9.50	4.62	0.00	0.00
96.00	9.50	4.62	0.00	0.00

Summary for Subcatchment 5A: Post DA 8B-5A

Runoff = 2.17 cfs @ 12.07 hrs, Volume= 7,069 cf, Depth= 6.44"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

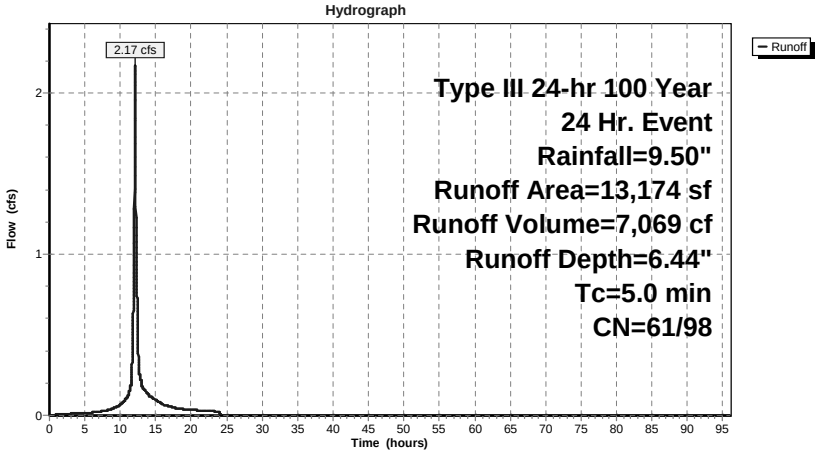
	Area (sf)	CN	Description	Land Use
	5,158	98	Paved parking, HSG B	Pavement
	4,478	61	>75% Grass cover, Good, HSG B	Open Space
*	3,538	61	Bioretention, HSG B	Landscaped
	13,174	75	Weighted Average	
	8,016	61	60.85% Pervious Area	
	5,158	98	39.15% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, user defined min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 39.15% Impervious, Rv= 0.402, Runoff= 18.39"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,538	Landscaped	12.52	0.00	0.00	0.42
4,478	Open Space	257.89	0.90	3.90	0.53
5,158	Pavement	85.36	0.28	1.04	3.31
13,174	Total	355.77	1.18	4.93	4.25

Subcatchment 5A: Post DA 8B-5A



Hydrograph for Subcatchment 5A: Post DA 8B-5A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.02
8.00	1.08	0.00	0.87	0.03
10.00	1.80	0.04	1.57	0.07
12.00	4.75	1.22	4.51	**1.41**
14.00	7.70	3.22	7.46	**0.12**
16.00	8.42	3.77	8.18	0.07
18.00	8.82	4.08	8.58	0.04
20.00	9.09	4.30	8.85	0.03
22.00	9.32	4.48	9.08	0.03
24.00	**9.50**	**4.62**	**9.26**	0.02
26.00	9.50	4.62	9.26	0.00
28.00	9.50	4.62	9.26	0.00
30.00	9.50	4.62	9.26	0.00
32.00	9.50	4.62	9.26	0.00
34.00	9.50	4.62	9.26	0.00
36.00	9.50	4.62	9.26	0.00
38.00	9.50	4.62	9.26	0.00
40.00	9.50	4.62	9.26	0.00
42.00	9.50	4.62	9.26	0.00
44.00	9.50	4.62	9.26	0.00
46.00	9.50	4.62	9.26	0.00
48.00	9.50	4.62	9.26	0.00
50.00	9.50	4.62	9.26	0.00
52.00	9.50	4.62	9.26	0.00
54.00	9.50	4.62	9.26	0.00
56.00	9.50	4.62	9.26	0.00
58.00	9.50	4.62	9.26	0.00
60.00	9.50	4.62	9.26	0.00
62.00	9.50	4.62	9.26	0.00
64.00	9.50	4.62	9.26	0.00
66.00	9.50	4.62	9.26	0.00
68.00	9.50	4.62	9.26	0.00
70.00	9.50	4.62	9.26	0.00
72.00	9.50	4.62	9.26	0.00
74.00	9.50	4.62	9.26	0.00
76.00	9.50	4.62	9.26	0.00
78.00	9.50	4.62	9.26	0.00
80.00	9.50	4.62	9.26	0.00
82.00	9.50	4.62	9.26	0.00
84.00	9.50	4.62	9.26	0.00
86.00	9.50	4.62	9.26	0.00
88.00	9.50	4.62	9.26	0.00
90.00	9.50	4.62	9.26	0.00
92.00	9.50	4.62	9.26	0.00
94.00	9.50	4.62	9.26	0.00
96.00	9.50	4.62	9.26	0.00

Summary for Pond 5A-B: 5A_Bioretention

Inflow Area = 13,174 sf, 39.15% Impervious, Inflow Depth = 6.44" for 100 Year, 24 Hr. Event event
Inflow = 2.17 cfs @ 12.07 hrs, Volume= 7,069 cf
Outflow = 1.97 cfs @ 12.11 hrs, Volume= 6,781 cf, Atten= 9%, Lag= 2.1 min
Discarded = 0.01 cfs @ 10.42 hrs, Volume= 2,191 cf
Primary = 1.96 cfs @ 12.11 hrs, Volume= 4,589 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 728.18' @ 12.11 hrs Surf.Area= 2,168 sf Storage= 2,155 cf

Plug-Flow detention time= 508.6 min calculated for 6,780 cf (96% of inflow)
Center-of-Mass det. time= 484.9 min (1,265.2 - 780.3)

Volume	Invert	Avail.Storage	Storage Description
#1	723.25'	2,853 cf	**Custom Stage Data (Pyramidal)** Listed below (Recalc)

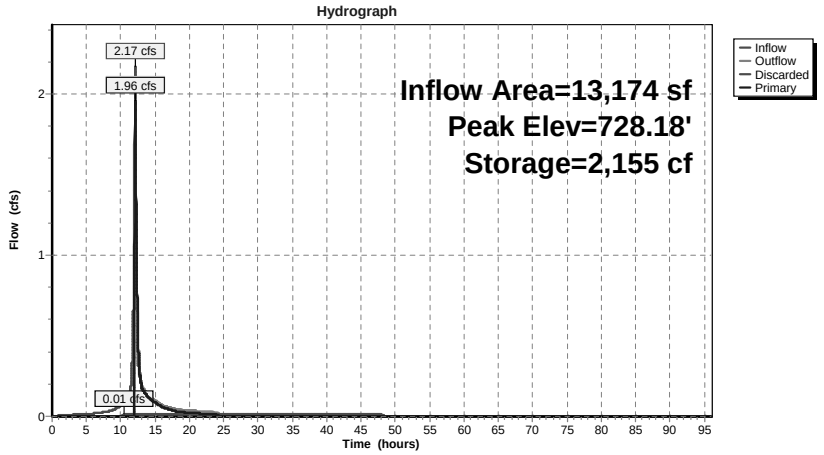
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
723.25	409	0.0	0	0	409
727.25	409	40.0	654	654	733
727.50	409	40.0	41	695	753
727.51	2,168	100.0	12	707	2,512
728.00	2,168	100.0	1,062	1,769	2,603
728.50	2,168	100.0	1,084	2,853	2,696

Device	Routing	Invert	Outlet Devices
#1	Discarded	723.25'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	728.00'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 10.42 hrs HW=727.51' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=1.96 cfs @ 12.11 hrs HW=728.18' TW=720.66' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 1.96 cfs @ 1.38 fps)

Pond 5A-B: 5A_Bioretention



Hydrograph for Pond 5A-B: 5A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	723.25	0.00	0.00	0.00
2.00	0.01	13	723.33	0.00	0.00	0.00
4.00	0.01	69	723.67	0.00	0.00	0.00
6.00	0.02	159	724.22	0.00	0.00	0.00
8.00	0.03	304	725.11	0.00	0.00	0.00
10.00	0.07	603	726.94	0.00	**0.00**	0.00
12.00	**1.41**	**1,980**	**728.10**	**0.81**	**0.01**	**0.79**
14.00	**0.12**	**1,828**	**728.03**	**0.13**	0.01	**0.12**
16.00	0.07	1,806	728.02	0.07	0.01	0.06
18.00	0.04	1,793	728.01	0.04	0.01	0.03
20.00	0.03	1,788	728.01	0.03	0.01	0.02
22.00	0.03	1,785	728.01	0.03	0.01	0.02
24.00	0.02	1,781	728.01	0.02	0.01	0.01
26.00	0.00	1,691	727.96	0.01	0.01	0.00
28.00	0.00	1,601	727.92	0.01	0.01	0.00
30.00	0.00	1,511	727.88	0.01	0.01	0.00
32.00	0.00	1,420	727.84	0.01	0.01	0.00
34.00	0.00	1,330	727.80	0.01	0.01	0.00
36.00	0.00	1,240	727.76	0.01	0.01	0.00
38.00	0.00	1,149	727.71	0.01	0.01	0.00
40.00	0.00	1,059	727.67	0.01	0.01	0.00
42.00	0.00	969	727.63	0.01	0.01	0.00
44.00	0.00	878	727.59	0.01	0.01	0.00
46.00	0.00	788	727.55	0.01	0.01	0.00
48.00	0.00	700	727.51	0.01	0.01	0.00
50.00	0.00	681	727.41	0.00	0.00	0.00
52.00	0.00	664	727.31	0.00	0.00	0.00
54.00	0.00	647	727.20	0.00	0.00	0.00
56.00	0.00	629	727.10	0.00	0.00	0.00
58.00	0.00	612	726.99	0.00	0.00	0.00
60.00	0.00	595	726.89	0.00	0.00	0.00
62.00	0.00	578	726.79	0.00	0.00	0.00
64.00	0.00	561	726.68	0.00	0.00	0.00
66.00	0.00	544	726.58	0.00	0.00	0.00
68.00	0.00	527	726.47	0.00	0.00	0.00
70.00	0.00	510	726.37	0.00	0.00	0.00
72.00	0.00	493	726.26	0.00	0.00	0.00
74.00	0.00	476	726.16	0.00	0.00	0.00
76.00	0.00	459	726.06	0.00	0.00	0.00
78.00	0.00	442	725.95	0.00	0.00	0.00
80.00	0.00	425	725.85	0.00	0.00	0.00
82.00	0.00	408	725.74	0.00	0.00	0.00
84.00	0.00	391	725.64	0.00	0.00	0.00
86.00	0.00	374	725.54	0.00	0.00	0.00
88.00	0.00	357	725.43	0.00	0.00	0.00
90.00	0.00	340	725.33	0.00	0.00	0.00
92.00	0.00	323	725.22	0.00	0.00	0.00
94.00	0.00	306	725.12	0.00	0.00	0.00
96.00	0.00	289	725.01	0.00	0.00	0.00

Summary for Subcatchment 5B: Post DA 8B-5B

Runoff = 0.29 cfs @ 12.07 hrs, Volume= 1,017 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

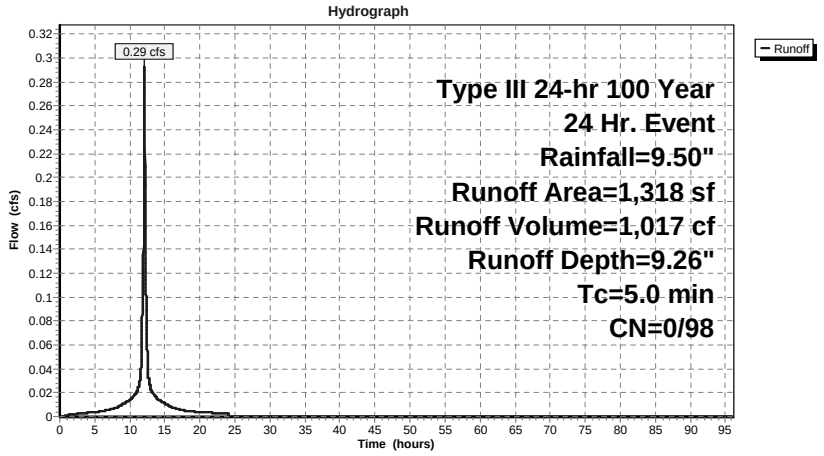
	Area (sf)	CN	Description	Land Use
	615	98	Paved parking, HSG B	Pavement
*	703	98	Pavers, HSG B	Pavement
	1,318	98	Weighted Average	
	1,318	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,318	Pavement	51.50	0.17	0.63	1.99
1,318	Total	51.50	0.17	0.63	1.99

Subcatchment 5B: Post DA 8B-5B



Hydrograph for Subcatchment 5B: Post DA 8B-5B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.00
6.00	0.68	0.00	0.49	0.00
8.00	1.08	0.00	0.87	0.01
10.00	1.80	0.00	1.57	0.01
12.00	4.75	0.00	4.51	**0.20**
14.00	7.70	0.00	7.46	**0.01**
16.00	8.42	0.00	8.18	0.01
18.00	8.82	0.00	8.58	0.00
20.00	9.09	0.00	8.85	0.00
22.00	9.32	0.00	9.08	0.00
24.00	**9.50**	0.00	**9.26**	0.00
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00
74.00	9.50	0.00	9.26	0.00
76.00	9.50	0.00	9.26	0.00
78.00	9.50	0.00	9.26	0.00
80.00	9.50	0.00	9.26	0.00
82.00	9.50	0.00	9.26	0.00
84.00	9.50	0.00	9.26	0.00
86.00	9.50	0.00	9.26	0.00
88.00	9.50	0.00	9.26	0.00
90.00	9.50	0.00	9.26	0.00
92.00	9.50	0.00	9.26	0.00
94.00	9.50	0.00	9.26	0.00
96.00	9.50	0.00	9.26	0.00

Summary for Pond 5B-P: 5B_Pavers

Inflow Area = 1,318 sf,100.00% Impervious, Inflow Depth = 9.26" for 100 Year, 24 Hr. Event event
Inflow = 0.29 cfs @ 12.07 hrs, Volume= 1,017 cf
Outflow = 0.29 cfs @ 12.07 hrs, Volume= 1,017 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.07 hrs, Volume= 1 cf
Primary = 0.29 cfs @ 12.07 hrs, Volume= 1,016 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 728.50' @ 0.00 hrs Surf.Area= 703 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (738.3 - 738.3)

Volume	Invert	Avail.Storage	Storage Description
#1	728.50'	281 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

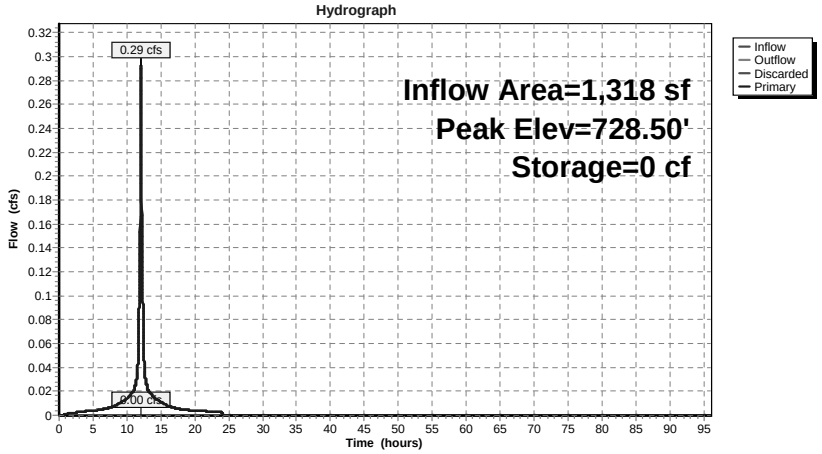
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
728.50	703	177.4	0.0	0	0	703
729.50	703	177.4	40.0	281	281	880

Device	Routing	Invert	Outlet Devices
#1	Primary	728.40'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	728.50'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 12.07 hrs HW=728.50' (Free Discharge)
2=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=728.50' TW=720.64' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Passes 0.00 cfs of 4.24 cfs potential flow)

Pond 5B-P: 5B_Pavers



Hydrograph for Pond 5B-P: 5B_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	**728.50**	0.00	0.00	0.00
2.00	0.00	0	728.50	0.00	0.00	0.00
4.00	0.00	0	728.50	0.00	0.00	0.00
6.00	0.00	0	728.50	0.00	0.00	0.00
8.00	0.01	0	728.50	0.01	0.00	0.01
10.00	0.01	0	728.50	0.01	0.00	0.01
12.00	**0.20**	0	728.50	**0.20**	**0.00**	**0.20**
14.00	**0.01**	0	728.50	**0.01**	**0.00**	**0.01**
16.00	0.01	**0**	728.50	0.01	0.00	0.01
18.00	0.00	**0**	728.50	0.00	0.00	0.00
20.00	0.00	0	728.50	0.00	0.00	0.00
22.00	0.00	0	728.50	0.00	0.00	0.00
24.00	0.00	0	728.50	0.00	0.00	0.00
26.00	0.00	0	728.50	0.00	0.00	0.00
28.00	0.00	0	728.50	0.00	0.00	0.00
30.00	0.00	0	728.50	0.00	0.00	0.00
32.00	0.00	0	728.50	0.00	0.00	0.00
34.00	0.00	0	728.50	0.00	0.00	0.00
36.00	0.00	0	728.50	0.00	0.00	0.00
38.00	0.00	0	728.50	0.00	0.00	0.00
40.00	0.00	0	728.50	0.00	0.00	0.00
42.00	0.00	0	728.50	0.00	0.00	0.00
44.00	0.00	0	728.50	0.00	0.00	0.00
46.00	0.00	0	728.50	0.00	0.00	0.00
48.00	0.00	0	728.50	0.00	0.00	0.00
50.00	0.00	0	728.50	0.00	0.00	0.00
52.00	0.00	0	728.50	0.00	0.00	0.00
54.00	0.00	0	728.50	0.00	0.00	0.00
56.00	0.00	0	728.50	0.00	0.00	0.00
58.00	0.00	0	728.50	0.00	0.00	0.00
60.00	0.00	0	728.50	0.00	0.00	0.00
62.00	0.00	0	728.50	0.00	0.00	0.00
64.00	0.00	0	728.50	0.00	0.00	0.00
66.00	0.00	0	728.50	0.00	0.00	0.00
68.00	0.00	0	728.50	0.00	0.00	0.00
70.00	0.00	0	728.50	0.00	0.00	0.00
72.00	0.00	0	728.50	0.00	0.00	0.00
74.00	0.00	0	728.50	0.00	0.00	0.00
76.00	0.00	0	728.50	0.00	0.00	0.00
78.00	0.00	0	728.50	0.00	0.00	0.00
80.00	0.00	0	728.50	0.00	0.00	0.00
82.00	0.00	0	728.50	0.00	0.00	0.00
84.00	0.00	0	728.50	0.00	0.00	0.00
86.00	0.00	0	728.50	0.00	0.00	0.00
88.00	0.00	0	728.50	0.00	0.00	0.00
90.00	0.00	0	728.50	0.00	0.00	0.00
92.00	0.00	0	728.50	0.00	0.00	0.00
94.00	0.00	0	728.50	0.00	0.00	0.00
96.00	0.00	0	728.50	0.00	0.00	0.00

Summary for Subcatchment 5C: Post DA 8B-5C

Runoff = 0.47 cfs @ 12.07 hrs, Volume= 1,608 cf, Depth= 8.69"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

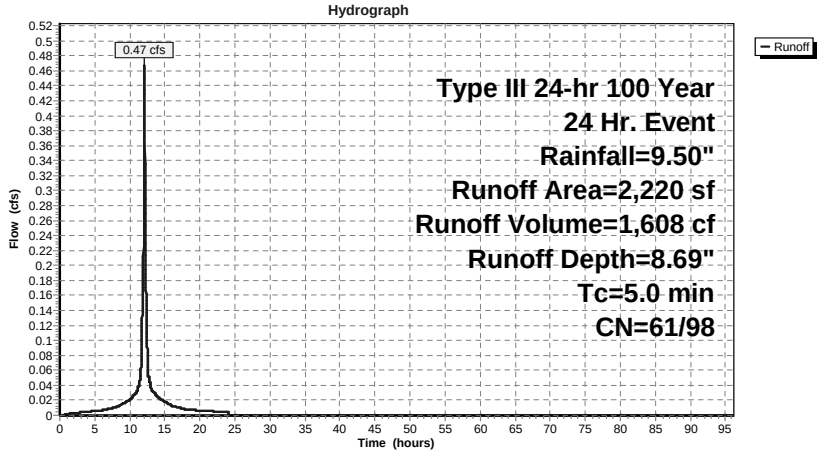
	Area (sf)	CN	Description	Land Use
	631	98	Paved parking, HSG B	Pavement
	273	61	>75% Grass cover, Good, HSG B	Open Space
*	1,316	98	Pavers, HSG B	Pavement
	2,220	93	Weighted Average	
	273	61	12.30% Pervious Area	
	1,947	98	87.70% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 87.70% Impervious, Rv= 0.839, Runoff= 38.36"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
273	Open Space	32.79	0.11	0.50	0.07
1,947	Pavement	67.21	0.22	0.82	2.60
2,220	Total	100.01	0.33	1.31	2.67

Subcatchment 5C: Post DA 8B-5C



Hydrograph for Subcatchment 5C: Post DA 8B-5C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.00
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.00	0.87	0.01
10.00	1.80	0.04	1.57	0.02
12.00	4.75	1.22	4.51	**0.31**
14.00	7.70	3.22	7.46	**0.02**
16.00	8.42	3.77	8.18	0.01
18.00	8.82	4.08	8.58	0.01
20.00	9.09	4.30	8.85	0.01
22.00	9.32	4.48	9.08	0.01
24.00	**9.50**	**4.62**	**9.26**	0.00
26.00	9.50	4.62	9.26	0.00
28.00	9.50	4.62	9.26	0.00
30.00	9.50	4.62	9.26	0.00
32.00	9.50	4.62	9.26	0.00
34.00	9.50	4.62	9.26	0.00
36.00	9.50	4.62	9.26	0.00
38.00	9.50	4.62	9.26	0.00
40.00	9.50	4.62	9.26	0.00
42.00	9.50	4.62	9.26	0.00
44.00	9.50	4.62	9.26	0.00
46.00	9.50	4.62	9.26	0.00
48.00	9.50	4.62	9.26	0.00
50.00	9.50	4.62	9.26	0.00
52.00	9.50	4.62	9.26	0.00
54.00	9.50	4.62	9.26	0.00
56.00	9.50	4.62	9.26	0.00
58.00	9.50	4.62	9.26	0.00
60.00	9.50	4.62	9.26	0.00
62.00	9.50	4.62	9.26	0.00
64.00	9.50	4.62	9.26	0.00
66.00	9.50	4.62	9.26	0.00
68.00	9.50	4.62	9.26	0.00
70.00	9.50	4.62	9.26	0.00
72.00	9.50	4.62	9.26	0.00
74.00	9.50	4.62	9.26	0.00
76.00	9.50	4.62	9.26	0.00
78.00	9.50	4.62	9.26	0.00
80.00	9.50	4.62	9.26	0.00
82.00	9.50	4.62	9.26	0.00
84.00	9.50	4.62	9.26	0.00
86.00	9.50	4.62	9.26	0.00
88.00	9.50	4.62	9.26	0.00
90.00	9.50	4.62	9.26	0.00
92.00	9.50	4.62	9.26	0.00
94.00	9.50	4.62	9.26	0.00
96.00	9.50	4.62	9.26	0.00

Summary for Pond 5C-P: 5C_Pavers

Inflow Area = 2,220 sf, 87.70% Impervious, Inflow Depth = 8.69" for 100 Year, 24 Hr. Event event
Inflow = 0.47 cfs @ 12.07 hrs, Volume= 1,608 cf
Outflow = 0.47 cfs @ 12.08 hrs, Volume= 1,608 cf, Atten= 0%, Lag= 0.3 min
Discarded = 0.01 cfs @ 7.56 hrs, Volume= 831 cf
Primary = 0.46 cfs @ 12.08 hrs, Volume= 777 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 726.92' @ 12.08 hrs Surf.Area= 1,316 sf Storage= 312 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 191.6 min (936.2 - 744.6)

Volume	Invert	Avail.Storage	Storage Description
#1	726.33'	353 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

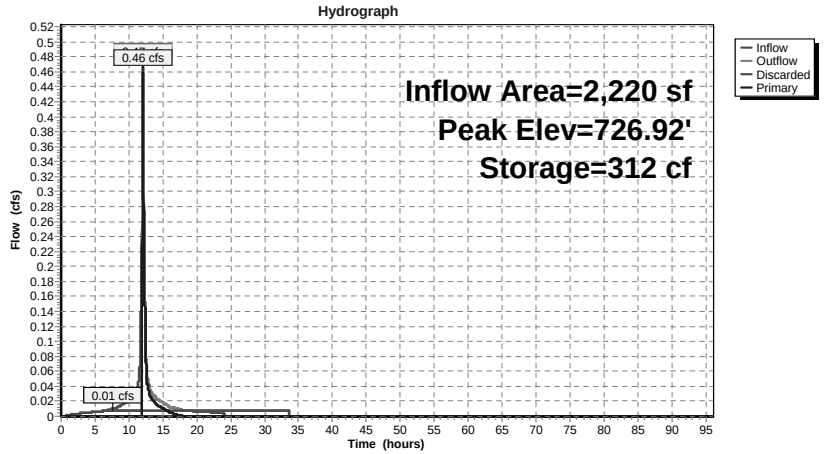
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
726.33	1,316	291.9	0.0	0	0	1,316
727.00	1,316	291.9	40.0	353	353	1,512

Device	Routing	Invert	Outlet Devices
#1	Primary	726.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	726.33'	**0.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 7.56 hrs HW=726.34' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.46 cfs @ 12.08 hrs HW=726.92' TW=720.65' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.46 cfs @ 0.40 fps)

Pond 5C-P: 5C_Pavers



Hydrograph for Pond 5C-P: 5C_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	726.33	0.00	0.00	0.00
2.00	0.00	0	726.33	0.00	0.00	0.00
4.00	0.00	0	726.33	0.00	0.00	0.00
6.00	0.01	0	726.33	0.01	**0.01**	0.00
8.00	0.01	8	726.34	0.01	**0.01**	0.00
10.00	0.02	64	726.45	0.01	0.01	0.00
12.00	**0.31**	**309**	**726.92**	**0.30**	0.01	**0.29**
14.00	**0.02**	**301**	**726.90**	**0.02**	0.01	**0.02**
16.00	0.01	301	726.90	0.01	0.01	0.01
18.00	0.01	300	726.90	0.01	0.01	0.00
20.00	0.01	295	726.89	0.01	0.01	0.00
22.00	0.01	281	726.86	0.01	0.01	0.00
24.00	0.00	260	726.82	0.01	0.01	0.00
26.00	0.00	206	726.72	0.01	0.01	0.00
28.00	0.00	151	726.62	0.01	0.01	0.00
30.00	0.00	97	726.51	0.01	0.01	0.00
32.00	0.00	42	726.41	0.01	0.01	0.00
34.00	0.00	0	726.33	0.00	0.00	0.00
36.00	0.00	0	726.33	0.00	0.00	0.00
38.00	0.00	0	726.33	0.00	0.00	0.00
40.00	0.00	0	726.33	0.00	0.00	0.00
42.00	0.00	0	726.33	0.00	0.00	0.00
44.00	0.00	0	726.33	0.00	0.00	0.00
46.00	0.00	0	726.33	0.00	0.00	0.00
48.00	0.00	0	726.33	0.00	0.00	0.00
50.00	0.00	0	726.33	0.00	0.00	0.00
52.00	0.00	0	726.33	0.00	0.00	0.00
54.00	0.00	0	726.33	0.00	0.00	0.00
56.00	0.00	0	726.33	0.00	0.00	0.00
58.00	0.00	0	726.33	0.00	0.00	0.00
60.00	0.00	0	726.33	0.00	0.00	0.00
62.00	0.00	0	726.33	0.00	0.00	0.00
64.00	0.00	0	726.33	0.00	0.00	0.00
66.00	0.00	0	726.33	0.00	0.00	0.00
68.00	0.00	0	726.33	0.00	0.00	0.00
70.00	0.00	0	726.33	0.00	0.00	0.00
72.00	0.00	0	726.33	0.00	0.00	0.00
74.00	0.00	0	726.33	0.00	0.00	0.00
76.00	0.00	0	726.33	0.00	0.00	0.00
78.00	0.00	0	726.33	0.00	0.00	0.00
80.00	0.00	0	726.33	0.00	0.00	0.00
82.00	0.00	0	726.33	0.00	0.00	0.00
84.00	0.00	0	726.33	0.00	0.00	0.00
86.00	0.00	0	726.33	0.00	0.00	0.00
88.00	0.00	0	726.33	0.00	0.00	0.00
90.00	0.00	0	726.33	0.00	0.00	0.00
92.00	0.00	0	726.33	0.00	0.00	0.00
94.00	0.00	0	726.33	0.00	0.00	0.00
96.00	0.00	0	726.33	0.00	0.00	0.00

Summary for Subcatchment 5D: Post DA 8B-5D

Runoff = 1.30 cfs @ 12.07 hrs, Volume= 4,502 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

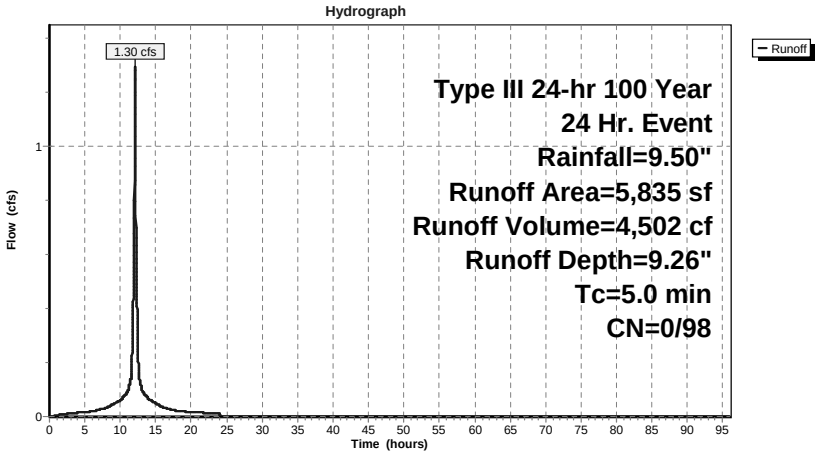
	Area (sf)	CN	Description	Land Use
	1,217	98	Water Surface, HSG B	Open Water
*	4,618	98	Pavers, HSG B	Pavement
	5,835	98	Weighted Average	
	5,835	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,217	Open Water	0.00	0.00	0.00	0.44
4,618	Pavement	180.44	0.58	2.19	6.99
5,835	Total	180.44	0.58	2.19	7.43

Subcatchment 5D: Post DA 8B-5D



Hydrograph for Subcatchment 5D: Post DA 8B-5D

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.02
8.00	1.08	0.00	0.87	0.03
10.00	1.80	0.00	1.57	0.06
12.00	4.75	0.00	4.51	**0.88**
14.00	7.70	0.00	7.46	**0.07**
16.00	8.42	0.00	8.18	0.03
18.00	8.82	0.00	8.58	0.02
20.00	9.09	0.00	8.85	0.02
22.00	9.32	0.00	9.08	0.01
24.00	**9.50**	0.00	**9.26**	0.01
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00
74.00	9.50	0.00	9.26	0.00
76.00	9.50	0.00	9.26	0.00
78.00	9.50	0.00	9.26	0.00
80.00	9.50	0.00	9.26	0.00
82.00	9.50	0.00	9.26	0.00
84.00	9.50	0.00	9.26	0.00
86.00	9.50	0.00	9.26	0.00
88.00	9.50	0.00	9.26	0.00
90.00	9.50	0.00	9.26	0.00
92.00	9.50	0.00	9.26	0.00
94.00	9.50	0.00	9.26	0.00
96.00	9.50	0.00	9.26	0.00

Summary for Subcatchment 6A: Post DA 8B-6A

Runoff = 1.54 cfs @ 12.07 hrs, Volume= 5,186 cf, Depth= 7.81"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

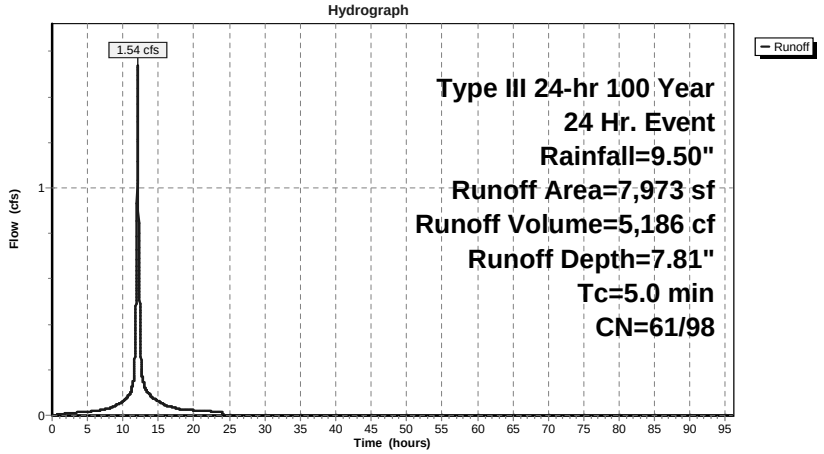
	Area (sf)	CN	Description	Land Use
	5,471	98	Paved parking, HSG B	Pavement
	1,084	61	>75% Grass cover, Good, HSG B	Open Space
*	1,418	61	Bioretention, HSG B	Landscaped
	7,973	86	Weighted Average	
	2,502	61	31.38% Pervious Area	
	5,471	98	68.62% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 68.62% Impervious, Rv= 0.668, Runoff= 30.51"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,418	Landscaped	8.33	0.00	0.00	0.28
1,084	Open Space	103.57	0.36	1.57	0.21
5,471	Pavement	150.22	0.49	1.82	5.82
7,973	Total	262.12	0.85	3.39	6.31

Subcatchment 6A: Post DA 8B-6A



Hydrograph for Subcatchment 6A: Post DA 8B-6A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.02
8.00	1.08	0.00	0.87	0.03
10.00	1.80	0.04	1.57	0.06
12.00	4.75	1.22	4.51	**1.02**
14.00	7.70	3.22	7.46	**0.08**
16.00	8.42	3.77	8.18	0.04
18.00	8.82	4.08	8.58	0.03
20.00	9.09	4.30	8.85	0.02
22.00	9.32	4.48	9.08	0.02
24.00	**9.50**	**4.62**	**9.26**	0.01
26.00	9.50	4.62	9.26	0.00
28.00	9.50	4.62	9.26	0.00
30.00	9.50	4.62	9.26	0.00
32.00	9.50	4.62	9.26	0.00
34.00	9.50	4.62	9.26	0.00
36.00	9.50	4.62	9.26	0.00
38.00	9.50	4.62	9.26	0.00
40.00	9.50	4.62	9.26	0.00
42.00	9.50	4.62	9.26	0.00
44.00	9.50	4.62	9.26	0.00
46.00	9.50	4.62	9.26	0.00
48.00	9.50	4.62	9.26	0.00
50.00	9.50	4.62	9.26	0.00
52.00	9.50	4.62	9.26	0.00
54.00	9.50	4.62	9.26	0.00
56.00	9.50	4.62	9.26	0.00
58.00	9.50	4.62	9.26	0.00
60.00	9.50	4.62	9.26	0.00
62.00	9.50	4.62	9.26	0.00
64.00	9.50	4.62	9.26	0.00
66.00	9.50	4.62	9.26	0.00
68.00	9.50	4.62	9.26	0.00
70.00	9.50	4.62	9.26	0.00
72.00	9.50	4.62	9.26	0.00
74.00	9.50	4.62	9.26	0.00
76.00	9.50	4.62	9.26	0.00
78.00	9.50	4.62	9.26	0.00
80.00	9.50	4.62	9.26	0.00
82.00	9.50	4.62	9.26	0.00
84.00	9.50	4.62	9.26	0.00
86.00	9.50	4.62	9.26	0.00
88.00	9.50	4.62	9.26	0.00
90.00	9.50	4.62	9.26	0.00
92.00	9.50	4.62	9.26	0.00
94.00	9.50	4.62	9.26	0.00
96.00	9.50	4.62	9.26	0.00

Summary for Pond 6A-B: 6A_Bioretention

Inflow Area = 7,973 sf, 68.62% Impervious, Inflow Depth = 7.81" for 100 Year, 24 Hr. Event event
Inflow = 1.54 cfs @ 12.07 hrs, Volume= 5,186 cf
Outflow = 1.42 cfs @ 12.10 hrs, Volume= 4,979 cf, Atten= 7%, Lag= 1.8 min
Discarded = 0.01 cfs @ 10.07 hrs, Volume= 1,863 cf
Primary = 1.41 cfs @ 12.10 hrs, Volume= 3,116 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 735.64' @ 12.10 hrs Surf.Area= 1,718 sf Storage= 1,730 cf

Plug-Flow detention time= 584.9 min calculated for 4,979 cf (96% of inflow)
Center-of-Mass det. time= 561.2 min (1,317.3 - 756.1)

Volume	Invert	Avail.Storage	Storage Description
#1	730.75'	2,343 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

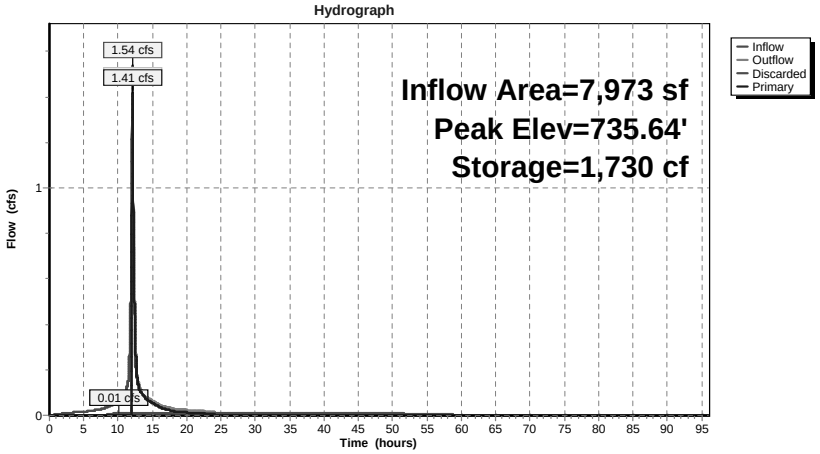
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
730.75	242	0.0	0	0
730.76	242	40.0	1	1
734.75	242	40.0	386	387
735.01	1,718	100.0	255	642
735.50	1,718	100.0	842	1,484
736.00	1,718	100.0	859	2,343

Device	Routing	Invert	Outlet Devices
#1	Discarded	730.75'	**0.250 in/hr Exfiltration over Surface area**
#2	Primary	735.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 24.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 10.07 hrs HW=735.01' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=1.41 cfs @ 12.10 hrs HW=735.64' TW=720.66' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 1.41 cfs @ 1.24 fps)

Pond 6A-B: 6A_Bioretention



Hydrograph for Pond 6A-B: 6A_Bioretention

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	730.75	0.00	0.00	0.00
2.00	0.01	19	730.95	0.00	0.00	0.00
4.00	0.01	87	731.65	0.00	0.00	0.00
6.00	0.02	190	732.71	0.00	0.00	0.00
8.00	0.03	351	734.38	0.00	0.00	0.00
10.00	0.06	631	735.00	0.01	**0.01**	0.00
12.00	**1.02**	**1,640**	**735.59**	**0.73**	**0.01**	**0.72**
14.00	**0.08**	**1,519**	**735.52**	**0.09**	0.01	**0.08**
16.00	0.04	1,505	735.51	0.05	0.01	0.04
18.00	0.03	1,497	735.51	0.03	0.01	0.02
20.00	0.02	1,494	735.51	0.02	0.01	0.01
22.00	0.02	1,492	735.50	0.02	0.01	0.01
24.00	0.01	1,489	735.50	0.01	0.01	0.00
26.00	0.00	1,420	735.46	0.01	0.01	0.00
28.00	0.00	1,348	735.42	0.01	0.01	0.00
30.00	0.00	1,276	735.38	0.01	0.01	0.00
32.00	0.00	1,205	735.34	0.01	0.01	0.00
34.00	0.00	1,133	735.30	0.01	0.01	0.00
36.00	0.00	1,062	735.25	0.01	0.01	0.00
38.00	0.00	990	735.21	0.01	0.01	0.00
40.00	0.00	919	735.17	0.01	0.01	0.00
42.00	0.00	847	735.13	0.01	0.01	0.00
44.00	0.00	775	735.09	0.01	0.01	0.00
46.00	0.00	704	735.05	0.01	0.01	0.00
48.00	0.00	632	735.00	0.01	0.01	0.00
50.00	0.00	567	734.96	0.01	0.01	0.00
52.00	0.00	512	734.92	0.01	0.01	0.00
54.00	0.00	466	734.88	0.01	0.01	0.00
56.00	0.00	430	734.84	0.00	0.00	0.00
58.00	0.00	404	734.80	0.00	0.00	0.00
60.00	0.00	388	734.75	0.00	0.00	0.00
62.00	0.00	378	734.66	0.00	0.00	0.00
64.00	0.00	368	734.55	0.00	0.00	0.00
66.00	0.00	358	734.45	0.00	0.00	0.00
68.00	0.00	348	734.34	0.00	0.00	0.00
70.00	0.00	338	734.24	0.00	0.00	0.00
72.00	0.00	328	734.14	0.00	0.00	0.00
74.00	0.00	318	734.03	0.00	0.00	0.00
76.00	0.00	308	733.93	0.00	0.00	0.00
78.00	0.00	297	733.82	0.00	0.00	0.00
80.00	0.00	287	733.72	0.00	0.00	0.00
82.00	0.00	277	733.61	0.00	0.00	0.00
84.00	0.00	267	733.51	0.00	0.00	0.00
86.00	0.00	257	733.41	0.00	0.00	0.00
88.00	0.00	247	733.30	0.00	0.00	0.00
90.00	0.00	237	733.20	0.00	0.00	0.00
92.00	0.00	227	733.09	0.00	0.00	0.00
94.00	0.00	217	732.99	0.00	0.00	0.00
96.00	0.00	207	732.89	0.00	0.00	0.00

Summary for Subcatchment 6B: Post DA 8B-6B

Runoff = 1.62 cfs @ 12.07 hrs, Volume= 5,552 cf, Depth= 8.38"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

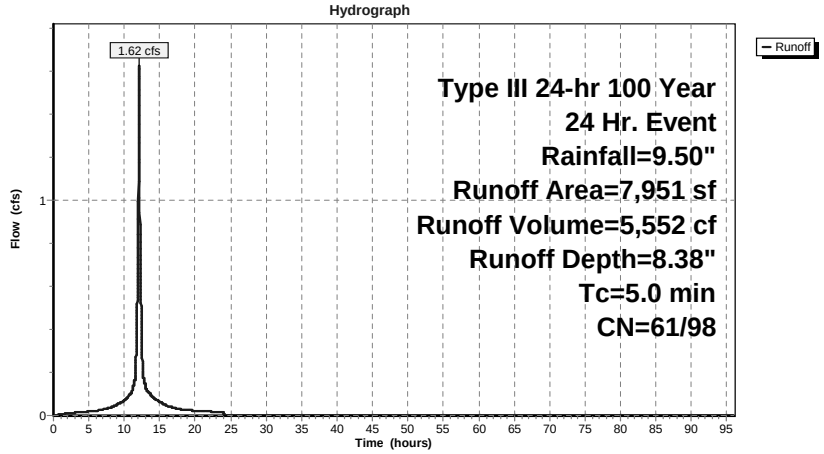
	Area (sf)	CN	Description	Land Use
	1,510	61	>75% Grass cover, Good, HSG B	Open Space
*	6,441	98	Pavers, HSG B	Pavement
	7,951	91	Weighted Average	
	1,510	61	18.99% Pervious Area	
	6,441	98	81.01% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 81.01% Impervious, Rv= 0.779, Runoff= 35.60"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,510	Open Space	168.37	0.59	2.55	0.34
6,441	Pavement	206.39	0.67	2.51	7.99
7,951	Total	374.76	1.26	5.05	8.34

Subcatchment 6B: Post DA 8B-6B



Hydrograph for Subcatchment 6B: Post DA 8B-6B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.02
6.00	0.68	0.00	0.49	0.02
8.00	1.08	0.00	0.87	0.04
10.00	1.80	0.04	1.57	0.07
12.00	4.75	1.22	4.51	**1.09**
14.00	7.70	3.22	7.46	**0.08**
16.00	8.42	3.77	8.18	0.04
18.00	8.82	4.08	8.58	0.03
20.00	9.09	4.30	8.85	0.02
22.00	9.32	4.48	9.08	0.02
24.00	**9.50**	**4.62**	**9.26**	0.01
26.00	9.50	4.62	9.26	0.00
28.00	9.50	4.62	9.26	0.00
30.00	9.50	4.62	9.26	0.00
32.00	9.50	4.62	9.26	0.00
34.00	9.50	4.62	9.26	0.00
36.00	9.50	4.62	9.26	0.00
38.00	9.50	4.62	9.26	0.00
40.00	9.50	4.62	9.26	0.00
42.00	9.50	4.62	9.26	0.00
44.00	9.50	4.62	9.26	0.00
46.00	9.50	4.62	9.26	0.00
48.00	9.50	4.62	9.26	0.00
50.00	9.50	4.62	9.26	0.00
52.00	9.50	4.62	9.26	0.00
54.00	9.50	4.62	9.26	0.00
56.00	9.50	4.62	9.26	0.00
58.00	9.50	4.62	9.26	0.00
60.00	9.50	4.62	9.26	0.00
62.00	9.50	4.62	9.26	0.00
64.00	9.50	4.62	9.26	0.00
66.00	9.50	4.62	9.26	0.00
68.00	9.50	4.62	9.26	0.00
70.00	9.50	4.62	9.26	0.00
72.00	9.50	4.62	9.26	0.00
74.00	9.50	4.62	9.26	0.00
76.00	9.50	4.62	9.26	0.00
78.00	9.50	4.62	9.26	0.00
80.00	9.50	4.62	9.26	0.00
82.00	9.50	4.62	9.26	0.00
84.00	9.50	4.62	9.26	0.00
86.00	9.50	4.62	9.26	0.00
88.00	9.50	4.62	9.26	0.00
90.00	9.50	4.62	9.26	0.00
92.00	9.50	4.62	9.26	0.00
94.00	9.50	4.62	9.26	0.00
96.00	9.50	4.62	9.26	0.00

Summary for Pond 6B-P: 6B_Pavers

Inflow Area = 7,951 sf, 81.01% Impervious, Inflow Depth = 8.38" for 100 Year, 24 Hr. Event event
Inflow = 1.62 cfs @ 12.07 hrs, Volume= 5,552 cf
Outflow = 1.60 cfs @ 12.08 hrs, Volume= 4,083 cf, Atten= 2%, Lag= 0.8 min
Primary = 1.60 cfs @ 12.08 hrs, Volume= 4,083 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 739.95' @ 12.08 hrs Surf.Area= 6,441 sf Storage= 1,588 cf

Plug-Flow detention time= 175.4 min calculated for 4,083 cf (74% of inflow)
Center-of-Mass det. time= 83.5 min (831.8 - 748.3)

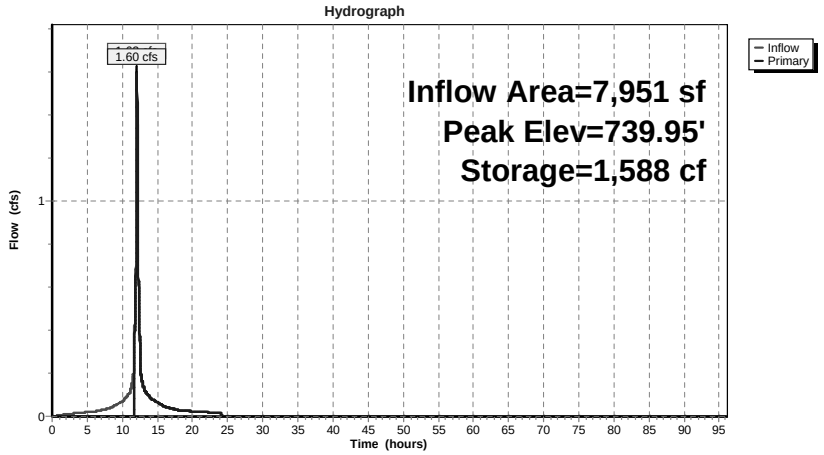
Volume	Invert	Avail.Storage	Storage Description
#1	739.33'	1,726 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
739.33	6,441	0.0	0	0
740.00	6,441	40.0	1,726	1,726

Device	Routing	Invert	Outlet Devices
#1	Primary	739.90'	**60.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.59 cfs @ 12.08 hrs HW=739.95' TW=720.66' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 1.59 cfs @ 0.58 fps)

Pond 6B-P: 6B_Pavers



Hydrograph for Pond 6B-P: 6B_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	739.33	0.00
2.00	0.01	31	739.34	0.00
4.00	0.02	122	739.38	0.00
6.00	0.02	256	739.43	0.00
8.00	0.04	458	739.51	0.00
10.00	0.07	829	739.65	0.00
12.00	**1.09**	**1,553**	**739.93**	**0.95**
14.00	**0.08**	**1,486**	**739.91**	**0.09**
16.00	0.04	1,480	739.90	0.05
18.00	0.03	1,477	739.90	0.03
20.00	0.02	1,475	739.90	0.02
22.00	0.02	1,475	739.90	0.02
24.00	0.01	1,474	739.90	0.01
26.00	0.00	1,469	739.90	0.00
28.00	0.00	1,469	739.90	0.00
30.00	0.00	1,469	739.90	0.00
32.00	0.00	1,469	739.90	0.00
34.00	0.00	1,469	739.90	0.00
36.00	0.00	1,469	739.90	0.00
38.00	0.00	1,469	739.90	0.00
40.00	0.00	1,469	739.90	0.00
42.00	0.00	1,469	739.90	0.00
44.00	0.00	1,469	739.90	0.00
46.00	0.00	1,469	739.90	0.00
48.00	0.00	1,469	739.90	0.00
50.00	0.00	1,469	739.90	0.00
52.00	0.00	1,469	739.90	0.00
54.00	0.00	1,469	739.90	0.00
56.00	0.00	1,469	739.90	0.00
58.00	0.00	1,469	739.90	0.00
60.00	0.00	1,469	739.90	0.00
62.00	0.00	1,469	739.90	0.00
64.00	0.00	1,469	739.90	0.00
66.00	0.00	1,469	739.90	0.00
68.00	0.00	1,469	739.90	0.00
70.00	0.00	1,469	739.90	0.00
72.00	0.00	1,469	739.90	0.00
74.00	0.00	1,469	739.90	0.00
76.00	0.00	1,469	739.90	0.00
78.00	0.00	1,469	739.90	0.00
80.00	0.00	1,469	739.90	0.00
82.00	0.00	1,469	739.90	0.00
84.00	0.00	1,469	739.90	0.00
86.00	0.00	1,469	739.90	0.00
88.00	0.00	1,469	739.90	0.00
90.00	0.00	1,469	739.90	0.00
92.00	0.00	1,469	739.90	0.00
94.00	0.00	1,469	739.90	0.00
96.00	0.00	1,469	739.90	0.00

Summary for Pond 7P: 5D_Pavers

Inflow Area = 5,835 sf,100.00% Impervious, Inflow Depth = 9.26" for 100 Year, 24 Hr. Event event
Inflow = 1.30 cfs @ 12.07 hrs, Volume= 4,502 cf
Outflow = 1.28 cfs @ 12.08 hrs, Volume= 4,503 cf, Atten= 1%, Lag= 0.8 min
Discarded = 0.03 cfs @ 8.22 hrs, Volume= 2,752 cf
Primary = 1.25 cfs @ 12.08 hrs, Volume= 1,751 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 737.94' @ 12.08 hrs Surf.Area= 4,618 sf Storage= 1,135 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 216.9 min (955.2 - 738.3)

Volume	Invert	Avail.Storage	Storage Description
#1	737.33'	1,238 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

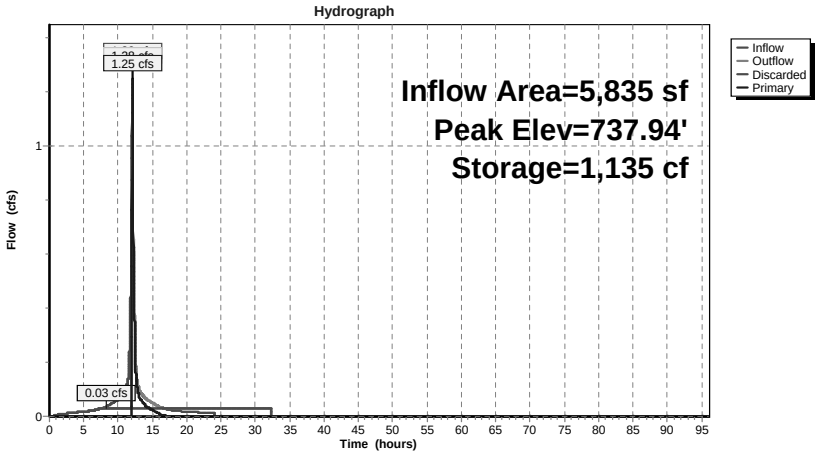
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
737.33	4,618	0.0	0	0
738.00	4,618	40.0	1,238	1,238

Device	Routing	Invert	Outlet Devices
#1	Primary	737.90'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	737.33'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.03 cfs @ 8.22 hrs HW=737.34' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=1.25 cfs @ 12.08 hrs HW=737.94' TW=720.66' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 1.25 cfs @ 0.56 fps)

Pond 7P: 5D_Pavers



Hydrograph for Pond 7P: 5D_Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	737.33	0.00	0.00	0.00
2.00	0.01	0	737.33	0.01	0.01	0.00
4.00	0.01	0	737.33	0.01	0.01	0.00
6.00	0.02	0	737.33	0.02	0.02	0.00
8.00	0.03	8	737.33	0.03	**0.03**	0.00
10.00	0.06	147	737.41	0.03	**0.03**	0.00
12.00	**0.88**	**1,084**	**737.92**	**0.32**	0.03	**0.29**
14.00	**0.07**	**1,061**	**737.90**	**0.07**	0.03	**0.04**
16.00	0.03	1,056	737.90	0.04	0.03	0.01
18.00	0.02	1,044	737.90	0.03	0.03	0.00
20.00	0.02	987	737.86	0.03	0.03	0.00
22.00	0.01	905	737.82	0.03	0.03	0.00
24.00	0.01	802	737.76	0.03	0.03	0.00
26.00	0.00	613	737.66	0.03	0.03	0.00
28.00	0.00	420	737.56	0.03	0.03	0.00
30.00	0.00	228	737.45	0.03	0.03	0.00
32.00	0.00	35	737.35	0.03	0.03	0.00
34.00	0.00	0	737.33	0.00	0.00	0.00
36.00	0.00	0	737.33	0.00	0.00	0.00
38.00	0.00	0	737.33	0.00	0.00	0.00
40.00	0.00	0	737.33	0.00	0.00	0.00
42.00	0.00	0	737.33	0.00	0.00	0.00
44.00	0.00	0	737.33	0.00	0.00	0.00
46.00	0.00	0	737.33	0.00	0.00	0.00
48.00	0.00	0	737.33	0.00	0.00	0.00
50.00	0.00	0	737.33	0.00	0.00	0.00
52.00	0.00	0	737.33	0.00	0.00	0.00
54.00	0.00	0	737.33	0.00	0.00	0.00
56.00	0.00	0	737.33	0.00	0.00	0.00
58.00	0.00	0	737.33	0.00	0.00	0.00
60.00	0.00	0	737.33	0.00	0.00	0.00
62.00	0.00	0	737.33	0.00	0.00	0.00
64.00	0.00	0	737.33	0.00	0.00	0.00
66.00	0.00	0	737.33	0.00	0.00	0.00
68.00	0.00	0	737.33	0.00	0.00	0.00
70.00	0.00	0	737.33	0.00	0.00	0.00
72.00	0.00	0	737.33	0.00	0.00	0.00
74.00	0.00	0	737.33	0.00	0.00	0.00
76.00	0.00	0	737.33	0.00	0.00	0.00
78.00	0.00	0	737.33	0.00	0.00	0.00
80.00	0.00	0	737.33	0.00	0.00	0.00
82.00	0.00	0	737.33	0.00	0.00	0.00
84.00	0.00	0	737.33	0.00	0.00	0.00
86.00	0.00	0	737.33	0.00	0.00	0.00
88.00	0.00	0	737.33	0.00	0.00	0.00
90.00	0.00	0	737.33	0.00	0.00	0.00
92.00	0.00	0	737.33	0.00	0.00	0.00
94.00	0.00	0	737.33	0.00	0.00	0.00
96.00	0.00	0	737.33	0.00	0.00	0.00

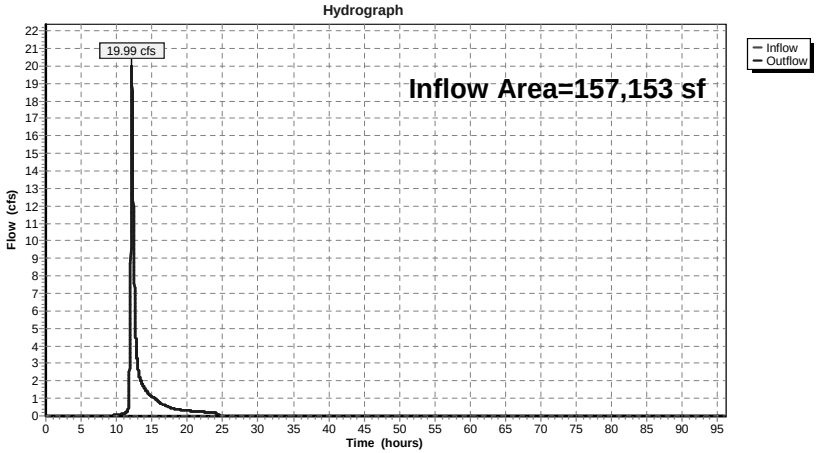
Summary for Reach 8BW-Out: DA-8B West Outflow

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 157,153 sf, 46.55% Impervious, Inflow Depth = 4.93" for 100 Year, 24 Hr. Event event
Inflow = 19.99 cfs @ 12.16 hrs, Volume= 64,519 cf
Outflow = 19.99 cfs @ 12.16 hrs, Volume= 64,519 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3

Reach 8BW-Out: DA-8B West Outflow



Hydrograph for Reach 8BW-Out: DA-8B West Outflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.01		0.01	60.00	0.00		0.00
9.00	0.01		0.01	61.00	0.00		0.00
10.00	0.05		0.05	62.00	0.00		0.00
11.00	0.14		0.14	63.00	0.00		0.00
12.00	**7.34**		**7.34**	64.00	0.00		0.00
13.00	**2.93**		**2.93**	65.00	0.00		0.00
14.00	1.56		1.56	66.00	0.00		0.00
15.00	1.12		1.12	67.00	0.00		0.00
16.00	0.79		0.79	68.00	0.00		0.00
17.00	0.57		0.57	69.00	0.00		0.00
18.00	0.43		0.43	70.00	0.00		0.00
19.00	0.35		0.35	71.00	0.00		0.00
20.00	0.30		0.30	72.00	0.00		0.00
21.00	0.27		0.27	73.00	0.00		0.00
22.00	0.24		0.24	74.00	0.00		0.00
23.00	0.21		0.21	75.00	0.00		0.00
24.00	0.17		0.17	76.00	0.00		0.00
25.00	0.01		0.01	77.00	0.00		0.00
26.00	0.00		0.00	78.00	0.00		0.00
27.00	0.00		0.00	79.00	0.00		0.00
28.00	0.00		0.00	80.00	0.00		0.00
29.00	0.00		0.00	81.00	0.00		0.00
30.00	0.00		0.00	82.00	0.00		0.00
31.00	0.00		0.00	83.00	0.00		0.00
32.00	0.00		0.00	84.00	0.00		0.00
33.00	0.00		0.00	85.00	0.00		0.00
34.00	0.00		0.00	86.00	0.00		0.00
35.00	0.00		0.00	87.00	0.00		0.00
36.00	0.00		0.00	88.00	0.00		0.00
37.00	0.00		0.00	89.00	0.00		0.00
38.00	0.00		0.00	90.00	0.00		0.00
39.00	0.00		0.00	91.00	0.00		0.00
40.00	0.00		0.00	92.00	0.00		0.00
41.00	0.00		0.00	93.00	0.00		0.00
42.00	0.00		0.00	94.00	0.00		0.00
43.00	0.00		0.00	95.00	0.00		0.00
44.00	0.00		0.00	96.00	0.00		0.00
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Reach R-2: West Reach -2

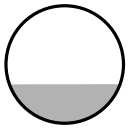
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 72,812 sf, 35.94% Impervious, Inflow Depth = 4.71" for 100 Year, 24 Hr. Event event
Inflow = 11.01 cfs @ 12.10 hrs, Volume= 28,568 cf
Outflow = 11.01 cfs @ 12.10 hrs, Volume= 28,568 cf, Atten= 0%, Lag= 0.1 min

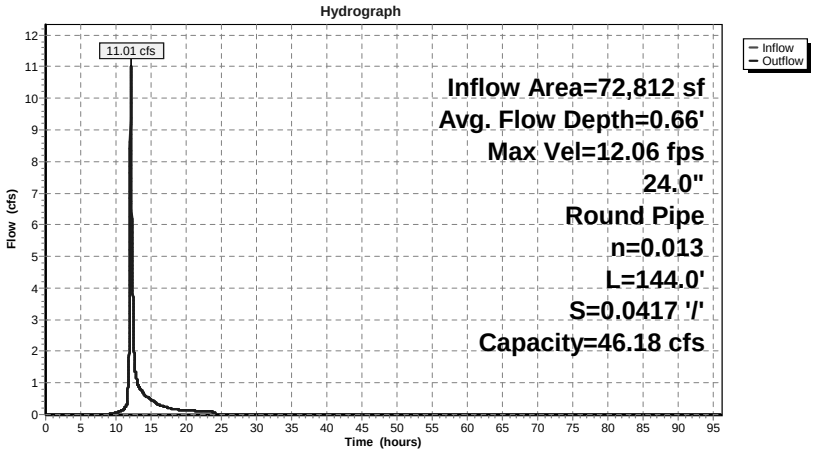
Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 12.06 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.01 fps, Avg. Travel Time= 0.8 min

Peak Storage= 131 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.66'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 46.18 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 144.0' Slope= 0.0417 '/'
Inlet Invert= 720.00', Outlet Invert= 714.00'

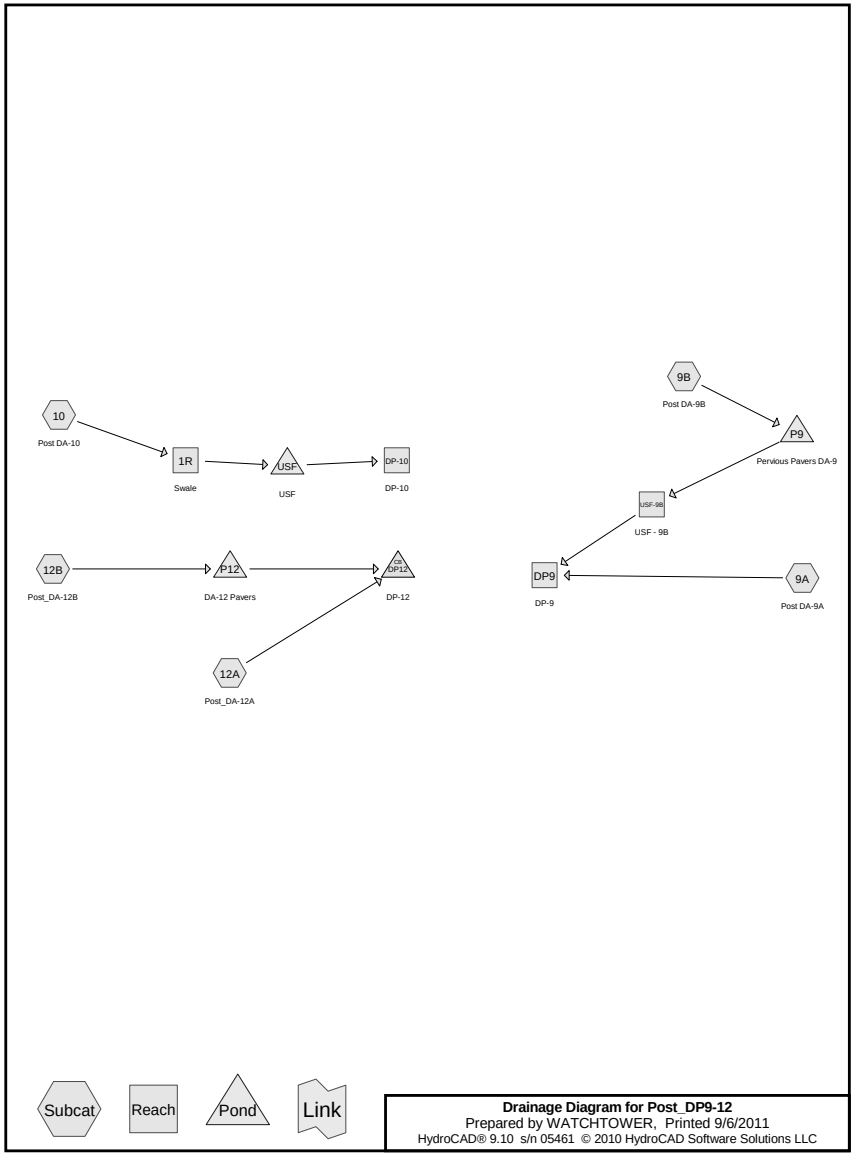


Reach R-2: West Reach -2



Hydrograph for Reach R-2: West Reach -2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	720.00	0.00
2.00	0.00	0	720.01	0.00
4.00	0.00	0	720.01	0.00
6.00	0.00	0	720.01	0.00
8.00	0.01	1	720.02	0.01
10.00	0.06	3	720.05	0.06
12.00	**5.44**	**77**	**720.45**	**5.21**
14.00	**0.64**	**18**	**720.16**	**0.64**
16.00	0.32	11	720.12	0.32
18.00	0.18	7	720.09	0.18
20.00	0.14	6	720.08	0.14
22.00	0.11	5	720.07	0.11
24.00	0.08	4	720.06	0.08
26.00	0.00	0	720.00	0.00
28.00	0.00	0	720.00	0.00
30.00	0.00	0	720.00	0.00
32.00	0.00	0	720.00	0.00
34.00	0.00	0	720.00	0.00
36.00	0.00	0	720.00	0.00
38.00	0.00	0	720.00	0.00
40.00	0.00	0	720.00	0.00
42.00	0.00	0	720.00	0.00
44.00	0.00	0	720.00	0.00
46.00	0.00	0	720.00	0.00
48.00	0.00	0	720.00	0.00
50.00	0.00	0	720.00	0.00
52.00	0.00	0	720.00	0.00
54.00	0.00	0	720.00	0.00
56.00	0.00	0	720.00	0.00
58.00	0.00	0	720.00	0.00
60.00	0.00	0	720.00	0.00
62.00	0.00	0	720.00	0.00
64.00	0.00	0	720.00	0.00
66.00	0.00	0	720.00	0.00
68.00	0.00	0	720.00	0.00
70.00	0.00	0	720.00	0.00
72.00	0.00	0	720.00	0.00
74.00	0.00	0	720.00	0.00
76.00	0.00	0	720.00	0.00
78.00	0.00	0	720.00	0.00
80.00	0.00	0	720.00	0.00
82.00	0.00	0	720.00	0.00
84.00	0.00	0	720.00	0.00
86.00	0.00	0	720.00	0.00
88.00	0.00	0	720.00	0.00
90.00	0.00	0	720.00	0.00
92.00	0.00	0	720.00	0.00
94.00	0.00	0	720.00	0.00
96.00	0.00	0	720.00	0.00



Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
509,867	Open Space	9A, 9B, 10, 12A
51,258	Pavement	9A, 9B, 10, 12B
4,982	Roadway	10
31,402	Woods	9A, 12A
597,509	**TOTAL**	

Pollutant Concentrations

Line#	Land Use	TSS (mg/l)	TP (mg/l)	TN (mg/l)	BOD (mg/l)
1	Open Space	602.00	2.10	9.10	1.23
2	Pavement	173.00	0.56	2.10	6.70
3	Roadway	173.00	0.56	2.10	6.70
4	Woods	37.00	0.00	0.00	1.23

Subcatchment Loading

Line#	Subcat Number	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1	9A	**0.00**	**0.00**	**0.00**	**0.00**
2	9B	0.00	0.00	0.00	0.00
3	10	0.00	0.00	0.00	0.00
4	12A	0.00	0.00	0.00	0.00
5	12B	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 1R: Swale Avg. Flow Depth=0.42' Max Vel=3.06 fps Inflow=1.36 cfs 5,626 cf
n=0.040 L=200.0' S=0.0600 '/' Capacity=13.64 cfs Outflow=1.35 cfs 5,626 cf

Subcatchment 9A: Post DA-9A Runoff Area=427,885 sf 4.11% Impervious Runoff Depth=0.95"
Flow Length=1,235' Tc=11.6 min CN=72/98 Runoff=8.23 cfs 33,890 cf

Subcatchment 9B: Post DA-9B Runoff Area=80,405 sf 37.35% Impervious Runoff Depth=1.68"
Tc=5.0 min CN=74/98 Runoff=3.42 cfs 11,259 cf

Subcatchment 10: Post DA-10 Runoff Area=64,816 sf 0.80% Impervious Runoff Depth=1.04"
Flow Length=419' Tc=13.2 min CN=75/98 Runoff=1.36 cfs 5,626 cf

Subcatchment 12A: Post_DA-12A Runoff Area=21,283 sf 0.00% Impervious Runoff Depth=0.82"
Flow Length=184' Tc=12.6 min CN=71/0 Runoff=0.34 cfs 1,452 cf

Subcatchment 12B: Post_DA-12B Runoff Area=3,120 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.22 cfs 746 cf

Reach DP-10: DP-10 Inflow=1.22 cfs 5,624 cf
Outflow=1.22 cfs 5,624 cf

Pond DP12: DP-12 Peak Elev=608.63' Inflow=0.34 cfs 1,452 cf
24.0" Round Culvert n=0.013 L=147.0' S=0.0307 '/' Outflow=0.34 cfs 1,452 cf

Reach DP9: DP-9 Inflow=8.23 cfs 33,890 cf
Outflow=8.23 cfs 33,890 cf

Pond P12: DA-12 Pavers Peak Elev=628.90' Storage=335 cf Inflow=0.22 cfs 746 cf
Discarded=0.01 cfs 746 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 746 cf

Pond P9: Pervious Pavers DA-9 Peak Elev=565.60' Storage=6,791 cf Inflow=3.42 cfs 11,259 cf
Discarded=0.08 cfs 11,259 cf Primary=0.00 cfs 0 cf Outflow=0.08 cfs 11,259 cf

Pond USF: USF Peak Elev=495.45' Storage=510 cf Inflow=1.35 cfs 5,626 cf
24.0" Round Culvert n=0.013 L=50.0' S=0.1000 '/' Outflow=1.22 cfs 5,624 cf

Reach USF-9B: USF - 9B Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Total Runoff Area = 597,509 sf Runoff Volume = 52,971 cf Average Runoff Depth = 1.06"
91.42% Pervious = 546,251 sf 8.58% Impervious = 51,258 sf

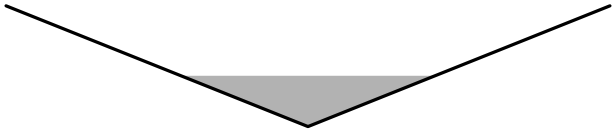
Summary for Reach 1R: Swale

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 1.04" for 1 Year, 24 Hr. Event event
Inflow = 1.36 cfs @ 12.19 hrs, Volume= 5,626 cf
Outflow = 1.35 cfs @ 12.21 hrs, Volume= 5,626 cf, Atten= 1%, Lag= 0.9 min

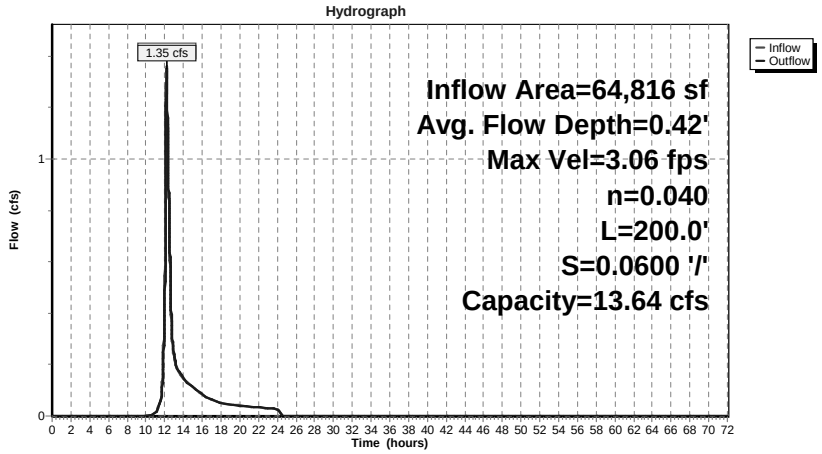
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 3.06 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.04 fps, Avg. Travel Time= 3.2 min

Peak Storage= 88 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.42'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 13.64 cfs

0.00' x 1.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 2.5 '/' Top Width= 5.00'
Length= 200.0' Slope= 0.0600 '/'
Inlet Invert= 518.00', Outlet Invert= 506.00'



Reach 1R: Swale



Hydrograph for Reach 1R: Swale

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	518.00	0.00
2.00	0.00	0	518.00	0.00
4.00	0.00	0	518.01	0.00
6.00	0.00	0	518.02	0.00
8.00	0.00	0	518.02	0.00
10.00	0.00	1	518.03	0.00
12.00	**0.48**	**38**	**518.27**	**0.43**
14.00	**0.15**	**17**	**518.18**	**0.15**
16.00	0.08	11	518.15	0.08
18.00	0.05	8	518.12	0.05
20.00	0.04	6	518.11	0.04
22.00	0.03	6	518.11	0.03
24.00	0.03	5	518.10	0.03
26.00	0.00	0	518.00	0.00
28.00	0.00	0	518.00	0.00
30.00	0.00	0	518.00	0.00
32.00	0.00	0	518.00	0.00
34.00	0.00	0	518.00	0.00
36.00	0.00	0	518.00	0.00
38.00	0.00	0	518.00	0.00
40.00	0.00	0	518.00	0.00
42.00	0.00	0	518.00	0.00
44.00	0.00	0	518.00	0.00
46.00	0.00	0	518.00	0.00
48.00	0.00	0	518.00	0.00
50.00	0.00	0	518.00	0.00
52.00	0.00	0	518.00	0.00
54.00	0.00	0	518.00	0.00
56.00	0.00	0	518.00	0.00
58.00	0.00	0	518.00	0.00
60.00	0.00	0	518.00	0.00
62.00	0.00	0	518.00	0.00
64.00	0.00	0	518.00	0.00
66.00	0.00	0	518.00	0.00
68.00	0.00	0	518.00	0.00
70.00	0.00	0	518.00	0.00
72.00	0.00	0	518.00	0.00

Summary for Subcatchment 9A: Post DA-9A

Verify ditch along RT22 x section

Runoff = 8.23 cfs @ 12.17 hrs, Volume= 33,890 cf, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

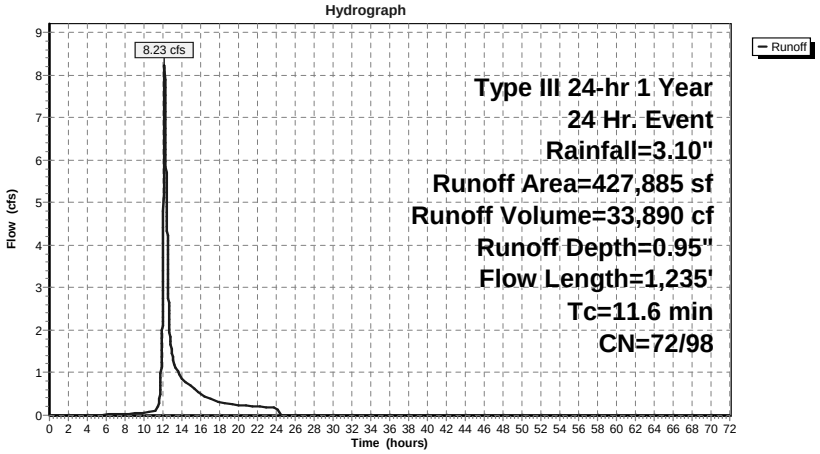
Area (sf)	CN	Description	Land Use
72,229	61	>75% Grass cover, Good, HSG B	Open Space
320,147	74	>75% Grass cover, Good, HSG C	Open Space
17,921	70	Woods, Good, HSG C	Woods
17,588	98	Paved parking, HSG C	Pavement
427,885	73	Weighted Average	
410,297	72	95.89% Pervious Area	
17,588	98	4.11% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0610	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.7	69	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	210	0.1130	2.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	93		15.00		**Direct Entry,**
0.6	763	0.1000	22.77	71.54	**Pipe Channel, Verify Inverts** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
11.6	1,235	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 4.11% Impervious, Rv= 0.087, Runoff= 3.98"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
392,376	Open Space	4,885.43	17.04	73.85	9.98
17,588	Pavement	62.93	0.20	0.76	2.44
17,921	Woods	13.71	0.00	0.00	0.46
427,885	Total	4,962.07	17.25	74.61	12.87

Subcatchment 9A: Post DA-9A



Hydrograph for Subcatchment 9A: Post DA-9A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.03
10.00	0.59	0.00	0.40	0.05
12.00	1.55	0.13	1.33	**2.94**
14.00	2.51	0.54	2.28	**0.88**
16.00	2.75	0.66	2.52	0.50
18.00	2.88	0.74	2.65	0.31
20.00	2.97	0.79	2.74	0.25
22.00	3.04	0.83	2.81	0.21
24.00	**3.10**	**0.87**	**2.87**	0.17
26.00	3.10	0.87	2.87	0.00
28.00	3.10	0.87	2.87	0.00
30.00	3.10	0.87	2.87	0.00
32.00	3.10	0.87	2.87	0.00
34.00	3.10	0.87	2.87	0.00
36.00	3.10	0.87	2.87	0.00
38.00	3.10	0.87	2.87	0.00
40.00	3.10	0.87	2.87	0.00
42.00	3.10	0.87	2.87	0.00
44.00	3.10	0.87	2.87	0.00
46.00	3.10	0.87	2.87	0.00
48.00	3.10	0.87	2.87	0.00
50.00	3.10	0.87	2.87	0.00
52.00	3.10	0.87	2.87	0.00
54.00	3.10	0.87	2.87	0.00
56.00	3.10	0.87	2.87	0.00
58.00	3.10	0.87	2.87	0.00
60.00	3.10	0.87	2.87	0.00
62.00	3.10	0.87	2.87	0.00
64.00	3.10	0.87	2.87	0.00
66.00	3.10	0.87	2.87	0.00
68.00	3.10	0.87	2.87	0.00
70.00	3.10	0.87	2.87	0.00
72.00	3.10	0.87	2.87	0.00

Summary for Subcatchment 9B: Post DA-9B

Verify ditch along RT22 x section

Runoff = 3.42 cfs @ 12.07 hrs, Volume= 11,259 cf, Depth= 1.68"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

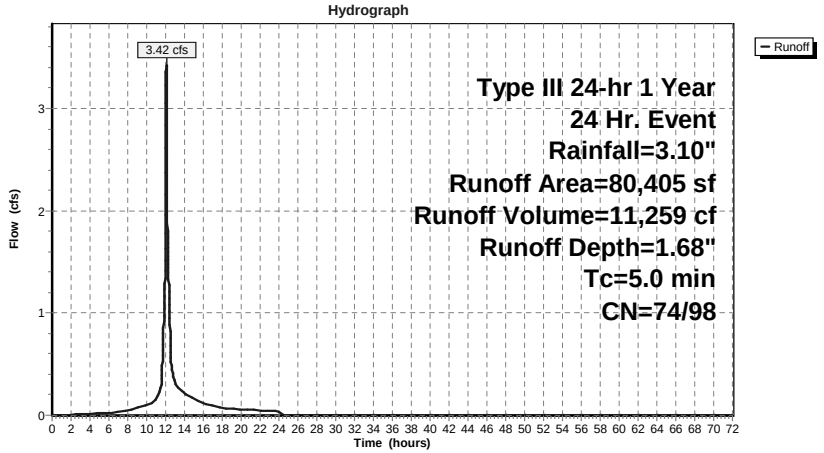
	Area (sf)	CN	Description	Land Use
	15,900	98	Paved parking, HSG C	Pavement
	50,374	74	>75% Grass cover, Good, HSG C	Open Space
*	7,292	98	Pavers, HSG B	Pavement
*	6,839	98	Pavers, HSG C	Pavement
	80,405	83	Weighted Average	
	50,374	74	62.65% Pervious Area	
	30,031	98	37.35% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 37.35% Impervious, Rv= 0.386, Runoff= 17.65"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
50,374	Open Space	2,784.00	9.71	42.08	5.69
30,031	Pavement	476.96	1.54	5.79	18.47
80,405	Total	3,260.96	11.26	47.87	24.16

Subcatchment 9B: Post DA-9B



Hydrograph for Subcatchment 9B: Post DA-9B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.02
8.00	0.35	0.00	0.19	0.05
10.00	0.59	0.00	0.40	0.10
12.00	1.55	0.16	1.33	**2.16**
14.00	2.51	0.62	2.28	**0.21**
16.00	2.75	0.75	2.52	0.12
18.00	2.88	0.83	2.65	0.07
20.00	2.97	0.89	2.74	0.06
22.00	3.04	0.93	2.81	0.05
24.00	**3.10**	**0.97**	**2.87**	0.04
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00

Summary for Subcatchment 10: Post DA-10

confirm road side swale/ add pipe to CGOOO from swale, either side....

Runoff = 1.36 cfs @ 12.19 hrs, Volume= 5,626 cf, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

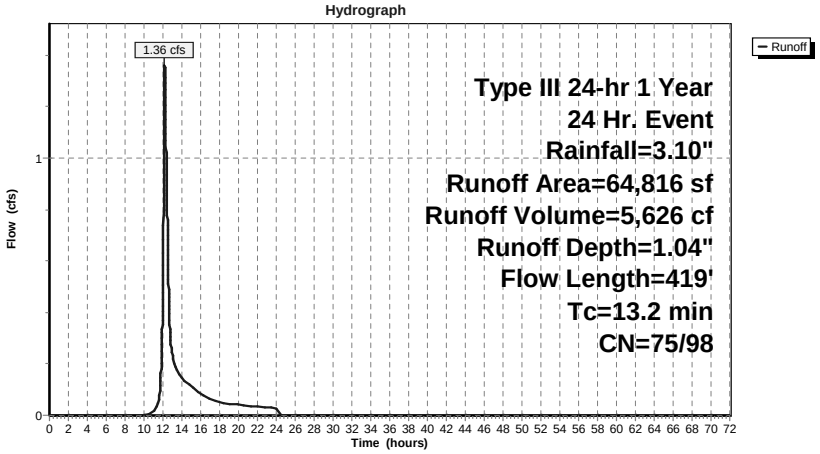
Area (sf)	CN	Description	Land Use
59,315	74	>75% Grass cover, Good, HSG C	Open Space
4,982	89	Gravel roads, HSG C	Roadway
519	98	Paved parking, HSG C	Pavement
64,816	75	Weighted Average	
64,297	75	99.20% Pervious Area	
519	98	0.80% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	87	0.0440	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	13	0.0490	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.6	54	0.0490	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	72	0.0820	2.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	88	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	44	0.1800	2.97		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	61	0.1200	2.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.2	419	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.80% Impervious, Rv= 0.057, Runoff= 2.61"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
59,315	Open Space	485.65	1.69	7.34	0.99
519	Pavement	1.22	0.00	0.01	0.05
4,982	Roadway	11.72	0.04	0.14	0.45
64,816	Total	498.59	1.74	7.50	1.49

Subcatchment 10: Post DA-10



Hydrograph for Subcatchment 10: Post DA-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.00
12.00	1.55	0.19	1.33	**0.48**
14.00	2.51	0.66	2.28	**0.15**
16.00	2.75	0.80	2.52	0.08
18.00	2.88	0.88	2.65	0.05
20.00	2.97	0.94	2.74	0.04
22.00	3.04	0.99	2.81	0.03
24.00	**3.10**	**1.03**	**2.87**	0.03
26.00	3.10	1.03	2.87	0.00
28.00	3.10	1.03	2.87	0.00
30.00	3.10	1.03	2.87	0.00
32.00	3.10	1.03	2.87	0.00
34.00	3.10	1.03	2.87	0.00
36.00	3.10	1.03	2.87	0.00
38.00	3.10	1.03	2.87	0.00
40.00	3.10	1.03	2.87	0.00
42.00	3.10	1.03	2.87	0.00
44.00	3.10	1.03	2.87	0.00
46.00	3.10	1.03	2.87	0.00
48.00	3.10	1.03	2.87	0.00
50.00	3.10	1.03	2.87	0.00
52.00	3.10	1.03	2.87	0.00
54.00	3.10	1.03	2.87	0.00
56.00	3.10	1.03	2.87	0.00
58.00	3.10	1.03	2.87	0.00
60.00	3.10	1.03	2.87	0.00
62.00	3.10	1.03	2.87	0.00
64.00	3.10	1.03	2.87	0.00
66.00	3.10	1.03	2.87	0.00
68.00	3.10	1.03	2.87	0.00
70.00	3.10	1.03	2.87	0.00
72.00	3.10	1.03	2.87	0.00

Summary for Subcatchment 12A: Post_DA-12A

Runoff = 0.34 cfs @ 12.19 hrs, Volume= 1,452 cf, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

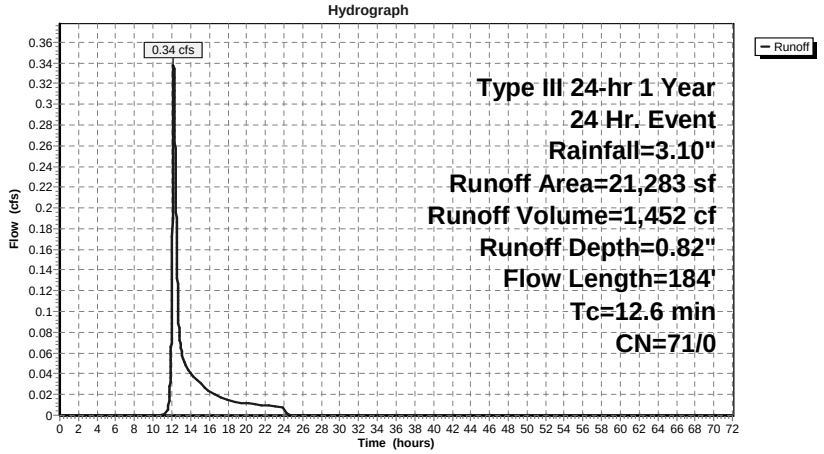
Area (sf)	CN	Description	Land Use
7,802	74	>75% Grass cover, Good, HSG C	Open Space
13,481	70	Woods, Good, HSG C	Woods
21,283	71	Weighted Average	
21,283	71	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	100	0.0810	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.50"
0.3	14	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	70	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,802	Open Space	55.83	0.19	0.84	0.11
13,481	Woods	5.93	0.00	0.00	0.20
21,283	Total	61.76	0.19	0.84	0.31

Subcatchment 12A: Post_DA-12A



Hydrograph for Subcatchment 12A: Post_DA-12A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.11	0.00	**0.10**
14.00	2.51	0.50	0.00	**0.04**
16.00	2.75	0.62	0.00	0.02
18.00	2.88	0.69	0.00	0.01
20.00	2.97	0.74	0.00	0.01
22.00	3.04	0.78	0.00	0.01
24.00	**3.10**	**0.82**	0.00	0.01
26.00	3.10	0.82	0.00	0.00
28.00	3.10	0.82	0.00	0.00
30.00	3.10	0.82	0.00	0.00
32.00	3.10	0.82	0.00	0.00
34.00	3.10	0.82	0.00	0.00
36.00	3.10	0.82	0.00	0.00
38.00	3.10	0.82	0.00	0.00
40.00	3.10	0.82	0.00	0.00
42.00	3.10	0.82	0.00	0.00
44.00	3.10	0.82	0.00	0.00
46.00	3.10	0.82	0.00	0.00
48.00	3.10	0.82	0.00	0.00
50.00	3.10	0.82	0.00	0.00
52.00	3.10	0.82	0.00	0.00
54.00	3.10	0.82	0.00	0.00
56.00	3.10	0.82	0.00	0.00
58.00	3.10	0.82	0.00	0.00
60.00	3.10	0.82	0.00	0.00
62.00	3.10	0.82	0.00	0.00
64.00	3.10	0.82	0.00	0.00
66.00	3.10	0.82	0.00	0.00
68.00	3.10	0.82	0.00	0.00
70.00	3.10	0.82	0.00	0.00
72.00	3.10	0.82	0.00	0.00

Summary for Subcatchment 12B: Post_DA-12B

Runoff = 0.22 cfs @ 12.07 hrs, Volume= 746 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

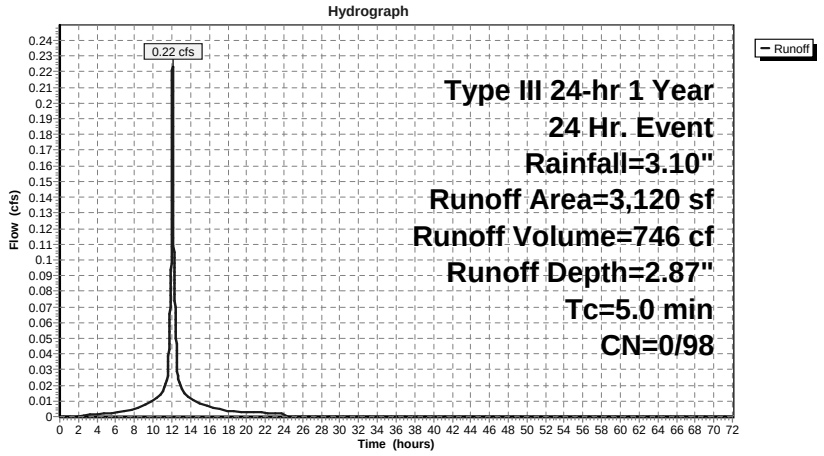
	Area (sf)	CN	Description	Land Use
*	1,870	98	Pavers HSG C	Pavement
	1,250	98	Unconnected pavement, HSG C	Pavement
	3,120	98	Weighted Average	
	3,120	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,120	Pavement	121.91	0.39	1.48	4.72
3,120	Total	121.91	0.39	1.48	4.72

Subcatchment 12B: Post_DA-12B



Hydrograph for Subcatchment 12B: Post_DA-12B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.00	1.33	**0.15**
14.00	2.51	0.00	2.28	**0.01**
16.00	2.75	0.00	2.52	0.01
18.00	2.88	0.00	2.65	0.00
20.00	2.97	0.00	2.74	0.00
22.00	3.04	0.00	2.81	0.00
24.00	**3.10**	0.00	**2.87**	0.00
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00

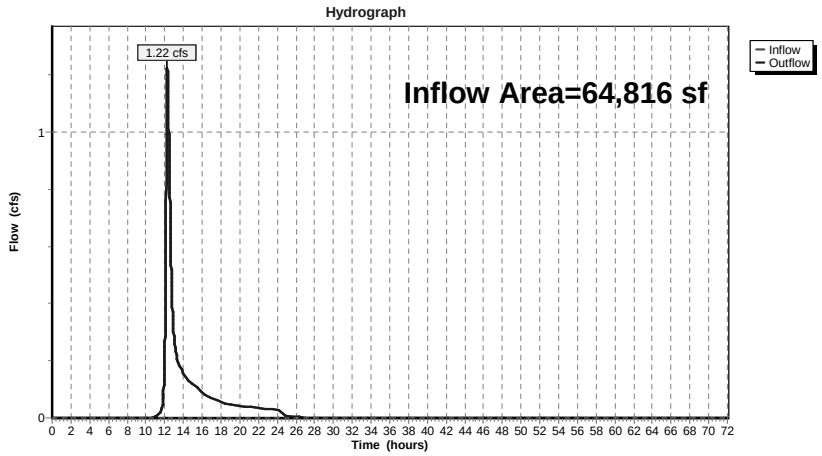
Summary for Reach DP-10: DP-10

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 1.04" for 1 Year, 24 Hr. Event event
Inflow = 1.22 cfs @ 12.28 hrs, Volume= 5,624 cf
Outflow = 1.22 cfs @ 12.28 hrs, Volume= 5,624 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-10: DP-10



Hydrograph for Reach DP-10: DP-10

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	**0.23**		**0.23**	64.00	0.00		0.00
13.00	**0.28**		**0.28**	65.00	0.00		0.00
14.00	0.16		0.16	66.00	0.00		0.00
15.00	0.12		0.12	67.00	0.00		0.00
16.00	0.09		0.09	68.00	0.00		0.00
17.00	0.07		0.07	69.00	0.00		0.00
18.00	0.05		0.05	70.00	0.00		0.00
19.00	0.05		0.05	71.00	0.00		0.00
20.00	0.04		0.04	72.00	0.00		0.00
21.00	0.04		0.04				
22.00	0.03		0.03				
23.00	0.03		0.03				
24.00	0.03		0.03				
25.00	0.01		0.01				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP12: DP-12

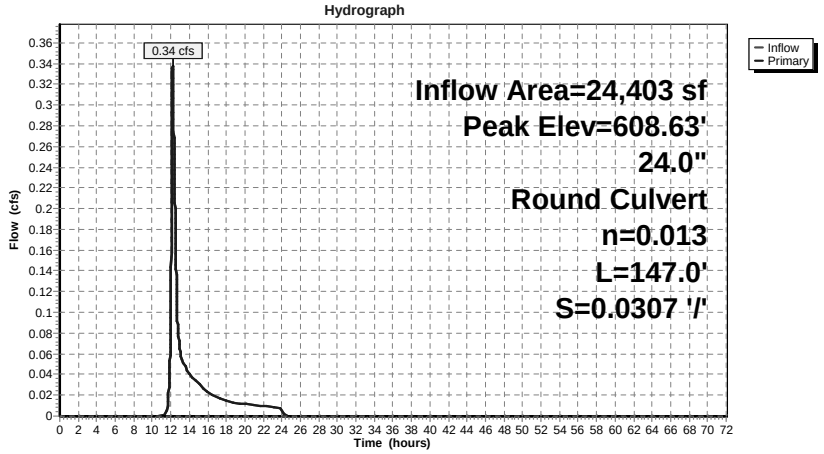
Inflow Area = 24,403 sf, 12.79% Impervious, Inflow Depth = 0.71" for 1 Year, 24 Hr. Event event
Inflow = 0.34 cfs @ 12.19 hrs, Volume= 1,452 cf
Outflow = 0.34 cfs @ 12.19 hrs, Volume= 1,452 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.34 cfs @ 12.19 hrs, Volume= 1,452 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.63' @ 12.19 hrs
Flood Elev= 613.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.37'	**24.0" Round Culvert** L= 147.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 608.37' / 603.85' S= 0.0307 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.34 cfs @ 12.19 hrs HW=608.63' (Free Discharge)
1=Culvert (Inlet Controls 0.34 cfs @ 1.38 fps)

Pond DP12: DP-12



Hydrograph for Pond DP12: DP-12

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	608.37	0.00	52.00	0.00	608.37	0.00
1.00	0.00	608.37	0.00	53.00	0.00	608.37	0.00
2.00	0.00	608.37	0.00	54.00	0.00	608.37	0.00
3.00	0.00	608.37	0.00	55.00	0.00	608.37	0.00
4.00	0.00	608.37	0.00	56.00	0.00	608.37	0.00
5.00	0.00	608.37	0.00	57.00	0.00	608.37	0.00
6.00	0.00	608.37	0.00	58.00	0.00	608.37	0.00
7.00	0.00	608.37	0.00	59.00	0.00	608.37	0.00
8.00	0.00	608.37	0.00	60.00	0.00	608.37	0.00
9.00	0.00	608.37	0.00	61.00	0.00	608.37	0.00
10.00	0.00	608.37	0.00	62.00	0.00	608.37	0.00
11.00	0.00	608.37	0.00	63.00	0.00	608.37	0.00
12.00	**0.10**	**608.51**	**0.10**	64.00	0.00	608.37	0.00
13.00	**0.06**	**608.48**	**0.06**	65.00	0.00	608.37	0.00
14.00	0.04	608.46	0.04	66.00	0.00	608.37	0.00
15.00	0.03	608.45	0.03	67.00	0.00	608.37	0.00
16.00	0.02	608.44	0.02	68.00	0.00	608.37	0.00
17.00	0.02	608.43	0.02	69.00	0.00	608.37	0.00
18.00	0.01	608.42	0.01	70.00	0.00	608.37	0.00
19.00	0.01	608.42	0.01	71.00	0.00	608.37	0.00
20.00	0.01	608.42	0.01	72.00	0.00	608.37	0.00
21.00	0.01	608.42	0.01				
22.00	0.01	608.41	0.01				
23.00	0.01	608.41	0.01				
24.00	0.01	608.41	0.01				
25.00	0.00	608.37	0.00				
26.00	0.00	608.37	0.00				
27.00	0.00	608.37	0.00				
28.00	0.00	608.37	0.00				
29.00	0.00	608.37	0.00				
30.00	0.00	608.37	0.00				
31.00	0.00	608.37	0.00				
32.00	0.00	608.37	0.00				
33.00	0.00	608.37	0.00				
34.00	0.00	608.37	0.00				
35.00	0.00	608.37	0.00				
36.00	0.00	608.37	0.00				
37.00	0.00	608.37	0.00				
38.00	0.00	608.37	0.00				
39.00	0.00	608.37	0.00				
40.00	0.00	608.37	0.00				
41.00	0.00	608.37	0.00				
42.00	0.00	608.37	0.00				
43.00	0.00	608.37	0.00				
44.00	0.00	608.37	0.00				
45.00	0.00	608.37	0.00				
46.00	0.00	608.37	0.00				
47.00	0.00	608.37	0.00				
48.00	0.00	608.37	0.00				
49.00	0.00	608.37	0.00				
50.00	0.00	608.37	0.00				
51.00	0.00	608.37	0.00				

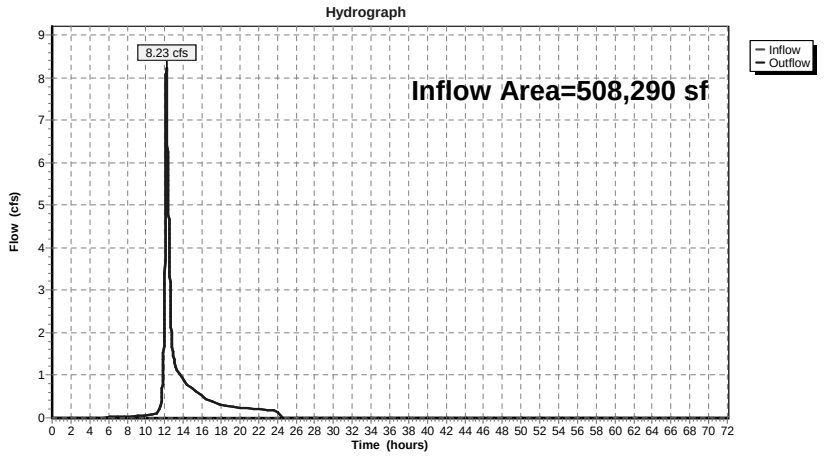
Summary for Reach DP9: DP-9

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 508,290 sf, 9.37% Impervious, Inflow Depth = 0.80" for 1 Year, 24 Hr. Event event
Inflow = 8.23 cfs @ 12.17 hrs, Volume= 33,890 cf
Outflow = 8.23 cfs @ 12.17 hrs, Volume= 33,890 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP9: DP-9



Hydrograph for Reach DP9: DP-9

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.02		0.02	59.00	0.00		0.00
8.00	0.03		0.03	60.00	0.00		0.00
9.00	0.04		0.04	61.00	0.00		0.00
10.00	0.05		0.05	62.00	0.00		0.00
11.00	0.08		0.08	63.00	0.00		0.00
12.00	**2.94**		**2.94**	64.00	0.00		0.00
13.00	**1.38**		**1.38**	65.00	0.00		0.00
14.00	0.88		0.88	66.00	0.00		0.00
15.00	0.68		0.68	67.00	0.00		0.00
16.00	0.50		0.50	68.00	0.00		0.00
17.00	0.39		0.39	69.00	0.00		0.00
18.00	0.31		0.31	70.00	0.00		0.00
19.00	0.27		0.27	71.00	0.00		0.00
20.00	0.25		0.25	72.00	0.00		0.00
21.00	0.23		0.23				
22.00	0.21		0.21				
23.00	0.19		0.19				
24.00	0.17		0.17				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond P12: DA-12 Pavers

Inflow Area = 3,120 sf,100.00% Impervious, Inflow Depth = 2.87" for 1 Year, 24 Hr. Event event
Inflow = 0.22 cfs @ 12.07 hrs, Volume= 746 cf
Outflow = 0.01 cfs @ 11.17 hrs, Volume= 746 cf, Atten= 95%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.17 hrs, Volume= 746 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 628.90' @ 14.12 hrs Surf.Area= 1,870 sf Storage= 335 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 255.0 min (1,011.1 - 756.1)

Volume	Invert	Avail.Storage	Storage Description
#1	628.00'	1,683 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

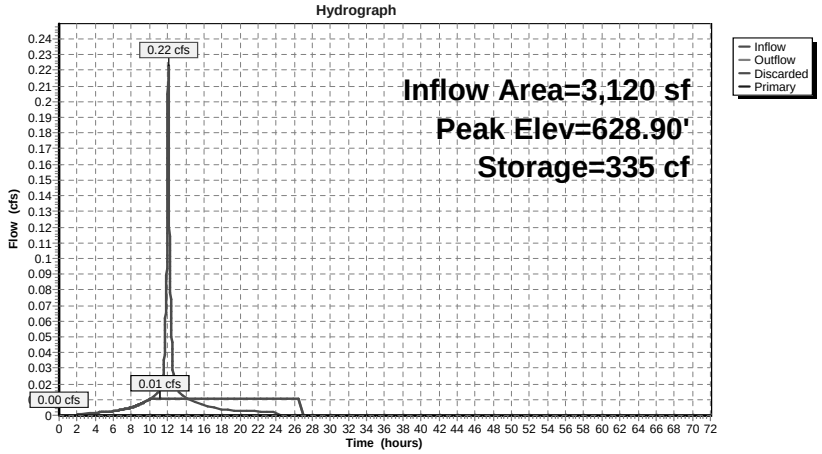
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
628.00	1,870	0.0	0	0
629.00	1,870	20.0	374	374
630.00	1,870	20.0	374	748
630.50	1,870	100.0	935	1,683

Device	Routing	Invert	Outlet Devices
#1	Primary	630.00'	**10.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	628.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 11.17 hrs HW=628.03' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=628.00' TW=608.37' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P12: DA-12 Pavers



Hydrograph for Pond P12: DA-12 Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	628.00	0.00	0.00	**0.00**
2.00	0.00	0	628.00	0.00	0.00	0.00
4.00	0.00	0	628.00	0.00	0.00	0.00
6.00	0.00	0	628.00	0.00	0.00	0.00
8.00	0.00	0	628.00	0.00	0.00	0.00
10.00	0.01	0	628.00	**0.01**	**0.01**	0.00
12.00	**0.15**	114	628.31	**0.01**	**0.01**	0.00
14.00	**0.01**	**335**	**628.90**	0.01	0.01	0.00
16.00	0.01	**319**	**628.85**	0.01	0.01	0.00
18.00	0.00	275	628.74	0.01	0.01	0.00
20.00	0.00	221	628.59	0.01	0.01	0.00
22.00	0.00	162	628.43	0.01	0.01	0.00
24.00	0.00	100	628.27	0.01	0.01	0.00
26.00	0.00	22	628.06	0.01	0.01	0.00
28.00	0.00	0	628.00	0.00	0.00	0.00
30.00	0.00	0	628.00	0.00	0.00	0.00
32.00	0.00	0	628.00	0.00	0.00	0.00
34.00	0.00	0	628.00	0.00	0.00	0.00
36.00	0.00	0	628.00	0.00	0.00	0.00
38.00	0.00	0	628.00	0.00	0.00	0.00
40.00	0.00	0	628.00	0.00	0.00	0.00
42.00	0.00	0	628.00	0.00	0.00	0.00
44.00	0.00	0	628.00	0.00	0.00	0.00
46.00	0.00	0	628.00	0.00	0.00	0.00
48.00	0.00	0	628.00	0.00	0.00	0.00
50.00	0.00	0	628.00	0.00	0.00	0.00
52.00	0.00	0	628.00	0.00	0.00	0.00
54.00	0.00	0	628.00	0.00	0.00	0.00
56.00	0.00	0	628.00	0.00	0.00	0.00
58.00	0.00	0	628.00	0.00	0.00	0.00
60.00	0.00	0	628.00	0.00	0.00	0.00
62.00	0.00	0	628.00	0.00	0.00	0.00
64.00	0.00	0	628.00	0.00	0.00	0.00
66.00	0.00	0	628.00	0.00	0.00	0.00
68.00	0.00	0	628.00	0.00	0.00	0.00
70.00	0.00	0	628.00	0.00	0.00	0.00
72.00	0.00	0	628.00	0.00	0.00	0.00

Summary for Pond P9: Pervious Pavers DA-9

Inflow Area = 80,405 sf, 37.35% Impervious, Inflow Depth = 1.68" for 1 Year, 24 Hr. Event event
Inflow = 3.42 cfs @ 12.07 hrs, Volume= 11,259 cf
Outflow = 0.08 cfs @ 11.06 hrs, Volume= 11,259 cf, Atten= 98%, Lag= 0.0 min
Discarded = 0.08 cfs @ 11.06 hrs, Volume= 11,259 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 565.60' @ 17.53 hrs Surf.Area= 14,130 sf Storage= 6,791 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 754.3 min (1,549.2 - 794.9)

Volume	Invert	Avail.Storage	Storage Description
#1	564.00'	36,738 cf	**Custom Stage Data (Prismatic)** Listed below

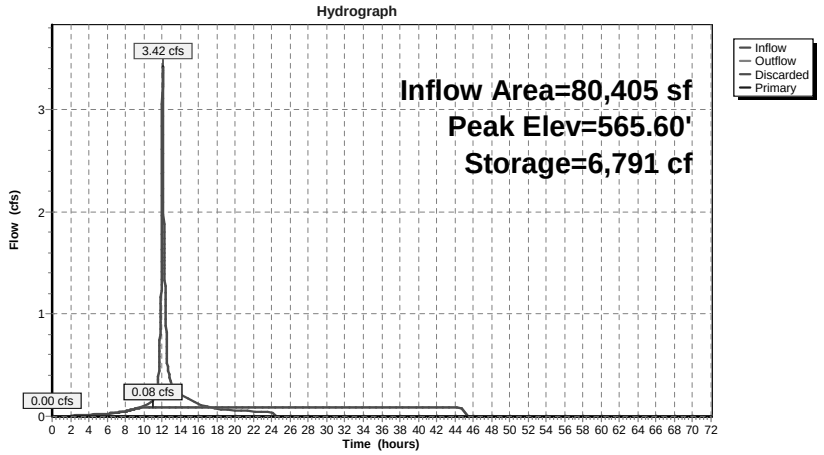
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
564.00	14,130	0.0	0	0
566.00	14,130	30.0	8,478	8,478
568.00	14,130	100.0	28,260	36,738

Device	Routing	Invert	Outlet Devices
#1	Primary	566.00'	**100.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	564.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.08 cfs @ 11.06 hrs HW=564.04' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=564.00' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P9: Pervious Pavers DA-9



Hydrograph for Pond P9: Pervious Pavers DA-9

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	564.00	0.00	0.00	**0.00**
2.00	0.00	0	564.00	0.00	0.00	0.00
4.00	0.01	0	564.00	0.01	0.01	0.00
6.00	0.02	0	564.00	0.02	0.02	0.00
8.00	0.05	0	564.00	0.05	0.05	0.00
10.00	0.10	14	564.00	**0.08**	**0.08**	0.00
12.00	**2.16**	1,684	564.40	**0.08**	**0.08**	0.00
14.00	**0.21**	6,117	565.44	0.08	0.08	0.00
16.00	0.12	**6,702**	**565.58**	0.08	0.08	0.00
18.00	0.07	**6,783**	**565.60**	0.08	0.08	0.00
20.00	0.06	6,657	565.57	0.08	0.08	0.00
22.00	0.05	6,451	565.52	0.08	0.08	0.00
24.00	0.04	6,175	565.46	0.08	0.08	0.00
26.00	0.00	5,597	565.32	0.08	0.08	0.00
28.00	0.00	5,008	565.18	0.08	0.08	0.00
30.00	0.00	4,419	565.04	0.08	0.08	0.00
32.00	0.00	3,830	564.90	0.08	0.08	0.00
34.00	0.00	3,242	564.76	0.08	0.08	0.00
36.00	0.00	2,653	564.63	0.08	0.08	0.00
38.00	0.00	2,064	564.49	0.08	0.08	0.00
40.00	0.00	1,475	564.35	0.08	0.08	0.00
42.00	0.00	887	564.21	0.08	0.08	0.00
44.00	0.00	298	564.07	0.08	0.08	0.00
46.00	0.00	0	564.00	0.00	0.00	0.00
48.00	0.00	0	564.00	0.00	0.00	0.00
50.00	0.00	0	564.00	0.00	0.00	0.00
52.00	0.00	0	564.00	0.00	0.00	0.00
54.00	0.00	0	564.00	0.00	0.00	0.00
56.00	0.00	0	564.00	0.00	0.00	0.00
58.00	0.00	0	564.00	0.00	0.00	0.00
60.00	0.00	0	564.00	0.00	0.00	0.00
62.00	0.00	0	564.00	0.00	0.00	0.00
64.00	0.00	0	564.00	0.00	0.00	0.00
66.00	0.00	0	564.00	0.00	0.00	0.00
68.00	0.00	0	564.00	0.00	0.00	0.00
70.00	0.00	0	564.00	0.00	0.00	0.00
72.00	0.00	0	564.00	0.00	0.00	0.00

Summary for Pond USF: USF

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 1.04" for 1 Year, 24 Hr. Event event
Inflow = 1.35 cfs @ 12.21 hrs, Volume= 5,626 cf
Outflow = 1.22 cfs @ 12.28 hrs, Volume= 5,624 cf, Atten= 10%, Lag= 4.2 min
Primary = 1.22 cfs @ 12.28 hrs, Volume= 5,624 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 495.45' @ 12.28 hrs Surf.Area= 0 sf Storage= 510 cf

Plug-Flow detention time= 20.5 min calculated for 5,624 cf (100% of inflow)
Center-of-Mass det. time= 20.7 min (887.6 - 866.9)

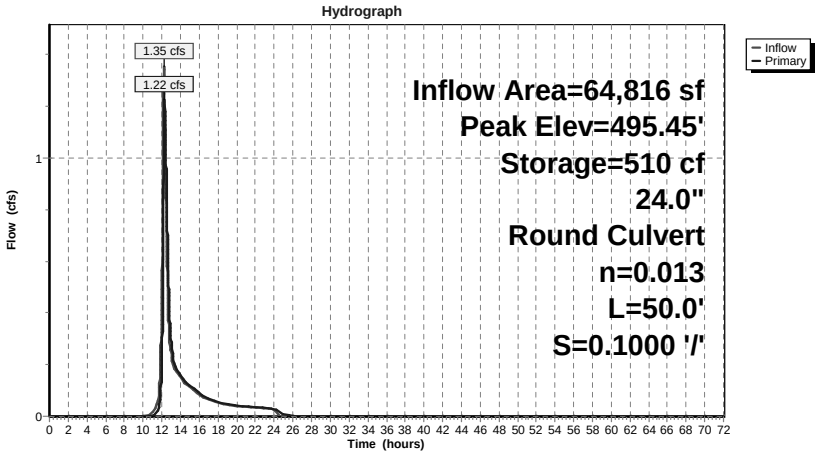
Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	5,626 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
495.00	0
500.00	5,626

Device	Routing	Invert	Outlet Devices
#1	Primary	495.00'	**24.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 495.00' / 490.00' S= 0.1000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.22 cfs @ 12.28 hrs HW=495.45' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 1.22 cfs @ 2.29 fps)

Pond USF: USF



Hydrograph for Pond USF: USF

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	495.00	0.00
2.00	0.00	0	495.00	0.00
4.00	0.00	1	495.00	0.00
6.00	0.00	3	495.00	0.00
8.00	0.00	6	495.01	0.00
10.00	0.00	12	495.01	0.00
12.00	**0.43**	**217**	**495.19**	**0.23**
14.00	**0.15**	**178**	**495.16**	**0.16**
16.00	0.08	134	495.12	0.09
18.00	0.05	105	495.09	0.05
20.00	0.04	91	495.08	0.04
22.00	0.03	83	495.07	0.03
24.00	0.03	75	495.07	0.03
26.00	0.00	22	495.02	0.00
28.00	0.00	12	495.01	0.00
30.00	0.00	8	495.01	0.00
32.00	0.00	6	495.01	0.00
34.00	0.00	5	495.00	0.00
36.00	0.00	4	495.00	0.00
38.00	0.00	4	495.00	0.00
40.00	0.00	3	495.00	0.00
42.00	0.00	3	495.00	0.00
44.00	0.00	3	495.00	0.00
46.00	0.00	2	495.00	0.00
48.00	0.00	2	495.00	0.00
50.00	0.00	2	495.00	0.00
52.00	0.00	2	495.00	0.00
54.00	0.00	2	495.00	0.00
56.00	0.00	2	495.00	0.00
58.00	0.00	2	495.00	0.00
60.00	0.00	2	495.00	0.00
62.00	0.00	1	495.00	0.00
64.00	0.00	1	495.00	0.00
66.00	0.00	1	495.00	0.00
68.00	0.00	1	495.00	0.00
70.00	0.00	1	495.00	0.00
72.00	0.00	1	495.00	0.00

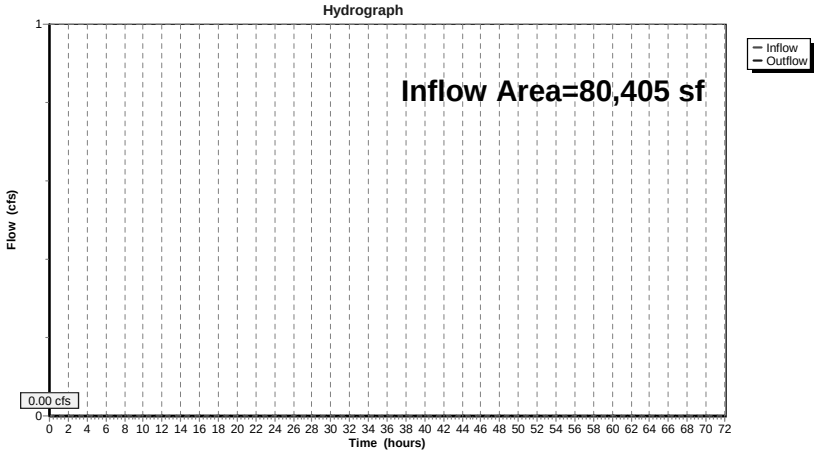
Summary for Reach USF-9B: USF - 9B

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 80,405 sf, 37.35% Impervious, Inflow Depth = 0.00" for 1 Year, 24 Hr. Event event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach USF-9B: USF - 9B



Hydrograph for Reach USF-9B: USF - 9B

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	**0.00**		**0.00**	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	0.00		0.00	64.00	0.00		0.00
13.00	0.00		0.00	65.00	0.00		0.00
14.00	0.00		0.00	66.00	0.00		0.00
15.00	0.00		0.00	67.00	0.00		0.00
16.00	0.00		0.00	68.00	0.00		0.00
17.00	0.00		0.00	69.00	0.00		0.00
18.00	0.00		0.00	70.00	0.00		0.00
19.00	0.00		0.00	71.00	0.00		0.00
20.00	0.00		0.00	72.00	0.00		0.00
21.00	0.00		0.00				
22.00	0.00		0.00				
23.00	0.00		0.00				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 1R: Swale Avg. Flow Depth=0.46' Max Vel=3.26 fps Inflow=1.76 cfs 7,116 cf
n=0.040 L=200.0' S=0.0600 '/' Capacity=13.64 cfs Outflow=1.75 cfs 7,116 cf

Subcatchment 9A: Post DA-9A Runoff Area=427,885 sf 4.11% Impervious Runoff Depth=1.21"
Flow Length=1,235' Tc=11.6 min CN=72/98 Runoff=10.79 cfs 43,113 cf

Subcatchment 9B: Post DA-9B Runoff Area=80,405 sf 37.35% Impervious Runoff Depth=2.00"
Tc=5.0 min CN=74/98 Runoff=4.10 cfs 13,380 cf

Subcatchment 10: Post DA-10 Runoff Area=64,816 sf 0.80% Impervious Runoff Depth=1.32"
Flow Length=419' Tc=13.2 min CN=75/98 Runoff=1.76 cfs 7,116 cf

Subcatchment 12A: Post_DA-12A Runoff Area=21,283 sf 0.00% Impervious Runoff Depth=1.06"
Flow Length=184' Tc=12.6 min CN=71/0 Runoff=0.46 cfs 1,887 cf

Subcatchment 12B: Post_DA-12B Runoff Area=3,120 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=0.25 cfs 849 cf

Reach DP-10: DP-10 Inflow=1.61 cfs 7,115 cf
Outflow=1.61 cfs 7,115 cf

Pond DP12: DP-12 Peak Elev=608.68' Inflow=0.46 cfs 1,887 cf
24.0" Round Culvert n=0.013 L=147.0' S=0.0307 '/' Outflow=0.46 cfs 1,887 cf

Reach DP9: DP-9 Inflow=10.79 cfs 43,196 cf
Outflow=10.79 cfs 43,196 cf

Pond P12: DA-12 Pavers Peak Elev=629.08' Storage=402 cf Inflow=0.25 cfs 849 cf
Discarded=0.01 cfs 849 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 849 cf

Pond P9: Pervious Pavers DA-9 Peak Elev=566.00' Storage=8,505 cf Inflow=4.10 cfs 13,380 cf
Discarded=0.08 cfs 13,297 cf Primary=0.02 cfs 83 cf Outflow=0.10 cfs 13,380 cf

Pond USF: USF Peak Elev=495.52' Storage=589 cf Inflow=1.75 cfs 7,116 cf
24.0" Round Culvert n=0.013 L=50.0' S=0.1000 '/' Outflow=1.61 cfs 7,115 cf

Reach USF-9B: USF - 9B Inflow=0.02 cfs 83 cf
Outflow=0.02 cfs 83 cf

Total Runoff Area = 597,509 sf Runoff Volume = 66,345 cf Average Runoff Depth = 1.33"
91.42% Pervious = 546,251 sf 8.58% Impervious = 51,258 sf

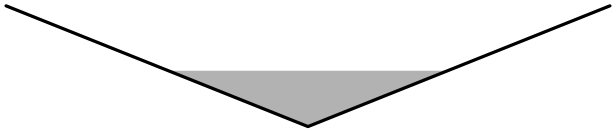
Summary for Reach 1R: Swale

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 1.32" for 2 Year, 24 Hr. Event event
Inflow = 1.76 cfs @ 12.19 hrs, Volume= 7,116 cf
Outflow = 1.75 cfs @ 12.20 hrs, Volume= 7,116 cf, Atten= 1%, Lag= 0.8 min

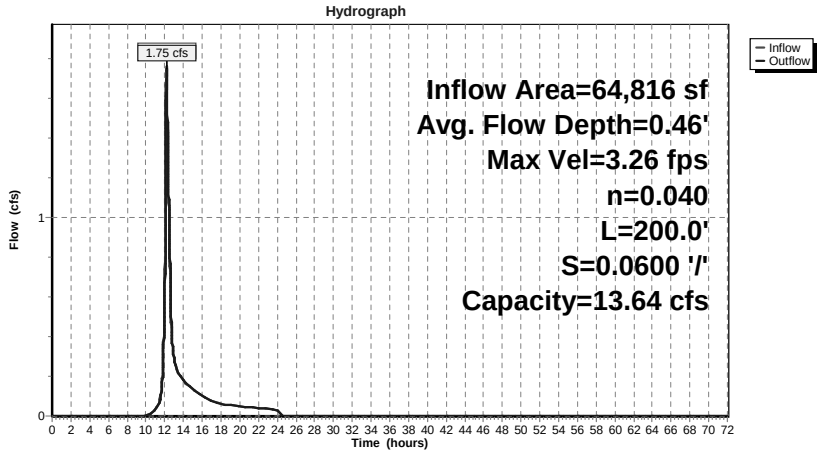
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 3.26 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.10 fps, Avg. Travel Time= 3.0 min

Peak Storage= 107 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.46'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 13.64 cfs

0.00' x 1.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 2.5 '/' Top Width= 5.00'
Length= 200.0' Slope= 0.0600 '/'
Inlet Invert= 518.00', Outlet Invert= 506.00'



Reach 1R: Swale



Hydrograph for Reach 1R: Swale

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	518.00	0.00
2.00	0.00	0	518.01	0.00
4.00	0.00	0	518.02	0.00
6.00	0.00	0	518.02	0.00
8.00	0.00	0	518.03	0.00
10.00	0.00	1	518.03	0.00
12.00	**0.65**	**48**	**518.31**	**0.60**
14.00	**0.18**	**19**	**518.20**	**0.18**
16.00	0.10	13	518.16	0.10
18.00	0.06	9	518.13	0.06
20.00	0.05	7	518.12	0.05
22.00	0.04	6	518.11	0.04
24.00	0.03	5	518.10	0.03
26.00	0.00	0	518.00	0.00
28.00	0.00	0	518.00	0.00
30.00	0.00	0	518.00	0.00
32.00	0.00	0	518.00	0.00
34.00	0.00	0	518.00	0.00
36.00	0.00	0	518.00	0.00
38.00	0.00	0	518.00	0.00
40.00	0.00	0	518.00	0.00
42.00	0.00	0	518.00	0.00
44.00	0.00	0	518.00	0.00
46.00	0.00	0	518.00	0.00
48.00	0.00	0	518.00	0.00
50.00	0.00	0	518.00	0.00
52.00	0.00	0	518.00	0.00
54.00	0.00	0	518.00	0.00
56.00	0.00	0	518.00	0.00
58.00	0.00	0	518.00	0.00
60.00	0.00	0	518.00	0.00
62.00	0.00	0	518.00	0.00
64.00	0.00	0	518.00	0.00
66.00	0.00	0	518.00	0.00
68.00	0.00	0	518.00	0.00
70.00	0.00	0	518.00	0.00
72.00	0.00	0	518.00	0.00

Summary for Subcatchment 9A: Post DA-9A

Verify ditch along RT22 x section

Runoff = 10.79 cfs @ 12.17 hrs, Volume= 43,113 cf, Depth= 1.21"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

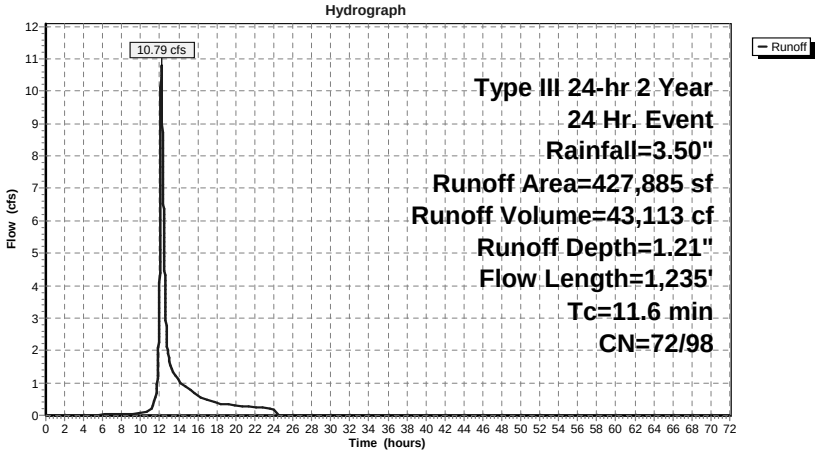
Area (sf)	CN	Description	Land Use
72,229	61	>75% Grass cover, Good, HSG B	Open Space
320,147	74	>75% Grass cover, Good, HSG C	Open Space
17,921	70	Woods, Good, HSG C	Woods
17,588	98	Paved parking, HSG C	Pavement
427,885	73	Weighted Average	
410,297	72	95.89% Pervious Area	
17,588	98	4.11% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0610	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.7	69	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	210	0.1130	2.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	93		15.00		**Direct Entry,**
0.6	763	0.1000	22.77	71.54	**Pipe Channel, Verify Inverts** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
11.6	1,235	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 4.11% Impervious, Rv= 0.087, Runoff= 3.98"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
392,376	Open Space	4,885.43	17.04	73.85	9.98
17,588	Pavement	62.93	0.20	0.76	2.44
17,921	Woods	13.71	0.00	0.00	0.46
427,885	Total	4,962.07	17.25	74.61	12.87

Subcatchment 9A: Post DA-9A



Hydrograph for Subcatchment 9A: Post DA-9A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.01
6.00	0.25	0.00	0.11	0.02
8.00	0.40	0.00	0.23	0.03
10.00	0.66	0.00	0.47	0.06
12.00	1.75	0.19	1.53	**4.10**
14.00	2.84	0.71	2.61	**1.08**
16.00	3.10	0.87	2.87	0.61
18.00	3.25	0.96	3.02	0.37
20.00	3.35	1.02	3.12	0.30
22.00	3.43	1.08	3.20	0.25
24.00	**3.50**	**1.12**	**3.27**	0.20
26.00	3.50	1.12	3.27	0.00
28.00	3.50	1.12	3.27	0.00
30.00	3.50	1.12	3.27	0.00
32.00	3.50	1.12	3.27	0.00
34.00	3.50	1.12	3.27	0.00
36.00	3.50	1.12	3.27	0.00
38.00	3.50	1.12	3.27	0.00
40.00	3.50	1.12	3.27	0.00
42.00	3.50	1.12	3.27	0.00
44.00	3.50	1.12	3.27	0.00
46.00	3.50	1.12	3.27	0.00
48.00	3.50	1.12	3.27	0.00
50.00	3.50	1.12	3.27	0.00
52.00	3.50	1.12	3.27	0.00
54.00	3.50	1.12	3.27	0.00
56.00	3.50	1.12	3.27	0.00
58.00	3.50	1.12	3.27	0.00
60.00	3.50	1.12	3.27	0.00
62.00	3.50	1.12	3.27	0.00
64.00	3.50	1.12	3.27	0.00
66.00	3.50	1.12	3.27	0.00
68.00	3.50	1.12	3.27	0.00
70.00	3.50	1.12	3.27	0.00
72.00	3.50	1.12	3.27	0.00

Summary for Subcatchment 9B: Post DA-9B

Verify ditch along RT22 x section

Runoff = 4.10 cfs @ 12.07 hrs, Volume= 13,380 cf, Depth= 2.00"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

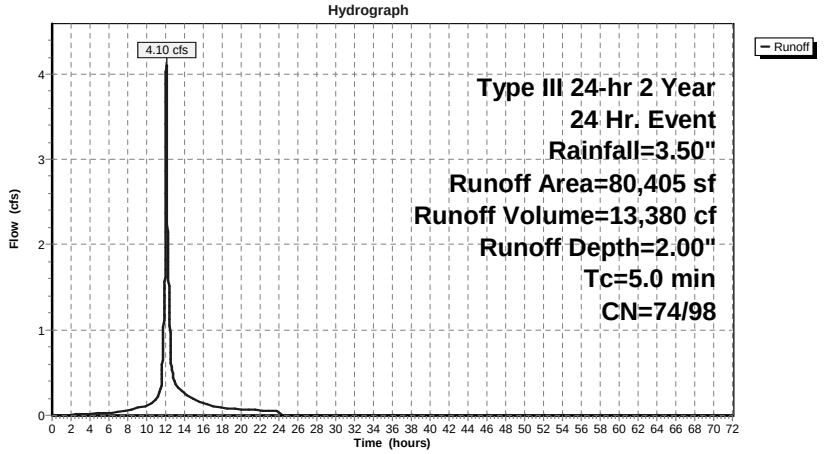
	Area (sf)	CN	Description	Land Use
	15,900	98	Paved parking, HSG C	Pavement
	50,374	74	>75% Grass cover, Good, HSG C	Open Space
*	7,292	98	Pavers, HSG B	Pavement
*	6,839	98	Pavers, HSG C	Pavement
	80,405	83	Weighted Average	
	50,374	74	62.65% Pervious Area	
	30,031	98	37.35% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 37.35% Impervious, Rv= 0.386, Runoff= 17.65"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
50,374	Open Space	2,784.00	9.71	42.08	5.69
30,031	Pavement	476.96	1.54	5.79	18.47
80,405	Total	3,260.96	11.26	47.87	24.16

Subcatchment 9B: Post DA-9B



Hydrograph for Subcatchment 9B: Post DA-9B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.01
4.00	0.15	0.00	0.04	0.02
6.00	0.25	0.00	0.11	0.03
8.00	0.40	0.00	0.23	0.05
10.00	0.66	0.00	0.47	0.11
12.00	1.75	0.24	1.53	**2.61**
14.00	2.84	0.81	2.61	**0.25**
16.00	3.10	0.97	2.87	0.14
18.00	3.25	1.07	3.02	0.08
20.00	3.35	1.14	3.12	0.07
22.00	3.43	1.19	3.20	0.06
24.00	**3.50**	**1.24**	**3.27**	0.04
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00

Summary for Subcatchment 10: Post DA-10

confirm road side swale/ add pipe to CGOOO from swale, either side....

Runoff = 1.76 cfs @ 12.19 hrs, Volume= 7,116 cf, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

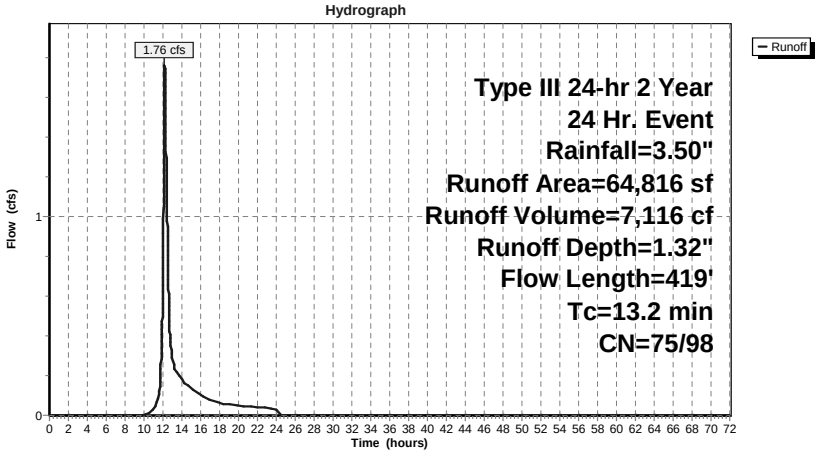
Area (sf)	CN	Description	Land Use
59,315	74	>75% Grass cover, Good, HSG C	Open Space
4,982	89	Gravel roads, HSG C	Roadway
519	98	Paved parking, HSG C	Pavement
64,816	75	Weighted Average	
64,297	75	99.20% Pervious Area	
519	98	0.80% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	87	0.0440	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	13	0.0490	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.6	54	0.0490	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	72	0.0820	2.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	88	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	44	0.1800	2.97		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	61	0.1200	2.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.2	419	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.80% Impervious, Rv= 0.057, Runoff= 2.61"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
59,315	Open Space	485.65	1.69	7.34	0.99
519	Pavement	1.22	0.00	0.01	0.05
4,982	Roadway	11.72	0.04	0.14	0.45
64,816	Total	498.59	1.74	7.50	1.49

Subcatchment 10: Post DA-10



Hydrograph for Subcatchment 10: Post DA-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.00
12.00	1.75	0.27	1.53	**0.65**
14.00	2.84	0.86	2.61	**0.18**
16.00	3.10	1.03	2.87	0.10
18.00	3.25	1.13	3.02	0.06
20.00	3.35	1.20	3.12	0.05
22.00	3.43	1.25	3.20	0.04
24.00	**3.50**	**1.30**	**3.27**	0.03
26.00	3.50	1.30	3.27	0.00
28.00	3.50	1.30	3.27	0.00
30.00	3.50	1.30	3.27	0.00
32.00	3.50	1.30	3.27	0.00
34.00	3.50	1.30	3.27	0.00
36.00	3.50	1.30	3.27	0.00
38.00	3.50	1.30	3.27	0.00
40.00	3.50	1.30	3.27	0.00
42.00	3.50	1.30	3.27	0.00
44.00	3.50	1.30	3.27	0.00
46.00	3.50	1.30	3.27	0.00
48.00	3.50	1.30	3.27	0.00
50.00	3.50	1.30	3.27	0.00
52.00	3.50	1.30	3.27	0.00
54.00	3.50	1.30	3.27	0.00
56.00	3.50	1.30	3.27	0.00
58.00	3.50	1.30	3.27	0.00
60.00	3.50	1.30	3.27	0.00
62.00	3.50	1.30	3.27	0.00
64.00	3.50	1.30	3.27	0.00
66.00	3.50	1.30	3.27	0.00
68.00	3.50	1.30	3.27	0.00
70.00	3.50	1.30	3.27	0.00
72.00	3.50	1.30	3.27	0.00

Summary for Subcatchment 12A: Post_DA-12A

Runoff = 0.46 cfs @ 12.19 hrs, Volume= 1,887 cf, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

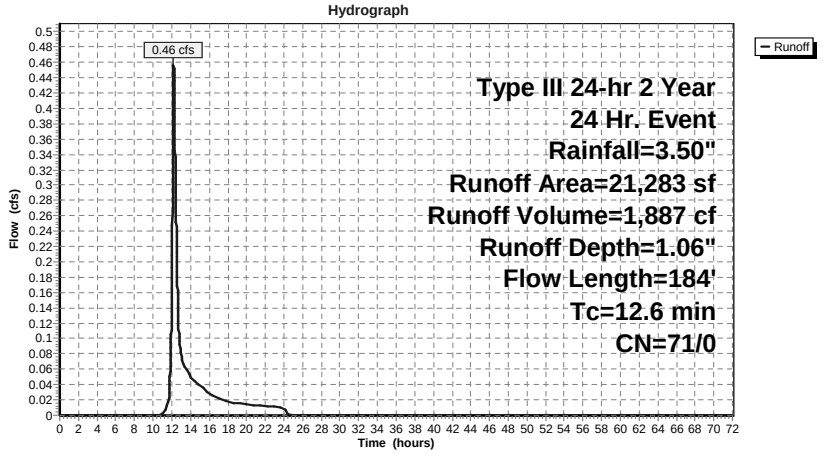
Area (sf)	CN	Description	Land Use
7,802	74	>75% Grass cover, Good, HSG C	Open Space
13,481	70	Woods, Good, HSG C	Woods
21,283	71	Weighted Average	
21,283	71	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	100	0.0810	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.50"
0.3	14	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	70	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,802	Open Space	55.83	0.19	0.84	0.11
13,481	Woods	5.93	0.00	0.00	0.20
21,283	Total	61.76	0.19	0.84	0.31

Subcatchment 12A: Post_DA-12A



Hydrograph for Subcatchment 12A: Post_DA-12A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.17	0.00	**0.15**
14.00	2.84	0.67	0.00	**0.05**
16.00	3.10	0.82	0.00	0.03
18.00	3.25	0.91	0.00	0.02
20.00	3.35	0.97	0.00	0.01
22.00	3.43	1.02	0.00	0.01
24.00	**3.50**	**1.06**	0.00	0.01
26.00	3.50	1.06	0.00	0.00
28.00	3.50	1.06	0.00	0.00
30.00	3.50	1.06	0.00	0.00
32.00	3.50	1.06	0.00	0.00
34.00	3.50	1.06	0.00	0.00
36.00	3.50	1.06	0.00	0.00
38.00	3.50	1.06	0.00	0.00
40.00	3.50	1.06	0.00	0.00
42.00	3.50	1.06	0.00	0.00
44.00	3.50	1.06	0.00	0.00
46.00	3.50	1.06	0.00	0.00
48.00	3.50	1.06	0.00	0.00
50.00	3.50	1.06	0.00	0.00
52.00	3.50	1.06	0.00	0.00
54.00	3.50	1.06	0.00	0.00
56.00	3.50	1.06	0.00	0.00
58.00	3.50	1.06	0.00	0.00
60.00	3.50	1.06	0.00	0.00
62.00	3.50	1.06	0.00	0.00
64.00	3.50	1.06	0.00	0.00
66.00	3.50	1.06	0.00	0.00
68.00	3.50	1.06	0.00	0.00
70.00	3.50	1.06	0.00	0.00
72.00	3.50	1.06	0.00	0.00

Summary for Subcatchment 12B: Post_DA-12B

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 849 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

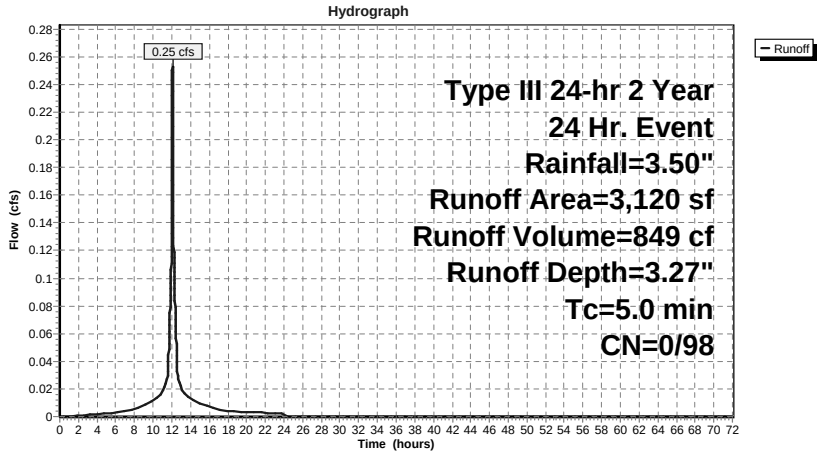
	Area (sf)	CN	Description	Land Use
*	1,870	98	Pavers HSG C	Pavement
	1,250	98	Unconnected pavement, HSG C	Pavement
	3,120	98	Weighted Average	
	3,120	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,120	Pavement	121.91	0.39	1.48	4.72
3,120	Total	121.91	0.39	1.48	4.72

Subcatchment 12B: Post_DA-12B



Hydrograph for Subcatchment 12B: Post_DA-12B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.00	1.53	**0.17**
14.00	2.84	0.00	2.61	**0.01**
16.00	3.10	0.00	2.87	0.01
18.00	3.25	0.00	3.02	0.00
20.00	3.35	0.00	3.12	0.00
22.00	3.43	0.00	3.20	0.00
24.00	**3.50**	0.00	**3.27**	0.00
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00

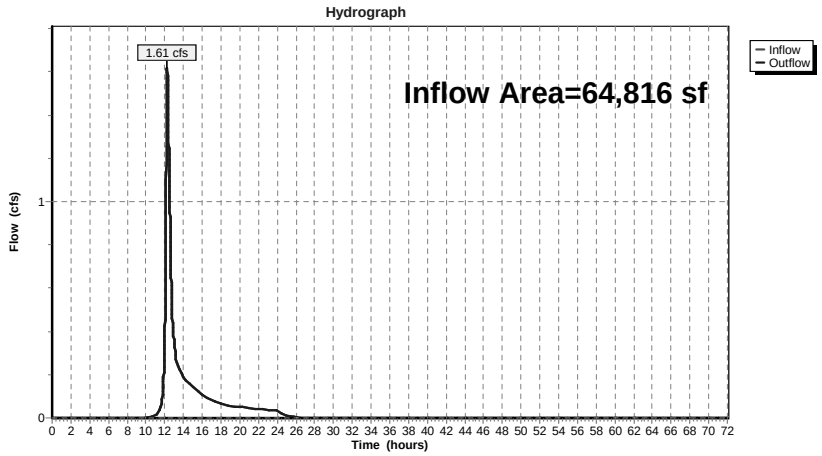
Summary for Reach DP-10: DP-10

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 1.32" for 2 Year, 24 Hr. Event event
Inflow = 1.61 cfs @ 12.26 hrs, Volume= 7,115 cf
Outflow = 1.61 cfs @ 12.26 hrs, Volume= 7,115 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-10: DP-10



Hydrograph for Reach DP-10: DP-10

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.01		0.01	63.00	0.00		0.00
12.00	**0.38**		**0.38**	64.00	0.00		0.00
13.00	**0.34**		**0.34**	65.00	0.00		0.00
14.00	0.19		0.19	66.00	0.00		0.00
15.00	0.14		0.14	67.00	0.00		0.00
16.00	0.11		0.11	68.00	0.00		0.00
17.00	0.08		0.08	69.00	0.00		0.00
18.00	0.07		0.07	70.00	0.00		0.00
19.00	0.06		0.06	71.00	0.00		0.00
20.00	0.05		0.05	72.00	0.00		0.00
21.00	0.05		0.05				
22.00	0.04		0.04				
23.00	0.04		0.04				
24.00	0.03		0.03				
25.00	0.01		0.01				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP12: DP-12

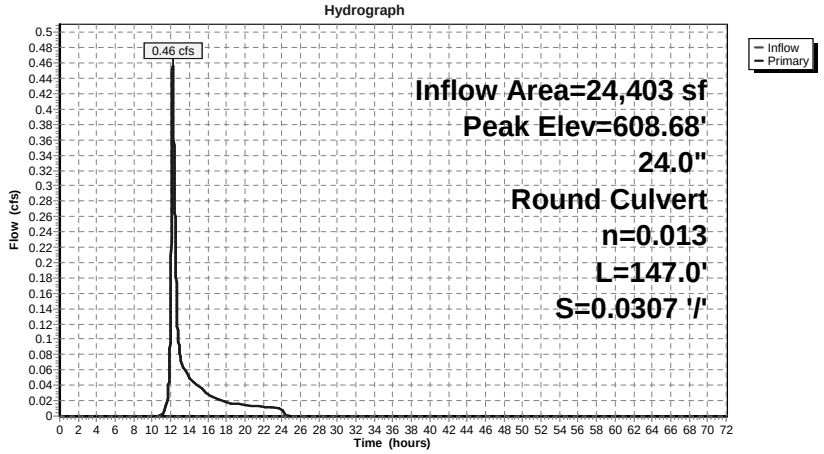
Inflow Area = 24,403 sf, 12.79% Impervious, Inflow Depth = 0.93" for 2 Year, 24 Hr. Event event
Inflow = 0.46 cfs @ 12.19 hrs, Volume= 1,887 cf
Outflow = 0.46 cfs @ 12.19 hrs, Volume= 1,887 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.46 cfs @ 12.19 hrs, Volume= 1,887 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.68' @ 12.19 hrs
Flood Elev= 613.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.37'	**24.0" Round Culvert** L= 147.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 608.37' / 603.85' S= 0.0307 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.46 cfs @ 12.19 hrs HW=608.68' (Free Discharge)
1=Culvert (Inlet Controls 0.46 cfs @ 1.49 fps)

Pond DP12: DP-12



Hydrograph for Pond DP12: DP-12

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	608.37	0.00	52.00	0.00	608.37	0.00
1.00	0.00	608.37	0.00	53.00	0.00	608.37	0.00
2.00	0.00	608.37	0.00	54.00	0.00	608.37	0.00
3.00	0.00	608.37	0.00	55.00	0.00	608.37	0.00
4.00	0.00	608.37	0.00	56.00	0.00	608.37	0.00
5.00	0.00	608.37	0.00	57.00	0.00	608.37	0.00
6.00	0.00	608.37	0.00	58.00	0.00	608.37	0.00
7.00	0.00	608.37	0.00	59.00	0.00	608.37	0.00
8.00	0.00	608.37	0.00	60.00	0.00	608.37	0.00
9.00	0.00	608.37	0.00	61.00	0.00	608.37	0.00
10.00	0.00	608.37	0.00	62.00	0.00	608.37	0.00
11.00	0.00	608.38	0.00	63.00	0.00	608.37	0.00
12.00	**0.15**	**608.55**	**0.15**	64.00	0.00	608.37	0.00
13.00	**0.08**	**608.50**	**0.08**	65.00	0.00	608.37	0.00
14.00	0.05	608.47	0.05	66.00	0.00	608.37	0.00
15.00	0.04	608.46	0.04	67.00	0.00	608.37	0.00
16.00	0.03	608.45	0.03	68.00	0.00	608.37	0.00
17.00	0.02	608.44	0.02	69.00	0.00	608.37	0.00
18.00	0.02	608.43	0.02	70.00	0.00	608.37	0.00
19.00	0.02	608.43	0.02	71.00	0.00	608.37	0.00
20.00	0.01	608.42	0.01	72.00	0.00	608.37	0.00
21.00	0.01	608.42	0.01				
22.00	0.01	608.42	0.01				
23.00	0.01	608.42	0.01				
24.00	0.01	608.41	0.01				
25.00	0.00	608.37	0.00				
26.00	0.00	608.37	0.00				
27.00	0.00	608.37	0.00				
28.00	0.00	608.37	0.00				
29.00	0.00	608.37	0.00				
30.00	0.00	608.37	0.00				
31.00	0.00	608.37	0.00				
32.00	0.00	608.37	0.00				
33.00	0.00	608.37	0.00				
34.00	0.00	608.37	0.00				
35.00	0.00	608.37	0.00				
36.00	0.00	608.37	0.00				
37.00	0.00	608.37	0.00				
38.00	0.00	608.37	0.00				
39.00	0.00	608.37	0.00				
40.00	0.00	608.37	0.00				
41.00	0.00	608.37	0.00				
42.00	0.00	608.37	0.00				
43.00	0.00	608.37	0.00				
44.00	0.00	608.37	0.00				
45.00	0.00	608.37	0.00				
46.00	0.00	608.37	0.00				
47.00	0.00	608.37	0.00				
48.00	0.00	608.37	0.00				
49.00	0.00	608.37	0.00				
50.00	0.00	608.37	0.00				
51.00	0.00	608.37	0.00				

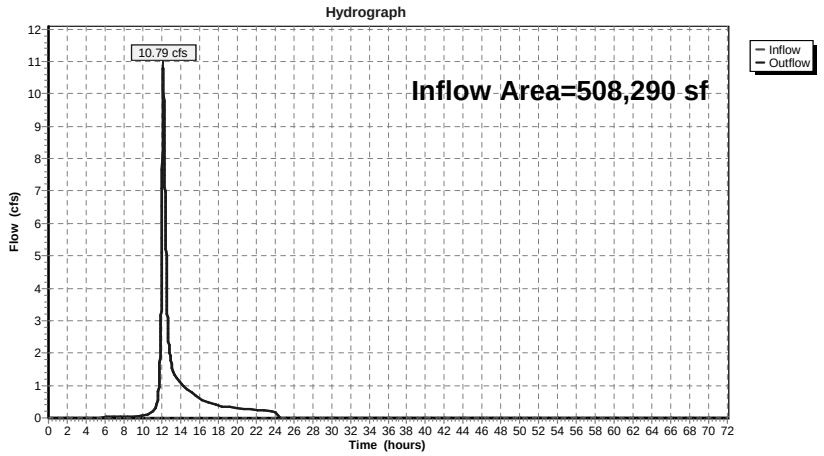
Summary for Reach DP9: DP-9

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 508,290 sf, 9.37% Impervious, Inflow Depth = 1.02" for 2 Year, 24 Hr. Event event
Inflow = 10.79 cfs @ 12.17 hrs, Volume= 43,196 cf
Outflow = 10.79 cfs @ 12.17 hrs, Volume= 43,196 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP9: DP-9



Hydrograph for Reach DP9: DP-9

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.02		0.02	59.00	0.00		0.00
8.00	0.03		0.03	60.00	0.00		0.00
9.00	0.05		0.05	61.00	0.00		0.00
10.00	0.06		0.06	62.00	0.00		0.00
11.00	0.16		0.16	63.00	0.00		0.00
12.00	**4.10**		**4.10**	64.00	0.00		0.00
13.00	**1.71**		**1.71**	65.00	0.00		0.00
14.00	1.08		1.08	66.00	0.00		0.00
15.00	0.83		0.83	67.00	0.00		0.00
16.00	0.61		0.61	68.00	0.00		0.00
17.00	0.50		0.50	69.00	0.00		0.00
18.00	0.38		0.38	70.00	0.00		0.00
19.00	0.33		0.33	71.00	0.00		0.00
20.00	0.30		0.30	72.00	0.00		0.00
21.00	0.27		0.27				
22.00	0.25		0.25				
23.00	0.23		0.23				
24.00	0.20		0.20				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond P12: DA-12 Pavers

Inflow Area = 3,120 sf,100.00% Impervious, Inflow Depth = 3.27" for 2 Year, 24 Hr. Event event
Inflow = 0.25 cfs @ 12.07 hrs, Volume= 849 cf
Outflow = 0.01 cfs @ 10.86 hrs, Volume= 849 cf, Atten= 96%, Lag= 0.0 min
Discarded = 0.01 cfs @ 10.86 hrs, Volume= 849 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 629.08' @ 14.60 hrs Surf.Area= 1,870 sf Storage= 402 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 310.5 min (1,064.2 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1	628.00'	1,683 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

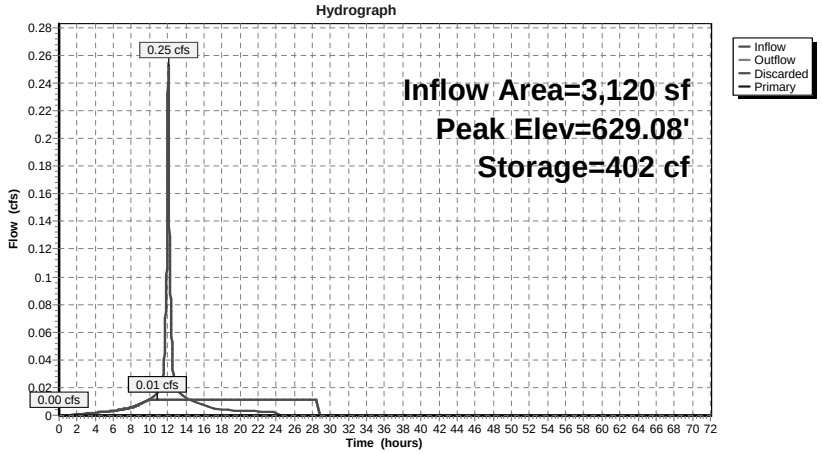
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
628.00	1,870	0.0	0	0
629.00	1,870	20.0	374	374
630.00	1,870	20.0	374	748
630.50	1,870	100.0	935	1,683

Device	Routing	Invert	Outlet Devices
#1	Primary	630.00'	**10.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	628.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 10.86 hrs HW=628.03' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=628.00' TW=608.37' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P12: DA-12 Pavers



Hydrograph for Pond P12: DA-12 Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	628.00	0.00	0.00	**0.00**
2.00	0.00	0	628.00	0.00	0.00	0.00
4.00	0.00	0	628.00	0.00	0.00	0.00
6.00	0.00	0	628.00	0.00	0.00	0.00
8.00	0.01	0	628.00	0.01	0.01	0.00
10.00	0.01	0	628.00	**0.01**	**0.01**	0.00
12.00	**0.17**	140	628.37	**0.01**	**0.01**	0.00
14.00	**0.01**	**401**	**629.07**	0.01	0.01	0.00
16.00	0.01	**392**	**629.05**	0.01	0.01	0.00
18.00	0.00	353	628.94	0.01	0.01	0.00
20.00	0.00	302	628.81	0.01	0.01	0.00
22.00	0.00	246	628.66	0.01	0.01	0.00
24.00	0.00	185	628.50	0.01	0.01	0.00
26.00	0.00	108	628.29	0.01	0.01	0.00
28.00	0.00	30	628.08	0.01	0.01	0.00
30.00	0.00	0	628.00	0.00	0.00	0.00
32.00	0.00	0	628.00	0.00	0.00	0.00
34.00	0.00	0	628.00	0.00	0.00	0.00
36.00	0.00	0	628.00	0.00	0.00	0.00
38.00	0.00	0	628.00	0.00	0.00	0.00
40.00	0.00	0	628.00	0.00	0.00	0.00
42.00	0.00	0	628.00	0.00	0.00	0.00
44.00	0.00	0	628.00	0.00	0.00	0.00
46.00	0.00	0	628.00	0.00	0.00	0.00
48.00	0.00	0	628.00	0.00	0.00	0.00
50.00	0.00	0	628.00	0.00	0.00	0.00
52.00	0.00	0	628.00	0.00	0.00	0.00
54.00	0.00	0	628.00	0.00	0.00	0.00
56.00	0.00	0	628.00	0.00	0.00	0.00
58.00	0.00	0	628.00	0.00	0.00	0.00
60.00	0.00	0	628.00	0.00	0.00	0.00
62.00	0.00	0	628.00	0.00	0.00	0.00
64.00	0.00	0	628.00	0.00	0.00	0.00
66.00	0.00	0	628.00	0.00	0.00	0.00
68.00	0.00	0	628.00	0.00	0.00	0.00
70.00	0.00	0	628.00	0.00	0.00	0.00
72.00	0.00	0	628.00	0.00	0.00	0.00

Summary for Pond P9: Pervious Pavers DA-9

Inflow Area = 80,405 sf, 37.35% Impervious, Inflow Depth = 2.00" for 2 Year, 24 Hr. Event event
Inflow = 4.10 cfs @ 12.07 hrs, Volume= 13,380 cf
Outflow = 0.10 cfs @ 17.21 hrs, Volume= 13,380 cf, Atten= 97%, Lag= 308.1 min
Discarded = 0.08 cfs @ 10.69 hrs, Volume= 13,297 cf
Primary = 0.02 cfs @ 17.21 hrs, Volume= 83 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 566.00' @ 17.21 hrs Surf.Area= 14,130 sf Storage= 8,505 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 931.7 min (1,725.0 - 793.3)

Volume	Invert	Avail.Storage	Storage Description
#1	564.00'	36,738 cf	**Custom Stage Data (Prismatic)** Listed below

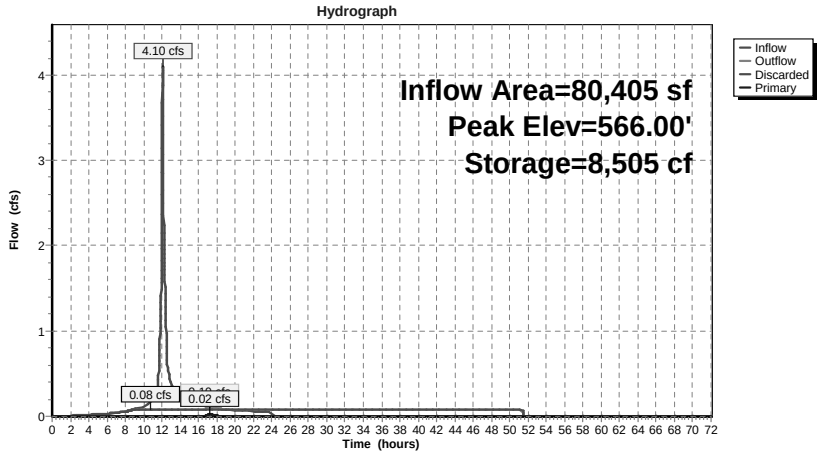
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
564.00	14,130	0.0	0	0
566.00	14,130	30.0	8,478	8,478
568.00	14,130	100.0	28,260	36,738

Device	Routing	Invert	Outlet Devices
#1	Primary	566.00'	**100.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	564.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.08 cfs @ 10.69 hrs HW=564.04' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.02 cfs @ 17.21 hrs HW=566.00' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.02 cfs @ 0.12 fps)

Pond P9: Pervious Pavers DA-9



Hydrograph for Pond P9: Pervious Pavers DA-9

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	564.00	0.00	0.00	0.00
2.00	0.01	0	564.00	0.01	0.01	0.00
4.00	0.02	0	564.00	0.02	0.02	0.00
6.00	0.03	0	564.00	0.03	0.03	0.00
8.00	0.05	0	564.00	0.05	0.05	0.00
10.00	0.11	48	564.01	0.08	**0.08**	0.00
12.00	**2.61**	2,199	564.52	0.08	**0.08**	0.00
14.00	**0.25**	7,579	565.79	0.08	0.08	0.00
16.00	0.14	**8,370**	**565.97**	**0.08**	0.08	**0.00**
18.00	0.08	**8,492**	**566.00**	**0.09**	0.08	**0.01**
20.00	0.07	8,437	565.99	0.08	0.08	0.00
22.00	0.06	8,296	565.96	0.08	0.08	0.00
24.00	0.04	8,073	565.90	0.08	0.08	0.00
26.00	0.00	7,496	565.77	0.08	0.08	0.00
28.00	0.00	6,908	565.63	0.08	0.08	0.00
30.00	0.00	6,319	565.49	0.08	0.08	0.00
32.00	0.00	5,730	565.35	0.08	0.08	0.00
34.00	0.00	5,141	565.21	0.08	0.08	0.00
36.00	0.00	4,553	565.07	0.08	0.08	0.00
38.00	0.00	3,964	564.94	0.08	0.08	0.00
40.00	0.00	3,375	564.80	0.08	0.08	0.00
42.00	0.00	2,786	564.66	0.08	0.08	0.00
44.00	0.00	2,198	564.52	0.08	0.08	0.00
46.00	0.00	1,609	564.38	0.08	0.08	0.00
48.00	0.00	1,020	564.24	0.08	0.08	0.00
50.00	0.00	431	564.10	0.08	0.08	0.00
52.00	0.00	0	564.00	0.00	0.00	0.00
54.00	0.00	0	564.00	0.00	0.00	0.00
56.00	0.00	0	564.00	0.00	0.00	0.00
58.00	0.00	0	564.00	0.00	0.00	0.00
60.00	0.00	0	564.00	0.00	0.00	0.00
62.00	0.00	0	564.00	0.00	0.00	0.00
64.00	0.00	0	564.00	0.00	0.00	0.00
66.00	0.00	0	564.00	0.00	0.00	0.00
68.00	0.00	0	564.00	0.00	0.00	0.00
70.00	0.00	0	564.00	0.00	0.00	0.00
72.00	0.00	0	564.00	0.00	0.00	0.00

Summary for Pond USF: USF

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 1.32" for 2 Year, 24 Hr. Event event
Inflow = 1.75 cfs @ 12.20 hrs, Volume= 7,116 cf
Outflow = 1.61 cfs @ 12.26 hrs, Volume= 7,115 cf, Atten= 8%, Lag= 3.6 min
Primary = 1.61 cfs @ 12.26 hrs, Volume= 7,115 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 495.52' @ 12.26 hrs Surf.Area= 0 sf Storage= 589 cf

Plug-Flow detention time= 18.5 min calculated for 7,115 cf (100% of inflow)
Center-of-Mass det. time= 18.4 min (878.3 - 859.9)

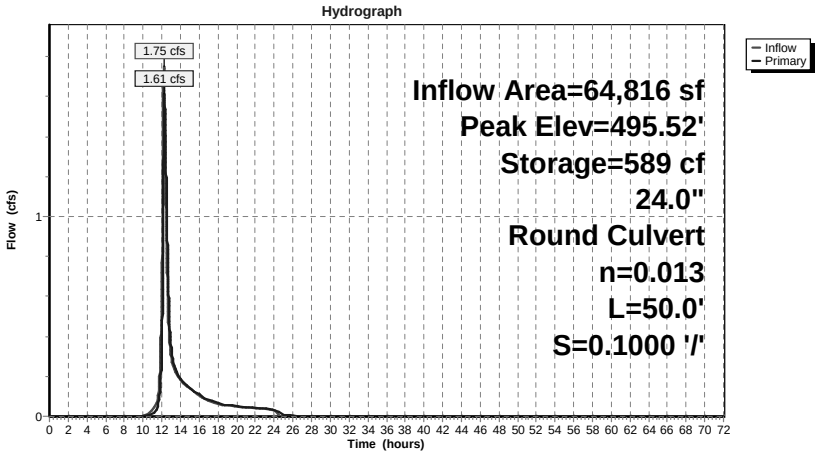
Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	5,626 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
495.00	0
500.00	5,626

Device	Routing	Invert	Outlet Devices
#1	Primary	495.00'	**24.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 495.00' / 490.00' S= 0.1000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.61 cfs @ 12.26 hrs HW=495.52' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 1.61 cfs @ 2.46 fps)

Pond USF: USF



Hydrograph for Pond USF: USF

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	495.00	0.00
2.00	0.00	0	495.00	0.00
4.00	0.00	1	495.00	0.00
6.00	0.00	4	495.00	0.00
8.00	0.00	7	495.01	0.00
10.00	0.00	13	495.01	0.00
12.00	**0.60**	**278**	**495.25**	**0.38**
14.00	**0.18**	**196**	**495.17**	**0.19**
16.00	0.10	147	495.13	0.11
18.00	0.06	115	495.10	0.07
20.00	0.05	100	495.09	0.05
22.00	0.04	91	495.08	0.04
24.00	0.03	82	495.07	0.03
26.00	0.00	23	495.02	0.00
28.00	0.00	12	495.01	0.00
30.00	0.00	9	495.01	0.00
32.00	0.00	7	495.01	0.00
34.00	0.00	5	495.00	0.00
36.00	0.00	4	495.00	0.00
38.00	0.00	4	495.00	0.00
40.00	0.00	3	495.00	0.00
42.00	0.00	3	495.00	0.00
44.00	0.00	3	495.00	0.00
46.00	0.00	2	495.00	0.00
48.00	0.00	2	495.00	0.00
50.00	0.00	2	495.00	0.00
52.00	0.00	2	495.00	0.00
54.00	0.00	2	495.00	0.00
56.00	0.00	2	495.00	0.00
58.00	0.00	2	495.00	0.00
60.00	0.00	2	495.00	0.00
62.00	0.00	1	495.00	0.00
64.00	0.00	1	495.00	0.00
66.00	0.00	1	495.00	0.00
68.00	0.00	1	495.00	0.00
70.00	0.00	1	495.00	0.00
72.00	0.00	1	495.00	0.00

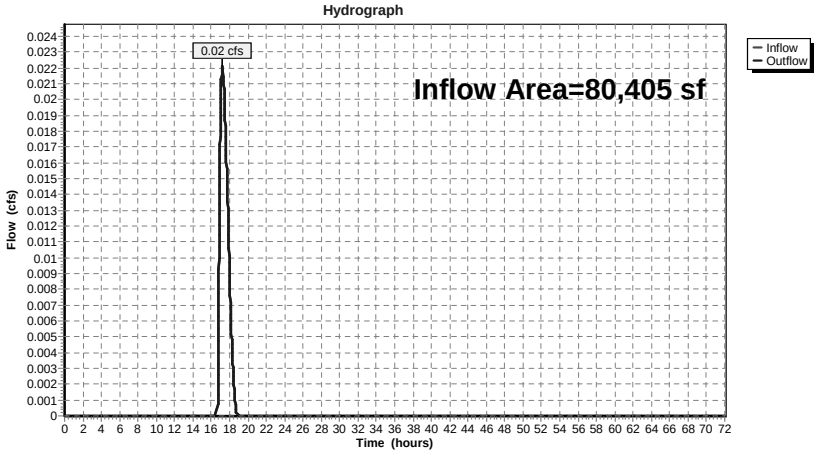
Summary for Reach USF-9B: USF - 9B

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 80,405 sf, 37.35% Impervious, Inflow Depth = 0.01" for 2 Year, 24 Hr. Event event
Inflow = 0.02 cfs @ 17.21 hrs, Volume= 83 cf
Outflow = 0.02 cfs @ 17.21 hrs, Volume= 83 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach USF-9B: USF - 9B



Hydrograph for Reach USF-9B: USF - 9B

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	0.00		0.00	64.00	0.00		0.00
13.00	0.00		0.00	65.00	0.00		0.00
14.00	0.00		0.00	66.00	0.00		0.00
15.00	0.00		0.00	67.00	0.00		0.00
16.00	0.00		0.00	68.00	0.00		0.00
17.00	**0.02**		**0.02**	69.00	0.00		0.00
18.00	**0.01**		**0.01**	70.00	0.00		0.00
19.00	0.00		0.00	71.00	0.00		0.00
20.00	0.00		0.00	72.00	0.00		0.00
21.00	0.00		0.00				
22.00	0.00		0.00				
23.00	0.00		0.00				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 1R: Swale Avg. Flow Depth=0.63' Max Vel=4.01 fps Inflow=3.98 cfs 15,555 cf
n=0.040 L=200.0' S=0.0600 '/' Capacity=13.64 cfs Outflow=3.96 cfs 15,555 cf

Subcatchment 9A: Post DA-9A Runoff Area=427,885 sf 4.11% Impervious Runoff Depth=2.70"
Flow Length=1,235' Tc=11.6 min CN=72/98 Runoff=25.42 cfs 96,255 cf

Subcatchment 9B: Post DA-9B Runoff Area=80,405 sf 37.35% Impervious Runoff Depth=3.70"
Tc=5.0 min CN=74/98 Runoff=7.73 cfs 24,794 cf

Subcatchment 10: Post DA-10 Runoff Area=64,816 sf 0.80% Impervious Runoff Depth=2.88"
Flow Length=419' Tc=13.2 min CN=75/98 Runoff=3.98 cfs 15,555 cf

Subcatchment 12A: Post_DA-12A Runoff Area=21,283 sf 0.00% Impervious Runoff Depth=2.50"
Flow Length=184' Tc=12.6 min CN=71/0 Runoff=1.14 cfs 4,436 cf

Subcatchment 12B: Post_DA-12B Runoff Area=3,120 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=0.40 cfs 1,368 cf

Reach DP-10: DP-10 Inflow=3.80 cfs 15,553 cf
Outflow=3.80 cfs 15,553 cf

Pond DP12: DP-12 Peak Elev=608.86' Inflow=1.14 cfs 4,468 cf
24.0" Round Culvert n=0.013 L=147.0' S=0.0307 '/' Outflow=1.14 cfs 4,468 cf

Reach DP9: DP-9 Inflow=28.20 cfs 106,783 cf
Outflow=28.20 cfs 106,783 cf

Pond P12: DA-12 Pavers Peak Elev=630.00' Storage=755 cf Inflow=0.40 cfs 1,368 cf
Discarded=0.01 cfs 1,336 cf Primary=0.01 cfs 32 cf Outflow=0.02 cfs 1,368 cf

Pond P9: Pervious Pavers DA-9 Peak Elev=566.06' Storage=9,268 cf Inflow=7.73 cfs 24,794 cf
Discarded=0.08 cfs 14,267 cf Primary=3.54 cfs 10,528 cf Outflow=3.62 cfs 24,795 cf

Pond USF: USF Peak Elev=495.83' Storage=931 cf Inflow=3.96 cfs 15,555 cf
24.0" Round Culvert n=0.013 L=50.0' S=0.1000 '/' Outflow=3.80 cfs 15,553 cf

Reach USF-9B: USF - 9B Inflow=3.54 cfs 10,528 cf
Outflow=3.54 cfs 10,528 cf

Total Runoff Area = 597,509 sf Runoff Volume = 142,409 cf Average Runoff Depth = 2.86"
91.42% Pervious = 546,251 sf 8.58% Impervious = 51,258 sf

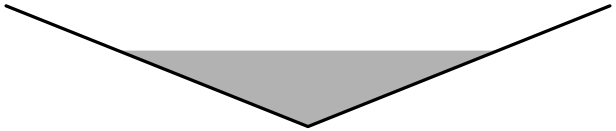
Summary for Reach 1R: Swale

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 2.88" for 10 Year, 24 Hr. Event event
Inflow = 3.98 cfs @ 12.19 hrs, Volume= 15,555 cf
Outflow = 3.96 cfs @ 12.19 hrs, Volume= 15,555 cf, Atten= 0%, Lag= 0.5 min

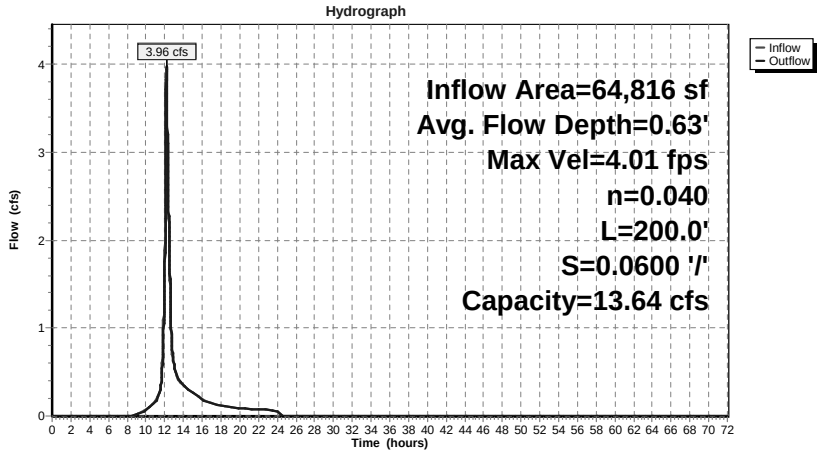
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 4.01 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.33 fps, Avg. Travel Time= 2.5 min

Peak Storage= 198 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.63'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 13.64 cfs

0.00' x 1.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 2.5 '/' Top Width= 5.00'
Length= 200.0' Slope= 0.0600 '/'
Inlet Invert= 518.00', Outlet Invert= 506.00'



Reach 1R: Swale



Hydrograph for Reach 1R: Swale

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	518.00	0.00
2.00	0.00	0	518.02	0.00
4.00	0.00	0	518.02	0.00
6.00	0.00	0	518.03	0.00
8.00	0.00	1	518.03	0.00
10.00	0.07	9	518.13	0.07
12.00	**1.69**	**100**	**518.45**	**1.60**
14.00	**0.35**	**32**	**518.25**	**0.35**
16.00	0.19	20	518.20	0.19
18.00	0.11	14	518.17	0.12
20.00	0.09	12	518.15	0.09
22.00	0.08	10	518.14	0.08
24.00	0.06	9	518.13	0.06
26.00	0.00	0	518.00	0.00
28.00	0.00	0	518.00	0.00
30.00	0.00	0	518.00	0.00
32.00	0.00	0	518.00	0.00
34.00	0.00	0	518.00	0.00
36.00	0.00	0	518.00	0.00
38.00	0.00	0	518.00	0.00
40.00	0.00	0	518.00	0.00
42.00	0.00	0	518.00	0.00
44.00	0.00	0	518.00	0.00
46.00	0.00	0	518.00	0.00
48.00	0.00	0	518.00	0.00
50.00	0.00	0	518.00	0.00
52.00	0.00	0	518.00	0.00
54.00	0.00	0	518.00	0.00
56.00	0.00	0	518.00	0.00
58.00	0.00	0	518.00	0.00
60.00	0.00	0	518.00	0.00
62.00	0.00	0	518.00	0.00
64.00	0.00	0	518.00	0.00
66.00	0.00	0	518.00	0.00
68.00	0.00	0	518.00	0.00
70.00	0.00	0	518.00	0.00
72.00	0.00	0	518.00	0.00

Summary for Subcatchment 9A: Post DA-9A

Verify ditch along RT22 x section

Runoff = 25.42 cfs @ 12.16 hrs, Volume= 96,255 cf, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

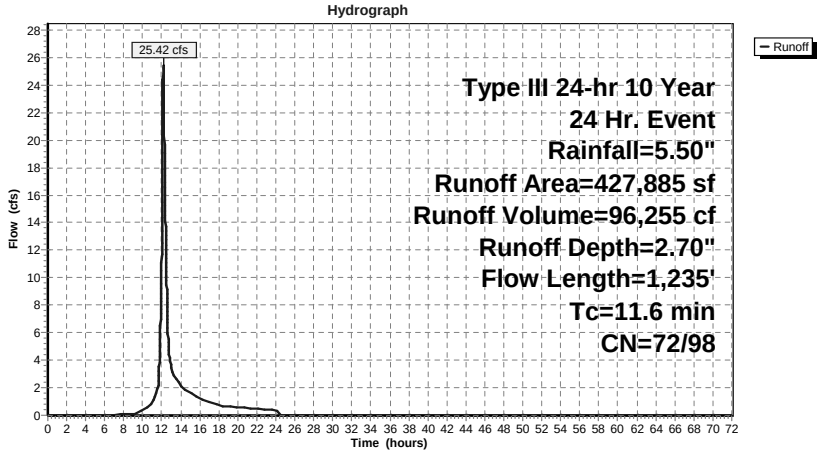
Area (sf)	CN	Description	Land Use
72,229	61	>75% Grass cover, Good, HSG B	Open Space
320,147	74	>75% Grass cover, Good, HSG C	Open Space
17,921	70	Woods, Good, HSG C	Woods
17,588	98	Paved parking, HSG C	Pavement
427,885	73	Weighted Average	
410,297	72	95.89% Pervious Area	
17,588	98	4.11% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0610	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.7	69	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	210	0.1130	2.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	93		15.00		**Direct Entry,**
0.6	763	0.1000	22.77	71.54	**Pipe Channel, Verify Inverts** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
11.6	1,235	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 4.11% Impervious, Rv= 0.087, Runoff= 3.98"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
392,376	Open Space	4,885.43	17.04	73.85	9.98
17,588	Pavement	62.93	0.20	0.76	2.44
17,921	Woods	13.71	0.00	0.00	0.46
427,885	Total	4,962.07	17.25	74.61	12.87

Subcatchment 9A: Post DA-9A



Hydrograph for Subcatchment 9A: Post DA-9A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.02
6.00	0.40	0.00	0.23	0.03
8.00	0.63	0.00	0.43	0.05
10.00	1.04	0.02	0.83	0.35
12.00	2.75	0.66	2.52	**11.05**
14.00	4.46	1.79	4.22	**2.16**
16.00	4.87	2.10	4.64	1.18
18.00	5.10	2.28	4.87	0.72
20.00	5.26	2.40	5.03	0.57
22.00	5.39	2.51	5.16	0.48
24.00	**5.50**	**2.59**	**5.26**	0.38
26.00	5.50	2.59	5.26	0.00
28.00	5.50	2.59	5.26	0.00
30.00	5.50	2.59	5.26	0.00
32.00	5.50	2.59	5.26	0.00
34.00	5.50	2.59	5.26	0.00
36.00	5.50	2.59	5.26	0.00
38.00	5.50	2.59	5.26	0.00
40.00	5.50	2.59	5.26	0.00
42.00	5.50	2.59	5.26	0.00
44.00	5.50	2.59	5.26	0.00
46.00	5.50	2.59	5.26	0.00
48.00	5.50	2.59	5.26	0.00
50.00	5.50	2.59	5.26	0.00
52.00	5.50	2.59	5.26	0.00
54.00	5.50	2.59	5.26	0.00
56.00	5.50	2.59	5.26	0.00
58.00	5.50	2.59	5.26	0.00
60.00	5.50	2.59	5.26	0.00
62.00	5.50	2.59	5.26	0.00
64.00	5.50	2.59	5.26	0.00
66.00	5.50	2.59	5.26	0.00
68.00	5.50	2.59	5.26	0.00
70.00	5.50	2.59	5.26	0.00
72.00	5.50	2.59	5.26	0.00

Summary for Subcatchment 9B: Post DA-9B

Verify ditch along RT22 x section

Runoff = 7.73 cfs @ 12.07 hrs, Volume= 24,794 cf, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

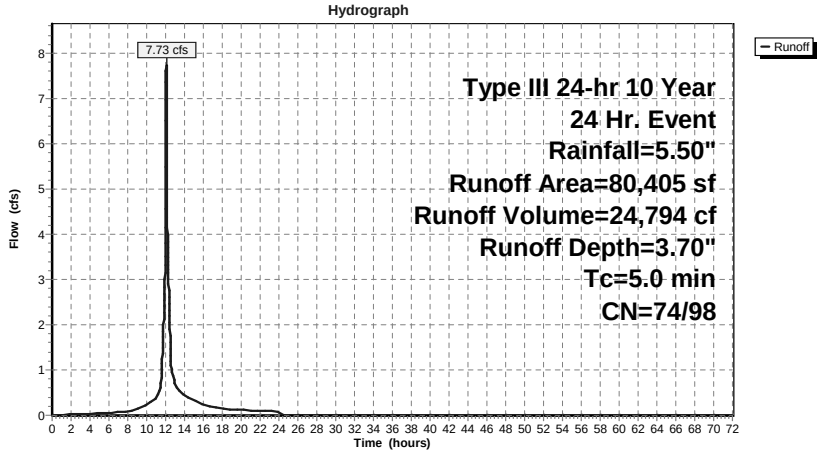
	Area (sf)	CN	Description	Land Use
	15,900	98	Paved parking, HSG C	Pavement
	50,374	74	>75% Grass cover, Good, HSG C	Open Space
*	7,292	98	Pavers, HSG B	Pavement
*	6,839	98	Pavers, HSG C	Pavement
	80,405	83	Weighted Average	
	50,374	74	62.65% Pervious Area	
	30,031	98	37.35% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 37.35% Impervious, Rv= 0.386, Runoff= 17.65"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
50,374	Open Space	2,784.00	9.71	42.08	5.69
30,031	Pavement	476.96	1.54	5.79	18.47
80,405	Total	3,260.96	11.26	47.87	24.16

Subcatchment 9B: Post DA-9B



Hydrograph for Subcatchment 9B: Post DA-9B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.02
4.00	0.24	0.00	0.10	0.04
6.00	0.40	0.00	0.23	0.05
8.00	0.63	0.00	0.43	0.09
10.00	1.04	0.03	0.83	0.23
12.00	2.75	0.75	2.52	**5.00**
14.00	4.46	1.94	4.22	**0.44**
16.00	4.87	2.26	4.64	0.24
18.00	5.10	2.45	4.87	0.15
20.00	5.26	2.58	5.03	0.12
22.00	5.39	2.68	5.16	0.10
24.00	**5.50**	**2.77**	**5.26**	0.08
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00

Summary for Subcatchment 10: Post DA-10

confirm road side swale/ add pipe to CGOOO from swale, either side....

