

Stormwater Report

Greenmont Commons Dracut, MA

Prepared for

***Riverbank Properties
908 Lawrence Street
Lowell, MA 01852***

May 18, 2023

REVISED June 5, 2024



Forward

This Stormwater Report is required by the Massachusetts Wetland Protection Act (MGL Ch. 131, Sect. 40); provisions of the Mass DEP Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q); and the Town of Dracut General By Laws Chapter 24 and Town of Dracut Stormwater Management Rules and Regulations.

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SECTION 1: SITE & CONTACT DATA

1.1 Project & Site Information

Project/Site Name: Greenmont Commons
Project Street/Location: 135 Greenmont Avenue
City: Dracut State: MA ZIP Code: 01826
County or Similar Subdivision: _____
Applicant Name: Riverbank Properties
Applicant Address: 908 Lawrence Street City: Lowell State: MA ZIP Code: 01852

1.2 Applicant Information

Name: Riverbank Properties
Address: 908 Lawrence Street City: Lowell State: MA ZIP Code: 01852
Contact: Branco Perego Phone: (978) 771-3205

1.3 Preparer Information

Name: Kenneth M. Lania, E.I.T., Cornerstone Land Associates, LLC.
Address: 25 Dean Avenue City: Dracut State: MA ZIP Code: 01826
Registered P.E.: John A. Visniewski, P.E. Email: kmconsultants@comcast.net
Phone: (978) 835-0102 Fax: _____

1.4 Project Type

Scope of Work: Development of an existing vacant lot including retaining walls, drainage, utilities, and parking lot.

Function: ☒ Residential ☐ Commercial ☐ Industrial ☐ Other: _____
☒ New ☐ Redevelopment ☐ Industrial ☐ Mix of New & Redevelopment

Estimated Start Date.: Upon Approvals Estimated Completion Date: September 2024

1.5 Drainage Narrative

The proposed project has been revised to construct 26 Townhouse Rental Units on the 2.45 Acre parcel utilizing the State's Comprehensive Permit Statute (M.G.L. c. 40B, Sections 20-23 enacted as Chapter 774 of the Acts of 1969) known as "Chapter 40B". The property is rectangle in shape with 240 LF of frontage along Greenmont Avenue and a depth of approximately 430 LF from the road. The property contains one single family dwelling located approximately 85 ft from Greenmont Avenue with associated driveway, rear deck and patio, as well as an in-ground

pool with concrete apron. The remainder of the property is a well established lawn with Bordering Vegetated Wetlands (BVW) in the southwestern corner of the property. The BVW was established on the property with flagging and is shown as WF-1 to WF-7. The majority of the property, approximately 2.22 acres, drains from north to south to the existing BVW area with the remainder 0.23 acres draining to Greenmont Avenue.

The proposed conditions utilize a Closed Drainage System with both underground and above ground techniques to mimic the existing drainage patterns. Four proposed Deep Sump Hooded Catch Basins are utilized to collect all of the impervious stormwater flow on site. The stormwater is then directed to an alternative technology sediment removal Vortech 2000 & 3000 Hydrodynamic Separator's to achieve the required 80% Total Suspended Solids removal. The stormwater then enters the underground 30" ADS Detention Area for storage and mitigation of the Peak Flow and Peak Volume. Stormwater then exits this system and enters into a Constructed Stormwater Wetland Extended Detention Wet Basin system. First, stormwater is passed into a Sedimentation Forebay for additional removal of pollutants that may pass through the underground closed pipe system. The Sedimentation Forebay then overflows into a Wet Basin that completes the cleaning of the stormwater and allows the clean stormwater to enter into the wetlands at the rear of the parcel with a reduction of Peak Flow for all storm events, 2 year to 100 year and a reduction in Peak Volume for the 2, 10, and 25 year storm events. There is a small volume increase of approximately 2,935 gallons of stormwater flow. This flow entering into the rear wetland area, which measures approximately 1 acre in size, would be insignificant and raise the elevation of water less than an 1/8" over the surface area.

SECTION 2: STORMWATER CHECKLIST



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

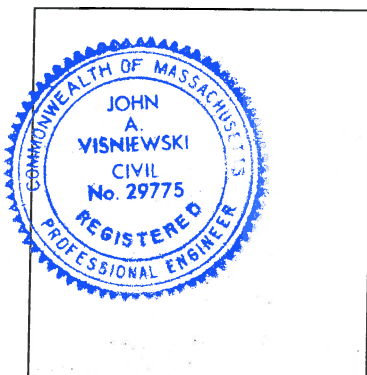
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



[Handwritten Signature] 6/5/24
Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☒ New development
☐ Redevelopment
☐ Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☐ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
 - ☐ Credit 1
 - ☐ Credit 2
 - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☒ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): _____

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- ☒ Soil Analysis provided.
- ☒ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - ☒ Static
 - ☐ Simple Dynamic
 - ☐ Dynamic Field¹
- ☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - ☒ Site is comprised solely of C and D soils and/or bedrock at the land surface
 - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
 - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☐ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - ☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - ☐ is within the Zone II or Interim Wellhead Protection Area
 - ☐ is near or to other critical areas
 - ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - ☐ involves runoff from land uses with higher potential pollutant loads.
 - ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - ☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

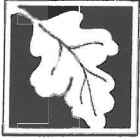
- ☒ The BMP is sized (and calculations provided) based on:
 - ☒ The ½" or 1" Water Quality Volume or
 - ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior** to the discharge of stormwater to the post-construction stormwater BMPs.
- ☐ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - ☐ Limited Project
 - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - ☐ Bike Path and/or Foot Path
 - ☐ Redevelopment Project
 - ☐ Redevelopment portion of mix of new and redevelopment.
- ☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- ☐ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☒ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☐ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☐ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - ☒ Name of the stormwater management system owners;
 - ☒ Party responsible for operation and maintenance;
 - ☒ Schedule for implementation of routine and non-routine maintenance tasks;
 - ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
 - ☐ Description and delineation of public safety features;
 - ☒ Estimated operation and maintenance budget; and
 - ☒ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- ☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☐ An Illicit Discharge Compliance Statement is attached;
- ☒ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

SECTION 3: LOW IMPACT DEVELOPMENT (LID)

Credits for LID have not been taken since the site does not comply with certain aspects of each credit item required. However, small portions of LID practices have been incorporated into the overall design. These practices are small in nature and include the utilization of Sheet Flow and a combination of multiple Best Management Practices for stormwater treatment of the entire proposed impervious surface up to and including the 100 Year Storm event to promote the use of Rain Gardens and Underground Chamber Systems for infiltration to groundwater and pollutant removal.

SECTION 4: STORMWATER STANDARDS

4.1 Standard 1: No New Untreated Discharges

New stormwater conveyances (e.g. outfalls) will not discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

Rip Rap Sizing at Spillways

Stormwater calculations utilizing a closed drainage system for Stormwater collection throughout the development areas attenuates the Peak Flow for all storm events 2 yr to 100 yr.

The design utilizes a Sedimentation Basin with an overflow to a Wet Basin to promote as much infiltration of runoff back into the ground as possible. Proposed flow in large storm events travels to the Underground ADS Pipe Detention Basin then into an outlet Sedimentation & Wet Basin system that utilizes stone lined spillways for outlet protection of flow leaving the property.

Maximum velocity of flow leaving both the Sedimentation Forebay and the Wet Basin in the 100 Year Storm Event is less than 2 fps. Utilizing this velocity it has been determined that the rip rap sizing of 6-12" D50 size stones would be sufficient.

4.2 Standard 2: Peak Rate Attenuation

Stormwater management systems have been designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates.

Soils Evaluation

Soils on the site are classified on the USDA Natural Resources Conservation Service (NRCS) Soil Map that is shown below as an overlay on the MASS GIS Aerial Photography with NRCS Soils Overlay Layer. These soil classifications have been further assigned to Hydraulic Soil Groups (HSG) by the NRCS as shown on the map. Hydraulic soil groups range from A, sandy soils, to D, clayey soils.



Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
71B	Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony	D	3.5	26.3%
305B	Paxton fine sandy loam, 3 to 8 percent slopes	C	0.5	3.9%
310A	Woodbridge fine sandy loam, 0 to 3 percent slopes	C/D	9.2	69.8%
Totals for Area of Interest			13.2	100.0%

Soils have also been evaluated in the field as shown in the following table; and soil logs are also shown on the Grading & Drainage Plan. The table shows the textural classification in each location according to direct field observation. The Estimated Seasonal High Groundwater (ESHGW) depth was determined by field observation of redoximorphic features (mottles) within the soil profile. The Rawls Rate assigned to various Hydraulic Soil Groups and textural types is used for calculations relative to exfiltration of stormwater into subsurface soils within stormwater storage facilities. In addition, soil samples were taken and sent to a soils laboratory for analysis of particle size and permeability.

Soil Evaluation

ON-SITE SOILS EVALUATION

Deep Hole Number 1.	Textural Classification 2.	HSG 3.	Depth to Refusal (ft)	ESHGW 4. (in)	Rawls Rate (in/hr) 5.	Laboratory Results (in/hr) 6.
TP#1	SL	D	n/a	34	0.09	0.44
TP#2	SL	D	n/a	32	0.09	0.11
TP#3	SL	C/D	n/a	36	0.27	1.08
TP#4	SL	C/D	n/a	38	0.27	

1. See Site Plan for deep hole locations

2. Laboratory soil analysis; otherwise field observation

3. Hydraulic Soil Group; USDA NRCS

4. Estimated seasonal high groundwater depth

5. DEP Stormwater Handbook, Table 2.3.3.

6. Laboratory permeability analysis per DEP Stormwater Handbook Vol. 3 Chap. 1

USDA Soils Description

Map Unit #	Soil Name	HSG
71B	Ridgebury fine sandy loam	D
310A	Woodbridge fine sandy loam	C/D

The following Table shows land areas associated with the hydraulic soil group for each type of ground coverage within each drainage area. Hydraulic Soil Group designations are shown as provided by the NRCS for the soil types found on this site. Curve Number (CN) values have been assigned based on the ground cover type and condition, and HSG. The curve number values are weighted according to NRCS criteria and used in the calculations for peak rate attenuation provided in Appendix C. The Pre-Development and Post-Development Drainage Maps provided in Appendix C show the relationship between the drainage areas and surface cover types.

PRE-DEVELOPMENT

Drainage Area 1S - DP#1-GREENMONT

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	D
Roofs						981 98
Paved Parking						2,843 98
Grass > 75% Cover Good					2,107 74	4,478 80
<i>Subtotal Area</i>					2,107	8,302
Total Area						10,409 85

Drainage Area 2S - DP#2-REAR WETLANDS

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	D
Roofs						1,008 98
Paved Parking						4,356 98
Wooded					10,179 70	2,063 77
Grass >75% Cover Good					45,595 74	33,120 80
<i>Subtotal Area</i>					55,774	96,321
Total Area						96,321 77

POST-DEVELOPMENT

Drainage Area 4S - DP#1-GREENMONT

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	D
Grass >75% Cover Good						7,827 80
<i>Subtotal Area</i>						7,827
Total Area						7,827 80

Drainage Area 1S - DP#2-REAR WETLANDS

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	D
Paved Parking, HSG D						3,578 98
Grass > 75% Cover Good						3,490 80
<i>Subtotal Area</i>					-	7,068
Total Area						90

Drainage Area 3S - DP#2-REAR WETLANDS

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)							
	A	CN	B	CN	C	CN	D	CN
Paved Parking, HSG D							3,568	98
Grass >75% Cover							3,486	80
Good								
Subtotal								
Area					-		7,054	
Total Area							7,054	90

Drainage Area 7S - DP#2-REAR WETLANDS

		Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)						
Surface Description	A	CN	B	CN	C	CN	D	CN
Paved Parking, HSG D							6,223	98
Grass >75% Cover							10,938	80
Good								
<i>Subtotal Area</i>							17,161	
Total Area							17,161	86

Drainage Area 8S - DP#2-REAR WETLANDS

		Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)						
Surface Description	A	CN	B	CN	C	CN	D	CN
Paved Parking, HSG D							6,201	98
Grass >75% Cover Good							11,779	80
Subtotal Area							17,980	
Total Area							17,980	86

Drainage Area 5S - DP#2-REAR WETLANDS

		Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)						
Surface Description	A	CN	B	CN	C	CN	D	CN
Grass >75% Cover Good							7,905	80
Grass >75% Cover Good							7,318	80
<i>Subtotal Area</i>							15,223	
Total Area							15,223	80

Drainage Area 36S - DP#2-REAR WETLANDS

Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)

Surface Description	A	CN	B	CN	C	CN	D	CN
Grass >75% Cover Good							9,505	80
<i>Subtotal Area</i>							9,505	
Total Area							9,505	80

Drainage Area 6S - DP#2-REAR WETLANDS

		Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)							
Surface Description		A	CN	B	CN	C	CN	D	CN
Grass >75% Cover Good								2,032	80
Grass >75% Cover Good								1,900	80
Subtotal Area						-		3,932	
Total Area								3,932	80

Drainage Area 2S - DP#2-REAR WETLANDS

		Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)						
Surface Description	A	CN	B	CN	C	CN	D	CN
Roofs							2,113	98

Drainage Area 9S - DP#2-REAR WETLANDS

		Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)						
Surface Description	A	CN	B	CN	C	CN	D	CN
Roofs							2,113	98
	Subtotal						2,113	
Total Area							2,113	98

Drainage Area 11S - DP#2-REAR WETLANDS

		Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)						
Surface Description	A	CN	B	CN	C	CN	D	CN
Roofs							1,392	98

1,392

[Drainage Area 12S - DP#2-REAR WETLANDS](#)

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	D
Roofs						
<i>Subtotal Area</i>						
Total Area						

[Drainage Area 13S - DP#2-REAR WETLANDS](#)

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	D
Roofs						
<i>Subtotal Area</i>						
Total Area						

[Drainage Area 14S - DP#2-REAR WETLANDS](#)

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	D
Roofs						
<i>Subtotal Area</i>						
Total Area						

[Drainage Area 19S - DP#2-REAR WETLANDS](#)

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	D
Roofs						
<i>Subtotal Area</i>						
Total Area						

[Drainage Area 23S - DP#2-REAR WETLANDS](#)

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	D
Roofs						

<i>Subtotal Area</i>					2,113
Total Area				2,113	98

[Drainage Area 25S - DP#2-REAR WETLANDS](#)

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	CN
Roofs						
<i>Subtotal Area</i>						2,113
Total Area					2,113	98

[Drainage Area 21S - DP#2-REAR WETLANDS](#)

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	CN
Roofs						
<i>Subtotal Area</i>						1,392
Total Area					1,392	98

[Drainage Area 32S - DP#2-REAR WETLANDS](#)

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	CN
Roofs						
<i>Subtotal Area</i>						1,392
Total Area					1,392	98

[Drainage Area 33S - DP#2-REAR WETLANDS](#)

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	CN
Roofs						
<i>Subtotal Area</i>						1,392
Total Area					1,392	98

[Drainage Area 34S - DP#2-REAR WETLANDS](#)

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)					
	A	CN	B	CN	C	CN

Roofs				1,392	98
<i>Subtotal Area</i>				1,392	
Total Area				1,392	98

Drainage Area 35S - DP#2-REAR WETLANDS

Surface Description	Hydraulic Soils Group (HSG) Area (sf) & Curve Number (CN)							
	A	CN	B	CN	C	CN	D	CN
Roofs							696	98
<i>Subtotal Area</i>							696	
Total Area							696	98

Peak Flow Rate Attenuation

Once the soils and drainage areas were analyzed and classified, a detailed hydrologic analysis was performed in accordance with the NRCS Technical Release 55 (TR-55) by using the HydroCAD® Stormwater Modeling System. The following tables represent a summary and comparison of the flow and volume between the pre-development and the post-development conditions. The comparison shows that there will be a net decrease in the flow and volume of stormwater runoff from the site after the project is completed. The detailed HydroCAD analysis is provided in Appendix C.

Standard 2: Peak Rate Attenuation

Summary of Pre- and Post-Development Peak Flow Rates

PRE-DEVELOPMENT (Existing Conditions)

Type III Storm Event:	100-yr	25-yr	10-yr	2-yr
Rainfall (in/24 hr):	6.4	5.3	4.5	3.2
FLOW TO GREENMONT AVENUE				
Flow Rate (cfs):	1.29	1.01	0.81	0.49
Volume (acre-ft):	0.088	0.068	0.054	0.033

PRE-DEVELOPMENT (Existing Conditions)

Type III Storm Event:	100-yr	25-yr	10-yr	2-yr
Rainfall (in/24 hr):	6.4	5.3	4.5	3.2
FLOW TO REAR WETLAND AREA				
Flow Rate (cfs):	9.07	6.98	5.48	3.13
Volume (acre-ft):	0.734	0.560	0.437	0.250

POST-DEVELOPMENT (Proposed Conditions)

Type III Storm Event:	100-yr	25-yr	10-yr	2-yr
Rainfall (in/24 hr):	6.4	5.3	4.5	3.2
FLOW TO GREENMONT AVENUE				
Flow Rate (cfs):	0.87	0.66	0.52	0.29
Volume (acre-ft):	0.062	0.047	0.037	0.021

POST-DEVELOPMENT (Proposed Conditions)

Type III Storm Event:	100-yr	25-yr	10-yr	2-yr
Rainfall (in/24 hr):	6.4	5.3	4.5	3.2
FLOW TO REAR WETLANDS				
Flow Rate (cfs):	5.36	3.33	1.96	0.68
Volume (acre-ft):	0.743	0.549	0.412	0.198

PRE & POST DEVELOPMENT COMPARISON

Type III Storm Event:	100-yr	25-yr	10-yr	2-yr
Rainfall (in/24 hr):	6.4	5.3	4.5	3.2
TOTAL FLOW TO GREENMONT AVENUE				
Flow Rate (cfs):	-0.42	-0.35	-0.29	-0.20
Volume (acre-ft):	-0.026	-0.021	-0.017	-0.012

PRE & POST DEVELOPMENT COMPARISON

Type III Storm Event:	100-yr	25-yr	10-yr	2-yr
Rainfall (in/24 hr):	6.4	5.3	4.5	3.2
TOTAL FLOW TO REAR WETLANDS				
Flow Rate (cfs):	-3.71	-3.65	-3.52	-2.45
Volume (acre-ft):	0.009	-0.011	-0.025	-0.052

4.3 Standard 3: Recharge

Loss of annual recharge to groundwater has been eliminated or minimized by recharging runoff.

Recharge Volume

RECHARGE VOLUME REQUIRED

The total amount of Recharge required due to the proposed impervious area of the Driveways, Parking, and Structures has been met as required utilizing Cultec Chamber 150XLHD units to

recharge the Roof Top Runoff. Total impervious area is 40,550 SF and therefore requires a total volume of 845 CF of recharge utilizing HSG “C” soils for the entire property. Recharge provided with the Cultec Systems is 3,104 CF.

Total Suspended Solids (TSS)

TSS TO BE REMOVED

Stormwater management systems have been designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS) as shown in the Treatment Train Forms Attached.

4.5 Standard 5: Higher Potential Pollutant Loads

Land Uses with Higher Potential Pollution Loads (LUHPPL) will include source controls and pollution prevention Proprietary Best Management Practices (BMPS) to ensure that the discharge of stormwater runoff from the impervious areas are treated to meet the Standard prior to conveyance to Infiltration BMPS. The project does not classify as a LUHPPL.

4.6 Standard 6: Critical Areas

Stormwater discharges to critical areas will utilize source controls, pollution prevention measures and approved Best Management Practices (BMP's). There are no stormwater discharges within the Zone II, Interim Wellhead Protection Areas of a public water supply or near an Outstanding Resource Water (ORW) or cold water fishery

4.7 Standard 7: Redevelopment

The project is proposed as new development due to the separation of the lots. An overall decrease in impervious area is proposed within the developed portion of the two lots.

4.8 Standard 8: Construction Period Controls

A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction has been developed.

Erosion Control Plan

An Erosion Control Plan has been provided within the Site Plan Set

Stormwater Pollution Prevention Plan

A National Pollution Discharge Elimination System (NPDES) Construction General Permit (CGP) is required for this project. CGP applications are required to be developed and submitted by the Owner/Applicant/Contractor seven (30) days prior to the commencement of construction. Due to the complex nature of this project, the Owner/Applicant will coordinate with this office and the selected contractor for the project to complete the application filing. The application,

when filed, will contain a Stormwater Pollution Prevention Plan that will be kept on site and reviewed and updated weekly. The application shall be completed and submitted to the Town of Dracut Zoning Board of Appeals and Conservation Commission thirty (45-60) days prior to the commencement of construction for review.

4.9 Standard 9: Operation & Maintenance

A long term operation and maintenance plan has been developed to insure that the stormwater management systems function as designed.

Operation & Maintenance Manual

An Operation and Maintenance Manual has been provided under separate cover.

4.10 Standard 10: Illicit Discharges

There are no known current illicit discharges of wastewater, stormwater contaminated with process wastes, raw materials, toxic pollutants, hazardous substances, oil or grease from the site. The discharge of any of these illicit materials is prohibited from the proposed stormwater management system.

APPENDICES

Appendix A: Background Data

USGS Locus Map

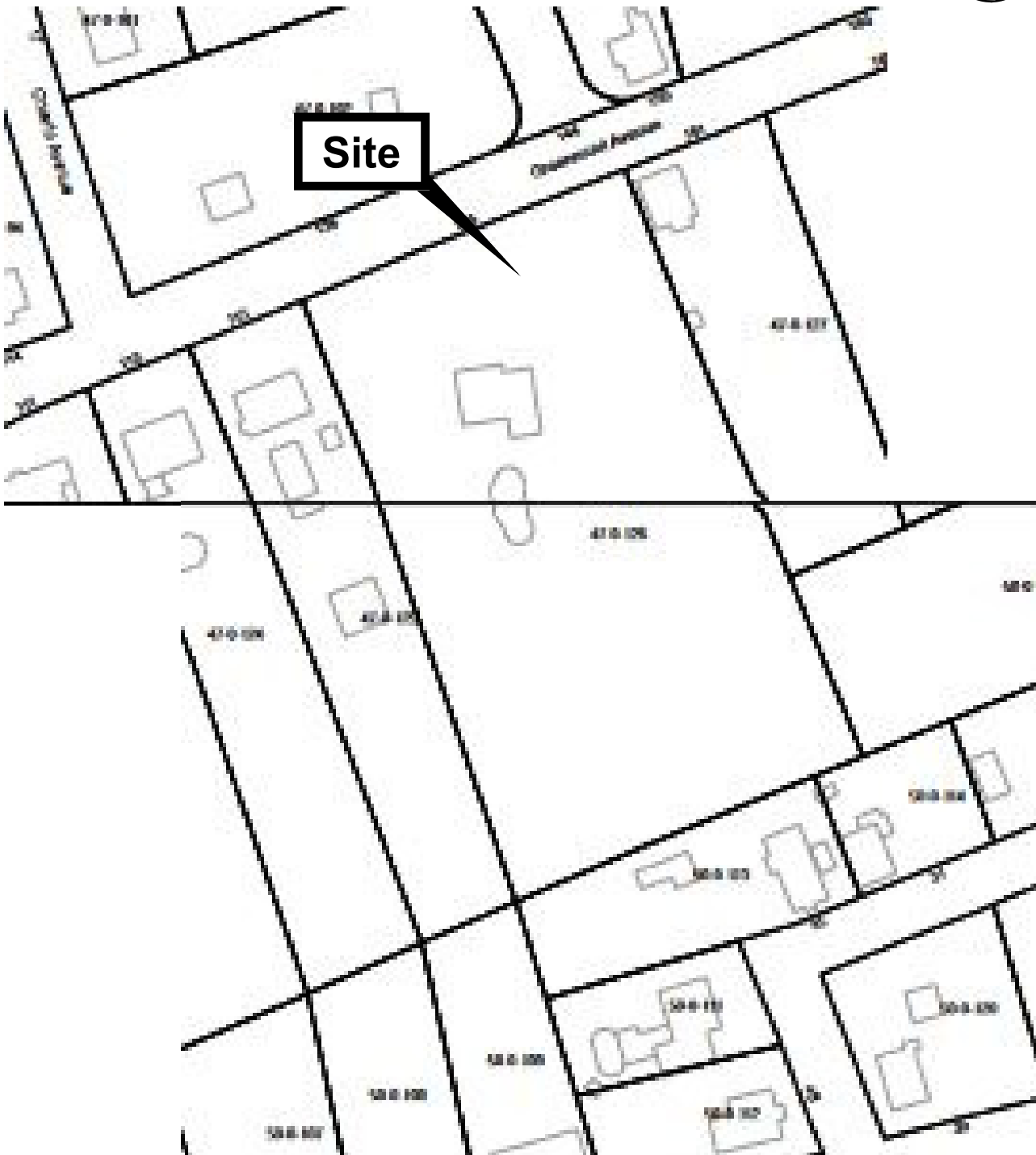
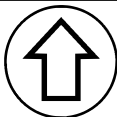
REF.: MassGIS Website



SCALE: Not to Scale

Assessor's Map

REF.: Tyngsborough Official Website



MAP 47 LOT 126

SCALE: 1" = 50 FT

Aerial Photography

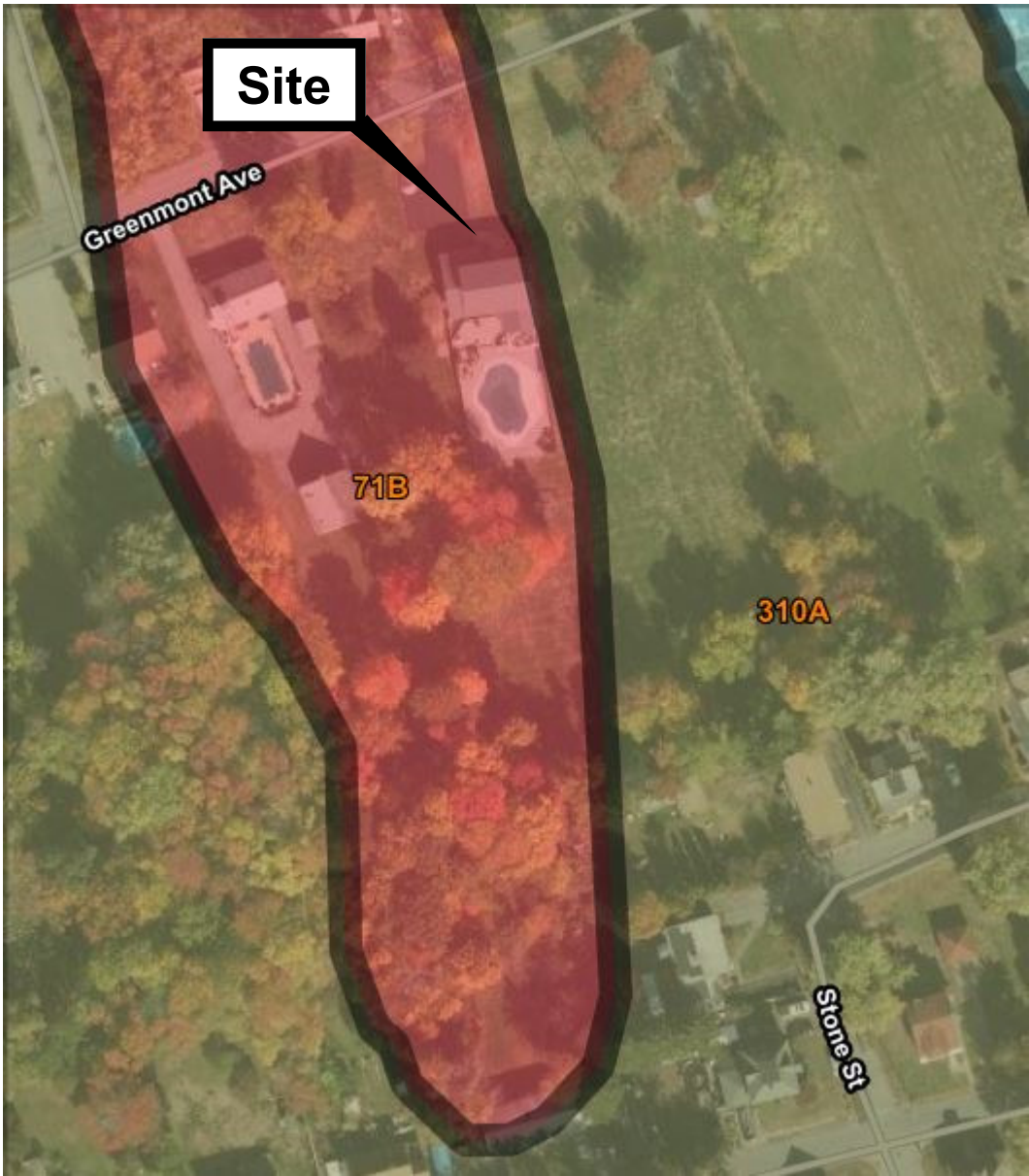
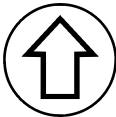
REF.: MassGIS Website



SCALE: 1" = 100 FT

NRCS Soil Map

REF.: NRCS Website



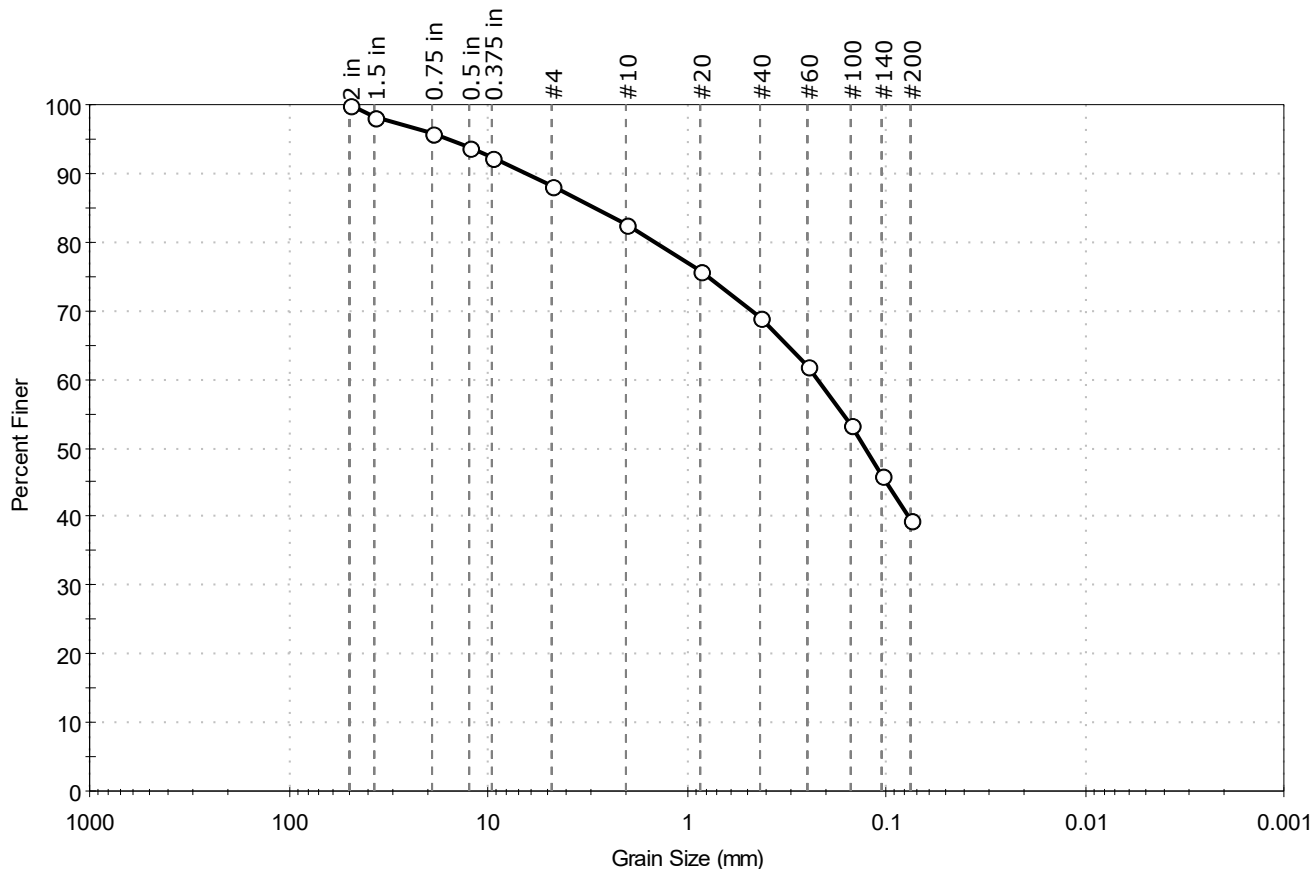
Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
71B	Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony	D	3.5	26.3%
305B	Paxton fine sandy loam, 3 to 8 percent slopes	C	0.5	3.9%
310A	Woodbridge fine sandy loam, 0 to 3 percent slopes	C/D	9.2	69.8%
Totals for Area of Interest			13.2	100.0%

SCALE: Not to Scale

Client:	Cornerstone Land Consultants		
Project:	Greenmont Commons		
Location:	Dracut, MA	Project No:	GTX-316104
Boring ID:	TP #1	Sample Type:	bucket
Sample ID:	---	Test Date:	09/26/22
Depth:	---	Test Id:	686183
Test Comment:	---		
Visual Description:	Moist, light yellowish brown silty sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	11.8	48.7	39.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
2 in	50.00	100		
1.5 in	37.50	98		
0.75 in	19.00	96		
0.5 in	12.50	94		
0.375 in	9.50	92		
#4	4.75	88		
#10	2.00	83		
#20	0.85	76		
#40	0.42	69		
#60	0.25	62		
#100	0.15	53		
#140	0.11	46		
#200	0.075	40		

Coefficients

$D_{85} = 2.8746 \text{ mm}$ $D_{30} = \text{N/A}$
 $D_{60} = 0.2220 \text{ mm}$ $D_{15} = \text{N/A}$
 $D_{50} = 0.1274 \text{ mm}$ $D_{10} = \text{N/A}$
 $C_u = \text{N/A}$ $C_c = \text{N/A}$