Runoff = 3.98 cfs @ 12.19 hrs, Volume= 15,555 cf, Depth= 2.88"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

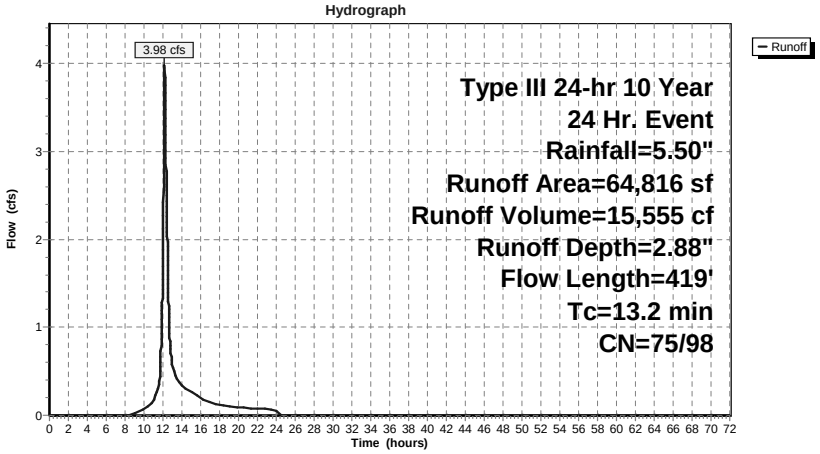
Area (sf)	CN	Description	Land Use
59,315	74	>75% Grass cover, Good, HSG C	Open Space
4,982	89	Gravel roads, HSG C	Roadway
519	98	Paved parking, HSG C	Pavement
64,816	75	Weighted Average	
64,297	75	99.20% Pervious Area	
519	98	0.80% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	87	0.0440	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	13	0.0490	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.6	54	0.0490	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	72	0.0820	2.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	88	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	44	0.1800	2.97		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	61	0.1200	2.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.2	419	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.80% Impervious, Rv= 0.057, Runoff= 2.61"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
59,315	Open Space	485.65	1.69	7.34	0.99
519	Pavement	1.22	0.00	0.01	0.05
4,982	Roadway	11.72	0.04	0.14	0.45
64,816	Total	498.59	1.74	7.50	1.49

Subcatchment 10: Post DA-10



Hydrograph for Subcatchment 10: Post DA-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.00
10.00	1.04	0.04	0.83	0.07
12.00	2.75	0.80	2.52	**1.69**
14.00	4.46	2.02	4.22	**0.35**
16.00	4.87	2.35	4.64	0.19
18.00	5.10	2.53	4.87	0.11
20.00	5.26	2.66	5.03	0.09
22.00	5.39	2.77	5.16	0.08
24.00	**5.50**	**2.86**	**5.26**	0.06
26.00	5.50	2.86	5.26	0.00
28.00	5.50	2.86	5.26	0.00
30.00	5.50	2.86	5.26	0.00
32.00	5.50	2.86	5.26	0.00
34.00	5.50	2.86	5.26	0.00
36.00	5.50	2.86	5.26	0.00
38.00	5.50	2.86	5.26	0.00
40.00	5.50	2.86	5.26	0.00
42.00	5.50	2.86	5.26	0.00
44.00	5.50	2.86	5.26	0.00
46.00	5.50	2.86	5.26	0.00
48.00	5.50	2.86	5.26	0.00
50.00	5.50	2.86	5.26	0.00
52.00	5.50	2.86	5.26	0.00
54.00	5.50	2.86	5.26	0.00
56.00	5.50	2.86	5.26	0.00
58.00	5.50	2.86	5.26	0.00
60.00	5.50	2.86	5.26	0.00
62.00	5.50	2.86	5.26	0.00
64.00	5.50	2.86	5.26	0.00
66.00	5.50	2.86	5.26	0.00
68.00	5.50	2.86	5.26	0.00
70.00	5.50	2.86	5.26	0.00
72.00	5.50	2.86	5.26	0.00

Summary for Subcatchment 12A: Post_DA-12A

Runoff = 1.14 cfs @ 12.18 hrs, Volume= 4,436 cf, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

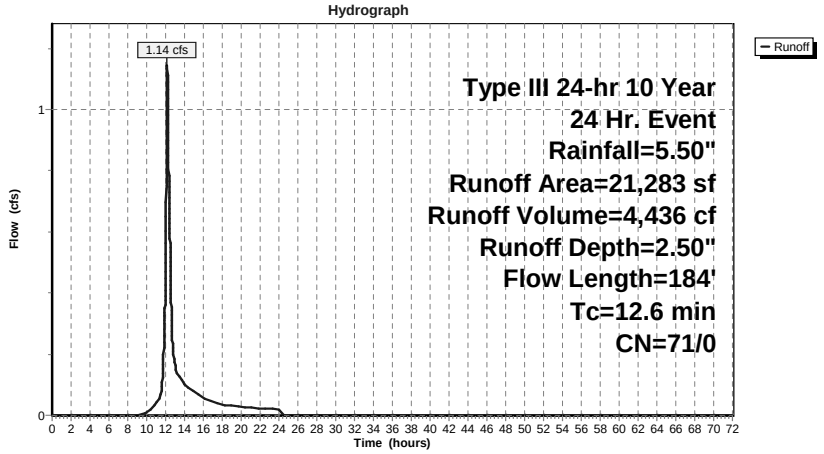
Area (sf)	CN	Description	Land Use
7,802	74	>75% Grass cover, Good, HSG C	Open Space
13,481	70	Woods, Good, HSG C	Woods
21,283	71	Weighted Average	
21,283	71	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	100	0.0810	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.50"
0.3	14	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	70	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,802	Open Space	55.83	0.19	0.84	0.11
13,481	Woods	5.93	0.00	0.00	0.20
21,283	Total	61.76	0.19	0.84	0.31

Subcatchment 12A: Post_DA-12A



Hydrograph for Subcatchment 12A: Post_DA-12A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.01	0.00	0.01
12.00	2.75	0.62	0.00	**0.47**
14.00	4.46	1.72	0.00	**0.10**
16.00	4.87	2.02	0.00	0.06
18.00	5.10	2.20	0.00	0.03
20.00	5.26	2.32	0.00	0.03
22.00	5.39	2.42	0.00	0.02
24.00	**5.50**	**2.50**	0.00	0.02
26.00	5.50	2.50	0.00	0.00
28.00	5.50	2.50	0.00	0.00
30.00	5.50	2.50	0.00	0.00
32.00	5.50	2.50	0.00	0.00
34.00	5.50	2.50	0.00	0.00
36.00	5.50	2.50	0.00	0.00
38.00	5.50	2.50	0.00	0.00
40.00	5.50	2.50	0.00	0.00
42.00	5.50	2.50	0.00	0.00
44.00	5.50	2.50	0.00	0.00
46.00	5.50	2.50	0.00	0.00
48.00	5.50	2.50	0.00	0.00
50.00	5.50	2.50	0.00	0.00
52.00	5.50	2.50	0.00	0.00
54.00	5.50	2.50	0.00	0.00
56.00	5.50	2.50	0.00	0.00
58.00	5.50	2.50	0.00	0.00
60.00	5.50	2.50	0.00	0.00
62.00	5.50	2.50	0.00	0.00
64.00	5.50	2.50	0.00	0.00
66.00	5.50	2.50	0.00	0.00
68.00	5.50	2.50	0.00	0.00
70.00	5.50	2.50	0.00	0.00
72.00	5.50	2.50	0.00	0.00

Summary for Subcatchment 12B: Post_DA-12B

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 1,368 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

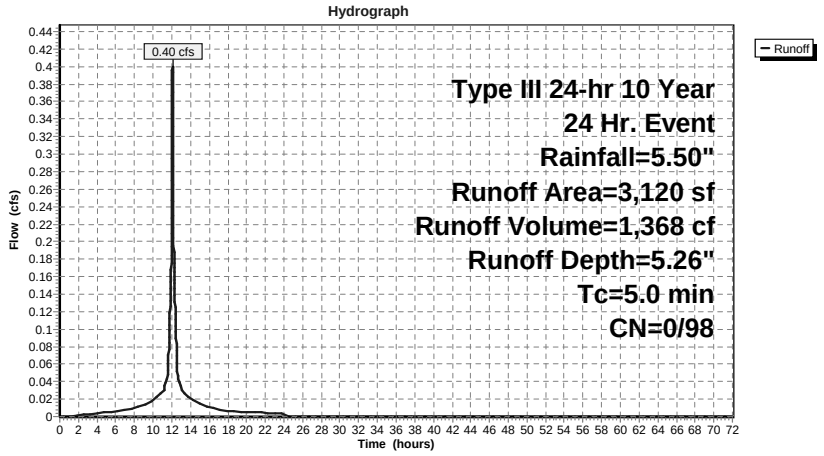
	Area (sf)	CN	Description	Land Use
*	1,870	98	Pavers HSG C	Pavement
	1,250	98	Unconnected pavement, HSG C	Pavement
	3,120	98	Weighted Average	
	3,120	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,120	Pavement	121.91	0.39	1.48	4.72
3,120	Total	121.91	0.39	1.48	4.72

Subcatchment 12B: Post_DA-12B



Hydrograph for Subcatchment 12B: Post_DA-12B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.00	0.83	0.02
12.00	2.75	0.00	2.52	**0.27**
14.00	4.46	0.00	4.22	**0.02**
16.00	4.87	0.00	4.64	0.01
18.00	5.10	0.00	4.87	0.01
20.00	5.26	0.00	5.03	0.01
22.00	5.39	0.00	5.16	0.00
24.00	**5.50**	0.00	**5.26**	0.00
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00

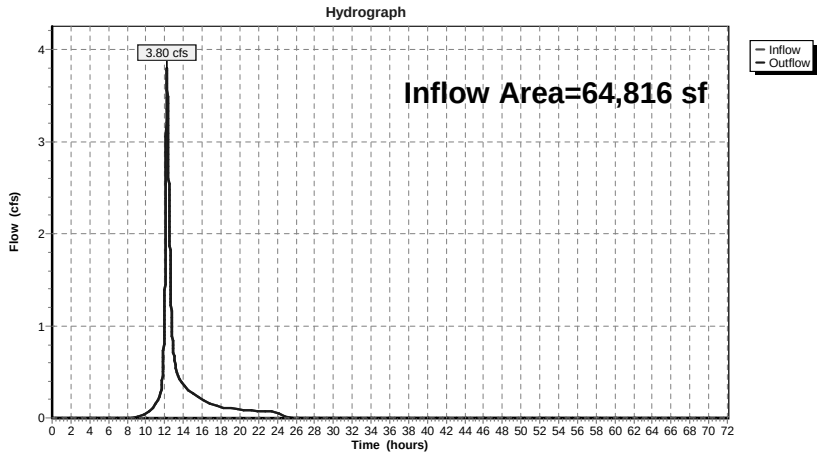
Summary for Reach DP-10: DP-10

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 2.88" for 10 Year, 24 Hr. Event event
Inflow = 3.80 cfs @ 12.23 hrs, Volume= 15,553 cf
Outflow = 3.80 cfs @ 12.23 hrs, Volume= 15,553 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-10: DP-10



Hydrograph for Reach DP-10: DP-10

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.05		0.05	62.00	0.00		0.00
11.00	0.14		0.14	63.00	0.00		0.00
12.00	**1.27**		**1.27**	64.00	0.00		0.00
13.00	**0.65**		**0.65**	65.00	0.00		0.00
14.00	0.36		0.36	66.00	0.00		0.00
15.00	0.27		0.27	67.00	0.00		0.00
16.00	0.20		0.20	68.00	0.00		0.00
17.00	0.15		0.15	69.00	0.00		0.00
18.00	0.12		0.12	70.00	0.00		0.00
19.00	0.10		0.10	71.00	0.00		0.00
20.00	0.09		0.09	72.00	0.00		0.00
21.00	0.08		0.08				
22.00	0.08		0.08				
23.00	0.07		0.07				
24.00	0.06		0.06				
25.00	0.01		0.01				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP12: DP-12

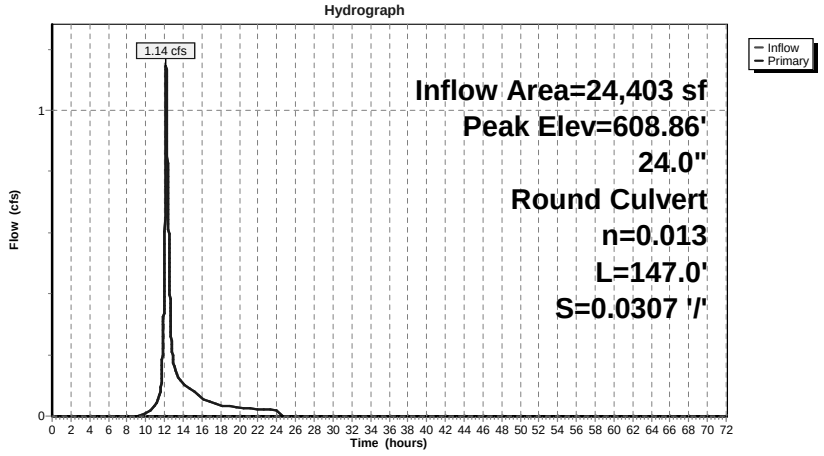
Inflow Area = 24,403 sf, 12.79% Impervious, Inflow Depth = 2.20" for 10 Year, 24 Hr. Event event
Inflow = 1.14 cfs @ 12.18 hrs, Volume= 4,468 cf
Outflow = 1.14 cfs @ 12.18 hrs, Volume= 4,468 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.14 cfs @ 12.18 hrs, Volume= 4,468 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.86' @ 12.18 hrs
Flood Elev= 613.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.37'	**24.0" Round Culvert** L= 147.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 608.37' / 603.85' S= 0.0307 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.14 cfs @ 12.18 hrs HW=608.86' (Free Discharge)
↑**1=Culvert** (Inlet Controls 1.14 cfs @ 1.89 fps)

Pond DP12: DP-12



Hydrograph for Pond DP12: DP-12

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	608.37	0.00	52.00	0.00	608.37	0.00
1.00	0.00	608.37	0.00	53.00	0.00	608.37	0.00
2.00	0.00	608.37	0.00	54.00	0.00	608.37	0.00
3.00	0.00	608.37	0.00	55.00	0.00	608.37	0.00
4.00	0.00	608.37	0.00	56.00	0.00	608.37	0.00
5.00	0.00	608.37	0.00	57.00	0.00	608.37	0.00
6.00	0.00	608.37	0.00	58.00	0.00	608.37	0.00
7.00	0.00	608.37	0.00	59.00	0.00	608.37	0.00
8.00	0.00	608.37	0.00	60.00	0.00	608.37	0.00
9.00	0.00	608.37	0.00	61.00	0.00	608.37	0.00
10.00	0.01	608.41	0.01	62.00	0.00	608.37	0.00
11.00	0.04	608.46	0.04	63.00	0.00	608.37	0.00
12.00	**0.47**	**608.68**	**0.47**	64.00	0.00	608.37	0.00
13.00	**0.17**	**608.56**	**0.17**	65.00	0.00	608.37	0.00
14.00	0.10	608.52	0.10	66.00	0.00	608.37	0.00
15.00	0.08	608.50	0.08	67.00	0.00	608.37	0.00
16.00	0.06	608.48	0.06	68.00	0.00	608.37	0.00
17.00	0.04	608.46	0.04	69.00	0.00	608.37	0.00
18.00	0.03	608.45	0.03	70.00	0.00	608.37	0.00
19.00	0.03	608.45	0.03	71.00	0.00	608.37	0.00
20.00	0.03	608.44	0.03	72.00	0.00	608.37	0.00
21.00	0.03	608.44	0.03				
22.00	0.02	608.44	0.02				
23.00	0.02	608.43	0.02				
24.00	0.02	608.43	0.02				
25.00	0.00	608.37	0.00				
26.00	0.00	608.37	0.00				
27.00	0.00	608.37	0.00				
28.00	0.00	608.37	0.00				
29.00	0.00	608.37	0.00				
30.00	0.00	608.37	0.00				
31.00	0.00	608.37	0.00				
32.00	0.00	608.37	0.00				
33.00	0.00	608.37	0.00				
34.00	0.00	608.37	0.00				
35.00	0.00	608.37	0.00				
36.00	0.00	608.37	0.00				
37.00	0.00	608.37	0.00				
38.00	0.00	608.37	0.00				
39.00	0.00	608.37	0.00				
40.00	0.00	608.37	0.00				
41.00	0.00	608.37	0.00				
42.00	0.00	608.37	0.00				
43.00	0.00	608.37	0.00				
44.00	0.00	608.37	0.00				
45.00	0.00	608.37	0.00				
46.00	0.00	608.37	0.00				
47.00	0.00	608.37	0.00				
48.00	0.00	608.37	0.00				
49.00	0.00	608.37	0.00				
50.00	0.00	608.37	0.00				
51.00	0.00	608.37	0.00				

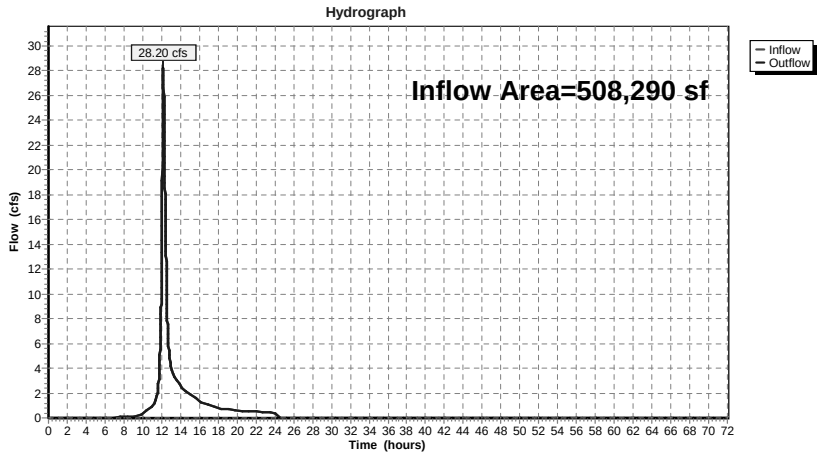
Summary for Reach DP9: DP-9

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 508,290 sf, 9.37% Impervious, Inflow Depth = 2.52" for 10 Year, 24 Hr. Event event
Inflow = 28.20 cfs @ 12.18 hrs, Volume= 106,783 cf
Outflow = 28.20 cfs @ 12.18 hrs, Volume= 106,783 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP9: DP-9



Hydrograph for Reach DP9: DP-9

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.02		0.02	56.00	0.00		0.00
5.00	0.03		0.03	57.00	0.00		0.00
6.00	0.03		0.03	58.00	0.00		0.00
7.00	0.04		0.04	59.00	0.00		0.00
8.00	0.05		0.05	60.00	0.00		0.00
9.00	0.08		0.08	61.00	0.00		0.00
10.00	0.35		0.35	62.00	0.00		0.00
11.00	0.96		0.96	63.00	0.00		0.00
12.00	**11.05**		**11.05**	64.00	0.00		0.00
13.00	**4.16**		**4.16**	65.00	0.00		0.00
14.00	2.54		2.54	66.00	0.00		0.00
15.00	1.90		1.90	67.00	0.00		0.00
16.00	1.35		1.35	68.00	0.00		0.00
17.00	1.04		1.04	69.00	0.00		0.00
18.00	0.79		0.79	70.00	0.00		0.00
19.00	0.69		0.69	71.00	0.00		0.00
20.00	0.61		0.61	72.00	0.00		0.00
21.00	0.55		0.55				
22.00	0.50		0.50				
23.00	0.44		0.44				
24.00	0.38		0.38				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond P12: DA-12 Pavers

Inflow Area = 3,120 sf,100.00% Impervious, Inflow Depth = 5.26" for 10 Year, 24 Hr. Event event
Inflow = 0.40 cfs @ 12.07 hrs, Volume= 1,368 cf
Outflow = 0.02 cfs @ 14.52 hrs, Volume= 1,368 cf, Atten= 96%, Lag= 147.2 min
Discarded = 0.01 cfs @ 9.40 hrs, Volume= 1,336 cf
Primary = 0.01 cfs @ 14.52 hrs, Volume= 32 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 630.00' @ 14.52 hrs Surf.Area= 1,870 sf Storage= 755 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 579.6 min (1,325.1 - 745.5)

Volume	Invert	Avail.Storage	Storage Description
#1	628.00'	1,683 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

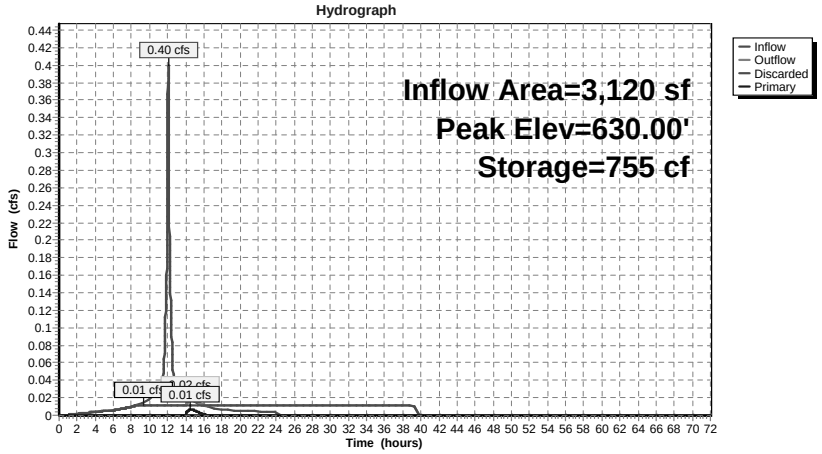
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
628.00	1,870	0.0	0	0
629.00	1,870	20.0	374	374
630.00	1,870	20.0	374	748
630.50	1,870	100.0	935	1,683

Device	Routing	Invert	Outlet Devices
#1	Primary	630.00'	**10.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	628.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 9.40 hrs HW=628.03' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.01 cfs @ 14.52 hrs HW=630.00' TW=608.51' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.17 fps)

Pond P12: DA-12 Pavers



Hydrograph for Pond P12: DA-12 Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	628.00	0.00	0.00	0.00
2.00	0.00	0	628.00	0.00	0.00	0.00
4.00	0.00	0	628.00	0.00	0.00	0.00
6.00	0.01	0	628.00	0.01	0.01	0.00
8.00	0.01	0	628.00	0.01	**0.01**	0.00
10.00	0.02	23	628.06	0.01	**0.01**	0.00
12.00	**0.27**	293	628.78	0.01	0.01	0.00
14.00	**0.02**	**750**	**630.00**	**0.01**	0.01	**0.00**
16.00	0.01	**750**	**630.00**	**0.01**	0.01	**0.00**
18.00	0.01	733	629.96	0.01	0.01	0.00
20.00	0.01	697	629.86	0.01	0.01	0.00
22.00	0.00	653	629.75	0.01	0.01	0.00
24.00	0.00	603	629.61	0.01	0.01	0.00
26.00	0.00	526	629.41	0.01	0.01	0.00
28.00	0.00	448	629.20	0.01	0.01	0.00
30.00	0.00	370	628.99	0.01	0.01	0.00
32.00	0.00	292	628.78	0.01	0.01	0.00
34.00	0.00	214	628.57	0.01	0.01	0.00
36.00	0.00	136	628.36	0.01	0.01	0.00
38.00	0.00	58	628.16	0.01	0.01	0.00
40.00	0.00	0	628.00	0.00	0.00	0.00
42.00	0.00	0	628.00	0.00	0.00	0.00
44.00	0.00	0	628.00	0.00	0.00	0.00
46.00	0.00	0	628.00	0.00	0.00	0.00
48.00	0.00	0	628.00	0.00	0.00	0.00
50.00	0.00	0	628.00	0.00	0.00	0.00
52.00	0.00	0	628.00	0.00	0.00	0.00
54.00	0.00	0	628.00	0.00	0.00	0.00
56.00	0.00	0	628.00	0.00	0.00	0.00
58.00	0.00	0	628.00	0.00	0.00	0.00
60.00	0.00	0	628.00	0.00	0.00	0.00
62.00	0.00	0	628.00	0.00	0.00	0.00
64.00	0.00	0	628.00	0.00	0.00	0.00
66.00	0.00	0	628.00	0.00	0.00	0.00
68.00	0.00	0	628.00	0.00	0.00	0.00
70.00	0.00	0	628.00	0.00	0.00	0.00
72.00	0.00	0	628.00	0.00	0.00	0.00

Summary for Pond P9: Pervious Pavers DA-9

Inflow Area = 80,405 sf, 37.35% Impervious, Inflow Depth = 3.70" for 10 Year, 24 Hr. Event event
Inflow = 7.73 cfs @ 12.07 hrs, Volume= 24,794 cf
Outflow = 3.62 cfs @ 12.23 hrs, Volume= 24,795 cf, Atten= 53%, Lag= 9.2 min
Discarded = 0.08 cfs @ 9.19 hrs, Volume= 14,267 cf
Primary = 3.54 cfs @ 12.23 hrs, Volume= 10,528 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 566.06' @ 12.23 hrs Surf.Area= 14,130 sf Storage= 9,268 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 554.7 min (1,340.7 - 786.0)

Volume	Invert	Avail.Storage	Storage Description
#1	564.00'	36,738 cf	**Custom Stage Data (Prismatic)** Listed below

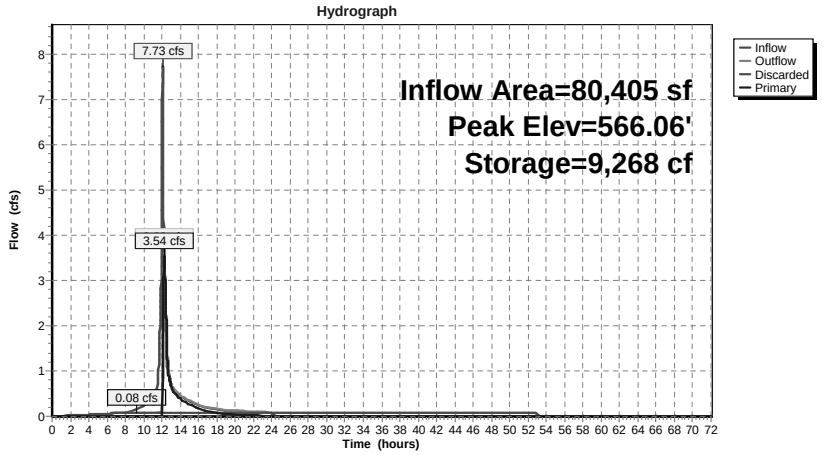
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
564.00	14,130	0.0	0	0
566.00	14,130	30.0	8,478	8,478
568.00	14,130	100.0	28,260	36,738

Device	Routing	Invert	Outlet Devices
#1	Primary	566.00'	**100.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	564.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.08 cfs @ 9.19 hrs HW=564.04' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=3.54 cfs @ 12.23 hrs HW=566.06' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 3.54 cfs @ 0.63 fps)

Pond P9: Pervious Pavers DA-9



Hydrograph for Pond P9: Pervious Pavers DA-9

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	564.00	0.00	0.00	0.00
2.00	0.02	0	564.00	0.02	0.02	0.00
4.00	0.04	0	564.00	0.04	0.04	0.00
6.00	0.05	0	564.00	0.05	0.05	0.00
8.00	0.09	8	564.00	0.08	**0.08**	0.00
10.00	0.23	492	564.12	0.08	**0.08**	0.00
12.00	**5.00**	**5,422**	**565.28**	**0.08**	0.08	**0.00**
14.00	**0.44**	**8,656**	**566.01**	**0.46**	0.08	**0.38**
16.00	0.24	8,582	566.01	0.25	0.08	0.17
18.00	0.15	8,537	566.00	0.15	0.08	0.07
20.00	0.12	8,517	566.00	0.12	0.08	0.04
22.00	0.10	8,502	566.00	0.10	0.08	0.02
24.00	0.08	8,481	566.00	0.08	0.08	0.00
26.00	0.00	7,913	565.87	0.08	0.08	0.00
28.00	0.00	7,325	565.73	0.08	0.08	0.00
30.00	0.00	6,736	565.59	0.08	0.08	0.00
32.00	0.00	6,147	565.45	0.08	0.08	0.00
34.00	0.00	5,558	565.31	0.08	0.08	0.00
36.00	0.00	4,970	565.17	0.08	0.08	0.00
38.00	0.00	4,381	565.03	0.08	0.08	0.00
40.00	0.00	3,792	564.89	0.08	0.08	0.00
42.00	0.00	3,203	564.76	0.08	0.08	0.00
44.00	0.00	2,615	564.62	0.08	0.08	0.00
46.00	0.00	2,026	564.48	0.08	0.08	0.00
48.00	0.00	1,437	564.34	0.08	0.08	0.00
50.00	0.00	848	564.20	0.08	0.08	0.00
52.00	0.00	260	564.06	0.08	0.08	0.00
54.00	0.00	0	564.00	0.00	0.00	0.00
56.00	0.00	0	564.00	0.00	0.00	0.00
58.00	0.00	0	564.00	0.00	0.00	0.00
60.00	0.00	0	564.00	0.00	0.00	0.00
62.00	0.00	0	564.00	0.00	0.00	0.00
64.00	0.00	0	564.00	0.00	0.00	0.00
66.00	0.00	0	564.00	0.00	0.00	0.00
68.00	0.00	0	564.00	0.00	0.00	0.00
70.00	0.00	0	564.00	0.00	0.00	0.00
72.00	0.00	0	564.00	0.00	0.00	0.00

Summary for Pond USF: USF

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 2.88" for 10 Year, 24 Hr. Event event
Inflow = 3.96 cfs @ 12.19 hrs, Volume= 15,555 cf
Outflow = 3.80 cfs @ 12.23 hrs, Volume= 15,553 cf, Atten= 4%, Lag= 2.4 min
Primary = 3.80 cfs @ 12.23 hrs, Volume= 15,553 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 495.83' @ 12.23 hrs Surf.Area= 0 sf Storage= 931 cf

Plug-Flow detention time= 12.4 min calculated for 15,551 cf (100% of inflow)
Center-of-Mass det. time= 12.6 min (849.8 - 837.2)

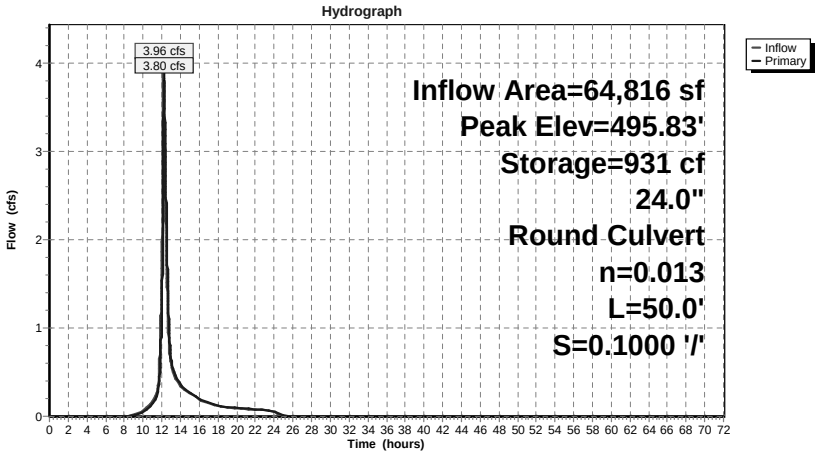
Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	5,626 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
495.00	0
500.00	5,626

Device	Routing	Invert	Outlet Devices
#1	Primary	495.00'	**24.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 495.00' / 490.00' S= 0.1000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=3.80 cfs @ 12.23 hrs HW=495.83' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 3.80 cfs @ 3.10 fps)

Pond USF: USF



Hydrograph for Pond USF: USF

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	495.00	0.00
2.00	0.00	0	495.00	0.00
4.00	0.00	3	495.00	0.00
6.00	0.00	8	495.01	0.00
8.00	0.00	12	495.01	0.00
10.00	0.07	95	495.08	0.05
12.00	**1.60**	**519**	**495.46**	**1.27**
14.00	**0.35**	**273**	**495.24**	**0.36**
16.00	0.19	201	495.18	0.20
18.00	0.12	156	495.14	0.12
20.00	0.09	137	495.12	0.09
22.00	0.08	124	495.11	0.08
24.00	0.06	112	495.10	0.06
26.00	0.00	25	495.02	0.00
28.00	0.00	13	495.01	0.00
30.00	0.00	9	495.01	0.00
32.00	0.00	7	495.01	0.00
34.00	0.00	5	495.00	0.00
36.00	0.00	4	495.00	0.00
38.00	0.00	4	495.00	0.00
40.00	0.00	3	495.00	0.00
42.00	0.00	3	495.00	0.00
44.00	0.00	3	495.00	0.00
46.00	0.00	2	495.00	0.00
48.00	0.00	2	495.00	0.00
50.00	0.00	2	495.00	0.00
52.00	0.00	2	495.00	0.00
54.00	0.00	2	495.00	0.00
56.00	0.00	2	495.00	0.00
58.00	0.00	2	495.00	0.00
60.00	0.00	2	495.00	0.00
62.00	0.00	1	495.00	0.00
64.00	0.00	1	495.00	0.00
66.00	0.00	1	495.00	0.00
68.00	0.00	1	495.00	0.00
70.00	0.00	1	495.00	0.00
72.00	0.00	1	495.00	0.00

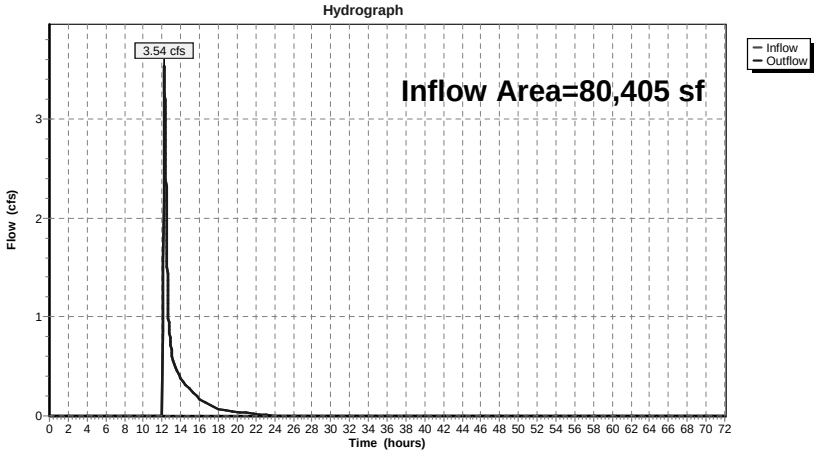
Summary for Reach USF-9B: USF - 9B

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 80,405 sf, 37.35% Impervious, Inflow Depth = 1.57" for 10 Year, 24 Hr. Event event
Inflow = 3.54 cfs @ 12.23 hrs, Volume= 10,528 cf
Outflow = 3.54 cfs @ 12.23 hrs, Volume= 10,528 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach USF-9B: USF - 9B



Hydrograph for Reach USF-9B: USF - 9B

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	**0.00**		**0.00**	64.00	0.00		0.00
13.00	**0.66**		**0.66**	65.00	0.00		0.00
14.00	0.38		0.38	66.00	0.00		0.00
15.00	0.27		0.27	67.00	0.00		0.00
16.00	0.17		0.17	68.00	0.00		0.00
17.00	0.11		0.11	69.00	0.00		0.00
18.00	0.07		0.07	70.00	0.00		0.00
19.00	0.05		0.05	71.00	0.00		0.00
20.00	0.04		0.04	72.00	0.00		0.00
21.00	0.03		0.03				
22.00	0.02		0.02				
23.00	0.01		0.01				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 1R: Swale Avg. Flow Depth=0.66' Max Vel=4.15 fps Inflow=4.57 cfs 17,835 cf
n=0.040 L=200.0' S=0.0600 '/' Capacity=13.64 cfs Outflow=4.55 cfs 17,835 cf

Subcatchment 9A: Post DA-9A Runoff Area=427,885 sf 4.11% Impervious Runoff Depth=3.11"
Flow Length=1,235' Tc=11.6 min CN=72/98 Runoff=29.37 cfs 110,788 cf

Subcatchment 9B: Post DA-9B Runoff Area=80,405 sf 37.35% Impervious Runoff Depth=4.15"
Tc=5.0 min CN=74/98 Runoff=8.67 cfs 27,789 cf

Subcatchment 10: Post DA-10 Runoff Area=64,816 sf 0.80% Impervious Runoff Depth=3.30"
Flow Length=419' Tc=13.2 min CN=75/98 Runoff=4.57 cfs 17,835 cf

Subcatchment 12A: Post_DA-12A Runoff Area=21,283 sf 0.00% Impervious Runoff Depth=2.90"
Flow Length=184' Tc=12.6 min CN=71/0 Runoff=1.33 cfs 5,141 cf

Subcatchment 12B: Post_DA-12B Runoff Area=3,120 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=0.44 cfs 1,498 cf

Reach DP-10: DP-10 Inflow=4.38 cfs 17,834 cf
Outflow=4.38 cfs 17,834 cf

Pond DP12: DP-12 Peak Elev=608.91' Inflow=1.33 cfs 5,274 cf
24.0" Round Culvert n=0.013 L=147.0' S=0.0307 '/' Outflow=1.33 cfs 5,274 cf

Reach DP9: DP-9 Inflow=34.88 cfs 124,189 cf
Outflow=34.88 cfs 124,189 cf

Pond P12: DA-12 Pavers Peak Elev=630.01' Storage=765 cf Inflow=0.44 cfs 1,498 cf
Discarded=0.01 cfs 1,365 cf Primary=0.02 cfs 133 cf Outflow=0.03 cfs 1,498 cf

Pond P9: Pervious Pavers DA-9 Peak Elev=566.08' Storage=9,539 cf Inflow=8.67 cfs 27,789 cf
Discarded=0.08 cfs 14,389 cf Primary=5.51 cfs 13,401 cf Outflow=5.60 cfs 27,790 cf

Pond USF: USF Peak Elev=495.89' Storage=1,007 cf Inflow=4.55 cfs 17,835 cf
24.0" Round Culvert n=0.013 L=50.0' S=0.1000 '/' Outflow=4.38 cfs 17,834 cf

Reach USF-9B: USF - 9B Inflow=5.51 cfs 13,401 cf
Outflow=5.51 cfs 13,401 cf

Total Runoff Area = 597,509 sf Runoff Volume = 163,051 cf Average Runoff Depth = 3.27"
91.42% Pervious = 546,251 sf 8.58% Impervious = 51,258 sf

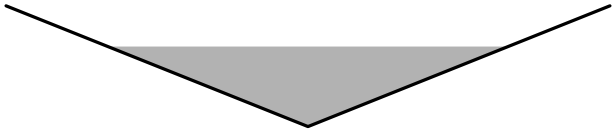
Summary for Reach 1R: Swale

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 3.30" for 25 Year, 24 Hr. Event event
Inflow = 4.57 cfs @ 12.18 hrs, Volume= 17,835 cf
Outflow = 4.55 cfs @ 12.19 hrs, Volume= 17,835 cf, Atten= 0%, Lag= 0.5 min

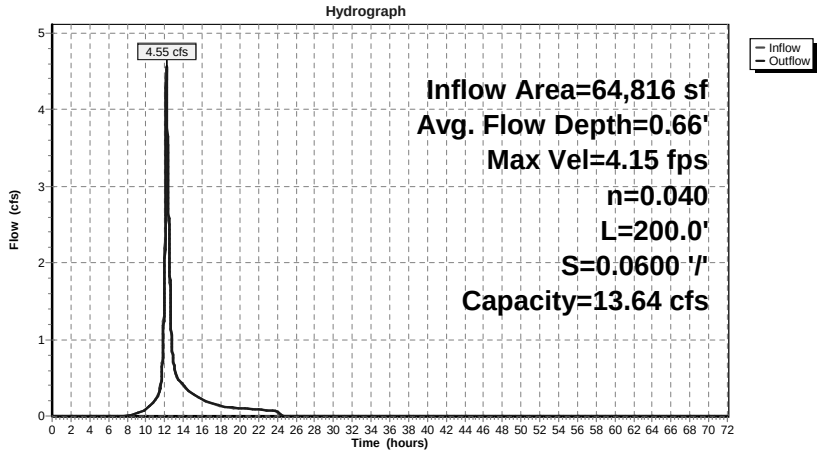
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 4.15 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.38 fps, Avg. Travel Time= 2.4 min

Peak Storage= 220 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.66'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 13.64 cfs

0.00' x 1.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 2.5 '/' Top Width= 5.00'
Length= 200.0' Slope= 0.0600 '/'
Inlet Invert= 518.00', Outlet Invert= 506.00'



Reach 1R: Swale



Hydrograph for Reach 1R: Swale

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	518.00	0.00
2.00	0.00	0	518.02	0.00
4.00	0.00	0	518.02	0.00
6.00	0.00	0	518.03	0.00
8.00	0.00	1	518.03	0.00
10.00	0.09	11	518.15	0.09
12.00	**1.97**	**113**	**518.47**	**1.87**
14.00	**0.39**	**35**	**518.26**	**0.39**
16.00	0.21	22	518.21	0.21
18.00	0.13	15	518.17	0.13
20.00	0.10	13	518.16	0.10
22.00	0.08	11	518.15	0.08
24.00	0.07	9	518.14	0.07
26.00	0.00	0	518.00	0.00
28.00	0.00	0	518.00	0.00
30.00	0.00	0	518.00	0.00
32.00	0.00	0	518.00	0.00
34.00	0.00	0	518.00	0.00
36.00	0.00	0	518.00	0.00
38.00	0.00	0	518.00	0.00
40.00	0.00	0	518.00	0.00
42.00	0.00	0	518.00	0.00
44.00	0.00	0	518.00	0.00
46.00	0.00	0	518.00	0.00
48.00	0.00	0	518.00	0.00
50.00	0.00	0	518.00	0.00
52.00	0.00	0	518.00	0.00
54.00	0.00	0	518.00	0.00
56.00	0.00	0	518.00	0.00
58.00	0.00	0	518.00	0.00
60.00	0.00	0	518.00	0.00
62.00	0.00	0	518.00	0.00
64.00	0.00	0	518.00	0.00
66.00	0.00	0	518.00	0.00
68.00	0.00	0	518.00	0.00
70.00	0.00	0	518.00	0.00
72.00	0.00	0	518.00	0.00

Summary for Subcatchment 9A: Post DA-9A

Verify ditch along RT22 x section

Runoff = 29.37 cfs @ 12.16 hrs, Volume= 110,788 cf, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

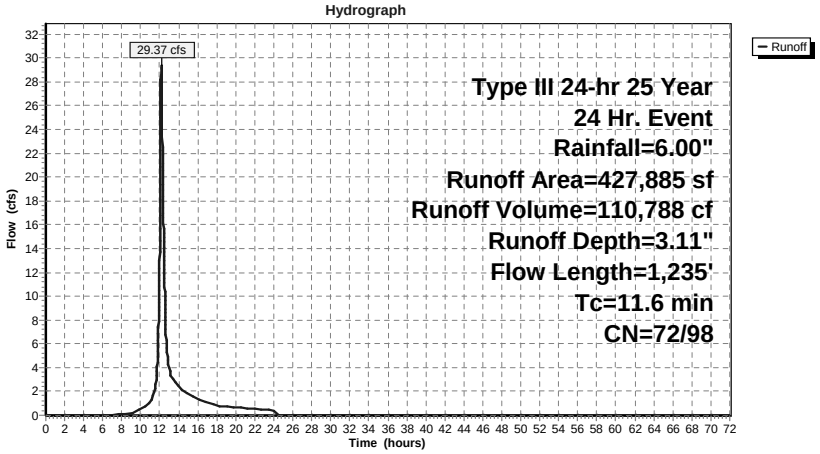
Area (sf)	CN	Description	Land Use
72,229	61	>75% Grass cover, Good, HSG B	Open Space
320,147	74	>75% Grass cover, Good, HSG C	Open Space
17,921	70	Woods, Good, HSG C	Woods
17,588	98	Paved parking, HSG C	Pavement
427,885	73	Weighted Average	
410,297	72	95.89% Pervious Area	
17,588	98	4.11% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0610	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.7	69	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	210	0.1130	2.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	93		15.00		**Direct Entry,**
0.6	763	0.1000	22.77	71.54	**Pipe Channel, Verify Inverts** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
11.6	1,235	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 4.11% Impervious, Rv= 0.087, Runoff= 3.98"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
392,376	Open Space	4,885.43	17.04	73.85	9.98
17,588	Pavement	62.93	0.20	0.76	2.44
17,921	Woods	13.71	0.00	0.00	0.46
427,885	Total	4,962.07	17.25	74.61	12.87

Subcatchment 9A: Post DA-9A



Hydrograph for Subcatchment 9A: Post DA-9A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.01
4.00	0.26	0.00	0.11	0.02
6.00	0.43	0.00	0.26	0.03
8.00	0.68	0.00	0.49	0.06
10.00	1.13	0.03	0.92	0.49
12.00	3.00	0.81	2.77	**12.98**
14.00	4.87	2.10	4.63	**2.43**
16.00	5.32	2.44	5.08	1.32
18.00	5.57	2.64	5.33	0.81
20.00	5.74	2.78	5.50	0.64
22.00	5.88	2.90	5.65	0.53
24.00	**6.00**	**2.99**	**5.76**	0.43
26.00	6.00	2.99	5.76	0.00
28.00	6.00	2.99	5.76	0.00
30.00	6.00	2.99	5.76	0.00
32.00	6.00	2.99	5.76	0.00
34.00	6.00	2.99	5.76	0.00
36.00	6.00	2.99	5.76	0.00
38.00	6.00	2.99	5.76	0.00
40.00	6.00	2.99	5.76	0.00
42.00	6.00	2.99	5.76	0.00
44.00	6.00	2.99	5.76	0.00
46.00	6.00	2.99	5.76	0.00
48.00	6.00	2.99	5.76	0.00
50.00	6.00	2.99	5.76	0.00
52.00	6.00	2.99	5.76	0.00
54.00	6.00	2.99	5.76	0.00
56.00	6.00	2.99	5.76	0.00
58.00	6.00	2.99	5.76	0.00
60.00	6.00	2.99	5.76	0.00
62.00	6.00	2.99	5.76	0.00
64.00	6.00	2.99	5.76	0.00
66.00	6.00	2.99	5.76	0.00
68.00	6.00	2.99	5.76	0.00
70.00	6.00	2.99	5.76	0.00
72.00	6.00	2.99	5.76	0.00

Summary for Subcatchment 9B: Post DA-9B

Verify ditch along RT22 x section

Runoff = 8.67 cfs @ 12.07 hrs, Volume= 27,789 cf, Depth= 4.15"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

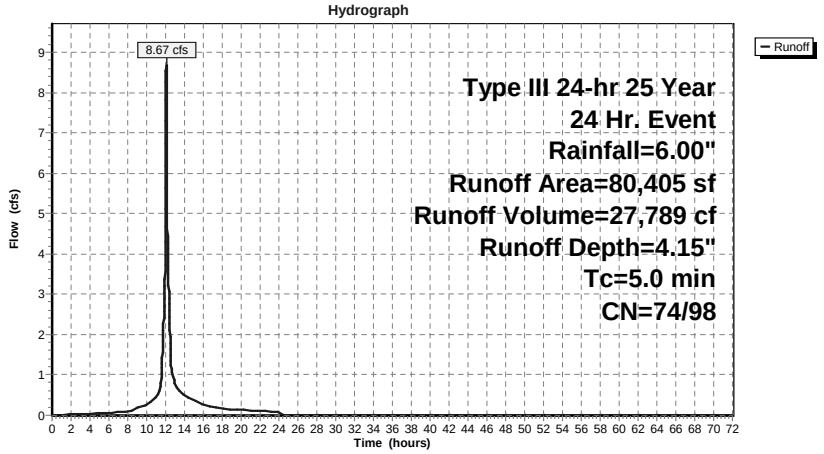
	Area (sf)	CN	Description	Land Use
	15,900	98	Paved parking, HSG C	Pavement
	50,374	74	>75% Grass cover, Good, HSG C	Open Space
*	7,292	98	Pavers, HSG B	Pavement
*	6,839	98	Pavers, HSG C	Pavement
	80,405	83	Weighted Average	
	50,374	74	62.65% Pervious Area	
	30,031	98	37.35% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 37.35% Impervious, Rv= 0.386, Runoff= 17.65"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
50,374	Open Space	2,784.00	9.71	42.08	5.69
30,031	Pavement	476.96	1.54	5.79	18.47
80,405	Total	3,260.96	11.26	47.87	24.16

Subcatchment 9B: Post DA-9B



Hydrograph for Subcatchment 9B: Post DA-9B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.02
4.00	0.26	0.00	0.11	0.04
6.00	0.43	0.00	0.26	0.06
8.00	0.68	0.00	0.49	0.10
10.00	1.13	0.05	0.92	0.26
12.00	3.00	0.91	2.77	**5.63**
14.00	4.87	2.26	4.63	**0.49**
16.00	5.32	2.62	5.08	0.26
18.00	5.57	2.83	5.33	0.16
20.00	5.74	2.97	5.50	0.13
22.00	5.88	3.09	5.65	0.11
24.00	**6.00**	**3.18**	**5.76**	0.09
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00

Summary for Subcatchment 10: Post DA-10

confirm road side swale/ add pipe to CGOOO from swale, either side....

Runoff = 4.57 cfs @ 12.18 hrs, Volume= 17,835 cf, Depth= 3.30"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

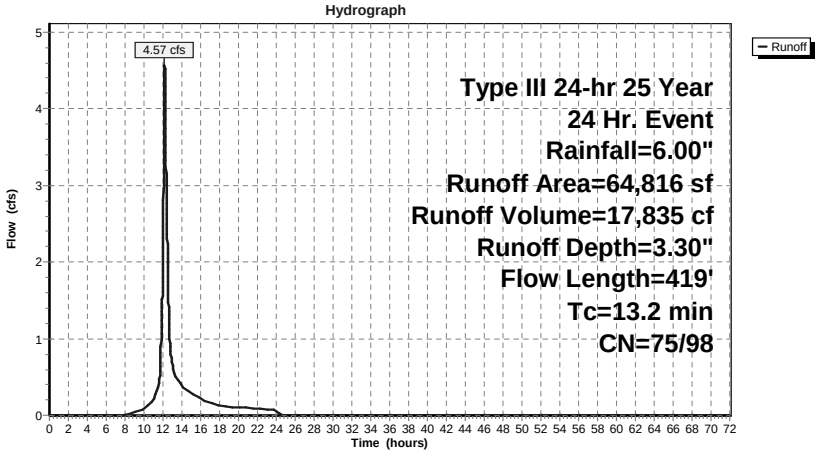
Area (sf)	CN	Description	Land Use
59,315	74	>75% Grass cover, Good, HSG C	Open Space
4,982	89	Gravel roads, HSG C	Roadway
519	98	Paved parking, HSG C	Pavement
64,816	75	Weighted Average	
64,297	75	99.20% Pervious Area	
519	98	0.80% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	87	0.0440	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	13	0.0490	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.6	54	0.0490	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	72	0.0820	2.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	88	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	44	0.1800	2.97		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	61	0.1200	2.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.2	419	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.80% Impervious, Rv= 0.057, Runoff= 2.61"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
59,315	Open Space	485.65	1.69	7.34	0.99
519	Pavement	1.22	0.00	0.01	0.05
4,982	Roadway	11.72	0.04	0.14	0.45
64,816	Total	498.59	1.74	7.50	1.49

Subcatchment 10: Post DA-10



Hydrograph for Subcatchment 10: Post DA-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.00
10.00	1.13	0.06	0.92	0.09
12.00	3.00	0.96	2.77	**1.97**
14.00	4.87	2.34	4.63	**0.39**
16.00	5.32	2.71	5.08	0.21
18.00	5.57	2.92	5.33	0.13
20.00	5.74	3.06	5.50	0.10
22.00	5.88	3.18	5.65	0.08
24.00	**6.00**	**3.28**	**5.76**	0.07
26.00	6.00	3.28	5.76	0.00
28.00	6.00	3.28	5.76	0.00
30.00	6.00	3.28	5.76	0.00
32.00	6.00	3.28	5.76	0.00
34.00	6.00	3.28	5.76	0.00
36.00	6.00	3.28	5.76	0.00
38.00	6.00	3.28	5.76	0.00
40.00	6.00	3.28	5.76	0.00
42.00	6.00	3.28	5.76	0.00
44.00	6.00	3.28	5.76	0.00
46.00	6.00	3.28	5.76	0.00
48.00	6.00	3.28	5.76	0.00
50.00	6.00	3.28	5.76	0.00
52.00	6.00	3.28	5.76	0.00
54.00	6.00	3.28	5.76	0.00
56.00	6.00	3.28	5.76	0.00
58.00	6.00	3.28	5.76	0.00
60.00	6.00	3.28	5.76	0.00
62.00	6.00	3.28	5.76	0.00
64.00	6.00	3.28	5.76	0.00
66.00	6.00	3.28	5.76	0.00
68.00	6.00	3.28	5.76	0.00
70.00	6.00	3.28	5.76	0.00
72.00	6.00	3.28	5.76	0.00

Summary for Subcatchment 12A: Post_DA-12A

Runoff = 1.33 cfs @ 12.18 hrs, Volume= 5,141 cf, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

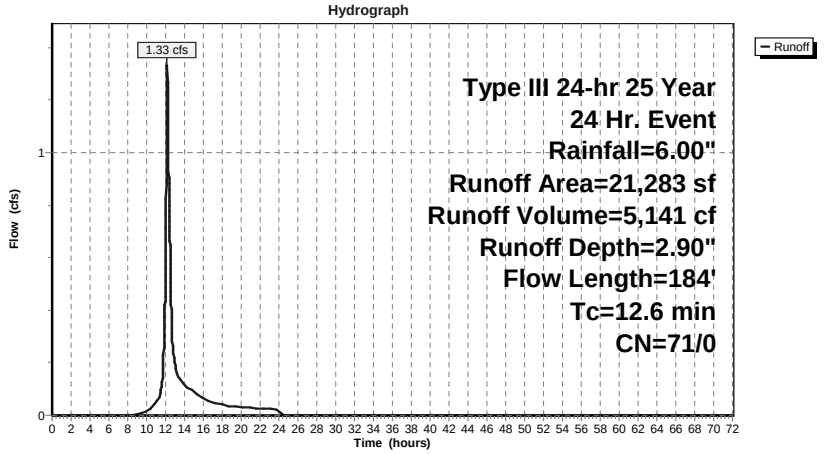
Area (sf)	CN	Description	Land Use
7,802	74	>75% Grass cover, Good, HSG C	Open Space
13,481	70	Woods, Good, HSG C	Woods
21,283	71	Weighted Average	
21,283	71	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	100	0.0810	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.50"
0.3	14	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	70	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,802	Open Space	55.83	0.19	0.84	0.11
13,481	Woods	5.93	0.00	0.00	0.20
21,283	Total	61.76	0.19	0.84	0.31

Subcatchment 12A: Post_DA-12A



Hydrograph for Subcatchment 12A: Post_DA-12A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.02	0.00	0.02
12.00	3.00	0.76	0.00	**0.56**
14.00	4.87	2.02	0.00	**0.12**
16.00	5.32	2.36	0.00	0.06
18.00	5.57	2.55	0.00	0.04
20.00	5.74	2.69	0.00	0.03
22.00	5.88	2.81	0.00	0.03
24.00	**6.00**	**2.90**	0.00	0.02
26.00	6.00	2.90	0.00	0.00
28.00	6.00	2.90	0.00	0.00
30.00	6.00	2.90	0.00	0.00
32.00	6.00	2.90	0.00	0.00
34.00	6.00	2.90	0.00	0.00
36.00	6.00	2.90	0.00	0.00
38.00	6.00	2.90	0.00	0.00
40.00	6.00	2.90	0.00	0.00
42.00	6.00	2.90	0.00	0.00
44.00	6.00	2.90	0.00	0.00
46.00	6.00	2.90	0.00	0.00
48.00	6.00	2.90	0.00	0.00
50.00	6.00	2.90	0.00	0.00
52.00	6.00	2.90	0.00	0.00
54.00	6.00	2.90	0.00	0.00
56.00	6.00	2.90	0.00	0.00
58.00	6.00	2.90	0.00	0.00
60.00	6.00	2.90	0.00	0.00
62.00	6.00	2.90	0.00	0.00
64.00	6.00	2.90	0.00	0.00
66.00	6.00	2.90	0.00	0.00
68.00	6.00	2.90	0.00	0.00
70.00	6.00	2.90	0.00	0.00
72.00	6.00	2.90	0.00	0.00

Summary for Subcatchment 12B: Post_DA-12B

Runoff = 0.44 cfs @ 12.07 hrs, Volume= 1,498 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

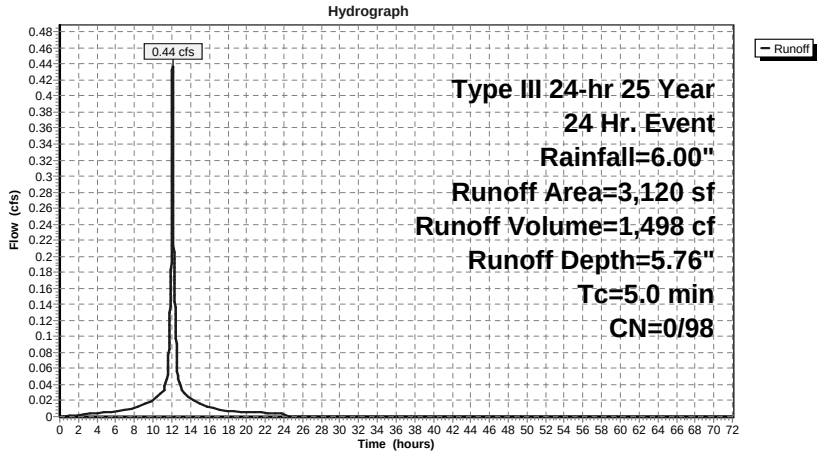
	Area (sf)	CN	Description	Land Use
*	1,870	98	Pavers HSG C	Pavement
	1,250	98	Unconnected pavement, HSG C	Pavement
	3,120	98	Weighted Average	
	3,120	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,120	Pavement	121.91	0.39	1.48	4.72
3,120	Total	121.91	0.39	1.48	4.72

Subcatchment 12B: Post_DA-12B



Hydrograph for Subcatchment 12B: Post_DA-12B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.00	0.92	0.02
12.00	3.00	0.00	2.77	**0.30**
14.00	4.87	0.00	4.63	**0.02**
16.00	5.32	0.00	5.08	0.01
18.00	5.57	0.00	5.33	0.01
20.00	5.74	0.00	5.50	0.01
22.00	5.88	0.00	5.65	0.00
24.00	**6.00**	0.00	**5.76**	0.00
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00

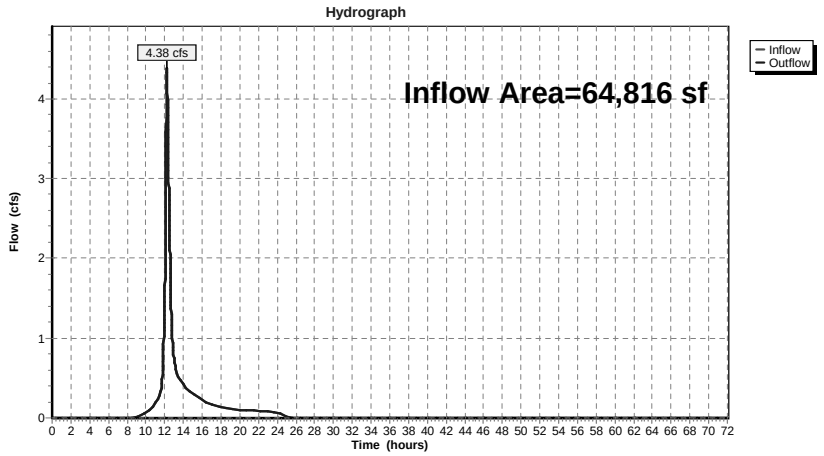
Summary for Reach DP-10: DP-10

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 3.30" for 25 Year, 24 Hr. Event event
Inflow = 4.38 cfs @ 12.23 hrs, Volume= 17,834 cf
Outflow = 4.38 cfs @ 12.23 hrs, Volume= 17,834 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-10: DP-10



Hydrograph for Reach DP-10: DP-10

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.01		0.01	61.00	0.00		0.00
10.00	0.07		0.07	62.00	0.00		0.00
11.00	0.18		0.18	63.00	0.00		0.00
12.00	**1.52**		**1.52**	64.00	0.00		0.00
13.00	**0.73**		**0.73**	65.00	0.00		0.00
14.00	0.41		0.41	66.00	0.00		0.00
15.00	0.30		0.30	67.00	0.00		0.00
16.00	0.22		0.22	68.00	0.00		0.00
17.00	0.17		0.17	69.00	0.00		0.00
18.00	0.14		0.14	70.00	0.00		0.00
19.00	0.11		0.11	71.00	0.00		0.00
20.00	0.10		0.10	72.00	0.00		0.00
21.00	0.09		0.09				
22.00	0.09		0.09				
23.00	0.08		0.08				
24.00	0.07		0.07				
25.00	0.01		0.01				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP12: DP-12

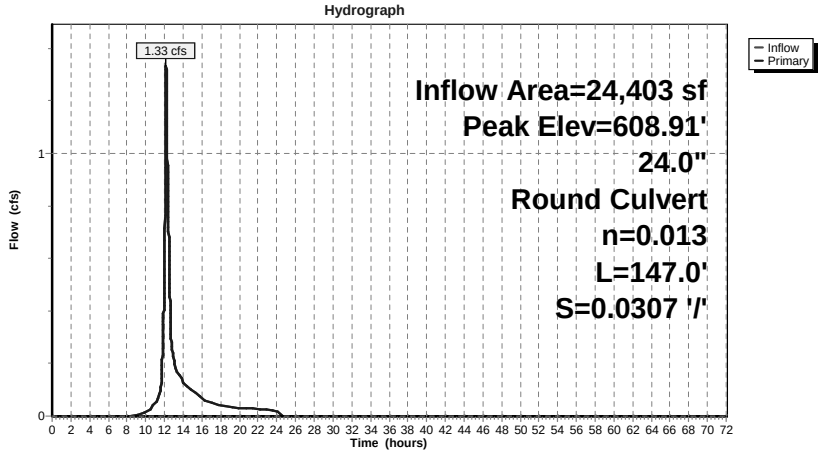
Inflow Area = 24,403 sf, 12.79% Impervious, Inflow Depth = 2.59" for 25 Year, 24 Hr. Event event
Inflow = 1.33 cfs @ 12.18 hrs, Volume= 5,274 cf
Outflow = 1.33 cfs @ 12.18 hrs, Volume= 5,274 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.33 cfs @ 12.18 hrs, Volume= 5,274 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 608.91' @ 12.18 hrs
Flood Elev= 613.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.37'	**24.0" Round Culvert** L= 147.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 608.37' / 603.85' S= 0.0307 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.33 cfs @ 12.18 hrs HW=608.91' (Free Discharge)
1=Culvert (Inlet Controls 1.33 cfs @ 1.97 fps)

Pond DP12: DP-12



Hydrograph for Pond DP12: DP-12

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	608.37	0.00	52.00	0.00	608.37	0.00
1.00	0.00	608.37	0.00	53.00	0.00	608.37	0.00
2.00	0.00	608.37	0.00	54.00	0.00	608.37	0.00
3.00	0.00	608.37	0.00	55.00	0.00	608.37	0.00
4.00	0.00	608.37	0.00	56.00	0.00	608.37	0.00
5.00	0.00	608.37	0.00	57.00	0.00	608.37	0.00
6.00	0.00	608.37	0.00	58.00	0.00	608.37	0.00
7.00	0.00	608.37	0.00	59.00	0.00	608.37	0.00
8.00	0.00	608.37	0.00	60.00	0.00	608.37	0.00
9.00	0.00	608.38	0.00	61.00	0.00	608.37	0.00
10.00	0.02	608.43	0.02	62.00	0.00	608.37	0.00
11.00	0.05	608.47	0.05	63.00	0.00	608.37	0.00
12.00	**0.56**	**608.71**	**0.56**	64.00	0.00	608.37	0.00
13.00	**0.22**	**608.58**	**0.22**	65.00	0.00	608.37	0.00
14.00	0.13	608.53	0.13	66.00	0.00	608.37	0.00
15.00	0.10	608.51	0.10	67.00	0.00	608.37	0.00
16.00	0.07	608.49	0.07	68.00	0.00	608.37	0.00
17.00	0.05	608.47	0.05	69.00	0.00	608.37	0.00
18.00	0.04	608.46	0.04	70.00	0.00	608.37	0.00
19.00	0.03	608.45	0.03	71.00	0.00	608.37	0.00
20.00	0.03	608.45	0.03	72.00	0.00	608.37	0.00
21.00	0.03	608.45	0.03				
22.00	0.03	608.44	0.03				
23.00	0.02	608.44	0.02				
24.00	0.02	608.43	0.02				
25.00	0.00	608.37	0.00				
26.00	0.00	608.37	0.00				
27.00	0.00	608.37	0.00				
28.00	0.00	608.37	0.00				
29.00	0.00	608.37	0.00				
30.00	0.00	608.37	0.00				
31.00	0.00	608.37	0.00				
32.00	0.00	608.37	0.00				
33.00	0.00	608.37	0.00				
34.00	0.00	608.37	0.00				
35.00	0.00	608.37	0.00				
36.00	0.00	608.37	0.00				
37.00	0.00	608.37	0.00				
38.00	0.00	608.37	0.00				
39.00	0.00	608.37	0.00				
40.00	0.00	608.37	0.00				
41.00	0.00	608.37	0.00				
42.00	0.00	608.37	0.00				
43.00	0.00	608.37	0.00				
44.00	0.00	608.37	0.00				
45.00	0.00	608.37	0.00				
46.00	0.00	608.37	0.00				
47.00	0.00	608.37	0.00				
48.00	0.00	608.37	0.00				
49.00	0.00	608.37	0.00				
50.00	0.00	608.37	0.00				
51.00	0.00	608.37	0.00				

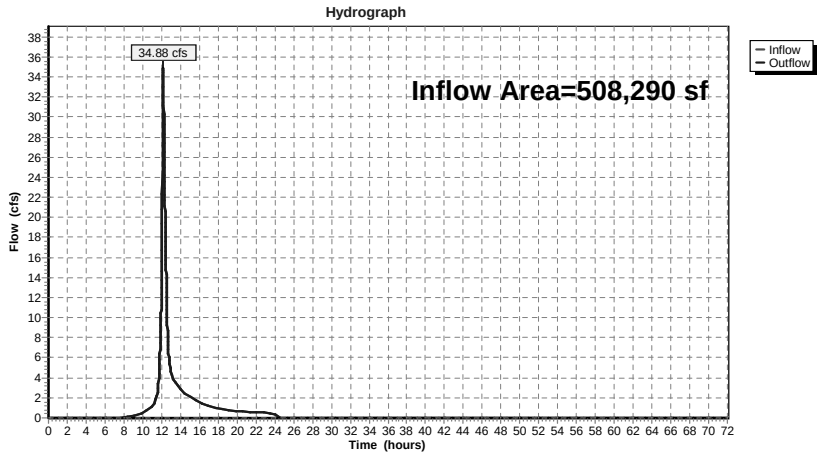
Summary for Reach DP9: DP-9

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 508,290 sf, 9.37% Impervious, Inflow Depth = 2.93" for 25 Year, 24 Hr. Event event
Inflow = 34.88 cfs @ 12.16 hrs, Volume= 124,189 cf
Outflow = 34.88 cfs @ 12.16 hrs, Volume= 124,189 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP9: DP-9



Hydrograph for Reach DP9: DP-9

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.02		0.02	55.00	0.00		0.00
4.00	0.02		0.02	56.00	0.00		0.00
5.00	0.03		0.03	57.00	0.00		0.00
6.00	0.03		0.03	58.00	0.00		0.00
7.00	0.04		0.04	59.00	0.00		0.00
8.00	0.06		0.06	60.00	0.00		0.00
9.00	0.14		0.14	61.00	0.00		0.00
10.00	0.49		0.49	62.00	0.00		0.00
11.00	1.20		1.20	63.00	0.00		0.00
12.00	**12.98**		**12.98**	64.00	0.00		0.00
13.00	**4.70**		**4.70**	65.00	0.00		0.00
14.00	2.86		2.86	66.00	0.00		0.00
15.00	2.15		2.15	67.00	0.00		0.00
16.00	1.52		1.52	68.00	0.00		0.00
17.00	1.18		1.18	69.00	0.00		0.00
18.00	0.90		0.90	70.00	0.00		0.00
19.00	0.78		0.78	71.00	0.00		0.00
20.00	0.69		0.69	72.00	0.00		0.00
21.00	0.63		0.63				
22.00	0.56		0.56				
23.00	0.50		0.50				
24.00	0.43		0.43				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond P12: DA-12 Pavers

Inflow Area = 3,120 sf,100.00% Impervious, Inflow Depth = 5.76" for 25 Year, 24 Hr. Event event
Inflow = 0.44 cfs @ 12.07 hrs, Volume= 1,498 cf
Outflow = 0.03 cfs @ 13.02 hrs, Volume= 1,498 cf, Atten= 92%, Lag= 57.0 min
Discarded = 0.01 cfs @ 9.14 hrs, Volume= 1,365 cf
Primary = 0.02 cfs @ 13.02 hrs, Volume= 133 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 630.01' @ 13.02 hrs Surf.Area= 1,870 sf Storage= 765 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 547.2 min (1,291.4 - 744.2)

Volume	Invert	Avail.Storage	Storage Description
#1	628.00'	1,683 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

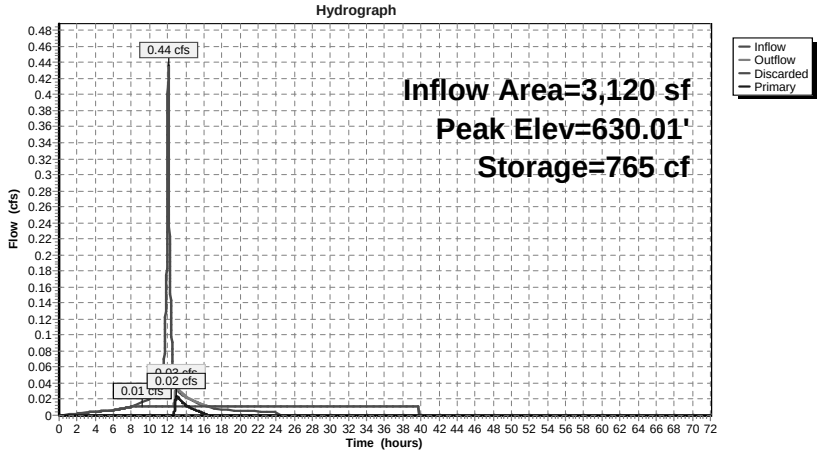
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
628.00	1,870	0.0	0	0
629.00	1,870	20.0	374	374
630.00	1,870	20.0	374	748
630.50	1,870	100.0	935	1,683

Device	Routing	Invert	Outlet Devices
#1	Primary	630.00'	**10.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	628.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 9.14 hrs HW=628.03' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.02 cfs @ 13.02 hrs HW=630.01' TW=608.58' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.02 cfs @ 0.25 fps)

Pond P12: DA-12 Pavers



Hydrograph for Pond P12: DA-12 Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	628.00	0.00	0.00	0.00
2.00	0.00	0	628.00	0.00	0.00	0.00
4.00	0.00	0	628.00	0.00	0.00	0.00
6.00	0.01	0	628.00	0.01	0.01	0.00
8.00	0.01	0	628.00	0.01	**0.01**	0.00
10.00	0.02	32	628.09	0.01	**0.01**	0.00
12.00	**0.30**	**335**	**628.90**	**0.01**	0.01	**0.00**
14.00	**0.02**	**759**	**630.01**	**0.02**	0.01	**0.01**
16.00	0.01	751	630.00	0.01	0.01	0.00
18.00	0.01	738	629.97	0.01	0.01	0.00
20.00	0.01	705	629.89	0.01	0.01	0.00
22.00	0.00	665	629.78	0.01	0.01	0.00
24.00	0.00	617	629.65	0.01	0.01	0.00
26.00	0.00	540	629.44	0.01	0.01	0.00
28.00	0.00	462	629.24	0.01	0.01	0.00
30.00	0.00	384	629.03	0.01	0.01	0.00
32.00	0.00	306	628.82	0.01	0.01	0.00
34.00	0.00	229	628.61	0.01	0.01	0.00
36.00	0.00	151	628.40	0.01	0.01	0.00
38.00	0.00	73	628.19	0.01	0.01	0.00
40.00	0.00	0	628.00	0.00	0.00	0.00
42.00	0.00	0	628.00	0.00	0.00	0.00
44.00	0.00	0	628.00	0.00	0.00	0.00
46.00	0.00	0	628.00	0.00	0.00	0.00
48.00	0.00	0	628.00	0.00	0.00	0.00
50.00	0.00	0	628.00	0.00	0.00	0.00
52.00	0.00	0	628.00	0.00	0.00	0.00
54.00	0.00	0	628.00	0.00	0.00	0.00
56.00	0.00	0	628.00	0.00	0.00	0.00
58.00	0.00	0	628.00	0.00	0.00	0.00
60.00	0.00	0	628.00	0.00	0.00	0.00
62.00	0.00	0	628.00	0.00	0.00	0.00
64.00	0.00	0	628.00	0.00	0.00	0.00
66.00	0.00	0	628.00	0.00	0.00	0.00
68.00	0.00	0	628.00	0.00	0.00	0.00
70.00	0.00	0	628.00	0.00	0.00	0.00
72.00	0.00	0	628.00	0.00	0.00	0.00

Summary for Pond P9: Pervious Pavers DA-9

Inflow Area = 80,405 sf, 37.35% Impervious, Inflow Depth = 4.15" for 25 Year, 24 Hr. Event event
Inflow = 8.67 cfs @ 12.07 hrs, Volume= 27,789 cf
Outflow = 5.60 cfs @ 12.16 hrs, Volume= 27,790 cf, Atten= 35%, Lag= 5.2 min
Discarded = 0.08 cfs @ 8.89 hrs, Volume= 14,389 cf
Primary = 5.51 cfs @ 12.16 hrs, Volume= 13,401 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 566.08' @ 12.16 hrs Surf.Area= 14,130 sf Storage= 9,539 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 498.4 min (1,282.9 - 784.5)

Volume	Invert	Avail.Storage	Storage Description
#1	564.00'	36,738 cf	**Custom Stage Data (Prismatic)** Listed below

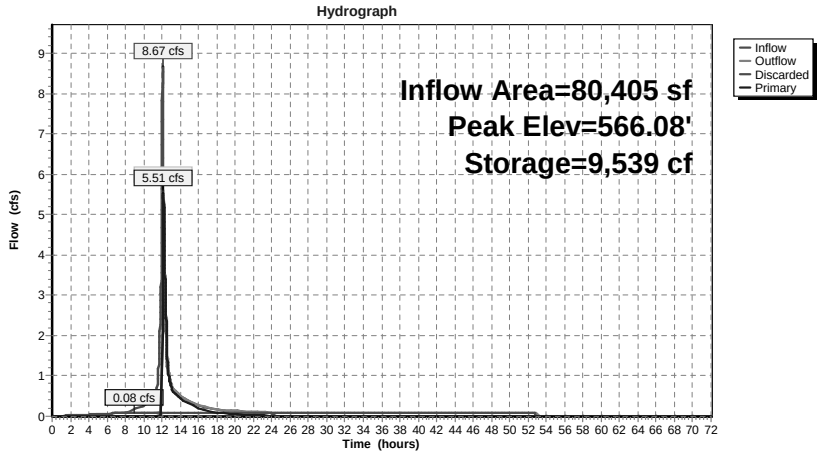
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
564.00	14,130	0.0	0	0
566.00	14,130	30.0	8,478	8,478
568.00	14,130	100.0	28,260	36,738

Device	Routing	Invert	Outlet Devices
#1	Primary	566.00'	**100.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	564.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.08 cfs @ 8.89 hrs HW=564.04' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=5.51 cfs @ 12.16 hrs HW=566.08' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 5.51 cfs @ 0.73 fps)

Pond P9: Pervious Pavers DA-9



Hydrograph for Pond P9: Pervious Pavers DA-9

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	564.00	0.00	0.00	0.00
2.00	0.02	0	564.00	0.02	0.02	0.00
4.00	0.04	0	564.00	0.04	0.04	0.00
6.00	0.06	0	564.00	0.06	0.06	0.00
8.00	0.10	29	564.01	0.08	**0.08**	0.00
10.00	0.26	676	564.16	0.08	**0.08**	0.00
12.00	**5.63**	**6,358**	**565.50**	**0.08**	0.08	**0.00**
14.00	**0.49**	**8,671**	**566.01**	**0.51**	0.08	**0.43**
16.00	0.26	8,592	566.01	0.28	0.08	0.19
18.00	0.16	8,545	566.00	0.17	0.08	0.09
20.00	0.13	8,525	566.00	0.13	0.08	0.05
22.00	0.11	8,510	566.00	0.11	0.08	0.03
24.00	0.09	8,491	566.00	0.09	0.08	0.01
26.00	0.00	7,924	565.87	0.08	0.08	0.00
28.00	0.00	7,336	565.73	0.08	0.08	0.00
30.00	0.00	6,747	565.59	0.08	0.08	0.00
32.00	0.00	6,158	565.45	0.08	0.08	0.00
34.00	0.00	5,569	565.31	0.08	0.08	0.00
36.00	0.00	4,981	565.17	0.08	0.08	0.00
38.00	0.00	4,392	565.04	0.08	0.08	0.00
40.00	0.00	3,803	564.90	0.08	0.08	0.00
42.00	0.00	3,214	564.76	0.08	0.08	0.00
44.00	0.00	2,626	564.62	0.08	0.08	0.00
46.00	0.00	2,037	564.48	0.08	0.08	0.00
48.00	0.00	1,448	564.34	0.08	0.08	0.00
50.00	0.00	859	564.20	0.08	0.08	0.00
52.00	0.00	271	564.06	0.08	0.08	0.00
54.00	0.00	0	564.00	0.00	0.00	0.00
56.00	0.00	0	564.00	0.00	0.00	0.00
58.00	0.00	0	564.00	0.00	0.00	0.00
60.00	0.00	0	564.00	0.00	0.00	0.00
62.00	0.00	0	564.00	0.00	0.00	0.00
64.00	0.00	0	564.00	0.00	0.00	0.00
66.00	0.00	0	564.00	0.00	0.00	0.00
68.00	0.00	0	564.00	0.00	0.00	0.00
70.00	0.00	0	564.00	0.00	0.00	0.00
72.00	0.00	0	564.00	0.00	0.00	0.00

Summary for Pond USF: USF

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 3.30" for 25 Year, 24 Hr. Event event
Inflow = 4.55 cfs @ 12.19 hrs, Volume= 17,835 cf
Outflow = 4.38 cfs @ 12.23 hrs, Volume= 17,834 cf, Atten= 4%, Lag= 2.3 min
Primary = 4.38 cfs @ 12.23 hrs, Volume= 17,834 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 495.89' @ 12.23 hrs Surf.Area= 0 sf Storage= 1,007 cf

Plug-Flow detention time= 11.9 min calculated for 17,834 cf (100% of inflow)
Center-of-Mass det. time= 11.8 min (845.1 - 833.3)

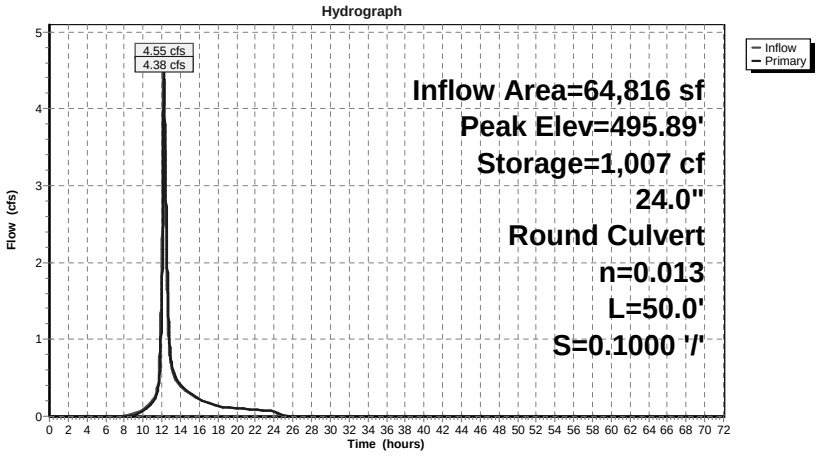
Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	5,626 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
495.00	0
500.00	5,626

Device	Routing	Invert	Outlet Devices
#1	Primary	495.00'	**24.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 495.00' / 490.00' S= 0.1000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=4.38 cfs @ 12.23 hrs HW=495.89' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 4.38 cfs @ 3.22 fps)

Pond USF: USF



Hydrograph for Pond USF: USF

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	495.00	0.00
2.00	0.00	1	495.00	0.00
4.00	0.00	4	495.00	0.00
6.00	0.00	8	495.01	0.00
8.00	0.00	13	495.01	0.00
10.00	0.09	118	495.10	0.07
12.00	**1.87**	**571**	**495.51**	**1.52**
14.00	**0.39**	**290**	**495.26**	**0.41**
16.00	0.21	213	495.19	0.22
18.00	0.13	165	495.15	0.14
20.00	0.10	144	495.13	0.10
22.00	0.08	131	495.12	0.09
24.00	0.07	118	495.10	0.07
26.00	0.00	25	495.02	0.00
28.00	0.00	13	495.01	0.00
30.00	0.00	9	495.01	0.00
32.00	0.00	7	495.01	0.00
34.00	0.00	5	495.00	0.00
36.00	0.00	4	495.00	0.00
38.00	0.00	4	495.00	0.00
40.00	0.00	3	495.00	0.00
42.00	0.00	3	495.00	0.00
44.00	0.00	3	495.00	0.00
46.00	0.00	2	495.00	0.00
48.00	0.00	2	495.00	0.00
50.00	0.00	2	495.00	0.00
52.00	0.00	2	495.00	0.00
54.00	0.00	2	495.00	0.00
56.00	0.00	2	495.00	0.00
58.00	0.00	2	495.00	0.00
60.00	0.00	2	495.00	0.00
62.00	0.00	1	495.00	0.00
64.00	0.00	1	495.00	0.00
66.00	0.00	1	495.00	0.00
68.00	0.00	1	495.00	0.00
70.00	0.00	1	495.00	0.00
72.00	0.00	1	495.00	0.00

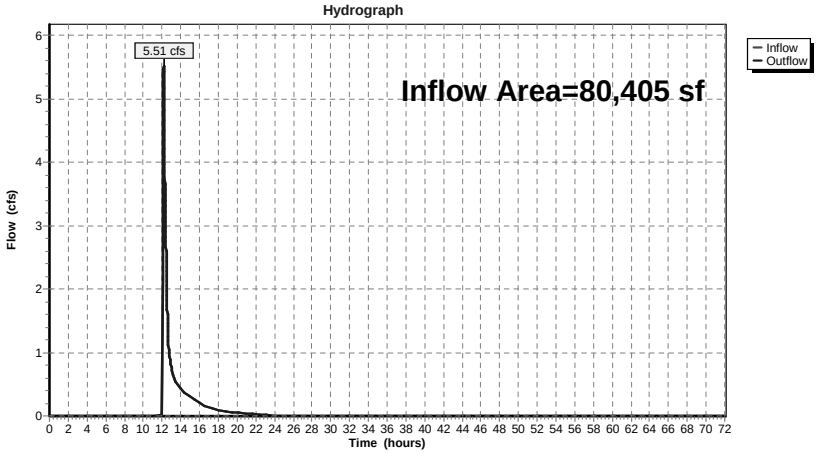
Summary for Reach USF-9B: USF - 9B

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 80,405 sf, 37.35% Impervious, Inflow Depth = 2.00" for 25 Year, 24 Hr. Event event
Inflow = 5.51 cfs @ 12.16 hrs, Volume= 13,401 cf
Outflow = 5.51 cfs @ 12.16 hrs, Volume= 13,401 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach USF-9B: USF - 9B



Hydrograph for Reach USF-9B: USF - 9B

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	**0.00**		**0.00**	64.00	0.00		0.00
13.00	**0.74**		**0.74**	65.00	0.00		0.00
14.00	0.43		0.43	66.00	0.00		0.00
15.00	0.30		0.30	67.00	0.00		0.00
16.00	0.19		0.19	68.00	0.00		0.00
17.00	0.14		0.14	69.00	0.00		0.00
18.00	0.09		0.09	70.00	0.00		0.00
19.00	0.07		0.07	71.00	0.00		0.00
20.00	0.05		0.05	72.00	0.00		0.00
21.00	0.04		0.04				
22.00	0.03		0.03				
23.00	0.02		0.02				
24.00	0.01		0.01				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Reach 1R: Swale Avg. Flow Depth=0.85' Max Vel=4.89 fps Inflow=8.83 cfs 34,763 cf
n=0.040 L=200.0' S=0.0600 '/' Capacity=13.64 cfs Outflow=8.81 cfs 34,763 cf

Subcatchment 9A: Post DA-9A Runoff Area=427,885 sf 4.11% Impervious Runoff Depth=6.17"
Flow Length=1,235' Tc=11.6 min CN=72/98 Runoff=58.38 cfs 219,833 cf

Subcatchment 9B: Post DA-9B Runoff Area=80,405 sf 37.35% Impervious Runoff Depth=7.40"
Tc=5.0 min CN=74/98 Runoff=15.43 cfs 49,562 cf

Subcatchment 10: Post DA-10 Runoff Area=64,816 sf 0.80% Impervious Runoff Depth=6.44"
Flow Length=419' Tc=13.2 min CN=75/98 Runoff=8.83 cfs 34,763 cf

Subcatchment 12A: Post_DA-12A Runoff Area=21,283 sf 0.00% Impervious Runoff Depth=5.91"
Flow Length=184' Tc=12.6 min CN=71/0 Runoff=2.73 cfs 10,473 cf

Subcatchment 12B: Post_DA-12B Runoff Area=3,120 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=0.69 cfs 2,407 cf

Reach DP-10: DP-10 Inflow=8.59 cfs 34,762 cf
Outflow=8.59 cfs 34,762 cf

Pond DP12: DP-12 Peak Elev=609.22' Inflow=3.16 cfs 11,360 cf
24.0" Round Culvert n=0.013 L=147.0' S=0.0307 '/' Outflow=3.16 cfs 11,360 cf

Reach DP9: DP-9 Inflow=70.54 cfs 254,400 cf
Outflow=70.54 cfs 254,400 cf

Pond P12: DA-12 Pavers Peak Elev=630.06' Storage=870 cf Inflow=0.69 cfs 2,407 cf
Discarded=0.01 cfs 1,521 cf Primary=0.44 cfs 886 cf Outflow=0.45 cfs 2,407 cf

Pond P9: Pervious Pavers DA-9 Peak Elev=566.14' Storage=10,506 cf Inflow=15.43 cfs 49,562 cf
Discarded=0.08 cfs 14,995 cf Primary=14.57 cfs 34,568 cf Outflow=14.65 cfs 49,563 cf

Pond USF: USF Peak Elev=496.32' Storage=1,484 cf Inflow=8.81 cfs 34,763 cf
24.0" Round Culvert n=0.013 L=50.0' S=0.1000 '/' Outflow=8.59 cfs 34,762 cf

Reach USF-9B: USF - 9B Inflow=14.57 cfs 34,568 cf
Outflow=14.57 cfs 34,568 cf

Total Runoff Area = 597,509 sf Runoff Volume = 317,039 cf Average Runoff Depth = 6.37"
91.42% Pervious = 546,251 sf 8.58% Impervious = 51,258 sf

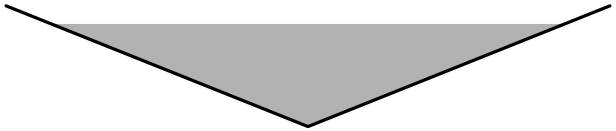
Summary for Reach 1R: Swale

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 6.44" for 100 Year, 24 Hr. Event event
Inflow = 8.83 cfs @ 12.18 hrs, Volume= 34,763 cf
Outflow = 8.81 cfs @ 12.19 hrs, Volume= 34,763 cf, Atten= 0%, Lag= 0.5 min

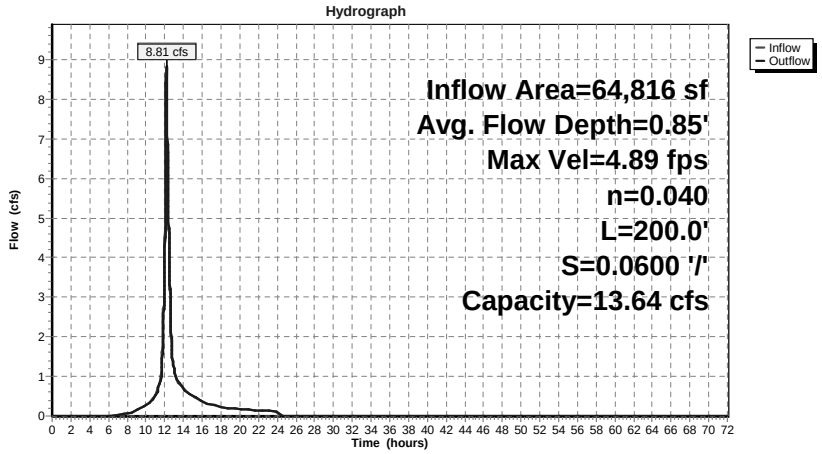
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 4.89 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.67 fps, Avg. Travel Time= 2.0 min

Peak Storage= 360 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.85'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 13.64 cfs

0.00' x 1.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 2.5 '/' Top Width= 5.00'
Length= 200.0' Slope= 0.0600 '/'
Inlet Invert= 518.00', Outlet Invert= 506.00'



Reach 1R: Swale



Hydrograph for Reach 1R: Swale

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
0.00	0.00	0	518.00	0.00
2.00	0.00	0	518.02	0.00
4.00	0.00	0	518.03	0.00
6.00	0.00	1	518.03	0.00
8.00	0.07	9	518.14	0.07
10.00	0.28	27	518.23	0.28
12.00	**4.08**	**196**	**518.63**	**3.91**
14.00	**0.69**	**53**	**518.33**	**0.69**
16.00	0.37	33	518.26	0.37
18.00	0.22	23	518.21	0.22
20.00	0.17	19	518.20	0.17
22.00	0.14	17	518.18	0.14
24.00	0.12	14	518.17	0.12
26.00	0.00	0	518.00	0.00
28.00	0.00	0	518.00	0.00
30.00	0.00	0	518.00	0.00
32.00	0.00	0	518.00	0.00
34.00	0.00	0	518.00	0.00
36.00	0.00	0	518.00	0.00
38.00	0.00	0	518.00	0.00
40.00	0.00	0	518.00	0.00
42.00	0.00	0	518.00	0.00
44.00	0.00	0	518.00	0.00
46.00	0.00	0	518.00	0.00
48.00	0.00	0	518.00	0.00
50.00	0.00	0	518.00	0.00
52.00	0.00	0	518.00	0.00
54.00	0.00	0	518.00	0.00
56.00	0.00	0	518.00	0.00
58.00	0.00	0	518.00	0.00
60.00	0.00	0	518.00	0.00
62.00	0.00	0	518.00	0.00
64.00	0.00	0	518.00	0.00
66.00	0.00	0	518.00	0.00
68.00	0.00	0	518.00	0.00
70.00	0.00	0	518.00	0.00
72.00	0.00	0	518.00	0.00

Summary for Subcatchment 9A: Post DA-9A

Verify ditch along RT22 x section

Runoff = 58.38 cfs @ 12.16 hrs, Volume= 219,833 cf, Depth= 6.17"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

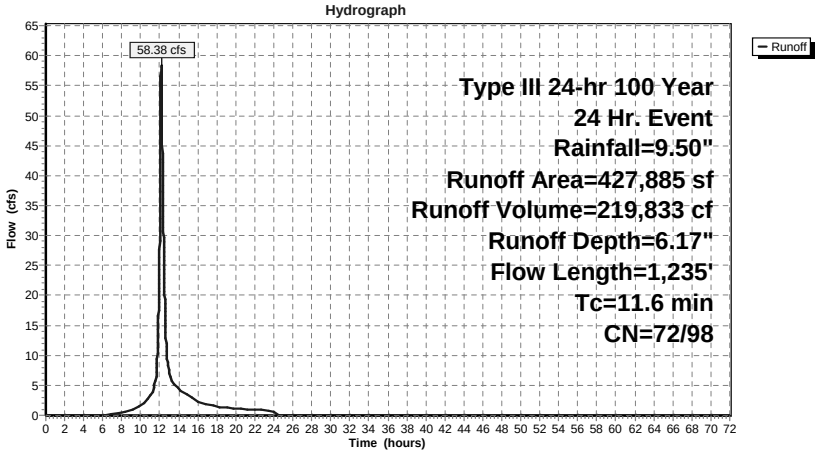
Area (sf)	CN	Description	Land Use
72,229	61	>75% Grass cover, Good, HSG B	Open Space
320,147	74	>75% Grass cover, Good, HSG C	Open Space
17,921	70	Woods, Good, HSG C	Woods
17,588	98	Paved parking, HSG C	Pavement
427,885	73	Weighted Average	
410,297	72	95.89% Pervious Area	
17,588	98	4.11% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0610	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.7	69	0.0610	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	210	0.1130	2.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	93		15.00		**Direct Entry,**
0.6	763	0.1000	22.77	71.54	**Pipe Channel, Verify Inverts** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
11.6	1,235	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 4.11% Impervious, Rv= 0.087, Runoff= 3.98"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
392,376	Open Space	4,885.43	17.04	73.85	9.98
17,588	Pavement	62.93	0.20	0.76	2.44
17,921	Woods	13.71	0.00	0.00	0.46
427,885	Total	4,962.07	17.25	74.61	12.87

Subcatchment 9A: Post DA-9A



Hydrograph for Subcatchment 9A: Post DA-9A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.02
4.00	0.41	0.00	0.24	0.04
6.00	0.68	0.00	0.49	0.06
8.00	1.08	0.02	0.87	0.37
10.00	1.80	0.21	1.57	1.66
12.00	4.75	2.01	4.51	**27.57**
14.00	7.70	4.44	7.46	**4.38**
16.00	8.42	5.06	8.18	2.35
18.00	8.82	5.42	8.58	1.43
20.00	9.09	5.66	8.85	1.13
22.00	9.32	5.87	9.08	0.93
24.00	**9.50**	**6.03**	**9.26**	0.74
26.00	9.50	6.03	9.26	0.00
28.00	9.50	6.03	9.26	0.00
30.00	9.50	6.03	9.26	0.00
32.00	9.50	6.03	9.26	0.00
34.00	9.50	6.03	9.26	0.00
36.00	9.50	6.03	9.26	0.00
38.00	9.50	6.03	9.26	0.00
40.00	9.50	6.03	9.26	0.00
42.00	9.50	6.03	9.26	0.00
44.00	9.50	6.03	9.26	0.00
46.00	9.50	6.03	9.26	0.00
48.00	9.50	6.03	9.26	0.00
50.00	9.50	6.03	9.26	0.00
52.00	9.50	6.03	9.26	0.00
54.00	9.50	6.03	9.26	0.00
56.00	9.50	6.03	9.26	0.00
58.00	9.50	6.03	9.26	0.00
60.00	9.50	6.03	9.26	0.00
62.00	9.50	6.03	9.26	0.00
64.00	9.50	6.03	9.26	0.00
66.00	9.50	6.03	9.26	0.00
68.00	9.50	6.03	9.26	0.00
70.00	9.50	6.03	9.26	0.00
72.00	9.50	6.03	9.26	0.00

Summary for Subcatchment 9B: Post DA-9B

Verify ditch along RT22 x section

Runoff = 15.43 cfs @ 12.07 hrs, Volume= 49,562 cf, Depth= 7.40"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

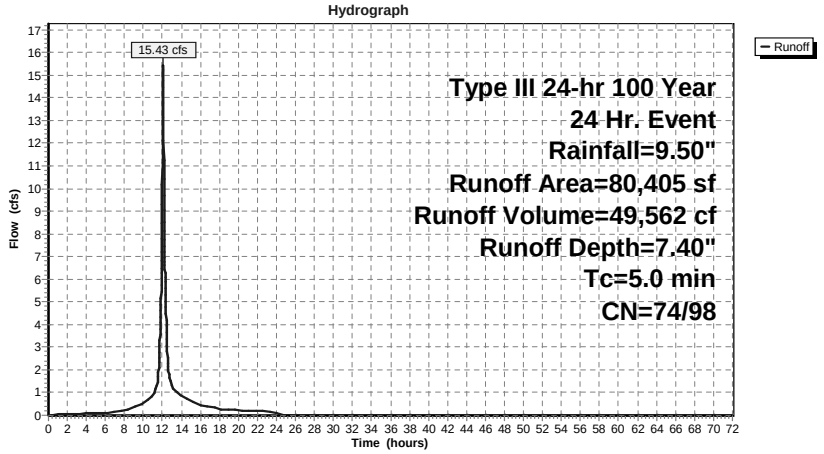
	Area (sf)	CN	Description	Land Use
	15,900	98	Paved parking, HSG C	Pavement
	50,374	74	>75% Grass cover, Good, HSG C	Open Space
*	7,292	98	Pavers, HSG B	Pavement
*	6,839	98	Pavers, HSG C	Pavement
	80,405	83	Weighted Average	
	50,374	74	62.65% Pervious Area	
	30,031	98	37.35% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 37.35% Impervious, Rv= 0.386, Runoff= 17.65"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
50,374	Open Space	2,784.00	9.71	42.08	5.69
30,031	Pavement	476.96	1.54	5.79	18.47
80,405	Total	3,260.96	11.26	47.87	24.16

Subcatchment 9B: Post DA-9B



Hydrograph for Subcatchment 9B: Post DA-9B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.04
4.00	0.41	0.00	0.24	0.07
6.00	0.68	0.00	0.49	0.10
8.00	1.08	0.04	0.87	0.21
10.00	1.80	0.26	1.57	0.53
12.00	4.75	2.17	4.51	**10.16**
14.00	7.70	4.66	7.46	**0.84**
16.00	8.42	5.30	8.18	0.45
18.00	8.82	5.66	8.58	0.27
20.00	9.09	5.91	8.85	0.22
22.00	9.32	6.12	9.08	0.18
24.00	**9.50**	**6.29**	**9.26**	0.14
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00

Summary for Subcatchment 10: Post DA-10

confirm road side swale/ add pipe to CGOOO from swale, either side....

Runoff = 8.83 cfs @ 12.18 hrs, Volume= 34,763 cf, Depth= 6.44"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

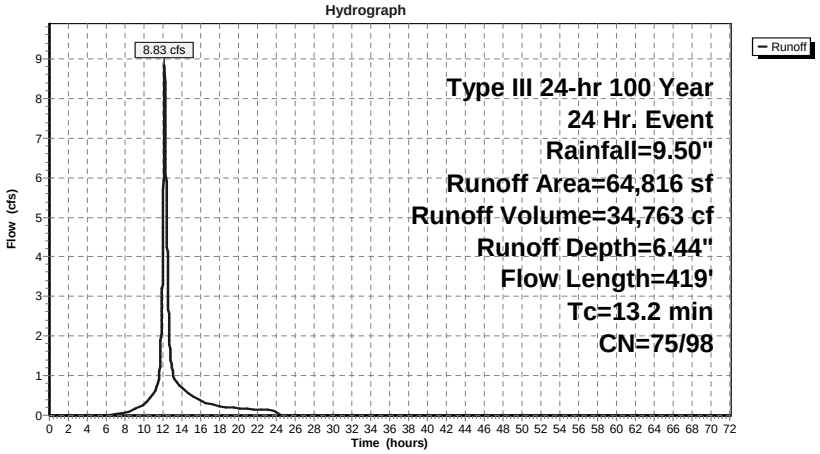
Area (sf)	CN	Description	Land Use
59,315	74	>75% Grass cover, Good, HSG C	Open Space
4,982	89	Gravel roads, HSG C	Roadway
519	98	Paved parking, HSG C	Pavement
64,816	75	Weighted Average	
64,297	75	99.20% Pervious Area	
519	98	0.80% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	87	0.0440	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.9	13	0.0490	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.6	54	0.0490	1.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	72	0.0820	2.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	88	0.1040	2.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	44	0.1800	2.97		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	61	0.1200	2.42		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.2	419	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.80% Impervious, Rv= 0.057, Runoff= 2.61"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
59,315	Open Space	485.65	1.69	7.34	0.99
519	Pavement	1.22	0.00	0.01	0.05
4,982	Roadway	11.72	0.04	0.14	0.45
64,816	Total	498.59	1.74	7.50	1.49

Subcatchment 10: Post DA-10



Hydrograph for Subcatchment 10: Post DA-10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.00
6.00	0.68	0.00	0.49	0.00
8.00	1.08	0.05	0.87	0.07
10.00	1.80	0.29	1.57	0.28
12.00	4.75	2.25	4.51	**4.08**
14.00	7.70	4.78	7.46	**0.69**
16.00	8.42	5.42	8.18	0.37
18.00	8.82	5.78	8.58	0.22
20.00	9.09	6.04	8.85	0.17
22.00	9.32	6.24	9.08	0.14
24.00	**9.50**	**6.41**	**9.26**	0.12
26.00	9.50	6.41	9.26	0.00
28.00	9.50	6.41	9.26	0.00
30.00	9.50	6.41	9.26	0.00
32.00	9.50	6.41	9.26	0.00
34.00	9.50	6.41	9.26	0.00
36.00	9.50	6.41	9.26	0.00
38.00	9.50	6.41	9.26	0.00
40.00	9.50	6.41	9.26	0.00
42.00	9.50	6.41	9.26	0.00
44.00	9.50	6.41	9.26	0.00
46.00	9.50	6.41	9.26	0.00
48.00	9.50	6.41	9.26	0.00
50.00	9.50	6.41	9.26	0.00
52.00	9.50	6.41	9.26	0.00
54.00	9.50	6.41	9.26	0.00
56.00	9.50	6.41	9.26	0.00
58.00	9.50	6.41	9.26	0.00
60.00	9.50	6.41	9.26	0.00
62.00	9.50	6.41	9.26	0.00
64.00	9.50	6.41	9.26	0.00
66.00	9.50	6.41	9.26	0.00
68.00	9.50	6.41	9.26	0.00
70.00	9.50	6.41	9.26	0.00
72.00	9.50	6.41	9.26	0.00

Summary for Subcatchment 12A: Post_DA-12A

Runoff = 2.73 cfs @ 12.17 hrs, Volume= 10,473 cf, Depth= 5.91"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

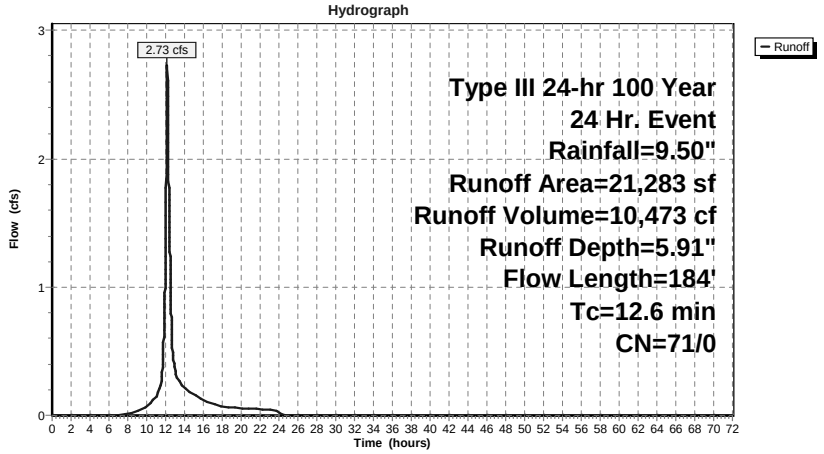
Area (sf)	CN	Description	Land Use
7,802	74	>75% Grass cover, Good, HSG C	Open Space
13,481	70	Woods, Good, HSG C	Woods
21,283	71	Weighted Average	
21,283	71	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	100	0.0810	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.50"
0.3	14	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	70	0.0900	2.10		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.6	184	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,802	Open Space	55.83	0.19	0.84	0.11
13,481	Woods	5.93	0.00	0.00	0.20
21,283	Total	61.76	0.19	0.84	0.31

Subcatchment 12A: Post_DA-12A



Hydrograph for Subcatchment 12A: Post_DA-12A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.02	0.00	0.01
10.00	1.80	0.19	0.00	0.07
12.00	4.75	1.93	0.00	**1.24**
14.00	7.70	4.32	0.00	**0.22**
16.00	8.42	4.94	0.00	0.12
18.00	8.82	5.30	0.00	0.07
20.00	9.09	5.54	0.00	0.06
22.00	9.32	5.74	0.00	0.05
24.00	**9.50**	**5.91**	0.00	0.04
26.00	9.50	5.91	0.00	0.00
28.00	9.50	5.91	0.00	0.00
30.00	9.50	5.91	0.00	0.00
32.00	9.50	5.91	0.00	0.00
34.00	9.50	5.91	0.00	0.00
36.00	9.50	5.91	0.00	0.00
38.00	9.50	5.91	0.00	0.00
40.00	9.50	5.91	0.00	0.00
42.00	9.50	5.91	0.00	0.00
44.00	9.50	5.91	0.00	0.00
46.00	9.50	5.91	0.00	0.00
48.00	9.50	5.91	0.00	0.00
50.00	9.50	5.91	0.00	0.00
52.00	9.50	5.91	0.00	0.00
54.00	9.50	5.91	0.00	0.00
56.00	9.50	5.91	0.00	0.00
58.00	9.50	5.91	0.00	0.00
60.00	9.50	5.91	0.00	0.00
62.00	9.50	5.91	0.00	0.00
64.00	9.50	5.91	0.00	0.00
66.00	9.50	5.91	0.00	0.00
68.00	9.50	5.91	0.00	0.00
70.00	9.50	5.91	0.00	0.00
72.00	9.50	5.91	0.00	0.00

Summary for Subcatchment 12B: Post_DA-12B

Runoff = 0.69 cfs @ 12.07 hrs, Volume= 2,407 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

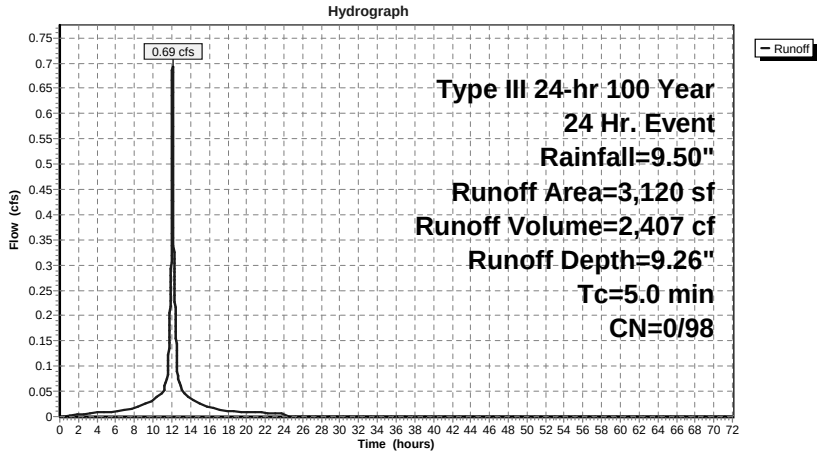
	Area (sf)	CN	Description	Land Use
*	1,870	98	Pavers HSG C	Pavement
	1,250	98	Unconnected pavement, HSG C	Pavement
	3,120	98	Weighted Average	
	3,120	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,120	Pavement	121.91	0.39	1.48	4.72
3,120	Total	121.91	0.39	1.48	4.72

Subcatchment 12B: Post_DA-12B



Hydrograph for Subcatchment 12B: Post_DA-12B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.00	0.87	0.02
10.00	1.80	0.00	1.57	0.03
12.00	4.75	0.00	4.51	**0.47**
14.00	7.70	0.00	7.46	**0.03**
16.00	8.42	0.00	8.18	0.02
18.00	8.82	0.00	8.58	0.01
20.00	9.09	0.00	8.85	0.01
22.00	9.32	0.00	9.08	0.01
24.00	**9.50**	0.00	**9.26**	0.01
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00

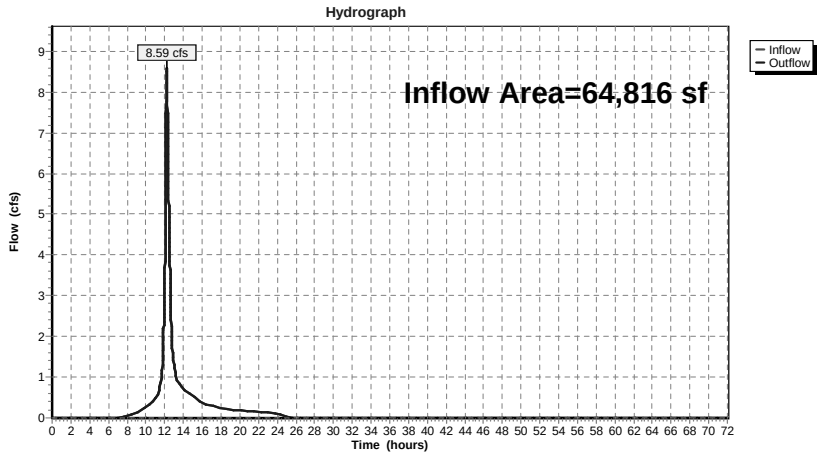
Summary for Reach DP-10: DP-10

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 6.44" for 100 Year, 24 Hr. Event event
Inflow = 8.59 cfs @ 12.22 hrs, Volume= 34,762 cf
Outflow = 8.59 cfs @ 12.22 hrs, Volume= 34,762 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-10: DP-10



Hydrograph for Reach DP-10: DP-10

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.05		0.05	60.00	0.00		0.00
9.00	0.13		0.13	61.00	0.00		0.00
10.00	0.26		0.26	62.00	0.00		0.00
11.00	0.49		0.49	63.00	0.00		0.00
12.00	**3.42**		**3.42**	64.00	0.00		0.00
13.00	**1.27**		**1.27**	65.00	0.00		0.00
14.00	0.72		0.72	66.00	0.00		0.00
15.00	0.53		0.53	67.00	0.00		0.00
16.00	0.39		0.39	68.00	0.00		0.00
17.00	0.30		0.30	69.00	0.00		0.00
18.00	0.23		0.23	70.00	0.00		0.00
19.00	0.20		0.20	71.00	0.00		0.00
20.00	0.18		0.18	72.00	0.00		0.00
21.00	0.16		0.16				
22.00	0.15		0.15				
23.00	0.13		0.13				
24.00	0.12		0.12				
25.00	0.01		0.01				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP12: DP-12

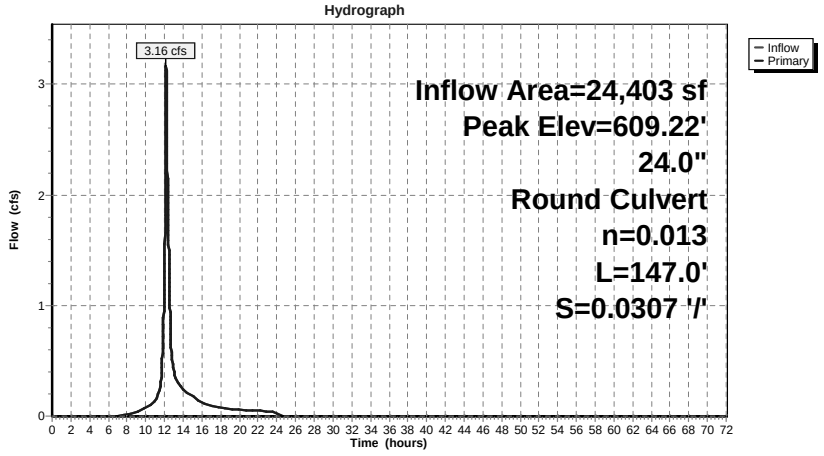
Inflow Area = 24,403 sf, 12.79% Impervious, Inflow Depth = 5.59" for 100 Year, 24 Hr. Event event
Inflow = 3.16 cfs @ 12.17 hrs, Volume= 11,360 cf
Outflow = 3.16 cfs @ 12.17 hrs, Volume= 11,360 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.16 cfs @ 12.17 hrs, Volume= 11,360 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 609.22' @ 12.17 hrs
Flood Elev= 613.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.37'	**24.0" Round Culvert** L= 147.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 608.37' / 603.85' S= 0.0307 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=3.16 cfs @ 12.17 hrs HW=609.22' (Free Discharge)
1=Culvert (Inlet Controls 3.16 cfs @ 2.48 fps)

Pond DP12: DP-12



Hydrograph for Pond DP12: DP-12

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	608.37	0.00	52.00	0.00	608.37	0.00
1.00	0.00	608.37	0.00	53.00	0.00	608.37	0.00
2.00	0.00	608.37	0.00	54.00	0.00	608.37	0.00
3.00	0.00	608.37	0.00	55.00	0.00	608.37	0.00
4.00	0.00	608.37	0.00	56.00	0.00	608.37	0.00
5.00	0.00	608.37	0.00	57.00	0.00	608.37	0.00
6.00	0.00	608.37	0.00	58.00	0.00	608.37	0.00
7.00	0.00	608.38	0.00	59.00	0.00	608.37	0.00
8.00	0.01	608.42	0.01	60.00	0.00	608.37	0.00
9.00	0.03	608.45	0.03	61.00	0.00	608.37	0.00
10.00	0.07	608.49	0.07	62.00	0.00	608.37	0.00
11.00	0.14	608.54	0.14	63.00	0.00	608.37	0.00
12.00	**1.24**	**608.89**	**1.24**	64.00	0.00	608.37	0.00
13.00	**0.41**	**608.66**	**0.41**	65.00	0.00	608.37	0.00
14.00	0.24	608.59	0.24	66.00	0.00	608.37	0.00
15.00	0.18	608.56	0.18	67.00	0.00	608.37	0.00
16.00	0.12	608.53	0.12	68.00	0.00	608.37	0.00
17.00	0.10	608.51	0.10	69.00	0.00	608.37	0.00
18.00	0.07	608.49	0.07	70.00	0.00	608.37	0.00
19.00	0.06	608.48	0.06	71.00	0.00	608.37	0.00
20.00	0.06	608.48	0.06	72.00	0.00	608.37	0.00
21.00	0.05	608.47	0.05				
22.00	0.05	608.47	0.05				
23.00	0.04	608.46	0.04				
24.00	0.04	608.46	0.04				
25.00	0.00	608.37	0.00				
26.00	0.00	608.37	0.00				
27.00	0.00	608.37	0.00				
28.00	0.00	608.37	0.00				
29.00	0.00	608.37	0.00				
30.00	0.00	608.37	0.00				
31.00	0.00	608.37	0.00				
32.00	0.00	608.37	0.00				
33.00	0.00	608.37	0.00				
34.00	0.00	608.37	0.00				
35.00	0.00	608.37	0.00				
36.00	0.00	608.37	0.00				
37.00	0.00	608.37	0.00				
38.00	0.00	608.37	0.00				
39.00	0.00	608.37	0.00				
40.00	0.00	608.37	0.00				
41.00	0.00	608.37	0.00				
42.00	0.00	608.37	0.00				
43.00	0.00	608.37	0.00				
44.00	0.00	608.37	0.00				
45.00	0.00	608.37	0.00				
46.00	0.00	608.37	0.00				
47.00	0.00	608.37	0.00				
48.00	0.00	608.37	0.00				
49.00	0.00	608.37	0.00				
50.00	0.00	608.37	0.00				
51.00	0.00	608.37	0.00				

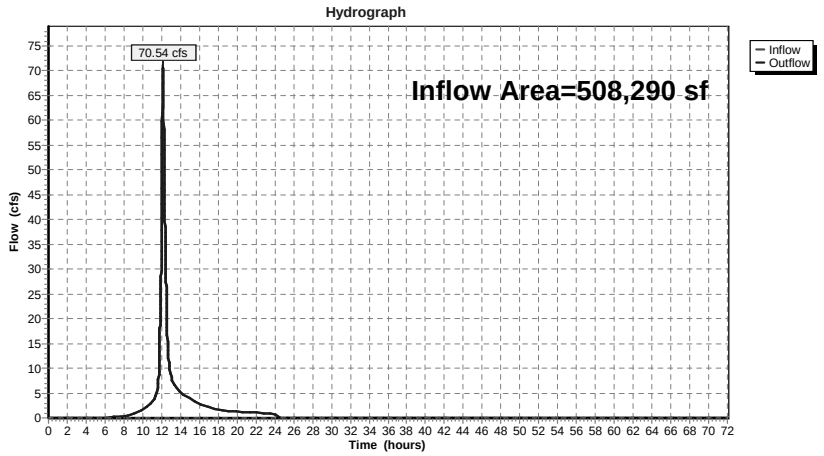
Summary for Reach DP9: DP-9

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 508,290 sf, 9.37% Impervious, Inflow Depth = 6.01" for 100 Year, 24 Hr. Event event
Inflow = 70.54 cfs @ 12.14 hrs, Volume= 254,400 cf
Outflow = 70.54 cfs @ 12.14 hrs, Volume= 254,400 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP9: DP-9



Hydrograph for Reach DP9: DP-9

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.01		0.01	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.03		0.03	55.00	0.00		0.00
4.00	0.04		0.04	56.00	0.00		0.00
5.00	0.05		0.05	57.00	0.00		0.00
6.00	0.06		0.06	58.00	0.00		0.00
7.00	0.12		0.12	59.00	0.00		0.00
8.00	0.37		0.37	60.00	0.00		0.00
9.00	0.87		0.87	61.00	0.00		0.00
10.00	1.66		1.66	62.00	0.00		0.00
11.00	3.21		3.21	63.00	0.00		0.00
12.00	**35.59**		**35.59**	64.00	0.00		0.00
13.00	**8.55**		**8.55**	65.00	0.00		0.00
14.00	5.16		5.16	66.00	0.00		0.00
15.00	3.85		3.85	67.00	0.00		0.00
16.00	2.73		2.73	68.00	0.00		0.00
17.00	2.13		2.13	69.00	0.00		0.00
18.00	1.63		1.63	70.00	0.00		0.00
19.00	1.42		1.42	71.00	0.00		0.00
20.00	1.27		1.27	72.00	0.00		0.00
21.00	1.15		1.15				
22.00	1.04		1.04				
23.00	0.92		0.92				
24.00	0.81		0.81				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond P12: DA-12 Pavers

Inflow Area = 3,120 sf,100.00% Impervious, Inflow Depth = 9.26" for 100 Year, 24 Hr. Event event
Inflow = 0.69 cfs @ 12.07 hrs, Volume= 2,407 cf
Outflow = 0.45 cfs @ 12.15 hrs, Volume= 2,407 cf, Atten= 34%, Lag= 4.9 min
Discarded = 0.01 cfs @ 7.44 hrs, Volume= 1,521 cf
Primary = 0.44 cfs @ 12.15 hrs, Volume= 886 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 630.06' @ 12.15 hrs Surf.Area= 1,870 sf Storage= 870 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 395.3 min (1,133.5 - 738.3)

Volume	Invert	Avail.Storage	Storage Description
#1	628.00'	1,683 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

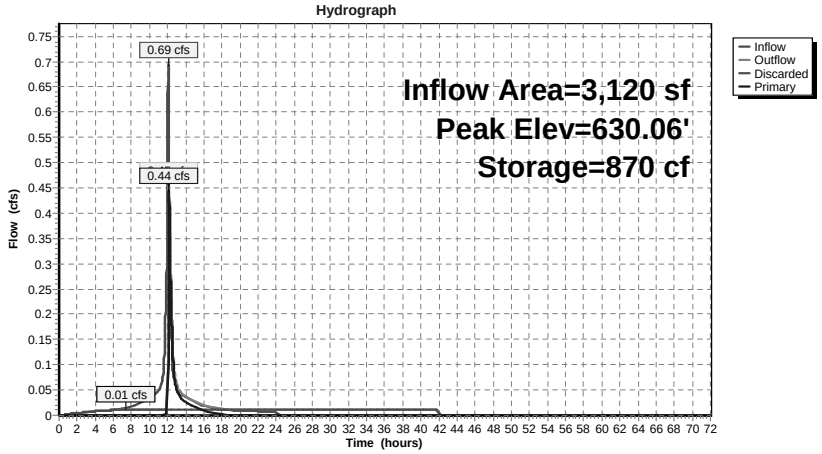
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
628.00	1,870	0.0	0	0
629.00	1,870	20.0	374	374
630.00	1,870	20.0	374	748
630.50	1,870	100.0	935	1,683

Device	Routing	Invert	Outlet Devices
#1	Primary	630.00'	**10.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	628.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 7.44 hrs HW=628.03' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.44 cfs @ 12.15 hrs HW=630.06' TW=609.22' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.44 cfs @ 0.68 fps)

Pond P12: DA-12 Pavers



Hydrograph for Pond P12: DA-12 Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	628.00	0.00	0.00	0.00
2.00	0.00	0	628.00	0.00	0.00	0.00
4.00	0.01	0	628.00	0.01	0.01	0.00
6.00	0.01	0	628.00	0.01	**0.01**	0.00
8.00	0.02	20	628.05	0.01	**0.01**	0.00
10.00	0.03	120	628.32	0.01	0.01	0.00
12.00	**0.47**	**649**	**629.74**	**0.01**	0.01	**0.00**
14.00	**0.03**	**766**	**630.01**	**0.04**	0.01	**0.03**
16.00	0.02	757	630.00	0.02	0.01	0.01
18.00	0.01	751	630.00	0.01	0.01	0.00
20.00	0.01	743	629.99	0.01	0.01	0.00
22.00	0.01	724	629.94	0.01	0.01	0.00
24.00	0.01	694	629.86	0.01	0.01	0.00
26.00	0.00	618	629.65	0.01	0.01	0.00
28.00	0.00	540	629.44	0.01	0.01	0.00
30.00	0.00	462	629.24	0.01	0.01	0.00
32.00	0.00	384	629.03	0.01	0.01	0.00
34.00	0.00	306	628.82	0.01	0.01	0.00
36.00	0.00	228	628.61	0.01	0.01	0.00
38.00	0.00	151	628.40	0.01	0.01	0.00
40.00	0.00	73	628.19	0.01	0.01	0.00
42.00	0.00	0	628.00	0.00	0.00	0.00
44.00	0.00	0	628.00	0.00	0.00	0.00
46.00	0.00	0	628.00	0.00	0.00	0.00
48.00	0.00	0	628.00	0.00	0.00	0.00
50.00	0.00	0	628.00	0.00	0.00	0.00
52.00	0.00	0	628.00	0.00	0.00	0.00
54.00	0.00	0	628.00	0.00	0.00	0.00
56.00	0.00	0	628.00	0.00	0.00	0.00
58.00	0.00	0	628.00	0.00	0.00	0.00
60.00	0.00	0	628.00	0.00	0.00	0.00
62.00	0.00	0	628.00	0.00	0.00	0.00
64.00	0.00	0	628.00	0.00	0.00	0.00
66.00	0.00	0	628.00	0.00	0.00	0.00
68.00	0.00	0	628.00	0.00	0.00	0.00
70.00	0.00	0	628.00	0.00	0.00	0.00
72.00	0.00	0	628.00	0.00	0.00	0.00

Summary for Pond P9: Pervious Pavers DA-9

Inflow Area = 80,405 sf, 37.35% Impervious, Inflow Depth = 7.40" for 100 Year, 24 Hr. Event event
Inflow = 15.43 cfs @ 12.07 hrs, Volume= 49,562 cf
Outflow = 14.65 cfs @ 12.10 hrs, Volume= 49,563 cf, Atten= 5%, Lag= 1.5 min
Discarded = 0.08 cfs @ 6.95 hrs, Volume= 14,995 cf
Primary = 14.57 cfs @ 12.10 hrs, Volume= 34,568 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 566.14' @ 12.10 hrs Surf.Area= 14,130 sf Storage= 10,506 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 293.0 min (1,068.6 - 775.6)

Volume	Invert	Avail.Storage	Storage Description
#1	564.00'	36,738 cf	**Custom Stage Data (Prismatic)** Listed below

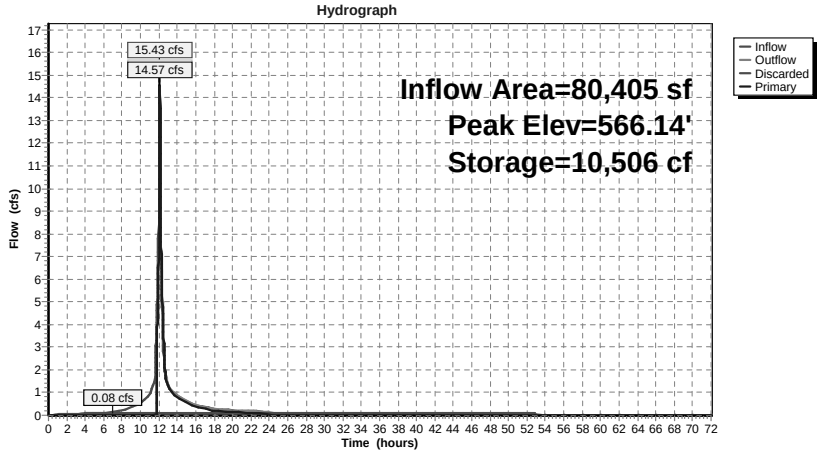
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
564.00	14,130	0.0	0	0
566.00	14,130	30.0	8,478	8,478
568.00	14,130	100.0	28,260	36,738

Device	Routing	Invert	Outlet Devices
#1	Primary	566.00'	**100.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	564.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.08 cfs @ 6.95 hrs HW=564.04' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=14.55 cfs @ 12.10 hrs HW=566.14' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 14.55 cfs @ 1.01 fps)

Pond P9: Pervious Pavers DA-9



Hydrograph for Pond P9: Pervious Pavers DA-9

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	564.00	0.00	0.00	0.00
2.00	0.04	0	564.00	0.04	0.04	0.00
4.00	0.07	0	564.00	0.07	0.07	0.00
6.00	0.10	43	564.01	0.08	**0.08**	0.00
8.00	0.21	537	564.13	0.08	**0.08**	0.00
10.00	0.53	2,544	564.60	0.08	0.08	0.00
12.00	**10.16**	**9,840**	**566.10**	**8.10**	0.08	**8.02**
14.00	**0.84**	**8,766**	**566.02**	**0.86**	0.08	**0.78**
16.00	0.45	8,656	566.01	0.46	0.08	0.38
18.00	0.27	8,594	566.01	0.28	0.08	0.20
20.00	0.22	8,570	566.01	0.22	0.08	0.14
22.00	0.18	8,552	566.01	0.18	0.08	0.10
24.00	0.14	8,533	566.00	0.15	0.08	0.07
26.00	0.00	7,956	565.88	0.08	0.08	0.00
28.00	0.00	7,367	565.74	0.08	0.08	0.00
30.00	0.00	6,778	565.60	0.08	0.08	0.00
32.00	0.00	6,190	565.46	0.08	0.08	0.00
34.00	0.00	5,601	565.32	0.08	0.08	0.00
36.00	0.00	5,012	565.18	0.08	0.08	0.00
38.00	0.00	4,423	565.04	0.08	0.08	0.00
40.00	0.00	3,835	564.90	0.08	0.08	0.00
42.00	0.00	3,246	564.77	0.08	0.08	0.00
44.00	0.00	2,657	564.63	0.08	0.08	0.00
46.00	0.00	2,068	564.49	0.08	0.08	0.00
48.00	0.00	1,480	564.35	0.08	0.08	0.00
50.00	0.00	891	564.21	0.08	0.08	0.00
52.00	0.00	302	564.07	0.08	0.08	0.00
54.00	0.00	0	564.00	0.00	0.00	0.00
56.00	0.00	0	564.00	0.00	0.00	0.00
58.00	0.00	0	564.00	0.00	0.00	0.00
60.00	0.00	0	564.00	0.00	0.00	0.00
62.00	0.00	0	564.00	0.00	0.00	0.00
64.00	0.00	0	564.00	0.00	0.00	0.00
66.00	0.00	0	564.00	0.00	0.00	0.00
68.00	0.00	0	564.00	0.00	0.00	0.00
70.00	0.00	0	564.00	0.00	0.00	0.00
72.00	0.00	0	564.00	0.00	0.00	0.00

Summary for Pond USF: USF

Inflow Area = 64,816 sf, 0.80% Impervious, Inflow Depth = 6.44" for 100 Year, 24 Hr. Event event
Inflow = 8.81 cfs @ 12.19 hrs, Volume= 34,763 cf
Outflow = 8.59 cfs @ 12.22 hrs, Volume= 34,762 cf, Atten= 3%, Lag= 1.8 min
Primary = 8.59 cfs @ 12.22 hrs, Volume= 34,762 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 496.32' @ 12.22 hrs Surf.Area= 0 sf Storage= 1,484 cf

Plug-Flow detention time= 8.6 min calculated for 34,757 cf (100% of inflow)
Center-of-Mass det. time= 8.7 min (823.1 - 814.4)

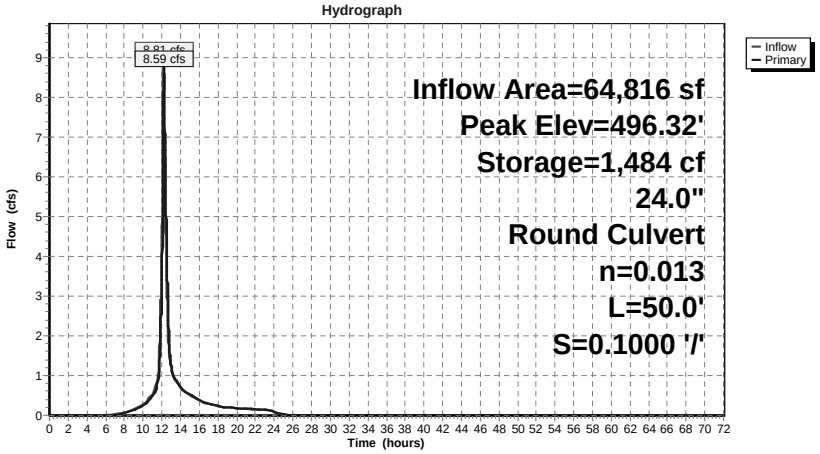
Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	5,626 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
495.00	0
500.00	5,626

Device	Routing	Invert	Outlet Devices
#1	Primary	495.00'	**24.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 495.00' / 490.00' S= 0.1000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=8.58 cfs @ 12.22 hrs HW=496.32' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 8.58 cfs @ 3.91 fps)

Pond USF: USF



Hydrograph for Pond USF: USF

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	495.00	0.00
2.00	0.00	2	495.00	0.00
4.00	0.00	8	495.01	0.00
6.00	0.00	14	495.01	0.00
8.00	0.07	103	495.09	0.05
10.00	0.28	230	495.20	0.26
12.00	**3.91**	**878**	**495.78**	**3.42**
14.00	**0.69**	**386**	**495.34**	**0.72**
16.00	0.37	281	495.25	0.39
18.00	0.22	217	495.19	0.23
20.00	0.17	190	495.17	0.18
22.00	0.14	172	495.15	0.15
24.00	0.12	154	495.14	0.12
26.00	0.00	26	495.02	0.00
28.00	0.00	13	495.01	0.00
30.00	0.00	9	495.01	0.00
32.00	0.00	7	495.01	0.00
34.00	0.00	5	495.00	0.00
36.00	0.00	5	495.00	0.00
38.00	0.00	4	495.00	0.00
40.00	0.00	3	495.00	0.00
42.00	0.00	3	495.00	0.00
44.00	0.00	3	495.00	0.00
46.00	0.00	2	495.00	0.00
48.00	0.00	2	495.00	0.00
50.00	0.00	2	495.00	0.00
52.00	0.00	2	495.00	0.00
54.00	0.00	2	495.00	0.00
56.00	0.00	2	495.00	0.00
58.00	0.00	2	495.00	0.00
60.00	0.00	2	495.00	0.00
62.00	0.00	1	495.00	0.00
64.00	0.00	1	495.00	0.00
66.00	0.00	1	495.00	0.00
68.00	0.00	1	495.00	0.00
70.00	0.00	1	495.00	0.00
72.00	0.00	1	495.00	0.00

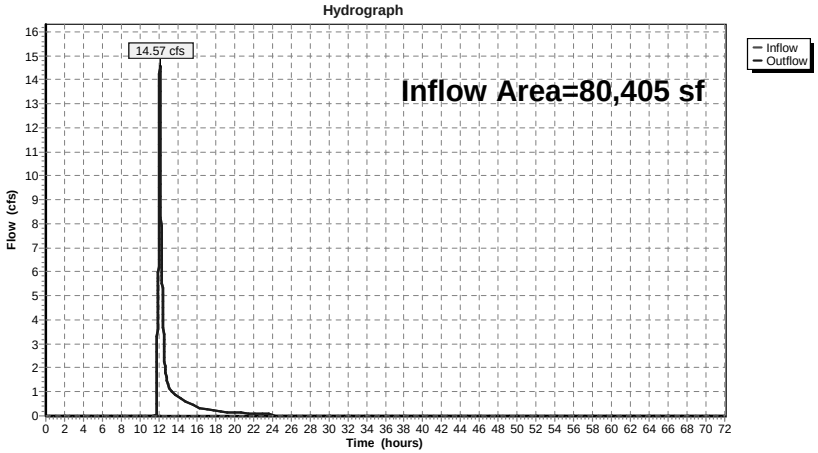
Summary for Reach USF-9B: USF - 9B

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 80,405 sf, 37.35% Impervious, Inflow Depth = 5.16" for 100 Year, 24 Hr. Event event
Inflow = 14.57 cfs @ 12.10 hrs, Volume= 34,568 cf
Outflow = 14.57 cfs @ 12.10 hrs, Volume= 34,568 cf, Atten= 0%, Lag= 0.0 min

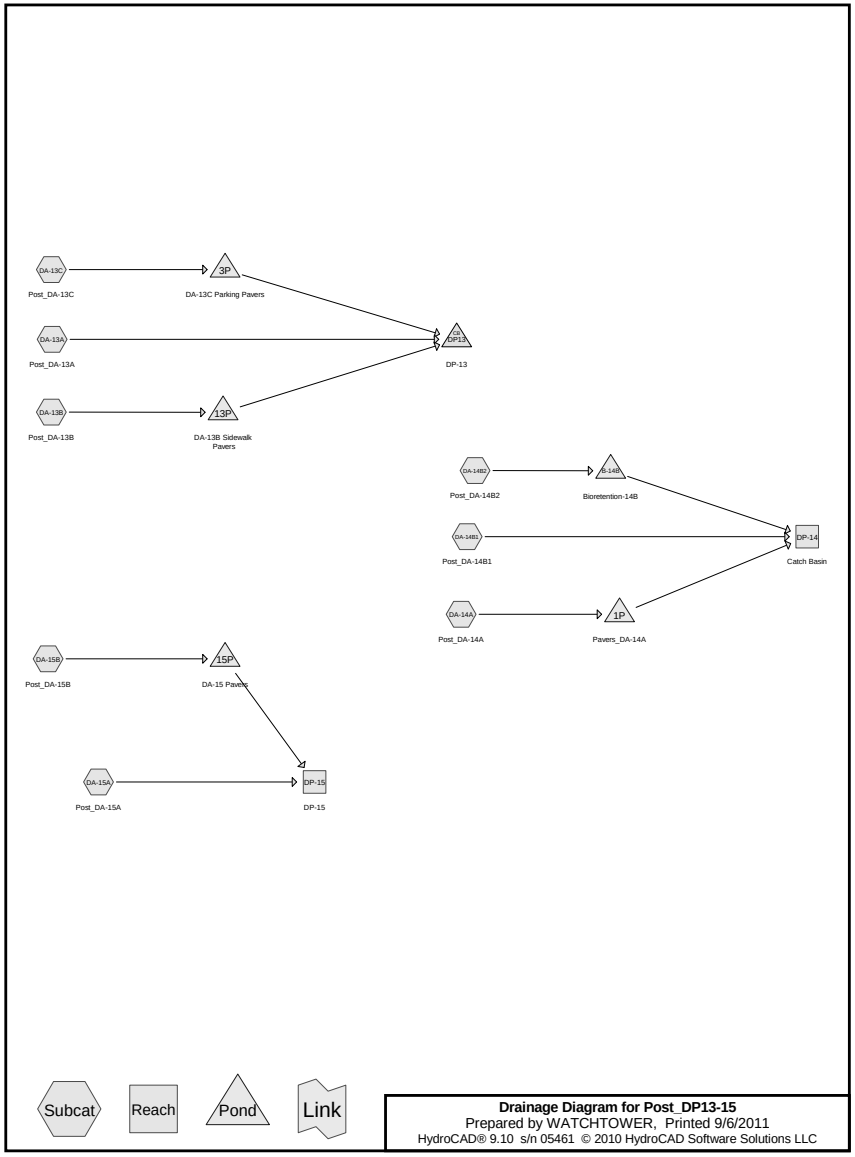
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach USF-9B: USF - 9B



Hydrograph for Reach USF-9B: USF - 9B

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	**8.02**		**8.02**	64.00	0.00		0.00
13.00	**1.31**		**1.31**	65.00	0.00		0.00
14.00	0.78		0.78	66.00	0.00		0.00
15.00	0.57		0.57	67.00	0.00		0.00
16.00	0.38		0.38	68.00	0.00		0.00
17.00	0.28		0.28	69.00	0.00		0.00
18.00	0.20		0.20	70.00	0.00		0.00
19.00	0.16		0.16	71.00	0.00		0.00
20.00	0.14		0.14	72.00	0.00		0.00
21.00	0.12		0.12				
22.00	0.10		0.10				
23.00	0.08		0.08				
24.00	0.07		0.07				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				



Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
1,062	Brush	DA-14B2
12,733	Open Space	DA-14B1, DA-15A
39,115	Pavement	DA-13A, DA-13B, DA-13C, DA-14A, DA-14B1, DA-14B2, DA-15A, DA-15B
9,469	Roofs	DA-14B1, DA-15A
62,379	**TOTAL**	

Pollutant Concentrations

Line#	Land Use	TSS (mg/l)	TP (mg/l)	TN (mg/l)	BOD (mg/l)
1	Brush	37.00	0.00	0.00	1.23
2	Open Space	602.00	2.10	9.10	1.23
3	Pavement	173.00	0.56	2.10	6.70
4	Roofs	19.00	0.11	1.50	7.40

Subcatchment Loading

Line#	Subcat Number	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1	DA-13A	**0.00**	**0.00**	**0.00**	**0.00**
2	DA-13B	0.00	0.00	0.00	0.00
3	DA-13C	0.00	0.00	0.00	0.00
4	DA-14A	0.00	0.00	0.00	0.00
5	DA-14B1	0.00	0.00	0.00	0.00
6	DA-14B2	0.00	0.00	0.00	0.00
7	DA-15A	0.00	0.00	0.00	0.00
8	DA-15B	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 1P: Pavers_DA-14A Peak Elev=640.53' Storage=308 cf Inflow=0.21 cfs 686 cf
Discarded=0.01 cfs 686 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 686 cf

Pond 3P: DA-13C Parking Pavers Peak Elev=630.69' Storage=139 cf Inflow=0.10 cfs 335 cf
Discarded=0.01 cfs 335 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 335 cf

Pond 13P: DA-13B Sidewalk Pavers Peak Elev=620.24' Storage=236 cf Inflow=0.17 cfs 572 cf
Discarded=0.01 cfs 572 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 572 cf

Pond 15P: DA-15 Pavers Peak Elev=0.01' Storage=24 cf Inflow=0.20 cfs 668 cf
Discarded=0.13 cfs 668 cf Primary=0.00 cfs 0 cf Outflow=0.13 cfs 668 cf

Pond B-14B: Bioretention-14B Peak Elev=502.50' Storage=188 cf Inflow=0.08 cfs 271 cf
Discarded=0.00 cfs 196 cf Primary=0.00 cfs 21 cf Outflow=0.00 cfs 217 cf

Subcatchment DA-13A: Post_DA-13A Runoff Area=7,354 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.53 cfs 1,758 cf

Subcatchment DA-13B: Post_DA-13B Runoff Area=2,394 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.17 cfs 572 cf

Subcatchment DA-13C: Post_DA-13C Runoff Area=1,400 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.10 cfs 335 cf

Subcatchment DA-14A: Post_DA-14A Runoff Area=2,870 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.21 cfs 686 cf

Subcatchment DA-14B1: Post_DA-14B1 Runoff Area=6,955 sf 52.28% Impervious Runoff Depth=1.71"
Tc=5.0 min CN=62/98 Runoff=0.28 cfs 990 cf

Subcatchment DA-14B2: Post_DA-14B2 Runoff Area=2,047 sf 48.12% Impervious Runoff Depth=1.59"
Tc=5.0 min CN=61/98 Runoff=0.08 cfs 271 cf

Subcatchment DA-15A: Post_DA-15A Runoff Area=36,565 sf 74.25% Impervious Runoff Depth=2.38"
Tc=5.0 min CN=74/98 Runoff=2.18 cfs 7,252 cf

Subcatchment DA-15B: Post_DA-15B Runoff Area=2,794 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=0/98 Runoff=0.20 cfs 668 cf

Reach DP-14: Catch Basin Inflow=0.28 cfs 1,011 cf
Outflow=0.28 cfs 1,011 cf

Reach DP-15: DP-15 Inflow=2.18 cfs 7,252 cf
Outflow=2.18 cfs 7,252 cf

Pond DP13: DP-13 Peak Elev=604.24' Inflow=0.53 cfs 1,758 cf
24.0" Round Culvert n=0.013 L=79.0' S=0.1128 '/' Outflow=0.53 cfs 1,758 cf

Total Runoff Area = 62,379 sf Runoff Volume = 12,531 cf Average Runoff Depth = 2.41"
22.11% Pervious = 13,795 sf 77.89% Impervious = 48,584 sf

Summary for Pond 1P: Pavers_DA-14A

Inflow Area = 2,870 sf,100.00% Impervious, Inflow Depth = 2.87" for 1 Year, 24 Hr. Event event
Inflow = 0.21 cfs @ 12.07 hrs, Volume= 686 cf
Outflow = 0.01 cfs @ 11.38 hrs, Volume= 686 cf, Atten= 95%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.38 hrs, Volume= 686 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 640.53' @ 14.10 hrs Surf.Area= 0 sf Storage= 308 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 253.2 min (1,009.3 - 756.1)

Volume	Invert	Avail.Storage	Storage Description
#1	640.00'	2,000 cf	**Custom Stage Data** Listed below

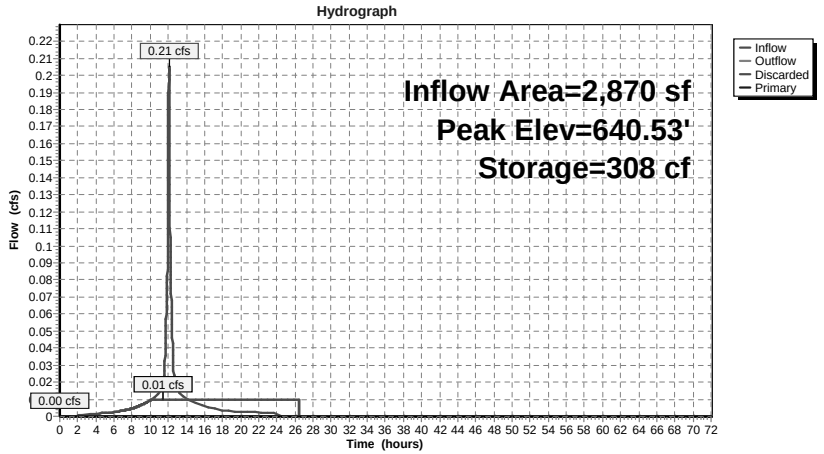
Elevation (feet)	Cum.Store (cubic-feet)
640.00	0
642.00	1,159
642.50	2,000

Device	Routing	Invert	Outlet Devices
#1	Primary	642.00'	**30.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	640.00'	**0.01 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.01 cfs @ 11.38 hrs HW=640.03' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=640.00' TW=0.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Pavers_DA-14A



Hydrograph for Pond 1P: Pavers_DA-14A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	640.00	0.00	0.00	**0.00**
2.00	0.00	0	640.00	0.00	0.00	0.00
4.00	0.00	0	640.00	0.00	0.00	0.00
6.00	0.00	0	640.00	0.00	0.00	0.00
8.00	0.00	0	640.00	0.00	0.00	0.00
10.00	0.01	0	640.00	**0.01**	**0.01**	0.00
12.00	**0.14**	105	640.18	**0.01**	**0.01**	0.00
14.00	**0.01**	**308**	**640.53**	0.01	0.01	0.00
16.00	0.01	**292**	**640.50**	0.01	0.01	0.00
18.00	0.00	252	640.43	0.01	0.01	0.00
20.00	0.00	201	640.35	0.01	0.01	0.00
22.00	0.00	147	640.25	0.01	0.01	0.00
24.00	0.00	90	640.15	0.01	0.01	0.00
26.00	0.00	18	640.03	0.01	0.01	0.00
28.00	0.00	0	640.00	0.00	0.00	0.00
30.00	0.00	0	640.00	0.00	0.00	0.00
32.00	0.00	0	640.00	0.00	0.00	0.00
34.00	0.00	0	640.00	0.00	0.00	0.00
36.00	0.00	0	640.00	0.00	0.00	0.00
38.00	0.00	0	640.00	0.00	0.00	0.00
40.00	0.00	0	640.00	0.00	0.00	0.00
42.00	0.00	0	640.00	0.00	0.00	0.00
44.00	0.00	0	640.00	0.00	0.00	0.00
46.00	0.00	0	640.00	0.00	0.00	0.00
48.00	0.00	0	640.00	0.00	0.00	0.00
50.00	0.00	0	640.00	0.00	0.00	0.00
52.00	0.00	0	640.00	0.00	0.00	0.00
54.00	0.00	0	640.00	0.00	0.00	0.00
56.00	0.00	0	640.00	0.00	0.00	0.00
58.00	0.00	0	640.00	0.00	0.00	0.00
60.00	0.00	0	640.00	0.00	0.00	0.00
62.00	0.00	0	640.00	0.00	0.00	0.00
64.00	0.00	0	640.00	0.00	0.00	0.00
66.00	0.00	0	640.00	0.00	0.00	0.00
68.00	0.00	0	640.00	0.00	0.00	0.00
70.00	0.00	0	640.00	0.00	0.00	0.00
72.00	0.00	0	640.00	0.00	0.00	0.00

Summary for Pond 3P: DA-13C Parking Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 1,400 sf,100.00% Impervious, Inflow Depth = 2.87" for 1 Year, 24 Hr. Event event
Inflow = 0.10 cfs @ 12.07 hrs, Volume= 335 cf
Outflow = 0.01 cfs @ 11.51 hrs, Volume= 335 cf, Atten= 94%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.51 hrs, Volume= 335 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 630.69' @ 13.70 hrs Surf.Area= 1,000 sf Storage= 139 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 189.0 min (945.1 - 756.1)

Volume	Invert	Avail.Storage	Storage Description
#1	630.00'	1,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

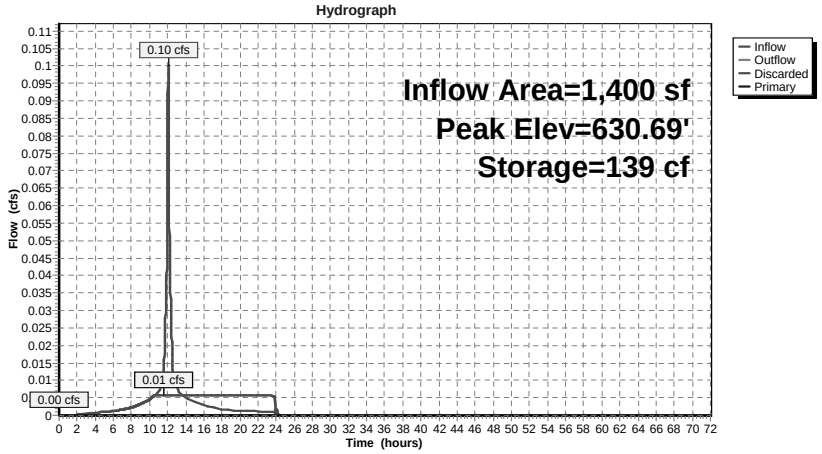
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
630.00	1,000	0.0	0	0
632.00	1,000	20.0	400	400
633.00	1,400	100.0	1,200	1,600

Device	Routing	Invert	Outlet Devices
#1	Primary	632.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	630.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 11.51 hrs HW=630.03' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=630.00' TW=603.91' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: DA-13C Parking Pavers



Hydrograph for Pond 3P: DA-13C Parking Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	630.00	0.00	0.00	**0.00**
2.00	0.00	0	630.00	0.00	0.00	0.00
4.00	0.00	0	630.00	0.00	0.00	0.00
6.00	0.00	0	630.00	0.00	0.00	0.00
8.00	0.00	0	630.00	0.00	0.00	0.00
10.00	0.00	0	630.00	**0.00**	**0.00**	0.00
12.00	**0.07**	**46**	**630.23**	**0.01**	**0.01**	0.00
14.00	**0.01**	**138**	**630.69**	0.01	0.01	0.00
16.00	0.00	124	630.62	0.01	0.01	0.00
18.00	0.00	98	630.49	0.01	0.01	0.00
20.00	0.00	67	630.33	0.01	0.01	0.00
22.00	0.00	34	630.17	0.01	0.01	0.00
24.00	0.00	0	630.00	0.00	0.00	0.00
26.00	0.00	0	630.00	0.00	0.00	0.00
28.00	0.00	0	630.00	0.00	0.00	0.00
30.00	0.00	0	630.00	0.00	0.00	0.00
32.00	0.00	0	630.00	0.00	0.00	0.00
34.00	0.00	0	630.00	0.00	0.00	0.00
36.00	0.00	0	630.00	0.00	0.00	0.00
38.00	0.00	0	630.00	0.00	0.00	0.00
40.00	0.00	0	630.00	0.00	0.00	0.00
42.00	0.00	0	630.00	0.00	0.00	0.00
44.00	0.00	0	630.00	0.00	0.00	0.00
46.00	0.00	0	630.00	0.00	0.00	0.00
48.00	0.00	0	630.00	0.00	0.00	0.00
50.00	0.00	0	630.00	0.00	0.00	0.00
52.00	0.00	0	630.00	0.00	0.00	0.00
54.00	0.00	0	630.00	0.00	0.00	0.00
56.00	0.00	0	630.00	0.00	0.00	0.00
58.00	0.00	0	630.00	0.00	0.00	0.00
60.00	0.00	0	630.00	0.00	0.00	0.00
62.00	0.00	0	630.00	0.00	0.00	0.00
64.00	0.00	0	630.00	0.00	0.00	0.00
66.00	0.00	0	630.00	0.00	0.00	0.00
68.00	0.00	0	630.00	0.00	0.00	0.00
70.00	0.00	0	630.00	0.00	0.00	0.00
72.00	0.00	0	630.00	0.00	0.00	0.00

Summary for Pond 13P: DA-13B Sidewalk Pavers

[58] Hint: Peaked 14.24' above defined flood level
[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 2,394 sf,100.00% Impervious, Inflow Depth = 2.87" for 1 Year, 24 Hr. Event event
Inflow = 0.17 cfs @ 12.07 hrs, Volume= 572 cf
Outflow = 0.01 cfs @ 11.54 hrs, Volume= 572 cf, Atten= 94%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.54 hrs, Volume= 572 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 620.24' @ 13.68 hrs Surf.Area= 2,394 sf Storage= 236 cf
Flood Elev= 606.00' Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 185.6 min (941.7 - 756.1)

Volume	Invert	Avail.Storage	Storage Description
#1	619.75'	1,556 cf	**Custom Stage Data (Prismatic)** Listed below

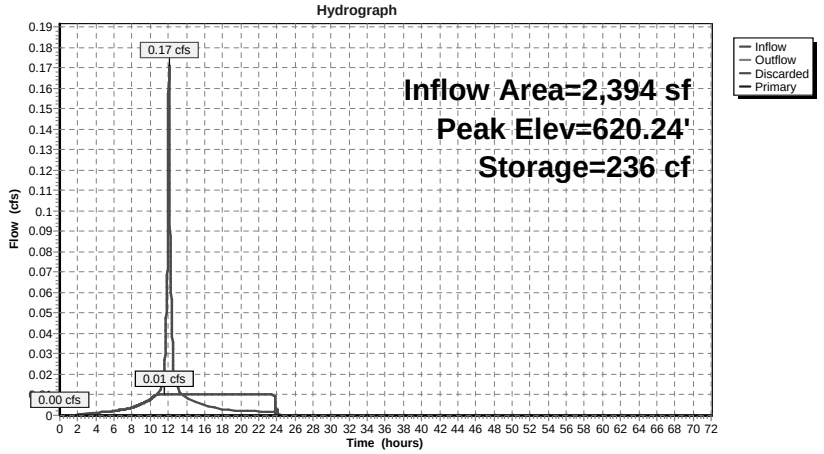
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
619.75	2,394	0.0	0	0
621.75	2,394	20.0	958	958
622.00	2,394	100.0	599	1,556

Device	Routing	Invert	Outlet Devices
#1	Primary	621.75'	**100.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Discarded	619.75'	**0.01 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.01 cfs @ 11.54 hrs HW=619.77' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=619.75' TW=603.91' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13P: DA-13B Sidewalk Pavers



Hydrograph for Pond 13P: DA-13B Sidewalk Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	619.75	0.00	0.00	**0.00**
2.00	0.00	0	619.75	0.00	0.00	0.00
4.00	0.00	0	619.75	0.00	0.00	0.00
6.00	0.00	0	619.75	0.00	0.00	0.00
8.00	0.00	0	619.75	0.00	0.00	0.00
10.00	0.01	0	619.75	**0.01**	**0.01**	0.00
12.00	**0.12**	**78**	**619.91**	**0.01**	**0.01**	0.00
14.00	**0.01**	**235**	**620.24**	0.01	0.01	0.00
16.00	0.00	210	620.19	0.01	0.01	0.00
18.00	0.00	165	620.09	0.01	0.01	0.00
20.00	0.00	111	619.98	0.01	0.01	0.00
22.00	0.00	54	619.86	0.01	0.01	0.00
24.00	0.00	0	619.75	0.00	0.00	0.00
26.00	0.00	0	619.75	0.00	0.00	0.00
28.00	0.00	0	619.75	0.00	0.00	0.00
30.00	0.00	0	619.75	0.00	0.00	0.00
32.00	0.00	0	619.75	0.00	0.00	0.00
34.00	0.00	0	619.75	0.00	0.00	0.00
36.00	0.00	0	619.75	0.00	0.00	0.00
38.00	0.00	0	619.75	0.00	0.00	0.00
40.00	0.00	0	619.75	0.00	0.00	0.00
42.00	0.00	0	619.75	0.00	0.00	0.00
44.00	0.00	0	619.75	0.00	0.00	0.00
46.00	0.00	0	619.75	0.00	0.00	0.00
48.00	0.00	0	619.75	0.00	0.00	0.00
50.00	0.00	0	619.75	0.00	0.00	0.00
52.00	0.00	0	619.75	0.00	0.00	0.00
54.00	0.00	0	619.75	0.00	0.00	0.00
56.00	0.00	0	619.75	0.00	0.00	0.00
58.00	0.00	0	619.75	0.00	0.00	0.00
60.00	0.00	0	619.75	0.00	0.00	0.00
62.00	0.00	0	619.75	0.00	0.00	0.00
64.00	0.00	0	619.75	0.00	0.00	0.00
66.00	0.00	0	619.75	0.00	0.00	0.00
68.00	0.00	0	619.75	0.00	0.00	0.00
70.00	0.00	0	619.75	0.00	0.00	0.00
72.00	0.00	0	619.75	0.00	0.00	0.00

Summary for Pond 15P: DA-15 Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 2,794 sf,100.00% Impervious, Inflow Depth = 2.87" for 1 Year, 24 Hr. Event event
Inflow = 0.20 cfs @ 12.07 hrs, Volume= 668 cf
Outflow = 0.13 cfs @ 12.04 hrs, Volume= 668 cf, Atten= 35%, Lag= 0.0 min
Discarded = 0.13 cfs @ 12.04 hrs, Volume= 668 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 0.01' @ 12.15 hrs Surf.Area= 0 sf Storage= 24 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.5 min (756.6 - 756.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	12,000 cf	**Custom Stage Data** Listed below

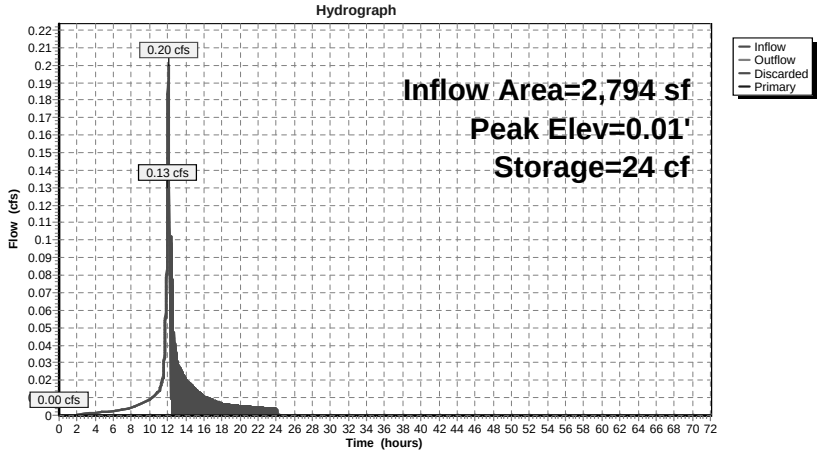
Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
2.00	7,917
3.00	12,000

Device	Routing	Invert	Outlet Devices
#1	Primary	2.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	0.00'	**0.13 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.13 cfs @ 12.04 hrs HW=0.00' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15P: DA-15 Pavers



Hydrograph for Pond 15P: DA-15 Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	0.00	0.00	0.00	**0.00**
2.00	0.00	0	0.00	0.00	0.00	0.00
4.00	0.00	0	0.00	0.00	0.00	0.00
6.00	0.00	0	0.00	0.00	0.00	0.00
8.00	0.00	0	0.00	0.00	0.00	0.00
10.00	0.01	0	0.00	0.01	0.01	0.00
12.00	**0.13**	**0**	**0.00**	**0.13**	**0.13**	0.00
14.00	**0.01**	**0**	**0.00**	**0.02**	**0.02**	0.00
16.00	0.01	0	0.00	0.01	0.01	0.00
18.00	0.00	0	0.00	0.01	0.01	0.00
20.00	0.00	0	0.00	0.01	0.01	0.00
22.00	0.00	0	0.00	0.00	0.00	0.00
24.00	0.00	0	0.00	0.00	0.00	0.00
26.00	0.00	0	0.00	0.00	0.00	0.00
28.00	0.00	0	0.00	0.00	0.00	0.00
30.00	0.00	0	0.00	0.00	0.00	0.00
32.00	0.00	0	0.00	0.00	0.00	0.00
34.00	0.00	0	0.00	0.00	0.00	0.00
36.00	0.00	0	0.00	0.00	0.00	0.00
38.00	0.00	0	0.00	0.00	0.00	0.00
40.00	0.00	0	0.00	0.00	0.00	0.00
42.00	0.00	0	0.00	0.00	0.00	0.00
44.00	0.00	0	0.00	0.00	0.00	0.00
46.00	0.00	0	0.00	0.00	0.00	0.00
48.00	0.00	0	0.00	0.00	0.00	0.00
50.00	0.00	0	0.00	0.00	0.00	0.00
52.00	0.00	0	0.00	0.00	0.00	0.00
54.00	0.00	0	0.00	0.00	0.00	0.00
56.00	0.00	0	0.00	0.00	0.00	0.00
58.00	0.00	0	0.00	0.00	0.00	0.00
60.00	0.00	0	0.00	0.00	0.00	0.00
62.00	0.00	0	0.00	0.00	0.00	0.00
64.00	0.00	0	0.00	0.00	0.00	0.00
66.00	0.00	0	0.00	0.00	0.00	0.00
68.00	0.00	0	0.00	0.00	0.00	0.00
70.00	0.00	0	0.00	0.00	0.00	0.00
72.00	0.00	0	0.00	0.00	0.00	0.00

Summary for Pond B-14B: Bioretention-14B

Inflow Area = 2,047 sf, 48.12% Impervious, Inflow Depth = 1.59" for 1 Year, 24 Hr. Event event
Inflow = 0.08 cfs @ 12.07 hrs, Volume= 271 cf
Outflow = 0.00 cfs @ 14.31 hrs, Volume= 217 cf, Atten= 94%, Lag= 134.0 min
Discarded = 0.00 cfs @ 11.97 hrs, Volume= 196 cf
Primary = 0.00 cfs @ 14.31 hrs, Volume= 21 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 502.50' @ 14.31 hrs Surf.Area= 221 sf Storage= 188 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,060.3 min (1,837.8 - 777.5)

Volume	Invert	Avail.Storage	Storage Description
#1	497.75'	299 cf	**Custom Stage Data (Prismatic)** Listed below

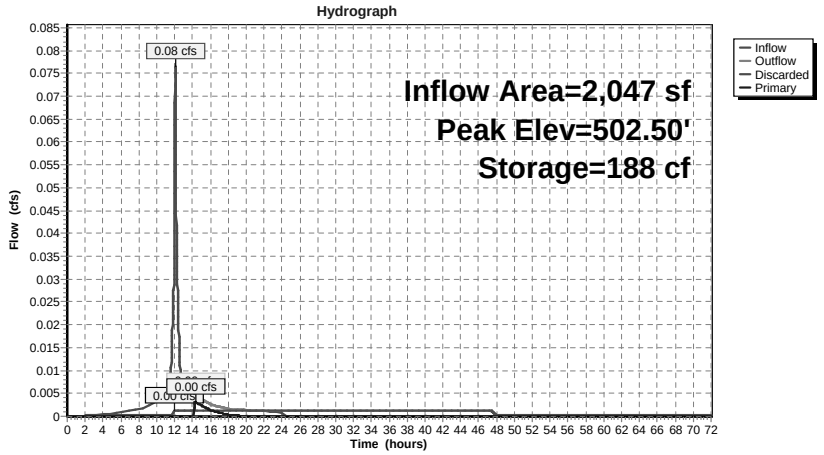
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
497.75	45	0.0	0	0
501.75	45	40.0	72	72
501.99	45	40.0	4	76
502.00	221	100.0	1	78
502.50	221	100.0	111	188
503.00	221	100.0	111	299

Device	Routing	Invert	Outlet Devices
#1	Discarded	497.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	502.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 242.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.97 hrs HW=502.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 14.31 hrs HW=502.50' TW=0.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.00 cfs @ 0.09 fps)

Pond B-14B: Bioretention-14B



Hydrograph for Pond B-14B: Bioretention-14B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	497.75	0.00	0.00	0.00
2.00	0.00	0	497.75	0.00	0.00	0.00
4.00	0.00	0	497.77	0.00	0.00	0.00
6.00	0.00	3	497.93	0.00	0.00	0.00
8.00	0.00	10	498.28	0.00	0.00	0.00
10.00	0.00	24	499.10	0.00	**0.00**	0.00
12.00	**0.05**	83	502.02	0.00	**0.00**	0.00
14.00	**0.00**	**185**	**502.49**	**0.00**	0.00	**0.00**
16.00	0.00	**188**	**502.50**	**0.00**	0.00	**0.00**
18.00	0.00	188	502.50	0.00	0.00	0.00
20.00	0.00	188	502.50	0.00	0.00	0.00
22.00	0.00	187	502.50	0.00	0.00	0.00
24.00	0.00	185	502.49	0.00	0.00	0.00
26.00	0.00	176	502.45	0.00	0.00	0.00
28.00	0.00	167	502.40	0.00	0.00	0.00
30.00	0.00	158	502.36	0.00	0.00	0.00
32.00	0.00	149	502.32	0.00	0.00	0.00
34.00	0.00	139	502.28	0.00	0.00	0.00
36.00	0.00	130	502.24	0.00	0.00	0.00
38.00	0.00	121	502.20	0.00	0.00	0.00
40.00	0.00	112	502.15	0.00	0.00	0.00
42.00	0.00	103	502.11	0.00	0.00	0.00
44.00	0.00	93	502.07	0.00	0.00	0.00
46.00	0.00	84	502.03	0.00	0.00	0.00
48.00	0.00	76	501.99	0.00	0.00	0.00
50.00	0.00	74	501.89	0.00	0.00	0.00
52.00	0.00	73	501.78	0.00	0.00	0.00
54.00	0.00	71	501.68	0.00	0.00	0.00
56.00	0.00	69	501.57	0.00	0.00	0.00
58.00	0.00	67	501.47	0.00	0.00	0.00
60.00	0.00	65	501.37	0.00	0.00	0.00
62.00	0.00	63	501.26	0.00	0.00	0.00
64.00	0.00	61	501.16	0.00	0.00	0.00
66.00	0.00	59	501.05	0.00	0.00	0.00
68.00	0.00	58	500.95	0.00	0.00	0.00
70.00	0.00	56	500.84	0.00	0.00	0.00
72.00	0.00	54	500.74	0.00	0.00	0.00

Summary for Subcatchment DA-13A: Post_DA-13A

Runoff = 0.53 cfs @ 12.07 hrs, Volume= 1,758 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

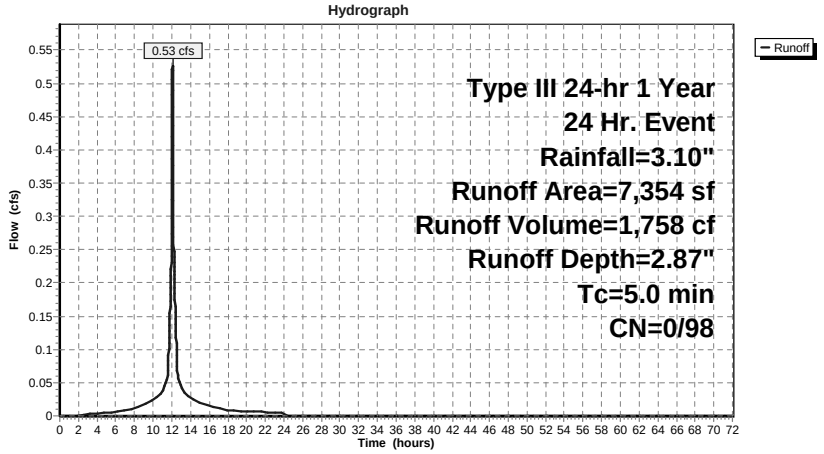
Area (sf)	CN	Description	Land Use
7,354	98	Paved parking, HSG C	Pavement
7,354	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,354	Pavement	287.35	0.93	3.49	11.13
7,354	Total	287.35	0.93	3.49	11.13

Subcatchment DA-13A: Post_DA-13A



Hydrograph for Subcatchment DA-13A: Post_DA-13A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.01
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.02
12.00	1.55	0.00	1.33	**0.35**
14.00	2.51	0.00	2.28	**0.03**
16.00	2.75	0.00	2.52	0.01
18.00	2.88	0.00	2.65	0.01
20.00	2.97	0.00	2.74	0.01
22.00	3.04	0.00	2.81	0.01
24.00	**3.10**	0.00	**2.87**	0.00
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00

Summary for Subcatchment DA-13B: Post_DA-13B

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 572 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

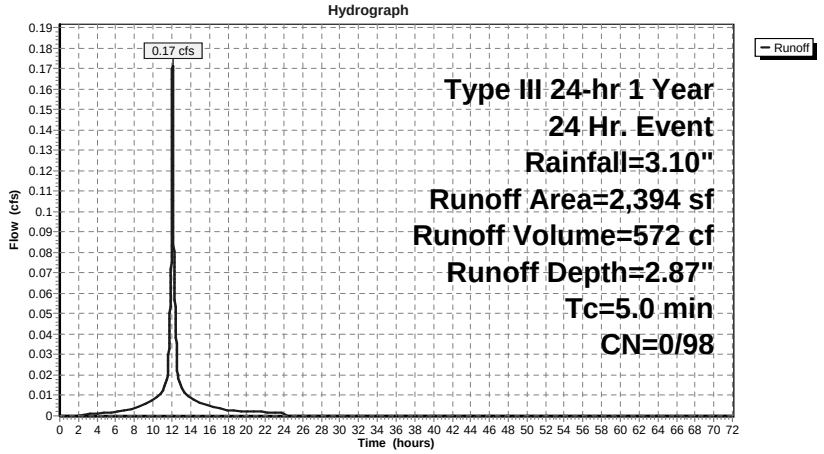
	Area (sf)	CN	Description	Land Use
*	2,394	98	Pavers, HSG C	Pavement
	2,394	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,394	Pavement	93.54	0.30	1.14	3.62
2,394	Total	93.54	0.30	1.14	3.62

Subcatchment DA-13B: Post_DA-13B



Hydrograph for Subcatchment DA-13B: Post_DA-13B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.00	1.33	**0.12**
14.00	2.51	0.00	2.28	**0.01**
16.00	2.75	0.00	2.52	0.00
18.00	2.88	0.00	2.65	0.00
20.00	2.97	0.00	2.74	0.00
22.00	3.04	0.00	2.81	0.00
24.00	**3.10**	0.00	**2.87**	0.00
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00

Summary for Subcatchment DA-13C: Post_DA-13C

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 335 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

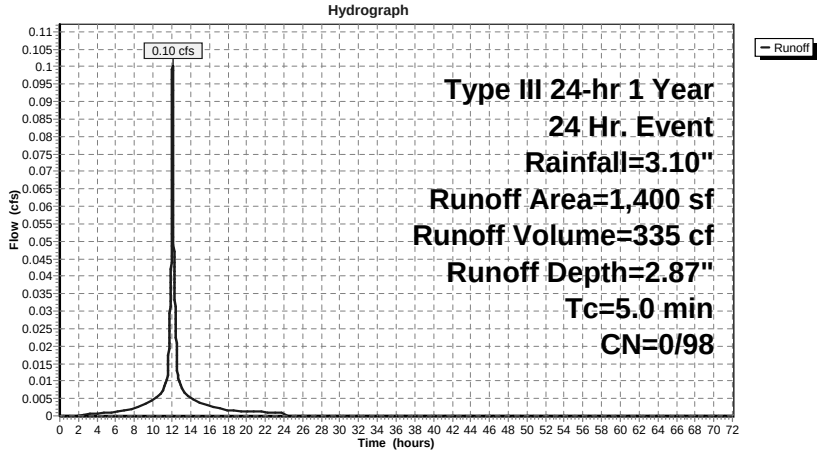
	Area (sf)	CN	Description	Land Use
*	1,400	98	Pavers	Pavement
	1,400	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,400	Pavement	54.70	0.18	0.66	2.12
1,400	Total	54.70	0.18	0.66	2.12

Subcatchment DA-13C: Post_DA-13C



Hydrograph for Subcatchment DA-13C: Post_DA-13C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.00
12.00	1.55	0.00	1.33	**0.07**
14.00	2.51	0.00	2.28	**0.01**
16.00	2.75	0.00	2.52	0.00
18.00	2.88	0.00	2.65	0.00
20.00	2.97	0.00	2.74	0.00
22.00	3.04	0.00	2.81	0.00
24.00	**3.10**	0.00	**2.87**	0.00
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00

Summary for Subcatchment DA-14A: Post_DA-14A

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 686 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

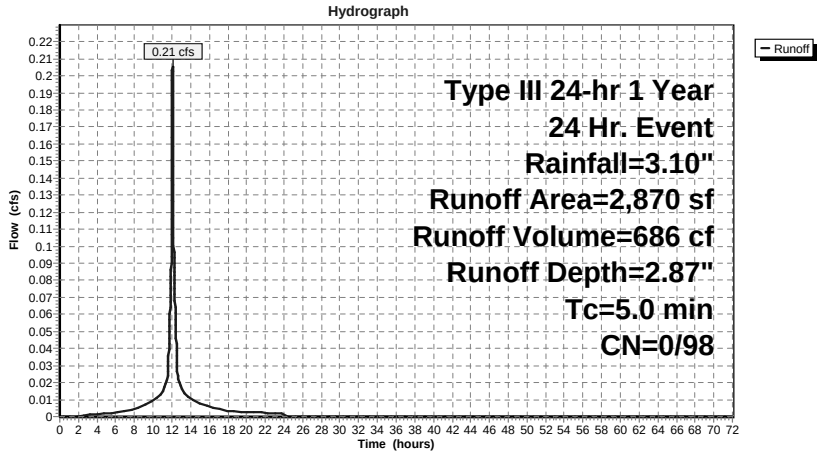
	Area (sf)	CN	Description	Land Use
	2,034	98	Paved parking, HSG B	Pavement
*	836	98	Pavers	Pavement
	2,870	98	Weighted Average	
	2,870	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,870	Pavement	112.14	0.36	1.36	4.34
2,870	Total	112.14	0.36	1.36	4.34

Subcatchment DA-14A: Post_DA-14A



Hydrograph for Subcatchment DA-14A: Post_DA-14A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.00	1.33	**0.14**
14.00	2.51	0.00	2.28	**0.01**
16.00	2.75	0.00	2.52	0.01
18.00	2.88	0.00	2.65	0.00
20.00	2.97	0.00	2.74	0.00
22.00	3.04	0.00	2.81	0.00
24.00	**3.10**	0.00	**2.87**	0.00
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00

Summary for Subcatchment DA-14B1: Post_DA-14B1

Runoff = 0.28 cfs @ 12.07 hrs, Volume= 990 cf, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

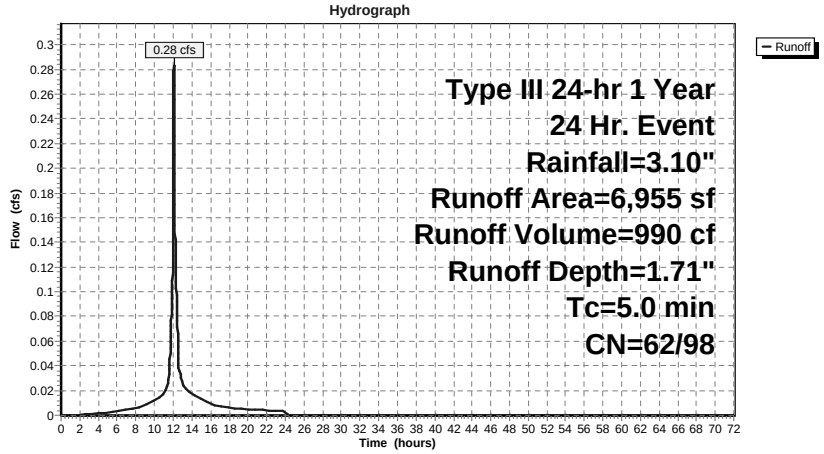
Area (sf)	CN	Description	Land Use
293	98	Paved parking, HSG C	Pavement
3,343	98	Roofs, HSG C	Roofs
3,161	61	>75% Grass cover, Good, HSG B	Open Space
158	74	>75% Grass cover, Good, HSG C	Open Space
6,955	81	Weighted Average	
3,319	62	47.72% Pervious Area	
3,636	98	52.28% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 52.28% Impervious, Rv= 0.521, Runoff= 23.79"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,319	Open Space	247.26	0.86	3.74	0.51
293	Pavement	6.27	0.02	0.08	0.24
3,343	Roofs	7.86	0.05	0.62	3.06
6,955	Total	261.39	0.93	4.43	3.81

Subcatchment DA-14B1: Post_DA-14B1



Hydrograph for Subcatchment DA-14B1: Post_DA-14B1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.01
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.02	1.33	**0.18**
14.00	2.51	0.22	2.28	**0.02**
16.00	2.75	0.30	2.52	0.01
18.00	2.88	0.35	2.65	0.01
20.00	2.97	0.39	2.74	0.00
22.00	3.04	0.41	2.81	0.00
24.00	**3.10**	**0.44**	**2.87**	0.00
26.00	3.10	0.44	2.87	0.00
28.00	3.10	0.44	2.87	0.00
30.00	3.10	0.44	2.87	0.00
32.00	3.10	0.44	2.87	0.00
34.00	3.10	0.44	2.87	0.00
36.00	3.10	0.44	2.87	0.00
38.00	3.10	0.44	2.87	0.00
40.00	3.10	0.44	2.87	0.00
42.00	3.10	0.44	2.87	0.00
44.00	3.10	0.44	2.87	0.00
46.00	3.10	0.44	2.87	0.00
48.00	3.10	0.44	2.87	0.00
50.00	3.10	0.44	2.87	0.00
52.00	3.10	0.44	2.87	0.00
54.00	3.10	0.44	2.87	0.00
56.00	3.10	0.44	2.87	0.00
58.00	3.10	0.44	2.87	0.00
60.00	3.10	0.44	2.87	0.00
62.00	3.10	0.44	2.87	0.00
64.00	3.10	0.44	2.87	0.00
66.00	3.10	0.44	2.87	0.00
68.00	3.10	0.44	2.87	0.00
70.00	3.10	0.44	2.87	0.00
72.00	3.10	0.44	2.87	0.00

Summary for Subcatchment DA-14B2: Post_DA-14B2

Runoff = 0.08 cfs @ 12.07 hrs, Volume= 271 cf, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

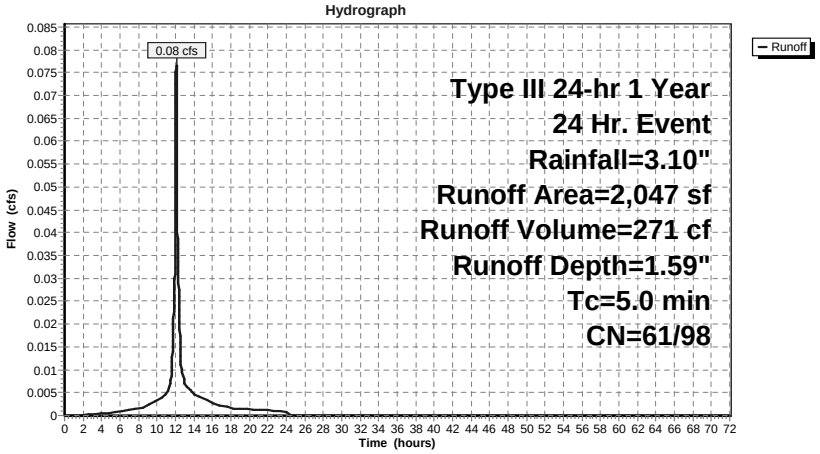
	Area (sf)	CN	Description	Land Use
	985	98	Paved parking, HSG C	Pavement
*	1,062	61	Bioretention - HSG B	Brush
	2,047	79	Weighted Average	
	1,062	61	51.88% Pervious Area	
	985	98	48.12% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 48.12% Impervious, Rv= 0.483, Runoff= 22.08"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,062	Brush	4.51	0.00	0.00	0.15
985	Pavement	19.57	0.06	0.24	0.76
2,047	Total	24.08	0.06	0.24	0.91

Subcatchment DA-14B2: Post_DA-14B2



Hydrograph for Subcatchment DA-14B2: Post_DA-14B2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.00
12.00	1.55	0.01	1.33	**0.05**
14.00	2.51	0.20	2.28	**0.00**
16.00	2.75	0.27	2.52	0.00
18.00	2.88	0.32	2.65	0.00
20.00	2.97	0.35	2.74	0.00
22.00	3.04	0.38	2.81	0.00
24.00	**3.10**	**0.40**	**2.87**	0.00
26.00	3.10	0.40	2.87	0.00
28.00	3.10	0.40	2.87	0.00
30.00	3.10	0.40	2.87	0.00
32.00	3.10	0.40	2.87	0.00
34.00	3.10	0.40	2.87	0.00
36.00	3.10	0.40	2.87	0.00
38.00	3.10	0.40	2.87	0.00
40.00	3.10	0.40	2.87	0.00
42.00	3.10	0.40	2.87	0.00
44.00	3.10	0.40	2.87	0.00
46.00	3.10	0.40	2.87	0.00
48.00	3.10	0.40	2.87	0.00
50.00	3.10	0.40	2.87	0.00
52.00	3.10	0.40	2.87	0.00
54.00	3.10	0.40	2.87	0.00
56.00	3.10	0.40	2.87	0.00
58.00	3.10	0.40	2.87	0.00
60.00	3.10	0.40	2.87	0.00
62.00	3.10	0.40	2.87	0.00
64.00	3.10	0.40	2.87	0.00
66.00	3.10	0.40	2.87	0.00
68.00	3.10	0.40	2.87	0.00
70.00	3.10	0.40	2.87	0.00
72.00	3.10	0.40	2.87	0.00

Summary for Subcatchment DA-15A: Post_DA-15A

Runoff = 2.18 cfs @ 12.07 hrs, Volume= 7,252 cf, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

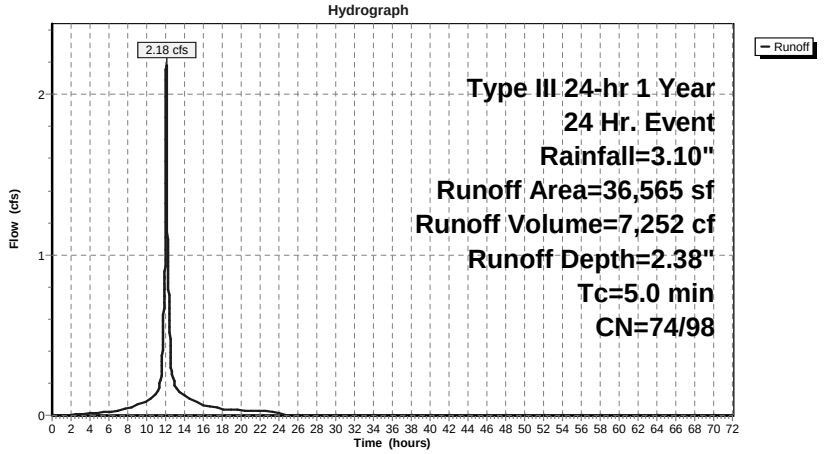
	Area (sf)	CN	Description	Land Use
*	21,025	98	Impervious	Pavement
	9,414	74	>75% Grass cover, Good, HSG C	Open Space
	6,126	98	Roofs, HSG C	Roofs
	36,565	92	Weighted Average	
	9,414	74	25.75% Pervious Area	
	27,151	98	74.25% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.25% Impervious, Rv= 0.718, Runoff= 32.83"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,414	Open Space	967.79	3.38	14.63	1.98
21,025	Pavement	621.15	2.01	7.54	24.06
6,126	Roofs	19.88	0.12	1.57	7.74
36,565	Total	1,608.82	5.50	23.74	33.77

Subcatchment DA-15A: Post_DA-15A



Hydrograph for Subcatchment DA-15A: Post_DA-15A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.01
6.00	0.22	0.00	0.09	0.02
8.00	0.35	0.00	0.19	0.04
10.00	0.59	0.00	0.40	0.09
12.00	1.55	0.16	1.33	**1.44**
14.00	2.51	0.62	2.28	**0.12**
16.00	2.75	0.75	2.52	0.06
18.00	2.88	0.83	2.65	0.04
20.00	2.97	0.89	2.74	0.03
22.00	3.04	0.93	2.81	0.03
24.00	**3.10**	**0.97**	**2.87**	0.02
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00

Summary for Subcatchment DA-15B: Post_DA-15B

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 668 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

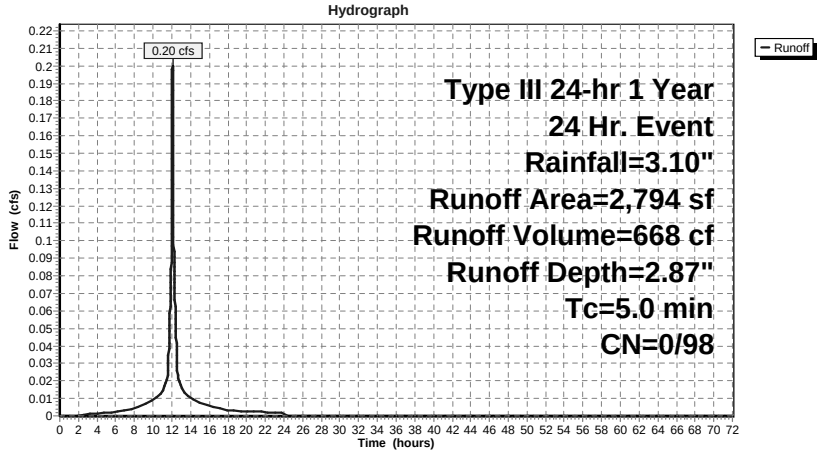
	Area (sf)	CN	Description	Land Use
*	2,794	98	Pavers	Pavement
	2,794	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,794	Pavement	109.17	0.35	1.33	4.23
2,794	Total	109.17	0.35	1.33	4.23

Subcatchment DA-15B: Post_DA-15B



Hydrograph for Subcatchment DA-15B: Post_DA-15B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.03	0.00
6.00	0.22	0.00	0.09	0.00
8.00	0.35	0.00	0.19	0.00
10.00	0.59	0.00	0.40	0.01
12.00	1.55	0.00	1.33	**0.13**
14.00	2.51	0.00	2.28	**0.01**
16.00	2.75	0.00	2.52	0.01
18.00	2.88	0.00	2.65	0.00
20.00	2.97	0.00	2.74	0.00
22.00	3.04	0.00	2.81	0.00
24.00	**3.10**	0.00	**2.87**	0.00
26.00	3.10	0.00	2.87	0.00
28.00	3.10	0.00	2.87	0.00
30.00	3.10	0.00	2.87	0.00
32.00	3.10	0.00	2.87	0.00
34.00	3.10	0.00	2.87	0.00
36.00	3.10	0.00	2.87	0.00
38.00	3.10	0.00	2.87	0.00
40.00	3.10	0.00	2.87	0.00
42.00	3.10	0.00	2.87	0.00
44.00	3.10	0.00	2.87	0.00
46.00	3.10	0.00	2.87	0.00
48.00	3.10	0.00	2.87	0.00
50.00	3.10	0.00	2.87	0.00
52.00	3.10	0.00	2.87	0.00
54.00	3.10	0.00	2.87	0.00
56.00	3.10	0.00	2.87	0.00
58.00	3.10	0.00	2.87	0.00
60.00	3.10	0.00	2.87	0.00
62.00	3.10	0.00	2.87	0.00
64.00	3.10	0.00	2.87	0.00
66.00	3.10	0.00	2.87	0.00
68.00	3.10	0.00	2.87	0.00
70.00	3.10	0.00	2.87	0.00
72.00	3.10	0.00	2.87	0.00

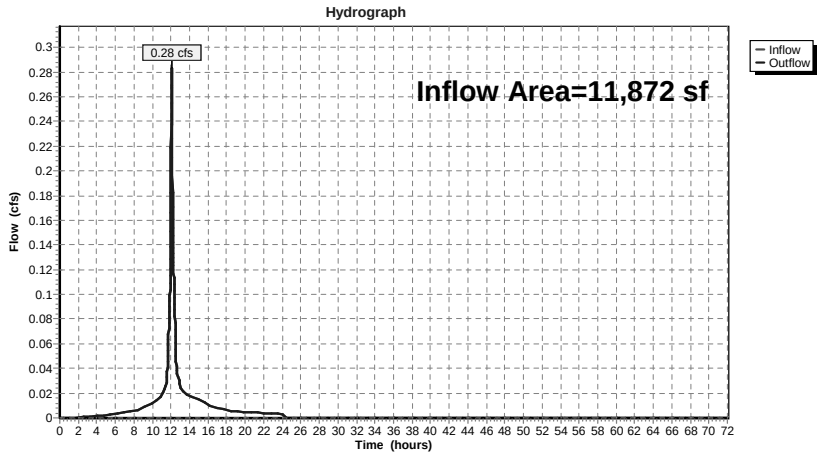
Summary for Reach DP-14: Catch Basin

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11,872 sf, 63.10% Impervious, Inflow Depth = 1.02" for 1 Year, 24 Hr. Event event
Inflow = 0.28 cfs @ 12.07 hrs, Volume= 1,011 cf
Outflow = 0.28 cfs @ 12.07 hrs, Volume= 1,011 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-14: Catch Basin



Hydrograph for Reach DP-14: Catch Basin

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.01		0.01	60.00	0.00		0.00
9.00	0.01		0.01	61.00	0.00		0.00
10.00	0.01		0.01	62.00	0.00		0.00
11.00	0.02		0.02	63.00	0.00		0.00
12.00	**0.18**		**0.18**	64.00	0.00		0.00
13.00	**0.03**		**0.03**	65.00	0.00		0.00
14.00	0.02		0.02	66.00	0.00		0.00
15.00	0.02		0.02	67.00	0.00		0.00
16.00	0.01		0.01	68.00	0.00		0.00
17.00	0.01		0.01	69.00	0.00		0.00
18.00	0.01		0.01	70.00	0.00		0.00
19.00	0.01		0.01	71.00	0.00		0.00
20.00	0.00		0.00	72.00	0.00		0.00
21.00	0.00		0.00				
22.00	0.00		0.00				
23.00	0.00		0.00				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

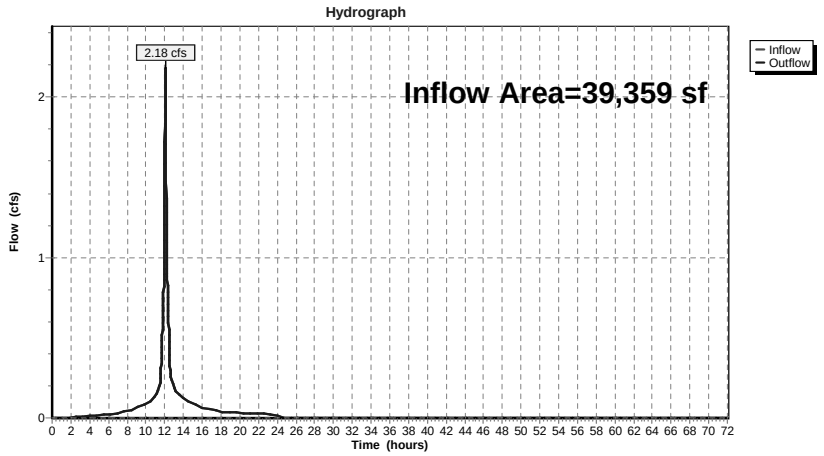
Summary for Reach DP-15: DP-15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 39,359 sf, 76.08% Impervious, Inflow Depth = 2.21" for 1 Year, 24 Hr. Event event
Inflow = 2.18 cfs @ 12.07 hrs, Volume= 7,252 cf
Outflow = 2.18 cfs @ 12.07 hrs, Volume= 7,252 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-15: DP-15



Hydrograph for Reach DP-15: DP-15

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.03		0.03	59.00	0.00		0.00
8.00	0.04		0.04	60.00	0.00		0.00
9.00	0.06		0.06	61.00	0.00		0.00
10.00	0.09		0.09	62.00	0.00		0.00
11.00	0.13		0.13	63.00	0.00		0.00
12.00	**1.44**		**1.44**	64.00	0.00		0.00
13.00	**0.18**		**0.18**	65.00	0.00		0.00
14.00	0.12		0.12	66.00	0.00		0.00
15.00	0.09		0.09	67.00	0.00		0.00
16.00	0.06		0.06	68.00	0.00		0.00
17.00	0.05		0.05	69.00	0.00		0.00
18.00	0.04		0.04	70.00	0.00		0.00
19.00	0.03		0.03	71.00	0.00		0.00
20.00	0.03		0.03	72.00	0.00		0.00
21.00	0.03		0.03				
22.00	0.03		0.03				
23.00	0.02		0.02				
24.00	0.02		0.02				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP13: DP-13

[57] Hint: Peaked at 604.24' (Flood elevation advised)

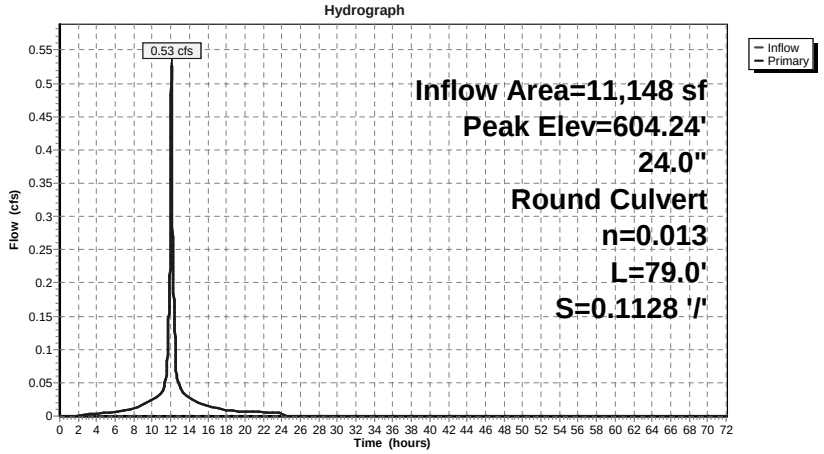
Inflow Area = 11,148 sf,100.00% Impervious, Inflow Depth = 1.89" for 1 Year, 24 Hr. Event event
Inflow = 0.53 cfs @ 12.07 hrs, Volume= 1,758 cf
Outflow = 0.53 cfs @ 12.07 hrs, Volume= 1,758 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.53 cfs @ 12.07 hrs, Volume= 1,758 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 604.24' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	603.91'	**24.0" Round Culvert** L= 79.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 603.91' / 595.00' S= 0.1128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.53 cfs @ 12.07 hrs HW=604.24' (Free Discharge)
1=Culvert (Inlet Controls 0.53 cfs @ 1.55 fps)

Pond DP13: DP-13



Hydrograph for Pond DP13: DP-13

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	603.91	0.00	52.00	0.00	603.91	0.00
1.00	0.00	603.91	0.00	53.00	0.00	603.91	0.00
2.00	0.00	603.92	0.00	54.00	0.00	603.91	0.00
3.00	0.00	603.93	0.00	55.00	0.00	603.91	0.00
4.00	0.00	603.94	0.00	56.00	0.00	603.91	0.00
5.00	0.00	603.94	0.00	57.00	0.00	603.91	0.00
6.00	0.01	603.94	0.01	58.00	0.00	603.91	0.00
7.00	0.01	603.95	0.01	59.00	0.00	603.91	0.00
8.00	0.01	603.96	0.01	60.00	0.00	603.91	0.00
9.00	0.02	603.97	0.02	61.00	0.00	603.91	0.00
10.00	0.02	603.98	0.02	62.00	0.00	603.91	0.00
11.00	0.04	603.99	0.04	63.00	0.00	603.91	0.00
12.00	**0.35**	**604.18**	**0.35**	64.00	0.00	603.91	0.00
13.00	**0.04**	**604.00**	**0.04**	65.00	0.00	603.91	0.00
14.00	0.03	603.98	0.03	66.00	0.00	603.91	0.00
15.00	0.02	603.97	0.02	67.00	0.00	603.91	0.00
16.00	0.01	603.96	0.01	68.00	0.00	603.91	0.00
17.00	0.01	603.96	0.01	69.00	0.00	603.91	0.00
18.00	0.01	603.95	0.01	70.00	0.00	603.91	0.00
19.00	0.01	603.95	0.01	71.00	0.00	603.91	0.00
20.00	0.01	603.95	0.01	72.00	0.00	603.91	0.00
21.00	0.01	603.95	0.01				
22.00	0.01	603.94	0.01				
23.00	0.01	603.94	0.01				
24.00	0.00	603.94	0.00				
25.00	0.00	603.91	0.00				
26.00	0.00	603.91	0.00				
27.00	0.00	603.91	0.00				
28.00	0.00	603.91	0.00				
29.00	0.00	603.91	0.00				
30.00	0.00	603.91	0.00				
31.00	0.00	603.91	0.00				
32.00	0.00	603.91	0.00				
33.00	0.00	603.91	0.00				
34.00	0.00	603.91	0.00				
35.00	0.00	603.91	0.00				
36.00	0.00	603.91	0.00				
37.00	0.00	603.91	0.00				
38.00	0.00	603.91	0.00				
39.00	0.00	603.91	0.00				
40.00	0.00	603.91	0.00				
41.00	0.00	603.91	0.00				
42.00	0.00	603.91	0.00				
43.00	0.00	603.91	0.00				
44.00	0.00	603.91	0.00				
45.00	0.00	603.91	0.00				
46.00	0.00	603.91	0.00				
47.00	0.00	603.91	0.00				
48.00	0.00	603.91	0.00				
49.00	0.00	603.91	0.00				
50.00	0.00	603.91	0.00				
51.00	0.00	603.91	0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 1P: Pavers_DA-14A Peak Elev=640.64' Storage=369 cf Inflow=0.23 cfs 781 cf
Discarded=0.01 cfs 781 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 781 cf

Pond 3P: DA-13C Parking Pavers Peak Elev=630.83' Storage=167 cf Inflow=0.11 cfs 381 cf
Discarded=0.01 cfs 381 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 381 cf

Pond 13P: DA-13B Sidewalk Pavers Peak Elev=620.34' Storage=284 cf Inflow=0.19 cfs 652 cf
Discarded=0.01 cfs 652 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 652 cf

Pond 15P: DA-15 Pavers Peak Elev=0.01' Storage=38 cf Inflow=0.23 cfs 761 cf
Discarded=0.13 cfs 762 cf Primary=0.00 cfs 0 cf Outflow=0.13 cfs 762 cf

Pond B-14B: Bioretention-14B Peak Elev=502.50' Storage=189 cf Inflow=0.09 cfs 319 cf
Discarded=0.00 cfs 199 cf Primary=0.01 cfs 66 cf Outflow=0.01 cfs 265 cf

Subcatchment DA-13A: Post_DA-13A Runoff Area=7,354 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=0.60 cfs 2,002 cf

Subcatchment DA-13B: Post_DA-13B Runoff Area=2,394 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=0.19 cfs 652 cf

Subcatchment DA-13C: Post_DA-13C Runoff Area=1,400 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=0.11 cfs 381 cf

Subcatchment DA-14A: Post_DA-14A Runoff Area=2,870 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=0.23 cfs 781 cf

Subcatchment DA-14B1: Post_DA-14B1 Runoff Area=6,955 sf 52.28% Impervious Runoff Depth=2.00"
Tc=5.0 min CN=62/98 Runoff=0.34 cfs 1,160 cf

Subcatchment DA-14B2: Post_DA-14B2 Runoff Area=2,047 sf 48.12% Impervious Runoff Depth=1.87"
Tc=5.0 min CN=61/98 Runoff=0.09 cfs 319 cf

Subcatchment DA-15A: Post_DA-15A Runoff Area=36,565 sf 74.25% Impervious Runoff Depth=2.74"
Tc=5.0 min CN=74/98 Runoff=2.51 cfs 8,363 cf

Subcatchment DA-15B: Post_DA-15B Runoff Area=2,794 sf 100.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=0/98 Runoff=0.23 cfs 761 cf

Reach DP-14: Catch Basin Inflow=0.34 cfs 1,226 cf
Outflow=0.34 cfs 1,226 cf

Reach DP-15: DP-15 Inflow=2.51 cfs 8,363 cf
Outflow=2.51 cfs 8,363 cf

Pond DP13: DP-13 Peak Elev=604.26' Inflow=0.60 cfs 2,002 cf
24.0" Round Culvert n=0.013 L=79.0' S=0.1128 '/' Outflow=0.60 cfs 2,002 cf

Total Runoff Area = 62,379 sf Runoff Volume = 14,418 cf Average Runoff Depth = 2.77"
22.11% Pervious = 13,795 sf 77.89% Impervious = 48,584 sf

Summary for Pond 1P: Pavers_DA-14A

Inflow Area = 2,870 sf,100.00% Impervious, Inflow Depth = 3.27" for 2 Year, 24 Hr. Event event
Inflow = 0.23 cfs @ 12.07 hrs, Volume= 781 cf
Outflow = 0.01 cfs @ 11.14 hrs, Volume= 781 cf, Atten= 96%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.14 hrs, Volume= 781 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 640.64' @ 14.58 hrs Surf.Area= 0 sf Storage= 369 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 308.2 min (1,061.8 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1	640.00'	2,000 cf	**Custom Stage Data** Listed below

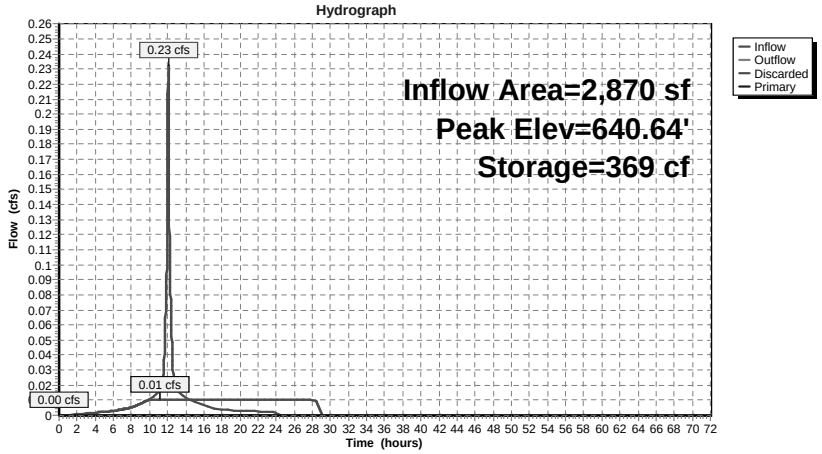
Elevation (feet)	Cum.Store (cubic-feet)
640.00	0
642.00	1,159
642.50	2,000

Device	Routing	Invert	Outlet Devices
#1	Primary	642.00'	**30.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	640.00'	**0.01 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.01 cfs @ 11.14 hrs HW=640.03' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=640.00' TW=0.00' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Pavers_DA-14A



Hydrograph for Pond 1P: Pavers_DA-14A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	640.00	0.00	0.00	**0.00**
2.00	0.00	0	640.00	0.00	0.00	0.00
4.00	0.00	0	640.00	0.00	0.00	0.00
6.00	0.00	0	640.00	0.00	0.00	0.00
8.00	0.01	0	640.00	0.01	0.01	0.00
10.00	0.01	0	640.00	**0.01**	**0.01**	0.00
12.00	**0.16**	129	640.22	**0.01**	**0.01**	0.00
14.00	**0.01**	**368**	**640.63**	0.01	0.01	0.00
16.00	0.01	**360**	**640.62**	0.01	0.01	0.00
18.00	0.00	324	640.56	0.01	0.01	0.00
20.00	0.00	276	640.48	0.01	0.01	0.00
22.00	0.00	224	640.39	0.01	0.01	0.00
24.00	0.00	168	640.29	0.01	0.01	0.00
26.00	0.00	97	640.17	0.01	0.01	0.00
28.00	0.00	25	640.04	0.01	0.01	0.00
30.00	0.00	0	640.00	0.00	0.00	0.00
32.00	0.00	0	640.00	0.00	0.00	0.00
34.00	0.00	0	640.00	0.00	0.00	0.00
36.00	0.00	0	640.00	0.00	0.00	0.00
38.00	0.00	0	640.00	0.00	0.00	0.00
40.00	0.00	0	640.00	0.00	0.00	0.00
42.00	0.00	0	640.00	0.00	0.00	0.00
44.00	0.00	0	640.00	0.00	0.00	0.00
46.00	0.00	0	640.00	0.00	0.00	0.00
48.00	0.00	0	640.00	0.00	0.00	0.00
50.00	0.00	0	640.00	0.00	0.00	0.00
52.00	0.00	0	640.00	0.00	0.00	0.00
54.00	0.00	0	640.00	0.00	0.00	0.00
56.00	0.00	0	640.00	0.00	0.00	0.00
58.00	0.00	0	640.00	0.00	0.00	0.00
60.00	0.00	0	640.00	0.00	0.00	0.00
62.00	0.00	0	640.00	0.00	0.00	0.00
64.00	0.00	0	640.00	0.00	0.00	0.00
66.00	0.00	0	640.00	0.00	0.00	0.00
68.00	0.00	0	640.00	0.00	0.00	0.00
70.00	0.00	0	640.00	0.00	0.00	0.00
72.00	0.00	0	640.00	0.00	0.00	0.00

Summary for Pond 3P: DA-13C Parking Pavers

Inflow Area = 1,400 sf,100.00% Impervious, Inflow Depth = 3.27" for 2 Year, 24 Hr. Event event
Inflow = 0.11 cfs @ 12.07 hrs, Volume= 381 cf
Outflow = 0.01 cfs @ 11.32 hrs, Volume= 381 cf, Atten= 95%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.32 hrs, Volume= 381 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 630.83' @ 13.98 hrs Surf.Area= 1,000 sf Storage= 167 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 233.1 min (986.8 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1	630.00'	1,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

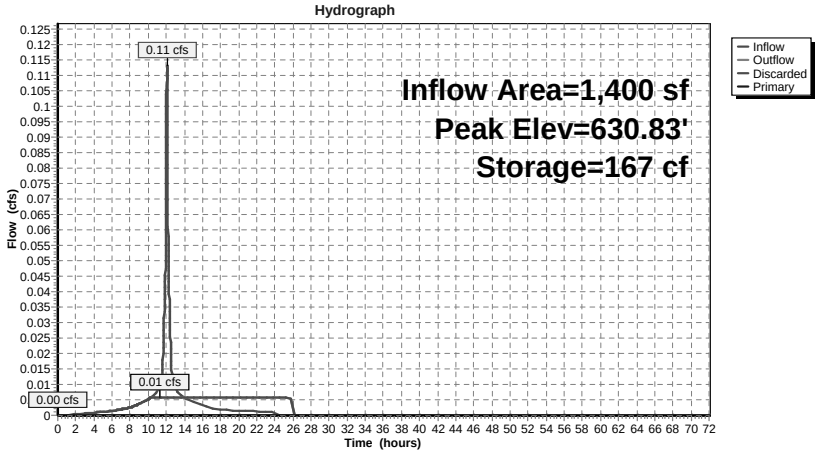
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
630.00	1,000	0.0	0	0
632.00	1,000	20.0	400	400
633.00	1,400	100.0	1,200	1,600

Device	Routing	Invert	Outlet Devices
#1	Primary	632.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	630.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 11.32 hrs HW=630.03' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=630.00' TW=603.91' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: DA-13C Parking Pavers



Hydrograph for Pond 3P: DA-13C Parking Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	630.00	0.00	0.00	**0.00**
2.00	0.00	0	630.00	0.00	0.00	0.00
4.00	0.00	0	630.00	0.00	0.00	0.00
6.00	0.00	0	630.00	0.00	0.00	0.00
8.00	0.00	0	630.00	0.00	0.00	0.00
10.00	0.01	0	630.00	**0.01**	**0.01**	0.00
12.00	**0.08**	**57**	**630.28**	**0.01**	**0.01**	0.00
14.00	**0.01**	**167**	**630.83**	0.01	0.01	0.00
16.00	0.00	156	630.78	0.01	0.01	0.00
18.00	0.00	132	630.66	0.01	0.01	0.00
20.00	0.00	102	630.51	0.01	0.01	0.00
22.00	0.00	70	630.35	0.01	0.01	0.00
24.00	0.00	36	630.18	0.01	0.01	0.00
26.00	0.00	0	630.00	0.00	0.00	0.00
28.00	0.00	0	630.00	0.00	0.00	0.00
30.00	0.00	0	630.00	0.00	0.00	0.00
32.00	0.00	0	630.00	0.00	0.00	0.00
34.00	0.00	0	630.00	0.00	0.00	0.00
36.00	0.00	0	630.00	0.00	0.00	0.00
38.00	0.00	0	630.00	0.00	0.00	0.00
40.00	0.00	0	630.00	0.00	0.00	0.00
42.00	0.00	0	630.00	0.00	0.00	0.00
44.00	0.00	0	630.00	0.00	0.00	0.00
46.00	0.00	0	630.00	0.00	0.00	0.00
48.00	0.00	0	630.00	0.00	0.00	0.00
50.00	0.00	0	630.00	0.00	0.00	0.00
52.00	0.00	0	630.00	0.00	0.00	0.00
54.00	0.00	0	630.00	0.00	0.00	0.00
56.00	0.00	0	630.00	0.00	0.00	0.00
58.00	0.00	0	630.00	0.00	0.00	0.00
60.00	0.00	0	630.00	0.00	0.00	0.00
62.00	0.00	0	630.00	0.00	0.00	0.00
64.00	0.00	0	630.00	0.00	0.00	0.00
66.00	0.00	0	630.00	0.00	0.00	0.00
68.00	0.00	0	630.00	0.00	0.00	0.00
70.00	0.00	0	630.00	0.00	0.00	0.00
72.00	0.00	0	630.00	0.00	0.00	0.00

Summary for Pond 13P: DA-13B Sidewalk Pavers

[58] Hint: Peaked 14.34' above defined flood level

Inflow Area = 2,394 sf,100.00% Impervious, Inflow Depth = 3.27" for 2 Year, 24 Hr. Event event
Inflow = 0.19 cfs @ 12.07 hrs, Volume= 652 cf
Outflow = 0.01 cfs @ 11.35 hrs, Volume= 652 cf, Atten= 95%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.35 hrs, Volume= 652 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 620.34' @ 13.96 hrs Surf.Area= 2,394 sf Storage= 284 cf
Flood Elev= 606.00' Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 229.1 min (982.7 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1	619.75'	1,556 cf	**Custom Stage Data (Prismatic)** Listed below

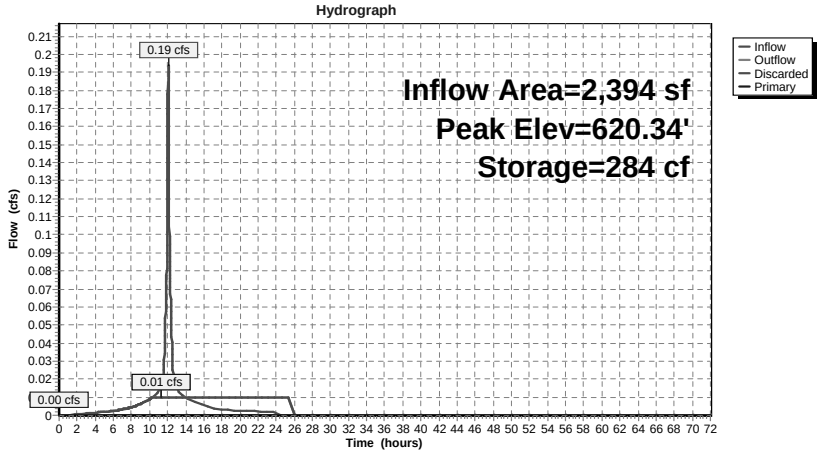
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
619.75	2,394	0.0	0	0
621.75	2,394	20.0	958	958
622.00	2,394	100.0	599	1,556

Device	Routing	Invert	Outlet Devices
#1	Primary	621.75'	**100.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Discarded	619.75'	**0.01 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.01 cfs @ 11.35 hrs HW=619.77' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=619.75' TW=603.91' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13P: DA-13B Sidewalk Pavers



Hydrograph for Pond 13P: DA-13B Sidewalk Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	619.75	0.00	0.00	**0.00**
2.00	0.00	0	619.75	0.00	0.00	0.00
4.00	0.00	0	619.75	0.00	0.00	0.00
6.00	0.00	0	619.75	0.00	0.00	0.00
8.00	0.00	0	619.75	0.00	0.00	0.00
10.00	0.01	0	619.75	**0.01**	**0.01**	0.00
12.00	**0.13**	**96**	**619.95**	**0.01**	**0.01**	0.00
14.00	**0.01**	**284**	**620.34**	0.01	0.01	0.00
16.00	0.01	265	620.30	0.01	0.01	0.00
18.00	0.00	223	620.22	0.01	0.01	0.00
20.00	0.00	171	620.11	0.01	0.01	0.00
22.00	0.00	116	619.99	0.01	0.01	0.00
24.00	0.00	57	619.87	0.01	0.01	0.00
26.00	0.00	0	619.75	0.00	0.00	0.00
28.00	0.00	0	619.75	0.00	0.00	0.00
30.00	0.00	0	619.75	0.00	0.00	0.00
32.00	0.00	0	619.75	0.00	0.00	0.00
34.00	0.00	0	619.75	0.00	0.00	0.00
36.00	0.00	0	619.75	0.00	0.00	0.00
38.00	0.00	0	619.75	0.00	0.00	0.00
40.00	0.00	0	619.75	0.00	0.00	0.00
42.00	0.00	0	619.75	0.00	0.00	0.00
44.00	0.00	0	619.75	0.00	0.00	0.00
46.00	0.00	0	619.75	0.00	0.00	0.00
48.00	0.00	0	619.75	0.00	0.00	0.00
50.00	0.00	0	619.75	0.00	0.00	0.00
52.00	0.00	0	619.75	0.00	0.00	0.00
54.00	0.00	0	619.75	0.00	0.00	0.00
56.00	0.00	0	619.75	0.00	0.00	0.00
58.00	0.00	0	619.75	0.00	0.00	0.00
60.00	0.00	0	619.75	0.00	0.00	0.00
62.00	0.00	0	619.75	0.00	0.00	0.00
64.00	0.00	0	619.75	0.00	0.00	0.00
66.00	0.00	0	619.75	0.00	0.00	0.00
68.00	0.00	0	619.75	0.00	0.00	0.00
70.00	0.00	0	619.75	0.00	0.00	0.00
72.00	0.00	0	619.75	0.00	0.00	0.00

Summary for Pond 15P: DA-15 Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 2,794 sf,100.00% Impervious, Inflow Depth = 3.27" for 2 Year, 24 Hr. Event event
Inflow = 0.23 cfs @ 12.07 hrs, Volume= 761 cf
Outflow = 0.13 cfs @ 12.07 hrs, Volume= 762 cf, Atten= 43%, Lag= 0.0 min
Discarded = 0.13 cfs @ 12.07 hrs, Volume= 762 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 0.01' @ 12.17 hrs Surf.Area= 0 sf Storage= 38 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.8 min (754.4 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	12,000 cf	**Custom Stage Data** Listed below

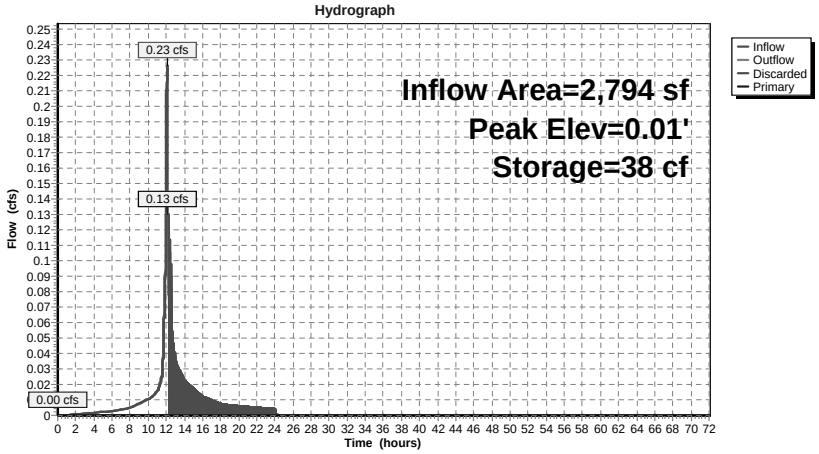
Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
2.00	7,917
3.00	12,000

Device	Routing	Invert	Outlet Devices
#1	Primary	2.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	0.00'	**0.13 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.13 cfs @ 12.07 hrs HW=0.00' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 15P: DA-15 Pavers



Hydrograph for Pond 15P: DA-15 Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	0.00	0.00	0.00	**0.00**
2.00	0.00	0	0.00	0.00	0.00	0.00
4.00	0.00	0	0.00	0.00	0.00	0.00
6.00	0.00	0	0.00	0.00	0.00	0.00
8.00	0.01	0	0.00	0.01	0.01	0.00
10.00	0.01	0	0.00	0.01	0.01	0.00
12.00	**0.15**	**1**	**0.00**	**0.13**	**0.13**	0.00
14.00	**0.01**	**0**	**0.00**	**0.00**	**0.00**	0.00
16.00	0.01	0	0.00	0.00	0.00	0.00
18.00	0.00	0	0.00	0.00	0.00	0.00
20.00	0.00	0	0.00	0.00	0.00	0.00
22.00	0.00	0	0.00	0.00	0.00	0.00
24.00	0.00	0	0.00	0.00	0.00	0.00
26.00	0.00	0	0.00	0.00	0.00	0.00
28.00	0.00	0	0.00	0.00	0.00	0.00
30.00	0.00	0	0.00	0.00	0.00	0.00
32.00	0.00	0	0.00	0.00	0.00	0.00
34.00	0.00	0	0.00	0.00	0.00	0.00
36.00	0.00	0	0.00	0.00	0.00	0.00
38.00	0.00	0	0.00	0.00	0.00	0.00
40.00	0.00	0	0.00	0.00	0.00	0.00
42.00	0.00	0	0.00	0.00	0.00	0.00
44.00	0.00	0	0.00	0.00	0.00	0.00
46.00	0.00	0	0.00	0.00	0.00	0.00
48.00	0.00	0	0.00	0.00	0.00	0.00
50.00	0.00	0	0.00	0.00	0.00	0.00
52.00	0.00	0	0.00	0.00	0.00	0.00
54.00	0.00	0	0.00	0.00	0.00	0.00
56.00	0.00	0	0.00	0.00	0.00	0.00
58.00	0.00	0	0.00	0.00	0.00	0.00
60.00	0.00	0	0.00	0.00	0.00	0.00
62.00	0.00	0	0.00	0.00	0.00	0.00
64.00	0.00	0	0.00	0.00	0.00	0.00
66.00	0.00	0	0.00	0.00	0.00	0.00
68.00	0.00	0	0.00	0.00	0.00	0.00
70.00	0.00	0	0.00	0.00	0.00	0.00
72.00	0.00	0	0.00	0.00	0.00	0.00

Summary for Pond B-14B: Bioretention-14B

Inflow Area = 2,047 sf, 48.12% Impervious, Inflow Depth = 1.87" for 2 Year, 24 Hr. Event event
Inflow = 0.09 cfs @ 12.07 hrs, Volume= 319 cf
Outflow = 0.01 cfs @ 12.66 hrs, Volume= 265 cf, Atten= 87%, Lag= 35.3 min
Discarded = 0.00 cfs @ 11.86 hrs, Volume= 199 cf
Primary = 0.01 cfs @ 12.66 hrs, Volume= 66 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 502.50' @ 12.66 hrs Surf.Area= 221 sf Storage= 189 cf

Plug-Flow detention time= 967.2 min calculated for 265 cf (83% of inflow)
Center-of-Mass det. time= 893.7 min (1,671.1 - 777.4)

Volume	Invert	Avail.Storage	Storage Description
#1	497.75'	299 cf	**Custom Stage Data (Prismatic)** Listed below

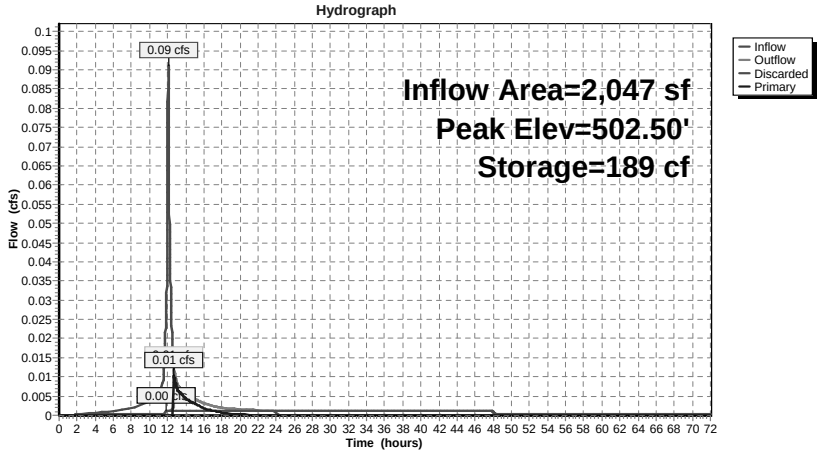
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
497.75	45	0.0	0	0
501.75	45	40.0	72	72
501.99	45	40.0	4	76
502.00	221	100.0	1	78
502.50	221	100.0	111	188
503.00	221	100.0	111	299

Device	Routing	Invert	Outlet Devices
#1	Discarded	497.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	502.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 242.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.86 hrs HW=502.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.01 cfs @ 12.66 hrs HW=502.50' TW=0.00' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.01 cfs @ 0.14 fps)

Pond B-14B: Bioretention-14B



Hydrograph for Pond B-14B: Bioretention-14B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	497.75	0.00	0.00	0.00
2.00	0.00	0	497.75	0.00	0.00	0.00
4.00	0.00	1	497.80	0.00	0.00	0.00
6.00	0.00	5	498.01	0.00	0.00	0.00
8.00	0.00	12	498.44	0.00	0.00	0.00
10.00	0.00	30	499.40	0.00	**0.00**	0.00
12.00	**0.06**	**97**	**502.09**	**0.00**	**0.00**	**0.00**
14.00	**0.01**	**188**	**502.50**	**0.01**	0.00	**0.00**
16.00	0.00	188	502.50	0.00	0.00	0.00
18.00	0.00	188	502.50	0.00	0.00	0.00
20.00	0.00	188	502.50	0.00	0.00	0.00
22.00	0.00	188	502.50	0.00	0.00	0.00
24.00	0.00	187	502.50	0.00	0.00	0.00
26.00	0.00	178	502.46	0.00	0.00	0.00
28.00	0.00	169	502.41	0.00	0.00	0.00
30.00	0.00	160	502.37	0.00	0.00	0.00
32.00	0.00	151	502.33	0.00	0.00	0.00
34.00	0.00	141	502.29	0.00	0.00	0.00
36.00	0.00	132	502.25	0.00	0.00	0.00
38.00	0.00	123	502.21	0.00	0.00	0.00
40.00	0.00	114	502.16	0.00	0.00	0.00
42.00	0.00	105	502.12	0.00	0.00	0.00
44.00	0.00	95	502.08	0.00	0.00	0.00
46.00	0.00	86	502.04	0.00	0.00	0.00
48.00	0.00	77	502.00	0.00	0.00	0.00
50.00	0.00	75	501.91	0.00	0.00	0.00
52.00	0.00	73	501.80	0.00	0.00	0.00
54.00	0.00	71	501.70	0.00	0.00	0.00
56.00	0.00	69	501.60	0.00	0.00	0.00
58.00	0.00	67	501.49	0.00	0.00	0.00
60.00	0.00	65	501.39	0.00	0.00	0.00
62.00	0.00	64	501.28	0.00	0.00	0.00
64.00	0.00	62	501.18	0.00	0.00	0.00
66.00	0.00	60	501.07	0.00	0.00	0.00
68.00	0.00	58	500.97	0.00	0.00	0.00
70.00	0.00	56	500.87	0.00	0.00	0.00
72.00	0.00	54	500.76	0.00	0.00	0.00

Summary for Subcatchment DA-13A: Post_DA-13A

Runoff = 0.60 cfs @ 12.07 hrs, Volume= 2,002 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

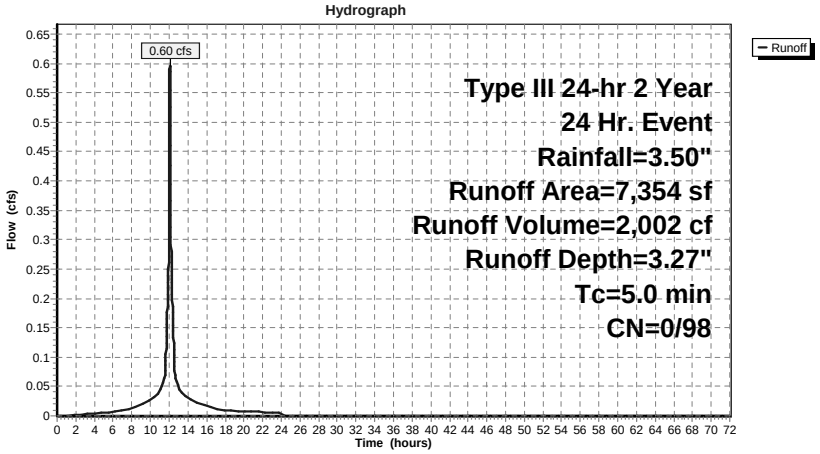
Area (sf)	CN	Description	Land Use
7,354	98	Paved parking, HSG C	Pavement
7,354	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,354	Pavement	287.35	0.93	3.49	11.13
7,354	Total	287.35	0.93	3.49	11.13

Subcatchment DA-13A: Post_DA-13A



Hydrograph for Subcatchment DA-13A: Post_DA-13A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.01
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.03
12.00	1.75	0.00	1.53	**0.40**
14.00	2.84	0.00	2.61	**0.03**
16.00	3.10	0.00	2.87	0.02
18.00	3.25	0.00	3.02	0.01
20.00	3.35	0.00	3.12	0.01
22.00	3.43	0.00	3.20	0.01
24.00	**3.50**	0.00	**3.27**	0.01
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00

Summary for Subcatchment DA-13B: Post_DA-13B

Runoff = 0.19 cfs @ 12.07 hrs, Volume= 652 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

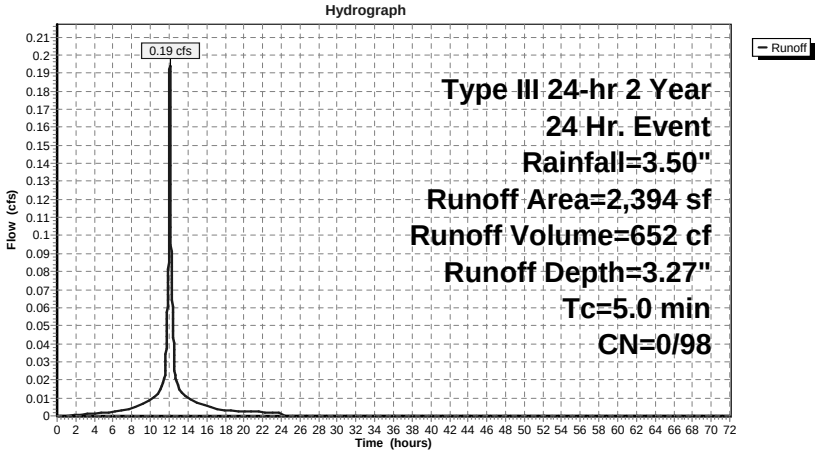
	Area (sf)	CN	Description	Land Use
*	2,394	98	Pavers, HSG C	Pavement
	2,394	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,394	Pavement	93.54	0.30	1.14	3.62
2,394	Total	93.54	0.30	1.14	3.62

Subcatchment DA-13B: Post_DA-13B



Hydrograph for Subcatchment DA-13B: Post_DA-13B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.00	1.53	**0.13**
14.00	2.84	0.00	2.61	**0.01**
16.00	3.10	0.00	2.87	0.01
18.00	3.25	0.00	3.02	0.00
20.00	3.35	0.00	3.12	0.00
22.00	3.43	0.00	3.20	0.00
24.00	**3.50**	0.00	**3.27**	0.00
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00

Summary for Subcatchment DA-13C: Post_DA-13C

Runoff = 0.11 cfs @ 12.07 hrs, Volume= 381 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

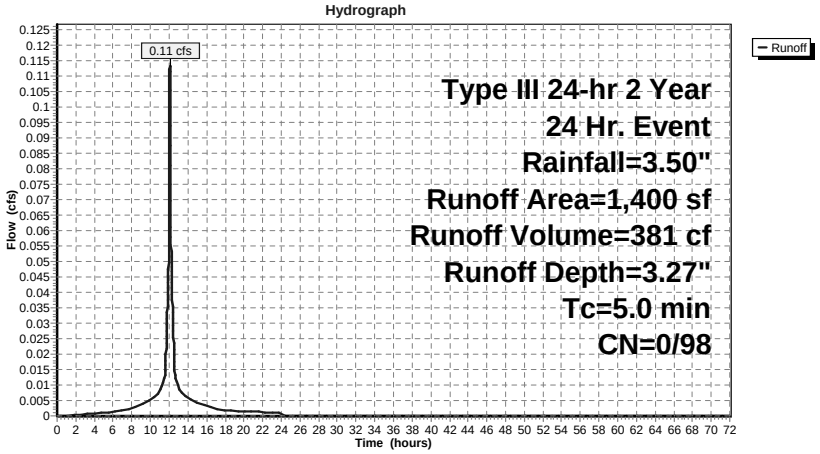
	Area (sf)	CN	Description	Land Use
*	1,400	98	Pavers	Pavement
	1,400	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,400	Pavement	54.70	0.18	0.66	2.12
1,400	Total	54.70	0.18	0.66	2.12

Subcatchment DA-13C: Post_DA-13C



Hydrograph for Subcatchment DA-13C: Post_DA-13C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.00	1.53	**0.08**
14.00	2.84	0.00	2.61	**0.01**
16.00	3.10	0.00	2.87	0.00
18.00	3.25	0.00	3.02	0.00
20.00	3.35	0.00	3.12	0.00
22.00	3.43	0.00	3.20	0.00
24.00	**3.50**	0.00	**3.27**	0.00
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00

Summary for Subcatchment DA-14A: Post_DA-14A

Runoff = 0.23 cfs @ 12.07 hrs, Volume= 781 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

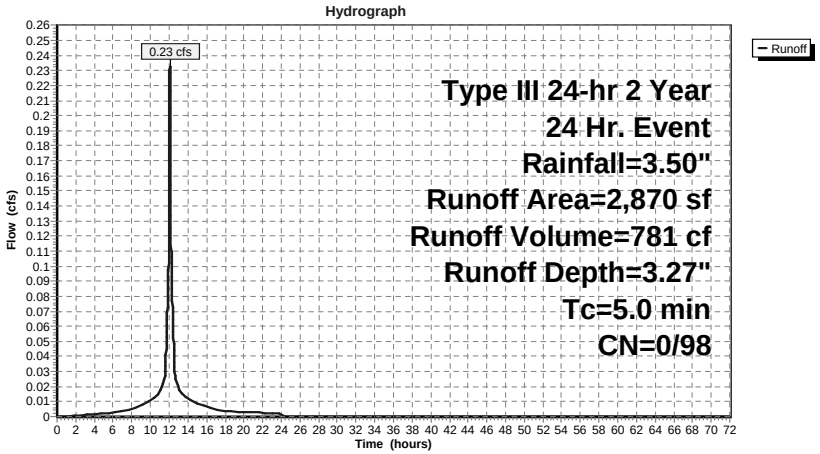
	Area (sf)	CN	Description	Land Use
	2,034	98	Paved parking, HSG B	Pavement
*	836	98	Pavers	Pavement
	2,870	98	Weighted Average	
	2,870	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,870	Pavement	112.14	0.36	1.36	4.34
2,870	Total	112.14	0.36	1.36	4.34

Subcatchment DA-14A: Post_DA-14A



Hydrograph for Subcatchment DA-14A: Post_DA-14A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.00	1.53	**0.16**
14.00	2.84	0.00	2.61	**0.01**
16.00	3.10	0.00	2.87	0.01
18.00	3.25	0.00	3.02	0.00
20.00	3.35	0.00	3.12	0.00
22.00	3.43	0.00	3.20	0.00
24.00	**3.50**	0.00	**3.27**	0.00
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00

Summary for Subcatchment DA-14B1: Post_DA-14B1

Runoff = 0.34 cfs @ 12.07 hrs, Volume= 1,160 cf, Depth= 2.00"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

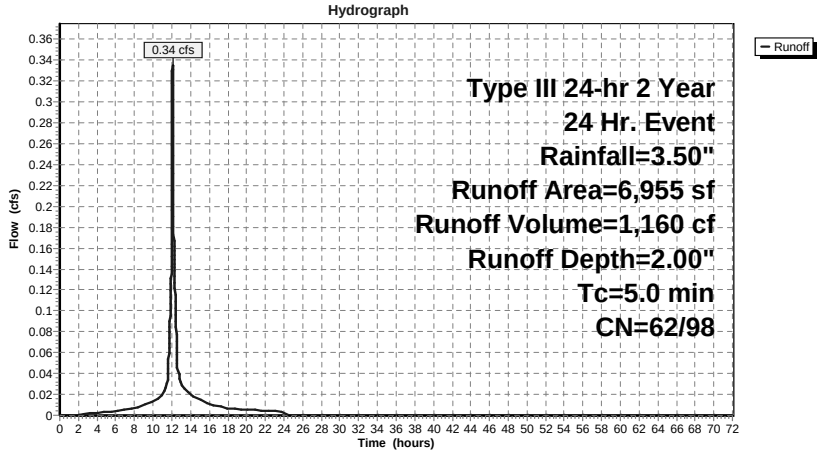
Area (sf)	CN	Description	Land Use
293	98	Paved parking, HSG C	Pavement
3,343	98	Roofs, HSG C	Roofs
3,161	61	>75% Grass cover, Good, HSG B	Open Space
158	74	>75% Grass cover, Good, HSG C	Open Space
6,955	81	Weighted Average	
3,319	62	47.72% Pervious Area	
3,636	98	52.28% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 52.28% Impervious, Rv= 0.521, Runoff= 23.79"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,319	Open Space	247.26	0.86	3.74	0.51
293	Pavement	6.27	0.02	0.08	0.24
3,343	Roofs	7.86	0.05	0.62	3.06
6,955	Total	261.39	0.93	4.43	3.81

Subcatchment DA-14B1: Post_DA-14B1



Hydrograph for Subcatchment DA-14B1: Post_DA-14B1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.04	1.53	**0.22**
14.00	2.84	0.34	2.61	**0.02**
16.00	3.10	0.44	2.87	0.01
18.00	3.25	0.50	3.02	0.01
20.00	3.35	0.55	3.12	0.01
22.00	3.43	0.58	3.20	0.00
24.00	**3.50**	**0.62**	**3.27**	0.00
26.00	3.50	0.62	3.27	0.00
28.00	3.50	0.62	3.27	0.00
30.00	3.50	0.62	3.27	0.00
32.00	3.50	0.62	3.27	0.00
34.00	3.50	0.62	3.27	0.00
36.00	3.50	0.62	3.27	0.00
38.00	3.50	0.62	3.27	0.00
40.00	3.50	0.62	3.27	0.00
42.00	3.50	0.62	3.27	0.00
44.00	3.50	0.62	3.27	0.00
46.00	3.50	0.62	3.27	0.00
48.00	3.50	0.62	3.27	0.00
50.00	3.50	0.62	3.27	0.00
52.00	3.50	0.62	3.27	0.00
54.00	3.50	0.62	3.27	0.00
56.00	3.50	0.62	3.27	0.00
58.00	3.50	0.62	3.27	0.00
60.00	3.50	0.62	3.27	0.00
62.00	3.50	0.62	3.27	0.00
64.00	3.50	0.62	3.27	0.00
66.00	3.50	0.62	3.27	0.00
68.00	3.50	0.62	3.27	0.00
70.00	3.50	0.62	3.27	0.00
72.00	3.50	0.62	3.27	0.00

Summary for Subcatchment DA-14B2: Post_DA-14B2

Runoff = 0.09 cfs @ 12.07 hrs, Volume= 319 cf, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

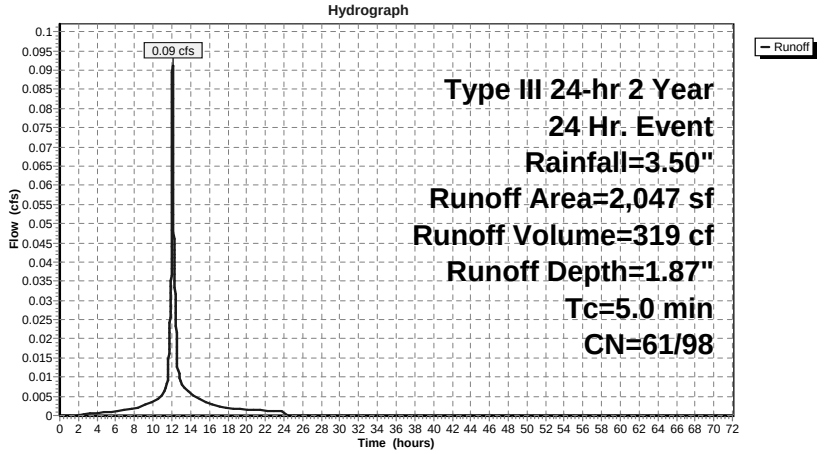
	Area (sf)	CN	Description	Land Use
	985	98	Paved parking, HSG C	Pavement
*	1,062	61	Bioretention - HSG B	Brush
	2,047	79	Weighted Average	
	1,062	61	51.88% Pervious Area	
	985	98	48.12% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 48.12% Impervious, Rv= 0.483, Runoff= 22.08"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,062	Brush	4.51	0.00	0.00	0.15
985	Pavement	19.57	0.06	0.24	0.76
2,047	Total	24.08	0.06	0.24	0.91

Subcatchment DA-14B2: Post_DA-14B2



Hydrograph for Subcatchment DA-14B2: Post_DA-14B2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.00
10.00	0.66	0.00	0.47	0.00
12.00	1.75	0.03	1.53	**0.06**
14.00	2.84	0.31	2.61	**0.01**
16.00	3.10	0.40	2.87	0.00
18.00	3.25	0.46	3.02	0.00
20.00	3.35	0.51	3.12	0.00
22.00	3.43	0.54	3.20	0.00
24.00	**3.50**	**0.57**	**3.27**	0.00
26.00	3.50	0.57	3.27	0.00
28.00	3.50	0.57	3.27	0.00
30.00	3.50	0.57	3.27	0.00
32.00	3.50	0.57	3.27	0.00
34.00	3.50	0.57	3.27	0.00
36.00	3.50	0.57	3.27	0.00
38.00	3.50	0.57	3.27	0.00
40.00	3.50	0.57	3.27	0.00
42.00	3.50	0.57	3.27	0.00
44.00	3.50	0.57	3.27	0.00
46.00	3.50	0.57	3.27	0.00
48.00	3.50	0.57	3.27	0.00
50.00	3.50	0.57	3.27	0.00
52.00	3.50	0.57	3.27	0.00
54.00	3.50	0.57	3.27	0.00
56.00	3.50	0.57	3.27	0.00
58.00	3.50	0.57	3.27	0.00
60.00	3.50	0.57	3.27	0.00
62.00	3.50	0.57	3.27	0.00
64.00	3.50	0.57	3.27	0.00
66.00	3.50	0.57	3.27	0.00
68.00	3.50	0.57	3.27	0.00
70.00	3.50	0.57	3.27	0.00
72.00	3.50	0.57	3.27	0.00

Summary for Subcatchment DA-15A: Post_DA-15A

Runoff = 2.51 cfs @ 12.07 hrs, Volume= 8,363 cf, Depth= 2.74"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

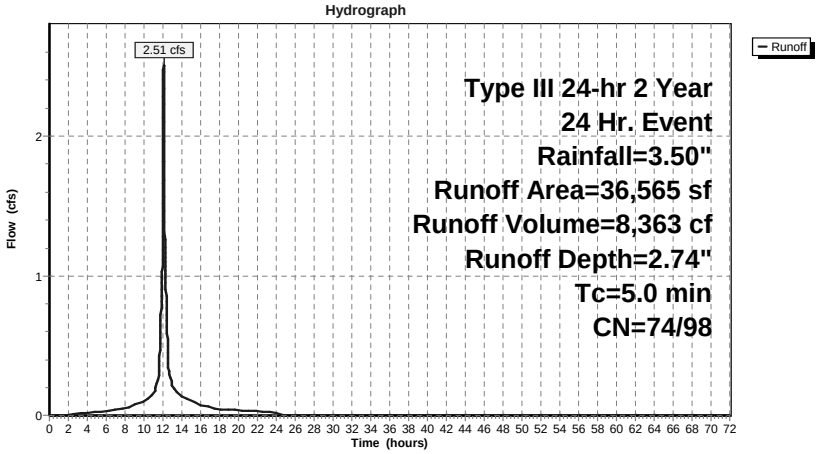
	Area (sf)	CN	Description	Land Use
*	21,025	98	Impervious	Pavement
	9,414	74	>75% Grass cover, Good, HSG C	Open Space
	6,126	98	Roofs, HSG C	Roofs
	36,565	92	Weighted Average	
	9,414	74	25.75% Pervious Area	
	27,151	98	74.25% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.25% Impervious, Rv= 0.718, Runoff= 32.83"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,414	Open Space	967.79	3.38	14.63	1.98
21,025	Pavement	621.15	2.01	7.54	24.06
6,126	Roofs	19.88	0.12	1.57	7.74
36,565	Total	1,608.82	5.50	23.74	33.77

Subcatchment DA-15A: Post_DA-15A



Hydrograph for Subcatchment DA-15A: Post_DA-15A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.02
6.00	0.25	0.00	0.11	0.03
8.00	0.40	0.00	0.23	0.05
10.00	0.66	0.00	0.47	0.10
12.00	1.75	0.24	1.53	**1.66**
14.00	2.84	0.81	2.61	**0.14**
16.00	3.10	0.97	2.87	0.07
18.00	3.25	1.07	3.02	0.04
20.00	3.35	1.14	3.12	0.04
22.00	3.43	1.19	3.20	0.03
24.00	**3.50**	**1.24**	**3.27**	0.02
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00

Summary for Subcatchment DA-15B: Post_DA-15B

Runoff = 0.23 cfs @ 12.07 hrs, Volume= 761 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

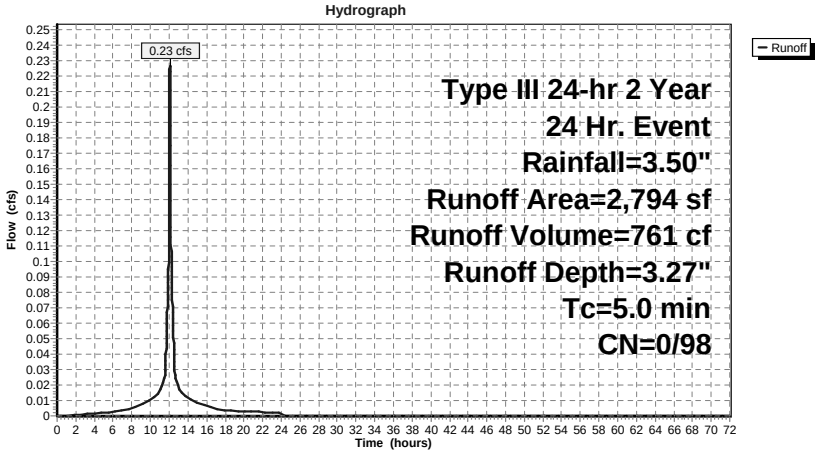
	Area (sf)	CN	Description	Land Use
*	2,794	98	Pavers	Pavement
	2,794	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,794	Pavement	109.17	0.35	1.33	4.23
2,794	Total	109.17	0.35	1.33	4.23

Subcatchment DA-15B: Post_DA-15B



Hydrograph for Subcatchment DA-15B: Post_DA-15B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.04	0.00
6.00	0.25	0.00	0.11	0.00
8.00	0.40	0.00	0.23	0.01
10.00	0.66	0.00	0.47	0.01
12.00	1.75	0.00	1.53	**0.15**
14.00	2.84	0.00	2.61	**0.01**
16.00	3.10	0.00	2.87	0.01
18.00	3.25	0.00	3.02	0.00
20.00	3.35	0.00	3.12	0.00
22.00	3.43	0.00	3.20	0.00
24.00	**3.50**	0.00	**3.27**	0.00
26.00	3.50	0.00	3.27	0.00
28.00	3.50	0.00	3.27	0.00
30.00	3.50	0.00	3.27	0.00
32.00	3.50	0.00	3.27	0.00
34.00	3.50	0.00	3.27	0.00
36.00	3.50	0.00	3.27	0.00
38.00	3.50	0.00	3.27	0.00
40.00	3.50	0.00	3.27	0.00
42.00	3.50	0.00	3.27	0.00
44.00	3.50	0.00	3.27	0.00
46.00	3.50	0.00	3.27	0.00
48.00	3.50	0.00	3.27	0.00
50.00	3.50	0.00	3.27	0.00
52.00	3.50	0.00	3.27	0.00
54.00	3.50	0.00	3.27	0.00
56.00	3.50	0.00	3.27	0.00
58.00	3.50	0.00	3.27	0.00
60.00	3.50	0.00	3.27	0.00
62.00	3.50	0.00	3.27	0.00
64.00	3.50	0.00	3.27	0.00
66.00	3.50	0.00	3.27	0.00
68.00	3.50	0.00	3.27	0.00
70.00	3.50	0.00	3.27	0.00
72.00	3.50	0.00	3.27	0.00

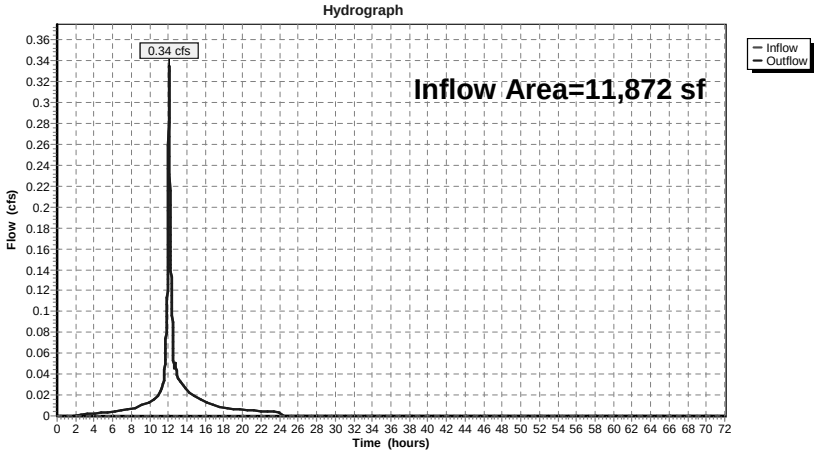
Summary for Reach DP-14: Catch Basin

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11,872 sf, 63.10% Impervious, Inflow Depth = 1.24" for 2 Year, 24 Hr. Event event
Inflow = 0.34 cfs @ 12.07 hrs, Volume= 1,226 cf
Outflow = 0.34 cfs @ 12.07 hrs, Volume= 1,226 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-14: Catch Basin



Hydrograph for Reach DP-14: Catch Basin

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.01		0.01	60.00	0.00		0.00
9.00	0.01		0.01	61.00	0.00		0.00
10.00	0.01		0.01	62.00	0.00		0.00
11.00	0.02		0.02	63.00	0.00		0.00
12.00	**0.22**		**0.22**	64.00	0.00		0.00
13.00	**0.04**		**0.04**	65.00	0.00		0.00
14.00	0.02		0.02	66.00	0.00		0.00
15.00	0.02		0.02	67.00	0.00		0.00
16.00	0.01		0.01	68.00	0.00		0.00
17.00	0.01		0.01	69.00	0.00		0.00
18.00	0.01		0.01	70.00	0.00		0.00
19.00	0.01		0.01	71.00	0.00		0.00
20.00	0.01		0.01	72.00	0.00		0.00
21.00	0.01		0.01				
22.00	0.00		0.00				
23.00	0.00		0.00				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

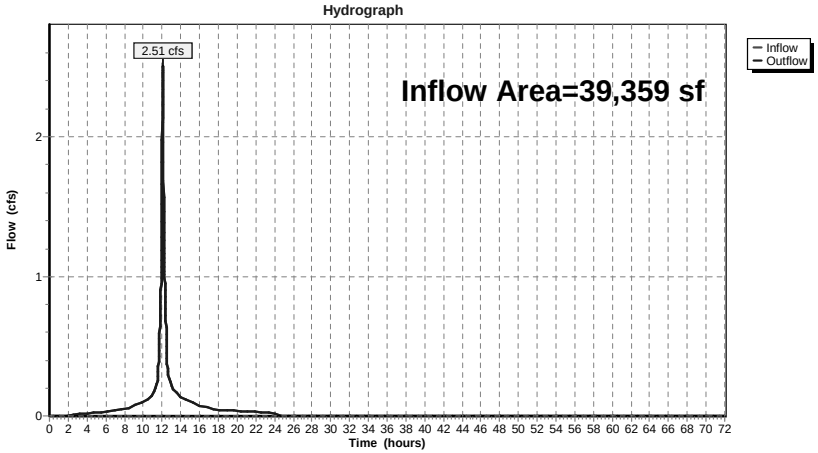
Summary for Reach DP-15: DP-15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 39,359 sf, 76.08% Impervious, Inflow Depth = 2.55" for 2 Year, 24 Hr. Event event
Inflow = 2.51 cfs @ 12.07 hrs, Volume= 8,363 cf
Outflow = 2.51 cfs @ 12.07 hrs, Volume= 8,363 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-15: DP-15



Hydrograph for Reach DP-15: DP-15

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.02		0.02	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.03		0.03	58.00	0.00		0.00
7.00	0.04		0.04	59.00	0.00		0.00
8.00	0.05		0.05	60.00	0.00		0.00
9.00	0.07		0.07	61.00	0.00		0.00
10.00	0.10		0.10	62.00	0.00		0.00
11.00	0.15		0.15	63.00	0.00		0.00
12.00	**1.66**		**1.66**	64.00	0.00		0.00
13.00	**0.21**		**0.21**	65.00	0.00		0.00
14.00	0.14		0.14	66.00	0.00		0.00
15.00	0.10		0.10	67.00	0.00		0.00
16.00	0.07		0.07	68.00	0.00		0.00
17.00	0.06		0.06	69.00	0.00		0.00
18.00	0.04		0.04	70.00	0.00		0.00
19.00	0.04		0.04	71.00	0.00		0.00
20.00	0.04		0.04	72.00	0.00		0.00
21.00	0.03		0.03				
22.00	0.03		0.03				
23.00	0.03		0.03				
24.00	0.02		0.02				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP13: DP-13

[57] Hint: Peaked at 604.26' (Flood elevation advised)

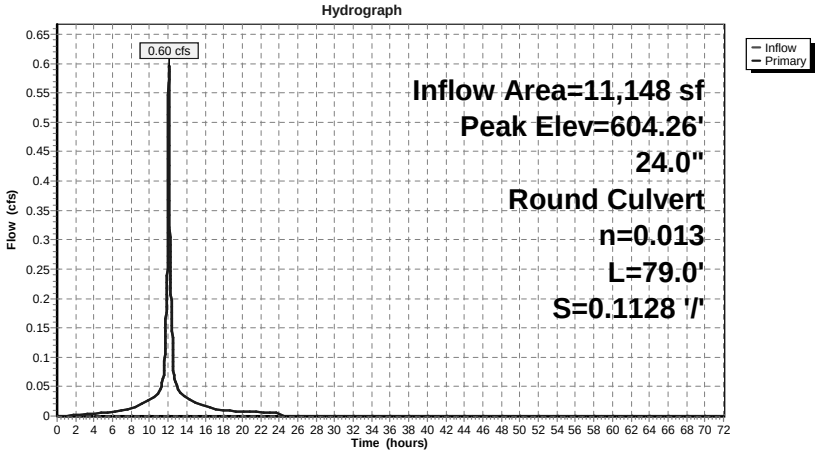
Inflow Area = 11,148 sf,100.00% Impervious, Inflow Depth = 2.15" for 2 Year, 24 Hr. Event event
Inflow = 0.60 cfs @ 12.07 hrs, Volume= 2,002 cf
Outflow = 0.60 cfs @ 12.07 hrs, Volume= 2,002 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.60 cfs @ 12.07 hrs, Volume= 2,002 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 604.26' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	603.91'	**24.0" Round Culvert** L= 79.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 603.91' / 595.00' S= 0.1128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.60 cfs @ 12.07 hrs HW=604.26' (Free Discharge)
1=Culvert (Inlet Controls 0.60 cfs @ 1.60 fps)

Pond DP13: DP-13



Hydrograph for Pond DP13: DP-13

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	603.91	0.00	52.00	0.00	603.91	0.00
1.00	0.00	603.91	0.00	53.00	0.00	603.91	0.00
2.00	0.00	603.93	0.00	54.00	0.00	603.91	0.00
3.00	0.00	603.93	0.00	55.00	0.00	603.91	0.00
4.00	0.00	603.94	0.00	56.00	0.00	603.91	0.00
5.00	0.01	603.94	0.01	57.00	0.00	603.91	0.00
6.00	0.01	603.95	0.01	58.00	0.00	603.91	0.00
7.00	0.01	603.95	0.01	59.00	0.00	603.91	0.00
8.00	0.01	603.96	0.01	60.00	0.00	603.91	0.00
9.00	0.02	603.97	0.02	61.00	0.00	603.91	0.00
10.00	0.03	603.98	0.03	62.00	0.00	603.91	0.00
11.00	0.04	604.00	0.04	63.00	0.00	603.91	0.00
12.00	**0.40**	**604.20**	**0.40**	64.00	0.00	603.91	0.00
13.00	**0.05**	**604.01**	**0.05**	65.00	0.00	603.91	0.00
14.00	0.03	603.99	0.03	66.00	0.00	603.91	0.00
15.00	0.02	603.98	0.02	67.00	0.00	603.91	0.00
16.00	0.02	603.97	0.02	68.00	0.00	603.91	0.00
17.00	0.01	603.96	0.01	69.00	0.00	603.91	0.00
18.00	0.01	603.95	0.01	70.00	0.00	603.91	0.00
19.00	0.01	603.95	0.01	71.00	0.00	603.91	0.00
20.00	0.01	603.95	0.01	72.00	0.00	603.91	0.00
21.00	0.01	603.95	0.01				
22.00	0.01	603.95	0.01				
23.00	0.01	603.94	0.01				
24.00	0.01	603.94	0.01				
25.00	0.00	603.91	0.00				
26.00	0.00	603.91	0.00				
27.00	0.00	603.91	0.00				
28.00	0.00	603.91	0.00				
29.00	0.00	603.91	0.00				
30.00	0.00	603.91	0.00				
31.00	0.00	603.91	0.00				
32.00	0.00	603.91	0.00				
33.00	0.00	603.91	0.00				
34.00	0.00	603.91	0.00				
35.00	0.00	603.91	0.00				
36.00	0.00	603.91	0.00				
37.00	0.00	603.91	0.00				
38.00	0.00	603.91	0.00				
39.00	0.00	603.91	0.00				
40.00	0.00	603.91	0.00				
41.00	0.00	603.91	0.00				
42.00	0.00	603.91	0.00				
43.00	0.00	603.91	0.00				
44.00	0.00	603.91	0.00				
45.00	0.00	603.91	0.00				
46.00	0.00	603.91	0.00				
47.00	0.00	603.91	0.00				
48.00	0.00	603.91	0.00				
49.00	0.00	603.91	0.00				
50.00	0.00	603.91	0.00				
51.00	0.00	603.91	0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 1P: Pavers_DA-14A Peak Elev=641.24' Storage=718 cf Inflow=0.37 cfs 1,259 cf
Discarded=0.01 cfs 1,259 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 1,259 cf

Pond 3P: DA-13C Parking Pavers Peak Elev=631.63' Storage=327 cf Inflow=0.18 cfs 614 cf
Discarded=0.01 cfs 614 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 614 cf

Pond 13P: DA-13B Sidewalk Pavers Peak Elev=620.91' Storage=556 cf Inflow=0.31 cfs 1,050 cf
Discarded=0.01 cfs 1,050 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 1,050 cf

Pond 15P: DA-15 Pavers Peak Elev=0.03' Storage=135 cf Inflow=0.36 cfs 1,225 cf
Discarded=0.13 cfs 1,227 cf Primary=0.00 cfs 0 cf Outflow=0.13 cfs 1,227 cf

Pond B-14B: Bioretention-14B Peak Elev=502.51' Storage=191 cf Inflow=0.17 cfs 581 cf
Discarded=0.00 cfs 204 cf Primary=0.17 cfs 322 cf Outflow=0.17 cfs 526 cf

Subcatchment DA-13A: Post_DA-13A Runoff Area=7,354 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=0.94 cfs 3,225 cf

Subcatchment DA-13B: Post_DA-13B Runoff Area=2,394 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=0.31 cfs 1,050 cf

Subcatchment DA-13C: Post_DA-13C Runoff Area=1,400 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=0.18 cfs 614 cf

Subcatchment DA-14A: Post_DA-14A Runoff Area=2,870 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=0.37 cfs 1,259 cf

Subcatchment DA-14B1: Post_DA-14B1 Runoff Area=6,955 sf 52.28% Impervious Runoff Depth=3.59"
Tc=5.0 min CN=62/98 Runoff=0.62 cfs 2,080 cf

Subcatchment DA-14B2: Post_DA-14B2 Runoff Area=2,047 sf 48.12% Impervious Runoff Depth=3.40"
Tc=5.0 min CN=61/98 Runoff=0.17 cfs 581 cf

Subcatchment DA-15A: Post_DA-15A Runoff Area=36,565 sf 74.25% Impervious Runoff Depth=4.62"
Tc=5.0 min CN=74/98 Runoff=4.20 cfs 14,079 cf

Subcatchment DA-15B: Post_DA-15B Runoff Area=2,794 sf 100.00% Impervious Runoff Depth=5.26"
Tc=5.0 min CN=0/98 Runoff=0.36 cfs 1,225 cf

Reach DP-14: Catch Basin Inflow=0.79 cfs 2,402 cf
Outflow=0.79 cfs 2,402 cf

Reach DP-15: DP-15 Inflow=4.20 cfs 14,079 cf
Outflow=4.20 cfs 14,079 cf

Pond DP13: DP-13 Peak Elev=604.36' Inflow=0.94 cfs 3,225 cf
24.0" Round Culvert n=0.013 L=79.0' S=0.1128 '/' Outflow=0.94 cfs 3,225 cf

Total Runoff Area = 62,379 sf Runoff Volume = 24,113 cf Average Runoff Depth = 4.64"
22.11% Pervious = 13,795 sf 77.89% Impervious = 48,584 sf

Summary for Pond 1P: Pavers_DA-14A

Inflow Area = 2,870 sf,100.00% Impervious, Inflow Depth = 5.26" for 10 Year, 24 Hr. Event event
Inflow = 0.37 cfs @ 12.07 hrs, Volume= 1,259 cf
Outflow = 0.01 cfs @ 9.73 hrs, Volume= 1,259 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.73 hrs, Volume= 1,259 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 641.24' @ 15.95 hrs Surf.Area= 0 sf Storage= 718 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 610.5 min (1,356.0 - 745.5)

Volume	Invert	Avail.Storage	Storage Description
#1	640.00'	2,000 cf	**Custom Stage Data** Listed below

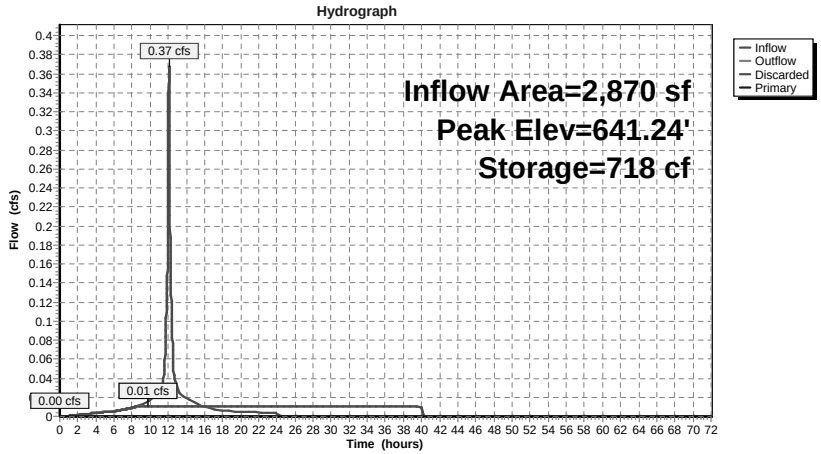
Elevation (feet)	Cum.Store (cubic-feet)
640.00	0
642.00	1,159
642.50	2,000

Device	Routing	Invert	Outlet Devices
#1	Primary	642.00'	**30.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	640.00'	**0.01 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.01 cfs @ 9.73 hrs HW=640.03' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=640.00' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Pavers_DA-14A



Hydrograph for Pond 1P: Pavers_DA-14A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	640.00	0.00	0.00	**0.00**
2.00	0.00	0	640.00	0.00	0.00	0.00
4.00	0.00	0	640.00	0.00	0.00	0.00
6.00	0.01	0	640.00	0.01	0.01	0.00
8.00	0.01	0	640.00	**0.01**	**0.01**	0.00
10.00	0.02	21	640.04	**0.01**	**0.01**	0.00
12.00	**0.25**	269	640.46	0.01	0.01	0.00
14.00	**0.02**	**689**	**641.19**	0.01	0.01	0.00
16.00	0.01	**718**	**641.24**	0.01	0.01	0.00
18.00	0.01	702	641.21	0.01	0.01	0.00
20.00	0.00	668	641.15	0.01	0.01	0.00
22.00	0.00	628	641.08	0.01	0.01	0.00
24.00	0.00	581	641.00	0.01	0.01	0.00
26.00	0.00	510	640.88	0.01	0.01	0.00
28.00	0.00	438	640.76	0.01	0.01	0.00
30.00	0.00	366	640.63	0.01	0.01	0.00
32.00	0.00	294	640.51	0.01	0.01	0.00
34.00	0.00	222	640.38	0.01	0.01	0.00
36.00	0.00	150	640.26	0.01	0.01	0.00
38.00	0.00	78	640.13	0.01	0.01	0.00
40.00	0.00	6	640.01	0.01	0.01	0.00
42.00	0.00	0	640.00	0.00	0.00	0.00
44.00	0.00	0	640.00	0.00	0.00	0.00
46.00	0.00	0	640.00	0.00	0.00	0.00
48.00	0.00	0	640.00	0.00	0.00	0.00
50.00	0.00	0	640.00	0.00	0.00	0.00
52.00	0.00	0	640.00	0.00	0.00	0.00
54.00	0.00	0	640.00	0.00	0.00	0.00
56.00	0.00	0	640.00	0.00	0.00	0.00
58.00	0.00	0	640.00	0.00	0.00	0.00
60.00	0.00	0	640.00	0.00	0.00	0.00
62.00	0.00	0	640.00	0.00	0.00	0.00
64.00	0.00	0	640.00	0.00	0.00	0.00
66.00	0.00	0	640.00	0.00	0.00	0.00
68.00	0.00	0	640.00	0.00	0.00	0.00
70.00	0.00	0	640.00	0.00	0.00	0.00
72.00	0.00	0	640.00	0.00	0.00	0.00

Summary for Pond 3P: DA-13C Parking Pavers

Inflow Area = 1,400 sf,100.00% Impervious, Inflow Depth = 5.26" for 10 Year, 24 Hr. Event event
Inflow = 0.18 cfs @ 12.07 hrs, Volume= 614 cf
Outflow = 0.01 cfs @ 10.06 hrs, Volume= 614 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 10.06 hrs, Volume= 614 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 631.63' @ 15.51 hrs Surf.Area= 1,000 sf Storage= 327 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 476.0 min (1,221.5 - 745.5)

Volume	Invert	Avail.Storage	Storage Description
#1	630.00'	1,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

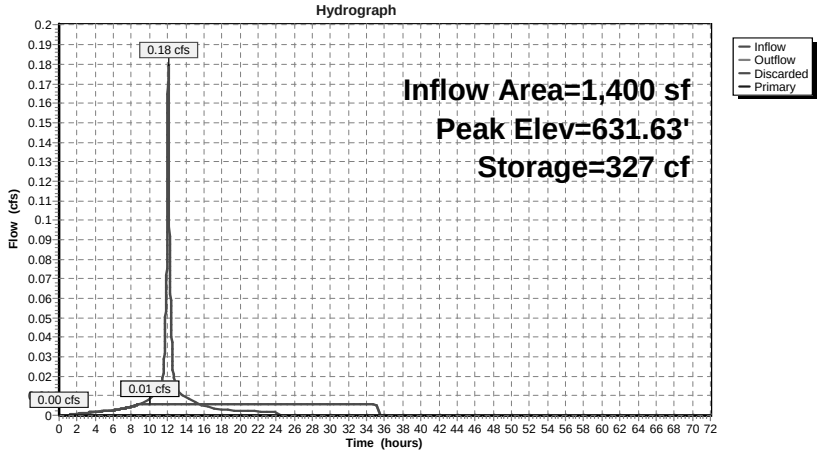
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
630.00	1,000	0.0	0	0
632.00	1,000	20.0	400	400
633.00	1,400	100.0	1,200	1,600

Device	Routing	Invert	Outlet Devices
#1	Primary	632.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	630.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 10.06 hrs HW=630.03' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=630.00' TW=603.91' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: DA-13C Parking Pavers



Hydrograph for Pond 3P: DA-13C Parking Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	630.00	0.00	0.00	**0.00**
2.00	0.00	0	630.00	0.00	0.00	0.00
4.00	0.00	0	630.00	0.00	0.00	0.00
6.00	0.00	0	630.00	0.00	0.00	0.00
8.00	0.00	0	630.00	0.00	0.00	0.00
10.00	0.01	6	630.03	**0.01**	**0.01**	0.00
12.00	**0.12**	120	630.60	**0.01**	**0.01**	0.00
14.00	**0.01**	**318**	**631.59**	0.01	0.01	0.00
16.00	0.00	**326**	**631.63**	0.01	0.01	0.00
18.00	0.00	311	631.56	0.01	0.01	0.00
20.00	0.00	289	631.44	0.01	0.01	0.00
22.00	0.00	262	631.31	0.01	0.01	0.00
24.00	0.00	233	631.16	0.01	0.01	0.00
26.00	0.00	192	630.96	0.01	0.01	0.00
28.00	0.00	150	630.75	0.01	0.01	0.00
30.00	0.00	108	630.54	0.01	0.01	0.00
32.00	0.00	67	630.33	0.01	0.01	0.00
34.00	0.00	25	630.13	0.01	0.01	0.00
36.00	0.00	0	630.00	0.00	0.00	0.00
38.00	0.00	0	630.00	0.00	0.00	0.00
40.00	0.00	0	630.00	0.00	0.00	0.00
42.00	0.00	0	630.00	0.00	0.00	0.00
44.00	0.00	0	630.00	0.00	0.00	0.00
46.00	0.00	0	630.00	0.00	0.00	0.00
48.00	0.00	0	630.00	0.00	0.00	0.00
50.00	0.00	0	630.00	0.00	0.00	0.00
52.00	0.00	0	630.00	0.00	0.00	0.00
54.00	0.00	0	630.00	0.00	0.00	0.00
56.00	0.00	0	630.00	0.00	0.00	0.00
58.00	0.00	0	630.00	0.00	0.00	0.00
60.00	0.00	0	630.00	0.00	0.00	0.00
62.00	0.00	0	630.00	0.00	0.00	0.00
64.00	0.00	0	630.00	0.00	0.00	0.00
66.00	0.00	0	630.00	0.00	0.00	0.00
68.00	0.00	0	630.00	0.00	0.00	0.00
70.00	0.00	0	630.00	0.00	0.00	0.00
72.00	0.00	0	630.00	0.00	0.00	0.00

Summary for Pond 13P: DA-13B Sidewalk Pavers

[58] Hint: Peaked 14.91' above defined flood level

Inflow Area = 2,394 sf,100.00% Impervious, Inflow Depth = 5.26" for 10 Year, 24 Hr. Event event
Inflow = 0.31 cfs @ 12.07 hrs, Volume= 1,050 cf
Outflow = 0.01 cfs @ 10.12 hrs, Volume= 1,050 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 10.12 hrs, Volume= 1,050 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 620.91' @ 15.48 hrs Surf.Area= 2,394 sf Storage= 556 cf
Flood Elev= 606.00' Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 468.6 min (1,214.2 - 745.5)

Volume	Invert	Avail.Storage	Storage Description
#1	619.75'	1,556 cf	**Custom Stage Data (Prismatic)** Listed below

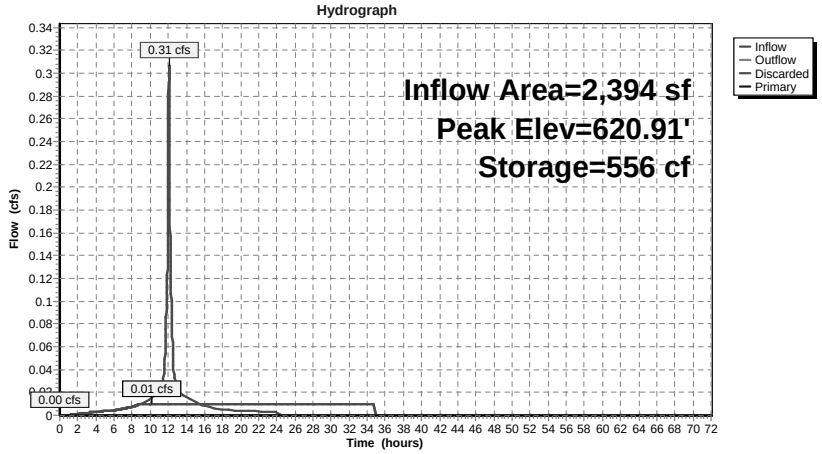
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
619.75	2,394	0.0	0	0
621.75	2,394	20.0	958	958
622.00	2,394	100.0	599	1,556

Device	Routing	Invert	Outlet Devices
#1	Primary	621.75'	**100.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Discarded	619.75'	**0.01 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.01 cfs @ 10.12 hrs HW=619.77' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=619.75' TW=603.91' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13P: DA-13B Sidewalk Pavers



Hydrograph for Pond 13P: DA-13B Sidewalk Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	619.75	0.00	0.00	**0.00**
2.00	0.00	0	619.75	0.00	0.00	0.00
4.00	0.00	0	619.75	0.00	0.00	0.00
6.00	0.00	0	619.75	0.00	0.00	0.00
8.00	0.01	0	619.75	0.01	0.01	0.00
10.00	0.01	9	619.77	**0.01**	**0.01**	0.00
12.00	**0.21**	204	620.18	**0.01**	**0.01**	0.00
14.00	**0.02**	**542**	**620.88**	0.01	0.01	0.00
16.00	0.01	**554**	**620.91**	0.01	0.01	0.00
18.00	0.00	529	620.86	0.01	0.01	0.00
20.00	0.00	489	620.77	0.01	0.01	0.00
22.00	0.00	443	620.68	0.01	0.01	0.00
24.00	0.00	393	620.57	0.01	0.01	0.00
26.00	0.00	321	620.42	0.01	0.01	0.00
28.00	0.00	249	620.27	0.01	0.01	0.00
30.00	0.00	177	620.12	0.01	0.01	0.00
32.00	0.00	105	619.97	0.01	0.01	0.00
34.00	0.00	33	619.82	0.01	0.01	0.00
36.00	0.00	0	619.75	0.00	0.00	0.00
38.00	0.00	0	619.75	0.00	0.00	0.00
40.00	0.00	0	619.75	0.00	0.00	0.00
42.00	0.00	0	619.75	0.00	0.00	0.00
44.00	0.00	0	619.75	0.00	0.00	0.00
46.00	0.00	0	619.75	0.00	0.00	0.00
48.00	0.00	0	619.75	0.00	0.00	0.00
50.00	0.00	0	619.75	0.00	0.00	0.00
52.00	0.00	0	619.75	0.00	0.00	0.00
54.00	0.00	0	619.75	0.00	0.00	0.00
56.00	0.00	0	619.75	0.00	0.00	0.00
58.00	0.00	0	619.75	0.00	0.00	0.00
60.00	0.00	0	619.75	0.00	0.00	0.00
62.00	0.00	0	619.75	0.00	0.00	0.00
64.00	0.00	0	619.75	0.00	0.00	0.00
66.00	0.00	0	619.75	0.00	0.00	0.00
68.00	0.00	0	619.75	0.00	0.00	0.00
70.00	0.00	0	619.75	0.00	0.00	0.00
72.00	0.00	0	619.75	0.00	0.00	0.00

Summary for Pond 15P: DA-15 Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 2,794 sf,100.00% Impervious, Inflow Depth = 5.26" for 10 Year, 24 Hr. Event event
Inflow = 0.36 cfs @ 12.07 hrs, Volume= 1,225 cf
Outflow = 0.13 cfs @ 12.17 hrs, Volume= 1,227 cf, Atten= 64%, Lag= 6.0 min
Discarded = 0.13 cfs @ 12.17 hrs, Volume= 1,227 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 0.03' @ 12.30 hrs Surf.Area= 0 sf Storage= 135 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 3.8 min (749.4 - 745.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	12,000 cf	**Custom Stage Data** Listed below

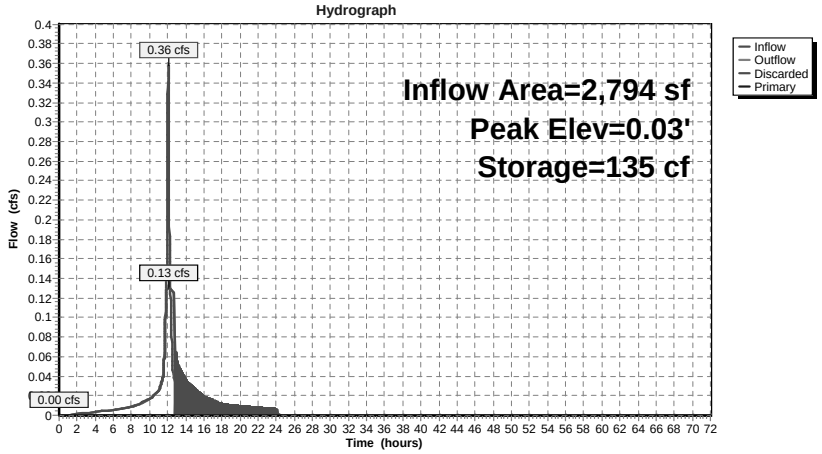
Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
2.00	7,917
3.00	12,000

Device	Routing	Invert	Outlet Devices
#1	Primary	2.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	0.00'	**0.13 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.13 cfs @ 12.17 hrs HW=0.03' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15P: DA-15 Pavers



Hydrograph for Pond 15P: DA-15 Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	0.00	0.00	0.00	**0.00**
2.00	0.00	0	0.00	0.00	0.00	0.00
4.00	0.00	0	0.00	0.00	0.00	0.00
6.00	0.00	0	0.00	0.00	0.00	0.00
8.00	0.01	0	0.00	0.01	0.01	0.00
10.00	0.02	0	0.00	0.02	0.02	0.00
12.00	**0.24**	**17**	**0.00**	**0.13**	**0.13**	0.00
14.00	**0.02**	**0**	**0.00**	**0.00**	**0.00**	0.00
16.00	0.01	0	0.00	0.00	0.00	0.00
18.00	0.01	0	0.00	0.00	0.00	0.00
20.00	0.00	0	0.00	0.00	0.00	0.00
22.00	0.00	0	0.00	0.00	0.00	0.00
24.00	0.00	0	0.00	0.00	0.00	0.00
26.00	0.00	0	0.00	0.00	0.00	0.00
28.00	0.00	0	0.00	0.00	0.00	0.00
30.00	0.00	0	0.00	0.00	0.00	0.00
32.00	0.00	0	0.00	0.00	0.00	0.00
34.00	0.00	0	0.00	0.00	0.00	0.00
36.00	0.00	0	0.00	0.00	0.00	0.00
38.00	0.00	0	0.00	0.00	0.00	0.00
40.00	0.00	0	0.00	0.00	0.00	0.00
42.00	0.00	0	0.00	0.00	0.00	0.00
44.00	0.00	0	0.00	0.00	0.00	0.00
46.00	0.00	0	0.00	0.00	0.00	0.00
48.00	0.00	0	0.00	0.00	0.00	0.00
50.00	0.00	0	0.00	0.00	0.00	0.00
52.00	0.00	0	0.00	0.00	0.00	0.00
54.00	0.00	0	0.00	0.00	0.00	0.00
56.00	0.00	0	0.00	0.00	0.00	0.00
58.00	0.00	0	0.00	0.00	0.00	0.00
60.00	0.00	0	0.00	0.00	0.00	0.00
62.00	0.00	0	0.00	0.00	0.00	0.00
64.00	0.00	0	0.00	0.00	0.00	0.00
66.00	0.00	0	0.00	0.00	0.00	0.00
68.00	0.00	0	0.00	0.00	0.00	0.00
70.00	0.00	0	0.00	0.00	0.00	0.00
72.00	0.00	0	0.00	0.00	0.00	0.00

Summary for Pond B-14B: Bioretention-14B

Inflow Area = 2,047 sf, 48.12% Impervious, Inflow Depth = 3.40" for 10 Year, 24 Hr. Event event
Inflow = 0.17 cfs @ 12.07 hrs, Volume= 581 cf
Outflow = 0.17 cfs @ 12.04 hrs, Volume= 526 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 10.82 hrs, Volume= 204 cf
Primary = 0.17 cfs @ 12.04 hrs, Volume= 322 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 502.51' @ 12.04 hrs Surf.Area= 221 sf Storage= 191 cf

Plug-Flow detention time= 521.1 min calculated for 526 cf (91% of inflow)
Center-of-Mass det. time= 472.8 min (1,248.9 - 776.1)

Volume	Invert	Avail.Storage	Storage Description
#1	497.75'	299 cf	**Custom Stage Data (Prismatic)** Listed below

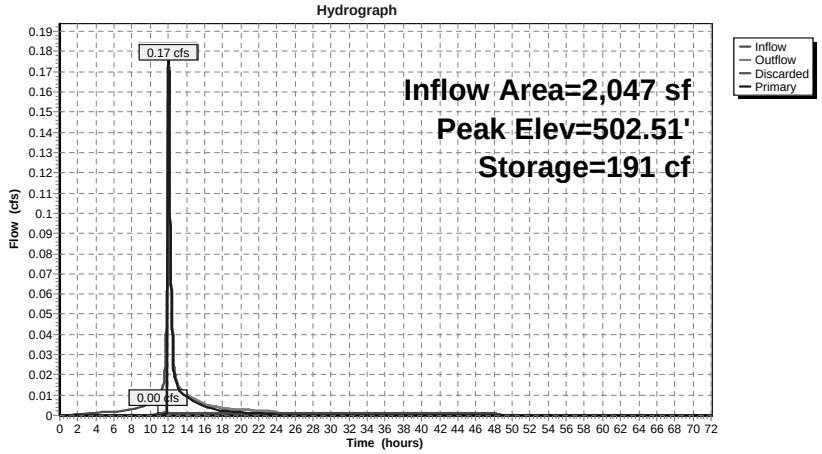
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
497.75	45	0.0	0	0
501.75	45	40.0	72	72
501.99	45	40.0	4	76
502.00	221	100.0	1	78
502.50	221	100.0	111	188
503.00	221	100.0	111	299

Device	Routing	Invert	Outlet Devices
#1	Discarded	497.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	502.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 242.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 10.82 hrs HW=502.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.17 cfs @ 12.04 hrs HW=502.51' TW=0.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Weir Controls 0.17 cfs @ 0.35 fps)

Pond B-14B: Bioretention-14B



Hydrograph for Pond B-14B: Bioretention-14B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	497.75	0.00	0.00	0.00
2.00	0.00	0	497.77	0.00	0.00	0.00
4.00	0.00	5	498.01	0.00	0.00	0.00
6.00	0.00	13	498.49	0.00	0.00	0.00
8.00	0.00	28	499.32	0.00	0.00	0.00
10.00	0.01	58	500.97	0.00	**0.00**	0.00
12.00	**0.11**	**176**	**502.45**	**0.00**	**0.00**	**0.00**
14.00	**0.01**	**188**	**502.50**	**0.01**	0.00	**0.01**
16.00	0.01	188	502.50	0.01	0.00	0.00
18.00	0.00	188	502.50	0.00	0.00	0.00
20.00	0.00	188	502.50	0.00	0.00	0.00
22.00	0.00	188	502.50	0.00	0.00	0.00
24.00	0.00	188	502.50	0.00	0.00	0.00
26.00	0.00	179	502.46	0.00	0.00	0.00
28.00	0.00	170	502.42	0.00	0.00	0.00
30.00	0.00	161	502.38	0.00	0.00	0.00
32.00	0.00	152	502.34	0.00	0.00	0.00
34.00	0.00	143	502.29	0.00	0.00	0.00
36.00	0.00	133	502.25	0.00	0.00	0.00
38.00	0.00	124	502.21	0.00	0.00	0.00
40.00	0.00	115	502.17	0.00	0.00	0.00
42.00	0.00	106	502.13	0.00	0.00	0.00
44.00	0.00	97	502.09	0.00	0.00	0.00
46.00	0.00	87	502.04	0.00	0.00	0.00
48.00	0.00	78	502.00	0.00	0.00	0.00
50.00	0.00	75	501.92	0.00	0.00	0.00
52.00	0.00	73	501.82	0.00	0.00	0.00
54.00	0.00	71	501.71	0.00	0.00	0.00
56.00	0.00	69	501.61	0.00	0.00	0.00
58.00	0.00	68	501.50	0.00	0.00	0.00
60.00	0.00	66	501.40	0.00	0.00	0.00
62.00	0.00	64	501.30	0.00	0.00	0.00
64.00	0.00	62	501.19	0.00	0.00	0.00
66.00	0.00	60	501.09	0.00	0.00	0.00
68.00	0.00	58	500.98	0.00	0.00	0.00
70.00	0.00	56	500.88	0.00	0.00	0.00
72.00	0.00	54	500.78	0.00	0.00	0.00

Summary for Subcatchment DA-13A: Post_DA-13A

Runoff = 0.94 cfs @ 12.07 hrs, Volume= 3,225 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

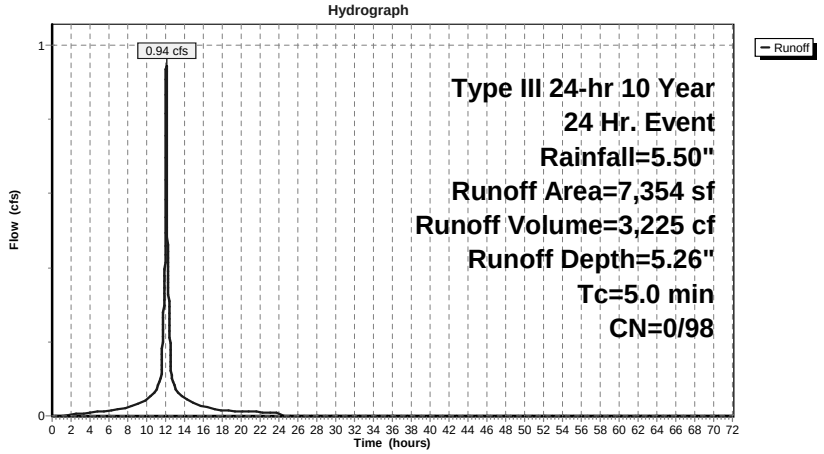
Area (sf)	CN	Description	Land Use
7,354	98	Paved parking, HSG C	Pavement
7,354	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,354	Pavement	287.35	0.93	3.49	11.13
7,354	Total	287.35	0.93	3.49	11.13

Subcatchment DA-13A: Post_DA-13A



Hydrograph for Subcatchment DA-13A: Post_DA-13A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.01
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.02
10.00	1.04	0.00	0.83	0.04
12.00	2.75	0.00	2.52	**0.64**
14.00	4.46	0.00	4.22	**0.05**
16.00	4.87	0.00	4.64	0.03
18.00	5.10	0.00	4.87	0.02
20.00	5.26	0.00	5.03	0.01
22.00	5.39	0.00	5.16	0.01
24.00	**5.50**	0.00	**5.26**	0.01
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00

Summary for Subcatchment DA-13B: Post_DA-13B

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 1,050 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

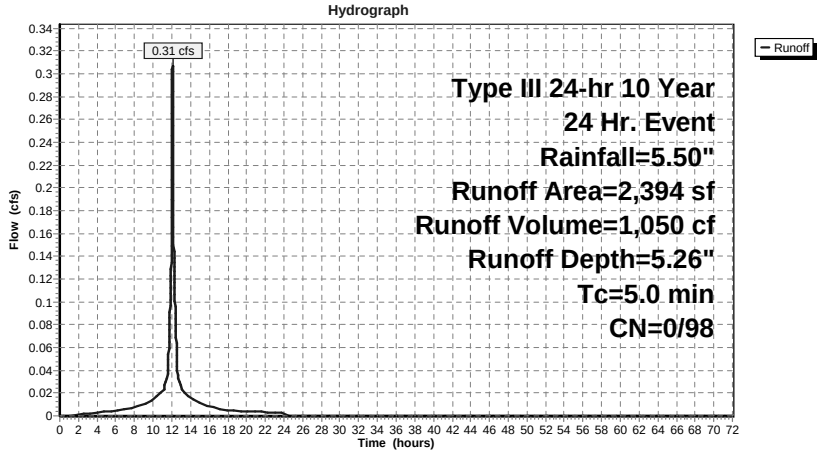
	Area (sf)	CN	Description	Land Use
*	2,394	98	Pavers, HSG C	Pavement
	2,394	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,394	Pavement	93.54	0.30	1.14	3.62
2,394	Total	93.54	0.30	1.14	3.62

Subcatchment DA-13B: Post_DA-13B



Hydrograph for Subcatchment DA-13B: Post_DA-13B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.00	0.83	0.01
12.00	2.75	0.00	2.52	**0.21**
14.00	4.46	0.00	4.22	**0.02**
16.00	4.87	0.00	4.64	0.01
18.00	5.10	0.00	4.87	0.00
20.00	5.26	0.00	5.03	0.00
22.00	5.39	0.00	5.16	0.00
24.00	**5.50**	0.00	**5.26**	0.00
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00

Summary for Subcatchment DA-13C: Post_DA-13C

Runoff = 0.18 cfs @ 12.07 hrs, Volume= 614 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

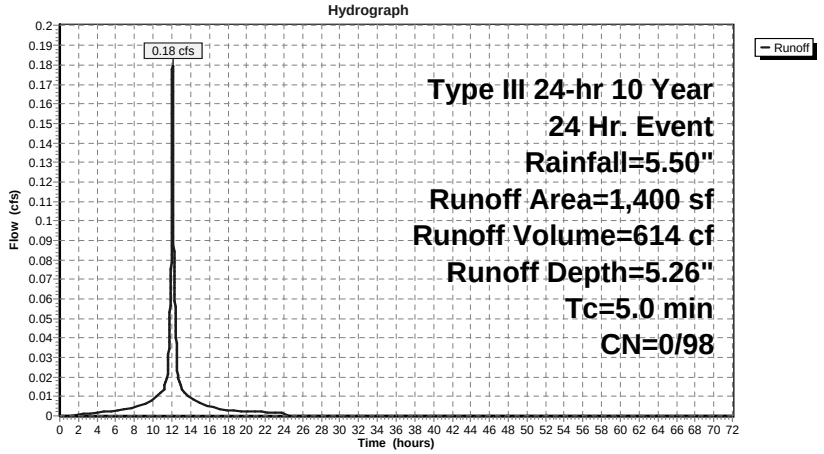
	Area (sf)	CN	Description	Land Use
*	1,400	98	Pavers	Pavement
	1,400	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,400	Pavement	54.70	0.18	0.66	2.12
1,400	Total	54.70	0.18	0.66	2.12

Subcatchment DA-13C: Post_DA-13C



Hydrograph for Subcatchment DA-13C: Post_DA-13C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.00
10.00	1.04	0.00	0.83	0.01
12.00	2.75	0.00	2.52	**0.12**
14.00	4.46	0.00	4.22	**0.01**
16.00	4.87	0.00	4.64	0.00
18.00	5.10	0.00	4.87	0.00
20.00	5.26	0.00	5.03	0.00
22.00	5.39	0.00	5.16	0.00
24.00	**5.50**	0.00	**5.26**	0.00
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00

Summary for Subcatchment DA-14A: Post_DA-14A

Runoff = 0.37 cfs @ 12.07 hrs, Volume= 1,259 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

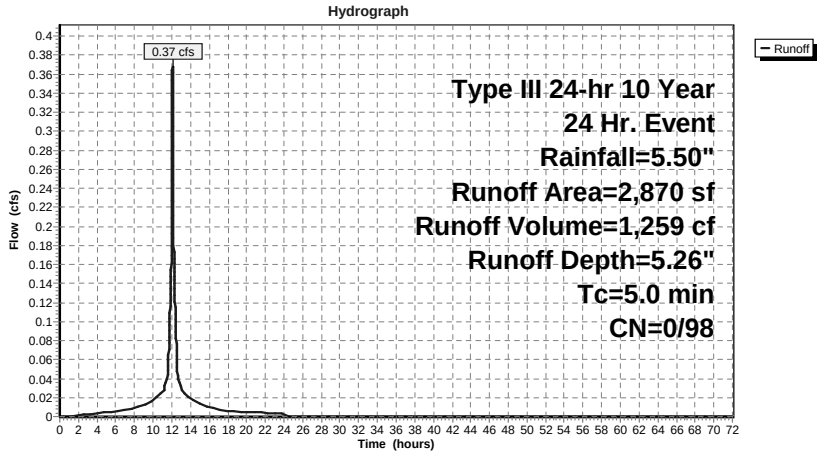
	Area (sf)	CN	Description	Land Use
	2,034	98	Paved parking, HSG B	Pavement
*	836	98	Pavers	Pavement
	2,870	98	Weighted Average	
	2,870	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,870	Pavement	112.14	0.36	1.36	4.34
2,870	Total	112.14	0.36	1.36	4.34

Subcatchment DA-14A: Post_DA-14A



Hydrograph for Subcatchment DA-14A: Post_DA-14A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.00	0.83	0.02
12.00	2.75	0.00	2.52	**0.25**
14.00	4.46	0.00	4.22	**0.02**
16.00	4.87	0.00	4.64	0.01
18.00	5.10	0.00	4.87	0.01
20.00	5.26	0.00	5.03	0.00
22.00	5.39	0.00	5.16	0.00
24.00	**5.50**	0.00	**5.26**	0.00
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00

Summary for Subcatchment DA-14B1: Post_DA-14B1

Runoff = 0.62 cfs @ 12.07 hrs, Volume= 2,080 cf, Depth= 3.59"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

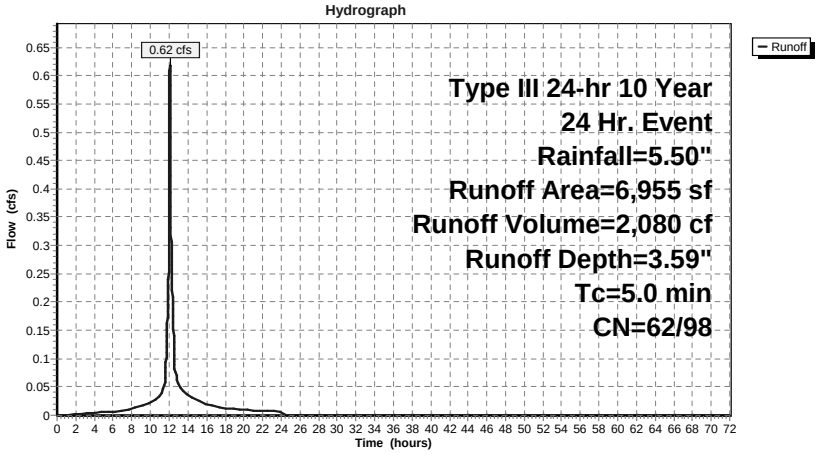
Area (sf)	CN	Description	Land Use
293	98	Paved parking, HSG C	Pavement
3,343	98	Roofs, HSG C	Roofs
3,161	61	>75% Grass cover, Good, HSG B	Open Space
158	74	>75% Grass cover, Good, HSG C	Open Space
6,955	81	Weighted Average	
3,319	62	47.72% Pervious Area	
3,636	98	52.28% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 52.28% Impervious, Rv= 0.521, Runoff= 23.79"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,319	Open Space	247.26	0.86	3.74	0.51
293	Pavement	6.27	0.02	0.08	0.24
3,343	Roofs	7.86	0.05	0.62	3.06
6,955	Total	261.39	0.93	4.43	3.81

Subcatchment DA-14B1: Post_DA-14B1



Hydrograph for Subcatchment DA-14B1: Post_DA-14B1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.01
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.00	0.83	0.02
12.00	2.75	0.30	2.52	**0.40**
14.00	4.46	1.12	4.22	**0.04**
16.00	4.87	1.36	4.64	0.02
18.00	5.10	1.50	4.87	0.01
20.00	5.26	1.60	5.03	0.01
22.00	5.39	1.69	5.16	0.01
24.00	**5.50**	**1.76**	**5.26**	0.01
26.00	5.50	1.76	5.26	0.00
28.00	5.50	1.76	5.26	0.00
30.00	5.50	1.76	5.26	0.00
32.00	5.50	1.76	5.26	0.00
34.00	5.50	1.76	5.26	0.00
36.00	5.50	1.76	5.26	0.00
38.00	5.50	1.76	5.26	0.00
40.00	5.50	1.76	5.26	0.00
42.00	5.50	1.76	5.26	0.00
44.00	5.50	1.76	5.26	0.00
46.00	5.50	1.76	5.26	0.00
48.00	5.50	1.76	5.26	0.00
50.00	5.50	1.76	5.26	0.00
52.00	5.50	1.76	5.26	0.00
54.00	5.50	1.76	5.26	0.00
56.00	5.50	1.76	5.26	0.00
58.00	5.50	1.76	5.26	0.00
60.00	5.50	1.76	5.26	0.00
62.00	5.50	1.76	5.26	0.00
64.00	5.50	1.76	5.26	0.00
66.00	5.50	1.76	5.26	0.00
68.00	5.50	1.76	5.26	0.00
70.00	5.50	1.76	5.26	0.00
72.00	5.50	1.76	5.26	0.00

Summary for Subcatchment DA-14B2: Post_DA-14B2

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 581 cf, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

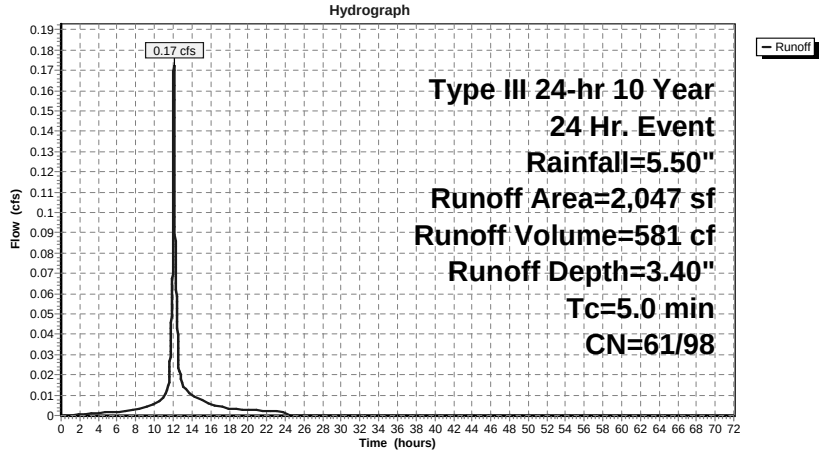
	Area (sf)	CN	Description	Land Use
	985	98	Paved parking, HSG C	Pavement
*	1,062	61	Bioretention - HSG B	Brush
	2,047	79	Weighted Average	
	1,062	61	51.88% Pervious Area	
	985	98	48.12% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 48.12% Impervious, Rv= 0.483, Runoff= 22.08"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,062	Brush	4.51	0.00	0.00	0.15
985	Pavement	19.57	0.06	0.24	0.76
2,047	Total	24.08	0.06	0.24	0.91

Subcatchment DA-14B2: Post_DA-14B2



Hydrograph for Subcatchment DA-14B2: Post_DA-14B2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.00
10.00	1.04	0.00	0.83	0.01
12.00	2.75	0.28	2.52	**0.11**
14.00	4.46	1.06	4.22	**0.01**
16.00	4.87	1.29	4.64	0.01
18.00	5.10	1.43	4.87	0.00
20.00	5.26	1.53	5.03	0.00
22.00	5.39	1.61	5.16	0.00
24.00	**5.50**	**1.68**	**5.26**	0.00
26.00	5.50	1.68	5.26	0.00
28.00	5.50	1.68	5.26	0.00
30.00	5.50	1.68	5.26	0.00
32.00	5.50	1.68	5.26	0.00
34.00	5.50	1.68	5.26	0.00
36.00	5.50	1.68	5.26	0.00
38.00	5.50	1.68	5.26	0.00
40.00	5.50	1.68	5.26	0.00
42.00	5.50	1.68	5.26	0.00
44.00	5.50	1.68	5.26	0.00
46.00	5.50	1.68	5.26	0.00
48.00	5.50	1.68	5.26	0.00
50.00	5.50	1.68	5.26	0.00
52.00	5.50	1.68	5.26	0.00
54.00	5.50	1.68	5.26	0.00
56.00	5.50	1.68	5.26	0.00
58.00	5.50	1.68	5.26	0.00
60.00	5.50	1.68	5.26	0.00
62.00	5.50	1.68	5.26	0.00
64.00	5.50	1.68	5.26	0.00
66.00	5.50	1.68	5.26	0.00
68.00	5.50	1.68	5.26	0.00
70.00	5.50	1.68	5.26	0.00
72.00	5.50	1.68	5.26	0.00

Summary for Subcatchment DA-15A: Post_DA-15A

Runoff = 4.20 cfs @ 12.07 hrs, Volume= 14,079 cf, Depth= 4.62"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

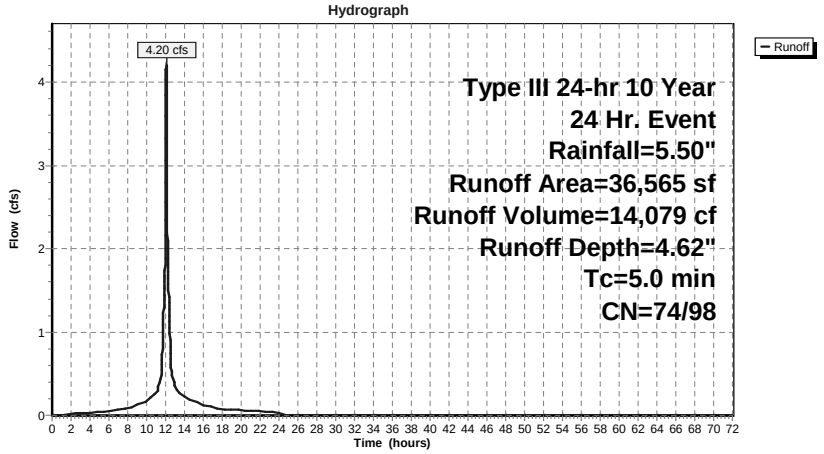
	Area (sf)	CN	Description	Land Use
*	21,025	98	Impervious	Pavement
	9,414	74	>75% Grass cover, Good, HSG C	Open Space
	6,126	98	Roofs, HSG C	Roofs
	36,565	92	Weighted Average	
	9,414	74	25.75% Pervious Area	
	27,151	98	74.25% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.25% Impervious, Rv= 0.718, Runoff= 32.83"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,414	Open Space	967.79	3.38	14.63	1.98
21,025	Pavement	621.15	2.01	7.54	24.06
6,126	Roofs	19.88	0.12	1.57	7.74
36,565	Total	1,608.82	5.50	23.74	33.77

Subcatchment DA-15A: Post_DA-15A



Hydrograph for Subcatchment DA-15A: Post_DA-15A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.01
4.00	0.24	0.00	0.10	0.03
6.00	0.40	0.00	0.23	0.05
8.00	0.63	0.00	0.43	0.08
10.00	1.04	0.03	0.83	0.17
12.00	2.75	0.75	2.52	**2.80**
14.00	4.46	1.94	4.22	**0.22**
16.00	4.87	2.26	4.64	0.12
18.00	5.10	2.45	4.87	0.07
20.00	5.26	2.58	5.03	0.06
22.00	5.39	2.68	5.16	0.05
24.00	**5.50**	**2.77**	**5.26**	0.04
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00

Summary for Subcatchment DA-15B: Post_DA-15B

Runoff = 0.36 cfs @ 12.07 hrs, Volume= 1,225 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

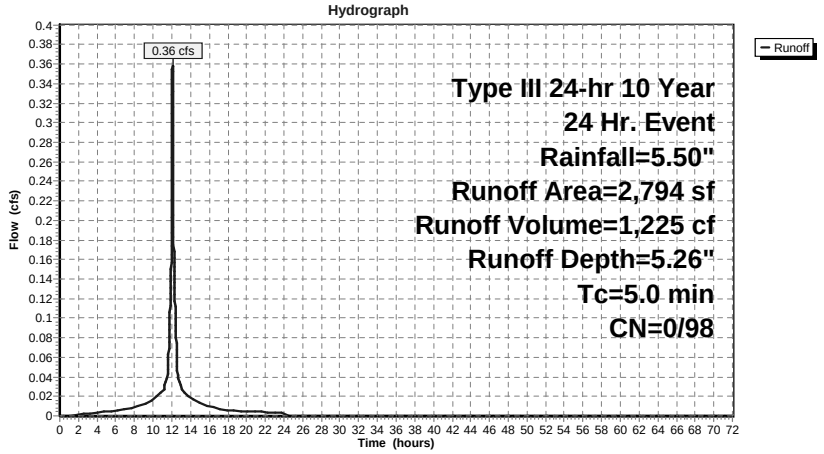
	Area (sf)	CN	Description	Land Use
*	2,794	98	Pavers	Pavement
	2,794	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,794	Pavement	109.17	0.35	1.33	4.23
2,794	Total	109.17	0.35	1.33	4.23

Subcatchment DA-15B: Post_DA-15B



Hydrograph for Subcatchment DA-15B: Post_DA-15B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.11	0.00	0.02	0.00
4.00	0.24	0.00	0.10	0.00
6.00	0.40	0.00	0.23	0.00
8.00	0.63	0.00	0.43	0.01
10.00	1.04	0.00	0.83	0.02
12.00	2.75	0.00	2.52	**0.24**
14.00	4.46	0.00	4.22	**0.02**
16.00	4.87	0.00	4.64	0.01
18.00	5.10	0.00	4.87	0.01
20.00	5.26	0.00	5.03	0.00
22.00	5.39	0.00	5.16	0.00
24.00	**5.50**	0.00	**5.26**	0.00
26.00	5.50	0.00	5.26	0.00
28.00	5.50	0.00	5.26	0.00
30.00	5.50	0.00	5.26	0.00
32.00	5.50	0.00	5.26	0.00
34.00	5.50	0.00	5.26	0.00
36.00	5.50	0.00	5.26	0.00
38.00	5.50	0.00	5.26	0.00
40.00	5.50	0.00	5.26	0.00
42.00	5.50	0.00	5.26	0.00
44.00	5.50	0.00	5.26	0.00
46.00	5.50	0.00	5.26	0.00
48.00	5.50	0.00	5.26	0.00
50.00	5.50	0.00	5.26	0.00
52.00	5.50	0.00	5.26	0.00
54.00	5.50	0.00	5.26	0.00
56.00	5.50	0.00	5.26	0.00
58.00	5.50	0.00	5.26	0.00
60.00	5.50	0.00	5.26	0.00
62.00	5.50	0.00	5.26	0.00
64.00	5.50	0.00	5.26	0.00
66.00	5.50	0.00	5.26	0.00
68.00	5.50	0.00	5.26	0.00
70.00	5.50	0.00	5.26	0.00
72.00	5.50	0.00	5.26	0.00

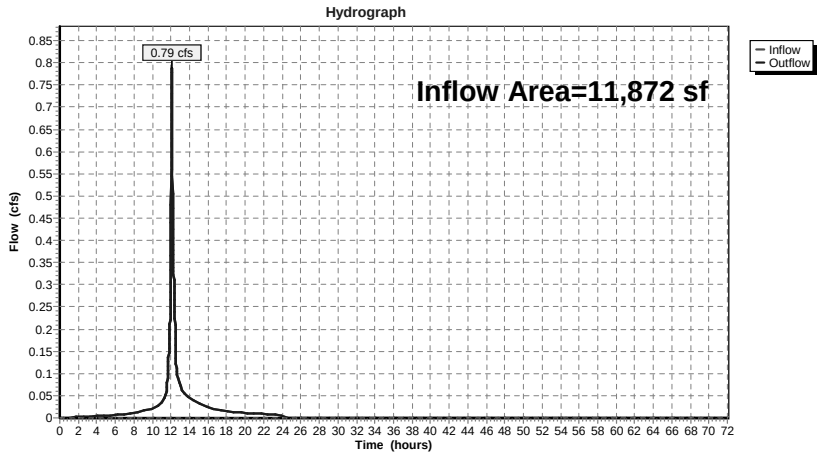
Summary for Reach DP-14: Catch Basin

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11,872 sf, 63.10% Impervious, Inflow Depth = 2.43" for 10 Year, 24 Hr. Event event
Inflow = 0.79 cfs @ 12.07 hrs, Volume= 2,402 cf
Outflow = 0.79 cfs @ 12.07 hrs, Volume= 2,402 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-14: Catch Basin



Hydrograph for Reach DP-14: Catch Basin

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.01		0.01	60.00	0.00		0.00
9.00	0.02		0.02	61.00	0.00		0.00
10.00	0.02		0.02	62.00	0.00		0.00
11.00	0.03		0.03	63.00	0.00		0.00
12.00	**0.40**		**0.40**	64.00	0.00		0.00
13.00	**0.07**		**0.07**	65.00	0.00		0.00
14.00	0.04		0.04	66.00	0.00		0.00
15.00	0.03		0.03	67.00	0.00		0.00
16.00	0.02		0.02	68.00	0.00		0.00
17.00	0.02		0.02	69.00	0.00		0.00
18.00	0.01		0.01	70.00	0.00		0.00
19.00	0.01		0.01	71.00	0.00		0.00
20.00	0.01		0.01	72.00	0.00		0.00
21.00	0.01		0.01				
22.00	0.01		0.01				
23.00	0.01		0.01				
24.00	0.01		0.01				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

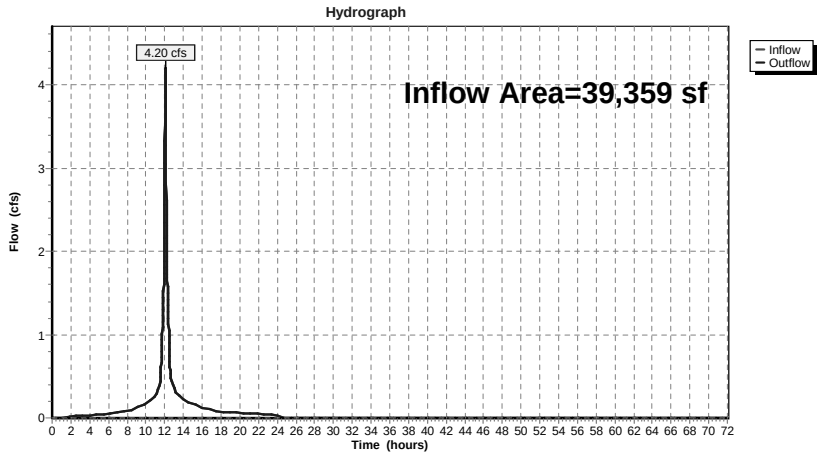
Summary for Reach DP-15: DP-15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 39,359 sf, 76.08% Impervious, Inflow Depth = 4.29" for 10 Year, 24 Hr. Event event
Inflow = 4.20 cfs @ 12.07 hrs, Volume= 14,079 cf
Outflow = 4.20 cfs @ 12.07 hrs, Volume= 14,079 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-15: DP-15



Hydrograph for Reach DP-15: DP-15

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.02		0.02	55.00	0.00		0.00
4.00	0.03		0.03	56.00	0.00		0.00
5.00	0.04		0.04	57.00	0.00		0.00
6.00	0.05		0.05	58.00	0.00		0.00
7.00	0.06		0.06	59.00	0.00		0.00
8.00	0.08		0.08	60.00	0.00		0.00
9.00	0.12		0.12	61.00	0.00		0.00
10.00	0.17		0.17	62.00	0.00		0.00
11.00	0.27		0.27	63.00	0.00		0.00
12.00	**2.80**		**2.80**	64.00	0.00		0.00
13.00	**0.35**		**0.35**	65.00	0.00		0.00
14.00	0.22		0.22	66.00	0.00		0.00
15.00	0.17		0.17	67.00	0.00		0.00
16.00	0.12		0.12	68.00	0.00		0.00
17.00	0.09		0.09	69.00	0.00		0.00
18.00	0.07		0.07	70.00	0.00		0.00
19.00	0.06		0.06	71.00	0.00		0.00
20.00	0.06		0.06	72.00	0.00		0.00
21.00	0.05		0.05				
22.00	0.05		0.05				
23.00	0.04		0.04				
24.00	0.04		0.04				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP13: DP-13

[57] Hint: Peaked at 604.36' (Flood elevation advised)

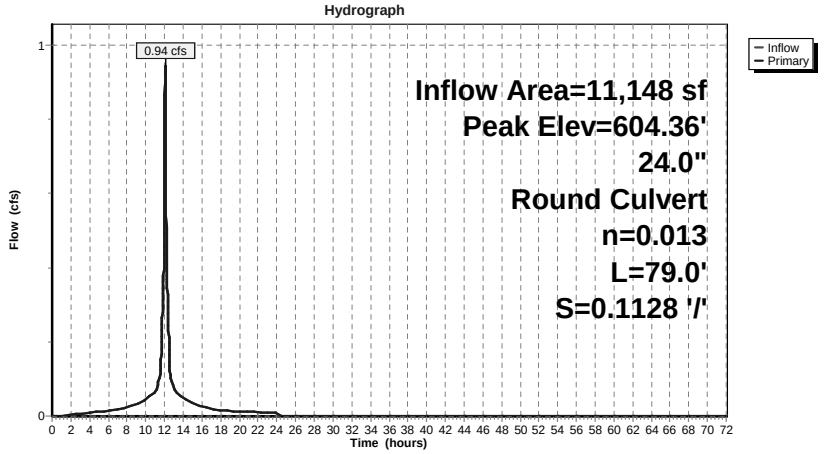
Inflow Area = 11,148 sf,100.00% Impervious, Inflow Depth = 3.47" for 10 Year, 24 Hr. Event event
Inflow = 0.94 cfs @ 12.07 hrs, Volume= 3,225 cf
Outflow = 0.94 cfs @ 12.07 hrs, Volume= 3,225 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.94 cfs @ 12.07 hrs, Volume= 3,225 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 604.36' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	603.91'	**24.0" Round Culvert** L= 79.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 603.91' / 595.00' S= 0.1128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.94 cfs @ 12.07 hrs HW=604.36' (Free Discharge)
1=Culvert (Inlet Controls 0.94 cfs @ 1.80 fps)

Pond DP13: DP-13



Hydrograph for Pond DP13: DP-13

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	603.91	0.00	52.00	0.00	603.91	0.00
1.00	0.00	603.92	0.00	53.00	0.00	603.91	0.00
2.00	0.00	603.94	0.00	54.00	0.00	603.91	0.00
3.00	0.01	603.95	0.01	55.00	0.00	603.91	0.00
4.00	0.01	603.95	0.01	56.00	0.00	603.91	0.00
5.00	0.01	603.96	0.01	57.00	0.00	603.91	0.00
6.00	0.01	603.96	0.01	58.00	0.00	603.91	0.00
7.00	0.02	603.97	0.02	59.00	0.00	603.91	0.00
8.00	0.02	603.98	0.02	60.00	0.00	603.91	0.00
9.00	0.03	603.99	0.03	61.00	0.00	603.91	0.00
10.00	0.04	604.00	0.04	62.00	0.00	603.91	0.00
11.00	0.07	604.02	0.07	63.00	0.00	603.91	0.00
12.00	**0.64**	**604.27**	**0.64**	64.00	0.00	603.91	0.00
13.00	**0.07**	**604.03**	**0.07**	65.00	0.00	603.91	0.00
14.00	0.05	604.01	0.05	66.00	0.00	603.91	0.00
15.00	0.04	603.99	0.04	67.00	0.00	603.91	0.00
16.00	0.03	603.98	0.03	68.00	0.00	603.91	0.00
17.00	0.02	603.97	0.02	69.00	0.00	603.91	0.00
18.00	0.02	603.97	0.02	70.00	0.00	603.91	0.00
19.00	0.01	603.96	0.01	71.00	0.00	603.91	0.00
20.00	0.01	603.96	0.01	72.00	0.00	603.91	0.00
21.00	0.01	603.96	0.01				
22.00	0.01	603.95	0.01				
23.00	0.01	603.95	0.01				
24.00	0.01	603.95	0.01				
25.00	0.00	603.91	0.00				
26.00	0.00	603.91	0.00				
27.00	0.00	603.91	0.00				
28.00	0.00	603.91	0.00				
29.00	0.00	603.91	0.00				
30.00	0.00	603.91	0.00				
31.00	0.00	603.91	0.00				
32.00	0.00	603.91	0.00				
33.00	0.00	603.91	0.00				
34.00	0.00	603.91	0.00				
35.00	0.00	603.91	0.00				
36.00	0.00	603.91	0.00				
37.00	0.00	603.91	0.00				
38.00	0.00	603.91	0.00				
39.00	0.00	603.91	0.00				
40.00	0.00	603.91	0.00				
41.00	0.00	603.91	0.00				
42.00	0.00	603.91	0.00				
43.00	0.00	603.91	0.00				
44.00	0.00	603.91	0.00				
45.00	0.00	603.91	0.00				
46.00	0.00	603.91	0.00				
47.00	0.00	603.91	0.00				
48.00	0.00	603.91	0.00				
49.00	0.00	603.91	0.00				
50.00	0.00	603.91	0.00				
51.00	0.00	603.91	0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 1P: Pavers_DA-14A Peak Elev=641.40' Storage=810 cf Inflow=0.40 cfs 1,378 cf
Discarded=0.01 cfs 1,378 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 1,378 cf

Pond 3P: DA-13C Parking Pavers Peak Elev=631.85' Storage=370 cf Inflow=0.20 cfs 672 cf
Discarded=0.01 cfs 672 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 672 cf

Pond 13P: DA-13B Sidewalk Pavers Peak Elev=621.07' Storage=630 cf Inflow=0.33 cfs 1,149 cf
Discarded=0.01 cfs 1,150 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 1,150 cf

Pond 15P: DA-15 Pavers Peak Elev=0.04' Storage=167 cf Inflow=0.39 cfs 1,342 cf
Discarded=0.13 cfs 1,342 cf Primary=0.00 cfs 0 cf Outflow=0.13 cfs 1,342 cf

Pond B-14B: Bioretention-14B Peak Elev=502.51' Storage=191 cf Inflow=0.19 cfs 650 cf
Discarded=0.00 cfs 205 cf Primary=0.19 cfs 391 cf Outflow=0.19 cfs 596 cf

Subcatchment DA-13A: Post_DA-13A Runoff Area=7,354 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=1.03 cfs 3,531 cf

Subcatchment DA-13B: Post_DA-13B Runoff Area=2,394 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=0.33 cfs 1,149 cf

Subcatchment DA-13C: Post_DA-13C Runoff Area=1,400 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=0.20 cfs 672 cf

Subcatchment DA-14A: Post_DA-14A Runoff Area=2,870 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=0.40 cfs 1,378 cf

Subcatchment DA-14B1: Post_DA-14B1 Runoff Area=6,955 sf 52.28% Impervious Runoff Depth=4.01"
Tc=5.0 min CN=62/98 Runoff=0.69 cfs 2,324 cf

Subcatchment DA-14B2: Post_DA-14B2 Runoff Area=2,047 sf 48.12% Impervious Runoff Depth=3.81"
Tc=5.0 min CN=61/98 Runoff=0.19 cfs 650 cf

Subcatchment DA-15A: Post_DA-15A Runoff Area=36,565 sf 74.25% Impervious Runoff Depth=5.10"
Tc=5.0 min CN=74/98 Runoff=4.63 cfs 15,535 cf

Subcatchment DA-15B: Post_DA-15B Runoff Area=2,794 sf 100.00% Impervious Runoff Depth=5.76"
Tc=5.0 min CN=0/98 Runoff=0.39 cfs 1,342 cf

Reach DP-14: Catch Basin Inflow=0.89 cfs 2,715 cf
Outflow=0.89 cfs 2,715 cf

Reach DP-15: DP-15 Inflow=4.63 cfs 15,535 cf
Outflow=4.63 cfs 15,535 cf

Pond DP13: DP-13 Peak Elev=604.38' Inflow=1.03 cfs 3,531 cf
24.0" Round Culvert n=0.013 L=79.0' S=0.1128 '/' Outflow=1.03 cfs 3,531 cf

Total Runoff Area = 62,379 sf Runoff Volume = 26,582 cf Average Runoff Depth = 5.11"
22.11% Pervious = 13,795 sf 77.89% Impervious = 48,584 sf

Summary for Pond 1P: Pavers_DA-14A

Inflow Area = 2,870 sf,100.00% Impervious, Inflow Depth = 5.76" for 25 Year, 24 Hr. Event event
Inflow = 0.40 cfs @ 12.07 hrs, Volume= 1,378 cf
Outflow = 0.01 cfs @ 9.46 hrs, Volume= 1,378 cf, Atten= 98%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.46 hrs, Volume= 1,378 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 641.40' @ 16.25 hrs Surf.Area= 0 sf Storage= 810 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 689.8 min (1,434.0 - 744.2)

Volume	Invert	Avail.Storage	Storage Description
#1	640.00'	2,000 cf	**Custom Stage Data** Listed below

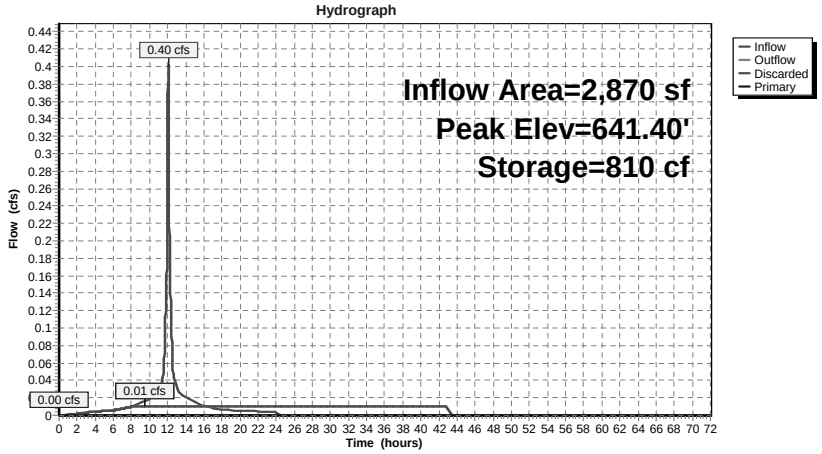
Elevation (feet)	Cum.Store (cubic-feet)
640.00	0
642.00	1,159
642.50	2,000

Device	Routing	Invert	Outlet Devices
#1	Primary	642.00'	**30.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	640.00'	**0.01 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.01 cfs @ 9.46 hrs HW=640.03' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=640.00' TW=0.00' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Pavers_DA-14A



Hydrograph for Pond 1P: Pavers_DA-14A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	640.00	0.00	0.00	**0.00**
2.00	0.00	0	640.00	0.00	0.00	0.00
4.00	0.00	0	640.00	0.00	0.00	0.00
6.00	0.01	0	640.00	0.01	0.01	0.00
8.00	0.01	0	640.00	**0.01**	**0.01**	0.00
10.00	0.02	29	640.05	**0.01**	**0.01**	0.00
12.00	**0.27**	307	640.53	0.01	0.01	0.00
14.00	**0.02**	772	641.33	0.01	0.01	0.00
16.00	0.01	**810**	**641.40**	0.01	0.01	0.00
18.00	0.01	**799**	**641.38**	0.01	0.01	0.00
20.00	0.01	769	641.33	0.01	0.01	0.00
22.00	0.00	731	641.26	0.01	0.01	0.00
24.00	0.00	687	641.19	0.01	0.01	0.00
26.00	0.00	616	641.06	0.01	0.01	0.00
28.00	0.00	544	640.94	0.01	0.01	0.00
30.00	0.00	472	640.81	0.01	0.01	0.00
32.00	0.00	400	640.69	0.01	0.01	0.00
34.00	0.00	328	640.57	0.01	0.01	0.00
36.00	0.00	256	640.44	0.01	0.01	0.00
38.00	0.00	184	640.32	0.01	0.01	0.00
40.00	0.00	112	640.19	0.01	0.01	0.00
42.00	0.00	40	640.07	0.01	0.01	0.00
44.00	0.00	0	640.00	0.00	0.00	0.00
46.00	0.00	0	640.00	0.00	0.00	0.00
48.00	0.00	0	640.00	0.00	0.00	0.00
50.00	0.00	0	640.00	0.00	0.00	0.00
52.00	0.00	0	640.00	0.00	0.00	0.00
54.00	0.00	0	640.00	0.00	0.00	0.00
56.00	0.00	0	640.00	0.00	0.00	0.00
58.00	0.00	0	640.00	0.00	0.00	0.00
60.00	0.00	0	640.00	0.00	0.00	0.00
62.00	0.00	0	640.00	0.00	0.00	0.00
64.00	0.00	0	640.00	0.00	0.00	0.00
66.00	0.00	0	640.00	0.00	0.00	0.00
68.00	0.00	0	640.00	0.00	0.00	0.00
70.00	0.00	0	640.00	0.00	0.00	0.00
72.00	0.00	0	640.00	0.00	0.00	0.00

Summary for Pond 3P: DA-13C Parking Pavers

Inflow Area = 1,400 sf,100.00% Impervious, Inflow Depth = 5.76" for 25 Year, 24 Hr. Event event
Inflow = 0.20 cfs @ 12.07 hrs, Volume= 672 cf
Outflow = 0.01 cfs @ 9.75 hrs, Volume= 672 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.75 hrs, Volume= 672 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 631.85' @ 15.75 hrs Surf.Area= 1,000 sf Storage= 370 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 541.0 min (1,285.2 - 744.2)

Volume	Invert	Avail.Storage	Storage Description
#1	630.00'	1,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

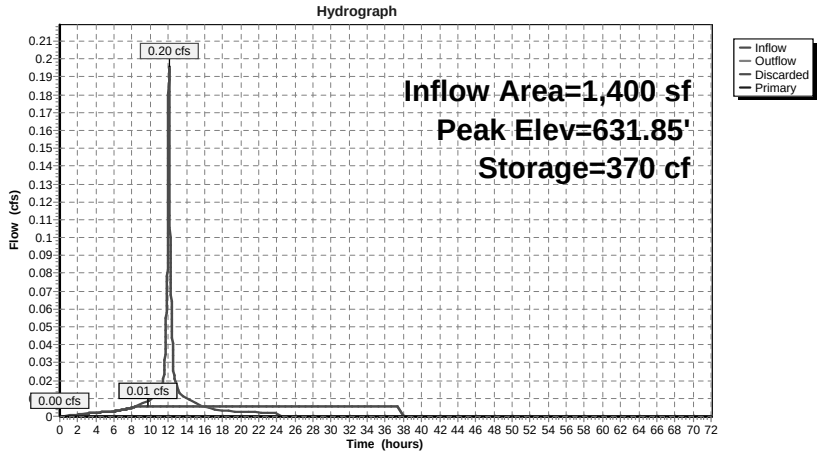
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
630.00	1,000	0.0	0	0
632.00	1,000	20.0	400	400
633.00	1,400	100.0	1,200	1,600

Device	Routing	Invert	Outlet Devices
#1	Primary	632.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	630.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 9.75 hrs HW=630.03' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=630.00' TW=603.91' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: DA-13C Parking Pavers