Classification

ASTM N/A

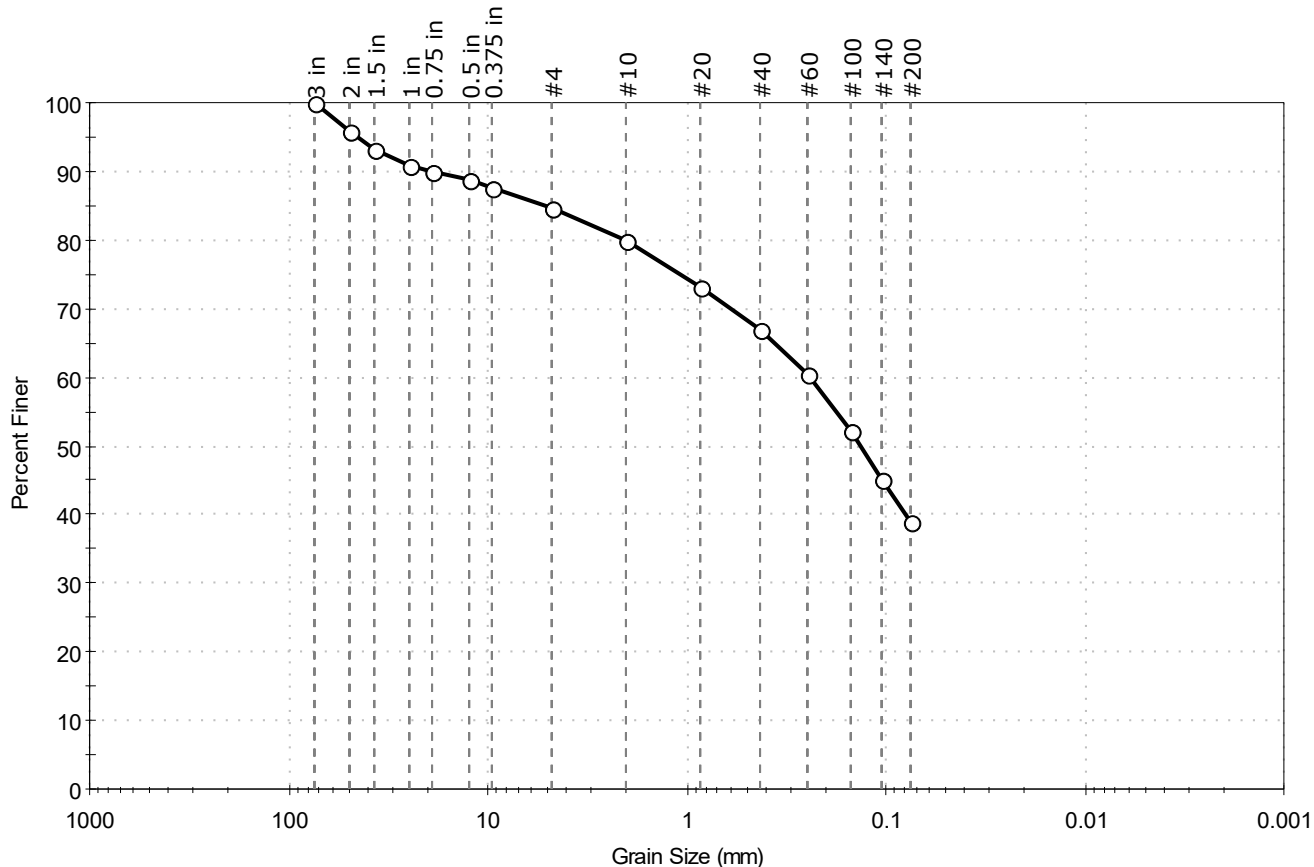
AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR
 Sand/Gravel Hardness : HARD

Client:	Cornerstone Land Consultants		
Project:	Greenmont Commons		
Location:	Dracut, MA	Project No:	GTX-316104
Boring ID:	TP #2	Sample Type:	bucket
Sample ID:	---	Test Date:	09/28/22
Depth :	---	Checked By:	jsc
		Test Id:	686184
Test Comment:	---		
Visual Description:	Moist, light olive brown silty sand with gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	15.4	45.6	39.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
3 in	75.00	100		
2 in	50.00	96		
1.5 in	37.50	93		
1 in	25.00	91		
0.75 in	19.00	90		
0.5 in	12.50	89		
0.375 in	9.50	88		
#4	4.75	85		
#10	2.00	80		
#20	0.85	73		
#40	0.42	67		
#60	0.25	60		
#100	0.15	52		
#140	0.11	45		
#200	0.075	39		

Coefficients

$D_{85} = 5.2042 \text{ mm}$ $D_{30} = \text{N/A}$
 $D_{60} = 0.2449 \text{ mm}$ $D_{15} = \text{N/A}$
 $D_{50} = 0.1347 \text{ mm}$ $D_{10} = \text{N/A}$
 $C_u = \text{N/A}$ $C_c = \text{N/A}$

Classification

ASTM N/A

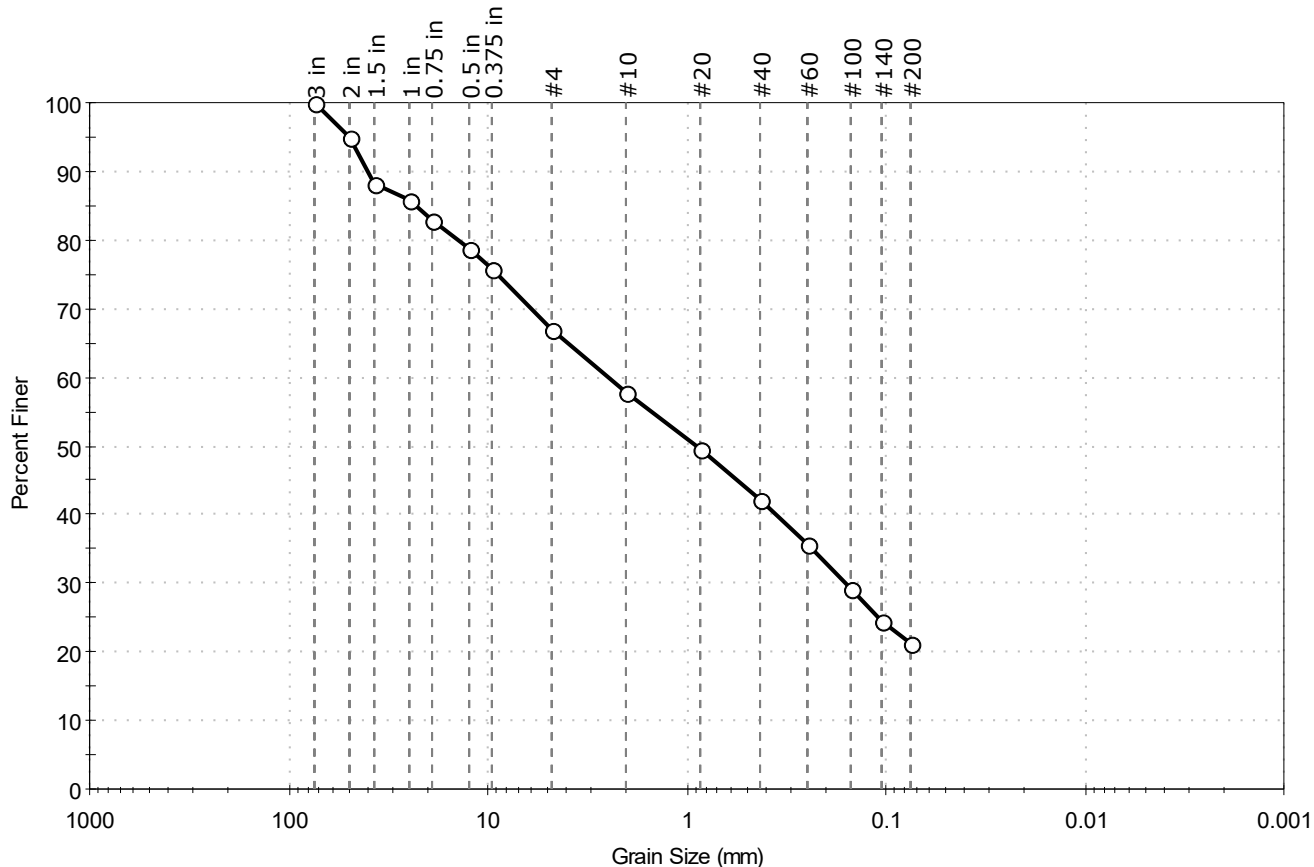
AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR
 Sand/Gravel Hardness : HARD

Client:	Cornerstone Land Consultants		
Project:	Greenmont Commons		
Location:	Dracut, MA	Project No:	GTX-316104
Boring ID:	TP #3	Sample Type:	bucket
Sample ID:	---	Test Date:	09/27/22
Depth :	---	Checked By:	jsc
		Test Id:	686185
Test Comment:	---		
Visual Description:	Moist, dark yellowish brown silty sand with gravel		
Sample Comment:	---		

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	32.9	45.8	21.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
3 in	75.00	100		
2 in	50.00	95		
1.5 in	37.50	88		
1 in	25.00	86		
0.75 in	19.00	83		
0.5 in	12.50	79		
0.375 in	9.50	76		
#4	4.75	67		
#10	2.00	58		
#20	0.85	50		
#40	0.42	42		
#60	0.25	36		
#100	0.15	29		
#140	0.11	24		
#200	0.075	21		

Coefficients

$D_{85} = 23.0906 \text{ mm}$ $D_{30} = 0.1587 \text{ mm}$
 $D_{60} = 2.4279 \text{ mm}$ $D_{15} = \text{N/A}$
 $D_{50} = 0.8828 \text{ mm}$ $D_{10} = \text{N/A}$
 $C_u = \text{N/A}$ $C_c = \text{N/A}$

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR
 Sand/Gravel Hardness : HARD

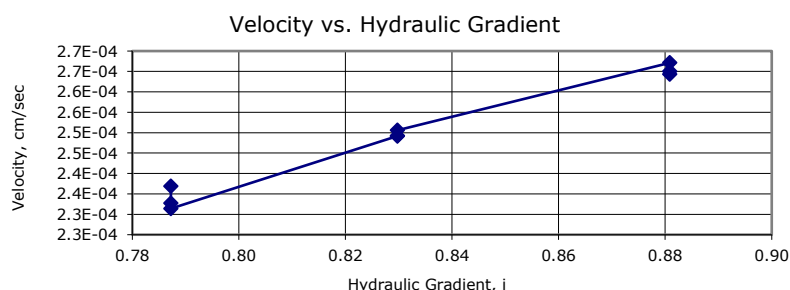


Client:	Cornerstone Land Consultants		
Project Name:	Greenmont Commons		
Project Location:	Dracut, MA		
GTX #:	316104		
Start Date:	09/30/22	Tested By:	awp
End Date:	10/04/22	Checked By:	jsc
Boring #:	TP-1		
Sample #:	---		
Depth:	---		
Visual Description:	Moist, light yellowish brown silty sand		

Permeability of Granular Soils (Constant Head) by ASTM D2434

Sample Type:	Remolded																																			
Sample Information:	Maximum Dry Density:	---	pcf																																	
	Optimum Moisture Content:	---	%																																	
	Compaction Test Method:	---																																		
	Classification (ASTM D2487):	---																																		
	Assumed Specific Gravity:	2.65																																		
Sample Preparation / Test Setup:	Test specimen compacted with moderate effort at air-dried moisture content. Material >3/4-inch removed from sample prior to testing (4.1% of sample).																																			
	<table><thead><tr><th>Parameter</th><th>Initial</th><th>Final</th></tr></thead><tbody><tr><td>Height, in</td><td>12.00</td><td>11.75</td></tr><tr><td>Diameter, in</td><td>9.50</td><td>9.50</td></tr><tr><td>Area, in²</td><td>70.9</td><td>70.9</td></tr><tr><td>Volume, in³</td><td>850.6</td><td>832.9</td></tr><tr><td>Mass, g</td><td>23931</td><td>---</td></tr><tr><td>Bulk Density, pcf</td><td>107</td><td>---</td></tr><tr><td>Moisture Content, %</td><td>1.2</td><td>---</td></tr><tr><td>Dry Density, pcf</td><td>106</td><td>---</td></tr><tr><td>Degree of Saturation, %</td><td>---</td><td>---</td></tr><tr><td>Void Ratio, e</td><td>---</td><td>---</td></tr></tbody></table>	Parameter	Initial	Final	Height, in	12.00	11.75	Diameter, in	9.50	9.50	Area, in ²	70.9	70.9	Volume, in ³	850.6	832.9	Mass, g	23931	---	Bulk Density, pcf	107	---	Moisture Content, %	1.2	---	Dry Density, pcf	106	---	Degree of Saturation, %	---	---	Void Ratio, e	---	---		
Parameter	Initial	Final																																		
Height, in	12.00	11.75																																		
Diameter, in	9.50	9.50																																		
Area, in ²	70.9	70.9																																		
Volume, in ³	850.6	832.9																																		
Mass, g	23931	---																																		
Bulk Density, pcf	107	---																																		
Moisture Content, %	1.2	---																																		
Dry Density, pcf	106	---																																		
Degree of Saturation, %	---	---																																		
Void Ratio, e	---	---																																		

Date	Reading #	Volume of Flow, cc	Time of Flow, sec	Flow Rate, cc/sec	Gradient	Permeability, cm/sec	Temp., °C	Correction Factor	Permeability @ 20 °C, cm/sec
10/4	1	3.3	31	0.11	0.79	3.0E-04	18.4	1.041	3.1E-04
10/4	2	3.2	30	0.11	0.79	3.0E-04	18.4	1.041	3.1E-04
10/4	3	3.2	30	0.11	0.79	2.9E-04	18.4	1.041	3.1E-04
10/4	4	3.5	31	0.11	0.83	3.0E-04	18.4	1.041	3.1E-04
10/4	5	3.5	31	0.11	0.83	3.0E-04	18.4	1.041	3.1E-04
10/4	6	3.5	31	0.11	0.83	3.0E-04	18.4	1.041	3.1E-04
10/4	7	3.7	31	0.12	0.88	3.0E-04	18.5	1.038	3.1E-04
10/4	8	3.7	30	0.12	0.88	3.0E-04	18.5	1.038	3.1E-04
10/4	9	3.7	30	0.12	0.88	3.0E-04	18.5	1.038	3.1E-04



PERMEABILITY @ 20 °C =
 3.1×10^{-4} cm/sec

PERMEABILITY @ 20 °C =
 3.1×10^{-6} m/sec



Client:	Cornerstone Land consultants		
Project Name:	Greenmont Commons		
Project Location:	Dracut, MA		
GTX #:	316104		
Start Date:	09/30/22	Tested By:	awp
End Date:	10/06/22	Checked By:	jsc
Boring #:	TP-2		
Sample #:	---		
Depth:	---		
Visual Description:	Moist, light olive brown silty sand with gravel		

Permeability of Granular Soils (Constant Head) by ASTM D2434

Sample Type:

Remolded

Sample Information:

Maximum Dry Density: --- pcf

Optimum Moisture Content: --- %

Compaction Test Method: ---

Classification (ASTM D2487): ---

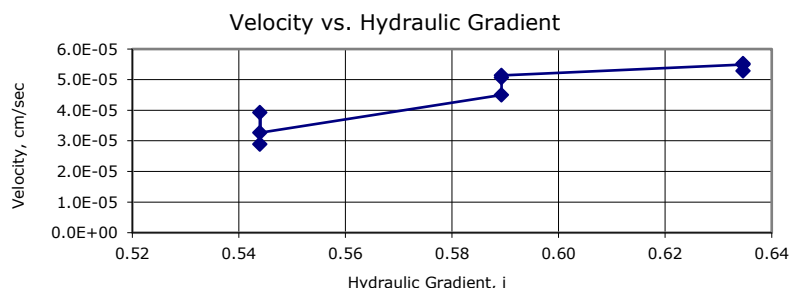
Assumed Specific Gravity: 2.65

Sample Preparation / Test Setup:

Test specimen compacted with moderate effort at air-dried moisture content. Material >3/8-inch removed from sample prior to testing (7% of sample).

Parameter	Initial	Final
Height, in	10.65	11.03
Diameter, in	9.50	9.50
Area, in ²	70.9	70.9
Volume, in ³	754.9	781.8
Mass, g	20807	---
Bulk Density, pcf	105	---
Moisture Content, %	0.0	---
Dry Density, pcf	105	---
Degree of Saturation, %	---	---
Void Ratio, e	---	---

Date	Reading #	Volume of Flow, cc	Time of Flow, sec	Flow Rate, cc/sec	Gradient	Permeability, cm/sec	Temp., °C	Correction Factor	Permeability @ 20 °C, cm/sec
10/5	1	4.0	300	0.01	0.54	5.3E-05	19.8	1.005	5.3E-05
10/5	2	5.4	300	0.02	0.54	7.2E-05	19.8	1.005	7.2E-05
10/5	3	4.5	300	0.01	0.54	6.0E-05	19.8	1.005	6.0E-05
10/5	4	6.2	300	0.02	0.59	7.6E-05	19.5	1.013	7.7E-05
10/5	5	6.9	300	0.02	0.59	8.6E-05	19.5	1.013	8.7E-05
10/5	6	7.0	300	0.02	0.59	8.7E-05	19.5	1.013	8.8E-05
10/5	7	7.5	300	0.03	0.63	8.7E-05	19.4	1.015	8.8E-05
10/5	8	7.6	300	0.03	0.63	8.7E-05	19.4	1.015	8.8E-05
10/5	9	7.3	300	0.02	0.63	8.3E-05	19.4	1.015	8.5E-05



PERMEABILITY @ 20 °C =
 7.8×10^{-5} cm/sec

PERMEABILITY @ 20 °C =
 7.8×10^{-7} m/sec

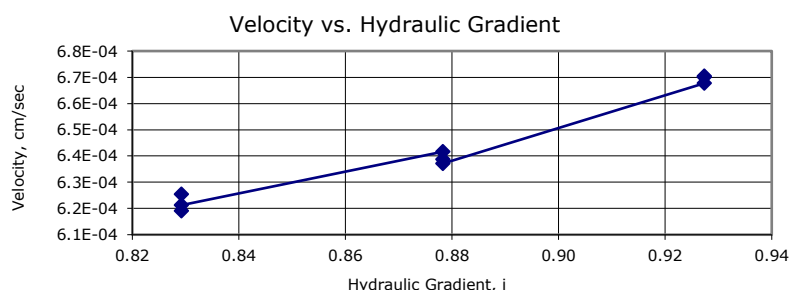


Client:	Conerstone Land Consultants		
Project Name:	Greenmont Commons		
Project Location:	Dracut, MA		
GTX #:	316104		
Start Date:	09/30/22	Tested By:	awp
End Date:	10/06/22	Checked By:	jsc
Boring #:	TP-3		
Sample #:	---		
Depth:	---		
Visual Description:	Moist, dark yellowish brown sand with gravel		

Permeability of Granular Soils (Constant Head) by ASTM D2434

Sample Type:	Remolded																																			
Sample Information:	Maximum Dry Density:	---	pcf																																	
	Optimum Moisture Content:	---	%																																	
	Compaction Test Method:	---																																		
	Classification (ASTM D2487):	---																																		
	Assumed Specific Gravity:	2.65																																		
Sample Preparation / Test Setup:	Test specimen compacted with moderate effort at air-dried moisture content. Material >3/4-inch removed from sample prior to testing (17.2% of sample).																																			
	<table><thead><tr><th>Parameter</th><th>Initial</th><th>Final</th></tr></thead><tbody><tr><td>Height, in</td><td>10.04</td><td>10.19</td></tr><tr><td>Diameter, in</td><td>9.50</td><td>9.50</td></tr><tr><td>Area, in²</td><td>70.9</td><td>70.9</td></tr><tr><td>Volume, in³</td><td>711.7</td><td>722.3</td></tr><tr><td>Mass, g</td><td>20380</td><td>---</td></tr><tr><td>Bulk Density, pcf</td><td>109</td><td>---</td></tr><tr><td>Moisture Content, %</td><td>2.9</td><td>---</td></tr><tr><td>Dry Density, pcf</td><td>106</td><td>---</td></tr><tr><td>Degree of Saturation, %</td><td>---</td><td>---</td></tr><tr><td>Void Ratio, e</td><td>---</td><td>---</td></tr></tbody></table>	Parameter	Initial	Final	Height, in	10.04	10.19	Diameter, in	9.50	9.50	Area, in ²	70.9	70.9	Volume, in ³	711.7	722.3	Mass, g	20380	---	Bulk Density, pcf	109	---	Moisture Content, %	2.9	---	Dry Density, pcf	106	---	Degree of Saturation, %	---	---	Void Ratio, e	---	---		
Parameter	Initial	Final																																		
Height, in	10.04	10.19																																		
Diameter, in	9.50	9.50																																		
Area, in ²	70.9	70.9																																		
Volume, in ³	711.7	722.3																																		
Mass, g	20380	---																																		
Bulk Density, pcf	109	---																																		
Moisture Content, %	2.9	---																																		
Dry Density, pcf	106	---																																		
Degree of Saturation, %	---	---																																		
Void Ratio, e	---	---																																		

Date	Reading #	Volume of Flow, cc	Time of Flow, sec	Flow Rate, cc/sec	Gradient	Permeability, cm/sec	Temp., °C	Correction Factor	Permeability @ 20 °C, cm/sec
10/6	1	34.3	120	0.29	0.83	7.5E-04	18.6	1.036	7.8E-04
10/6	2	34.5	122	0.28	0.83	7.5E-04	18.6	1.036	7.7E-04
10/6	3	38.0	134	0.28	0.83	7.5E-04	18.6	1.036	7.8E-04
10/6	4	35.6	121	0.29	0.88	7.3E-04	18.6	1.036	7.6E-04
10/6	5	35.2	121	0.29	0.88	7.3E-04	18.6	1.036	7.5E-04
10/6	6	41.5	142	0.29	0.88	7.3E-04	18.6	1.036	7.5E-04
10/6	7	39.8	130	0.31	0.93	7.2E-04	18.4	1.041	7.5E-04
10/6	8	38.2	125	0.31	0.93	7.2E-04	18.4	1.041	7.5E-04
10/6	9	41.2	134	0.31	0.93	7.2E-04	18.4	1.041	7.5E-04



PERMEABILITY @ 20 °C =

7.6×10^{-4} cm/sec

PERMEABILITY @ 20 °C =

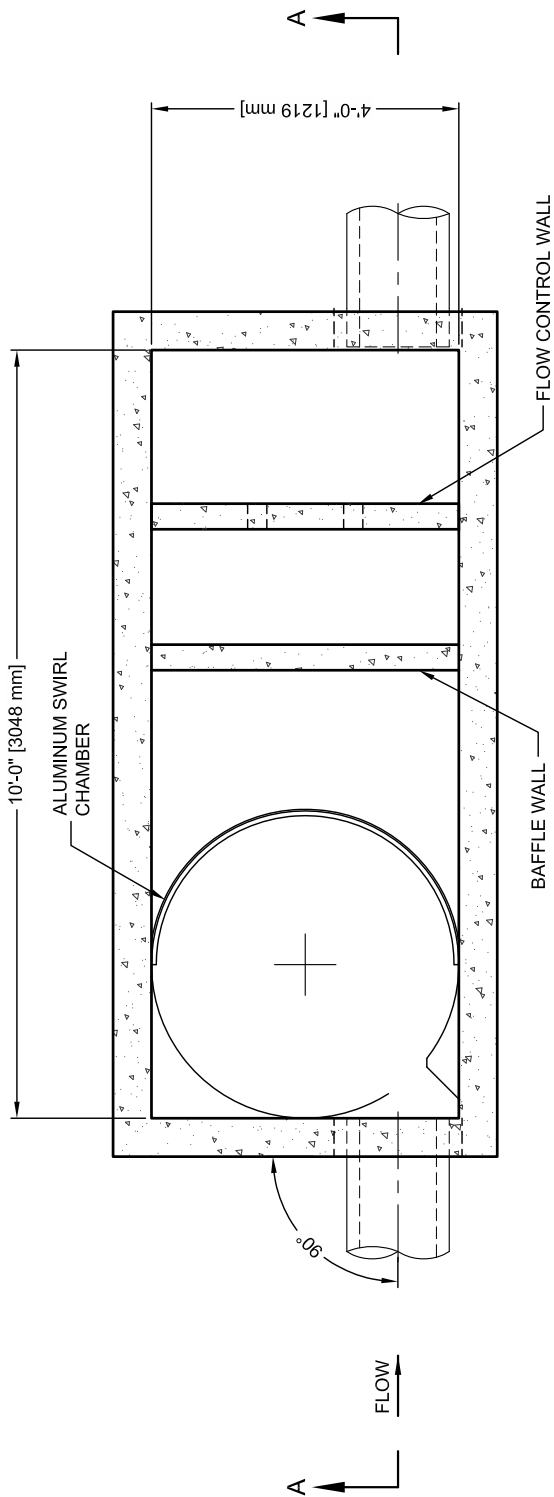
7.6×10^{-6} m/sec

Appendix B: BMP Designs

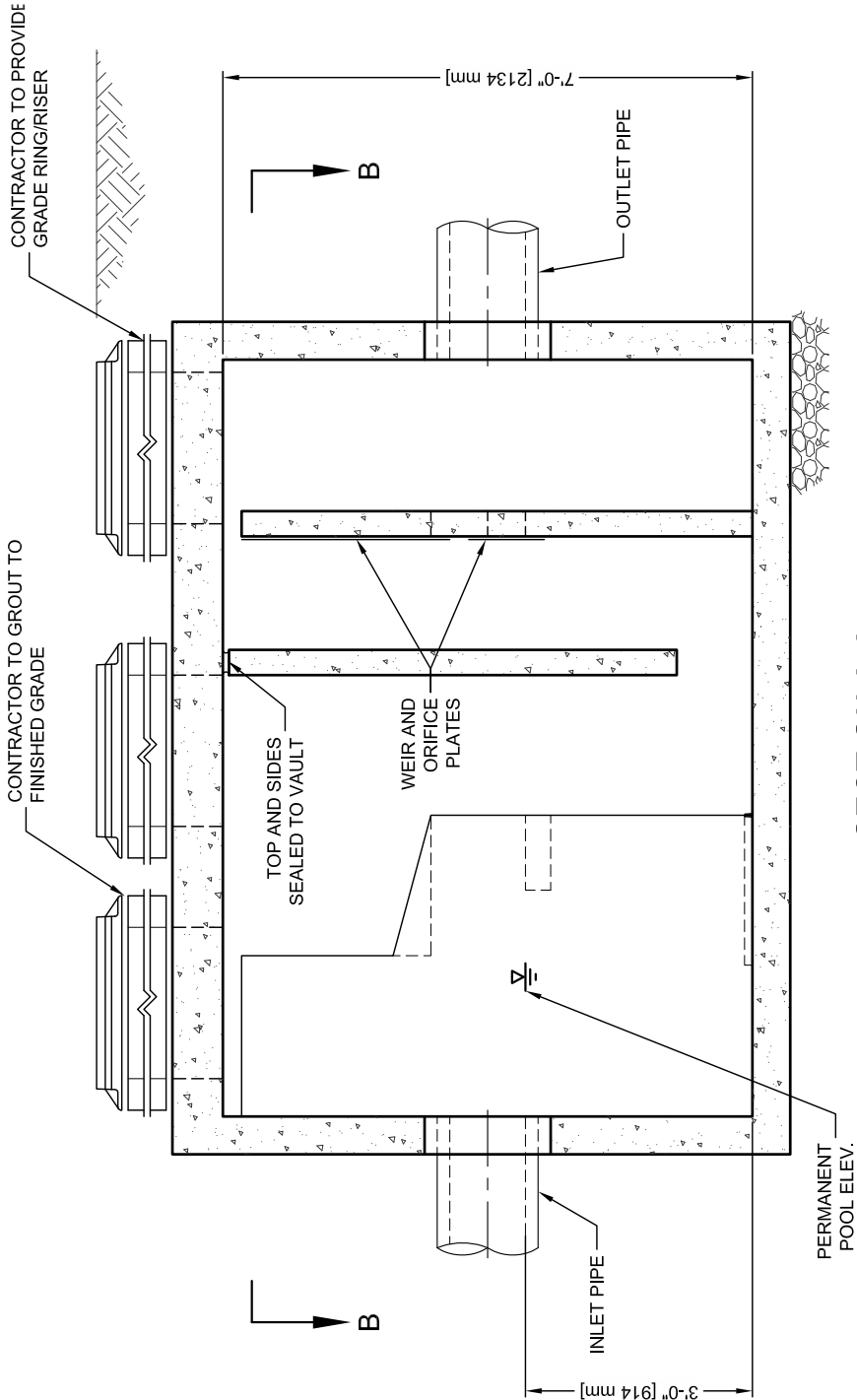
VORTECHS 2000 DESIGN NOTES

VORTECHS 2000 RATED TREATMENT CAPACITY IS 2.8 CFS, OR PER LOCAL REGULATIONS. IF THE SITE CONDITIONS EXCEED RATED TREATMENT CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

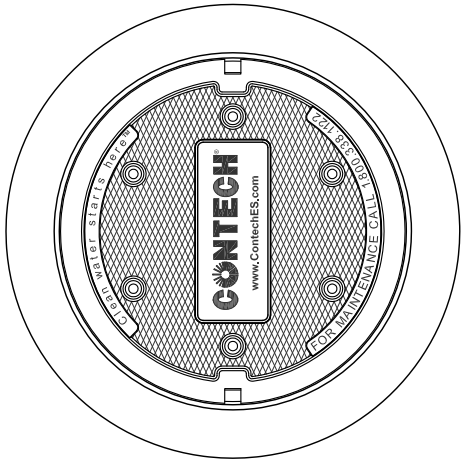
THE STANDARD INLET/OUTLET CONFIGURATION IS SHOWN. FOR OTHER CONFIGURATION OPTIONS , PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com



SECTION B-B



SECTION A-A



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS					
STRUCTURE ID		*			
WATER QUALITY FLOW RATE (CFS)		*			
PEAK FLOW RATE (CFS)		*			
RETURN PERIOD OF PEAK FLOW (YRS)		*			
PIPE DATA:		I.E.	MATERIAL	DIAMETER	
INLET PIPE 1		*	*	*	
INLET PIPE 2		*	*	*	
OUTLET PIPE		*	*	*	
RIM ELEVATION					*
ANTI-FLOTATION BALLAST		WIDTH		HEIGHT	
		*		*	
NOTES/SPECIAL REQUIREMENTS:					
* PER ENGINEER OF RECORD					

- GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
 2. DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
 3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
 4. VORTECHS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
 5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING. ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
 6. INLET PIPE(S) MUST BE PERPENDICULAR TO THE VAULT AND AT THE CORNER TO INTRODUCE THE FLOW TANGENTIALLY TO THE SWIRL CHAMBER. DUAL INLETS NOT TO HAVE OPPOSING TANGENTIAL FLOW DIRECTIONS.
 7. OUTLET PIPE(S) MUST BE DOWN STREAM OF THE FLOW CONTROL BAFFLE AND MAY BE LOCATED ON THE SIDE OR END OF THE VAULT. THE FLOW CONTROL WALL MAY BE TURNED TO ACCOMMODATE OUTLET PIPE KNOCKOUTS ON THE SIDE OF THE VAULT.

- INSTALLATION NOTES
- A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
 - B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE VORTECHS STRUCTURE (LIFTING CLUTCHES PROVIDED).
 - C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
 - D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
 - E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT. HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.



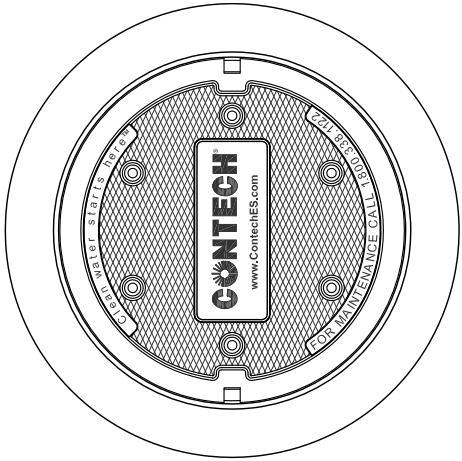
VORTECHS 2000
STANDARD DETAIL

VORTECHS 3000 DESIGN NOTES

VORTECHS 3000 RATED TREATMENT CAPACITY IS 4.5 CFS, OR PER LOCAL REGULATIONS. IF THE SITE CONDITIONS EXCEED RATED TREATMENT CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

THE STANDARD INLET/OUTLET CONFIGURATION IS SHOWN. FOR OTHER CONFIGURATION OPTIONS , PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com

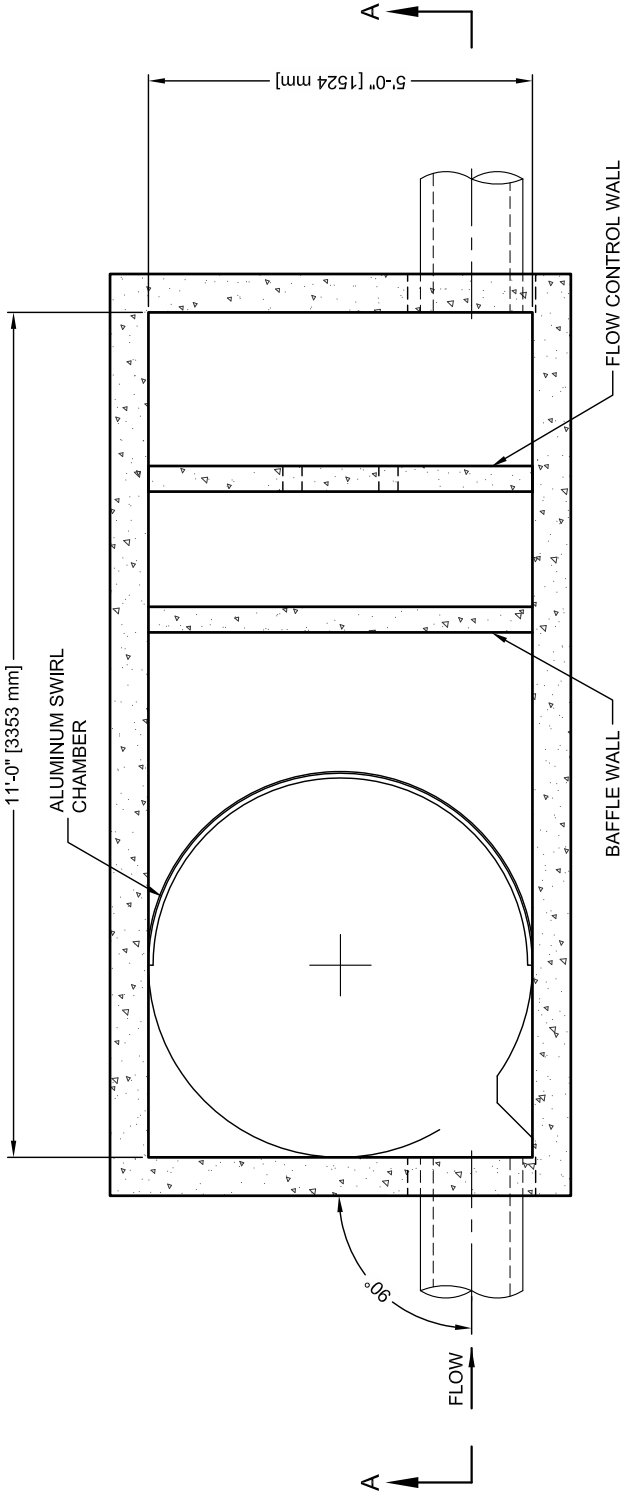
SITE SPECIFIC DATA REQUIREMENTS					
STRUCTURE ID		*			
WATER QUALITY FLOW RATE (CFS)		*			
PEAK FLOW RATE (CFS)		*			
RETURN PERIOD OF PEAK FLOW (YRS)		*			
PIPE DATA:		I.E.	MATERIAL	DIAMETER	
INLET PIPE 1		*	*	*	
INLET PIPE 2		*	*	*	
OUTLET PIPE		*	*	*	
RIM ELEVATION				*	
ANTI-FLOTATION BALLAST			WIDTH	HEIGHT	
			*	*	
NOTES/SPECIAL REQUIREMENTS:					
* PER ENGINEER OF RECORD					



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

- GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
 2. DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
 3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
 4. VORTECHS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
 5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING. ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
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 7. OUTLET PIPE(S) MUST BE DOWN STREAM OF THE FLOW CONTROL BAFFLE AND MAY BE LOCATED ON THE SIDE OR END OF THE VAULT. THE FLOW CONTROL WALL MAY BE TURNED TO ACCOMMODATE OUTLET PIPE KNOCKOUTS ON THE SIDE OF THE VAULT.