Hydrograph for Pond 3P: DA-13C Parking Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	630.00	0.00	0.00	**0.00**
2.00	0.00	0	630.00	0.00	0.00	0.00
4.00	0.00	0	630.00	0.00	0.00	0.00
6.00	0.00	0	630.00	0.00	0.00	0.00
8.00	0.00	0	630.00	**0.00**	**0.00**	0.00
10.00	0.01	9	630.04	**0.01**	**0.01**	0.00
12.00	**0.13**	138	630.69	0.01	0.01	0.00
14.00	**0.01**	**358**	**631.79**	0.01	0.01	0.00
16.00	0.01	**370**	**631.85**	0.01	0.01	0.00
18.00	0.00	358	631.79	0.01	0.01	0.00
20.00	0.00	337	631.68	0.01	0.01	0.00
22.00	0.00	312	631.56	0.01	0.01	0.00
24.00	0.00	284	631.42	0.01	0.01	0.00
26.00	0.00	243	631.21	0.01	0.01	0.00
28.00	0.00	201	631.01	0.01	0.01	0.00
30.00	0.00	159	630.80	0.01	0.01	0.00
32.00	0.00	118	630.59	0.01	0.01	0.00
34.00	0.00	76	630.38	0.01	0.01	0.00
36.00	0.00	34	630.17	0.01	0.01	0.00
38.00	0.00	0	630.00	0.00	0.00	0.00
40.00	0.00	0	630.00	0.00	0.00	0.00
42.00	0.00	0	630.00	0.00	0.00	0.00
44.00	0.00	0	630.00	0.00	0.00	0.00
46.00	0.00	0	630.00	0.00	0.00	0.00
48.00	0.00	0	630.00	0.00	0.00	0.00
50.00	0.00	0	630.00	0.00	0.00	0.00
52.00	0.00	0	630.00	0.00	0.00	0.00
54.00	0.00	0	630.00	0.00	0.00	0.00
56.00	0.00	0	630.00	0.00	0.00	0.00
58.00	0.00	0	630.00	0.00	0.00	0.00
60.00	0.00	0	630.00	0.00	0.00	0.00
62.00	0.00	0	630.00	0.00	0.00	0.00
64.00	0.00	0	630.00	0.00	0.00	0.00
66.00	0.00	0	630.00	0.00	0.00	0.00
68.00	0.00	0	630.00	0.00	0.00	0.00
70.00	0.00	0	630.00	0.00	0.00	0.00
72.00	0.00	0	630.00	0.00	0.00	0.00

Summary for Pond 13P: DA-13B Sidewalk Pavers

[58] Hint: Peaked 15.07' above defined flood level

Inflow Area = 2,394 sf,100.00% Impervious, Inflow Depth = 5.76" for 25 Year, 24 Hr. Event event
Inflow = 0.33 cfs @ 12.07 hrs, Volume= 1,149 cf
Outflow = 0.01 cfs @ 9.81 hrs, Volume= 1,150 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.81 hrs, Volume= 1,150 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 621.07' @ 15.72 hrs Surf.Area= 2,394 sf Storage= 630 cf
Flood Elev= 606.00' Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 532.7 min (1,276.9 - 744.2)

Volume	Invert	Avail.Storage	Storage Description
#1	619.75'	1,556 cf	**Custom Stage Data (Prismatic)** Listed below

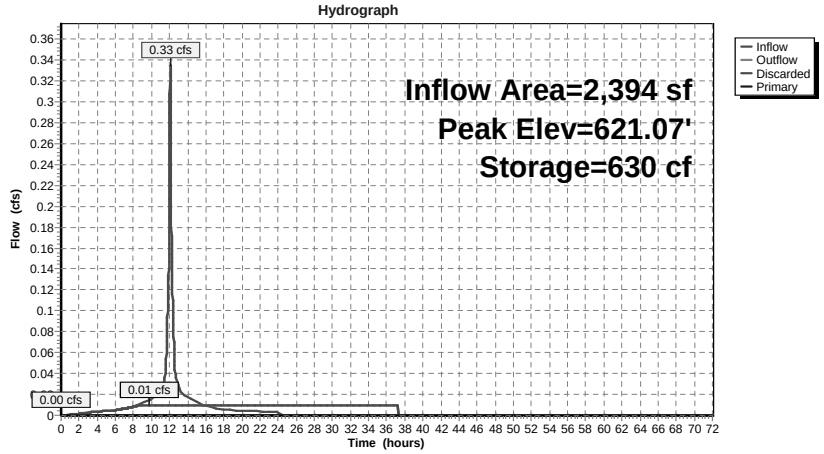
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
619.75	2,394	0.0	0	0
621.75	2,394	20.0	958	958
622.00	2,394	100.0	599	1,556

Device	Routing	Invert	Outlet Devices
#1	Primary	621.75'	**100.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Discarded	619.75'	**0.01 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.01 cfs @ 9.81 hrs HW=619.77' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=619.75' TW=603.91' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13P: DA-13B Sidewalk Pavers



Hydrograph for Pond 13P: DA-13B Sidewalk Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	619.75	0.00	0.00	**0.00**
2.00	0.00	0	619.75	0.00	0.00	0.00
4.00	0.00	0	619.75	0.00	0.00	0.00
6.00	0.00	0	619.75	0.00	0.00	0.00
8.00	0.01	0	619.75	**0.01**	**0.01**	0.00
10.00	0.02	14	619.78	**0.01**	**0.01**	0.00
12.00	**0.23**	235	620.24	0.01	0.01	0.00
14.00	**0.02**	**610**	**621.02**	0.01	0.01	0.00
16.00	0.01	**630**	**621.07**	0.01	0.01	0.00
18.00	0.01	609	621.02	0.01	0.01	0.00
20.00	0.00	572	620.94	0.01	0.01	0.00
22.00	0.00	528	620.85	0.01	0.01	0.00
24.00	0.00	480	620.75	0.01	0.01	0.00
26.00	0.00	409	620.60	0.01	0.01	0.00
28.00	0.00	337	620.45	0.01	0.01	0.00
30.00	0.00	265	620.30	0.01	0.01	0.00
32.00	0.00	193	620.15	0.01	0.01	0.00
34.00	0.00	121	620.00	0.01	0.01	0.00
36.00	0.00	49	619.85	0.01	0.01	0.00
38.00	0.00	0	619.75	0.00	0.00	0.00
40.00	0.00	0	619.75	0.00	0.00	0.00
42.00	0.00	0	619.75	0.00	0.00	0.00
44.00	0.00	0	619.75	0.00	0.00	0.00
46.00	0.00	0	619.75	0.00	0.00	0.00
48.00	0.00	0	619.75	0.00	0.00	0.00
50.00	0.00	0	619.75	0.00	0.00	0.00
52.00	0.00	0	619.75	0.00	0.00	0.00
54.00	0.00	0	619.75	0.00	0.00	0.00
56.00	0.00	0	619.75	0.00	0.00	0.00
58.00	0.00	0	619.75	0.00	0.00	0.00
60.00	0.00	0	619.75	0.00	0.00	0.00
62.00	0.00	0	619.75	0.00	0.00	0.00
64.00	0.00	0	619.75	0.00	0.00	0.00
66.00	0.00	0	619.75	0.00	0.00	0.00
68.00	0.00	0	619.75	0.00	0.00	0.00
70.00	0.00	0	619.75	0.00	0.00	0.00
72.00	0.00	0	619.75	0.00	0.00	0.00

Summary for Pond 15P: DA-15 Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 2,794 sf,100.00% Impervious, Inflow Depth = 5.76" for 25 Year, 24 Hr. Event event
Inflow = 0.39 cfs @ 12.07 hrs, Volume= 1,342 cf
Outflow = 0.13 cfs @ 12.12 hrs, Volume= 1,342 cf, Atten= 67%, Lag= 3.0 min
Discarded = 0.13 cfs @ 12.12 hrs, Volume= 1,342 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 0.04' @ 12.33 hrs Surf.Area= 0 sf Storage= 167 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.9 min (749.1 - 744.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	12,000 cf	**Custom Stage Data** Listed below

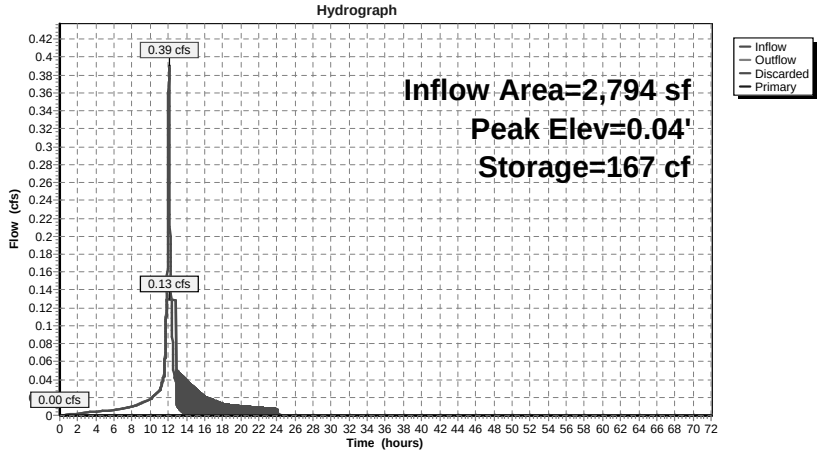
Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
2.00	7,917
3.00	12,000

Device	Routing	Invert	Outlet Devices
#1	Primary	2.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	0.00'	**0.13 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.13 cfs @ 12.12 hrs HW=0.03' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15P: DA-15 Pavers



Hydrograph for Pond 15P: DA-15 Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	0.00	0.00	0.00	**0.00**
2.00	0.00	0	0.00	0.00	0.00	0.00
4.00	0.00	0	0.00	0.00	0.00	0.00
6.00	0.01	0	0.00	0.01	0.01	0.00
8.00	0.01	0	0.00	0.01	0.01	0.00
10.00	0.02	0	0.00	0.02	0.02	0.00
12.00	**0.26**	**25**	**0.01**	**0.13**	**0.13**	0.00
14.00	**0.02**	**0**	**0.00**	**0.04**	**0.04**	0.00
16.00	0.01	0	0.00	0.02	0.02	0.00
18.00	0.01	0	0.00	0.01	0.01	0.00
20.00	0.01	0	0.00	0.01	0.01	0.00
22.00	0.00	0	0.00	0.01	0.01	0.00
24.00	0.00	0	0.00	0.01	0.01	0.00
26.00	0.00	0	0.00	0.00	0.00	0.00
28.00	0.00	0	0.00	0.00	0.00	0.00
30.00	0.00	0	0.00	0.00	0.00	0.00
32.00	0.00	0	0.00	0.00	0.00	0.00
34.00	0.00	0	0.00	0.00	0.00	0.00
36.00	0.00	0	0.00	0.00	0.00	0.00
38.00	0.00	0	0.00	0.00	0.00	0.00
40.00	0.00	0	0.00	0.00	0.00	0.00
42.00	0.00	0	0.00	0.00	0.00	0.00
44.00	0.00	0	0.00	0.00	0.00	0.00
46.00	0.00	0	0.00	0.00	0.00	0.00
48.00	0.00	0	0.00	0.00	0.00	0.00
50.00	0.00	0	0.00	0.00	0.00	0.00
52.00	0.00	0	0.00	0.00	0.00	0.00
54.00	0.00	0	0.00	0.00	0.00	0.00
56.00	0.00	0	0.00	0.00	0.00	0.00
58.00	0.00	0	0.00	0.00	0.00	0.00
60.00	0.00	0	0.00	0.00	0.00	0.00
62.00	0.00	0	0.00	0.00	0.00	0.00
64.00	0.00	0	0.00	0.00	0.00	0.00
66.00	0.00	0	0.00	0.00	0.00	0.00
68.00	0.00	0	0.00	0.00	0.00	0.00
70.00	0.00	0	0.00	0.00	0.00	0.00
72.00	0.00	0	0.00	0.00	0.00	0.00

Summary for Pond B-14B: Bioretention-14B

Inflow Area = 2,047 sf, 48.12% Impervious, Inflow Depth = 3.81" for 25 Year, 24 Hr. Event event
Inflow = 0.19 cfs @ 12.07 hrs, Volume= 650 cf
Outflow = 0.19 cfs @ 12.08 hrs, Volume= 596 cf, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 10.51 hrs, Volume= 205 cf
Primary = 0.19 cfs @ 12.08 hrs, Volume= 391 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 502.51' @ 12.08 hrs Surf.Area= 221 sf Storage= 191 cf

Plug-Flow detention time= 466.3 min calculated for 596 cf (92% of inflow)
Center-of-Mass det. time= 421.8 min (1,197.4 - 775.6)

Volume	Invert	Avail.Storage	Storage Description
#1	497.75'	299 cf	**Custom Stage Data (Prismatic)** Listed below

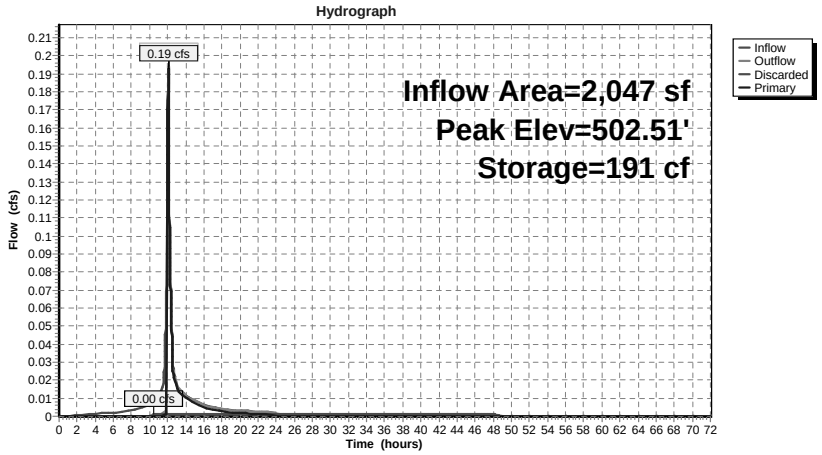
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
497.75	45	0.0	0	0
501.75	45	40.0	72	72
501.99	45	40.0	4	76
502.00	221	100.0	1	78
502.50	221	100.0	111	188
503.00	221	100.0	111	299

Device	Routing	Invert	Outlet Devices
#1	Discarded	497.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	502.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 242.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 10.51 hrs HW=502.00' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.19 cfs @ 12.08 hrs HW=502.51' TW=0.00' (Dynamic Tailwater)
↑└**2=Orifice/Grate** (Weir Controls 0.19 cfs @ 0.36 fps)

Pond B-14B: Bioretention-14B



Hydrograph for Pond B-14B: Bioretention-14B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	497.75	0.00	0.00	0.00
2.00	0.00	1	497.79	0.00	0.00	0.00
4.00	0.00	6	498.08	0.00	0.00	0.00
6.00	0.00	16	498.63	0.00	0.00	0.00
8.00	0.00	33	499.56	0.00	0.00	0.00
10.00	0.01	65	501.38	0.00	**0.00**	0.00
12.00	**0.13**	**190**	**502.51**	**0.12**	**0.00**	**0.12**
14.00	**0.01**	**189**	**502.50**	**0.01**	0.00	**0.01**
16.00	0.01	188	502.50	0.01	0.00	0.00
18.00	0.00	188	502.50	0.00	0.00	0.00
20.00	0.00	188	502.50	0.00	0.00	0.00
22.00	0.00	188	502.50	0.00	0.00	0.00
24.00	0.00	188	502.50	0.00	0.00	0.00
26.00	0.00	179	502.46	0.00	0.00	0.00
28.00	0.00	170	502.42	0.00	0.00	0.00
30.00	0.00	161	502.38	0.00	0.00	0.00
32.00	0.00	152	502.34	0.00	0.00	0.00
34.00	0.00	143	502.29	0.00	0.00	0.00
36.00	0.00	133	502.25	0.00	0.00	0.00
38.00	0.00	124	502.21	0.00	0.00	0.00
40.00	0.00	115	502.17	0.00	0.00	0.00
42.00	0.00	106	502.13	0.00	0.00	0.00
44.00	0.00	97	502.09	0.00	0.00	0.00
46.00	0.00	87	502.04	0.00	0.00	0.00
48.00	0.00	78	502.00	0.00	0.00	0.00
50.00	0.00	75	501.92	0.00	0.00	0.00
52.00	0.00	73	501.82	0.00	0.00	0.00
54.00	0.00	71	501.71	0.00	0.00	0.00
56.00	0.00	69	501.61	0.00	0.00	0.00
58.00	0.00	68	501.50	0.00	0.00	0.00
60.00	0.00	66	501.40	0.00	0.00	0.00
62.00	0.00	64	501.30	0.00	0.00	0.00
64.00	0.00	62	501.19	0.00	0.00	0.00
66.00	0.00	60	501.09	0.00	0.00	0.00
68.00	0.00	58	500.98	0.00	0.00	0.00
70.00	0.00	56	500.88	0.00	0.00	0.00
72.00	0.00	54	500.78	0.00	0.00	0.00

Summary for Subcatchment DA-13A: Post_DA-13A

Runoff = 1.03 cfs @ 12.07 hrs, Volume= 3,531 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

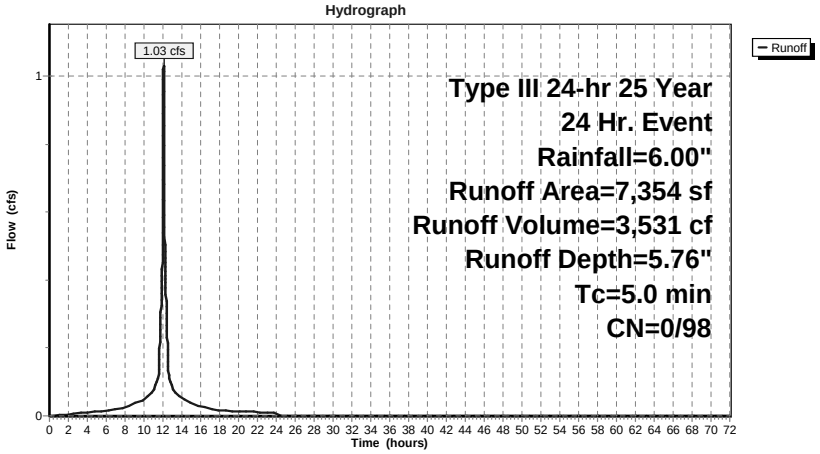
Area (sf)	CN	Description	Land Use
7,354	98	Paved parking, HSG C	Pavement
7,354	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,354	Pavement	287.35	0.93	3.49	11.13
7,354	Total	287.35	0.93	3.49	11.13

Subcatchment DA-13A: Post_DA-13A



Hydrograph for Subcatchment DA-13A: Post_DA-13A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.01
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.02
10.00	1.13	0.00	0.92	0.05
12.00	3.00	0.00	2.77	**0.70**
14.00	4.87	0.00	4.63	**0.05**
16.00	5.32	0.00	5.08	0.03
18.00	5.57	0.00	5.33	0.02
20.00	5.74	0.00	5.50	0.01
22.00	5.88	0.00	5.65	0.01
24.00	**6.00**	0.00	**5.76**	0.01
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00

Summary for Subcatchment DA-13B: Post_DA-13B

Runoff = 0.33 cfs @ 12.07 hrs, Volume= 1,149 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

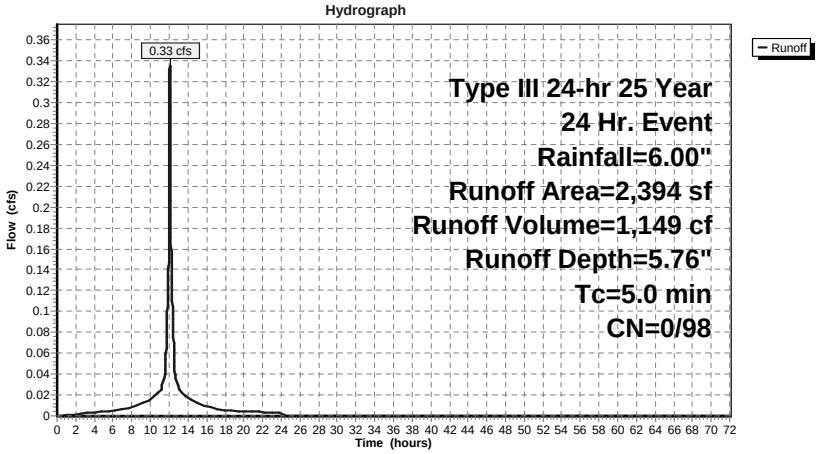
	Area (sf)	CN	Description	Land Use
*	2,394	98	Pavers, HSG C	Pavement
	2,394	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,394	Pavement	93.54	0.30	1.14	3.62
2,394	Total	93.54	0.30	1.14	3.62

Subcatchment DA-13B: Post_DA-13B



Hydrograph for Subcatchment DA-13B: Post_DA-13B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.00	0.92	0.02
12.00	3.00	0.00	2.77	**0.23**
14.00	4.87	0.00	4.63	**0.02**
16.00	5.32	0.00	5.08	0.01
18.00	5.57	0.00	5.33	0.01
20.00	5.74	0.00	5.50	0.00
22.00	5.88	0.00	5.65	0.00
24.00	**6.00**	0.00	**5.76**	0.00
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00

Summary for Subcatchment DA-13C: Post_DA-13C

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 672 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

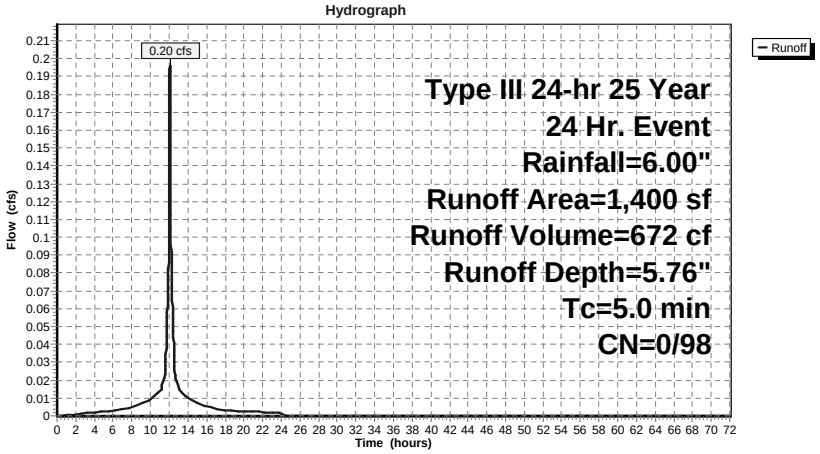
	Area (sf)	CN	Description	Land Use
*	1,400	98	Pavers	Pavement
	1,400	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,400	Pavement	54.70	0.18	0.66	2.12
1,400	Total	54.70	0.18	0.66	2.12

Subcatchment DA-13C: Post_DA-13C



Hydrograph for Subcatchment DA-13C: Post_DA-13C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.00
10.00	1.13	0.00	0.92	0.01
12.00	3.00	0.00	2.77	**0.13**
14.00	4.87	0.00	4.63	**0.01**
16.00	5.32	0.00	5.08	0.01
18.00	5.57	0.00	5.33	0.00
20.00	5.74	0.00	5.50	0.00
22.00	5.88	0.00	5.65	0.00
24.00	**6.00**	0.00	**5.76**	0.00
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00

Summary for Subcatchment DA-14A: Post_DA-14A

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 1,378 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

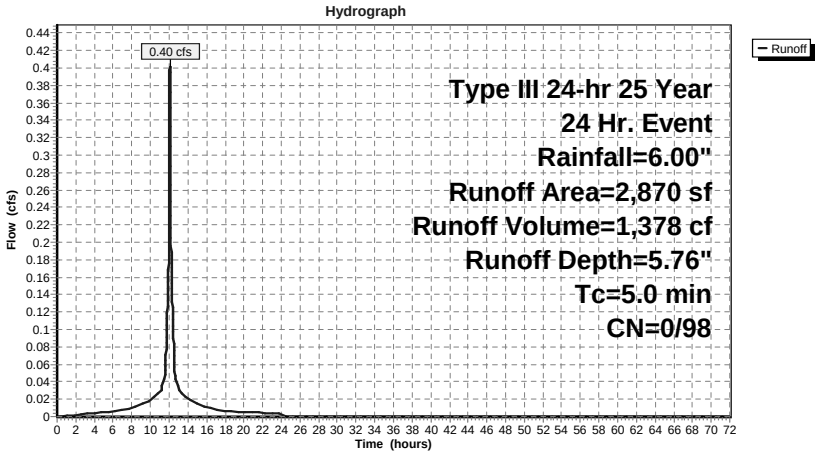
	Area (sf)	CN	Description	Land Use
	2,034	98	Paved parking, HSG B	Pavement
*	836	98	Pavers	Pavement
	2,870	98	Weighted Average	
	2,870	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,870	Pavement	112.14	0.36	1.36	4.34
2,870	Total	112.14	0.36	1.36	4.34

Subcatchment DA-14A: Post_DA-14A



Hydrograph for Subcatchment DA-14A: Post_DA-14A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.00	0.92	0.02
12.00	3.00	0.00	2.77	**0.27**
14.00	4.87	0.00	4.63	**0.02**
16.00	5.32	0.00	5.08	0.01
18.00	5.57	0.00	5.33	0.01
20.00	5.74	0.00	5.50	0.01
22.00	5.88	0.00	5.65	0.00
24.00	**6.00**	0.00	**5.76**	0.00
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00

Summary for Subcatchment DA-14B1: Post_DA-14B1

Runoff = 0.69 cfs @ 12.07 hrs, Volume= 2,324 cf, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

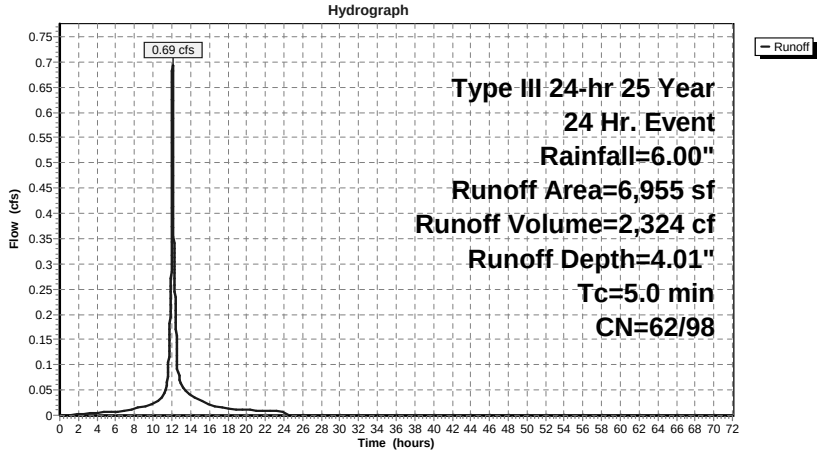
Area (sf)	CN	Description	Land Use
293	98	Paved parking, HSG C	Pavement
3,343	98	Roofs, HSG C	Roofs
3,161	61	>75% Grass cover, Good, HSG B	Open Space
158	74	>75% Grass cover, Good, HSG C	Open Space
6,955	81	Weighted Average	
3,319	62	47.72% Pervious Area	
3,636	98	52.28% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 52.28% Impervious, Rv= 0.521, Runoff= 23.79"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,319	Open Space	247.26	0.86	3.74	0.51
293	Pavement	6.27	0.02	0.08	0.24
3,343	Roofs	7.86	0.05	0.62	3.06
6,955	Total	261.39	0.93	4.43	3.81

Subcatchment DA-14B1: Post_DA-14B1



Hydrograph for Subcatchment DA-14B1: Post_DA-14B1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.00	0.92	0.02
12.00	3.00	0.40	2.77	**0.45**
14.00	4.87	1.36	4.63	**0.04**
16.00	5.32	1.64	5.08	0.02
18.00	5.57	1.80	5.33	0.01
20.00	5.74	1.92	5.50	0.01
22.00	5.88	2.01	5.65	0.01
24.00	**6.00**	**2.09**	**5.76**	0.01
26.00	6.00	2.09	5.76	0.00
28.00	6.00	2.09	5.76	0.00
30.00	6.00	2.09	5.76	0.00
32.00	6.00	2.09	5.76	0.00
34.00	6.00	2.09	5.76	0.00
36.00	6.00	2.09	5.76	0.00
38.00	6.00	2.09	5.76	0.00
40.00	6.00	2.09	5.76	0.00
42.00	6.00	2.09	5.76	0.00
44.00	6.00	2.09	5.76	0.00
46.00	6.00	2.09	5.76	0.00
48.00	6.00	2.09	5.76	0.00
50.00	6.00	2.09	5.76	0.00
52.00	6.00	2.09	5.76	0.00
54.00	6.00	2.09	5.76	0.00
56.00	6.00	2.09	5.76	0.00
58.00	6.00	2.09	5.76	0.00
60.00	6.00	2.09	5.76	0.00
62.00	6.00	2.09	5.76	0.00
64.00	6.00	2.09	5.76	0.00
66.00	6.00	2.09	5.76	0.00
68.00	6.00	2.09	5.76	0.00
70.00	6.00	2.09	5.76	0.00
72.00	6.00	2.09	5.76	0.00

Summary for Subcatchment DA-14B2: Post_DA-14B2

Runoff = 0.19 cfs @ 12.07 hrs, Volume= 650 cf, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

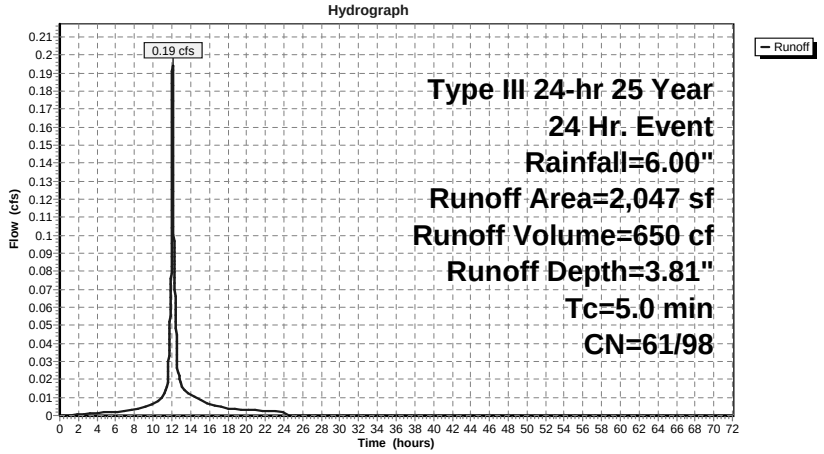
	Area (sf)	CN	Description	Land Use
	985	98	Paved parking, HSG C	Pavement
*	1,062	61	Bioretention - HSG B	Brush
	2,047	79	Weighted Average	
	1,062	61	51.88% Pervious Area	
	985	98	48.12% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 48.12% Impervious, Rv= 0.483, Runoff= 22.08"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,062	Brush	4.51	0.00	0.00	0.15
985	Pavement	19.57	0.06	0.24	0.76
2,047	Total	24.08	0.06	0.24	0.91

Subcatchment DA-14B2: Post_DA-14B2



Hydrograph for Subcatchment DA-14B2: Post_DA-14B2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.00
8.00	0.68	0.00	0.49	0.00
10.00	1.13	0.00	0.92	0.01
12.00	3.00	0.37	2.77	**0.13**
14.00	4.87	1.29	4.63	**0.01**
16.00	5.32	1.56	5.08	0.01
18.00	5.57	1.72	5.33	0.00
20.00	5.74	1.83	5.50	0.00
22.00	5.88	1.93	5.65	0.00
24.00	**6.00**	**2.01**	**5.76**	0.00
26.00	6.00	2.01	5.76	0.00
28.00	6.00	2.01	5.76	0.00
30.00	6.00	2.01	5.76	0.00
32.00	6.00	2.01	5.76	0.00
34.00	6.00	2.01	5.76	0.00
36.00	6.00	2.01	5.76	0.00
38.00	6.00	2.01	5.76	0.00
40.00	6.00	2.01	5.76	0.00
42.00	6.00	2.01	5.76	0.00
44.00	6.00	2.01	5.76	0.00
46.00	6.00	2.01	5.76	0.00
48.00	6.00	2.01	5.76	0.00
50.00	6.00	2.01	5.76	0.00
52.00	6.00	2.01	5.76	0.00
54.00	6.00	2.01	5.76	0.00
56.00	6.00	2.01	5.76	0.00
58.00	6.00	2.01	5.76	0.00
60.00	6.00	2.01	5.76	0.00
62.00	6.00	2.01	5.76	0.00
64.00	6.00	2.01	5.76	0.00
66.00	6.00	2.01	5.76	0.00
68.00	6.00	2.01	5.76	0.00
70.00	6.00	2.01	5.76	0.00
72.00	6.00	2.01	5.76	0.00

Summary for Subcatchment DA-15A: Post_DA-15A

Runoff = 4.63 cfs @ 12.07 hrs, Volume= 15,535 cf, Depth= 5.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

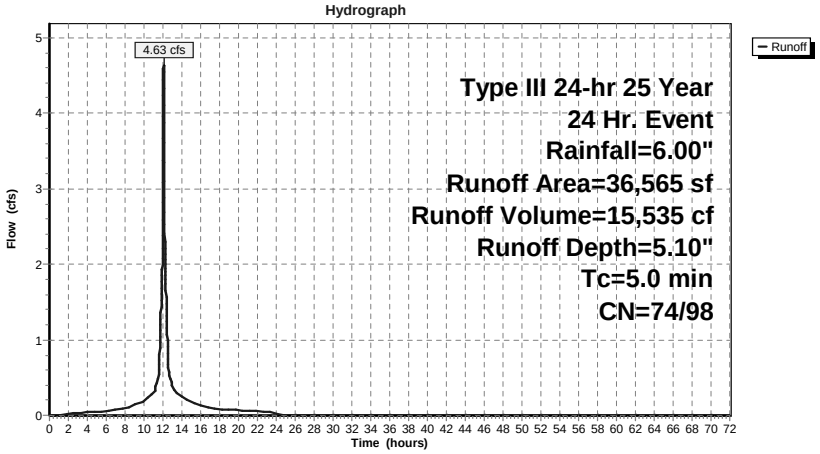
	Area (sf)	CN	Description	Land Use
*	21,025	98	Impervious	Pavement
	9,414	74	>75% Grass cover, Good, HSG C	Open Space
	6,126	98	Roofs, HSG C	Roofs
	36,565	92	Weighted Average	
	9,414	74	25.75% Pervious Area	
	27,151	98	74.25% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.25% Impervious, Rv= 0.718, Runoff= 32.83"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,414	Open Space	967.79	3.38	14.63	1.98
21,025	Pavement	621.15	2.01	7.54	24.06
6,126	Roofs	19.88	0.12	1.57	7.74
36,565	Total	1,608.82	5.50	23.74	33.77

Subcatchment DA-15A: Post_DA-15A



Hydrograph for Subcatchment DA-15A: Post_DA-15A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.02
4.00	0.26	0.00	0.11	0.04
6.00	0.43	0.00	0.26	0.05
8.00	0.68	0.00	0.49	0.09
10.00	1.13	0.05	0.92	0.19
12.00	3.00	0.91	2.77	**3.09**
14.00	4.87	2.26	4.63	**0.24**
16.00	5.32	2.62	5.08	0.13
18.00	5.57	2.83	5.33	0.08
20.00	5.74	2.97	5.50	0.06
22.00	5.88	3.09	5.65	0.05
24.00	**6.00**	**3.18**	**5.76**	0.04
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00

Summary for Subcatchment DA-15B: Post_DA-15B

Runoff = 0.39 cfs @ 12.07 hrs, Volume= 1,342 cf, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

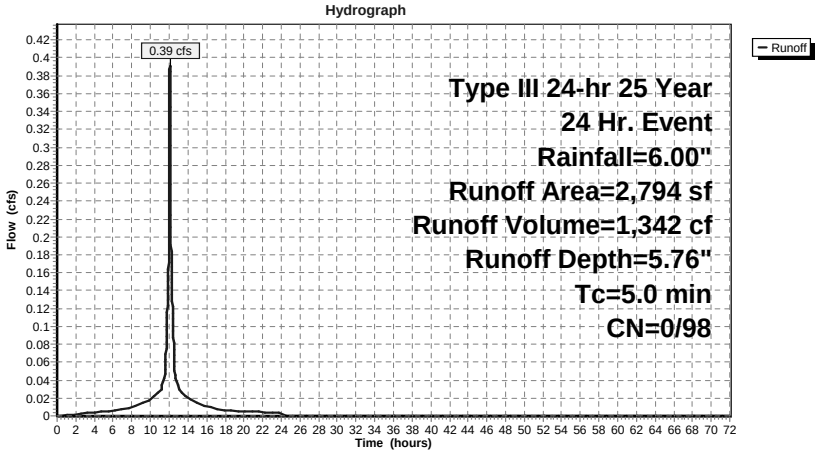
	Area (sf)	CN	Description	Land Use
*	2,794	98	Pavers	Pavement
	2,794	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,794	Pavement	109.17	0.35	1.33	4.23
2,794	Total	109.17	0.35	1.33	4.23

Subcatchment DA-15B: Post_DA-15B



Hydrograph for Subcatchment DA-15B: Post_DA-15B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.12	0.00	0.02	0.00
4.00	0.26	0.00	0.11	0.00
6.00	0.43	0.00	0.26	0.01
8.00	0.68	0.00	0.49	0.01
10.00	1.13	0.00	0.92	0.02
12.00	3.00	0.00	2.77	**0.26**
14.00	4.87	0.00	4.63	**0.02**
16.00	5.32	0.00	5.08	0.01
18.00	5.57	0.00	5.33	0.01
20.00	5.74	0.00	5.50	0.01
22.00	5.88	0.00	5.65	0.00
24.00	**6.00**	0.00	**5.76**	0.00
26.00	6.00	0.00	5.76	0.00
28.00	6.00	0.00	5.76	0.00
30.00	6.00	0.00	5.76	0.00
32.00	6.00	0.00	5.76	0.00
34.00	6.00	0.00	5.76	0.00
36.00	6.00	0.00	5.76	0.00
38.00	6.00	0.00	5.76	0.00
40.00	6.00	0.00	5.76	0.00
42.00	6.00	0.00	5.76	0.00
44.00	6.00	0.00	5.76	0.00
46.00	6.00	0.00	5.76	0.00
48.00	6.00	0.00	5.76	0.00
50.00	6.00	0.00	5.76	0.00
52.00	6.00	0.00	5.76	0.00
54.00	6.00	0.00	5.76	0.00
56.00	6.00	0.00	5.76	0.00
58.00	6.00	0.00	5.76	0.00
60.00	6.00	0.00	5.76	0.00
62.00	6.00	0.00	5.76	0.00
64.00	6.00	0.00	5.76	0.00
66.00	6.00	0.00	5.76	0.00
68.00	6.00	0.00	5.76	0.00
70.00	6.00	0.00	5.76	0.00
72.00	6.00	0.00	5.76	0.00

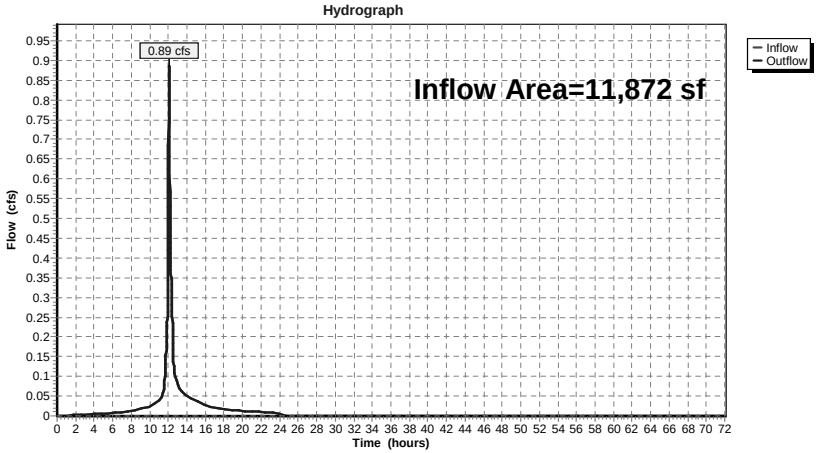
Summary for Reach DP-14: Catch Basin

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11,872 sf, 63.10% Impervious, Inflow Depth = 2.74" for 25 Year, 24 Hr. Event event
Inflow = 0.89 cfs @ 12.07 hrs, Volume= 2,715 cf
Outflow = 0.89 cfs @ 12.07 hrs, Volume= 2,715 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-14: Catch Basin



Hydrograph for Reach DP-14: Catch Basin

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.01		0.01	60.00	0.00		0.00
9.00	0.02		0.02	61.00	0.00		0.00
10.00	0.02		0.02	62.00	0.00		0.00
11.00	0.04		0.04	63.00	0.00		0.00
12.00	**0.57**		**0.57**	64.00	0.00		0.00
13.00	**0.08**		**0.08**	65.00	0.00		0.00
14.00	0.05		0.05	66.00	0.00		0.00
15.00	0.04		0.04	67.00	0.00		0.00
16.00	0.03		0.03	68.00	0.00		0.00
17.00	0.02		0.02	69.00	0.00		0.00
18.00	0.02		0.02	70.00	0.00		0.00
19.00	0.01		0.01	71.00	0.00		0.00
20.00	0.01		0.01	72.00	0.00		0.00
21.00	0.01		0.01				
22.00	0.01		0.01				
23.00	0.01		0.01				
24.00	0.01		0.01				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

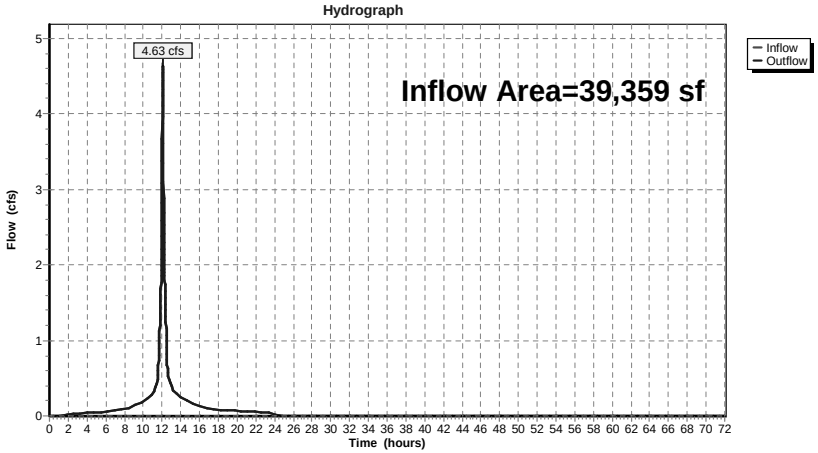
Summary for Reach DP-15: DP-15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 39,359 sf, 76.08% Impervious, Inflow Depth = 4.74" for 25 Year, 24 Hr. Event event
Inflow = 4.63 cfs @ 12.07 hrs, Volume= 15,535 cf
Outflow = 4.63 cfs @ 12.07 hrs, Volume= 15,535 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-15: DP-15



Hydrograph for Reach DP-15: DP-15

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.03		0.03	55.00	0.00		0.00
4.00	0.04		0.04	56.00	0.00		0.00
5.00	0.05		0.05	57.00	0.00		0.00
6.00	0.05		0.05	58.00	0.00		0.00
7.00	0.07		0.07	59.00	0.00		0.00
8.00	0.09		0.09	60.00	0.00		0.00
9.00	0.14		0.14	61.00	0.00		0.00
10.00	0.19		0.19	62.00	0.00		0.00
11.00	0.29		0.29	63.00	0.00		0.00
12.00	**3.09**		**3.09**	64.00	0.00		0.00
13.00	**0.38**		**0.38**	65.00	0.00		0.00
14.00	0.24		0.24	66.00	0.00		0.00
15.00	0.18		0.18	67.00	0.00		0.00
16.00	0.13		0.13	68.00	0.00		0.00
17.00	0.10		0.10	69.00	0.00		0.00
18.00	0.08		0.08	70.00	0.00		0.00
19.00	0.07		0.07	71.00	0.00		0.00
20.00	0.06		0.06	72.00	0.00		0.00
21.00	0.06		0.06				
22.00	0.05		0.05				
23.00	0.05		0.05				
24.00	0.04		0.04				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP13: DP-13

[57] Hint: Peaked at 604.38' (Flood elevation advised)

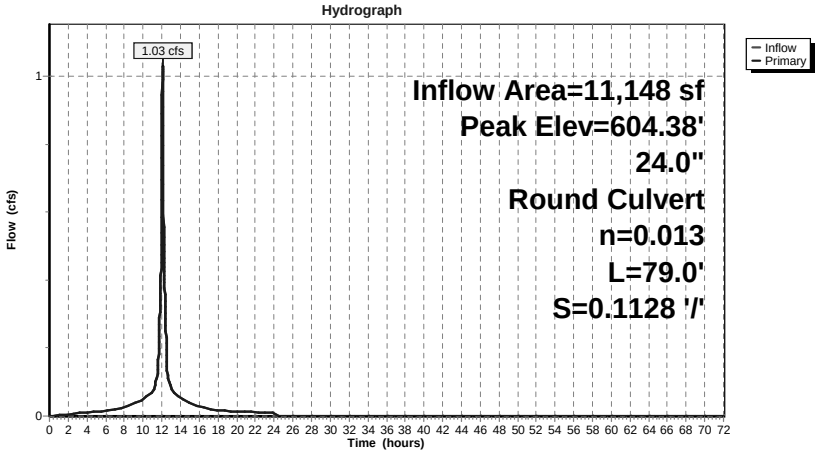
Inflow Area = 11,148 sf,100.00% Impervious, Inflow Depth = 3.80" for 25 Year, 24 Hr. Event event
Inflow = 1.03 cfs @ 12.07 hrs, Volume= 3,531 cf
Outflow = 1.03 cfs @ 12.07 hrs, Volume= 3,531 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.03 cfs @ 12.07 hrs, Volume= 3,531 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 604.38' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	603.91'	**24.0" Round Culvert** L= 79.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 603.91' / 595.00' S= 0.1128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.03 cfs @ 12.07 hrs HW=604.38' (Free Discharge)
1=Culvert (Inlet Controls 1.03 cfs @ 1.84 fps)

Pond DP13: DP-13



Hydrograph for Pond DP13: DP-13

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	603.91	0.00	52.00	0.00	603.91	0.00
1.00	0.00	603.93	0.00	53.00	0.00	603.91	0.00
2.00	0.00	603.94	0.00	54.00	0.00	603.91	0.00
3.00	0.01	603.95	0.01	55.00	0.00	603.91	0.00
4.00	0.01	603.95	0.01	56.00	0.00	603.91	0.00
5.00	0.01	603.96	0.01	57.00	0.00	603.91	0.00
6.00	0.01	603.96	0.01	58.00	0.00	603.91	0.00
7.00	0.02	603.97	0.02	59.00	0.00	603.91	0.00
8.00	0.02	603.98	0.02	60.00	0.00	603.91	0.00
9.00	0.04	603.99	0.04	61.00	0.00	603.91	0.00
10.00	0.05	604.01	0.05	62.00	0.00	603.91	0.00
11.00	0.07	604.03	0.07	63.00	0.00	603.91	0.00
12.00	**0.70**	**604.29**	**0.70**	64.00	0.00	603.91	0.00
13.00	**0.08**	**604.04**	**0.08**	65.00	0.00	603.91	0.00
14.00	0.05	604.01	0.05	66.00	0.00	603.91	0.00
15.00	0.04	604.00	0.04	67.00	0.00	603.91	0.00
16.00	0.03	603.98	0.03	68.00	0.00	603.91	0.00
17.00	0.02	603.98	0.02	69.00	0.00	603.91	0.00
18.00	0.02	603.97	0.02	70.00	0.00	603.91	0.00
19.00	0.01	603.96	0.01	71.00	0.00	603.91	0.00
20.00	0.01	603.96	0.01	72.00	0.00	603.91	0.00
21.00	0.01	603.96	0.01				
22.00	0.01	603.96	0.01				
23.00	0.01	603.95	0.01				
24.00	0.01	603.95	0.01				
25.00	0.00	603.91	0.00				
26.00	0.00	603.91	0.00				
27.00	0.00	603.91	0.00				
28.00	0.00	603.91	0.00				
29.00	0.00	603.91	0.00				
30.00	0.00	603.91	0.00				
31.00	0.00	603.91	0.00				
32.00	0.00	603.91	0.00				
33.00	0.00	603.91	0.00				
34.00	0.00	603.91	0.00				
35.00	0.00	603.91	0.00				
36.00	0.00	603.91	0.00				
37.00	0.00	603.91	0.00				
38.00	0.00	603.91	0.00				
39.00	0.00	603.91	0.00				
40.00	0.00	603.91	0.00				
41.00	0.00	603.91	0.00				
42.00	0.00	603.91	0.00				
43.00	0.00	603.91	0.00				
44.00	0.00	603.91	0.00				
45.00	0.00	603.91	0.00				
46.00	0.00	603.91	0.00				
47.00	0.00	603.91	0.00				
48.00	0.00	603.91	0.00				
49.00	0.00	603.91	0.00				
50.00	0.00	603.91	0.00				
51.00	0.00	603.91	0.00				

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 1P: Pavers_DA-14A Peak Elev=642.01' Storage=1,174 cf Inflow=0.64 cfs 2,215 cf
Discarded=0.01 cfs 1,872 cf Primary=0.07 cfs 343 cf Outflow=0.08 cfs 2,215 cf

Pond 3P: DA-13C Parking Pavers Peak Elev=632.02' Storage=421 cf Inflow=0.31 cfs 1,080 cf
Discarded=0.01 cfs 785 cf Primary=0.15 cfs 296 cf Outflow=0.15 cfs 1,080 cf

Pond 13P: DA-13B Sidewalk Pavers Peak Elev=621.75' Storage=966 cf Inflow=0.53 cfs 1,847 cf
Discarded=0.01 cfs 1,619 cf Primary=0.05 cfs 228 cf Outflow=0.06 cfs 1,847 cf

Pond 15P: DA-15 Pavers Peak Elev=0.11' Storage=443 cf Inflow=0.62 cfs 2,156 cf
Discarded=0.13 cfs 2,158 cf Primary=0.00 cfs 0 cf Outflow=0.13 cfs 2,158 cf

Pond B-14B: Bioretention-14B Peak Elev=502.52' Storage=192 cf Inflow=0.36 cfs 1,169 cf
Discarded=0.00 cfs 212 cf Primary=0.35 cfs 902 cf Outflow=0.35 cfs 1,115 cf

Subcatchment DA-13A: Post_DA-13A Runoff Area=7,354 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=1.63 cfs 5,674 cf

Subcatchment DA-13B: Post_DA-13B Runoff Area=2,394 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=0.53 cfs 1,847 cf

Subcatchment DA-13C: Post_DA-13C Runoff Area=1,400 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=0.31 cfs 1,080 cf

Subcatchment DA-14A: Post_DA-14A Runoff Area=2,870 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=0.64 cfs 2,215 cf

Subcatchment DA-14B1: Post_DA-14B1 Runoff Area=6,955 sf 52.28% Impervious Runoff Depth=7.11"
Tc=5.0 min CN=62/98 Runoff=1.25 cfs 4,120 cf

Subcatchment DA-14B2: Post_DA-14B2 Runoff Area=2,047 sf 48.12% Impervious Runoff Depth=6.85"
Tc=5.0 min CN=61/98 Runoff=0.36 cfs 1,169 cf

Subcatchment DA-15A: Post_DA-15A Runoff Area=36,565 sf 74.25% Impervious Runoff Depth=8.49"
Tc=5.0 min CN=74/98 Runoff=7.66 cfs 25,882 cf

Subcatchment DA-15B: Post_DA-15B Runoff Area=2,794 sf 100.00% Impervious Runoff Depth=9.26"
Tc=5.0 min CN=0/98 Runoff=0.62 cfs 2,156 cf

Reach DP-14: Catch Basin Inflow=1.60 cfs 5,366 cf
Outflow=1.60 cfs 5,366 cf

Reach DP-15: DP-15 Inflow=7.66 cfs 25,882 cf
Outflow=7.66 cfs 25,882 cf

Pond DP13: DP-13 Peak Elev=604.51' Inflow=1.63 cfs 6,198 cf
24.0" Round Culvert n=0.013 L=79.0' S=0.1128 '/' Outflow=1.63 cfs 6,198 cf

Total Runoff Area = 62,379 sf Runoff Volume = 44,144 cf Average Runoff Depth = 8.49"
22.11% Pervious = 13,795 sf 77.89% Impervious = 48,584 sf

Summary for Pond 1P: Pavers_DA-14A

Inflow Area = 2,870 sf,100.00% Impervious, Inflow Depth = 9.26" for 100 Year, 24 Hr. Event event
Inflow = 0.64 cfs @ 12.07 hrs, Volume= 2,215 cf
Outflow = 0.08 cfs @ 12.60 hrs, Volume= 2,215 cf, Atten= 88%, Lag= 31.7 min
Discarded = 0.01 cfs @ 7.81 hrs, Volume= 1,872 cf
Primary = 0.07 cfs @ 12.60 hrs, Volume= 343 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 642.01' @ 12.60 hrs Surf.Area= 0 sf Storage= 1,174 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 851.7 min (1,590.0 - 738.3)

Volume	Invert	Avail.Storage	Storage Description
#1	640.00'	2,000 cf	**Custom Stage Data** Listed below

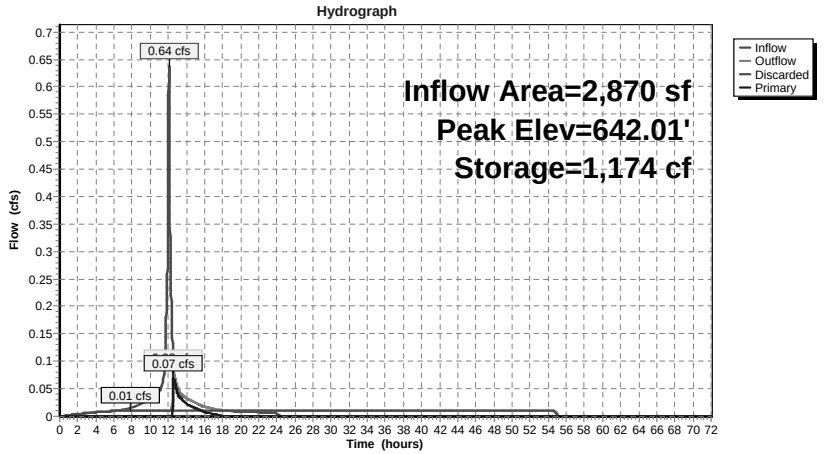
Elevation (feet)	Cum.Store (cubic-feet)
640.00	0
642.00	1,159
642.50	2,000

Device	Routing	Invert	Outlet Devices
#1	Primary	642.00'	**30.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	640.00'	**0.01 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.01 cfs @ 7.81 hrs HW=640.03' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.07 cfs @ 12.60 hrs HW=642.01' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.07 cfs @ 0.25 fps)

Pond 1P: Pavers_DA-14A



Hydrograph for Pond 1P: Pavers_DA-14A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	640.00	0.00	0.00	0.00
2.00	0.00	0	640.00	0.00	0.00	0.00
4.00	0.01	0	640.00	0.01	0.01	0.00
6.00	0.01	0	640.00	0.01	**0.01**	0.00
8.00	0.02	18	640.03	0.01	**0.01**	0.00
10.00	0.03	110	640.19	0.01	0.01	0.00
12.00	**0.43**	**596**	**641.03**	**0.01**	0.01	**0.00**
14.00	**0.03**	**1,166**	**642.00**	**0.03**	0.01	**0.02**
16.00	0.02	1,162	642.00	0.02	0.01	0.01
18.00	0.01	1,160	642.00	0.01	0.01	0.00
20.00	0.01	1,154	641.99	0.01	0.01	0.00
22.00	0.01	1,136	641.96	0.01	0.01	0.00
24.00	0.01	1,108	641.91	0.01	0.01	0.00
26.00	0.00	1,038	641.79	0.01	0.01	0.00
28.00	0.00	966	641.67	0.01	0.01	0.00
30.00	0.00	894	641.54	0.01	0.01	0.00
32.00	0.00	822	641.42	0.01	0.01	0.00
34.00	0.00	750	641.29	0.01	0.01	0.00
36.00	0.00	678	641.17	0.01	0.01	0.00
38.00	0.00	606	641.04	0.01	0.01	0.00
40.00	0.00	534	640.92	0.01	0.01	0.00
42.00	0.00	462	640.80	0.01	0.01	0.00
44.00	0.00	390	640.67	0.01	0.01	0.00
46.00	0.00	318	640.55	0.01	0.01	0.00
48.00	0.00	246	640.42	0.01	0.01	0.00
50.00	0.00	174	640.30	0.01	0.01	0.00
52.00	0.00	102	640.18	0.01	0.01	0.00
54.00	0.00	30	640.05	0.01	0.01	0.00
56.00	0.00	0	640.00	0.00	0.00	0.00
58.00	0.00	0	640.00	0.00	0.00	0.00
60.00	0.00	0	640.00	0.00	0.00	0.00
62.00	0.00	0	640.00	0.00	0.00	0.00
64.00	0.00	0	640.00	0.00	0.00	0.00
66.00	0.00	0	640.00	0.00	0.00	0.00
68.00	0.00	0	640.00	0.00	0.00	0.00
70.00	0.00	0	640.00	0.00	0.00	0.00
72.00	0.00	0	640.00	0.00	0.00	0.00

Summary for Pond 3P: DA-13C Parking Pavers

Inflow Area = 1,400 sf,100.00% Impervious, Inflow Depth = 9.26" for 100 Year, 24 Hr. Event event
Inflow = 0.31 cfs @ 12.07 hrs, Volume= 1,080 cf
Outflow = 0.15 cfs @ 12.20 hrs, Volume= 1,080 cf, Atten= 51%, Lag= 7.8 min
Discarded = 0.01 cfs @ 12.20 hrs, Volume= 785 cf
Primary = 0.15 cfs @ 12.20 hrs, Volume= 296 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 632.02' @ 12.20 hrs Surf.Area= 1,008 sf Storage= 421 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 443.2 min (1,181.4 - 738.3)

Volume	Invert	Avail.Storage	Storage Description
#1	630.00'	1,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

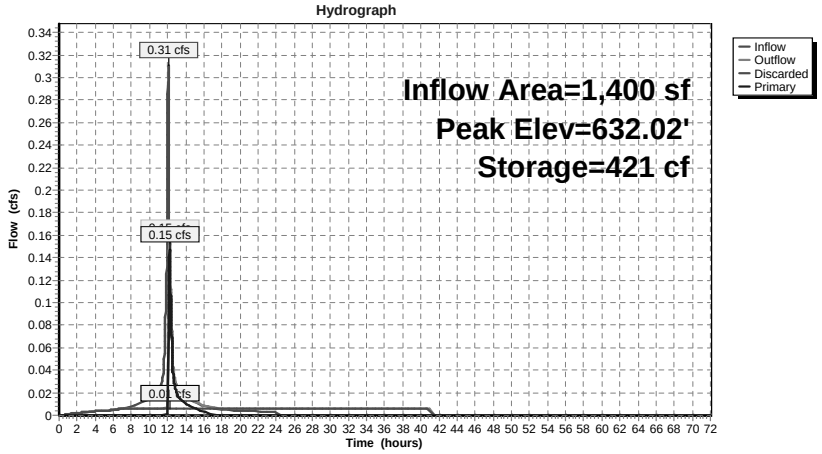
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
630.00	1,000	0.0	0	0
632.00	1,000	20.0	400	400
633.00	1,400	100.0	1,200	1,600

Device	Routing	Invert	Outlet Devices
#1	Primary	632.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	630.00'	**0.250 in/hr Exfiltration over Horizontal area**

Discarded OutFlow Max=0.01 cfs @ 12.20 hrs HW=632.02' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.15 cfs @ 12.20 hrs HW=632.02' TW=604.36' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.15 cfs @ 0.36 fps)

Pond 3P: DA-13C Parking Pavers



Hydrograph for Pond 3P: DA-13C Parking Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	630.00	0.00	0.00	0.00
2.00	0.00	0	630.00	0.00	0.00	0.00
4.00	0.00	0	630.00	0.00	0.00	0.00
6.00	0.00	0	630.00	0.00	0.00	0.00
8.00	0.01	4	630.02	0.01	0.01	0.00
10.00	0.01	42	630.21	0.01	0.01	0.00
12.00	**0.21**	**273**	**631.36**	**0.01**	**0.01**	**0.00**
14.00	**0.02**	**404**	**632.00**	**0.02**	**0.01**	**0.01**
16.00	0.01	401	632.00	0.01	0.01	0.00
18.00	0.01	400	632.00	0.01	0.01	0.00
20.00	0.00	390	631.95	0.01	0.01	0.00
22.00	0.00	375	631.88	0.01	0.01	0.00
24.00	0.00	355	631.77	0.01	0.01	0.00
26.00	0.00	314	631.57	0.01	0.01	0.00
28.00	0.00	272	631.36	0.01	0.01	0.00
30.00	0.00	231	631.15	0.01	0.01	0.00
32.00	0.00	189	630.95	0.01	0.01	0.00
34.00	0.00	147	630.74	0.01	0.01	0.00
36.00	0.00	106	630.53	0.01	0.01	0.00
38.00	0.00	64	630.32	0.01	0.01	0.00
40.00	0.00	22	630.11	0.01	0.01	0.00
42.00	0.00	0	630.00	0.00	0.00	0.00
44.00	0.00	0	630.00	0.00	0.00	0.00
46.00	0.00	0	630.00	0.00	0.00	0.00
48.00	0.00	0	630.00	0.00	0.00	0.00
50.00	0.00	0	630.00	0.00	0.00	0.00
52.00	0.00	0	630.00	0.00	0.00	0.00
54.00	0.00	0	630.00	0.00	0.00	0.00
56.00	0.00	0	630.00	0.00	0.00	0.00
58.00	0.00	0	630.00	0.00	0.00	0.00
60.00	0.00	0	630.00	0.00	0.00	0.00
62.00	0.00	0	630.00	0.00	0.00	0.00
64.00	0.00	0	630.00	0.00	0.00	0.00
66.00	0.00	0	630.00	0.00	0.00	0.00
68.00	0.00	0	630.00	0.00	0.00	0.00
70.00	0.00	0	630.00	0.00	0.00	0.00
72.00	0.00	0	630.00	0.00	0.00	0.00

Summary for Pond 13P: DA-13B Sidewalk Pavers

[58] Hint: Peaked 15.75' above defined flood level

Inflow Area = 2,394 sf,100.00% Impervious, Inflow Depth = 9.26" for 100 Year, 24 Hr. Event event
Inflow = 0.53 cfs @ 12.07 hrs, Volume= 1,847 cf
Outflow = 0.06 cfs @ 12.73 hrs, Volume= 1,847 cf, Atten= 90%, Lag= 39.5 min
Discarded = 0.01 cfs @ 8.32 hrs, Volume= 1,619 cf
Primary = 0.05 cfs @ 12.73 hrs, Volume= 228 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 621.75' @ 12.73 hrs Surf.Area= 2,394 sf Storage= 966 cf
Flood Elev= 606.00' Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 726.2 min (1,464.4 - 738.3)

Volume	Invert	Avail.Storage	Storage Description
#1	619.75'	1,556 cf	**Custom Stage Data (Prismatic)** Listed below

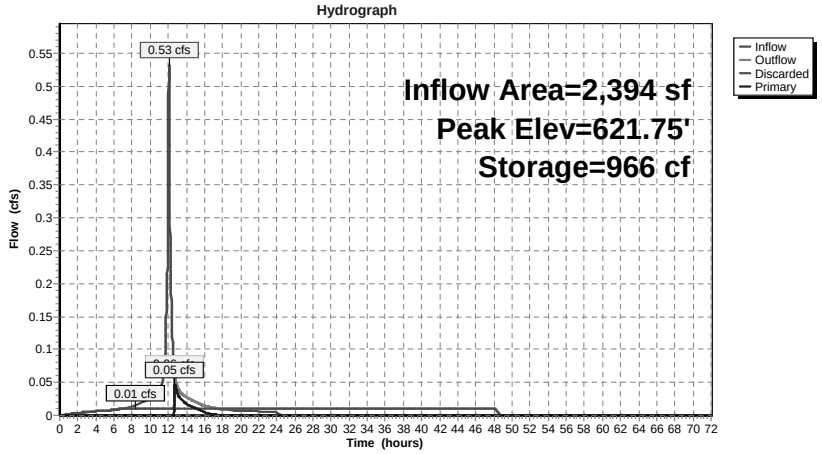
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
619.75	2,394	0.0	0	0
621.75	2,394	20.0	958	958
622.00	2,394	100.0	599	1,556

Device	Routing	Invert	Outlet Devices
#1	Primary	621.75'	**100.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Discarded	619.75'	**0.01 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.01 cfs @ 8.32 hrs HW=619.77' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.05 cfs @ 12.73 hrs HW=621.75' TW=604.13' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.05 cfs @ 0.14 fps)

Pond 13P: DA-13B Sidewalk Pavers



Hydrograph for Pond 13P: DA-13B Sidewalk Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	619.75	0.00	0.00	0.00
2.00	0.00	0	619.75	0.00	0.00	0.00
4.00	0.01	0	619.75	0.01	0.01	0.00
6.00	0.01	0	619.75	0.01	0.01	0.00
8.00	0.01	6	619.76	0.01	**0.01**	0.00
10.00	0.03	71	619.90	0.01	**0.01**	0.00
12.00	**0.36**	**465**	**620.72**	**0.01**	0.01	**0.00**
14.00	**0.03**	**962**	**621.75**	**0.03**	0.01	**0.02**
16.00	0.01	959	621.75	0.01	0.01	0.00
18.00	0.01	957	621.75	0.01	0.01	0.00
20.00	0.01	940	621.71	0.01	0.01	0.00
22.00	0.01	913	621.66	0.01	0.01	0.00
24.00	0.00	878	621.58	0.01	0.01	0.00
26.00	0.00	807	621.44	0.01	0.01	0.00
28.00	0.00	735	621.29	0.01	0.01	0.00
30.00	0.00	663	621.14	0.01	0.01	0.00
32.00	0.00	591	620.98	0.01	0.01	0.00
34.00	0.00	519	620.83	0.01	0.01	0.00
36.00	0.00	447	620.68	0.01	0.01	0.00
38.00	0.00	375	620.53	0.01	0.01	0.00
40.00	0.00	303	620.38	0.01	0.01	0.00
42.00	0.00	231	620.23	0.01	0.01	0.00
44.00	0.00	159	620.08	0.01	0.01	0.00
46.00	0.00	87	619.93	0.01	0.01	0.00
48.00	0.00	15	619.78	0.01	0.01	0.00
50.00	0.00	0	619.75	0.00	0.00	0.00
52.00	0.00	0	619.75	0.00	0.00	0.00
54.00	0.00	0	619.75	0.00	0.00	0.00
56.00	0.00	0	619.75	0.00	0.00	0.00
58.00	0.00	0	619.75	0.00	0.00	0.00
60.00	0.00	0	619.75	0.00	0.00	0.00
62.00	0.00	0	619.75	0.00	0.00	0.00
64.00	0.00	0	619.75	0.00	0.00	0.00
66.00	0.00	0	619.75	0.00	0.00	0.00
68.00	0.00	0	619.75	0.00	0.00	0.00
70.00	0.00	0	619.75	0.00	0.00	0.00
72.00	0.00	0	619.75	0.00	0.00	0.00

Summary for Pond 15P: DA-15 Pavers

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 2,794 sf,100.00% Impervious, Inflow Depth = 9.26" for 100 Year, 24 Hr. Event event
Inflow = 0.62 cfs @ 12.07 hrs, Volume= 2,156 cf
Outflow = 0.13 cfs @ 12.01 hrs, Volume= 2,158 cf, Atten= 79%, Lag= 0.0 min
Discarded = 0.13 cfs @ 12.01 hrs, Volume= 2,158 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 0.11' @ 12.47 hrs Surf.Area= 0 sf Storage= 443 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 15.5 min (753.8 - 738.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	12,000 cf	**Custom Stage Data** Listed below

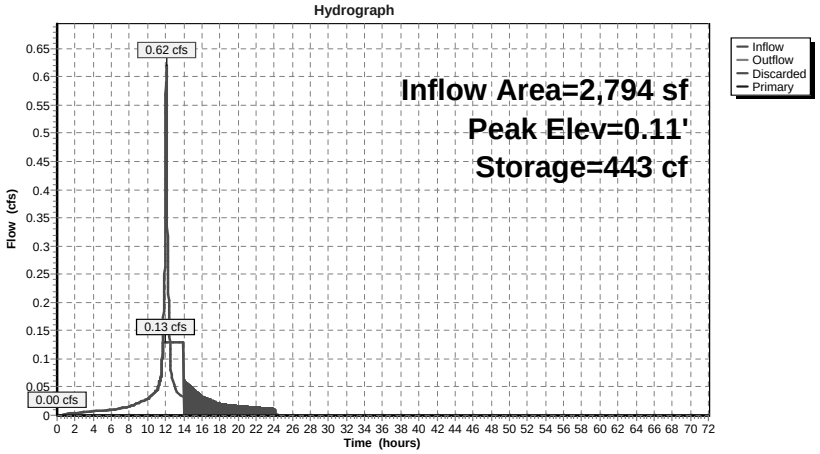
Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
2.00	7,917
3.00	12,000

Device	Routing	Invert	Outlet Devices
#1	Primary	2.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Discarded	0.00'	**0.13 cfs Exfiltration at all elevations**

Discarded OutFlow Max=0.13 cfs @ 12.01 hrs HW=0.03' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
↑└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15P: DA-15 Pavers



Hydrograph for Pond 15P: DA-15 Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	0.00	0.00	0.00	**0.00**
2.00	0.00	0	0.00	0.00	0.00	0.00
4.00	0.01	0	0.00	0.01	0.01	0.00
6.00	0.01	0	0.00	0.01	0.01	0.00
8.00	0.02	0	0.00	0.02	0.02	0.00
10.00	0.03	0	0.00	0.03	0.03	0.00
12.00	**0.42**	**108**	**0.03**	**0.13**	**0.13**	0.00
14.00	**0.03**	**0**	**0.00**	**0.13**	**0.13**	0.00
16.00	0.02	0	0.00	0.03	0.03	0.00
18.00	0.01	0	0.00	0.02	0.02	0.00
20.00	0.01	0	0.00	0.02	0.02	0.00
22.00	0.01	0	0.00	0.01	0.01	0.00
24.00	0.01	0	0.00	0.01	0.01	0.00
26.00	0.00	0	0.00	0.00	0.00	0.00
28.00	0.00	0	0.00	0.00	0.00	0.00
30.00	0.00	0	0.00	0.00	0.00	0.00
32.00	0.00	0	0.00	0.00	0.00	0.00
34.00	0.00	0	0.00	0.00	0.00	0.00
36.00	0.00	0	0.00	0.00	0.00	0.00
38.00	0.00	0	0.00	0.00	0.00	0.00
40.00	0.00	0	0.00	0.00	0.00	0.00
42.00	0.00	0	0.00	0.00	0.00	0.00
44.00	0.00	0	0.00	0.00	0.00	0.00
46.00	0.00	0	0.00	0.00	0.00	0.00
48.00	0.00	0	0.00	0.00	0.00	0.00
50.00	0.00	0	0.00	0.00	0.00	0.00
52.00	0.00	0	0.00	0.00	0.00	0.00
54.00	0.00	0	0.00	0.00	0.00	0.00
56.00	0.00	0	0.00	0.00	0.00	0.00
58.00	0.00	0	0.00	0.00	0.00	0.00
60.00	0.00	0	0.00	0.00	0.00	0.00
62.00	0.00	0	0.00	0.00	0.00	0.00
64.00	0.00	0	0.00	0.00	0.00	0.00
66.00	0.00	0	0.00	0.00	0.00	0.00
68.00	0.00	0	0.00	0.00	0.00	0.00
70.00	0.00	0	0.00	0.00	0.00	0.00
72.00	0.00	0	0.00	0.00	0.00	0.00

Summary for Pond B-14B: Bioretention-14B

Inflow Area = 2,047 sf, 48.12% Impervious, Inflow Depth = 6.85" for 100 Year, 24 Hr. Event event
Inflow = 0.36 cfs @ 12.07 hrs, Volume= 1,169 cf
Outflow = 0.35 cfs @ 12.07 hrs, Volume= 1,115 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 8.70 hrs, Volume= 212 cf
Primary = 0.35 cfs @ 12.07 hrs, Volume= 902 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 502.52' @ 12.07 hrs Surf.Area= 221 sf Storage= 192 cf

Plug-Flow detention time= 268.5 min calculated for 1,115 cf (95% of inflow)
Center-of-Mass det. time= 241.2 min (1,013.1 - 771.9)

Volume	Invert	Avail.Storage	Storage Description
#1	497.75'	299 cf	**Custom Stage Data (Prismatic)** Listed below

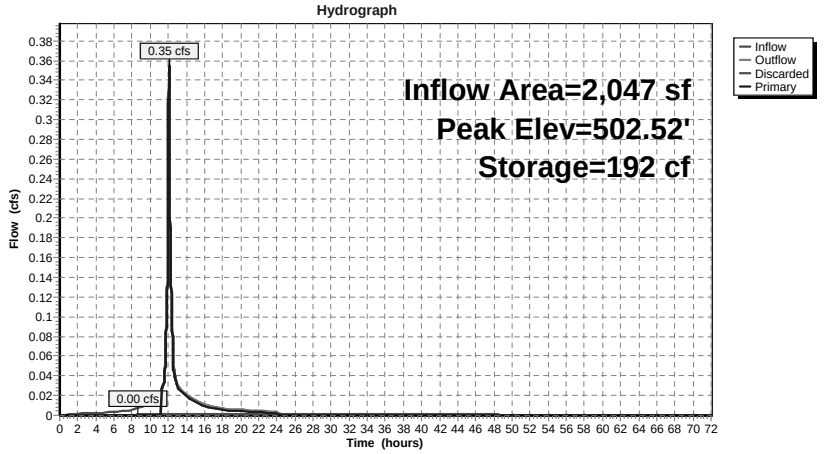
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
497.75	45	0.0	0	0
501.75	45	40.0	72	72
501.99	45	40.0	4	76
502.00	221	100.0	1	78
502.50	221	100.0	111	188
503.00	221	100.0	111	299

Device	Routing	Invert	Outlet Devices
#1	Discarded	497.75'	**0.250 in/hr Exfiltration over Horizontal area**
#2	Primary	502.50'	**1.0" x 1.0" Horiz. Orifice/Grate X 20.00 columns** X 20 rows C= 0.600 in 242.0" x 24.0" Grate Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 8.70 hrs HW=502.00' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.35 cfs @ 12.07 hrs HW=502.52' TW=0.00' (Dynamic Tailwater)
└**2=Orifice/Grate** (Weir Controls 0.35 cfs @ 0.44 fps)

Pond B-14B: Bioretention-14B



Hydrograph for Pond B-14B: Bioretention-14B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	497.75	0.00	0.00	0.00
2.00	0.00	3	497.94	0.00	0.00	0.00
4.00	0.00	16	498.61	0.00	0.00	0.00
6.00	0.00	34	499.64	0.00	0.00	0.00
8.00	0.01	63	501.25	0.00	**0.00**	0.00
10.00	0.01	115	502.17	0.00	**0.00**	0.00
12.00	**0.23**	**191**	**502.51**	**0.23**	0.00	**0.23**
14.00	**0.02**	**189**	**502.50**	**0.02**	0.00	**0.02**
16.00	0.01	189	502.50	0.01	0.00	0.01
18.00	0.01	188	502.50	0.01	0.00	0.01
20.00	0.01	188	502.50	0.01	0.00	0.00
22.00	0.00	188	502.50	0.00	0.00	0.00
24.00	0.00	188	502.50	0.00	0.00	0.00
26.00	0.00	180	502.46	0.00	0.00	0.00
28.00	0.00	170	502.42	0.00	0.00	0.00
30.00	0.00	161	502.38	0.00	0.00	0.00
32.00	0.00	152	502.34	0.00	0.00	0.00
34.00	0.00	143	502.29	0.00	0.00	0.00
36.00	0.00	133	502.25	0.00	0.00	0.00
38.00	0.00	124	502.21	0.00	0.00	0.00
40.00	0.00	115	502.17	0.00	0.00	0.00
42.00	0.00	106	502.13	0.00	0.00	0.00
44.00	0.00	97	502.09	0.00	0.00	0.00
46.00	0.00	87	502.04	0.00	0.00	0.00
48.00	0.00	78	502.00	0.00	0.00	0.00
50.00	0.00	75	501.92	0.00	0.00	0.00
52.00	0.00	73	501.82	0.00	0.00	0.00
54.00	0.00	71	501.71	0.00	0.00	0.00
56.00	0.00	69	501.61	0.00	0.00	0.00
58.00	0.00	68	501.51	0.00	0.00	0.00
60.00	0.00	66	501.40	0.00	0.00	0.00
62.00	0.00	64	501.30	0.00	0.00	0.00
64.00	0.00	62	501.19	0.00	0.00	0.00
66.00	0.00	60	501.09	0.00	0.00	0.00
68.00	0.00	58	500.98	0.00	0.00	0.00
70.00	0.00	56	500.88	0.00	0.00	0.00
72.00	0.00	54	500.78	0.00	0.00	0.00

Summary for Subcatchment DA-13A: Post_DA-13A

Runoff = 1.63 cfs @ 12.07 hrs, Volume= 5,674 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

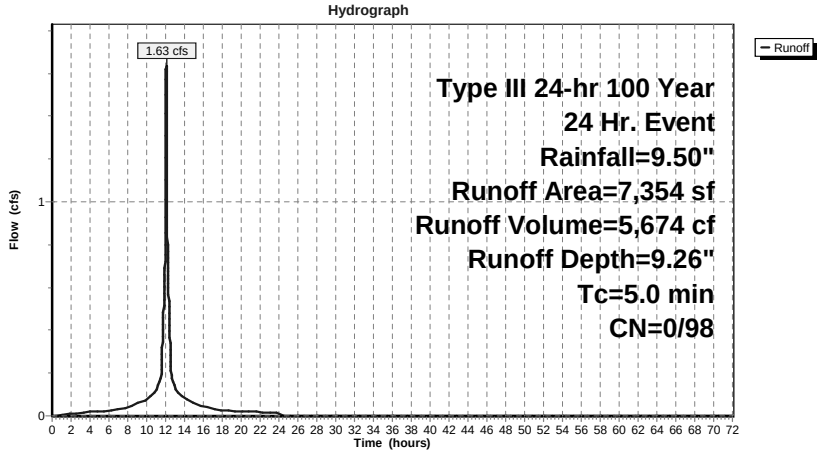
Area (sf)	CN	Description	Land Use
7,354	98	Paved parking, HSG C	Pavement
7,354	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
7,354	Pavement	287.35	0.93	3.49	11.13
7,354	Total	287.35	0.93	3.49	11.13

Subcatchment DA-13A: Post_DA-13A



Hydrograph for Subcatchment DA-13A: Post_DA-13A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.02
6.00	0.68	0.00	0.49	0.02
8.00	1.08	0.00	0.87	0.04
10.00	1.80	0.00	1.57	0.08
12.00	4.75	0.00	4.51	**1.10**
14.00	7.70	0.00	7.46	**0.08**
16.00	8.42	0.00	8.18	0.04
18.00	8.82	0.00	8.58	0.03
20.00	9.09	0.00	8.85	0.02
22.00	9.32	0.00	9.08	0.02
24.00	**9.50**	0.00	**9.26**	0.01
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00

Summary for Subcatchment DA-13B: Post_DA-13B

Runoff = 0.53 cfs @ 12.07 hrs, Volume= 1,847 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

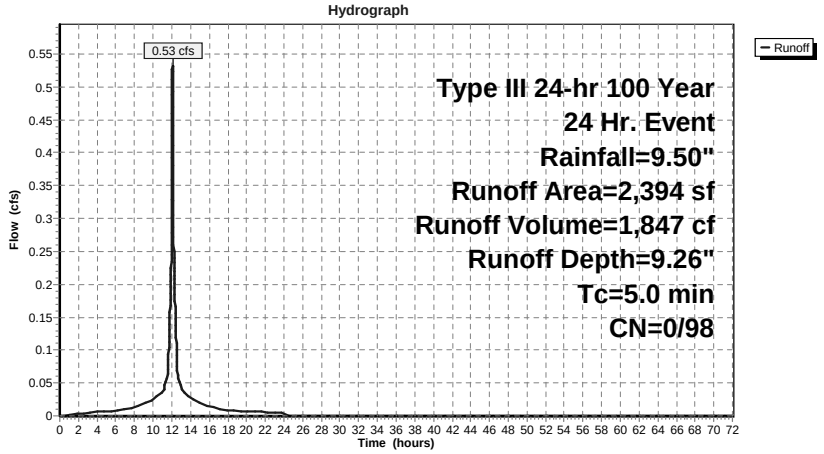
	Area (sf)	CN	Description	Land Use
*	2,394	98	Pavers, HSG C	Pavement
	2,394	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined Min.**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,394	Pavement	93.54	0.30	1.14	3.62
2,394	Total	93.54	0.30	1.14	3.62

Subcatchment DA-13B: Post_DA-13B



Hydrograph for Subcatchment DA-13B: Post_DA-13B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.00	0.87	0.01
10.00	1.80	0.00	1.57	0.03
12.00	4.75	0.00	4.51	**0.36**
14.00	7.70	0.00	7.46	**0.03**
16.00	8.42	0.00	8.18	0.01
18.00	8.82	0.00	8.58	0.01
20.00	9.09	0.00	8.85	0.01
22.00	9.32	0.00	9.08	0.01
24.00	**9.50**	0.00	**9.26**	0.00
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00

Summary for Subcatchment DA-13C: Post_DA-13C

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 1,080 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

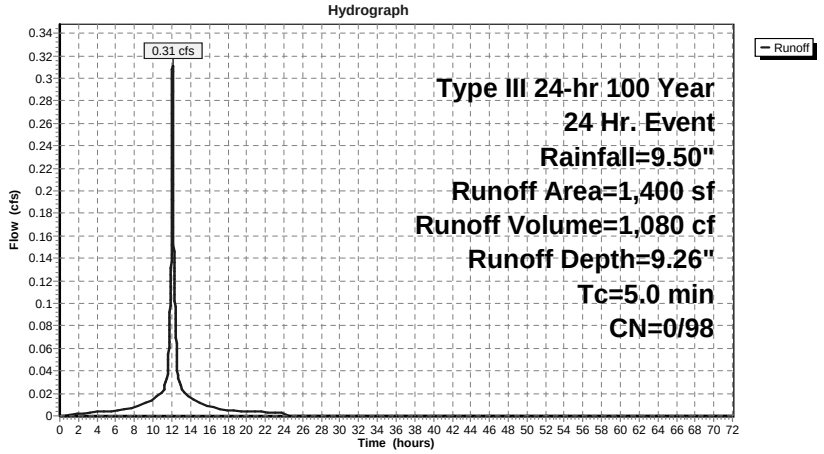
	Area (sf)	CN	Description	Land Use
*	1,400	98	Pavers	Pavement
	1,400	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,400	Pavement	54.70	0.18	0.66	2.12
1,400	Total	54.70	0.18	0.66	2.12

Subcatchment DA-13C: Post_DA-13C



Hydrograph for Subcatchment DA-13C: Post_DA-13C

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.00
6.00	0.68	0.00	0.49	0.00
8.00	1.08	0.00	0.87	0.01
10.00	1.80	0.00	1.57	0.01
12.00	4.75	0.00	4.51	**0.21**
14.00	7.70	0.00	7.46	**0.02**
16.00	8.42	0.00	8.18	0.01
18.00	8.82	0.00	8.58	0.01
20.00	9.09	0.00	8.85	0.00
22.00	9.32	0.00	9.08	0.00
24.00	**9.50**	0.00	**9.26**	0.00
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00

Summary for Subcatchment DA-14A: Post_DA-14A

Runoff = 0.64 cfs @ 12.07 hrs, Volume= 2,215 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

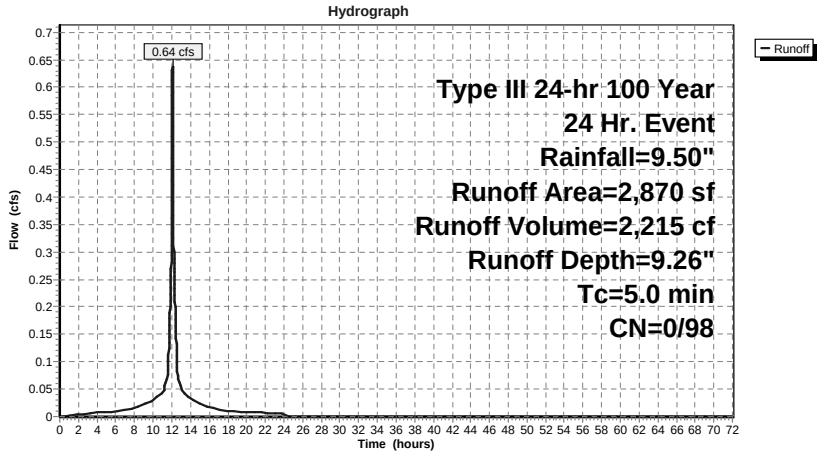
	Area (sf)	CN	Description	Land Use
	2,034	98	Paved parking, HSG B	Pavement
*	836	98	Pavers	Pavement
	2,870	98	Weighted Average	
	2,870	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,870	Pavement	112.14	0.36	1.36	4.34
2,870	Total	112.14	0.36	1.36	4.34

Subcatchment DA-14A: Post_DA-14A



Hydrograph for Subcatchment DA-14A: Post_DA-14A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.00	0.87	0.02
10.00	1.80	0.00	1.57	0.03
12.00	4.75	0.00	4.51	**0.43**
14.00	7.70	0.00	7.46	**0.03**
16.00	8.42	0.00	8.18	0.02
18.00	8.82	0.00	8.58	0.01
20.00	9.09	0.00	8.85	0.01
22.00	9.32	0.00	9.08	0.01
24.00	**9.50**	0.00	**9.26**	0.01
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00

Summary for Subcatchment DA-14B1: Post_DA-14B1

Runoff = 1.25 cfs @ 12.07 hrs, Volume= 4,120 cf, Depth= 7.11"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

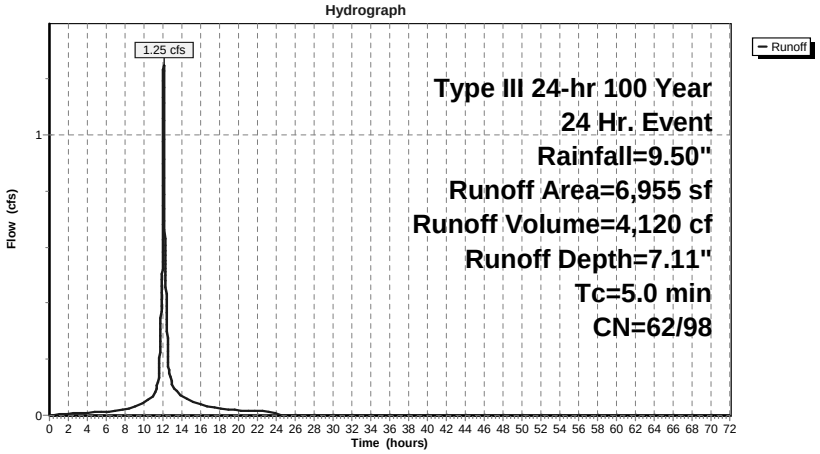
Area (sf)	CN	Description	Land Use
293	98	Paved parking, HSG C	Pavement
3,343	98	Roofs, HSG C	Roofs
3,161	61	>75% Grass cover, Good, HSG B	Open Space
158	74	>75% Grass cover, Good, HSG C	Open Space
6,955	81	Weighted Average	
3,319	62	47.72% Pervious Area	
3,636	98	52.28% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 52.28% Impervious, Rv= 0.521, Runoff= 23.79"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
3,319	Open Space	247.26	0.86	3.74	0.51
293	Pavement	6.27	0.02	0.08	0.24
3,343	Roofs	7.86	0.05	0.62	3.06
6,955	Total	261.39	0.93	4.43	3.81

Subcatchment DA-14B1: Post_DA-14B1



Hydrograph for Subcatchment DA-14B1: Post_DA-14B1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.01
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.00	0.87	0.02
10.00	1.80	0.05	1.57	0.04
12.00	4.75	1.29	4.51	**0.82**
14.00	7.70	3.33	7.46	**0.07**
16.00	8.42	3.88	8.18	0.04
18.00	8.82	4.20	8.58	0.02
20.00	9.09	4.42	8.85	0.02
22.00	9.32	4.60	9.08	0.02
24.00	**9.50**	**4.75**	**9.26**	0.01
26.00	9.50	4.75	9.26	0.00
28.00	9.50	4.75	9.26	0.00
30.00	9.50	4.75	9.26	0.00
32.00	9.50	4.75	9.26	0.00
34.00	9.50	4.75	9.26	0.00
36.00	9.50	4.75	9.26	0.00
38.00	9.50	4.75	9.26	0.00
40.00	9.50	4.75	9.26	0.00
42.00	9.50	4.75	9.26	0.00
44.00	9.50	4.75	9.26	0.00
46.00	9.50	4.75	9.26	0.00
48.00	9.50	4.75	9.26	0.00
50.00	9.50	4.75	9.26	0.00
52.00	9.50	4.75	9.26	0.00
54.00	9.50	4.75	9.26	0.00
56.00	9.50	4.75	9.26	0.00
58.00	9.50	4.75	9.26	0.00
60.00	9.50	4.75	9.26	0.00
62.00	9.50	4.75	9.26	0.00
64.00	9.50	4.75	9.26	0.00
66.00	9.50	4.75	9.26	0.00
68.00	9.50	4.75	9.26	0.00
70.00	9.50	4.75	9.26	0.00
72.00	9.50	4.75	9.26	0.00

Summary for Subcatchment DA-14B2: Post_DA-14B2

Runoff = 0.36 cfs @ 12.07 hrs, Volume= 1,169 cf, Depth= 6.85"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

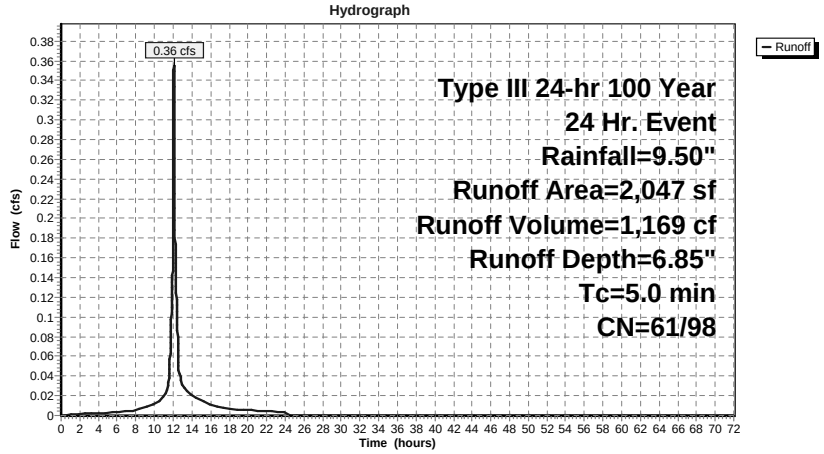
	Area (sf)	CN	Description	Land Use
	985	98	Paved parking, HSG C	Pavement
*	1,062	61	Bioretention - HSG B	Brush
	2,047	79	Weighted Average	
	1,062	61	51.88% Pervious Area	
	985	98	48.12% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 48.12% Impervious, Rv= 0.483, Runoff= 22.08"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1,062	Brush	4.51	0.00	0.00	0.15
985	Pavement	19.57	0.06	0.24	0.76
2,047	Total	24.08	0.06	0.24	0.91

Subcatchment DA-14B2: Post_DA-14B2



Hydrograph for Subcatchment DA-14B2: Post_DA-14B2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.00
6.00	0.68	0.00	0.49	0.00
8.00	1.08	0.00	0.87	0.01
10.00	1.80	0.04	1.57	0.01
12.00	4.75	1.22	4.51	**0.23**
14.00	7.70	3.22	7.46	**0.02**
16.00	8.42	3.77	8.18	0.01
18.00	8.82	4.08	8.58	0.01
20.00	9.09	4.30	8.85	0.01
22.00	9.32	4.48	9.08	0.00
24.00	**9.50**	**4.62**	**9.26**	0.00
26.00	9.50	4.62	9.26	0.00
28.00	9.50	4.62	9.26	0.00
30.00	9.50	4.62	9.26	0.00
32.00	9.50	4.62	9.26	0.00
34.00	9.50	4.62	9.26	0.00
36.00	9.50	4.62	9.26	0.00
38.00	9.50	4.62	9.26	0.00
40.00	9.50	4.62	9.26	0.00
42.00	9.50	4.62	9.26	0.00
44.00	9.50	4.62	9.26	0.00
46.00	9.50	4.62	9.26	0.00
48.00	9.50	4.62	9.26	0.00
50.00	9.50	4.62	9.26	0.00
52.00	9.50	4.62	9.26	0.00
54.00	9.50	4.62	9.26	0.00
56.00	9.50	4.62	9.26	0.00
58.00	9.50	4.62	9.26	0.00
60.00	9.50	4.62	9.26	0.00
62.00	9.50	4.62	9.26	0.00
64.00	9.50	4.62	9.26	0.00
66.00	9.50	4.62	9.26	0.00
68.00	9.50	4.62	9.26	0.00
70.00	9.50	4.62	9.26	0.00
72.00	9.50	4.62	9.26	0.00

Summary for Subcatchment DA-15A: Post_DA-15A

Runoff = 7.66 cfs @ 12.07 hrs, Volume= 25,882 cf, Depth= 8.49"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

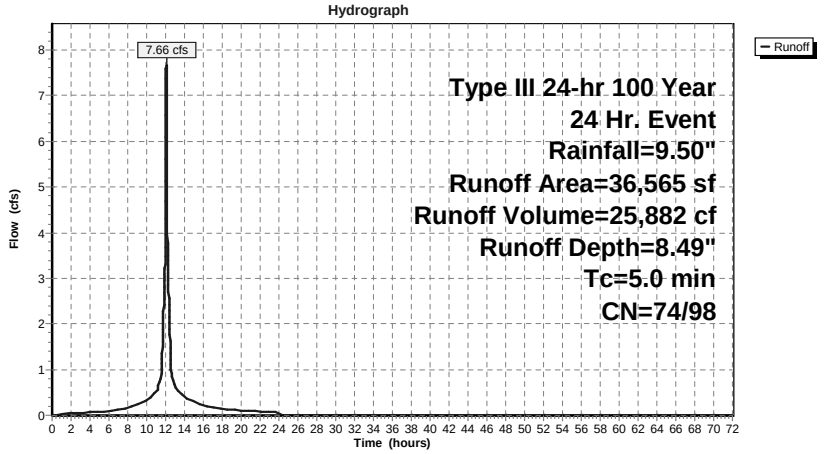
	Area (sf)	CN	Description	Land Use
*	21,025	98	Impervious	Pavement
	9,414	74	>75% Grass cover, Good, HSG C	Open Space
	6,126	98	Roofs, HSG C	Roofs
	36,565	92	Weighted Average	
	9,414	74	25.75% Pervious Area	
	27,151	98	74.25% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 74.25% Impervious, Rv= 0.718, Runoff= 32.83"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
9,414	Open Space	967.79	3.38	14.63	1.98
21,025	Pavement	621.15	2.01	7.54	24.06
6,126	Roofs	19.88	0.12	1.57	7.74
36,565	Total	1,608.82	5.50	23.74	33.77

Subcatchment DA-15A: Post_DA-15A



Hydrograph for Subcatchment DA-15A: Post_DA-15A

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.04
4.00	0.41	0.00	0.24	0.07
6.00	0.68	0.00	0.49	0.09
8.00	1.08	0.04	0.87	0.16
10.00	1.80	0.26	1.57	0.32
12.00	4.75	2.17	4.51	**5.13**
14.00	7.70	4.66	7.46	**0.40**
16.00	8.42	5.30	8.18	0.21
18.00	8.82	5.66	8.58	0.13
20.00	9.09	5.91	8.85	0.10
22.00	9.32	6.12	9.08	0.09
24.00	**9.50**	**6.29**	**9.26**	0.07
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00

Summary for Subcatchment DA-15B: Post_DA-15B

Runoff = 0.62 cfs @ 12.07 hrs, Volume= 2,156 cf, Depth= 9.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

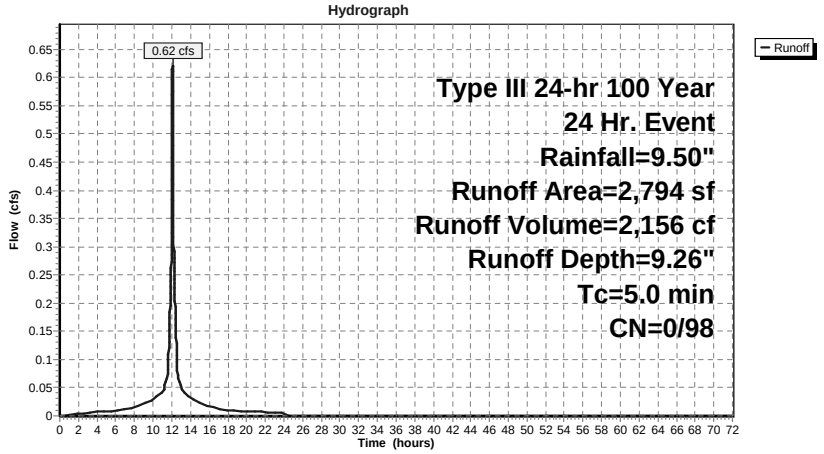
	Area (sf)	CN	Description	Land Use
*	2,794	98	Pavers	Pavement
	2,794	98	100.00% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, User Defined**

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 100.00% Impervious, Rv= 0.950, Runoff= 43.41"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
2,794	Pavement	109.17	0.35	1.33	4.23
2,794	Total	109.17	0.35	1.33	4.23

Subcatchment DA-15B: Post_DA-15B



Hydrograph for Subcatchment DA-15B: Post_DA-15B

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	0.00	0.00
2.00	0.19	0.00	0.06	0.00
4.00	0.41	0.00	0.24	0.01
6.00	0.68	0.00	0.49	0.01
8.00	1.08	0.00	0.87	0.02
10.00	1.80	0.00	1.57	0.03
12.00	4.75	0.00	4.51	**0.42**
14.00	7.70	0.00	7.46	**0.03**
16.00	8.42	0.00	8.18	0.02
18.00	8.82	0.00	8.58	0.01
20.00	9.09	0.00	8.85	0.01
22.00	9.32	0.00	9.08	0.01
24.00	**9.50**	0.00	**9.26**	0.01
26.00	9.50	0.00	9.26	0.00
28.00	9.50	0.00	9.26	0.00
30.00	9.50	0.00	9.26	0.00
32.00	9.50	0.00	9.26	0.00
34.00	9.50	0.00	9.26	0.00
36.00	9.50	0.00	9.26	0.00
38.00	9.50	0.00	9.26	0.00
40.00	9.50	0.00	9.26	0.00
42.00	9.50	0.00	9.26	0.00
44.00	9.50	0.00	9.26	0.00
46.00	9.50	0.00	9.26	0.00
48.00	9.50	0.00	9.26	0.00
50.00	9.50	0.00	9.26	0.00
52.00	9.50	0.00	9.26	0.00
54.00	9.50	0.00	9.26	0.00
56.00	9.50	0.00	9.26	0.00
58.00	9.50	0.00	9.26	0.00
60.00	9.50	0.00	9.26	0.00
62.00	9.50	0.00	9.26	0.00
64.00	9.50	0.00	9.26	0.00
66.00	9.50	0.00	9.26	0.00
68.00	9.50	0.00	9.26	0.00
70.00	9.50	0.00	9.26	0.00
72.00	9.50	0.00	9.26	0.00

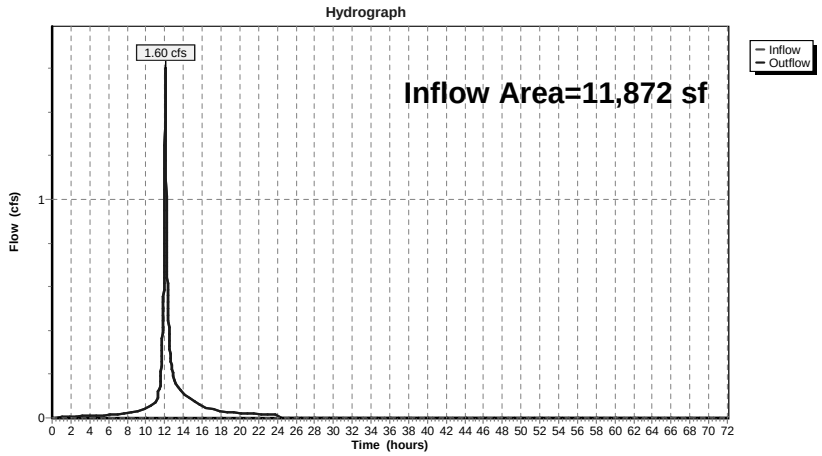
Summary for Reach DP-14: Catch Basin

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11,872 sf, 63.10% Impervious, Inflow Depth = 5.42" for 100 Year, 24 Hr. Event event
Inflow = 1.60 cfs @ 12.07 hrs, Volume= 5,366 cf
Outflow = 1.60 cfs @ 12.07 hrs, Volume= 5,366 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-14: Catch Basin



Hydrograph for Reach DP-14: Catch Basin

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.02		0.02	59.00	0.00		0.00
8.00	0.02		0.02	60.00	0.00		0.00
9.00	0.03		0.03	61.00	0.00		0.00
10.00	0.04		0.04	62.00	0.00		0.00
11.00	0.07		0.07	63.00	0.00		0.00
12.00	**1.04**		**1.04**	64.00	0.00		0.00
13.00	**0.18**		**0.18**	65.00	0.00		0.00
14.00	0.11		0.11	66.00	0.00		0.00
15.00	0.08		0.08	67.00	0.00		0.00
16.00	0.05		0.05	68.00	0.00		0.00
17.00	0.04		0.04	69.00	0.00		0.00
18.00	0.03		0.03	70.00	0.00		0.00
19.00	0.02		0.02	71.00	0.00		0.00
20.00	0.02		0.02	72.00	0.00		0.00
21.00	0.02		0.02				
22.00	0.02		0.02				
23.00	0.02		0.02				
24.00	0.01		0.01				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

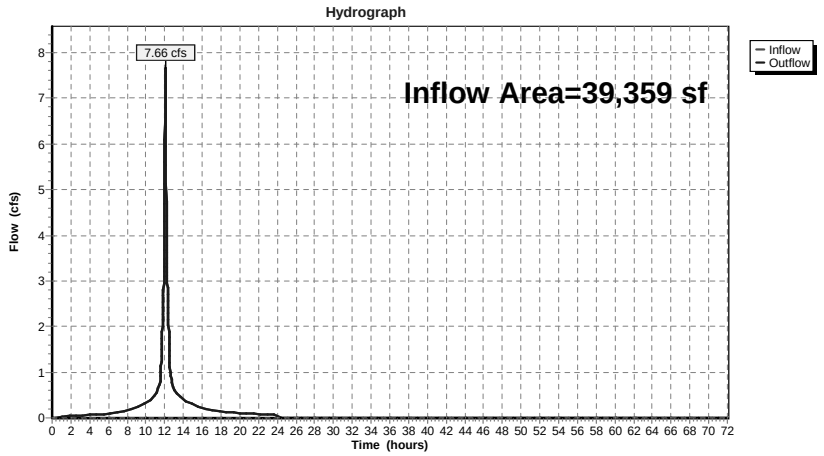
Summary for Reach DP-15: DP-15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 39,359 sf, 76.08% Impervious, Inflow Depth = 7.89" for 100 Year, 24 Hr. Event event
Inflow = 7.66 cfs @ 12.07 hrs, Volume= 25,882 cf
Outflow = 7.66 cfs @ 12.07 hrs, Volume= 25,882 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3

Reach DP-15: DP-15



Hydrograph for Reach DP-15: DP-15

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.02		0.02	53.00	0.00		0.00
2.00	0.04		0.04	54.00	0.00		0.00
3.00	0.05		0.05	55.00	0.00		0.00
4.00	0.07		0.07	56.00	0.00		0.00
5.00	0.08		0.08	57.00	0.00		0.00
6.00	0.09		0.09	58.00	0.00		0.00
7.00	0.12		0.12	59.00	0.00		0.00
8.00	0.16		0.16	60.00	0.00		0.00
9.00	0.24		0.24	61.00	0.00		0.00
10.00	0.32		0.32	62.00	0.00		0.00
11.00	0.50		0.50	63.00	0.00		0.00
12.00	**5.13**		**5.13**	64.00	0.00		0.00
13.00	**0.62**		**0.62**	65.00	0.00		0.00
14.00	0.40		0.40	66.00	0.00		0.00
15.00	0.30		0.30	67.00	0.00		0.00
16.00	0.21		0.21	68.00	0.00		0.00
17.00	0.17		0.17	69.00	0.00		0.00
18.00	0.13		0.13	70.00	0.00		0.00
19.00	0.11		0.11	71.00	0.00		0.00
20.00	0.10		0.10	72.00	0.00		0.00
21.00	0.09		0.09				
22.00	0.09		0.09				
23.00	0.08		0.08				
24.00	0.07		0.07				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Pond DP13: DP-13

[57] Hint: Peaked at 604.51' (Flood elevation advised)

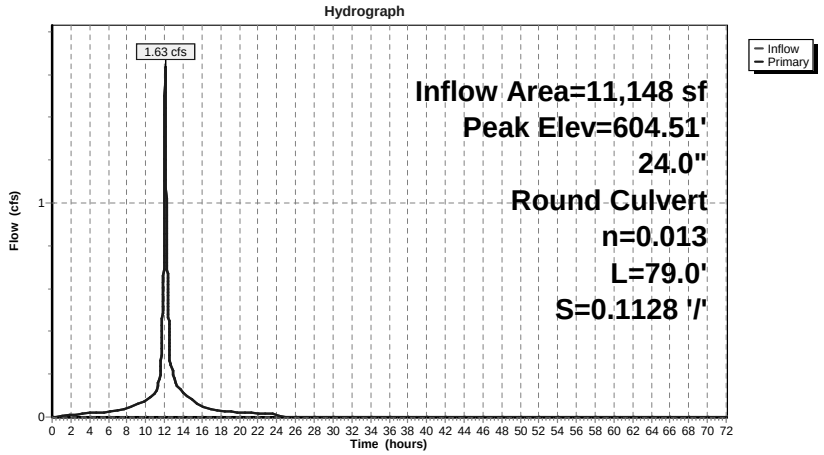
Inflow Area = 11,148 sf,100.00% Impervious, Inflow Depth = 6.67" for 100 Year, 24 Hr. Event event
Inflow = 1.63 cfs @ 12.07 hrs, Volume= 6,198 cf
Outflow = 1.63 cfs @ 12.07 hrs, Volume= 6,198 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.63 cfs @ 12.07 hrs, Volume= 6,198 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 604.51' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	603.91'	**24.0" Round Culvert** L= 79.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 603.91' / 595.00' S= 0.1128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

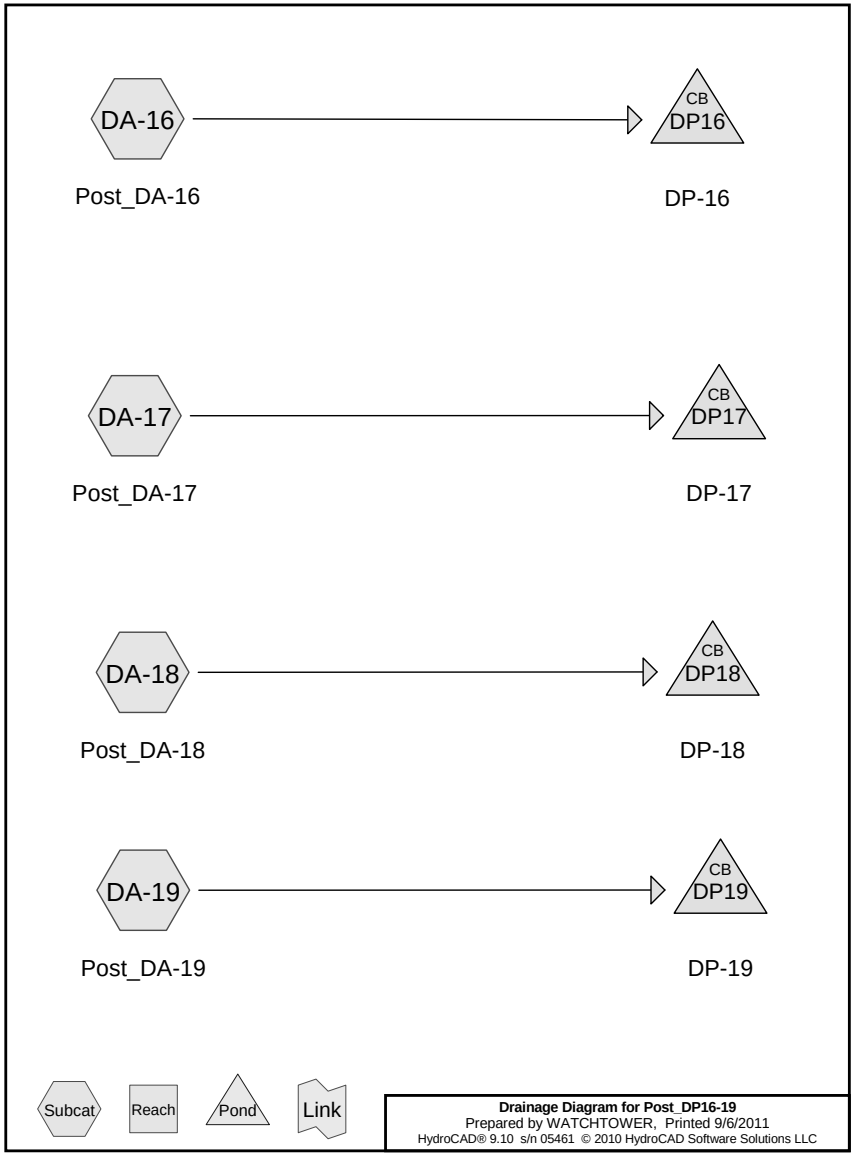
Primary OutFlow Max=1.63 cfs @ 12.07 hrs HW=604.51' (Free Discharge)
1=Culvert (Inlet Controls 1.63 cfs @ 2.08 fps)

Pond DP13: DP-13



Hydrograph for Pond DP13: DP-13

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	603.91	0.00	52.00	0.00	603.91	0.00
1.00	0.01	603.94	0.01	53.00	0.00	603.91	0.00
2.00	0.01	603.96	0.01	54.00	0.00	603.91	0.00
3.00	0.01	603.96	0.01	55.00	0.00	603.91	0.00
4.00	0.02	603.97	0.02	56.00	0.00	603.91	0.00
5.00	0.02	603.98	0.02	57.00	0.00	603.91	0.00
6.00	0.02	603.98	0.02	58.00	0.00	603.91	0.00
7.00	0.03	603.99	0.03	59.00	0.00	603.91	0.00
8.00	0.04	604.00	0.04	60.00	0.00	603.91	0.00
9.00	0.06	604.02	0.06	61.00	0.00	603.91	0.00
10.00	0.08	604.03	0.08	62.00	0.00	603.91	0.00
11.00	0.11	604.06	0.11	63.00	0.00	603.91	0.00
12.00	**1.10**	**604.40**	**1.10**	64.00	0.00	603.91	0.00
13.00	**0.18**	**604.10**	**0.18**	65.00	0.00	603.91	0.00
14.00	0.11	604.06	0.11	66.00	0.00	603.91	0.00
15.00	0.08	604.04	0.08	67.00	0.00	603.91	0.00
16.00	0.05	604.01	0.05	68.00	0.00	603.91	0.00
17.00	0.04	604.00	0.04	69.00	0.00	603.91	0.00
18.00	0.03	603.98	0.03	70.00	0.00	603.91	0.00
19.00	0.02	603.98	0.02	71.00	0.00	603.91	0.00
20.00	0.02	603.97	0.02	72.00	0.00	603.91	0.00
21.00	0.02	603.97	0.02				
22.00	0.02	603.97	0.02				
23.00	0.02	603.97	0.02				
24.00	0.01	603.96	0.01				
25.00	0.00	603.91	0.00				
26.00	0.00	603.91	0.00				
27.00	0.00	603.91	0.00				
28.00	0.00	603.91	0.00				
29.00	0.00	603.91	0.00				
30.00	0.00	603.91	0.00				
31.00	0.00	603.91	0.00				
32.00	0.00	603.91	0.00				
33.00	0.00	603.91	0.00				
34.00	0.00	603.91	0.00				
35.00	0.00	603.91	0.00				
36.00	0.00	603.91	0.00				
37.00	0.00	603.91	0.00				
38.00	0.00	603.91	0.00				
39.00	0.00	603.91	0.00				
40.00	0.00	603.91	0.00				
41.00	0.00	603.91	0.00				
42.00	0.00	603.91	0.00				
43.00	0.00	603.91	0.00				
44.00	0.00	603.91	0.00				
45.00	0.00	603.91	0.00				
46.00	0.00	603.91	0.00				
47.00	0.00	603.91	0.00				
48.00	0.00	603.91	0.00				
49.00	0.00	603.91	0.00				
50.00	0.00	603.91	0.00				
51.00	0.00	603.91	0.00				



Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
946,830	Open Space	DA-16, DA-17, DA-18, DA-19
171,042	Pavement	DA-16, DA-17
11,226	Roadway	DA-18
90,785	Roofs	DA-16, DA-17
365,458	Woods	DA-18, DA-19
1,585,341	**TOTAL**	

Pollutant Concentrations

Line#	Land Use	TSS (mg/l)	TP (mg/l)	TN (mg/l)	BOD (mg/l)
1	Open Space	602.00	2.10	9.10	1.23
2	Pavement	173.00	0.56	2.10	6.70
3	Roadway	173.00	0.56	2.10	6.70
4	Roofs	19.00	0.11	1.50	7.40
5	Woods	37.00	0.00	0.00	1.23

Subcatchment Loading

Line#	Subcat Number	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
1	DA-16	**0.00**	**0.00**	**0.00**	**0.00**
2	DA-17	0.00	0.00	0.00	0.00
3	DA-18	0.00	0.00	0.00	0.00
4	DA-19	0.00	0.00	0.00	0.00
	TOTAL	0.00	0.00	0.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment DA-16: Post_DA-16 Runoff Area=221,957 sf 25.06% Impervious Runoff Depth=1.37"
Flow Length=418' Tc=9.9 min CN=72/98 Runoff=6.45 cfs 25,328 cf

Subcatchment DA-17: Post_DA-17 Runoff Area=295,163 sf 69.86% Impervious Runoff Depth=2.30"
Flow Length=1,520' Tc=11.1 min CN=74/98 Runoff=13.91 cfs 56,489 cf

Subcatchment DA-18: Post_DA-18 Runoff Area=393,128 sf 0.00% Impervious Runoff Depth=0.97"
Flow Length=1,070' Tc=12.6 min CN=74/0 Runoff=7.76 cfs 31,853 cf

Subcatchment DA-19: Post_DA-19 Runoff Area=675,093 sf 0.00% Impervious Runoff Depth=0.87"
Flow Length=1,348' Tc=12.3 min CN=72/0 Runoff=11.65 cfs 48,845 cf

Pond DP16: DP-16 Peak Elev=569.82' Inflow=6.45 cfs 25,328 cf
15.0" Round Culvert n=0.013 L=22.0' S=0.0336 '/' Outflow=6.45 cfs 25,328 cf

Pond DP17: DP-17 Peak Elev=595.97' Inflow=13.91 cfs 56,489 cf
15.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=13.91 cfs 56,489 cf

Pond DP18: DP-18 Peak Elev=492.59' Inflow=7.76 cfs 31,853 cf
15.0" Round Culvert n=0.013 L=50.0' S=0.0268 '/' Outflow=7.76 cfs 31,853 cf

Pond DP19: DP-19 Peak Elev=483.19' Inflow=11.65 cfs 48,845 cf
24.0" x 20.0" Box Culvert n=0.011 L=52.0' S=0.0090 '/' Outflow=11.65 cfs 48,845 cf

Total Runoff Area = 1,585,341 sf Runoff Volume = 162,514 cf Average Runoff Depth = 1.23"
83.48% Pervious = 1,323,514 sf 16.52% Impervious = 261,827 sf

Summary for Subcatchment DA-16: Post_DA-16

Runoff = 6.45 cfs @ 12.14 hrs, Volume= 25,328 cf, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

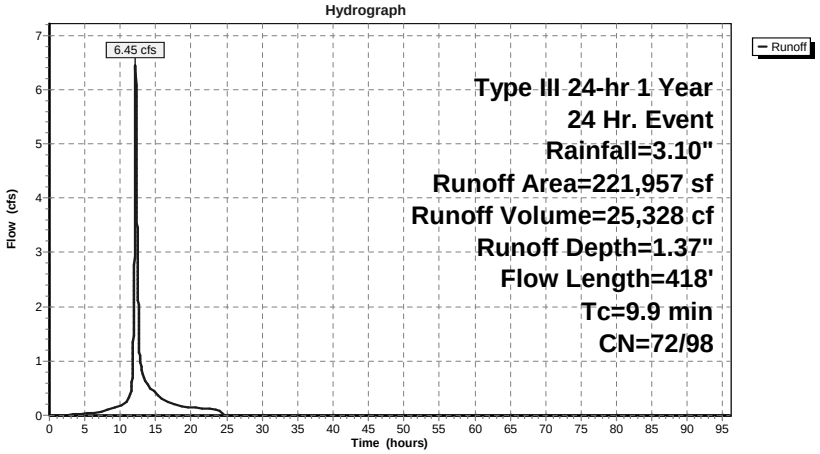
Area (sf)	CN	Description	Land Use
54,093	98	Paved parking, HSG C	Pavement
143,987	74	>75% Grass cover, Good, HSG C	Open Space
22,350	61	>75% Grass cover, Good, HSG B	Open Space
1,527	98	Unconnected roofs, HSG C	Roofs
221,957	79	Weighted Average	
166,337	72	74.94% Pervious Area	
55,620	98	25.06% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.5	193	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	125	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.9	418	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 25.06% Impervious, Rv= 0.276, Runoff= 12.59"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
166,337	Open Space	6,559.47	22.88	99.15	13.40
54,093	Pavement	613.01	1.98	7.44	23.74
1,527	Roofs	1.90	0.01	0.15	0.74
221,957	Total	7,174.38	24.88	106.75	37.88

Subcatchment DA-16: Post_DA-16



Hydrograph for Subcatchment DA-16: Post_DA-16

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.01
4.00	0.13	0.00	0.03	0.03
6.00	0.22	0.00	0.09	0.04
8.00	0.35	0.00	0.19	0.08
10.00	0.59	0.00	0.40	0.17
12.00	1.55	0.13	1.33	**2.93**
14.00	2.51	0.54	2.28	**0.53**
16.00	2.75	0.66	2.52	0.29
18.00	2.88	0.74	2.65	0.18
20.00	2.97	0.79	2.74	0.15
22.00	3.04	0.83	2.81	0.12
24.00	**3.10**	**0.87**	**2.87**	0.10
26.00	3.10	0.87	2.87	0.00
28.00	3.10	0.87	2.87	0.00
30.00	3.10	0.87	2.87	0.00
32.00	3.10	0.87	2.87	0.00
34.00	3.10	0.87	2.87	0.00
36.00	3.10	0.87	2.87	0.00
38.00	3.10	0.87	2.87	0.00
40.00	3.10	0.87	2.87	0.00
42.00	3.10	0.87	2.87	0.00
44.00	3.10	0.87	2.87	0.00
46.00	3.10	0.87	2.87	0.00
48.00	3.10	0.87	2.87	0.00
50.00	3.10	0.87	2.87	0.00
52.00	3.10	0.87	2.87	0.00
54.00	3.10	0.87	2.87	0.00
56.00	3.10	0.87	2.87	0.00
58.00	3.10	0.87	2.87	0.00
60.00	3.10	0.87	2.87	0.00
62.00	3.10	0.87	2.87	0.00
64.00	3.10	0.87	2.87	0.00
66.00	3.10	0.87	2.87	0.00
68.00	3.10	0.87	2.87	0.00
70.00	3.10	0.87	2.87	0.00
72.00	3.10	0.87	2.87	0.00
74.00	3.10	0.87	2.87	0.00
76.00	3.10	0.87	2.87	0.00
78.00	3.10	0.87	2.87	0.00
80.00	3.10	0.87	2.87	0.00
82.00	3.10	0.87	2.87	0.00
84.00	3.10	0.87	2.87	0.00
86.00	3.10	0.87	2.87	0.00
88.00	3.10	0.87	2.87	0.00
90.00	3.10	0.87	2.87	0.00
92.00	3.10	0.87	2.87	0.00
94.00	3.10	0.87	2.87	0.00
96.00	3.10	0.87	2.87	0.00

Summary for Subcatchment DA-17: Post_DA-17

Runoff = 13.91 cfs @ 12.15 hrs, Volume= 56,489 cf, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

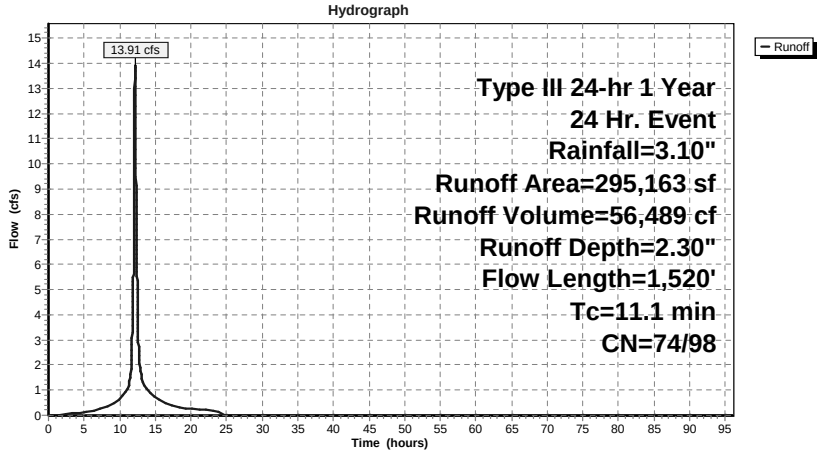
Area (sf)	CN	Description	Land Use
116,949	98	Paved parking, HSG C	Pavement
89,258	98	Roofs, HSG C	Roofs
88,956	74	>75% Grass cover, Good, HSG C	Open Space
295,163	91	Weighted Average	
88,956	74	30.14% Pervious Area	
206,207	98	69.86% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	100	0.0670	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	35	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	35	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.2	1,350		10.00		**Direct Entry, Pipe Flow**
11.1	1,520	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 69.86% Impervious, Rv= 0.679, Runoff= 31.02"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
88,956	Open Space	8,641.74	30.15	130.63	17.66
116,949	Pavement	3,264.92	10.57	39.63	126.44
89,258	Roofs	273.67	1.58	21.61	106.59
295,163	Total	12,180.33	42.30	191.87	250.69

Subcatchment DA-17: Post_DA-17



Hydrograph for Subcatchment DA-17: Post_DA-17

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.06	0.00	0.00	0.02
4.00	0.13	0.00	0.03	0.09
6.00	0.22	0.00	0.09	0.17
8.00	0.35	0.00	0.19	0.31
10.00	0.59	0.00	0.40	0.64
12.00	1.55	0.16	1.33	**6.97**
14.00	2.51	0.62	2.28	**0.97**
16.00	2.75	0.75	2.52	0.52
18.00	2.88	0.83	2.65	0.31
20.00	2.97	0.89	2.74	0.25
22.00	3.04	0.93	2.81	0.21
24.00	**3.10**	**0.97**	**2.87**	0.16
26.00	3.10	0.97	2.87	0.00
28.00	3.10	0.97	2.87	0.00
30.00	3.10	0.97	2.87	0.00
32.00	3.10	0.97	2.87	0.00
34.00	3.10	0.97	2.87	0.00
36.00	3.10	0.97	2.87	0.00
38.00	3.10	0.97	2.87	0.00
40.00	3.10	0.97	2.87	0.00
42.00	3.10	0.97	2.87	0.00
44.00	3.10	0.97	2.87	0.00
46.00	3.10	0.97	2.87	0.00
48.00	3.10	0.97	2.87	0.00
50.00	3.10	0.97	2.87	0.00
52.00	3.10	0.97	2.87	0.00
54.00	3.10	0.97	2.87	0.00
56.00	3.10	0.97	2.87	0.00
58.00	3.10	0.97	2.87	0.00
60.00	3.10	0.97	2.87	0.00
62.00	3.10	0.97	2.87	0.00
64.00	3.10	0.97	2.87	0.00
66.00	3.10	0.97	2.87	0.00
68.00	3.10	0.97	2.87	0.00
70.00	3.10	0.97	2.87	0.00
72.00	3.10	0.97	2.87	0.00
74.00	3.10	0.97	2.87	0.00
76.00	3.10	0.97	2.87	0.00
78.00	3.10	0.97	2.87	0.00
80.00	3.10	0.97	2.87	0.00
82.00	3.10	0.97	2.87	0.00
84.00	3.10	0.97	2.87	0.00
86.00	3.10	0.97	2.87	0.00
88.00	3.10	0.97	2.87	0.00
90.00	3.10	0.97	2.87	0.00
92.00	3.10	0.97	2.87	0.00
94.00	3.10	0.97	2.87	0.00
96.00	3.10	0.97	2.87	0.00

Summary for Subcatchment DA-18: Post_DA-18

Runoff = 7.76 cfs @ 12.19 hrs, Volume= 31,853 cf, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

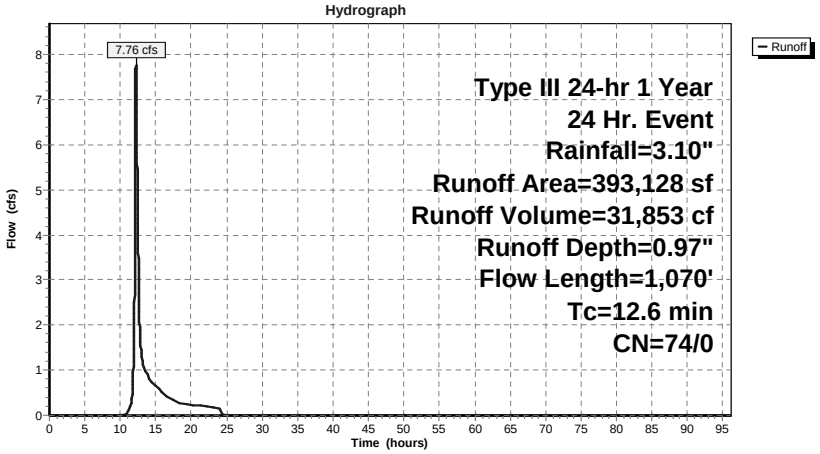
Area (sf)	CN	Description	Land Use
321,115	74	>75% Grass cover, Good, HSG C	Open Space
60,787	70	Woods, Good, HSG C	Woods
11,226	89	Gravel roads, HSG C	Roadway
393,128	74	Weighted Average	
393,128	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	150	0.0800	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	220	0.0910	4.86		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	190	0.2630	8.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	510	0.0200	13.18	79.10	**Channel Flow,** Area= 6.0 sf Perim= 5.0' r= 1.20' n= 0.018 Earth, clean & straight
12.6	1,070	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
321,115	Open Space	2,297.95	8.02	34.74	4.70
11,226	Roadway	23.09	0.07	0.28	0.89
60,787	Woods	26.74	0.00	0.00	0.89
393,128	Total	2,347.78	8.09	35.02	6.48

Subcatchment DA-18: Post_DA-18



Hydrograph for Subcatchment DA-18: Post_DA-18

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.16	0.00	**2.67**
14.00	2.51	0.62	0.00	**0.85**
16.00	2.75	0.75	0.00	0.48
18.00	2.88	0.83	0.00	0.30
20.00	2.97	0.89	0.00	0.24
22.00	3.04	0.93	0.00	0.20
24.00	**3.10**	**0.97**	0.00	0.16
26.00	3.10	0.97	0.00	0.00
28.00	3.10	0.97	0.00	0.00
30.00	3.10	0.97	0.00	0.00
32.00	3.10	0.97	0.00	0.00
34.00	3.10	0.97	0.00	0.00
36.00	3.10	0.97	0.00	0.00
38.00	3.10	0.97	0.00	0.00
40.00	3.10	0.97	0.00	0.00
42.00	3.10	0.97	0.00	0.00
44.00	3.10	0.97	0.00	0.00
46.00	3.10	0.97	0.00	0.00
48.00	3.10	0.97	0.00	0.00
50.00	3.10	0.97	0.00	0.00
52.00	3.10	0.97	0.00	0.00
54.00	3.10	0.97	0.00	0.00
56.00	3.10	0.97	0.00	0.00
58.00	3.10	0.97	0.00	0.00
60.00	3.10	0.97	0.00	0.00
62.00	3.10	0.97	0.00	0.00
64.00	3.10	0.97	0.00	0.00
66.00	3.10	0.97	0.00	0.00
68.00	3.10	0.97	0.00	0.00
70.00	3.10	0.97	0.00	0.00
72.00	3.10	0.97	0.00	0.00
74.00	3.10	0.97	0.00	0.00
76.00	3.10	0.97	0.00	0.00
78.00	3.10	0.97	0.00	0.00
80.00	3.10	0.97	0.00	0.00
82.00	3.10	0.97	0.00	0.00
84.00	3.10	0.97	0.00	0.00
86.00	3.10	0.97	0.00	0.00
88.00	3.10	0.97	0.00	0.00
90.00	3.10	0.97	0.00	0.00
92.00	3.10	0.97	0.00	0.00
94.00	3.10	0.97	0.00	0.00
96.00	3.10	0.97	0.00	0.00

Summary for Subcatchment DA-19: Post_DA-19

Runoff = 11.65 cfs @ 12.18 hrs, Volume= 48,845 cf, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year, 24 Hr. Event Rainfall=3.10"

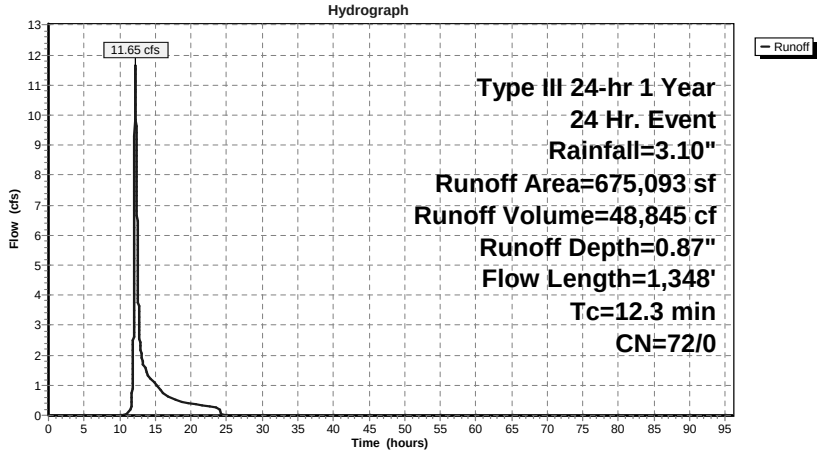
Area (sf)	CN	Description	Land Use
370,422	74	>75% Grass cover, Good, HSG C	Open Space
304,671	70	Woods, Good, HSG C	Woods
675,093	72	Weighted Average	
675,093	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0970	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.1	273	0.0970	2.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	121	0.1980	3.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	214	0.1680	2.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	640		10.00		**Direct Entry,**
12.3	1,348	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
370,422	Open Space	2,650.80	9.25	40.07	5.42
304,671	Woods	134.00	0.00	0.00	4.45
675,093	Total	2,784.81	9.25	40.07	9.87

Subcatchment DA-19: Post_DA-19



Hydrograph for Subcatchment DA-19: Post_DA-19

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.06	0.00	0.00	0.00
4.00	0.13	0.00	0.00	0.00
6.00	0.22	0.00	0.00	0.00
8.00	0.35	0.00	0.00	0.00
10.00	0.59	0.00	0.00	0.00
12.00	1.55	0.13	0.00	**3.76**
14.00	2.51	0.54	0.00	**1.34**
16.00	2.75	0.66	0.00	0.76
18.00	2.88	0.74	0.00	0.47
20.00	2.97	0.79	0.00	0.38
22.00	3.04	0.83	0.00	0.32
24.00	**3.10**	**0.87**	0.00	0.26
26.00	3.10	0.87	0.00	0.00
28.00	3.10	0.87	0.00	0.00
30.00	3.10	0.87	0.00	0.00
32.00	3.10	0.87	0.00	0.00
34.00	3.10	0.87	0.00	0.00
36.00	3.10	0.87	0.00	0.00
38.00	3.10	0.87	0.00	0.00
40.00	3.10	0.87	0.00	0.00
42.00	3.10	0.87	0.00	0.00
44.00	3.10	0.87	0.00	0.00
46.00	3.10	0.87	0.00	0.00
48.00	3.10	0.87	0.00	0.00
50.00	3.10	0.87	0.00	0.00
52.00	3.10	0.87	0.00	0.00
54.00	3.10	0.87	0.00	0.00
56.00	3.10	0.87	0.00	0.00
58.00	3.10	0.87	0.00	0.00
60.00	3.10	0.87	0.00	0.00
62.00	3.10	0.87	0.00	0.00
64.00	3.10	0.87	0.00	0.00
66.00	3.10	0.87	0.00	0.00
68.00	3.10	0.87	0.00	0.00
70.00	3.10	0.87	0.00	0.00
72.00	3.10	0.87	0.00	0.00
74.00	3.10	0.87	0.00	0.00
76.00	3.10	0.87	0.00	0.00
78.00	3.10	0.87	0.00	0.00
80.00	3.10	0.87	0.00	0.00
82.00	3.10	0.87	0.00	0.00
84.00	3.10	0.87	0.00	0.00
86.00	3.10	0.87	0.00	0.00
88.00	3.10	0.87	0.00	0.00
90.00	3.10	0.87	0.00	0.00
92.00	3.10	0.87	0.00	0.00
94.00	3.10	0.87	0.00	0.00
96.00	3.10	0.87	0.00	0.00

Summary for Pond DP16: DP-16

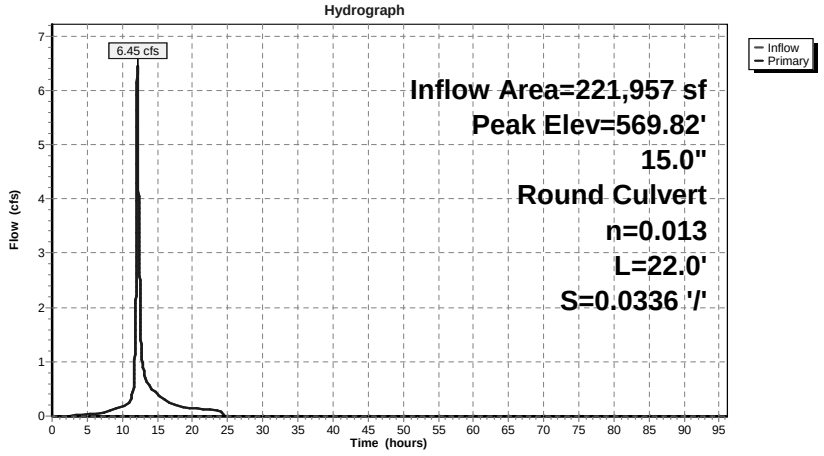
Inflow Area = 221,957 sf, 25.06% Impervious, Inflow Depth = 1.37" for 1 Year, 24 Hr. Event event
Inflow = 6.45 cfs @ 12.14 hrs, Volume= 25,328 cf
Outflow = 6.45 cfs @ 12.14 hrs, Volume= 25,328 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.45 cfs @ 12.14 hrs, Volume= 25,328 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 569.82' @ 12.14 hrs
Flood Elev= 571.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	567.29'	**15.0" Round Culvert** L= 22.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 567.29' / 566.55' S= 0.0336 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=6.44 cfs @ 12.14 hrs HW=569.82' (Free Discharge)
↑**1=Culvert** (Inlet Controls 6.44 cfs @ 5.25 fps)

Pond DP16: DP-16



Hydrograph for Pond DP16: DP-16

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	567.29	0.00	52.00	0.00	567.29	0.00
1.00	0.00	567.29	0.00	53.00	0.00	567.29	0.00
2.00	0.01	567.33	0.01	54.00	0.00	567.29	0.00
3.00	0.02	567.35	0.02	55.00	0.00	567.29	0.00
4.00	0.03	567.37	0.03	56.00	0.00	567.29	0.00
5.00	0.04	567.39	0.04	57.00	0.00	567.29	0.00
6.00	0.04	567.40	0.04	58.00	0.00	567.29	0.00
7.00	0.06	567.42	0.06	59.00	0.00	567.29	0.00
8.00	0.08	567.44	0.08	60.00	0.00	567.29	0.00
9.00	0.13	567.47	0.13	61.00	0.00	567.29	0.00
10.00	0.17	567.50	0.17	62.00	0.00	567.29	0.00
11.00	0.26	567.55	0.26	63.00	0.00	567.29	0.00
12.00	**2.93**	**568.32**	**2.93**	64.00	0.00	567.29	0.00
13.00	**0.84**	**567.78**	**0.84**	65.00	0.00	567.29	0.00
14.00	0.53	567.67	0.53	66.00	0.00	567.29	0.00
15.00	0.41	567.62	0.41	67.00	0.00	567.29	0.00
16.00	0.29	567.57	0.29	68.00	0.00	567.29	0.00
17.00	0.23	567.54	0.23	69.00	0.00	567.29	0.00
18.00	0.18	567.51	0.18	70.00	0.00	567.29	0.00
19.00	0.16	567.50	0.16	71.00	0.00	567.29	0.00
20.00	0.15	567.49	0.15	72.00	0.00	567.29	0.00
21.00	0.13	567.48	0.13	73.00	0.00	567.29	0.00
22.00	0.12	567.47	0.12	74.00	0.00	567.29	0.00
23.00	0.11	567.46	0.11	75.00	0.00	567.29	0.00
24.00	0.10	567.45	0.10	76.00	0.00	567.29	0.00
25.00	0.00	567.29	0.00	77.00	0.00	567.29	0.00
26.00	0.00	567.29	0.00	78.00	0.00	567.29	0.00
27.00	0.00	567.29	0.00	79.00	0.00	567.29	0.00
28.00	0.00	567.29	0.00	80.00	0.00	567.29	0.00
29.00	0.00	567.29	0.00	81.00	0.00	567.29	0.00
30.00	0.00	567.29	0.00	82.00	0.00	567.29	0.00
31.00	0.00	567.29	0.00	83.00	0.00	567.29	0.00
32.00	0.00	567.29	0.00	84.00	0.00	567.29	0.00
33.00	0.00	567.29	0.00	85.00	0.00	567.29	0.00
34.00	0.00	567.29	0.00	86.00	0.00	567.29	0.00
35.00	0.00	567.29	0.00	87.00	0.00	567.29	0.00
36.00	0.00	567.29	0.00	88.00	0.00	567.29	0.00
37.00	0.00	567.29	0.00	89.00	0.00	567.29	0.00
38.00	0.00	567.29	0.00	90.00	0.00	567.29	0.00
39.00	0.00	567.29	0.00	91.00	0.00	567.29	0.00
40.00	0.00	567.29	0.00	92.00	0.00	567.29	0.00
41.00	0.00	567.29	0.00	93.00	0.00	567.29	0.00
42.00	0.00	567.29	0.00	94.00	0.00	567.29	0.00
43.00	0.00	567.29	0.00	95.00	0.00	567.29	0.00
44.00	0.00	567.29	0.00	96.00	0.00	567.29	0.00
45.00	0.00	567.29	0.00				
46.00	0.00	567.29	0.00				
47.00	0.00	567.29	0.00				
48.00	0.00	567.29	0.00				
49.00	0.00	567.29	0.00				
50.00	0.00	567.29	0.00				
51.00	0.00	567.29	0.00				

Summary for Pond DP17: DP-17

[58] Hint: Peaked 5.15' above defined flood level

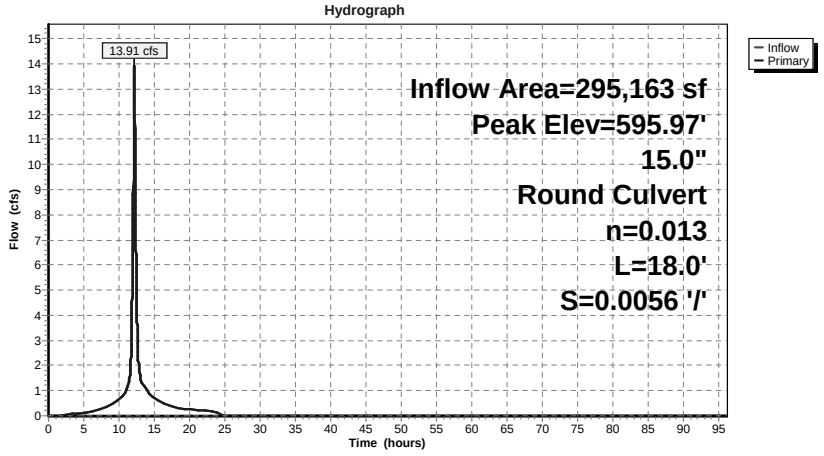
Inflow Area = 295,163 sf, 69.86% Impervious, Inflow Depth = 2.30" for 1 Year, 24 Hr. Event event
Inflow = 13.91 cfs @ 12.15 hrs, Volume= 56,489 cf
Outflow = 13.91 cfs @ 12.15 hrs, Volume= 56,489 cf, Atten= 0%, Lag= 0.0 min
Primary = 13.91 cfs @ 12.15 hrs, Volume= 56,489 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 595.97' @ 12.15 hrs
Flood Elev= 590.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	586.45'	**15.0" Round Culvert-verify outlet invert** L= 18.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 586.45' / 586.35' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=13.91 cfs @ 12.15 hrs HW=595.96' (Free Discharge)
↑**1=Culvert-verify outlet invert** (Inlet Controls 13.91 cfs @ 11.33 fps)

Pond DP17: DP-17



Hydrograph for Pond DP17: DP-17

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	586.45	0.00	52.00	0.00	586.45	0.00
1.00	0.00	586.45	0.00	53.00	0.00	586.45	0.00
2.00	0.02	586.53	0.02	54.00	0.00	586.45	0.00
3.00	0.06	586.58	0.06	55.00	0.00	586.45	0.00
4.00	0.09	586.62	0.09	56.00	0.00	586.45	0.00
5.00	0.13	586.65	0.13	57.00	0.00	586.45	0.00
6.00	0.17	586.68	0.17	58.00	0.00	586.45	0.00
7.00	0.23	586.72	0.23	59.00	0.00	586.45	0.00
8.00	0.31	586.76	0.31	60.00	0.00	586.45	0.00
9.00	0.46	586.84	0.46	61.00	0.00	586.45	0.00
10.00	0.64	586.91	0.64	62.00	0.00	586.45	0.00
11.00	0.98	587.04	0.98	63.00	0.00	586.45	0.00
12.00	**6.97**	**589.31**	**6.97**	64.00	0.00	586.45	0.00
13.00	**1.60**	**587.23**	**1.60**	65.00	0.00	586.45	0.00
14.00	0.97	587.04	0.97	66.00	0.00	586.45	0.00
15.00	0.73	586.95	0.73	67.00	0.00	586.45	0.00
16.00	0.52	586.86	0.52	68.00	0.00	586.45	0.00
17.00	0.41	586.81	0.41	69.00	0.00	586.45	0.00
18.00	0.31	586.77	0.31	70.00	0.00	586.45	0.00
19.00	0.28	586.75	0.28	71.00	0.00	586.45	0.00
20.00	0.25	586.73	0.25	72.00	0.00	586.45	0.00
21.00	0.23	586.72	0.23	73.00	0.00	586.45	0.00
22.00	0.21	586.70	0.21	74.00	0.00	586.45	0.00
23.00	0.19	586.69	0.19	75.00	0.00	586.45	0.00
24.00	0.16	586.68	0.16	76.00	0.00	586.45	0.00
25.00	0.00	586.45	0.00	77.00	0.00	586.45	0.00
26.00	0.00	586.45	0.00	78.00	0.00	586.45	0.00
27.00	0.00	586.45	0.00	79.00	0.00	586.45	0.00
28.00	0.00	586.45	0.00	80.00	0.00	586.45	0.00
29.00	0.00	586.45	0.00	81.00	0.00	586.45	0.00
30.00	0.00	586.45	0.00	82.00	0.00	586.45	0.00
31.00	0.00	586.45	0.00	83.00	0.00	586.45	0.00
32.00	0.00	586.45	0.00	84.00	0.00	586.45	0.00
33.00	0.00	586.45	0.00	85.00	0.00	586.45	0.00
34.00	0.00	586.45	0.00	86.00	0.00	586.45	0.00
35.00	0.00	586.45	0.00	87.00	0.00	586.45	0.00
36.00	0.00	586.45	0.00	88.00	0.00	586.45	0.00
37.00	0.00	586.45	0.00	89.00	0.00	586.45	0.00
38.00	0.00	586.45	0.00	90.00	0.00	586.45	0.00
39.00	0.00	586.45	0.00	91.00	0.00	586.45	0.00
40.00	0.00	586.45	0.00	92.00	0.00	586.45	0.00
41.00	0.00	586.45	0.00	93.00	0.00	586.45	0.00
42.00	0.00	586.45	0.00	94.00	0.00	586.45	0.00
43.00	0.00	586.45	0.00	95.00	0.00	586.45	0.00
44.00	0.00	586.45	0.00	96.00	0.00	586.45	0.00
45.00	0.00	586.45	0.00				
46.00	0.00	586.45	0.00				
47.00	0.00	586.45	0.00				
48.00	0.00	586.45	0.00				
49.00	0.00	586.45	0.00				
50.00	0.00	586.45	0.00				
51.00	0.00	586.45	0.00				

Summary for Pond DP18: DP-18

[58] Hint: Peaked 0.58' above defined flood level

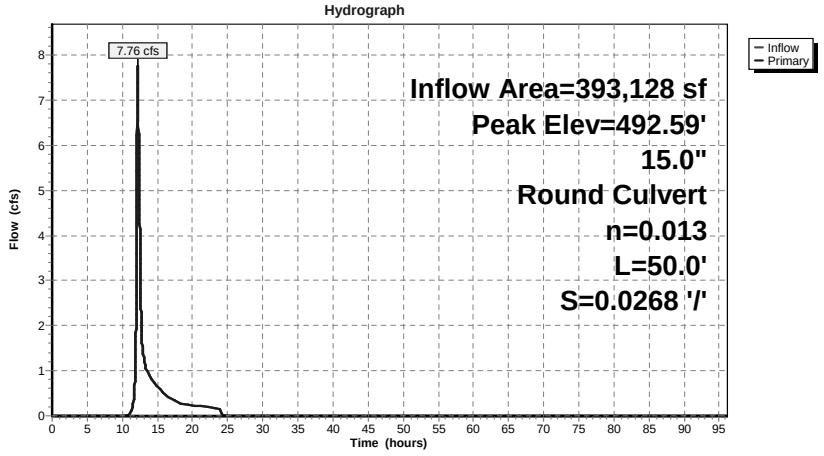
Inflow Area = 393,128 sf, 0.00% Impervious, Inflow Depth = 0.97" for 1 Year, 24 Hr. Event event
Inflow = 7.76 cfs @ 12.19 hrs, Volume= 31,853 cf
Outflow = 7.76 cfs @ 12.19 hrs, Volume= 31,853 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.76 cfs @ 12.19 hrs, Volume= 31,853 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 492.59' @ 12.19 hrs
Flood Elev= 492.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	489.20'	**15.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.20' / 487.86' S= 0.0268 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=7.75 cfs @ 12.19 hrs HW=492.59' (Free Discharge)
↑**1=Culvert** (Inlet Controls 7.75 cfs @ 6.32 fps)

Pond DP18: DP-18



Hydrograph for Pond DP18: DP-18

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	489.20	0.00	52.00	0.00	489.20	0.00
1.00	0.00	489.20	0.00	53.00	0.00	489.20	0.00
2.00	0.00	489.20	0.00	54.00	0.00	489.20	0.00
3.00	0.00	489.20	0.00	55.00	0.00	489.20	0.00
4.00	0.00	489.20	0.00	56.00	0.00	489.20	0.00
5.00	0.00	489.20	0.00	57.00	0.00	489.20	0.00
6.00	0.00	489.20	0.00	58.00	0.00	489.20	0.00
7.00	0.00	489.20	0.00	59.00	0.00	489.20	0.00
8.00	0.00	489.20	0.00	60.00	0.00	489.20	0.00
9.00	0.00	489.20	0.00	61.00	0.00	489.20	0.00
10.00	0.00	489.20	0.00	62.00	0.00	489.20	0.00
11.00	0.03	489.29	0.03	63.00	0.00	489.20	0.00
12.00	**2.67**	**490.16**	**2.67**	64.00	0.00	489.20	0.00
13.00	**1.35**	**489.84**	**1.35**	65.00	0.00	489.20	0.00
14.00	0.85	489.69	0.85	66.00	0.00	489.20	0.00
15.00	0.65	489.63	0.65	67.00	0.00	489.20	0.00
16.00	0.48	489.56	0.48	68.00	0.00	489.20	0.00
17.00	0.38	489.52	0.38	69.00	0.00	489.20	0.00
18.00	0.30	489.48	0.30	70.00	0.00	489.20	0.00
19.00	0.26	489.46	0.26	71.00	0.00	489.20	0.00
20.00	0.24	489.45	0.24	72.00	0.00	489.20	0.00
21.00	0.22	489.44	0.22	73.00	0.00	489.20	0.00
22.00	0.20	489.43	0.20	74.00	0.00	489.20	0.00
23.00	0.18	489.42	0.18	75.00	0.00	489.20	0.00
24.00	0.16	489.40	0.16	76.00	0.00	489.20	0.00
25.00	0.00	489.20	0.00	77.00	0.00	489.20	0.00
26.00	0.00	489.20	0.00	78.00	0.00	489.20	0.00
27.00	0.00	489.20	0.00	79.00	0.00	489.20	0.00
28.00	0.00	489.20	0.00	80.00	0.00	489.20	0.00
29.00	0.00	489.20	0.00	81.00	0.00	489.20	0.00
30.00	0.00	489.20	0.00	82.00	0.00	489.20	0.00
31.00	0.00	489.20	0.00	83.00	0.00	489.20	0.00
32.00	0.00	489.20	0.00	84.00	0.00	489.20	0.00
33.00	0.00	489.20	0.00	85.00	0.00	489.20	0.00
34.00	0.00	489.20	0.00	86.00	0.00	489.20	0.00
35.00	0.00	489.20	0.00	87.00	0.00	489.20	0.00
36.00	0.00	489.20	0.00	88.00	0.00	489.20	0.00
37.00	0.00	489.20	0.00	89.00	0.00	489.20	0.00
38.00	0.00	489.20	0.00	90.00	0.00	489.20	0.00
39.00	0.00	489.20	0.00	91.00	0.00	489.20	0.00
40.00	0.00	489.20	0.00	92.00	0.00	489.20	0.00
41.00	0.00	489.20	0.00	93.00	0.00	489.20	0.00
42.00	0.00	489.20	0.00	94.00	0.00	489.20	0.00
43.00	0.00	489.20	0.00	95.00	0.00	489.20	0.00
44.00	0.00	489.20	0.00	96.00	0.00	489.20	0.00
45.00	0.00	489.20	0.00				
46.00	0.00	489.20	0.00				
47.00	0.00	489.20	0.00				
48.00	0.00	489.20	0.00				
49.00	0.00	489.20	0.00				
50.00	0.00	489.20	0.00				
51.00	0.00	489.20	0.00				

Summary for Pond DP19: DP-19

[57] Hint: Peaked at 483.19' (Flood elevation advised)

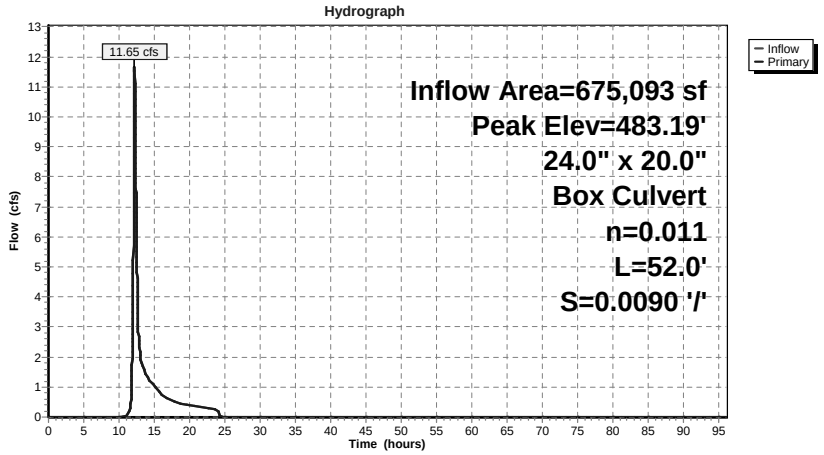
Inflow Area = 675,093 sf, 0.00% Impervious, Inflow Depth = 0.87" for 1 Year, 24 Hr. Event event
Inflow = 11.65 cfs @ 12.18 hrs, Volume= 48,845 cf
Outflow = 11.65 cfs @ 12.18 hrs, Volume= 48,845 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.65 cfs @ 12.18 hrs, Volume= 48,845 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 483.19' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	481.70'	**24.0" W x 20.0" H Box Culvert** L= 52.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 481.70' / 481.23' S= 0.0090 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=11.64 cfs @ 12.18 hrs HW=483.19' (Free Discharge)
1=Culvert (Inlet Controls 11.64 cfs @ 3.91 fps)

Pond DP19: DP-19



Hydrograph for Pond DP19: DP-19

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	481.70	0.00	52.00	0.00	481.70	0.00
1.00	0.00	481.70	0.00	53.00	0.00	481.70	0.00
2.00	0.00	481.70	0.00	54.00	0.00	481.70	0.00
3.00	0.00	481.70	0.00	55.00	0.00	481.70	0.00
4.00	0.00	481.70	0.00	56.00	0.00	481.70	0.00
5.00	0.00	481.70	0.00	57.00	0.00	481.70	0.00
6.00	0.00	481.70	0.00	58.00	0.00	481.70	0.00
7.00	0.00	481.70	0.00	59.00	0.00	481.70	0.00
8.00	0.00	481.70	0.00	60.00	0.00	481.70	0.00
9.00	0.00	481.70	0.00	61.00	0.00	481.70	0.00
10.00	0.00	481.70	0.00	62.00	0.00	481.70	0.00
11.00	0.00	481.70	0.00	63.00	0.00	481.70	0.00
12.00	**3.76**	**482.40**	**3.76**	64.00	0.00	481.70	0.00
13.00	**2.11**	**482.18**	**2.11**	65.00	0.00	481.70	0.00
14.00	1.34	482.05	1.34	66.00	0.00	481.70	0.00
15.00	1.04	482.00	1.04	67.00	0.00	481.70	0.00
16.00	0.76	481.94	0.76	68.00	0.00	481.70	0.00
17.00	0.60	481.91	0.60	69.00	0.00	481.70	0.00
18.00	0.47	481.88	0.47	70.00	0.00	481.70	0.00
19.00	0.42	481.86	0.42	71.00	0.00	481.70	0.00
20.00	0.38	481.85	0.38	72.00	0.00	481.70	0.00
21.00	0.35	481.84	0.35	73.00	0.00	481.70	0.00
22.00	0.32	481.83	0.32	74.00	0.00	481.70	0.00
23.00	0.29	481.83	0.29	75.00	0.00	481.70	0.00
24.00	0.26	481.82	0.26	76.00	0.00	481.70	0.00
25.00	0.00	481.70	0.00	77.00	0.00	481.70	0.00
26.00	0.00	481.70	0.00	78.00	0.00	481.70	0.00
27.00	0.00	481.70	0.00	79.00	0.00	481.70	0.00
28.00	0.00	481.70	0.00	80.00	0.00	481.70	0.00
29.00	0.00	481.70	0.00	81.00	0.00	481.70	0.00
30.00	0.00	481.70	0.00	82.00	0.00	481.70	0.00
31.00	0.00	481.70	0.00	83.00	0.00	481.70	0.00
32.00	0.00	481.70	0.00	84.00	0.00	481.70	0.00
33.00	0.00	481.70	0.00	85.00	0.00	481.70	0.00
34.00	0.00	481.70	0.00	86.00	0.00	481.70	0.00
35.00	0.00	481.70	0.00	87.00	0.00	481.70	0.00
36.00	0.00	481.70	0.00	88.00	0.00	481.70	0.00
37.00	0.00	481.70	0.00	89.00	0.00	481.70	0.00
38.00	0.00	481.70	0.00	90.00	0.00	481.70	0.00
39.00	0.00	481.70	0.00	91.00	0.00	481.70	0.00
40.00	0.00	481.70	0.00	92.00	0.00	481.70	0.00
41.00	0.00	481.70	0.00	93.00	0.00	481.70	0.00
42.00	0.00	481.70	0.00	94.00	0.00	481.70	0.00
43.00	0.00	481.70	0.00	95.00	0.00	481.70	0.00
44.00	0.00	481.70	0.00	96.00	0.00	481.70	0.00
45.00	0.00	481.70	0.00				
46.00	0.00	481.70	0.00				
47.00	0.00	481.70	0.00				
48.00	0.00	481.70	0.00				
49.00	0.00	481.70	0.00				
50.00	0.00	481.70	0.00				
51.00	0.00	481.70	0.00				

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment DA-16: Post_DA-16 Runoff Area=221,957 sf 25.06% Impervious Runoff Depth=1.66"
Flow Length=418' Tc=9.9 min CN=72/98 Runoff=7.93 cfs 30,678 cf

Subcatchment DA-17: Post_DA-17 Runoff Area=295,163 sf 69.86% Impervious Runoff Depth=2.66"
Flow Length=1,520' Tc=11.1 min CN=74/98 Runoff=16.08 cfs 65,322 cf

Subcatchment DA-18: Post_DA-18 Runoff Area=393,128 sf 0.00% Impervious Runoff Depth=1.24"
Flow Length=1,070' Tc=12.6 min CN=74/0 Runoff=10.14 cfs 40,620 cf

Subcatchment DA-19: Post_DA-19 Runoff Area=675,093 sf 0.00% Impervious Runoff Depth=1.12"
Flow Length=1,348' Tc=12.3 min CN=72/0 Runoff=15.57 cfs 63,060 cf

Pond DP16: DP-16 Peak Elev=570.81' Inflow=7.93 cfs 30,678 cf
15.0" Round Culvert n=0.013 L=22.0' S=0.0336 '/' Outflow=7.93 cfs 30,678 cf

Pond DP17: DP-17 Peak Elev=598.96' Inflow=16.08 cfs 65,322 cf
15.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=16.08 cfs 65,322 cf

Pond DP18: DP-18 Peak Elev=494.55' Inflow=10.14 cfs 40,620 cf
15.0" Round Culvert n=0.013 L=50.0' S=0.0268 '/' Outflow=10.14 cfs 40,620 cf

Pond DP19: DP-19 Peak Elev=483.54' Inflow=15.57 cfs 63,060 cf
24.0" x 20.0" Box Culvert n=0.011 L=52.0' S=0.0090 '/' Outflow=15.57 cfs 63,060 cf

Total Runoff Area = 1,585,341 sf Runoff Volume = 199,680 cf Average Runoff Depth = 1.51"
83.48% Pervious = 1,323,514 sf 16.52% Impervious = 261,827 sf

Summary for Subcatchment DA-16: Post_DA-16

Runoff = 7.93 cfs @ 12.14 hrs, Volume= 30,678 cf, Depth= 1.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

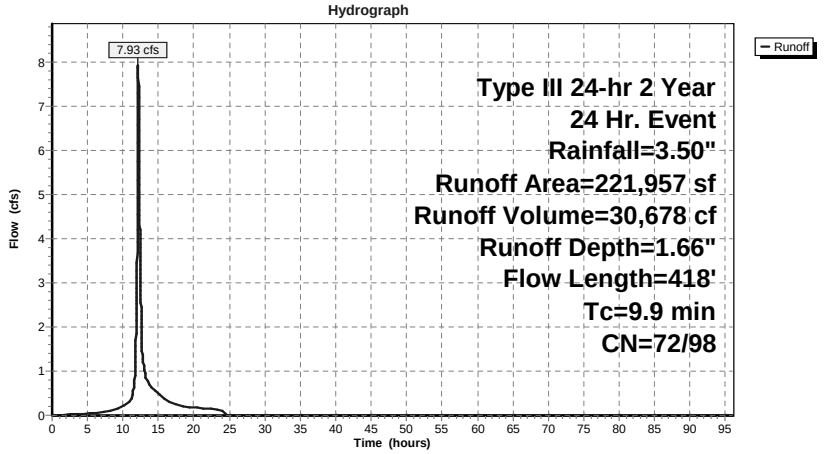
Area (sf)	CN	Description	Land Use
54,093	98	Paved parking, HSG C	Pavement
143,987	74	>75% Grass cover, Good, HSG C	Open Space
22,350	61	>75% Grass cover, Good, HSG B	Open Space
1,527	98	Unconnected roofs, HSG C	Roofs
221,957	79	Weighted Average	
166,337	72	74.94% Pervious Area	
55,620	98	25.06% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.5	193	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	125	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.9	418	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 25.06% Impervious, Rv= 0.276, Runoff= 12.59"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
166,337	Open Space	6,559.47	22.88	99.15	13.40
54,093	Pavement	613.01	1.98	7.44	23.74
1,527	Roofs	1.90	0.01	0.15	0.74
221,957	Total	7,174.38	24.88	106.75	37.88

Subcatchment DA-16: Post_DA-16



Hydrograph for Subcatchment DA-16: Post_DA-16

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.01
4.00	0.15	0.00	0.04	0.03
6.00	0.25	0.00	0.11	0.05
8.00	0.40	0.00	0.23	0.10
10.00	0.66	0.00	0.47	0.20
12.00	1.75	0.19	1.53	**3.67**
14.00	2.84	0.71	2.61	**0.64**
16.00	3.10	0.87	2.87	0.35
18.00	3.25	0.96	3.02	0.22
20.00	3.35	1.02	3.12	0.17
22.00	3.43	1.08	3.20	0.14
24.00	**3.50**	**1.12**	**3.27**	0.12
26.00	3.50	1.12	3.27	0.00
28.00	3.50	1.12	3.27	0.00
30.00	3.50	1.12	3.27	0.00
32.00	3.50	1.12	3.27	0.00
34.00	3.50	1.12	3.27	0.00
36.00	3.50	1.12	3.27	0.00
38.00	3.50	1.12	3.27	0.00
40.00	3.50	1.12	3.27	0.00
42.00	3.50	1.12	3.27	0.00
44.00	3.50	1.12	3.27	0.00
46.00	3.50	1.12	3.27	0.00
48.00	3.50	1.12	3.27	0.00
50.00	3.50	1.12	3.27	0.00
52.00	3.50	1.12	3.27	0.00
54.00	3.50	1.12	3.27	0.00
56.00	3.50	1.12	3.27	0.00
58.00	3.50	1.12	3.27	0.00
60.00	3.50	1.12	3.27	0.00
62.00	3.50	1.12	3.27	0.00
64.00	3.50	1.12	3.27	0.00
66.00	3.50	1.12	3.27	0.00
68.00	3.50	1.12	3.27	0.00
70.00	3.50	1.12	3.27	0.00
72.00	3.50	1.12	3.27	0.00
74.00	3.50	1.12	3.27	0.00
76.00	3.50	1.12	3.27	0.00
78.00	3.50	1.12	3.27	0.00
80.00	3.50	1.12	3.27	0.00
82.00	3.50	1.12	3.27	0.00
84.00	3.50	1.12	3.27	0.00
86.00	3.50	1.12	3.27	0.00
88.00	3.50	1.12	3.27	0.00
90.00	3.50	1.12	3.27	0.00
92.00	3.50	1.12	3.27	0.00
94.00	3.50	1.12	3.27	0.00
96.00	3.50	1.12	3.27	0.00

Summary for Subcatchment DA-17: Post_DA-17

Runoff = 16.08 cfs @ 12.15 hrs, Volume= 65,322 cf, Depth= 2.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

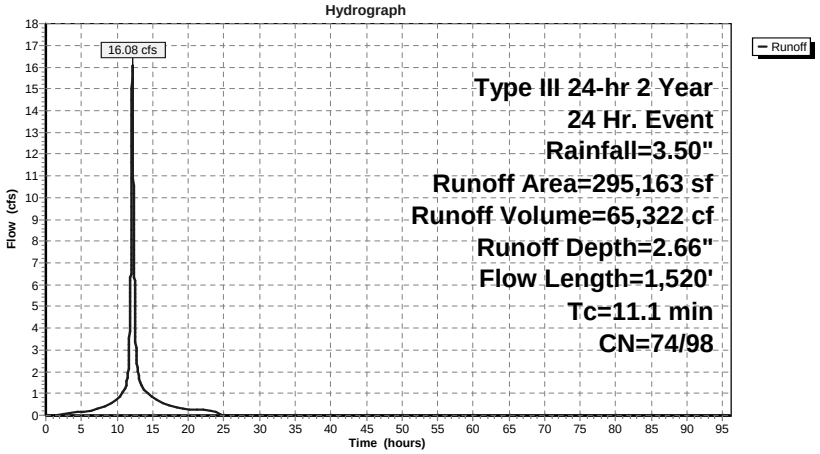
Area (sf)	CN	Description	Land Use
116,949	98	Paved parking, HSG C	Pavement
89,258	98	Roofs, HSG C	Roofs
88,956	74	>75% Grass cover, Good, HSG C	Open Space
295,163	91	Weighted Average	
88,956	74	30.14% Pervious Area	
206,207	98	69.86% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	100	0.0670	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	35	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	35	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.2	1,350		10.00		**Direct Entry, Pipe Flow**
11.1	1,520	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 69.86% Impervious, Rv= 0.679, Runoff= 31.02"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
88,956	Open Space	8,641.74	30.15	130.63	17.66
116,949	Pavement	3,264.92	10.57	39.63	126.44
89,258	Roofs	273.67	1.58	21.61	106.59
295,163	Total	12,180.33	42.30	191.87	250.69

Subcatchment DA-17: Post_DA-17



Hydrograph for Subcatchment DA-17: Post_DA-17

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.07	0.00	0.00	0.03
4.00	0.15	0.00	0.04	0.12
6.00	0.25	0.00	0.11	0.20
8.00	0.40	0.00	0.23	0.36
10.00	0.66	0.00	0.47	0.73
12.00	1.75	0.24	1.53	**8.08**
14.00	2.84	0.81	2.61	**1.12**
16.00	3.10	0.97	2.87	0.60
18.00	3.25	1.07	3.02	0.36
20.00	3.35	1.14	3.12	0.29
22.00	3.43	1.19	3.20	0.24
24.00	**3.50**	**1.24**	**3.27**	0.19
26.00	3.50	1.24	3.27	0.00
28.00	3.50	1.24	3.27	0.00
30.00	3.50	1.24	3.27	0.00
32.00	3.50	1.24	3.27	0.00
34.00	3.50	1.24	3.27	0.00
36.00	3.50	1.24	3.27	0.00
38.00	3.50	1.24	3.27	0.00
40.00	3.50	1.24	3.27	0.00
42.00	3.50	1.24	3.27	0.00
44.00	3.50	1.24	3.27	0.00
46.00	3.50	1.24	3.27	0.00
48.00	3.50	1.24	3.27	0.00
50.00	3.50	1.24	3.27	0.00
52.00	3.50	1.24	3.27	0.00
54.00	3.50	1.24	3.27	0.00
56.00	3.50	1.24	3.27	0.00
58.00	3.50	1.24	3.27	0.00
60.00	3.50	1.24	3.27	0.00
62.00	3.50	1.24	3.27	0.00
64.00	3.50	1.24	3.27	0.00
66.00	3.50	1.24	3.27	0.00
68.00	3.50	1.24	3.27	0.00
70.00	3.50	1.24	3.27	0.00
72.00	3.50	1.24	3.27	0.00
74.00	3.50	1.24	3.27	0.00
76.00	3.50	1.24	3.27	0.00
78.00	3.50	1.24	3.27	0.00
80.00	3.50	1.24	3.27	0.00
82.00	3.50	1.24	3.27	0.00
84.00	3.50	1.24	3.27	0.00
86.00	3.50	1.24	3.27	0.00
88.00	3.50	1.24	3.27	0.00
90.00	3.50	1.24	3.27	0.00
92.00	3.50	1.24	3.27	0.00
94.00	3.50	1.24	3.27	0.00
96.00	3.50	1.24	3.27	0.00

Summary for Subcatchment DA-18: Post_DA-18

Runoff = 10.14 cfs @ 12.19 hrs, Volume= 40,620 cf, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

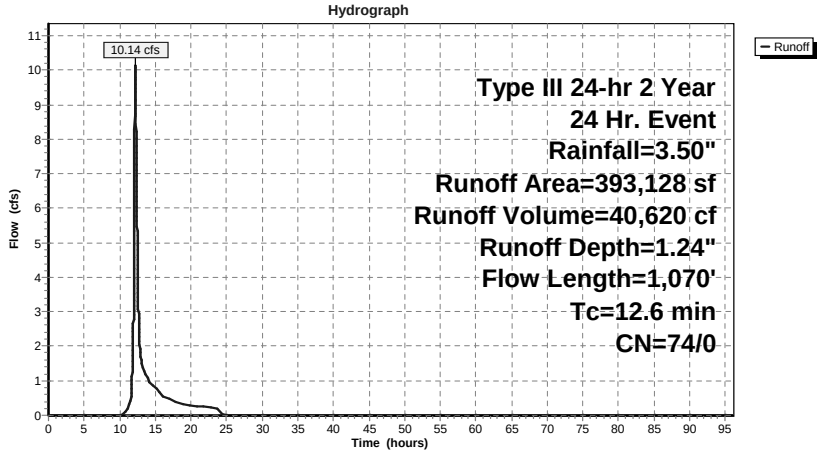
Area (sf)	CN	Description	Land Use
321,115	74	>75% Grass cover, Good, HSG C	Open Space
60,787	70	Woods, Good, HSG C	Woods
11,226	89	Gravel roads, HSG C	Roadway
393,128	74	Weighted Average	
393,128	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	150	0.0800	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	220	0.0910	4.86		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	190	0.2630	8.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	510	0.0200	13.18	79.10	**Channel Flow,** Area= 6.0 sf Perim= 5.0' r= 1.20' n= 0.018 Earth, clean & straight
12.6	1,070	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
321,115	Open Space	2,297.95	8.02	34.74	4.70
11,226	Roadway	23.09	0.07	0.28	0.89
60,787	Woods	26.74	0.00	0.00	0.89
393,128	Total	2,347.78	8.09	35.02	6.48

Subcatchment DA-18: Post_DA-18



Hydrograph for Subcatchment DA-18: Post_DA-18

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.24	0.00	**3.74**
14.00	2.84	0.81	0.00	**1.04**
16.00	3.10	0.97	0.00	0.58
18.00	3.25	1.07	0.00	0.36
20.00	3.35	1.14	0.00	0.29
22.00	3.43	1.19	0.00	0.24
24.00	**3.50**	**1.24**	0.00	0.19
26.00	3.50	1.24	0.00	0.00
28.00	3.50	1.24	0.00	0.00
30.00	3.50	1.24	0.00	0.00
32.00	3.50	1.24	0.00	0.00
34.00	3.50	1.24	0.00	0.00
36.00	3.50	1.24	0.00	0.00
38.00	3.50	1.24	0.00	0.00
40.00	3.50	1.24	0.00	0.00
42.00	3.50	1.24	0.00	0.00
44.00	3.50	1.24	0.00	0.00
46.00	3.50	1.24	0.00	0.00
48.00	3.50	1.24	0.00	0.00
50.00	3.50	1.24	0.00	0.00
52.00	3.50	1.24	0.00	0.00
54.00	3.50	1.24	0.00	0.00
56.00	3.50	1.24	0.00	0.00
58.00	3.50	1.24	0.00	0.00
60.00	3.50	1.24	0.00	0.00
62.00	3.50	1.24	0.00	0.00
64.00	3.50	1.24	0.00	0.00
66.00	3.50	1.24	0.00	0.00
68.00	3.50	1.24	0.00	0.00
70.00	3.50	1.24	0.00	0.00
72.00	3.50	1.24	0.00	0.00
74.00	3.50	1.24	0.00	0.00
76.00	3.50	1.24	0.00	0.00
78.00	3.50	1.24	0.00	0.00
80.00	3.50	1.24	0.00	0.00
82.00	3.50	1.24	0.00	0.00
84.00	3.50	1.24	0.00	0.00
86.00	3.50	1.24	0.00	0.00
88.00	3.50	1.24	0.00	0.00
90.00	3.50	1.24	0.00	0.00
92.00	3.50	1.24	0.00	0.00
94.00	3.50	1.24	0.00	0.00
96.00	3.50	1.24	0.00	0.00

Summary for Subcatchment DA-19: Post_DA-19

Runoff = 15.57 cfs @ 12.18 hrs, Volume= 63,060 cf, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year, 24 Hr. Event Rainfall=3.50"

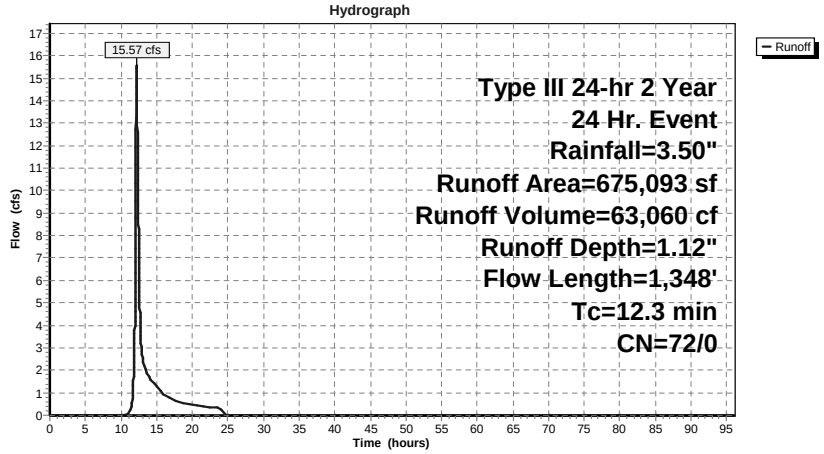
Area (sf)	CN	Description	Land Use
370,422	74	>75% Grass cover, Good, HSG C	Open Space
304,671	70	Woods, Good, HSG C	Woods
675,093	72	Weighted Average	
675,093	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0970	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.1	273	0.0970	2.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	121	0.1980	3.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	214	0.1680	2.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	640		10.00		**Direct Entry,**
12.3	1,348	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
370,422	Open Space	2,650.80	9.25	40.07	5.42
304,671	Woods	134.00	0.00	0.00	4.45
675,093	Total	2,784.81	9.25	40.07	9.87

Subcatchment DA-19: Post_DA-19



Hydrograph for Subcatchment DA-19: Post_DA-19

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.07	0.00	0.00	0.00
4.00	0.15	0.00	0.00	0.00
6.00	0.25	0.00	0.00	0.00
8.00	0.40	0.00	0.00	0.00
10.00	0.66	0.00	0.00	0.00
12.00	1.75	0.19	0.00	**5.49**
14.00	2.84	0.71	0.00	**1.66**
16.00	3.10	0.87	0.00	0.93
18.00	3.25	0.96	0.00	0.58
20.00	3.35	1.02	0.00	0.46
22.00	3.43	1.08	0.00	0.39
24.00	**3.50**	**1.12**	0.00	0.31
26.00	3.50	1.12	0.00	0.00
28.00	3.50	1.12	0.00	0.00
30.00	3.50	1.12	0.00	0.00
32.00	3.50	1.12	0.00	0.00
34.00	3.50	1.12	0.00	0.00
36.00	3.50	1.12	0.00	0.00
38.00	3.50	1.12	0.00	0.00
40.00	3.50	1.12	0.00	0.00
42.00	3.50	1.12	0.00	0.00
44.00	3.50	1.12	0.00	0.00
46.00	3.50	1.12	0.00	0.00
48.00	3.50	1.12	0.00	0.00
50.00	3.50	1.12	0.00	0.00
52.00	3.50	1.12	0.00	0.00
54.00	3.50	1.12	0.00	0.00
56.00	3.50	1.12	0.00	0.00
58.00	3.50	1.12	0.00	0.00
60.00	3.50	1.12	0.00	0.00
62.00	3.50	1.12	0.00	0.00
64.00	3.50	1.12	0.00	0.00
66.00	3.50	1.12	0.00	0.00
68.00	3.50	1.12	0.00	0.00
70.00	3.50	1.12	0.00	0.00
72.00	3.50	1.12	0.00	0.00
74.00	3.50	1.12	0.00	0.00
76.00	3.50	1.12	0.00	0.00
78.00	3.50	1.12	0.00	0.00
80.00	3.50	1.12	0.00	0.00
82.00	3.50	1.12	0.00	0.00
84.00	3.50	1.12	0.00	0.00
86.00	3.50	1.12	0.00	0.00
88.00	3.50	1.12	0.00	0.00
90.00	3.50	1.12	0.00	0.00
92.00	3.50	1.12	0.00	0.00
94.00	3.50	1.12	0.00	0.00
96.00	3.50	1.12	0.00	0.00

Summary for Pond DP16: DP-16

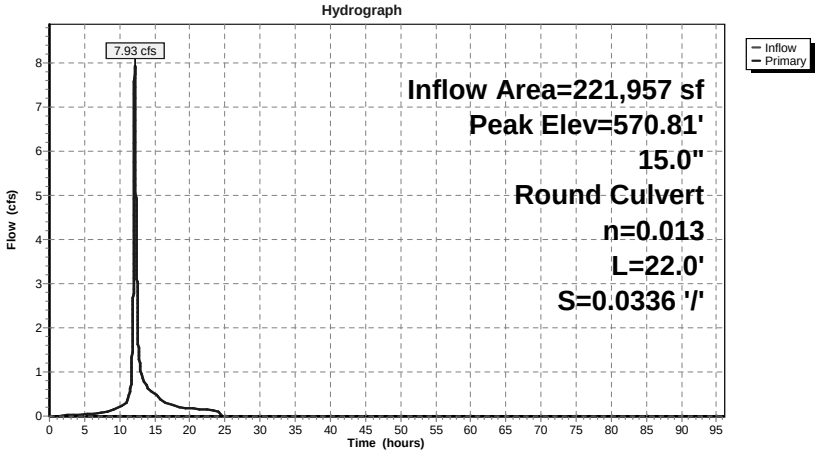
Inflow Area = 221,957 sf, 25.06% Impervious, Inflow Depth = 1.66" for 2 Year, 24 Hr. Event event
Inflow = 7.93 cfs @ 12.14 hrs, Volume= 30,678 cf
Outflow = 7.93 cfs @ 12.14 hrs, Volume= 30,678 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.93 cfs @ 12.14 hrs, Volume= 30,678 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 570.81' @ 12.14 hrs
Flood Elev= 571.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	567.29'	**15.0" Round Culvert** L= 22.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 567.29' / 566.55' S= 0.0336 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=7.93 cfs @ 12.14 hrs HW=570.81' (Free Discharge)
1=Culvert (Inlet Controls 7.93 cfs @ 6.46 fps)

Pond DP16: DP-16



Hydrograph for Pond DP16: DP-16

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	567.29	0.00	52.00	0.00	567.29	0.00
1.00	0.00	567.29	0.00	53.00	0.00	567.29	0.00
2.00	0.01	567.34	0.01	54.00	0.00	567.29	0.00
3.00	0.02	567.36	0.02	55.00	0.00	567.29	0.00
4.00	0.03	567.38	0.03	56.00	0.00	567.29	0.00
5.00	0.04	567.39	0.04	57.00	0.00	567.29	0.00
6.00	0.05	567.41	0.05	58.00	0.00	567.29	0.00
7.00	0.07	567.43	0.07	59.00	0.00	567.29	0.00
8.00	0.10	567.45	0.10	60.00	0.00	567.29	0.00
9.00	0.15	567.49	0.15	61.00	0.00	567.29	0.00
10.00	0.20	567.52	0.20	62.00	0.00	567.29	0.00
11.00	0.33	567.59	0.33	63.00	0.00	567.29	0.00
12.00	**3.67**	**568.53**	**3.67**	64.00	0.00	567.29	0.00
13.00	**1.02**	**567.83**	**1.02**	65.00	0.00	567.29	0.00
14.00	0.64	567.71	0.64	66.00	0.00	567.29	0.00
15.00	0.49	567.66	0.49	67.00	0.00	567.29	0.00
16.00	0.35	567.60	0.35	68.00	0.00	567.29	0.00
17.00	0.28	567.56	0.28	69.00	0.00	567.29	0.00
18.00	0.22	567.53	0.22	70.00	0.00	567.29	0.00
19.00	0.19	567.52	0.19	71.00	0.00	567.29	0.00
20.00	0.17	567.50	0.17	72.00	0.00	567.29	0.00
21.00	0.16	567.49	0.16	73.00	0.00	567.29	0.00
22.00	0.14	567.48	0.14	74.00	0.00	567.29	0.00
23.00	0.13	567.47	0.13	75.00	0.00	567.29	0.00
24.00	0.12	567.46	0.12	76.00	0.00	567.29	0.00
25.00	0.00	567.29	0.00	77.00	0.00	567.29	0.00
26.00	0.00	567.29	0.00	78.00	0.00	567.29	0.00
27.00	0.00	567.29	0.00	79.00	0.00	567.29	0.00
28.00	0.00	567.29	0.00	80.00	0.00	567.29	0.00
29.00	0.00	567.29	0.00	81.00	0.00	567.29	0.00
30.00	0.00	567.29	0.00	82.00	0.00	567.29	0.00
31.00	0.00	567.29	0.00	83.00	0.00	567.29	0.00
32.00	0.00	567.29	0.00	84.00	0.00	567.29	0.00
33.00	0.00	567.29	0.00	85.00	0.00	567.29	0.00
34.00	0.00	567.29	0.00	86.00	0.00	567.29	0.00
35.00	0.00	567.29	0.00	87.00	0.00	567.29	0.00
36.00	0.00	567.29	0.00	88.00	0.00	567.29	0.00
37.00	0.00	567.29	0.00	89.00	0.00	567.29	0.00
38.00	0.00	567.29	0.00	90.00	0.00	567.29	0.00
39.00	0.00	567.29	0.00	91.00	0.00	567.29	0.00
40.00	0.00	567.29	0.00	92.00	0.00	567.29	0.00
41.00	0.00	567.29	0.00	93.00	0.00	567.29	0.00
42.00	0.00	567.29	0.00	94.00	0.00	567.29	0.00
43.00	0.00	567.29	0.00	95.00	0.00	567.29	0.00
44.00	0.00	567.29	0.00	96.00	0.00	567.29	0.00
45.00	0.00	567.29	0.00				
46.00	0.00	567.29	0.00				
47.00	0.00	567.29	0.00				
48.00	0.00	567.29	0.00				
49.00	0.00	567.29	0.00				
50.00	0.00	567.29	0.00				
51.00	0.00	567.29	0.00				

Summary for Pond DP17: DP-17

[58] Hint: Peaked 8.14' above defined flood level

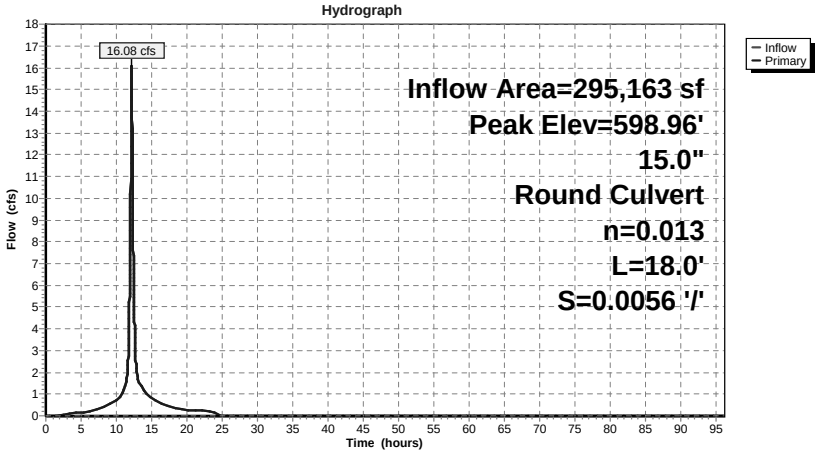
Inflow Area = 295,163 sf, 69.86% Impervious, Inflow Depth = 2.66" for 2 Year, 24 Hr. Event event
Inflow = 16.08 cfs @ 12.15 hrs, Volume= 65,322 cf
Outflow = 16.08 cfs @ 12.15 hrs, Volume= 65,322 cf, Atten= 0%, Lag= 0.0 min
Primary = 16.08 cfs @ 12.15 hrs, Volume= 65,322 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 598.96' @ 12.15 hrs
Flood Elev= 590.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	586.45'	**15.0" Round Culvert-verify outlet invert** L= 18.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 586.45' / 586.35' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=16.07 cfs @ 12.15 hrs HW=598.95' (Free Discharge)
↳**1=Culvert-verify outlet invert** (Inlet Controls 16.07 cfs @ 13.10 fps)

Pond DP17: DP-17



Hydrograph for Pond DP17: DP-17

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	586.45	0.00	52.00	0.00	586.45	0.00
1.00	0.00	586.45	0.00	53.00	0.00	586.45	0.00
2.00	0.03	586.55	0.03	54.00	0.00	586.45	0.00
3.00	0.08	586.60	0.08	55.00	0.00	586.45	0.00
4.00	0.12	586.64	0.12	56.00	0.00	586.45	0.00
5.00	0.16	586.67	0.16	57.00	0.00	586.45	0.00
6.00	0.20	586.70	0.20	58.00	0.00	586.45	0.00
7.00	0.27	586.74	0.27	59.00	0.00	586.45	0.00
8.00	0.36	586.79	0.36	60.00	0.00	586.45	0.00
9.00	0.54	586.87	0.54	61.00	0.00	586.45	0.00
10.00	0.73	586.95	0.73	62.00	0.00	586.45	0.00
11.00	1.14	587.09	1.14	63.00	0.00	586.45	0.00
12.00	**8.08**	**590.08**	**8.08**	64.00	0.00	586.45	0.00
13.00	**1.84**	**587.30**	**1.84**	65.00	0.00	586.45	0.00
14.00	1.12	587.08	1.12	66.00	0.00	586.45	0.00
15.00	0.84	586.99	0.84	67.00	0.00	586.45	0.00
16.00	0.60	586.90	0.60	68.00	0.00	586.45	0.00
17.00	0.47	586.84	0.47	69.00	0.00	586.45	0.00
18.00	0.36	586.79	0.36	70.00	0.00	586.45	0.00
19.00	0.32	586.77	0.32	71.00	0.00	586.45	0.00
20.00	0.29	586.75	0.29	72.00	0.00	586.45	0.00
21.00	0.26	586.74	0.26	73.00	0.00	586.45	0.00
22.00	0.24	586.72	0.24	74.00	0.00	586.45	0.00
23.00	0.21	586.71	0.21	75.00	0.00	586.45	0.00
24.00	0.19	586.69	0.19	76.00	0.00	586.45	0.00
25.00	0.00	586.45	0.00	77.00	0.00	586.45	0.00
26.00	0.00	586.45	0.00	78.00	0.00	586.45	0.00
27.00	0.00	586.45	0.00	79.00	0.00	586.45	0.00
28.00	0.00	586.45	0.00	80.00	0.00	586.45	0.00
29.00	0.00	586.45	0.00	81.00	0.00	586.45	0.00
30.00	0.00	586.45	0.00	82.00	0.00	586.45	0.00
31.00	0.00	586.45	0.00	83.00	0.00	586.45	0.00
32.00	0.00	586.45	0.00	84.00	0.00	586.45	0.00
33.00	0.00	586.45	0.00	85.00	0.00	586.45	0.00
34.00	0.00	586.45	0.00	86.00	0.00	586.45	0.00
35.00	0.00	586.45	0.00	87.00	0.00	586.45	0.00
36.00	0.00	586.45	0.00	88.00	0.00	586.45	0.00
37.00	0.00	586.45	0.00	89.00	0.00	586.45	0.00
38.00	0.00	586.45	0.00	90.00	0.00	586.45	0.00
39.00	0.00	586.45	0.00	91.00	0.00	586.45	0.00
40.00	0.00	586.45	0.00	92.00	0.00	586.45	0.00
41.00	0.00	586.45	0.00	93.00	0.00	586.45	0.00
42.00	0.00	586.45	0.00	94.00	0.00	586.45	0.00
43.00	0.00	586.45	0.00	95.00	0.00	586.45	0.00
44.00	0.00	586.45	0.00	96.00	0.00	586.45	0.00
45.00	0.00	586.45	0.00				
46.00	0.00	586.45	0.00				
47.00	0.00	586.45	0.00				
48.00	0.00	586.45	0.00				
49.00	0.00	586.45	0.00				
50.00	0.00	586.45	0.00				
51.00	0.00	586.45	0.00				

Summary for Pond DP18: DP-18

[58] Hint: Peaked 2.54' above defined flood level

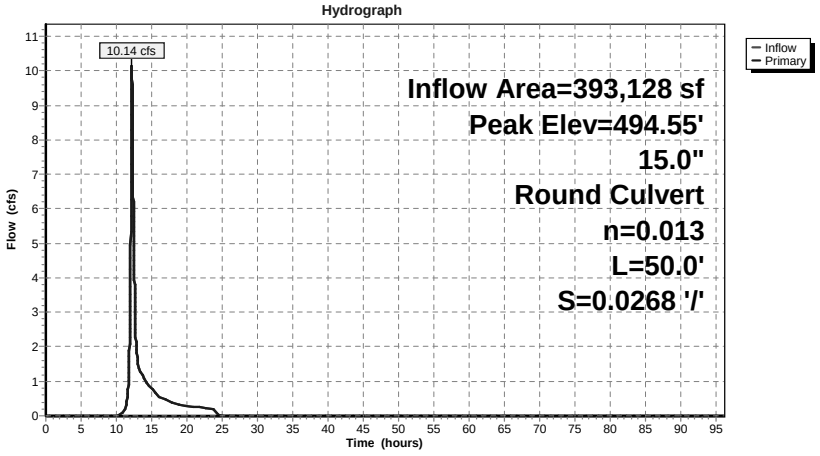
Inflow Area = 393,128 sf, 0.00% Impervious, Inflow Depth = 1.24" for 2 Year, 24 Hr. Event event
Inflow = 10.14 cfs @ 12.19 hrs, Volume= 40,620 cf
Outflow = 10.14 cfs @ 12.19 hrs, Volume= 40,620 cf, Atten= 0%, Lag= 0.0 min
Primary = 10.14 cfs @ 12.19 hrs, Volume= 40,620 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 494.55' @ 12.19 hrs
Flood Elev= 492.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	489.20'	**15.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.20' / 487.86' S= 0.0268 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=10.13 cfs @ 12.19 hrs HW=494.54' (Free Discharge)
↳**1=Culvert** (Inlet Controls 10.13 cfs @ 8.26 fps)

Pond DP18: DP-18



Hydrograph for Pond DP18: DP-18

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	489.20	0.00	52.00	0.00	489.20	0.00
1.00	0.00	489.20	0.00	53.00	0.00	489.20	0.00
2.00	0.00	489.20	0.00	54.00	0.00	489.20	0.00
3.00	0.00	489.20	0.00	55.00	0.00	489.20	0.00
4.00	0.00	489.20	0.00	56.00	0.00	489.20	0.00
5.00	0.00	489.20	0.00	57.00	0.00	489.20	0.00
6.00	0.00	489.20	0.00	58.00	0.00	489.20	0.00
7.00	0.00	489.20	0.00	59.00	0.00	489.20	0.00
8.00	0.00	489.20	0.00	60.00	0.00	489.20	0.00
9.00	0.00	489.20	0.00	61.00	0.00	489.20	0.00
10.00	0.00	489.20	0.00	62.00	0.00	489.20	0.00
11.00	0.15	489.40	0.15	63.00	0.00	489.20	0.00
12.00	**3.74**	**490.47**	**3.74**	64.00	0.00	489.20	0.00
13.00	**1.67**	**489.92**	**1.67**	65.00	0.00	489.20	0.00
14.00	1.04	489.75	1.04	66.00	0.00	489.20	0.00
15.00	0.80	489.68	0.80	67.00	0.00	489.20	0.00
16.00	0.58	489.60	0.58	68.00	0.00	489.20	0.00
17.00	0.46	489.55	0.46	69.00	0.00	489.20	0.00
18.00	0.36	489.51	0.36	70.00	0.00	489.20	0.00
19.00	0.32	489.49	0.32	71.00	0.00	489.20	0.00
20.00	0.29	489.48	0.29	72.00	0.00	489.20	0.00
21.00	0.26	489.46	0.26	73.00	0.00	489.20	0.00
22.00	0.24	489.45	0.24	74.00	0.00	489.20	0.00
23.00	0.22	489.44	0.22	75.00	0.00	489.20	0.00
24.00	0.19	489.42	0.19	76.00	0.00	489.20	0.00
25.00	0.00	489.20	0.00	77.00	0.00	489.20	0.00
26.00	0.00	489.20	0.00	78.00	0.00	489.20	0.00
27.00	0.00	489.20	0.00	79.00	0.00	489.20	0.00
28.00	0.00	489.20	0.00	80.00	0.00	489.20	0.00
29.00	0.00	489.20	0.00	81.00	0.00	489.20	0.00
30.00	0.00	489.20	0.00	82.00	0.00	489.20	0.00
31.00	0.00	489.20	0.00	83.00	0.00	489.20	0.00
32.00	0.00	489.20	0.00	84.00	0.00	489.20	0.00
33.00	0.00	489.20	0.00	85.00	0.00	489.20	0.00
34.00	0.00	489.20	0.00	86.00	0.00	489.20	0.00
35.00	0.00	489.20	0.00	87.00	0.00	489.20	0.00
36.00	0.00	489.20	0.00	88.00	0.00	489.20	0.00
37.00	0.00	489.20	0.00	89.00	0.00	489.20	0.00
38.00	0.00	489.20	0.00	90.00	0.00	489.20	0.00
39.00	0.00	489.20	0.00	91.00	0.00	489.20	0.00
40.00	0.00	489.20	0.00	92.00	0.00	489.20	0.00
41.00	0.00	489.20	0.00	93.00	0.00	489.20	0.00
42.00	0.00	489.20	0.00	94.00	0.00	489.20	0.00
43.00	0.00	489.20	0.00	95.00	0.00	489.20	0.00
44.00	0.00	489.20	0.00	96.00	0.00	489.20	0.00
45.00	0.00	489.20	0.00				
46.00	0.00	489.20	0.00				
47.00	0.00	489.20	0.00				
48.00	0.00	489.20	0.00				
49.00	0.00	489.20	0.00				
50.00	0.00	489.20	0.00				
51.00	0.00	489.20	0.00				

Summary for Pond DP19: DP-19

[57] Hint: Peaked at 483.54' (Flood elevation advised)

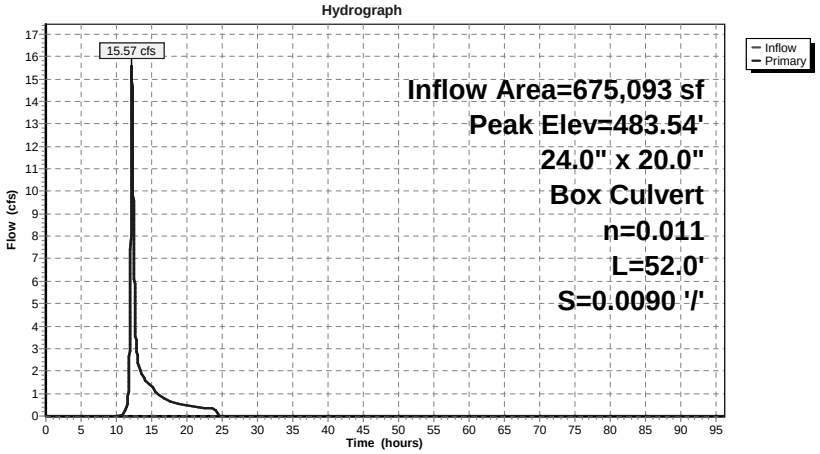
Inflow Area = 675,093 sf, 0.00% Impervious, Inflow Depth = 1.12" for 2 Year, 24 Hr. Event event
Inflow = 15.57 cfs @ 12.18 hrs, Volume= 63,060 cf
Outflow = 15.57 cfs @ 12.18 hrs, Volume= 63,060 cf, Atten= 0%, Lag= 0.0 min
Primary = 15.57 cfs @ 12.18 hrs, Volume= 63,060 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 483.54' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	481.70'	**24.0" W x 20.0" H Box Culvert** L= 52.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 481.70' / 481.23' S= 0.0090 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=15.56 cfs @ 12.18 hrs HW=483.54' (Free Discharge)
1=Culvert (Inlet Controls 15.56 cfs @ 4.67 fps)

Pond DP19: DP-19



Hydrograph for Pond DP19: DP-19

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	481.70	0.00	52.00	0.00	481.70	0.00
1.00	0.00	481.70	0.00	53.00	0.00	481.70	0.00
2.00	0.00	481.70	0.00	54.00	0.00	481.70	0.00
3.00	0.00	481.70	0.00	55.00	0.00	481.70	0.00
4.00	0.00	481.70	0.00	56.00	0.00	481.70	0.00
5.00	0.00	481.70	0.00	57.00	0.00	481.70	0.00
6.00	0.00	481.70	0.00	58.00	0.00	481.70	0.00
7.00	0.00	481.70	0.00	59.00	0.00	481.70	0.00
8.00	0.00	481.70	0.00	60.00	0.00	481.70	0.00
9.00	0.00	481.70	0.00	61.00	0.00	481.70	0.00
10.00	0.00	481.70	0.00	62.00	0.00	481.70	0.00
11.00	0.10	481.76	0.10	63.00	0.00	481.70	0.00
12.00	**5.49**	**482.60**	**5.49**	64.00	0.00	481.70	0.00
13.00	**2.64**	**482.25**	**2.64**	65.00	0.00	481.70	0.00
14.00	1.66	482.11	1.66	66.00	0.00	481.70	0.00
15.00	1.28	482.04	1.28	67.00	0.00	481.70	0.00
16.00	0.93	481.98	0.93	68.00	0.00	481.70	0.00
17.00	0.74	481.94	0.74	69.00	0.00	481.70	0.00
18.00	0.58	481.90	0.58	70.00	0.00	481.70	0.00
19.00	0.51	481.88	0.51	71.00	0.00	481.70	0.00
20.00	0.46	481.87	0.46	72.00	0.00	481.70	0.00
21.00	0.42	481.86	0.42	73.00	0.00	481.70	0.00
22.00	0.39	481.85	0.39	74.00	0.00	481.70	0.00
23.00	0.35	481.84	0.35	75.00	0.00	481.70	0.00
24.00	0.31	481.83	0.31	76.00	0.00	481.70	0.00
25.00	0.00	481.70	0.00	77.00	0.00	481.70	0.00
26.00	0.00	481.70	0.00	78.00	0.00	481.70	0.00
27.00	0.00	481.70	0.00	79.00	0.00	481.70	0.00
28.00	0.00	481.70	0.00	80.00	0.00	481.70	0.00
29.00	0.00	481.70	0.00	81.00	0.00	481.70	0.00
30.00	0.00	481.70	0.00	82.00	0.00	481.70	0.00
31.00	0.00	481.70	0.00	83.00	0.00	481.70	0.00
32.00	0.00	481.70	0.00	84.00	0.00	481.70	0.00
33.00	0.00	481.70	0.00	85.00	0.00	481.70	0.00
34.00	0.00	481.70	0.00	86.00	0.00	481.70	0.00
35.00	0.00	481.70	0.00	87.00	0.00	481.70	0.00
36.00	0.00	481.70	0.00	88.00	0.00	481.70	0.00
37.00	0.00	481.70	0.00	89.00	0.00	481.70	0.00
38.00	0.00	481.70	0.00	90.00	0.00	481.70	0.00
39.00	0.00	481.70	0.00	91.00	0.00	481.70	0.00
40.00	0.00	481.70	0.00	92.00	0.00	481.70	0.00
41.00	0.00	481.70	0.00	93.00	0.00	481.70	0.00
42.00	0.00	481.70	0.00	94.00	0.00	481.70	0.00
43.00	0.00	481.70	0.00	95.00	0.00	481.70	0.00
44.00	0.00	481.70	0.00	96.00	0.00	481.70	0.00
45.00	0.00	481.70	0.00				
46.00	0.00	481.70	0.00				
47.00	0.00	481.70	0.00				
48.00	0.00	481.70	0.00				
49.00	0.00	481.70	0.00				
50.00	0.00	481.70	0.00				
51.00	0.00	481.70	0.00				

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment DA-16: Post_DA-16 Runoff Area=221,957 sf 25.06% Impervious Runoff Depth=3.26"
Flow Length=418' Tc=9.9 min CN=72/98 Runoff=16.13 cfs 60,287 cf

Subcatchment DA-17: Post_DA-17 Runoff Area=295,163 sf 69.86% Impervious Runoff Depth=4.51"
Flow Length=1,520' Tc=11.1 min CN=74/98 Runoff=27.24 cfs 110,957 cf

Subcatchment DA-18: Post_DA-18 Runoff Area=393,128 sf 0.00% Impervious Runoff Depth=2.77"
Flow Length=1,070' Tc=12.6 min CN=74/0 Runoff=23.60 cfs 90,720 cf

Subcatchment DA-19: Post_DA-19 Runoff Area=675,093 sf 0.00% Impervious Runoff Depth=2.59"
Flow Length=1,348' Tc=12.3 min CN=72/0 Runoff=38.05 cfs 145,685 cf

Pond DP16: DP-16 Peak Elev=579.87' Inflow=16.13 cfs 60,287 cf
15.0" Round Culvert n=0.013 L=22.0' S=0.0336 '/' Outflow=16.13 cfs 60,287 cf

Pond DP17: DP-17 Peak Elev=621.18' Inflow=27.24 cfs 110,957 cf
15.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=27.24 cfs 110,957 cf

Pond DP18: DP-18 Peak Elev=515.41' Inflow=23.60 cfs 90,720 cf
15.0" Round Culvert n=0.013 L=50.0' S=0.0268 '/' Outflow=23.60 cfs 90,720 cf

Pond DP19: DP-19 Peak Elev=488.16' Inflow=38.05 cfs 145,685 cf
24.0" x 20.0" Box Culvert n=0.011 L=52.0' S=0.0090 '/' Outflow=38.05 cfs 145,685 cf

Total Runoff Area = 1,585,341 sf Runoff Volume = 407,650 cf Average Runoff Depth = 3.09"
83.48% Pervious = 1,323,514 sf 16.52% Impervious = 261,827 sf

Summary for Subcatchment DA-16: Post_DA-16

Runoff = 16.13 cfs @ 12.14 hrs, Volume= 60,287 cf, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

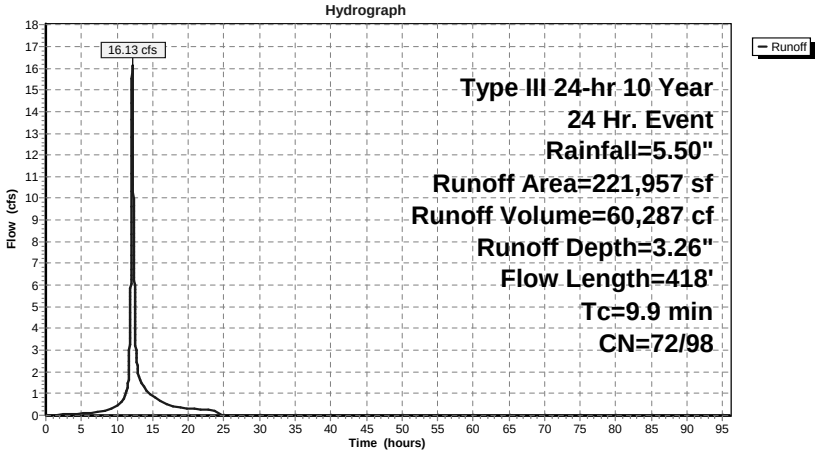
Area (sf)	CN	Description	Land Use
54,093	98	Paved parking, HSG C	Pavement
143,987	74	>75% Grass cover, Good, HSG C	Open Space
22,350	61	>75% Grass cover, Good, HSG B	Open Space
1,527	98	Unconnected roofs, HSG C	Roofs
221,957	79	Weighted Average	
166,337	72	74.94% Pervious Area	
55,620	98	25.06% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.5	193	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	125	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.9	418	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 25.06% Impervious, Rv= 0.276, Runoff= 12.59"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
166,337	Open Space	6,559.47	22.88	99.15	13.40
54,093	Pavement	613.01	1.98	7.44	23.74
1,527	Roofs	1.90	0.01	0.15	0.74
221,957	Total	7,174.38	24.88	106.75	37.88

Subcatchment DA-16: Post_DA-16



Hydrograph for Subcatchment DA-16: Post_DA-16

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.03
4.00	0.24	0.00	0.10	0.07
6.00	0.40	0.00	0.23	0.10
8.00	0.63	0.00	0.43	0.17
10.00	1.04	0.02	0.83	0.43
12.00	2.75	0.66	2.52	**7.82**
14.00	4.46	1.79	4.22	**1.19**
16.00	4.87	2.10	4.64	0.64
18.00	5.10	2.28	4.87	0.39
20.00	5.26	2.40	5.03	0.31
22.00	5.39	2.51	5.16	0.26
24.00	**5.50**	**2.59**	**5.26**	0.21
26.00	5.50	2.59	5.26	0.00
28.00	5.50	2.59	5.26	0.00
30.00	5.50	2.59	5.26	0.00
32.00	5.50	2.59	5.26	0.00
34.00	5.50	2.59	5.26	0.00
36.00	5.50	2.59	5.26	0.00
38.00	5.50	2.59	5.26	0.00
40.00	5.50	2.59	5.26	0.00
42.00	5.50	2.59	5.26	0.00
44.00	5.50	2.59	5.26	0.00
46.00	5.50	2.59	5.26	0.00
48.00	5.50	2.59	5.26	0.00
50.00	5.50	2.59	5.26	0.00
52.00	5.50	2.59	5.26	0.00
54.00	5.50	2.59	5.26	0.00
56.00	5.50	2.59	5.26	0.00
58.00	5.50	2.59	5.26	0.00
60.00	5.50	2.59	5.26	0.00
62.00	5.50	2.59	5.26	0.00
64.00	5.50	2.59	5.26	0.00
66.00	5.50	2.59	5.26	0.00
68.00	5.50	2.59	5.26	0.00
70.00	5.50	2.59	5.26	0.00
72.00	5.50	2.59	5.26	0.00
74.00	5.50	2.59	5.26	0.00
76.00	5.50	2.59	5.26	0.00
78.00	5.50	2.59	5.26	0.00
80.00	5.50	2.59	5.26	0.00
82.00	5.50	2.59	5.26	0.00
84.00	5.50	2.59	5.26	0.00
86.00	5.50	2.59	5.26	0.00
88.00	5.50	2.59	5.26	0.00
90.00	5.50	2.59	5.26	0.00
92.00	5.50	2.59	5.26	0.00
94.00	5.50	2.59	5.26	0.00
96.00	5.50	2.59	5.26	0.00

Summary for Subcatchment DA-17: Post_DA-17

Runoff = 27.24 cfs @ 12.15 hrs, Volume= 110,957 cf, Depth= 4.51"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

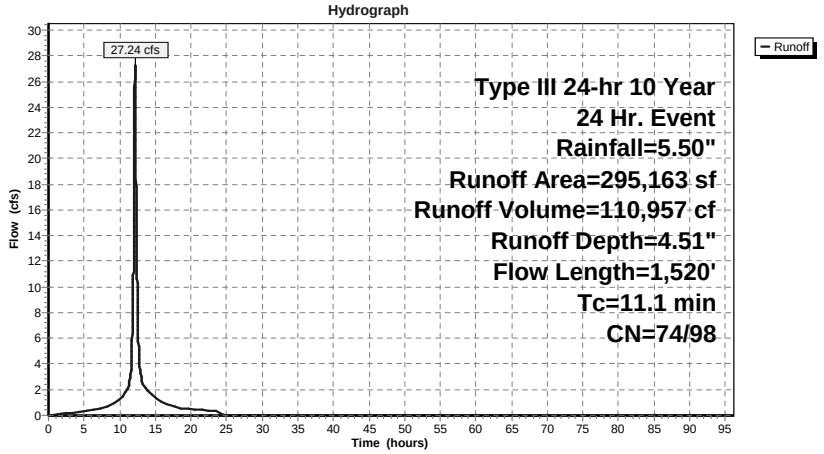
Area (sf)	CN	Description	Land Use
116,949	98	Paved parking, HSG C	Pavement
89,258	98	Roofs, HSG C	Roofs
88,956	74	>75% Grass cover, Good, HSG C	Open Space
295,163	91	Weighted Average	
88,956	74	30.14% Pervious Area	
206,207	98	69.86% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	100	0.0670	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	35	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	35	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.2	1,350		10.00		**Direct Entry, Pipe Flow**
11.1	1,520	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 69.86% Impervious, Rv= 0.679, Runoff= 31.02"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
88,956	Open Space	8,641.74	30.15	130.63	17.66
116,949	Pavement	3,264.92	10.57	39.63	126.44
89,258	Roofs	273.67	1.58	21.61	106.59
295,163	Total	12,180.33	42.30	191.87	250.69

Subcatchment DA-17: Post_DA-17



Hydrograph for Subcatchment DA-17: Post_DA-17

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.11	0.00	0.02	0.11
4.00	0.24	0.00	0.10	0.24
6.00	0.40	0.00	0.23	0.36
8.00	0.63	0.00	0.43	0.61
10.00	1.04	0.03	0.83	1.28
12.00	2.75	0.75	2.52	**13.82**
14.00	4.46	1.94	4.22	**1.85**
16.00	4.87	2.26	4.64	0.98
18.00	5.10	2.45	4.87	0.60
20.00	5.26	2.58	5.03	0.47
22.00	5.39	2.68	5.16	0.39
24.00	**5.50**	**2.77**	**5.26**	0.31
26.00	5.50	2.77	5.26	0.00
28.00	5.50	2.77	5.26	0.00
30.00	5.50	2.77	5.26	0.00
32.00	5.50	2.77	5.26	0.00
34.00	5.50	2.77	5.26	0.00
36.00	5.50	2.77	5.26	0.00
38.00	5.50	2.77	5.26	0.00
40.00	5.50	2.77	5.26	0.00
42.00	5.50	2.77	5.26	0.00
44.00	5.50	2.77	5.26	0.00
46.00	5.50	2.77	5.26	0.00
48.00	5.50	2.77	5.26	0.00
50.00	5.50	2.77	5.26	0.00
52.00	5.50	2.77	5.26	0.00
54.00	5.50	2.77	5.26	0.00
56.00	5.50	2.77	5.26	0.00
58.00	5.50	2.77	5.26	0.00
60.00	5.50	2.77	5.26	0.00
62.00	5.50	2.77	5.26	0.00
64.00	5.50	2.77	5.26	0.00
66.00	5.50	2.77	5.26	0.00
68.00	5.50	2.77	5.26	0.00
70.00	5.50	2.77	5.26	0.00
72.00	5.50	2.77	5.26	0.00
74.00	5.50	2.77	5.26	0.00
76.00	5.50	2.77	5.26	0.00
78.00	5.50	2.77	5.26	0.00
80.00	5.50	2.77	5.26	0.00
82.00	5.50	2.77	5.26	0.00
84.00	5.50	2.77	5.26	0.00
86.00	5.50	2.77	5.26	0.00
88.00	5.50	2.77	5.26	0.00
90.00	5.50	2.77	5.26	0.00
92.00	5.50	2.77	5.26	0.00
94.00	5.50	2.77	5.26	0.00
96.00	5.50	2.77	5.26	0.00

Summary for Subcatchment DA-18: Post_DA-18

Runoff = 23.60 cfs @ 12.17 hrs, Volume= 90,720 cf, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

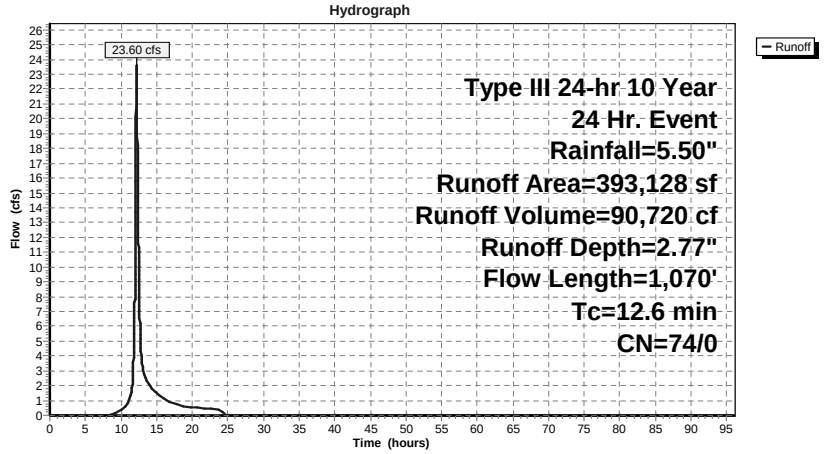
Area (sf)	CN	Description	Land Use
321,115	74	>75% Grass cover, Good, HSG C	Open Space
60,787	70	Woods, Good, HSG C	Woods
11,226	89	Gravel roads, HSG C	Roadway
393,128	74	Weighted Average	
393,128	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	150	0.0800	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	220	0.0910	4.86		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	190	0.2630	8.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	510	0.0200	13.18	79.10	**Channel Flow,** Area= 6.0 sf Perim= 5.0' r= 1.20' n= 0.018 Earth, clean & straight
12.6	1,070	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
321,115	Open Space	2,297.95	8.02	34.74	4.70
11,226	Roadway	23.09	0.07	0.28	0.89
60,787	Woods	26.74	0.00	0.00	0.89
393,128	Total	2,347.78	8.09	35.02	6.48

Subcatchment DA-18: Post_DA-18



Hydrograph for Subcatchment DA-18: Post_DA-18

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.03	0.00	0.34
12.00	2.75	0.75	0.00	**10.05**
14.00	4.46	1.94	0.00	**2.05**
16.00	4.87	2.26	0.00	1.12
18.00	5.10	2.45	0.00	0.68
20.00	5.26	2.58	0.00	0.54
22.00	5.39	2.68	0.00	0.45
24.00	**5.50**	**2.77**	0.00	0.36
26.00	5.50	2.77	0.00	0.00
28.00	5.50	2.77	0.00	0.00
30.00	5.50	2.77	0.00	0.00
32.00	5.50	2.77	0.00	0.00
34.00	5.50	2.77	0.00	0.00
36.00	5.50	2.77	0.00	0.00
38.00	5.50	2.77	0.00	0.00
40.00	5.50	2.77	0.00	0.00
42.00	5.50	2.77	0.00	0.00
44.00	5.50	2.77	0.00	0.00
46.00	5.50	2.77	0.00	0.00
48.00	5.50	2.77	0.00	0.00
50.00	5.50	2.77	0.00	0.00
52.00	5.50	2.77	0.00	0.00
54.00	5.50	2.77	0.00	0.00
56.00	5.50	2.77	0.00	0.00
58.00	5.50	2.77	0.00	0.00
60.00	5.50	2.77	0.00	0.00
62.00	5.50	2.77	0.00	0.00
64.00	5.50	2.77	0.00	0.00
66.00	5.50	2.77	0.00	0.00
68.00	5.50	2.77	0.00	0.00
70.00	5.50	2.77	0.00	0.00
72.00	5.50	2.77	0.00	0.00
74.00	5.50	2.77	0.00	0.00
76.00	5.50	2.77	0.00	0.00
78.00	5.50	2.77	0.00	0.00
80.00	5.50	2.77	0.00	0.00
82.00	5.50	2.77	0.00	0.00
84.00	5.50	2.77	0.00	0.00
86.00	5.50	2.77	0.00	0.00
88.00	5.50	2.77	0.00	0.00
90.00	5.50	2.77	0.00	0.00
92.00	5.50	2.77	0.00	0.00
94.00	5.50	2.77	0.00	0.00
96.00	5.50	2.77	0.00	0.00

Summary for Subcatchment DA-19: Post_DA-19

Runoff = 38.05 cfs @ 12.17 hrs, Volume= 145,685 cf, Depth= 2.59"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year, 24 Hr. Event Rainfall=5.50"

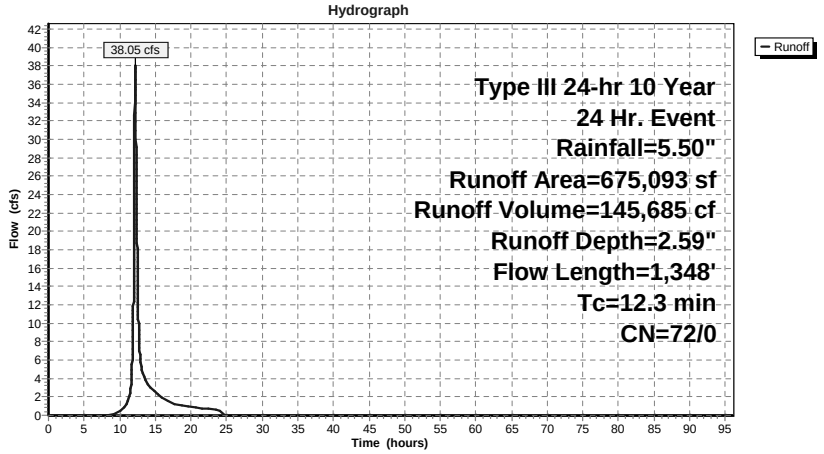
Area (sf)	CN	Description	Land Use
370,422	74	>75% Grass cover, Good, HSG C	Open Space
304,671	70	Woods, Good, HSG C	Woods
675,093	72	Weighted Average	
675,093	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0970	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.1	273	0.0970	2.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	121	0.1980	3.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	214	0.1680	2.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	640		10.00		**Direct Entry,**
12.3	1,348	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
370,422	Open Space	2,650.80	9.25	40.07	5.42
304,671	Woods	134.00	0.00	0.00	4.45
675,093	Total	2,784.81	9.25	40.07	9.87

Subcatchment DA-19: Post_DA-19



Hydrograph for Subcatchment DA-19: Post_DA-19

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.11	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
8.00	0.63	0.00	0.00	0.00
10.00	1.04	0.02	0.00	0.41
12.00	2.75	0.66	0.00	**15.94**
14.00	4.46	1.79	0.00	**3.37**
16.00	4.87	2.10	0.00	1.84
18.00	5.10	2.28	0.00	1.13
20.00	5.26	2.40	0.00	0.89
22.00	5.39	2.51	0.00	0.74
24.00	**5.50**	**2.59**	0.00	0.60
26.00	5.50	2.59	0.00	0.00
28.00	5.50	2.59	0.00	0.00
30.00	5.50	2.59	0.00	0.00
32.00	5.50	2.59	0.00	0.00
34.00	5.50	2.59	0.00	0.00
36.00	5.50	2.59	0.00	0.00
38.00	5.50	2.59	0.00	0.00
40.00	5.50	2.59	0.00	0.00
42.00	5.50	2.59	0.00	0.00
44.00	5.50	2.59	0.00	0.00
46.00	5.50	2.59	0.00	0.00
48.00	5.50	2.59	0.00	0.00
50.00	5.50	2.59	0.00	0.00
52.00	5.50	2.59	0.00	0.00
54.00	5.50	2.59	0.00	0.00
56.00	5.50	2.59	0.00	0.00
58.00	5.50	2.59	0.00	0.00
60.00	5.50	2.59	0.00	0.00
62.00	5.50	2.59	0.00	0.00
64.00	5.50	2.59	0.00	0.00
66.00	5.50	2.59	0.00	0.00
68.00	5.50	2.59	0.00	0.00
70.00	5.50	2.59	0.00	0.00
72.00	5.50	2.59	0.00	0.00
74.00	5.50	2.59	0.00	0.00
76.00	5.50	2.59	0.00	0.00
78.00	5.50	2.59	0.00	0.00
80.00	5.50	2.59	0.00	0.00
82.00	5.50	2.59	0.00	0.00
84.00	5.50	2.59	0.00	0.00
86.00	5.50	2.59	0.00	0.00
88.00	5.50	2.59	0.00	0.00
90.00	5.50	2.59	0.00	0.00
92.00	5.50	2.59	0.00	0.00
94.00	5.50	2.59	0.00	0.00
96.00	5.50	2.59	0.00	0.00

Summary for Pond DP16: DP-16

[58] Hint: Peaked 8.66' above defined flood level

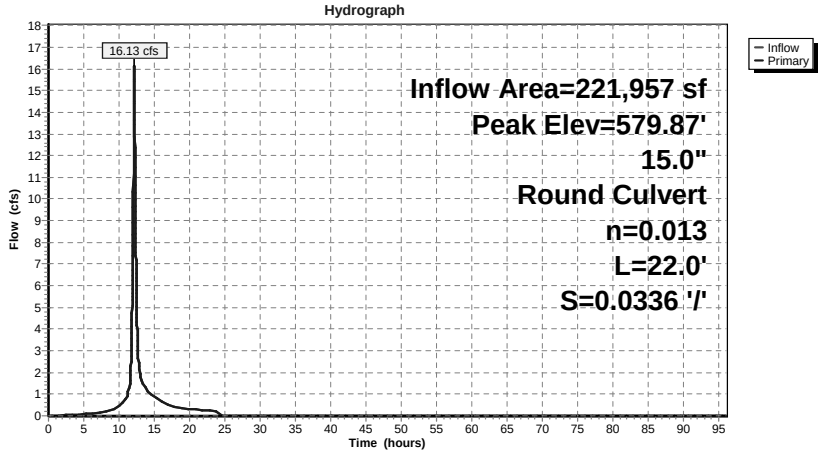
Inflow Area = 221,957 sf, 25.06% Impervious, Inflow Depth = 3.26" for 10 Year, 24 Hr. Event event
Inflow = 16.13 cfs @ 12.14 hrs, Volume= 60,287 cf
Outflow = 16.13 cfs @ 12.14 hrs, Volume= 60,287 cf, Atten= 0%, Lag= 0.0 min
Primary = 16.13 cfs @ 12.14 hrs, Volume= 60,287 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 579.87' @ 12.14 hrs
Flood Elev= 571.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	567.29'	**15.0" Round Culvert** L= 22.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 567.29' / 566.55' S= 0.0336 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=16.12 cfs @ 12.14 hrs HW=579.85' (Free Discharge)
↑**1=Culvert** (Inlet Controls 16.12 cfs @ 13.13 fps)

Pond DP16: DP-16



Hydrograph for Pond DP16: DP-16

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	567.29	0.00	52.00	0.00	567.29	0.00
1.00	0.00	567.32	0.00	53.00	0.00	567.29	0.00
2.00	0.03	567.38	0.03	54.00	0.00	567.29	0.00
3.00	0.05	567.40	0.05	55.00	0.00	567.29	0.00
4.00	0.07	567.42	0.07	56.00	0.00	567.29	0.00
5.00	0.08	567.44	0.08	57.00	0.00	567.29	0.00
6.00	0.10	567.45	0.10	58.00	0.00	567.29	0.00
7.00	0.13	567.47	0.13	59.00	0.00	567.29	0.00
8.00	0.17	567.50	0.17	60.00	0.00	567.29	0.00
9.00	0.24	567.54	0.24	61.00	0.00	567.29	0.00
10.00	0.43	567.63	0.43	62.00	0.00	567.29	0.00
11.00	0.82	567.77	0.82	63.00	0.00	567.29	0.00
12.00	**7.82**	**570.73**	**7.82**	64.00	0.00	567.29	0.00
13.00	**1.92**	**568.07**	**1.92**	65.00	0.00	567.29	0.00
14.00	1.19	567.88	1.19	66.00	0.00	567.29	0.00
15.00	0.90	567.80	0.90	67.00	0.00	567.29	0.00
16.00	0.64	567.71	0.64	68.00	0.00	567.29	0.00
17.00	0.51	567.66	0.51	69.00	0.00	567.29	0.00
18.00	0.39	567.62	0.39	70.00	0.00	567.29	0.00
19.00	0.35	567.60	0.35	71.00	0.00	567.29	0.00
20.00	0.31	567.58	0.31	72.00	0.00	567.29	0.00
21.00	0.29	567.57	0.29	73.00	0.00	567.29	0.00
22.00	0.26	567.55	0.26	74.00	0.00	567.29	0.00
23.00	0.23	567.54	0.23	75.00	0.00	567.29	0.00
24.00	0.21	567.52	0.21	76.00	0.00	567.29	0.00
25.00	0.00	567.29	0.00	77.00	0.00	567.29	0.00
26.00	0.00	567.29	0.00	78.00	0.00	567.29	0.00
27.00	0.00	567.29	0.00	79.00	0.00	567.29	0.00
28.00	0.00	567.29	0.00	80.00	0.00	567.29	0.00
29.00	0.00	567.29	0.00	81.00	0.00	567.29	0.00
30.00	0.00	567.29	0.00	82.00	0.00	567.29	0.00
31.00	0.00	567.29	0.00	83.00	0.00	567.29	0.00
32.00	0.00	567.29	0.00	84.00	0.00	567.29	0.00
33.00	0.00	567.29	0.00	85.00	0.00	567.29	0.00
34.00	0.00	567.29	0.00	86.00	0.00	567.29	0.00
35.00	0.00	567.29	0.00	87.00	0.00	567.29	0.00
36.00	0.00	567.29	0.00	88.00	0.00	567.29	0.00
37.00	0.00	567.29	0.00	89.00	0.00	567.29	0.00
38.00	0.00	567.29	0.00	90.00	0.00	567.29	0.00
39.00	0.00	567.29	0.00	91.00	0.00	567.29	0.00
40.00	0.00	567.29	0.00	92.00	0.00	567.29	0.00
41.00	0.00	567.29	0.00	93.00	0.00	567.29	0.00
42.00	0.00	567.29	0.00	94.00	0.00	567.29	0.00
43.00	0.00	567.29	0.00	95.00	0.00	567.29	0.00
44.00	0.00	567.29	0.00	96.00	0.00	567.29	0.00
45.00	0.00	567.29	0.00				
46.00	0.00	567.29	0.00				
47.00	0.00	567.29	0.00				
48.00	0.00	567.29	0.00				
49.00	0.00	567.29	0.00				
50.00	0.00	567.29	0.00				
51.00	0.00	567.29	0.00				

Summary for Pond DP17: DP-17

[58] Hint: Peaked 30.36' above defined flood level

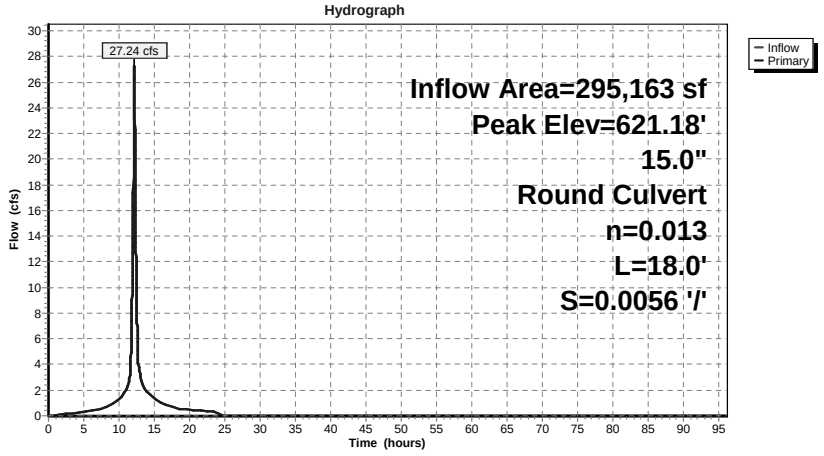
Inflow Area = 295,163 sf, 69.86% Impervious, Inflow Depth = 4.51" for 10 Year, 24 Hr. Event event
Inflow = 27.24 cfs @ 12.15 hrs, Volume= 110,957 cf
Outflow = 27.24 cfs @ 12.15 hrs, Volume= 110,957 cf, Atten= 0%, Lag= 0.0 min
Primary = 27.24 cfs @ 12.15 hrs, Volume= 110,957 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 621.18' @ 12.15 hrs
Flood Elev= 590.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	586.45'	**15.0" Round Culvert-verify outlet invert** L= 18.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 586.45' / 586.35' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=27.23 cfs @ 12.15 hrs HW=621.15' (Free Discharge)
↑**1=Culvert-verify outlet invert** (Inlet Controls 27.23 cfs @ 22.19 fps)

Pond DP17: DP-17



Hydrograph for Pond DP17: DP-17

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	586.45	0.00	52.00	0.00	586.45	0.00
1.00	0.01	586.51	0.01	53.00	0.00	586.45	0.00
2.00	0.11	586.63	0.11	54.00	0.00	586.45	0.00
3.00	0.18	586.68	0.18	55.00	0.00	586.45	0.00
4.00	0.24	586.73	0.24	56.00	0.00	586.45	0.00
5.00	0.30	586.76	0.30	57.00	0.00	586.45	0.00
6.00	0.36	586.79	0.36	58.00	0.00	586.45	0.00
7.00	0.48	586.85	0.48	59.00	0.00	586.45	0.00
8.00	0.61	586.90	0.61	60.00	0.00	586.45	0.00
9.00	0.90	587.01	0.90	61.00	0.00	586.45	0.00
10.00	1.28	587.13	1.28	62.00	0.00	586.45	0.00
11.00	1.99	587.33	1.99	63.00	0.00	586.45	0.00
12.00	**13.82**	**595.85**	**13.82**	64.00	0.00	586.45	0.00
13.00	**3.07**	**587.61**	**3.07**	65.00	0.00	586.45	0.00
14.00	1.85	587.30	1.85	66.00	0.00	586.45	0.00
15.00	1.38	587.17	1.38	67.00	0.00	586.45	0.00
16.00	0.98	587.04	0.98	68.00	0.00	586.45	0.00
17.00	0.77	586.96	0.77	69.00	0.00	586.45	0.00
18.00	0.60	586.90	0.60	70.00	0.00	586.45	0.00
19.00	0.52	586.87	0.52	71.00	0.00	586.45	0.00
20.00	0.47	586.84	0.47	72.00	0.00	586.45	0.00
21.00	0.43	586.82	0.43	73.00	0.00	586.45	0.00
22.00	0.39	586.80	0.39	74.00	0.00	586.45	0.00
23.00	0.35	586.78	0.35	75.00	0.00	586.45	0.00
24.00	0.31	586.76	0.31	76.00	0.00	586.45	0.00
25.00	0.00	586.45	0.00	77.00	0.00	586.45	0.00
26.00	0.00	586.45	0.00	78.00	0.00	586.45	0.00
27.00	0.00	586.45	0.00	79.00	0.00	586.45	0.00
28.00	0.00	586.45	0.00	80.00	0.00	586.45	0.00
29.00	0.00	586.45	0.00	81.00	0.00	586.45	0.00
30.00	0.00	586.45	0.00	82.00	0.00	586.45	0.00
31.00	0.00	586.45	0.00	83.00	0.00	586.45	0.00
32.00	0.00	586.45	0.00	84.00	0.00	586.45	0.00
33.00	0.00	586.45	0.00	85.00	0.00	586.45	0.00
34.00	0.00	586.45	0.00	86.00	0.00	586.45	0.00
35.00	0.00	586.45	0.00	87.00	0.00	586.45	0.00
36.00	0.00	586.45	0.00	88.00	0.00	586.45	0.00
37.00	0.00	586.45	0.00	89.00	0.00	586.45	0.00
38.00	0.00	586.45	0.00	90.00	0.00	586.45	0.00
39.00	0.00	586.45	0.00	91.00	0.00	586.45	0.00
40.00	0.00	586.45	0.00	92.00	0.00	586.45	0.00
41.00	0.00	586.45	0.00	93.00	0.00	586.45	0.00
42.00	0.00	586.45	0.00	94.00	0.00	586.45	0.00
43.00	0.00	586.45	0.00	95.00	0.00	586.45	0.00
44.00	0.00	586.45	0.00	96.00	0.00	586.45	0.00
45.00	0.00	586.45	0.00				
46.00	0.00	586.45	0.00				
47.00	0.00	586.45	0.00				
48.00	0.00	586.45	0.00				
49.00	0.00	586.45	0.00				
50.00	0.00	586.45	0.00				
51.00	0.00	586.45	0.00				

Summary for Pond DP18: DP-18

[58] Hint: Peaked 23.40' above defined flood level

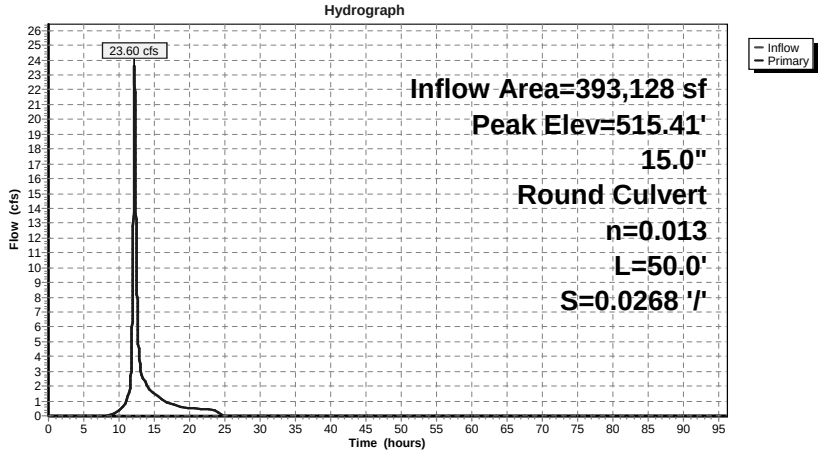
Inflow Area = 393,128 sf, 0.00% Impervious, Inflow Depth = 2.77" for 10 Year, 24 Hr. Event event
Inflow = 23.60 cfs @ 12.17 hrs, Volume= 90,720 cf
Outflow = 23.60 cfs @ 12.17 hrs, Volume= 90,720 cf, Atten= 0%, Lag= 0.0 min
Primary = 23.60 cfs @ 12.17 hrs, Volume= 90,720 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 515.41' @ 12.17 hrs
Flood Elev= 492.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	489.20'	**15.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.20' / 487.86' S= 0.0268 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=23.57 cfs @ 12.17 hrs HW=515.36' (Free Discharge)
↑**1=Culvert** (Inlet Controls 23.57 cfs @ 19.21 fps)

Pond DP18: DP-18



Hydrograph for Pond DP18: DP-18

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	489.20	0.00	52.00	0.00	489.20	0.00
1.00	0.00	489.20	0.00	53.00	0.00	489.20	0.00
2.00	0.00	489.20	0.00	54.00	0.00	489.20	0.00
3.00	0.00	489.20	0.00	55.00	0.00	489.20	0.00
4.00	0.00	489.20	0.00	56.00	0.00	489.20	0.00
5.00	0.00	489.20	0.00	57.00	0.00	489.20	0.00
6.00	0.00	489.20	0.00	58.00	0.00	489.20	0.00
7.00	0.00	489.20	0.00	59.00	0.00	489.20	0.00
8.00	0.00	489.20	0.00	60.00	0.00	489.20	0.00
9.00	0.06	489.32	0.06	61.00	0.00	489.20	0.00
10.00	0.34	489.50	0.34	62.00	0.00	489.20	0.00
11.00	0.92	489.72	0.92	63.00	0.00	489.20	0.00
12.00	**10.05**	**494.46**	**10.05**	64.00	0.00	489.20	0.00
13.00	**3.37**	**490.34**	**3.37**	65.00	0.00	489.20	0.00
14.00	2.05	490.01	2.05	66.00	0.00	489.20	0.00
15.00	1.55	489.89	1.55	67.00	0.00	489.20	0.00
16.00	1.12	489.77	1.12	68.00	0.00	489.20	0.00
17.00	0.88	489.70	0.88	69.00	0.00	489.20	0.00
18.00	0.68	489.64	0.68	70.00	0.00	489.20	0.00
19.00	0.60	489.61	0.60	71.00	0.00	489.20	0.00
20.00	0.54	489.59	0.54	72.00	0.00	489.20	0.00
21.00	0.49	489.57	0.49	73.00	0.00	489.20	0.00
22.00	0.45	489.55	0.45	74.00	0.00	489.20	0.00
23.00	0.40	489.53	0.40	75.00	0.00	489.20	0.00
24.00	0.36	489.51	0.36	76.00	0.00	489.20	0.00
25.00	0.00	489.20	0.00	77.00	0.00	489.20	0.00
26.00	0.00	489.20	0.00	78.00	0.00	489.20	0.00
27.00	0.00	489.20	0.00	79.00	0.00	489.20	0.00
28.00	0.00	489.20	0.00	80.00	0.00	489.20	0.00
29.00	0.00	489.20	0.00	81.00	0.00	489.20	0.00
30.00	0.00	489.20	0.00	82.00	0.00	489.20	0.00
31.00	0.00	489.20	0.00	83.00	0.00	489.20	0.00
32.00	0.00	489.20	0.00	84.00	0.00	489.20	0.00
33.00	0.00	489.20	0.00	85.00	0.00	489.20	0.00
34.00	0.00	489.20	0.00	86.00	0.00	489.20	0.00
35.00	0.00	489.20	0.00	87.00	0.00	489.20	0.00
36.00	0.00	489.20	0.00	88.00	0.00	489.20	0.00
37.00	0.00	489.20	0.00	89.00	0.00	489.20	0.00
38.00	0.00	489.20	0.00	90.00	0.00	489.20	0.00
39.00	0.00	489.20	0.00	91.00	0.00	489.20	0.00
40.00	0.00	489.20	0.00	92.00	0.00	489.20	0.00
41.00	0.00	489.20	0.00	93.00	0.00	489.20	0.00
42.00	0.00	489.20	0.00	94.00	0.00	489.20	0.00
43.00	0.00	489.20	0.00	95.00	0.00	489.20	0.00
44.00	0.00	489.20	0.00	96.00	0.00	489.20	0.00
45.00	0.00	489.20	0.00				
46.00	0.00	489.20	0.00				
47.00	0.00	489.20	0.00				
48.00	0.00	489.20	0.00				
49.00	0.00	489.20	0.00				
50.00	0.00	489.20	0.00				
51.00	0.00	489.20	0.00				

Summary for Pond DP19: DP-19

[57] Hint: Peaked at 488.16' (Flood elevation advised)

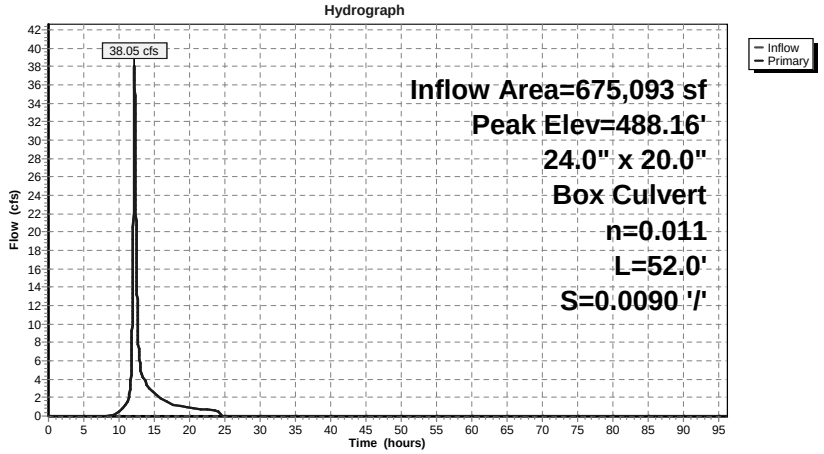
Inflow Area = 675,093 sf, 0.00% Impervious, Inflow Depth = 2.59" for 10 Year, 24 Hr. Event event
Inflow = 38.05 cfs @ 12.17 hrs, Volume= 145,685 cf
Outflow = 38.05 cfs @ 12.17 hrs, Volume= 145,685 cf, Atten= 0%, Lag= 0.0 min
Primary = 38.05 cfs @ 12.17 hrs, Volume= 145,685 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 488.16' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	481.70'	**24.0" W x 20.0" H Box Culvert** L= 52.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 481.70' / 481.23' S= 0.0090 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=38.02 cfs @ 12.17 hrs HW=488.15' (Free Discharge)
1=Culvert (Inlet Controls 38.02 cfs @ 11.41 fps)

Pond DP19: DP-19



Hydrograph for Pond DP19: DP-19

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	481.70	0.00	52.00	0.00	481.70	0.00
1.00	0.00	481.70	0.00	53.00	0.00	481.70	0.00
2.00	0.00	481.70	0.00	54.00	0.00	481.70	0.00
3.00	0.00	481.70	0.00	55.00	0.00	481.70	0.00
4.00	0.00	481.70	0.00	56.00	0.00	481.70	0.00
5.00	0.00	481.70	0.00	57.00	0.00	481.70	0.00
6.00	0.00	481.70	0.00	58.00	0.00	481.70	0.00
7.00	0.00	481.70	0.00	59.00	0.00	481.70	0.00
8.00	0.00	481.70	0.00	60.00	0.00	481.70	0.00
9.00	0.00	481.70	0.00	61.00	0.00	481.70	0.00
10.00	0.41	481.86	0.41	62.00	0.00	481.70	0.00
11.00	1.32	482.05	1.32	63.00	0.00	481.70	0.00
12.00	**15.94**	**483.58**	**15.94**	64.00	0.00	481.70	0.00
13.00	**5.50**	**482.60**	**5.50**	65.00	0.00	481.70	0.00
14.00	3.37	482.35	3.37	66.00	0.00	481.70	0.00
15.00	2.56	482.24	2.56	67.00	0.00	481.70	0.00
16.00	1.84	482.14	1.84	68.00	0.00	481.70	0.00
17.00	1.45	482.07	1.45	69.00	0.00	481.70	0.00
18.00	1.13	482.01	1.13	70.00	0.00	481.70	0.00
19.00	0.99	481.99	0.99	71.00	0.00	481.70	0.00
20.00	0.89	481.97	0.89	72.00	0.00	481.70	0.00
21.00	0.82	481.95	0.82	73.00	0.00	481.70	0.00
22.00	0.74	481.94	0.74	74.00	0.00	481.70	0.00
23.00	0.67	481.92	0.67	75.00	0.00	481.70	0.00
24.00	0.60	481.90	0.60	76.00	0.00	481.70	0.00
25.00	0.00	481.70	0.00	77.00	0.00	481.70	0.00
26.00	0.00	481.70	0.00	78.00	0.00	481.70	0.00
27.00	0.00	481.70	0.00	79.00	0.00	481.70	0.00
28.00	0.00	481.70	0.00	80.00	0.00	481.70	0.00
29.00	0.00	481.70	0.00	81.00	0.00	481.70	0.00
30.00	0.00	481.70	0.00	82.00	0.00	481.70	0.00
31.00	0.00	481.70	0.00	83.00	0.00	481.70	0.00
32.00	0.00	481.70	0.00	84.00	0.00	481.70	0.00
33.00	0.00	481.70	0.00	85.00	0.00	481.70	0.00
34.00	0.00	481.70	0.00	86.00	0.00	481.70	0.00
35.00	0.00	481.70	0.00	87.00	0.00	481.70	0.00
36.00	0.00	481.70	0.00	88.00	0.00	481.70	0.00
37.00	0.00	481.70	0.00	89.00	0.00	481.70	0.00
38.00	0.00	481.70	0.00	90.00	0.00	481.70	0.00
39.00	0.00	481.70	0.00	91.00	0.00	481.70	0.00
40.00	0.00	481.70	0.00	92.00	0.00	481.70	0.00
41.00	0.00	481.70	0.00	93.00	0.00	481.70	0.00
42.00	0.00	481.70	0.00	94.00	0.00	481.70	0.00
43.00	0.00	481.70	0.00	95.00	0.00	481.70	0.00
44.00	0.00	481.70	0.00	96.00	0.00	481.70	0.00
45.00	0.00	481.70	0.00				
46.00	0.00	481.70	0.00				
47.00	0.00	481.70	0.00				
48.00	0.00	481.70	0.00				
49.00	0.00	481.70	0.00				
50.00	0.00	481.70	0.00				
51.00	0.00	481.70	0.00				

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment DA-16: Post_DA-16 Runoff Area=221,957 sf 25.06% Impervious Runoff Depth=3.69"
Flow Length=418' Tc=9.9 min CN=72/98 Runoff=18.30 cfs 68,197 cf

Subcatchment DA-17: Post_DA-17 Runoff Area=295,163 sf 69.86% Impervious Runoff Depth=4.99"
Flow Length=1,520' Tc=11.1 min CN=74/98 Runoff=30.09 cfs 122,621 cf

Subcatchment DA-18: Post_DA-18 Runoff Area=393,128 sf 0.00% Impervious Runoff Depth=3.18"
Flow Length=1,070' Tc=12.6 min CN=74/0 Runoff=27.20 cfs 104,339 cf

Subcatchment DA-19: Post_DA-19 Runoff Area=675,093 sf 0.00% Impervious Runoff Depth=2.99"
Flow Length=1,348' Tc=12.3 min CN=72/0 Runoff=44.14 cfs 168,392 cf

Pond DP16: DP-16 Peak Elev=583.31' Inflow=18.30 cfs 68,197 cf
15.0" Round Culvert n=0.013 L=22.0' S=0.0336 '/' Outflow=18.30 cfs 68,197 cf

Pond DP17: DP-17 Peak Elev=628.67' Inflow=30.09 cfs 122,621 cf
15.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=30.09 cfs 122,621 cf

Pond DP18: DP-18 Peak Elev=523.83' Inflow=27.20 cfs 104,339 cf
15.0" Round Culvert n=0.013 L=50.0' S=0.0268 '/' Outflow=27.20 cfs 104,339 cf

Pond DP19: DP-19 Peak Elev=490.11' Inflow=44.14 cfs 168,392 cf
24.0" x 20.0" Box Culvert n=0.011 L=52.0' S=0.0090 '/' Outflow=44.14 cfs 168,392 cf

Total Runoff Area = 1,585,341 sf Runoff Volume = 463,548 cf Average Runoff Depth = 3.51"
83.48% Pervious = 1,323,514 sf 16.52% Impervious = 261,827 sf

Summary for Subcatchment DA-16: Post_DA-16

Runoff = 18.30 cfs @ 12.14 hrs, Volume= 68,197 cf, Depth= 3.69"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

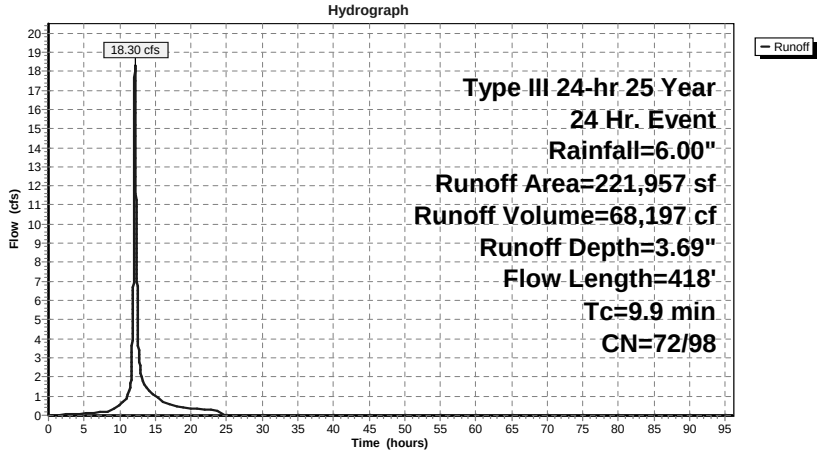
Area (sf)	CN	Description	Land Use
54,093	98	Paved parking, HSG C	Pavement
143,987	74	>75% Grass cover, Good, HSG C	Open Space
22,350	61	>75% Grass cover, Good, HSG B	Open Space
1,527	98	Unconnected roofs, HSG C	Roofs
221,957	79	Weighted Average	
166,337	72	74.94% Pervious Area	
55,620	98	25.06% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.5	193	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	125	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.9	418	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 25.06% Impervious, Rv= 0.276, Runoff= 12.59"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
166,337	Open Space	6,559.47	22.88	99.15	13.40
54,093	Pavement	613.01	1.98	7.44	23.74
1,527	Roofs	1.90	0.01	0.15	0.74
221,957	Total	7,174.38	24.88	106.75	37.88

Subcatchment DA-16: Post_DA-16



Hydrograph for Subcatchment DA-16: Post_DA-16

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.03
4.00	0.26	0.00	0.11	0.07
6.00	0.43	0.00	0.26	0.11
8.00	0.68	0.00	0.49	0.18
10.00	1.13	0.03	0.92	0.51
12.00	3.00	0.81	2.77	**8.94**
14.00	4.87	2.10	4.63	**1.33**
16.00	5.32	2.44	5.08	0.72
18.00	5.57	2.64	5.33	0.44
20.00	5.74	2.78	5.50	0.35
22.00	5.88	2.90	5.65	0.29
24.00	**6.00**	**2.99**	**5.76**	0.23
26.00	6.00	2.99	5.76	0.00
28.00	6.00	2.99	5.76	0.00
30.00	6.00	2.99	5.76	0.00
32.00	6.00	2.99	5.76	0.00
34.00	6.00	2.99	5.76	0.00
36.00	6.00	2.99	5.76	0.00
38.00	6.00	2.99	5.76	0.00
40.00	6.00	2.99	5.76	0.00
42.00	6.00	2.99	5.76	0.00
44.00	6.00	2.99	5.76	0.00
46.00	6.00	2.99	5.76	0.00
48.00	6.00	2.99	5.76	0.00
50.00	6.00	2.99	5.76	0.00
52.00	6.00	2.99	5.76	0.00
54.00	6.00	2.99	5.76	0.00
56.00	6.00	2.99	5.76	0.00
58.00	6.00	2.99	5.76	0.00
60.00	6.00	2.99	5.76	0.00
62.00	6.00	2.99	5.76	0.00
64.00	6.00	2.99	5.76	0.00
66.00	6.00	2.99	5.76	0.00
68.00	6.00	2.99	5.76	0.00
70.00	6.00	2.99	5.76	0.00
72.00	6.00	2.99	5.76	0.00
74.00	6.00	2.99	5.76	0.00
76.00	6.00	2.99	5.76	0.00
78.00	6.00	2.99	5.76	0.00
80.00	6.00	2.99	5.76	0.00
82.00	6.00	2.99	5.76	0.00
84.00	6.00	2.99	5.76	0.00
86.00	6.00	2.99	5.76	0.00
88.00	6.00	2.99	5.76	0.00
90.00	6.00	2.99	5.76	0.00
92.00	6.00	2.99	5.76	0.00
94.00	6.00	2.99	5.76	0.00
96.00	6.00	2.99	5.76	0.00

Summary for Subcatchment DA-17: Post_DA-17

Runoff = 30.09 cfs @ 12.15 hrs, Volume= 122,621 cf, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

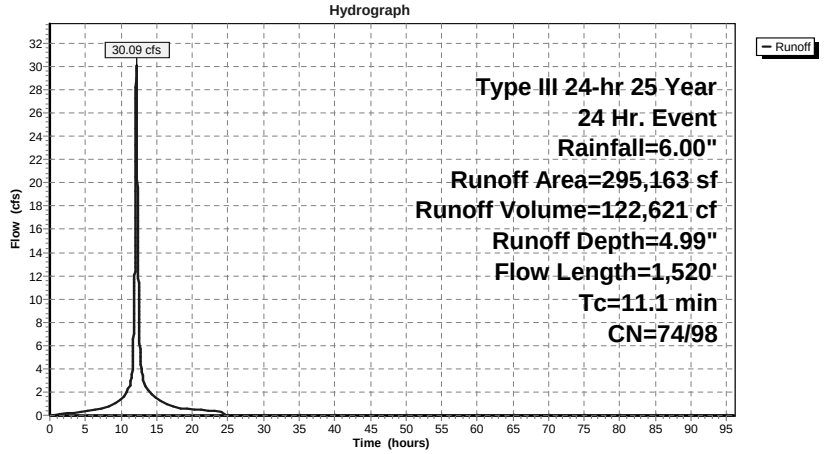
Area (sf)	CN	Description	Land Use
116,949	98	Paved parking, HSG C	Pavement
89,258	98	Roofs, HSG C	Roofs
88,956	74	>75% Grass cover, Good, HSG C	Open Space
295,163	91	Weighted Average	
88,956	74	30.14% Pervious Area	
206,207	98	69.86% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	100	0.0670	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	35	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	35	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.2	1,350		10.00		**Direct Entry, Pipe Flow**
11.1	1,520	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 69.86% Impervious, Rv= 0.679, Runoff= 31.02"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
88,956	Open Space	8,641.74	30.15	130.63	17.66
116,949	Pavement	3,264.92	10.57	39.63	126.44
89,258	Roofs	273.67	1.58	21.61	106.59
295,163	Total	12,180.33	42.30	191.87	250.69

Subcatchment DA-17: Post_DA-17



Hydrograph for Subcatchment DA-17: Post_DA-17

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.12	0.00	0.02	0.13
4.00	0.26	0.00	0.11	0.27
6.00	0.43	0.00	0.26	0.39
8.00	0.68	0.00	0.49	0.68
10.00	1.13	0.05	0.92	1.42
12.00	3.00	0.91	2.77	**15.29**
14.00	4.87	2.26	4.63	**2.04**
16.00	5.32	2.62	5.08	1.08
18.00	5.57	2.83	5.33	0.65
20.00	5.74	2.97	5.50	0.52
22.00	5.88	3.09	5.65	0.43
24.00	**6.00**	**3.18**	**5.76**	0.34
26.00	6.00	3.18	5.76	0.00
28.00	6.00	3.18	5.76	0.00
30.00	6.00	3.18	5.76	0.00
32.00	6.00	3.18	5.76	0.00
34.00	6.00	3.18	5.76	0.00
36.00	6.00	3.18	5.76	0.00
38.00	6.00	3.18	5.76	0.00
40.00	6.00	3.18	5.76	0.00
42.00	6.00	3.18	5.76	0.00
44.00	6.00	3.18	5.76	0.00
46.00	6.00	3.18	5.76	0.00
48.00	6.00	3.18	5.76	0.00
50.00	6.00	3.18	5.76	0.00
52.00	6.00	3.18	5.76	0.00
54.00	6.00	3.18	5.76	0.00
56.00	6.00	3.18	5.76	0.00
58.00	6.00	3.18	5.76	0.00
60.00	6.00	3.18	5.76	0.00
62.00	6.00	3.18	5.76	0.00
64.00	6.00	3.18	5.76	0.00
66.00	6.00	3.18	5.76	0.00
68.00	6.00	3.18	5.76	0.00
70.00	6.00	3.18	5.76	0.00
72.00	6.00	3.18	5.76	0.00
74.00	6.00	3.18	5.76	0.00
76.00	6.00	3.18	5.76	0.00
78.00	6.00	3.18	5.76	0.00
80.00	6.00	3.18	5.76	0.00
82.00	6.00	3.18	5.76	0.00
84.00	6.00	3.18	5.76	0.00
86.00	6.00	3.18	5.76	0.00
88.00	6.00	3.18	5.76	0.00
90.00	6.00	3.18	5.76	0.00
92.00	6.00	3.18	5.76	0.00
94.00	6.00	3.18	5.76	0.00
96.00	6.00	3.18	5.76	0.00

Summary for Subcatchment DA-18: Post_DA-18

Runoff = 27.20 cfs @ 12.17 hrs, Volume= 104,339 cf, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

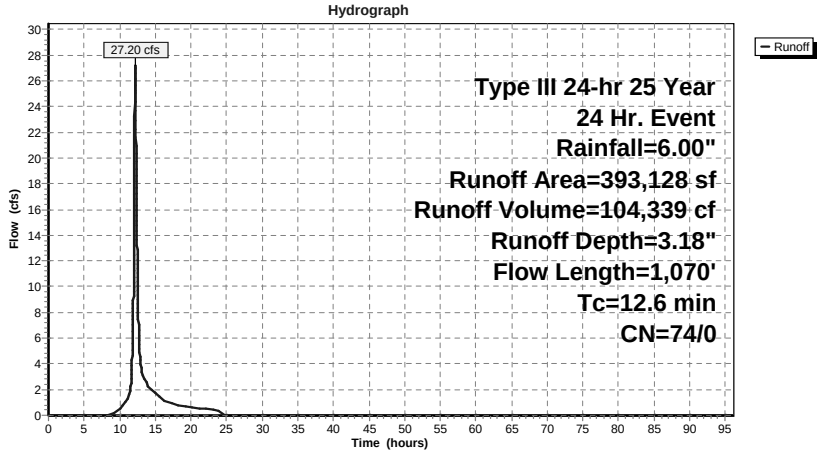
Area (sf)	CN	Description	Land Use
321,115	74	>75% Grass cover, Good, HSG C	Open Space
60,787	70	Woods, Good, HSG C	Woods
11,226	89	Gravel roads, HSG C	Roadway
393,128	74	Weighted Average	
393,128	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	150	0.0800	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	220	0.0910	4.86		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	190	0.2630	8.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	510	0.0200	13.18	79.10	**Channel Flow,** Area= 6.0 sf Perim= 5.0' r= 1.20' n= 0.018 Earth, clean & straight
12.6	1,070	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
321,115	Open Space	2,297.95	8.02	34.74	4.70
11,226	Roadway	23.09	0.07	0.28	0.89
60,787	Woods	26.74	0.00	0.00	0.89
393,128	Total	2,347.78	8.09	35.02	6.48

Subcatchment DA-18: Post_DA-18



Hydrograph for Subcatchment DA-18: Post_DA-18

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.05	0.00	0.47
12.00	3.00	0.91	0.00	**11.79**
14.00	4.87	2.26	0.00	**2.31**
16.00	5.32	2.62	0.00	1.25
18.00	5.57	2.83	0.00	0.76
20.00	5.74	2.97	0.00	0.60
22.00	5.88	3.09	0.00	0.50
24.00	**6.00**	**3.18**	0.00	0.40
26.00	6.00	3.18	0.00	0.00
28.00	6.00	3.18	0.00	0.00
30.00	6.00	3.18	0.00	0.00
32.00	6.00	3.18	0.00	0.00
34.00	6.00	3.18	0.00	0.00
36.00	6.00	3.18	0.00	0.00
38.00	6.00	3.18	0.00	0.00
40.00	6.00	3.18	0.00	0.00
42.00	6.00	3.18	0.00	0.00
44.00	6.00	3.18	0.00	0.00
46.00	6.00	3.18	0.00	0.00
48.00	6.00	3.18	0.00	0.00
50.00	6.00	3.18	0.00	0.00
52.00	6.00	3.18	0.00	0.00
54.00	6.00	3.18	0.00	0.00
56.00	6.00	3.18	0.00	0.00
58.00	6.00	3.18	0.00	0.00
60.00	6.00	3.18	0.00	0.00
62.00	6.00	3.18	0.00	0.00
64.00	6.00	3.18	0.00	0.00
66.00	6.00	3.18	0.00	0.00
68.00	6.00	3.18	0.00	0.00
70.00	6.00	3.18	0.00	0.00
72.00	6.00	3.18	0.00	0.00
74.00	6.00	3.18	0.00	0.00
76.00	6.00	3.18	0.00	0.00
78.00	6.00	3.18	0.00	0.00
80.00	6.00	3.18	0.00	0.00
82.00	6.00	3.18	0.00	0.00
84.00	6.00	3.18	0.00	0.00
86.00	6.00	3.18	0.00	0.00
88.00	6.00	3.18	0.00	0.00
90.00	6.00	3.18	0.00	0.00
92.00	6.00	3.18	0.00	0.00
94.00	6.00	3.18	0.00	0.00
96.00	6.00	3.18	0.00	0.00

Summary for Subcatchment DA-19: Post_DA-19

Runoff = 44.14 cfs @ 12.17 hrs, Volume= 168,392 cf, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year, 24 Hr. Event Rainfall=6.00"

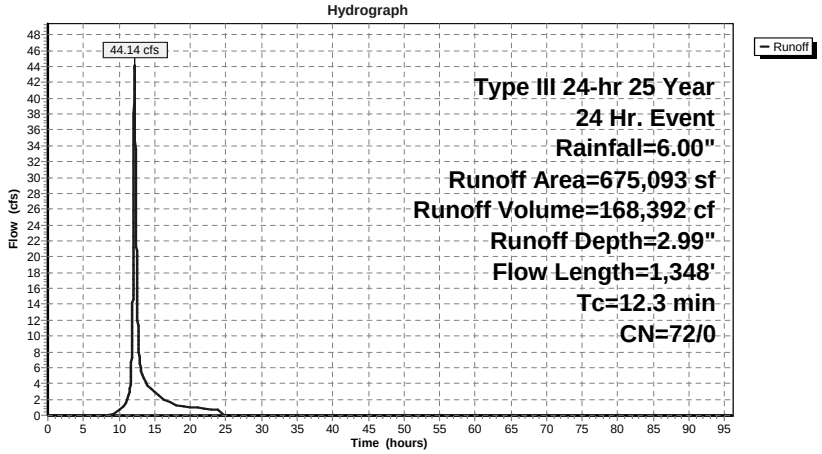
Area (sf)	CN	Description	Land Use
370,422	74	>75% Grass cover, Good, HSG C	Open Space
304,671	70	Woods, Good, HSG C	Woods
675,093	72	Weighted Average	
675,093	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0970	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.1	273	0.0970	2.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	121	0.1980	3.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	214	0.1680	2.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	640		10.00		**Direct Entry,**
12.3	1,348	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
370,422	Open Space	2,650.80	9.25	40.07	5.42
304,671	Woods	134.00	0.00	0.00	4.45
675,093	Total	2,784.81	9.25	40.07	9.87

Subcatchment DA-19: Post_DA-19



Hydrograph for Subcatchment DA-19: Post_DA-19

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.12	0.00	0.00	0.00
4.00	0.26	0.00	0.00	0.00
6.00	0.43	0.00	0.00	0.00
8.00	0.68	0.00	0.00	0.00
10.00	1.13	0.03	0.00	0.61
12.00	3.00	0.81	0.00	**18.88**
14.00	4.87	2.10	0.00	**3.81**
16.00	5.32	2.44	0.00	2.08
18.00	5.57	2.64	0.00	1.27
20.00	5.74	2.78	0.00	1.00
22.00	5.88	2.90	0.00	0.84
24.00	**6.00**	**2.99**	0.00	0.67
26.00	6.00	2.99	0.00	0.00
28.00	6.00	2.99	0.00	0.00
30.00	6.00	2.99	0.00	0.00
32.00	6.00	2.99	0.00	0.00
34.00	6.00	2.99	0.00	0.00
36.00	6.00	2.99	0.00	0.00
38.00	6.00	2.99	0.00	0.00
40.00	6.00	2.99	0.00	0.00
42.00	6.00	2.99	0.00	0.00
44.00	6.00	2.99	0.00	0.00
46.00	6.00	2.99	0.00	0.00
48.00	6.00	2.99	0.00	0.00
50.00	6.00	2.99	0.00	0.00
52.00	6.00	2.99	0.00	0.00
54.00	6.00	2.99	0.00	0.00
56.00	6.00	2.99	0.00	0.00
58.00	6.00	2.99	0.00	0.00
60.00	6.00	2.99	0.00	0.00
62.00	6.00	2.99	0.00	0.00
64.00	6.00	2.99	0.00	0.00
66.00	6.00	2.99	0.00	0.00
68.00	6.00	2.99	0.00	0.00
70.00	6.00	2.99	0.00	0.00
72.00	6.00	2.99	0.00	0.00
74.00	6.00	2.99	0.00	0.00
76.00	6.00	2.99	0.00	0.00
78.00	6.00	2.99	0.00	0.00
80.00	6.00	2.99	0.00	0.00
82.00	6.00	2.99	0.00	0.00
84.00	6.00	2.99	0.00	0.00
86.00	6.00	2.99	0.00	0.00
88.00	6.00	2.99	0.00	0.00
90.00	6.00	2.99	0.00	0.00
92.00	6.00	2.99	0.00	0.00
94.00	6.00	2.99	0.00	0.00
96.00	6.00	2.99	0.00	0.00

Summary for Pond DP16: DP-16

[58] Hint: Peaked 12.10' above defined flood level

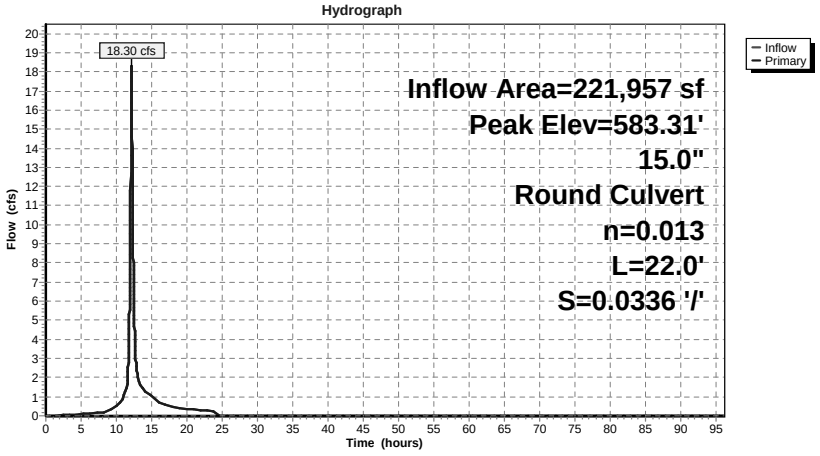
Inflow Area = 221,957 sf, 25.06% Impervious, Inflow Depth = 3.69" for 25 Year, 24 Hr. Event event
Inflow = 18.30 cfs @ 12.14 hrs, Volume= 68,197 cf
Outflow = 18.30 cfs @ 12.14 hrs, Volume= 68,197 cf, Atten= 0%, Lag= 0.0 min
Primary = 18.30 cfs @ 12.14 hrs, Volume= 68,197 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 583.31' @ 12.14 hrs
Flood Elev= 571.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	567.29'	**15.0" Round Culvert** L= 22.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 567.29' / 566.55' S= 0.0336 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=18.29 cfs @ 12.14 hrs HW=583.28' (Free Discharge)
↳**1=Culvert** (Inlet Controls 18.29 cfs @ 14.90 fps)

Pond DP16: DP-16



Hydrograph for Pond DP16: DP-16

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	567.29	0.00	52.00	0.00	567.29	0.00
1.00	0.01	567.33	0.01	53.00	0.00	567.29	0.00
2.00	0.03	567.38	0.03	54.00	0.00	567.29	0.00
3.00	0.06	567.41	0.06	55.00	0.00	567.29	0.00
4.00	0.07	567.43	0.07	56.00	0.00	567.29	0.00
5.00	0.09	567.44	0.09	57.00	0.00	567.29	0.00
6.00	0.11	567.46	0.11	58.00	0.00	567.29	0.00
7.00	0.14	567.48	0.14	59.00	0.00	567.29	0.00
8.00	0.18	567.51	0.18	60.00	0.00	567.29	0.00
9.00	0.29	567.57	0.29	61.00	0.00	567.29	0.00
10.00	0.51	567.67	0.51	62.00	0.00	567.29	0.00
11.00	0.96	567.82	0.96	63.00	0.00	567.29	0.00
12.00	**8.94**	**571.59**	**8.94**	64.00	0.00	567.29	0.00
13.00	**2.15**	**568.13**	**2.15**	65.00	0.00	567.29	0.00
14.00	1.33	567.92	1.33	66.00	0.00	567.29	0.00
15.00	1.01	567.83	1.01	67.00	0.00	567.29	0.00
16.00	0.72	567.74	0.72	68.00	0.00	567.29	0.00
17.00	0.57	567.69	0.57	69.00	0.00	567.29	0.00
18.00	0.44	567.64	0.44	70.00	0.00	567.29	0.00
19.00	0.39	567.61	0.39	71.00	0.00	567.29	0.00
20.00	0.35	567.60	0.35	72.00	0.00	567.29	0.00
21.00	0.32	567.58	0.32	73.00	0.00	567.29	0.00
22.00	0.29	567.57	0.29	74.00	0.00	567.29	0.00
23.00	0.26	567.55	0.26	75.00	0.00	567.29	0.00
24.00	0.23	567.54	0.23	76.00	0.00	567.29	0.00
25.00	0.00	567.29	0.00	77.00	0.00	567.29	0.00
26.00	0.00	567.29	0.00	78.00	0.00	567.29	0.00
27.00	0.00	567.29	0.00	79.00	0.00	567.29	0.00
28.00	0.00	567.29	0.00	80.00	0.00	567.29	0.00
29.00	0.00	567.29	0.00	81.00	0.00	567.29	0.00
30.00	0.00	567.29	0.00	82.00	0.00	567.29	0.00
31.00	0.00	567.29	0.00	83.00	0.00	567.29	0.00
32.00	0.00	567.29	0.00	84.00	0.00	567.29	0.00
33.00	0.00	567.29	0.00	85.00	0.00	567.29	0.00
34.00	0.00	567.29	0.00	86.00	0.00	567.29	0.00
35.00	0.00	567.29	0.00	87.00	0.00	567.29	0.00
36.00	0.00	567.29	0.00	88.00	0.00	567.29	0.00
37.00	0.00	567.29	0.00	89.00	0.00	567.29	0.00
38.00	0.00	567.29	0.00	90.00	0.00	567.29	0.00
39.00	0.00	567.29	0.00	91.00	0.00	567.29	0.00
40.00	0.00	567.29	0.00	92.00	0.00	567.29	0.00
41.00	0.00	567.29	0.00	93.00	0.00	567.29	0.00
42.00	0.00	567.29	0.00	94.00	0.00	567.29	0.00
43.00	0.00	567.29	0.00	95.00	0.00	567.29	0.00
44.00	0.00	567.29	0.00	96.00	0.00	567.29	0.00
45.00	0.00	567.29	0.00				
46.00	0.00	567.29	0.00				
47.00	0.00	567.29	0.00				
48.00	0.00	567.29	0.00				
49.00	0.00	567.29	0.00				
50.00	0.00	567.29	0.00				
51.00	0.00	567.29	0.00				

Summary for Pond DP17: DP-17

[58] Hint: Peaked 37.85' above defined flood level

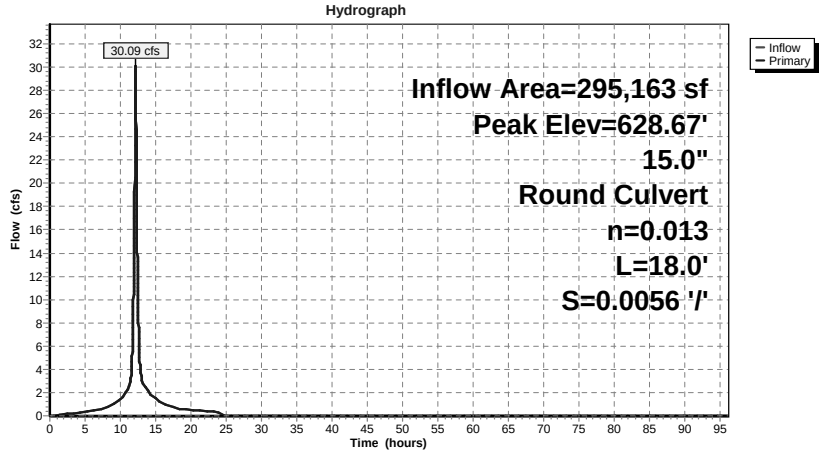
Inflow Area = 295,163 sf, 69.86% Impervious, Inflow Depth = 4.99" for 25 Year, 24 Hr. Event event
Inflow = 30.09 cfs @ 12.15 hrs, Volume= 122,621 cf
Outflow = 30.09 cfs @ 12.15 hrs, Volume= 122,621 cf, Atten= 0%, Lag= 0.0 min
Primary = 30.09 cfs @ 12.15 hrs, Volume= 122,621 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 628.67' @ 12.15 hrs
Flood Elev= 590.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	586.45'	**15.0" Round Culvert-verify outlet invert** L= 18.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 586.45' / 586.35' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=30.07 cfs @ 12.15 hrs HW=628.62' (Free Discharge)
↳**1=Culvert-verify outlet invert** (Inlet Controls 30.07 cfs @ 24.50 fps)

Pond DP17: DP-17



Hydrograph for Pond DP17: DP-17

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	586.45	0.00	52.00	0.00	586.45	0.00
1.00	0.02	586.54	0.02	53.00	0.00	586.45	0.00
2.00	0.13	586.65	0.13	54.00	0.00	586.45	0.00
3.00	0.20	586.70	0.20	55.00	0.00	586.45	0.00
4.00	0.27	586.74	0.27	56.00	0.00	586.45	0.00
5.00	0.34	586.78	0.34	57.00	0.00	586.45	0.00
6.00	0.39	586.81	0.39	58.00	0.00	586.45	0.00
7.00	0.53	586.87	0.53	59.00	0.00	586.45	0.00
8.00	0.68	586.93	0.68	60.00	0.00	586.45	0.00
9.00	1.01	587.05	1.01	61.00	0.00	586.45	0.00
10.00	1.42	587.18	1.42	62.00	0.00	586.45	0.00
11.00	2.21	587.39	2.21	63.00	0.00	586.45	0.00
12.00	**15.29**	**597.82**	**15.29**	64.00	0.00	586.45	0.00
13.00	**3.38**	**587.69**	**3.38**	65.00	0.00	586.45	0.00
14.00	2.04	587.35	2.04	66.00	0.00	586.45	0.00
15.00	1.52	587.21	1.52	67.00	0.00	586.45	0.00
16.00	1.08	587.07	1.08	68.00	0.00	586.45	0.00
17.00	0.85	586.99	0.85	69.00	0.00	586.45	0.00
18.00	0.65	586.92	0.65	70.00	0.00	586.45	0.00
19.00	0.57	586.89	0.57	71.00	0.00	586.45	0.00
20.00	0.52	586.86	0.52	72.00	0.00	586.45	0.00
21.00	0.47	586.84	0.47	73.00	0.00	586.45	0.00
22.00	0.43	586.82	0.43	74.00	0.00	586.45	0.00
23.00	0.38	586.80	0.38	75.00	0.00	586.45	0.00
24.00	0.34	586.78	0.34	76.00	0.00	586.45	0.00
25.00	0.00	586.45	0.00	77.00	0.00	586.45	0.00
26.00	0.00	586.45	0.00	78.00	0.00	586.45	0.00
27.00	0.00	586.45	0.00	79.00	0.00	586.45	0.00
28.00	0.00	586.45	0.00	80.00	0.00	586.45	0.00
29.00	0.00	586.45	0.00	81.00	0.00	586.45	0.00
30.00	0.00	586.45	0.00	82.00	0.00	586.45	0.00
31.00	0.00	586.45	0.00	83.00	0.00	586.45	0.00
32.00	0.00	586.45	0.00	84.00	0.00	586.45	0.00
33.00	0.00	586.45	0.00	85.00	0.00	586.45	0.00
34.00	0.00	586.45	0.00	86.00	0.00	586.45	0.00
35.00	0.00	586.45	0.00	87.00	0.00	586.45	0.00
36.00	0.00	586.45	0.00	88.00	0.00	586.45	0.00
37.00	0.00	586.45	0.00	89.00	0.00	586.45	0.00
38.00	0.00	586.45	0.00	90.00	0.00	586.45	0.00
39.00	0.00	586.45	0.00	91.00	0.00	586.45	0.00
40.00	0.00	586.45	0.00	92.00	0.00	586.45	0.00
41.00	0.00	586.45	0.00	93.00	0.00	586.45	0.00
42.00	0.00	586.45	0.00	94.00	0.00	586.45	0.00
43.00	0.00	586.45	0.00	95.00	0.00	586.45	0.00
44.00	0.00	586.45	0.00	96.00	0.00	586.45	0.00
45.00	0.00	586.45	0.00				
46.00	0.00	586.45	0.00				
47.00	0.00	586.45	0.00				
48.00	0.00	586.45	0.00				
49.00	0.00	586.45	0.00				
50.00	0.00	586.45	0.00				
51.00	0.00	586.45	0.00				

Summary for Pond DP18: DP-18

[58] Hint: Peaked 31.82' above defined flood level

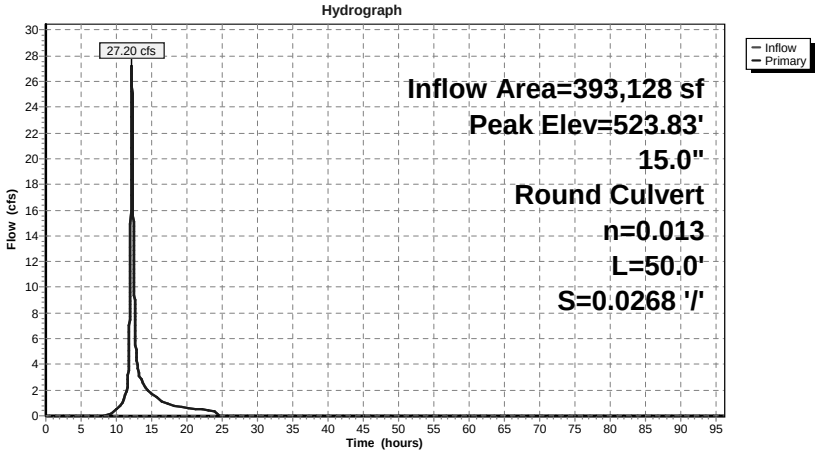
Inflow Area = 393,128 sf, 0.00% Impervious, Inflow Depth = 3.18" for 25 Year, 24 Hr. Event event
Inflow = 27.20 cfs @ 12.17 hrs, Volume= 104,339 cf
Outflow = 27.20 cfs @ 12.17 hrs, Volume= 104,339 cf, Atten= 0%, Lag= 0.0 min
Primary = 27.20 cfs @ 12.17 hrs, Volume= 104,339 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 523.83' @ 12.17 hrs
Flood Elev= 492.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	489.20'	**15.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.20' / 487.86' S= 0.0268 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=27.17 cfs @ 12.17 hrs HW=523.76' (Free Discharge)
↳**1=Culvert** (Inlet Controls 27.17 cfs @ 22.14 fps)

Pond DP18: DP-18



Hydrograph for Pond DP18: DP-18

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	489.20	0.00	52.00	0.00	489.20	0.00
1.00	0.00	489.20	0.00	53.00	0.00	489.20	0.00
2.00	0.00	489.20	0.00	54.00	0.00	489.20	0.00
3.00	0.00	489.20	0.00	55.00	0.00	489.20	0.00
4.00	0.00	489.20	0.00	56.00	0.00	489.20	0.00
5.00	0.00	489.20	0.00	57.00	0.00	489.20	0.00
6.00	0.00	489.20	0.00	58.00	0.00	489.20	0.00
7.00	0.00	489.20	0.00	59.00	0.00	489.20	0.00
8.00	0.00	489.20	0.00	60.00	0.00	489.20	0.00
9.00	0.14	489.39	0.14	61.00	0.00	489.20	0.00
10.00	0.47	489.56	0.47	62.00	0.00	489.20	0.00
11.00	1.16	489.78	1.16	63.00	0.00	489.20	0.00
12.00	**11.79**	**496.21**	**11.79**	64.00	0.00	489.20	0.00
13.00	**3.81**	**490.49**	**3.81**	65.00	0.00	489.20	0.00
14.00	2.31	490.07	2.31	66.00	0.00	489.20	0.00
15.00	1.74	489.94	1.74	67.00	0.00	489.20	0.00
16.00	1.25	489.81	1.25	68.00	0.00	489.20	0.00
17.00	0.98	489.73	0.98	69.00	0.00	489.20	0.00
18.00	0.76	489.67	0.76	70.00	0.00	489.20	0.00
19.00	0.67	489.63	0.67	71.00	0.00	489.20	0.00
20.00	0.60	489.61	0.60	72.00	0.00	489.20	0.00
21.00	0.55	489.59	0.55	73.00	0.00	489.20	0.00
22.00	0.50	489.57	0.50	74.00	0.00	489.20	0.00
23.00	0.45	489.55	0.45	75.00	0.00	489.20	0.00
24.00	0.40	489.53	0.40	76.00	0.00	489.20	0.00
25.00	0.00	489.20	0.00	77.00	0.00	489.20	0.00
26.00	0.00	489.20	0.00	78.00	0.00	489.20	0.00
27.00	0.00	489.20	0.00	79.00	0.00	489.20	0.00
28.00	0.00	489.20	0.00	80.00	0.00	489.20	0.00
29.00	0.00	489.20	0.00	81.00	0.00	489.20	0.00
30.00	0.00	489.20	0.00	82.00	0.00	489.20	0.00
31.00	0.00	489.20	0.00	83.00	0.00	489.20	0.00
32.00	0.00	489.20	0.00	84.00	0.00	489.20	0.00
33.00	0.00	489.20	0.00	85.00	0.00	489.20	0.00
34.00	0.00	489.20	0.00	86.00	0.00	489.20	0.00
35.00	0.00	489.20	0.00	87.00	0.00	489.20	0.00
36.00	0.00	489.20	0.00	88.00	0.00	489.20	0.00
37.00	0.00	489.20	0.00	89.00	0.00	489.20	0.00
38.00	0.00	489.20	0.00	90.00	0.00	489.20	0.00
39.00	0.00	489.20	0.00	91.00	0.00	489.20	0.00
40.00	0.00	489.20	0.00	92.00	0.00	489.20	0.00
41.00	0.00	489.20	0.00	93.00	0.00	489.20	0.00
42.00	0.00	489.20	0.00	94.00	0.00	489.20	0.00
43.00	0.00	489.20	0.00	95.00	0.00	489.20	0.00
44.00	0.00	489.20	0.00	96.00	0.00	489.20	0.00
45.00	0.00	489.20	0.00				
46.00	0.00	489.20	0.00				
47.00	0.00	489.20	0.00				
48.00	0.00	489.20	0.00				
49.00	0.00	489.20	0.00				
50.00	0.00	489.20	0.00				
51.00	0.00	489.20	0.00				

Summary for Pond DP19: DP-19

[57] Hint: Peaked at 490.11' (Flood elevation advised)

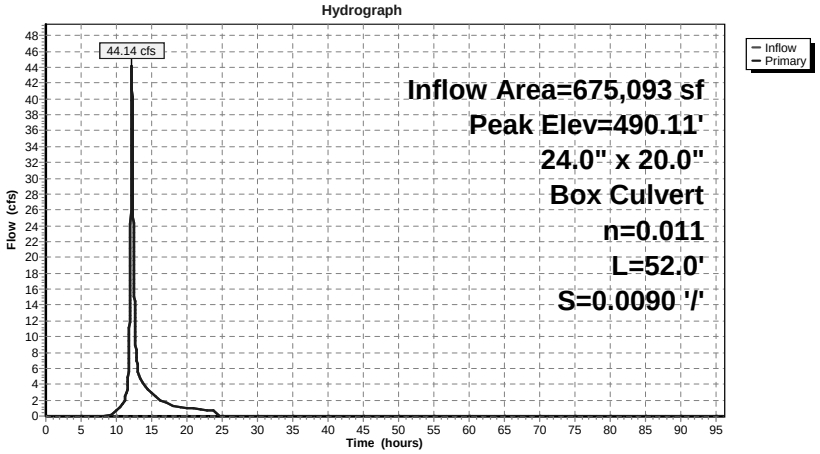
Inflow Area = 675,093 sf, 0.00% Impervious, Inflow Depth = 2.99" for 25 Year, 24 Hr. Event event
Inflow = 44.14 cfs @ 12.17 hrs, Volume= 168,392 cf
Outflow = 44.14 cfs @ 12.17 hrs, Volume= 168,392 cf, Atten= 0%, Lag= 0.0 min
Primary = 44.14 cfs @ 12.17 hrs, Volume= 168,392 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 490.11' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	481.70'	**24.0" W x 20.0" H Box Culvert** L= 52.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 481.70' / 481.23' S= 0.0090 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=44.11 cfs @ 12.17 hrs HW=490.09' (Free Discharge)
1=Culvert (Inlet Controls 44.11 cfs @ 13.23 fps)

Pond DP19: DP-19



Hydrograph for Pond DP19: DP-19

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	481.70	0.00	52.00	0.00	481.70	0.00
1.00	0.00	481.70	0.00	53.00	0.00	481.70	0.00
2.00	0.00	481.70	0.00	54.00	0.00	481.70	0.00
3.00	0.00	481.70	0.00	55.00	0.00	481.70	0.00
4.00	0.00	481.70	0.00	56.00	0.00	481.70	0.00
5.00	0.00	481.70	0.00	57.00	0.00	481.70	0.00
6.00	0.00	481.70	0.00	58.00	0.00	481.70	0.00
7.00	0.00	481.70	0.00	59.00	0.00	481.70	0.00
8.00	0.00	481.70	0.00	60.00	0.00	481.70	0.00
9.00	0.09	481.76	0.09	61.00	0.00	481.70	0.00
10.00	0.61	481.91	0.61	62.00	0.00	481.70	0.00
11.00	1.69	482.11	1.69	63.00	0.00	481.70	0.00
12.00	**18.88**	**483.96**	**18.88**	64.00	0.00	481.70	0.00
13.00	**6.24**	**482.68**	**6.24**	65.00	0.00	481.70	0.00
14.00	3.81	482.41	3.81	66.00	0.00	481.70	0.00
15.00	2.88	482.29	2.88	67.00	0.00	481.70	0.00
16.00	2.08	482.17	2.08	68.00	0.00	481.70	0.00
17.00	1.63	482.10	1.63	69.00	0.00	481.70	0.00
18.00	1.27	482.04	1.27	70.00	0.00	481.70	0.00
19.00	1.11	482.01	1.11	71.00	0.00	481.70	0.00
20.00	1.00	481.99	1.00	72.00	0.00	481.70	0.00
21.00	0.92	481.97	0.92	73.00	0.00	481.70	0.00
22.00	0.84	481.96	0.84	74.00	0.00	481.70	0.00
23.00	0.75	481.94	0.75	75.00	0.00	481.70	0.00
24.00	0.67	481.92	0.67	76.00	0.00	481.70	0.00
25.00	0.00	481.70	0.00	77.00	0.00	481.70	0.00
26.00	0.00	481.70	0.00	78.00	0.00	481.70	0.00
27.00	0.00	481.70	0.00	79.00	0.00	481.70	0.00
28.00	0.00	481.70	0.00	80.00	0.00	481.70	0.00
29.00	0.00	481.70	0.00	81.00	0.00	481.70	0.00
30.00	0.00	481.70	0.00	82.00	0.00	481.70	0.00
31.00	0.00	481.70	0.00	83.00	0.00	481.70	0.00
32.00	0.00	481.70	0.00	84.00	0.00	481.70	0.00
33.00	0.00	481.70	0.00	85.00	0.00	481.70	0.00
34.00	0.00	481.70	0.00	86.00	0.00	481.70	0.00
35.00	0.00	481.70	0.00	87.00	0.00	481.70	0.00
36.00	0.00	481.70	0.00	88.00	0.00	481.70	0.00
37.00	0.00	481.70	0.00	89.00	0.00	481.70	0.00
38.00	0.00	481.70	0.00	90.00	0.00	481.70	0.00
39.00	0.00	481.70	0.00	91.00	0.00	481.70	0.00
40.00	0.00	481.70	0.00	92.00	0.00	481.70	0.00
41.00	0.00	481.70	0.00	93.00	0.00	481.70	0.00
42.00	0.00	481.70	0.00	94.00	0.00	481.70	0.00
43.00	0.00	481.70	0.00	95.00	0.00	481.70	0.00
44.00	0.00	481.70	0.00	96.00	0.00	481.70	0.00
45.00	0.00	481.70	0.00				
46.00	0.00	481.70	0.00				
47.00	0.00	481.70	0.00				
48.00	0.00	481.70	0.00				
49.00	0.00	481.70	0.00				
50.00	0.00	481.70	0.00				
51.00	0.00	481.70	0.00				

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment DA-16: Post_DA-16 Runoff Area=221,957 sf 25.06% Impervious Runoff Depth=6.84"
Flow Length=418' Tc=9.9 min CN=72/98 Runoff=34.08 cfs 126,537 cf

Subcatchment DA-17: Post_DA-17 Runoff Area=295,163 sf 69.86% Impervious Runoff Depth=8.36"
Flow Length=1,520' Tc=11.1 min CN=74/98 Runoff=50.19 cfs 205,715 cf

Subcatchment DA-18: Post_DA-18 Runoff Area=393,128 sf 0.00% Impervious Runoff Depth=6.29"
Flow Length=1,070' Tc=12.6 min CN=74/0 Runoff=53.43 cfs 205,951 cf

Subcatchment DA-19: Post_DA-19 Runoff Area=675,093 sf 0.00% Impervious Runoff Depth=6.03"
Flow Length=1,348' Tc=12.3 min CN=72/0 Runoff=88.98 cfs 339,378 cf

Pond DP16: DP-16 Peak Elev=621.29' Inflow=34.08 cfs 126,537 cf
15.0" Round Culvert n=0.013 L=22.0' S=0.0336 '/' Outflow=34.08 cfs 126,537 cf

Pond DP17: DP-17 Peak Elev=702.82' Inflow=50.19 cfs 205,715 cf
15.0" Round Culvert n=0.013 L=18.0' S=0.0056 '/' Outflow=50.19 cfs 205,715 cf

Pond DP18: DP-18 Peak Elev=621.00' Inflow=53.43 cfs 205,951 cf
15.0" Round Culvert n=0.013 L=50.0' S=0.0268 '/' Outflow=53.43 cfs 205,951 cf

Pond DP19: DP-19 Peak Elev=513.27' Inflow=88.98 cfs 339,378 cf
24.0" x 20.0" Box Culvert n=0.011 L=52.0' S=0.0090 '/' Outflow=88.98 cfs 339,378 cf

Total Runoff Area = 1,585,341 sf Runoff Volume = 877,581 cf Average Runoff Depth = 6.64"
83.48% Pervious = 1,323,514 sf 16.52% Impervious = 261,827 sf

Summary for Subcatchment DA-16: Post_DA-16

Runoff = 34.08 cfs @ 12.13 hrs, Volume= 126,537 cf, Depth= 6.84"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

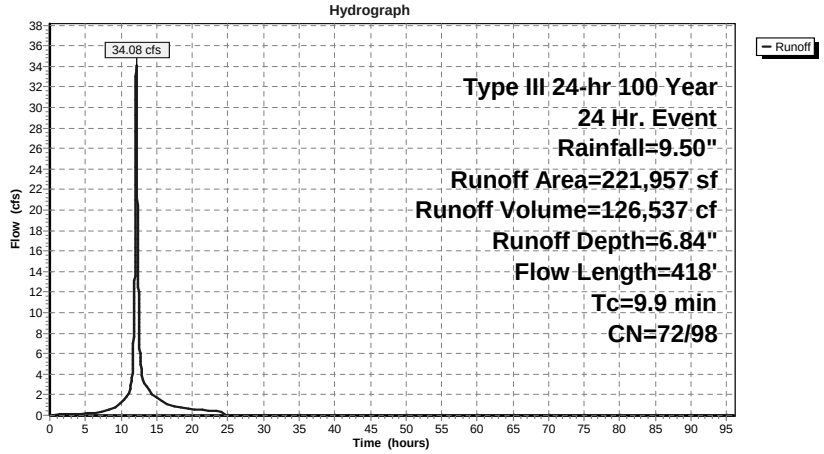
Area (sf)	CN	Description	Land Use
54,093	98	Paved parking, HSG C	Pavement
143,987	74	>75% Grass cover, Good, HSG C	Open Space
22,350	61	>75% Grass cover, Good, HSG B	Open Space
1,527	98	Unconnected roofs, HSG C	Roofs
221,957	79	Weighted Average	
166,337	72	74.94% Pervious Area	
55,620	98	25.06% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.1000	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
1.5	193	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	125	0.0640	1.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.9	418	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 25.06% Impervious, Rv= 0.276, Runoff= 12.59"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
166,337	Open Space	6,559.47	22.88	99.15	13.40
54,093	Pavement	613.01	1.98	7.44	23.74
1,527	Roofs	1.90	0.01	0.15	0.74
221,957	Total	7,174.38	24.88	106.75	37.88

Subcatchment DA-16: Post_DA-16



Hydrograph for Subcatchment DA-16: Post_DA-16

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.08
4.00	0.41	0.00	0.24	0.13
6.00	0.68	0.00	0.49	0.18
8.00	1.08	0.02	0.87	0.42
10.00	1.80	0.21	1.57	1.18
12.00	4.75	2.01	4.51	**17.24**
14.00	7.70	4.44	7.46	**2.32**
16.00	8.42	5.06	8.18	1.24
18.00	8.82	5.42	8.58	0.75
20.00	9.09	5.66	8.85	0.60
22.00	9.32	5.87	9.08	0.49
24.00	**9.50**	**6.03**	**9.26**	0.39
26.00	9.50	6.03	9.26	0.00
28.00	9.50	6.03	9.26	0.00
30.00	9.50	6.03	9.26	0.00
32.00	9.50	6.03	9.26	0.00
34.00	9.50	6.03	9.26	0.00
36.00	9.50	6.03	9.26	0.00
38.00	9.50	6.03	9.26	0.00
40.00	9.50	6.03	9.26	0.00
42.00	9.50	6.03	9.26	0.00
44.00	9.50	6.03	9.26	0.00
46.00	9.50	6.03	9.26	0.00
48.00	9.50	6.03	9.26	0.00
50.00	9.50	6.03	9.26	0.00
52.00	9.50	6.03	9.26	0.00
54.00	9.50	6.03	9.26	0.00
56.00	9.50	6.03	9.26	0.00
58.00	9.50	6.03	9.26	0.00
60.00	9.50	6.03	9.26	0.00
62.00	9.50	6.03	9.26	0.00
64.00	9.50	6.03	9.26	0.00
66.00	9.50	6.03	9.26	0.00
68.00	9.50	6.03	9.26	0.00
70.00	9.50	6.03	9.26	0.00
72.00	9.50	6.03	9.26	0.00
74.00	9.50	6.03	9.26	0.00
76.00	9.50	6.03	9.26	0.00
78.00	9.50	6.03	9.26	0.00
80.00	9.50	6.03	9.26	0.00
82.00	9.50	6.03	9.26	0.00
84.00	9.50	6.03	9.26	0.00
86.00	9.50	6.03	9.26	0.00
88.00	9.50	6.03	9.26	0.00
90.00	9.50	6.03	9.26	0.00
92.00	9.50	6.03	9.26	0.00
94.00	9.50	6.03	9.26	0.00
96.00	9.50	6.03	9.26	0.00

Summary for Subcatchment DA-17: Post_DA-17

Runoff = 50.19 cfs @ 12.15 hrs, Volume= 205,715 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

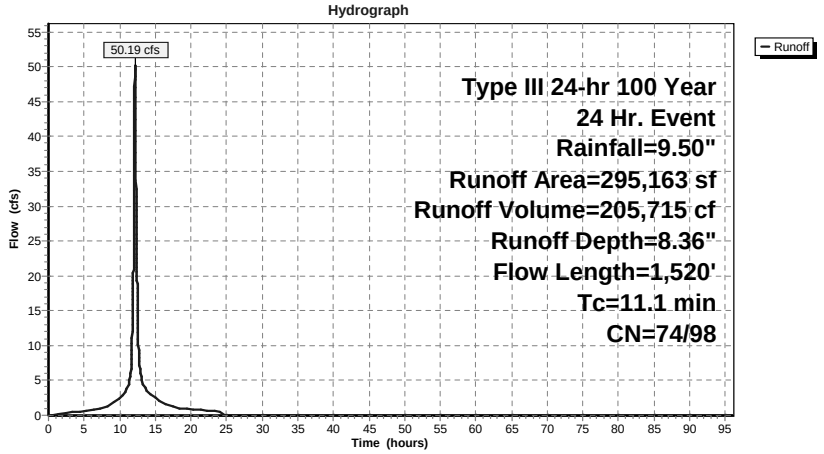
Area (sf)	CN	Description	Land Use
116,949	98	Paved parking, HSG C	Pavement
89,258	98	Roofs, HSG C	Roofs
88,956	74	>75% Grass cover, Good, HSG C	Open Space
295,163	91	Weighted Average	
88,956	74	30.14% Pervious Area	
206,207	98	69.86% Impervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	100	0.0670	0.20		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.3	35	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	35	0.0860	5.95		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.2	1,350		10.00		**Direct Entry, Pipe Flow**
11.1	1,520	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 69.86% Impervious, Rv= 0.679, Runoff= 31.02"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
88,956	Open Space	8,641.74	30.15	130.63	17.66
116,949	Pavement	3,264.92	10.57	39.63	126.44
89,258	Roofs	273.67	1.58	21.61	106.59
295,163	Total	12,180.33	42.30	191.87	250.69

Subcatchment DA-17: Post_DA-17



Hydrograph for Subcatchment DA-17: Post_DA-17

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
2.00	0.19	0.00	0.06	0.29
4.00	0.41	0.00	0.24	0.50
6.00	0.68	0.00	0.49	0.67
8.00	1.08	0.04	0.87	1.19
10.00	1.80	0.26	1.57	2.47
12.00	4.75	2.17	4.51	**25.76**
14.00	7.70	4.66	7.46	**3.33**
16.00	8.42	5.30	8.18	1.76
18.00	8.82	5.66	8.58	1.06
20.00	9.09	5.91	8.85	0.84
22.00	9.32	6.12	9.08	0.69
24.00	**9.50**	**6.29**	**9.26**	0.55
26.00	9.50	6.29	9.26	0.00
28.00	9.50	6.29	9.26	0.00
30.00	9.50	6.29	9.26	0.00
32.00	9.50	6.29	9.26	0.00
34.00	9.50	6.29	9.26	0.00
36.00	9.50	6.29	9.26	0.00
38.00	9.50	6.29	9.26	0.00
40.00	9.50	6.29	9.26	0.00
42.00	9.50	6.29	9.26	0.00
44.00	9.50	6.29	9.26	0.00
46.00	9.50	6.29	9.26	0.00
48.00	9.50	6.29	9.26	0.00
50.00	9.50	6.29	9.26	0.00
52.00	9.50	6.29	9.26	0.00
54.00	9.50	6.29	9.26	0.00
56.00	9.50	6.29	9.26	0.00
58.00	9.50	6.29	9.26	0.00
60.00	9.50	6.29	9.26	0.00
62.00	9.50	6.29	9.26	0.00
64.00	9.50	6.29	9.26	0.00
66.00	9.50	6.29	9.26	0.00
68.00	9.50	6.29	9.26	0.00
70.00	9.50	6.29	9.26	0.00
72.00	9.50	6.29	9.26	0.00
74.00	9.50	6.29	9.26	0.00
76.00	9.50	6.29	9.26	0.00
78.00	9.50	6.29	9.26	0.00
80.00	9.50	6.29	9.26	0.00
82.00	9.50	6.29	9.26	0.00
84.00	9.50	6.29	9.26	0.00
86.00	9.50	6.29	9.26	0.00
88.00	9.50	6.29	9.26	0.00
90.00	9.50	6.29	9.26	0.00
92.00	9.50	6.29	9.26	0.00
94.00	9.50	6.29	9.26	0.00
96.00	9.50	6.29	9.26	0.00

Summary for Subcatchment DA-18: Post_DA-18

Runoff = 53.43 cfs @ 12.17 hrs, Volume= 205,951 cf, Depth= 6.29"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

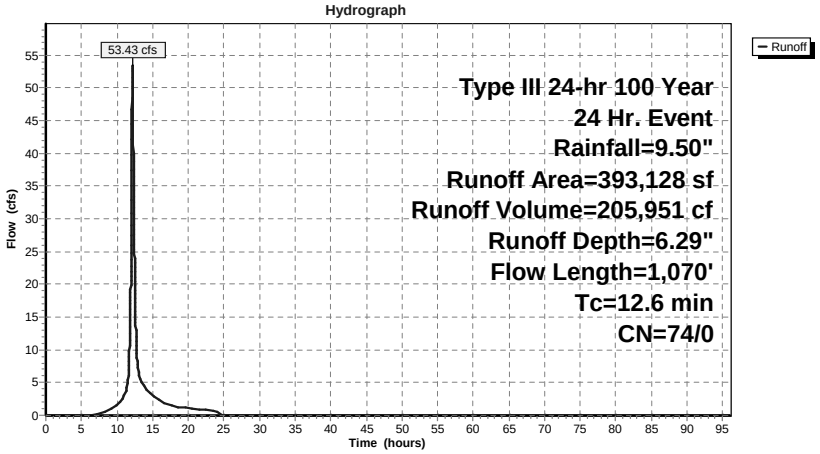
Area (sf)	CN	Description	Land Use
321,115	74	>75% Grass cover, Good, HSG C	Open Space
60,787	70	Woods, Good, HSG C	Woods
11,226	89	Gravel roads, HSG C	Roadway
393,128	74	Weighted Average	
393,128	74	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	150	0.0800	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
0.8	220	0.0910	4.86		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	190	0.2630	8.26		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	510	0.0200	13.18	79.10	**Channel Flow,** Area= 6.0 sf Perim= 5.0' r= 1.20' n= 0.018 Earth, clean & straight
12.6	1,070	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
321,115	Open Space	2,297.95	8.02	34.74	4.70
11,226	Roadway	23.09	0.07	0.28	0.89
60,787	Woods	26.74	0.00	0.00	0.89
393,128	Total	2,347.78	8.09	35.02	6.48

Subcatchment DA-18: Post_DA-18



Hydrograph for Subcatchment DA-18: Post_DA-18

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.04	0.00	0.36
10.00	1.80	0.26	0.00	1.60
12.00	4.75	2.17	0.00	**24.81**
14.00	7.70	4.66	0.00	**4.11**
16.00	8.42	5.30	0.00	2.20
18.00	8.82	5.66	0.00	1.33
20.00	9.09	5.91	0.00	1.05
22.00	9.32	6.12	0.00	0.87
24.00	**9.50**	**6.29**	0.00	0.69
26.00	9.50	6.29	0.00	0.00
28.00	9.50	6.29	0.00	0.00
30.00	9.50	6.29	0.00	0.00
32.00	9.50	6.29	0.00	0.00
34.00	9.50	6.29	0.00	0.00
36.00	9.50	6.29	0.00	0.00
38.00	9.50	6.29	0.00	0.00
40.00	9.50	6.29	0.00	0.00
42.00	9.50	6.29	0.00	0.00
44.00	9.50	6.29	0.00	0.00
46.00	9.50	6.29	0.00	0.00
48.00	9.50	6.29	0.00	0.00
50.00	9.50	6.29	0.00	0.00
52.00	9.50	6.29	0.00	0.00
54.00	9.50	6.29	0.00	0.00
56.00	9.50	6.29	0.00	0.00
58.00	9.50	6.29	0.00	0.00
60.00	9.50	6.29	0.00	0.00
62.00	9.50	6.29	0.00	0.00
64.00	9.50	6.29	0.00	0.00
66.00	9.50	6.29	0.00	0.00
68.00	9.50	6.29	0.00	0.00
70.00	9.50	6.29	0.00	0.00
72.00	9.50	6.29	0.00	0.00
74.00	9.50	6.29	0.00	0.00
76.00	9.50	6.29	0.00	0.00
78.00	9.50	6.29	0.00	0.00
80.00	9.50	6.29	0.00	0.00
82.00	9.50	6.29	0.00	0.00
84.00	9.50	6.29	0.00	0.00
86.00	9.50	6.29	0.00	0.00
88.00	9.50	6.29	0.00	0.00
90.00	9.50	6.29	0.00	0.00
92.00	9.50	6.29	0.00	0.00
94.00	9.50	6.29	0.00	0.00
96.00	9.50	6.29	0.00	0.00

Summary for Subcatchment DA-19: Post_DA-19

Runoff = 88.98 cfs @ 12.17 hrs, Volume= 339,378 cf, Depth= 6.03"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year, 24 Hr. Event Rainfall=9.50"

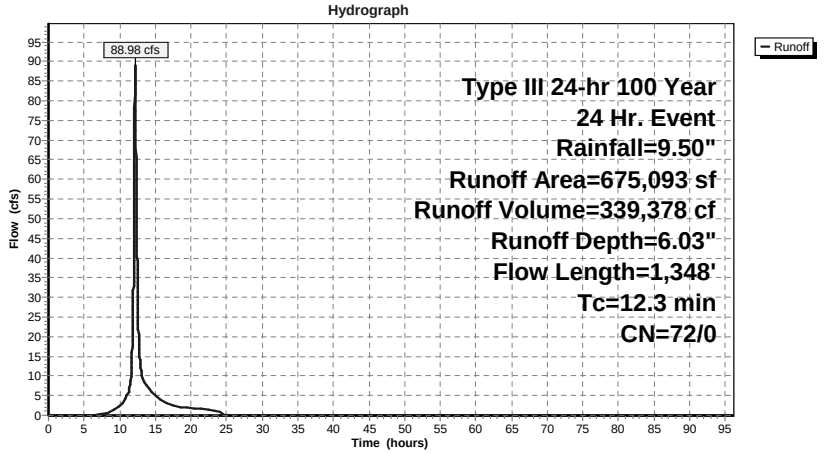
Area (sf)	CN	Description	Land Use
370,422	74	>75% Grass cover, Good, HSG C	Open Space
304,671	70	Woods, Good, HSG C	Woods
675,093	72	Weighted Average	
675,093	72	100.00% Pervious Area	

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0970	0.23		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.1	273	0.0970	2.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	121	0.1980	3.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	214	0.1680	2.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	640		10.00		**Direct Entry,**
12.3	1,348	Total			

Pollutant Loading for 45.70" Rainfall, Pj=1.000
Subcat 0.00% Impervious, Rv= 0.050, Runoff= 2.28"

Area (sq-ft)	Land Use	TSS (pounds)	TP (pounds)	TN (pounds)	BOD (pounds)
370,422	Open Space	2,650.80	9.25	40.07	5.42
304,671	Woods	134.00	0.00	0.00	4.45
675,093	Total	2,784.81	9.25	40.07	9.87

Subcatchment DA-19: Post_DA-19



Hydrograph for Subcatchment DA-19: Post_DA-19

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	**0.00**	0.00
2.00	0.19	0.00	0.00	0.00
4.00	0.41	0.00	0.00	0.00
6.00	0.68	0.00	0.00	0.00
8.00	1.08	0.02	0.00	0.45
10.00	1.80	0.21	0.00	2.43
12.00	4.75	2.01	0.00	**41.09**
14.00	7.70	4.44	0.00	**6.90**
16.00	8.42	5.06	0.00	3.71
18.00	8.82	5.42	0.00	2.25
20.00	9.09	5.66	0.00	1.77
22.00	9.32	5.87	0.00	1.47
24.00	**9.50**	**6.03**	0.00	1.17
26.00	9.50	6.03	0.00	0.00
28.00	9.50	6.03	0.00	0.00
30.00	9.50	6.03	0.00	0.00
32.00	9.50	6.03	0.00	0.00
34.00	9.50	6.03	0.00	0.00
36.00	9.50	6.03	0.00	0.00
38.00	9.50	6.03	0.00	0.00
40.00	9.50	6.03	0.00	0.00
42.00	9.50	6.03	0.00	0.00
44.00	9.50	6.03	0.00	0.00
46.00	9.50	6.03	0.00	0.00
48.00	9.50	6.03	0.00	0.00
50.00	9.50	6.03	0.00	0.00
52.00	9.50	6.03	0.00	0.00
54.00	9.50	6.03	0.00	0.00
56.00	9.50	6.03	0.00	0.00
58.00	9.50	6.03	0.00	0.00
60.00	9.50	6.03	0.00	0.00
62.00	9.50	6.03	0.00	0.00
64.00	9.50	6.03	0.00	0.00
66.00	9.50	6.03	0.00	0.00
68.00	9.50	6.03	0.00	0.00
70.00	9.50	6.03	0.00	0.00
72.00	9.50	6.03	0.00	0.00
74.00	9.50	6.03	0.00	0.00
76.00	9.50	6.03	0.00	0.00
78.00	9.50	6.03	0.00	0.00
80.00	9.50	6.03	0.00	0.00
82.00	9.50	6.03	0.00	0.00
84.00	9.50	6.03	0.00	0.00
86.00	9.50	6.03	0.00	0.00
88.00	9.50	6.03	0.00	0.00
90.00	9.50	6.03	0.00	0.00
92.00	9.50	6.03	0.00	0.00
94.00	9.50	6.03	0.00	0.00
96.00	9.50	6.03	0.00	0.00

Summary for Pond DP16: DP-16

[58] Hint: Peaked 50.08' above defined flood level

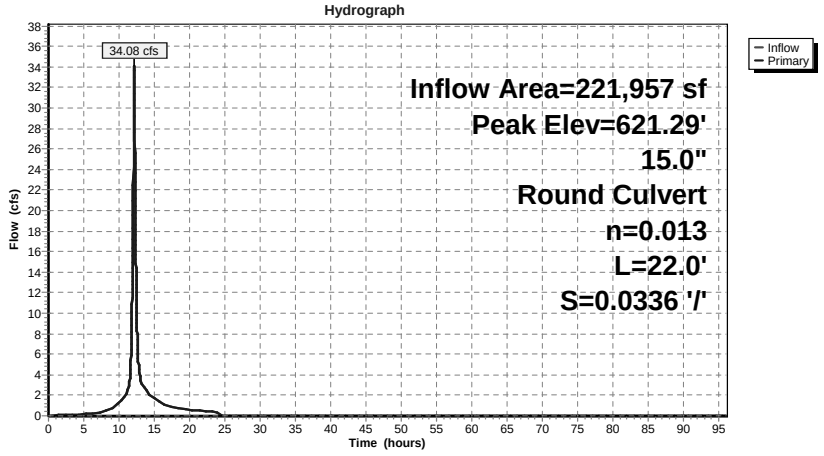
Inflow Area = 221,957 sf, 25.06% Impervious, Inflow Depth = 6.84" for 100 Year, 24 Hr. Event event
Inflow = 34.08 cfs @ 12.13 hrs, Volume= 126,537 cf
Outflow = 34.08 cfs @ 12.13 hrs, Volume= 126,537 cf, Atten= 0%, Lag= 0.0 min
Primary = 34.08 cfs @ 12.13 hrs, Volume= 126,537 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 621.29' @ 12.13 hrs
Flood Elev= 571.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	567.29'	**15.0" Round Culvert** L= 22.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 567.29' / 566.55' S= 0.0336 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=34.03 cfs @ 12.13 hrs HW=621.14' (Free Discharge)
↑**1=Culvert** (Inlet Controls 34.03 cfs @ 27.73 fps)

Pond DP16: DP-16



Hydrograph for Pond DP16: DP-16

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	567.29	0.00	52.00	0.00	567.29	0.00
1.00	0.04	567.39	0.04	53.00	0.00	567.29	0.00
2.00	0.08	567.43	0.08	54.00	0.00	567.29	0.00
3.00	0.11	567.46	0.11	55.00	0.00	567.29	0.00
4.00	0.13	567.48	0.13	56.00	0.00	567.29	0.00
5.00	0.16	567.49	0.16	57.00	0.00	567.29	0.00
6.00	0.18	567.51	0.18	58.00	0.00	567.29	0.00
7.00	0.26	567.55	0.26	59.00	0.00	567.29	0.00
8.00	0.42	567.63	0.42	60.00	0.00	567.29	0.00
9.00	0.73	567.75	0.73	61.00	0.00	567.29	0.00
10.00	1.18	567.88	1.18	62.00	0.00	567.29	0.00
11.00	2.05	568.10	2.05	63.00	0.00	567.29	0.00
12.00	**17.24**	**581.57**	**17.24**	64.00	0.00	567.29	0.00
13.00	**3.78**	**568.57**	**3.78**	65.00	0.00	567.29	0.00
14.00	2.32	568.17	2.32	66.00	0.00	567.29	0.00
15.00	1.74	568.03	1.74	67.00	0.00	567.29	0.00
16.00	1.24	567.90	1.24	68.00	0.00	567.29	0.00
17.00	0.97	567.82	0.97	69.00	0.00	567.29	0.00
18.00	0.75	567.75	0.75	70.00	0.00	567.29	0.00
19.00	0.66	567.72	0.66	71.00	0.00	567.29	0.00
20.00	0.60	567.70	0.60	72.00	0.00	567.29	0.00
21.00	0.54	567.68	0.54	73.00	0.00	567.29	0.00
22.00	0.49	567.66	0.49	74.00	0.00	567.29	0.00
23.00	0.44	567.64	0.44	75.00	0.00	567.29	0.00
24.00	0.39	567.62	0.39	76.00	0.00	567.29	0.00
25.00	0.00	567.29	0.00	77.00	0.00	567.29	0.00
26.00	0.00	567.29	0.00	78.00	0.00	567.29	0.00
27.00	0.00	567.29	0.00	79.00	0.00	567.29	0.00
28.00	0.00	567.29	0.00	80.00	0.00	567.29	0.00
29.00	0.00	567.29	0.00	81.00	0.00	567.29	0.00
30.00	0.00	567.29	0.00	82.00	0.00	567.29	0.00
31.00	0.00	567.29	0.00	83.00	0.00	567.29	0.00
32.00	0.00	567.29	0.00	84.00	0.00	567.29	0.00
33.00	0.00	567.29	0.00	85.00	0.00	567.29	0.00
34.00	0.00	567.29	0.00	86.00	0.00	567.29	0.00
35.00	0.00	567.29	0.00	87.00	0.00	567.29	0.00
36.00	0.00	567.29	0.00	88.00	0.00	567.29	0.00
37.00	0.00	567.29	0.00	89.00	0.00	567.29	0.00
38.00	0.00	567.29	0.00	90.00	0.00	567.29	0.00
39.00	0.00	567.29	0.00	91.00	0.00	567.29	0.00
40.00	0.00	567.29	0.00	92.00	0.00	567.29	0.00
41.00	0.00	567.29	0.00	93.00	0.00	567.29	0.00
42.00	0.00	567.29	0.00	94.00	0.00	567.29	0.00
43.00	0.00	567.29	0.00	95.00	0.00	567.29	0.00
44.00	0.00	567.29	0.00	96.00	0.00	567.29	0.00
45.00	0.00	567.29	0.00				
46.00	0.00	567.29	0.00				
47.00	0.00	567.29	0.00				
48.00	0.00	567.29	0.00				
49.00	0.00	567.29	0.00				
50.00	0.00	567.29	0.00				
51.00	0.00	567.29	0.00				

Summary for Pond DP17: DP-17

[58] Hint: Peaked 112.00' above defined flood level

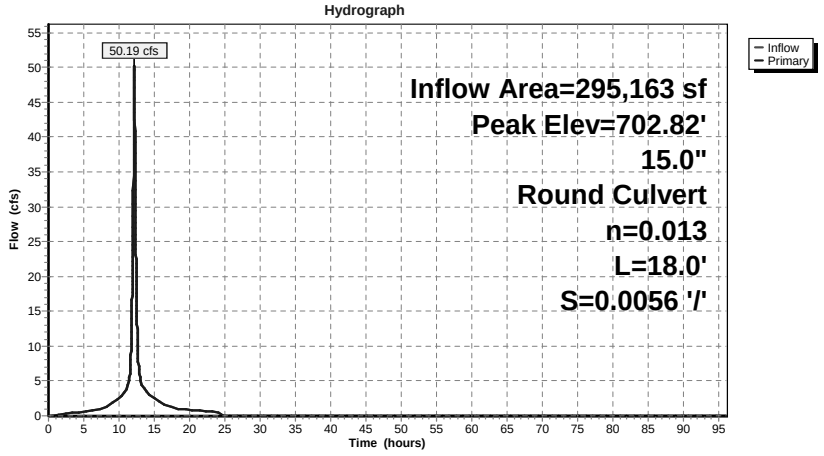
Inflow Area = 295,163 sf, 69.86% Impervious, Inflow Depth = 8.36" for 100 Year, 24 Hr. Event event
Inflow = 50.19 cfs @ 12.15 hrs, Volume= 205,715 cf
Outflow = 50.19 cfs @ 12.15 hrs, Volume= 205,715 cf, Atten= 0%, Lag= 0.0 min
Primary = 50.19 cfs @ 12.15 hrs, Volume= 205,715 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 702.82' @ 12.15 hrs
Flood Elev= 590.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	586.45'	**15.0" Round Culvert-verify outlet invert** L= 18.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 586.45' / 586.35' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=50.15 cfs @ 12.15 hrs HW=702.65' (Free Discharge)
↑**1=Culvert-verify outlet invert** (Inlet Controls 50.15 cfs @ 40.87 fps)

Pond DP17: DP-17



Hydrograph for Pond DP17: DP-17

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	586.45	0.00	52.00	0.00	586.45	0.00
1.00	0.13	586.65	0.13	53.00	0.00	586.45	0.00
2.00	0.29	586.75	0.29	54.00	0.00	586.45	0.00
3.00	0.40	586.81	0.40	55.00	0.00	586.45	0.00
4.00	0.50	586.86	0.50	56.00	0.00	586.45	0.00
5.00	0.59	586.89	0.59	57.00	0.00	586.45	0.00
6.00	0.67	586.93	0.67	58.00	0.00	586.45	0.00
7.00	0.90	587.01	0.90	59.00	0.00	586.45	0.00
8.00	1.19	587.11	1.19	60.00	0.00	586.45	0.00
9.00	1.77	587.28	1.77	61.00	0.00	586.45	0.00
10.00	2.47	587.46	2.47	62.00	0.00	586.45	0.00
11.00	3.80	587.80	3.80	63.00	0.00	586.45	0.00
12.00	**25.76**	**617.57**	**25.76**	64.00	0.00	586.45	0.00
13.00	**5.54**	**588.49**	**5.54**	65.00	0.00	586.45	0.00
14.00	3.33	587.68	3.33	66.00	0.00	586.45	0.00
15.00	2.48	587.46	2.48	67.00	0.00	586.45	0.00
16.00	1.76	587.27	1.76	68.00	0.00	586.45	0.00
17.00	1.38	587.16	1.38	69.00	0.00	586.45	0.00
18.00	1.06	587.07	1.06	70.00	0.00	586.45	0.00
19.00	0.93	587.02	0.93	71.00	0.00	586.45	0.00
20.00	0.84	586.99	0.84	72.00	0.00	586.45	0.00
21.00	0.76	586.96	0.76	73.00	0.00	586.45	0.00
22.00	0.69	586.93	0.69	74.00	0.00	586.45	0.00
23.00	0.62	586.91	0.62	75.00	0.00	586.45	0.00
24.00	0.55	586.88	0.55	76.00	0.00	586.45	0.00
25.00	0.00	586.45	0.00	77.00	0.00	586.45	0.00
26.00	0.00	586.45	0.00	78.00	0.00	586.45	0.00
27.00	0.00	586.45	0.00	79.00	0.00	586.45	0.00
28.00	0.00	586.45	0.00	80.00	0.00	586.45	0.00
29.00	0.00	586.45	0.00	81.00	0.00	586.45	0.00
30.00	0.00	586.45	0.00	82.00	0.00	586.45	0.00
31.00	0.00	586.45	0.00	83.00	0.00	586.45	0.00
32.00	0.00	586.45	0.00	84.00	0.00	586.45	0.00
33.00	0.00	586.45	0.00	85.00	0.00	586.45	0.00
34.00	0.00	586.45	0.00	86.00	0.00	586.45	0.00
35.00	0.00	586.45	0.00	87.00	0.00	586.45	0.00
36.00	0.00	586.45	0.00	88.00	0.00	586.45	0.00
37.00	0.00	586.45	0.00	89.00	0.00	586.45	0.00
38.00	0.00	586.45	0.00	90.00	0.00	586.45	0.00
39.00	0.00	586.45	0.00	91.00	0.00	586.45	0.00
40.00	0.00	586.45	0.00	92.00	0.00	586.45	0.00
41.00	0.00	586.45	0.00	93.00	0.00	586.45	0.00
42.00	0.00	586.45	0.00	94.00	0.00	586.45	0.00
43.00	0.00	586.45	0.00	95.00	0.00	586.45	0.00
44.00	0.00	586.45	0.00	96.00	0.00	586.45	0.00
45.00	0.00	586.45	0.00				
46.00	0.00	586.45	0.00				
47.00	0.00	586.45	0.00				
48.00	0.00	586.45	0.00				
49.00	0.00	586.45	0.00				
50.00	0.00	586.45	0.00				
51.00	0.00	586.45	0.00				

Summary for Pond DP18: DP-18

[58] Hint: Peaked 128.99' above defined flood level

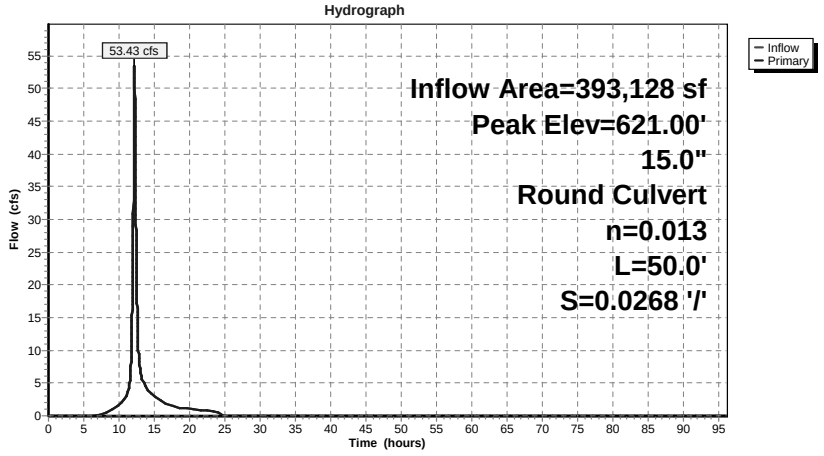
Inflow Area = 393,128 sf, 0.00% Impervious, Inflow Depth = 6.29" for 100 Year, 24 Hr. Event event
Inflow = 53.43 cfs @ 12.17 hrs, Volume= 205,951 cf
Outflow = 53.43 cfs @ 12.17 hrs, Volume= 205,951 cf, Atten= 0%, Lag= 0.0 min
Primary = 53.43 cfs @ 12.17 hrs, Volume= 205,951 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 621.00' @ 12.17 hrs
Flood Elev= 492.01'

Device	Routing	Invert	Outlet Devices
#1	Primary	489.20'	**15.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 489.20' / 487.86' S= 0.0268 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=53.42 cfs @ 12.17 hrs HW=620.96' (Free Discharge)
↑**1=Culvert** (Inlet Controls 53.42 cfs @ 43.53 fps)

Pond DP18: DP-18



Hydrograph for Pond DP18: DP-18

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	489.20	0.00	52.00	0.00	489.20	0.00
1.00	0.00	489.20	0.00	53.00	0.00	489.20	0.00
2.00	0.00	489.20	0.00	54.00	0.00	489.20	0.00
3.00	0.00	489.20	0.00	55.00	0.00	489.20	0.00
4.00	0.00	489.20	0.00	56.00	0.00	489.20	0.00
5.00	0.00	489.20	0.00	57.00	0.00	489.20	0.00
6.00	0.00	489.20	0.00	58.00	0.00	489.20	0.00
7.00	0.11	489.37	0.11	59.00	0.00	489.20	0.00
8.00	0.36	489.51	0.36	60.00	0.00	489.20	0.00
9.00	0.84	489.69	0.84	61.00	0.00	489.20	0.00
10.00	1.60	489.90	1.60	62.00	0.00	489.20	0.00
11.00	3.05	490.26	3.05	63.00	0.00	489.20	0.00
12.00	**24.81**	**518.11**	**24.81**	64.00	0.00	489.20	0.00
13.00	**6.88**	**492.00**	**6.88**	65.00	0.00	489.20	0.00
14.00	4.11	490.60	4.11	66.00	0.00	489.20	0.00
15.00	3.08	490.26	3.08	67.00	0.00	489.20	0.00
16.00	2.20	490.05	2.20	68.00	0.00	489.20	0.00
17.00	1.72	489.93	1.72	69.00	0.00	489.20	0.00
18.00	1.33	489.83	1.33	70.00	0.00	489.20	0.00
19.00	1.16	489.79	1.16	71.00	0.00	489.20	0.00
20.00	1.05	489.75	1.05	72.00	0.00	489.20	0.00
21.00	0.96	489.73	0.96	73.00	0.00	489.20	0.00
22.00	0.87	489.70	0.87	74.00	0.00	489.20	0.00
23.00	0.78	489.67	0.78	75.00	0.00	489.20	0.00
24.00	0.69	489.64	0.69	76.00	0.00	489.20	0.00
25.00	0.00	489.20	0.00	77.00	0.00	489.20	0.00
26.00	0.00	489.20	0.00	78.00	0.00	489.20	0.00
27.00	0.00	489.20	0.00	79.00	0.00	489.20	0.00
28.00	0.00	489.20	0.00	80.00	0.00	489.20	0.00
29.00	0.00	489.20	0.00	81.00	0.00	489.20	0.00
30.00	0.00	489.20	0.00	82.00	0.00	489.20	0.00
31.00	0.00	489.20	0.00	83.00	0.00	489.20	0.00
32.00	0.00	489.20	0.00	84.00	0.00	489.20	0.00
33.00	0.00	489.20	0.00	85.00	0.00	489.20	0.00
34.00	0.00	489.20	0.00	86.00	0.00	489.20	0.00
35.00	0.00	489.20	0.00	87.00	0.00	489.20	0.00
36.00	0.00	489.20	0.00	88.00	0.00	489.20	0.00
37.00	0.00	489.20	0.00	89.00	0.00	489.20	0.00
38.00	0.00	489.20	0.00	90.00	0.00	489.20	0.00
39.00	0.00	489.20	0.00	91.00	0.00	489.20	0.00
40.00	0.00	489.20	0.00	92.00	0.00	489.20	0.00
41.00	0.00	489.20	0.00	93.00	0.00	489.20	0.00
42.00	0.00	489.20	0.00	94.00	0.00	489.20	0.00
43.00	0.00	489.20	0.00	95.00	0.00	489.20	0.00
44.00	0.00	489.20	0.00	96.00	0.00	489.20	0.00
45.00	0.00	489.20	0.00				
46.00	0.00	489.20	0.00				
47.00	0.00	489.20	0.00				
48.00	0.00	489.20	0.00				
49.00	0.00	489.20	0.00				
50.00	0.00	489.20	0.00				
51.00	0.00	489.20	0.00				

Summary for Pond DP19: DP-19

[57] Hint: Peaked at 513.27' (Flood elevation advised)

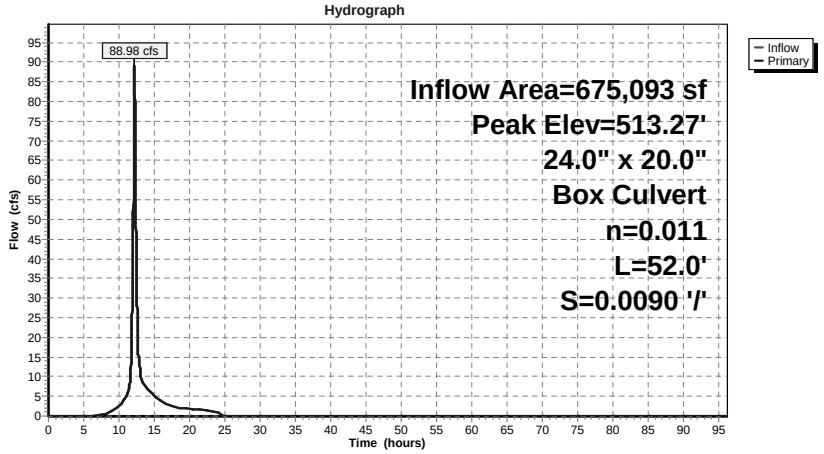
Inflow Area = 675,093 sf, 0.00% Impervious, Inflow Depth = 6.03" for 100 Year, 24 Hr. Event event
Inflow = 88.98 cfs @ 12.17 hrs, Volume= 339,378 cf
Outflow = 88.98 cfs @ 12.17 hrs, Volume= 339,378 cf, Atten= 0%, Lag= 0.0 min
Primary = 88.98 cfs @ 12.17 hrs, Volume= 339,378 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 513.27' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	481.70'	**24.0" W x 20.0" H Box Culvert** L= 52.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 481.70' / 481.23' S= 0.0090 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean

Primary OutFlow Max=88.94 cfs @ 12.17 hrs HW=513.24' (Free Discharge)
1=Culvert (Inlet Controls 88.94 cfs @ 26.68 fps)

Pond DP19: DP-19



Hydrograph for Pond DP19: DP-19

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	481.70	0.00	52.00	0.00	481.70	0.00
1.00	0.00	481.70	0.00	53.00	0.00	481.70	0.00
2.00	0.00	481.70	0.00	54.00	0.00	481.70	0.00
3.00	0.00	481.70	0.00	55.00	0.00	481.70	0.00
4.00	0.00	481.70	0.00	56.00	0.00	481.70	0.00
5.00	0.00	481.70	0.00	57.00	0.00	481.70	0.00
6.00	0.00	481.70	0.00	58.00	0.00	481.70	0.00
7.00	0.07	481.75	0.07	59.00	0.00	481.70	0.00
8.00	0.45	481.87	0.45	60.00	0.00	481.70	0.00
9.00	1.20	482.03	1.20	61.00	0.00	481.70	0.00
10.00	2.43	482.22	2.43	62.00	0.00	481.70	0.00
11.00	4.81	482.53	4.81	63.00	0.00	481.70	0.00
12.00	**41.09**	**489.10**	**41.09**	64.00	0.00	481.70	0.00
13.00	**11.49**	**483.17**	**11.49**	65.00	0.00	481.70	0.00
14.00	6.90	482.75	6.90	66.00	0.00	481.70	0.00
15.00	5.18	482.57	5.18	67.00	0.00	481.70	0.00
16.00	3.71	482.39	3.71	68.00	0.00	481.70	0.00
17.00	2.90	482.29	2.90	69.00	0.00	481.70	0.00
18.00	2.25	482.20	2.25	70.00	0.00	481.70	0.00
19.00	1.97	482.15	1.97	71.00	0.00	481.70	0.00
20.00	1.77	482.12	1.77	72.00	0.00	481.70	0.00
21.00	1.62	482.10	1.62	73.00	0.00	481.70	0.00
22.00	1.47	482.07	1.47	74.00	0.00	481.70	0.00
23.00	1.32	482.05	1.32	75.00	0.00	481.70	0.00
24.00	1.17	482.02	1.17	76.00	0.00	481.70	0.00
25.00	0.00	481.70	0.00	77.00	0.00	481.70	0.00
26.00	0.00	481.70	0.00	78.00	0.00	481.70	0.00
27.00	0.00	481.70	0.00	79.00	0.00	481.70	0.00
28.00	0.00	481.70	0.00	80.00	0.00	481.70	0.00
29.00	0.00	481.70	0.00	81.00	0.00	481.70	0.00
30.00	0.00	481.70	0.00	82.00	0.00	481.70	0.00
31.00	0.00	481.70	0.00	83.00	0.00	481.70	0.00
32.00	0.00	481.70	0.00	84.00	0.00	481.70	0.00
33.00	0.00	481.70	0.00	85.00	0.00	481.70	0.00
34.00	0.00	481.70	0.00	86.00	0.00	481.70	0.00
35.00	0.00	481.70	0.00	87.00	0.00	481.70	0.00
36.00	0.00	481.70	0.00	88.00	0.00	481.70	0.00
37.00	0.00	481.70	0.00	89.00	0.00	481.70	0.00
38.00	0.00	481.70	0.00	90.00	0.00	481.70	0.00
39.00	0.00	481.70	0.00	91.00	0.00	481.70	0.00
40.00	0.00	481.70	0.00	92.00	0.00	481.70	0.00
41.00	0.00	481.70	0.00	93.00	0.00	481.70	0.00
42.00	0.00	481.70	0.00	94.00	0.00	481.70	0.00
43.00	0.00	481.70	0.00	95.00	0.00	481.70	0.00
44.00	0.00	481.70	0.00	96.00	0.00	481.70	0.00
45.00	0.00	481.70	0.00				
46.00	0.00	481.70	0.00				
47.00	0.00	481.70	0.00				
48.00	0.00	481.70	0.00				
49.00	0.00	481.70	0.00				
50.00	0.00	481.70	0.00				
51.00	0.00	481.70	0.00				

PPAT 0104

90 Percent Drawdown Analysis
(3-inch Low Level Outlet)

Proposed Micropool
Extended Detention Basin Spillway

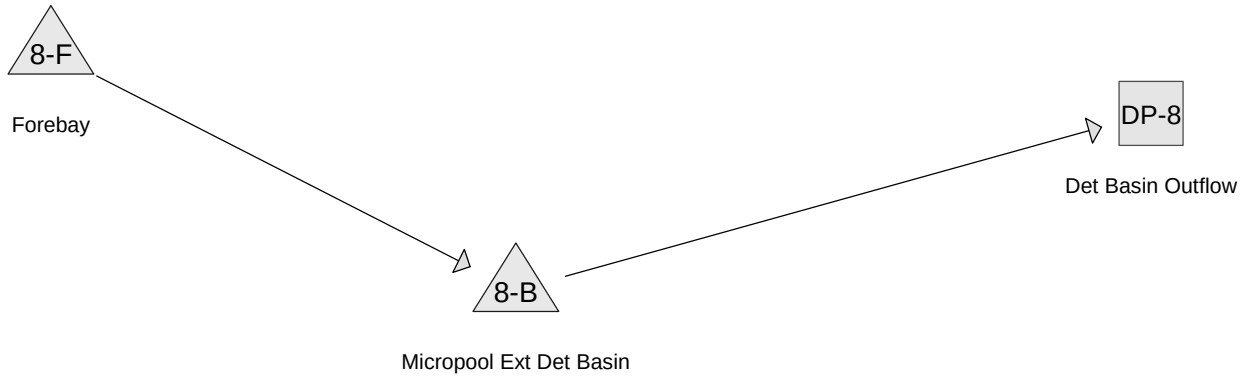
Hydrograph for Pond 8-B: Micropool Ext Det Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	**0.00**	**171,909**	**595.00**	**15.57**
5.00	**0.01**	81,562	592.39	1.18
10.00	0.00	66,522	591.85	0.76
15.00	0.00	53,991	591.20	0.63
20.00	0.00	44,368	590.71	0.46
25.00	0.00	36,273	590.29	0.44
30.00	0.00	28,656	589.83	0.41
35.00	0.00	21,713	589.26	0.36
40.00	0.00	15,519	588.75	0.32
45.00	0.00	10,074	588.30	0.28
50.00	0.00	5,410	587.79	0.23
55.00	0.00	2,210	587.17	0.13
60.00	0.00	745	586.89	0.04
65.00	0.00	377	586.82	0.01
70.00	0.00	247	586.80	0.00
75.00	0.00	182	586.79	0.00
80.00	0.00	144	586.78	0.00
85.00	0.00	119	586.77	0.00
90.00	0.00	101	586.77	0.00
95.00	0.00	88	586.77	0.00
100.00	0.00	78	586.76	0.00
105.00	0.00	70	586.76	0.00
110.00	0.00	63	586.76	0.00
115.00	0.00	58	586.76	0.00
120.00	0.00	53	586.76	0.00
125.00	0.00	49	586.76	0.00
130.00	0.00	46	586.76	0.00
135.00	0.00	43	586.76	0.00
140.00	0.00	40	586.76	0.00
145.00	0.00	38	586.76	0.00
150.00	0.00	36	586.76	0.00
155.00	0.00	34	586.76	0.00
160.00	0.00	33	586.76	0.00
165.00	0.00	31	586.76	0.00
170.00	0.00	30	586.76	0.00
175.00	0.00	28	586.76	0.00
180.00	0.00	27	586.76	0.00
185.00	0.00	26	586.76	0.00
190.00	0.00	25	586.75	0.00
195.00	0.00	24	586.75	0.00
200.00	0.00	23	586.75	0.00

PPAT 0104

90 Percent Drawdown Analysis
(6-inch Low Level Outlet)

Proposed Micropool
Extended Detention Basin Spillway



Subcat Reach Pond Link

Drainage Diagram for Ext Det Basin_Drawdown Analysis
Prepared by WATCHTOWER, Printed 8/25/2011
HydroCAD® 9.10 s/n 05461 © 2010 HydroCAD Software Solutions LLC

Land-Use Listing (all nodes)

Area (sq-ft)	Land Use	Subcatchment Numbers
0	**TOTAL**	

Time span=0.00-200.00 hrs, dt=0.01 hrs, 20001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 8-B: Micropool Ext Det Basin Peak Elev=595.00' Storage=171,909 cf Inflow=8.73 cfs 33,473 cf
Outflow=17.57 cfs 205,686 cf

Pond 8-F: Forebay Peak Elev=595.00' Storage=52,957 cf Inflow=0.00 cfs 0 cf
Outflow=8.73 cfs 33,473 cf

Reach DP-8: Det Basin Outflow Inflow=17.57 cfs 205,686 cf
Outflow=17.57 cfs 205,686 cf

Summary for Pond 8-B: Micropool Ext Det Basin

Inflow = 8.73 cfs @ 0.01 hrs, Volume= 33,473 cf
Outflow = 17.57 cfs @ 0.00 hrs, Volume= 205,686 cf, Atten= 0%, Lag= 0.0 min
Primary = 17.57 cfs @ 0.00 hrs, Volume= 205,686 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 595.00' Surf.Area= 39,986 sf Storage= 171,909 cf
Peak Elev= 595.00' @ 0.00 hrs Surf.Area= 39,986 sf Storage= 171,909 cf

Plug-Flow detention time= 739.8 min calculated for 33,472 cf (100% of inflow)
Center-of-Mass det. time= 207.4 min (271.8 - 64.4)

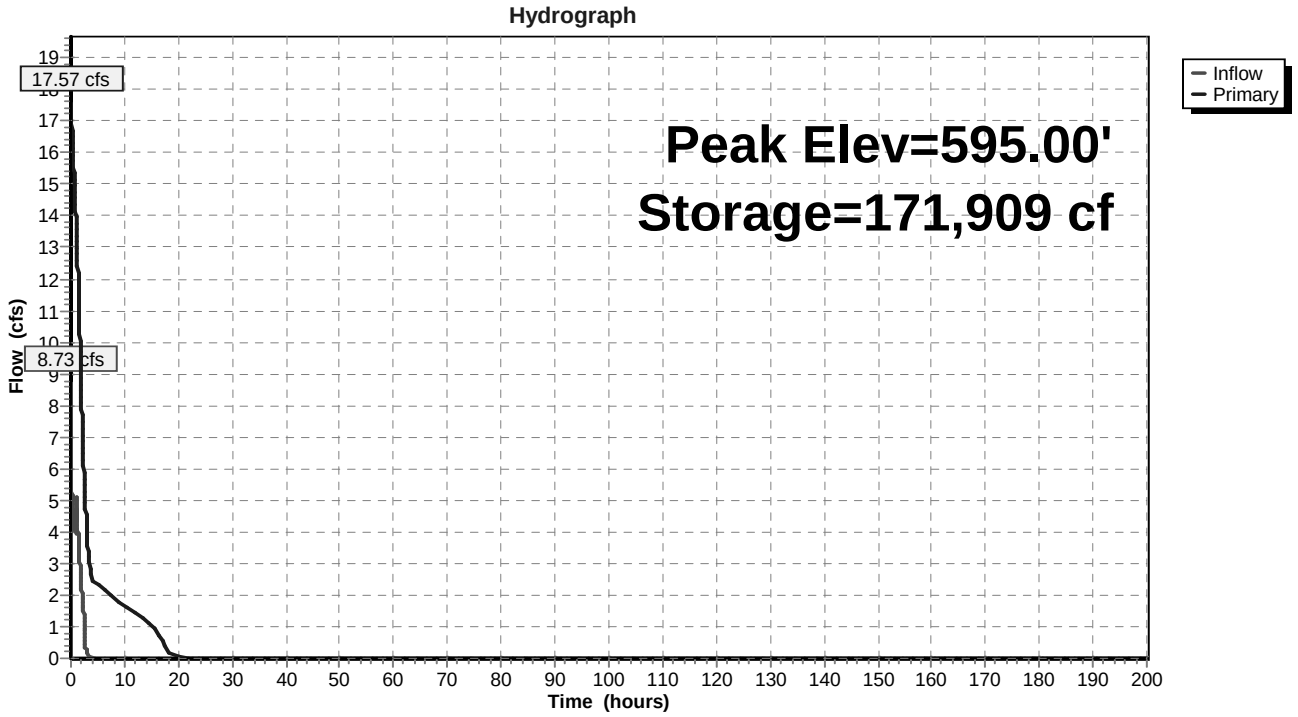
Volume	Invert	Avail.Storage	Storage Description
#1	586.75'	301,176 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
586.75	0	0	0
588.00	10,403	6,502	6,502
590.00	13,760	24,163	30,665
592.00	24,987	38,747	69,412
594.00	37,525	62,512	131,924
596.00	42,446	79,971	211,895
598.00	46,835	89,281	301,176

Device	Routing	Invert	Outlet Devices
#1	Primary	586.00'	**24.0" Round Culvert** L= 290.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 586.00' / 550.00' S= 0.1241 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	586.75'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	590.75'	**3.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	592.25'	**24.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600
#5	Device 1	595.00'	**48.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600

Primary OutFlow Max=17.57 cfs @ 0.00 hrs HW=595.00' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 17.57 cfs of 42.78 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 2.67 cfs @ 13.62 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.48 cfs @ 9.78 fps)
  ├─**4=Orifice/Grate** (Orifice Controls 14.41 cfs @ 7.21 fps)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)

Pond 8-B: Micropool Ext Det Basin



Hydrograph for Pond 8-B: Micropool Ext Det Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	**0.00**	**171,909**	**595.00**	**17.57**
5.00	**0.00**	69,071	591.98	2.36
10.00	0.00	33,462	590.14	1.68
15.00	0.00	8,878	588.20	1.03
20.00	0.00	731	586.89	0.06
25.00	0.00	295	586.81	0.01
30.00	0.00	183	586.79	0.00
35.00	0.00	132	586.78	0.00
40.00	0.00	103	586.77	0.00
45.00	0.00	85	586.77	0.00
50.00	0.00	72	586.76	0.00
55.00	0.00	62	586.76	0.00
60.00	0.00	55	586.76	0.00
65.00	0.00	49	586.76	0.00
70.00	0.00	45	586.76	0.00
75.00	0.00	41	586.76	0.00
80.00	0.00	38	586.76	0.00
85.00	0.00	35	586.76	0.00
90.00	0.00	32	586.76	0.00
95.00	0.00	30	586.76	0.00
100.00	0.00	28	586.76	0.00
105.00	0.00	27	586.76	0.00
110.00	0.00	25	586.75	0.00
115.00	0.00	24	586.75	0.00
120.00	0.00	23	586.75	0.00
125.00	0.00	22	586.75	0.00
130.00	0.00	21	586.75	0.00
135.00	0.00	20	586.75	0.00
140.00	0.00	19	586.75	0.00
145.00	0.00	18	586.75	0.00
150.00	0.00	18	586.75	0.00
155.00	0.00	17	586.75	0.00
160.00	0.00	16	586.75	0.00
165.00	0.00	16	586.75	0.00
170.00	0.00	15	586.75	0.00
175.00	0.00	15	586.75	0.00
180.00	0.00	14	586.75	0.00
185.00	0.00	14	586.75	0.00
190.00	0.00	14	586.75	0.00
195.00	0.00	13	586.75	0.00
200.00	0.00	13	586.75	0.00

Summary for Pond 8-F: Forebay

[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow	=	0.00 cfs @	0.00 hrs,	Volume=	0 cf
Outflow	=	8.73 cfs @	0.01 hrs,	Volume=	33,473 cf, Atten= 0%, Lag= 0.6 min
Primary	=	8.73 cfs @	0.01 hrs,	Volume=	33,473 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 595.00' Surf.Area= 18,146 sf Storage= 52,957 cf
Peak Elev= 595.00' @ 0.00 hrs Surf.Area= 18,146 sf Storage= 52,957 cf

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: no inflow)

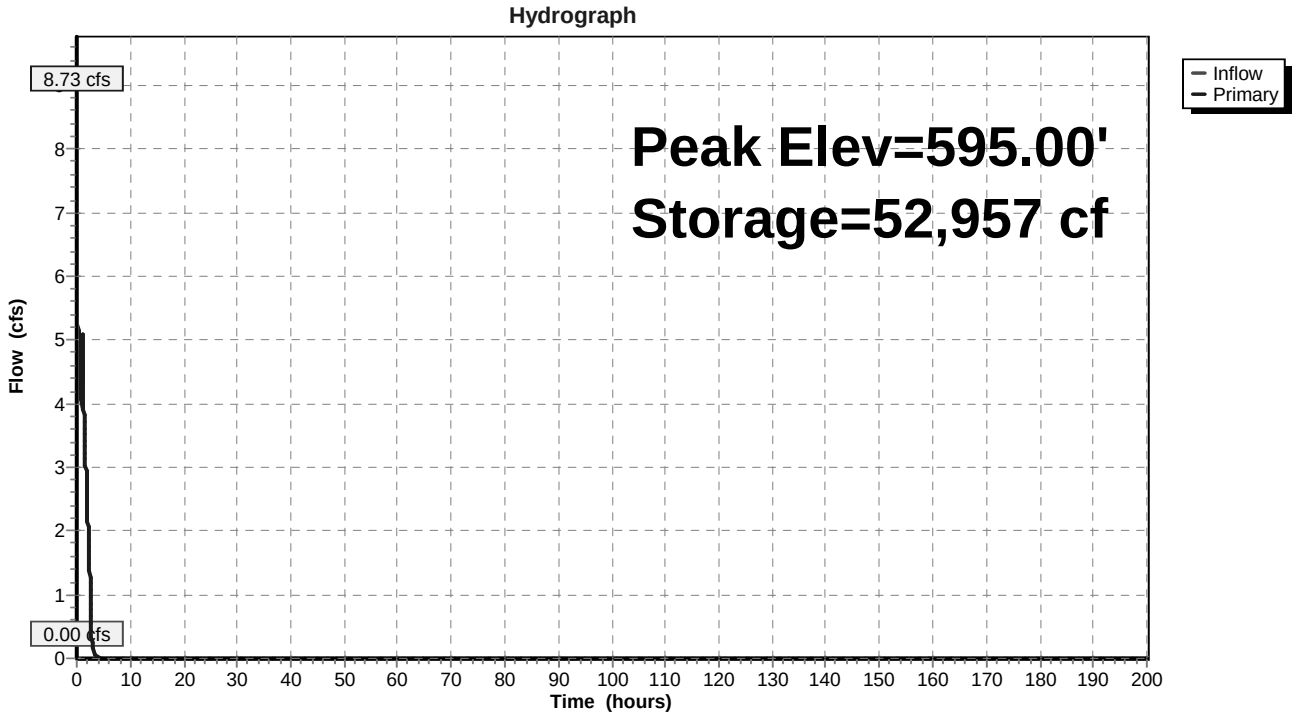
Volume	Invert	Avail.Storage	Storage Description
#1	587.25'	117,643 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
587.25	0	0	0
588.00	1,342	503	503
590.00	2,844	4,186	4,689
592.00	6,008	8,852	13,541
594.00	16,223	22,231	35,772
596.00	20,068	36,291	72,063
598.00	25,512	45,580	117,643

Device	Routing	Invert	Outlet Devices
#1	Primary	592.75'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.25 4.00 Width (feet) 12.00 172.00 204.00

Primary OutFlow Max=80.99 cfs @ 0.01 hrs HW=594.99' TW=594.99' (Dynamic Tailwater)
↑—**1=Custom Weir/Orifice** (Weir Controls 80.99 cfs @ 0.28 fps)

Pond 8-F: Forebay



Hydrograph for Pond 8-F: Forebay

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	**0.00**	**52,957**	**595.00**	**0.00**
5.00	0.00	19,505	592.75	**0.00**
10.00	0.00	19,487	592.75	0.00
15.00	0.00	19,484	592.75	0.00
20.00	0.00	19,484	592.75	0.00
25.00	0.00	19,484	592.75	0.00
30.00	0.00	19,484	592.75	0.00
35.00	0.00	19,484	592.75	0.00
40.00	0.00	19,484	592.75	0.00
45.00	0.00	19,484	592.75	0.00
50.00	0.00	19,484	592.75	0.00
55.00	0.00	19,484	592.75	0.00
60.00	0.00	19,484	592.75	0.00
65.00	0.00	19,484	592.75	0.00
70.00	0.00	19,484	592.75	0.00
75.00	0.00	19,484	592.75	0.00
80.00	0.00	19,484	592.75	0.00
85.00	0.00	19,484	592.75	0.00
90.00	0.00	19,484	592.75	0.00
95.00	0.00	19,484	592.75	0.00
100.00	0.00	19,484	592.75	0.00
105.00	0.00	19,484	592.75	0.00
110.00	0.00	19,484	592.75	0.00
115.00	0.00	19,484	592.75	0.00
120.00	0.00	19,484	592.75	0.00
125.00	0.00	19,484	592.75	0.00
130.00	0.00	19,484	592.75	0.00
135.00	0.00	19,484	592.75	0.00
140.00	0.00	19,484	592.75	0.00
145.00	0.00	19,484	592.75	0.00
150.00	0.00	19,484	592.75	0.00
155.00	0.00	19,484	592.75	0.00
160.00	0.00	19,484	592.75	0.00
165.00	0.00	19,484	592.75	0.00
170.00	0.00	19,484	592.75	0.00
175.00	0.00	19,484	592.75	0.00
180.00	0.00	19,484	592.75	0.00
185.00	0.00	19,484	592.75	0.00
190.00	0.00	19,484	592.75	0.00
195.00	0.00	19,484	592.75	0.00
200.00	0.00	19,484	592.75	0.00

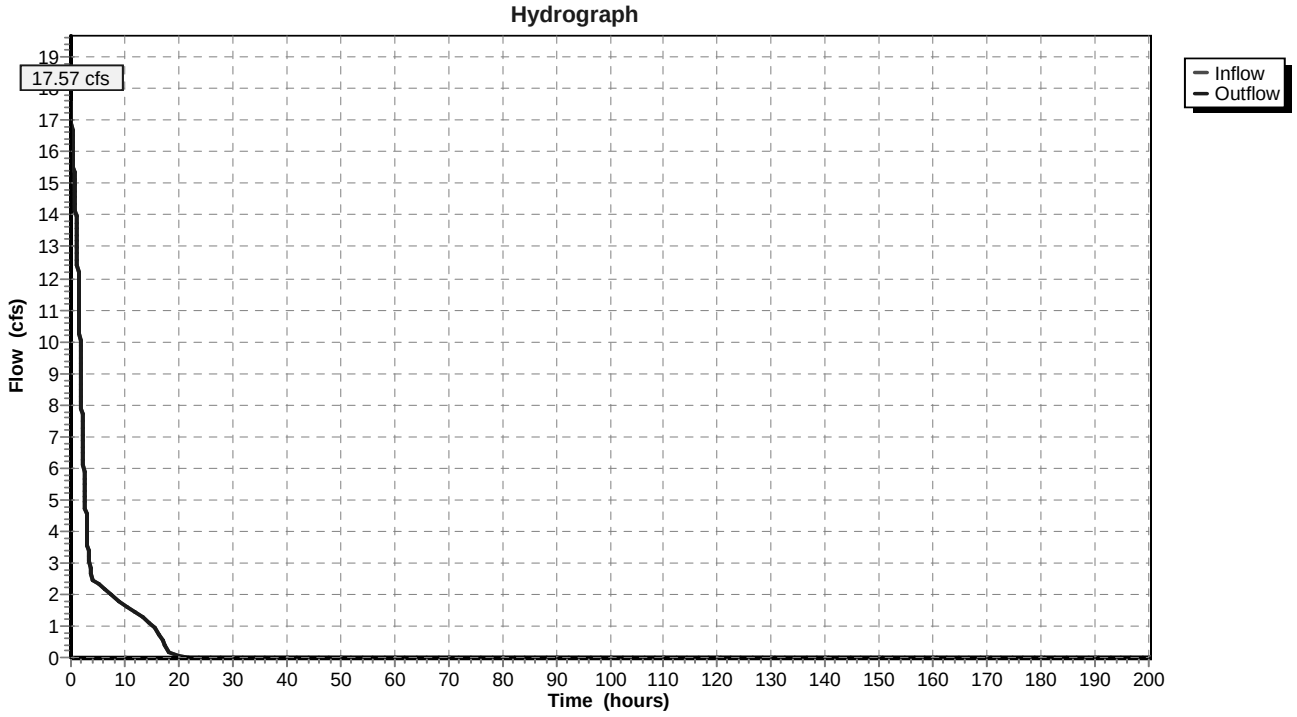
Summary for Reach DP-8: Det Basin Outflow

[40] Hint: Not Described (Outflow=Inflow)

Inflow	=	17.57 cfs @	0.00 hrs, Volume=	205,686 cf
Outflow	=	17.57 cfs @	0.00 hrs, Volume=	205,686 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs / 3

Reach DP-8: Det Basin Outflow



Hydrograph for Reach DP-8: Det Basin Outflow

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	**17.57**		**17.57**	104.00	0.00		0.00
2.00	8.07		8.07	106.00	0.00		0.00
4.00	2.46		2.46	108.00	0.00		0.00
6.00	2.21		2.21	110.00	0.00		0.00
8.00	1.85		1.85	112.00	0.00		0.00
10.00	1.68		1.68	114.00	0.00		0.00
12.00	1.43		1.43	116.00	0.00		0.00
14.00	1.17		1.17	118.00	0.00		0.00
16.00	0.84		0.84	120.00	0.00		0.00
18.00	0.24		0.24	122.00	0.00		0.00
20.00	0.06		0.06	124.00	0.00		0.00
22.00	0.02		0.02	126.00	0.00		0.00
24.00	0.01		0.01	128.00	0.00		0.00
26.00	0.01		0.01	130.00	0.00		0.00
28.00	0.01		0.01	132.00	0.00		0.00
30.00	0.00		0.00	134.00	0.00		0.00
32.00	0.00		0.00	136.00	0.00		0.00
34.00	0.00		0.00	138.00	0.00		0.00
36.00	0.00		0.00	140.00	0.00		0.00
38.00	0.00		0.00	142.00	0.00		0.00
40.00	0.00		0.00	144.00	0.00		0.00
42.00	0.00		0.00	146.00	0.00		0.00
44.00	0.00		0.00	148.00	0.00		0.00
46.00	0.00		0.00	150.00	0.00		0.00
48.00	0.00		0.00	152.00	0.00		0.00
50.00	0.00		0.00	154.00	0.00		0.00
52.00	0.00		0.00	156.00	0.00		0.00
54.00	0.00		0.00	158.00	0.00		0.00
56.00	0.00		0.00	160.00	0.00		0.00
58.00	0.00		0.00	162.00	0.00		0.00
60.00	0.00		0.00	164.00	0.00		0.00
62.00	0.00		0.00	166.00	0.00		0.00
64.00	0.00		0.00	168.00	0.00		0.00
66.00	0.00		0.00	170.00	0.00		0.00
68.00	0.00		0.00	172.00	0.00		0.00
70.00	0.00		0.00	174.00	0.00		0.00
72.00	0.00		0.00	176.00	0.00		0.00
74.00	0.00		0.00	178.00	0.00		0.00
76.00	0.00		0.00	180.00	0.00		0.00
78.00	0.00		0.00	182.00	0.00		0.00
80.00	0.00		0.00	184.00	0.00		0.00
82.00	0.00		0.00	186.00	0.00		0.00
84.00	0.00		0.00	188.00	0.00		0.00
86.00	0.00		0.00	190.00	0.00		0.00
88.00	0.00		0.00	192.00	0.00		0.00
90.00	0.00		0.00	194.00	0.00		0.00
92.00	0.00		0.00	196.00	0.00		0.00
94.00	0.00		0.00	198.00	0.00		0.00
96.00	0.00		0.00	200.00	0.00		0.00
98.00	0.00		0.00				
100.00	0.00		0.00				
102.00	0.00		0.00				

SPPP—APPENDIX F.1.e

WQv & RRv Calculations

Tab Name: Summary by Sub-Basin

Project: PPAT0104
Date: 9/5/11
Summary of the Water Quality Volumes
Prepared By: Watchtower Bible and Tract Society of New York, Inc.