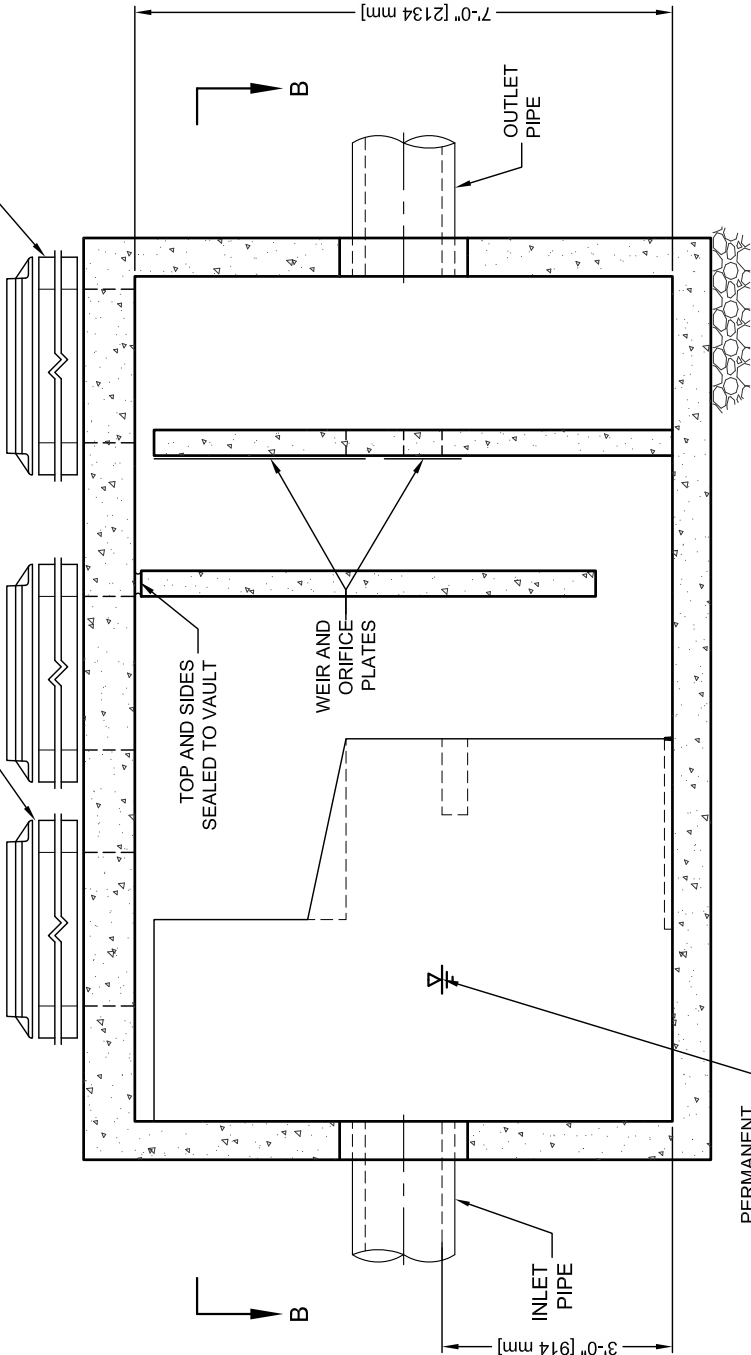
- INSTALLATION NOTES
- A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
 - B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE VORTECHS STRUCTURE (LIFTING CLUTCHES PROVIDED).
 - C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
 - D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
 - E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.



SECTION B-B

CONTRACTOR TO PROVIDE GRADE RING/RISE

CONTRACTOR TO GROUT TO FINISHED GRADE



SECTION A-A

B.3: Total Suspended Solids

Location: Greenmont Commons

B		C	D	E	F
BMP ¹		TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (C*D)	Remaining Load (D-E)
Deep Sump and Hooded Catch Basin		0.25	1.00	0.25	0.75
Vortechs Hydrodynamic Separator 2000/3000		0.80	0.75	0.60	0.15
Sediment Forebay		0.25	0.15	0.04	0.11
Wet Basin		0.80	0.11	0.09	0.02
		0.00	0.02	0.00	0.02
Total TSS Removal =			98%		

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project:	Greenmont Commons
Prepared By:	Cornerstone Land Associates, LLC
Date:	05-June-24

*Equals remaining load from previous BMP (E) which enters the BMP

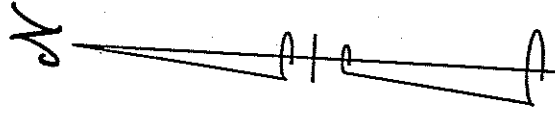
TSS Removal Calculation Worksheet

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

Appendix C: Hydrologic Analysis

C.1: Pre-Development Analysis

[Existing Watershed Plan & HydroCAD calculations]



APPROVED DRACUT ZONING BOARD OF
APPEALS

SIGNATURE _____ DATE _____

For Registry Use Only

"I certify that this plan conforms to the Rules and Regulations of the Registers of Deeds of the Commonwealth of Massachusetts."

Signature _____ Date _____

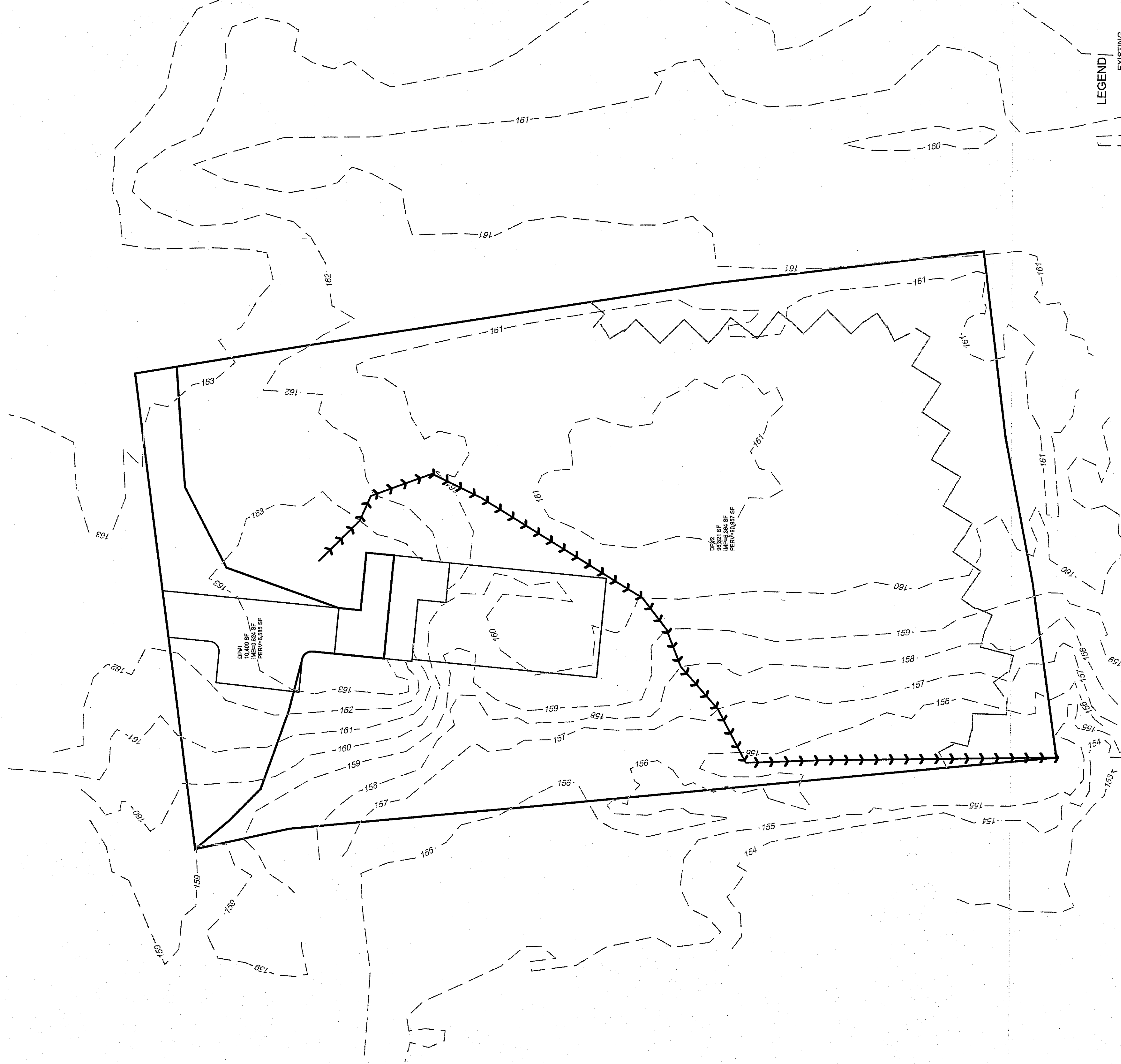
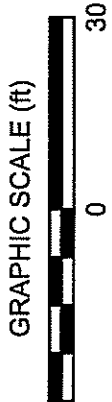
Notice of Appeals

I, _____, being the Town Clerk of the Town of Dracut,
hereby certify that notice of this plan has been received and recorded at this office on
_____, and no appeal of such has been received during the twenty days next.

Town Clerk _____ Date _____

Site Plan

SCALE: 1 in. = 30 ft.



LEGEND

EXISTING

PROPOSED

WF-1

100

GRADE CONTOUR

BORDERING VEGETATIVE WETLAND FLAGGING

STONE WALL DRILL HOLE

CONCRETE BOUND MARKER

GENERAL TEXT

50 FT NO BUILD ZONE

100 FT BWV BUFFER ZONE

TEXT, T&M

TEXT, T&M

EXISTING WATERSHED PLAN
Comprehensive Permit Application
135 GREENMONT AVENUE
DRACUT, MASSACHUSETTS

SCALE: As Shown
DATE: May 18, 2023
PREPARED FOR:
Riverbank Properties
908 Lawrence Street
Lowell, MA 01852

CS

MA

Civil & Structural Engineering
Land Surveying, Land Development
Associates, LLC

25 Dean Avenue - Dracut, MA 01926 - (978) 855-0102

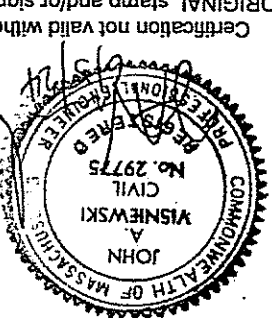
06/05/24

REV'S PER ZONING BOARD OF APPEALS MEETING
AND ZBA PEER REVIEW COMMENTS

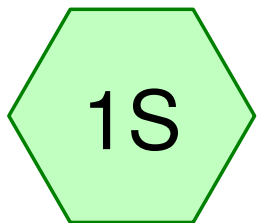
11/29/23

REV'S PER ZONING BOARD OF APPEALS MEETING
AND ZBA PEER REVIEW COMMENTS

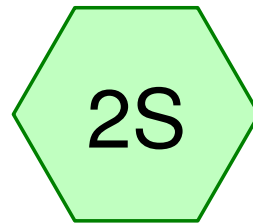
BY	KML	Design by
KML	KML	Survey by
KML	KML	Draft by
KML	KML	Check by
		JAV/TAJ



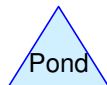
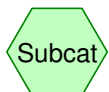
JOB NO.: 2021-235
SHEET: 1 of 1
DRAWING NO.:
EX-WS



DP#1-GREENMONT



DP#2-REAR
WETLANDS



Routing Diagram for Ex-Conditions REVISED 060124
Prepared by Cornerstone Land Consultants LLC, Printed 6/14/2024
HydroCAD® 10.20-3g s/n 03735 © 2023 HydroCAD Software Solutions LLC

Ex-Conditions REVISED 060124

Prepared by Cornerstone Land Consultants LLC

Printed 6/14/2024

HydroCAD® 10.20-3g s/n 03735 © 2023 HydroCAD Software Solutions LLC

Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.048	74	>75% Grass cover, Good, HSG C (1S)
1.910	80	>75% Grass cover, Good, HSG D (1S, 2S)
0.165	98	Paved parking, HSG D (1S, 2S)
0.046	98	Roofs, HSG D (1S, 2S)
0.281	83	Woods, Poor, HSG D (2S)
2.450	82	TOTAL AREA

Ex-Conditions REVISED 060124

Prepared by Cornerstone Land Consultants LLC

HydroCAD® 10.20-3g s/n 03735 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 2-YR Rainfall=3.20"

Printed 6/14/2024

Page 3

Summary for Subcatchment 1S: DP#1-GREENMONT

Runoff = 0.49 cfs @ 12.08 hrs, Volume= 0.033 af, Depth> 1.64"

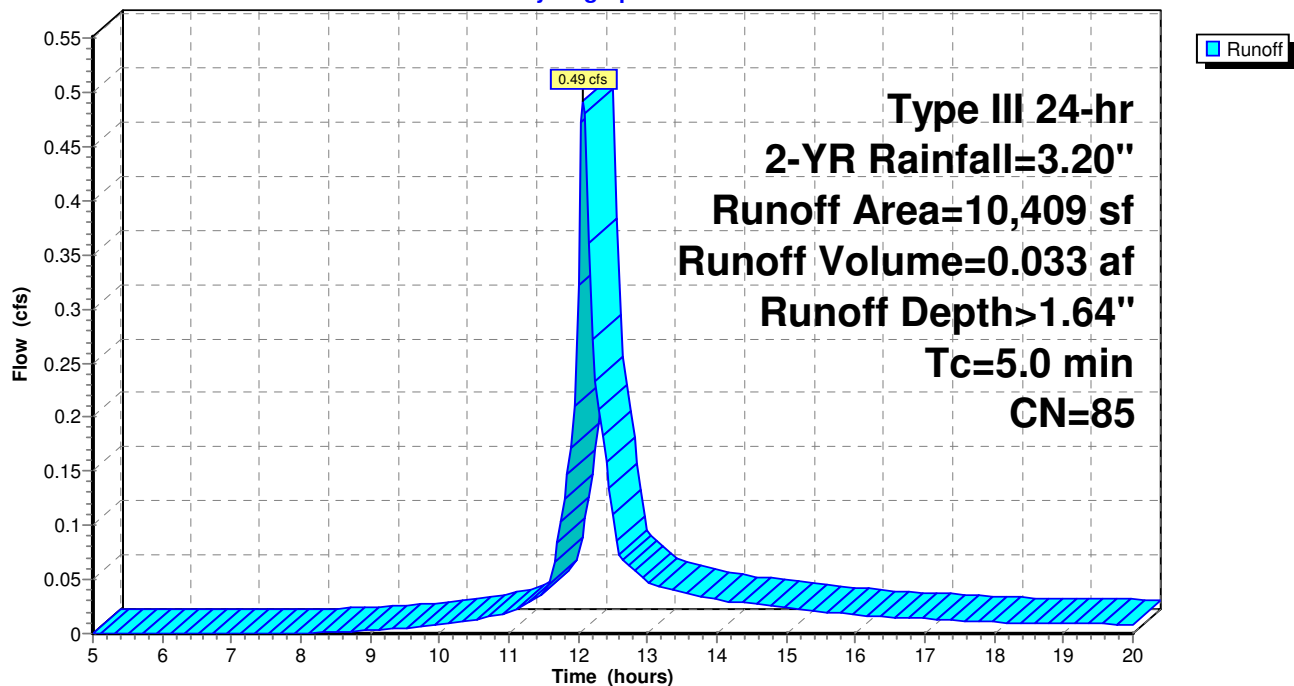
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
981	98	Roofs, HSG D
2,843	98	Paved parking, HSG D
4,478	80	>75% Grass cover, Good, HSG D
2,107	74	>75% Grass cover, Good, HSG C
10,409	85	Weighted Average
6,585		63.26% Pervious Area
3,824		36.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: DP#1-GREENMONT

Hydrograph



Ex-Conditions REVISED 060124

Prepared by Cornerstone Land Consultants LLC

HydroCAD® 10.20-3g s/n 03735 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 2-YR Rainfall=3.20"

Printed 6/14/2024

Page 4

Summary for Subcatchment 2S: DP#2-REAR WETLANDS

Runoff = 3.13 cfs @ 12.17 hrs, Volume= 0.250 af, Depth> 1.36"

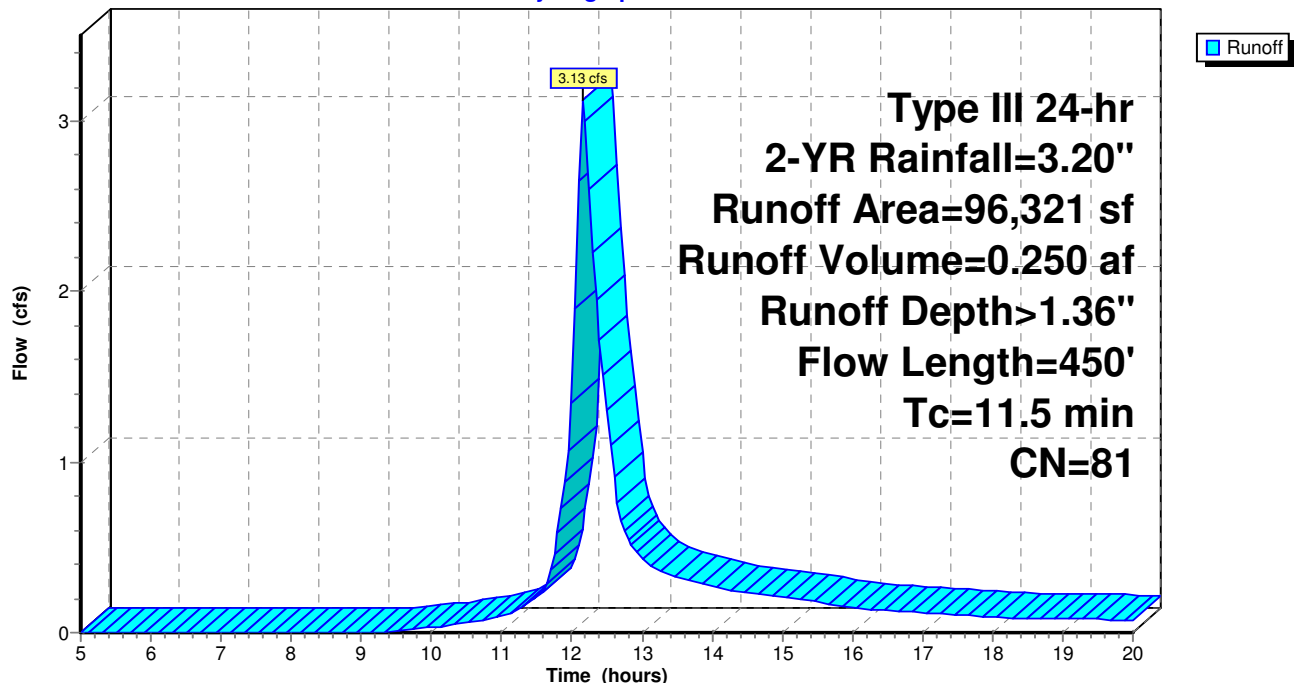
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
1,008	98	Roofs, HSG D
4,356	98	Paved parking, HSG D
33,120	80	>75% Grass cover, Good, HSG D
2,063	83	Woods, Poor, HSG D
10,179	83	Woods, Poor, HSG D
45,595	80	>75% Grass cover, Good, HSG D
96,321	81	Weighted Average
90,957		94.43% Pervious Area
5,364		5.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	50	0.0300	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
6.7	400	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.5	450	Total			

Subcatchment 2S: DP#2-REAR WETLANDS

Hydrograph



Ex-Conditions REVISED 060124

Prepared by Cornerstone Land Consultants LLC

HydroCAD® 10.20-3g s/n 03735 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-YR Rainfall=4.50"

Printed 6/14/2024

Page 5

Summary for Subcatchment 1S: DP#1-GREENMONT

Runoff = 0.81 cfs @ 12.07 hrs, Volume= 0.054 af, Depth> 2.73"

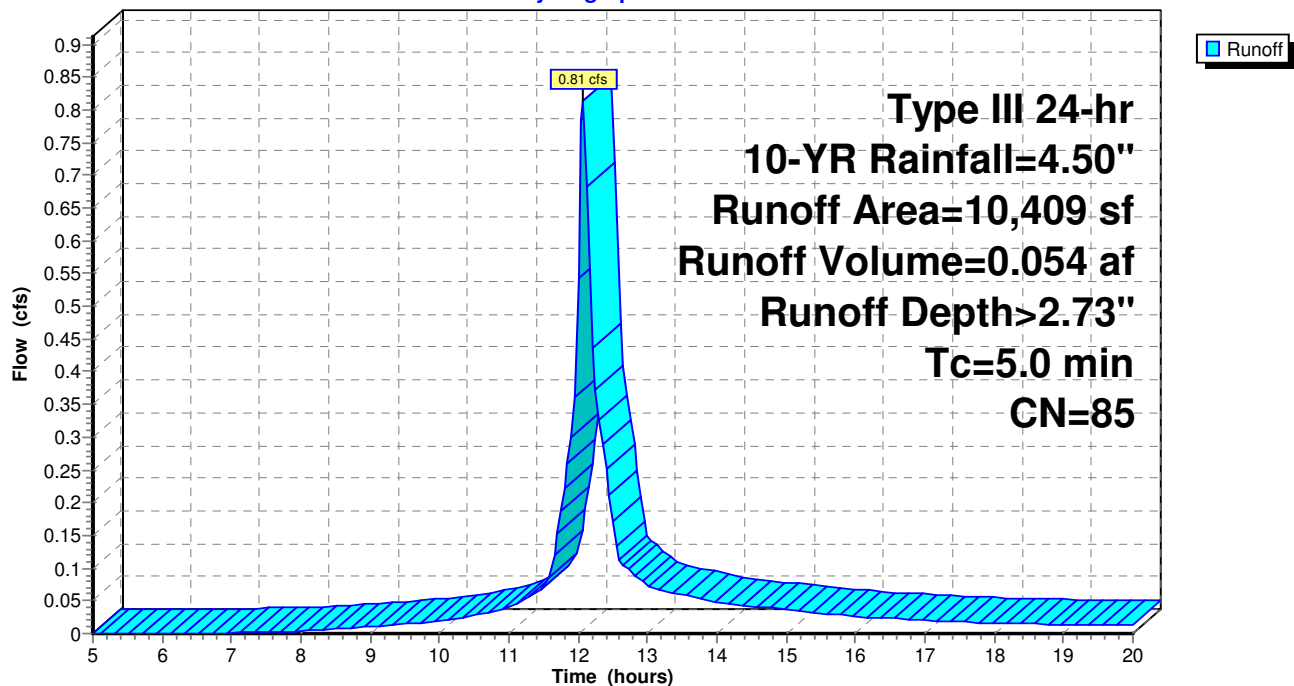
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
981	98	Roofs, HSG D
2,843	98	Paved parking, HSG D
4,478	80	>75% Grass cover, Good, HSG D
2,107	74	>75% Grass cover, Good, HSG C
10,409	85	Weighted Average
6,585		63.26% Pervious Area
3,824		36.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: DP#1-GREENMONT

Hydrograph



Ex-Conditions REVISED 060124

Prepared by Cornerstone Land Consultants LLC

HydroCAD® 10.20-3g s/n 03735 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 10-YR Rainfall=4.50"

Printed 6/14/2024

Page 6

Summary for Subcatchment 2S: DP#2-REAR WETLANDS

Runoff = 5.48 cfs @ 12.16 hrs, Volume= 0.437 af, Depth> 2.37"

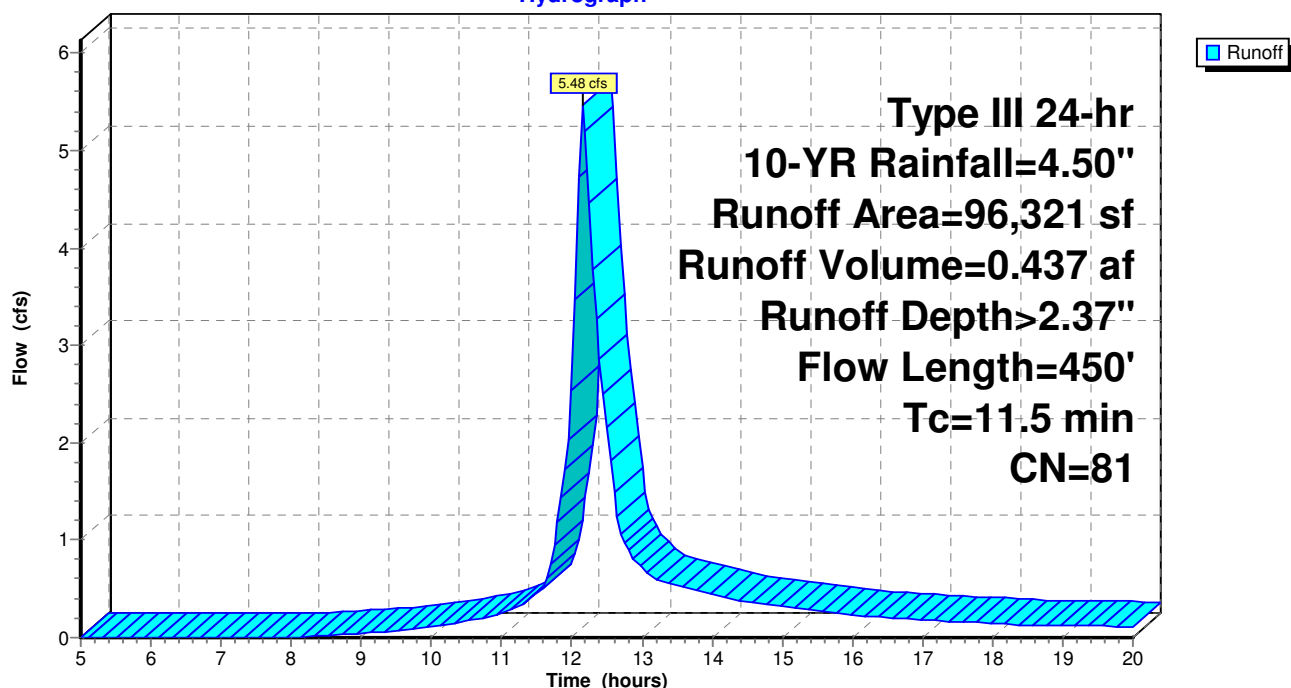
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
1,008	98	Roofs, HSG D
4,356	98	Paved parking, HSG D
33,120	80	>75% Grass cover, Good, HSG D
2,063	83	Woods, Poor, HSG D
10,179	83	Woods, Poor, HSG D
45,595	80	>75% Grass cover, Good, HSG D
96,321	81	Weighted Average
90,957		94.43% Pervious Area
5,364		5.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	50	0.0300	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
6.7	400	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.5	450	Total			

Subcatchment 2S: DP#2-REAR WETLANDS

Hydrograph



Ex-Conditions REVISED 060124

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Type III 24-hr 25-YR Rainfall=5.30"

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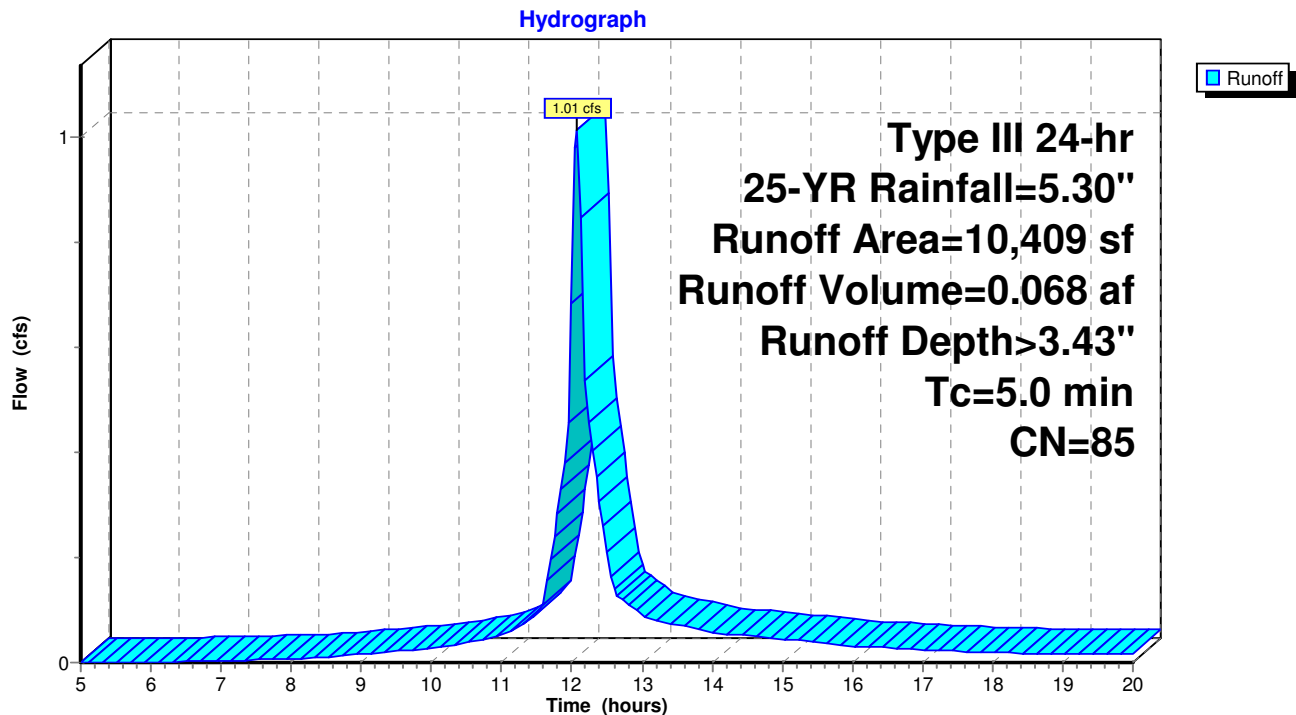
Summary for Subcatchment 1S: DP#1-GREENMONT

Runoff = 1.01 cfs @ 12.07 hrs, Volume= 0.068 af, Depth> 3.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
981	98	Roofs, HSG D
2,843	98	Paved parking, HSG D
4,478	80	>75% Grass cover, Good, HSG D
2,107	74	>75% Grass cover, Good, HSG C
10,409	85	Weighted Average
6,585		63.26% Pervious Area
3,824		36.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: DP#1-GREENMONT

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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 2S: DP#2-REAR WETLANDS

Runoff = 6.98 cfs @ 12.16 hrs, Volume= 0.560 af, Depth> 3.04"

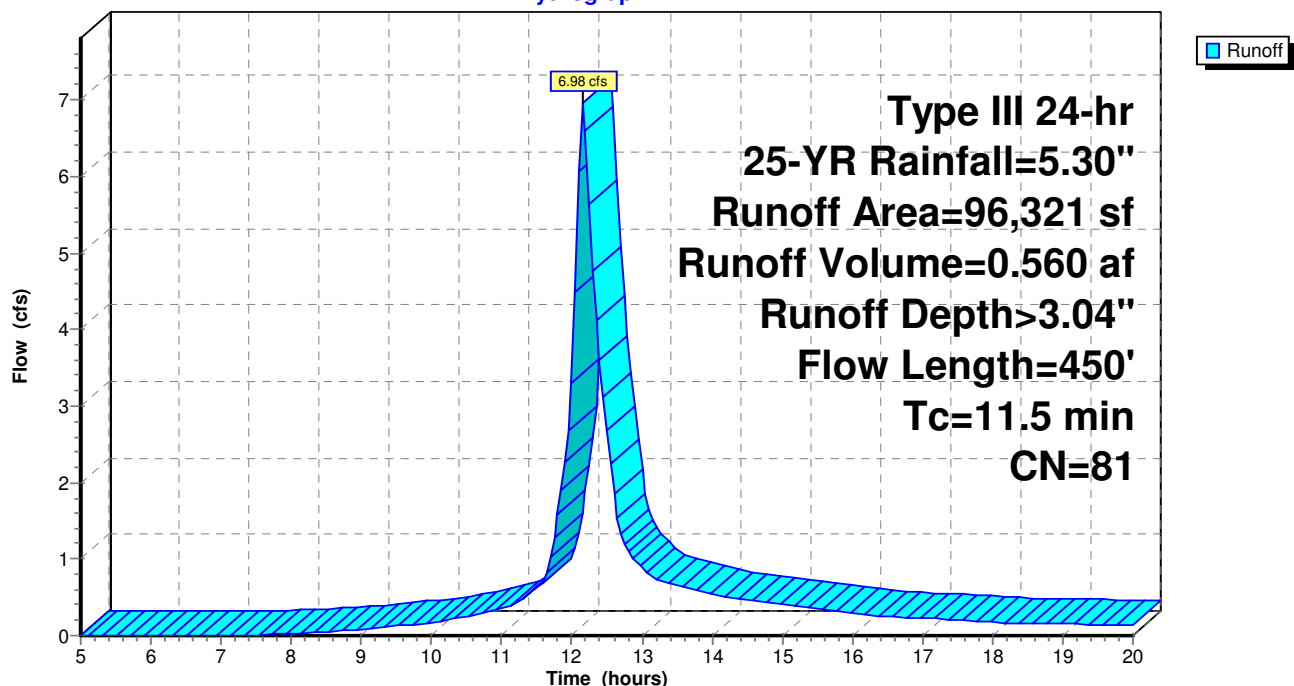
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
1,008	98	Roofs, HSG D
4,356	98	Paved parking, HSG D
33,120	80	>75% Grass cover, Good, HSG D
2,063	83	Woods, Poor, HSG D
10,179	83	Woods, Poor, HSG D
45,595	80	>75% Grass cover, Good, HSG D
96,321	81	Weighted Average
90,957		94.43% Pervious Area
5,364		5.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	50	0.0300	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
6.7	400	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.5	450	Total			