Notes:
Water Quality Volumes provided were calculated using HydroCAD's hydrology program. This volume is generated from the 1-year 24-hour storm event.
For detailed calculations regarding the water quality volume see HydroCAD output in Appendix D.
Any Drainage areas that contain a runoff volume of "0" means that no new development is occuring in this drainage area.

	Data								
Reporting Area	**Sum of HydroCAD WQv (ft3)**	**Sum of Min Required GIP WQv (ft3)**	**Sum of WQv - Green Roofs (ft3)**	**Sum of WQv - Pervious Pavers (ft3)**	**Sum of WQv - Bioretention (ft3)**	**Sum of WQv - USF (ft3)**	**Sum of WQv - New Stormwater Pond (ft3)**	**Sum of WQv - Existing Stormwater Pond (ft3)**	**Sum of Total Provided WQv (ft3)**
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5A	0	0	0	0	0	0	0	0	0
5B	0	0	0	0	0	0	0	0	0
6A	1,114	272	0	0	1,114	0	0	1,114	2,228
6B	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8A	0	0	0	0	0	0	0	0	0
8B_1	10,724	2,737	1,579	505	5,599	3,041	10,724	0	21,448
8B_10	3,667	908	0	0	3,667	0	3,667	0	7,334
8B_11	6,713	1,679	0	1,257	5,456	0	6,713	0	13,426
8B_12	6,127	1,887	0	0	6,127	0	6,127	0	12,254
8B_13	0	0	0	0	0	0	0	0	0
8B_2	20,894	5,967	4,352	0	16,467	0	20,894	0	41,714
8B_3	16,668	3,125	0	0	16,668	0	16,668	0	33,336
8B_4	12,487	4,599	0	0	12,487	0	12,487	0	24,974
8B_5	3,685	1,400	0	2,183	1,502	0	3,685	0	7,370
8B_6	2,982	1,169	0	1,590	1,392	0	2,982	0	5,964
8B_7	2,408	778	0	0	2,408	0	2,408	0	4,816
8B_8	4,021	1,505	0	0	4,021	0	4,021	0	8,042
8B_9	13,315	3,853	0	4,694	0	8,621	13,315	0	26,630
8C	15,013	4,343	0	2,215	12,798	0	15,013	0	30,026
9	11,259	1,208	0	0	0	11,259	0	0	11,259
10	5,626	405	0	0	0	5,626	0	0	5,626
12	746	230	0	746	0	0	0	0	746
13	907	379	0	907	0	0	0	0	907
14A	686	280	0	686	0	0	0	0	686
14B	271	97	0	0	271	0	0	271	542
15A	0	0	0	0	0	0	0	0	0
15B	668	194	0	668	0	0	0	0	668
16	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0
Grand Total	**139,981**	**37,016**	**5,931**	**15,451**	**89,977**	**28,547**	**118,704**	**1,385**	**259,996**

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 6
Drainage Area Name: 6A2 Soils:
Drainage Area: 0.02 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches
Impervious Area: 0.01 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.004 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.01 ac/12 =

Minimum RRv required = 0.001 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.001 acres
k = 3.50 ft/day
df = 4.00 ft
hf = 0.50 ft
tf = 2.00 days
Depth of gravel = 0.50 ft
WQv = 0.007 ac-ft

Allowable RRv Credit = 0.004 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.004 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 6

Drainage Area Name: 6A3 Soils:

Drainage Area: 0.08 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.05 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.014 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.05 ac/12 =

Minimum RRv required = 0.003 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.003 acres

k = 3.50 ft/day

df = 4.00 ft

hf = 0.50 ft

tf = 2.00 days

Depth of gravel = 0.50 ft

WQv = 0.026 ac-ft

Allowable RRv Credit = 0.014 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.014 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 6

Drainage Area Name: 6A4 Soils:

Drainage Area: 0.05 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.03 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.008 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.03 ac/12 =

Minimum RRv required = 0.002 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.001 acres

k = 3.50 ft/day

df = 4.00 ft

hf = 0.50 ft

tf = 2.00 days

Depth of gravel = 0.50 ft

WQv = 0.010 ac-ft

Allowable RRv Credit = 0.008 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.008 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8
Drainage Area Name: 8B-1A Soils:
Drainage Area: 0.88 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches
Impervious Area: 0.36 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.129 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.36 ac/12 =

Minimum RRv required = 0.027 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.042 acres
k = 3.50 ft/day
df = 4.00 ft
hf = 0.50 ft
tf = 2.00 days
Depth of gravel = 0.50 ft
WQv = 0.329 ac-ft

Allowable RRv Credit = 0.129 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.129 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8B-1B Soils:

Drainage Area: 0.44 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.44 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.106 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.44 ac/12 =

Minimum RRv required = 0.033 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Green Roof

Proposed Green Roof Area = 6,766 ft^2

Depth of Soil Media, D_{SM} = 0.33 ft

Porosity of Soil Media, n_{SM} = 0.20

Depth of Drainage Layer, D_{DL} = 0.50 ft

Porosity of Drainage Layer, n_{DL} = 0.25

Depth of Ponding Surface, D_P = 0.04 ft

WQv = 0.036 ac-ft

Allowable RRv Credit = 0.036 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.036 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** **No** X

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.070 ac-ft

Underground Sand Filter WQv provided = 0.070 ac-ft

Standard WQv Treatment = 0.070 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8B-1C Soils:

Drainage Area: 0.05 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.05 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.012 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.05 ac/12 =

Minimum RRv required = 0.004 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 2,112 ft^2

Porosity = 0.40 ft

Depth of Gravel Bed = 1.00 ft

WQv = 0.019 ac-ft

Allowable RRv Credit = 0.012 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.012 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8B-2A Soils:

Drainage Area: 1.07 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.64 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.187 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.64 ac/12 =

Minimum RRv required = 0.047 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.120 acres

k = 3.50 ft/day

df = 4.00 ft

hf = 0.50 ft

tf = 2.00 days

Depth of gravel = 0.50 ft

WQv = 0.945 ac-ft

Allowable RRv Credit = 0.187 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.187 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT
PLANNING AND PRACTICE SELECTION WORKSHEET FOR
IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8
Drainage Area Name: 8B-2B Soils:
Drainage Area: 1.22 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches
Impervious Area: 1.22 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.292 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):
RRv = (P) x 0.95 x S x total impervious area (AI)/12
with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 1.22 ac/12 =

Minimum RRv required = 0.090 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Green Roof

Proposed Green Roof Area = 18,652 ft^2
Depth of Soil Media, D_{SM} = 0.33 ft
Porosity of Soil Media, n_{SM} = 0.20
Depth of Drainage Layer, D_{DL} = 0.50 ft
Porosity of Drainage Layer, n_{DL} = 0.25
Depth of Ponding Surface, D_P = 0.04 ft
WQv = 0.100 ac-ft

Treatment Practice: Bioretention Pond

Provided Filter Area = 0.120 acres
k = 3.50 ft/day
df = 4.00 ft
hf = 0.50 ft
tf = 2.00 days
Depth of gravel = 0.50 ft
WQv = 0.945 ac-ft

Allowable RRv Credit = 0.292 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.292 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8B-3 Soils:

Drainage Area: 4.30 (acres) HSG(s): B/C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.83 (acres) S (Specific Reduction Factor): 0.351

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.383 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.351 x (AI) 0.83 ac/12 =

Minimum RRv required = 0.072 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.123 acres

k = 3.50 ft/day

df = 4.00 ft

hf = 0.50 ft

tf = 2.00 days

Depth of gravel = 0.50 ft

WQv = 0.972 ac-ft

Allowable RRv Credit = 0.383 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.383 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8B-4 Soils:

Drainage Area: 1.94 (acres) HSG(s): B/C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 1.08 (acres) S (Specific Reduction Factor): 0.399

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.287 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.399 x (AI) 1.08 ac/12 =

Minimum RRv required = 0.106 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.047 acres

k = 3.50 ft/day

df = 4.00 ft

hf = 0.50 ft

tf = 2.00 days

Depth of gravel = 0.50 ft

WQv = 0.374 ac-ft

Allowable RRv Credit = 0.287 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.287 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8B-5A Soils:

Drainage Area: 0.30 (acres) HSG(s): B 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.12 (acres) S (Specific Reduction Factor): 0.4

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.034 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.4 x (AI) 0.12 ac/12 =

Minimum RRv required = 0.012 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.009 acres

k = 3.50 ft/day

df = 4.00 ft

hf = 0.50 ft

tf = 2.00 days

Depth of gravel = 0.50 ft

WQv = 0.074 ac-ft

Allowable RRv Credit = 0.034 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.034 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8B-5B Soils:

Drainage Area: 0.03 (acres) HSG(s): B 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.03 (acres) S (Specific Reduction Factor): 0.4

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.007 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.4 x (AI) 0.03 ac/12 =

Minimum RRv required = 0.003 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 703 ft^2

Porosity = 0.40 ft

Depth of Gravel Bed = 2.00 ft

WQv = 0.013 ac-ft

Allowable RRv Credit = 0.007 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.007 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8B-5C Soils:

Drainage Area: 0.05 (acres) HSG(s): B 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.04 (acres) S (Specific Reduction Factor): 0.4

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.011 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.4 x (AI) 0.04 ac/12 =

Minimum RRv required = 0.004 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 1,316 ft^2

Porosity = 0.40 ft

Depth of Gravel Bed = 1.00 ft

WQv = 0.012 ac-ft

Allowable RRv Credit = 0.011 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.011 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point:	8					
Drainage Area Name:	8B-5D		Soils:			
Drainage Area:	0.13	(acres)	HSG(s):	B	1-yr/24-hr (P): 3.1	inches
Impervious Area:	0.13	(acres)	S (Specific Reduction Factor):	0.4		

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.032 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.4 x (AI) 0.13 ac/12 =

Minimum RRv required = 0.013 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 4,618 ft^2

Porosity = 0.40 ft

Depth of Gravel Bed = 1.00 ft

WQv = 0.042 ac-ft

Allowable RRv Credit = 0.032 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.032 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8
Drainage Area Name: 8B-6A Soils:
Drainage Area: 0.18 (acres) HSG(s): B 1-yr/24-hr (P): 3.1 inches
Impervious Area: 0.13 (acres) S (Specific Reduction Factor): 0.4

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.032 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.4 x (AI) 0.13 ac/12 =

Minimum RRv required = 0.012 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.006 acres
k = 3.50 ft/day
df = 4.00 ft
hf = 0.50 ft
tf = 2.00 days
Depth of gravel = 0.50 ft
WQv = 0.044 ac-ft

Allowable RRv Credit = 0.032 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.032 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8B-6B Soils:

Drainage Area: 0.18 (acres) HSG(s): B 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.15 (acres) S (Specific Reduction Factor): 0.4

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.037 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.4 x (AI) 0.15 ac/12 =

Minimum RRv required = 0.015 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 6,441 ft^2

Porosity = 0.40 ft

Depth of Gravel Bed = 1.00 ft

WQv = 0.059 ac-ft

Allowable RRv Credit = 0.037 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.037 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No** _____

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No** _____

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8
Drainage Area Name: 8B-7 Soils:
Drainage Area: 0.49 (acres) HSG(s): B/C 1-yr/24-hr (P): 3.1 inches
Impervious Area: 0.18 (acres) S (Specific Reduction Factor): 0.394

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.055 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.394 x (AI) 0.18 ac/12 =

Minimum RRv required = 0.018 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.010 acres
k = 3.50 ft/day
df = 4.00 ft
hf = 0.50 ft
tf = 2.00 days
Depth of gravel = 0.50 ft
WQv = 0.077 ac-ft

Allowable RRv Credit = 0.055 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.055 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8
Drainage Area Name: 8B-8 Soils:
Drainage Area: 0.59 (acres) HSG(s): B 1-yr/24-hr (P): 3.1 inches
Impervious Area: 0.35 (acres) S (Specific Reduction Factor): 0.4

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.092 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.4 x (AI) 0.35 ac/12 =

Minimum RRv required = 0.035 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.018 acres
k = 3.50 ft/day
df = 4.00 ft
hf = 0.50 ft
tf = 2.00 days
Depth of gravel = 0.50 ft
WQv = 0.139 ac-ft

Allowable RRv Credit = 0.092 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.092 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT
PLANNING AND PRACTICE SELECTION WORKSHEET FOR
IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8
Drainage Area Name: 8B-9A Soils:
Drainage Area: 1.07 (acres) HSG(s): B/C 1-yr/24-hr (P): 3.1 inches
Impervious Area: 0.72 (acres) S (Specific Reduction Factor): 0.317

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.198 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):
RRv = (P) x 0.95 x S x total impervious area (AI)/12
with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.317 x (AI) 0.72 ac/12 =

Minimum RRv required = 0.056 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: None

WQv = 0.000 ac-ft

Allowable RRv Credit = 0.000 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.000 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** _____ **No** X

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** _____ **No** X

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.198 ac-ft

Underground Sand Filter WQv provided = 0.198 ac-ft

Standard WQv Treatment = 0.198 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8B-9B Soils:

Drainage Area: 0.21 (acres) HSG(s): B/C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.19 (acres) S (Specific Reduction Factor): 0.304

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.047 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.304 x (AI) 0.19 ac/12 =

Minimum RRv required = 0.014 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 7,050 ft^2

Porosity = 0.40 ft

Depth of Gravel Bed = 1.00 ft

WQv = 0.065 ac-ft

Allowable RRv Credit = 0.047 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.047 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8B-9C Soils:

Drainage Area: 0.27 (acres) HSG(s): B/C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.25 (acres) S (Specific Reduction Factor): 0.302

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.061 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.302 x (AI) 0.25 ac/12 =

Minimum RRv required = 0.018 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 4,338 ft^2

Porosity = 0.40 ft

Depth of Gravel Bed = 2.00 ft

WQv = 0.080 ac-ft

Allowable RRv Credit = 0.061 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.061 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point:	8						
Drainage Area Name:	8B-10		Soils:				
Drainage Area:	0.49	(acres)	HSG(s):	C	1-yr/24-hr (P):	3.1	inches
Impervious Area:	0.28	(acres)	S (Specific Reduction Factor):	0.3			

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.084 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.28 ac/12 =

Minimum RRv required = 0.021 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area =	0.037	acres
k =	3.50	ft/day
df =	4.00	ft
hf =	0.50	ft
tf =	2.00	days
Depth of gravel =	0.50	ft
WQv =	0.294	ac-ft

Allowable RRv Credit = 0.084 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.084 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8
Drainage Area Name: 8B-11A Soils:
Drainage Area: 0.76 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches
Impervious Area: 0.40 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.125 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.40 ac/12 =

Minimum RRv required = 0.030 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.037 acres
k = 3.50 ft/day
df = 4.00 ft
hf = 0.50 ft
tf = 2.00 days
Depth of gravel = 0.50 ft
WQv = 0.294 ac-ft

Allowable RRv Credit = 0.125 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.125 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8B-11B Soils:

Drainage Area: 0.12 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.12 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.029 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.12 ac/12 =

Minimum RRv required = 0.009 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 4,410 ft^2

Porosity = 0.40 ft

Depth of Gravel Bed = 1.00 ft

WQv = 0.040 ac-ft

Allowable RRv Credit = 0.029 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.029 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8
Drainage Area Name: 8B-12 Soils:
Drainage Area: 0.99 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches
Impervious Area: 0.59 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.141 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.59 ac/12 =

Minimum RRv required = 0.043 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.049 acres
k = 3.50 ft/day
df = 4.00 ft
hf = 0.50 ft
tf = 2.00 days
Depth of gravel = 0.50 ft
WQv = 0.383 ac-ft

Allowable RRv Credit = 0.141 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.141 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8C-1A Soils:

Drainage Area: 0.64 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.48 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.128 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.48 ac/12 =

Minimum RRv required = 0.035 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.042 acres

k = 3.50 ft/day

df = 4.00 ft

hf = 0.50 ft

tf = 2.00 days

Depth of gravel = 0.50 ft

WQv = 0.327 ac-ft

Allowable RRv Credit = 0.128 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.128 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8
Drainage Area Name: 8C-1B Soils:
Drainage Area: 0.87 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches
Impervious Area: 0.66 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.166 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.66 ac/12 =

Minimum RRv required = 0.049 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area = 0.067 acres
k = 3.50 ft/day
df = 4.00 ft
hf = 0.50 ft
tf = 2.00 days
Depth of gravel = 0.50 ft
WQv = 0.529 ac-ft

Allowable RRv Credit = 0.166 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.166 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 8

Drainage Area Name: 8C-1C Soils:

Drainage Area: 0.21 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.21 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.051 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.21 ac/12 =

Minimum RRv required = 0.016 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 6,695 ft^2

Porosity = 0.40 ft

Depth of Gravel Bed = 1.00 ft

WQv = 0.061 ac-ft

Allowable RRv Credit = 0.051 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.051 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No** _____

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No** _____

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 9

Drainage Area Name: 9B Soils:

Drainage Area: 1.85 (acres) HSG(s): B/C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.37 (acres) S (Specific Reduction Factor): 0.31

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.258 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.31 x (AI) 0.37 ac/12 =

Minimum RRv required = 0.028 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: None

WQv = 0.000 ac-ft

Allowable RRv Credit = 0.000 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.000 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** _____ **No** X

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** _____ **No** X

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.258 ac-ft

Underground Sand Filter WQv provided = 0.258 ac-ft

Standard WQv Treatment = 0.258 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point:	10						
Drainage Area Name:	10		Soils:				
Drainage Area:	1.49	(acres)	HSG(s):	C	1-yr/24-hr (P):	3.1	inches
Impervious Area:	0.13	(acres)	S (Specific Reduction Factor):	0.3			

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.129 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.13 ac/12 =

Minimum RRv required = 0.009 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: None

WQv = 0.000 ac-ft

Allowable RRv Credit = 0.000 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.000 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** _____ **No** X

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** _____ **No** X

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.129 ac-ft

Underground Sand Filter WQv provided = 0.129 ac-ft

Standard WQv Treatment = 0.129 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 12

Drainage Area Name: 12B Soils:

Drainage Area: 0.07 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.07 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.017 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.07 ac/12 =

Minimum RRv required = 0.005 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 1,882 ft^2

Porosity = 0.40 ft

Depth of Gravel Bed = 1.00 ft

WQv = 0.017 ac-ft

Allowable RRv Credit = 0.017 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.017 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No** _____

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No** _____

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 13
Drainage Area Name: 13B Soils:
Drainage Area: 0.06 (acres) HSG(s): B/C 1-yr/24-hr (P): 3.1 inches
Impervious Area: 0.06 (acres) S (Specific Reduction Factor): 0.324

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.013 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.324 x (AI) 0.06 ac/12 =

Minimum RRv required = 0.005 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 2,823 ft^2
Porosity = 0.40 ft
Depth of Gravel Bed = 1.00 ft
WQv = 0.026 ac-ft

Allowable RRv Credit = 0.013 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.013 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 13

Drainage Area Name: 13C Soils:

Drainage Area: 0.04 (acres) HSG(s): B 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.04 (acres) S (Specific Reduction Factor): 0.4

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.008 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.4 x (AI) 0.04 ac/12 =

Minimum RRv required = 0.004 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 770 ft^2

Porosity = 0.40 ft

Depth of Gravel Bed = 2.00 ft

WQv = 0.014 ac-ft

Allowable RRv Credit = 0.008 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.008 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 14

Drainage Area Name: 14A Soils:

Drainage Area: 0.07 (acres) HSG(s): B/C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.07 (acres) S (Specific Reduction Factor): 0.398

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.016 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.398 x (AI) 0.07 ac/12 =

Minimum RRv required = 0.006 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 836 ft^2

Porosity = 0.40 ft

Depth of Gravel Bed = 2.00 ft

WQv = 0.015 ac-ft

Allowable RRv Credit = 0.015 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.015 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** **No** X

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point:	14						
Drainage Area Name:	14B2		Soils:				
Drainage Area:	0.05	(acres)	HSG(s):	B	1-yr/24-hr (P):	3.1	inches
Impervious Area:	0.02	(acres)	S (Specific Reduction Factor):	0.4			

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.006 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.4 x (AI) 0.02 ac/12 =

Minimum RRv required = 0.002 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Bioretention Pond

Provided Filter Area =	0.001	acres
k =	3.50	ft/day
df =	4.00	ft
hf =	0.50	ft
tf =	2.00	days
Depth of gravel =	0.50	ft
WQv =	0.010	ac-ft

Allowable RRv Credit = 0.006 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.006 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No**

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No**

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

STORMWATER MANAGEMENT

PLANNING AND PRACTICE SELECTION WORKSHEET FOR

IMPAIRED WATERSHEDS*

**Use different methods for new projects in non-impaired watersheds.*

PROJECT: Watchtower Educational Center, Patterson, NY DATE: October 7, 2011

Design Point: 15

Drainage Area Name: 15B Soils:

Drainage Area: 0.06 (acres) HSG(s): C 1-yr/24-hr (P): 3.1 inches

Impervious Area: 0.06 (acres) S (Specific Reduction Factor): 0.3

PLANNING:

1. Plan to preserve, avoid and minimize (underline all concepts utilized):

- Preserve undisturbed, natural buffer, and critical environment areas
- Employ open space, conservation, and clustering site design techniques
- Avoid developing in environmentally sensitive areas: floodplain, steep slopes, habitat, ecosystems, bedrock, wetlands, shorelines, shallow groundwater, impervious soils, unstable soils
- Minimize impervious surfaces: building footprints, parking, roads, sidewalks, and driveways
- Minimize clearing and grading

WATER QUALITY VOLUME (before runoff reduction)

2. Calculate water quality volume (WQv): From HydroCAD

Original WQv = 0.015 ac-ft

3. Minimum RRv requirements (when 100% WQv reduction cannot be achieved)

(Calculate minimum required Runoff Reduction Volume (RRv) using):

RRv = (P) x 0.95 x S x total impervious area (AI)/12

with S = 0.55 (A soils) 0.40 (B soils) 0.30 (C soils) 0.20 (D soils) OR weighted HSG average in DA

Minimum required RRv = (P) 3.1 0.95 x (S) 0.3 x (AI) 0.06 ac/12 =

Minimum RRv required = 0.004 ac-ft

SOURCE CONTROL WQv TREATMENT PRACTICES

4. Treatment Practice: Pervious Pavers

Proposed Pervious Paver Area = 2,562 ft^2

Porosity = 0.40 ft

Depth of Gravel Bed = 1.00 ft

WQv = 0.024 ac-ft

Allowable RRv Credit = 0.015 ac-ft

TOTAL RUNOFF REDUCTION VOLUME (RRv)

5. Total RRv provided =

Total Provided RRv = 0.015 ac-ft

6. Is provided RRv (#5) ≥ original WQv (#2)? **Yes** X **No** _____

7. Is provided RRv (#5) ≥minimum RRv (#3)? **Yes** X **No** _____

If no, provide additional RRv and recalculate, or provide justification.

STANDARD WQv TREATMENT

8. Provide treatment for any remaining untreated WQv with standard practices:

Remaining untreated WQv =

Remaining Untreated WQv = 0.000 ac-ft

SPPP—APPENDIX F.1.f

Pollutant Loading
Removal Calculations

Project: PPAT 0104
Date: 9/5/11
Pollutant Loading Calculations
Prepared By: Watchtower Bible and Tract Society of New York, Inc.

Pre-Development Conditions Pollutant Loading Analysis

Design Point	Drainage Area	Calculated Pollutant Loads (lbs/year)[1]				Primary BMP	Pollutant Removal Efficiency Rates (%)				Pollutant Load with Primary BMP Reduction (lbs/year)				Secondary BMP	Pollutant Removal Efficiency Rates (%)				Total Pollutant Load with Secondary BMP Reduction (lbs/year)			
		TSS	TP	TN	BOD[3]		TSS[2]	TP[2]	TN[2]	BOD[4]	TSS	TP	TN	BOD		TSS[2]	TP[2]	TN[2]	BOD[4]	TSS	TP	TN	BOD
1	DA-1	425.2	1.4	6.0	4.9	**N/A**	**0**	**0**	**0**	**0**	425.2	1.4	6.0	4.9	**N/A**	**0**	**0**	**0**	**0**	425.2	1.4	6.0	4.9
2	DA-2	568.8	2.0	8.5	4.7	**N/A**	**0**	**0**	**0**	**0**	568.8	2.0	8.5	4.7	**N/A**	**0**	**0**	**0**	**0**	568.8	2.0	8.5	4.7
3	DA-3	962.4	3.4	14.5	7.5	**N/A**	**0**	**0**	**0**	**0**	962.4	3.4	14.5	7.5	**N/A**	**0**	**0**	**0**	**0**	962.4	3.4	14.5	7.5
4	DA-4	491.6	1.7	7.4	2.8	**N/A**	**0**	**0**	**0**	**0**	491.6	1.7	7.4	2.8	**N/A**	**0**	**0**	**0**	**0**	491.6	1.7	7.4	2.8
5	DA-5A	4457.9	15.6	67.3	30.6	**N/A**	**0**	**0**	**0**	**0**	4457.9	15.6	67.3	30.6	**N/A**	**0**	**0**	**0**	**0**	4457.9	15.6	67.3	30.6
	DA-5B	1041.9	3.0	13.9	17.3	**N/A**	**0**	**0**	**0**	**0**	1041.9	3.0	13.9	17.3	**N/A**	**0**	**0**	**0**	**0**	1041.9	3.0	13.9	17.3
6	DA-6A	19076.6	66.9	311.8	368.2	**N/A**	**0**	**0**	**0**	**0**	19076.6	66.9	311.8	368.2	**N/A**	**0**	**0**	**0**	**0**	19076.6	66.9	311.8	368.2
	DA-6B	526.9	1.4	5.9	5.6	**N/A**	**0**	**0**	**0**	**0**	526.9	1.4	5.9	5.6	**N/A**	**0**	**0**	**0**	**0**	526.9	1.4	5.9	5.6
7	DA-7	1224.6	4.2	18.3	12.5	**N/A**	**0**	**0**	**0**	**0**	1224.6	4.2	18.3	12.5	**N/A**	**0**	**0**	**0**	**0**	1224.6	4.2	18.3	12.5
8	DA-8	4103.0	14.3	61.6	13.4	**N/A**	**0**	**0**	**0**	**0**	4103.0	14.3	61.6	13.4	**N/A**	**0**	**0**	**0**	**0**	4103.0	14.3	61.6	13.4
9	DA-9	5537.4	19.3	83.6	13.1	**N/A**	**0**	**0**	**0**	**0**	5537.4	19.3	83.6	13.1	**N/A**	**0**	**0**	**0**	**0**	5537.4	19.3	83.6	13.1
10	DA-10	379.6	1.3	5.7	1.2	**N/A**	**0**	**0**	**0**	**0**	379.6	1.3	5.7	1.2	**N/A**	**0**	**0**	**0**	**0**	379.6	1.3	5.7	1.2
12	DA-12	78.6	0.3	1.1	0.4	**Detention Basin**	**80**	**50**	**50**	**69**	15.7	0.1	0.5	0.1	**N/A**	**0**	**0**	**0**	**0**	15.7	0.1	0.5	0.1
13	DA-13	288.3	0.9	3.5	11.2	**Detention Basin**	**80**	**50**	**50**	**69**	57.7	0.5	1.8	3.5	**N/A**	**0**	**0**	**0**	**0**	57.7	0.5	1.8	3.5
14	DA-14A	51.2	0.2	0.6	2.0	**Detention Basin**	**80**	**50**	**50**	**69**	10.2	0.1	0.3	0.6	**N/A**	**0**	**0**	**0**	**0**	10.2	0.1	0.3	0.6
	DA-14B	339.6	1.2	5.5	3.7	**Detention Basin**	**80**	**50**	**50**	**69**	67.9	0.6	2.8	1.1	**N/A**	**0**	**0**	**0**	**0**	67.9	0.6	2.8	1.1
15	DA-15	1608.8	5.5	23.7	33.8	**N/A**	**0**	**0**	**0**	**0**	1608.8	5.5	23.7	33.8	**N/A**	**0**	**0**	**0**	**0**	1608.8	5.5	23.7	33.8
16	DA-16	7753.5	26.9	115.7	35.0	**N/A**	**0**	**0**	**0**	**0**	7753.5	26.9	115.7	35.0	**N/A**	**0**	**0**	**0**	**0**	7753.5	26.9	115.7	35.0
17	DA-17	13338.6	46.2	208.2	265.1	**Detention Basin**	**80**	**50**	**50**	**69**	2667.7	23.1	104.1	82.2	**N/A**	**0**	**0**	**0**	**0**	2667.7	23.1	104.1	82.2
18	DA-18	2347.8	8.1	35.0	6.5	**N/A**	**0**	**0**	**0**	**0**	2347.8	8.1	35.0	6.5	**N/A**	**0**	**0**	**0**	**0**	2347.8	8.1	35.0	6.5
19	DA-19	2784.8	9.3	40.1	9.9	**N/A**	**0**	**0**	**0**	**0**	2784.8	9.3	40.1	9.9	**N/A**	**0**	**0**	**0**	**0**	2784.8	9.3	40.1	9.9
															Total Calculated Project Pollutant Load:					***56110.0***	***208.6***	***928.4***	***654.2***

Post-Development Conditions Pollutant Loading Analysis

Design Point	Drainage Area	Calculated Pollutant Loads (lbs/year)[1]				Primary BMP	Pollutant Removal Efficiency Rates (%)				Pollutant Load with Primary BMP Reduction (lbs/year)				Secondary BMP	Pollutant Removal Efficiency Rates (%)				Total Pollutant Load with Secondary BMP Reduction (lbs/year)			
		TSS	TP	TN	BOD[3]		TSS[2]	TP[2]	TN[2]	BOD[4]	TSS	TP	TN	BOD		TSS[2]	TP[2]	TN[2]	BOD[4]	TSS	TP	TN	BOD
1	DA-5B	638.5	1.5	6.0	14.7	N/A	0	0	0	0	638.5	1.5	6.0	14.7	N/A	0	0	0	0	638.5	1.5	6.0	14.7
2	DA-2	67.8	0.2	1.0	0.1	N/A	0	0	0	0	67.8	0.2	1.0	0.1	N/A	0	0	0	0	67.8	0.2	1.0	0.1
3	DA-3	463.1	1.6	7.0	1.0	N/A	0	0	0	0	463.1	1.6	7.0	1.0	N/A	0	0	0	0	463.1	1.6	7.0	1.0
4	DA-4	376.5	1.3	5.7	0.9	N/A	0	0	0	0	376.5	1.3	5.7	0.9	N/A	0	0	0	0	376.5	1.3	5.7	0.9
5	DA-5A	711.5	2.5	10.8	1.5	N/A	0	0	0	0	711.5	2.5	10.8	1.5	N/A	0	0	0	0	711.5	2.5	10.8	1.5
6	DA-6A1	17202.2	60.5	285.4	357.2	N/A	0	0	0	0	17202.2	60.5	285.4	357.2	N/A	0	0	0	0	17202.2	60.5	285.4	357.2
	DA-6A2	9.4	0.0	0.1	0.4	N/A	0	0	0	0	9.4	0.0	0.1	0.4	N/A	0	0	0	0	9.4	0.0	0.1	0.4
	DA-6A3	48.7	0.2	0.6	1.9	Bioretention	85	60	60	69	7.3	0.1	0.2	0.6	N/A	0	0	0	0	7.3	0.1	0.2	0.6
	DA-6A4	26.8	0.1	0.3	1.0	Bioretention	85	60	60	69	4.0	0.0	0.1	0.3	N/A	0	0	0	0	4.0	0.0	0.1	0.3
	DA-6B	526.9	1.4	5.9	5.6	N/A	0	0	0	0	526.9	1.4	5.9	5.6	N/A	0	0	0	0	526.9	1.4	5.9	5.6
7	DA-7	1607.9	5.6	24.1	5.9	N/A	0	0	0	0	1607.9	5.6	24.1	5.9	N/A	0	0	0	0	1607.9	5.6	24.1	5.9
8	DA-8A-1	3456.5	12.0	52.0	10.4	N/A	0	0	0	0	3456.5	12.0	52.0	10.4	N/A	0	0	0	0	3456.5	12.0	52.0	10.4
	DA-8A-2	637.2	2.2	9.6	1.4	Detention Basin	80	50	50	69	127.4	1.1	4.8	0.4	N/A	0	0	0	0	127.4	1.1	4.8	0.4
	DA-8B-1A	1630.1	5.6	23.8	13.3	Bioretention	85	60	60	69	244.5	2.2	9.5	4.1	Detention Basin	80	50	50	69	48.9	1.1	4.8	1.3
	DA-8B-1B	110.5	0.3	4.3	22.9	Sand Filter	85	60	60	60	16.6	0.1	1.7	9.2	Detention Basin	80	50	50	69	3.3	0.1	0.9	2.8
	DA-8B-1C	82.5	0.3	1.0	3.2	Pervious Pavers	90	70	50	80	8.3	0.1	0.5	0.6	Detention Basin	80	50	50	69	1.7	0.0	0.3	0.2
	DA-8B-2A	933.1	3.1	12.1	26.5	Bioretention	85	60	60	69	140.0	1.2	4.8	8.2	Detention Basin	80	50	50	69	28.0	0.6	2.4	2.5
	DA-8B-2B	148.7	0.9	11.7	57.9	Green Roof	80	60	60	60	29.7	0.3	4.7	23.2	Detention Basin	80	50	50	69	5.9	0.2	2.3	7.2
	DA-8B-3	4821.2	16.8	72.8	22.7	Bioretention	85	60	60	69	723.2	6.7	29.1	7.0	Detention Basin	80	50	50	69	144.6	3.4	14.6	2.2
	DA-8B-4	1973.8	6.8	34.5	51.0	Bioretention	85	60	60	69	296.1	2.7	13.8	15.8	Detention Basin	80	50	50	69	59.2	1.4	6.9	4.9
	DA-8B-5	245.8	0.9	3.7	0.5	Vegetated Swale	85	40	40	0	36.9	0.5	2.2	0.5	Detention Basin	80	50	50	69	7.4	0.3	1.1	0.2
	DA-8B-5A	355.8	1.2	4.9	4.3	Bioretention	85	60	60	69	53.4	0.5	2.0	1.3	Detention Basin	80	50	50	69	10.7	0.2	1.0	0.4
	DA-8B-5B	51.5	0.2	0.6	2.0	Pervious Pavers	90	70	50	80	5.2	0.1	0.3	0.4	Detention Basin	80	50	50	69	1.0	0.0	0.2	0.1
	DA-8B-5C	100.0	0.3	1.3	2.7	Pervious Pavers	90	70	50	80	10.0	0.1	0.7	0.5	Detention Basin	80	50	50	69	2.0	0.0	0.3	0.2
	DA-8B-5D	180.4	0.6	2.2	7.4	Pervious Pavers	90	70	50	80	18.0	0.2	1.1	1.5	Detention Basin	80	50	50	69	3.6	0.1	0.5	0.5
	DA-8B-6A	262.1	0.9	3.4	6.3	Bioretention	85	60	60	69	39.3	0.3	1.4	2.0	Detention Basin	80	50	50	69	7.9	0.2	0.7	0.6
	DA-8B-6B	374.8	1.3	5.1	8.3	Pervious Pavers	90	70	50	80	37.5	0.4	2.5	1.7	Detention Basin	80	50	50	69	7.5	0.2	1.3	0.5
	DA-8B-7	683.8	2.3	9.8	6.5	Bioretention	85	60	60	69	102.6	0.9	3.9	2.0	Detention Basin	80	50	50	69	20.5	0.5	2.0	0.6
	DA-8B-8	788.4	2.6	10.4	16.0	Bioretention	85	60	60	69	118.3	1.0	4.1	5.0	Detention Basin	80	50	50	69	23.7	0.5	2.1	1.5
	DA-8B-9A	2101.6	7.2	31.3	36.5	Sand Filter	85	60	60	60	315.2	2.9	12.5	14.6	Detention Basin	80	50	50	69	63.0	1.4	6.3	4.5
	DA-8B-9B	388.5	1.3	5.0	11.8	Pervious Pavers	90	70	50	80	38.9	0.4	2.5	2.4	Detention Basin	80	50	50	69	7.8	0.2	1.2	0.7
	DA-8B-9C	366.6	1.3	6.2	15.6	Pervious Pavers	90	70	50	80	36.7	0.4	3.1	3.1	Detention Basin	80	50	50	69	7.3	0.2	1.6	1.0
	DA-8B-10	936.0	3.2	13.3	12.6	Bioretention	85	60	60	69	140.4	1.3	5.3	3.9	Detention Basin	80	50	50	69	28.1	0.6	2.7	1.2
	DA-8B-11A	1316.7	4.5	18.8	16.9	Bioretention	85	60	60	69	197.5	1.8	7.5	5.2	Detention Basin	80	50	50	69	39.5	0.9	3.8	1.6
	DA-8B-11B	228.1	0.8	2.9	7.5	Pervious Pavers	90	70	50	80	22.8	0.2	1.4	1.5	Detention Basin	80	50	50	69	4.6	0.1	0.7	0.5
	DA-8B-12	1598.4	5.4	22.6	27.1	Bioretention	85	60	60	69	239.8	2.1	9.0	8.4	Detention Basin	80	50	50	69	48.0	1.1	4.5	2.6
	DA-8B-13	605.2	2.1	9.1	2.1	N/A	0	0	0	0	605.2	2.1	9.1	2.1	Detention Basin	80	50	50	69	121.0	1.1	4.5	0.7
	DA-8C-1A	805.9	2.5	9.8	25.8	Bioretention	85	60	60	69	120.9	1.0	3.9	8.0	Detention Basin	80	50	50	69	24.2	0.5	2.0	2.5
	DA-8C-1B	1076.6	3.4	13.2	32.9	Bioretention	85	60	60	69	161.5	1.4	5.3	10.2	Detention Basin	80	50	50	69	32.3	0.7	2.6	3.2
	DA-8C-1C	261.6	0.9	3.2	10.1	Pervious Pavers	90	70	50	80	26.2	0.3	1.6	2.0	Detention Basin	80	50	50	69	5.2	0.1	0.8	0.6
9	DA-9A	4962.1	17.3	74.6	12.9	N/A	0	0	0	0	4962.1	17.3	74.6	12.9	N/A	0	0	0	0	4962.1	17.3	74.6	12.9
	DA-9B	3261.0	11.3	47.9	24.2	Sand Filter	85	60	60	60	489.1	4.5	19.1	9.7	N/A	0	0	0	0	489.1	4.5	19.1	9.7
10	DA-10	498.6	1.7	7.5	1.5	Sand Filter	85	60	60	60	74.8	0.7	3.0	0.6	N/A	0	0	0	0	74.8	0.7	3.0	0.6
12	DA-12A	61.8	0.2	0.8	0.3	N/A	0	0	0	0	61.8	0.2	0.8	0.3	Detention Basin	80	50	50	69	12.4	0.1	0.4	0.1
	DA-12B	121.9	0.4	1.5	4.7	Pervious Pavers	90	70	50	80	12.2	0.1	0.7	0.9	Detention Basin	80	50	50	69	2.4	0.1	0.4	0.3
13	DA-13A	287.4	0.9	3.5	11.1	N/A	0	0	0	0	287.4	0.9	3.5	11.1	Detention Basin	80	50	50	69	57.5	0.5	1.7	3.5
	DA-13B	93.5	0.3	1.1	3.6	Pervious Pavers	90	70	50	80	9.4	0.1	0.6	0.7	Detention Basin	80	50	50	69	1.9	0.0	0.3	0.2
	DA-13C	54.7	0.2	0.7	2.1	Pervious Pavers	90	70	50	80	5.5	0.1	0.3	0.4	Detention Basin	80	50	50	69	1.1	0.0	0.2	0.1
14	DA-14A	112.1	0.4	1.4	4.3	Pervious Pavers	90	70	50	80	11.2	0.1	0.7	0.9	Detention Basin	80	50	50	69	2.2	0.1	0.3	0.3
	DA-14B1	261.4	0.9	4.4	3.8	N/A	0	0	0	0	261.4	0.9	4.4	3.8	Detention Basin	80	50	50	69	52.3	0.5	2.2	1.2
	DA-14B2	24.1	0.1	0.2	0.9	Bioretention	85	60	60	69	3.6	0.0	0.1	0.3	Detention Basin	80	50	50	69	0.7	0.0	0.0	0.1
15	DA-15A	1608.8	5.5	23.7	33.8	N/A	0	0	0	0	1608.8	5.5	23.7	33.8	N/A	0	0	0	0	1608.8	5.5	23.7	33.8
	DA-15B	109.2	0.4	1.3	4.2	Pervious Pavers	90	70	50	80	10.9	0.1	0.7	0.8	N/A	0	0	0	0	10.9	0.1	0.7	0.8
16	DA-16	7174.4	24.9	106.8	37.9	N/A	0	0	0	0	7174.4	24.9	106.8	37.9	N/A	0	0	0	0	7174.4	24.9	106.8	37.9
17	DA-17	12180.3	42.3	191.9	250.7	Detention Basin	80	50	50	69	2436.1	21.2	95.9	77.7	N/A	0	0	0	0	2436.1	21.2	95.9	77.7
18	DA-18	2347.8	8.1	35.0	6.5	N/A	0	0	0	0	2347.8	8.1	35.0	6.5	N/A	0	0	0	0	2347.8	8.1	35.0	6.5
19	DA-19	2784.8	9.3	40.1	9.9	N/A	0	0	0	0	2784.8	9.3	40.1	9.9	N/A	0	0	0	0	2784.8	9.3	40.1	9.9
															Total Calculated Project Pollutant Load:					***47975.1***	***196.1***	***879.5***	***639.2***
															Total Project Pollutant Load Difference: From Pre-Development Conditions to Post-Development Conditions					-8134.9	-12.5	-48.9	-15.1

[1] Pollutant loads were calculated using HydroCAD 9.1, which is based on the Simple Method. Refer to HydroCAD computations for detailed output.

[2] Pollutant Removal Efficiency Rates referenced from "The Simple Method to Calculate Urban Stormwater Loads" by New York State Deparment of Environmental Conservation.

[3] Recommended BOD concentration not provided in HydroCAD, thus source is: H.H. Harper, Sept. 2003. Evaluation of Alternative Stormwater Regulations for Southwest Florida. Environmental research and Design Orlando, Fl.

[4] Colorado S.W.T.F. 1990. BMP Practices Assessment for Develoment of Colorado's Stormwater Management Program. Final Report to Colorado Water Quality Control Division, Denver CO.

Pollutant Calculations Summary

Design Point	Pre-Construction Conditions				Post-Construction Conditions			
	TSS	TP	TN	BOD	TSS	TP	TN	BOD
1	425.2	1.4	6.0	4.9	638.5	1.5	6.0	14.7
2	568.8	2.0	8.5	4.7	67.8	0.2	1.0	0.1
3	962.4	3.4	14.5	7.5	463.1	1.6	7.0	1.0
4	491.6	1.7	7.4	2.8	376.5	1.3	5.7	0.9
5	5499.8	18.6	81.3	47.9	711.5	2.5	10.8	1.5
6	19603.5	68.3	317.8	373.8	17749.9	62.0	291.8	364.0
7	1224.6	4.2	18.3	12.5	1607.9	5.6	24.1	5.9
8	4103.0	14.3	61.6	13.4	4340.8	28.8	128.6	55.7
9	5537.4	19.3	83.6	13.1	5451.2	21.8	93.8	22.5
10	379.6	1.3	5.7	1.2	74.8	0.7	3.0	0.6
12	15.7	0.1	0.5	0.1	14.8	0.2	0.8	0.4
13	57.7	0.5	1.8	3.5	60.4	0.5	2.2	3.8
14	78.2	0.7	3.1	1.7	55.2	0.5	2.6	1.5
15	1608.8	5.5	23.7	33.8	1619.7	5.6	24.4	34.6
16	7753.5	26.9	115.7	35.0	7174.4	24.9	106.8	37.9
17	2667.7	23.1	104.1	82.2	2436.1	21.2	95.9	77.7
18	2347.8	8.1	35.0	6.5	2347.8	8.1	35.0	6.5
19	2784.8	9.3	40.1	9.9	2784.8	9.3	40.1	9.9
Totals:	***56110.0***	***208.6***	***928.4***	***654.2***	***47975.1***	***196.1***	***879.5***	***639.2***

SPPP—APPENDIX F.1.g

SPDES General Construction Permit GP-0-10-001

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

from

CONSTRUCTION ACTIVITY

Permit No. GP-0-10-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70
of the Environmental Conservation Law

Effective Date: January 29, 2010 Expiration Date: January 28, 2015

William R. Adriance
Chief Permit Administrator

William R. Adriance — January 28, 2010
Authorized Signature — Date

Address: NYS DEC
Div. Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York's *State Pollutant Discharge Elimination System ("SPDES")* is a NPDES-approved program with permits issued in accordance with the *Environmental Conservation Law ("ECL").*

This general permit ("permit") is issued pursuant to Article 17, Titles 7, 8 and Article 70 of the ECL. An *owner or operator* may obtain coverage under this permit by submitting a Notice of Intent ("NOI") to the Department. Copies of this permit and the NOI for New York are available by calling (518) 402-8109 or at any New York State Department of Environmental Conservation ("the Department") regional office (see Appendix G).They are also available on the Department's website at:

http://www.dec.ny.gov/

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a point source and therefore, pursuant to Article 17-0505 of the ECL, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. They cannot wait until there is an actual *discharge* from the construction site to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES

FROM CONSTRUCTION ACTIVITIES

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Part I. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application - This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land.

B. Maintaining Water Quality - It shall be a violation of this permit and the *ECL* for any *discharge* to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

C. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph D. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater discharges from *construction activities*.

(Part I. C)

3. Notwithstanding paragraphs C.1 and C.2 above, the following non-stormwater *discharges* may be authorized by this permit: discharges from fire fighting activities; fire hydrant flushings; waters to which cleansers or other components have not been added that are used to wash vehicles or control dust in accordance with the SWPPP, routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated groundwater or spring water; uncontaminated discharges from construction site de-watering operations; and foundation or footing drains where flows are not contaminated with process materials such as solvents. For those entities required to obtain coverage under this permit, and who discharge as noted in this paragraph, and with the exception of flows from fire fighting activities, these discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with water quality standards in Part I.B.

D. <u>Activities Which Are Ineligible for Coverage Under This General Permit</u> - All of the following are **<u>not</u>** authorized by this permit:

1. *Discharges* after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection C.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII, subparagraph K of this permit;

4. *Discharges* from *construction activities* that adversely affect a listed, or proposed to be listed, endangered or threatened species, or its critical habitat;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects that:

    a. are tributary to waters of the state classified as AA or AA-s; and

(Part I. D. 6)

b. disturb one or more acres of land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey for the County in which the disturbance will occur.

7. *Construction activities* for linear transportation projects and linear utility projects that:
   a. are tributary to waters of the state classified as AA or AA-s; and

   b. disturb two or more acres of land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey for the County in which the disturbance will occur.

8. *Construction activities* that adversely affect a property that is listed or is eligible for listing on the State or National Register of Historic Places (Note: includes Archeological sites), unless there are written agreements in place with the NYS Office of Parks, Recreation and Historic Preservation (OPRHP) or other governmental agencies to mitigate the effects, or there are local land use approvals evidencing the same.

Part II. OBTAINING PERMIT COVERAGE

A. Notice of Intent (NOI) Submittal

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a *regulated, traditional land use control MS4* must first develop a SWPPP in accordance with all applicable requirements of this permit and then submit a completed NOI form to the address below in order to be authorized to *discharge* under this permit. The NOI form shall be one which is associated with this permit, signed in accordance with Part VII.H. of this permit.

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first develop a SWPPP in accordance with all applicable requirements of this permit and then have its SWPPP reviewed and accepted by the *MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4*, or by a duly authorized representative of that person, and then submit that form along with the NOI to the address referenced under "Notice of Intent (NOI) Submittal".

(Part II. A.2)

This requirement does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.E. (Change of Owner or Operator).

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

B. <u>Permit Authorization</u>

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied <u>all</u> of the following criteria:

    a. project review pursuant to the State Environmental Quality Review Act (SEQRA) have been satisfied, when SEQRA is applicable,

    b. where required, all necessary Department permits subject to the *Uniform Procedures Act (UPA)* (see 6 NYCRR Part 621) have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits must submit a preliminary SWPPP to the appropriate DEC Regional Office in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

    c. the final SWPPP has been prepared, and

    d. an NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.B.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

(Part II. B. 3)

a. For *construction activities* that are <u>not</u> subject to the requirements of a *regulated, traditional land use control MS4*:

i. Five (5) business days from the date the Department receives a complete NOI for *construction activities* with a SWPPP that has been prepared in conformance with the technical standards referenced in Parts III.B.1, 2 and/or 3, or

ii. Sixty (60) business days from the date the Department receives a complete NOI for *construction activities* with a SWPPP that has <u>not</u> been prepared in conformance with the technical standards referenced in Parts III.B.1, 2 or 3.

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

i. Five (5) business days from the date the Department receives a complete NOI and signed "MS4 SWPPP Acceptance" form,

4. The Department may suspend or deny an *owner's or operator's* coverage under this permit if the Department determines that the SWPPP does not meet the permit requirements.

5. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department.

C. <u>General Requirements For Owners or Operators With Permit Coverage</u>

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination (NOT) has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-10-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form and inspection reports at the construction site until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department.

(Part II. C. 2)

The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the MS4 (provided the MS4 is not the *owner or operator* of the construction activity). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

    a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

    b. In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control.

    c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

    d. The *owner or operator* shall install any additional site specific practices needed to protect water quality.

    e. The *owner or operator* shall include the requirements above in their SWPPP.

4. The Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements.

(Part II. C)

5. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4,* the *owner or operator* shall notify the *MS4* in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *MS4* prior to commencing construction of the post-construction stormwater management practice.

D. Permit Coverage for Discharges Authorized Under GP-0-08-001

1. Upon renewal of SPDES General Permit for Stormwater Discharges from Construction Activity (Permit No. GP-0-08-001), a*n owner or operator* of *construction activity* with coverage under GP-0-08-001, as of the effective date of GP-0-10-001, shall be authorized to *discharge* in accordance with GP-0-10-001 unless otherwise notified by the Department.

E. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.A.1.. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

   Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or operator* was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*.

(Part III. A)

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the pollutants in stormwater discharges and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP:

    a. whenever the current provisions prove to be ineffective in minimizing pollutants in stormwater *discharges* from the site;

    b. whenever there is a change in design, construction, or operation at the construction site that has or could have an effect on the discharge of pollutants; and

    c. to address issues or deficiencies identified during an inspection by the *qualified inspector*, the Department or other regulatory authority.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP.

(Part III. A. 6)

The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

> "I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings. "

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the construction site. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

8. The SWPPP must include documentation supporting the determination of permit eligibility with regard to Part I.D.8. (Historic Places or Archeological Resource). At a minimum, the supporting documentation shall include the following:

(Part III. A. 8)

a. Information on whether the stormwater discharge or *construction activities* would have an effect on a property (historic or archeological resource) that is listed or eligible for listing on the State or National Register of Historic Places;

b. Results of historic resources screening determinations conducted. Information regarding the location of historic places listed, or eligible for listing, on the State or National Registers of Historic Places and areas of archeological sensitivity that may indicate the need for a survey can be obtained online by viewing the New York State Office of Parks, Recreation and Historic Places (OPRHP) online resources located on their web site at: http://nysparks.state.ny.us/shpo/online-tools/ (using The Geographic Information System for Archeology and National Register). OPRHP can also be contacted at: NYS OPRHP, State Historic Preservation Office, Peebles Island Resources Center, P.O. Box 189, Waterford, NY 12188-0189, phone: 518-237-8643;

c. A description of measures necessary to avoid or minimize adverse impacts on places listed, or eligible for listing, on the State or National Register of Historic Places. If the *owner or operator* fails to describe and implement such measures, the stormwater *discharge* is ineligible for coverage under this permit; and

d. Where adverse effects may occur, any written agreements in place with OPRHP or other governmental agency to mitigate those effects, or local land use approvals evidencing the same.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control. Where erosion and sediment control practices are not designed in conformance with this technical standard, the *owner or operator* must demonstrate equivalence to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

    a. Background information about the scope of the project, including the location, type and size of project;

(Part III. B. 1)

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s), wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater discharge(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each construction activity that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of final stabilization;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

(Part III. B. 1)

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6., to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule shall be in accordance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the construction site; and

l. Identification of any elements of the design that are not in conformance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is equivalent to the technical standards.

2. Post-construction stormwater management practice component - All construction projects identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the most current version of the technical standard, New York State Stormwater Management Design Manual ("Design Manual"). If the Design Manual is revised during the term of this permit, an *owner or operator* must begin using the revised version of the Design Manual to prepare their SWPPP six (6) months from the final revision date of the Design Manual.

   Where post-construction stormwater management practices are not designed in conformance with this technical standard, the *owner or operator* must demonstrate equivalence to the technical standard.

   At a minimum, the post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project;

(Part III. B. 2)

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. The dimensions, material specifications and installation details for each post-construction stormwater management practice;

d. Identification of any elements of the design that are not in conformance with the Design Manual. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is equivalent to the technical standards;

e. A hydrologic and hydraulic analysis for all structural components of the stormwater management control system;

f. A detailed summary (including calculations) of the sizing criteria that was used to design all post-construction stormwater management practices. At a minimum, the summary shall address the required design criteria from the applicable chapter of the Design Manual; including the identification of and justification for any deviations from the Design Manual, and identification of any design criteria that are not required based on the design criteria or waiver criteria included in the Design Manual; and

g. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.g. above.

(Part III. C)

C. Required SWPPP Components by Project Type - Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices and all post-construction stormwater management practices identified in the SWPPP are maintained in effective operating condition at all times.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York, or protect the public health and safety and/or the environment.

B. Owner or Operator Maintenance Inspection Requirements

1. The *owner or operator* shall inspect, in accordance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, the erosion and sediment controls identified in the SWPPP to ensure that they are being maintained in effective operating condition at all times.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the *owner or operator* can stop conducting the maintenance inspections. The *owner or operator* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *owner or operator* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

(Part IV. C)

C. <u>Qualified Inspector Inspection Requirements</u> - The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- Licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- Registered Landscape Architect, or
- Someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, <u>with the exception of</u>:

    a. the construction of a single family residential subdivision with 25% or less impervious cover at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E;

    b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E;

    c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

    d. construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

    a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

(Part IV. C. 2)

b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.C.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the Regional Office stormwater contact person (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the MS4 (provided the MS4 is not the *owner or operator* of the construction activity) in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the Regional Office stormwater contact person (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the MS4 (provided the MS4 is not the *owner or operator* of the construction activity). in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization*, and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.A.1..

(Part IV. C. 3)

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization*, all points of discharge to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of discharge from the construction site.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

    a. Date and time of inspection;

    b. Name and title of person(s) performing inspection;

    c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

    d. A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any *discharges* of sediment from the construction site. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

    e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

    f. Identification of all erosion and sediment control practices that need repair or maintenance;

    g. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

    h. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and

k. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.C.2., the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.A.1. The NOT form shall be one which is associated with this general permit, signed in accordance with Part VII.H.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

(Part V. A. 2)

a. Total project completion - All construction activity identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.E.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the NOT, certify that all disturbed areas have achieved *final stabilization;* and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall also have the MS4 sign the "MS4 Acceptance" statement on the NOT. The *owner or operator* shall have the principal executive officer, ranking elected official, or duly authorized representative from the *regulated, traditional land use control MS4*, sign the "MS4 Acceptance" statement. The MS4 official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The MS4 can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector's* final site inspection certification(s) required in Part V.3.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

(Part V. A. 5)

a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has modified their deed of record to include a deed covenant that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, college, university), or government agency or authority, the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION OF RECORDS

A. Record Retention - The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the site achieves *final stabilization*. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

B. Addresses - With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.A.1), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate Department Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply - The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied.

(Part VII. A)

The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

B. <u>Continuation of the Expired General Permit</u> - This permit expires five (5) years from the effective date. However, coverage may be obtained under the expired general permit, which will continue in force and effect, until a new general permit is issued. Unless otherwise notified by the Department in writing, an *owner or operator* seeking authorization under the new general permit must submit a new NOI in accordance with the terms of such new general permit.

C. <u>Enforcement</u> - Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. <u>Need to Halt or Reduce Activity Not a Defense</u> - It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. <u>Duty to Mitigate</u> - The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to minimize or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. <u>Duty to Provide Information</u> - The *owner or operator* shall make available to the Department for review and copying or furnish to the Department within five (5) business days of receipt of a Department request for such information, any information requested for the purpose of determining compliance with this permit. This can include, but is not limited to, the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form, executed maintenance agreement, and inspection reports. Failure to provide information requested by the Department within the request timeframe shall be a violation of this permit.

The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review the NOI, SWPPP or inspection reports. Copying of documents will be done at the requester's expense.

G. <u>Other Information</u> - When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any other report, or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s)

changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or impervious area), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. <u>Signatory Requirements</u>

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

        i. a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

        ii. the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

    b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

    c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

        i. the chief executive officer of the agency, or

(Part VII. H. 1. c)

ii. a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. or by a duly authorized representative of that person. A person is a duly authorized representative only if:

    a. The authorization is made in writing by a person described in Part VII.H.1.;

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

    c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

    It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. <u>Property Rights</u> - The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity.*

J. <u>Severability</u> - The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

(Part VII. K)
K. <u>Denial of Coverage Under This Permit</u>

1. At its sole discretion, the Department may require any *owner or operator* authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the *owner or operator* to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from *owner or operator* receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Regional Water Engineer, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. Any *owner or operator* authorized by this permit may request to be excluded from the coverage under this permit by applying for an individual permit or another general permit. In such cases, the *owner or operator* shall submit an individual application or an alternative general permit application in accordance with the requirements of this general permit, 40 CFR 122.26(c)(1)(ii) and 6 NYCRR Part 621, with reasons supporting the request, to the Department at the address for the appropriate Department Office (see addresses in Appendix F).The request may be granted by issuance of an individual permit or another general permit at the discretion of the Department.

3. When an individual SPDES permit is issued to a discharger authorized to discharge under a general SPDES permit for the same discharge(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. <u>Proper Operation and Maintenance</u> - The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. <u>Inspection and Entry</u> - The *owner or operator* shall allow the Department or an authorized representative of EPA, the State, or, in the case of a construction site which discharges through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

(Part VII. M)

1. Enter upon the *owner's or operator's* premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

N. Permit Actions - At the Department's sole discretion, this permit may, at any time, be modified, suspended, revoked, or renewed. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions - Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with *construction activity* covered by this permit, the *owner or operator* of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports – Article 17 of the ECL provides for a civil penalty of $37,500 per day per violation of this permit. Articles 175 and 210 of the New York State Penal Law provide for a criminal penalty of a fine and/or imprisonment for falsifying forms and reports required by this permit.

R. Other Permits – Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

APPENDIX A

Definitions

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "Construction Activity(ies)" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a construction site by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a construction site to a separate storm sewer system and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or point source.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 authorizing a category of discharges.

Groundwater - means waters in the saturated zone. The saturated zone is a subsurface zone in

which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct construction activities are occurring, or will occur, under one plan. The term "plan" in "larger common plan of development or sale" is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that construction activities may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

i. Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State*;*
ii. Designed or used for collecting or conveying stormwater;
iii. Which is not a *combined sewer*; and
iv. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from construction activity.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the construction activity is occurring; and/or an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in Parts 700 et seq of this Title.

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics in order to prepare a SWPPP that conforms to the Department's technical standard. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is required to gain coverage under New York State DEC's SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s).

Routine Maintenance Activity - means construction activity that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Stream bank restoration projects (does not include the placement of spoil material),
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that makes the transition between the road shoulder and the ditch or embankment,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or embankment,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for point source discharges, load allocations (LAs) for nonpoint sources, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* will be responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B

Required SWPPP Components by Project Type

Table 1
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other agricultural building, silo, stock yard or pen.

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Bike paths and trails
- Sidewalk construction projects that are not part of a road/ highway construction or reconstruction project
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics
- Spoil areas that will be covered with vegetation
- Land clearing and grading for the purposes of creating vegetated open space (i.e. recreational parks, lawns, meadows, fields), excluding projects that *alter hydrology from pre to post development* conditions
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of less than five acres and construction activities that include the construction or reconstruction of impervious area

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

- All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land.

Table 2
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other agricultural building(e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional, includes hospitals, prisons, schools and colleges
- Industrial facilities, includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's and water treatment plants
- Office complexes
- Sports complexes
- Racetracks, includes racetracks with earthen (dirt) surface
- Road construction or reconstruction
- Parking lot construction or reconstruction
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover*, and constructed as part of an over-head electric transmission line project , wind-power project, cell tower project, oil or gas well drilling project or other linear utility project
- All other construction activities that include the construction or reconstruction of *impervious area* and *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

APPENDIX C

Watersheds Where Enhanced Phosphorus Removal Standards Are Required

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4

Figure 1 - New York City Watershed East of the Hudson

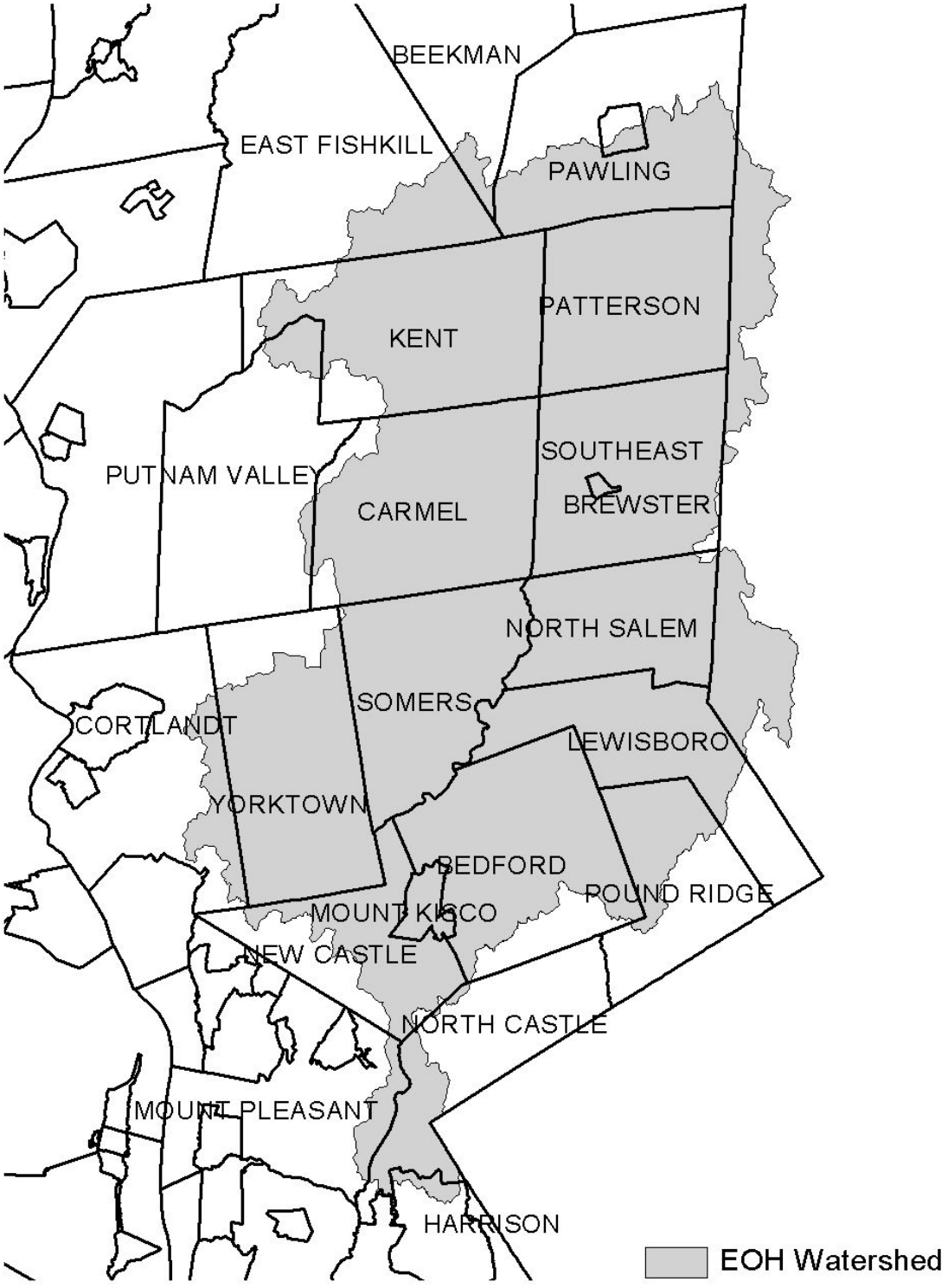


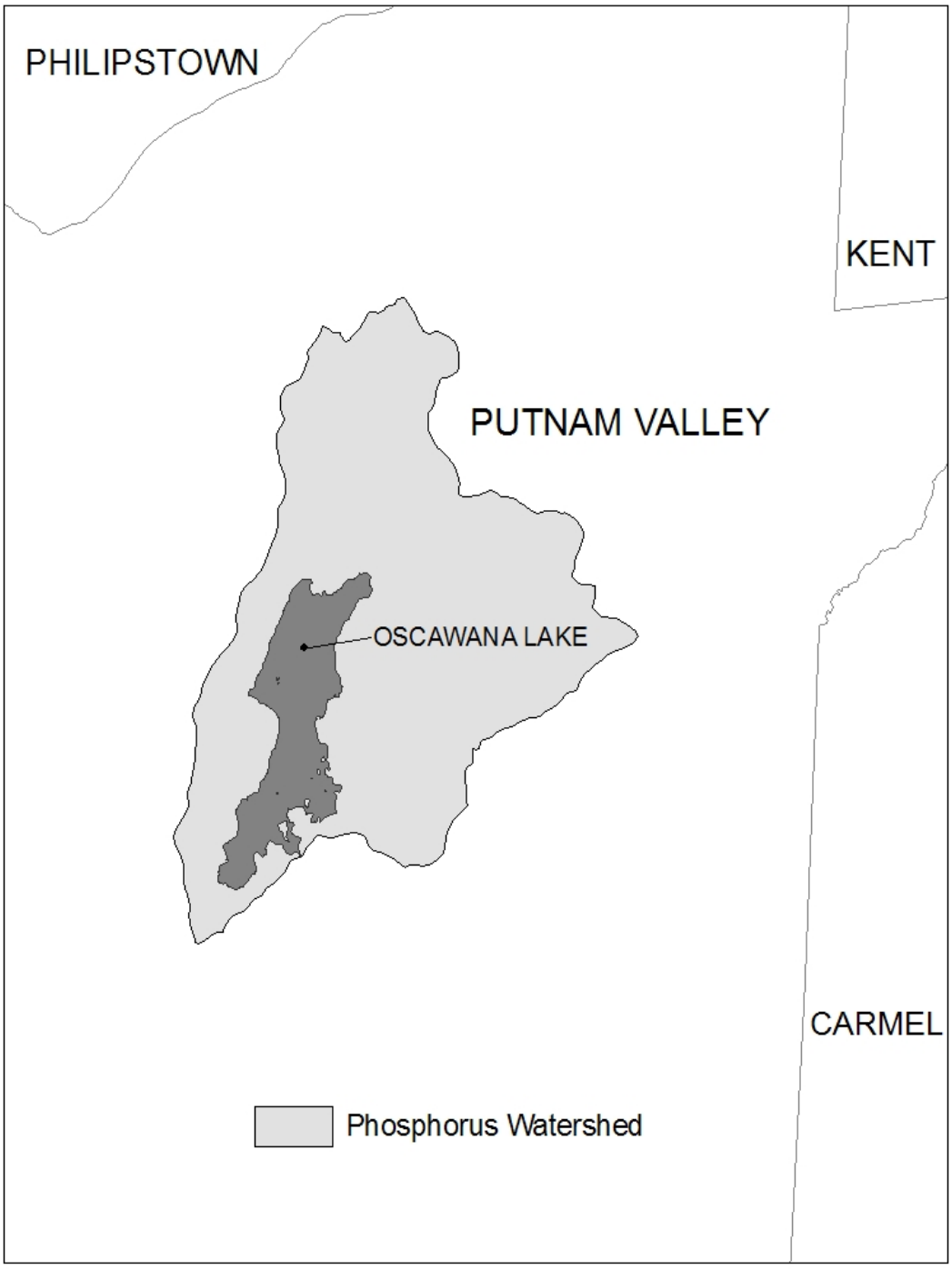
Figure 2 - Onondaga Lake Watershed



Figure 3 - Greenwood Lake Watershed



Figure 4 - Oscawana Lake Watershed



APPENDIX D

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

APPENDIX E

List of 303(d) segments impaired by pollutants related to construction activity (e.g. silt, sediment or nutrients). *Owners or operators* of single family home and single family residential subdivision construction activities that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the most current version of the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

COUNTY	WATERBODY
Albany	Ann Lee (Shakers) Pond, Stump Pond
Albany	Basic Creek Reservoir
Bronx	Van Cortlandt Lake
Broome	Whitney Point Lake/Reservoir
Broome	Beaver Lake
Broome	White Birch Lake
Chautauqua	Chautauqua Lake, North
Chautauqua	Chautauqua Lake, South
Chautauqua	Bear Lake
Chautauqua	Chadakoin River and tribs
Chautauqua	Lower Cassadaga Lake
Chautauqua	Middle Cassadaga Lake
Chautauqua	Findley Lake
Clinton	Great Chazy River, Lower, Main Stem
Columbia	Kinderhook Lake
Columbia	Robinson Pond
Dutchess	Hillside Lake
Dutchess	Wappinger Lakes
Dutchess	Fall Kill and tribs
Dutchess	Rudd Pond
Erie	Rush Creek and tribs
Erie	Ellicott Creek, Lower, and tribs
Erie	Beeman Creek and tribs
Erie	Murder Creek, Lower, and tribs
Erie	South Branch Smoke Cr, Lower, and tribs
Erie	Little Sister Creek, Lower, and tribs
Essex	Lake George (primary county listed as Warren)
Genesee	Black Creek, Upper, and minor tribs
Genesee	Tonawanda Creek, Middle, Main Stem
Genesee	Tonawanda Creek, Upper, and minor tribs
Genesee	Little Tonawanda Creek, Lower, and tribs
Genesee	Oak Orchard Creek, Upper, and tribs
Genesee	Bowen Brook and tribs
Genesee	Bigelow Creek and tribs
Greene	Schoharie Reservoir
Greene	Sleepy Hollow Lake
Herkimer	Steele Creek tribs
Kings	Hendrix Creek
Lewis	Mill Creek/South Branch and tribs
Livingston	Conesus Lake
Livingston	Jaycox Creek and tribs
Livingston	Mill Creek and minor tribs
Monroe	Genesee River, Lower, Main Stem
Monroe	Genesee River, Middle, Main Stem
Monroe	Black Creek, Lower, and minor tribs
Monroe	Buck Pond
Monroe	Long Pond
Monroe	Cranberry Pond
Monroe	Mill Creek and tribs
Monroe	Shipbuilders Creek and tribs
Monroe	Minor tribs to Irondequoit Bay
Monroe	Thomas Creek/White Brook and tribs
Nassau	Glen Cove Creek, Lower, and tribs
Nassau	LI Tribs (fresh) to East Bay
Nassau	East Meadow Brook, Upper, and tribs
Nassau	Hempstead Bay
Nassau	Hempstead Lake
Nassau	Grant Park Pond
Niagara	Bergholtz Creek and tribs
Oneida	Ballou, Nail Creeks
Onondaga	Ley Creek and tribs
Onondaga	Onondaga Creek, Lower and tribs
Onondaga	Onondaga creek, Middle and tribs
Onondaga	Onondaga Creek, Upper, and minor tribs
Onondaga	Harbor Brook, Lower, and tribs
Onondaga	Ninemile Creek, Lower, and tribs
Onondaga	Minor tribs to Onondaga Lake
Ontario	Honeoye Lake
Ontario	Hemlock Lake Outlet and minor tribs
Ontario	Great Brook and minor tribs
Oswego	Lake Neatahwanta
Putnam	Oscawana Lake
Putnam	Lake Carmel
Queens	Jamaica Bay, Eastern, and tribs (Queens)
Queens	Bergen Basin
Queens	Shellbank Basin
Rensselaer	Snyders Lake
Richmond	Grasmere, Arbutus and Wolfes Lakes
Saratoga	Dwaas Kill and tribs
Saratoga	Tribs to Lake Lonely
Saratoga	Lake Lonely
Saratoga	Schuyler Creek and tribs
Schenectady	Collins Lake

APPENDIX E

List of 303(d) segments impaired by pollutants related to construction activity, cont'd.

COUNTY	WATERBODY	COUNTY	WATERBODY
Schoharie	Engleville Pond		
Schoharie	Summit Lake		
St. Lawrence	Black Lake Outlet/Black Lake		
Steuben	Lake Salubria		
Steuben	Smith Pond		
Suffolk	Millers Pond		
Suffolk	Mattituck (Marratooka) Pond		
Suffolk	Tidal tribs to West Moriches Bay		
Suffolk	Canaan Lake		
Suffolk	Lake Ronkonkoma		
Tompkins	Cayuga Lake, Southern End		
Tompkins	Owasco Inlet, Upper, and tribs		
Ulster	Ashokan Reservoir		
Ulster	Esopus Creek, Upper, and minor tribs		
Warren	Lake George		
Warren	Tribs to L.George, Village of L George		
Warren	Huddle/Finkle Brooks and tribs		
Warren	Indian Brook and tribs		
Warren	Hague Brook and tribs		
Washington	Tribs to L.George, East Shore of Lake George		
Washington	Cossayuna Lake		
Wayne	Port Bay		
Wayne	Marbletown Creek and tribs		
Westchester	Peach Lake		
Westchester	Mamaroneck River, Lower		
Westchester	Mamaroneck River, Upper, and minor tribs		
Westchester	Sheldrake River and tribs		
Westchester	Blind Brook, Lower		
Westchester	Blind Brook, Upper, and tribs		
Westchester	Lake Lincolndale		
Westchester	Lake Meahaugh		
Wyoming	Java Lake		
Wyoming	Silver Lake		

Note: The list above identifies those waters from the final New York State "2008 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy", dated May 26, 2008, that are impaired by silt, sediment or nutrients.

APPENDIX F

LIST OF NYS DEC REGIONAL OFFICES

Region	COVERING THE FOLLOWING COUNTIES:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) PERMIT ADMINISTRATORS	DIVISION OF WATER (DOW) WATER (SPDES) PROGRAM
1	NASSAU AND SUFFOLK	50 CIRCLE ROAD STONY BROOK, NY 11790 TEL. (631) 444-0365	50 CIRCLE ROAD STONY BROOK, NY 11790-3409 TEL. (631) 444-0405
2	BRONX, KINGS, NEW YORK, QUEENS AND RICHMOND	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4997	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4933
3	DUTCHESS, ORANGE, PUTNAM, ROCKLAND, SULLIVAN, ULSTER AND WESTCHESTER	21 SOUTH PUTT CORNERS ROAD NEW PALTZ, NY 12561-1696 TEL. (845) 256-3059	100 HILLSIDE AVENUE, SUITE 1W WHITE PLAINS, NY 10603 TEL. (914) 428 - 2505
4	ALBANY, COLUMBIA, DELAWARE, GREENE, MONTGOMERY, OTSEGO, RENSSELAER, SCHENECTADY AND SCHOHARIE	1150 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2069	1130 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2045
5	CLINTON, ESSEX, FRANKLIN, FULTON, HAMILTON, SARATOGA, WARREN AND WASHINGTON	1115 STATE ROUTE 86, PO BOX 296 RAY BROOK, NY 12977-0296 TEL. (518) 897-1234	232 GOLF COURSE ROAD, PO BOX 220 WARRENSBURG, NY 12885-0220 TEL. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROAD AVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVE. BUFFALO, NY 14203-2999 TEL. (716) 851-7070

APPENDIX F.2

Revised DEIS Chapter 7
Stormwater Management

A. INTRODUCTION

This revised Chapter describes the stormwater management approach for the project site and the environmental impacts of the proposed development on stormwater runoff.

Analyses of the pre- and post-development watershed conditions were performed to evaluate the effects of the proposed project on stormwater runoff. Peak flow and pollutant loading calculations were performed using *HydroCAD* 9.1, a hydrologic modeling program based on the NRCS Curve Number and Simple Method methodologies to compare pre-and post- development water quality and water quantity.

A detailed Stormwater Pollution Prevention Plan (SPPP) is included in Appendix F. The original DEIS Chapter 7 and the SPPP for this project were submitted for review in early August 2010. The SPPP was designed around the requirements of the *New York State Stormwater Management Design Manual* dated August 2008 *(NYSSMDM 2008)*. An updated stormwater management design manual was released in August 2010 and was required to be used by March 2011 for projects that had not already started the review process. (See Appendix F.4–2010 DEC Transition Policy) Although the regulations presented in the 2010 manual are not required to be met for this project, the Applicant is proposing to voluntarily implement many of the green infrastructure practices outlined in the 2010 manual for new development projects. Applicable New York State Department of Environmental Conservation (NYSDEC) and New York City Department of Environmental Protection regulations are outlined in SPPP Section 3–Post-Construction Water Quality and Quantity Control.

PRINCIPAL CONCLUSIONS

The impacts associated with the new developments and changes in land use will potentially cause increases to peak flows as well as increased pollutant concentration levels in runoff. Stormwater management practices have been designed to both mitigate any increase in the peak flows as well as lower the pollutant concentration levels to pre-construction conditions.

B. GROUNDWATER

The entire project site is located above two aquifer systems within unconsolidated and bedrock geologic formations. Three pumping wells (W-2, W-4 and W-6) are installed into the fractured metamorphic rock of the Manhattan Formation underlying the site east of Route 22. Four pumping wells (SG-1, SG-2, SG-3 and SG-4) are sand and gravel wells installed in a glacially deposited layer of strata that exists above the bedrock west of Route 22. The location of these wells is shown on DEIS Figure 6-1. Further discussion on groundwater is included in DEIS Chapter 6.

C. SURFACE WATER RESOURCES

Surface water drainage on the WEC properties follows the predominant topography, flowing from higher elevation lands occupied by forest on the east toward the properties' lower elevations occupied by fields, orchards, and the existing campus buildings. The drainage continues to the west, past Route 22 and ultimately discharges into the Great Swamp. The WEC properties contain several surface water features, including Mountain Brook, two unnamed streams and related impoundments, which are mapped by the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) or by the NYSDEC. The extent of on-site wetlands was determined by examining federal and state wetland maps and by a field inspection performed in August 2008. The footprint of the proposed project's disturbance area was investigated in the field for the presence of additional unmapped wetlands or water features. Aside from those described in DEIS Chapter 8, no additional wetlands or waters were identified within the limits of disturbance of the proposed project. In addition, the entire project site is located outside the 100-year floodplain boundary.

The locations of on-site streams and water bodies in the proximity of the proposed project are shown in DEIS Figure 8-1 and are provided in the detailed drawings that accompany this FEIS. The locations of these streams, water bodies, and their associated regulatory setback boundaries have been verified by a field visit conducted by the NYCDEP on May 15, 2008. The locations of wetlands mapped by the U.S. Fish and Wildlife Service (NWI) are shown in DEIS Figure 8-2. Wetlands mapped by the NYSDEC are shown in Figure 8-3. Surface water resources are discussed in further detail in Chapter 8 of the DEIS.

D. PROBABLE IMPACTS OF THE PROPOSED PROJECT

The potential adverse environmental impacts to water resources associated with the proposed project include increased stormwater runoff volumes from new impervious areas, and changes in hydrology, potential increases in pollutant concentration, decreased groundwater recharge and impacts to existing stream buffer associated with a proposed stream crossing.

The project will avoid causing potential impacts to surface waters and wetlands by not directly disturbing wetlands or streams. More specifically, no water body or wetland fill, excavation, or clearing is proposed.

The proposed impacts associated with the new impervious surfaces and changes in land use will potentially increase the peak flow rates and decrease water quality. Therefore, treatment practices have been designed in accordance with the requirements and regulations presented by the NYSDEC and NYCDEP. Runoff rates shall not exceed the existing conditions and approved mitigation measures shall provide treatment thereby eliminating potential impacts to surface water quality or aquatic habitats. Refer to the SPPP in Appendix F for more detailed information regarding the stormwater management plan.

CHANGES IN DRAINAGE PATTERNS

Analyses of the pre- and post-development stormwater drainage patterns were performed to fully evaluate the effects of the proposed project. Pre- and post-development drainage maps were created to show the existing hydrology for the site and how the drainage areas are impacted by the proposed project. Any areas that were not impacted by or tributary to the proposed project area were not included as part of this analysis. (See Figure 7-1 and Figure 7-2.)

10.6.11

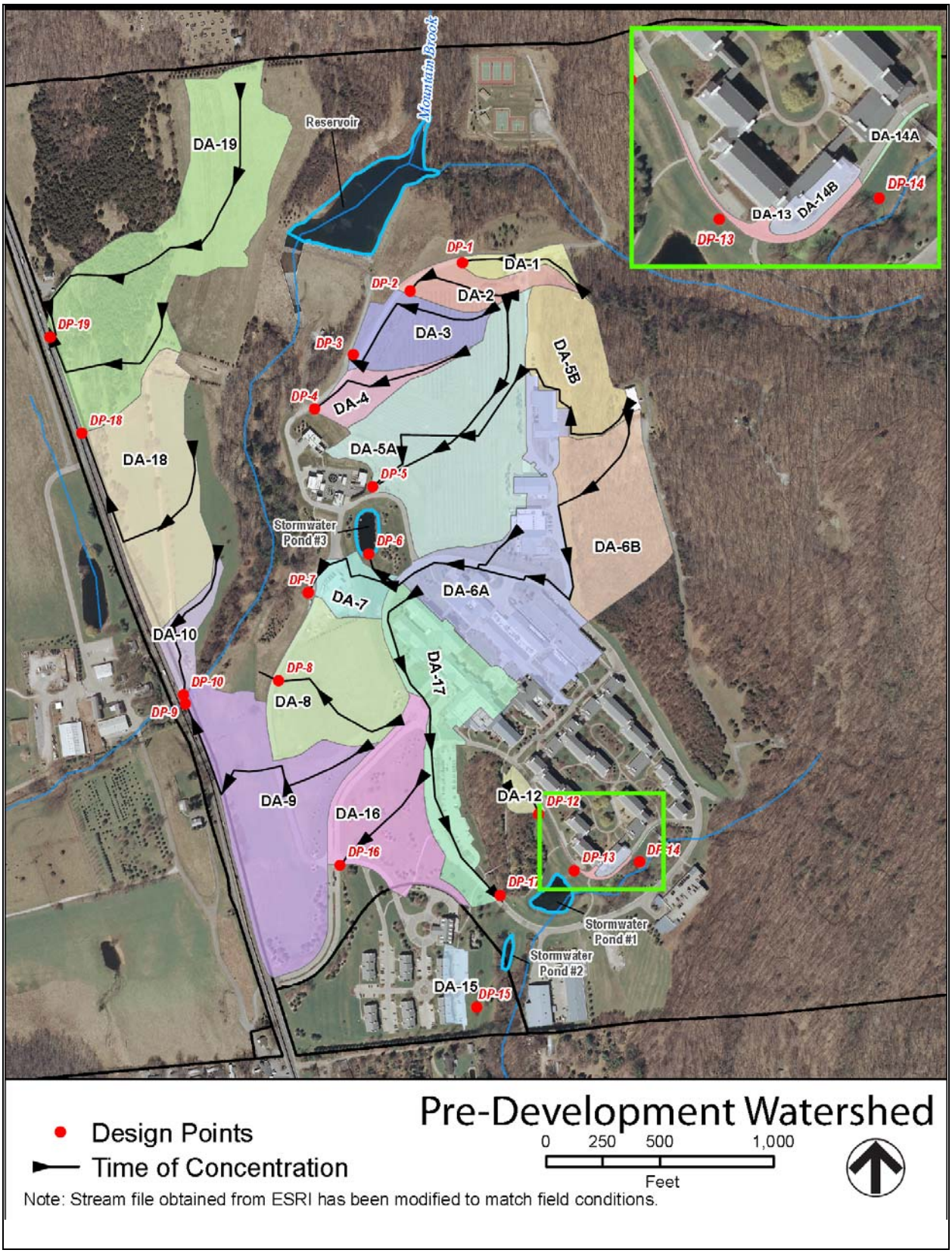


Figure 7-1
Pre-Development Watershed

10.6.11

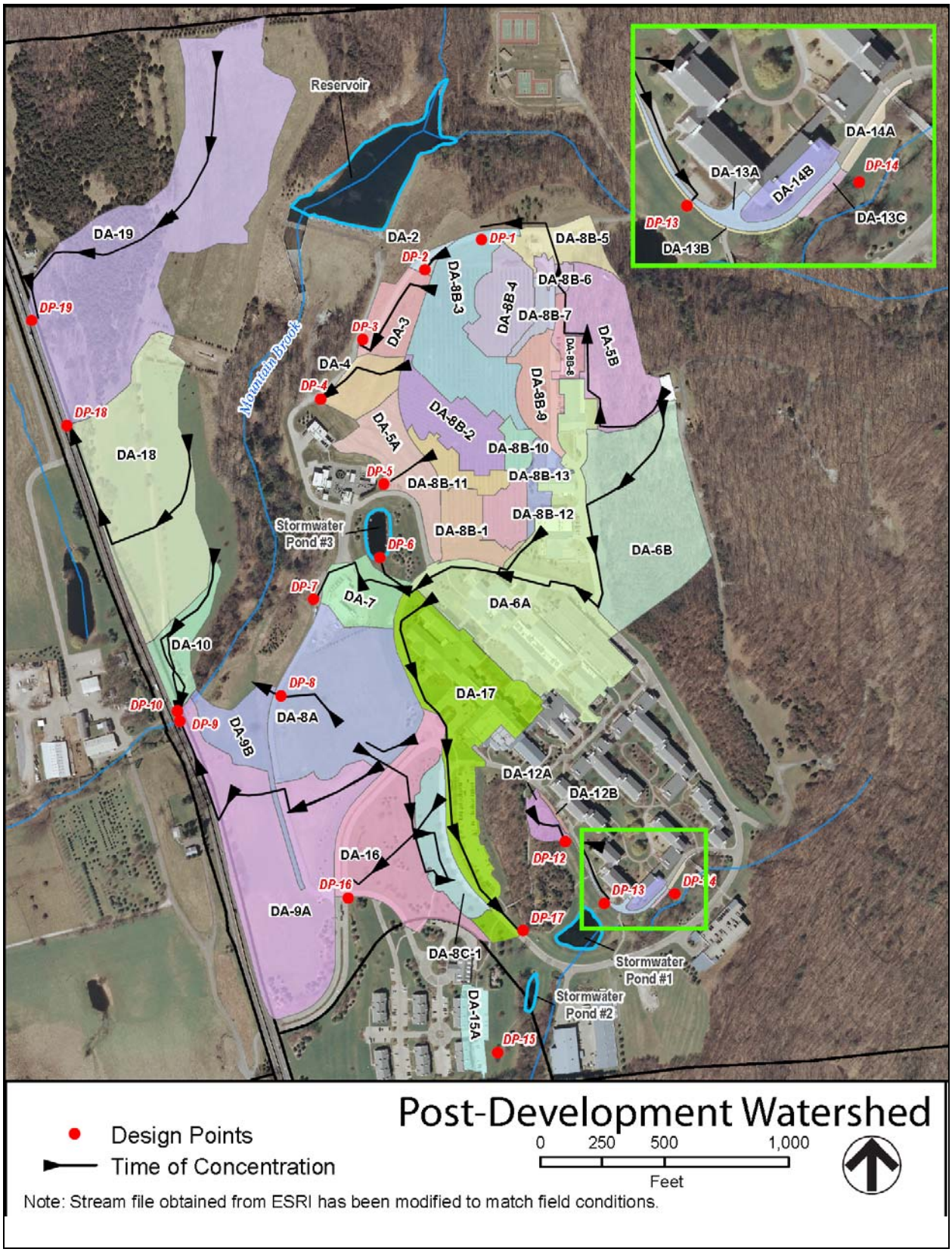


Figure 7-2
Post-Development Watershed

A comprehensive Stormwater Pollution Prevention Plan (SPPP) has been developed for this project in accordance with NYSDEC's and NYCDEP's regulatory guidelines. For the purposes of the hydrologic analysis, 19 design points were defined to characterize the existing and proposed drainage patterns within the watershed. Drainage areas tributary to the design points are further detailed in the SPPP located in Appendix F.

Smaller changes in existing drainage patterns associated with auxiliary buildings and roads occur in the two areas outlined below. Because of the insignificance of these changes, no water quality treatment was provided in these two areas:

- DA -6B, Sub-basin 1 comprises an area of approximately 442,000 square feet and will include approximately 925 square feet (0.2 %) of proposed pavement area that results from increasing the turning radius of the existing road. Since the quantity of additional impervious area is so small compared to the total drainage basin area and location of improvement precludes a practice, no treatment of the water quality volume was provided.
- DA-16 will include approximately 426 square feet of proposed sidewalk, or 0.2% of additional impervious area. Because the proposed impervious area is so small in comparison to the total drainage basin area, no treatment of the water quality volume was provided.

HYDROLOGIC ANALYSIS (WATER QUANTITY)

The goal of the stormwater management plan is to limit the runoff rate of the developed basins to pre-existing conditions, and to provide the level of water quality required by the NYSDEC during and after construction.

The design points are illustrated on the pre- and post-development drainage maps (refer to Figures 7-1 and 7-2).

HydroCAD 9.1 was used to calculate the peak flows generated from the pre-development and post-development site conditions. *HydroCAD* models the surface flow through proposed stormwater practices, calculating the plug-flow and center-of-mass detention time within the basins. A simultaneous routing process is used to evaluate the impacts associated with stormwater practices in series. The program is based on USDA's *Natural Resources Conservation Service (NRCS) Technical Releases TR20 and TR55. TR20* and *TR55* are tools that were developed to calculate the volume and peak discharge rates of stormwater runoff for rainfall events over the course of a 24-hour period. Runoff volumes and rates are calculated by determining the curve numbers (CN) and calculating the time of concentration (T_c) for each subcatchment area depending on the given rainfall value. The CN values are based on the *TR55* table and the hydrologic soil group, cover type, hydrologic condition, and antecedent runoff condition. The T_c represents the time it takes for surface water to travel from the hydraulically most distant point within the subcatchment area to a point of interest.

The following rainfall values for the 1-year, 2-year, 10-year, 25-year, and 100-year storm events for Putnam County, shown in Table 7-1, were used in the analyses and are based on the 24-hour storm event. For the purposes of the hydrologic analysis, the runoff was based on Type III rainfall distribution for the northeast region.

Table 7-1 Rainfall Values[1]

Storm Event (Year)	Rainfall Value (Inches)
1	3.1
2	3.5
10	5.5
25	6.0
100	9.5

[1]Source: Northeast Regional Climate Center

WATER QUALITY

Impervious surfaces accumulate pollutants deposited from the atmosphere, leaked from vehicles, or windblown in from adjacent areas. During storm events, the pollutants quickly wash off, and are rapidly delivered to downstream waters. Some common pollutants include sediment, nutrients, organic carbon, bacteria, hydrocarbons, pesticides, and chlorides.

The project site presently includes several impervious areas including buildings, paved parking lots, and driveways. Runoff from these impervious areas is conveyed to one of three streams (Mountain Brook and two unnamed streams) which ultimately convey runoff to the Great Swamp.

WEST NILE VIRUS

The proposed stormwater detention pond will be a micropool extended detention pond, Type P-1 as designated by NYSDEC. The article "Stormwater Management Could Combat West Nile Virus," published in the September 2003 issue of *Environmental Science and Engineering Magazine*, stated that recent field observations indicate that the mosquito species found in constructed wetlands and stormwater management ponds tend not to be of the variety that carry the West Nile virus; thus, these mosquitoes pose a low risk in spreading the virus.

Mosquitoes require standing water to complete their life cycles. Although the stormwater pond proposed will have a small permanent pool of water, this could lead to mosquito production if left unmitigated.

POLLUTANT LOADING ANALYSIS

Excess amounts of phosphorus can lead to contamination and degradation of a water supply. Consequently, the State of New York has been actively engaged in minimizing the quantity of phosphorus that enters the East of Hudson watershed, which includes reservoirs used as a drinking water supply for New York City and surrounding areas.

In January 2009 the NYSDEC prepared a report titled "Croton Watershed Phase II Phosphorus TMDL Implementation Plan" (see Appendix F.5). The purpose of this report was to identify a plan to reduce phosphorus pollution in the Croton watershed. According to the report, typical sources of phosphorus include: "stormwater runoff from impervious surfaces, agricultural land and construction sites, excessive fertilizer use, leachate from septic systems and effluent from wastewater treatment plants". This report also quantified the phosphorus reduction that should

be achieved by each Town in the Croton watershed. For the Town of Patterson, the goal is to reduce phosphorus loading by 17.2 kg over a period of five years.

The Town of Patterson has taken positive steps to meet this goal. In December 2009, the firm of Malcolm-Pirnie prepared a report for the Putnam County MS4 Coordinating Committee in which ten stormwater retrofit projects were identified in the Town of Patterson (see Appendix F.6). Once implemented, these retrofits are projected to reduce the phosphorus loading in the watershed by 26.9 pounds (12.2 kg), which is 71 percent of the Town's five-year goal.

Additionally, the Owner of this proposed action has also taken an active role in reducing their "phosphorus footprint." For example, the phosphorus concentration of the existing orchard area is assumed to be similar to lawn areas, or 2.1 mg/L (See Table A.2 in "The Simple Method to Calculate Stormwater Loads at http://www.dec.ny.gov/docs/water_pdf/simple.pdf). The orchard is being replaced by areas with lower phosphorus concentrations (roofs and driveways range between 0.11 mg/L to 0.56 mg/L). Furthermore, this SPPP has been developed based on criteria outlined in Chapter 10 of the *NYSSWDM 2010* which provides direction for the selection and sizing of stormwater practices that specifically reduce phosphorus in stormwater runoff. Thus, the proposed action results in a decrease of phosphorus loading when compared to existing conditions. As an additional demonstration of the Owner's commitment to reducing phosphorus pollution, historical data has been included in Appendix F.7 of this SPPP quantifying the amount of phosphorus found in the effluent stream of the Owner's wastewater treatment plant.

Based on the existing land use and runoff from the 1-year, 24-hour storm event, the amount of phosphorus calculated to be present in stormwater runoff from the existing facility is 208.7 lbs (94.7 kg). Under proposed mitigated conditions, the phosphorus amount is expected to decrease to 196.3 lbs (89.0 kg), a reduction of 5.9 percent or 12.4 lbs (5.6 kg) from present conditions. Thus, this reduction contributes to the Town's overall goal of decreasing phosphorus pollution in the watershed as shown in Table 7-2 Pre- and Post-Developed Pollution Loading Results. Moreover, the combination of proposed project and the Town's ten stormwater retrofit projects should allow the Town to meet or exceed its five-year phosphorus reduction goal. For detailed phosphorus calculations see SPPP Appendix F.1.F.

Table 7-2 Pre- and Post-Developed Pollution Loading Results

Design Point	Pre-Development Conditions (lbs/yr)				Post-Development Conditions (lbs/yr)			
	TSS	TP	TN	BOD	TSS	TP	TN	BOD
1	425.2	1.4	6.0	4.9	638.5	1.5	6.0	14.7
2	568.8	2.0	8.5	4.7	67.8	0.2	1.0	0.1
3	962.4	3.4	14.5	7.5	463.1	1.6	7.0	1.0
4	491.6	1.7	7.4	2.8	376.5	1.3	5.7	0.9
5	5,499.8	18.6	81.3	47.9	711.5	2.5	10.8	1.5
6	19,603.5	68.3	317.8	373.8	17,749.9	62.0	291.8	364.0
7	1,224.6	4.2	18.3	12.5	1,607.9	5.6	24.1	5.9
8	4,103.0	14.3	61.6	13.4	4,340.8	28.8	128.6	55.7
9	5,537.4	19.3	83.6	13.1	5,451.2	21.8	93.8	22.5
10	379.6	1.3	5.7	1.2	74.8	0.7	3.0	0.6
12	15.7	0.1	0.5	0.1	14.8	0.2	0.8	0.4
13	57.7	0.5	1.8	3.5	60.4	0.5	2.2	3.8
14	78.2	0.7	3.1	1.7	55.2	0.5	2.6	1.5
15	1,608.8	5.5	23.7	33.8	1,619.7	5.6	24.4	34.6
16	7,753.5	26.9	115.7	35.0	7,174.4	24.9	106.8	37.9
17	2,667.7	23.1	104.1	82.2	2,436.1	21.2	95.9	77.7
18	2,347.8	8.1	35.0	6.5	2,347.8	8.1	35.0	6.5
19	2,784.8	9.3	40.1	9.9	2,784.8	9.3	40.1	9.9
Totals:	***56,110.1***	***208.7***	***928.7***	***654.5***	***47,975.2***	***196.3***	***879.6***	***639.2***

Notes:
Design Point 11 is not used.

STREAM BUFFER IMPACT

The proposed stream crossing at Mountain Brook will require that the existing buffer be impacted during construction. The permanent encroachment is estimated at 21,000 square feet and includes re-grading of the existing soil, construction of crossing abutments, approach road and adjacent swales.

The encroachment could lead to erosion of stream banks, loss of vegetative cover and degradation of stream water quality if left unmitigated.

E. MITIGATION MEASURES

Several stormwater management practices, including green infrastructure practices and standard stormwater management practices, will be implemented and have been designed for the proposed project using the *New York State Stormwater Management Design Manuals* dated 2008 and 2010 *(NYSSMDM)*. These stormwater management measures will provide attenuation of the runoff flow rate, prevent downstream erosion and sedimentation, and reduce concentrations of pollutants in stormwater runoff; thus, avoiding adverse impacts to Mountain Brook, the unnamed streams, and wetlands. By adhering to the stormwater management guidelines contained in these regulations, the proposed project will not result in adverse changes to the water quality or quantity of on-site and off-site streams and wetlands. Further discussion of these low-impact development strategies can be found in Appendix F—SPPP.

WATER QUALITY

Although the project has been designed in compliance with the regulations presented in the *NYSSMDM* (dated 2008), an effort has been made to use the *NYSSMDM's* five-step site planning and stormwater management practices (SMP) selection process as presented in the *NYSSMDM* (dated 2010). The five steps used are:

1. Site planning to preserve natural features and reduce impervious cover.
2. Calculation of the water quality volume for the site.
3. Incorporation of green infrastructure techniques and standard SMPs with runoff reduction volume (RRv) capacity.
4. Use of standard SMPs where applicable, to treat the portion of water quality volume not addressed by green infrastructure practices and standard SMPs with runoff reduction capacity.
5. Design of volume and peak rate control practices where required.

The use of the five-step process has resulted in green infrastructure practices (GIPs) being incorporated throughout the development. With the largest drainage basin, DA-8B and 8C, providing nearly 90% of water quality treatment with green infrastructure practices, and the project as a whole providing close to 80% treatment.

As shown on Figure 7-3—Green Infrastructure Practices and in the detailed drawings that accompany this FEIS and the SPPP (see Appendix F), several green practices, although not required according to the 2008 regulations, have been incorporated throughout the site to provide improved treatment of runoff. Water quality treatment for the proposed impervious areas will include the following practices: disconnection of rooftops from the stormwater collection piping, tree planting, green roofs, bioretention facilities, and permeable pavers. Each practice has been

designed in accordance with the criteria presented in the *NYSSMDM* dated 2010 (detailed calculations are provided in Appendix E of the SPPP). In addition to these green practices, two standard stormwater practices are being implemented on the site and include a stormwater pond and underground sand filters. These practices will remove stormwater pollutants, including sediment, nutrients, and oxygen-demanding constituents, thus preventing adverse changes to runoff water quality leaving the Project Site. Pollutant removal was calculated in series and achieved using the equation referenced from "*The Simple Method to Calculate Urban Stormwater Loads*" by New York State Department of Environmental Conservation. (Refer to Appendix F in the SPPP for detailed calculations).

WATER QUANTITY

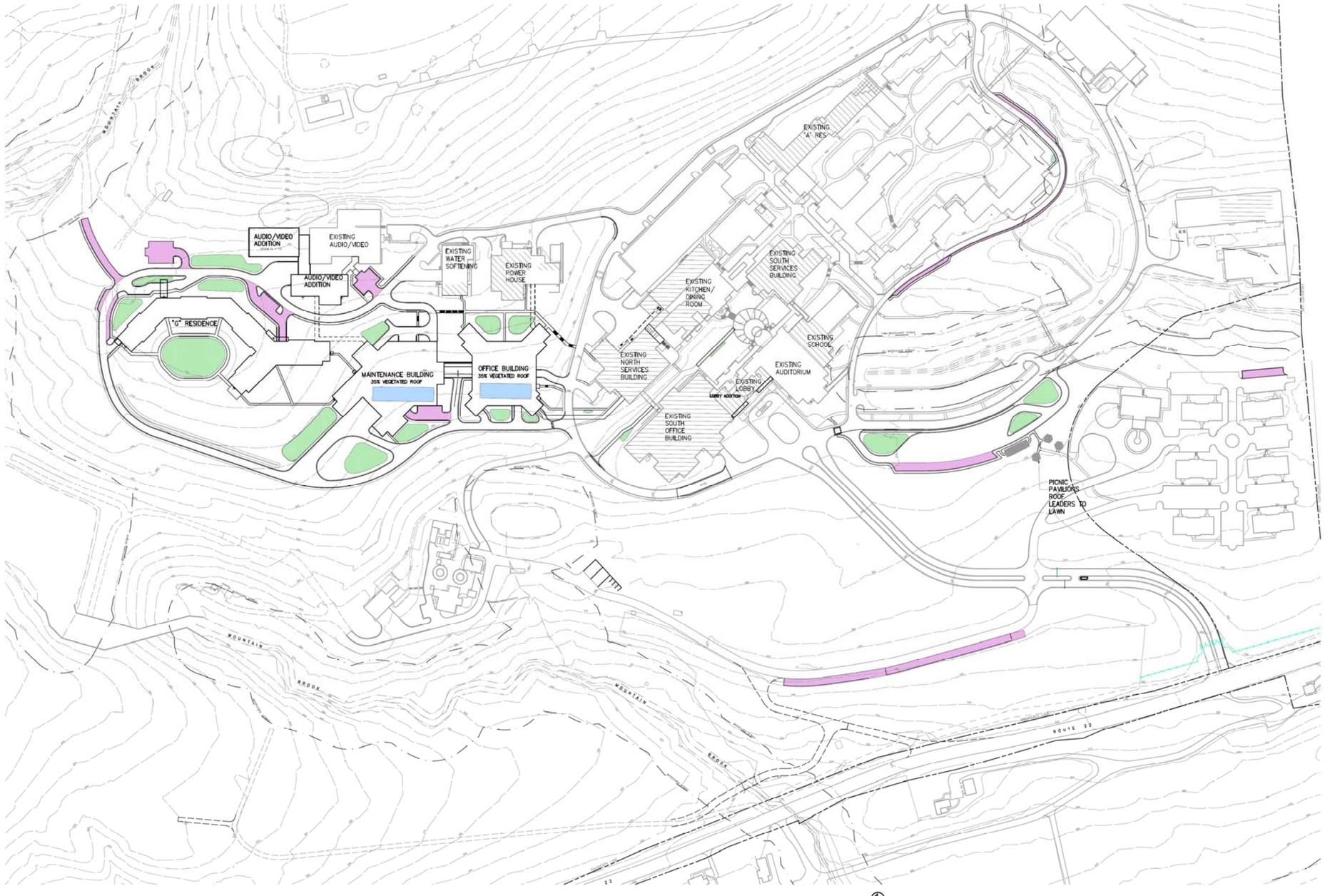
Table 7-3 Pre- and Post-Developed Peak Flow Comparison provides a summary of the pre-development and post-development water quantity at the 19 design points analyzed. As can be seen, all the design points experience either a decrease or no change in the post-development peak flow rate when compared to the pre-development flow rates. The complete hydrologic model input and output are included in the SPPP located in Appendix F.

Table 7-3 Pre- and Post-Developed Peak Flow Comparison

Design Point	Pre-Development Conditions (cfs)					Post-Development Conditions (cfs)				
	1-yr	2-yr	10-yr	25-yr	100-yr	1-yr	2-yr	10-yr	25-yr	100-yr
1	1.0	1.3	2.9	3.4	6.4	0.7	1.6	2.2	5.2	5.6
2	0.7	1.1	3.3	3.9	8.8	0.5	0.8	2.4	2.9	7.0
3	1.2	1.8	5.4	6.5	14.6	0.9	1.3	3.7	4.3	9.4
4	1.5	1.9	4.4	5.1	10.0	1.3	1.7	3.9	4.5	8.7
5	8.6	11.6	29.3	34.1	70.4	2.5	3.2	7.5	8.6	16.9
6	24.0	28.0	50.2	56.1	98.6	22.5	26.1	46.6	52.1	91.8
7	3.0	3.6	6.8	7.6	13.3	2.1	2.7	5.6	6.4	12.1
8	7.5	9.6	21.0	24.0	45.7	5.4	6.8	14.7	16.9	42.3
9	10.8	14.0	31.7	36.4	70.8	8.2	10.8	28.2	34.9	70.5
10	1.3	1.7	3.9	4.5	8.6	1.2	1.6	3.8	4.4	8.6
12	0.4	0.6	1.4	1.6	3.2	0.3	0.5	1.1	1.3	3.2
13	0.5	0.6	0.9	1.0	1.6	0.5	0.6	0.9	1.0	1.6
14	0.4	0.5	0.9	1.0	1.8	0.3	0.3	0.8	0.9	1.6
15	2.2	2.5	4.2	4.6	7.7	2.2	2.5	4.2	4.6	7.7
16	6.6	8.2	16.8	19.1	35.4	6.5	7.9	16.1	18.3	34.1
17	14.1	16.3	27.7	30.6	51.0	13.9	16.1	27.2	30.1	50.2
18	7.8	10.1	23.6	27.2	53.4	7.8	10.1	23.6	27.2	53.4
19	11.7	15.6	38.1	44.1	89.0	11.7	15.6	38.1	44.1	89.0

Notes:
Design Point 11 is not used.

8.19.11



1 PLAN – STORMWATER MANAGEMENT PLAN GREEN PRACTICES

INTERLOCKING CONCRETE PAVERS

BIORETENTION AREAS

VEGETATED ROOFS

Figure 7-3

Green Infrastructure

POLLUTION CONTROL DURING CONSTRUCTION

A complete Erosion and Sediment Control Plan, also included within the SPPP, has been developed to minimize impacts to runoff during construction. The proposed measures will include the use of silt fencing, temporary sedimentation basins, seeding and mulching, and project phasing during the construction period—see Appendix F.

POST-CONSTRUCTION INSPECTION AND MAINTENANCE

Following completion of construction, a long-term inspection and maintenance program will be implemented to ensure the proper functioning of the stormwater management system. The program will be carried out by the Applicant. A detailed checklist for inspection and maintenance of each stormwater management practice is included in the SPPP—see Appendix F.

WEST NILE VIRUS

According to the Environmental Protection Agency's *Stormwater Wet Pond and Wetland Management Guidebook,* "The most effective mosquito control program is one that eliminates potential breeding habitats. The G*uidebook* further states, "A maintenance program dedicated to eliminating potential breeding areas is preferable to controlling flying mosquitoes."

Given that some species of mosquitoes can reach the adult stage in as little as four days from when the egg is laid, it is imperative that stormwater detention areas be designed to drain within an appropriate time period. Direction provided by NYSDEC requires that detention areas be flushed within 48 hours to prevent stagnant water other than the pond micropool. Thus, the design of the stormwater detention areas for this project will ensure that runoff is detained for no more than 48 hours. Additionally, the areas will be inspected after major storm events to ensure that no standing water or wet spots are present and the pond micropool will incorporate an aeration device that will create water movement reducing the likelihood of mosquito larvae being able to thrive.

STREAM BUFFER IMPACT

Several practices have been utilized to minimize the encroachment into the existing stream buffer. The proposed stream crossing is located in an area of Mountain Brook that is less sensitive with regard to existing steep slopes, erodible soils and mature vegetation as it is in close proximity to the existing Route 22 culvert. The width of the crossing path has been set at 20 feet to allow for safe passage of vehicles and to minimize the amount of encroachment into the buffer. The clear span crossing also eliminates any encroachment into the stream bed itself as it does not require any structural components other than those at the abutments. The abutments have been located so they do not significantly encroach into the waterway thereby reducing the available stream area.

Local storm runoff from the approach road has been directed towards vegetated swales with check dams to reduce velocity and allow for some infiltration into existing soils. Before runoff outfalls to Mountain Brook from the swales, it will be treated at an underground sand filter. The bridge deck itself will be graded away from the waterway so that runoff is treated in the sand filters prior to discharge.

F. FUTURE WITHOUT PROPOSED PROJECT

No changes to on-site stormwater runoff would occur in the future without the proposed project. As discussed above, the topography and land use have been modified as part of the initial construction of the facility. No further clearing, grading, filling, or excavation within the water courses and their buffers would occur, with the exception of ongoing maintenance.

APPENDIX F.3

Dewatering Plan

Appendix F.3 – Dewatering Plan

Dewatering will be required during the construction of the proposed project. Dewatering methods suitable for this site would include the use of sumps, pumps, diversion and drainage ditches to divert stormwater from construction excavation and to lower perched groundwater levels.

The major source of water will likely be from rainfall events. The amount of stormwater entering excavations will be minimized by using diversion methods such as diversion berms or drainage ditches. It is anticipated that submersible centrifugal 1.0 horsepower pumps with a water capacity of 73 GPM, total head of 37 feet, and 2-inch discharge hose will be sufficient to dewater excavations. Multiple pumps will be used to cover peak demands in order to dewater excavations within 24 hours.

Perched groundwater was encountered in test borings at depths as shallow as 6.75 feet. Where perched groundwater is encountered during excavation, a series of sumps and pumps will be installed to lower the groundwater level at least two feet below the bottom of excavation to maintain stable conditions. Sumps pits will also serve as a filter for sediment-laden groundwater. The pit will be filled with filtering stone media and a perforated vertical standpipe wrapped in filter cloth will be placed in the center of the pit. Pumping rates are unknown and the number and location of sumps will be determined by field conditions. However, it is anticipated that multiple sumps and pumps would be needed if groundwater is encountered. The same submersible pumps mentioned above will be used for pumping groundwater from excavations.

Neither stormwater nor groundwater pumped from excavations will be discharged directly into streams or storm sewers. Pumps will discharge directly into a sediment tank/bag or sediment trap. Sediment from tanks will be disposed of in a sediment basin. All sediment traps discharge to a sediment basin.

The table below shows locations of dewatering activities and discharge points. See erosion and sediment control drawings for further details.

Location of Excavation	**Discharge Point**
G Residence	Sediment Trap ST-01
Maintenance Building (Cellar)	Sediment Tank and/or Sediment Trap ST-03
Maintenance Building (Basement)	Sediment Tank and/or Sediment Trap ST-02
Office Building (Cellar 1)	Sediment Tank
Office Building (Cellar 2)	Sediment Tank
Utility Tunnel from G Residence to Maintenance Building	Sediment Tank
Utility Tunnel from Office to Existing Powerhouse	Sediment Tank
Utility Tunnel from West Audio/Video Building to Maintenance Building	Sediment Tank
North Audio/Video Building	Sediment Tank and/or Inlet (with stone and block protection)
West Audio/Video Building	Sediment Tank
Lobby Expansion	Sediment Tank
Dining Room Connector	Sediment Tank

APPENDIX F.4

DEC 2010 Transition Policy

DRAFT

DOW – 1.2.5: New York State Stormwater Management Design Manual 2010 Update Transition Policy

New York State Department of Environmental Conservation, Division of Water

Division of Water Policy

Issuing Authority: Mark Klotz Director, Division of Water Signature:_____	**Title: New York State Stormwater Management Design Manual 2010 Update Transition Policy**
Date Issued:	**Latest Date Revised:** New
Originator:	

***** N O T I C E *****

This document has been developed to provide Department staff with guidance on how to ensure compliance with the statutory and regulatory requirements, including case law interpretations, and to provide consistent treatment of similar situations. This document may also be used by the public to gain technical guidance and insight regarding how Department staff may analyze an issue and factors in their consideration of particular facts and circumstances. This guidance document is not a fixed rule under the State Administrative Procedures Act subsection 102(2)(a)(I). Furthermore, nothing set forth herein prevents staff from varying from this guidance as the specific facts and circumstances may dictate, provided staff's actions comply with applicable statutory and regulatory requirements. This document does not create any enforceable rights for the benefit of any party.

I. Summary:

This guidance clarifies the criteria an owner or operator of a construction project, subject to the requirements of the *SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-10-001)* ["CGP"], must meet in order to continue to use a Stormwater Pollution Prevention Plan ["SWPPP"] that was designed in accordance with the 2008 version of the New York State Stormwater Management Design Manual ["Design Manual"].

II. Policy:

The Department acknowledges that the 6 month transition period for construction projects to use the 2010 version of the Design Manual did not fully consider the economic impact to certain construction activities that had already started the planning, design and review process with another review authority. With consideration for the cost and environmental benefit provided by the 2008 version of the Design Manual, and consistent with past application of other new requirements in the CGP, construction activities that meet either one of the following may obtain CGP coverage with a SWPPP prepared in conformance with the 2008 version of the Design Manual (see "2008 Stormwater Management Design Manual" at http://www.dec.ny.gov/chemical/29072.html):

- Construction activities subject to local government subdivision or site plan review and approval requirements where the owner or operator made application to the local government for preliminary approval, or made application for final approval to a local government with no preliminary approval phase, prior to March 1, 2011 and the application included a SWPPP developed in accordance with the 2008 version of the Design Manual.

- Construction activities that are subject to governmental review and approval (other than those construction activities listed above) where the owner or operator made any application to that governmental entity prior to March 1, 2011 and the application included a SWPPP developed in accordance with the 2008 version of the Design Manual.

This guidance applies only to projects obtaining coverage under the CGP. Permit conditions and SWPPP requirements for projects authorized under an individual permit will be established based on the site specific conditions and the best professional judgment of the permit writer.

III. Purpose and Background:

The purpose of this guidance is to clarify the criteria that construction activities, subject to the requirements of the CGP, must meet in order to continue to use a SWPPP designed in accordance with the 2008 version of the Design Manual.

Urban Stormwater Runoff has been noted as the major source of use impairment for one third of all impaired waters in New York State. In order to mitigate the water quality impacts of urbanization on receiving waters, construction activities that will ultimately disturb one or more acres must obtain coverage and comply with the requirements of the CGP. The CGP requires certain projects design and construct stormwater management practices that will mitigate the project water quality impacts after construction is completed. In accordance with the CGP, these stormwater management practices must be designed in accordance with the criteria in the Design Manual or its equivalent.

A revised version of the Design Manual was finalized and made available to the public on August 4, 2010. The updated Design Manual represents a substantial change in project design whereby post construction treatment practices must reduce the volume of runoff to mimic the pre-developed hydrology. Prior versions of the Design Manual required that post construction treatment practices provide treatment and rate control for specific storm events.

As per requirements in the CGP, an owner or operator of a regulated construction activity is required to begin using this new Design Manual six (6) months from the final revision date; by March 1, 2011. However, the 6 month transition period did not fully consider the economic impact to projects that had already started the planning, design and review process with another review authority prior to March 1, 2011. Therefore, with consideration for the re-design cost and the fact that construction activities whose stormwater management practices designed according to the previous version (2008) of the Design Manual are

generally protective of the receiving water bodies, the Department is clarifying that such construction activities, as defined in the Policy section of this document, may obtain CGP coverage with a SWPPP prepared in conformance with the 2008 version of the Design Manual.

IV. Responsibility:

Department staff responsible for the implementation of the CGP will update this guidance document, as necessary. The owners or operators of the project site are responsible for documenting that their construction activities are eligible to use the 2008 version of the Design Manual in developing their SWPPP, as outlined in this guidance document and incorporating such documentation into their SWPPPs. Municipalities authorized under the 2010 *SPDES General Permit for Municipally Owned Separate Storm Sewer Systems (MS4s) (GP-0-10-002)* are responsible for confirming that SWPPPs for such construction activities have included the documentation demonstrating that the project meets the criteria set forth in this guidance document.

V. Procedure:

Owner or Operator: When completing the Notice of Intent (NOI) for a construction activity that meets the criteria listed in this guidance document, an owner or operator must answer question 23 as "No" since the post-construction stormwater management practice component of the SWPPP has not been developed in conformance with the 2010 version of the Design Manual. As per Part III.B.2.d of the general permit, an owner or operator must also include the reason for this nonconformance in the SWPPP and provide supporting information or documentation. Such documentation could be in the form of planning board meeting minutes, letters acknowledging receipt of the application or other correspondence providing comments on the application. In addition, the owner or operator must indicate which of the criteria they meet when completing the NOI (use the space provided in question 39 of the NOI)

Department Staff: When processing the NOI for a construction project seeking coverage under the CGP with a SWPPP developed in conformance with the 2008 Design Manual, the Department will ensure that the owner or operator has answered question 23 as "No" and has indicated which of the criteria they meet in the space provided in Question 39. When

reviewing the SWPPP, staff will confirm that the owner or operator has identified the reason for the nonconformance in the SWPPP and has included documentation supporting that the project complies with one of the criteria listed in this guidance document.

MS4s: When reviewing SWPPPs, the MS4 will confirm that the construction project meets the criteria for the nonconformance listed in this guidance document and the SWPPP has included the supporting documentation. When completing the MS4 Acceptance Form, under Section VI. Additional Information, the MS4 will note that the owner or operator has applied for preliminary or final approval, prior to March 1, 2011, and the SWPPP was reviewed for conformance with the 2008 version of the Design Manual

VI. Related References:

- NYS Stormwater Management Design Manual (2008 and August 2010 versions). See http://www.dec.ny.gov/chemical/29072.html for both versions.

- SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-10-001)

APPENDIX F.5

Croton Watershed TMDL Plan

Croton Watershed
Phase II Phosphorus TMDL
Implementation Plan

Prepared in accordance with the New York City Watershed Memorandum of Agreement (January 1997)

New York State Department of
Environmental Conservation

Division of Water

January 14, 2009

Executive Summary

This report outlines goals and tasks to reduce phosphorus pollution in the Croton watershed. Typical pollutant sources include stormwater runoff from impervious surfaces, agricultural land and construction sites, excessive fertilizer use, leachate from septic systems and effluent from wastewater treatment plants. The purpose of this report is to provide goals to reduce the phosphorus concentration levels in the eight (8) water-quality impaired East of Hudson (EOH) reservoirs in the Croton watershed, as identified in the Phase II Phosphorus Total Maximum Daily Load (TMDL) report (New York State Department of Environmental Conservation (DEC), June 2000).

This plan is largely structured to use existing programs, primarily the New York State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-08-002 for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). New York State has designated each municipality in the Croton watershed as an entity requiring Phase II stormwater permit coverage. GP-0-08-002 requires MS4 permittees to develop, implement and enforce a stormwater management program (SWMP) to reduce the discharge of pollutants from their MS4s in accordance with NYS Environmental Conservation Law and the Clean Water Act.

To facilitate water quality improvement in the Croton watershed, the MS4 general permit has articulated enhanced criteria entitled “Minimum Control Measures – Watersheds with Improvement Strategies”, which describe additional measures required for permit compliance. The additional measures in the EOH Watershed include the development and submission of an approvable plan to the DEC outlining stormwater retrofit plans. The plans must meet a minimum threshold for phosphorus reduction. These proposed reductions are indicated in this report and have been established according to relative values of high-density development land use in the EOH Watershed.

Phosphorus source control, such as the use of phosphorus –free lawn fertilizer and dishwasher detergent and the prevention of animal access to waterbodies should also be implemented. Ultimately, societal awareness of the sources of phosphorus pollution can play a key role in reducing phosphorus pollution.

DEC recognizes that conducting phosphorus reduction programs will require significant funding. Section 3 of this Implementation Plan includes a list of funding sources currently available. DEC looks forward to the continued support of all involved agencies and watershed stakeholders toward the goal of reducing phosphorus loads to improve water quality and meet the phosphorus water quality criteria for these drinking water sources.

A C K N O W L E D G M E N T S

The DEC gratefully acknowledges the agencies and people that have contributed to the development of this Phosphorus TMDL NPS Implementation Plan.

The TMDL Work Group, composed of scientists and engineers from the New York City Department of Environmental Protection (DEP), the U.S. Environmental Protection Agency (EPA) and DEC have all provided input, comments and technical guidance for this implementation plan. Shohreh Karimipour of the DEC, Dr. Kimberlee Kane of the DEP, Maureen Krudner of the EPA, Sabrina Charney of the Town of Somers, John Lynch of the Putnam County Department of Planning and the Watershed Protection and Partnership Council's Technical Advisory Committee chairperson, Nicholas L. Clesceri deserve a special thank you for their assistance. Additional thanks are extended to Rich Williams of the Town of Patterson, Beth Coursen of the Town of Pawling and Dave Graves of the New York State Department of Transportation for their for valuable advice and comment.

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Phase II Phosphorus Total Maximum Daily Loads For Reservoirs in the New York City Watershed, June 2000

Recommendations to the New York State Department of Environmental Conservation for the Development of its Phase II TMDL Implementation Plan, April 2004

1.0 Introduction

The Federal Clean Water Act (CWA), Sections 301, 303 and 304, requires states to identify all water bodies in the state that cannot meet applicable water quality standards with existing point source (wastewater treatment plant) effluent limitations alone. The CWA requires states to establish EPA-approvable total maximum daily loads (TMDLs) for these waterbodies which, when implemented, will achieve the water quality standards.

The 2008 New York State Section 303(d) list of impaired water bodies identified phosphorus as the pollutant of concern for the eight impaired East of Hudson (EOH) reservoirs that are listed in Table 1 below. These eight reservoirs, their contributing basins and sub-basins are illustrated below in Figures 1 and 2.

The phosphorus reduction that is required in the reservoirs is to be achieved through a combination of wastewater treatment plant effluent phosphorus reductions and stormwater runoff-related phosphorus reductions. Upgrades to the wastewater treatment plants within the NYC Watershed include tertiary treatment (e.g. micro-filtration) and, where completed, have resulted in reductions in point source phosphorus loading. Non-wastewater treatment plant phosphorus loading and the strategy for reducing this type of pollution is the primary subject of this report.

2.0 Croton Watershed TMDL Development and Phosphorus Reduction Efforts

The development of phosphorus TMDLs for the New York City reservoirs was completed in two phases:

The Phase I TMDL was completed in 1997 and included initial assessments from monitoring data and phosphorus reduction from wastewater treatment plant upgrades required by the New York City Watershed Rules and Regulations.

The Phase II TMDL was completed in 2000, relying on more recent monitoring data, modeling and further assessment of permissible phosphorus levels in individual reservoirs. The Phase II Phosphorus TMDL is available at: http://www.dec.ny.gov/docs/water_pdf/nycjune2000.pdf.

Phase II TMDL phosphorus reduction data is reproduced as Table 1 on the following page. This information is provided to indicate the level of phosphorus reduction required in the Croton watershed. The column entitled “Remaining Reductions Needed” assumes all WWTP upgrades have been completed and shows all non-WWTP reductions that are still required to achieve compliance with the TMDLs.

Table 1 - Water Quality Limited Reservoirs - Remaining Phosphorus Reductions							
RESERVOIR	Current PS Loads (Kg/yr)	Current NPS Load (Kg/yr)	Available Load TMDL-MOS (Kg/yr)	WLA (Kg/yr)	LA (Available Load - WLA) (Kg/yr)	Total Reductions Needed (Kg/yr)	Remaining Reductions Needed (Kg/yr)
Amawalk	241	1,077	1,196	390	806	122	122
Croton Falls	1,710	3,300	3,030	615	2,415	1,980	885
Diverting	159	3,685	2,392	322	2,070	1,452	983
East Branch	233	3,229	2,469	449	2,020	993	993
Middle Branch	99	921	816	184	632	204	204
Muscoot	1,631	9,929	8,457	1,405	7,052	3,103	2,058
New Croton	191	10,998	8,758	209	8,549	2,431	1,356
Titicus	0	1,124	984	0	984	140	140

Note: Current PS is WWTP measured load from 1996. Current NPS is (1992-1996) measured reservoir concentrations minus Current PS. WLA is WWTP loads once upgrades are achieved with all WWTPs operating at design flow. Total Reductions Required is Current PS + Current NPS minus Available Load. Remaining Reductions is Current NPS + WLA minus Available Load (once WWTP upgrades are achieved).

Target High-Intensity Development First

DEC has performed an analysis of the MS4s in the Croton Watershed and prioritized areas where stormwater retrofits will most effectively result in reduction of phosphorus loading to adjacent waterbodies. This analysis is focused on high intensity developed land use within the various reservoir watersheds, because this land use produces higher phosphorus loading than other less intensely developed land uses, as indicated in Appendix B.

Table 2 below shows the results of Arc View Generalized Watershed Loading Function (AVGWLF) modeling of high intensity development phosphorus loading per reservoir basin by DEC. Boyd's Corners and West Branch Basins are included, though these basins are not water-quality limited, because these reservoirs feed downstream reservoirs that are water-quality limited. DEC has used the results of this model to allocate five-year phosphorus reduction values for MS4s in the Croton watershed that will meet plan approval from DEC, a requirement for compliance with the MS4 General Permit.

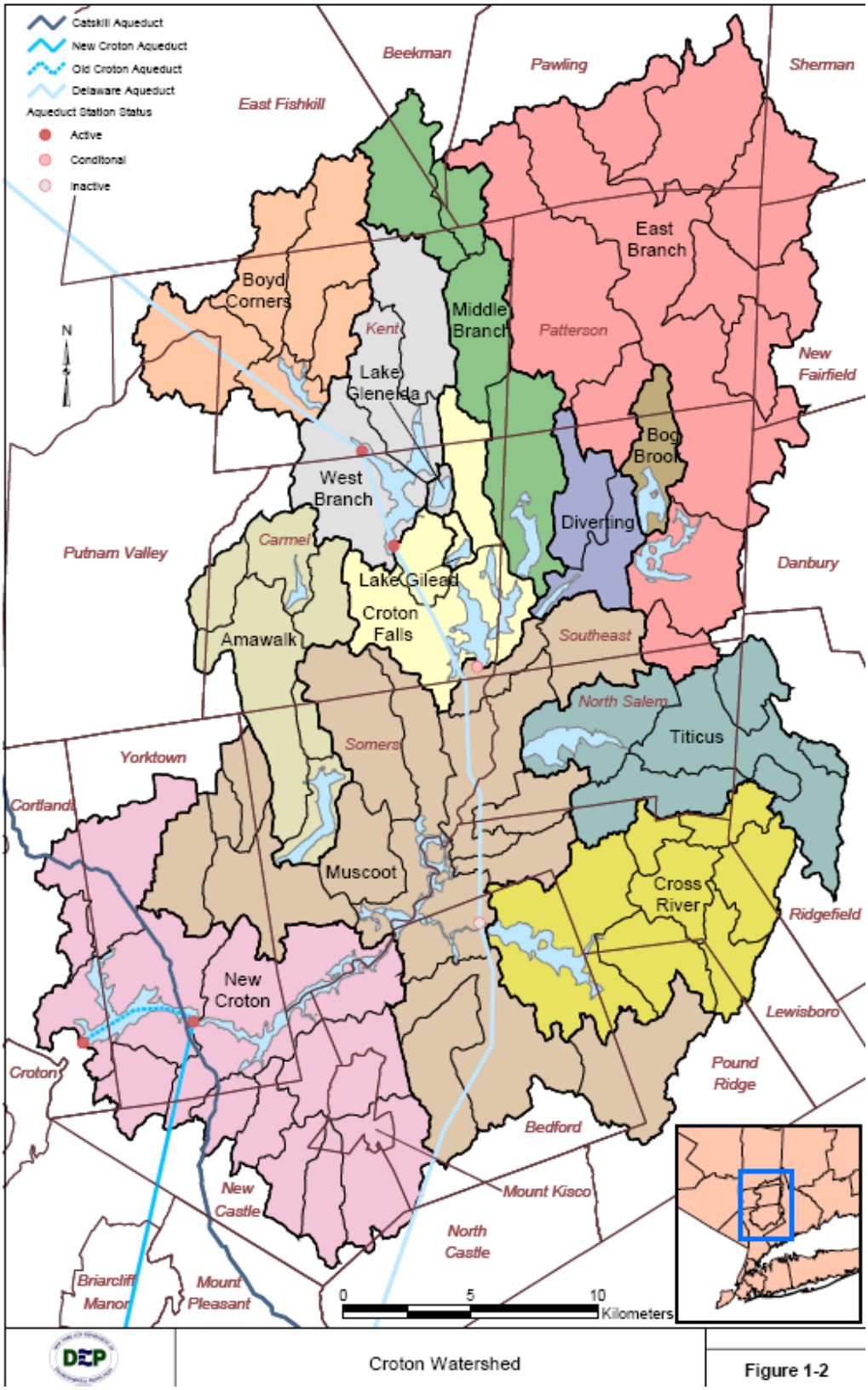
Since these modeled phosphorus reductions are derived from a specific subset of urbanized land use, it does not fully describe the phosphorus reductions required in the Croton watershed. Targeting retrofits in high intensity developed areas alone will achieve perhaps 20% of the required phosphorus reductions. Therefore, retrofits in lower intensity urban areas and non-

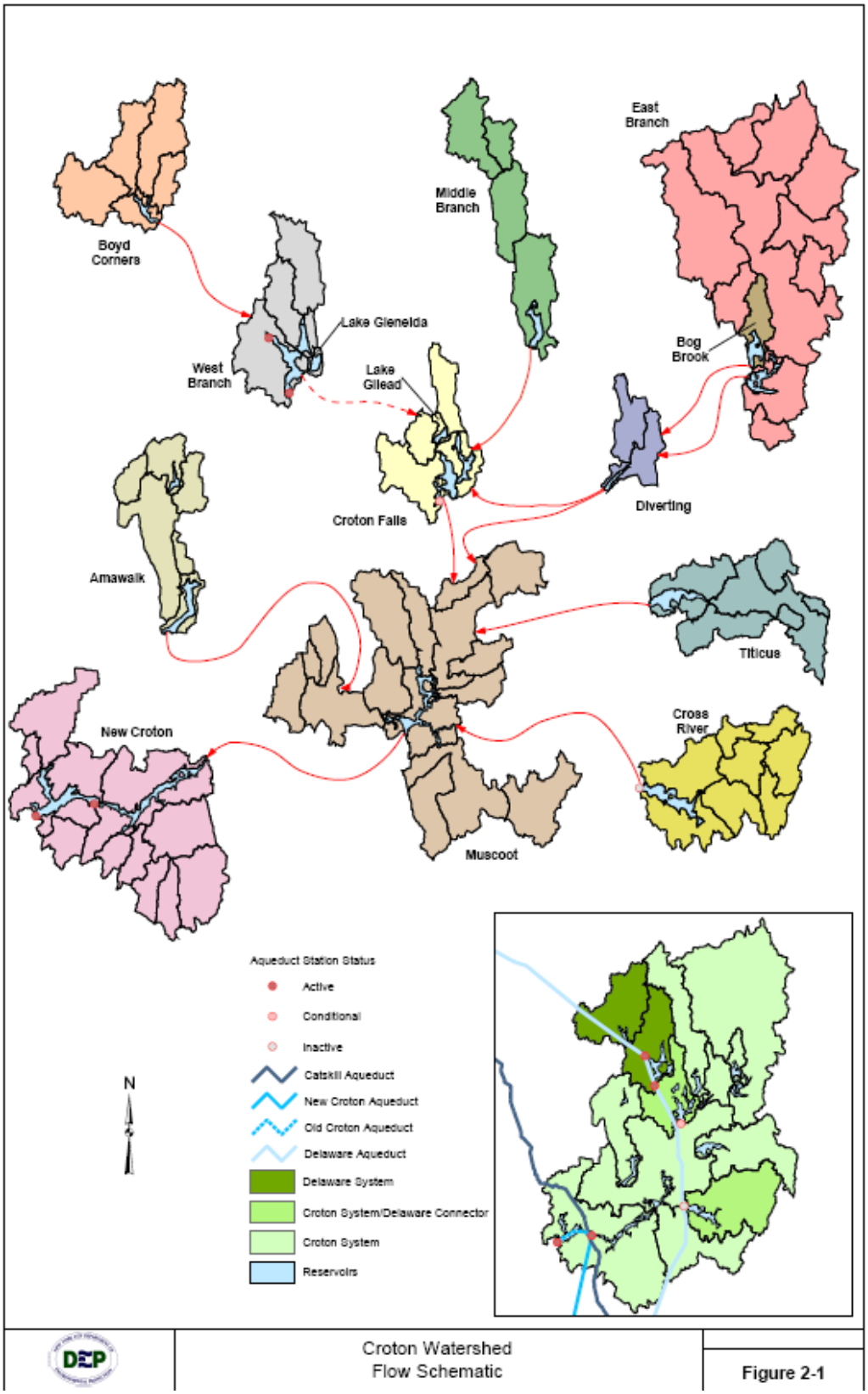
urban areas may be required, along with other permit compliance measures to further reduce phosphorus, as part of achieving compliance with the TMDLs. Table 2 reveals the level of high intensity development-based phosphorus loading each MS4 contributes to a given reservoir basin. This information will be useful to a regional approach to permit compliance in allowing a more complete view of the Croton reservoir system.

Table 2 – Modeled High Intensity Development Phosphorus Loading By Watershed Basin

Watershed	Municipal High Intensity Development Phosphorus Load (kg/yr)							Total
Amawalk	Carmel	Putnam Valley	Somers					220
	190	0	30					
Croton Falls	Carmel	Kent	Somers	Southeast				139
	106	25	6	2				
Diverting	Brewster	Patterson	Southeast					135
	37	0	98					
East Branch	Kent	North Salem	Patterson	Pawling	Southeast			192
	1	6	98	48	39			
Middle Branch	Beekman	Carmel	East Fishkill	Kent	Patterson	Pawling	SE	165
	1	5	12	88	12	2	45	
Muscoot	Bedford	Carmel	Lewisboro	North Salem	Pound Ridge	Somers	SE	Yorktown	786
	143	48	72	106	23	207	34	153	
Boyd's Corners	East Fishkill	Kent	Putnam Valley					47
	4	38	5					
West Branch	Carmel	East Fishkill	Kent					68
	30	2	36					
New Croton	Bedford	Cortlandt	Mount Kisco	New Castle	North Castle	Somers	Yorktown	480
	46	49	115	131	0	5	134	
Titicus	Lewisboro	North Salem						17
	1	16						
Cross River	Bedford	Lewisboro	North Salem	Pound Ridge				138
	2	114	0	22				
Bog Brook	Patterson	Southeast						4
	1	3						
							Total	2,391*

* This table has been extracted from Appendix B, "Technical Background for Retrofitting Practices." This total does not include values for the towns of Harrison and Mount Pleasant, as these towns are not part of the Croton watershed.


Catskill Aqueduct
New Croton Aqueduct
Old Croton Aqueduct
Delaware Aqueduct
Aqueduct Station Status
Active
Conditional
Inactive
N
Beekman
Pawling
Sherman
East Fishkill
East Branch
Boyd Corners
Middle Branch
Kent
Patterson
New Fairfield
Lake Glenelda
Bog Brook
West Branch
Diverting
Carmel
Putnam Valley
Danbury
Lake Gilead
Croton Falls
Amawalk
Southeast
North Salem
Titicus
Somers
Yorktown
Cortlandt
Muscoot
Cross River
Ridgefield
New Croton
Lewisboro
Croton
Pound Ridge
Bedford
Mount Kisco
New Castle
North Castle
Briarcliff Manor
Mount Pleasant
0
5
10
Kilometers
DEP
Croton Watershed
Figure 1-2


Boyd Corners
Middle Branch
East Branch
Lake Glenelda
West Branch
Lake Gilead
Bog Brook
Diverting
Croton Falls
Amawalk
Titicus
New Croton
Cross River
Muscoot
Aqueduct Station Status
Active
Conditional
Inactive
Catskill Aqueduct
New Croton Aqueduct
Old Croton Aqueduct
Delaware Aqueduct
Delaware System
Croton System/Delaware Connector
Croton System
Reservoirs
N
DEP
Croton Watershed
Flow Schematic
Figure 2-1

2.1 Institutional Framework

The Phosphorus TMDL NPS Implementation Plan framework includes the following six distinct institutions; 1) citizens; 2) local government; 3) NYC Watershed Protection and Partnership Council Technical Advisory Committee (TAC); 4) NYC government (DEP); 5) State government (DEC and NYSDOT), and 6) EPA. A description of the main role each institution plays is presented below:

Citizens play an essential role. They are primarily land owners; their activities generate phosphorus (e.g. lawn and auto care, septic systems, pet/farm animal waste). Citizen education and outreach efforts are a necessary requirement to fully implement phosphorus controls. Citizen acceptance and participation in this plan will be essential to successful phosphorus reduction efforts.

Local Governments also generate phosphorus and implement phosphorus controls. They provide the first line of regulatory oversight by controlling local land use activity. Local governments are also developing specific action-oriented Stormwater Management Programs (SWMP)s as required by the MS4 general permit. This permit includes requirements for education, outreach and phosphorus control from municipal operations. It also requires that local governments map both their storm sewer configuration and other sources of drainage.

Task 2.1a	Local Government
Each local government in the Croton watershed is required to collect basic site specific data for all projects and programs within their jurisdiction that potentially affect phosphorus loads and monitor project and program implementation status. Coincident with the MS4 general permit annual report date and reporting period, by June 1 every year, each local government is required to provide the DEC with phosphorus reduction project and program information.	

The Watershed Protection and Partnership Council's Technical Advisory Committee (TAC) is a valuable intermediary between local government and the two agencies, DEP and DEC. The New York City Watershed Memorandum of Agreement (MOA) empowers the TAC to, among other things, review watershed data and make recommendations regarding water quality problems.

Task 2.1b	Technical Advisory Committee
The TAC will assist DEC to evaluate phosphorus reduction projects and program data from the previous MS4 annual reporting period.	

The City of New York has a vested interest in NPS phosphorus reduction because their water resource use is the primary impairment and because of their Safe Drinking Water Act and Filtration Avoidance Determination commitments. The DEP supports project implementation and has water quality monitoring and modeling tools to help evaluate management practice implementation and assess water quality.

Task 2.1c	DEP
The DEP will assist DEC and the TAC to evaluate phosphorus reduction project data and estimate resulting phosphorus reduction. DEP assists the regulated watershed communities with GIS mapping of watershed sub-basins.	

DEC administers water quality regulations according to the NYS Environmental Conservation Law (ECL) and the CWA and is responsible for TMDL development and oversight. The DEC has an ongoing working relationship with the New York Nonpoint Source Coordinating Committee to administratively coordinate various state agencies and other interested partners having regulatory, outreach, incentive-based, or funding programs that focus on reducing nonpoint source (NPS) pollution. Local implementation and statewide coordination and evaluation are conducted on a watershed basis. The DEC also provides NPS technical assistance and outreach. As noted below, the DEC will periodically re-evaluate this TMDL NPS Implementation Plan to promote compliance with TMDLs.

Task 2.1d	DEC
By January 1st each year, the DEC will produce a comprehensive phosphorus reduction progress report.	

The EPA also administers the CWA. The EPA should continue to seek to provide additional Federal funding for state and local water quality programs, continue to support Safe Drinking Water Act and Water Resources Development Act projects (including those involving water quality monitoring) and provide TMDL implementation guidance that addresses the role of watershed planning and other non-structural management practices to reduce phosphorus pollution.

2.2 Implementation Plan Updates

This Implementation Plan is an intermediary step in the EOH phosphorus reduction process. To account for new information, changing conditions, and to realize the effects of MS4 SWMPs, periodic re-evaluations and revisions are an integral element of this plan.

Task 2.2	DEC
This Implementation Plan should be re-evaluated five years from issuance of the general permit (in 2013), or upon recommendation from the NYC Watershed Protection and Partnership Council Technical Advisory Committee.	

2.3 Potential Additional Point Source Phosphorus Reductions

The New York City Watershed Rules and Regulations (WRR) require EOH wastewater treatment plants to remove phosphorus using best management practices (BMPs) with discrete limits dependent on the permitted flow. SPDES permit modifications are in place and plant upgrades are underway or complete. The TMDL modeling calculations reflect these point source reductions, since the wasteload allocations assumed full compliance with the WRR.

The WRR regulates facilities with permitted flows under 50,000 gpd at 1.0 milligram per liter (mg/l), facilities with permitted flows between 50,000 gpd and 500,000 gpd at 0.5 mg/l and facilities with permitted flows above 500,000 at 0.2 mg/l. Additional phosphorus reduction from point sources could be obtained by modifying the permits for all facilities with flows under 500,000 gpd to require phosphorus limits of 0.2 mg/l. The phosphorus reduction to be achieved in this modification has been calculated to be over 1,700 kg/yr.

Task 2.3a	DEC
The DEC will continue to provide technical assistance and training to wastewater treatment plant operators to optimize their phosphorus reduction capabilities. Additionally, the DEC will modify SPDES permits as they become due for renewal.	

Because sanitary sewer collection systems represent a potentially significant phosphorus source and because stream monitoring data suggest that sanitary sewer collection systems may contribute to the phosphorus load, the following task is emphasized in this implementation plan:

Task 2.3b	DEC
DEC will continue to seek proper sanitary sewer collection system operation and maintenance by assuring compliance with 6NYCRR Part 750 - 2.1 (General Provisions of a SPDES Permit) and Part 750 - 2.8 (Disposal System Operation and Quality Control.	

2.4 State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from MS4s (GP-0-08-002)

On May 1, 2008, the DEC SPDES General Permit GP-0-08-002 for the discharge of stormwater from small municipal separate storm sewer systems (MS4) became effective. The MS4 permit requires MS4 operators to develop, implement and enforce a stormwater management program (SWMP) designed to reduce the discharge of pollutants from their MS4s to the maximum extent practicable (MEP) in order to protect water quality and to satisfy the appropriate water quality requirements of the ECL and CWA. MS4 operators must provide adequate resources to fully implement the SWMP no later than January 8, 2013. The MS4 permit and associated guidance can also be found on the DEC website: http://www.dec.ny.gov/chemical/43150.html.

2.4.A Coverage Area

The entire NYC East-of-Hudson Watershed, including the Croton system, is either urbanized or additionally designated (criteria for these areas are described in Part X B of the General Permit) and is required to obtain SPDES permit coverage. Appendix C lists municipalities designated under the Phase II stormwater regulations that are required to obtain GP-0-08-002 coverage.

Task 2.4	DEC
DEC will continue to provide technical assistance and outreach to MS4 operators to help SWMP development and implementation. This assistance may include support of modeling, data distribution, field assistance, evaluation of options, training and other assistance as required and requested.	

2.4.B Compliance

GP-0-08-002 Part V (Program Assessment, Record Keeping, Reporting and Certification Requirements) requires MS4 operators to conduct annual evaluations of their program compliance and submit a report to the DEC.

Task 2.4.B	DEC
DEC will continue to pursue GP-0-08-002 compliance by reviewing MS4 operator annual reports to ensure that SWMPs are developed and implemented in a manner consistent with the terms and conditions of GP-0-08-002, including the required SWMP modifications for MS4s in the EOH watershed, with emphasis on illicit connection elimination, septic repair, retrofits and other phosphorus reduction activities.	

2.4.C Additional Requirements for MS4s in the East of Hudson Watershed

To assist with this phosphorus reduction effort, the Part IX of the MS4 General Permit includes additional best management practices for MS4s in the East of Hudson watershed.

Task 2.4.C	DEC
The Department will review design of the required stormwater retrofit plans for MS4s in the East of Hudson watersheds and grant approval based on ability of design to demonstrate the proposed phosphorus reduction.	

The Arc-View Generalized Watershed Loading Function (AVGWLF) model was utilized by DEC to estimate phosphorus loading from stormwater runoff in specific, high intensity developed areas of the Croton watershed. This modeling indicated approximately 2,400 kg/yr of phosphorus due to high-density development land use. The breakdown of MS4 contributions to this phosphorus load is shown in Table 3 on page 12 of this report. While implementation of the reductions listed in these tables will not alone achieve compliance with TMDL values, other non-structural measures, including those listed on the following page and discussed further in this plan, are expected to provide further reductions. MS4s are required to continue with enhanced phosphorus reduction efforts until the TMDLs have been met.

- Further point source reductions due to lower SPDES effluent limits
- Illicit discharge detection and elimination
- Septic inspection and repair programs
- Reduction in use of phosphorus-based fertilizer and detergents
- Restriction of domestic animal access to water bodies
- Future retrofits of lower intensity developed areas

2.4.D Retrofit Design

Based on the rationale provided below, DEC watershed-wide retrofit phosphorus reduction for the Croton Watershed MS4s for the next five year period has been set at 600 kg/yr, with 120 kg/yr as an annual target. The phosphorus reduction values to be attained by retrofit of stormwater conveyances have been apportioned among the regulated Croton Watershed MS4 Towns/Villages, New York State Department of Transportation (DOT) and Westchester, Putnam and Dutchess Counties.