Subcatchment 2S: DP#2-REAR WETLANDS

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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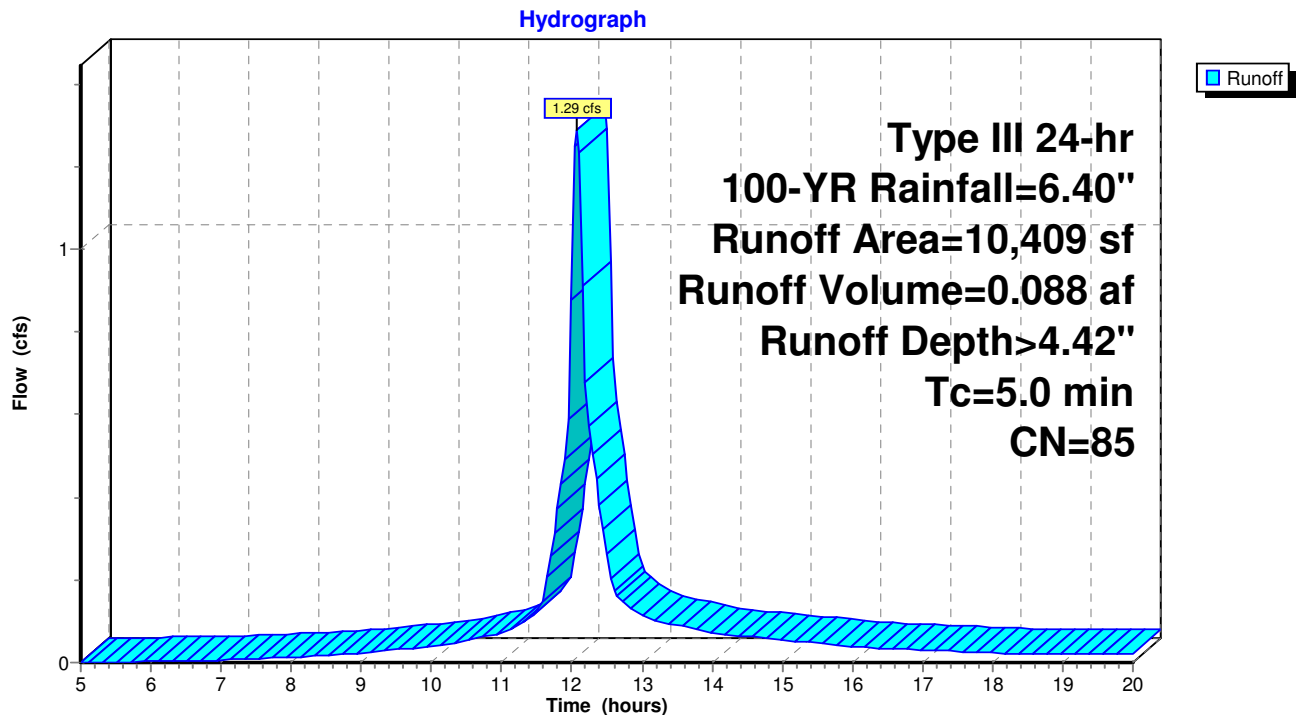
Summary for Subcatchment 1S: DP#1-GREENMONT

Runoff = 1.29 cfs @ 12.07 hrs, Volume= 0.088 af, Depth> 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
981	98	Roofs, HSG D
2,843	98	Paved parking, HSG D
4,478	80	>75% Grass cover, Good, HSG D
2,107	74	>75% Grass cover, Good, HSG C
10,409	85	Weighted Average
6,585		63.26% Pervious Area
3,824		36.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: DP#1-GREENMONT

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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 2S: DP#2-REAR WETLANDS

Runoff = 9.07 cfs @ 12.16 hrs, Volume= 0.734 af, Depth> 3.99"

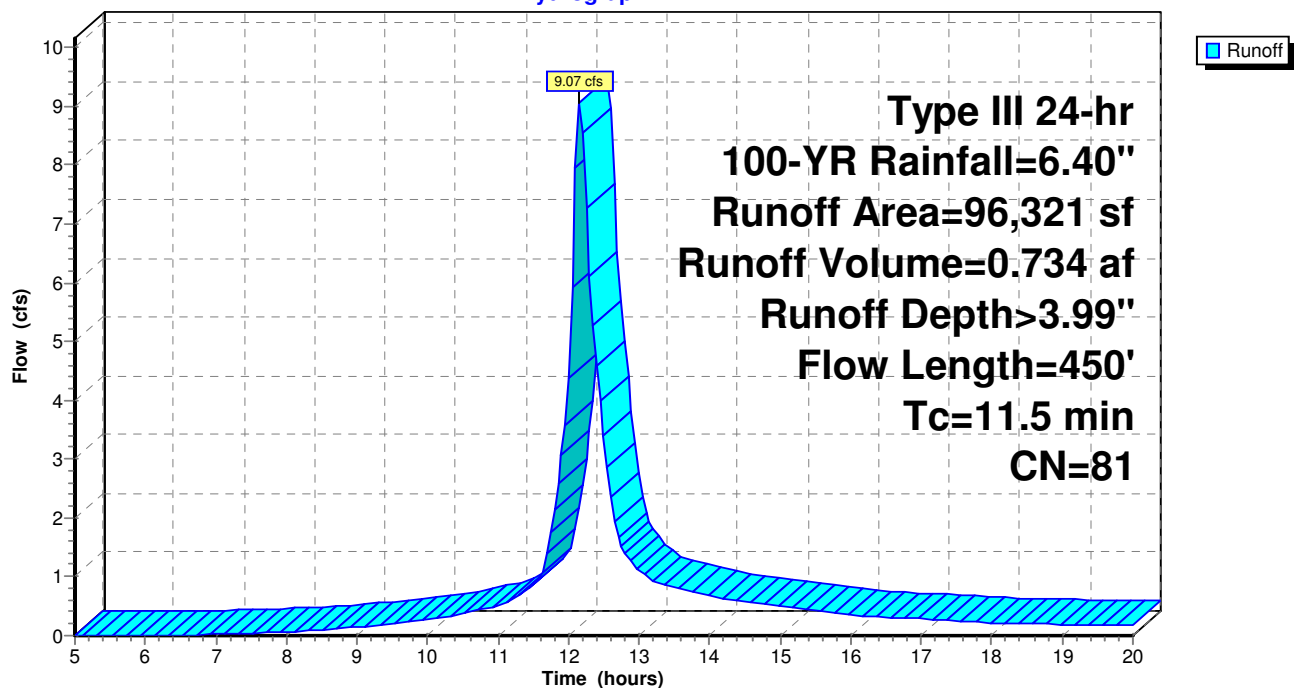
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
1,008	98	Roofs, HSG D
4,356	98	Paved parking, HSG D
33,120	80	>75% Grass cover, Good, HSG D
2,063	83	Woods, Poor, HSG D
10,179	83	Woods, Poor, HSG D
45,595	80	>75% Grass cover, Good, HSG D
96,321	81	Weighted Average
90,957		94.43% Pervious Area
5,364		5.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	50	0.0300	0.17		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
6.7	400	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.5	450	Total			

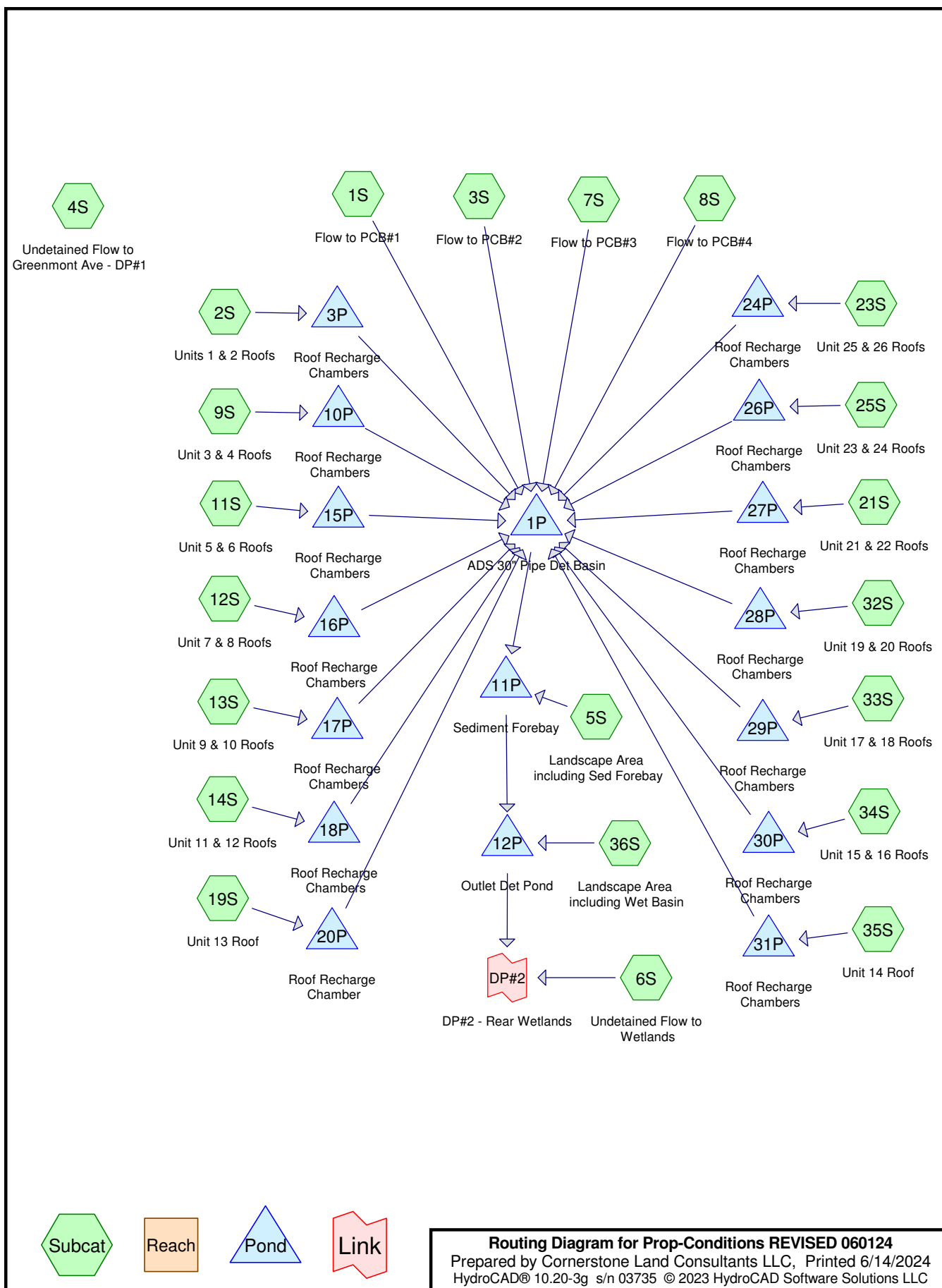
Subcatchment 2S: DP#2-REAR WETLANDS

Hydrograph



C.2: Post-Development Analysis

[Proposed Watershed Plan & HydroCAD calculations]



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.519	80	>75% Grass cover, Good, HSG D (1S, 3S, 4S, 5S, 6S, 7S, 8S, 36S)
0.449	98	Paved parking, HSG D (1S, 3S, 7S, 8S)
0.482	98	Roofs, HSG D (2S, 9S, 11S, 12S, 13S, 14S, 19S, 21S, 23S, 25S, 32S, 33S, 34S, 35S)
2.450	87	TOTAL AREA

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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 1S: Flow to PCB#1

Runoff = 0.39 cfs @ 12.07 hrs, Volume= 0.028 af, Depth= 2.08"
Routed to Pond 1P : ADS 30" Pipe Det Basin

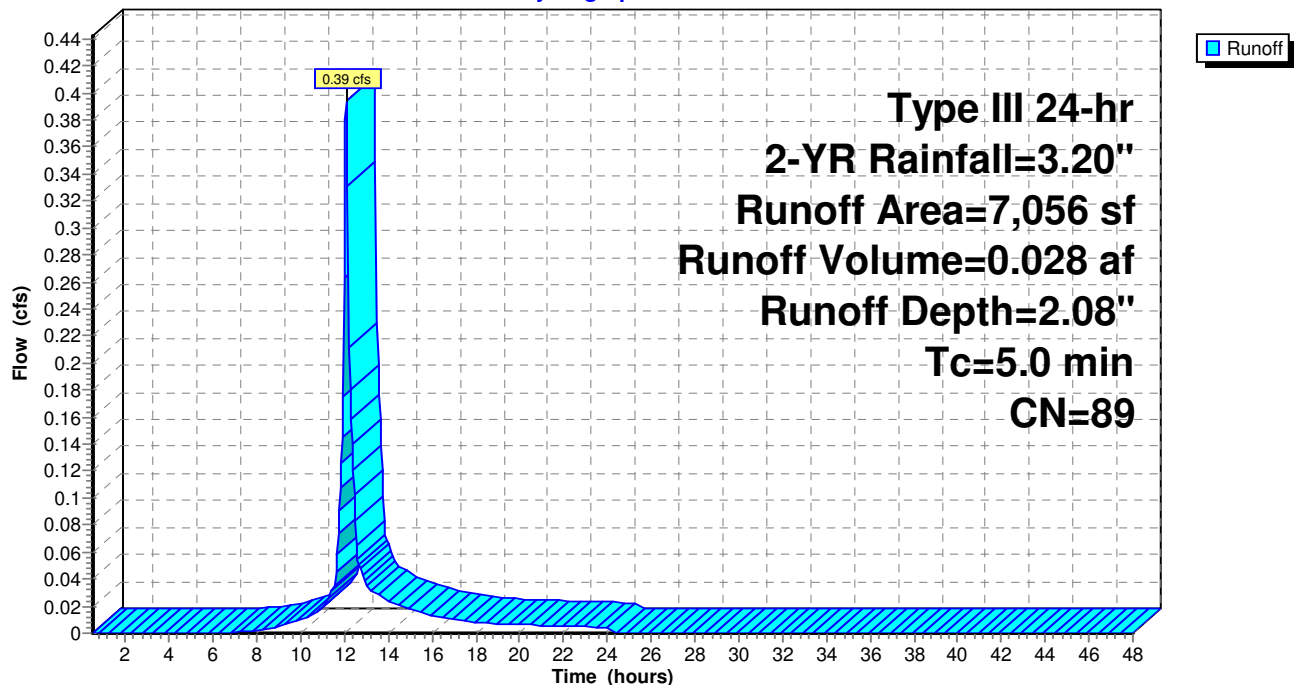
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
3,578	98	Paved parking, HSG D
3,478	80	>75% Grass cover, Good, HSG D
7,056	89	Weighted Average
3,478		49.29% Pervious Area
3,578		50.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: Flow to PCB#1

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 2S: Units 1 & 2 Roofs

Runoff = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af, Depth= 2.97"
Routed to Pond 3P : Roof Recharge Chambers

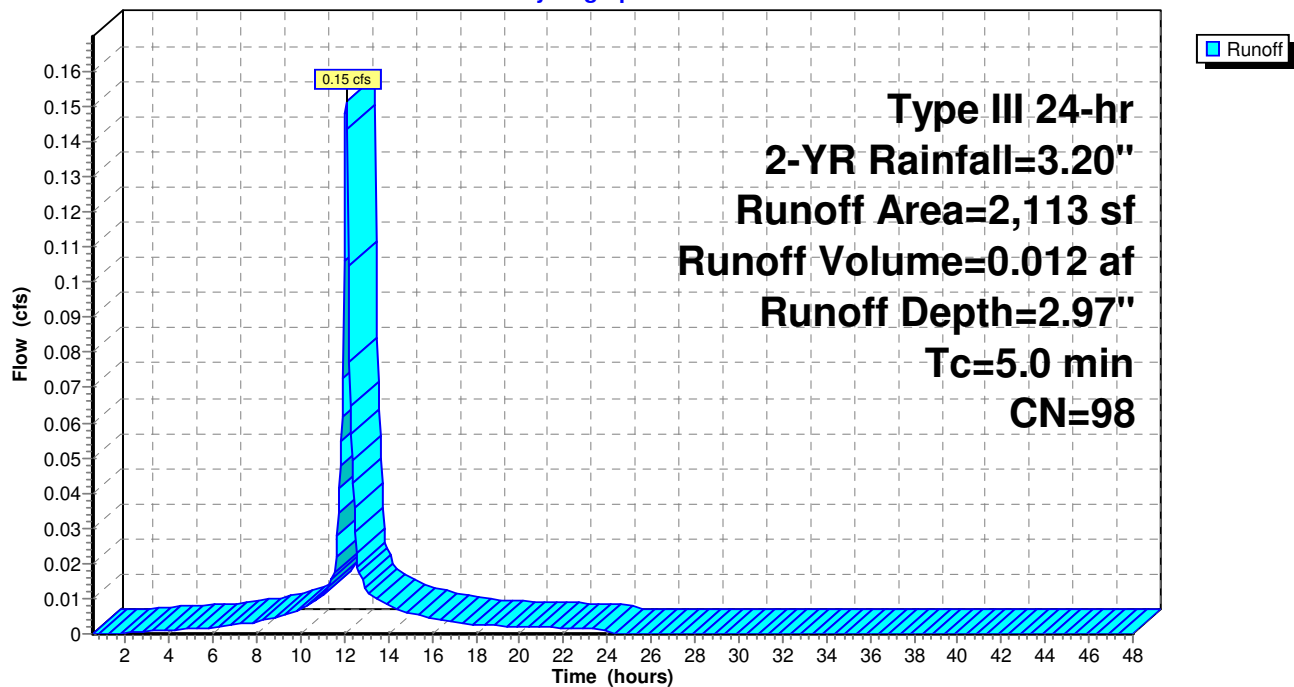
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S: Units 1 & 2 Roofs

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 3S: Flow to PCB#2

Runoff = 0.39 cfs @ 12.07 hrs, Volume= 0.028 af, Depth= 2.08"

Routed to Pond 1P : ADS 30" Pipe Det Basin

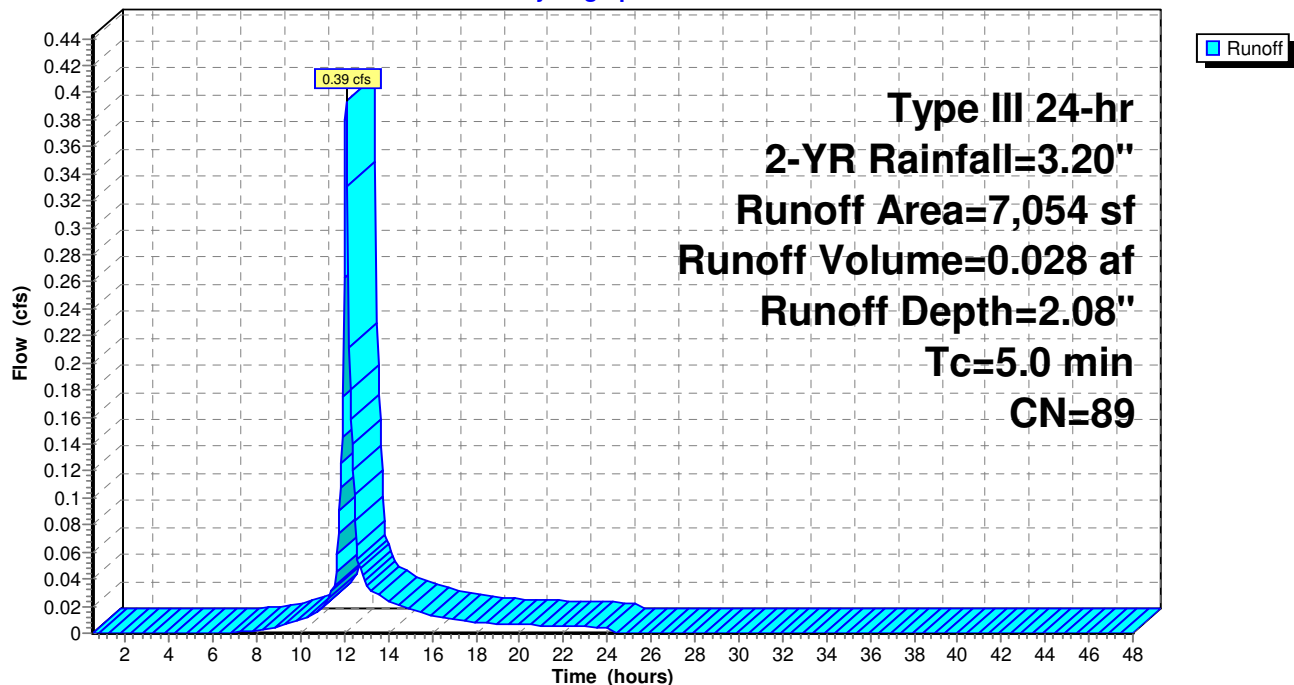
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
3,568	98	Paved parking, HSG D
3,486	80	>75% Grass cover, Good, HSG D
7,054	89	Weighted Average
3,486		49.42% Pervious Area
3,568		50.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S: Flow to PCB#2

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 4S: Undetained Flow to Greenmont Ave - DP#1

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.021 af, Depth= 1.40"

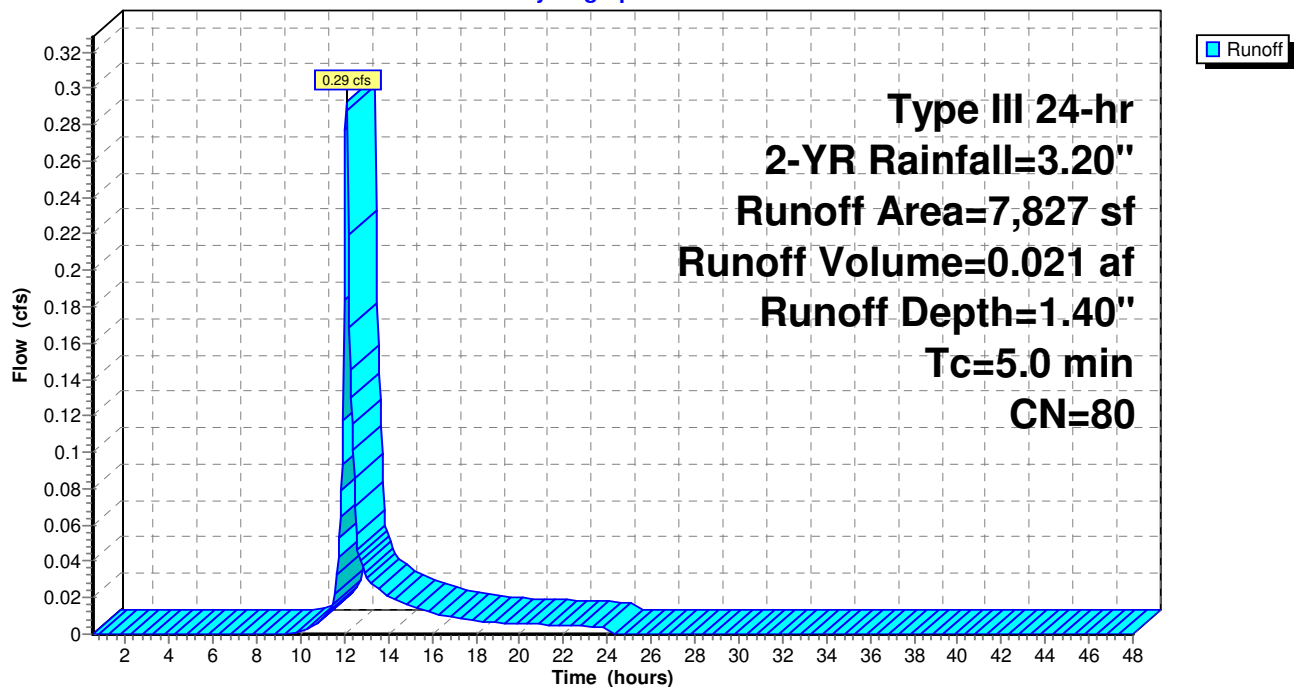
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
7,827	80	>75% Grass cover, Good, HSG D
7,827		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 4S: Undetained Flow to Greenmont Ave - DP#1

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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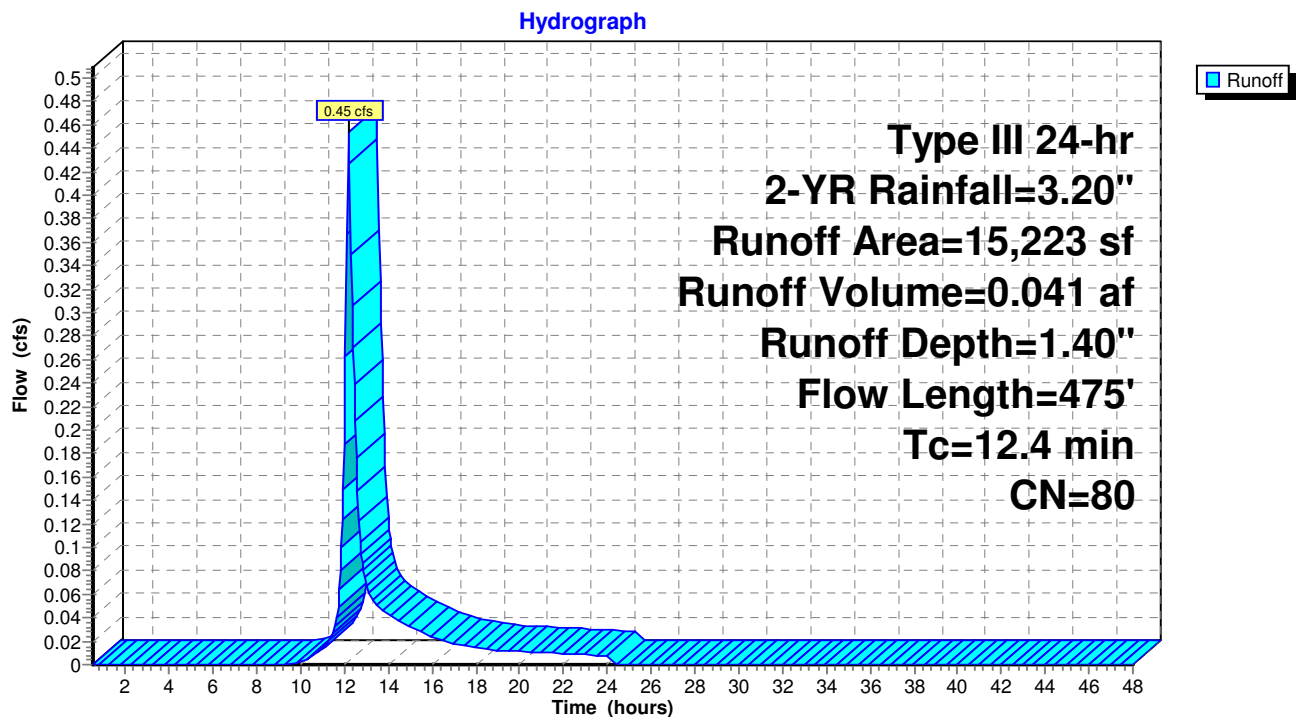
Summary for Subcatchment 5S: Landscape Area including Sed Forebay

Runoff = 0.45 cfs @ 12.18 hrs, Volume= 0.041 af, Depth= 1.40"
Routed to Pond 11P : Sediment Forebay

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
7,905	80	>75% Grass cover, Good, HSG D
7,318	80	>75% Grass cover, Good, HSG D
15,223	80	Weighted Average
15,223		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	50	0.0150	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
6.1	425	0.0060	1.16		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
12.4	475	Total			

Subcatchment 5S: Landscape Area including Sed Forebay

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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 6S: Undetained Flow to Wetlands

Runoff = 0.15 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 1.40"
Routed to Link DP#2 : DP#2 - Rear Wetlands

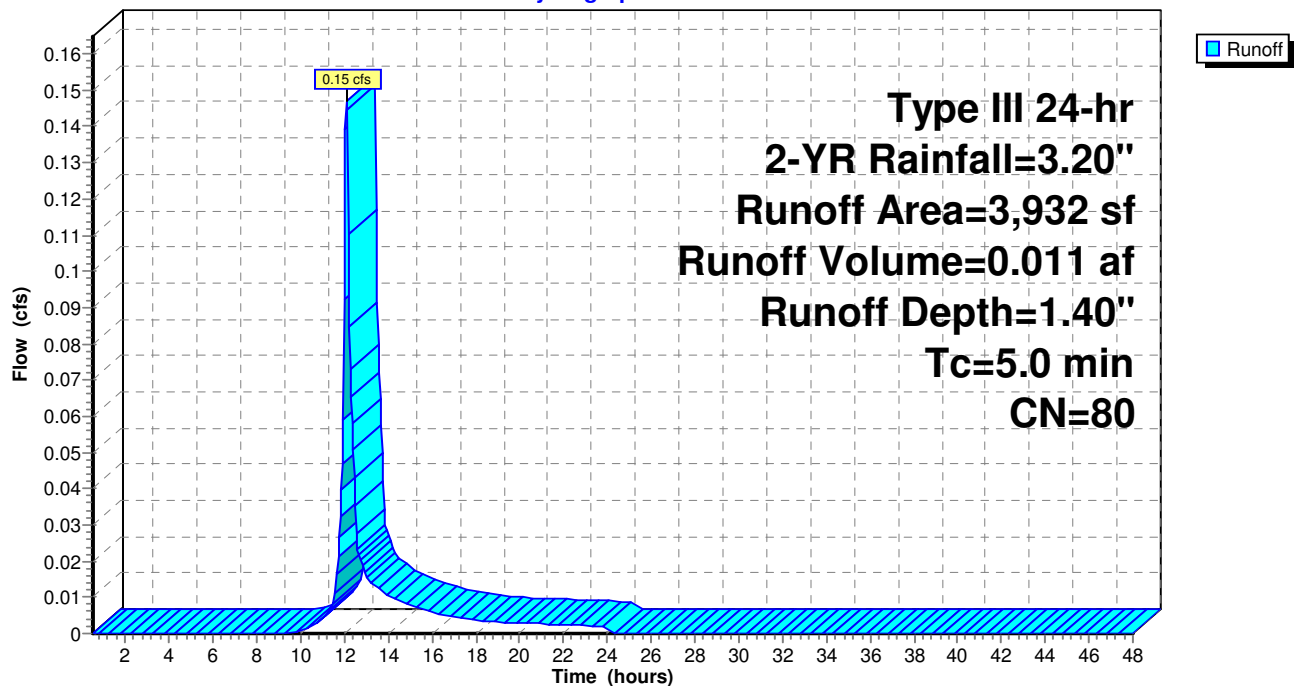
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
2,032	80	>75% Grass cover, Good, HSG D
1,900	80	>75% Grass cover, Good, HSG D
3,932	80	Weighted Average
3,932		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 6S: Undetained Flow to Wetlands

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 7S: Flow to PCB#3

Runoff = 0.70 cfs @ 12.18 hrs, Volume= 0.063 af, Depth= 1.91"
 Routed to Pond 1P : ADS 30" Pipe Det Basin

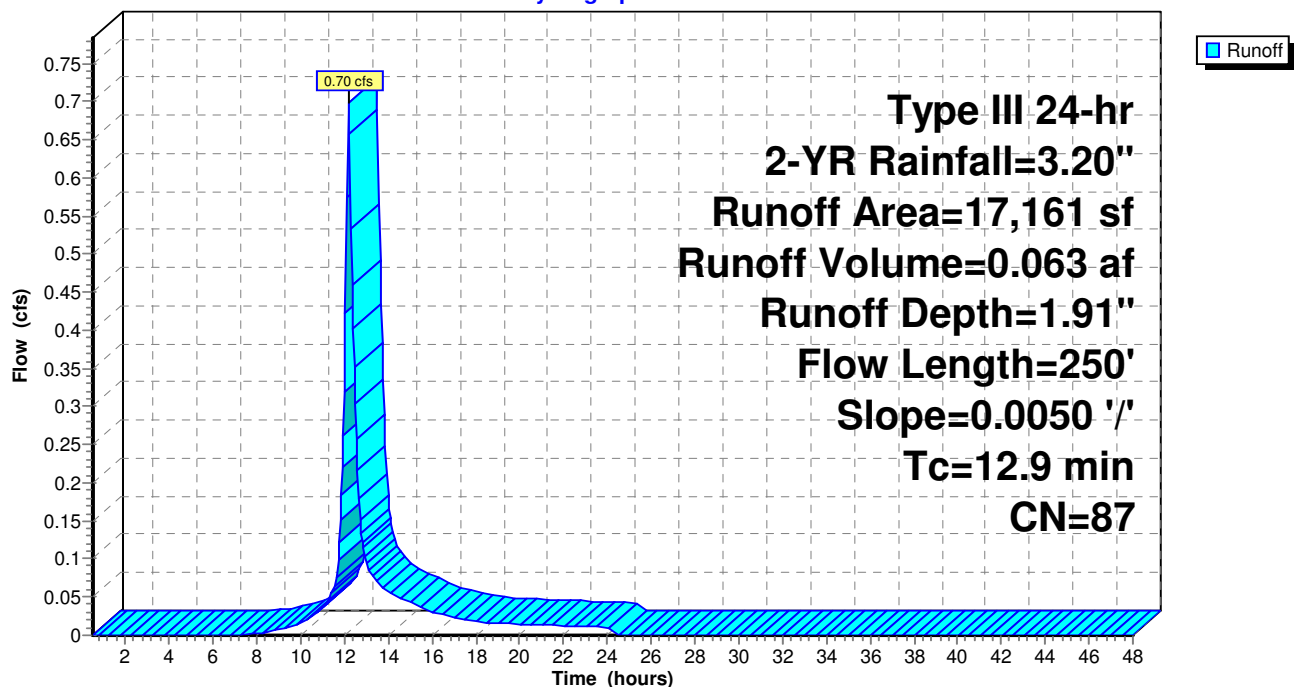
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
10,938	80	>75% Grass cover, Good, HSG D
6,223	98	Paved parking, HSG D
17,161	87	Weighted Average
10,938		63.74% Pervious Area
6,223		36.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0050	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.1	200	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
12.9	250	Total			

Subcatchment 7S: Flow to PCB#3

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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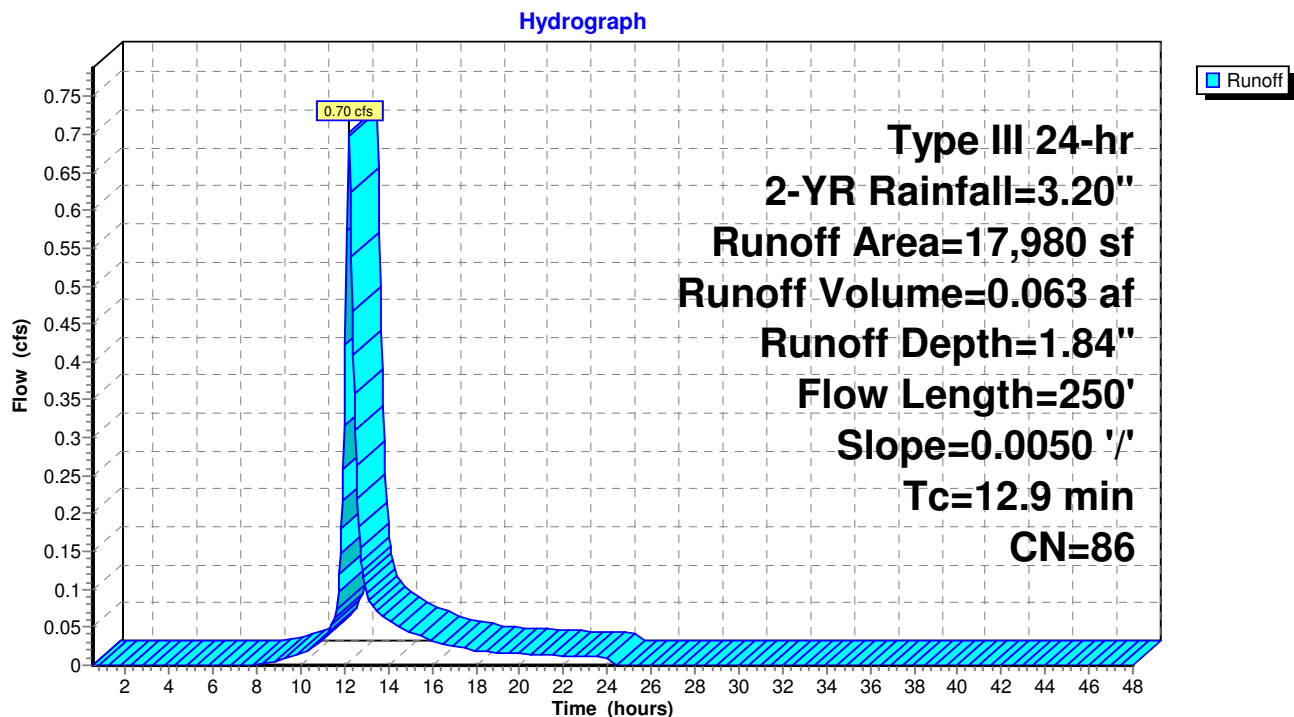
Summary for Subcatchment 8S: Flow to PCB#4

Runoff = 0.70 cfs @ 12.18 hrs, Volume= 0.063 af, Depth= 1.84"
Routed to Pond 1P : ADS 30" Pipe Det Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
11,779	80	>75% Grass cover, Good, HSG D
6,201	98	Paved parking, HSG D
17,980	86	Weighted Average
11,779		65.51% Pervious Area
6,201		34.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0050	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.1	200	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
12.9	250	Total			

Subcatchment 8S: Flow to PCB#4

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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 9S: Unit 3 & 4 Roofs

Runoff = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af, Depth= 2.97"
Routed to Pond 10P : Roof Recharge Chambers

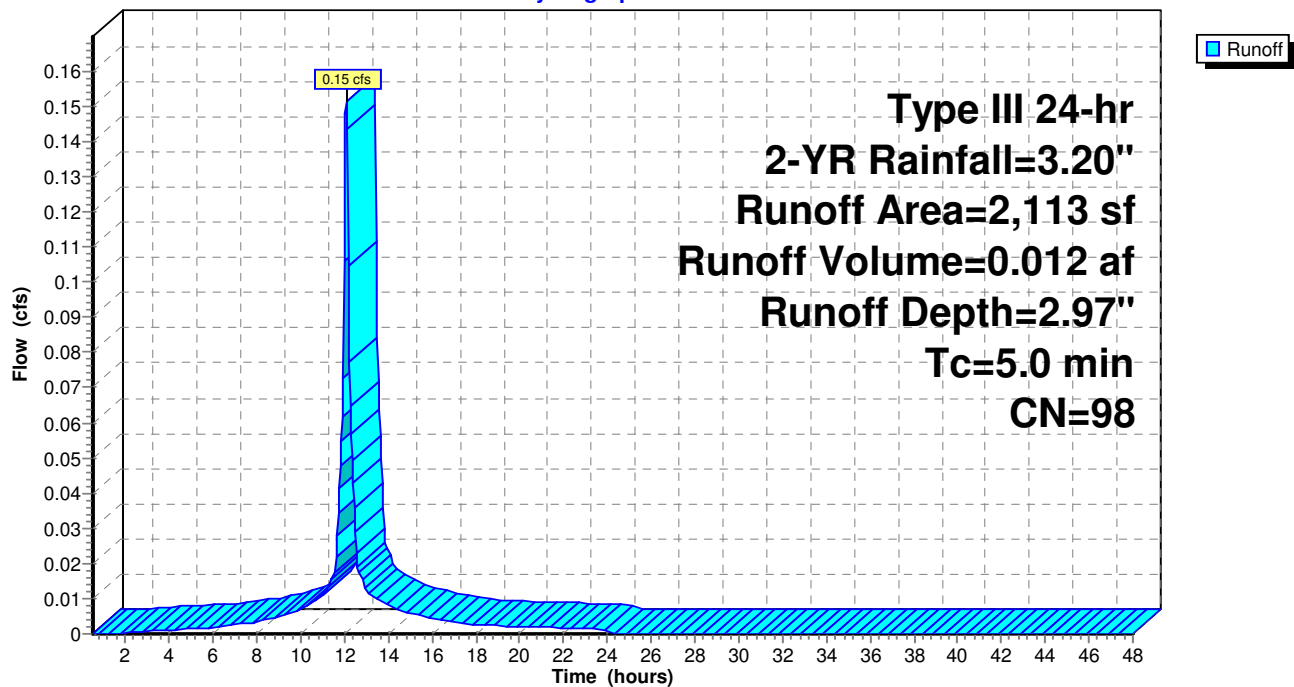
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 9S: Unit 3 & 4 Roofs

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 11S: Unit 5 & 6 Roofs

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 2.97"
Routed to Pond 15P : Roof Recharge Chambers

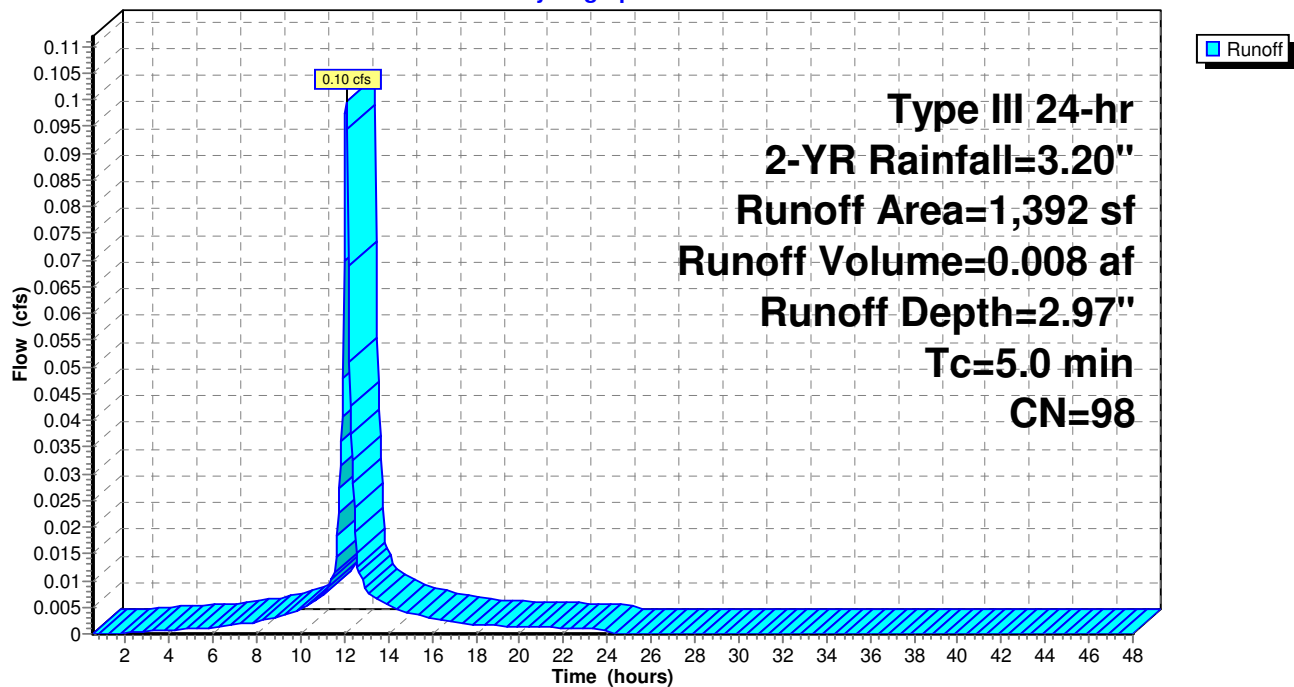
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 11S: Unit 5 & 6 Roofs

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 12S: Unit 7 & 8 Roofs

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 2.97"
Routed to Pond 16P : Roof Recharge Chambers

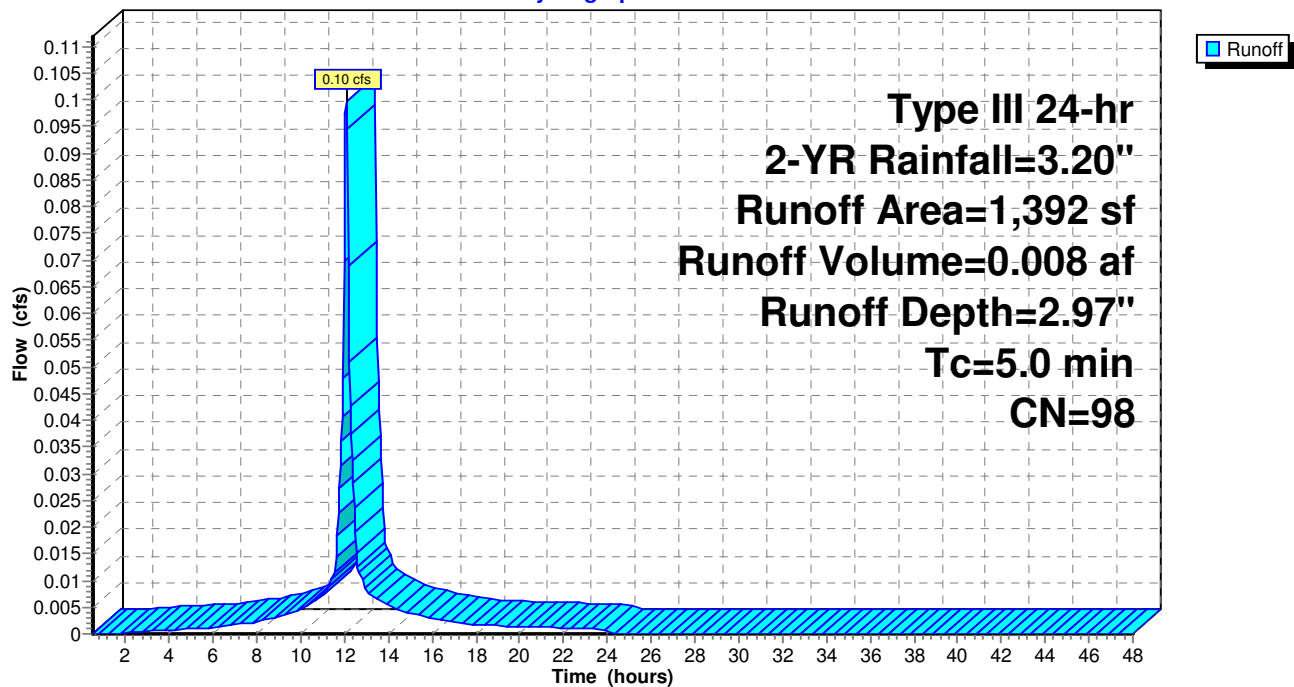
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 12S: Unit 7 & 8 Roofs

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 13S: Unit 9 & 10 Roofs

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 2.97"
Routed to Pond 17P : Roof Recharge Chambers

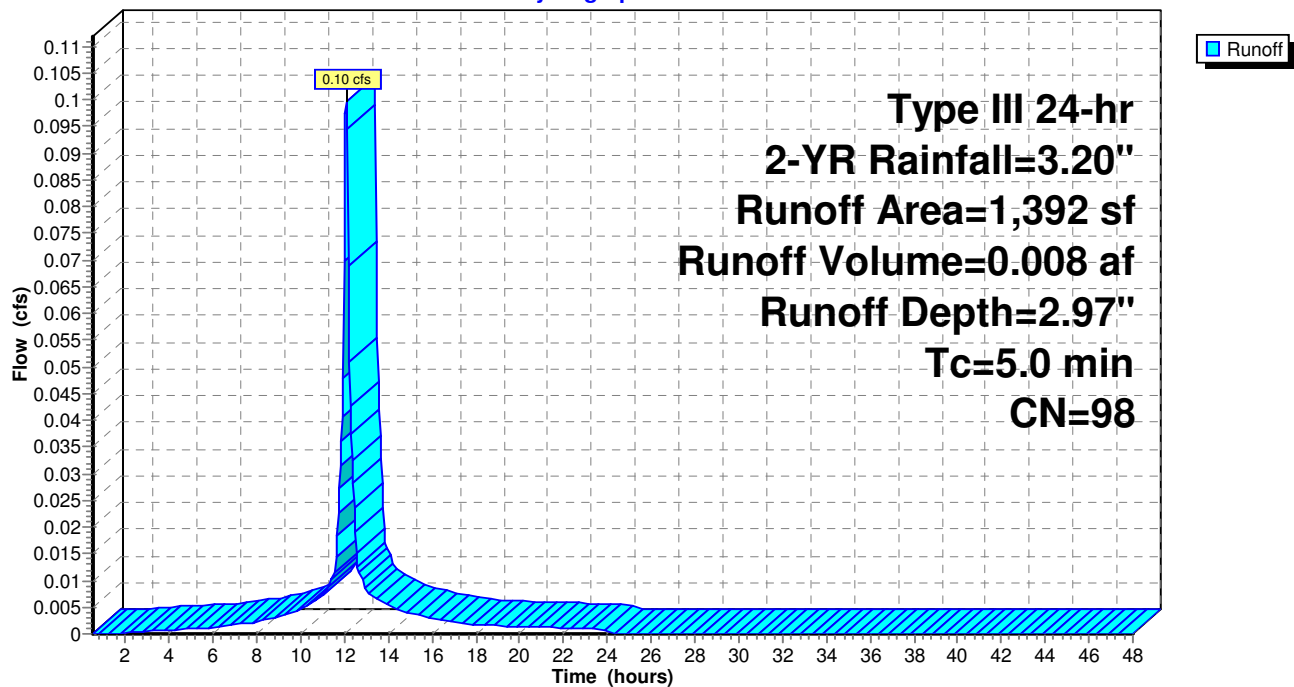
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 13S: Unit 9 & 10 Roofs

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 14S: Unit 11 & 12 Roofs

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 2.97"
Routed to Pond 18P : Roof Recharge Chambers

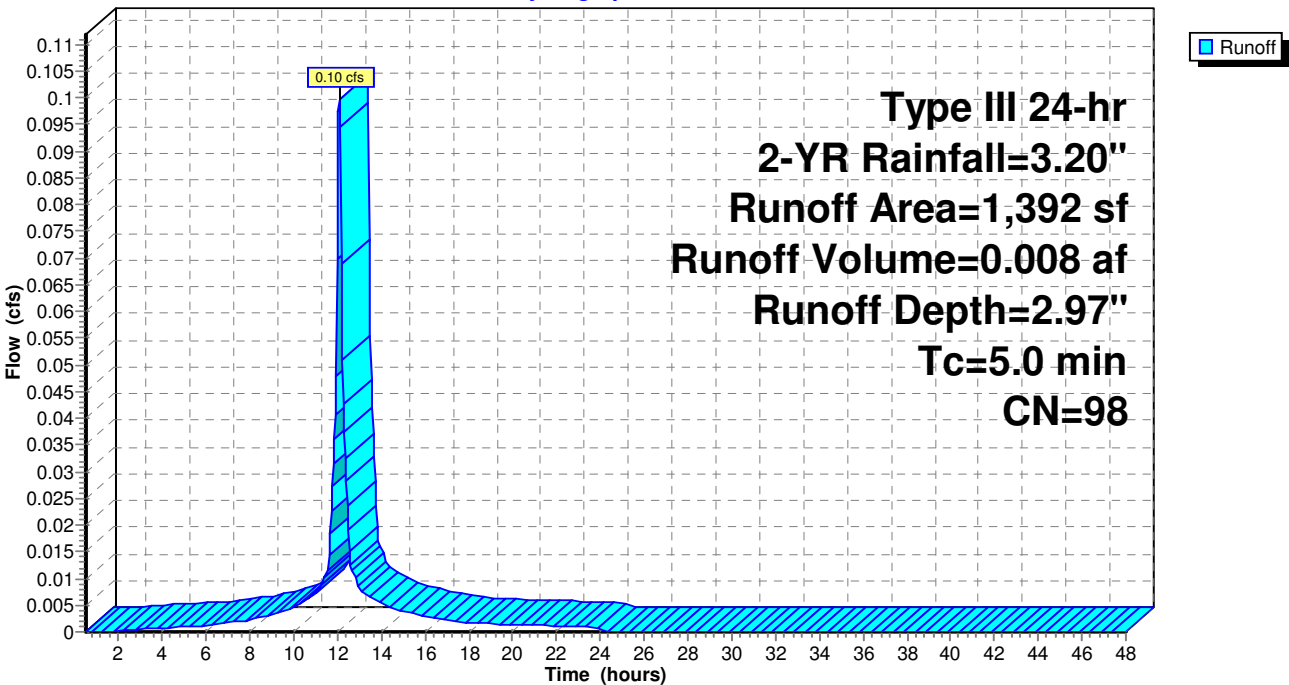
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 14S: Unit 11 & 12 Roofs

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 19S: Unit 13 Roof

Runoff = 0.05 cfs @ 12.07 hrs, Volume= 0.004 af, Depth= 2.97"
Routed to Pond 20P : Roof Recharge Chamber

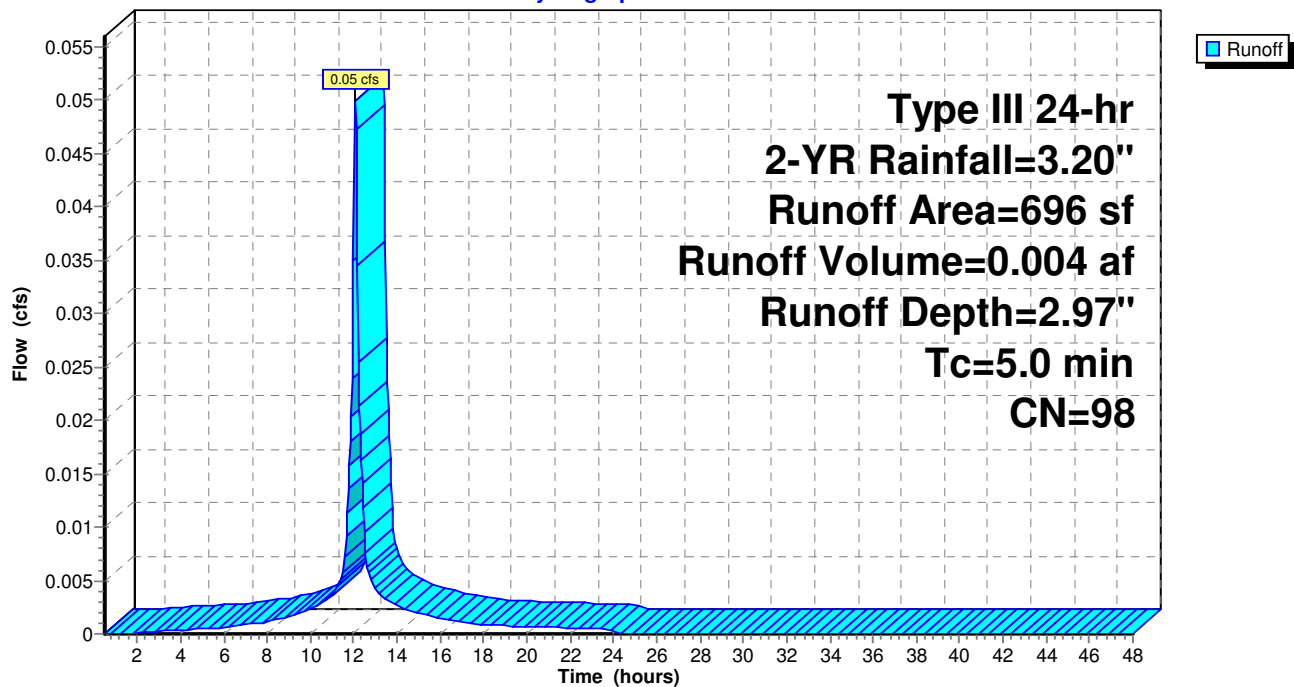
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
696	98	Roofs, HSG D
696		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 19S: Unit 13 Roof

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 21S: Unit 21 & 22 Roofs

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 2.97"
Routed to Pond 27P : Roof Recharge Chambers

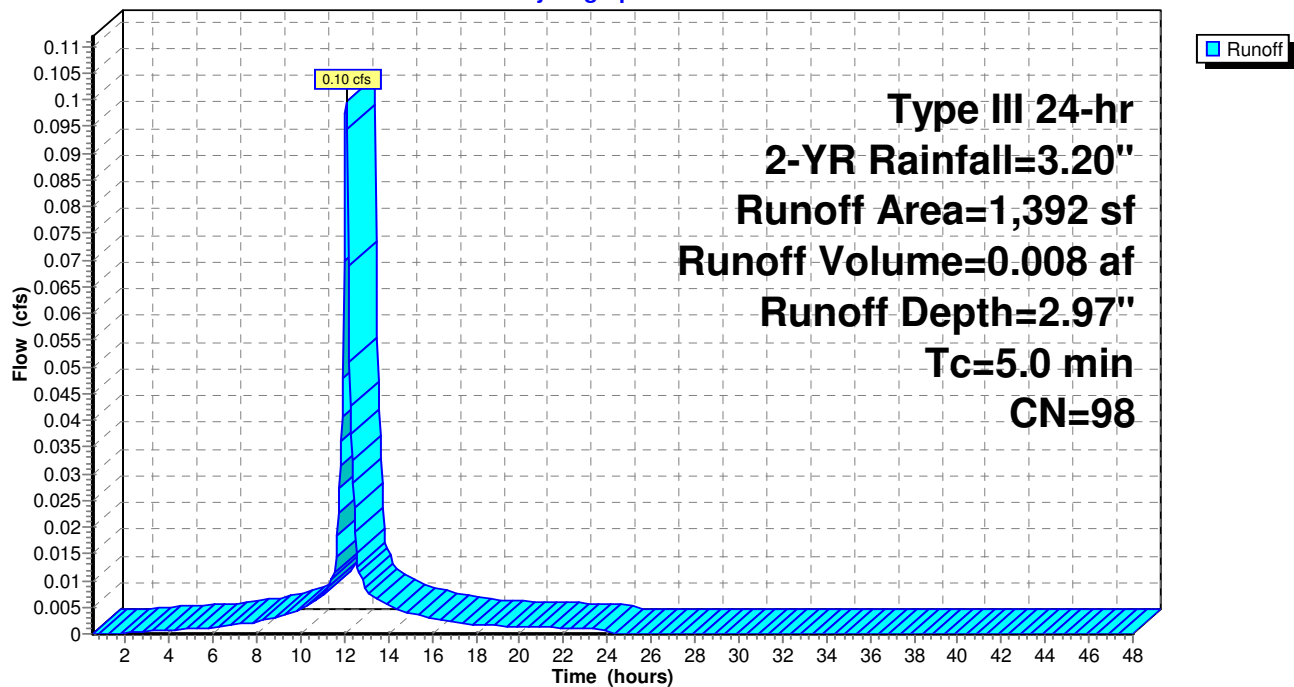
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 21S: Unit 21 & 22 Roofs

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 23S: Unit 25 & 26 Roofs

Runoff = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af, Depth= 2.97"
Routed to Pond 24P : Roof Recharge Chambers

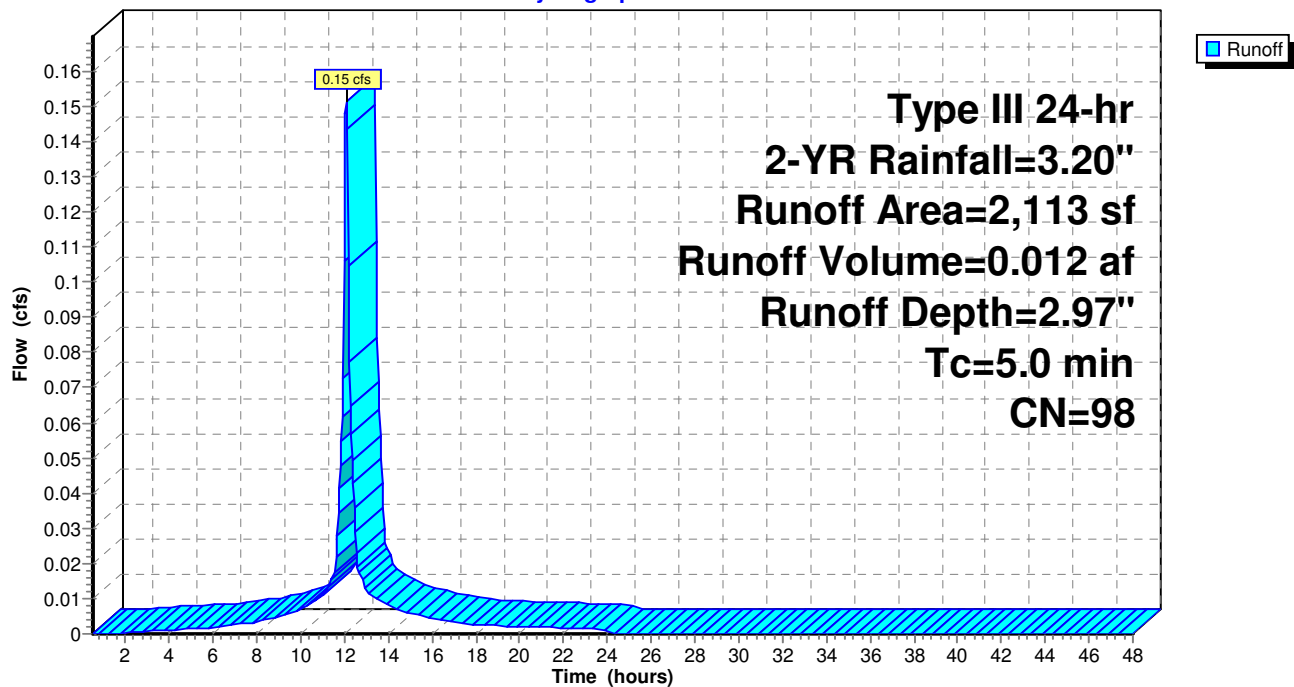
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 23S: Unit 25 & 26 Roofs

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 25S: Unit 23 & 24 Roofs

Runoff = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af, Depth= 2.97"
Routed to Pond 26P : Roof Recharge Chambers

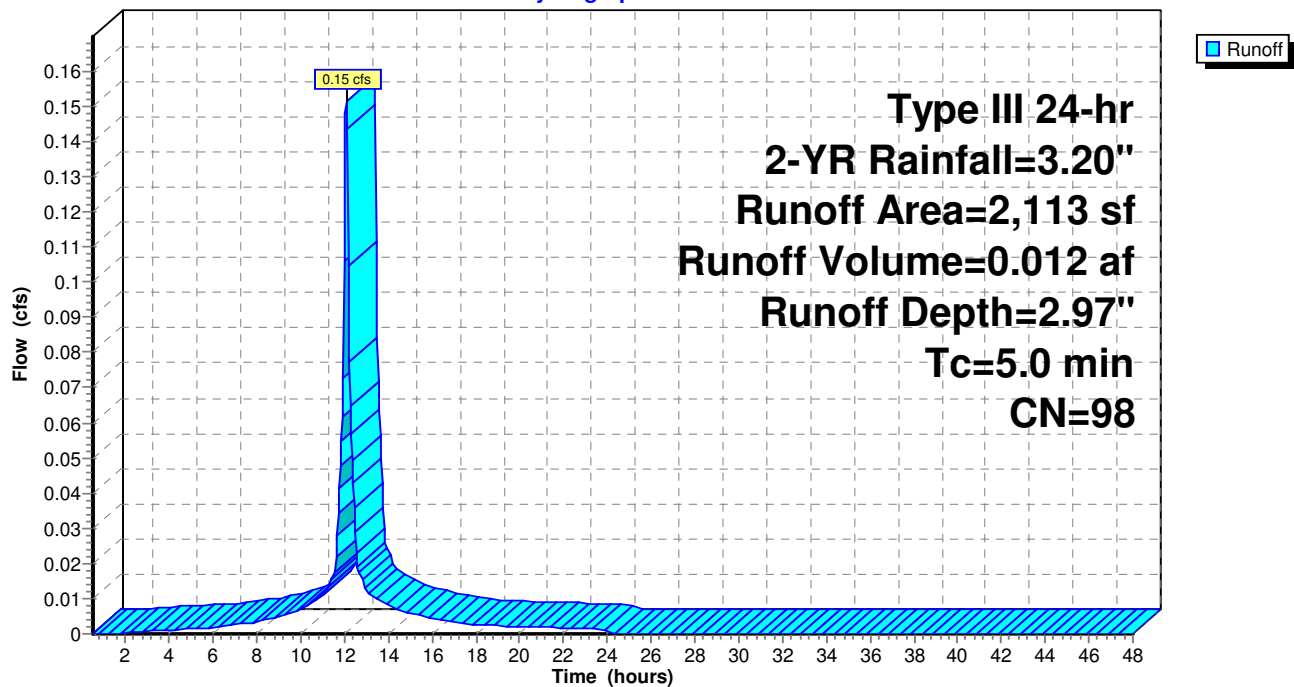
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 25S: Unit 23 & 24 Roofs

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 32S: Unit 19 & 20 Roofs

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 2.97"
Routed to Pond 28P : Roof Recharge Chambers

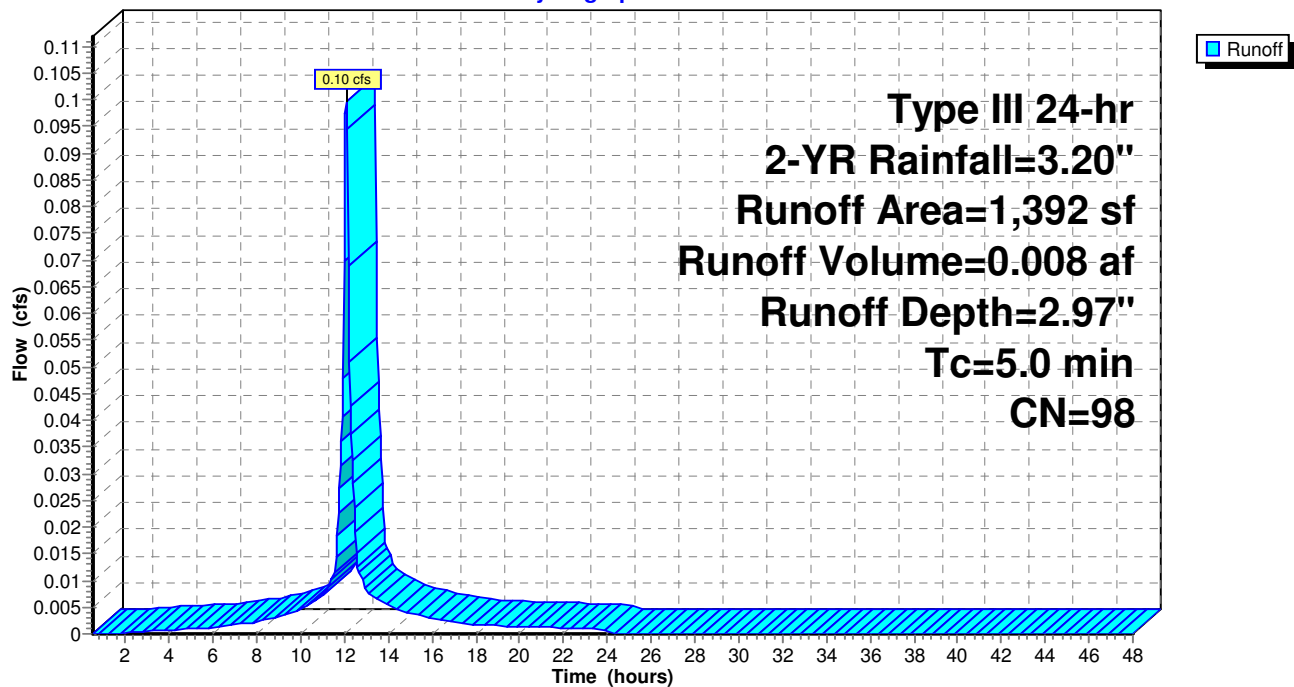
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 32S: Unit 19 & 20 Roofs

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 33S: Unit 17 & 18 Roofs

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 2.97"
Routed to Pond 29P : Roof Recharge Chambers