These values were established assuming that approximately 50% (1200 kg) of the HID phosphorus load reduction can be achieved, and aim to achieve this goal over a ten-year period. Therefore, it is expected that approximately 18% of the “remaining reductions” required of MS4s in the Croton watershed can be achieved through retrofitting in HID areas. Clearly, further retrofitting in lower intensity developed areas may be required, in addition to other non-structural measures, to achieve compliance with the TMDLs.

As noted previously, this implementation plan will be evaluated in 2013 based on available data. The modeling and allocation assumptions will be adjusted according to ambient monitoring results and according to further modeled phosphorus reduction opportunities.

The annual phosphorus load reduction targets to be attained from retrofits for each MS4 should be shown on retrofit design plans to be submitted to DEC for approval. The suggested modeling tools for MS4 retrofit evaluation are Source Loading and Management Model (WinSLAMM) and Watershed Treatment Model (WTM). Consistent use of these models will facilitate a more equitable evaluation of proposed phosphorus load reductions.

The retrofit responsibilities allocated to DOT and Westchester, Putnam and Dutchess Counties were calculated by apportioning approximately 5% of the total DEC-modeled HID phosphorus load according to the relative amounts of Town, Village, County and DOT road miles in each MS4 municipality as indicated in Appendix F.

2.4E Regional Stormwater Entity (RSE) Formation

Participation in a RSE is voluntary and will enable resource sharing, as well as enhanced funding opportunities among participating MS4s. A regional stormwater entity may site retrofits to obtain a better cost-to-phosphorus-reduction ratio. An RSE might discover that phosphorus reduction could be most economically obtained through projects situated solely in one or more municipalities or basins.

Compliance will be judged by the ability of the RSE to demonstrate that it is satisfying the individual permit requirements, including the combined phosphorus reduction requirements of member MS4s. If the RSE is deemed non-compliant, all member MS4s will be required to achieve compliance individually or will be judged non-compliant.

In order to comply with the retrofit requirement and achieve these phosphorus load reductions and other measures on a regional basis, the Department will require that a large majority of the land area in the EOH be represented by coalition members.

Table 3 on the following page shows the five-year phosphorus reduction values for individual MS4s that will achieve compliance with the retrofit requirement of the SPDES General Permit for Stormwater Discharges.

Table 3: High Intensity Development Retrofit Phosphorus Reduction Targets by MS4 (kg/yr)

MS4	Five Year Phosphorus Reduction	Annual Phosphorus Reduction
Bedford	32.2	6.5
Beekman	1	0.2
Brewster	9.2	1.8
Carmel	72.0	14.4
Cortlandt	11.6	2.3
East Fishkill	3.2	0.6
Kent	33.6	6.7
Lewisboro	35.5	7.1
Mount Kisco	18.7	3.7
New Castle	25.1	5.0
North Castle	1	0.2
North Salem	19.1	3.8
Patterson	17.2	3.4
Village of Pawling	4.3	0.9
Town of Pawling	3.5	0.7
Pound Ridge	9.5	1.9
Putnam Valley	1	0.2
Somers	50.0	10.0
Southeast	31.1	6.2
Yorktown	54.0	10.8
Dutchess County	3.1	0.5
Putnam County	30.9	6.2
Westchester County	8.2	1.6
NYS DOT	126.1	25.2

2.4.F Non-traditional MS4s

The term “municipal” referred to in the Federal regulations describing the Phase II stormwater program includes “traditional” municipal governments (cities, towns, villages and counties) and any “non-traditional” publicly funded entity that owns or operates a separate stormwater sewer system. All MS4s are required to develop and implement appropriate SWMPs.

A town level program could cover the smaller non-traditional entities by formal agreement. Doing so will facilitate a coordinated program by, among other things, consolidating services and sharing expertise. DEC promotes the coordination among MS4s by establishing it as a grant priority.

Task 2.4.F	Local Government
Local governments should identify the non-traditional MS4s within their jurisdiction and consider including them in their SWMPs.	

2.5 Additional Areas of Concern

2.5.A. Source Control

Fertilizer, animal manure and wastewater are primary phosphorus sources throughout the state of New York. Although wastewater generation will continue, there are things that can be done to reduce phosphorus sources. Since controlling the source of phosphorus exposed to stormwater is generally more cost effective and reliable than removing phosphorus from stormwater by providing treatment, phosphorus source control must play an important role.

Task 2.5.A(a)	DEC
DEC shall promote phosphorus source control on three fronts: 1. Chemical-based fertilizer use 2. Phosphate content of automatic dishwasher detergent 3. Domestic animal access to waterbodies	

A Watershed Nutrient Workgroup, charged with reducing phosphorus entering the Croton reservoirs, has developed an education program to reduce fertilizer runoff from residential lawns. Its members include DEP, Environmental Protection Bureau of the NYS Office of Attorney General, Putnam and Westchester County Cornell Cooperative Extension, Putnam County Planning, Westchester County Planning, DOH, DEC, NYS Turf Grass Association, Chem. Lawn and EPA. Workgroup recommendations may extend to other areas of the state where phosphorus

impacts water quality. In addition, DEC has participated in an agreement among major lawn fertilizer manufacturers to reduce the amount of phosphorus applied to lawns, including the greater availability of lawn fertilizer with no phosphorus.

Throughout the NYC Watershed TMDL process, both WWTP and stormwater phosphorus load sources have been modeled. Because stormwater sources are wide spread and disperse, source control is particularly important. Importantly, analysis by the DEP in their "Croton Watershed Stakeholder Report -May 2004" shows the distribution of stormwater phosphorus loads concentrated in populated urban areas. SWMPs should focus attention on reducing phosphorus runoff in these areas, where modeling and monitoring continue to show these higher phosphorus loads.

Task 2.5.A(b)	Local Government
In each MS4 area, SWMPs should emphasize phosphorus source control and target areas with potentially high levels of phosphorus runoff, particularly in those communities with relatively high percentages of impervious cover, small lot sizes, and/or compacted soils.	

As they control phosphorus sources, the detection and elimination of illicit MS4 connections, proper storage and disposal practices and targeted education and outreach are important components of phosphorus reduction efforts. This is particularly important in areas with relatively high percentages of impervious land cover, small lots sizes, and compacted soils that are in close proximity to storm sewer systems and/or receiving waters. Accordingly:

1. Places where fertilizer use is concentrated, such as retail and wholesale garden supply stores (including "big-box" retailers) and plant nurseries, commercial lawn care/landscapers, and golf courses, should be evaluated for illicit connections. Also, fertilizer consumers can be provided with tailored outreach materials such as those available at the EPA website on the public education and outreach webpage: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=min_measure&min_measure_id=1.

2. Places where animal wastes are concentrated, such as pet stores and animal care/boarding facilities should be evaluated for illicit connections and exposure to stormwater, provided with tailored outreach materials, and serve as places to disseminate tailored outreach materials to animal owners.

3. Places where yard or food wastes are stored, such as "dumpsters" serving restaurants and grocery stores and yard waste composting and disposal areas, should also be similarly evaluated for illicit connections and exposure to stormwater and provided with tailored outreach materials.

4. Storm sewer infrastructure should be closely evaluated for the presence of septic system wastewater in places where septic systems are in close proximity to the storm sewer infrastructure. To be effective, these evaluations should occur in dry weather so any flow can be assumed to be evidence of an illicit connection.

2.5.B. Agriculture

Although generally it is not a prevalent land use in this watershed, agricultural activity, including traditionally recognized farm enterprises and smaller "hobby farms", are also phosphorus sources that present viable opportunities for phosphorus source reduction. In particular, horse farms should be identified and selected for attention because they have a relatively high potential for phosphorus laden runoff.

In addition, because of the potential for elevated phosphorus levels in the soil and movement of this soil during construction or other development activity, careful attention to erosion and sediment control should be paid when construction or other development occurs on abandoned agricultural land.

Task 2.5.B	MS4
MS4s should endeavor, through their program of public outreach and education, to discourage animal access to waterways, as well as the placement of manure piles in the drainage path of waterways.	

2.6 New York City Department of Environmental Protection Programs

The April 2001 NPS Implementation Report detailed the various DEP implementation programs and efforts that are underway. These include: the Wastewater Treatment Plant Upgrade Program, the Watershed Agricultural Program, East of Hudson Water Quality Investment Funds, Watershed Protection and Partnership Programs, Watershed Rules and Regulations, Filtration Avoidance Determination, Croton Process Studies, the Croton Watershed Strategy and Croton System Special Studies. In particular, phosphorus source investigations resulting from the Croton Process Studies project conducted by the DEP have provided valuable information.

Detailed information relating to the above programs can be found in Sections 3 and 5 of the April 2001 Report. This report is available at http://www.dec.ny.gov/chemical/23835.html. The Watershed Protection and Partnership Council's annual reports also provide detailed information on ongoing progress. These reports are available at http://www.dos.state.ny.us/watershed/REPORTS.htm and http://www.dos.state.ny.us/watershed/wppc.htm. The DEP site, http://www.nyc.gov/html/dep/html/watershed_protection/home.html also provides information on watershed program activities.

Task 2.6	DEP
It would be beneficial if DEP continued to conduct water quality monitoring and modeling in accordance with its ongoing programs. These efforts are important to understanding reservoir water quality and, on a system-wide basis, the impacts of both wastewater treatment plant and NPS phosphorus reduction implementation projects. The monitoring program is described in DEP's October 2003 Integrated Monitoring Report and includes stream, reservoir and BMP effectiveness monitoring. DEP is currently developing and testing hydrothermal and water quality models in accordance with multi-year Safe Drinking Water Act grants.	

2.6.A Filtration Avoidance Determination (FAD)

Although the focus of the DEP East-of-Hudson NPS Management Plan is on turbidity and fecal coliform bacteria, (Section 4.9, as required by the 2007 FAD), many of its associated stormwater remedial components have ancillary phosphorus reduction benefits. For example, soil stabilization efforts also have a phosphorus reduction benefit because phosphorus-laden sediment is not transported to waterways when soil erosion is prevented. FAD Section 4.9 milestone/reporting requirements are included in Appendix E of this plan.

Task 2.6.A	DEP
While continuing to fulfill their East-of- Hudson NPS obligations in the FAD, the accounting of phosphorus reduction activity will improve by estimating phosphorus reduction gleaned from Stormwater Infrastructure Remediation, Turf and Pesticide Management and Wastewater Infrastructure Remediation projects.	

2.6.B New York City Watershed Partnership Program - Croton Planning

The New York City Watershed Partnership Program was formed by Executive Order in October 1997 in connection with the NYC Watershed Memorandum of Understanding (MOA). It has introduced a number of initiatives to create partnerships to protect and enhance water quality. The Watershed Protection and Partnership Council (WPPC) was formed as a permanent, regional forum to aid in the long-term protection of drinking water quality and the economic viability of watershed communities.

Most of the Watershed Partnership Programs have been funded by New York City and include projects such as infrastructure improvements, environmentally sound development, wastewater treatment plant upgrades, sewer extensions, septic system rehabilitation/replacement, stormwater

retrofits or new stormwater controls and stream corridor protection. As part of the partnership program, Croton Watershed Protection Plans were developed by Putnam and Westchester Counties. One of the goals of this Croton Planning is to improve water quality in the Croton Watershed, thereby assisting in the attainment of water quality standards by reducing3 phosphorus.

Task 2.6.B	DEP
NYC should continue to implement its Watershed Protection and Partnership Programs.	

2.7 Putnam County Croton Watershed Plan

Putnam County's Croton Plan began in November 1997 with the signing of an Intermunicipal Agreement (IMA) between Putnam County and the Putnam municipalities in the New York City watershed. The IMA determined that the Putnam Croton Plan would be produced jointly by the County and the watershed municipalities.

Task 2.7	Local Government
Putnam County has submitted a draft final report to DEP. DEP will develop comments in order that Putnam County may finalize and implement their Putnam Croton Plan.	

2.7.A Putnam County/DEP East of Hudson Water Quality Investment Fund

Putnam County has authorized several water quality improvement projects to be funded with the EOH Water Quality Investment Fund (WQIF). A Putnam County Septic Repair Program has also been implemented and was funded from the EOH WQIF. A current list of the water quality improvement projects and septic repair programs is included in Appendix E.

Task 2.7.A	Local Government
Basic site specific data for all projects and programs funded by the EOH WQIF that potentially affect phosphorus loads is accounted for by local government, with assistance from Putnam County, in the MS4s June 1 annual report to DEC. This type and frequency of reporting should be continued.	

2.8 Westchester County Croton Watershed Plan

In Spring 1998, the ten Westchester County Croton Watershed Communities (Bedford, Cortlandt, Lewisboro, Mt. Kisco, New Castle, North Castle, North Salem, Pound Ridge, Somers

and Yorktown) passed municipal resolutions to cooperate with Westchester County and develop the Croton Watershed Water Quality Protection Plan (the Croton Plan) as outlined in the WRR.

Task 2.8	Local Government
Westchester County has submitted a draft final report to DEP. DEP will develop comments in order that Westchester County may finalize and implement their Westchester Croton Plan.	

2.8.A Westchester County/DEP East of Hudson Water Quality Investment Fund

The March 2003 Draft Comprehensive Croton System Water Quality Protection Plan for Westchester County outlines 99 recommendations to include in a strategy to protect water quality. Of those 99 recommendations, the following recommendations are particularly beneficial to phosphorus reduction:

1. Set up a program modeled after the Town of Lewisboro to require property owners to show proof of proper septic operation upon application for permits for home additions or expansions.

2. Expand Westchester County's existing Septic Management Program to include a pilot inspection/maintenance program.

3. Conduct a comprehensive subwatershed conveyance system capacity analysis for each of the remaining 39 subwatersheds, modeled after the analysis conducted by Westchester County for the Hallocks Mill Brook Watershed.

4. Each municipality should create a storm water conveyance system inspection/maintenance routing schedule.

Task 2.8.A	Local Government
Basic site specific data for all projects and programs funded by the EOH WQIF that potentially affect phosphorus loads is accounted for by local government, with assistance from Westchester County, in the MS4s June 1 annual report to DEC.	

2.9 New York State NPS Programs

In accordance with CWA, Section 319, DEC has prepared a NPS Assessment and a NPS Management Program. References are found in the DEC MS4 toolbox, http://www.dec.ny.gov/chemical/8695.html, and in the EPA non-point source webpage, http://www.epa.gov/owow/nps/whatis.html.

Task 2.9(a)	DEC
DEC will continue to build partnerships and increase public knowledge regarding NPS pollution control.	

Task 2.9(b)	DEC
New York State will continue to provide funding to encourage the implementation of nonpoint source management practices. Implementation of NPS management practices that are in watersheds with approved TMDLs, such as the Croton Watershed, is a funding priority.	

2.9.A Safe Drinking Water Act (SDWA) and Water Resources Development Act (WRDA) Projects

Projects conducted by DEC through funding by SDWA and WRDA relate directly or indirectly to phosphorus water quality concerns in the Croton Watershed and can help provide opportunities for phosphorus load reductions. These projects are associated with the following activities:

- Wetlands Mapping and Assessment
- Educational Outreach
- BMP Assessment
- Phosphorus Management
- Monitoring and Modeling
- Community Involvement and Stewardship
- Enhancement Program for Land Use Planning and Zoning Regulations
- Stormwater Management Facilities Evaluation
- Sewer System and Wastewater Treatment Facility Projects
- Agricultural NPS Assessment
- Croton Stormwater Conveyance and Implementation Projects
- Agricultural BMP Implementation

For example: Westchester County has received a WRDA grant award to map and assess the stormwater conveyance system in the Croton Watershed. This study is currently underway and will assist municipalities comply with required SWMP modifications, particularly related to minimum control measure 3 (detecting and eliminating illicit connections). The study will also provide the Croton Watershed municipalities with a stormwater guidance manual and detailed information regarding stormwater restoration in a demonstration watershed.

Task 2.9.A(a)	DEC
DEC will consider the development of recommendations in TMDL Implementation Plans as a ranking factor in its grant selection process.	

Task 2.9.A(b)	DEC
To facilitate Croton Planning and NPS implementation efforts, DEC will continue to share pertinent phosphorus reduction related outcomes of SDWA and WRDA funded projects with Putnam and Westchester Counties, the TAC and DEP.	

2.9.B Division of Water - Region 3

Region 3 Division of Water staff is involved with several NPS programs which may directly or indirectly reduce NPS phosphorus loads in the Croton Watershed. These include:

1. Education: Region 3 staff participates in the delivery of educational programs designed to increase public awareness of water quality issues associated with stormwater runoff. The educational programs include problem identification and potential solutions. Increased public awareness of stormwater issues is important because it helps generate the public resolve necessary to reduce stormwater impacts.

2. Coordinated NPS Control Efforts: By participating in County programs, such as County Water Quality Coordinating Committees, Regional staff assist the development and implementation of efforts to coordinate NPS runoff projects with Federal, State, County, local municipalities, and private environmental organizations.

3. Funding: Regional staff assist municipalities to identify potential funding sources for corrective measures.

2.10 DEC-DEP Coordinated Stormwater Enforcement Protocol

Since January 2001, the DEC has implemented an enhanced stormwater enforcement initiative designed to assure compliance with the SPDES General Permit for Stormwater Discharges from Construction Activity and the DEP Watershed Rules and Regulations for stormwater.

In fall 2003, this initiative, implemented with the DEP, was further formalized by creating DEP/DEC Memorandum of Understanding Addendum S: DEC-DEP Coordinated Stormwater Enforcement Protocol. This Protocol seeks to better utilize DEC and DEP resources by eliminating duplication and by coordinating investigations and enforcement of violations. The Protocol was revised in 2008.

3.0 Costs/Funding Sources

The costs associated with this Implementation Plan will vary. Better cost information will be known when MS4 SWMPs are fully developed and implemented. The following funding sources may be used to support this Implementation Plan:

SDWA: Water quality monitoring and assessment projects (non-construction) associated with the NYC Watershed Protection Program may be funded by the SDWA grant program. This grant program is administrated by DEC. In the past decade, approximately $80 million (including matching State funds) has been available for projects within the NYC Watershed (East and West of Hudson). Project types considered are: Nonpoint Source Abatement and Control (demonstration projects); Assessment, Planning and Research; and Outreach and Education. Currently over $3 million dollars of Federal funds are available.

EOH Water Quality Investment Program Funds: As part of the NYC Watershed Agreement, DEP has provided Westchester County with $38 million dollars and Putnam County with $30 million dollars to support a program of water quality investments in the East of Hudson watershed. The types of projects that could be funded include, but are not limited to, stormwater management practices, streambank stabilization, water quality measures identified through the Croton Planning Process and septic system rehabilitation.

Water Quality Improvement Projects (WQIP): The WQIP program has approximately $35 million available to municipalities for non-agricultural nonpoint source, wastewater treatment improvement, aquatic habitat restoration and MS4 projects. The Department has not yet scheduled the next call for projects.

Watershed Environmental Assistance Program: Water Resources Development Act (WRDA) Grants are being provided that seek to conserve and develop water and related resources. The act includes a special provision to provide environmental assistance to New York City watershed communities. DEC coordinates the WRDA grant program with the U.S. Army Corps of Engineers, which is responsible for overall program management. The DEC works with the DEP and with municipalities in the watershed to identify water quality needs and to identify eligible projects that meet program goals and criteria. Approximately $400,000 is available this year.

Drinking Water State Revolving Fund (DWSRF): NY's DWSRF is a program that provides low interest rate loans to municipalities to construct water quality protection projects. The DWSRF is administered jointly by the New York State Department of Health and the New York State Environmental Facilities Corporation (www.nysefc.org).

Water Quality Planning and Implementation Grants for NYC Watershed Communities (WQPIG): This program replaced the Master Planning and Zoning Incentive Grants

program after six successful funding rounds. Round 7 began the new program, and the Request for Applications for Round 8 of this program was recently released to all municipalities in the NYC Watershed. Every municipality in the New York City Watershed is eligible to apply for this funding to assist in the creation and implementation of local land use and development tools to protect the Watershed environment, while encouraging local growth that is consistent with good Watershed stewardship. All applications received are scored and ranked by trained personnel, using an approved scoring methodology. The ceiling for any single awardee remains $25,000 for planning and zoning projects, and $50,000 for the project implementation category. Applications by multiple municipalities are encouraged and would be eligible for greater funding levels.

Brownfield Opportunity Areas Program (BOAP): DEC's BOAP provides municipalities and community based organizations with assistance to complete area-wide approaches to brownfields redevelopment planning. Through the BOAP, communities will have opportunities to return dormant areas back to productive use and simultaneously restore environmental quality during redevelopment of the sites. The associated Environmental Restoration Program provides grants to municipalities to reimburse up to 90 percent of on-site eligible costs and 100 percent of off-site eligible costs for site investigation and remediation activities.

The SDWA, WRDA and NYS Environmental Protection Fund have annual funding cycles. Requests for funding are announced by the DEC and are routinely published in the NYS Environmental Notice Bulletin (http://www.dec.ny.gov/enb/enb.html). Municipalities are encouraged to apply for these competitive grants.

Because current funding levels may be insufficient and/or may fluctuate, communities should also consider other means to generate revenue, including the establishment of stormwater utility districts. It is particularly important to generate continuous revenue for the staff resources that municipalities will likely need to fully develop, implement, maintain and enforce SWMPs.

4.0 Other Considerations

This Implementation Plan considers contributions from several sources, including the Phase II Phosphorus TMDLs for the New York City Watershed, DEP's March 1999 TMDL-related reports and its Croton Watershed Strategy, New York State's Nonpoint Source Management Program, Croton Planning for Putnam and Westchester Counties, DEC's Phase II Stormwater Program, and projects potentially funded by Safe Drinking Water Act and Water Resources Development Act. Although there is substantial activity in the above programs and other ongoing activities that relate to NPS implementation efforts, there are limitations to what can be incorporated into this Implementation Plan at this time. For example:

1. The completion of this Implementation Plan does not coincide with the completion of many ongoing activities, planning efforts and their prospective findings. For example:

The Croton Plans for Putnam and Westchester Counties are drafted and are currently going through the final stages of approval.

2. Practices needed to control many NPSs cannot be identified for specific locations at this time. These decisions are ultimately best linked to local decision-making processes as specific practices are defined and scheduled for implementation. Specific plans are being developed by each municipality to attain required phosphorus reductions in the reservoir watersheds within each municipality. Under the MS4 general permit, MS4 operators must modify their SWMPs to ensure that reduction of the pollutant of concern specified in the TMDL is achieved. The required SWMP modifications set forth in the MS4 general permit are considered to be satisfactory first steps toward compliance with this TMDL strategy in the MS4 general permit. The SWMPs must show consistent annual progress and be fully implemented by May 1, 2009.

3. Many implementation aspects of the MS4 general permit, such as the public education and outreach minimum control measure, are non-structural. They are critical components because they address behavioral changes and source controls that have the potential to significantly reduce phosphorus loads. However, it is difficult to precisely quantify expected reductions.

4. More phosphorus reduction may be achieved by additional point source reductions from wastewater treatment plants. This includes increased phosphorus treatment removal levels and diversion(s) out of the basin.

5. 40%, 10%, and 8%, respectively, of the estimated phosphorus NPS load to the Titicus, East Branch and Cross River Reservoirs, respectively, comes from Fairfield County, Connecticut.

6. To avoid the development of two separate and distinct SWMPs to satisfy stormwater control requirements of both DEC and DEP, efforts are underway to resolve apparent inconsistencies in the stormwater control design/performance standards referenced in the WRR and MS4 general permit.

7. Section VIII of the Phase II TMDL describes future TMDL development. While no specific plan yet exists, future revisions to the phosphorus TMDL would be expected to include MS4 wasteload allocations.

8. A law passed in 2005 promotes the reuse of reclaimed wastewater by requiring DEC to develop rules and regulations for their use. Such re-use could reduce phosphorus loadings to streams from wastewater.

Appendix A: 2008 MS4 General Permit

Appendix A is available on the DEC website at:
http://www.dec.ny.gov/docs/water_pdf/ms4permit08.pdf

Appendix B: Technical Background for Retrofitting Practices

Appendix B is available on the DEC website at: http://www.dec.ny.gov/chemical/23835.html

Appendix C: Croton Reservoir Watershed MS4 list

	DEC ID #
Dutchess County	NYR20A386
Beekman (T)	NYR20A365
East Fishkill (T)	NYR20A183
Pawling (T)	NYR20A472
Pawling (V)	NYR20A477
Putnam County	NYR20A343
Carmel (T)	NYR20A294
Kent (T)	NYR20A346
Patterson (T)	NYR20A140
Putnam Valley (T)	NYR20A345
Southeast (T)	NYR20A320
Brewster (V)	NYR20A256
Westchester County	NYR20A128
Cortlandt (T)	NYR20A181
Bedford (T)	NYR20A218
Lewisboro (T)	NYR20A227
Mount Kisco (V)	NYR20A325
New Castle (T)	NYR20A177
North Castle (T)	NYR20A044
North Salem (T)	NYR20A056
Pound Ridge (T)	NYR20A226
Somers (T)	NYR20A405
Yorktown (T)	NYR20A007
NYS Thruway Authority	NYR20A025
NYSDOT	NYR20A288

	DEC ID #
School Districts:	----------
Katonah –Lewisboro Union S.D.	NYR20A482
Somers Central School District	NYR20A483
Yorktown Central School District	NYR20A404
Mahopac Central School District	NYR20A506
Carmel Central School District	NYR20A510
Brewster Central School District	NYR20A512

Appendix D: Putnam County projects authorized under DEP EOH Water Quality Investment Funds:

Peach Lake Wastewater Study (1)

Tilly Foster County Conservation Area

Town of Patterson Sewer Treatment Project

Twin Brooks Manor Wastewater Disposal

Town of Carmel Drainage - Prince Road (2)

Town of Carmel Drainage - Mahopac Firehouse

Town of Carmel Mahopac High School Stream Rehabilitation and Education Project

Putnam County's "Storm Drain, Culvert and Catch Basin Maintenance Program" (3)

Town of Kent - Barrett Hill Road Storm Water Quality Drainage Improvements

Town of Southeast Garage Drainage Project

Town of Southeast Storm Drainage Project for Marvin Avenue - Gold Lot (in Village of Brewster)

Town of SE Drainage Project - Brewster Heights (development sewer upgrade)

Great Swamp Property Purchase

Lake Macgregor Golf Course Property Purchase

Town of Kent Terry Hill Road Storm Water Quality Improvements

Town of Carmel Lake Gilead Road North Storm Water Quality Improvements

(1) The study concluded that the area must be sewered – subsequent sewering work funding source to be determined, but likely ½ Putnam and ½ Westchester.

(2) This project will not directly improve water quality.

(3) Benefits Towns of Southeast and Kent. Includes purchase of "Vac-all" equipment for the storm drain maintenance program.

The following Putnam County Septic Repair Program has also been authorized to be funded with the East of Hudson Fund:

Phase I: 4 Years	Town(s)	Number of Parcels
Reservoirs and stems:		
within 500' of West Branch and Reservoir Stem	Kent/Carmel	about 125
within 500' of Boyd Corners and Reservoir Stem	Kent	about 60
within 500' of Croton Falls and Reservoir Stem	Carmel/Southeast	about 160
Croton Watershed Strategy:		
Sagamore Lake	Kent/Putnam Valley	82
Seven Hills Lake	Kent	83
East of West Branch	Kent	139
North of Long Pond	Carmel	266
Stream Corridors:		
Long Pond to West Branch	Carmel	about 40
Horse Pound Brook from Kentwood Lake to West Branch	Kent	about 20
Lake Zones:		
within 200' of Lake Carmel	Kent	366
within 200' of Lake Tonetta	Southeast	59
within 200' of Putnam Lake	Patterson	218
	Phase I Total:	about 1,618

Phase II: 3 Years		
within 200' of Lake Casse	Carmel	52
within 200' of Lake Mahopac	Carmel	267
within 200' of Peach Lake	Southeast	124
within 200' of Middle Branch	Southeast	79
within 200' of Kirk Lake	Carmel	93
	Phase II Total:	615
Phase III: 3 Years		
within 200-300' of Phase I and II target areas		
	Phase III Total:	190 (1)

- The Phase III Total number of parcels is dependent on the amount of funds remaining following Phase I and II.

Appendix E: Filtration Avoidance Determination, Section 4.9

2007 NYC Water Supply Filtration Avoidance Determination (FAD) Section 4.9 (East of Hudson Non-Point Source Pollution Control Program) states:

"DEP has developed a comprehensive non-point source program for the West Branch, Boyd's Corner, Croton Falls and Cross River Reservoir basins located east of the Hudson. Under the 2002 FAD, the City began to implement the following program elements in these basins: agricultural program, forestry program, and new septic and stormwater initiatives. Other elements of the program that have been implemented by the City include planning efforts by the City (Croton Watershed Strategy) and the two Counties (Westchester and Putnam Counties) that will provide for integrated watershed management to protect and improve water quality in the West Branch, Boyd's Corner, Croton Falls and Cross River Reservoir basins. In addition, NYCDEP will address many concerns in the East-of-Hudson watersheds through the aggressive implementation of the Watershed Rules and Regulations, continued increased involvement in project reviews and through a grant program to assist stormwater districts or municipalities to reduce stormwater pollutant loading to the Croton Falls and Cross River basins. The City and Westchester and Putnam County officials shall continue to keep each other informed of planned and ongoing East-of-Hudson non-point source pollution control actions.

The City's 2006 Long-Term Watershed Protection Program includes a NPS Pollution Strategy for east-of-Hudson Catskill/Delaware basins and Cross River and Croton Falls basins (Section 2.3.9). The 2007 FAD requires full implementation of the Strategy, in accordance with the milestones therein and the clarifications below:

Milestone/Reporting Requirements for Catskill/Delaware Basins east-of-Hudson and Cross River and Croton Falls:"

Requirement	Due Date
East-of-Hudson Stormwater Facility Maintenance for constructed facilities.	Ongoing
Stormwater Remediation Projects: • BC-1 (Kent, Putnam County) Cleanout of sediment/debris and stabilize embankment along the stream channel. Install forebays with a drainage ditch. • WB-1 (Kent, Putnam County) Install drainage structures and outlet protection. • WB-2 (Carmel, Putnam County) Install porous pavers. Cleanout sediment/debris buildup. • CF-1 (Carmel, Putnam County) Stream channel embankment stabilization. Michael Brook/Hughson Road Improvements. • CR-1 (Bedford, Westchester County) Construct drainage ditches, culverts, outlet protections, and stabilize steep slopes. Install porous pavers and vegetation.	Award Contract: 10/31/08 Completion of all projects: 12/31/09

Milestone/Reporting Requirements (Continued from previous page)

Requirement	Due Date
Stormwater Retrofit Projects: • Design and Construct Hemlock Dam Retrofit – Croton Falls. • Design and Construct Magnetic Mine Road Retrofit – Croton Falls.	Award Contract: 9/30/08 Completion: 12/31/09
Stormwater Remediation Small Projects Program: • Complete design and construction of stormwater management practices. • Assess effectiveness of program. • Conduct an assessment and submit a report on the potential value of initiating a pilot study that would evaluate the impacts of stormwater improvements on stream corridors.	9/30/08 1/31/09 3/31/09
East-of-Hudson Stormwater Mapping and Inspection: • Complete digital mapping and stormwater inspection of Boyd Corners and West Branch basins. • Review results and coordinate with counties to remediate illicit connections in Boyd Corners and West Branch basins. Stormwater infrastructure capacity evaluation.	Completion: 12/31/07 Completion: 12/31/10
East-of-Hudson Stormwater Prioritization Assessment (NYCDEP Properties): • Determine prioritization criteria. • Determine location of potential future stormwater projects to be implemented by NYCDEP. Develop and submit a schedule for implementation of selected practices.	3/31/09 9/30/09
Establish a $4.5 million program to address stormwater pollution in the Croton Falls and Cross River basins and upstream/hydrologically connected basins. These funds are presently intended to provide grants to stormwater districts or municipalities for projects that will reduce stormwater pollutant loading to the Croton Falls and Cross River basins and upstream/ hydrologically connected basins,[1] subject to the following terms: • Develop program rules, in collaboration with NYSDEC, and model contract, including provision for local match of at least 50%. • Solicit applications from interested parties. • Convene inter-agency technical panel to evaluate and select projects. • Begin process to award selected projects	3/31/08 5/31/08 11/30/08 1/1/09

[1] The City is empowered to develop program rules that will provide for a phased program with priority given to projects directly affecting Cross River and Croton Falls Reservoirs.

Milestone/Reporting Requirements (Continued from previous page)

Requirement	Due Date
Completed projects may be used by the awarded district or municipality toward their efforts to comply with the requirements of the NYSDEC SPDES General Permit, stormwater discharges from Municipal Separate Storm Sewer Systems (MS4). The New York State Departments of Environmental Conservation and State are currently working together to identify potential structures for ensuring appropriate coordination among the east-of-Hudson watershed communities in complying with the NYSDEC SPDES General Permit, stormwater discharges from Municipal Separate Storm Sewer Systems (MS4). EPA and NYSDOH will entertain a joint proposal from NYCDEP and NYSDEC, if submitted no later than 1/31/08, to allocate some portion of this $4.5 million program toward establishment and start-up of a public benefit corporation, utility, special district, or other entity that would assist with MS4 permit compliance in the east-of-Hudson Watershed. It is understood that the MS4 Requirements are requirements of federal and State law and that responsibility for meeting those requirements rests with the east-of-Hudson watershed communities and not with the City of New York.	
Sanitary Infrastructure Mapping/Inspection: • Complete inspection and mapping. • Prepare report identifying defects. • Coordinate with responsible entities to remediate identified deficiencies.	6/30/09
Septic Program East-of-Hudson: • Coordinate with county in prioritizing the program target areas. • Review and approve designs from program participants.	Ongoing
East-of-Hudson Non-point Source Program Semi-Annual Report – Submit brief report discussing material events in the east-of-Hudson program implementation.	Semi-annually
East-of-Hudson Non-point Source Program Annual Report – Submit report discussing all program elements: • Ongoing stormwater facility maintenance; • Stormwater Remediation and Retrofit Projects; • Small Projects Program (include effectiveness assessment in the 2009 Annual Report); • Stormwater Mapping and Inspection; • Sanitary Infrastructure Mapping/Inspection; • East-of-Hudson Septic Program; • Stormwater Capacity Evaluation; • Prioritization Assessment for NYCDEP Properties; • Funding Program for Cross River/Croton Falls Basins • Croton Strategy and Croton Planning Activities.	Annually

Appendix F: 5 - Year Modeled Apportioning Calculations

	Total Modeled Load	Town	County	State
Bedford	48.0	32.2	1.4	14.4
Beekman	1	1	0	0
Brewster	9.2	9.2	0	0
Carmel	94.8	72.0	15.2	7.6
Cortlandt	12.0	11.6	0	0.4
East Fishkill	4.8	3.2	0.3	1.3
Kent	47.4	33.6	4.7	9.1
Lewisboro	46.8	35.5	0	11.3
Mount Kisco	28.4	18.7	0.9	8.8
New Castle	33.0	25.1	1.0	6.9
North Castle	1	1	0	0
North Salem	31.8	19.1	2.9	9.8
Patterson	27.6	17.2	4.4	6.0
Village of Pawling	4.3	4.3	0	0
Town of Pawling	8.3	3.5	2.8	2.0
Pound Ridge	11.4	9.5	0	1.9
Putnam Valley	1	1	0	0
Somers	61.8	50.0	0.6	11.2
Southeast	55.4	31.0	6.6	17.8
Yorktown	72.0	54.0	1.4	16.6
TOTAL:	**600**	**432.7**	**42.2**	**125.1**
		Dutchess County Total:	3.1	
		Putnam County Total:	30.9	
		Westchester County Total:	8.2	
			NYSDOT Total:	125.1

Appendix G: Modeled HID loading by sub-basin

Town of Bedford

Total High Intensity Development Phosphorus Load: 191	
Cross River	2
New Croton	46
Muscoot	143

Town of Beekman

Total High Intensity Development Phosphorus Load: 1	
Middle Branch	1

Village of Brewster

Total High Intensity Development Phosphorus Load: 37	
Diverting	37

Town of Carmel

Total High Intensity Development Phosphorus Load: 379	
Middle Branch	5
West Branch	30
Muscoot	48
Croton Falls	106
Amawalk	190

Appendix G: Modeled HID loading by sub-basin

Town of Cortlandt

Total High Intensity Development Phosphorus Load: 49	
New Croton	49

Town of East Fishkill

Total High Intensity Development Phosphorus Load: 18	
Middle Branch	12
Boyds Corners	4
West Branch	2

Town of Kent

Total High Intensity Development Phosphorus Load: 188	
East Branch	1
Croton Falls	25
Middle Branch	88
Boyds Corners	38
West Branch	36

Town of Lewisboro

Total High Intensity Development Phosphorus Load: 187	
Titicus	1
Muscoot	72
Cross River	114

Appendix G: Modeled HID loading by sub-basin

Village of Mount Kisco

Total High Intensity Development Phosphorus Load: 115	
New Croton	115

Town of New Castle

Total High Intensity Development Phosphorus Load: 131	
New Croton	131

Town of North Castle

Total High Intensity Development Phosphorus Load: 0	
New Croton	0

Town of North Salem

Total High Intensity Development Phosphorus Load: 128	
Cross River	0
East Branch	6
Muscoot	106
Titicus	16

Town of Patterson

Total High Intensity Development Phosphorus Load: 111	
Diverting	0
Bog Brook	1
Middle Branch	12
East Branch	98

Appendix G: Modeled HID loading by sub-basin

Town of Pawling

Total High Intensity Development Phosphorus Load:	
Middle Branch	2
East Branch	20

Village of Pawling

Total High Intensity Development Phosphorus Load:	
East Branch	28

Town of Pound Ridge

Total High Intensity Development Phosphorus Load: 45	
Muscoot	23
Cross River	22

Town of Putnam Valley

Total High Intensity Development Phosphorus Load: 5	
Amawalk	0
Boyds Corners	5

Town of Somers

Total High Intensity Development Phosphorus Load: 248	
Croton Falls	6
New Croton	5
Amawalk	30
Muscoot	207

Appendix G: Modeled HID loading by sub-basin

Town of Southeast

Total High Intensity Development Phosphorus Load: 221	
Croton Falls	2
Bog Brook	3
Middle Branch	45
Muscoot	34
Diverting	98
East Branch	39

Town of Yorktown

Total High Intensity Development Phosphorus Load: 287	
New Croton	134
Muscoot	153

APPENDIX F.6

Malcolm Pirnie Stormwater Improvement Study

Putnam County MS4 Coordinating Committee

P.O. Box 570 • 1142 Route 311 • Patterson NY 12563

Stormwater Improvement Study Final Report

December 2009

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MALCOLM PIRNIE

We would like to extend a special thanks to Mr. Richard Williams, PCMS4CC Chairperson, Town of Patterson, for his assistance, guidance, and support during the course of this Study.

We would like to thank the members of the PCMS4CC for their direction, guidance, and review comments throughout this process. The PCMS4CC consists of the following individuals:

1. Mr. Bruce Barber, Cornerstone Associates, Town of Kent
2. Mr. John Karell, Town of Carmel Engineer
3. Mr. Graham Trelstad, AKRF Inc., Town of Southeast
4. Mr. Richard Williams, Town of Patterson
5. Mr. Gary Wulfhop, Town of Putnam Valley Asst. Highway Superintendent
6. Mr. Edward Barnett, Putnam County
7. Mr. Jeff Contelmo, Insite Engineering, Putnam County, Town of Carmel, Brewster CSD
8. Ms. Lauri Taylor, Putnam County

The information used to develop this Study was collected directly from each municipality with the purpose of determining conditions for the stormwater study. The following individuals provided the data to support the development of this report:

1. Mr. Todd Atkinson, J. Robert Folchetti and Associates
2. Mr. Anthony Caravetta, Town of Kent Highway Superintendent
3. Mrs. Katherine Doherty, Town of Kent Supervisor
4. Mr. Tom Fenton, Nathan L. Jacobson & Associates
5. Mr. Kevin Palmer, Town of Southeast Highway Superintendent
6. Mr. Michael Simone, Town of Carmel Highway Superintendent

Additional data collected by the New York City Department of Environmental Protection (NYCDEP) was also utilized during the course of this study. For permission to utilize the aforementioned data, we would like to thank Mr. Matthew Giannetta of the NYCDEP.

We would also like to thank Mr. Robert Capowski of the NYSDEC and Mr. Michael Meyer of the NYCDEP for their assistance with the project.

The following meetings and presentations were instrumental in the organization and development of this report:

1. April 27, 2009. At the PCMS4 kickoff meeting we covered the following items with the PCMS4CC members: identified roles and responsibilities; exchanged contact information; reviewed and confirmed the project objective; and discussed data needs and sharing via an FTP Site.

2. June 9, 2009. At this PCMS4CC meeting we covered the following items: reviewed the database design; summarized data collection; summarized staff interviews; provided a review of the Inventory Database; described the Preliminary Retrofit Inventory; discussed the Phase 1 Ranking and 20% draft; and discussed plans for field investigations.

3. August 11, 2009. At this PCMS4CC meeting we covered the following items: reviewed the results of Phase 1 Ranking (determination of Tier 1 and Tier 2 sites); discussed the site visits; and reviewed two typical phosphorus retrofit designs.

4. October 13, 2009. At this PCMS4CC meeting we covered the following items: reviewed the Phase 2 Ranking; discussed the 60% report; reviewed several site drawings; discussed cost estimates for site drawings; and discussed the P-load assessment strategy and the associated NYSDEC memorandum.

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Appendices - Electronic

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C. Database Design
D. GIS Data Sources
E. Land Use Descriptions
F. Field Investigation Notes
G. Site Summary Sheets
H. Land Use Classification Matrix
I. TP Loading and Reduction Calculations
J. Cost Estimate Detail Sheets

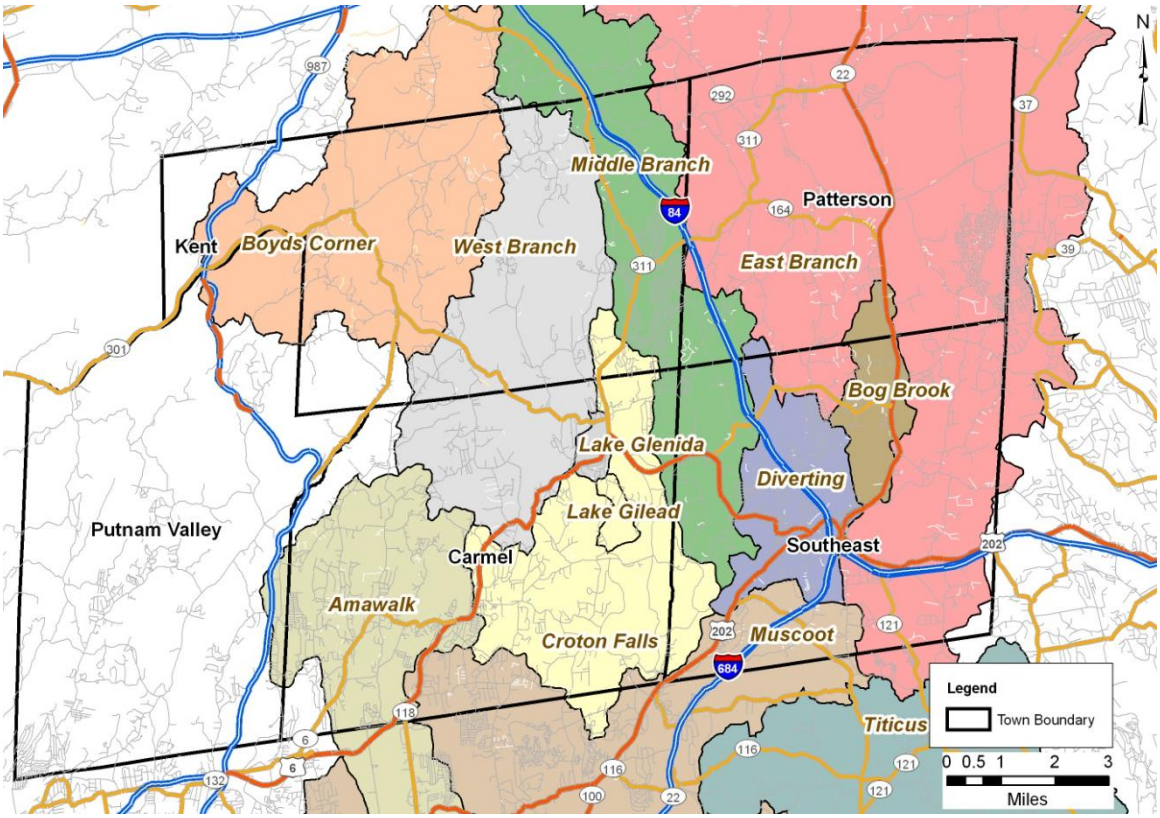
1. Introduction

1.1. Project Background and Document Summary

The Putnam County MS4 Coordinating Committee (PCMS4CC) on behalf of five of the East of Hudson Watershed Towns in Putnam County, is seeking to prepare a capital improvement program (CIP) to address stormwater management for the participating communities. The CIP will provide for stormwater retrofit improvements and other management practices to address phosphorus loads affecting water quality in the designated Towns located in the New York City East of Hudson (EOH) watershed. These phosphorus loads have been identified in the Total Maximum Daily Loads (TMDLs) for Reservoirs in the New York City Water Supply Watershed Report prepared by the New York State Department of Environmental Conservation (NYSDEC). The capital improvement program is intended to support the participating municipality's compliance with the State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s) (NYCDEC, 2008), and the TMDL. A copy of the SPDES General Permit for MS4s as well as all other regulatory drivers that relate to the following study are located in Appendix A.

The intent of this Stormwater Improvement Study (Study) is to identify costs and develop preliminary designs for other water quality improvement features which could potentially be installed (retro-fit) within the Study Area, Figure 1-1. These features would serve not only to improve the quality of the local lakes and streams, but would aid in the protection and improvement of the quality of water in the Croton Reservoir system by reducing the pollutant of concern (phosphorus), as identified in Technical Background For Retrofitting Practices EOH MS4 Heightened Criteria (NYSDECb, 2009) and in the Croton Watershed Phase II Phosphorus TMDL Implementation Plan (NYSDECa, 2009), copies of which are located in Appendix A.

Figure 1-1: PCMS4CC Stormwater Retrofit Study Area



The Study was divided into five tasks as follows:

1. Task 1 involved collecting all available stormwater infrastructure data and creating a Study Area wide database for use in the assessment. The infrastructure inventory is detailed in Section 2 of this report. Town employees were also contacted in order to acquire local knowledge of phosphorus and erosion problem areas in the Study Area for possible inclusion in the Study. GIS data including land use, aerial photos and parcel ownership layers were also collected for use in the Study.

2. Utilizing the data collected during Task 1, forty sites across the Study Area were identified then ranked at a screening level based on site and drainage area characteristics as part of Task 2. The selection of the 40 potential retrofit locations is detailed in Section 3 of this report. This ranking, described as the Phase 1 ranking, helped determine which 20 of the 40 proposed sites were best suited for field investigations and additional feasibility evaluations (Tier 1 sites) and are detailed in Section 4 of this report.

3. Field investigations were conducted in July 2009 at the Tier 1 sites as part of Task 3 of the Study and the findings are included in Section 5 of this report. It should be noted that during the field investigations at the Tier 1 sites, several changes were made to the list of potential sites based on conditions observed in the field; these changes are also described in Section 5 of this report.

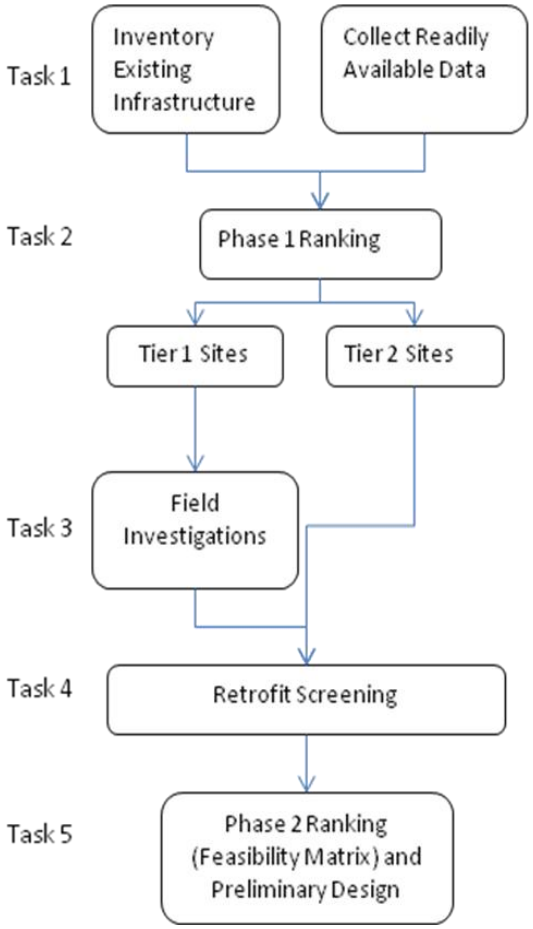
4. As part of Task 4, draft conceptual designs and associated total phosphorus (TP) load removals were developed for each of the potential retrofit locations in the Study. The draft conceptual designs are detailed in Section 6 of this report while the calculations of the total phosphorus load removal associated with each of the proposed retrofits are detailed in Section 7. Task 4 also included the calculation of the estimated costs associated with the proposed retrofits detailed in Section 8 of this report. The cost estimates are provided for each of the identified potential retrofit sites, based on the selected retrofit type at each location. The cost estimates include estimates of capital costs, as well as operations and maintenance costs.

5. Task 5 involved the development of a feasibility matrix for each of the proposed stormwater retrofits, allowing the PCMS4CC to be able to determine which retrofits were the most feasible. Factors included in the feasibility matrix include, but are not limited to: proximity to receiving water and associated water body class, existing TMDL requirements, visual impacts, potential public benefits and potential health and safety impacts of each retrofit. The ranking methodology for the Phase 2 ranking is detailed in Section 9, while the results of the Phase 2 ranking are included in Section 10.

   Section 10 also includes a discussion of the total potential phosphorus removal in the Study Area, estimated based on the potential retrofit sites and how that relates to the phosphorus removal goals, based on NYSDEC guidance. Section 11 of this report includes a list of recommendations for moving the Study forward and meeting the total phosphorus removal requirements in the PCMS4CC Study Area.

Figure 1-2 provides a graphical presentation of the various tasks and how they are connected.

Figure 1-2: Flow Chart of the Procedure used in the PCMS4CC Stormwater Improvement Study



1.2. Phosphorus Removal Goals

The NYSDEC goals for phosphorus removal in the NYCDEP East of Hudson Watershed are summarized in the Croton Watershed Phase II Phosphorus TMDL Implementation Plan (NYSDEC, January 2009a). As part of this plan, the NYSDEC presents minimum thresholds for phosphorus reduction which much be met for a plan to be approvable. The thresholds rely on the relative values of high-density development land use within the EOH watershed and the modeled load associated with high intensity development. Table 1-1 summarizes the modeled high intensity development (HID) load for each of the PCMS4CC towns by subbasin.

Table 1-1:
Modeled HID P-Load by Town and Watershed Basin in kg/yr (lb/yr)

Reservoir	Carmel	Kent	Patterson	Putnam Valley	Southeast
Middle Branch	5 (11)	88 (194)	12 (26)		45 (99)
East Branch		1 (2)	98 (216)		39 (86)
West Branch	30 (66)	36 (79)			
Muscoot	48 (106)				34 (75)
Croton Falls	106 (234)	25 (55)			2 (4)
Amawalk	190 (419)			0 (0)	
Boyds Corners		38 (84)		5 (11)	
Diverting			0 (0)		98 (216)
Bog Brook			1 (2)		3 (7)
Total	379 (836)	188 (415)	111 (245)	5 (11)	221 (487)

Source: Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 2.

Table 1-2 summarizes the total modeled load per town along with the phosphorus reduction thresholds in the NYSDEC's Croton Watershed Phase II TMDL Implementation Plan. Based on the analysis in the Croton Watershed Phase II Phosphorus TMDL Implementation Plan (NYSDEC, January 2009a), the towns in the PCMS4CC are required to remove a total of 154.9 kg of TP from the EOH reservoir system over the next five years, starting in 2010. The total TP load reduction required by each town is to be removed in 20% increments over the 5 year period, resulting in a required annual TP load reduction of 31.0 kg/yr.

Table 1-2:
HID P-Loading and Associated Reduction Requirements for Retrofit Program in kg/yr (lb/yr)

	Total Modeled HID Load[1]	Annual Load Reduction[2]	5-Year Load Reduction[2]
Carmel	379 (836)	14.4 (31.8)	72.0 (158.8)
Kent	188 (415)	6.7 (14.8)	33.6 (74.1)
Patterson	111 (245)	3.4 (7.5)	17.2 (37.9)
Putnam Valley	5 (11)	0.2 (0.4)	1.0 (2.2)
Southeast	221 (487)	6.2 (13.7)	31.1 (68.6)
Total	904 (1993)	31.0 (68.3)	154.9 (341.6)

1 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 2
2 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 3.

2. Infrastructure Inventory

2.1. Data Sources

Data on existing infrastructure were provided by each of the towns. As the data for each of the participating municipalities is maintained separately by each town, data formats vary, including shapefiles and geodatabase files. The attributes available for each dataset varied greatly. Table 2-1 summarizes the format and attributes provided by each town.

Table 2-1:
Summary of Source Data

Town	Format	Attributes
Carmel	SDSFIE[1] compliant Geodatabase	Numerous, including: size, material, condition, GPS accuracy, receiving water body or structure, unique feature ID
Kent	Shapefiles[2]	No available attributes
Patterson	Shapefiles (multiple points and lines)	Type, size, remarks, receiving water body, operations and maintenance responsibility
Putnam Valley	GPS locations and descriptions	No electronic data received.
Southeast	Shapefiles (1 point shapefile)	Material, size, type, comments, date, and notes

1 Spatial Data Standards for Facilities, Infrastructure, and the Environment (SDSFIE) is a single Department of Defense standard intended to support use of data in analyses common for military installations, environmental applications, and civil works.

2 Data for the Town of Kent were obtained in draft format from the NYCDEP, with permission from Mr. Matthew Giannetta for use in this study during a phone conversation with Cindy How.

Additional hard copy data were provided to supplement the datasets. The hard copy data consisted primarily of information on recent stormwater retrofits and planned or ongoing retrofits.

Stormwater infrastructure data collected by the NYCDEP was utilized during the course of this assessment as well. This data was used to bolster the existing infrastructure data provided by each of the towns to create a more complete data set for use in the Study.

The source data were used to create a geodatabase representing existing stormwater infrastructure, as described in Section 2.2. Utilizing the above data, a list of recent and proposed retrofits in the PCMS4 Study Area was created. The list of recent and planned retrofit locations, along with GIS and other electronic deliverables is included as an electronic attachment in Appendix B.

2.2. Database Design

The database format selected for the Stormwater Infrastructure Inventory was a geodatabase with layers for key point features: Culvert End, Catch Basin, Stormwater BMP, Manhole, Swale, and Outfall. Line features (swales, pipes) received from the town were assumed for the purposes of this Study to be represented by the outlet point of the system. A summary of the fields included in the database for each layer is provided in Appendix C - Database Design. Table 2-2 summarizes the layers provided by each township and how they were assigned to layers in the database.

Table 2-2:
PCMS4CC Source Data Layers and Inventory Data Layers

TOWNSHIP	SOURCE LAYER	DATABASE LAYER
SOUTHEAST	Cross Culvert Discharge	CULVERT END
SOUTHEAST	Cross Culvert Intake	CULVERT END
SOUTHEAST	Curb Top Basin	CATCH BASIN
SOUTHEAST	Detention Pond	STORM BMP
SOUTHEAST	Discharge	OUTFALL
SOUTHEAST	Flat Top Basin	CATCH BASIN
SOUTHEAST	Intake	CATCH BASIN
SOUTHEAST	Manhole	MANHOLE
SOUTHEAST	Plunge Pool	STORM BMP
SOUTHEAST	Special	STORM BMP (11); MANHOLE (2)
SOUTHEAST	Swale	SWALE
PATTERSON	Catch Basins	CATCH BASIN
PATTERSON	Outfalls	OUTFALL
PATTERSON	Storm Basins	STORM BMP
PUTNAM LAKE	Outfalls	(included in Patterson Outfalls)
Kent	Points	CATCH BASIN
Kent	Points	MANHOLE
Kent	Points	OUTFALL
Kent	Points	SWALE
CARMEL	Discharge Point	OUTFALL
CARMEL	Headwall	OUTFALL
CARMEL	Inlet	CATCH BASIN
CARMEL	Junction	MANHOLE

The database attributes were selected based on the following criteria:

- Fields required to maintain data found in the source files provided by PCMS4CC;
- Fields required to record data that will be required in the selection and analysis of retrofit sites; and
- Fields that may be useful to the PCMS4CC in the future in stormwater infrastructure maintenance.

The database for the Stormwater Infrastructure Inventory was designed to retain as much of the original attribute information as possible. For the Towns of Southeast and Patterson, all attributes in the source data files were maintained inside the resulting database. For data received from the Town of Carmel, the complexity of the SDSFIE dataset exceeded the needs for the current project and a simpler format was selected. Data for the Town of Kent was incorporated from the NYCDEP dataset; this dataset has all infrastructure points in one file with types identified as one of several types. The types and the associated inventory data layer are listed in Table 2-3.

Table 2-3:
Kent Infrastructure Types

Type	Inventory Data Layer
Catch basin	CATCH BASIN
Ditch	CATCH BASIN (3)
Drain	OUTFALL (26)
Manhole	MANHOLE
Inlet	CATCH BASIN
Outlet	OUTFALL

Note that the NYCDEP review of the data indicates that the dataset may have errors related to infrastructure type; field verification of infrastructure type and characteristics is recommended.

3. Potential Stormwater Quality Retrofits

3.1. Methodology for Identifying Retrofit Sites

In order to satisfy the needs and recommendations of the PCMS4CC, potential stormwater quality retrofit locations in the PCMS4CC study area were selected considering multiple factors including:

- Known Problem Areas;
- Retrofit Location;
- Proximity to Waterbodies;
- Drainage Area Size;
- Land Cover; and
- Property Ownership.

Section 3.1.1 summarizes the overall procedure used to determine the sites selected for potential retrofits in the Study Area. Sections 3.1.2 to 3.1.7 provide additional information for each of these factors.

3.1.1. Summary of Procedure for Selecting Potential Retrofit Locations

The overall goal in selecting the proposed retrofit locations for inclusion in the Study was to provide a broad range of retrofit sites in order to provide the most comprehensive analysis possible to the PCMS4CC. To that end, retrofit sites were chosen that incorporated watersheds that varied in both size and land use description. Furthermore, sites were chosen that drained to the various watersheds in the EOH Watershed. The majority of the retrofit locations were sited on lands already owned by the Towns in the PCMS4CC, however, lands were also chosen on private land and land owned by other organizations in order to include an estimate of land acquisitions in the cost estimations as well. Finally, areas where known problems exist in each of the PCMS4CC Towns were included as well. Problems with erosion and potential TP loading (known algal growth, lack of stormwater controls, etc.) were favored over other identified problems, but all identified sites were considered for inclusion in the assessment.

Utilizing the above data, the proposed retrofit site selection was conducted in the following manner.

1. In step one of the site selection process, the known problem areas were identified and placed into the GIS framework developed for the Study. A cross section of

sites across the member towns, of different drainage sizes, land use distributions and water bodies that each drain to were selected. Problem areas on town property were given preference over problem areas located on non-town property.

2. Once the problem areas were identified, step two of the selection process involved the placing of additional retrofit locations on other town owned property in the Study Area, with all efforts made to include the factors in step one of the retrofit location selection.

3. Finally, in step three of the site selection process, the remaining retrofit locations, including the remaining identified problem areas were placed on private land and land owned by other entities in the Study Area.

The above procedure resulted in the selection of 40 potential retrofit locations across the Study Area, that had a range of contributing watershed sizes, a range of land use distributions, a range of property owners and a range of waterbodies that will be impacted by their implementation. This broad range of factors provides for a range of costs, potential removal rates and impacts on a range of waterbodies, giving the PCMS4CC a broad range of the available retrofit sites, allowing for a more informed decision on which sites to pursue for actual retrofit installation.

3.1.2. Known Problem Areas

The most important factor utilized in the selection of the potential retrofit locations was knowledge of problem areas within the PCMS4CC towns. Committee members were asked to provide the locations of problem areas within their community, as well as the types of issues that were known to impact water quality. A specific focus was placed on phosphorus and sediment related issues when including known problem areas in the retrofit analysis. Areas that were identified as having erosion or algal growth issues were favored over other identified problem areas as they were deemed most likely to provide a need and potential for phosphorus removal management practices. Additional considerations were made for locating potential retrofit sites in all of the watersheds that were identified as requiring TP reductions in the TMDL for the EOH watershed.

3.1.3. Retrofit Location

The location of each proposed retrofit site was also considered in the site selection process. In order to adequately represent each town in the PCMS4CC, potential retrofit sites were included throughout each of the member communities. Furthermore, Study sites were selected that drain into different watershed basins in the East of Hudson system, which allowed for the estimation of potential phosphorus reductions in each of these watershed basins.

3.1.4. Proximity to Waterbodies

Proximity to the waterbodies in the East of Hudson system was also considered when choosing potential retrofit locations in the study area. Sites in close proximity were chosen, as well as sites further away from the waterbodies in order to show their impact on phosphorus reduction in the PCMS4CC study area.

3.1.5. Drainage Area Size

The drainage area to each of the proposed retrofit locations was also considered in the site selection process. Locations that served as the outlet for a range of small, medium and large drainage areas were chosen for use in the study to determine the cost range of retrofits for a range of drainage areas.

3.1.6. Land Cover

Land cover was also considered in the site selection process. Sites were placed at the outlets of wooded/open land areas, residential areas and urban/ impervious areas. The inclusion of the different land use types located in the study area allowed for the determination of both the most effective areas in which to place retrofits, as well as an understanding of the expected performance and cost of retrofits in other similar areas in the watershed.

3.1.7. Property Ownership

Finally, ownership of the land in which the potential retrofits were to be placed was also considered in the selection process. The majority of the retrofits were placed on lands owned by the towns. However, to incorporate the impacts of land ownership on retrofit design and placement, several potential retrofit locations were placed on private lands as well as one site on lands owned by New York City. The site selected for inclusion that are located on private lands included known problem areas identified by the members of the PCMS4CC.

3.2. Description of Identified Retrofit Sites

The retrofit sites chosen for inclusion in the Study are shown in Figure 3-1 and are summarized in Table 3-1 and Table 3-2. The sites were selected to encompass all of the watershed basins within the PCMS4CC study area, as well as to represent multiple sites within each municipality. As shown in Figure 3-1, the sites chosen for use in the study are located throughout the 5 towns in the PCMS4CC study area, outlined in black and drain into 8 separate watersheds in the East of Hudson system, which are delineated by color.

Figure 3-1: Potential Stormwater Retrofit Sites in the PCMS4CC Study Area

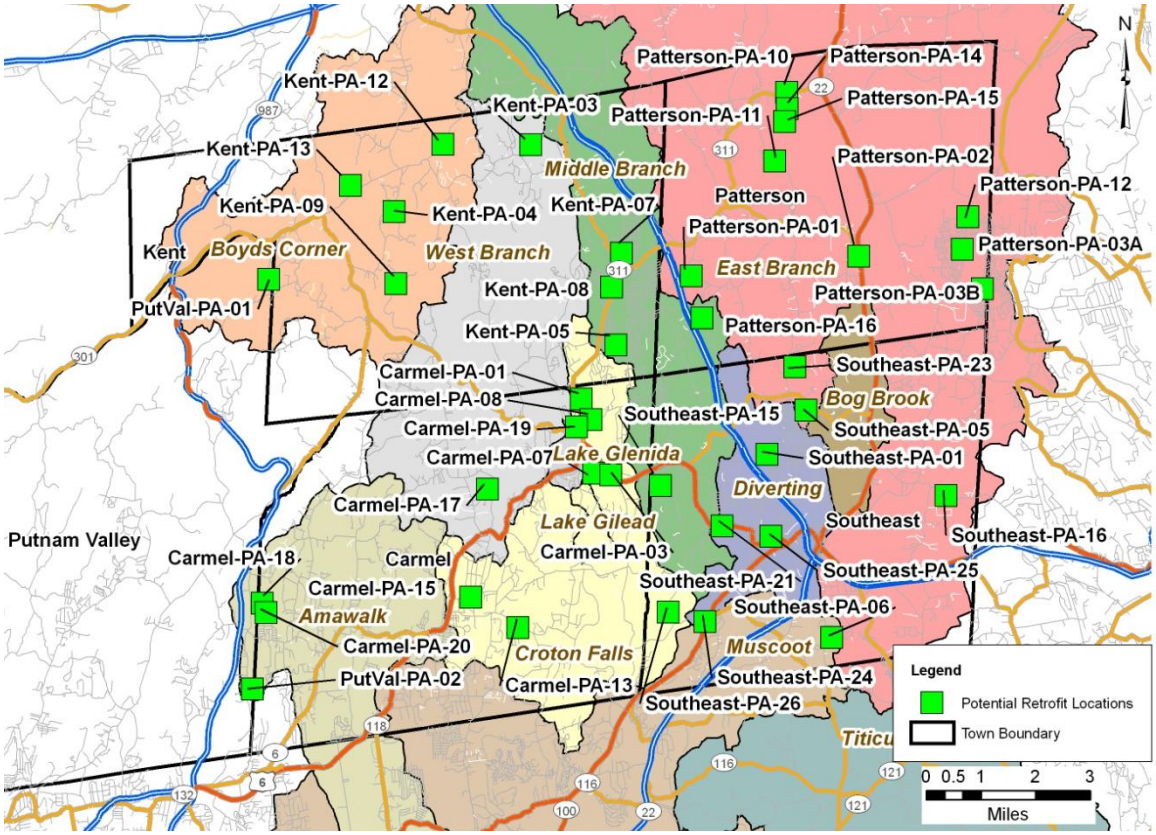


Table 3-1:
Sites Identified for Retrofit Analysis in the PCMS4CC Study Area

Site ID	Address
Carmel-PA-01	160 Rt. 52/ShopRite Site
Carmel-PA-03	Rt. 6 and Stoneleigh Ave./A+P
Carmel-PA-07	75 Seminary Hill Rd./Arms Acres
Carmel-PA-08	30 Fair St./Carmel H.S.
Carmel-PA-13	Piggott Rd. north of Circle Ct.
Carmel-PA-15	Casse Ct.
Carmel-PA-17	NE corner of Ann Rd.
Carmel-PA-18	Intersection of North and Orchard Rd.
Carmel-PA-19	Corner of Ridge Rd. and Fowler Ave.
Carmel-PA-20	Birch Rd., Lake Secor
Kent-PA-03	West of Intersection of Daffodil Ln. and Church Hill Rd.
Kent-PA-04	Intersection of Ponderosa and Nimham
Kent-PA-05	Intersection of S. Lakeshore/Towners
Kent-PA-07	Wooded area between Princeton and Terry Hill
Kent-PA-08	Intersection of Barret Hill and Rt. 52
Kent-PA-09	12 Cole Shears Ct.
Kent-PA-12	500 White Pond Rd.
Kent-PA-13	200 Farmers Mills Rd.
Patterson-PA-01	Commerce Drive
Patterson-PA-02	Jon Barret Rd./Robin Hill Corporate Park
Patterson-PA-03A	Club Court Park
Patterson-PA-03B	475 Lake Shore Drive
Patterson-PA-10	1142 Rt. 311/Town Hall
Patterson-PA-11	302 Cornwall Hill Rd./Highway Department
Patterson-PA-12	426 Havilland Dr./Sacred Heart Church
Patterson-PA-14	Townsend St.
Patterson-PA-15	South Street./Patterson Rec. Center
Patterson-PA-16	Fox Run./Fox Run Condos
PutVal-PA-01	208 Old Forge Road
PutVal-PA-02	Greenway Terrace
Southeast-PA-01	100 Pumphouse Rd.
Southeast-PA-05	Overlook Drive and Nancy Ln.
Southeast-PA-06	Seven Oaks Ln.
Southeast-PA-15	Intersection of Maple Rd. and Ivy Hill Rd.
Southeast-PA-16	120 Federal Hill Rd./Melrose School
Southeast-PA-21	2544 Carmel Avenue/Suburban Propane
Southeast-PA-23	54 Foggingtown Rd./Brewster High School
Southeast-PA-24	Intersection of Rt. 22 and Lower Mine Rd./Diverting Reservoir Spillway
Southeast-PA-25	97 Oak St./Wells Park
Southeast-PA-26	150 Reservoir Rd./Croton Reservoir Culvert

Table 3-2:
Drainage Area Information for Sites Identified for Retrofit Analysis

Site ID	Land Cover	Drainage Area Size	Ownership
		(acre)	
Carmel-PA-01	impervious/parking	50.8	Private
Carmel-PA-03	impervious	20.7	Private
Carmel-PA-07	residential and large grass area	15.8	Public
Carmel-PA-08	mixed, large impervious areas and field areas	12.7	Public
Carmel-PA-13	residential sub-division	2.0	Public
Carmel-PA-15	residential	21.7	Public
Carmel-PA-17	residential	5.9	Public
Carmel-PA-18	municipal	4.1	Private
Carmel-PA-19	residential/commercial	11.8	Public
Carmel-PA-20	high density residential	5.3	Private
Kent-PA-03	residential/wooded	15.3	Private
Kent-PA-04	residential	4.0	Private
Kent-PA-05	high density residential	3.4	Public
Kent-PA-07	woods surrounded by med. density residential	3.9	Public
Kent-PA-08	high density residential	2.2	Public
Kent-PA-09	woods/residential	12.9	Public
Kent-PA-12	wooded area drains into lake under road	2.9	Public
Kent-PA-13	recreation area offset from road	22.3	Private
PutVal-PA-01	wooded area drains into lake under road	111.7	Private
PutVal-PA-02	residential area drains to catch basin network	43.5	Public
Patterson-PA-01	corporate park	12.6	Private
Patterson-PA-02	corporate park	6.6	Public
Patterson-PA-03	park and parking area	3.0	Public
Patterson-PA-03	residential	1.6	Private
Patterson-PA-10	parking lot	11.1	Public
Patterson-PA-11	parking lot and fleet storage	2.1	Public
Patterson-PA-12	multiple land covers	9.1	Private
Patterson-PA-14	impervious, parking lot and buildings	8.2	Private
Patterson-PA-15	multiple land covers	54.9	Public
Patterson-PA-16	residential sub-division	198.9	Public
Southeast-PA-01	wooded (possibly rec. land)	8.7	Public
Southeast-PA-05	residential	1.5	Public
Southeast-PA-06	residential	22.8	Public
Southeast-PA-15	residential	48.5	Private
Southeast-PA-16	school	8.6	Private
Southeast-PA-21	impervious area	12.4	Public
Southeast-PA-23	parking lot and rec. areas	17.7	Public
Southeast-PA-24	dirt surfaces	7.3	Public
Southeast-PA-25	multiple land covers	1.8	Public
Southeast-PA-26	wooded	36.2	Private

As shown in the table, the proposed retrofit locations have drainage areas ranging from 1.5 to 198.9 acres in size and include parklands, residential areas, urban areas and wooded areas. The majority of the sites, 25 in total, are located on public land, with the remaining 15 of the sites located on private land.

3.3. Potential Retrofit Types Available for the PCMS4CC Study

Several retrofit types were considered for use in the PCMS4CC study based on examples provided in the NYSDEC SPDES General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s) (GP-0-08-002). The NYSDEC recommends the following retrofits for use in stormwater projects:

- Better Site Design Approaches;
- Rehabilitation of Existing Storm Sewer Systems;
- Stabilizing Dirt Roads and Surfaces;
- Conversion of Existing Ponds to Extended Detention or Wetland Treatment Systems;
- Retrofit Abandoned Buildings;
- Retrofit Road Ditches to Enhance Open Channel Design;
- Control the Downstream Effects of Runoff from Existing Paved Surfaces;
- Control Stream Erosion by Reducing Flow into Streams;
- Upgrade Existing Conveyance System to Provide Water Quality/Quantity Control within the Drainage Structure; and
- Reforestation

Sections 3.3.1 to 3.3.9 provide additional information for each of these stormwater quality retrofit examples provided by the NYSDEC.

3.3.1. Better Site Design Approaches

Better site design (BSD) approaches were considered as part of the Study. BSD approaches typically involve diverting or retaining rainwater prior to offsite discharge. BSD approaches typically include such practices as rooftop disconnection, diversion of runoff to infiltration areas, soil decompaction, implementing riparian buffers, installing rain gardens and utilizing cisterns. It is proposed that the use of BSD approaches will provide 15-75% phosphorus removal from the associated drainage area, depending on specific application.

3.3.2. Rehabilitation of Existing Storm Sewer Systems

The rehabilitation of existing storm sewer systems was also considered for use in this Study. Storm sewer system rehabilitation refers to installing new infrastructure in order to facilitate phosphorus removal from stormwater runoff. Practices are typically installed

in known problem areas and encompass a range of retrofits such as detention ponds, wetlands, filter systems, infiltration systems and proprietary practices such as underground stormwater storage systems or cisterns. Removal rates vary by practice. Infiltration systems for example, are assumed to remove approximately 60% of the phosphorus loading, depending on the system design. Filter systems are expected to perform in a similar manner as infiltration systems. Underground cisterns for stormwater detention however, are anticipated to remove approximately 75% of the phosphorus loading.

Utilizing retrofits that would be placed within the existing infrastructure was also considered in the PCMS4CC stormwater quality retrofit study analysis. Two such systems were considered for use in the Study: deep sump catch basins and hydrodynamic separators. Deep sump catch basins provide a wet storage volume which acts as a detention basin for particulates including phosphorus as well as an energy dissipater for stormwater flow. It is anticipated that deep sump catch basins will remove 15% of the phosphorus load in its associated drainage area. Hydrodynamic separators dissipate stormwater flow energy and allow for particle settling as well. They are expected to remove approximately 51% of the phosphorus in the associated watershed.

3.3.3. Stabilizing Dirt Roads and Surfaces

Also included in consideration for this Study was the stabilization of dirt roads and surfaces and includes replacing exposed soil with pervious pavement grass or stone as well as diverting flow around exposed soils via check dams and other diversion measures. In addition to the retrofit recommendations of the NYSDEC, the replacement of existing pavement with pervious pavement is also considered as stabilizing dirt roads and surfaces for the purpose of this Study. It is anticipated that the stabilization of exposed dirt surfaces will remove 20% of the phosphorus from the associated drainage area. The installation of porous pavement however, is anticipated to remove 70% of the total phosphorus in the drainage area.

3.3.4. Conversion of Existing Ponds to Extended Detention or Wetland Treatment Systems

Detention ponds installed in the past were designed to control water quantity release rates, with limited water quality improvements being considered in their design. Stormwater quality retrofits on existing detention ponds typically involve modifying the control structure, increasing the size of the existing pond, or adding additional pond space upstream of the existing pond via a forebay. The additional volume available in the pond would trap additional sediment and phosphorus prior to discharge into the watershed. Despite being cost and labor intensive, updating existing detention ponds in the Study Area to treat water quality as well as quantity would likely achieve significant phosphorus removal in the Study Area. It is anticipated that properly designed extended detention ponds will achieve 31% phosphorus removal, which accounts for the difference

between the phosphorus removal associated with the typical detention pond design of the past (19%) and the phosphorus removal associated with the installation of a new extended detention pond (50%).

3.3.5. Retrofit Abandoned Buildings

Stormwater quality retrofits of abandoned buildings include demolishing existing buildings to create open space or constructing stormwater quality treatment systems inside the rehabilitated structures. Despite extensive efforts to locate such a site in the PCMS4CC study area, no suitable abandoned buildings were located and therefore, this type of retrofit will not be included in the retrofit analysis.

3.3.6. Retrofit Road Ditches to Enhance Open Channel Design

Road side ditch retrofit efforts typically involve the stabilization of known exposed erosion areas in the roadside ditches. When retrofit, unstable ground cover is typically stabilized via the addition of riprap or grass depending on the use of the area in question. Ground stabilization retrofits are simpler to accomplish over the majority of the other retrofits considered in this Study; however, less phosphorus and sediment are removed. When designed with check dams to dissipate flow velocity and energy, grassed swales achieve a phosphorus removal of approximately 30%. Rip rap lined swales however, will be considered to remove 20% of the phosphorus loading from the associated drainage area. The smaller amount of phosphorus removal in rip rap lined swales is due to the potential for erosion being greater in these swales as compared to stabilized grass lined swales.

3.3.7. Control the Downstream Effects of Runoff from Existing Paved Surfaces

Control of the downstream effects of runoff from paved surfaces was also considered in the retrofit study. In order to control the flooding and erosion associated with excessive runoff from existing paved surfaces, outfall stabilization retrofits are needed to reduce the amount of sediment and phosphorus in the stormwater. Outfall stabilization typically consists of rip rap protection installation as well as other culvert outlet amendments such as a splash pad. Furthermore, the replacement of existing culverts with properly stabilized culvert sections will also limit phosphorus and sediment loading into the waterbodies of the Study Area. Proper sizing of the replacement culvert along with inlet/outlet protection will likely reduce erosion and therefore reduce sediment and phosphorus loads from the watershed. Culvert replacement however, typically involves interrupting vehicle traffic as the majority of culverts convey water from one side of a roadway to the other. This interruption should be considered when deciding to install new culverts under roadways. Due to the similarities with rip rap lined swales, stabilized outfall retrofits are expected to remove 20% of the phosphorus loading in the drainage area. In addition, it is anticipated that the benefits of a properly functioning culvert will further reduce erosion and associated phosphorus loading by 5-10%.

3.3.8. Control Stream Erosion by Reducing Flows and/or Velocities into Streams

The benefits of reducing stormwater flows and/or velocities into the stream network were also considered as part of the retrofit study. Several methodologies are currently practiced in order to reduce the volume and velocity of stormwater flow entering streams and other waterbodies. Velocity dissipaters such as check dams in swales help to dampen the energy of stormwater flow, decreasing its erosive potential. Another retrofit used to limit the erosivity of stormwater flow is a plunge pool. Plunge pools provide an area for stormwater flow energy to dissipate as well as provide phosphorus removal similar to a small extended detention pond. It is anticipated that plunge pools will remove 50% of the phosphorus in the associated drainage area.

3.3.9. Reforestation

Reforestation of developed land in the study areas was also considered as part of the study effort. Because much of the watershed area is currently forested with most developed lands actively used, no sites for this retrofit type were identified. Therefore, the impacts of reforestation will not be considered in the remainder of the analysis.

3.4. Selection of Suggested Retrofit Types

In order to best represent the range of retrofits available for use by the PCMS4CC, several types of retrofits were suggested for use in the Study. Similar to the retrofit site selection process, the selection of potential retrofits was dependent on multiple factors. The types of retrofits ranged from cost and labor intensive efforts, such as installing a new detention basin, to low cost and labor efforts such as removing the asphalt from an existing swale and replacing it with a grassed swale.

The retrofits recommended for use at the selected sites are summarized in Table 3-3. As shown in the table, several sites have multiple potential retrofit options available for use. The table also indicates if the sites were identified by the towns of the PCMS4CC or by the engineering team.

Table 3-3:
Potential Retrofits for Identified Sites in the PCMS4CC Study Area

Site ID	Potential Retrofit Types	Selected By
Carmel-PA-01	Improve Existing Detention Pond, Install Deep Sump Catch Basin, Install Grass Swales	Town
Carmel-PA-03	Install Sand Filter, Improve Existing/Install Detention Pond, Install Grass Swales	Town
Carmel-PA-07	Install Detention Pond, Install Deep Sump Catch Basins, Install Grass Swales	Town
Carmel-PA-08	Install Cistern, Install Deep Sump Catch Basins, Install Grass Swales	Pirnie
Carmel-PA-13	Outfall Channel Stabilization, Install Detention Pond	Pirnie
Carmel-PA-15	Outfall Channel Stabilization	Pirnie
Carmel-PA-17	Install Plunge Pool, Install Outfall Stabilization	Pirnie
Carmel-PA-18	Install Grass Swales, install Detention Pond	Pirnie
Carmel-PA-19	Install Hydrodynamic Separator	Pirnie
Carmel-PA-20	Install Detention Pond, reroute drainage from surrounding area	Pirnie
Kent-PA-03	Outfall Channel Stabilization	Town
Kent-PA-04	Fix Detention Structure (design failure reported)	Town
Kent-PA-05	Ground Stabilization (erosion id'd)	Town
Kent-PA-07	Install Detention Pond, reroute drainage from surrounding area	Town
Kent-PA-08	Install Hydrodynamic Separator	Town
Kent-PA-09	Install Plunge Pool	Town
Kent-PA-12	Outfall Channel Stabilization	Pirnie
Kent-PA-13	Install Detention Pond, Install Grass Swales	Pirnie
Patterson-PA-01	Install Plunge Pool, Improve Existing Detention Pond, Install Grass Swales	Town
Patterson-PA-02	Improve Existing Detention Pond, Install Grass Swales, Install Deep Sump CBs	Town
Patterson-PA-03	Stabilize Area and reroute drainage, Install Deep Sump Catch Basins	Town
Patterson-PA-03	Install Grass Swales	Town
Patterson-PA-10	Install Deep Sump Catch Basins	Town
Patterson-PA-11	Install Detention Pond, Install Grass Swales	Pirnie
Patterson-PA-12	Install Grass Swales, Install Deep Sump Catch Basins	Pirnie
Patterson-PA-14	Improve Existing Detention Pond, Install Deep Sump Catch Basins	Pirnie
Patterson-PA-15	Install Grass Swales, Install Deep Sump Catch Basins	Pirnie
Patterson-PA-16	Install Cistern, Install Detention Pond, Install Hydrodynamic Separator	Pirnie
PutVal-PA-01	Resurface Road Surface and Improve under Drainage	Town
PutVal-PA-02	Install Deep Sump Catch Basins	Town
Southeast-PA-01	Outfall Channel Stabilization, Install Grass Swales	Town
Southeast-PA-05	Piping of Existing Swale	Town
Southeast-PA-06	Install Detention Pond, reroute drainage from surrounding area	Town
Southeast-PA-15	Outfall Channel Stabilization, Install Water Quality Improvements	Town
Southeast-PA-16	Install Cistern, Install Detention Pond	Town
Southeast-PA-21	Install Deep Sump Catch Basins, Install Grass Swales	Pirnie
Southeast-PA-23	Install Detention Pond, Install Deep Sump Catch Basins, Install Grass Swales	Pirnie
Southeast-PA-24	Install Grass Swales (soil stabilization)	Pirnie
Southeast-PA-25	Replace portion of Existing Parking Area with Pervious Pavement, Install DP	Pirnie
Southeast-PA-26	Install Plunge Pool	Pirnie

The complexity of implementing a retrofit was also considered when choosing potential retrofit practices. Due to size constraints, sites with smaller areas available for retrofit construction were typically assigned smaller and simpler potential retrofits such as stabilized swales or deep sump catch basins. Larger sites in the Study Area had the available area to include multiple potential retrofits on a single site.

3.5. Summary of Potential Stormwater Retrofits

As part of this study, the cost and phosphorus reduction at sites with multiple potential retrofits for consideration were evaluated for a single stormwater retrofit practice. The retrofits evaluated at each site were selected to represent the full range of options identified for the Study. Therefore, with the full range of options represented, the PCMS4CC will have the basis to extrapolate costs for additional retrofit locations within their jurisdiction.

The final retrofit types chosen for each site are provided in Table 3-4. To the greatest extent possible, different categories of retrofits were chosen for similar sites in both land cover and size. This methodology allowed each type of retrofit to be distinguished based on both cost and anticipated phosphorus removal potentials for similar sites. Conversely, similar retrofits were assigned to sites of various sizes in order to determine the potential impact of each retrofit type as it applied to the range of potential drainage area sizes in the Study Area. When possible, the majority of the retrofits chosen for each site in the Study Area were the retrofits that would provide the greatest reduction in phosphorus into the system. However, other factors such as ease of installation and relative size of the drainage area were also included in the proposed retrofit recommendation.

As shown in Table 3-4, there are 12 different types of retrofits proposed for use in the Study. The retrofits proposed for the Study cover 8 of the 10 major categories suggested for use in stormwater quality retrofits by the NYSDEC. The only categories suggested by the NYSDEC and not covered in this study are the retrofit of abandoned buildings and reforestation of abandoned developed lands. Suitable sites for both these retrofits were not found in the Study Area and were therefore not included in the remainder of the analysis. Furthermore, the retrofits proposed for this study also encompass the majority of the sub-categories suggested by the NYSDEC as well. As stated above, the application of retrofits ranged from complex to simple. One of the complex retrofit installations includes the installation of a detention pond and the rerouting of the drainage from the surrounding area (Carmel-PA-20). The rerouting of the drainage from an area can involve excavation, new infrastructure installation, roadway disruption, long construction periods and increased construction costs. One of the simple retrofit installations involves the installation of grassed swales (Patterson-PA-03). The installation of grassed swales typically involves minimal excavation or ground disturbance and is typically conducted along roadways, driveways and other access locations that minimize construction access difficulties.

Table 3-4:
Selected Retrofits for Identified Sites in the PCMS4CC Study Area

Unique ID	Potential Retrofit Types
Carmel-PA-01	Improve Existing Detention Pond
Carmel-PA-03	Install Sand Filter
Carmel-PA-07	Install Detention Pond
Carmel-PA-08	Install Cistern
Carmel-PA-13	Outfall Channel Stabilization
Carmel-PA-15	Outfall Channel Stabilization
Carmel-PA-17	Install Plunge Pool
Carmel-PA-18	Install Grass Swales
Carmel-PA-19	Install Hydrodynamic Separator
Carmel-PA-20	Install Detention Pond, reroute drainage from surrounding area
Kent-PA-03	Outfall Channel Stabilization
Kent-PA-04	Fix Detention Structure (design failure reported)
Kent-PA-05	Ground Stabilization (erosion id'd)
Kent-PA-07	Install Detention Pond, reroute drainage from surrounding area
Kent-PA-08	Install Hydrodynamic Separator
Kent-PA-09	Install Plunge Pool
Kent-PA-12	Outfall Channel Stabilization
Kent-PA-13	Install Detention Pond
Patterson-PA-01	Install Plunge Pool
Patterson-PA-02	Improve Existing Detention Pond
Patterson-PA-03A	Stabilize Area and reroute drainage to opposite side of road
Patterson-PA-03B	Install Grass Swales
Patterson-PA-10	Install Deep Sump Catch Basins
Patterson-PA-11	Install Detention Pond
Patterson-PA-12	Install Grass Swales
Patterson-PA-14	Improve Existing Detention Pond
Patterson-PA-15	Install Grass Swales
Patterson-PA-16	Install Cistern
PutVal-PA-01	Resurface Road Surface and Improve under Drainage
PutVal-PA-02	Install Deep Sump Catch Basins
Southeast-PA-01	Outfall Channel Stabilization
Southeast-PA-05	Piping of Existing Swale
Southeast-PA-06	Install Detention Pond, reroute drainage from surrounding area
Southeast-PA-15	Outfall Channel Stabilization
Southeast-PA-16	Install Cistern
Southeast-PA-21	Install Deep Sump Catch Basins
Southeast-PA-23	Install Detention Pond
Southeast-PA-24	Install Grass Swales (soil stabilization)
Southeast-PA-25	Replace portion of Existing Parking Area with Pervious Pavement
Southeast-PA-26	Install Plunge Pool

4. Phase 1 Ranking

4.1. Ranking Methodology

The methodology for Phase 1 ranking was developed based on the hard copy and electronic information provided by the towns prior to field investigations. The criteria selected for the Phase 1 ranking methodology are further described in Sections 4.1.1 through 4.1.13. Section 4.1.14 describes the how each criterion was weighted in the overall scoring and how the overall Phase 1 ranking was determined.

Phase 1 ranking was performed based on data provided by the PCMS4CC municipalities as well as readily-available GIS data. A list of the data and data sources used for the Phase 1 ranking are provided in Appendix D - GIS Data Sources.

4.1.1. Drainage Area Size

The drainage area size is a key factor determining the amount of runoff that contributes to a potential retrofit site. Once the potential retrofit sites were identified and the drainage areas delineated, the range of sizes were examined to determine the distribution in drainage area size. The drainage area sizes were broken down into ranges, with scores assigned as described in Table 4-1.

Table 4-1:
Drainage Area Size Ranking and Criteria

Size	Rank
0 - 2 acres	1
2 - 5 acres	2
5 - 10 acres	3
> 10 acres	4

4.1.2. Average Drainage Area Imperviousness

This metric represents the impervious percentage for the drainage area based on the average percent imperviousness. Based on work by Arnold and Gibbons (1996), water quality issues can result when a basin reaches 10% impervious area or greater. Therefore, the ranges were chosen to give basins with high percent impervious areas a higher priority for retrofits.

As in the case of the drainage size criteria, these ranges were selected once the drainage area for each site was evaluated, with range distinctions based on the range of observed values and professional judgment. The percent imperviousness values were broken down into ranges, with scores assigned as described in Table 4-2.

Table 4-2:
Drainage Area Impervious Ranking and Criteria

Percent Impervious	Rank
0 - 5 %	1
5 - 10 %	2
10 - 15 %	3
> 15 %	4

4.1.3. Existing TMDL Removal Requirements

The removal requirements from the Phase II TMDLs were summarized in the January 2009 NYSDEC Implementation Plan. Based on these requirements, ranks were assigned to sites in each basin as described in Table 4-3. This criterion reflects the overall removal requirements for the TMDL, as opposed to the removal associated with the MS4 requirements. The Existing TMDL Removal Requirements criterion reflects the importance of the watershed basins for overall phosphorus removal; the criterion identifying sources of high phosphorus is based on the load from high intensity development areas and therefore already reflects the MS4 requirements (i.e. one criterion reflects overall TMDL requirements and one reflects MS4 requirements).

Note that while West Branch and Boyd Corners basins are not currently water quality limited, they are included in the Implementation Plan as they feed downstream reservoirs which are water quality limited. As they drain into Croton Falls, they were assigned the same removal requirements and rank as the Croton Falls reservoir in the Phase I ranking methodology. The ranks were assigned roughly on quartiles.

Table 4-3:
Existing TMDL Removal Requirements Ranking and Criteria

Basin	Phase II TMDL Removal Requirements kg/yr (lb/yr)	Rank
Amawalk	122 (269)	1
Middle Branch	204 (450)	1
Boyd Corners	885 (1,951)	2
Croton Falls/Lake Gilead	885 (1,951)	2
West Branch/Lake Glenida	885 (1,951)	2
Diverting	983 (2,167)	3
East Branch	993 (2,189)	3
Muscoot	2058 (4,537)	4

4.1.4. Location within Phosphorus Limited Basin

This criterion was included in the proposal and is included here. However, as noted in the Croton Watershed Phase II Phosphorus TMDL Implementation Plan (NYSDEC, January 2009), all of the PCMS4CC towns are in phosphorus limited watersheds or those that feed into phosphorus limited watersheds. Therefore all basins comprising the PCMS4CC study area are included in the Implementation Plan, making the metric neutral in nature.

4.1.5. Documented Source of High Phosphorus

This factor was included to account for documented sources of high phosphorus. Table 2 of the NYSDEC Croton Watershed Phase II Phosphorus TMDL Implementation Plan provides the modeled load associated with High Intensity Development. The ranks were assigned based on the basin the potential retrofit falls within; Table 4-4 shows the ranks that were assigned.

Table 4-4:
Documented Source of High Phosphorus Ranking and Criteria

Modeled Load of Basin	Rank
<50 kg/yr (<110 lb/yr)	1
50-100 kg/yr (110-220 lb/yr)	2
100-200 kg/yr (220-441 lb/yr)	3
>200 kg/yr (> 441 lb/yr)	4

4.1.6. Ownership Type

The types of ownership for the potential retrofit site are expected to affect the cost and timeline for constructing a retrofit. Private ownership is expected to pose the most difficulties for implementation, with municipal ownership expected to be the most feasible for timely implementation. Land owned by municipal school districts may require more coordination and are therefore assigned a slightly lower score than general municipal lands. The ranking assigned to private versus public ownership types is provided in Table 4-5.

Table 4-5:
Ownership Type Ranking and Criteria

Ownership Type	Rank
Private	1
Public (Federal/State)	2
Public (County)	2
Public (Municipal - School)	3
Public (Municipal)	4

4.1.7. Current Land Use

The current land use of the retrofit site is viewed as an indication of what kinds of property may be more likely to have space for placement of a retrofit. The land uses associated with each property was based on the Real Property Service (RPS) code; a look up table of RPS code to specific land use and generalized land use categories used in the methodology is provided as Appendix E - Land Use Descriptions. Generalized land use categories include residential, commercial, open space, and vacant/abandoned. The rank assigned to each generalized land use category is provided in Table 4-6.

Table 4-6:
Current Land Use Type Ranking and Criteria

Land Use Type	Rank
Residential	1
Commercial/Industrial	2
Open Space	3
Vacant/Abandoned	4

4.1.8. Anticipated Stormwater Capture Ratio of Current Practice

While data on current practice design and anticipated capture ratio was fairly limited, if the capture ratio of the retrofit is known the rank is assigned based on a three tier system, with a value of 4 given to lower capture ratios. If the capture ratio is unknown, the age of

the retrofit was used as a surrogate for anticipated capture ratio. A three tier system was implemented ranging from 1-3 (3 given to older stormwater management practices). The rank assigned to each type of stormwater management practice (SMP) is provided in Table 4-7.

Table 4-7:
Anticipated Capture Ratio Ranking and Criteria

	Rank
Anticipated Capture Ratio Known	
High Capture Ratio	2
Moderate Capture Ratio	3
Low Capture Ratio	4
Anticipated Capture Ratio Unknown	
< 5 years old	1
5-10 years old	2
10+ years old	3

If neither capture ratio nor age is known, the SMP will be given a value of 2 to represent the average capture ratio in the Study Area. If the retrofit represents the installation of a new SMP, a value of 4 will be assigned to the potential site. Note that neither capture ratio nor age was known for any of the selected retrofit sites; therefore a value of 2 was assigned to all sites with existing management practices.

4.1.9. Existing Management Practice – Ease of Retrofit

The general amount of construction required to install a suggested retrofit based on the existing SMP type is accounted for by the ranks described in Table 4-8, with easiest retrofits assigned the highest value. Potential retrofits identified at sites where there is no existing management practice are assigned a rank of 3, equivalent to the rank for a retrofitting a dry pond. This value was assigned because site characteristics for dry ponds would be nearly equivalent to a vacant lot, with construction issues likely to be similar. While there may be more uncertainties related to a new installation, the score of 3 is the median score and therefore a new installation would be considered neutral relative to other retrofit types.

Table 4-8:
Existing Management Practice – Ease of Retrofit Ranking and Criteria

Retrofit Type	Rank
Culvert	1
Wet pond	2
Dry pond/New Installation	3
Catchbasin	4
Swales	5

4.1.10. Existing Management Practice – Typical Phosphorus Removal Capability

Management practices types with lower typical phosphorus removal capabilities receive higher scores under the Phase 1 ranking scheme. This places a higher priority on SMPs which currently do not remove much phosphorus that may be retrofitted to increase the phosphorus removal at the potential retrofit site. Table 4-9 describes the ranks assigned to existing management practices.

Table 4-9:
Existing Management Practice – Typical Phosphorus Removal Capability Ranking and Criteria

Retrofit Type	Rank
Wet pond	1
Dry pond	2
Swales	3
Catchbasin	4
Culvert	5

4.1.11. Proximity to Receiving Water

Sites with discharges closer to receiving water were assigned a higher priority during the retrofit ranking to reflect the higher likelihood that the discharge will directly impact the receiving water. Processes such as natural attenuation and infiltration have less time to occur before stormwater flow delivers the phosphorus load to the receiving waters. Table 4-10 describes the ranks assigned based on proximity to receiving waters.

Table 4-10:
Proximity to Receiving Water Ranking and Criteria

Proximity to Receiving Water	Rank
>500 feet from receiving water	1
Within 500 feet of receiving water	3

4.1.12. Receiving Water Body Class

The ranking assigned based on water quality classification of the receiving water reflects the regulatory priority of protecting the receiving water body. Table 4-11 describes the ranks assigned based on receiving water body class.

Table 4-11:
Receiving Water Body Class Ranking and Criteria

Water Quality Classification	Rank
C	1
B	2
AA, A	3

Note that all AA waters in the study area are reservoirs and that no Class D waters are located within the Study Area. The majority of streams in the area are Class C waters.

4.1.13. Proximity to Wetlands or Wetlands Buffer

The proximity of the potential retrofit installation site to a New York State Freshwater wetland or a National Wetlands Institute wetland was ranked based on the current understanding that the NYSDEC currently will not permit disturbance of existing wetlands for the installation of SMPs. Therefore, sites in or near wetlands receive lower ranking than those not in close proximity to wetlands or wetlands buffers. Table 4-12 describes how ranks were assigned based on the proximity of the retrofit site to a wetland or wetland buffer.

Table 4-12:
Proximity to Wetlands or Wetlands Buffer Ranking and Criteria

Distance to Wetlands or Wetlands Buffer	Rank
Within wetlands or 100-foot buffer	1
Within 100 feet of wetlands or 100-foot buffer	2
Further than 100 feet from buffer	3

Discussions of the effectiveness of degraded wetlands and the possibility of utilizing and improving degraded wetlands during the construction of SMPs have been held with the NYSDEC. The PCMS4CC has inquired whether the NYSDEC may relax the restriction on the placement of BMPs within the buffer. These criteria and ranges may change if NYSDEC allows placement of BMPs within the buffer.

4.1.14. Scalars and Overall Ranking

Scalar values are used to assign higher weights to the criteria that represent the drivers of the stormwater retrofit improvement study. Therefore, the highest values were given to

those criteria directly related to phosphorus load or regulatory issues. Drainage area characteristics directly related to phosphorus loading included drainage area size and percent impervious; these factors were assigned the highest weighting factors to emphasize the load to each potential site. Regardless of which retrofit type is selected, these sites represent the highest potential for phosphorus removal of the sites identified in the Study. Both drainage area characteristics are assigned a weighting factor (scalar) of 5.

The high ranking for criterion related to regulatory issues reflects the importance of meeting regulatory requirements, the main impetus of this study. To reflect this, these criteria are assigned a scalar of 4.

Numerous site characteristics were identified. These include ownership type, current land use of the potential retrofit site, and existing management practices. These characteristics will affect the cost and feasibility of constructing a retrofit. These criteria were designed to reflect the desirability of installing a retrofit at the potential site. Note that selected retrofit types may reflect only one of multiple potential retrofits, this criteria does not strictly limit the amount of removal that may be achieved at a potential site. Due to the relatively large number of site characteristics, a smaller weighting factor was assigned so that the focus of the study remains on the drainage area characteristics and regulatory issues. The site characteristics criteria were therefore assigned a scalar of 2.

Environmental constraints reflect additional site characteristics which may affect the feasibility or desirability of placing a retrofit at the identified site. These criteria are assigned a lower weighting factor for multiple reasons, including more uncertainty of the impacts. For example, while a close proximity to receiving water body generally reflects a higher likelihood for discharge to directly impact the receiving water, the condition of the path from the outlet to the receiving water has a large impact on this and field investigations may be required to assess the effects. Similarly, scoring for proximity to wetlands was based on GIS data suited for screening level investigations, with field investigations recommended to better understand the impact on site selection. Therefore these criteria were assigned the lowest weights in the study, with a scalar value of 1.

Table 4-13 describes the scalar values assigned to each criterion. The score for each criterion is the product of the scalar value and the rank assigned to each potential retrofit site.

Table 4-13:
Scalars and Overall Ranking

Criteria Type	Criteria	Scalar	Low Rank	High Rank	Low	High
Drainage Area Characteristics	Drainage Area Size	5	1	4	5	20
	Drainage Area Percent Impervious	5	1	4	5	20
Regulatory Issues	Existing TMDL Regulatory Removal Requirements	4	1	4	4	16
	Within Phosphorus Limited Basin	4	0	0	0	0
	Documented Source of High Phosphorus	4	1	4	4	16
Site/Outfall Characteristics	Ownership Type	2	1	4	2	8
	Current Land use	2	1	4	2	8
	Anticipated Capture Ratio	2	1	4	2	8
	Existing SMP Type – Ease of Retrofit	2	1	5	2	10
	Existing SMP Type – Typical Phosphorus Removal	2	1	5	2	10
Environmental	Proximity to Receiving Water	1	1	3	1	3
	Receiving Water Body Class	1	1	3	1	3
	Proximity to Wetlands	1	1	3	1	3

The total ranking score calculated for each retrofit is the sum of the scores from all criteria. Overall total scores potentially range from 29 to 125, with higher scores indicating more desirable potential retrofit sites, based on the criteria included in this assessment.

4.2. Potential Retrofit Ranking

The weights and scores described in Section 4.1 were applied to the 40 identified potential retrofit sites. The scores for each criterion are provided in Table 4-14, along with the overall score for each site.

As stated previously, the total ranking scores could potentially range from 29 to 125, with higher scores indicating more desirable potential retrofit sites. The most desirable retrofits based on the analysis contained in this section were found to be Carmel-PA-13 and Southeast-PA-05, both of which received a ranking score of 103. The least desirable retrofit based on the analysis was found to be Kent-PA-09, with a resulting score of 62.

Table 4-14:
Potential Retrofit Site Phase 1 Ranking

Potential Site	Drainage Area Size	Average Drainage Area Impervious	Ownership Type	Current Land Use	Anticipated Stormwater Capture Ratio of Current Practice	Existing Management Practice – Ease of Retrofit	Existing Management Practice – Typical Phosphorus Removal Capability	Documented Source of High Phosphorus	Proximity to Receiving Water	Receiving Water Body Class	Proximity to Wetlands or Wetlands Buffer	Existing TMDL Removal Requirements	Total
Carmel-PA-01	4	2	1	2	2	2	1	3	3	1	3	2	**73**
Carmel-PA-03	4	2	1	2	2	2	1	3	1	2	3	2	**72**
Carmel-PA-07	4	3	1	4	4	3	1	3	1	3	3	2	**88**
Carmel-PA-08	1	4	3	2	4	3	1	3	3	2	3	2	**79**
Carmel-PA-13	4	4	4	3	2	5	3	3	3	3	3	2	**103**
Carmel-PA-15	2	4	4	1	2	5	3	3	1	3	2	2	**86**
Carmel-PA-17	1	4	1	1	2	5	3	2	1	3	3	2	**72**
Carmel-PA-18	3	2	4	2	4	3	1	4	1	1	3	1	**78**
Carmel-PA-19	2	4	4	3	2	4	4	2	3	3	2	2	**88**
Carmel-PA-20	4	2	4	3	4	3	1	4	3	3	1	1	**87**
Kent-PA-03	1	3	1	1	2	5	3	2	3	1	3	2	**67**
Kent-PA-04	1	4	1	3	2	3	2	1	1	1	3	2	**64**
Kent-PA-05	1	4	1	4	4	3	1	3	3	1	3	1	**74**
Kent-PA-07	1	1	4	4	4	3	1	3	3	1	3	1	**65**
Kent-PA-08	3	4	4	3	2	4	4	3	3	2	2	1	**92**
Kent-PA-09	1	1	4	3	2	5	3	1	3	1	2	2	**62**
Kent-PA-12	4	1	4	3	2	5	3	1	3	3	1	2	**78**
Kent-PA-13	4	1	4	3	4	3	1	1	3	1	3	2	**74**

Potential Site	Drainage Area Size	Average Drainage Area Impervious	Ownership Type	Current Land Use	Anticipated Stormwater Capture Ratio of Current Practice	Existing Management Practice – Ease of Retrofit	Existing Management Practice – Typical Phosphorus Removal Capability	Documented Source of High Phosphorus	Proximity to Receiving Water	Receiving Water Body Class	Proximity to Wetlands or Wetlands Buffer	Existing TMDL Removal Requirements	Total
PutVal-PA-01	4	1	1	4	2	5	3	1	3	2	1	2	**73**
PutVal-PA-02	2	2	4	3	2	4	4	4	3	1	3	1	**81**
Patterson-PA-01	4	2	1	2	2	2	1	3	3	2	1	3	**76**
Patterson-PA-02	3	4	1	3	2	2	1	3	3	1	1	3	**82**
Patterson-PA-03	2	3	1	3	2	5	3	3	3	1	3	3	**84**
Patterson-PA-03	1	4	1	3	2	5	3	3	3	2	2	3	**84**
Patterson-PA-10	1	4	4	2	4	3	1	3	3	1	3	3	**84**
Patterson-PA-11	3	2	4	2	4	3	1	3	3	1	3	3	**84**
Patterson-PA-12	1	4	1	2	4	3	1	3	1	1	3	3	**76**
Patterson-PA-14	2	4	4	2	2	2	1	3	3	1	3	3	**83**
Patterson-PA-15	2	4	3	2	4	3	1	3	3	1	3	3	**87**
Patterson-PA-16	4	3	1	3	4	3	1	3	3	1	1	1	**80**
Southeast-PA-01	1	4	4	2	2	5	3	3	3	1	3	3	**88**
Southeast-PA-05	4	4	4	3	2	5	3	3	1	1	3	3	**103**
Southeast-PA-06	4	2	4	3	4	3	1	4	3	1	1	4	**97**
Southeast-PA-15	2	4	4	3	2	5	3	3	3	4	1	1	**88**
Southeast-PA-16	3	3	1	2	4	3	1	3	3	1	3	3	**83**
Southeast-PA-21	4	4	1	2	4	3	1	3	3	3	1	3	**93**
Southeast-PA-23	2	4	3	2	4	3	1	3	3	1	1	3	**85**
Southeast-PA-24	1	4	2	3	4	3	1	4	3	3	3	4	**92**
Southeast-PA-25	4	4	4	3	4	3	1	3	3	1	2	3	**100**
Southeast-PA-26	1	2	4	3	2	5	3	3	3	3	3	2	**78**

4.3. Tier 1 and Tier 2 Sites

The Phase 1 ranking results were used as the main factor in selecting 20 sites that were designated as Tier 1 sites. Prior to selecting the 20 Tier 1 sites, it was decided that each town in the PCMS4CC would have an approximately equal number of Tier 1 sites visited during the field investigation portion of the Study. The top 3 sites within the towns of Carmel, Kent, Patterson, and Southeast were identified as Tier 1 sites based on the Phase 1 ranking. The top site from the town of Putnam Valley was also selected based on the Phase 1 ranking.

The additional 7 sites were selected to ensure a variety of retrofit types and site types were represented in the Tier 1 sites. For example, the Tier 1 sites include 5 existing swales, 4 existing wet/dry ponds, 2 existing catch basins, and 9 sites where no existing management practice has been identified.

A variety of proposed retrofit types are also included in the Tier 1 sites. The retrofit types proposed for use in this Study include:

- Improve existing detention ponds;
- Stabilize and re-route drainage;
- Stabilize outfall channel;
- Install new detention ponds (with or without re-routing drainage);
- Install a hydrodynamic separator;
- Install a plunge pool;
- Install deep sump catch basins;
- Install a cistern;
- Install grass swale(s);
- Piping of existing grass swale;
- Resurface road and improve underdrainage; and
- Replace existing pavement with pervious pavement.

Most of the proposed retrofit types are represented in the Tier 1 sites. The retrofit types not represented in Tier 1 include: installing sand filters; and resurfacing road and improve underdrainage. These retrofits are standard retrofit practices where cost can be estimated without intimate knowledge of the specific project sites. Therefore, project resources were focused on gaining a better understanding of proposed retrofits on Tier 1 sites where specific site information will allow for a better estimate of cost and associated phosphorus removal.

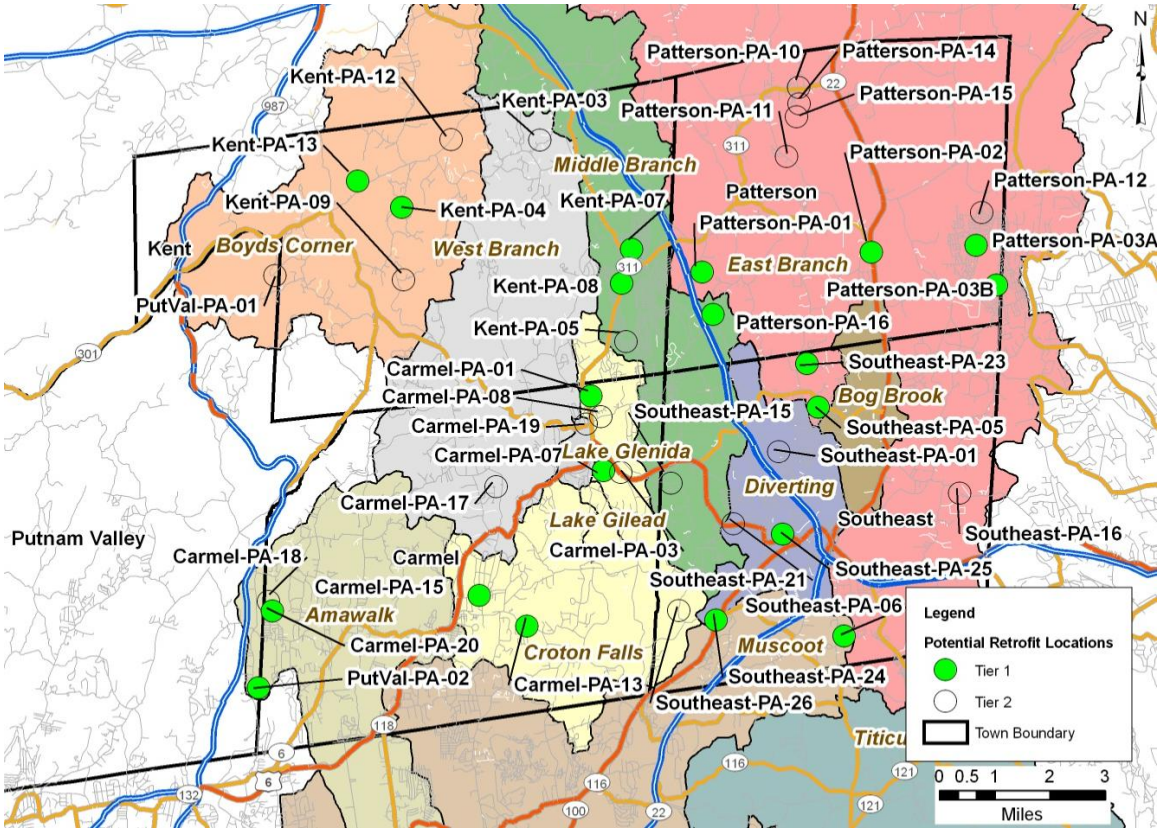
The Tier 1 sites also include a variety of public and private properties and a variety of recommended retrofit types. With the exception of Putnam Valley, with one Tier 1 site, each of the PCMS4CC municipalities has 4 or 5 Tier 1 sites identified. A summary of the selected Tier 1 sites is provided in Table 4-15 and Figure 4-1.

Table 4-15:
Tier 1 Sites

Site ID	Existing Management Practice	Proposed Retrofit
Carmel-PA-01	Wet Pond	Improve existing detention pond
Carmel-PA-07	None	Install detention pond
Carmel-PA-13	Swale	Outfall channel stabilization
Carmel-PA-15	Swale	Outfall channel stabilization
Carmel-PA-20	None	Install detention pond and re-route drainage
Kent-PA-04	Dry pond	Fix detention structure
Kent-PA-07	None	Install detention pond and re-route drainage
Kent-PA-08	Catch Basin	Install hydrodynamic separator
Kent-PA-13	None	Install detention pond
PutVal-PA-02	Catch Basin	Install deep sump catch basins
Patterson-PA-01	Wet Pond	Install plunge pool
Patterson-PA-02	Wet Pond	Improve Existing detention pond
Patterson-PA-03A	Swale	Stabilize area and re-route drainage
Patterson-PA-03B	Swale	Install grass swales
Patterson-PA-16	None	Install cistern
Southeast-PA-05	Swale	Piping of existing swale
Southeast-PA-06	None	Install detention pond and re-route drainage
Southeast-PA-23	None	Install detention pond
Southeast-PA-24	None	Install grass swales
Southeast-PA-25	None	Replace portion of existing parking lot with pervious pavement

Figure 4-1 shows the original Tier 1 sites. These 20 identified Tier 1 sites were selected for field investigations and the data collected during field investigations will be used during the Phase 2 ranking (Feasibility Matrix). The remaining sites are classified as Tier 2 sites. General observations from the field investigations will be used in evaluating the Tier 2 sites where applicable.

Figure 4-1: Tier 1 Sites Selected for Field Investigation



5. Field Investigations

5.1. Field Investigation

Field investigations were held during July 2009, with participation from representatives of each of the PCMS4CC municipalities. Representatives from each town in the PCMS4CC were encouraged to participate in the field investigations to provide local knowledge and insight of each of the Tier 1 sites. During the field investigations, adjustments to the list of Tier 1 sites, including the proposed retrofits, were made based on site conditions, site restrictions and input from the PCMS4CC representatives. The changes to the list of Tier 1 sites are discussed in Section 5.3.

The dates and personnel involved in each portion of the field visits are provided in Table 5-1.

Table 5-1:
Field Investigation Dates and Personnel

Municipality	Date	Personnel
Carmel	July 24, 2009	John Karell, Town of Carmel Engineer Jim Mangarillo, Malcolm Pirnie William Rosenzweig, Malcolm Pirnie
Kent	July 28, 2009	Bruce Barber, Town of Kent Consulting Engineer Katherine Doherty, Town of Kent Supervisor Tony Caravetta, Town of Kent Highway Superintendent Jim Mangarillo, Malcolm Pirnie William Rosenzweig, Malcolm Pirnie
Patterson	July 22, 2009	Richard Williams, Town of Patterson Planner Jim Mangarillo, Malcolm Pirnie William Rosenzweig, Malcolm Pirnie
Putnam Valley	July 28, 2009	Gary Wulfhop, Town of Putnam Valley Asst. Highway Superintendent Todd Atkinson, J. Robert Folchetti and Associates Jim Mangarillo, Malcolm Pirnie William Rosenzweig, Malcolm Pirnie
Southeast	July 23, 2009	Kevin Palmer, Town of Southeast Highway Superintendent Tom Fenton, Town of Southeast Consulting Engineer - Nathan L. Jacobson & Associates Jim Mangarillo, Malcolm Pirnie William Rosenzweig, Malcolm Pirnie

5.2. Site Visit Data Collection

Prior to the site visits, a database was developed for data entry during the investigations to ensure that all relevant information was collected at each site. Data were entered using the Environmental Systems Research Institute, Inc. (ESRI) ArcPad software package.

The information collected at all Tier 1 sites during these field investigations included:

- Current stormwater structure conditions;
- Existing site conditions including the presence of any structures, current onsite slope conditions, potential road access issues, and any fences inhibiting access;
- Current land use;
- Neighboring land uses;
- Existing utilities;
- Potential environmental concerns such as wetlands, streams, significant vegetation, habitat, or environmentally sensitive areas;
- Condition of inlet and outlet structures;
- Evidence of maintenance activities that have taken place since last site visit; and
- Photographs of pertinent elements such as inlet and outlet structures.

Additional information collected at each site included information specific to the recommended retrofit type. For example, notes on the area available for the use of pervious pavement or area available for the installation of wet ponds. Data on the specifics of drainage areas and additional issues that could impact the installation of the proposed retrofits were also collected as part of the field investigations.

Once the site visits were completed, the information collected during these visits was compiled into Appendix F – Field Investigation Notes and Appendix G – Draft Site Summary Sheets.

5.3. Modification of Tier 1 Sites

During the field investigation portion of the Study, adjustments to the list of Tier 1 sites, including the proposed retrofits, were made based on site conditions, site restrictions and input from the PCMS4CC representatives. The changes to the list of Tier 1 sites are detailed below for each of the member communities in the PCMS4CC.

5.3.1. Town of Carmel

No changes were made to the retrofit locations and types chosen for the Town of Carmel.

5.3.2. Town of Kent

Several changes were made to the Tier 1 sites chosen for the Town of Kent based on the results of the field investigation. Details for each of the changes are outlined below.

- The retrofit for Kent-PA-04 was originally identified as the repair of an existing detention structure. During the field investigation, no detention structure was found in the field. It was decided that the installation of a wet pond would utilize the available space and mitigate the excessive sediment transport noted at the site.

- The retrofit for Kent-PA-07 was originally identified as the installation of a detention pond with a reroute of drainage from the surrounding area. However, upon visiting the site, it was determined that the site was not feasible for use in the Study. The site was replaced with Kent-PA-31. Kent-PA-31 was chosen by the Town and identified as a problem area for sediment transport. The site is located along the Rte. 52 corridor in front of Putnam Stone and Mason Supply. The installation of a hydrodynamic separator was chosen for the retrofit at this site.

- The retrofit for Kent-PA-08 was originally identified as the installation of a hydrodynamic separator. However, conversations with both the Town Engineer and the Town Supervisor revealed that there is a retrofit already installed at this location. Rather than identifying a new retrofit location, a Tier 2 site was chosen for inclusion in the Tier 1 analysis. Kent-PA-08 was replaced with Kent-PA-12, which was identified as the installation of channel stabilization along a roadway near White Pond. Based on information gathered during the field investigation, the retrofit at this location was changed from the installation of channel stabilization between the outfall and the pond to the installation of a grassed swale upstream of the outfall, prior to crossing under the roadway.

The remaining Tier 1 sites identified in the Town of Kent were left unchanged including: Kent-PA-03, Kent-PA-05, Kent-PA-09, and Kent-PA-13.

5.3.3. Town of Patterson

Several changes were made to the Tier 1 sites chosen for the Town of Patterson based on the results of the field investigation. Details for each of the changes are outlined below.

- The retrofit for Patterson-PA-01 was identified as the installation of a plunge pool. Upon investigation of the site in the field, it was determined that it was not feasible to construct the plunge pool in the identified location. The retrofit site was moved across the road at the suggestion of Mr. Rich Williams, and it was changed to the installation of a grass swale and was renamed Patterson-PA-01B.

- The retrofit for Patterson-PA-02 was identified as the updating of an existing detention pond. The original site location however, was inaccessible. The site was moved across the road to an accessible existing detention pond and was renamed Patterson-PA-02B.

- The retrofit for Patterson PA-03A was identified as the stabilization of the ground surface and the rerouting of the drainage to a new area. During the field investigation, it was determined that there was no need for a retrofit at this location. At the suggestion of Mr. Williams, the site was moved to a nearby vacant property that the drainage from a significant area was routed through and was named Patterson-PA-03C. The retrofit identified for the new site was the installation of a wet detention pond.

- The retrofit identified for Patterson-PA-03B was identified as the replacement of an asphalt swale with an enhanced grass swale. We were unable to locate the original site and were directed to a site nearby where a large scour hole had developed at the outlet of a culvert along the roadway. The new site was identified as Patterson-PA-03D and was assigned the installation of the plunge pool in place of the existing scour hole.

The remaining Tier 1 sites identified in the Town of Patterson were left unchanged including: Patterson-PA-10, Patterson-PA-11, Patterson-PA-12, Patterson-PA-14, Patterson-PA-15, and Patterson-PA-16.

5.3.4. Town of Putnam Valley

No changes were made to the retrofit locations and types chosen for the Town of Putnam Valley.

5.3.5. Town of Southeast

Several changes were made to the Tier 1 sites chosen for the Town of Southeast based on the results of the field investigation. Details for each of the changes are outlined below.

- The retrofit identified for Southeast-PA-05 was identified as the piping of an existing swale that was identified as having erosion issues. During the field investigation, it was determined that piping of the swale would prevent some erosion, but downstream issues would persist. It was decided that alternative retrofits such as the installation of a plunge pool and an enhanced grassed swale would benefit both the site and help to mitigate downstream impacts as well.

- The retrofit identified for Southeast-PA-06 was identified as the installation of a detention pond and the rerouting of the drainage area. During the field investigation, it was determined the original site location was unsuitable for retrofit. The site was relocated on a different area of Seven Oaks Lane at the

direction of the Town Engineer and the Town Highway Superintendant. The new location was sited in an existing vacant lot and identified as the installation of a detention pond and the rerouting of a stormwater outlet that collects stormwater from a large developed area. This new site was designated Southeast-PA-06B.

- The retrofit at Southeast-PA-23 was identified as the installation of a wet detention pond. During the field investigation, a dry detention facility was located onsite, and the retrofit type was changed to the updating of an existing detention pond.

The remaining Tier 1 sites identified in the Town of Southeast were left including: Southeast-PA-01, Southeast-PA-15, Southeast-PA-16, Southeast-PA-21, Southeast-PA-24, Southeast-PA-25 and Southeast-PA-26.

The updated Tier 1 retrofit sites are shown in Figure 5-1 are presented in Table 5-2.

Figure 5-1: Revised Tier 1 Sites

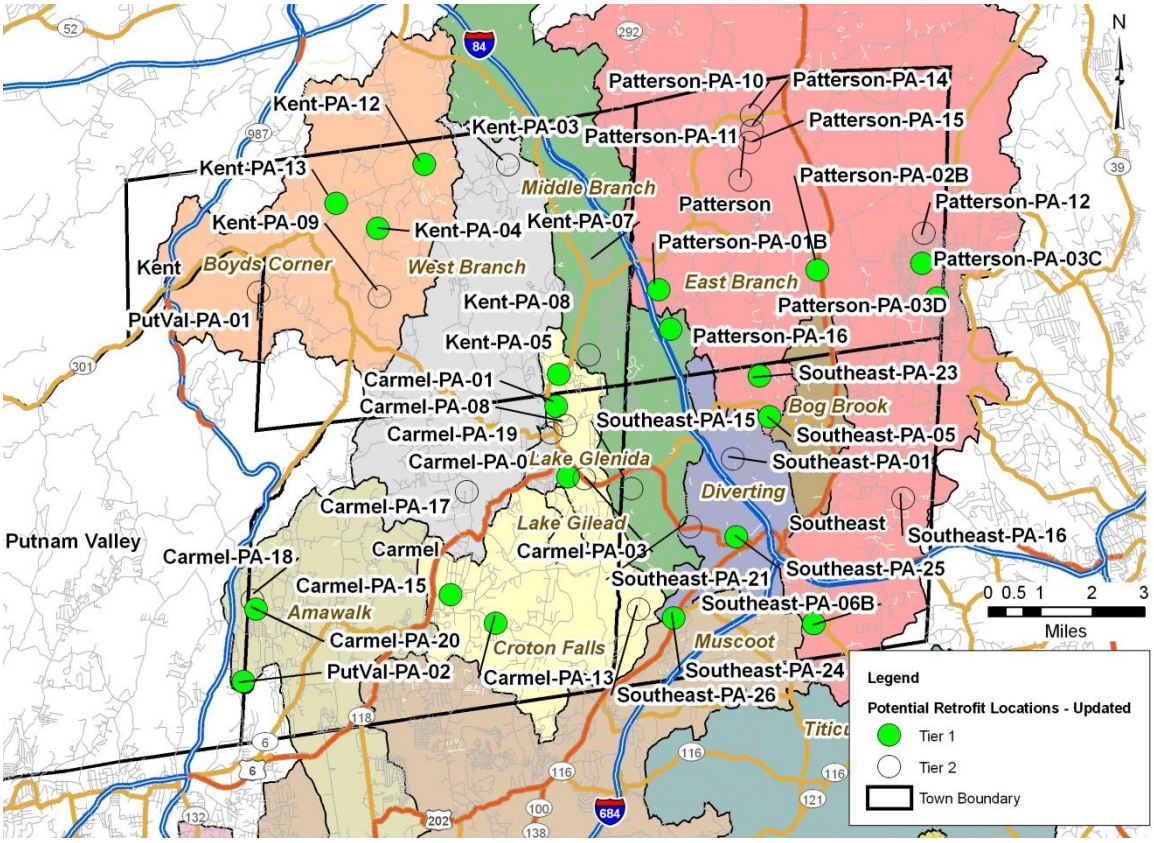


Table 5-2:
Updated Tier 1 Retrofit Sites in the PCMS4CC Study Area

Site ID	Existing Management Practice	Proposed Retrofit
Carmel-PA-01	Wet Pond	Improve existing detention pond
Carmel-PA-07	None	Install detention pond
Carmel-PA-13	Swale	Outfall channel stabilization
Carmel-PA-15	Swale	Outfall channel stabilization
Carmel-PA-20	None	Install detention pond and re-route drainage
Kent-PA-04	None	Improve existing detention pond
Kent-PA-12	None	Install grass swales
Kent-PA-13	None	Install detention pond
Kent-PA-31	None	Install hydrodynamic separator
PutVal-PA-02	Catch Basin	Install deep sump catch basins
Patterson-PA-01B	None	Install grass swales
Patterson-PA-02B	Dry Pond	Improve existing detention pond
Patterson-PA-03C	Catch Basin	Install detention pond
Patterson-PA-03D	None	Install plunge pool
Patterson-PA-16	None	Install cistern
Southeast-PA-05	Swale	Piping of existing swale
Southeast-PA-06B	None	Install detention pond and re-route drainage
Southeast-PA-23	None	Install detention pond
Southeast-PA-24	None	Install grass swales
Southeast-PA-25	None	Replace portion of existing parking lot with pervious pavement

Figure 5-2 and Table 5-3 present the locations and the complete list of the potential retrofit sites (Tier 1 and Tier 2 sites), with site names and addresses. The table incorporates all changes made to Tier 1 and Tier 2 sites based on the field investigations.

Figure 5-2: Revised PCMS4CC Retrofit Locations

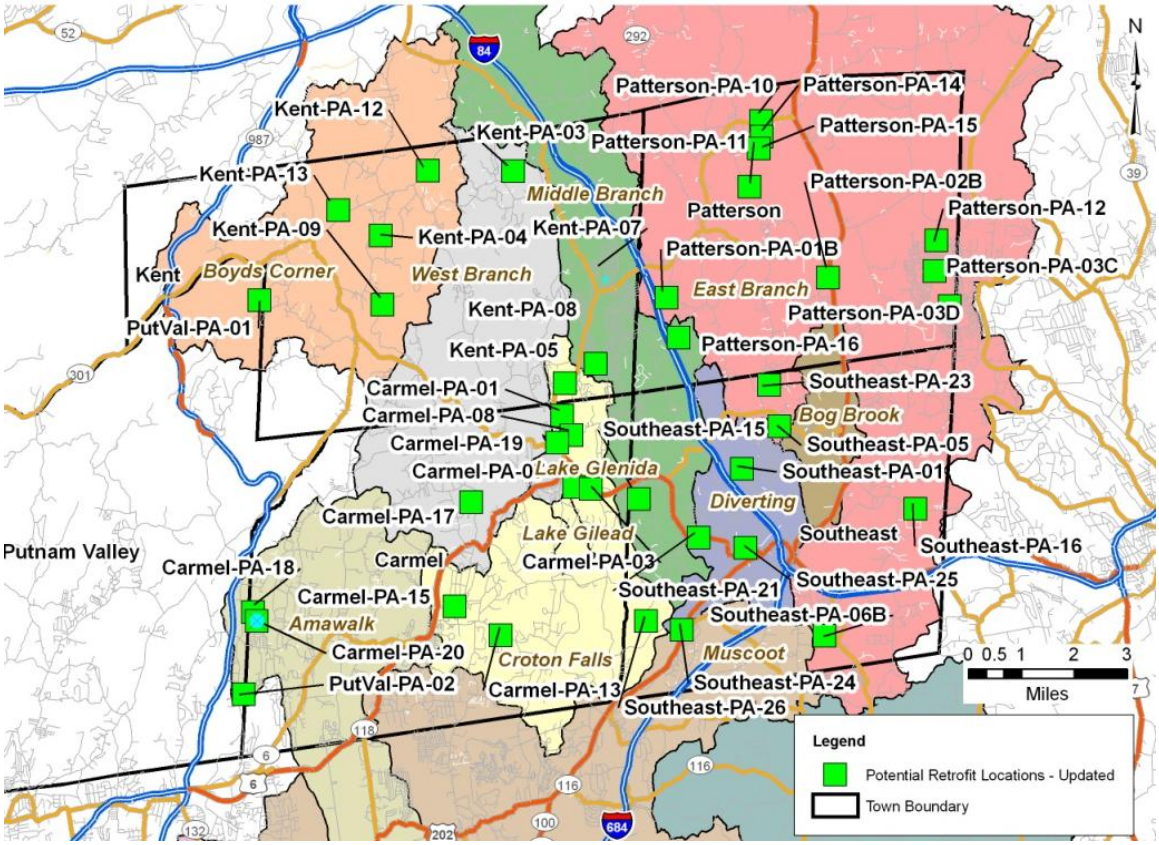


Table 5-3:
Updated Retrofit Sites in the PCMS4CC Study Area

Unique ID	Name	Address
Carmel-PA-01	Rt. 52 ShopRite Center	160 Rt. 52, Carmel
Carmel-PA-03	A+P at Rt. 6	Rt. 6 and Stoneleigh Ave, Carmel
Carmel-PA-07	Arms Acres	75 Seminary Hill Rd, Carmel
Carmel-PA-08	Carmel CSD - High School Campus	30 Fair St, Carmel
Carmel-PA-13	Piggott Sub Div	Piggott Rd N of Circle Ct., Mahopac
Carmel-PA-15	Casse Ct.	Casse Ct., Mahopac
Carmel-PA-17	Ann Rd.	NE corner of Ann Rd., Carmel
Carmel-PA-18	Orchard Rd.	Intersection of North and Orchard Rd., Mahopac
Carmel-PA-19	Lake Gleneida	Corner of Ridge Rd and Fowler Ave, Carmel
Carmel-PA-20	Lake Secor	Birch Rd, Lake Secor, Mahopac
Kent-PA-03	Daffodil/Church	W of Int. of Daffodil Ln. and Church Hill Rd., Kent

Unique ID	Name	Address
Kent-PA-04	Ponderosa/Nimham	Int. of Ponderosa Rd. and Nimham Rd., Kent
Kent-PA-05	S. Lakeshore Dr/Towners	Int. of S. Lakeshore Dr. and Towners Rd., Kent
Kent-PA-09	Cole Shears Ct.	12 Cole Shears Ct., Kent
Kent-PA-12	White Pond	500 White Pond Rd., Kent
Kent-PA-13	Farmers Mills	200 Farmers Mills Rd., Kent
Kent-PA-31	Putnam Stone and Mason Supply	301 Rt. 52, Kent
Patterson-PA-01B	Commerce Drive	Commerce Drive, Patterson
Patterson-PA-02B	Robin Hill Corporate Park	Jon Barret Rd, Patterson
Patterson-PA-03C	Kenton Rd	11 Kenton Rd, Patterson
Patterson-PA-03D	Lake Shore Drive	475 Lake Shore Drive, Patterson
Patterson-PA-10	Town Hall	1142 Rte 311, Patterson
Patterson-PA-11	Cornwall Hill	302 Cornwall Hill Rd., Patterson
Patterson-PA-12	Havilland Church	426 Havilland Dr., Patterson
Patterson-PA-14	Townsend St.	Townsend St., Patterson
Patterson-PA-15	South Street School	South St., Patterson
Patterson-PA-16	Fox Run Condos	Fox Run, Patterson
PutVal-PA-01	Lake Sagamore	208 Old Forge Road, Put Valley
PutVal-PA-02	Greenway Terrace	Greenway Terrace, Put Valley
Southeast-PA-01	Pumphouse Rd.	100 Pumphouse Rd, Brewster
Southeast-PA-05	Overlook Drive	Overlook Drive and Nancy Rd., Brewster
Southeast-PA-06B	Seven Oaks Ln.	44 Seven Oaks Ln., Brewster
Southeast-PA-15	Maple Rd./Ivy Hill Rd.	Intersection of Maple Rd and Ivy Hill Rd, Brewster
Southeast-PA-16	Melrose School	120 Federal Hill Rd., Brewster
Southeast-PA-21	Carmel Ave.	2544 Carmel Avenue, Brewster
Southeast-PA-23	Brewster CSD	54 Foggingtown Rd., Brewster
Southeast-PA-24	Reservoir Staging Area	Intersection of Rt. 22 and Lower Mine Rd, Brewster
Southeast-PA-25	Oak St.	97 Oak St, Brewster
Southeast-PA-26	Croton Res Culvert	150 Reservoir Rd, Brewster
Note – Sites altered from the original site location are italicized in the above table.		

Updated retrofit types are listed in Table 5-4 through Table 5-8. As detailed above, despite the significant number of changes in the locations and types of Tier 1 retrofits, a broad distribution of retrofit types and sizes has been maintained. Furthermore, many of the updated retrofit locations are located near the originally identified locations, maintaining the geographic variability present in the initially identified locations as well.

The maintenance of the geographic variability in the proposed retrofit locations is seen both in Figure 5-1and in the list of basins which each of the potential retrofits fall within.

Table 5-4:
Updated Retrofits for Identified Sites - Town of Carmel

Unique ID	Retrofit Types	Tier	Basin
Carmel-PA-01	Improve Existing Detention Pond	1	Croton Falls
Carmel-PA-03	Install Sand Filter	2	Croton Falls
Carmel-PA-07	Install Detention Pond	1	Croton Falls
Carmel-PA-08	Install Cistern	2	Croton Falls
Carmel-PA-13	Outfall Channel Stabilization	1	Croton Falls
Carmel-PA-15	Outfall Channel Stabilization	1	Croton Falls
Carmel-PA-17	Install Plunge Pool	2	West Branch
Carmel-PA-18	Install Grass Swale	2	Amawalk
Carmel-PA-19	Install Hydrodynamic Separator	2	Croton Falls
Carmel-PA-20	Install Detention Pond, reroute drainage from surrounding area	1	Amawalk

Table 5-5:
Updated Retrofits for Identified Sites - Town of Kent

Unique ID	Retrofit Types	Tier	Basin
Kent-PA-03	Install Plunge Pool	2	West Branch
Kent-PA-04	Install Detention Pond	1	Boyds Corner
Kent-PA-05	Ground Stabilization (erosion id'd)	2	Middle Branch
Kent-PA-09	Install Plunge Pool	2	Boyds Corner
Kent-PA-12	Install Grass Swale	1	Boyds Corner
Kent-PA-13	Install Detention Pond	1	Boyds Corner
Kent-PA-31	Install Hydrodynamic Separator	1	Croton Falls

Table 5-6:
Updated Retrofits for Identified Sites - Town of Patterson

Unique ID	Retrofit Types	Tier	Basin
Patterson-PA-01B	Install Grass Swales	1	East Branch
Patterson-PA-02B	Improve Existing Detention Pond	1	East Branch
Patterson-PA-03C	Install Detention Pond	1	East Branch
Patterson-PA-03D	Install Plunge Pool	1	East Branch
Patterson-PA-10	Install Deep Sump Catch Basins	2	East Branch
Patterson-PA-11	Install Detention Pond	2	East Branch
Patterson-PA-12	Install Grass Swale	2	East Branch
Patterson-PA-14	Improve Existing Detention Pond	2	East Branch
Patterson-PA-15	Install Grass Swale	2	East Branch
Patterson-PA-16	Install Cistern	1	Middle Branch

Table 5-7:
Updated Retrofits for Identified Sites - Town of Putnam Valley

Unique ID	Retrofit Types	Tier	Basin
PutVal-PA-01	Resurface Road Surface and Improve under Drainage	2	Boyds Corner
PutVal-PA-02	Install Deep Sump Catch Basins	1	Amawalk

Table 5-8:
Updated Retrofits for Identified Sites - Town of Southeast

Unique ID	Retrofit Types	Tier	Basin
Southeast-PA-01	Install Plunge Pool	2	Diverting
Southeast-PA-05	Install Plunge Pool and Grass Swale	1	East Branch
Southeast-PA-06B	Install Detention Pond	1	East Branch
Southeast-PA-15	Install Plunge Pool	2	Middle Branch
Southeast-PA-16	Install Cistern	2	East Branch
Southeast-PA-21	Install Deep Sump Catch Basins	2	Diverting
Southeast-PA-23	Improve Existing Detention Pond	1	East Branch
Southeast-PA-24	Install Grass Swales (soil stabilization)	1	Muscoot
Southeast-PA-25	Replace portion of Existing Parking Area with Pervious Pavement	1	Diverting
Southeast-PA-26	Install Plunge Pool	2	Croton Falls

Note – Sites altered from the original retrofit type are italicized in Table 5-4 through Table 5-8

The changes made to the locations of the above retrofits, as well as additional data collected during the field investigations, resulted in the need to update the drainage areas associated with each Tier 1 site. Furthermore, the specification of the site installation locations of the Tier 2 retrofits also resulted in several drainage areas that were required to be updated in the analysis. The updated drainage areas for each of the sites are detailed in Table 5-9 through Table 5-13. Also detailed in these tables are the justifications utilized in the updating of the drainage areas associated with each of the identified retrofit locations. Note that only the sites included in the current Study are included in the table below.

Table 5-9:
Updated Drainage Area Information for Sites Identified for Retrofit Analysis – Town of Carmel

Unique ID	Original Area (Acres)	Updated Area (Acres)	Notes
Carmel-PA-01	50.8	63.0	updated based on outlet location
Carmel-PA-03	20.7	32.1	updated based on outlet location
Carmel-PA-07	15.8	9.4	updated based on outlet location
Carmel-PA-08	2.0	15.7	updated based on outlet location
Carmel-PA-13	21.7	21.7	
Carmel-PA-15	5.9	5.7	updated based on additional site info
Carmel-PA-17	4.1	4.1	
Carmel-PA-18	11.8	9.2	updated based on additional site info
Carmel-PA-19	5.3	5.3	
Carmel-PA-20	15.3	17.0	updated based on outlet location

Table 5-10:
Updated Drainage Area Information for Sites Identified for Retrofit Analysis – Town of Kent

Unique ID	Original Area (Acres)	Updated Area (Acres)	Notes
Kent-PA-03	4.0	4.0	
Kent-PA-04	3.4	33.7	updated based on field visit
Kent-PA-05	3.9	4.1	
Kent-PA-09	2.9	2.9	
Kent-PA-12	22.3	8.4	updated based on outlet location
Kent-PA-13	111.7	38.9	updated based on outlet location
Kent-PA-31	NA	6.0	added site

Table 5-11:
Updated Drainage Area Information for Sites Identified for Retrofit Analysis – Town of Patterson

Unique ID	Original Area (Acres)	Updated Area (Acres)	Notes
Patterson-PA-01B	43.5	41.3	new site location
Patterson-PA-02B	12.6	4.5	new site location
Patterson-PA-03C03C	6.6	15.5	new site location - now C
Patterson-PA-03D03D	3.0	8.8	new site location - now D
Patterson-PA-10	1.6	1.6	
Patterson-PA-11	11.1	12.4	
Patterson-PA-12	2.1	2.1	
Patterson-PA-14	9.1	8.4	updated based on infrastructure
Patterson-PA-15	8.2	8.4	updated after review of contours
Patterson-PA-16	54.9	12.2	updated based on outlet location

Table 5-12:
Updated Drainage Area Information for Sites Identified for Retrofit Analysis – Town of Putnam Valley

Unique ID	Original Area (Acres)	Updated Area (Acres)	Notes
PutVal-PA-01	198.9	3.2	updated after review of contours
PutVal-PA-02	8.7	3.6	updated based on field visit

Table 5-13:
Updated Drainage Area Information for Sites Identified for Retrofit Analysis – Town of Southeast

Unique ID	Original Area (Acres)	Updated Area (Acres)	Notes
Southeast-PA-01	1.5	2.9	updated based on outlet location
Southeast-PA-05	22.8	16.9	new site location
Southeast-PA-06B	48.5	21.7	new site location - now B
Southeast-PA-15	8.6	8.6	
Southeast-PA-16	12.4	12.4	
Southeast-PA-21	17.7	17.7	
Southeast-PA-23	7.3	9.2	updated based on field visit
Southeast-PA-24	1.8	1.8	
Southeast-PA-25	36.2	0.3	updated based on field visit and retrofit type
Southeast-PA-26	4.7	4.7	

In addition to the notes in the table, several assumptions were made when delineating the finalized watershed areas. The retrofit identified for PutVal-PA-01 was the installation of a stable underdrain system along with road surface stabilization. As the stabilized underdrain system will only minimize erosion from a localized area, the contributing area was limited in size to represent the area that would realistically be treated by the installation of a stable underdrain system. It was determined that the area to be treated was approximately 1 percent of the total watershed area of approximately 400 acres.

Similarly, the channel to be stabilized at Southeast-PA-01 carries flow from a lake, into a wetland. As the retrofit is a channel stabilization project, it will not remove additional phosphorus from the water exiting the lake. Therefore, only the watershed area that drains into the channel itself, excluding the area that drains into the lake was included in the area estimation for this location.

5.4. Summary of Field Investigation Findings

As detailed above, several changes were made to both the types and locations of retrofits that were identified and sited during the Tier 1 site investigations. Despite the significant number of changes in the locations and types of Tier 1 retrofits, a broad distribution of retrofit types and sizes has been maintained in the Study. Furthermore, many of the updated retrofit locations are located near the originally identified locations, maintaining the geographic variability present in the initially identified locations as well. When assessing the updated watershed size distribution across the retrofit installation locations, a broad distribution is maintained as well.

Based on the results of the field investigation and the assessment of the Tier 2 site locations, the majority of the proposed retrofit sites are readily accessible for construction purposes. There are a few sites that have minor access problems, including Carmel-PA-01 and Patterson-PA-02B. However, there are also a few sites that have significant access problems including Carmel-PA-17, Kent-PA-03 and Southeast-PA-05.

Several other sites such as Carmel-PA-07 and Southeast-PA-06B are located on private land; however accessing the site once permission is granted will be simple. Additionally, the construction of several of the proposed retrofit sites will impede traffic on public roadways including Carmel-PA-19, Kent-PA-04, PutVal-PA-02 and others. Two sites, Patterson-PA-03D and Southeast-PA-01 are located along the shoreline of a water body, which will require a more delicate approach than the majority of sites during the construction of the proposed retrofits.

6. Conceptual Designs

6.1. Tier 1 Conceptual Designs

The data collected from the field investigations described in Section 5 above was crucial to the development of the conceptual designs as shown in the Site Summary Sheets included in Appendix G. Tier 1 sites included several retrofit types, ranging from the complex (e.g. detention ponds) to simple (e.g. grass swales). The data collected during site visits was used to lay out limits of the retrofits at Tier 1 sites, which provided a more accurate assessment of cost and a more reliable estimate of feasibility considering site limitations such as topography, obstructions, and constructability. Limits of the retrofits to be installed were clearly delineated by GPS data and supplemented with the use of the photographs taken during the field investigation. Another benefit of the field investigations was the ability to discern potential conflicts such as the location of existing utilities that were not visible in the aerial imagery.

There were, however, limitations to the conceptual designs, including the lack of details for sizes of structures. For instance, hydrology of the contributing watershed was not accounted for as part of the conceptual design. Items such as drainage area, land use, and soil types for runoff curve number and time of concentration were not considered to determine retrofit size. Therefore water quality volumes, depths, and areas of pond components were not calculated. Calculation of these items would be required for a final design.

GIS data that were used for the preparation of the Tier 1 Site Summary Sheets included:

- Putnam County property line data;
- Putnam County aerials flown in 2007, 1-foot color resolution. For some of the sites, 2-foot color resolution photographs were used when the 1-foot images were not available;
- Federal and State data of hydrologic features including wetlands and streams;
- Data collected during the field investigations;
- Storm drainage features available for each Town; and
- USGS 5-foot contours.

6.2. The Conceptual Designs for the Tier 2 Sites

Unlike Tier 1 sites, all proposed retrofits were shown based on inspection of the aerial imagery with no site visits conducted at the Tier 2 sites. This drastically limited the reliability of the limits of the structures such as grassed swales and detention ponds. However, most of the Tier 2 sites were simple retrofits such as hydrodynamic separators, grassed swales, and plunge pools. As these sites were point or linear features, it was easier to approximate locations based solely on the limits of the aerial imagery. Unlike the Tier 1 sites, it was not possible to show any potential conflicts other than what was visible from the aerial imagery or to show existing underground or minor drainage conveyances that were not available from the GIS data.

As with the Tier 1 sites, details for sizes of structures were not calculated. For instance, hydrology of the contributory watershed was not accounted for as part of the conceptual design. Items such as drainage area, land use, and soil types for runoff curve number and time of concentration were not considered to determine retrofit size. Therefore water quality volumes, depths, and areas of pond components were not calculated. Calculation of these items would be required for a final design.

GIS data that were used for the preparation of the Tier 2 Site Summary Sheets included:

- Putnam County property line data;
- Putnam County aerials flown in 2007, 1-foot color resolution. For some of the sites, 2-foot color resolution photographs were used when the 1-foot images were not available;
- Federal and State data of hydrologic features including wetlands and streams;
- Storm drainage features available for each Town; and
- USGS 5-foot contours.

7. Phosphorus Removal Estimates

7.1. Phosphorus Loading and Reduction Approach

In order to estimate the potential phosphorus load reduction achieved by each of the proposed stormwater retrofits, both the phosphorus loading from the contributing watersheds as well as the associated phosphorus removal rates achieved by each of the retrofits must be determined.

While the NYSDEC recommends using established programs such as WinSLAMM and WTM to determine the magnitude of the TP loading from the contributing watersheds, as well as the TP removals achieved by each of the identified retrofits, other methods of determining phosphorus removal have also been deemed acceptable. Due to the planning level focus of the Study, specifically the generalized nature of the retrofit designs, the use of WinSLAMM or WTM in the Study was determined not to be feasible, as each requires specific design information that was not developed as a part of this effort. Instead, a more generalized approach was used for determining both the contributing TP load and the associated TP removal capacity for each of the proposed retrofits as detailed below. Through consultation with the NYSDEC, an acceptable approach for the screening level analysis was selected.

7.2. Phosphorus Loading Estimation Methodology

The watershed-based TP loading for each of the proposed retrofits in the Study was determined using The Simple Method to Calculate Urban Stormwater Loads (Simple Method) developed by Schueler (1987). The Simple Method estimates watershed pollutant loads for constituents as a product of annual runoff volume and average observed pollutant concentrations based on annual rainfall, percent impervious cover, the percentage of rainfall events that produce runoff, and the average phosphorus concentration in runoff.

In equation form:

$$L = 2.72(P/12)(P_j)(R_v)(C)(A)$$

L = Annual phosphorus load of the sub-basin (lb/year)

P = Average rainfall (in/year)

P_j = Fraction of Rainfall Events that Produce Runoff

R_v = Runoff coefficient, dimensionless [See Equation 2]

C = Concentration of phosphorus in runoff – flow weighted mean (mg/L)

A = Sub-basin area (acres)

2.72 = Unit conversion factor from (ft*mg/L*acre*yr) to lb/yr

Where the Runoff Coefficient is calculated by the following equation through the (Schueler Relation)

$$R_v = 0.05 + 0.009I$$

R_v = Runoff Coefficient (dimensionless)

I = Site imperviousness (%)

7.2.1. Annual Rainfall

In order to calculate the annual runoff volume routed to each of the proposed retrofit locations, both the average annual rainfall in the Study Area and an estimate of the percent imperviousness in the contributing watersheds were required. The average annual rainfall in the Study Area was determined to be 45 inches (NYCDEP, 1997).

7.2.2. Percent Imperviousness

The percent imperviousness values in the contributing watersheds were determined utilizing the default imperviousness values provided in the Simple Method, which provides default impervious area percentages for generalized land use categories. These default values were used to develop percent imperviousness values for the generalized land uses present in each of the contributing watersheds in the Study Area, Table 7-1.

Table 7-1:
Percent Imperviousness Values for Land Uses in the Study Area

Land Use	Percent Imperviousness (%)[1]
Agriculture	5 [2]
Commercial	85
Forested	5
Residential	20 [3]
Urban	60 [4]
Water	100 [5]

1 - values are default model values from The Simple Method unless otherwise noted
2 - assumed to be the same as forested
3 - based on the average between Low Density and Medium Density Residential Land Use default values
4 - based on Multi-Family Residential imperviousness default value
5 - based off of TR-55 Methodology

7.2.3. Pollutant Loading

The Simple Method provides default pollutant concentrations for generalized land use categories as well. Similar to the development of the percent imperviousness values, the Simple Method default values were utilized to develop average TP concentrations in stormwater for the generalized land uses present in the Study Area, Table 7-2.

Table 7-2:
TP Concentrations in Stormwater for Land Uses in the Study Area

Land Use	TP Concentration (mg/L)[1]
Agriculture	0.4 [2]
Commercial	0.2
Forested	0.15
Residential	0.4
Urban	0.26
Water	0

1 - values are default model values from The Simple Method unless otherwise noted
2 - assumed to be the same as Residential

7.2.4. Study Area Land Use

To determine the percent imperviousness and the average TP concentrations values discussed in Section 7.2.2 and Section 7.2.3 the amount of each type of generalized land use needed to be evaluated.

The land use classifications in each of the contributing watersheds were determined utilizing the Land Use/Land Cover (LU/LC) dataset developed by the New York City Department of Environmental Protection for the East of Hudson watershed in 2001. The resulting land use types in each of the contributing watersheds were then classified into one of the generalized land use categories above utilizing the land use classification matrix provided in Appendix H. The matrix categorizes the land use classification in the 2001 LU/LC data set into the generalized land use categories based on expected behaviors in terms of both percent imperviousness estimates and TP concentrations in stormwater.

Utilizing the Simple Method in conjunction with the above calculations and values, the TP loading from each of the contributing watersheds was determined and are presented by Town in Table 7-3 through Table 7-7.

Table 7-3:
TP Loading Estimates, Town of Carmel

Site ID	Area	TP Load	
	(acre)	(lb/yr)	(kg/yr)
Carmel-PA-01	63.0	35.7	16.2
Carmel-PA-03	32.1	16.4	7.4
Carmel-PA-07	9.4	8.1	3.7
Carmel-PA-08	15.7	17.3	7.8
Carmel-PA-13	21.7	12.3	5.6
Carmel-PA-15	5.7	3.8	1.7
Carmel-PA-17	4.1	3.4	1.5
Carmel-PA-18	9.2	8.2	3.7
Carmel-PA-19	5.3	3.9	1.8
Carmel-PA-20	17.0	10.3	4.7
Total	**183.3**	**119.3**	**54.1**

Table 7-4.
TP Loading Estimates, Town of Kent

Site ID	Area	TP Load	
	(acre)	(lb/yr)	(kg/yr)
Kent-PA-03	4.0	1.0	0.5
Kent-PA-04	33.7	7.0	3.2
Kent-PA-05	4.1	2.8	1.3
Kent-PA-09	2.9	0.4	0.2
Kent-PA-12	8.4	1.5	0.7
Kent-PA-13	38.9	9.9	4.5
Kent-PA-31	6.0	8.3	3.8
Total	**98.0**	**31.0**	**14.1**

Table 7-5:
TP Loading Estimates, Town of Patterson

Site ID	Area	TP Load	
	(acre)	(lb/yr)	(kg/yr)
Patterson-PA-01B	41.3	10.6	4.8
Patterson-PA-02B	4.5	5.8	2.6
Patterson-PA-03C	15.5	9.4	4.3
Patterson-PA-03D	8.8	5.9	2.7
Patterson-PA-10	1.6	2.2	1.0
Patterson-PA-11	12.4	7.9	3.6
Patterson-PA-12	2.1	1.8	0.8
Patterson-PA-14	8.4	7.7	3.5
Patterson-PA-15	8.4	6.1	2.8
Patterson-PA-16	12.2	7.0	3.2
Total	**115.2**	**64.4**	**29.2**

Table 7-6:
TP Loading Estimates, Town of Putnam Valley

Site ID	Area	TP Load	
	(acre)	(lb/yr)	(kg/yr)
PutVal-PA-01	3.2	0.5	0.2
PutVal-PA-02	3.6	2.5	1.1
Total	**6.8**	**3.0**	**1.4**

Table 7-7:
TP Loading Estimates, Town of Southeast

Site ID	Area	TP Load	
	(acre)	(lb/yr)	(kg/yr)
Southeast-PA-01	2.9	1.3	0.6
Southeast-PA-05	16.9	11.3	5.1
Southeast-PA-06B	21.7	12.1	5.5
Southeast-PA-15	8.6	3.3	1.5
Southeast-PA-16	12.4	4.9	2.2
Southeast-PA-21	17.7	9.1	4.1
Southeast-PA-23	9.2	12.1	5.5
Southeast-PA-24	1.8	1.5	0.7
Southeast-PA-25	0.3	0.3	0.2
Southeast-PA-26	4.7	0.9	0.4
Total	**96.2**	**56.8**	**25.8**

As shown above, the proposed retrofit locations are exposed to a total phosphorus load of 124.5 kg/yr (274.6 lb/yr). The retrofits in the Town of Putnam Valley are exposed to the lowest annual TP load of 1.4 kg/yr (3.0 lb/yr) and the retrofits in the Town of Carmel are exposed to the highest annual TP load of 54.1 kg/yr (119.3 lb/yr).

7.3. Phosphorus Removal Estimation Methodology

Once the watershed loadings determined, they were used to estimate the resulting phosphorus removal from each of the proposed retrofits using published removal values for each of the proposed retrofits utilized in the Study. Similar to the estimation of the TP loading to each of the proposed retrofits, a simple approach to determining the TP loading removal achieved by each proposed retrofit. This simple approach was determined to be appropriate for the planning level nature of the Study. As discussed previously, while the NYSDEC recommends using established programs such as WinSLAMM to determine the TP loading reduction, this simple approach was discussed and accepted by the NYSDEC for this screening level study.

Several literature sources were reviewed to determine appropriate TP removal values including:

- Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban Best Management Practices;
- Reducing the Impacts of Stormwater Runoff from New Development; and
- The Runoff Reduction Method.

After consultation with the NYSDEC, acceptable values for TP removal were selected. The resulting TP removals associated with each of the retrofit types are shown in Table 7-8. Note that when a proposed retrofit is replacing an existing retrofit, the difference between the two removal rates is used as the estimated TP load reduction rate in the Study.

Table 7-8:
TP Reduction for Potential Retrofit Types

Retrofit Type	TP Load Reduction	Source	Notes
Improve Existing Detention Pond	31%	Reducing the Impacts of Stormwater Runoff from New Development	Wet Pond Removal - Dry Pond Removal
Install Sand Filter	60%	CWP - Runoff Reduction Technical Memo	Filtering Practice
Install Detention Pond	50%	Reducing the Impacts of Stormwater Runoff from New Development	Design 5
Install Cistern	75%	CWP - Runoff Reduction Technical Memo	Rain Tank/Cistern
Outfall Channel Stabilization	20%	CWP - Runoff Reduction Technical Memo	Wet Swale
Install Plunge Pool	50%	Reducing the Impacts of Stormwater Runoff from New Development	assumed to be equivalent to Wet Pond Design 4
Install Grass Swale(s)	30%	Reducing the Impacts of Stormwater Runoff from New Development	Design 14
Install Hydrodynamic Separator	51%	Reducing the Impacts of Stormwater Runoff from New Development	assumed to be equivalent to wet pond based on documented TSS removals
Install Detention Pond, reroute drainage from surrounding area	50%	Reducing the Impacts of Stormwater Runoff from New Development	Design 5
Ground Stabilization	15%	multiple	assumed to be equivalent to lowest presented TP reduction value
Install Deep Sump Catch Basins	15%	multiple	none
Resurface Road Surface and Improve under Drainage	25%	CWP - Runoff Reduction Technical Memo	assumed to be equivalent to outfall channel stabilization plus 5 percent of roadway stabilization
Install Plunge Pool and Grass Swale	65%	Reducing the Impacts of Stormwater Runoff from New Development	analyzed in series, TP*Plunge Pool Removal=TP1 TP1*Grass Swale Removal=TP2
Replace portion of Existing Parking Area with Pervious Pavement	70%	Reducing the Impacts of Stormwater Runoff from New Development	Design 8

7.4. Summary of TP Loading and Predicted TP Reduction

The resulting TP loading prior to the installation of the proposed retrofit as well as the associated TP loading reduction achieved at each proposed retrofit are summarized by town in Table 7-9 through Table 7-13. The calculation of both the TP loading as well as the associated TP loading reduction achieved at each proposed retrofit location are provided in digital form in Appendix I.

Table 7-9:
TP Loading and Reduction Estimates, Town of Carmel

Site ID	Area	TP Load		Proposed Retrofit	Load Reduction	TP Load Reduction	
	(acre)	(lb/yr)	(kg/yr)		%	(lb/yr)	(kg/yr)
Carmel-PA-01	63.0	35.7	16.2	Improve Existing Detention Pond	31	11.1	5.0
Carmel-PA-03	32.1	16.4	7.4	Install Sand Filter	60	9.8	4.5
Carmel-PA-07	9.4	8.1	3.7	Install Detention Pond	50	4.0	1.8
Carmel-PA-08	15.7	17.3	7.8	Install Cistern	75	13.0	5.9
Carmel-PA-13	21.7	12.3	5.6	Outfall Channel Stabilization	20	2.5	1.1
Carmel-PA-15	5.7	3.8	1.7	Outfall Channel Stabilization	20	0.8	0.3
Carmel-PA-17	4.1	3.4	1.5	Install Plunge Pool	50	1.7	0.8
Carmel-PA-18	9.2	8.2	3.7	Install Grass Swale(s)	30	2.5	1.1
Carmel-PA-19	5.3	3.9	1.8	Install Hydrodynamic Separator	51	2.0	0.9
Carmel-PA-20	17.0	10.3	4.7	Install Detention Pond, reroute drainage from surrounding area	50	5.2	2.3
Total	**183.3**	**119.3**	**54.1**			**52.4**	**23.8**

Table 7-10:
TP Loading and Reduction Estimates, Town of Kent

Site ID	Area	TP Load		Proposed Retrofit	Load Reduction	TP Load Reduction	
	(acre)	(lb/yr)	(kg/yr)		%	(lb/yr)	(kg/yr)
Kent-PA-03	4.0	1.0	0.5	Install Plunge Pool	50	0.5	0.2
Kent-PA-04	33.7	7.0	3.2	Install Detention Pond	50	3.5	1.6
Kent-PA-05	4.1	2.8	1.3	Ground Stabilization	15	0.4	0.2
Kent-PA-09	2.9	0.4	0.2	Install Plunge Pool	50	0.2	0.1
Kent-PA-12	8.4	1.5	0.7	Install Grass Swale(s)	30	0.5	0.2
Kent-PA-13	38.9	9.9	4.5	Install Detention Pond	50	4.9	2.2
Kent-PA-31	6.0	8.3	3.8	Install Hydrodynamic Separator, Reroute Drainage	51	4.2	1.9
Total	**98.0**	**31.0**	**14.1**			**14.3**	**6.5**

Table 7-11:
TP Loading and Reduction Estimates, Town of Patterson

Site ID	Area	TP Load		Proposed Retrofit	Load Reduction	TP Load Reduction	
	(acre)	(lb/yr)	(kg/yr)		%	(lb/yr)	(kg/yr)
Patterson-PA-01B	41.3	10.6	4.8	Install Grass Swale(s)	30	3.2	1.4
Patterson-PA-02B	4.5	5.8	2.6	Improve Existing Detention Pond	31	1.8	0.8
Patterson-PA-03C	15.5	9.4	4.3	Install Detention Pond	50	4.7	2.1
Patterson-PA-03D	8.8	5.9	2.7	Install Plunge Pool	50	2.9	1.3
Patterson-PA-10	1.6	2.2	1.0	Install Deep Sump Catch Basins	15	0.3	0.1
Patterson-PA-11	12.4	7.9	3.6	Install Detention Pond	50	4.0	1.8
Patterson-PA-12	2.1	1.8	0.8	Install Grass Swale(s)	30	0.5	0.2
Patterson-PA-14	8.4	7.7	3.5	Improve Existing Detention Pond	31	2.4	1.1
Patterson-PA-15	8.4	6.1	2.8	Install Grass Swale(s)	30	1.8	0.8
Patterson-PA-16	12.2	7.0	3.2	Install Cistern	75	5.3	2.4
Total	**115.2**	**64.4**	**29.2**			**27.0**	**12.2**

Table 7-12:
TP Loading and Reduction Estimates, Town of Putnam Valley

Site ID	Area	TP Load		Proposed Retrofit	Load Reduction	TP Load Reduction	
	(acre)	(lb/yr)	(kg/yr)		%	(lb/yr)	(kg/yr)
PutVal-PA-01-2	3.2	0.5	0.2	Resurface Road Surface and Improve under Drainage	25	0.1	0.1
PutVal-PA-02	3.6	2.5	1.1	Install Deep Sump Catch Basins	15	0.4	0.2
Total	**6.8**	**3.0**	**1.4**			**0.5**	**0.2**

Table 7-13:
TP Loading and Reduction Estimates, Town of Southeast

Site ID	Area	TP Load		Proposed Retrofit	Load Reduction	TP Load Reduction	
	(acre)	(lb/yr)	(kg/yr)		%	(lb/yr)	(kg/yr)
Southeast-PA-01	2.9	1.3	0.6	Install Plunge Pool	50	0.6	0.3
Southeast-PA-05	16.9	11.3	5.1	Install Plunge Pool and Grass Swale	65	7.3	3.3
Southeast-PA-06B	21.7	12.1	5.5	Install Detention Pond	50	6.1	2.8
Southeast-PA-15	8.6	3.3	1.5	Install Plunge Pool	50	1.6	0.7
Southeast-PA-16	12.4	4.9	2.2	Install Cistern	75	3.7	1.7
Southeast-PA-21	17.7	9.1	4.1	Install Deep Sump Catch Basins	15	1.4	0.6
Southeast-PA-23	9.2	12.1	5.5	Improve Existing Detention Pond	31	3.8	1.7
Southeast-PA-24	1.8	1.5	0.7	Install Grass Swale(s)	30	0.5	0.2
Southeast-PA-25	0.3	0.3	0.2	Pervious Pavement	70	0.2	0.1
Southeast-PA-26	4.7	0.9	0.4	Install Plunge Pool	50	0.4	0.2
Total	**96.2**	**56.8**	**25.8**			**25.6**	**11.6**

As shown in Table 7-9 through Table 7-13, if the PCMS4CC enacts all of the proposed retrofits, an estimated TP load reduction of 54.3 kg/yr (119.7 lb/yr) will be achieved. Several important facts can be drawn by the results of the TP loading and associated TP loading reductions calculated above.

- The Town of Carmel will achieve the greatest magnitude of annual TP load reduction of 23.8 kg/yr (52.4 lb/yr);
- The Town of Putnam Valley will achieve the least amount of annual TP load reduction of 0.2 kg/yr (0.5 lb/yr);
- The TP loading reduction requirements required by the EOH Enhanced Phosphorus reduction standards are 154.9 kg/year (341.6 lb/yr) or 31.0 kg/yr (68.3 lb/yr) over each of the next five years (2010-2015)
- The proposed retrofits are shown to achieve approximately 35% of the required TP loading reduction in the area.
- Based on the requirements set forth by the NYSDEC, if all of the proposed retrofits are enacted, the PCMS4CC will achieve slightly less than the requirements of the first two years of TP load reductions.

Additional assessments on the costs of the proposed retrofits and the impacts of the proposed retrofits on the reduction requirements for individual watersheds are detailed in Sections 8 through 10 of this report.

8. Cost Estimates

8.1. Cost Estimate Methodology

Preliminary construction cost estimates have been developed for each of the recommended retrofits at each of the potential retrofit sites along with annual operation and maintenance costs. To assist in the development of the construction capital costs the Association for the Advancement of Cost Engineer's (AACE) International guidelines were utilized. A Class 4 estimating approach was used, which allows for a 30-40% construction cost contingency. Class 4 estimates are usually prepared for detailed strategic planning, project screening, alternative scheme analyses, confirmation of economic and/or technical feasibility, and preliminary budget approval.

These preliminary construction cost estimates include and are based on capital costs to furnish and install retrofit equipment, mobilization, costs to develop the site, installation of equipment/retrofits, site restoration, soil erosion and sediment control, contractor's labor, contractor's overhead and profit and indirect "soft" contract administrative costs (i.e. engineering design, land surveys, permitting, financing fees, legal fees, professional construction administrative services, etc). A 35% construction cost contingency and a compounded 4% escalation factor has been included to each of the potential retrofit sites for year-1 through year-5. Budgetary engineering design cost was calculated by using 15% of the construction budget estimate, 10% for surveying, 10% for environmental permitting, 8% or 20% administrative fee (i.e. financing, legal fees, etc) and 15% for professional construction administrative services. These indirect administrative costs and engineering costs are based on the widely accepted practices, experience and judgments as accepted by the engineering profession in New York State and are in accordance with AACE guidelines.

A compounded 4% escalation factor has also been applied to the annual operation and maintenance for each year. To assist in the development of the annual operation and maintenance costs the New York State Department of Environmental Conservation (NYSDEC) Stormwater Management Design Manual and the Standards for Erosion and Sediment Control Manual were referenced to develop the operation and maintenance costs.

Recent land acquisition costs have been provided by the Town of Southeast. In order to determine the land acquisition costs for this project and to acquire private land it was estimated that $3.58 per square foot be used in determining the cost for half and full-acre sites; $78,000 and $156,000, respectively. The Town of Patterson has provided specific

land value data for locations in their portion of the Study Area as well. A compounded 4% escalation factor has also been applied to land acquisition cost for each year.

Note that the costs summarized in Section 8 and discussed in throughout the remainder of this report include land acquisition costs and other fees to install a retrofit on private property. However, depending on how each of the Towns will implement future stormwater programs, these costs could potentially be removed from the cost estimate.

8.2. Cost Estimates

The unit costs utilized for the cost estimation for each of the retrofit installations are shown in Table 8-1. The costs presented in this table are typical values used to assist in determining the estimated construction costs of each retrofit. However, these unit costs fluctuate depending on site specific characteristics and/or retrofit complexity. Additional cost estimation support information is located in Appendix J.

Table 8-1:
Unit Costs Used in Retrofit Construction Cost Estimation

Unit	Cost/Unit
Excavation	$15.00 - $20.00/CY
Hydro Seeding	$3.50 - $5.00/SF
Topsoil (Screened)	$45.00 - $60.00/CY
Concrete (Unreinforced/Reinforced)	$70.00 - $350.00/CY
Rip Rap Stone (3 to 6 inch diameter)	$90.00/CY
Pervious Pavers	$40.00/SF
Soil Erosion & Sediment Control (i.e. hay bales & silt fencing)	$35.00 - $45.00/LF (installed cost)

The costs presented in Table 8-1 were utilized in creating the cost estimates for each of the proposed retrofit installations. Table 8-2 depicts the preliminary construction costs for each site and/or municipality, annual operation and maintenance costs and land acquisition costs for each of the identified potential retrofits. The costs presented in the table are listed with their present day (Year 1) values; costs listed in each of the periods are not the cost per year, but the cost should the retrofit be constructed during that year. Based on the Table, the total costs for all projects can potentially range from $5.87 million in year 1 (assuming all retrofits were installed in Year 1) to a maximum of $6.87 million (assuming all retrofits were installed in Year 5). The costs in Years 2 through 5 reflect a compounded 4% escalation factor, which has been applied to the capital costs, land acquisition costs, and annual operation and maintenance for each year. Detailed cost breakdowns for each site, are provided in Appendix J. The escalated costs are provided to help PCMS4CC realize costs over the period of their 5-year plan.