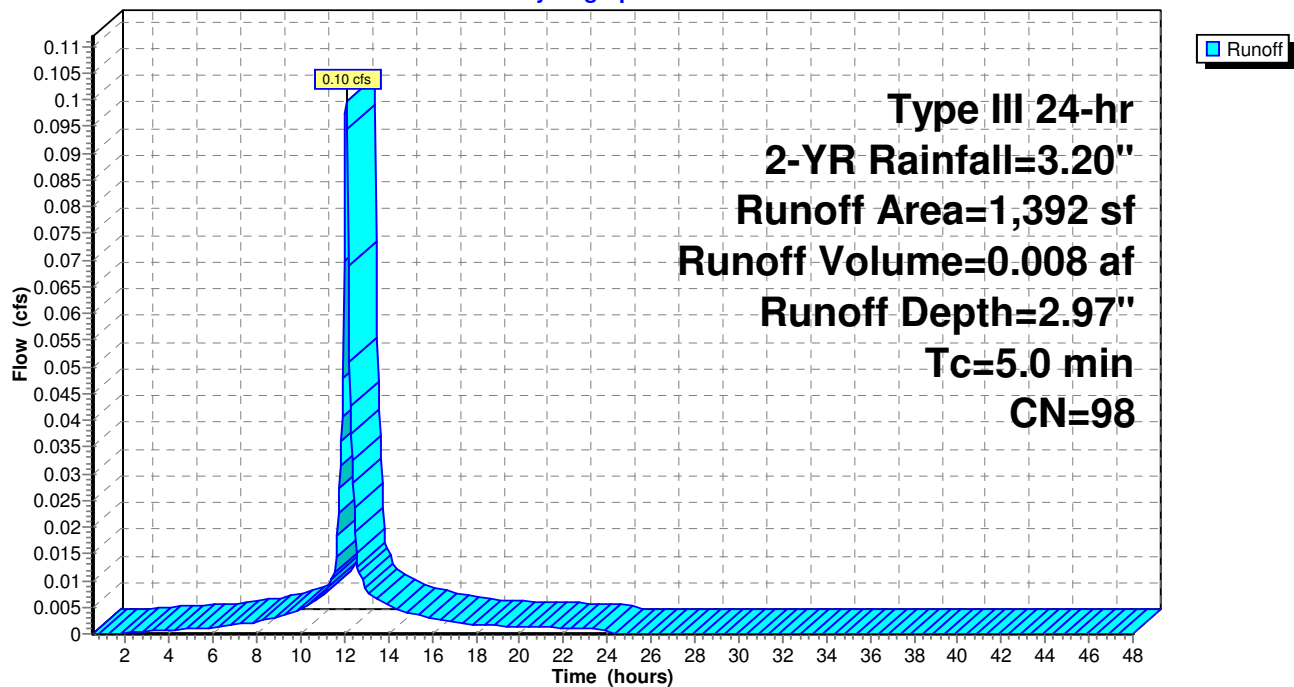
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 33S: Unit 17 & 18 Roofs

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 34S: Unit 15 & 16 Roofs

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 2.97"
Routed to Pond 30P : Roof Recharge Chambers

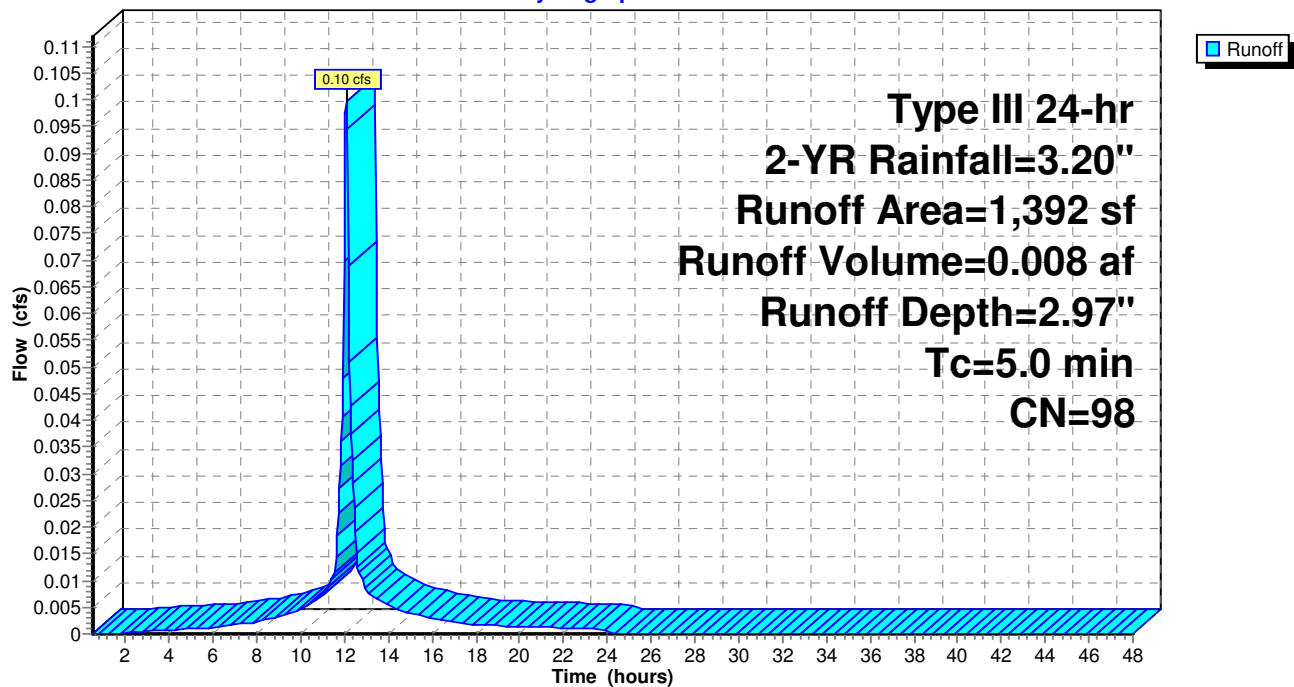
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 34S: Unit 15 & 16 Roofs

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 35S: Unit 14 Roof

Runoff = 0.05 cfs @ 12.07 hrs, Volume= 0.004 af, Depth= 2.97"
Routed to Pond 31P : Roof Recharge Chambers

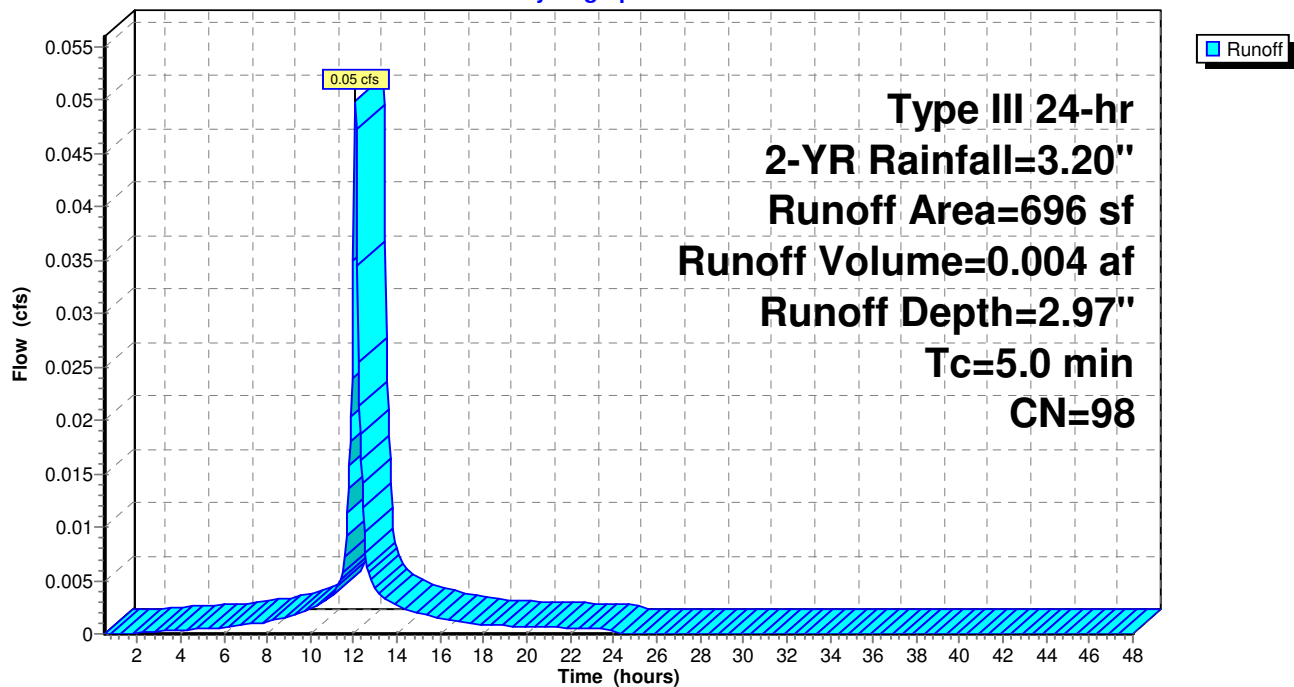
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
696	98	Roofs, HSG D
696		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 35S: Unit 14 Roof

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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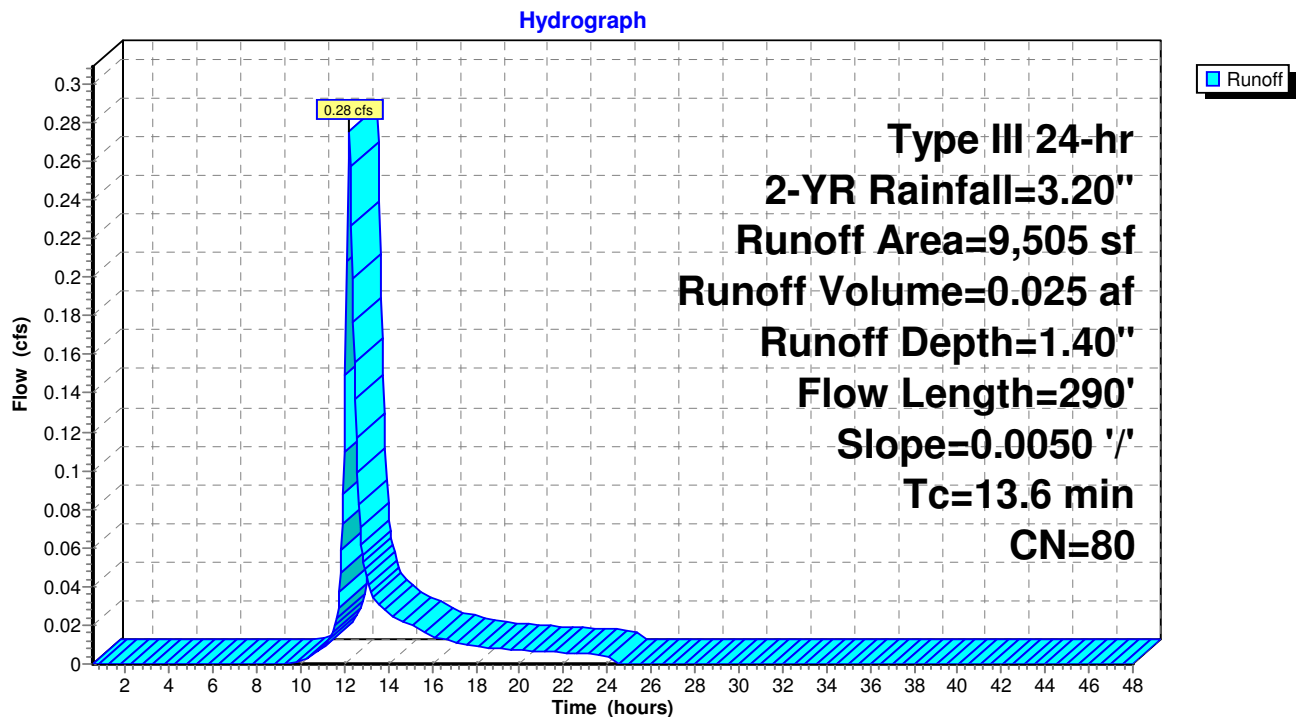
Summary for Subcatchment 36S: Landscape Area including Wet Basin

Runoff = 0.28 cfs @ 12.20 hrs, Volume= 0.025 af, Depth= 1.40"
Routed to Pond 12P : Outlet Det Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
9,505	80	>75% Grass cover, Good, HSG D
9,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0050	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.8	240	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
13.6	290	Total			

Subcatchment 36S: Landscape Area including Wet Basin

Prop-Conditions REVISED 060124

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 1P: ADS 30" Pipe Det Basin

Inflow Area = 1.612 ac, 57.74% Impervious, Inflow Depth = 1.69" for 2-YR event
 Inflow = 2.86 cfs @ 12.15 hrs, Volume= 0.227 af
 Outflow = 0.93 cfs @ 12.55 hrs, Volume= 0.227 af, Atten= 68%, Lag= 23.9 min
 Primary = 0.93 cfs @ 12.55 hrs, Volume= 0.227 af
 Routed to Pond 11P : Sediment Forebay

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 159.06' @ 12.55 hrs Surf.Area= 4,450 sf Storage= 3,581 cf

Plug-Flow detention time= 73.0 min calculated for 0.227 af (100% of inflow)
 Center-of-Mass det. time= 73.4 min (885.4 - 812.0)

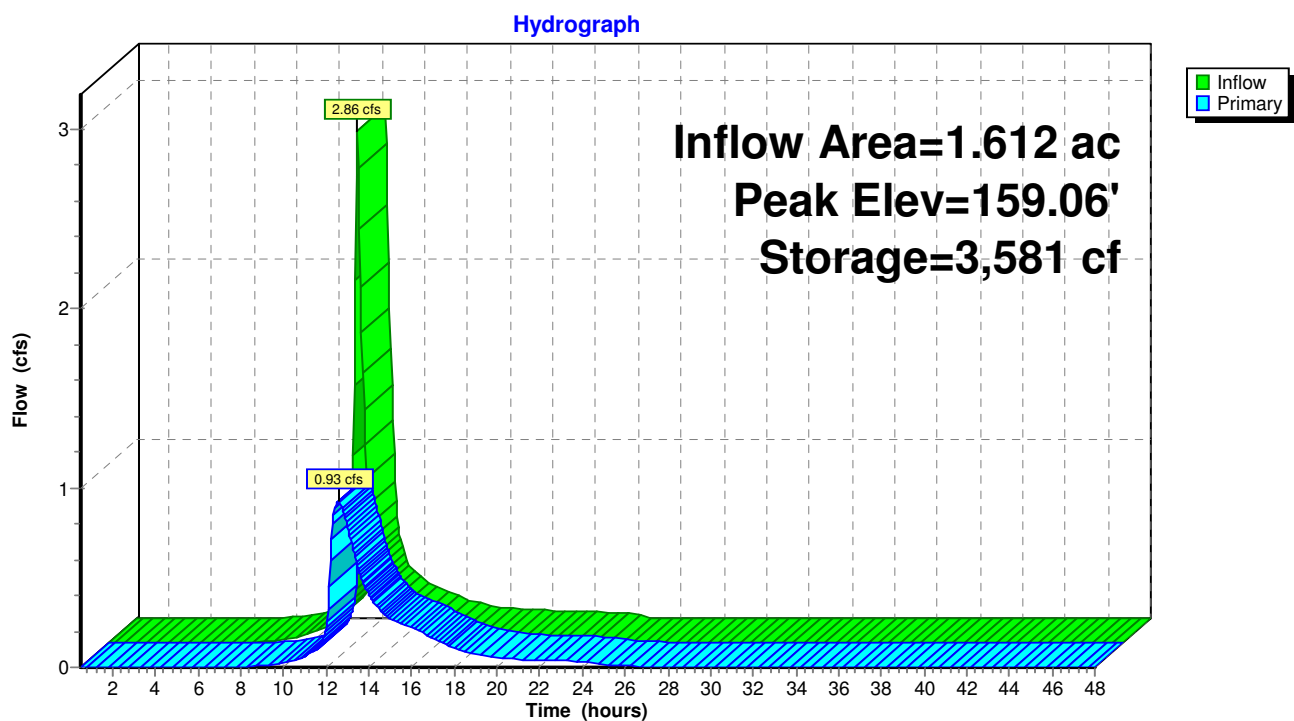
Volume	Invert	Avail.Storage	Storage Description
#1	158.00'	8,836 cf	30.0" Round Pipe Storage x 6 L= 300.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	159.25'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	158.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	158.50'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.93 cfs @ 12.55 hrs HW=159.06' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Orifice/Grate (Orifice Controls 0.40 cfs @ 4.56 fps)
- 3=Orifice/Grate (Orifice Controls 0.53 cfs @ 2.69 fps)

Pond 1P: ADS 30" Pipe Det Basin



Prop-Conditions REVISED 060124

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 3P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af
 Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.012 af, Atten= 11%, Lag= 2.7 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.13 cfs @ 12.12 hrs, Volume= 0.006 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.27' @ 12.12 hrs Surf.Area= 189 sf Storage= 142 cf

Plug-Flow detention time= 232.3 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 232.9 min (988.4 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

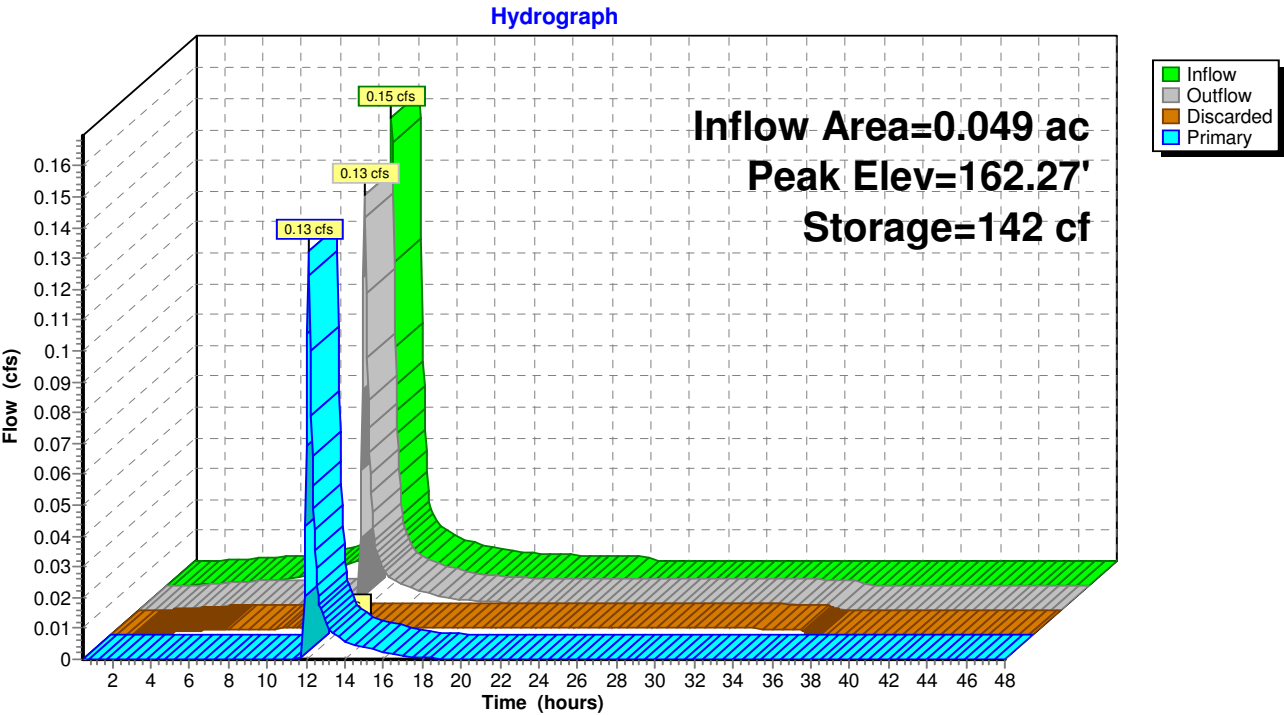
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.26' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.13 cfs @ 12.12 hrs HW=162.26' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.13 cfs @ 1.75 fps)

Pond 3P: Roof Recharge Chambers



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 10P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af
 Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.012 af, Atten= 11%, Lag= 2.7 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.13 cfs @ 12.12 hrs, Volume= 0.006 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.27' @ 12.12 hrs Surf.Area= 189 sf Storage= 142 cf

Plug-Flow detention time= 232.3 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 232.9 min (988.4 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

Storage Group A created with Chamber Wizard

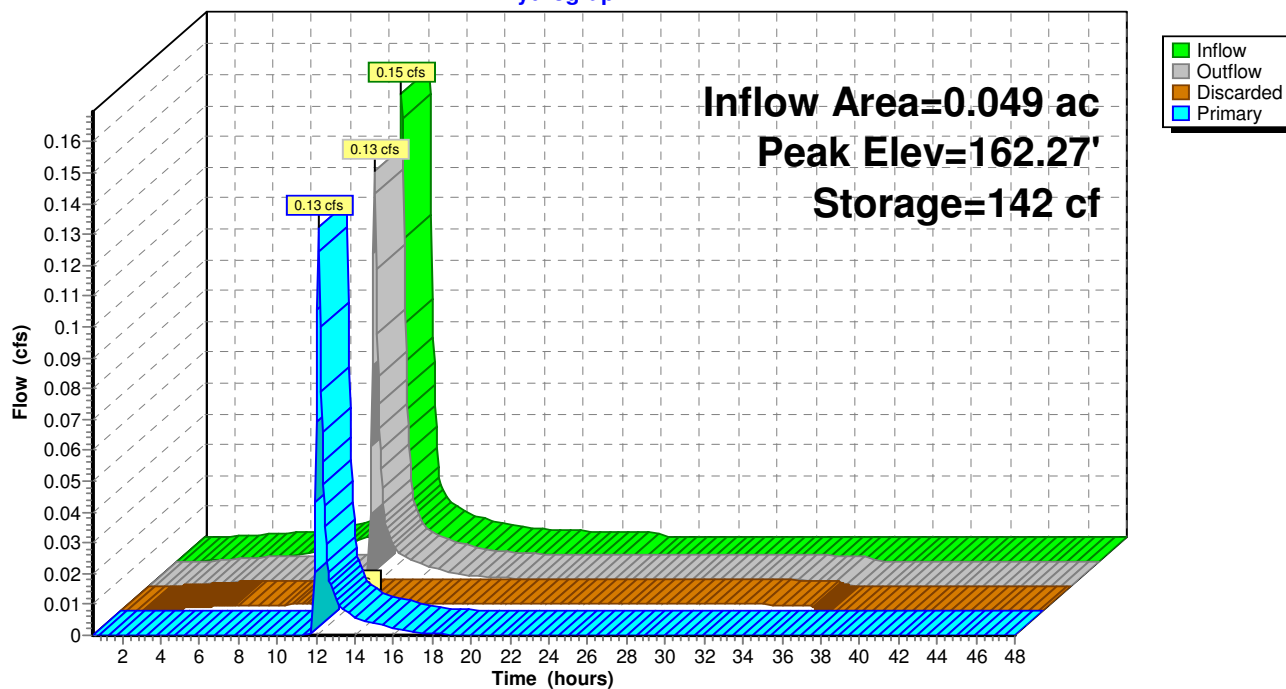
Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.26' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.13 cfs @ 12.12 hrs HW=162.26' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.13 cfs @ 1.75 fps)

Pond 10P: Roof Recharge Chambers

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 11P: Sediment Forebay

Inflow Area = 1.962 ac, 47.45% Impervious, Inflow Depth = 1.64" for 2-YR event
 Inflow = 1.16 cfs @ 12.37 hrs, Volume= 0.268 af
 Outflow = 1.16 cfs @ 12.39 hrs, Volume= 0.260 af, Atten= 0%, Lag= 1.4 min
 Primary = 1.16 cfs @ 12.39 hrs, Volume= 0.260 af
 Routed to Pond 12P : Outlet Det Pond

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 157.68' @ 12.39 hrs Surf.Area= 835 sf Storage= 461 cf

Plug-Flow detention time= 26.3 min calculated for 0.260 af (97% of inflow)
 Center-of-Mass det. time= 10.2 min (890.0 - 879.8)

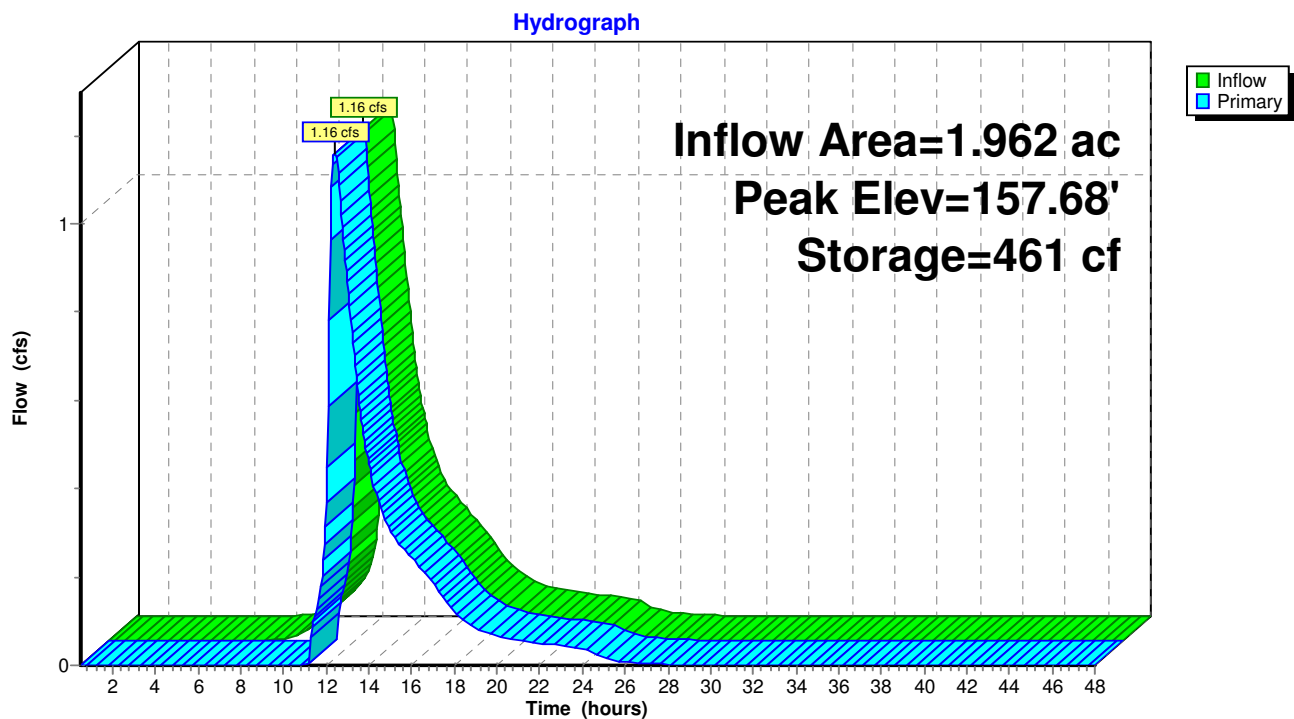
Volume	Invert	Avail.Storage	Storage Description
#1	157.00'	1,907 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
157.00	525	86.0	0	0	525
158.00	1,002	124.0	751	751	1,169
159.00	1,318	140.0	1,156	1,907	1,530

Device	Routing	Invert	Outlet Devices
#1	Primary	157.50'	6.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=1.16 cfs @ 12.39 hrs HW=157.68' (Free Discharge)
 ↑1=Broad-Crested Rectangular Weir (Weir Controls 1.16 cfs @ 1.05 fps)

Pond 11P: Sediment Forebay



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 12P: Outlet Det Pond

Inflow Area = 2.180 ac, 42.70% Impervious, Inflow Depth = 1.57" for 2-YR event
 Inflow = 1.36 cfs @ 12.31 hrs, Volume= 0.286 af
 Outflow = 0.67 cfs @ 13.44 hrs, Volume= 0.188 af, Atten= 51%, Lag= 67.8 min
 Primary = 0.67 cfs @ 13.44 hrs, Volume= 0.188 af
 Routed to Link DP#2 : DP#2 - Rear Wetlands

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 155.63' @ 13.44 hrs Surf.Area= 5,158 sf Storage= 4,928 cf

Plug-Flow detention time= 202.3 min calculated for 0.188 af (66% of inflow)
 Center-of-Mass det. time= 98.0 min (984.5 - 886.4)

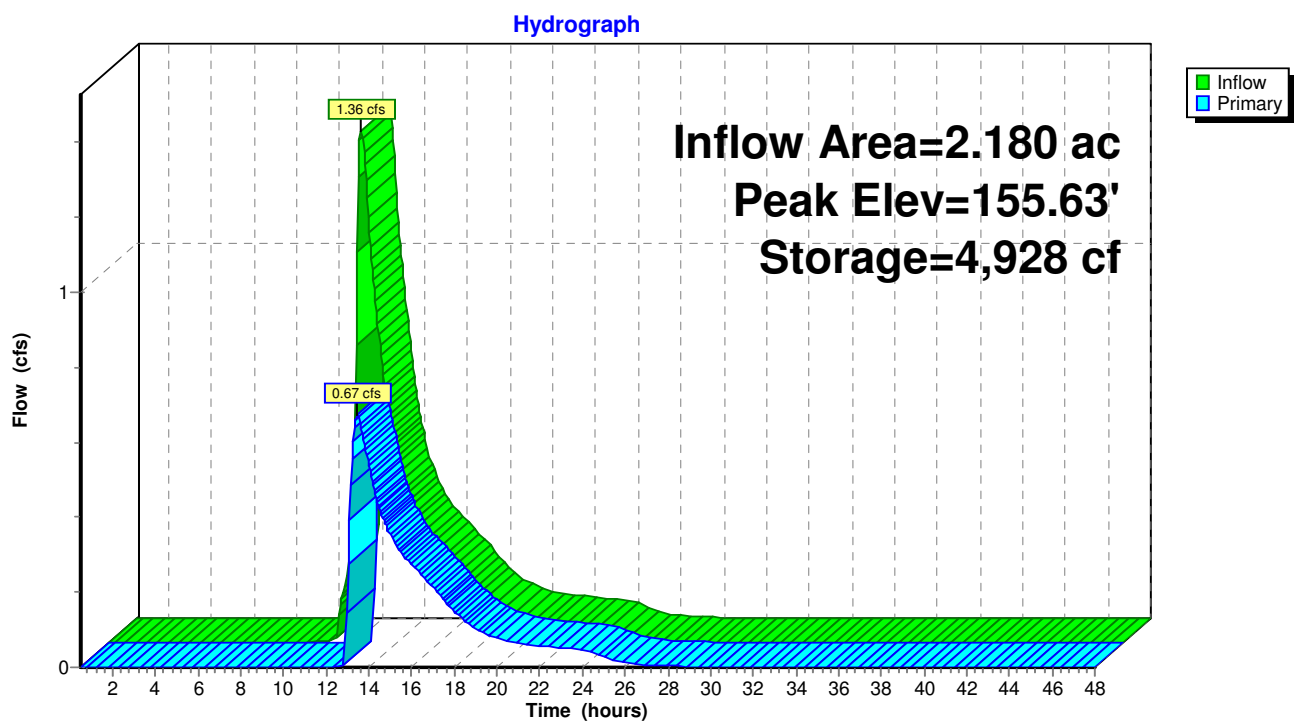
Volume	Invert	Avail.Storage	Storage Description
#1	154.00'	10,265 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
154.00	774	119.0	0	0	774
155.00	3,826	723.0	2,107	2,107	41,247
156.00	6,032	670.0	4,887	6,994	47,163
156.50	7,063	687.0	3,270	10,265	49,030

Device	Routing	Invert	Outlet Devices
#1	Primary	155.50'	6.0' long x 6.0' 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) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.67 cfs @ 13.44 hrs HW=155.63' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 0.67 cfs @ 0.86 fps)

Pond 12P: Outlet Det Pond



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 15P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af
 Outflow = 0.06 cfs @ 12.19 hrs, Volume= 0.008 af, Atten= 42%, Lag= 7.2 min
 Discarded = 0.00 cfs @ 12.19 hrs, Volume= 0.005 af
 Primary = 0.06 cfs @ 12.19 hrs, Volume= 0.003 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.16' @ 12.19 hrs Surf.Area= 186 sf Storage= 125 cf

Plug-Flow detention time= 288.2 min calculated for 0.008 af (100% of inflow)
 Center-of-Mass det. time= 288.6 min (1,044.1 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

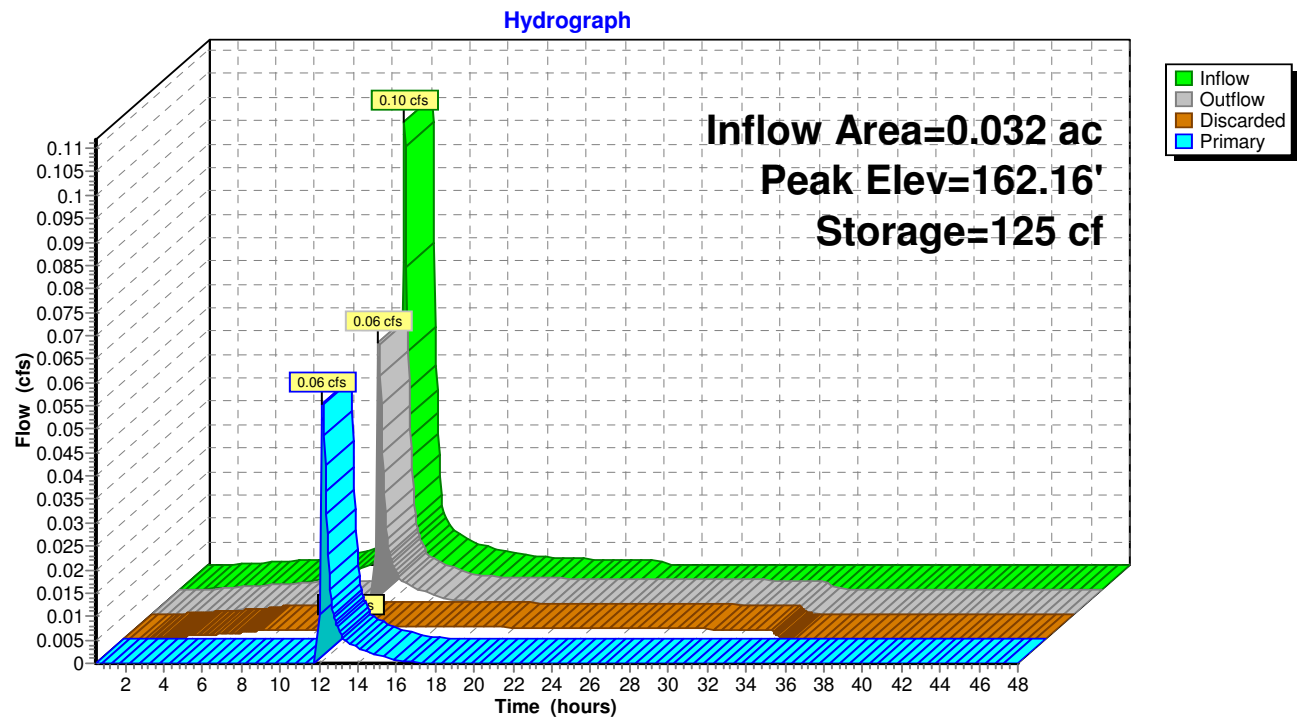
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.05 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 1.35 fps)

Pond 15P: Roof Recharge Chambers



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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 16P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af
 Outflow = 0.06 cfs @ 12.19 hrs, Volume= 0.008 af, Atten= 42%, Lag= 7.2 min
 Discarded = 0.00 cfs @ 12.19 hrs, Volume= 0.005 af
 Primary = 0.06 cfs @ 12.19 hrs, Volume= 0.003 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.16' @ 12.19 hrs Surf.Area= 186 sf Storage= 125 cf

Plug-Flow detention time= 288.2 min calculated for 0.008 af (100% of inflow)
 Center-of-Mass det. time= 288.6 min (1,044.1 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

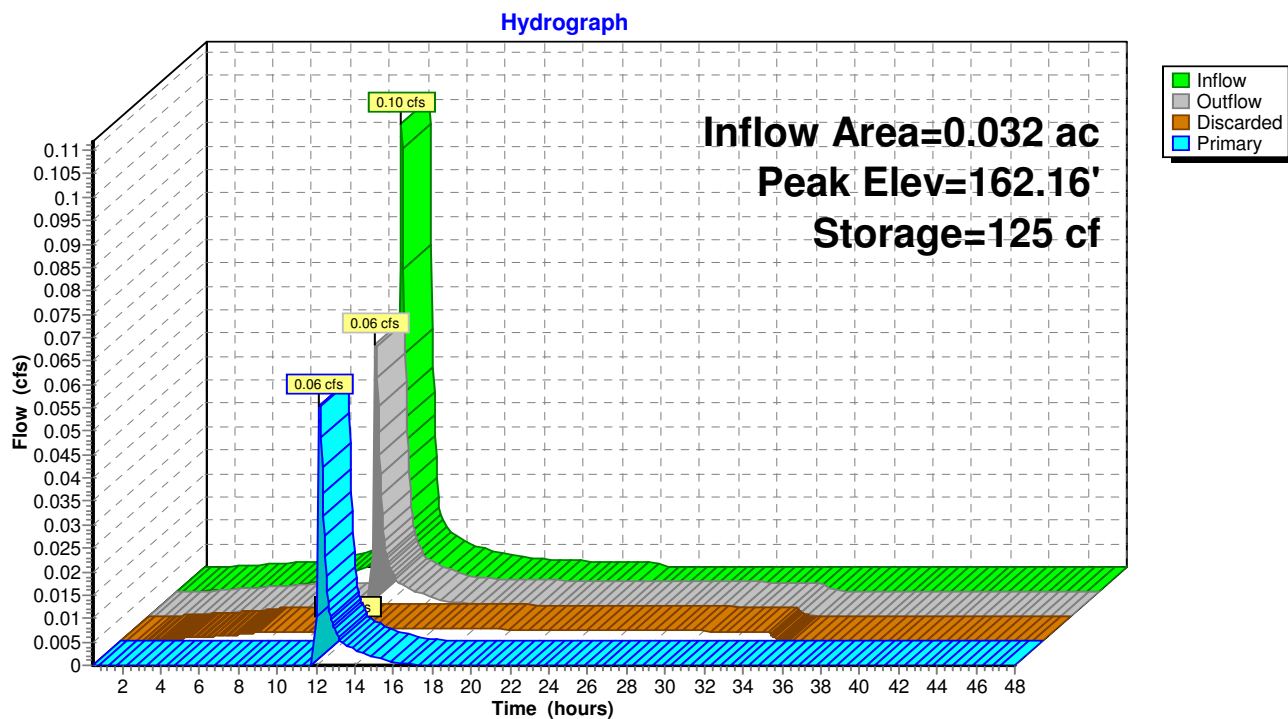
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.05 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 1.35 fps)

Pond 16P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 17P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af
 Outflow = 0.06 cfs @ 12.19 hrs, Volume= 0.008 af, Atten= 42%, Lag= 7.2 min
 Discarded = 0.00 cfs @ 12.19 hrs, Volume= 0.005 af
 Primary = 0.06 cfs @ 12.19 hrs, Volume= 0.003 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.16' @ 12.19 hrs Surf.Area= 186 sf Storage= 125 cf

Plug-Flow detention time= 288.2 min calculated for 0.008 af (100% of inflow)
 Center-of-Mass det. time= 288.6 min (1,044.1 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

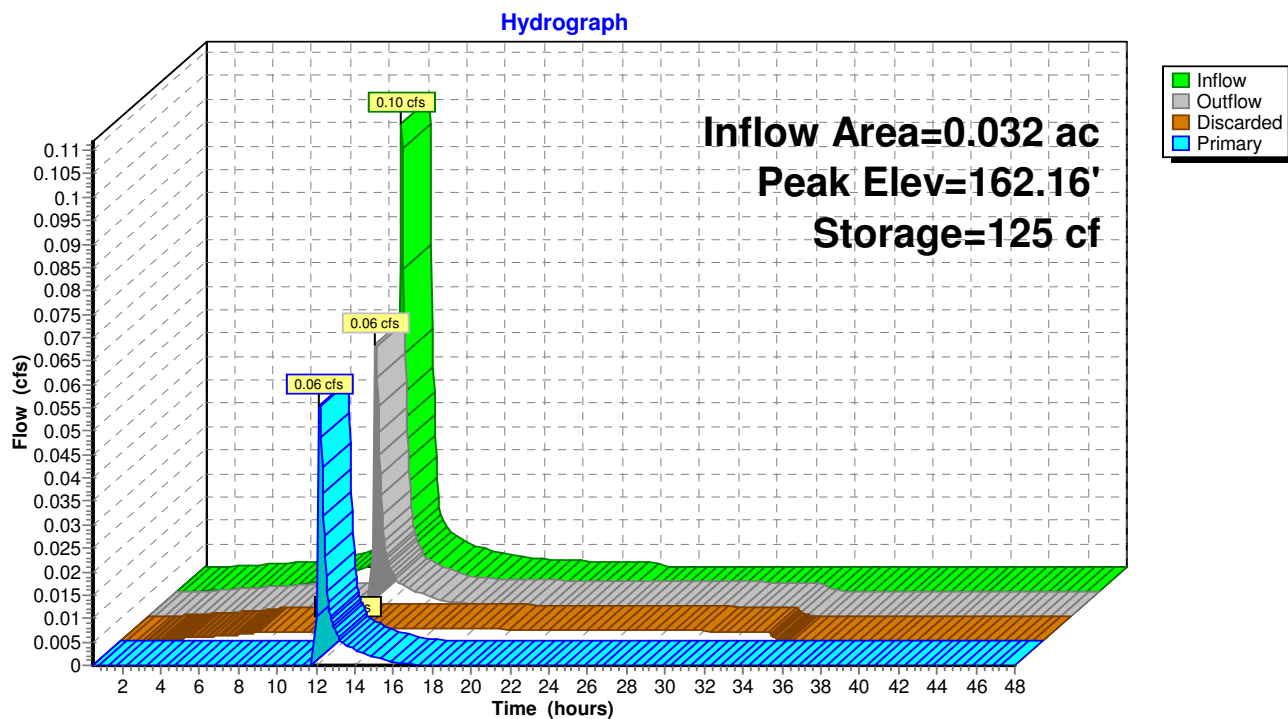
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.05 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 1.35 fps)

Pond 17P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 18P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af
 Outflow = 0.06 cfs @ 12.19 hrs, Volume= 0.008 af, Atten= 42%, Lag= 7.2 min
 Discarded = 0.00 cfs @ 12.19 hrs, Volume= 0.005 af
 Primary = 0.06 cfs @ 12.19 hrs, Volume= 0.003 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.16' @ 12.19 hrs Surf.Area= 186 sf Storage= 125 cf

Plug-Flow detention time= 288.2 min calculated for 0.008 af (100% of inflow)
 Center-of-Mass det. time= 288.6 min (1,044.1 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

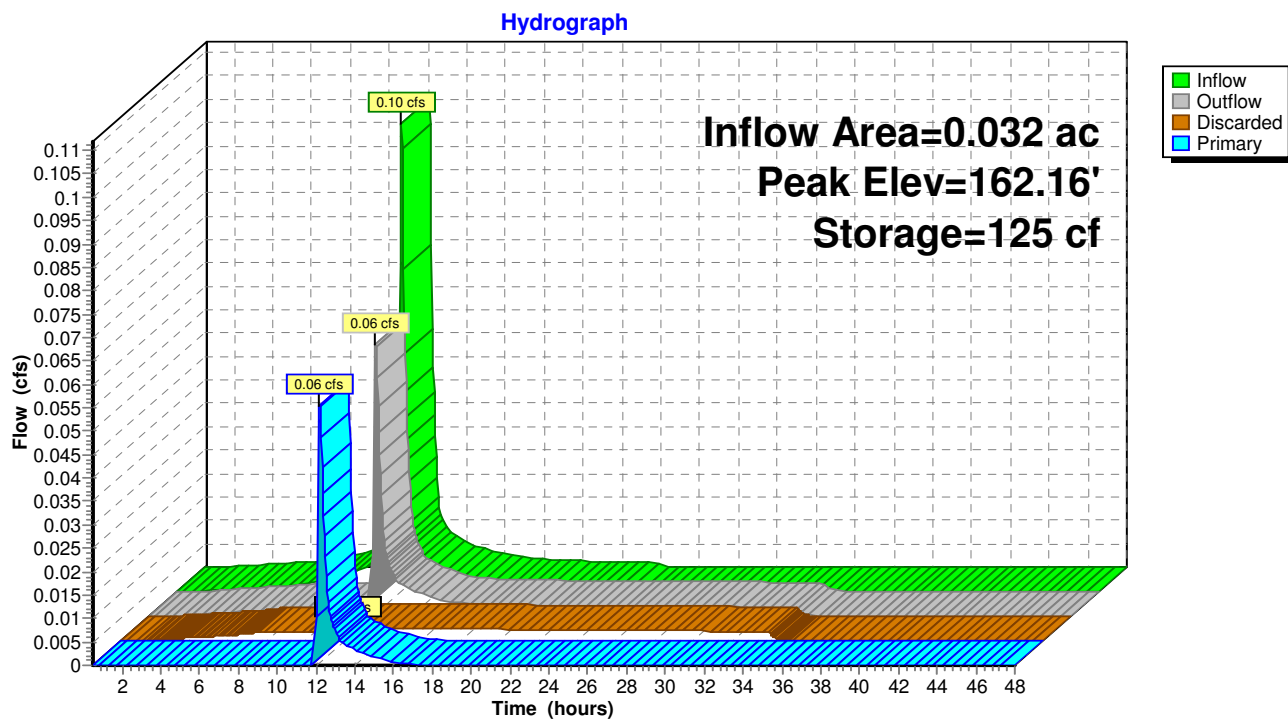
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.05 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 1.35 fps)

Pond 18P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 20P: Roof Recharge Chamber

Inflow Area = 0.016 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.05 cfs @ 12.07 hrs, Volume= 0.004 af
 Outflow = 0.00 cfs @ 14.30 hrs, Volume= 0.004 af, Atten= 95%, Lag= 133.7 min
 Discarded = 0.00 cfs @ 14.30 hrs, Volume= 0.004 af
 Primary = 0.00 cfs @ 0.50 hrs, Volume= 0.000 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 161.85' @ 14.30 hrs Surf.Area= 186 sf Storage= 85 cf

Plug-Flow detention time= 324.1 min calculated for 0.004 af (100% of inflow)
 Center-of-Mass det. time= 324.2 min (1,079.6 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

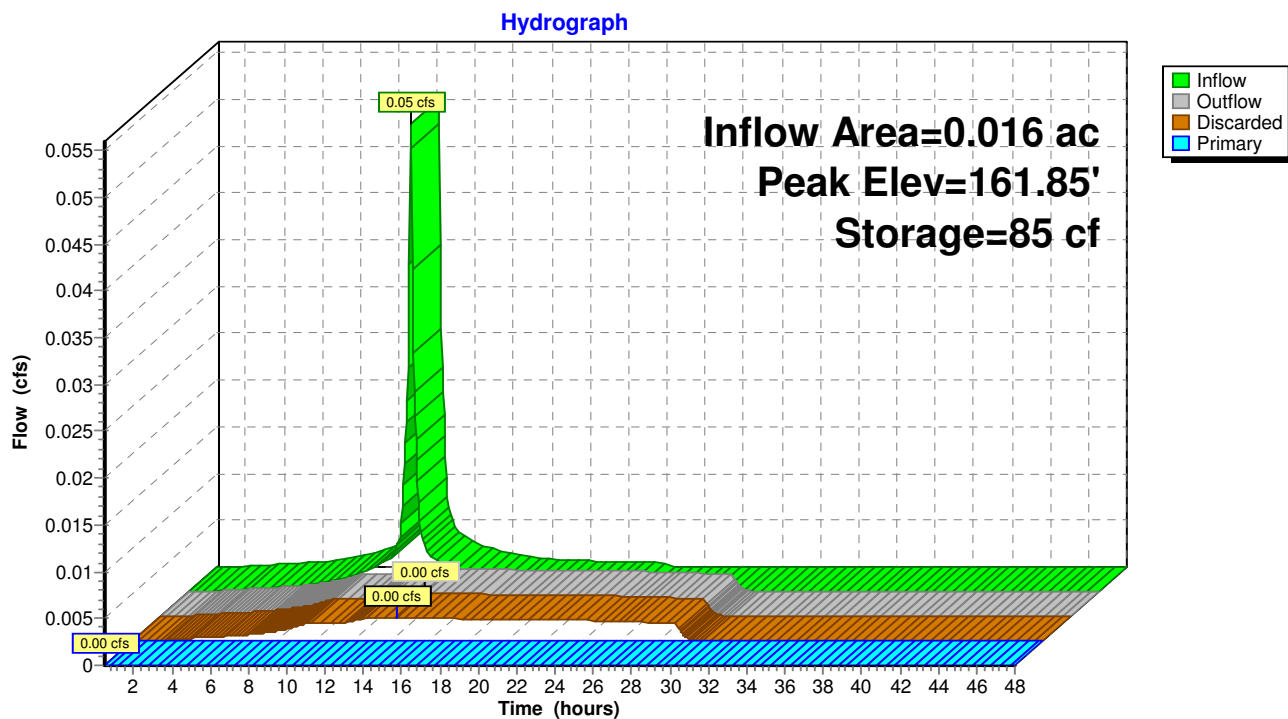
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 14.30 hrs HW=161.85' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.50 hrs HW=161.00' (Free Discharge)
 ↑ **2=Orifice/Grate** (Controls 0.00 cfs)

Pond 20P: Roof Recharge Chamber



Prop-Conditions REVISED 060124

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 24P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af
 Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.012 af, Atten= 11%, Lag= 2.7 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.13 cfs @ 12.12 hrs, Volume= 0.006 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.27' @ 12.12 hrs Surf.Area= 189 sf Storage= 142 cf

Plug-Flow detention time= 232.3 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 232.9 min (988.4 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

Storage Group A created with Chamber Wizard

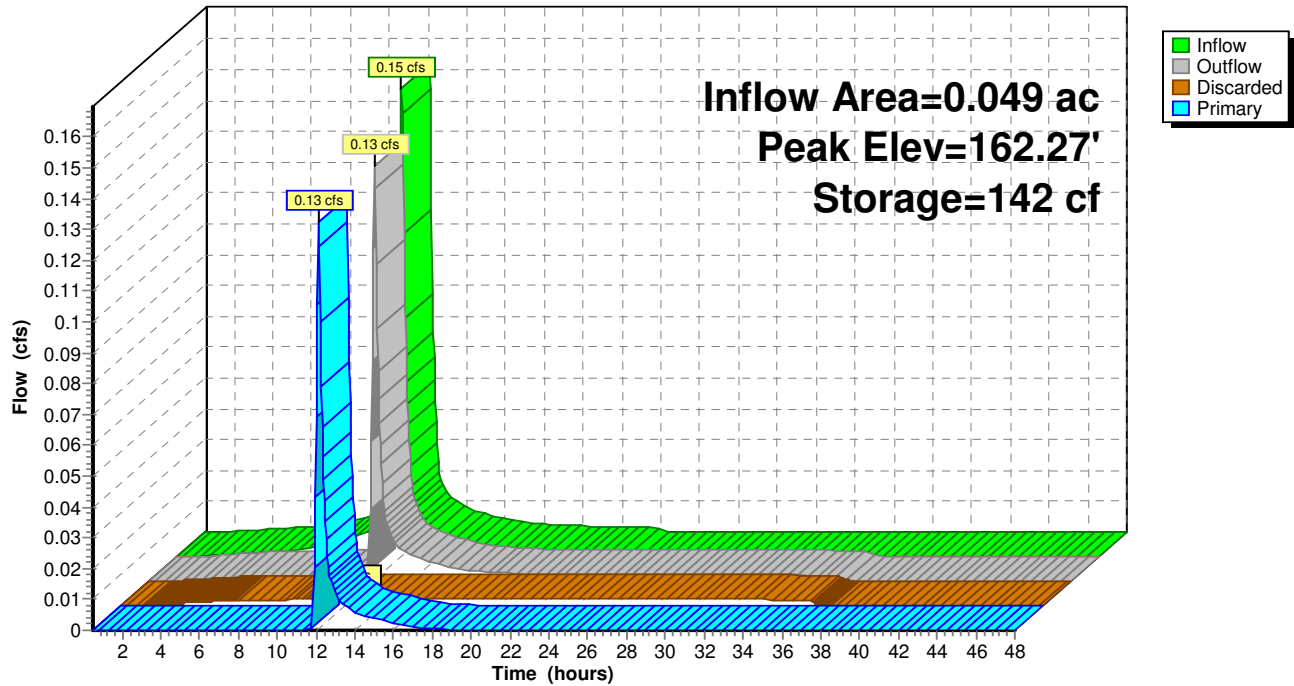
Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.26' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.13 cfs @ 12.12 hrs HW=162.26' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.13 cfs @ 1.75 fps)

Pond 24P: Roof Recharge Chambers

Hydrograph



Prop-Conditions REVISED 060124

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 26P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af
 Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.012 af, Atten= 11%, Lag= 2.7 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.13 cfs @ 12.12 hrs, Volume= 0.006 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.27' @ 12.12 hrs Surf.Area= 189 sf Storage= 142 cf

Plug-Flow detention time= 232.3 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 232.9 min (988.4 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

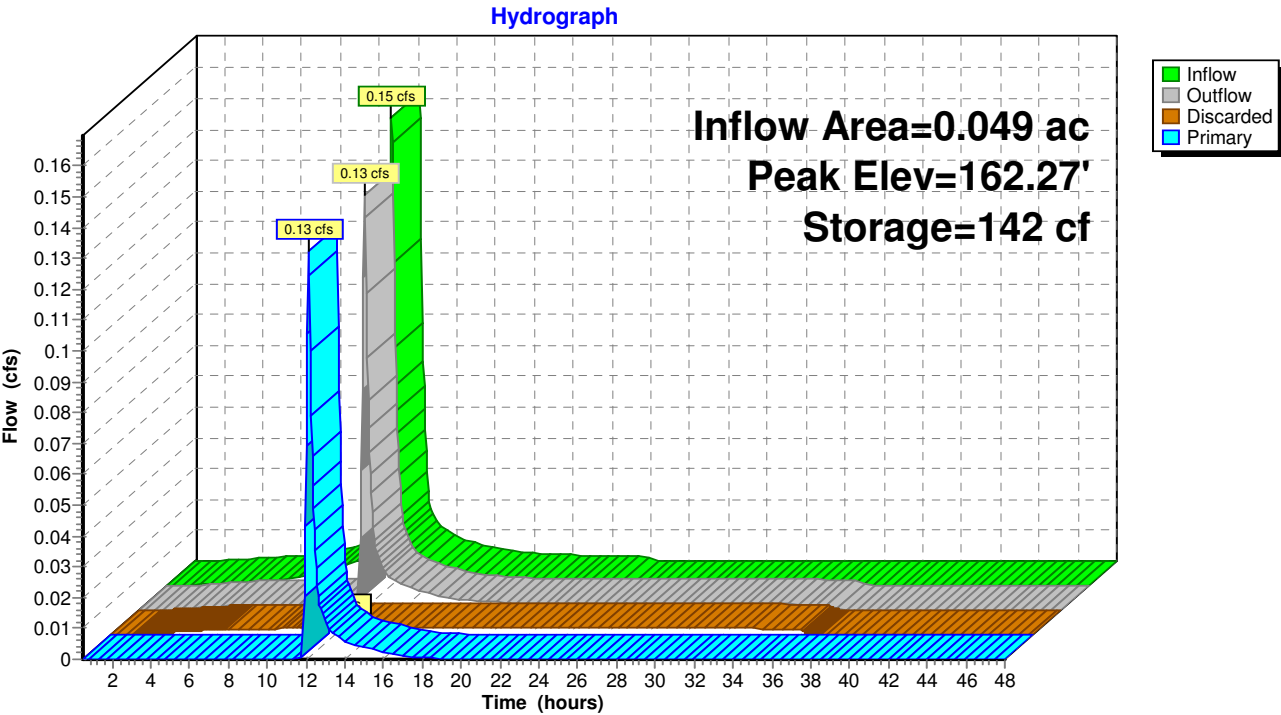
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.26' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.13 cfs @ 12.12 hrs HW=162.26' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.13 cfs @ 1.75 fps)

Pond 26P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 27P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af
 Outflow = 0.06 cfs @ 12.19 hrs, Volume= 0.008 af, Atten= 42%, Lag= 7.2 min
 Discarded = 0.00 cfs @ 12.19 hrs, Volume= 0.005 af
 Primary = 0.06 cfs @ 12.19 hrs, Volume= 0.003 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.16' @ 12.19 hrs Surf.Area= 186 sf Storage= 125 cf

Plug-Flow detention time= 288.2 min calculated for 0.008 af (100% of inflow)
 Center-of-Mass det. time= 288.6 min (1,044.1 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

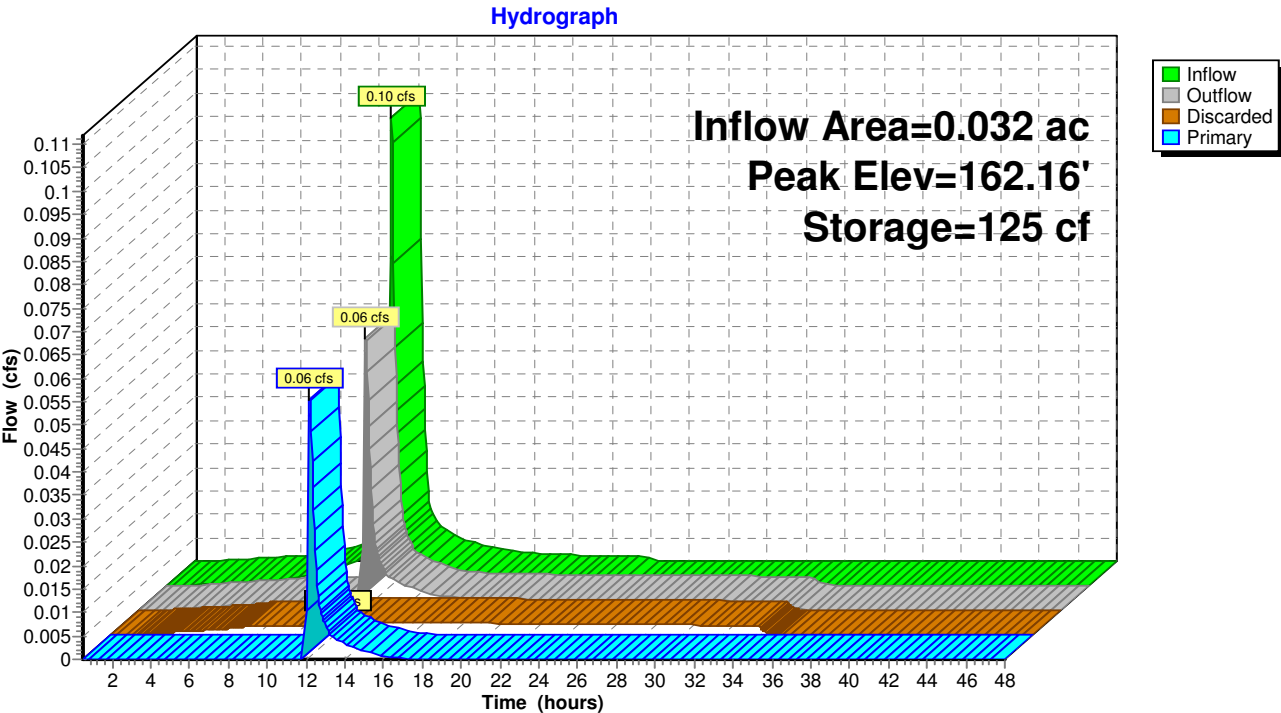
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.05 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 1.35 fps)

Pond 27P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 28P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af
 Outflow = 0.06 cfs @ 12.19 hrs, Volume= 0.008 af, Atten= 42%, Lag= 7.2 min
 Discarded = 0.00 cfs @ 12.19 hrs, Volume= 0.005 af
 Primary = 0.06 cfs @ 12.19 hrs, Volume= 0.003 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.16' @ 12.19 hrs Surf.Area= 186 sf Storage= 125 cf

Plug-Flow detention time= 288.2 min calculated for 0.008 af (100% of inflow)
 Center-of-Mass det. time= 288.6 min (1,044.1 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

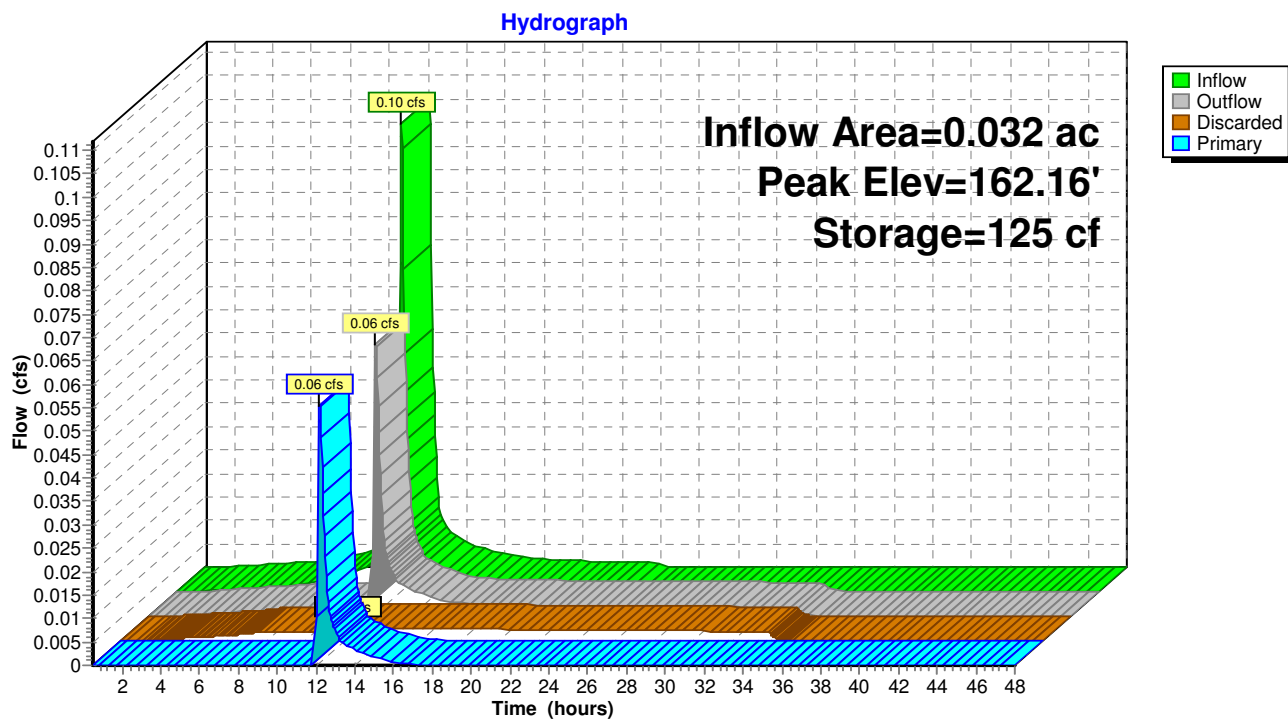
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.05 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 1.35 fps)

Pond 28P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 29P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af
 Outflow = 0.06 cfs @ 12.19 hrs, Volume= 0.008 af, Atten= 42%, Lag= 7.2 min
 Discarded = 0.00 cfs @ 12.19 hrs, Volume= 0.005 af
 Primary = 0.06 cfs @ 12.19 hrs, Volume= 0.003 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.16' @ 12.19 hrs Surf.Area= 186 sf Storage= 125 cf

Plug-Flow detention time= 288.2 min calculated for 0.008 af (100% of inflow)
 Center-of-Mass det. time= 288.6 min (1,044.1 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

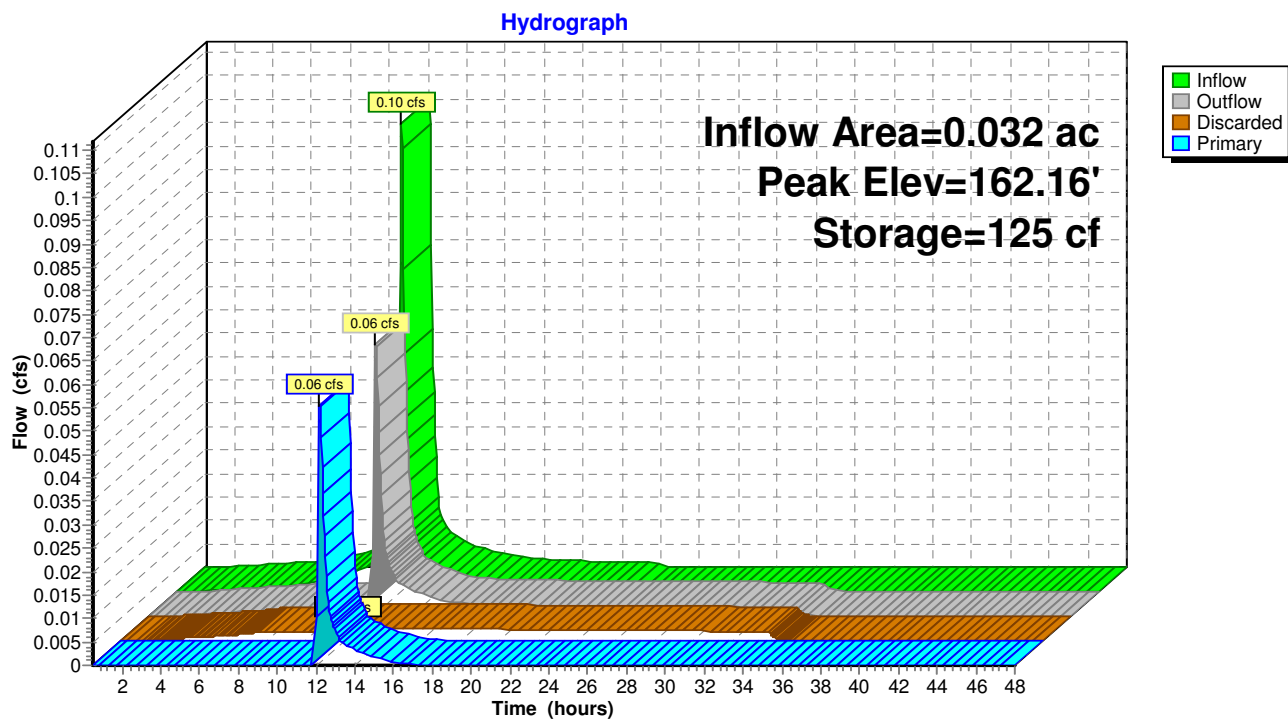
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.05 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 1.35 fps)

Pond 29P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 30P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af
 Outflow = 0.06 cfs @ 12.19 hrs, Volume= 0.008 af, Atten= 42%, Lag= 7.2 min
 Discarded = 0.00 cfs @ 12.19 hrs, Volume= 0.005 af
 Primary = 0.06 cfs @ 12.19 hrs, Volume= 0.003 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.16' @ 12.19 hrs Surf.Area= 186 sf Storage= 125 cf

Plug-Flow detention time= 288.2 min calculated for 0.008 af (100% of inflow)
 Center-of-Mass det. time= 288.6 min (1,044.1 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

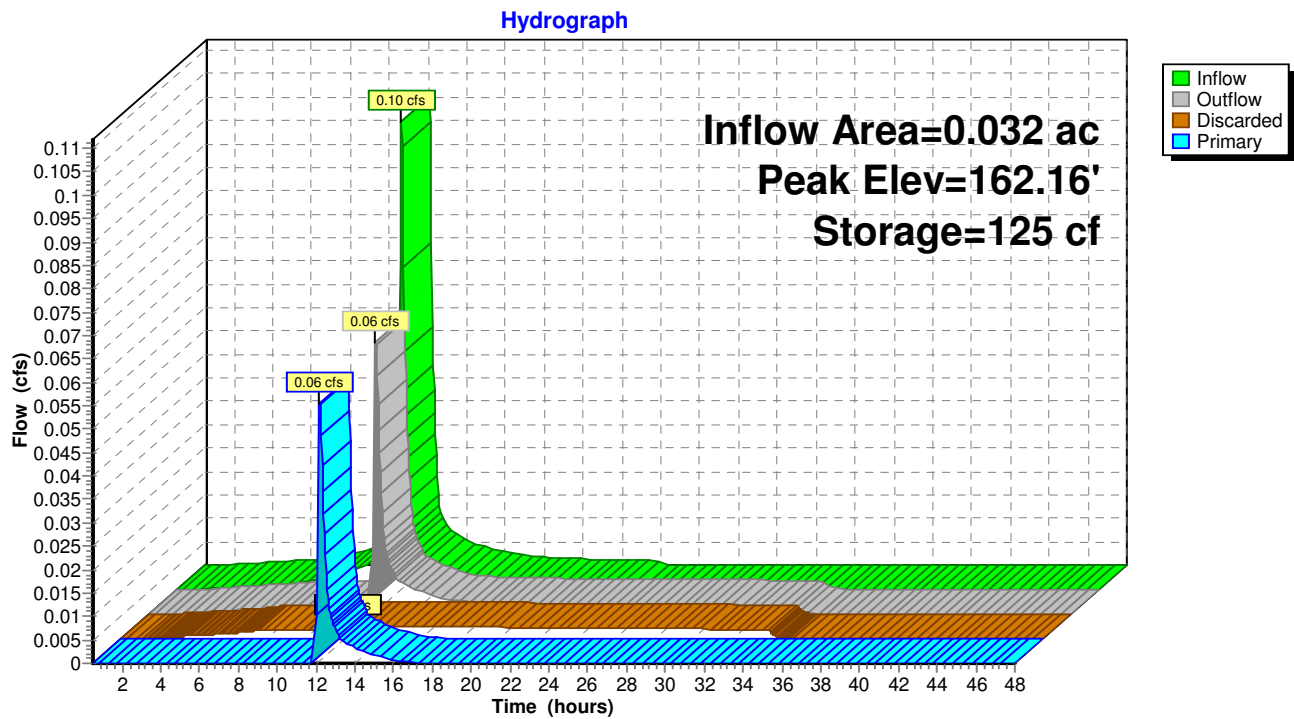
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.05 cfs @ 12.19 hrs HW=162.16' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 1.35 fps)