Table 8-2:
PCMS4CC Potential Retrofit Costs

	SITE	RETROFIT TYPE	Estimated Capital Cost (including Administrative Fees)[1]					Budgetary Land Acquisition Costs					Estimated Operations & Maintenance Costs				
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
1	Carmel PA-01	Improve Existing Detention Pond	$ 140,400	$ 146,100	$ 151,800	$ 157,900	$ 164,300	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 5,000	$ 5,200	$ 5,400	$ 5,600	$ 5,800
2	Carmel PA-03	Install Sand Filter	$ 126,700	$ 131,600	$ 136,900	$ 142,400	$ 148,000	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 5,500	$ 5,700	$ 5,900	$ 6,100	$ 6,300
3	Carmel PA-07	Install Detention Pond	$ 133,300	$ 138,600	$ 144,200	$ 150,000	$ 155,900	$ 156,000	$ 162,200	$ 168,700	$ 175,400	$ 182,400	$ 5,200	$ 5,400	$ 5,600	$ 5,800	$ 6,000
4	Carmel PA-08	Install Cistern	$ 60,500	$ 63,000	$ 65,500	$ 68,100	$ 70,900	0	0	0	0	0	$ 4,000	$ 4,200	$ 4,400	$ 4,600	$ 4,800
5	Carmel PA-13	Outfall Channel Stabilization	$ 130,400	$ 135,700	$ 141,000	$ 146,600	$ 152,700	0	0	0	0	0	$ 4,800	$ 5,000	$ 5,200	$ 5,400	$ 5,600
6	Carmel PA-15	Outfall Channel Stabilization	$ 87,000	$ 90,400	$ 93,900	$ 97,700	$ 101,300	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 4,800	$ 5,000	$ 5,200	$ 5,400	$ 5,600
7	Carmel PA-17	Install Plunge Pool	$ 57,500	$ 59,800	$ 62,100	$ 64,600	$ 66,900	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 4,000	$ 4,200	$ 4,400	$ 4,600	$ 4,800
8	Carmel PA-18	Install Grass Swale(s)	$ 69,000	$ 71,600	$ 74,500	$ 77,500	$ 80,700	0	0	0	0	0	$ 3,200	$ 3,300	$ 3,400	$ 3,500	$ 3,600
9	Carmel PA-19	Install Hydrodynamic Separator	$ 77,000	$ 80,100	$ 83,400	$ 86,700	$ 90,200	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 7,600	$ 7,900	$ 8,200	$ 8,500	$ 8,800
10	Carmel PA-20	Install Detention Pond & Reroute Drainage	$ 187,100	$ 194,600	$ 202,300	$ 210,400	$ 218,700	0	0	0	0	0	$ 5,600	$ 5,800	$ 6,000	$ 6,200	$ 6,400
		Subtotal	$ 1,068,900	$ 1,111,500	$ 1,155,600	$ 1,201,900	$ 1,249,600	$ 546,000	$ 567,700	$ 590,200	$ 613,900	$ 638,400	$ 49,700	$ 51,700	$ 53,700	$ 55,700	$ 57,700
11	Kent PA-03	Install Plunge Pool	$ 59,700	$ 62,000	$ 64,500	$ 67,100	$ 69,800	0	0	0	0	0	$ 4,400	$ 4,600	$ 4,800	$ 5,000	$ 5,200
12	Kent PA-04	Install Detention Pond	$ 152,800	$ 158,800	$ 165,200	$ 171,800	$ 178,700	$ 156,000	$ 162,200	$ 168,700	$ 175,400	$ 182,400	$ 7,200	$ 7,500	$ 7,800	$ 8,100	$ 8,400
13	Kent PA-05	Ground Stabilization	$ 63,900	$ 66,500	$ 69,200	$ 72,000	$ 74,900	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 3,200	$ 3,300	$ 3,400	$ 3,500	$ 3,600
14	Kent PA-09	Install Plunge Pool	$ 61,600	$ 64,200	$ 66,700	$ 69,400	$ 72,400	0	0	0	0	0	$ 4,000	$ 4,200	$ 4,400	$ 4,600	$ 4,800
15	Kent PA-12	Install Grass Swale(s)	$ 105,400	$ 109,500	$ 113,900	$ 118,500	$ 123,000	0	0	0	0	0	$ 5,600	$ 5,800	$ 6,000	$ 6,200	$ 6,400
16	Kent PA-13	Install Detention Pond	$ 128,000	$ 132,900	$ 138,200	$ 143,700	$ 149,300	0	0	0	0	0	$ 4,800	$ 5,000	$ 5,200	$ 5,400	$ 5,600
17	Kent PA-31	Install Hydrodynamic Separator	$ 111,100	$ 115,500	$ 120,000	$ 124,800	$ 129,800	0	0	0	0	0	$ 7,400	$ 7,700	$ 8,000	$ 8,300	$ 8,600
		Subtotal	$ 682,500	$ 709,400	$ 737,700	$ 767,300	$ 797,900	$ 234,000	$ 243,300	$ 253,000	$ 263,100	$ 273,600	$ 36,600	$ 38,100	$ 39,600	$ 41,100	$ 42,600
18	Patterson PA-01B	Install Grass Swale(s)	$ 51,200	$ 53,200	$ 55,400	$ 57,600	$ 59,900	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 4,000	$ 4,200	$ 4,400	$ 4,600	$ 4,800
19	Patterson PA-02B	Improve Existing Detention Pond	$ 136,900	$ 142,400	$ 148,000	$ 153,900	$ 159,900	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 4,800	$ 5,000	$ 5,200	$ 5,400	$ 5,600
20	Patterson PA-03C	Install Detention Pond	$ 133,100	$ 138,300	$ 143,900	$ 149,700	$ 155,400	$ 15,300	$ 15,900	$ 16,500	$ 17,200	$ 17,900	$ 4,800	$ 5,000	$ 5,200	$ 5,400	$ 5,600
21	Patterson PA-03D	Install Plunge Pool	$ 114,400	$ 119,000	$ 123,800	$ 128,800	$ 133,900	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 4,800	$ 5,000	$ 5,200	$ 5,400	$ 5,600
22	Patterson PA-10	Install Deep Sump Catch Basins	$ 73,300	$ 76,200	$ 79,300	$ 82,500	$ 85,800	0	0	0	0	0	$ 2,000	$ 2,100	$ 2,200	$ 2,300	$ 2,400
23	Patterson PA-11	Install Detention Pond	$ 132,600	$ 137,900	$ 143,300	$ 149,000	$ 155,100	0	0	0	0	0	$ 5,500	$ 5,700	$ 5,900	$ 6,100	$ 6,300
24	Patterson PA-12	Install Grass Swale(s)	$ 49,600	$ 51,700	$ 53,700	$ 55,800	$ 58,100	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 2,400	$ 2,500	$ 2,600	$ 2,700	$ 2,800
25	Patterson PA-14	Improve Existing Detention Pond	$ 117,700	$ 122,300	$ 127,200	$ 132,300	$ 137,600	0	0	0	0	0	$ 4,800	$ 5,000	$ 5,200	$ 5,400	$ 5,600
26	Patterson PA-15	Install Grass Swale(s)	$ 104,000	$ 108,100	$ 112,400	$ 116,900	$ 121,400	0	0	0	0	0	$ 4,400	$ 4,600	$ 4,800	$ 5,000	$ 5,200
27	Patterson PA-16	Install Cistern	$ 166,100	$ 172,700	$ 179,600	$ 186,800	$ 194,100	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 4,000	$ 4,200	$ 4,400	$ 4,600	$ 4,800
		Subtotal	$ 1,078,900	$ 1,121,800	$ 1,166,600	$ 1,213,300	$ 1,261,200	$ 405,300	$ 421,400	$ 438,000	$ 455,700	$ 473,900	$ 41,500	$ 43,300	$ 45,100	$ 46,900	$ 48,700
28	PutVal PA-01	Resurface Roadway & Replace Culvert	$ 203,500	$ 211,600	$ 220,000	$ 228,800	$ 237,900	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 4,200	$ 4,400	$ 4,600	$ 4,800	$ 5,000
29	PutVal PA-02	Install Deep Sump Catch Basins	$ 237,900	$ 247,500	$ 257,300	$ 267,600	$ 278,400	0	0	0	0	0	$ 5,000	$ 5,200	$ 5,400	$ 5,600	$ 5,800
		Subtotal	$ 441,400	$ 459,100	$ 477,300	$ 496,400	$ 516,300	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 9,200	$ 9,600	$ 10,000	$ 10,400	$ 10,800
30	Southeast PA-01	Install Plunge Pool	$ 58,900	$ 61,300	$ 63,800	$ 66,400	$ 68,900	0	0	0	0	0	$ 4,000	$ 4,200	$ 4,400	$ 4,600	$ 4,800
31	Southeast PA-05	Install Plunge Pool & Grass Swale	$ 99,200	$ 103,100	$ 107,300	$ 111,600	$ 116,000	0	0	0	0	0	$ 5,600	$ 5,800	$ 6,000	$ 6,200	$ 6,400
32	Southeast PA-06B	Install Detention Pond	$ 112,800	$ 117,200	$ 121,800	$ 126,700	$ 131,800	0	0	0	0	0	$ 4,800	$ 5,000	$ 5,200	$ 5,400	$ 5,600
33	Southeast PA-15	Install Plunge Pool	$ 63,000	$ 65,400	$ 68,000	$ 70,700	$ 73,700	0	0	0	0	0	$ 4,000	$ 4,200	$ 4,400	$ 4,600	$ 4,800
34	Southeast PA-16	Install Cistern	$ 49,600	$ 51,700	$ 53,700	$ 55,800	$ 58,100	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 4,000	$ 4,200	$ 4,400	$ 4,600	$ 4,800
35	Southeast PA-21	Install Deep Sump Catch Basins	$ 179,200	$ 186,300	$ 193,800	$ 201,600	$ 209,700	$ 78,000	$ 81,100	$ 84,300	$ 87,700	$ 91,200	$ 4,000	$ 4,200	$ 4,400	$ 4,600	$ 4,800
36	Southeast PA-23	Improve Existing Detention Pond	$ 127,200	$ 132,400	$ 137,600	$ 143,100	$ 148,700	0	0	0	0	0	$ 5,200	$ 5,400	$ 5,600	$ 5,800	$ 6,000
37	Southeast PA-24	Install Grass Swale(s)	$ 55,500	$ 57,800	$ 60,000	$ 62,400	$ 64,900	0	0	0	0	0	$ 3,200	$ 3,300	$ 3,400	$ 3,500	$ 3,600
38	Southeast PA-25	Install Permeable Pavement	$ 195,100	$ 202,900	$ 211,000	$ 219,400	$ 228,100	0	0	0	0	0	$ 3,600	$ 3,700	$ 3,800	$ 4,000	$ 4,200
39	Southeast PA-26	Install Plunge Pool	$ 63,000	$ 65,400	$ 68,000	$ 70,700	$ 73,700	0	0	0	0	0	$ 4,000	$ 4,200	$ 4,400	$ 4,600	$ 4,800
		Subtotal	$ 1,003,500	$ 1,043,500	$ 1,085,000	$ 1,128,400	$ 1,173,600	$ 156,000	$ 162,200	$ 168,600	$ 175,400	$ 182,400	$ 42,400	$ 44,200	$ 46,000	$ 47,900	$ 49,800
	TOTAL PROJECT COSTS		$ 4,275,200	$ 4,445,300	$ 4,622,200	$ 4,807,300	$ 4,998,600	$ 1,419,300	$ 1,475,700	$ 1,534,100	$ 1,595,800	$ 1,659,500	$ 179,400	$ 186,900	$ 194,400	$ 202,000	$ 209,600

[1] Administrative costs include engineering design, land survey, permitting, financing fees, legal fees, professional construction administrative services, etc.

When analyzing the costs of constructing the retrofits proposed in this Study, several important facts can be drawn. All of the below values are based on cost estimates for construction during Year 1 (i.e. all construction occurring in Year 1 or value in "2009 dollars").

- The total cost of constructing the proposed retrofits is approximately $4.28 million;
  - Patterson has the greatest capital costs ($1.08 million);
  - Putnam Valley has the smallest capital costs ($441,400);
- The proposed land acquisition costs across the PCMS4CC Towns in approximately $1.42 million on top of the construction cost estimations;
  - Carmel has the greatest land acquisition costs ($546,000);
  - Putnam Valley has the smallest land acquisition costs ($78,000);
- The total operations and maintenance costs across the PCMS4CC Towns is approximately $179,400
  - Carmel has the greatest operations and maintenance costs ($49,700);
  - Putnam Valley has the smallest operations and maintenance costs ($9,200);

9. Feasibility Matrix

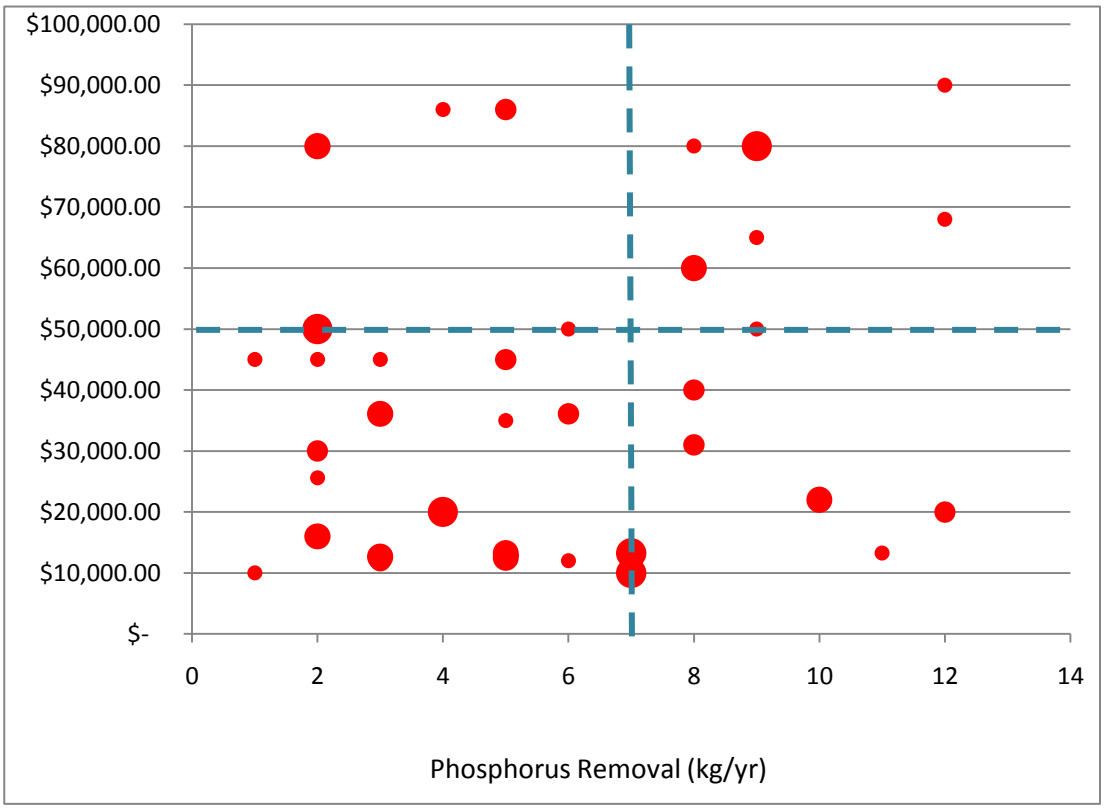
9.1. Feasibility Matrix Methodology

The Phase 2 methodology has been developed to facilitate decision making by PCMS4CC in selecting sites for retrofit implementation as part of their 5-year plan pursuant to their MS4 permit requirements. To do this, a Feasibility Matrix is being developed that focuses on phosphorus removal and associated costs. However, the criteria also include factors accounted for in Phase 1 Ranking as identified in Section 4 of this report and several additional items including visual/aesthetic concerns and public health and safety.

The Feasibility Matrix methodology uses a 3-dimensional approach to presenting the desirability of retrofit placement at each of the 40 sites. Along the two major axes are phosphorus removal (in kg/year) and cost. These items are expected to be estimated for each site based on site characteristics and the recommended retrofit site based off of the site conceptual drawings. The third "axis" represents the Phase 2 score, a value based on several criteria that may indicate the level of public support or opposition that may be encountered to retrofit placement. Figure 9-1 presents a visual example of the resulting Feasibility Matrix. The Phase 2 score is represented in this figure by the size of the dots; larger dots represent sites with a higher score (i.e. higher potential for public support) and smaller dots represent a lower score (i.e. lower potential for public support).

The Feasibility Matrix may be broken down into four quadrants, with the most desirable quadrant being the lower right (I: low cost, high removal) and the least desirable being the upper left (III: low removal, high cost). Several sites are expected to fall in the lower left quadrant (II: low removal, low cost); these sites may be considered the "low-hanging fruit" which may also include sites where time constraints make them more desirable Year 1 sites (sites whose installation will make them readily available for meeting the Year 1 phosphorus reduction requirements). Sites in the upper right quadrant (IV: high removal, high cost) may be required to meet removal requirements.

Figure 9-1: Example Feasibility Matrix



9.2. Phosphorus Removal

Modeling efforts to quantify the amount of phosphorus removed for each of the 40 potential retrofit sites resulted in an estimate of the phosphorus load reduced at each site in kg/year upon completion of retrofit installation. These values were affected by local topography, area available for retrofit placement, retrofit type, upstream drainage area characteristics, and existing stormwater infrastructure type. Phosphorus loading and removal were modeled using the Simple Method and established percent removal criteria for stormwater management practices. The modeling efforts are described in Section 7.

9.3. Cost

As detailed in Section 8, estimates for the cost associated with capital investments as well as operations and maintenance were estimated for each of the 40 potential retrofit sites. These cost estimates account for the type of construction associated with each retrofit

type and include factors such as access issues for constructability and site acquisition of private lands.

9.4. Phase 2 Scoring Methodology

As mentioned previously, the Phase 2 score combines some of the Phase 1 criteria, as well as additional visual/aesthetic criteria, as well as public health and safety concerns. The site characteristics used in Phase 2 scoring are described below

9.4.1. Phase 1 Criteria

Several of the Phase 1 criteria directly affect either the phosphorus removal expected from a retrofit site or the cost associated with a retrofit site. For example the drainage area size and percent impervious are critical factors in determining the phosphorus loading and removal associated with potential retrofits. Likewise, ownership type is part of the cost estimates due to the cost of acquiring private properties. To prevent double-counting these factors during the Phase 2 ranking, these parts of the Phase 1 score are "zeroed out" by applying a scalar of 0.

Items that are removed from Phase 2 scoring (i.e. zeroed out) include:

- Drainage area;
- Percent impervious in the drainage area;
- Anticipated capture ratio;
- Existing management practice type;
- Documented source of high phosphorus;
- Ownership type; and
- Current land use.

The remaining Phase 1 criteria retain the values and scalars assigned during Phase 1 scoring. These criteria include:

- Proximity to receiving water,
- Receiving water body class,
- Proximity to wetlands,
- Location within a phosphorus limited basin, and
- Existing TMDL Regulatory Removal Requirements.

Note that while most of the remaining Phase 1 criteria have scalar values of 1, the TMDL regulatory removal requirements criteria had a scalar value of 4 during the Phase 1

ranking. A scalar of 1 is being applied to this and all additional criteria discussed below to provide an equal weighting to all Phase 2 criteria.

9.4.2. Visual Criteria

Visual changes may affect the ability for the PCMS4CC to gain public support for the installation of retrofits that have been identified in this study. The potential visual and aesthetic changes, both positive and negative, are accounted for in the following criteria.

9.4.2.1. Visual Impact – Aesthetics

Some retrofits represent no real visual change to the area and some retrofits represent changes to the area that may be considered positive, negative, or neutral. Visual impact is based on aesthetics and is subjective. However, the general criteria described in Table 9-1 were used to characterize aesthetic visual impact:

Table 9-1:
Visual Impact (Aesthetics) Ranking and Criteria

	Rank
Visible change, negative impact	1
No visible change	2
Visible change, neutral impact	2
Visible change, positive impact	3

Negative impact - constructed retrofit is visible with a decrease in quantity of quality natural vegetation. (Note that this does not include reduction of nuisance plants).

No visible change - retrofit installation will be primarily underground or equivalent visually to the existing conditions (e.g. deep sump catch basins)

Neutral impact - While a change is visible, the amount of disturbed area and general vegetation remain the same.

Positive impact - improvement of natural vegetation or correction of visual blight.

For Tier 2 sites where no field investigation was conducted, the sites were assumed to be in fair condition (i.e. not overgrown, but not pristine).

9.4.2.2. Visual Impact – Affected Residential Population

Public support from residential property owners in close proximity to the potential retrofit site may depend on the number of people in the vicinity of the site. Table 9-2 shows the rankings which were used.

Table 9-2:
Visual Impact (Affected Residential Population) Ranking and Criteria

Population density within 1/4 mile	Rank
Densely populated (=>2000 people/mi2)	1
Moderately populated (500-2000 people/mi2)	2
Sparsely populated (<500 people/mi2)	3

Population density is based on US Census bureau projections from the 2000 survey. Ranges of population densities are based on typical values found for the 1/4 mile buffer of the retrofit site from Census Block Groups.

9.4.2.3. Visual Impact – Affected Commercial Population

The population affected by the placement of a retrofit also includes nearby businesses and their customers. Table 9-3 shows the ranking that were used for the potential visual impact on the commercial population, which may also affect public support. Smaller distances are used to represent the potential concern of business owners on how their revenue may be affected.

Table 9-3:
Visual Impact (Affected Commercial Population)

Distance to Commercial Property	Rank
Within 500 feet	1
500-1000 feet	2
Greater than 1000 feet	3

Distance from a commercial property will be used as an indicator for how many commercial business owners and customers would be affected. Retrofits further from commercial properties are assumed to have less impact on commercial business owners or customers.

9.4.2.4. Visual Impact – Construction

While construction impact is temporary, the inconvenience of changes to traffic patterns may increase public resistance to retrofit construction. Longer durations of construction are associated with lower scores, as being less preferable for retrofit installation. Table 9-4 provides an estimate of the construction time associated with each retrofit. These time frames are an approximate and include the time for mobilization, testing, substantial completion, and final acceptance.

Table 9-4:
Approximate Construction Period by Retrofit Type

Type	Months
Ground Stabilization	3
Improve Existing Detention Pond	3
Install Cistern	4
Install Deep Sump Catch Basins	3
Install Detention Pond	6
Install Detention Pond, reroute drainage from surrounding area	9-12
Install Grass Swales	3
Install Grass Swales (soil stabilization)	3
Install Hydrodynamic Separator	3-6
Install Plunge Pool	3-6
Install Plunge Pool and Grass Swale	3-6
Install Sand Filter	3
Outfall Channel Stabilization	3
Replace portion of Existing Parking Area with Pervious Pavement	1
Resurface Road Surface and Improve under Drainage	3

Table 9-5 shows the ranking that were used for visual impacts due to construction, which are based on expected durations from start to finish (i.e. times including mobilization, testing, substantial completion, and final acceptance). The durations listed in Table 9-5 were based on the typical periods expected for construction, discussed during the process of cost estimates, with the understanding that the durations are estimates based on retrofit type and are not site specific.

Table 9-5:
Visual Impact (Construction) Ranking and Criteria

Duration of Construction	Rank
≥ 6 months	1
3-6 months	2
< 3 months	3

The PCMS4CC may also wish to note that the duration of construction will also affect their efforts in planning construction for retrofit types with higher construction periods, as these retrofits will require a longer lead time before construction is completed and sites may be counted towards MS4 yearly removal requirements.

9.4.3. Public Benefit Criteria

9.4.3.1. Potential Public Benefit – Correct Drainage Problems

During the process of identifying 40 potential retrofit sites, the PCMS4CC members identified several sites with known existing drainage problems or issues. These sites were noted as having flooding/erosion/design failure issues and score with a higher priority for retrofits. Table 9-6 shows the ranking that was used for sites with known drainage problems.

Table 9-6:
Potential Public Benefit (Existing Drainage) Ranking and Criteria

Existing Drainage Problem	Rank
No problem identified	1
Flooding/erosion/design failure Identified by town	4

9.4.3.2. Potential Public Benefit – Treatment of Multiple Pollutants

While the pollutant of interest for this study is phosphorus, removal of additional pollutants may be beneficial. Retrofit types with the ability to remove additional pollutants receive higher scores.

Estimates for the amount of additional pollutants removed by each retrofit type are provided in Table 9-7. Pollutants examined included total nitrogen, bacteria, metals, and pesticides. The sum of the percent removal for each of the additional pollutants, shown in the Total column, was used as an indicator of the overall potential to remove additional pollutants. Note that the removal of these additional pollutants is not modeled in this study.

Table 9-7:
Retrofit Types and Treatment of Multiple Pollutants

BMP Type	TN	Bacteria	Metals	Pesticides[a]	Total
HDS	5%[b]	0%[b]	10%[b]	17%	32%
Channel Stabilization	5%[c]	0%[c]	10%[c]	17%	32%
Deep Sump Catch Basins	5%[c]	0%[c]	10%[c]	17%	32%
WQ Swale	30%[d]	10%[d]	10%[d]	17%	67%
Plunge Pool	30%[d]	0%	30%[d]	17%	77%
Dry Water Quantity Pond	30%[d]	0%[c]	50%[d]	17%	97%
Dry Facilities	30%[e]	0%[c]	50%[e]	17%	97%
Cistern	25%	60%	50%[d]	17%	152%
Wet Pond	30%[d]	70%[f]	70%[d]	17%	187%
Wetland	30%[g]	70%[g]	70%[d]	17%	187%
Filters	50%[d]	37%[h]	90%[d]	34%	211%
Infiltration	70%[d]	90%[d]	70%[d]	83%	313%
Porous Pavement	70%[d]	90%[d]	90%[d]	83%	333%

a – Values based on mid-point of ranges found in CalTrans Treatment BMP Technology Report (2007)
b – Data from NJCAT Technology Verification (2005)
c – Values assumed to be equal to lowest literature value compared to other retrofits
d – Values from NYSDEC, Reducing the Impacts of Stormwater runoff from New Development (1993)
e – Values assumed to be equivalent to Dry Pond
f – Values as listed in WTM (Caraco, 2002)
g – Values assumed to be equivalent to Wet Pond
h – Values assumed to be equivalent to Infiltration

Table 9-8 shows the ranking based on a retrofit type's ability to remove additional pollutants.

Table 9-8:
Potential Public Benefit (Pollutant Treatment) Ranking and Criteria

Capability of Retrofit to Treat Pollutants	Rank
Treats Phosphorus and TSS and minimal amounts of additional pollutants (Total < 50)	1
Reduces low-moderate amounts of additional pollutants (Total 50-175)	2
Reduces moderate-high amounts of additional pollutants (Total > 175)	3

9.4.4. Health and Safety Criteria

Standing water may be perceived as a public health concern as a breeding ground for mosquitoes, which may affect the ability to gain public support for retrofit installation. For this reason, sites which eliminate standing water score higher (more preferable) for retrofit placement. Table 9-9 shows the ranking that were assigned to sites based on the perceived potential to affect public health.

Table 9-9:
Health and Safety Impacts Ranking and Criteria

Status of Standing Water	Rank
Standing water added	1
No standing water	2
Existing standing water corrected	3

Note that with good maintenance or other measures, the potential impact of standing water on public health may be mitigated.

9.4.5. Local Permitting Criteria

Local permitting criteria may affect the time required for planning and installation of retrofits, as well as the land available for retrofit placement. The PCMS4CC representatives were asked to indicate if any local permitting issues such a setbacks or other zoning or permitting requirements would affect the placement or final design of retrofits at each site. The feedback received from the PCMS4CC representatives were incorporated into the ranking.

Table 9-10 shows the ranking that was applied to each site based on the comments received from the PCMS4CC representatives. Note that state and federal permit requirements should be investigated for all sites selected by PCMS4CC for retrofit installation and that state and federal permit requirements for each site are assumed to be equal and are therefore not ranked or scored. Also note that all sites fall within the NYCDEP East of Hudson Watersheds and would therefore be subject to review by the NYCDEP.

Table 9-10:
Local Permitting Issues Ranking and Criteria

Local Permitting Issues	Rank
No local permitting issues anticipated	3
Potential local permitting issues	1

9.5. Phase 2 Scoring

The results of the Phase 2 scoring methodology are presented by Town in Table 9-11 through Table 9-15. As discussed in Section Phase 1 Criteria, the effect of scalars has been removed in the Phase 2 ranking by applying a scalar of 1 to all criteria included in the Phase 2 scoring. The results of the Phase 2 scoring are applied in the Feasibility Matrix discussed in Section 10.1.

Table 9-11:
Phase 2 Scoring by Potential Retrofit Site – Town of Carmel

Unique ID	Proximity to Receiving Water	Receiving Water Body Class	Proximity to Wetlands or Wetlands Buffer	Existing TMDL Removal Requirements	Visual Impact – Aesthetics	Visual Impact – Affected Residential Population	Visual Impact – Affected Commercial Population	Visual Impact – Construction	Potential Public Benefit – Correct Drainage Problems	Potential Public Benefit – Treatment of Multiple Pollutants	Health and Safety Criteria	Local Permitting Criteria	Phase 2 Score
Carmel-PA-01	3	1	3	2	3	2	1	3	1	3	1	3	**26**
Carmel-PA-03	1	2	3	2	2	2	1	3	1	3	2	3	**25**
Carmel-PA-07	1	3	3	2	1	2	1	1	1	3	1	3	**22**
Carmel-PA-08	3	2	3	2	2	2	1	2	1	2	2	3	**25**
Carmel-PA-13	3	3	3	2	1	2	3	3	1	1	2	3	**27**
Carmel-PA-15	1	3	2	2	3	2	2	3	1	1	2	1	**23**
Carmel-PA-17	1	3	3	2	1	1	3	2	1	2	1	3	**23**
Carmel-PA-18	1	1	3	1	2	2	3	3	1	2	2	3	**24**
Carmel-PA-19	3	3	2	2	2	2	1	2	1	1	2	1	**22**
Carmel-PA-20	3	3	1	1	1	3	3	1	1	3	2	1	**23**

Table 9-12:
Phase 2 Scoring by Potential Retrofit Site – Town of Kent

Unique ID	Proximity to Receiving Water	Receiving Water Body Class	Proximity to Wetlands or Wetlands Buffer	Existing TMDL Removal Requirements	Visual Impact – Aesthetics	Visual Impact – Affected Residential Population	Visual Impact – Affected Commercial Population	Visual Impact – Construction	Potential Public Benefit – Correct Drainage Problems	Potential Public Benefit – Treatment of Multiple Pollutants	Health and Safety Criteria	Local Permitting Criteria	Phase 2 Score
Kent-PA-03	3	1	3	2	1	1	3	3	4	1	2	3	**27**
Kent-PA-04	1	1	3	2	1	1	3	1	4	3	1	3	**24**
Kent-PA-05	3	1	3	1	1	3	1	3	4	2	2	3	**27**
Kent-PA-09	3	1	2	2	1	1	3	2	4	2	1	1	**23**
Kent-PA-12	3	3	1	2	2	1	3	3	1	2	2	1	**24**
Kent-PA-13	3	1	3	2	2	1	3	1	1	3	2	3	**25**
Kent-PA-31	3	2	2	2	2	2	1	2	4	1	3	1	**25**

Table 9-13:
Phase 2 Scoring by Potential Retrofit Site – Town of Patterson

Unique ID	Proximity to Receiving Water	Receiving Water Body Class	Proximity to Wetlands or Wetlands Buffer	Existing TMDL Removal Requirements	Visual Impact – Aesthetics	Visual Impact – Affected Residential Population	Visual Impact – Affected Commercial Population	Visual Impact – Construction	Potential Public Benefit – Correct Drainage Problems	Potential Public Benefit – Treatment of Multiple Pollutants	Health and Safety Criteria	Local Permitting Criteria	Phase 2 Score
Patterson-PA-01B	3	2	1	2	2	1	1	3	1	2	2	1	**21**
Patterson-PA-02B	3	1	3	1	2	1	1	3	1	3	1	3	**23**
Patterson-PA-03C	3	2	1	3	2	3	3	1	4	3	1	1	**27**
Patterson-PA-03D	3	1	1	3	3	3	3	2	4	2	1	1	**27**
Patterson-PA-10	3	1	3	3	2	2	1	3	1	1	1	3	**24**
Patterson-PA-11	3	2	2	3	2	1	1	1	1	3	1	1	**21**
Patterson-PA-12	3	1	3	3	2	3	1	3	1	2	2	3	**27**
Patterson-PA-14	3	1	3	3	2	2	1	3	1	3	2	3	**27**
Patterson-PA-15	1	1	3	3	2	2	1	3	1	2	2	3	**24**
Patterson-PA-16	3	1	3	3	2	1	3	2	1	2	2	3	**26**

Table 9-14:
Phase 2 Scoring by Potential Retrofit Site – Town of Putnam Valley

Unique ID	Proximity to Receiving Water	Receiving Water Body Class	Proximity to Wetlands or Wetlands Buffer	Existing TMDL Removal Requirements	Visual Impact – Aesthetics	Visual Impact – Affected Residential Population	Visual Impact – Affected Commercial Population	Visual Impact – Construction	Potential Public Benefit – Correct Drainage Problems	Potential Public Benefit – Treatment of Multiple Pollutants	Health and Safety Criteria	Local Permitting Criteria	Phase 2 Score
PutVal-PA-01	3	1	3	3	1	1	3	3	4	1	3	3	**29**
PutVal-PA-02	3	1	1	1	2	2	3	3	1	1	1	1	**20**

Table 9-15:
Phase 2 Scoring by Potential Retrofit Site – Town of Southeast

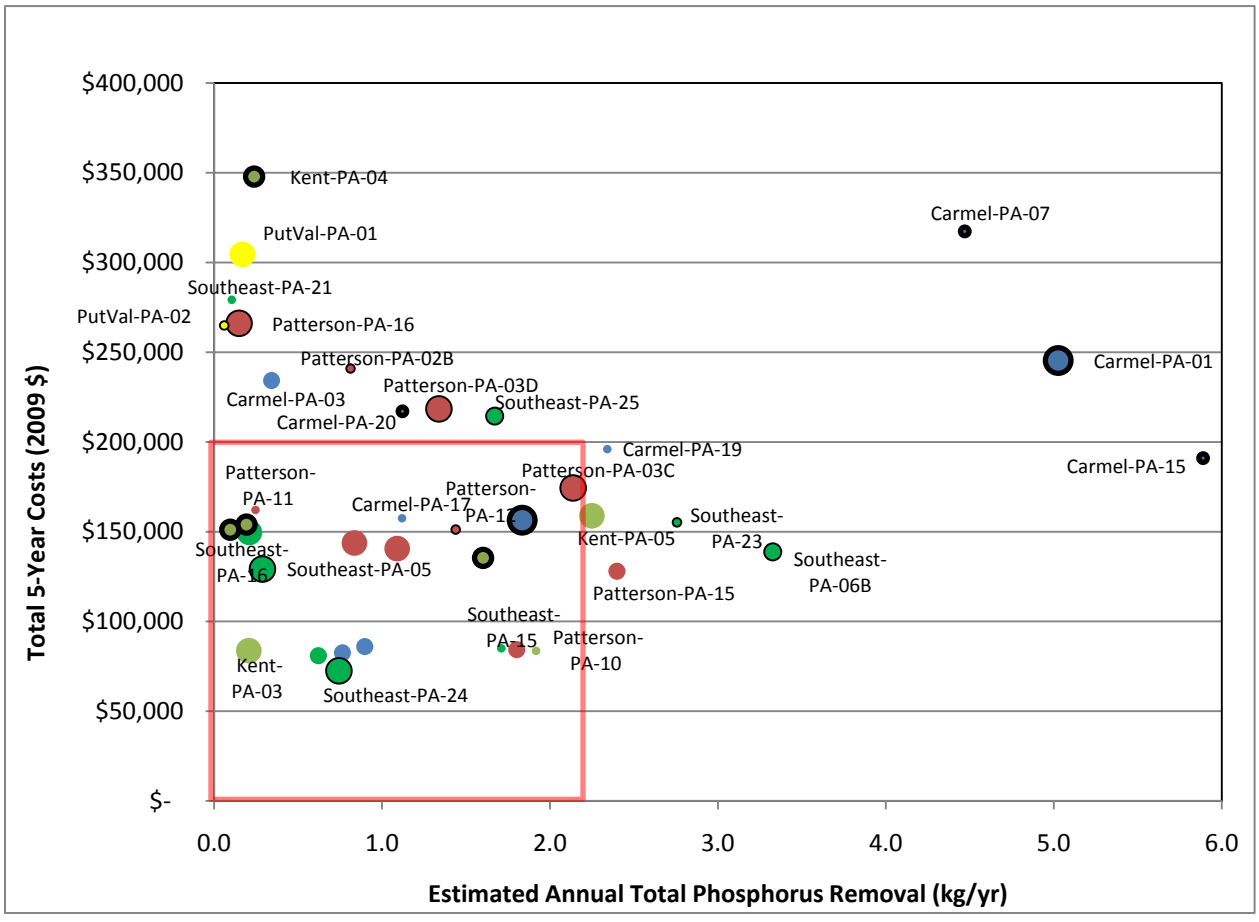
Unique ID	Proximity to Receiving Water	Receiving Water Body Class	Proximity to Wetlands or Wetlands Buffer	Existing TMDL Removal Requirements	Visual Impact – Aesthetics	Visual Impact – Affected Residential Population	Visual Impact – Affected Commercial Population	Visual Impact – Construction	Potential Public Benefit – Correct Drainage Problems	Potential Public Benefit – Treatment of Multiple Pollutants	Health and Safety Criteria	Local Permitting Criteria	Phase 2 Score
Southeast-PA-01	3	1	3	3	1	3	3	3	1	1	2	1	**25**
Southeast-PA-05	1	1	3	3	2	3	3	2	4	2	2	3	**29**
Southeast-PA-06B	3	1	1	4	1	1	3	1	4	3	1	1	**24**
Southeast-PA-15	3	4	1	1	1	2	3	3	1	1	2	1	**23**
Southeast-PA-16	3	1	3	3	2	1	1	2	4	2	2	3	**27**
Southeast-PA-21	3	3	1	3	2	1	1	3	1	1	1	1	**21**
Southeast-PA-23	3	1	1	3	2	1	1	3	1	3	1	1	**21**
Southeast-PA-24	3	3	3	4	2	1	3	3	1	2	2	3	**30**
Southeast-PA-25	3	1	2	3	2	3	1	3	1	3	2	1	**25**
Southeast-PA-26	3	3	3	2	1	1	3	2	1	2	1	3	**25**

When analyzing the Phase 2 scoring above, it is shown that range of the total scores varies from 20 (PutValley-PA-02) to 30 (Southeast-PA-24). Retrofit locations with higher Phase 2 scores are more likely to indicate a higher level of public support for retrofit placement due to the retrofit directly benefiting the public in terms of health and safety concerns, while impacting them minimally in terms of their obstruction both during construction as well as for the life of the retrofit. Alternatively, retrofit locations with a low score are less likely to achieve public support of retrofit placement due to the lack of perceived benefit the public in terms of health and safety and will likely impact the lives of the neighboring area adversely, either during construction, for the life of the retrofit or both.

10.1. Feasibility Matrix Results

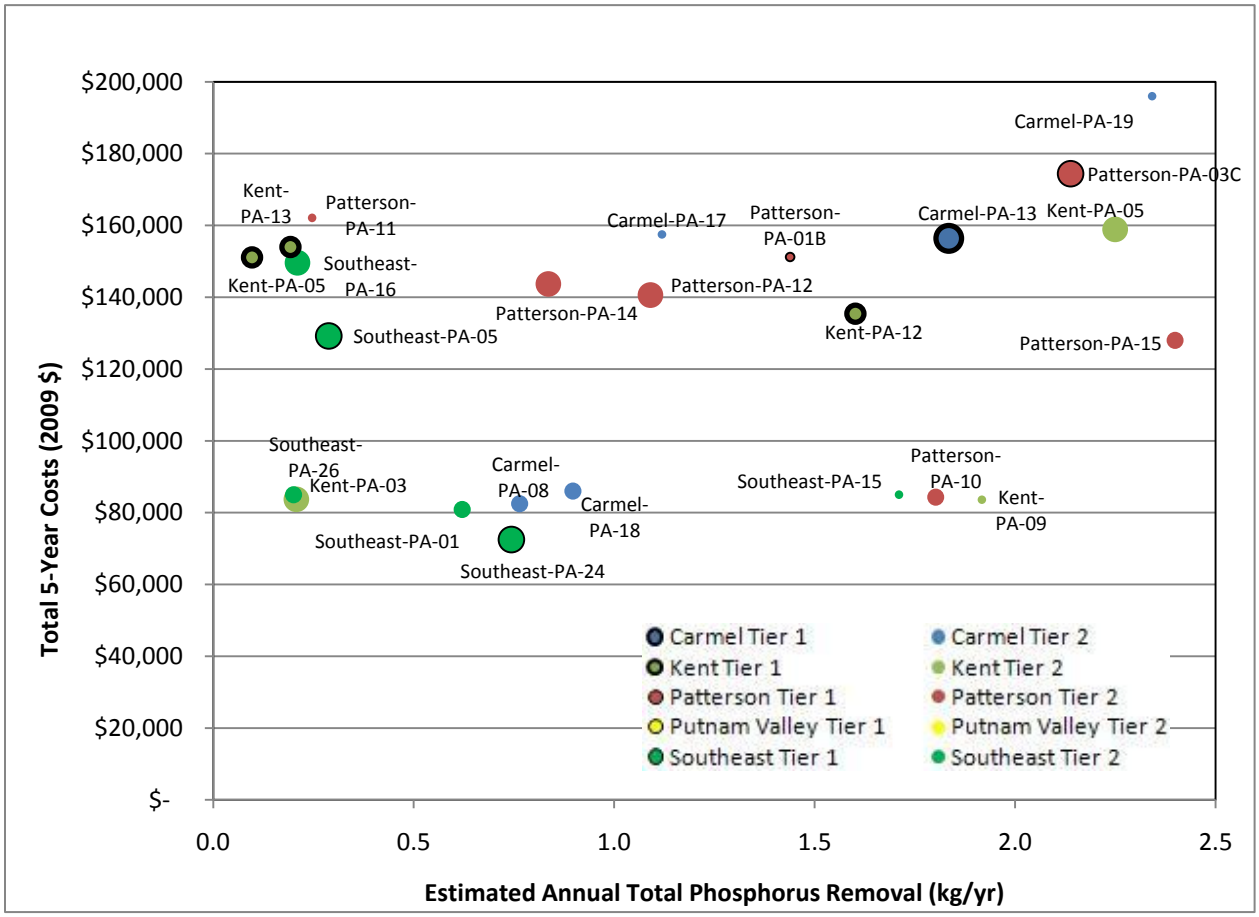
The feasibility matrix described in Section 9 is shown in Figure 10-1 and Figure 10-2. The estimated phosphorus removal is shown along the x-axis. The cost, shown on the y-axis, is based on the total cost of the retrofit over 5 years, assuming it is installed in Year 1; it is the sum of the current value (Year 1) capital and land acquisition costs, as well as the total cost to maintain the retrofit for a period of 5-years.

Figure 10-1: Feasibility Matrix by Phase 2 Ranking



Several retrofits fall in the lower left portion of the graph, outlined by the red box in Figure 10-1. Due to the dense number of points, these retrofits are not labeled in Figure 10-1; they are shown and labeled by site number in Figure 10-2. These retrofits represent relatively low removals at low costs.

Figure 10-2: Feasibility Matrix by Phase 2 Ranking (Detail)



For potential retrofit sites falling on private lands, the cost for land acquisition represents a significant portion of the overall estimated cost. The Towns may elect to pursue acquisition of the land through eminent domain or other means. Figure 10-3 and Figure 10-4 show the revised feasibility matrix should they pursue this course.

Figure 10-3: Feasibility Matrix by Phase 2 Ranking (No Land Acquisition)

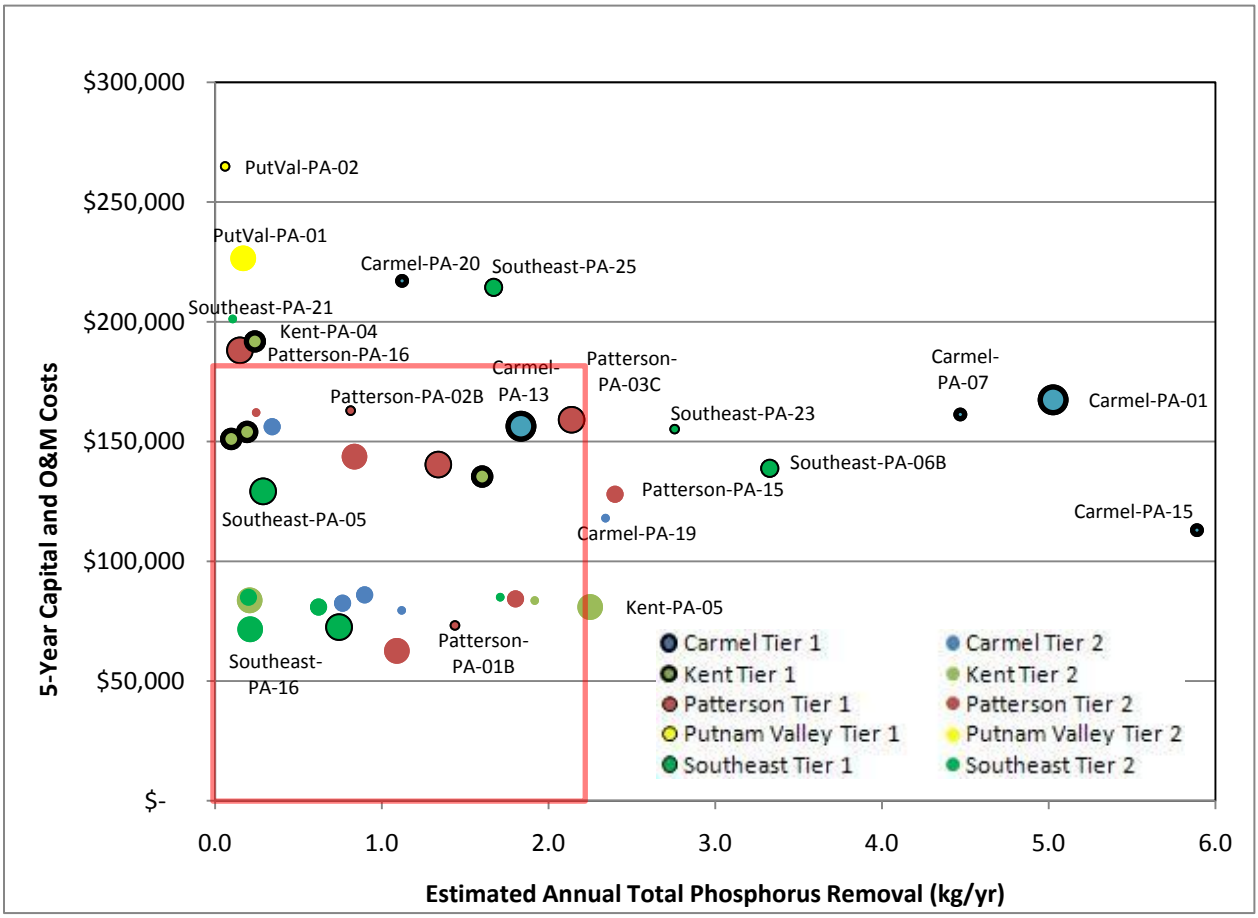
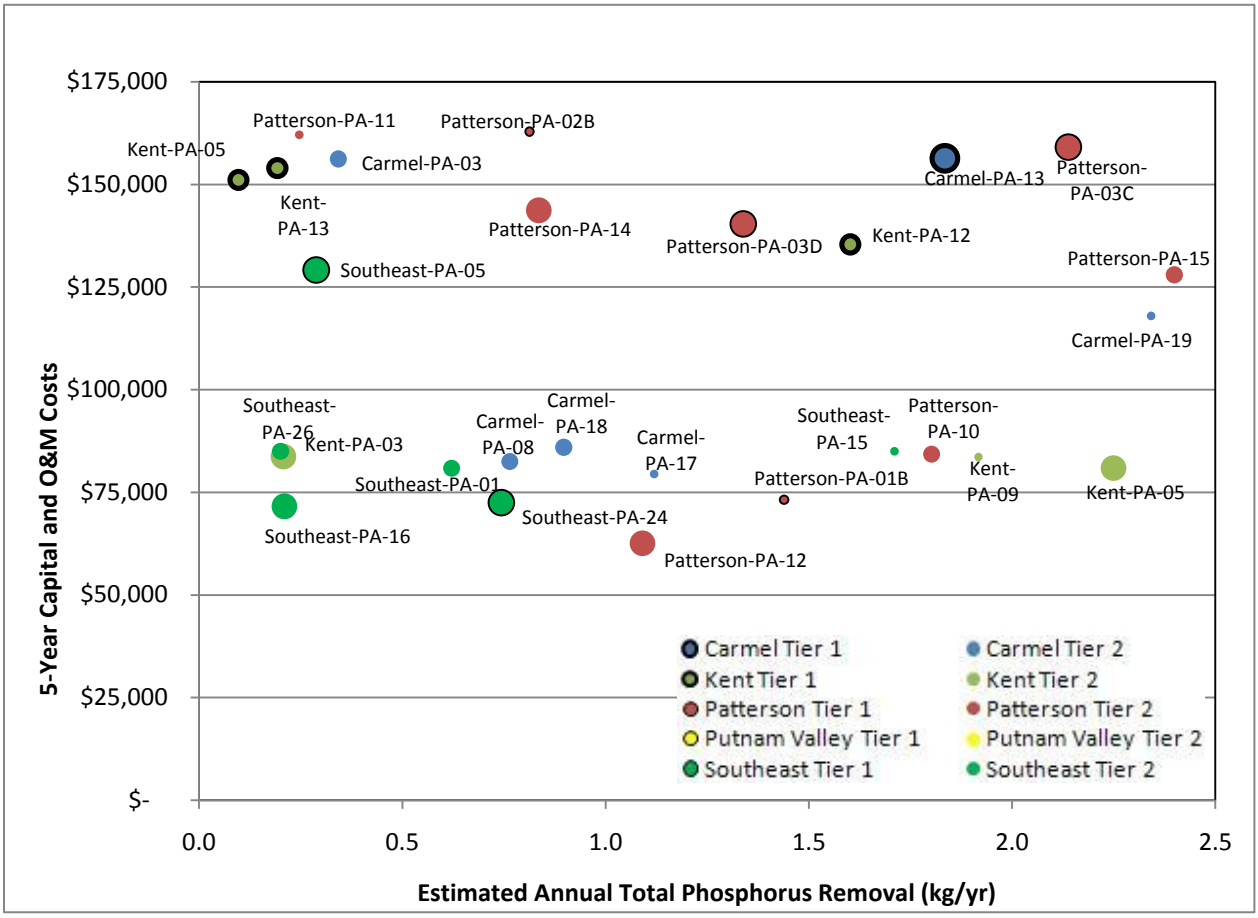


Figure 10-4: Feasibility Matrix by Phase 2 Ranking (No Land Acquisition, Detail)



As discussed in Section 9.1, the most cost effective removal is associated with potential retrofits falling in the lower right portion of the charts (high removal, low cost). A more detailed discussion of phosphorus removal and associated costs are found below in Section 10.2.

10.2. Phosphorus Removal and Cost Analysis

The annual TP removals achieved by each of the proposed retrofits in the Study Area are presented in Table 10-1. The removals are separated by type and organized by increasing contributing area for a given retrofit type.

As shown in the table below, as the contributing area increases, the amount of TP removal typically increases as well. However, variations in contributing area land use distribution and associated TP loading patterns allow for variation in the typically upward trend between drainage area size and associated TP removal.

Table 10-1:
TP Removal Achieved by Each Retrofit Type

Retrofit	TP Removal (lb)	TP Removal (kg)	Drainage Area (acre)	Site ID
Ground Stabilization	0.4	0.2	4.1	Kent-PA-05
Improve Existing Detention Pond	1.8	0.8	4.5	Patterson-PA-02B
	2.4	1.1	8.4	Patterson-PA-14
	3.8	1.7	9.2	Southeast-PA-23
	11.1	5.0	63.0	Carmel-PA-01
Install Cistern	5.3	2.4	12.2	Patterson-PA-16
	3.7	1.7	12.4	Southeast-PA-16
	13.0	5.9	15.7	Carmel-PA-08
Install Deep Sump Catch Basins	0.3	0.1	1.6	Patterson-PA-10
	0.4	0.2	3.6	PutVal-PA-02
	1.4	0.6	17.7	Southeast-PA-21
Install Detention Pond	4.0	1.8	9.4	Carmel-PA-07
	4.0	1.8	12.4	Patterson-PA-11
	4.7	2.1	15.5	Patterson-PA-03C
	5.2	2.3	17.0	Carmel-PA-20
	6.1	2.8	21.7	Southeast-PA-06B
	3.5	1.6	33.7	Kent-PA-04
	4.9	2.2	38.9	Kent-PA-13
Install Grass Swale(s)	0.5	0.2	1.8	Southeast-PA-24
	0.5	0.2	2.1	Patterson-PA-12
	0.5	0.2	8.4	Kent-PA-12
	1.8	0.8	8.4	Patterson-PA-15
	2.5	1.1	9.2	Carmel-PA-18
	3.2	1.4	41.3	Patterson-PA-01B
Install Hydrodynamic Separator	2.0	0.9	5.3	Carmel-PA-19
	4.2	1.9	6.0	Kent-PA-31

Retrofit	TP Removal (lb)	TP Removal (kg)	Drainage Area (acre)	Site ID
Install Plunge Pool	0.2	0.1	2.9	Kent-PA-09
	0.6	0.3	2.9	Southeast-PA-01
	0.5	0.2	4.0	Kent-PA-03
	1.7	0.8	4.1	Carmel-PA-17
	0.4	0.2	4.7	Southeast-PA-26
	1.6	0.7	8.6	Southeast-PA-15
	2.9	1.3	8.8	Patterson-PA-03D
Install Plunge Pool and Grass Swale	7.3	3.3	16.9	Southeast-PA-05
Install Sand Filter	9.8	4.5	32.1	Carmel-PA-03
Outfall Channel Stabilization	0.8	0.3	5.7	Carmel-PA-15
	2.5	1.1	21.7	Carmel-PA-13
Replace portion of Existing Parking Area with Pervious Pavement	0.2	0.1	0.3	Southeast-PA-25
Resurface Road Surface and Improve under Drainage	0.1	0.1	3.2	PutVal-PA-01

10.2.1. Costs per TP Removal Assessment

The costs per pound of TP removal achieved by each of the proposed retrofits are presented in Table 10-2. The capital cost of each of the proposed retrofits for Year 1 was normalized by the TP removal achieved at each of the retrofit sites, creating a Cost per TP load removal estimate for each of the proposed retrofit types.

It is important to note that in the table below, several retrofits were not estimated to remove one (1) pound or more of phosphorus, eliminating the ability in the table to directly compare contributing areas and cost. For example, the table does not state that it will cost $150,960 to remove a pound of TP with a ground stabilization project that has a 4.1 acre contributing area. Instead, drainage areas are included in the table for comparative purposes between the same type of retrofits that have varying contributing areas and associated TP removal.

As shown in the table, there is a significant range of costs that are associated with TP removal in the Study Area achieved by the proposed retrofits. The costs are impacted by numerous factors including site accessibility, required construction techniques, and unit costs, all which impact the associated cost of installation of a given retrofit. When looking at the costs of TP removal for a given retrofit type, it is shown that, in general, as the contributing areas increases, the cost per pound of TP removal decreases.

Table 10-2:
Cost per TP Removal Achieved by Each Retrofit Type

Retrofit	Cost / TP Removal ($/lb) [1]	Cost / TP Removal ($/kg)	Drainage Area (acre)	Site ID
Ground Stabilization	150,960	332,866	4.1	Kent-PA-05
Improve Existing Detention Pond	76,561	168,817	4.5	Patterson-PA-02B
	49,063	108,183	8.4	Patterson-PA-14
	33,804	74,538	9.2	Southeast-PA-23
	12,697	27,997	63.0	Carmel-PA-01
Install Cistern	31,472	69,395	12.2	Patterson-PA-16
	13,493	29,751	12.4	Southeast-PA-16
	4,670	10,296	15.7	Carmel-PA-08
Install Deep Sump Catch Basins	223,908	493,718	1.6	Patterson-PA-10
	641,612	1,414,755	3.6	PutVal-PA-02
	131,181	289,254	17.7	Southeast-PA-21
Install Detention Pond	33,029	72,829	9.4	Carmel-PA-07
	33,448	73,752	12.4	Patterson-PA-11
	28,290	62,380	15.5	Patterson-PA-03C
	36,317	80,079	17.0	Carmel-PA-20
	18,601	41,016	21.7	Southeast-PA-06B
	43,360	95,610	33.7	Kent-PA-04
	25,863	57,029	38.9	Kent-PA-13
Install Grass Swale(s)	120,041	264,691	1.8	Southeast-PA-24
	91,449	201,646	2.1	Patterson-PA-12
	230,990	509,334	8.4	Kent-PA-12
	56,554	124,702	8.4	Patterson-PA-15
	28,022	61,788	9.2	Carmel-PA-18
	16,175	35,666	41.3	Patterson-PA-01B

Retrofit	Cost / TP Removal ($/lb) [1]	Cost / TP Removal ($/kg)	Drainage Area (acre)	Site ID
Install Hydrodynamic Separator	39,018	86,035	5.3	Carmel-PA-19
	26,342	58,085	6.0	Kent-PA-31
Install Plunge Pool	288,897	637,017	2.9	Kent-PA-09
	92,931	204,912	2.9	Southeast-PA-01
	113,721	250,756	4.0	Kent-PA-03
	34,195	75,400	4.1	Carmel-PA-17
	142,933	315,168	4.7	Southeast-PA-26
	38,515	84,926	8.6	Southeast-PA-15
	38,846	85,656	8.8	Patterson-PA-03D
Install Plunge Pool and Grass Swale	13,553	29,884	16.9	Southeast-PA-05
Install Sand Filter	12,884	28,409	32.1	Carmel-PA-03
Outfall Channel Stabilization	115,501	254,681	5.7	Carmel-PA-15
	52,854	116,544	21.7	Carmel-PA-13
Replace portion of Existing Parking Area with Pervious Pavement	837,506	1,846,700	0.3	Southeast-PA-25
Resurface Road Surface and Improve under Drainage	1,532,820	3,379,868	3.2	PutVal-PA-01

1 – Only capital costs were used in the assessment of the Cost per TP removal calculations. O+M and Acquisition costs are not included in the above assessment.

10.2.2. Achievement of Removal Goals by Town

As described in Section 1.2, the annual phosphorus removal minimum threshold for approvable plan is 31.0 kg/yr for the PCMS4CC area. Over the course of 5 years, this would total a required phosphorus removal of 154.9 kg/yr. As shown in Table 10-3, the sites identified in this report represent sufficient removal to cover almost two years of the 5-year plan. Additional retrofit sites would need to be identified in order to address the 5-year phosphorus removal requirement.

Table 10-3:
Estimated Phosphorus Loading and Required Removal by Town

	Total Modeled HID Load kg/year[1] (lb/yr)	Annual Load Reduction kg/yr[2] (lb/yr)	5-Year Load Reduction kg/yr[2] (lb/yr)	Removal from Identified Retrofits kg/yr (lb/yr)	Remaining Removal Needed for 5-year Goals kg/yr (lb/yr)
Carmel	379 (836)	14.4 (31.8)	72.0 (158.8)	26.3 (58.1)	45.7 (100.7)
Kent	188 (415)	6.7 (14.8)	33.6 (74.1)	7.2 (15.9)	26.4 (58.2)
Patterson	111 (245)	3.4 (7.5)	17.2 (37.9)	13.6 (29.9)	3.6 (8.0)
Putnam Valley	5 (11)	0.2 (0.4)	1.0 (2.2)	0.3 (0.6)	0.7 (1.6)
Southeast	221 (487)	6.2 (13.7)	31.1 (68.6)	12.9 (28.4)	18.2 (40.2)
Total	904 (1993)	31.0 (68.3)	154.9 (341.6)	54.3 (119.7)	100.6 (221.8)

1 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 2
2 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 3.

10.2.3. Phosphorus Removal by Town and Basin

Table 10-4 through Table 10-8 summarizes the estimated phosphorus removal per basin associated with of the potential retrofit sites included in this study. The amount of modeled load by the NYSDEC (January 2009a) is also shown in Table 10-4 through Table 10-8, with the percent reduction in load estimated should all potential retrofits in this study be implemented.

Table 10-4:
Estimated Phosphorus Removal by Subbasin - Town of Carmel

Basin	Modeled HID P-Load by Town and Watershed Basin	Estimated Removals for Potential Sites (kg/yr)	Percent of Modeled Load removed
Middle Branch	5	-	0%
West Branch	30	0.8	3%
Muscoot	48	-	0%
Croton Falls	106	19.6	18%
Amawalk	190	3.5	2%
Total	379	23.8	6%

Table 10-5:
Estimated Phosphorus Removal by Subbasin - Town of Kent

Basin	Modeled HID P-Load by Town and Watershed Basin	Estimated Removals for Potential Sites (kg/yr)	Percent of Modeled Load removed
Middle Branch	88	0.2	0%
East Branch	1	-	0%
West Branch	36	0.2	1%
Croton Falls	25	1.9	8%
Boyds Corners	38	4.2	11%
Total	188	6.5	3%

Table 10-6:
Estimated Phosphorus Removal by Subbasin - Town of Patterson

Basin	Modeled HID P-Load by Town and Watershed Basin	Estimated Removals for Potential Sites (kg/yr)	Percent of Modeled Load removed
Middle Branch	12	2.4	20%
East Branch	98	9.9	10%
Bog Brook	1	-	0%
Total	111	12.3	11%

Table 10-7:
Estimated Phosphorus Removal by Subbasin - Town of Putnam Valley

Basin	Modeled HID P-Load by Town and Watershed Basin	Estimated Removals for Potential Sites (kg/yr)	Percent of Modeled Load removed
Amawalk	0	0.2	-
Boyds Corners	5	0.1	1%
Total	5	0.2	5%

Table 10-8:
Estimated Phosphorus Removal by Subbasin - Town of Southeast

Basin	Modeled HID P-Load by Town and Watershed Basin	Estimated Removals for Potential Sites (kg/yr)	Percent of Modeled Load removed
Middle Branch	45	0.7	2%
East Branch	39	9.5	24%
Muscoot	34	0.2	1%
Croton Falls	2	0.2	10%
Diverting	98	1.0	1%
Bog Brook	3	-	0%
Total	221	11.6	5%

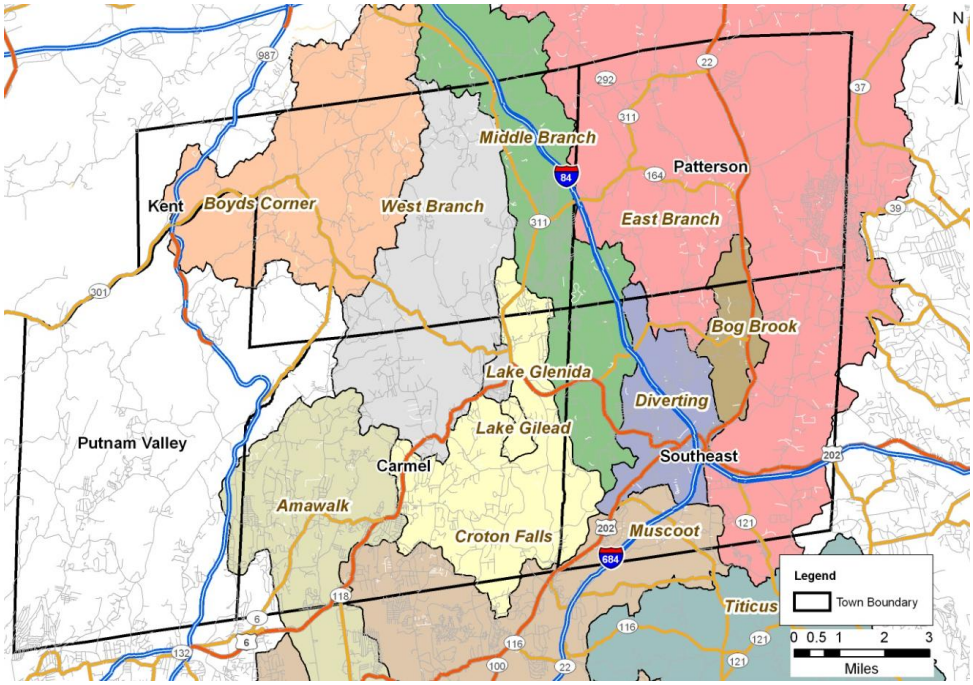
- Utilizing the results of the above analyses, several conclusions can be drawn regarding the outcome of the Study. As shown in the analysis above, there are several potential retrofit sites that are classified as having a low cost and a high removal rate. Two examples of low cost and high removal potential retrofit sites are:
  - Patterson-PA-15; and
  - Southeast-PA-06B
- There are several sites that are classified as having a high cost and a low removal rate. Three examples of high cost and low removal potential retrofit sites are:
  - Kent-PA-04
  - Southeast-PA-21
  - PutVal-PA-01
- There is a general trend in the data that shows that the larger the drainage area to a proposed retrofit, the greater the amount of TP can be removed from the area.
  - There are variables that impact this trend such as land use distribution and associated percent imperviousness values.
- There is a general trend in the data that shows that for a given retrofit, the larger the contributing drainage area, the lower the cost per pound of phosphorus removed from the system.
  - There are variables that impact this trend including land use distributions and construction limitations

11. Findings and Recommendations

11.1. Summary of Findings

The intent of this Stormwater Improvement Study (Study) is to identify costs and develop preliminary designs for water quality improvement features which could potentially be installed (retrofit) within the Study Area. These phosphorus loads have been identified in the Total Maximum Daily Loads (TMDLs) for Reservoirs in the New York City Water Supply Watershed Report prepared by the New York State Department of Environmental Conservation (NYSDEC). The Study is intended to support the participating municipality's compliance with the TMDL as well as the requirements listed in the State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). The locations of the PCMS4CC communities along with the associated EOH Reservoir watersheds are presented in Figure 11-1.

Figure 11-1: PCMS4CC Stormwater Retrofit Study Area



The NYSDEC goals for phosphorus removal in the NYCDEP East of Hudson Watershed are provided in the Croton Watershed Phase II Phosphorus TMDL Implementation Plan. The phosphorus loading and associated reduction goals are summarized in Table 11-1.

Table 11-1:
HID P-Loading and Associated Reduction Requirements for Retrofit Program in kg/yr (lb/yr)

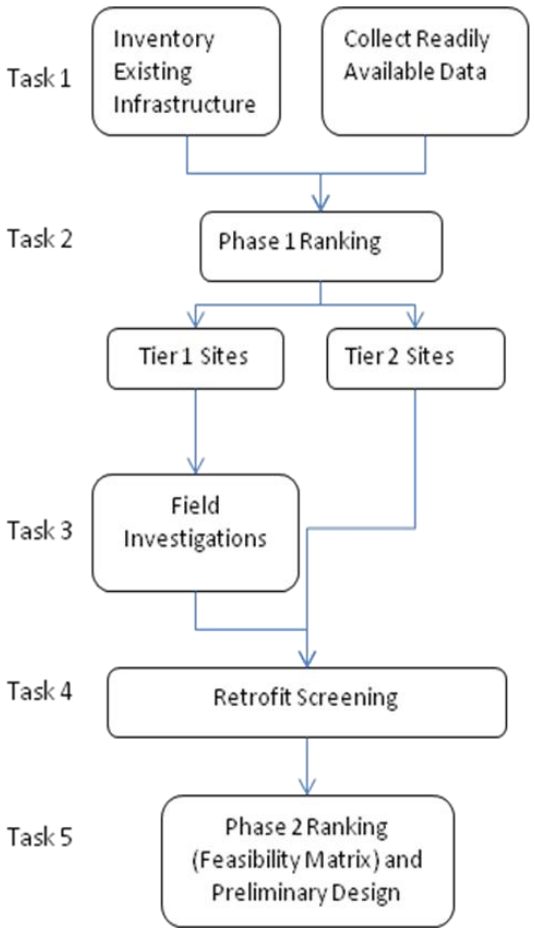
	Total Modeled HID Load[1]	Annual Load Reduction[2]	5-Year Load Reduction[2]
Carmel	379 (836)	14.4 (31.8)	72.0 (158.8)
Kent	188 (415)	6.7 (14.8)	33.6 (74.1)
Patterson	111 (245)	3.4 (7.5)	17.2 (37.9)
Putnam Valley	5 (11)	0.2 (0.4)	1.0 (2.2)
Southeast	221 (487)	6.2 (13.7)	31.1 (68.6)
Total	904 (1993)	31.0 (68.3)	154.9 (341.6)

1 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 2
2 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 3.

The Study was divided into five tasks as shown in Figure 11-2.

- Task 1 involved collecting all available stormwater infrastructure data and creating a Study Area wide database for use in the assessment as detailed in Section 2.

Figure 11-2: Flow Chart of the Procedure used in the PCMS4CC Stormwater Improvement Study

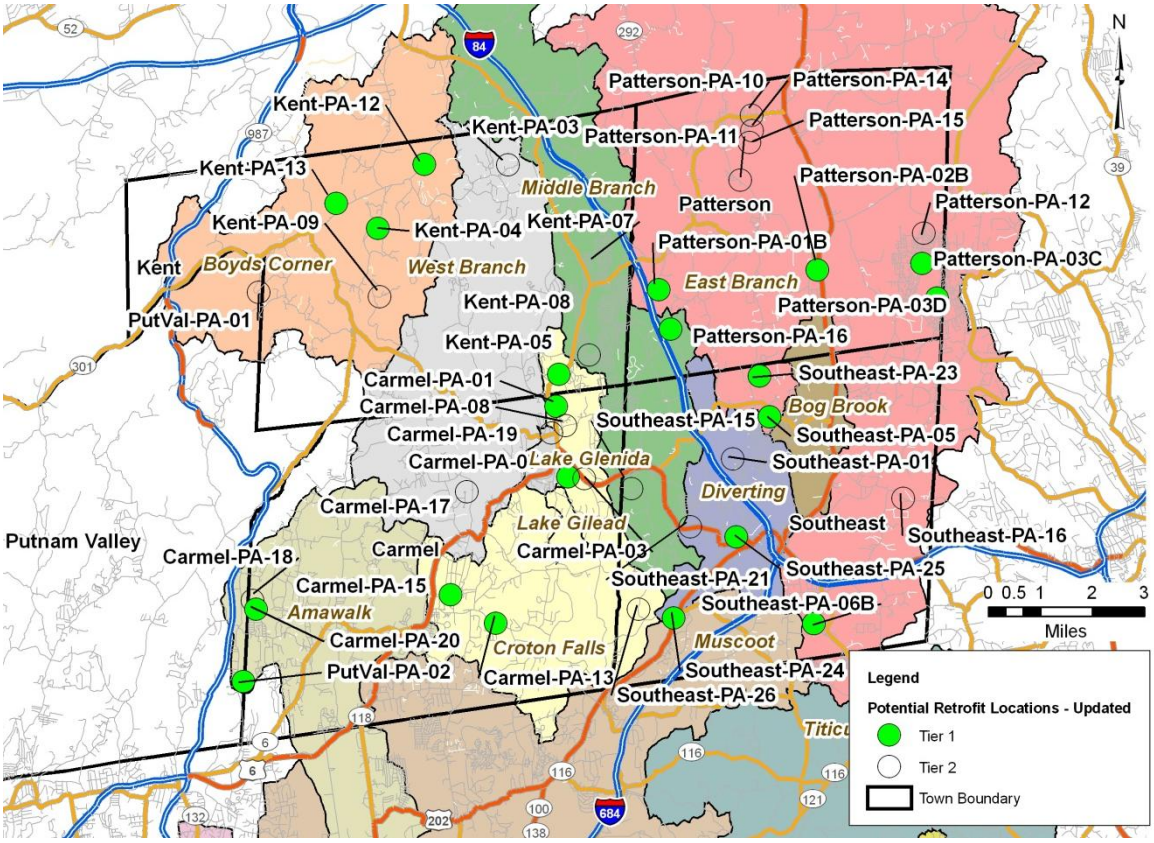


- Utilizing the data collected during Task 1, forty sites across the Study Area were identified and then ranked at a screening level based on site and drainage area characteristics as part of Task 2, summarized in Section 3.
  - Proposed retrofit locations were chosen such that each of the reservoir watersheds in the EOH system that are occupied by the PCMS4CC Communities was included in the Study.
  - The type of retrofit chosen for each potential location was selected such that the assessment would provide a broad range of retrofit types, contributing watershed sizes and contributing watershed land use distributions, allowing for the extrapolation of costs and effectiveness of the potential retrofits to additional locations if desired by the PCMS4CC.
  - The screening level ranking, described as Phase 1 ranking, helped determine which 20 of the 40 proposed sites were best suited for field investigations and

additional feasibility evaluations (Tier 1 sites) and are detailed in Section 4 of this report.

- Field investigations were conducted in July 2009 at the Tier 1 sites as part of Task 3 of the Study and the findings are included in Section 5 of this report.
  - It should be noted that during the field investigations at the Tier 1 sites, several changes were made to the list of potential sites based on conditions observed in the field; these changes are also described in this report.
  - The resulting Tier 1 and Tier 2 proposed retrofit locations are presented in Figure 11-3.

Figure 11-3: Revised Tier 1 and Tier 2 Proposed Retrofit Sites



- Task 4 of the Study involved the development of draft conceptual designs and associated total phosphorus (TP) load removals for each of the potential retrofit locations in the Study as detailed in Section 6 and Section 7 of this report respectively.

- The phosphorus loading at each of the proposed retrofit locations was estimated utilizing the The Simple Method to Calculate Urban Stormwater Loads (Simple Method) developed by Schueler (1987).
- The phosphorus load reduction associated with each of the proposed retrofit types as detailed in Table 7-8, were estimated based on published removal rates.
- Task 4 also included the calculation of the estimated costs associated with the proposed retrofits detailed in Section 8 of this report.
  - The cost estimates are provided for each of the identified potential retrofit sites, based on the selected retrofit type at each location.
    - These include estimates of capital costs, as well as operations and maintenance costs.

- Task 5 involved the development of a feasibility matrix for each of the proposed stormwater retrofits, allowing the PCMS4CC to be able to determine which retrofits were the most feasible.
  - Factors included in the feasibility matrix include, but are not limited to: proximity to receiving water and associated water body class, existing TMDL requirements, visual impacts, potential public benefits and potential health and safety impacts of each retrofit.
  - The feasibility rankings allow for a municipality to determine the potential impacts of the construction of each of the retrofits, and when necessary may help to choose one over another, when all other factors are equal.
  - The ranking methodology for the Phase 2 ranking is detailed in Section 9, while the results of the Phase 2 ranking are included in Section 10.
    - Section 10 of the report also includes a discussion of the total potential phosphorus removal estimated based on the potential retrofit sites and how that relates to the phosphorus removal goals, based on NYSDEC guidance.

11.1.1. Town of Carmel – Phosphorus Loading, Reduction and Cost Assessment

The resulting TP loading prior to the installation of the proposed retrofit as well as the associated TP loading reduction achieved at each proposed retrofit are summarized in Table 11-2. As shown, if all of the proposed retrofits are installed, the Town of Carmel will achieve a phosphorus reduction of 23.8 kg/yr (52.4 lb/yr).

Table 11-2:
TP Loading and Reduction Estimates, Town of Carmel

Site ID	Area	TP Load		Proposed Retrofit	Load Reduction	TP Load Reduction	
	(acre)	(lb/yr)	(kg/yr)		%	(lb/yr)	(kg/yr)
Carmel-PA-01	63.0	35.7	16.2	Improve Existing Detention Pond	31	11.1	5.0
Carmel-PA-03	32.1	16.4	7.4	Install Sand Filter	60	9.8	4.5
Carmel-PA-07	9.4	8.1	3.7	Install Detention Pond	50	4.0	1.8
Carmel-PA-08	15.7	17.3	7.8	Install Cistern	75	13.0	5.9
Carmel-PA-13	21.7	12.3	5.6	Outfall Channel Stabilization	20	2.5	1.1
Carmel-PA-15	5.7	3.8	1.7	Outfall Channel Stabilization	20	0.8	0.3
Carmel-PA-17	4.1	3.4	1.5	Install Plunge Pool	50	1.7	0.8
Carmel-PA-18	9.2	8.2	3.7	Install Grass Swale(s)	30	2.5	1.1
Carmel-PA-19	5.3	3.9	1.8	Install Hydrodynamic Separator	51	2.0	0.9
Carmel-PA-20	17.0	10.3	4.7	Install Detention Pond, reroute drainage from surrounding area	50	5.2	2.3
Total	**183.3**	**119.3**	**54.1**			**52.4**	**23.8**

The costs associated with the installation of the proposed retrofits in Year 1 are summarized in Table 11-3. As shown, the proposed retrofits will cost the Town approximately $1.07 million in capital costs and $546,000 in land acquisition costs for a total of $1.61 million with an additional $50,000/yr in maintenance costs.

Table 11-3:
Town of Carmel Potential Retrofit Costs

SITE	RETROFIT TYPE	Year 1 Values		
		Capital Cost	Land Acquisition Costs	Estimated Annual Operations & Maintenance Costs
Carmel PA-01	Modify Existing Detention Pond	**$140,400**	**$78,000**	**$5,000**
Carmel PA-03	Install Sand Filter	**$126,700**	**$78,000**	**$5,500**
Carmel PA-07	Install Detention Pond	**$133,300**	**$156,000**	**$5,200**
Carmel PA-08	Install Cistern	**$60,500**	-	**$4,000**
Carmel PA-13	Install Grass Swale & Rip Rap Check Dam	**$130,400**	-	**$4,800**
Carmel PA-15	Install Grass Swale & Rip Rap Check Dam	**$87,000**	**$78,000**	**$4,800**
Carmel PA-17	Install Plunge Pool	**$57,500**	**$78,000**	**$4,000**
Carmel PA-18	Install Grass Swale	**$69,000**	-	**$3,200**
Carmel PA-19	Install Hydrodynamic Separator	**$77,000**	**$78,000**	**$7,600**
Carmel PA-20	Install Detention Pond	**$187,100**	-	**$5,600**
Total Town of Carmel		**$1,068,900**	**$546,000**	**$49,700**

The required total phosphorus load reductions along with the estimated removals achieved by the retrofits for the Town of Carmel as well as the remaining phosphorus reduction required in the Town are presented in Table 11-4. As shown, the proposed retrofits achieve 23.8 kg/yr (52.4 lb/yr) of phosphorus reduction, or approximately 33% of the five-year TP reduction requirements in the Town. Additionally, the installation of the proposed retrofits will allow the Town to achieve less than the requirements of the first two years of the phosphorus reduction requirements.

Table 11-4:
Town of Carmel Estimated Phosphorus Loading and Required Removal

	Total Modeled HID Load kg/year[1] (lb/yr)	Annual Load Reduction kg/yr[2] (lb/yr)	5-Year Load Reduction kg/yr[2] (lb/yr)	Removal from Identified Retrofits kg/yr (lb/yr)	Remaining Removal Needed for 5-year Goals kg/yr (lb/yr)
Carmel	379 (836)	14.4 (31.8)	72.0 (158.8)	23.8 (52.4)	48.2 (106.4)

1 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 2
2 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 3.

Based on the tables above, the Town of Carmel will need to reduce their annual phosphorus loading by an additional 48.2 kg/yr (106.4 lb/yr). The average cost for phosphorus reduction across the Study (capital and land acquisition only) was estimated to be approximately $47,500/lb TP. Utilizing the average cost of phosphorus reduction across the Study, the Town of Carmel will need to spend an additional $ 5.06 million on phosphorus reductions. It is important to note however, that costs will vary by site and the additional costs is an estimate only.

11.1.2. Town of Kent – Phosphorus Loading, Reduction and Cost Assessment

The resulting TP loading prior to the installation of the proposed retrofit as well as the associated TP loading reduction achieved at each proposed retrofit are summarized in Table 11-5. As shown, the Town of Kent will achieve a phosphorus reduction of 6.5 kg/yr (14.3 lb/yr), if all of the proposed retrofits are installed.

Table 11-5:
TP Loading and Reduction Estimates, Town of Kent

Site ID	Area	TP Load		Proposed Retrofit	Load Reduction	TP Load Reduction	
	(acre)	(lb/yr)	(kg/yr)		%	(lb/yr)	(kg/yr)
Kent-PA-03	4.0	1.0	0.5	Install Plunge Pool	50	0.5	0.2
Kent-PA-04	33.7	7.0	3.2	Install Detention Pond	50	3.5	1.6
Kent-PA-05	4.1	2.8	1.3	Ground Stabilization	15	0.4	0.2
Kent-PA-09	2.9	0.4	0.2	Install Plunge Pool	50	0.2	0.1
Kent-PA-12	8.4	1.5	0.7	Install Grass Swale(s)	30	0.5	0.2
Kent-PA-13	38.9	9.9	4.5	Install Detention Pond	50	4.9	2.2
Kent-PA-31	6.0	8.3	3.8	Install Hydrodynamic Separator, Reroute Drainage	51	4.2	1.9
Total	**98.0**	**31.0**	**14.1**			**14.3**	**6.5**

The costs associated with the installation of the proposed retrofits are summarized in Table 11-6. As shown, the proposed retrofits will cost the Town approximately $683,000 in capital costs and $234,000 in land acquisition costs for a total of $917,000 with an additional $37,000/yr in maintenance costs.

Table 11-6:
Town of Kent Potential Retrofit Costs

SITE	RETROFIT TYPE	Year 1 Values		
		Capital Cost	Land Acquisition Costs	Estimated Annual Operations & Maintenance Costs
Kent PA-03	Install Plunge Pool & Check Dam	**$59,700**	**-**	**$4,400**
Kent PA-04	Install Detention Pond	**$152,800**	**$156,000**	**$7,200**
Kent PA-05	Install Stabilization Fabric	**$63,900**	**$78,000**	**$3,200**
Kent PA-09	Install Plunge Pool	**$61,600**	**-**	**$4,000**
Kent PA-12	Install Enhanced Swale	**$105,400**	**-**	**$5,600**
Kent PA-13	Install Detention Pond	**$128,000**	**-**	**$4,800**
Kent PA-31	Install Hydrodynamic Separator, Reroute Drainage	**$111,100**	**-**	**$7,400**
Total Town of Kent		**$682,500**	**$234,000**	**$36,600**

The required total phosphorus load reductions along with the estimated removals achieved by the retrofits for the Town of Kent as well as the remaining phosphorus reduction required in the Town are presented in Table 11-7. As shown, the proposed retrofits achieve 6.5 kg/yr (14.3 lb/yr) of phosphorus reduction, or approximately 19% of the five-year TP reduction requirements in the Town. Additionally, the installation of the proposed retrofits will allow the Town to achieve slightly less than the requirements of the first year of the phosphorus reduction requirements.

Table 11-7:
Town of Kent Estimated Phosphorus Loading and Required Removal

	Total Modeled HID Load kg/year[1] (lb/yr)	Annual Load Reduction kg/yr[2] (lb/yr)	5-Year Load Reduction kg/yr[2] (lb/yr)	Removal from Identified Retrofits kg/yr (lb/yr)	Remaining Removal Needed for 5-year Goals kg/yr (lb/yr)
Kent	188 (415)	6.7 (14.8)	33.6 (74.1)	6.5 (14.3)	27.1 (59.8)

1 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 2
2 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 3.

Based on the tables above, the Town of Kent will need to reduce their annual phosphorus loading by an additional 27.1 kg/yr (59.8 lb/yr). The average cost for phosphorus reduction across the Study (capital and land acquisition only) was estimated to be approximately $47,500/lb TP. Utilizing the average cost of phosphorus reduction across the Study, the Town of Kent will need to spend an additional $ 2.84 million on

phosphorus reductions. It is important to note however, that costs will vary by site and the additional costs is an estimate only.

11.1.3. Town of Patterson – Phosphorus Loading, Reduction and Cost Assessment

The resulting TP loading prior to the installation of the proposed retrofit as well as the associated TP loading reduction achieved at each proposed retrofit are summarized in Table 11-8. As shown, the Town of Patterson will achieve a phosphorus reduction of 12.2 kg/yr (27.0 lb/yr), if all of the proposed retrofits are installed.

Table 11-8:
TP Loading and Reduction Estimates, Town of Patterson

Site ID	Area	TP Load		Proposed Retrofit	Load Reduction	TP Load Reduction	
	(acre)	(lb/yr)	(kg/yr)		%	(lb/yr)	(kg/yr)
Patterson-PA-01B	41.3	10.6	4.8	Install Grass Swale(s)	30	3.2	1.4
Patterson-PA-02B	4.5	5.8	2.6	Improve Existing Detention Pond	31	1.8	0.8
Patterson-PA-03C	15.5	9.4	4.3	Install Detention Pond	50	4.7	2.1
Patterson-PA-03D	8.8	5.9	2.7	Install Plunge Pool	50	2.9	1.3
Patterson-PA-10	1.6	2.2	1.0	Install Deep Sump Catch Basins	15	0.3	0.1
Patterson-PA-11	12.4	7.9	3.6	Install Detention Pond	50	4.0	1.8
Patterson-PA-12	2.1	1.8	0.8	Install Grass Swale(s)	30	0.5	0.2
Patterson-PA-14	8.4	7.7	3.5	Improve Existing Detention Pond	31	2.4	1.1
Patterson-PA-15	8.4	6.1	2.8	Install Grass Swale(s)	30	1.8	0.8
Patterson-PA-16	12.2	7.0	3.2	Install Cistern	75	5.3	2.4
Total	**115.2**	**64.4**	**29.2**			**27.0**	**12.2**

The costs associated with the installation of the proposed retrofits are summarized in Table 11-9. As shown, the proposed retrofits will cost the Town approximately $1.08 million in capital costs and $405,000 in land acquisition costs for a total of $1.48 million with an additional $42,000/yr in maintenance costs.

Table 11-9:
Town of Patterson Potential Retrofit Costs

SITE	RETROFIT TYPE	Year 1 Values		
		Capital Cost	Land Acquisition Costs	Estimated Annual Operations & Maintenance Costs
Patterson PA-01B	Install Grass Swale	**$51,200**	**$78,000**	**$4,000**
Patterson PA-02B	Modify Existing Detention Pond	**$136,900**	**$78,000**	**$4,800**
Patterson PA-03C	Install Detention Pond	**$133,100**	**15,300**	**$4,800**
Patterson PA-03D	Expand Plunge Pool	**$114,400**	**$78,000**	**$4,800**
Patterson PA-10	Replace Catch Basins (Deep Sump Type)	**$73,300**	**-**	**$2,000**
Patterson PA-11	Install Detention Pond	**$132,600**	**-**	**$5,500**
Patterson PA-12	Install Grass Swale	**$49,600**	**$78,000**	**$2,400**
Patterson PA-14	Clean/Modify Existing Detention Pond	**$117,700**	**-**	**$4,800**
Patterson PA-15	Install Grass Swale	**$104,000**	**-**	**$4,400**
Patterson PA-16	Install CSD Units & Piping	**$166,100**	**$78,000**	**$4,000**
Total Town of Patterson		**$1,078,900**	**$405,300**	**$41,500**

The required total phosphorus load reductions along with the estimated removals achieved by the retrofits for the Town of Patterson as well as the remaining phosphorus reduction required in the Town are presented in Table 11-10. As shown, the proposed retrofits achieve 12.2 kg/yr (27.0 lb/yr) of phosphorus reduction, or approximately 71% of the five-year TP reduction requirements in the Town. Additionally, the installation of the proposed retrofits will allow the Town to achieve slightly less than the requirements of the first four years of the phosphorus reduction requirements.

Table 11-10:
Town of Patterson Estimated Phosphorus Loading and Required Removal

	Total Modeled HID Load kg/year[1] (lb/yr)	Annual Load Reduction kg/yr[2] (lb/yr)	5-Year Load Reduction kg/yr[2] (lb/yr)	Removal from Identified Retrofits kg/yr (lb/yr)	Remaining Removal Needed for 5-year Goals kg/yr (lb/yr)
Patterson	111 (245)	3.4 (7.5)	17.2 (37.9)	12.2 (27.0)	5.0 (11.0)

1 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 2
2 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 3.

Based on the tables above, the Town of Patterson will need to reduce their annual phosphorus loading by an additional 5.0 kg/yr (11.0 lb/yr). The average cost for phosphorus reduction across the Study (capital and land acquisition only) was estimated

to be approximately $47,500/lb TP. Utilizing the average cost of phosphorus reduction across the Study, the Town of Patterson will need to spend an additional $ 522,000 on phosphorus reductions. It is important to note however, that costs will vary by site and the additional costs is an estimate only.

11.1.4. Town of Putnam Valley – Phosphorus Loading, Reduction and Cost Assessment

The resulting TP loading prior to the installation of the proposed retrofit as well as the associated TP loading reduction achieved at each proposed retrofit are summarized in Table 11-11. As shown, the Town of Putnam Valley will achieve a phosphorus reduction of 0.2 kg/yr (0.5 lb/yr), if all of the proposed retrofits are installed.

Table 11-11:
TP Loading and Reduction Estimates, Town of Putnam Valley

Site ID	Area	TP Load		Proposed Retrofit	Load Reduction	TP Load Reduction	
	(acre)	(lb/yr)	(kg/yr)		%	(lb/yr)	(kg/yr)
PutVal-PA-01	3.2	0.5	0.2	Resurface Road Surface and Improve under Drainage	25	0.1	0.1
PutVal-PA-02	3.6	2.5	1.1	Install Deep Sump Catch Basins	15	0.4	0.2
Total	**6.8**	**3.0**	**1.4**			**0.5**	**0.2**

The costs associated with the installation of the proposed retrofits are summarized in Table 11-12. As shown, the proposed retrofits will cost the Town approximately $441,000 in capital costs and $78,000 in land acquisition costs for a total of $519,000 with an additional $9,000/yr in maintenance costs.

Table 11-12:
Town of Putnam Valley Potential Retrofit Costs

SITE	RETROFIT TYPE	Year 1 Values		
		Capital Cost	Land Acquisition Costs	Estimated Annual Operations & Maintenance Costs
Putnam Valley PA-01	Restore Roadway & Replace Culvert	**$203,500**	**$78,000**	**$4,200**
Putnam Valley PA-02	Replace Catch Basins	**$237,900**	**-**	**$5,000**
Total Town of Putnam Valley		**$441,400**	**$78,000**	**$9,200**

The required total phosphorus load reductions along with the estimated removals achieved by the retrofits for the Town of Putnam Valley as well as the remaining phosphorus reduction required in the Town are presented in Table 11-13. As shown, the proposed retrofits achieve 0.2 kg/yr (0.5 lb/yr) of phosphorus reduction, or approximately 23% of the five-year TP reduction requirements in the Town. Additionally, the

installation of the proposed retrofits will allow the Town to achieve approximately one year of the phosphorus reduction requirements.

Table 11-13:
Town of Putnam Valley Estimated Phosphorus Loading and Required Removal

	Total Modeled HID Load kg/year[1] (lb/yr)	Annual Load Reduction kg/yr[2] (lb/yr)	5-Year Load Reduction kg/yr[2] (lb/yr)	Removal from Identified Retrofits kg/yr (lb/yr)	Remaining Removal Needed for 5-year Goals kg/yr (lb/yr)
Putnam Valley	5 (11)	0.2 (0.4)	1.0 (2.2)	0.2 (0.5)	0.8 (1.7)

1 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 2
2 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 3.

Based on the tables above, the Town of Putnam Valley will need to reduce their annual phosphorus loading by an additional 0.8 kg/yr (1.7 lb/yr). The average cost for phosphorus reduction across the Study (capital and land acquisition only) was estimated to be approximately $47,500/lb TP. Utilizing the average cost of phosphorus reduction across the Study, the Town of Putnam Valley will need to spend an additional $ 81,000 on phosphorus reductions. It is important to note however, that costs will vary by site and the additional costs is an estimate only.

11.1.5. Town of Southeast – Phosphorus Loading, Reduction and Cost Assessment

The resulting TP loading prior to the installation of the proposed retrofit as well as the associated TP loading reduction achieved at each proposed retrofit are summarized in Table 11-14. As shown, the Town of Southeast will achieve a phosphorus reduction of 11.6 kg/yr (25.6 lb/yr), if all of the proposed retrofits are installed.

Table 11-14:
TP Loading and Reduction Estimates, Town of Southeast

Site ID	Area	TP Load		Proposed Retrofit	Load Reduction	TP Load Reduction	
	(acre)	(lb/yr)	(kg/yr)		%	(lb/yr)	(kg/yr)
Southeast-PA-01	2.9	1.3	0.6	Install Plunge Pool	50	0.6	0.3
Southeast-PA-05	16.9	11.3	5.1	Install Plunge Pool and Grass Swale	65	7.3	3.3
Southeast-PA-06B	21.7	12.1	5.5	Install Detention Pond	50	6.1	2.8
Southeast-PA-15	8.6	3.3	1.5	Install Plunge Pool	50	1.6	0.7
Southeast-PA-16	12.4	4.9	2.2	Install Cistern	75	3.7	1.7
Southeast-PA-21	17.7	9.1	4.1	Install Deep Sump Catch Basins	15	1.4	0.6
Southeast-PA-23	9.2	12.1	5.5	Improve Existing Detention Pond	31	3.8	1.7
Southeast-PA-24	1.8	1.5	0.7	Install Grass Swale(s)	30	0.5	0.2
Southeast-PA-25	0.3	0.3	0.2	Pervious Pavement	70	0.2	0.1
Southeast-PA-26	4.7	0.9	0.4	Install Plunge Pool	50	0.4	0.2
Total	**96.2**	**56.8**	**25.8**			**25.6**	**11.6**

The costs associated with the installation of the proposed retrofits are summarized in Table 11-15. As shown, the proposed retrofits will cost the Town approximately $1.00 million in capital costs and $156,000 in land acquisition costs for a total of $1.16 million with an additional $42,000/yr in maintenance costs.

Table 11-15:
Town of Southeast Potential Retrofit Costs

SITE	RETROFIT TYPE	Year 1 Values		
		Capital Cost	Land Acquisition Costs	Estimated Annual Operations & Maintenance Costs
Southeast PA-01	Install Plunge Pool	**$58,900**	**na**	**$4,000**
Southeast PA-05	Install Plunge Pool & Check Dam	**$99,200**	**na**	**$5,600**
Southeast PA-06B	Install Detention Pond	**$112,800**	**na**	**$4,800**
Southeast PA-15	Install Plunge Pool	**$63,000**	**na**	**$4,000**
Southeast PA-16	Install Cistern	**$49,600**	**$78,000**	**$4,000**
Southeast PA-21	Replace Catch Basins	**$179,200**	**$78,000**	**$4,000**
Southeast PA-23	Modify Existing Detention Pond	**$127,200**	**na**	**$5,200**
Southeast PA-24	Install Grass Swale	**$55,500**	**na**	**$3,200**
Southeast PA-25	Install Permeable Pavement	**$ 195,100**	**na**	**$3,600**
Southeast PA-26	Install Plunge Pool	**$ 63,000**	**na**	**$4,000**
Total Town of Southeast		**$1,003,500**	**$156,000**	**$42,400**

The required total phosphorus load reductions along with the estimated removals achieved by the retrofits for the Town of Southeast as well as the remaining phosphorus reduction required in the Town are presented in Table 11-16. As shown, the proposed retrofits achieve 11.6 kg/yr (25.6 lb/yr) of phosphorus reduction, or approximately 37% of the five-year TP reduction requirements in the Town. Additionally, the installation of the proposed retrofits will allow the Town to achieve slightly more than the requirements of the first two years of the phosphorus reduction requirements.

Table 11-16:
Town of Southeast Estimated Phosphorus Loading and Required Removal

	Total Modeled HID Load kg/year[1] (lb/yr)	Annual Load Reduction kg/yr[2] (lb/yr)	5-Year Load Reduction kg/yr[2] (lb/yr)	Removal from Identified Retrofits kg/yr (lb/yr)	Remaining Removal Needed for 5-year Goals kg/yr (lb/yr)
Southeast	221 (487)	6.2 (14)	31.1 (68.6)	11.6 (25.6)	19.5 (43.0)

1 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 2
2 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 3.

Based on the tables above, the Town of Southeast will need to reduce their annual phosphorus loading by an additional 19.5 kg/yr (43.0 lb/yr). The average cost for phosphorus reduction across the Study (capital and land acquisition only) was estimated

to be approximately $47,500/lb TP. Utilizing the average cost of phosphorus reduction across the Study, the Town of Southeast will need to spend an additional $ 2.04 million on phosphorus reductions. It is important to note however, that costs will vary by site and the additional costs is an estimate only.

11.1.6. Summary for all the PCMS4CC Communities

As shown in Sections 11.1.1 to 11.1.5, if the PCMS4CC enacts all of the proposed retrofits, an estimated TP load reduction of approximately 54.3 kg/yr (119.7 lb/yr) will be achieved, as detailed in Table 11-17.

Table 11-17:
PCMS4CC Estimated Phosphorus Loading and Required Removal

	Total Modeled HID Load kg/year[1] (lb/yr)	Annual Load Reduction kg/yr[2] (lb/yr)	5-Year Load Reduction kg/yr[2] (lb/yr)	Removal from Identified Retrofits kg/yr (lb/yr)	Remaining Removal Needed for 5-year Goals kg/yr (lb/yr)
Total	904 (1993)	31.0 (68.3)	154.9 (341.6)	54.3 (119.7)	100.6 (221.8)

1 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 2
2 - Croton Watershed Phase II Phosphorus TMDL Implementation Plan, NYSDEC, January 2009a, Table 3.

Several important facts can be drawn by the results of the TP loading and associated TP loading reduction summarized above.

- The TP loading reduction requirements required by the EOH Enhanced Phosphorus reduction standards are 154.9 kg/year (341.6 lb/yr) or 31.0 kg/yr (68.3 lb/yr) over each of the next five years (2010-2015)
- The proposed retrofits are shown to achieve approximately 35% of the required TP loading reduction in the area.
- Based on the requirements set forth by the NYSDEC, if all of the proposed retrofits are enacted, the PCMS4CC will achieve less than the requirements of the first two years of TP load reductions.
- The Town of Carmel will achieve the greatest magnitude of annual TP load reduction (23.8 kg/yr or 52.4 lb/yr);
- The Town of Putnam Valley will achieve the least amount of annual TP load reduction (0.2 kg/yr or 0.5 lb/yr);

When analyzing the costs of constructing the retrofits proposed in this Study, several important facts can be drawn:

- The total cost of constructing the proposed retrofits in Year 1 cost is approximately $4.3 million;
  - Patterson has the greatest capital costs ($1,078,900);
  - Putnam Valley has the smallest capital costs ($441,400);
- The proposed land acquisition costs in Year 1 costs across the PCMS4CC Towns in approximately $1.42 million on top of the construction cost estimations;

- Carmel has the greatest land acquisition costs ($546,000);
- Putnam Valley has the smallest land acquisition costs ($78,000);

- The total operations and maintenance costs across the PCMS4CC Towns is approximately $179,400
  - Carmel has the greatest operations and maintenance costs ($49,700);
  - Putnam Valley has the smallest operations and maintenance costs ($9,200);

The phosphorus reductions and cost estimates (in Year 1 costs) for both the installation of the proposed retrofits as well as the phosphorus reductions required to meet the regulatory requirements in the PCMS4CC Study Area are summarized in Table 11-18. Based on the table, the PCMS4CC will need to reduce their annual phosphorus loading by an additional 100.6 kg/yr (221.8 lb/yr). The average cost for phosphorus reduction across the Study (capital and land acquisition only) was calculated to be approximately $47,500/lb TP. Utilizing the average cost of phosphorus reduction across the Study, the PCMS4CC will need to spend an additional $ 10.55 million on phosphorus reductions. It is important to note however, that costs will vary by site and the additional costs is an estimate only.

Table 11-18:
PCMS4CC Phosphorus Removal Cost Estimates (Year 1 Costs)

		kg/yr	lb/yr	Capital and Land Acquisition Cost ($)
	Required TP Reductions	154.9	341.6	16,244,390
TP Reductions Achieved by Proposed Retrofits	**Carmel**	23.8	52.4	1,614,900
	Kent	6.5	14.3	916,500
	Patterson	12.2	27.0	1,484,200
	Putnam Valley	0.2	0.5	519,400
	Southeast	11.6	25.6	1,159,500
	Total	54.3	119.7	5,694,500
Additional TP Reductions Required for Compliance	**Carmel**	48.2	106.4	5,059,769
	Kent	27.1	59.8	2,843,132
	Patterson	5.0	11.0	521,876
	Putnam Valley	0.8	1.7	80,921
	Southeast	19.5	43.0	2,044,192
	Total	100.6	221.8	10,549,890

11.2. Recommendations

As the phosphorus retrofit program moves forward, the PCMS4CC should consider undertaking a number of steps. In particular, member communities should reach consensus on the following issues:

- Develop an approach on how to fund the retrofit program. This can include:
  - Development of a localized stormwater user fee;
  - Establishment of standardized fees; or
  - Creation of a regional funding entity (e.g. enterprise fund).

- Develop a strategy to create a uniform regulatory approach throughout the PCMS4CC territorial jurisdiction. In particular the PCMS4CC communities can decide on pursuing a specific statutory template that includes implementing:
  - Low impact development (LID);
  - Best Management Practices (BMPs); and
  - Regional ordinance development (e.g., restrict phosphorus fertilizers).

- Develop a region-wide stormwater management plan which:
  - Assesses the effectiveness of each municipality's stormwater management plan and identifies the most effective methods for consideration in a regional stormwater management plan;
  - Includes all the communities in the entire East of Hudson (EOH) Watershed; and
  - Includes a formula for establishing priorities for installing the retrofit improvements.

- Develop a region-wide GIS database which encompasses either PCMS4CC watershed or the entire EOH watershed which includes:
  - Tracking of retrofits installed and load reductions achieved to date;
  - Long term planning on retrofits to be installed and the associated load reduction; and
  - Identifying additional sites and the cost and load reduction associated with each.

12. References

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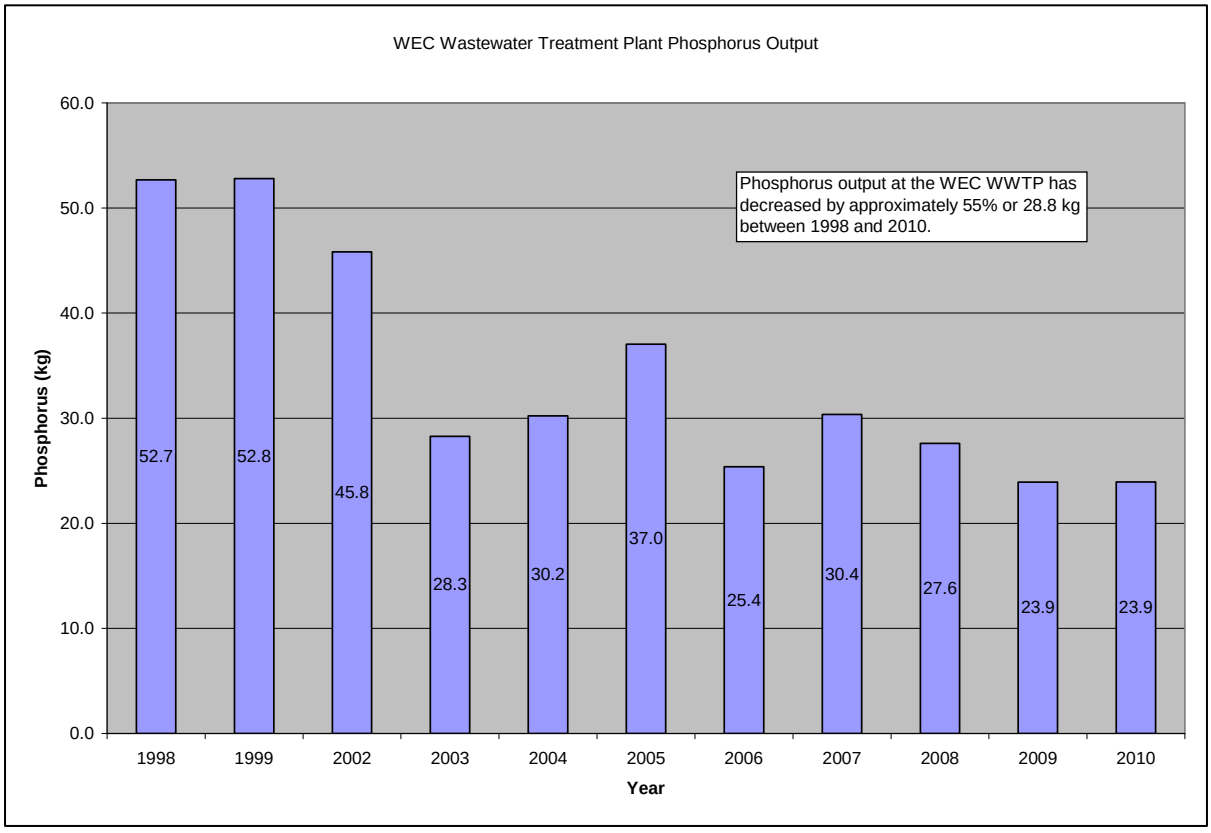
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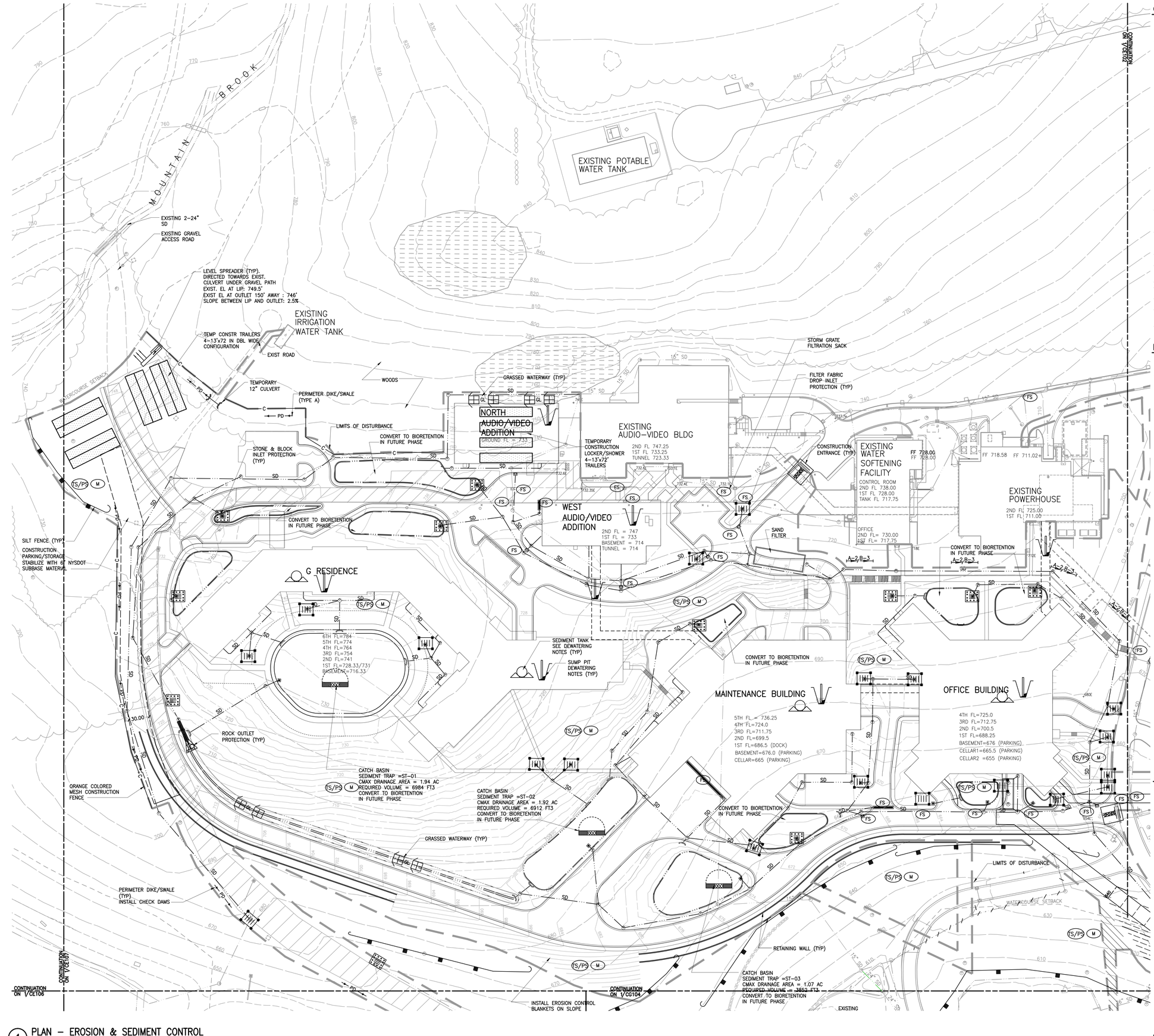
APPENDIX F.7

WEC WWTP Phosphorus Summary

Appendix F.7 – Watchtower Educational Center (WEC) Wastewater Treatment Plant Phosphorus Summary

WEC Wastewater Treatment Plant Phosphorus Output (kg)	
Year	**Total**
1998	52.7
1999	52.8
2002	45.8
2003	28.3
2004	30.2
2005	37.0
2006	25.4
2007	30.4
2008	27.6
2009	23.9
2010	23.9
Source: WEC Monthly Reports to Putnam County Department of Health	





1 PLAN – EROSION & SEDIMENT CONTROL

1"=50'

KEY PLAN

GENERAL NOTES

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED PRIOR TO THE FIRST STEP IN CLEARING AND GRADING OF ANY PORTION OF THE PROJECT.
2. CONSTRUCTION ACTIVITIES SHALL BE PHASED SUCH THAT THE OVERALL LAND DISTURBANCE IS MINIMIZED AT ANY ONE TIME. STAKEOUT LIMITS OF PHASE DISTURBANCE AND INSTALL CONSTRUCTION FENCING AT BOUNDARY. ALL DISTURBED AREAS SHALL BE STABILIZED BEFORE ADDITIONAL AREAS ARE EXPOSED.
3. WHERE SOIL DISTURBANCE ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED, TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES SHALL BE INSTALLED AND/OR IMPLEMENTED WITHIN SEVEN CALENDAR DAYS FROM THE DATE THE SOIL DISTURBANCE ACTIVITY CEASED. SOIL STABILIZATION MEASURES SHALL BE IN CONFORMANCE WITH THE MOST CURRENT VERSION OF THE NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
4. STORM GRATE FILTER SACK TO BE INSTALLED ON INLETS IN EXISTING PAVED AREAS AND FUTURE PAVED AREAS. FILTER SACKS SHALL BE DANDY BAG, DANDY PRODUCTS INC. OR EQUAL.
5. EXISTING VEGETATION THAT IS TO REMAIN SHALL BE PROTECTED. SEE 1/CE502.
6. STOCKPILES SHALL BE ROUGHENED BY EQUIPMENT TRACKING AND SHALL NOT EXCEED 2:1. NO PORTION OF SOIL DEPOSITION AREA SHOULD BE LEFT UNSTABILIZED FOR MORE THAN 7 DAYS. IN AREAS WHERE WORK HAS TEMPORARILY OR PERMANENTLY CEASED, TEMPORARY OR PERMANENT SOIL STABILIZATION MEASURES SHALL BE INSTALLED. SOIL DEPOSITION AREA SHOULD BE TEMPORARILY STABILIZED WITH HYDROMULCH. SEE 5/CE502.
7. DUST SHALL BE CONTROLLED BY USING A MOBILE WATER TRUCK TO APPLY WATER TO DISTURBED AREAS THAT ARE DRY AND SUSCEPTIBLE TO CREATING DUST.
8. SEE THE STORM WATER POLLUTION PREVENTION PLAN FOR INSPECTION AND MAINTENANCE REQUIREMENTS FOR EROSION AND SEDIMENT CONTROLS AND STORM WATER TREATMENT PRACTICES.
9. ONCE CONSTRUCTION PERMANENTLY CEASES IN AN AREA, THE AREA SHALL BE STABILIZED WITH PERMANENT MEASURES.
10. SEDIMENT BASIN SHALL BE CLEANED OUT AT 50% CAPACITY AND THE SEDIMENT SHALL BE SPREAD ON THE SITE. SEDIMENT SHALL NOT BE DEPOSITED DOWNSTREAM OF BASIN, ADJACENT TO STREAMS, WETLANDS OR WITHIN FLOODPLAIN.
11. EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS ARE PERMANENTLY STABILIZED. UPSTREAM TRIBUTARY AREAS SHALL BE PERMANENTLY STABILIZED BEFORE CONNECTING TO PERMANENT STORMWATER PRACTICES (E.G. EXTENDED DETENTION BASIN AND SAND FILTERS)
12. ENSURE THAT ALL DRAINAGE STRUCTURES AND PIPES ARE CLEANED OUT AND WORKING PROPERLY AT COMPLETION OF PROJECT.
13. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ACCORDING TO THE "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL".
14. SEE CE501 & CE502 FOR EROSION CONTROL DETAILS.
15. WHERE PERIMETER DIKE OR SWALE SLOPE IS GREATER THAN 8%, A CHECK DAM SHALL BE USED.
16. TEMPORARY & PERMANENT STABILIZATION OF SWALES SHALL BE NORTH AMERICAN GREEN, DOUBLE NET COCONUT BLANKET C125.
17. TEMPORARY & PERMANENT SLOPES EXCEEDING 4:1 SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS – NORTH AMERICAN GREEN, DOUBLE NET COCONUT BLANKET C125.
18. INSTALL 3" FAIRCLOTH SKIMMER, J.W. FAIRCLOTH & SON, INC. ON ALL SEDIMENT TRAPS.

DEWATERING NOTES

1. CONSTRUCT DIVERSION BERMS OR SWALES PRIOR TO EXCAVATING AT BUILDING OR TUNNEL FOUNDATIONS.
2. WHERE GROUNDWATER IS ENCOUNTERED AT FOUNDATION EXCAVATIONS, INSTALL SUMPS AND PUMPS TO MAINTAIN THE GROUNDWATER LEVEL AT TWO FEET BELOW THE BOTTOM OF EXCAVATION. LOCATION AND NUMBER OF SUMPS AND PUMPS SHALL BE DETERMINED IN THE FIELD. SEE SUMP PIT DETAIL 4/CE502.
3. EXCAVATIONS SHALL BE DEWATERED WITHIN 24 HOURS.
4. SEDIMENT TANKS SHALL BE COMPARTMENTED TO TRAP SEDIMENT. THE STORAGE VOLUME SHALL BE EQUAL TO: TOTAL DISCHARGE FROM PUMP(S) GPM x 16 = VOLUME CF SEDIMENT FROM SEDIMENT TANKS SHALL BE CLEANED OUT WHEN TANK IS 1/3 FULL AND DISPOSED OF IN A SEDIMENT BASIN.
5. SEDIMENT-LADEN WATER FROM EXCAVATIONS SHALL NOT BE DISCHARGED INTO STORM SEWERS OR WATERCOURSES. TABLE BELOW SHOWS LOCATIONS OF DEWATERING ACTIVITIES AND DISCHARGE POINTS.

LOCATION OF EXCAVATION	DISCHARGE POINT
G RESIDENCE	SEDIMENT TRAP ST-01
MAINTENANCE BLDG (CELLAR)	SEDIMENT TANK/SEDIMENT TRAP ST-01
MAINTENANCE BLDG (BASEMENT)	SEDIMENT TANK/SEDIMENT TRAP ST-02
OFFICE BLDG (CELLAR 1)	SEDIMENT TANK
OFFICE BLDG (CELLAR 2)	SEDIMENT TANK
UTILITY TUNNEL FROM G RES TO MAINTENANCE BLDG	SEDIMENT TANK
UTILITY TUNNEL FROM OFFICE TO POWERHOUSE	SEDIMENT TANK
UTILITY TUNNEL WEST AUDIO/VIDEO BLDG TO MAINTENANCE BLDG	SEDIMENT TANK
NORTH AUDIO/VIDEO BLDG	SEDIMENT TANK/INLET(W/STONE & BLOCK)
WEST AUDIO/VIDEO BLDG	SEDIMENT TANK
LOBBY EXPANSION	SEDIMENT TANK
DINING ROOM CONNECTOR	SEDIMENT TANK

TEMPORARY PLANTING NOTES

1. TEMPORARY SEEDINGS MAY BE NECESSARY TO PROTECT AREAS WHERE FINAL GRADING IS COMPLETE, OR WHEN AREA WILL BE EXPOSED FOR MORE THAN 7 DAYS, OR TO PROVIDE COVER WHEN PERMANENT SEEDINGS ARE LIKELY TO FAIL (MID-SUMMER OR DROUGHT).
2. AREA TO BE SEEDED SHALL BE ROUGH GRADED AND SLOPES STABLE.
3. SEEDBED MUST BE SEEDED WITHIN 24 HRS OF DISTURBANCE OR SCARIFICATION OF THE SOIL SURFACE WILL BE NECESSARY PRIOR TO SEEDING.
4. IF SPRING, SUMMER OR EARLY FALL, THEN SEED THE AREA WITH RYEGRASS (ANNUAL OR PERENNIAL) AT 30 LBS PER ACRE OR APPROXIMATELY 1 LB/ 1,000 SF
5. IF LATE FALL OR EARLY WINTER, SEED THE AREA WITH CERTIFIED AROOSTOOK WINTER RYE (CEREAL RYE) AT 100 LBS. PER ACRE OR APPROXIMATELY 2.5 LB / 1,000 SF.
6. MULCH THE AREA WITH HAY OR STRAW AT 2 TONS/ ACRE OR APPROXIMATELY 90 LB./1,000 SF. COVER AT LEAST 90% OF SURFACE.
7. WHERE WIND OR AREAS OF CONCENTRATED WATER ARE A CONCERN, MULCH ANCHORING WILL BE REQUIRED.
8. WHERE HYDROMULCH IS APPLIED USE ONE OF THE FOLLOWING (WHICH ARE APPROVED BY NYSDOT):
   ECOAEGIS, PROFILE PRODUCTS LLC
   GEOSKIN, NORTH AMERICAN GREEN
   GEOMATRIX SS, HYDROGRASS TECHNOLOGIES INC
   GROUND CONTROL HYDROMULCH HY-C1, EAST COAST EROSION BLANKETS, LLC
   HYDRO-BLANKET BFM, PROFILE PRODUCTS LLC
   SOIL GUARD, MAT, INC

PERMANENT PLANTING NOTES

1. PERMANENT SEEDING SHALL BE APPLIED WHERE FINAL GRADING IS COMPLETE AND THE AREA WILL NOT BE SUBJECT TO CONSTRUCTION TRAFFIC AND WITHIN 7 DAYS FROM INITIAL DISTURBANCE. DURING TIMES WHEN PERMANENT SEEDINGS ARE LIKELY TO FAIL (MIDSUMMER OR DROUGHT), USE TEMPORARY SEEDINGS.
2. AREA TO BE SEEDED SHALL BE ROUGH GRADED AND SLOPES STABLE.
3. SEEDBED MUST BE SEEDED WITHIN 24 HRS OF DISTURBANCE OR SCARIFICATION OF THE SOIL SURFACE WILL BE NECESSARY PRIOR TO SEEDING.
4. MULCH THE AREA WITH STRAW ONLY AT 2 TONS/ ACRE OR APPROXIMATELY 90 LB./1,000 SF
5. WHERE WIND OR AREAS OF CONCENTRATED WATER ARE A CONCERN, MULCH ANCHORING WILL BE REQUIRED.
6. WHERE HYDROMULCH IS APPLIED USE ONE OF THE FOLLOWING (WHICH ARE APPROVED BY NYSDOT):
   ECOAEGIS, PROFILE PRODUCTS LLC
   GEOSKIN, NORTH AMERICAN GREEN
   GEOMATRIX SS, HYDROGRASS TECHNOLOGIES INC
   GROUND CONTROL HYDROMULCH HY-C1, EAST COAST EROSION BLANKETS, LLC.
   HYDRO-BLANKET BFM, PROFILE PRODUCTS LLC
   SOIL GUARD, MAT, INC.

WATCHTOWER
BIBLE AND TRACT SOCIETY OF NEW YORK, INC
25 COLUMBIA HEIGHTS
BROOKLYN, NY 11201 USA
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MARK:	DATE:	DESCRIPTION:
–	10 OCT 11	FILING
–	23 AUG 11	REVIEW & APPROVAL
–	06 AUG 10	FILING
–	24 JUN 09	FILING
–	09 JUL 09	FILING
–	15 APR 09	REVIEW & APPROVAL

OWNER:
WATCHTOWER BIBLE & TRACT SOC. OF NY, INC.
25 COLUMBIA HEIGHTS
BROOKLYN, NY 11201

ACCOUNT No.

PROJECT TITLE:
WATCHTOWER EDUCATIONAL CENTER AMENDED SITE PLAN
100 WATCHTOWER DRIVE
PATTERSON, NY 12563

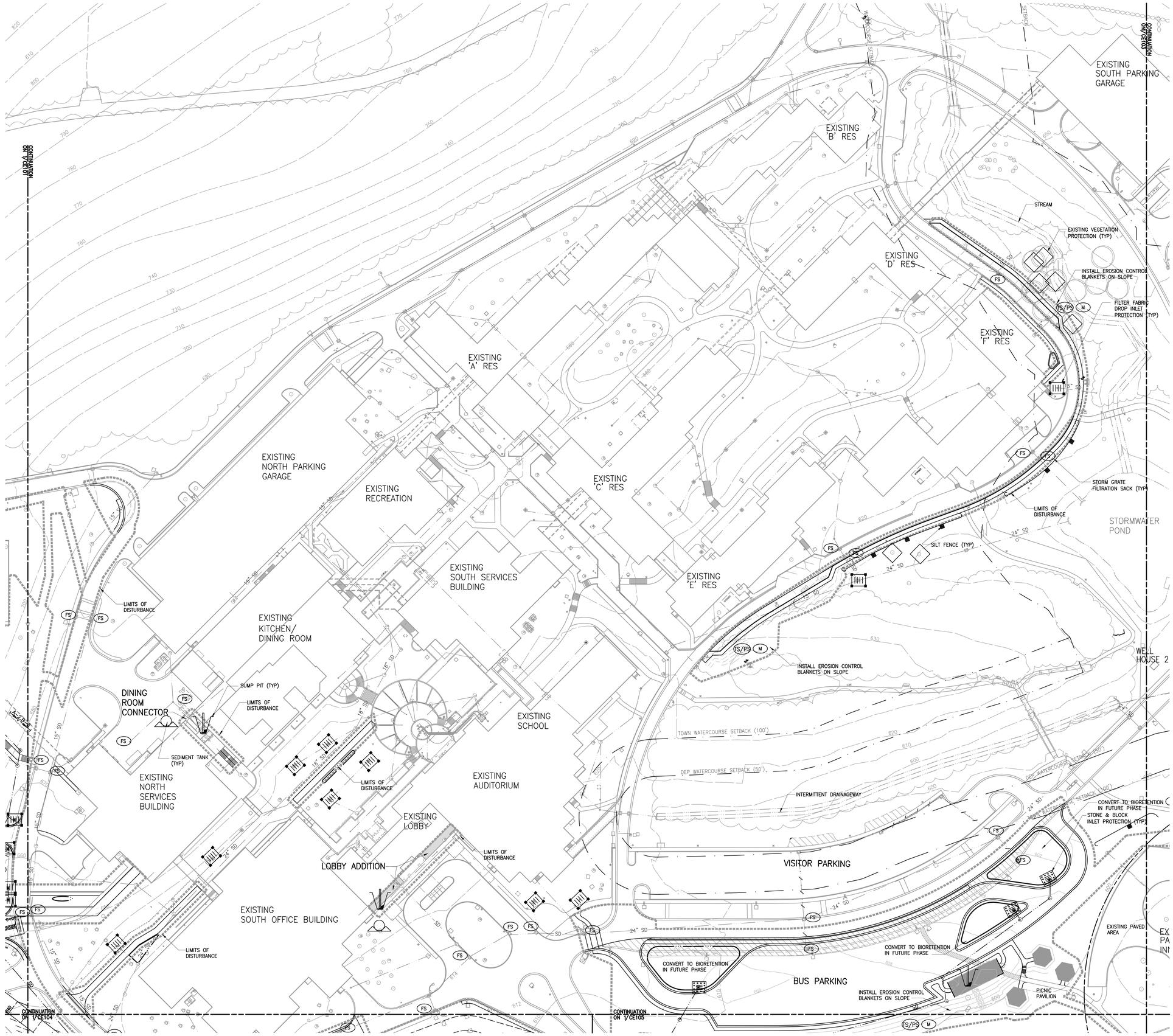
SHEET TITLE:
EROSION & SEDIMENT CONTROL PLAN

PROJECT No.
PPAT0104

SHEET No.
CE101

PLOT DATE: 10 Oct 11 PLOTTED BY: Delgado, Kristal
DIMSCALE: 600.00 DSGN/DRFT: KSW
FILE PATH: P:\USGA\PPAT0104\3_CONSTRUCTION DOCUMENTS\3.10 Drawings\04 Civil\PPA-CE101.dwg

XREF: \PA-CE104 XREF: \PA-CE105 XREF: \PA-CG000 XREF: \PA-CG000 XREF: \PA-CE000 XREF: \PA-CE000 XREF: \Common\Xrey Plots-DEFAULT.ctb XREF: \PPA-CE106
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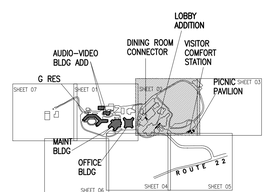


SHEET NOTES

1. SEE GENERAL NOTES ON CE101.
2. SEE CE501 & CE502 FOR EROSION CONTROL DETAILS.

1 PLAN – EROSION & SEDIMENT CONTROL

1"=50'
0 25 50 100



KEY PLAN TRUE NORTH

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ACCOUNT No.

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100 WATCHTOWER DRIVE
PATTERSON, NY 12563

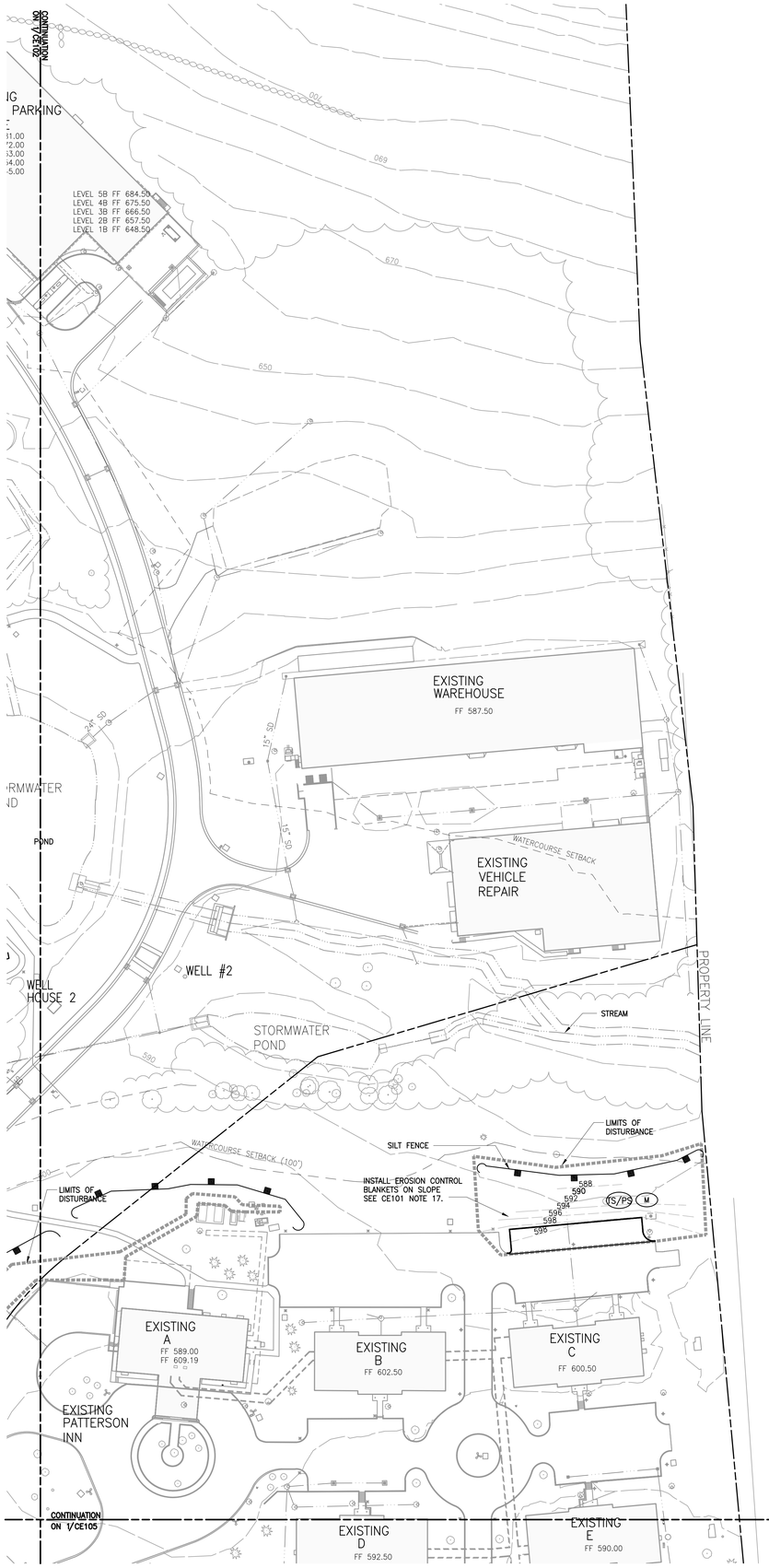
SHEET TITLE:
EROSION & SEDIMENT CONTROL PLAN

PROJECT No.
PPAT0104

SHEET No.
CE102

PLOT DATE: 10 Oct 11 PLOTTED BY: Delgado, Kristal
DIMSCALE: 600.00 DSQN\DRFT: KSW
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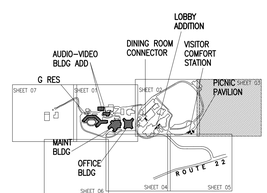


1 PLAN – EROSION & SEDIMENT CONTROL

1"=50'
0 25 50 100

SHEET NOTES

1. SEE GENERAL NOTES ON CE101.
2. SEE CE501 & CE502 FOR EROSION CONTROL DETAILS.



KEY PLAN

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BROOKLYN, NY 11201

ACCOUNT No.

PROJECT TITLE:
WATCHTOWER EDUCATIONAL CENTER AMENDED SITE PLAN
100 WATCHTOWER DRIVE
PATTERSON, NY 12563

SHEET TITLE:
EROSION & SEDIMENT CONTROL PLAN

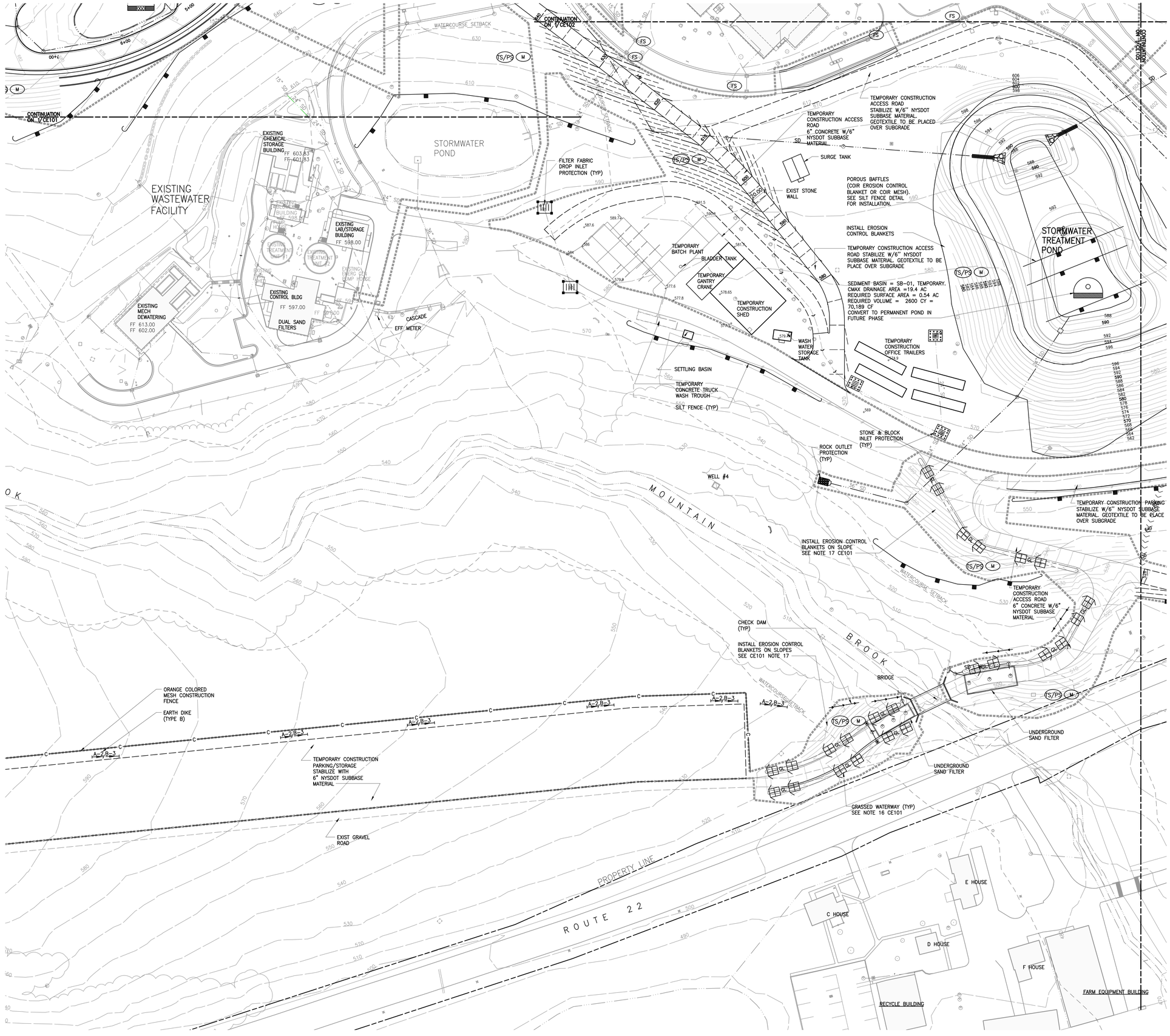
PROJECT No.
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SHEET No.
CE103

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PLOT DATE: 10 Oct 11 PLOTTED BY: Delgado, Kristal
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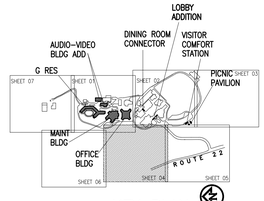
SHEET NOTES

1. SEE GENERAL NOTES ON CE101.
2. SEE CE501 & CE502 FOR EROSION CONTROL DETAILS.



1 PLAN – EROSION & SEDIMENT CONTROL

1"=50'



KEY PLAN

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ACCOUNT No.

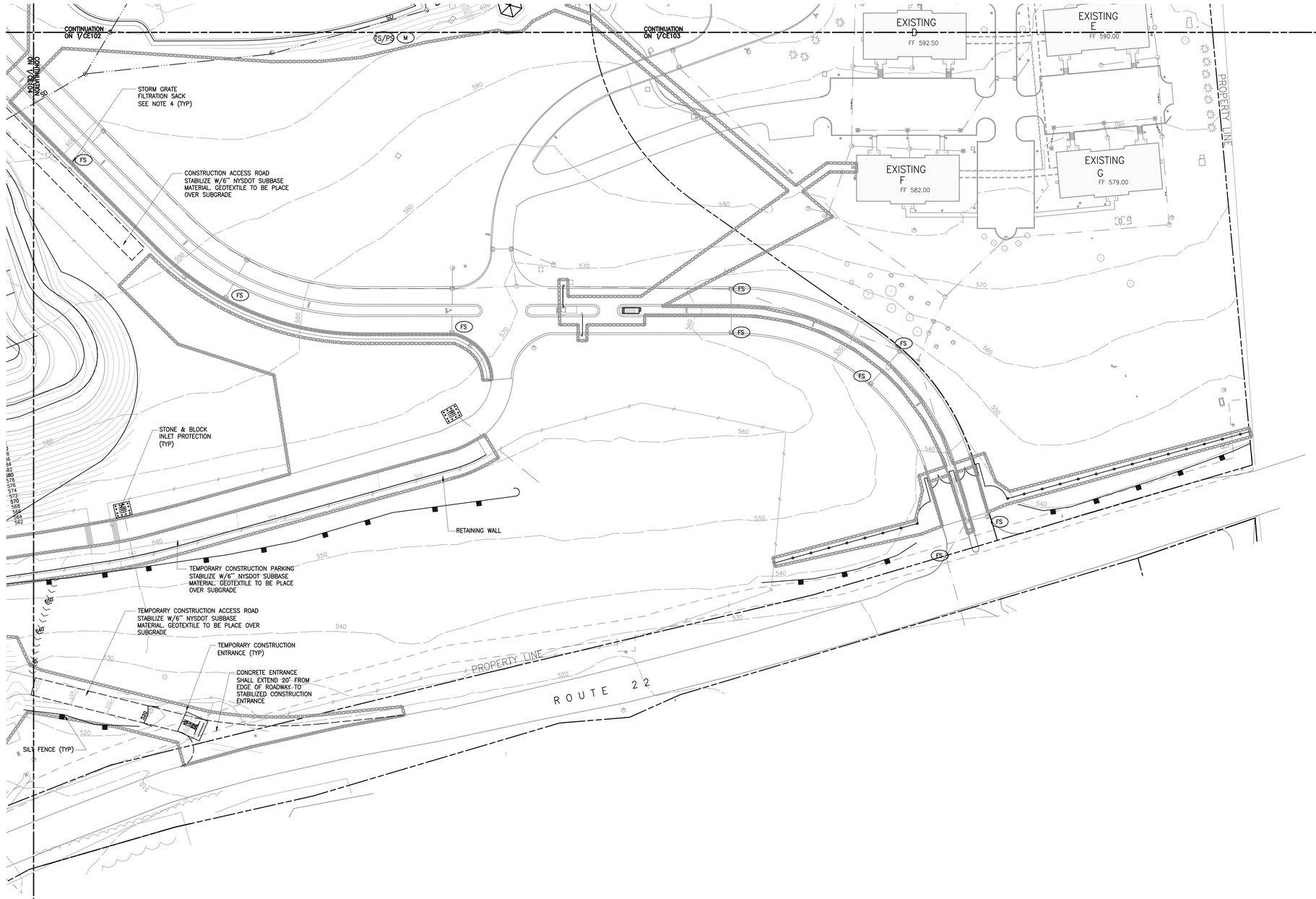
PROJECT TITLE:
WATCHTOWER EDUCATIONAL CENTER AMENDED SITE PLAN
100 WATCHTOWER DRIVE
PATTERSON, NY 12563

SHEET TITLE:
EROSION & SEDIMENT CONTROL PLAN

PROJECT No.
PPAT0104

SHEET No.
CE104

PLOT DATE: 10 Oct 11 PLOTTED BY: Delgado, Kristal
DIMSCALE: 600.00 DSGN\DRFT: KSW
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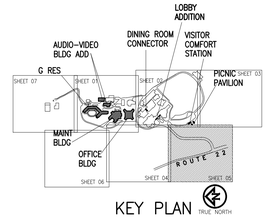


SHEET NOTES

1. SEE GENERAL NOTES ON CE101.
2. SEE CE501 & CE502 FOR EROSION CONTROL DETAILS.

1 PLAN – EROSION & SEDIMENT CONTROL

1"=50'
0 25 50 100



KEY PLAN (TRUE NORTH)

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BROOKLYN, NY 11201

ACCOUNT No.

PROJECT TITLE:
WATCHTOWER EDUCATIONAL CENTER AMENDED SITE PLAN
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PATTERSON, NY 12563

SHEET TITLE:
EROSION & SEDIMENT CONTROL PLAN

PROJECT No.
PPAT0104

SHEET No.
CE105

PLOT DATE: 10 Oct 11 PLOTTED BY: Delgado, Kristal
DMSCALE: 600.00 DSGN\DRFT: KSW
FILE PATH: P:\USA\PPAT0104\1_CONSTRUCTION DOCUMENTS\1.10 Drawings\01 Civil\PV-CE105.dwg

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XREF:

CONTINUATION ON 1/CE107

CONTINUATION ON 1/CE101

CONTINUATION ON 1/CE101

RESERVOIR

WATERCOURSE SETBACK

EXISTING PUMP HOUSE

WATERCOURSE SETBACK

M O U N T A I N

B R O O K

WATERCOURSE SETBACK

PROPERTY LINE

ORANGE COLORED MESH CONSTRUCTION FENCE

SILT FENCE (INTERMEDIATE PLACEMENT OF FENCE ACCORDING TO SIZE OF STOCKPILE – 10 FT MIN DISTANCE TO TOE OF SLOPE)

TEMPORARY SWALE WITH FIBER ROLL CHECK DAMS (TYP)

EXCESS SOIL DEPOSITION AREA – NORTH PASTURE

TS/PS

M

TEMPORARY CONSTRUCTION ACCESS ROAD STABILIZE W/6" NYSDOT SUBBASE MATERIAL, GEOTEXTILE TO BE PLACE OVER SUBGRADE

ROCK OUTLET PROTECTION (TYP)

STONE & BLOCK INLET PROTECTION (TYP)

PERIMETER DIKE/SWALE WITH CHECKDAM SEE NOTE 15 ON CE101

EARTH DIKE (TYP)

SEDIMENT BASIN = SB-02, TEMPORARY, CMAX DRAINAGE AREA =4.7 AC REQUIRED SURFACE AREA = 0.07 AC REQUIRED VOLUME = 630 CY = 17,005 CF

EXIST GRAVEL ACCESS ROAD

TEMPORARY CONSTRUCTION PARKING/STORAGE STABILIZE WITH 6" NYSDOT SUBBASE MATERIAL

INSTALL EROSION CONTROL BLANKETS ON SLOPE AFTER FINAL GRADING, SEE CE101 NOTE 17. SEE NOTE 6 CE101 FOR TEMPORARY STABILIZATION OF SOIL DEPOSITION

PERIMETER DIKE/SWALE WITH FIBER-ROLL CHECKDAM SEE NOTE 15 ON CE101

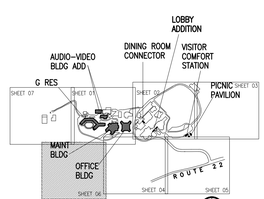
WELL CONTROL HOUSE FF 325.91

PROPERTY LINE

R O U T E 2 2

SHEET NOTES

1. SEE GENERAL NOTES ON CE101.
2. SEE CE501 & CE502 FOR EROSION CONTROL DETAILS.



KEY PLAN TRUE NORTH

1 PLAN – EROSION & SEDIMENT CONTROL

1"=50'

0 25 50 100

WATCHTOWER

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100 WATCHTOWER DRIVE
PATTERSON, NY 12563

SHEET TITLE:

EROSION & SEDIMENT CONTROL PLAN

PROJECT No.

PPAT0104

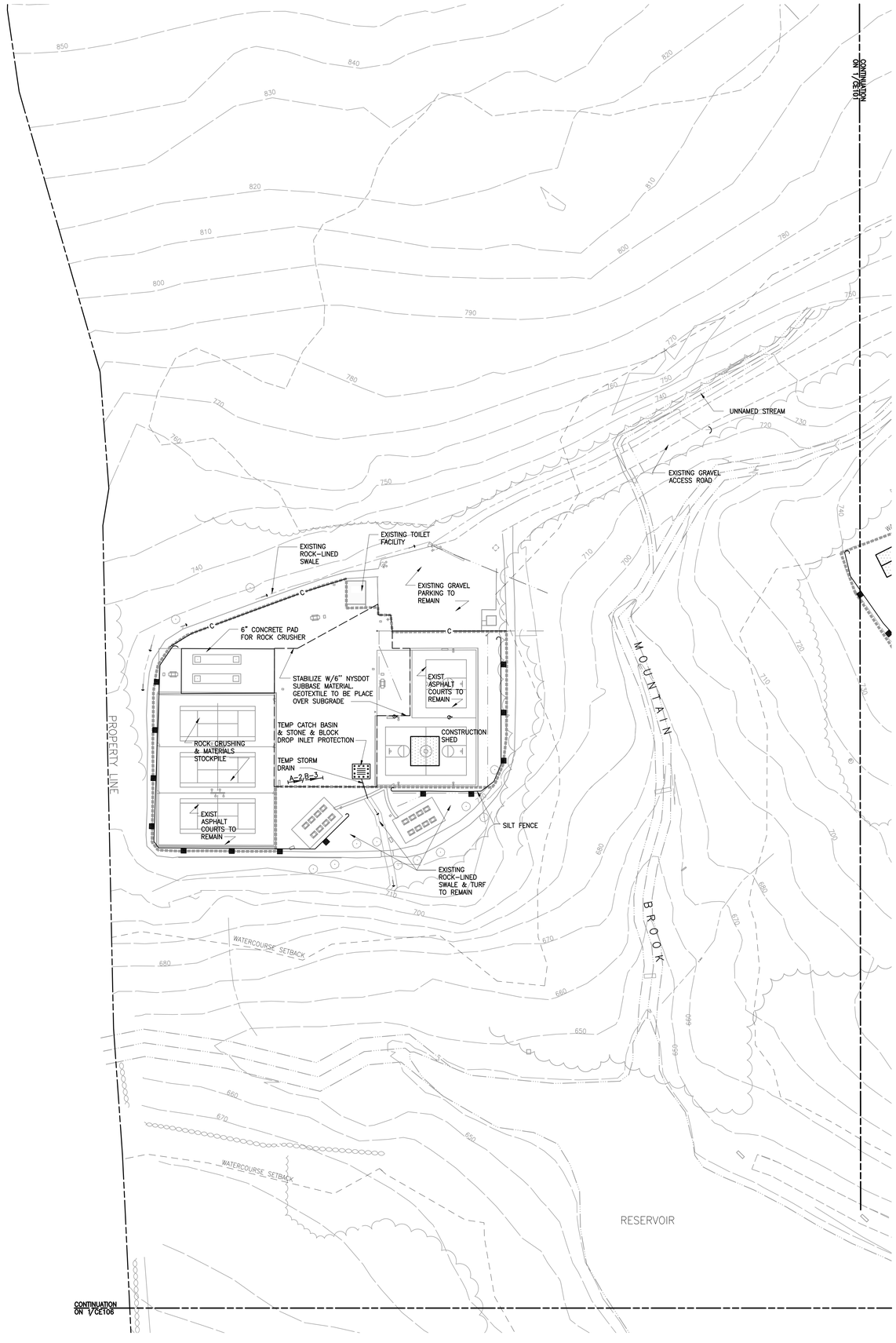
SHEET No.

CE106

PLOT DATE: 10 Oct 11 PLOTTED BY: Delgado, Kristal
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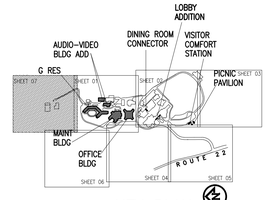


SHEET NOTES

1. SEE GENERAL NOTES ON CE101.
2. SEE CE501 & CE502 FOR EROSION CONTROL DETAILS.

1 PLAN – EROSION & SEDIMENT CONTROL

1"=50'
0 25 50 100



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PATTERSON, NY 12563

SHEET TITLE:
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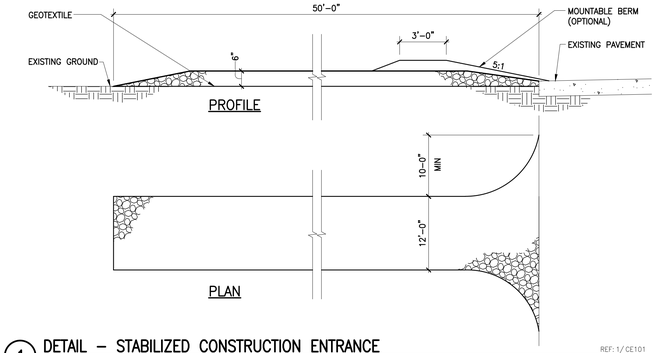
PROJECT No.
PPAT0104

SHEET No.
CE107

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XREF: \Common\X-Project Title-DEFAULT.E.USA
XREF:
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PLOT DATE: 10 Oct 11 PLOTTED BY: Delgado, Kristal
DMSCALE: 600.00 DSGN\DRFT: KSW
FILE PATH: P:\USA\PPAT0104\X_CONSTRUCTION DOCUMENTS\X-10 Drawings\01 Civil\PX-CE107.dwg

NOTES:

1. STONE SIZE – USE 1–4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET.
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH 1/2 INCH OR GREATER RAIN EVENT.



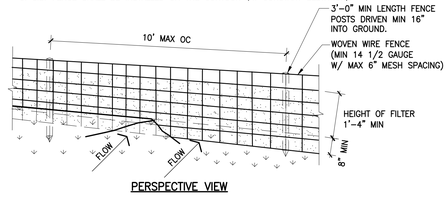
1 DETAIL – STABILIZED CONSTRUCTION ENTRANCE

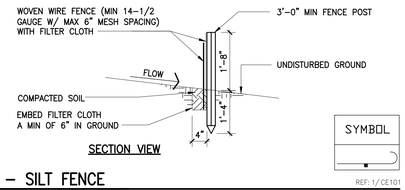
REF: 1/CE101

NOT TO SCALE

NOTES:

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12–1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
6. SILT FENCE SHALL BE INSTALLED ON THE CONTOUR (AT CONSTANT ELEVATION).





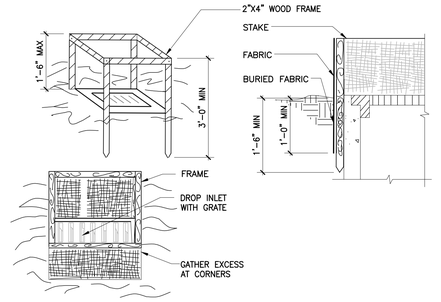
2 DETAIL – SILT FENCE

REF: 1/CE101

NOT TO SCALE

NOTES:

1. FILTER FABRIC SHALL HAVE AN EFFECTIVE OPENING SIZE (EOS) OF 40–85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2"x4" WOOD OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUN BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2"x4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.
7. MAXIMUM DRAINAGE AREA 1 ACRE.



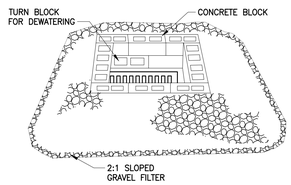
3 DETAIL – FABRIC DROP INLET PROTECTION

REF: 1/CE101

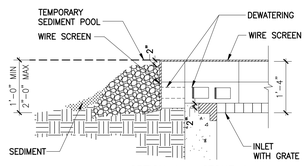
NOT TO SCALE

NOTES:

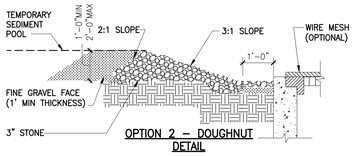
1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2" TO 3/4" IN DIAMATER PLACE 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.
5. MAXIMUM DRAINAGE AREA 1 ACRE.



PLAN VIEW – STONE & BLOCK



OPTION 1 – STONE & BLOCK



OPTION 2 – DOUGHNUT DETAIL

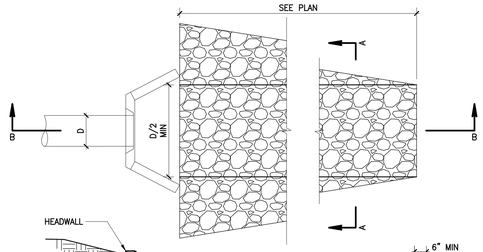
4 DETAIL – STONE & BLOCK DROP INLET PROTECTION

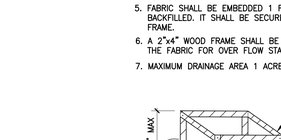
REF: 1/CE101

NOT TO SCALE

NOTES:

1. RIPRAP SHALL BE COMPOSED OF WELL-GRADED MIXTURE OF STONE SIZE SO THAT 50% OF THE PIECES BY WEIGHT SHALL BE LARGER THAN 10".
2. A WELL GRADED MIXTURE IS DEFINED AS A MIXTURE COMPOSED PRIMARILY OF LARGER STONE SIZES, BUT WITH A SUFFICIENT MIXTURE OF OTHER SIZES TO FILL THE SMALLER VOIDS BETWEEN THE STONES. THE DIAMETER OF THE LARGEST STONE SIZE SHALL BE 15".
3. STONE FOR RIPRAP SHALL CONSIST OF FIELD STONE OR ROUGH UNHEWN QUARRY STONE. THE STONE SHALL BE HARD AND ANGULAR AND OF A QUALITY THAT WILL NOT DISINTEGRATE ON EXPOSURE OF WATER OR WEATHERING.
4. RECYCLED CONCRETE EQUIVALENT MAY BE USED PROVIDED IT HAS A DENSITY OF 150 LBS/FT3 AND DOES NOT HAVE ANY EXPOSED STEEL OR REBAR.
5. FILTER FABRIC CAN BE WOVEN OR NON-WOVEN MONOFILAMENT YARNS, AND SHALL HAVE A THICKNESS OF 20-60 MILS, GRAB STRENGTH 90-120 LBS (ASTM D-1777 AND D-1682).





5 DETAIL – ROCK OUTLET PROTECTION

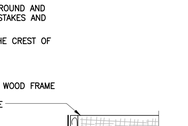
REF: 1/CE101

NOT TO SCALE

NOTE:

1. THE MATTING SHOULD BE A MINIMUM OF 4FT. WIDE EXTENDING 6 INCHES OVER THE LIP AND BURIED 6 INCHES DEEP IN A VERTICAL TRENCH ON THE LOWER EDGE. THE UPPER EDGE SHOULD BUTT AGAINST SMOOTHLY CUT SOD AND BE SECURELY HELD IN PLACE WITH CLOSELY SPACED HEAVY DUTY WIRE STAPLES AT LEAST 12 INCHES IN LENGTH.
2. ENSURE THAT THE LIP IS LEVEL TO UNIFORMLY SPREAD DISCHARGE.
3. THE LIP SHALL BE CONSTRUCTED ON UNDISTURBED SOIL NOT FILL.
4. A 20 FOOT TRANSITION SECTION WILL BE CONSTRUCTED FROM THE DIVERSION CHANNEL TO THE SPREADER TO SMOOTHLY BLEND THE DIFFERENT DIMENSION AND GRADES.
5. THE RUNOFF DISCHARGE WILL BE OUTLETED ONTO A STABILIZED VEGETATED SLOPE NOT EXCEEDING 10%.
6. SEED AND MULCH THE DISTURBED AREA IMMEDIATELY AFTER CONSTRUCTION.





Q(cfs)	E.W.(ft)	D(ft)	LENGTH(ft)
0–10	10	0.5	10
10–20	16	0.6	20
20–30	24	0.7	30

SYMBOL

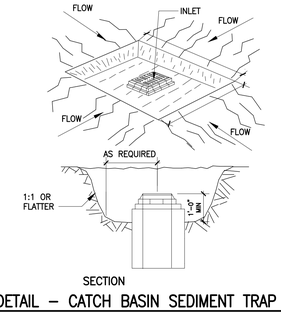
6 DETAIL – LEVEL SPREADER

REF: 1/CE101

NOT TO SCALE

NOTES:

1. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
2. THE VOLUME OF SEDIMENT STORAGE SHALL BE 1800 CUBIC FEET PER ACRE OF CONTRIBUTORY DRAINAGE.
3. THE STRUCTURE SHALL BE INSPECTED AFTER EACH 1/2 INCH OR GREATER RAIN EVENT AND REPAIRS MADE AS NEEDED.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION SHALL BE MINIMIZED.
5. THE SEDIMENT TRAP SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE CONSTRUCTED DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
6. ALL CUT SLOPES SHALL BE 1:1 OR FLATTER.
7. MAXIMUM CONTRIBUTING DRAINAGE IS 3 ACRE.
8. A 3" FAIRCLOTH SKIMMER, J.W. FAIRCLTOH & SON, INC. SHALL BE INSTALLED ON ALL SEDIMENT TRAPS.



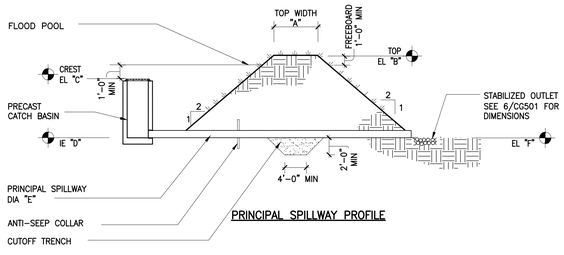
SECTION

SYMBOL

7 DETAIL – CATCH BASIN SEDIMENT TRAP

REF: 1/CE101

NOT TO SCALE



SEDIMENT BASIN	DIMENSIONS/ELEVATIONS					
	A	B	C	D	E	F
SB–2 (North Pasture)	10'	620'	619'	616.5'	12"	622'

8 DETAIL – SEDIMENT BASIN

REF: 1/CE101

NOT TO SCALE

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BIBLE AND TRACT SOCIETY OF NEW YORK, INC
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–	10 OCT 11	FILING
–	23 AUG 11	REVIEW & APPROVAL
–	22 JUL 11	REVIEW & APPROVAL
–	15 APR 09	REVIEW & APPROVAL

OWNER:

WATCHTOWER BIBLE & TRACT SOC. OF NY, INC.
25 COLUMBIA HEIGHTS
BROOKLYN, NY 11201

ACCOUNT No.

PROJECT TITLE:

WATCHTOWER EDUCATIONAL CENTER AMENDED SITE PLAN
100 WATCHTOWER DRIVE
PATTERSON, NY 12563

SHEET TITLE:

EROSION CONTROL DETAILS

PROJECT No.

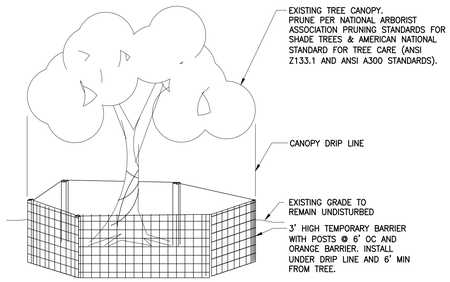
PPAT0104

SHEET No.

CE501

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PLOT DATE: 10 Oct 11 PLOTTED BY: Delgado, Kristal
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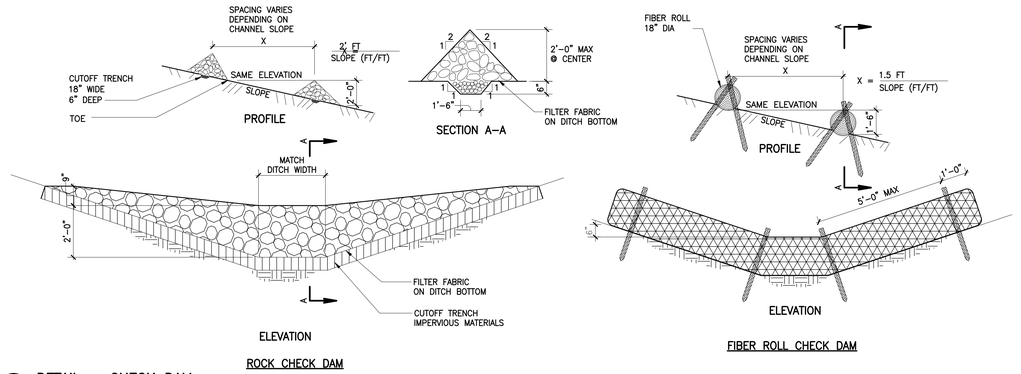
NOTES:
1. VEGETATION PROTECTION SHALL BE REPAIRED AS NECESSARY.
2. AT THE END OF CONSTRUCTION ALL PROTECTION SHALL BE REMOVED.
3. INSPECT WEEKLY AND AFTER ANY STORM EVENT OF 1/2 INCH OR GREATER.



1 DETAIL – EXISTING VEGETATION PROTECTION

NOT TO SCALE

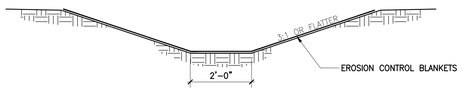
NOTES:
1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSURE THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE. MAXIMUM DRAINAGE AREA 2 ACRES.
6. PLACE CHECK DAM PERPENDICULAR TO THE FLOW LINE OF THE DITCH.



2 DETAIL – CHECK DAM

NOT TO SCALE

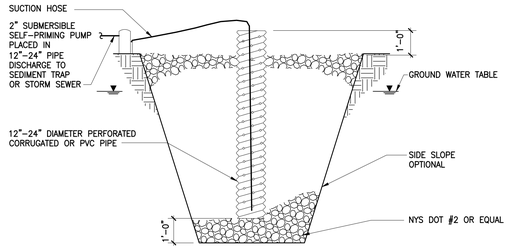
NOTES:
1. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE WATERWAY.
2. THE WATERWAY SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS SHOWN ON THE PLAN. WATERWAY SHOULD BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
3. FILLS SHALL BE COMPACTED AS NEEDED TO PREVENT UNEQUAL SETTLEMENT THAT WOULD CAUSE DAMAGE IN THE COMPLETE WATERWAY.
4. ALL EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE WATERWAY.
5. INSTALL EROSION CONTROL BLANKETS AFTER PREPARING SOIL, INCLUDING LIME, FERTILIZER, AND SEED. EROSION CONTROL BLANKET SHALL BE NORTH AMERICAN GREEN, S150 OR EQUAL. INSTALL ACCORDING TO MANUFACTURER'S INSTRUCTIONS.



3 DETAIL – GRASSED WATERWAY

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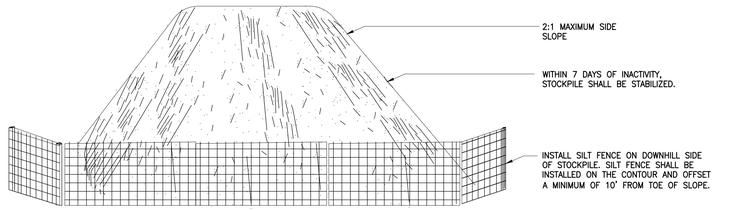
NOTES:
1. PIT DIMENSIONS ARE OPTIONAL.
2. THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 1'–2' DIAMETER CORRUGATED OR PVC PIPE.
3. A BASE OF 2" AGGREGATE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 1'–0". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD BE BACKFILLED WITH 2" AGGREGATE.
4. THE STANDPIPE SHOULD EXTEND 1' TO 1'–6" ABOVE THE LIP OF THE PIT.
5. THE STANDPIPE SHOULD BE WRAPPED WITH FILTERCLOTH BEFORE INSTALLATION. IF DESIRED, 1/4"–1/2" HARDWARE CLOTH MAY BE PLACED AROUND THE STANDPIPE, PRIOR TO ATTACHING THE FILTERCLOTH.



4 DETAIL – SUMP PIT

NOT TO SCALE

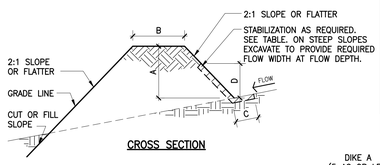
NOTES:
1. STOCKPILING SHALL ONLY BE LOCATED AS SHOWN ON APPROVED EROSION AND SEDIMENT CONTROL DRAWINGS.
2. EXPOSED SOIL SHALL BE STABILIZED BY SEED, MULCH, OR OTHER APPROVED MEASURES, WHEN ACTIVITIES TEMPORARILY CEASE DURING CONSTRUCTION FOR 7 DAYS OR MORE, IN ACCORDANCE WITH NYSDEC REQUIREMENTS
3. STOCKPILE SHALL BE PROTECTED FROM CONCENTRATED FLOWS BY PLACING TEMPORARY PERIMETER SEDIMENT BARRIERS UP SLOPE OF STOCK PILE.
4. WIND EROSION CONTROL PRACTICES SHALL BE USED AS APPROPRIATE.



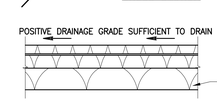
5 DETAIL – SOIL STOCKPILE

NOT TO SCALE

NOTES:
1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. RECP (ROLLED EROSION CONTROL PRODUCTS) SHALL BE NORTHERN GREEN, STRAW WATTLES WS1210 OR EQUAL.



	FLOW CHANNEL STABILIZATION TYPE	
	CONTRIBUTING AREA	
CHANNEL GRADE	<5 AC	5 –10 AC
0.5–3.0%	SEED & STRAW MULCH	SEED & STRAW MULCH
3.1–5.0%	SEED & STRAW MULCH	SEED & COVER WITH ROLLED EROSION CONTROL PRODUCTS (RECP), OR LINED WITH PLASTIC OR 2–INCH STONE
5.1–8.0%	SEED & COVER WITH RECP OR LINED WITH PLASTIC OR 2–INCH STONE	LINE WITH 4–8 INCH OF STONE OR RECYCLED CONCRETE EQUIVALENT OR GEOTEXTILE
8.1–20%	LINE WITH 4–8 INCH OF STONE OR RECYCLED CONCRETE EQUIVALENT OR GEOTEXTILE	SITE SPECIFIC ENGINEERING DESIGN



	DIKE A (5 AC OR LESS)	DIKE B (5–10 AC)
A – DIKE HEIGHT	18"	36"
B – DIKE WIDTH	24"	36"
C – FLOW WIDTH	48"	72"
D – FLOW DEPTH	8"	15"

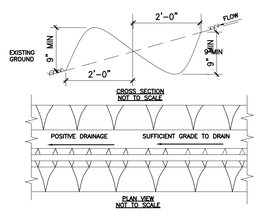
SYMBOL: A–2, B–3

REF: 1/CE101

6 DETAIL – EARTH DIKE

NOT TO SCALE

NOTES:
1. ALL PERIMETER DIKE/SWALE SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSION VELOCITY.
4. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED IN THE STANDARD.
5. STABILIZATION OF THE AREA DISTURBED BY THE DIKE AND SWALE SHALL BE DONE IN ACCORDANCE WITH THE STANDARD AND SPECIFICATIONS FOR TEMPORARY SEEDING AND MULCHING, AND SHALL BE DONE WITHIN 7 DAYS.
6. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT OF 1/2 INCH OR GREATER.
MAXIMUM DRAINAGE AREA LIMIT: 2 ACRES



SYMBOL: PD

REF: 1/CE101

7 DETAIL – PERIMETER DIKE / SWALE

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PROJECT TITLE:
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100 WATCHTOWER DRIVE
PATTERSON, NY 12563

SHEET TITLE:
EROSION CONTROL DETAILS

PROJECT No.
PPAT0104

SHEET No.
CE502

PLOT DATE: 10 Oct 11 PLOTTED BY: Delgado, Kristal
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