Pond 30P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 31P: Roof Recharge Chambers

Inflow Area = 0.016 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-YR event
 Inflow = 0.05 cfs @ 12.07 hrs, Volume= 0.004 af
 Outflow = 0.00 cfs @ 14.30 hrs, Volume= 0.004 af, Atten= 95%, Lag= 133.7 min
 Discarded = 0.00 cfs @ 14.30 hrs, Volume= 0.004 af
 Primary = 0.00 cfs @ 0.50 hrs, Volume= 0.000 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 161.85' @ 14.30 hrs Surf.Area= 186 sf Storage= 85 cf

Plug-Flow detention time= 324.1 min calculated for 0.004 af (100% of inflow)
 Center-of-Mass det. time= 324.2 min (1,079.6 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

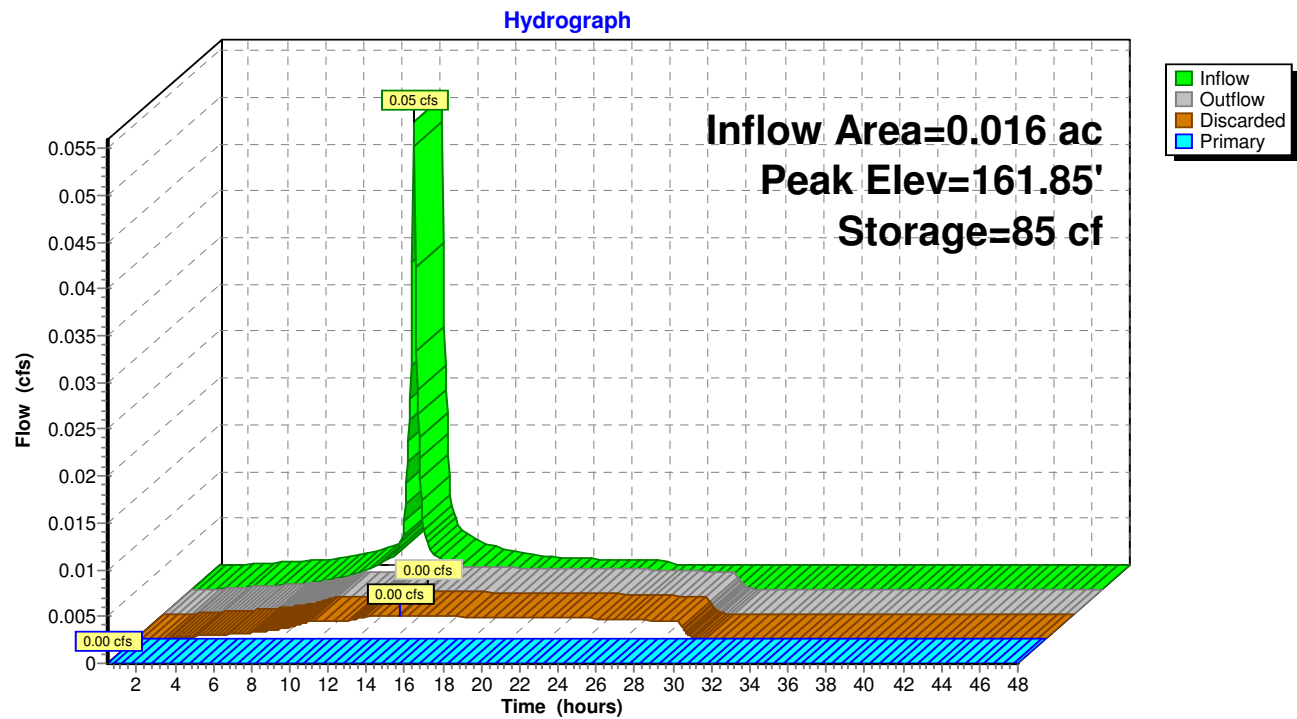
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 14.30 hrs HW=161.85' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.50 hrs HW=161.00' (Free Discharge)
 ↑ **2=Orifice/Grate** (Controls 0.00 cfs)

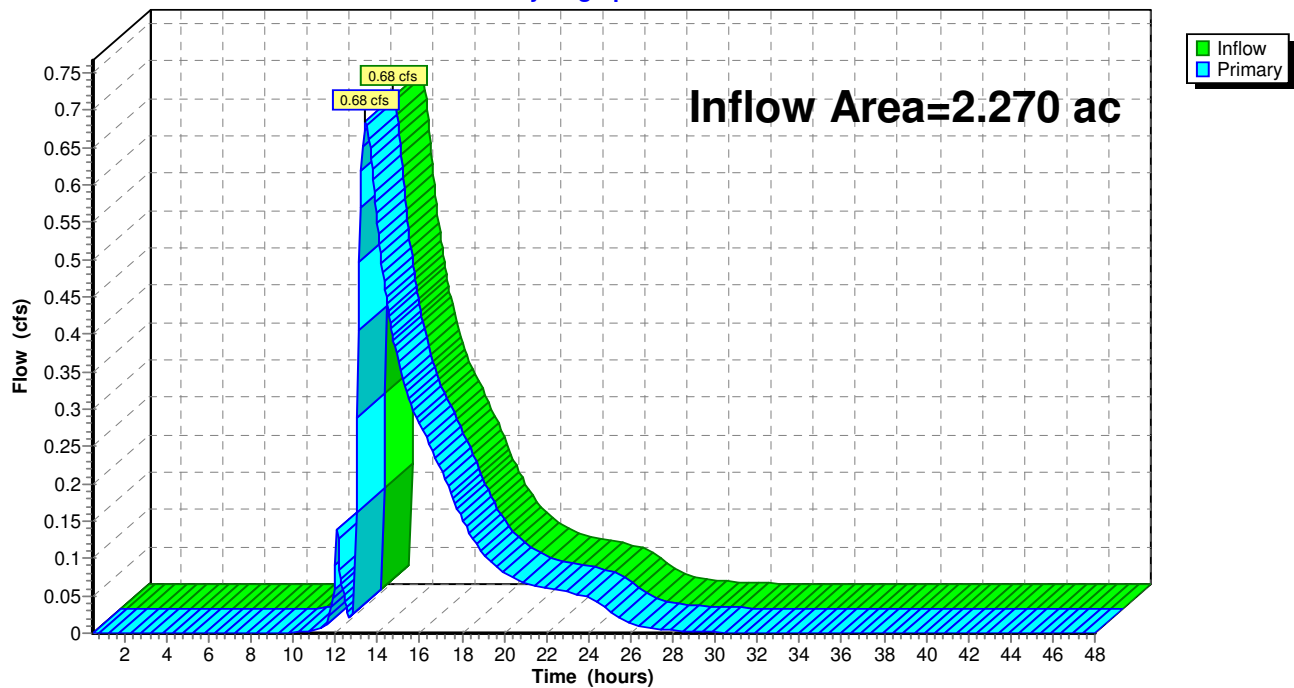
Pond 31P: Roof Recharge Chambers



Summary for Link DP#2: DP#2 - Rear Wetlands

Inflow Area = 2.270 ac, 41.00% Impervious, Inflow Depth = 1.05" for 2-YR event
Inflow = 0.68 cfs @ 13.44 hrs, Volume= 0.198 af
Primary = 0.68 cfs @ 13.44 hrs, Volume= 0.198 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs

Link DP#2: DP#2 - Rear Wetlands**Hydrograph**

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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 1S: Flow to PCB#1

Runoff = 0.62 cfs @ 12.07 hrs, Volume= 0.044 af, Depth= 3.30"
Routed to Pond 1P : ADS 30" Pipe Det Basin

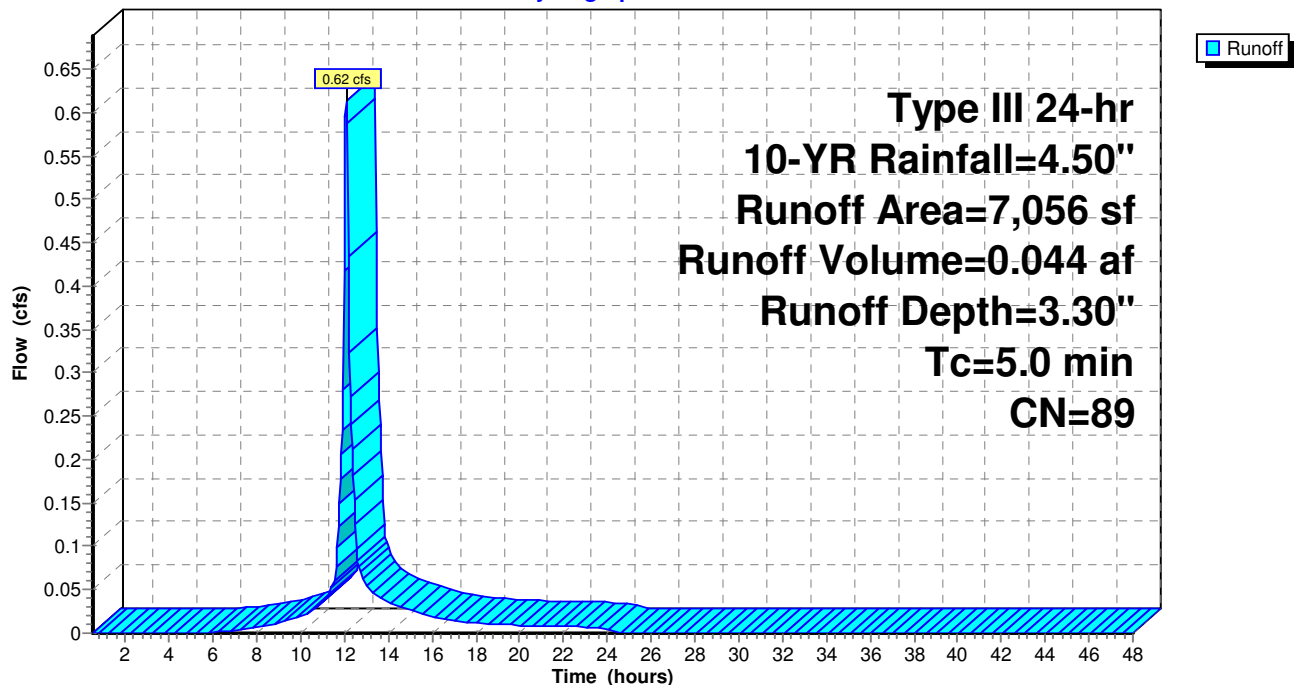
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
3,578	98	Paved parking, HSG D
3,478	80	>75% Grass cover, Good, HSG D
7,056	89	Weighted Average
3,478		49.29% Pervious Area
3,578		50.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: Flow to PCB#1

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 2S: Units 1 & 2 Roofs

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.017 af, Depth= 4.26"
Routed to Pond 3P : Roof Recharge Chambers

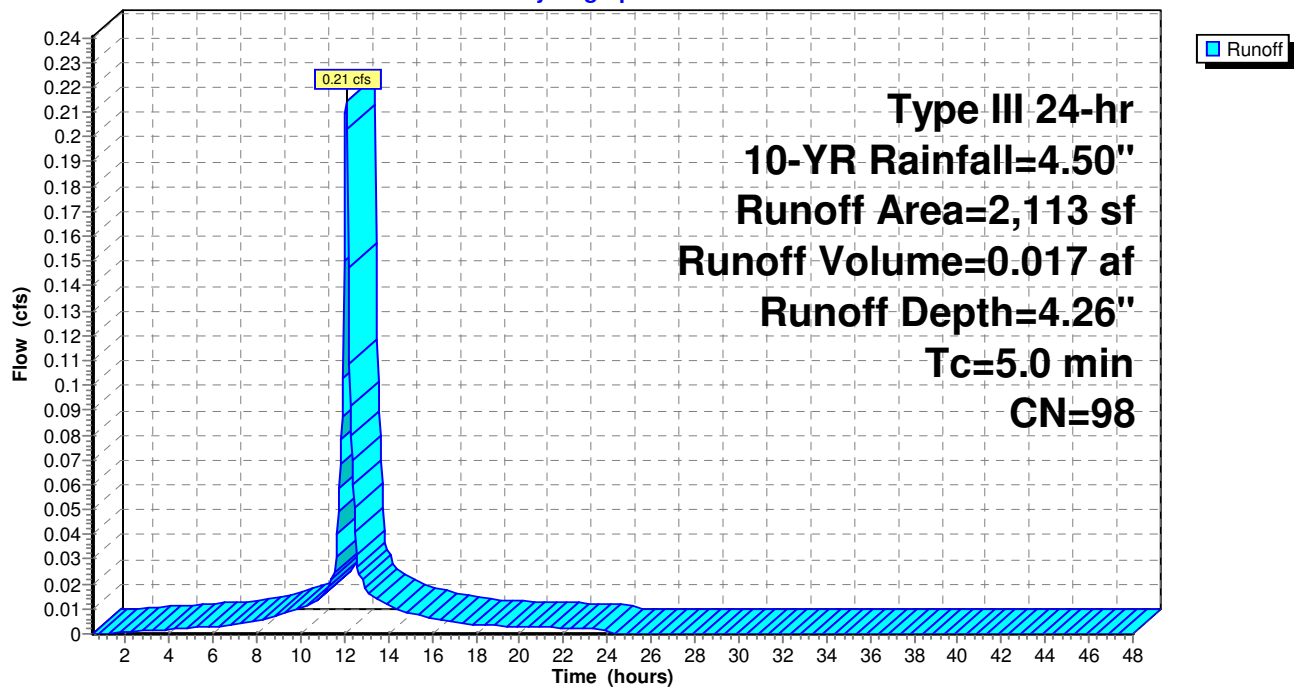
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S: Units 1 & 2 Roofs

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 3S: Flow to PCB#2

Runoff = 0.61 cfs @ 12.07 hrs, Volume= 0.044 af, Depth= 3.30"
Routed to Pond 1P : ADS 30" Pipe Det Basin

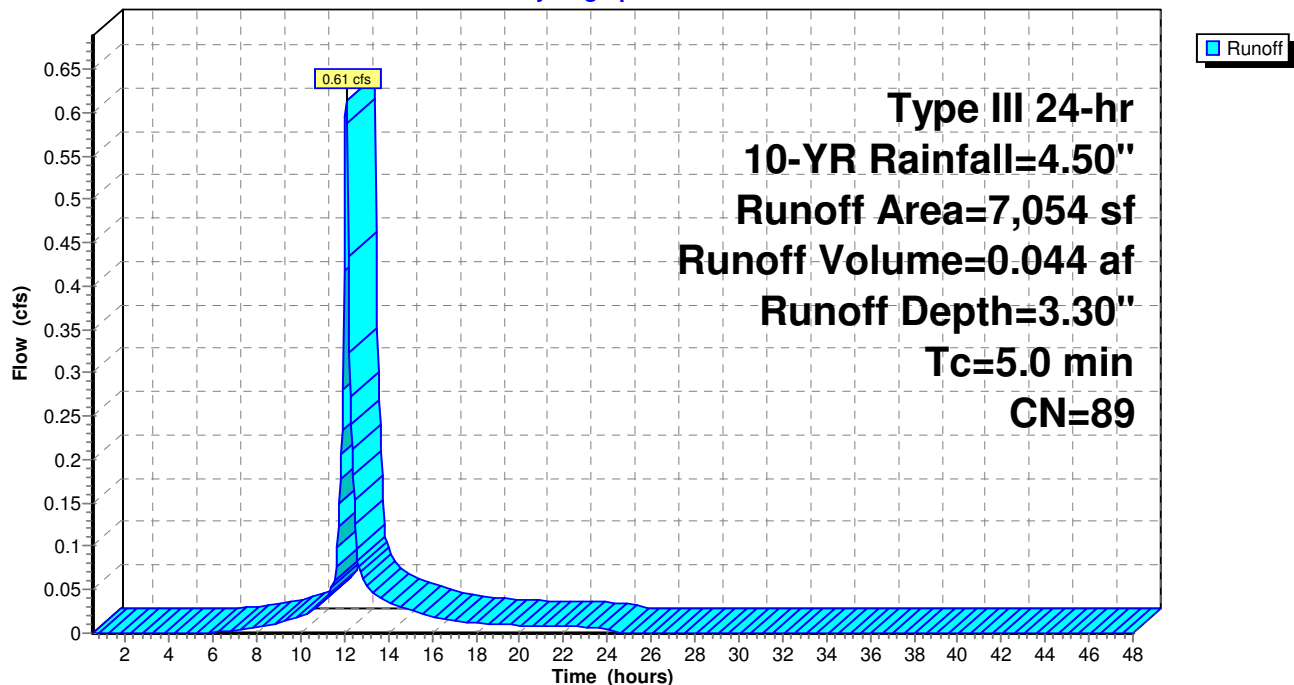
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
3,568	98	Paved parking, HSG D
3,486	80	>75% Grass cover, Good, HSG D
7,054	89	Weighted Average
3,486		49.42% Pervious Area
3,568		50.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S: Flow to PCB#2

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 4S: Undetained Flow to Greenmont Ave - DP#1

Runoff = 0.52 cfs @ 12.08 hrs, Volume= 0.037 af, Depth= 2.46"

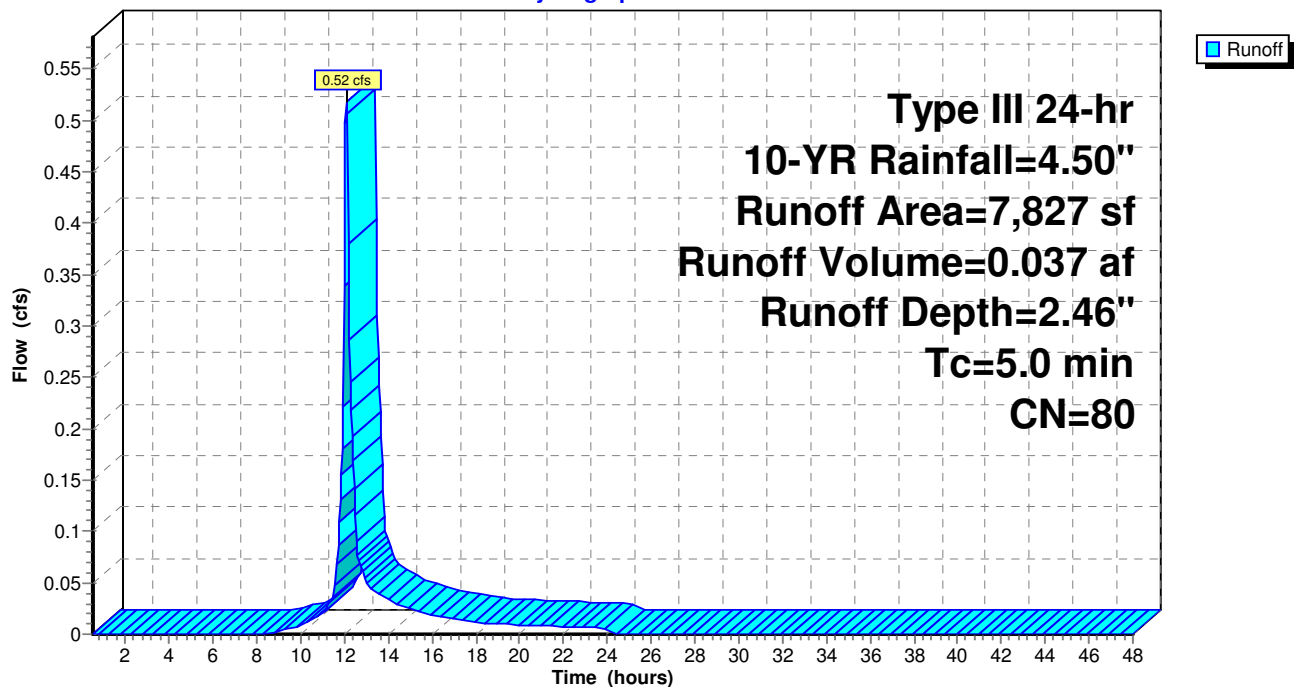
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
7,827	80	>75% Grass cover, Good, HSG D
7,827		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 4S: Undetained Flow to Greenmont Ave - DP#1

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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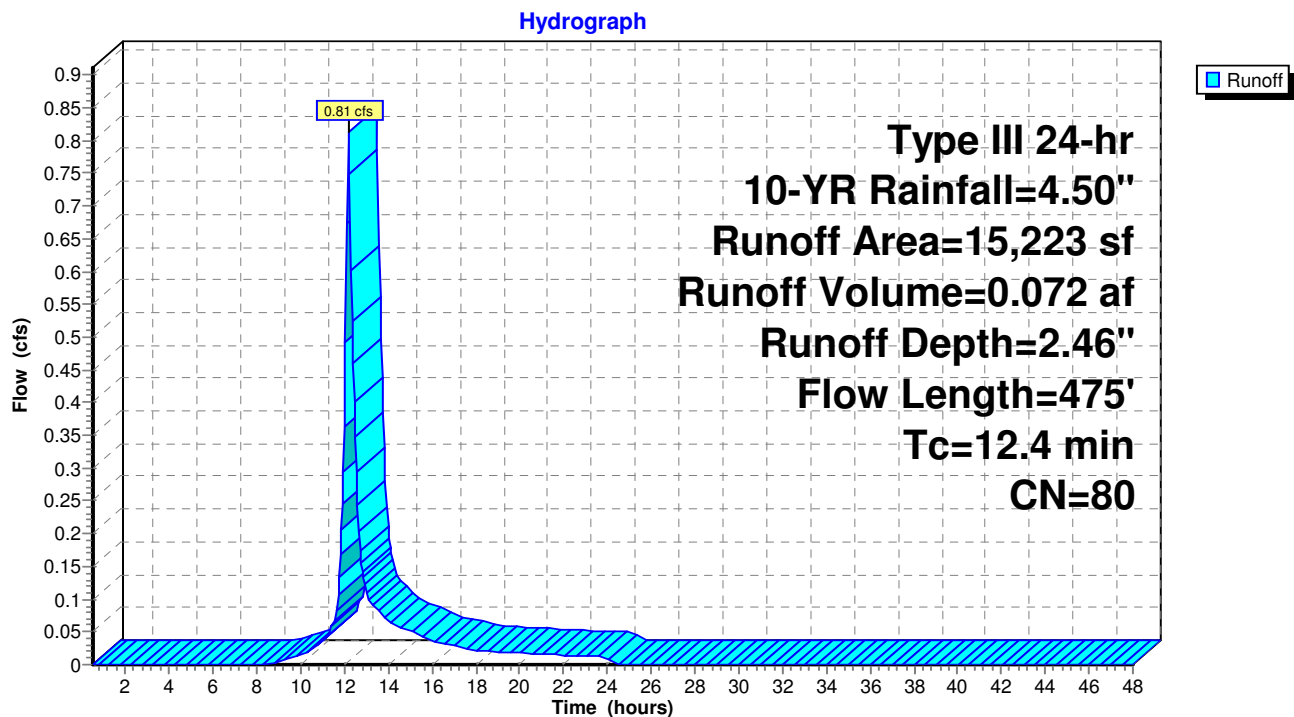
Summary for Subcatchment 5S: Landscape Area including Sed Forebay

Runoff = 0.81 cfs @ 12.17 hrs, Volume= 0.072 af, Depth= 2.46"
Routed to Pond 11P : Sediment Forebay

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
7,905	80	>75% Grass cover, Good, HSG D
7,318	80	>75% Grass cover, Good, HSG D
15,223	80	Weighted Average
15,223		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	50	0.0150	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
6.1	425	0.0060	1.16		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
12.4	475	Total			

Subcatchment 5S: Landscape Area including Sed Forebay

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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 6S: Undetained Flow to Wetlands

Runoff = 0.26 cfs @ 12.08 hrs, Volume= 0.019 af, Depth= 2.46"
Routed to Link DP#2 : DP#2 - Rear Wetlands

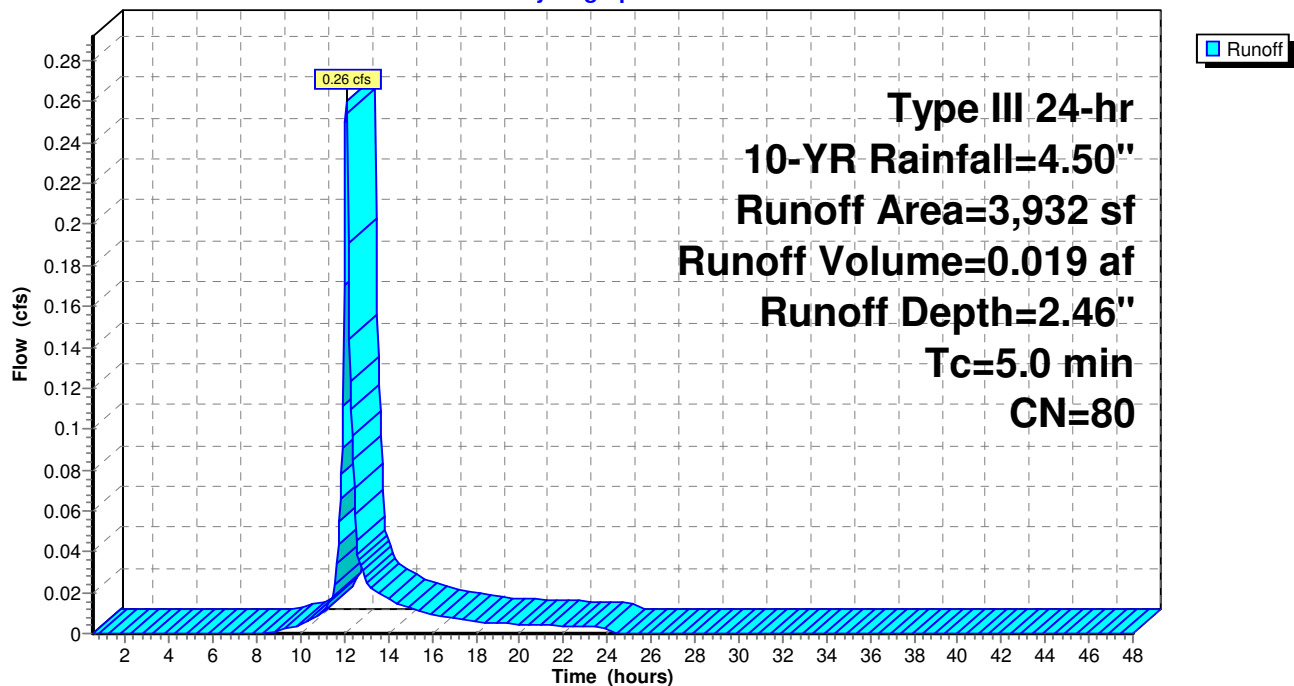
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
2,032	80	>75% Grass cover, Good, HSG D
1,900	80	>75% Grass cover, Good, HSG D
3,932	80	Weighted Average
3,932		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 6S: Undetained Flow to Wetlands

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 7S: Flow to PCB#3

Runoff = 1.12 cfs @ 12.18 hrs, Volume= 0.102 af, Depth= 3.10"
 Routed to Pond 1P : ADS 30" Pipe Det Basin

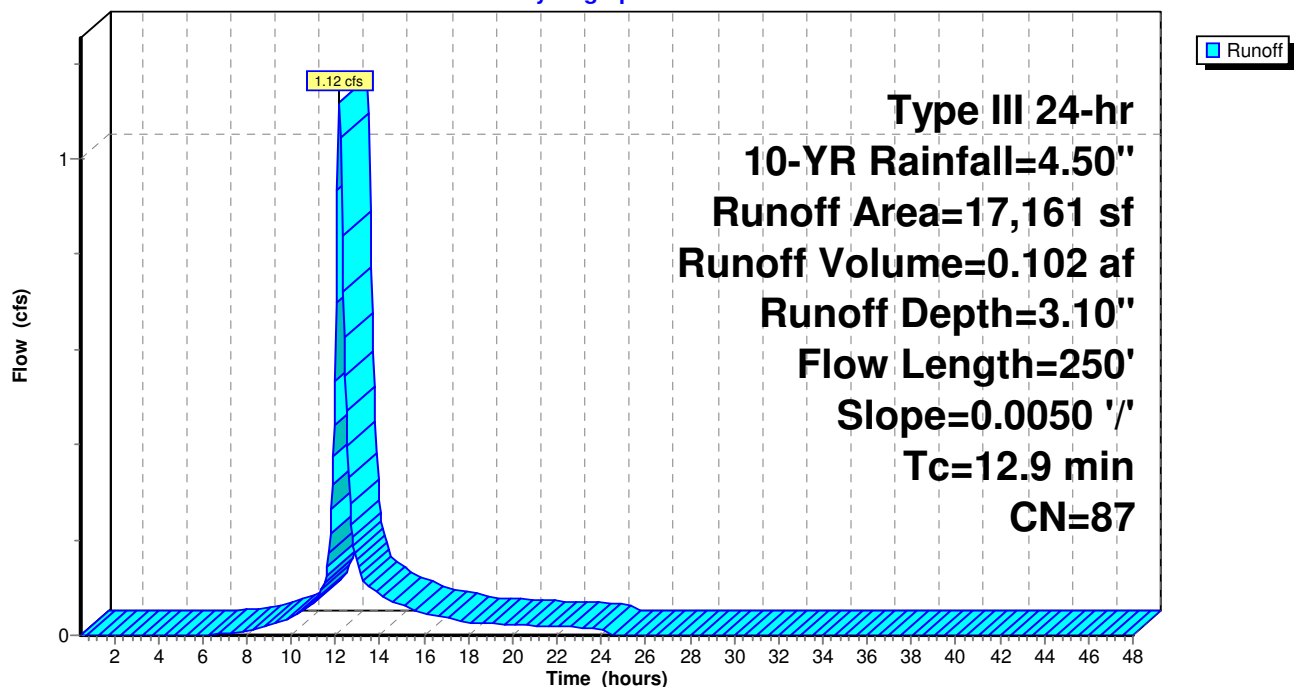
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
10,938	80	>75% Grass cover, Good, HSG D
6,223	98	Paved parking, HSG D
17,161	87	Weighted Average
10,938		63.74% Pervious Area
6,223		36.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0050	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.1	200	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
12.9	250	Total			

Subcatchment 7S: Flow to PCB#3

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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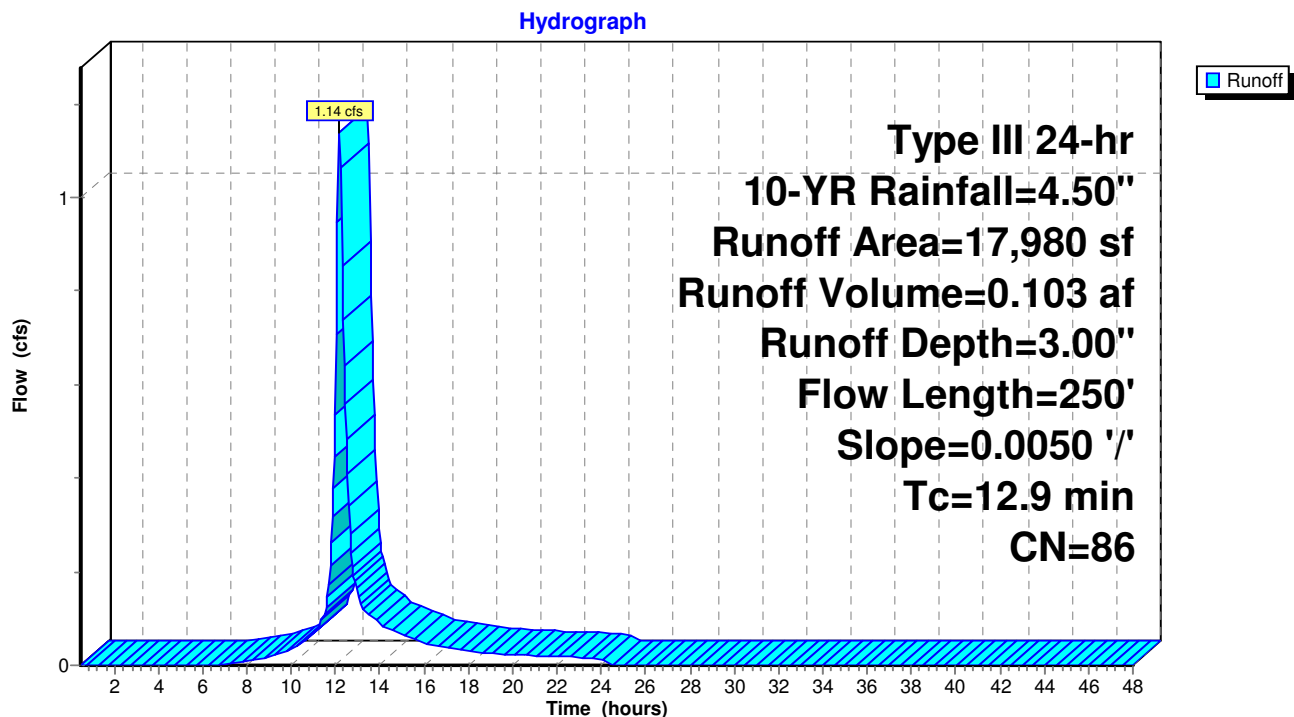
Summary for Subcatchment 8S: Flow to PCB#4

Runoff = 1.14 cfs @ 12.18 hrs, Volume= 0.103 af, Depth= 3.00"
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
11,779	80	>75% Grass cover, Good, HSG D
6,201	98	Paved parking, HSG D
17,980	86	Weighted Average
11,779		65.51% Pervious Area
6,201		34.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0050	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.1	200	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
12.9	250	Total			

Subcatchment 8S: Flow to PCB#4

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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 9S: Unit 3 & 4 Roofs

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.017 af, Depth= 4.26"
Routed to Pond 10P : Roof Recharge Chambers

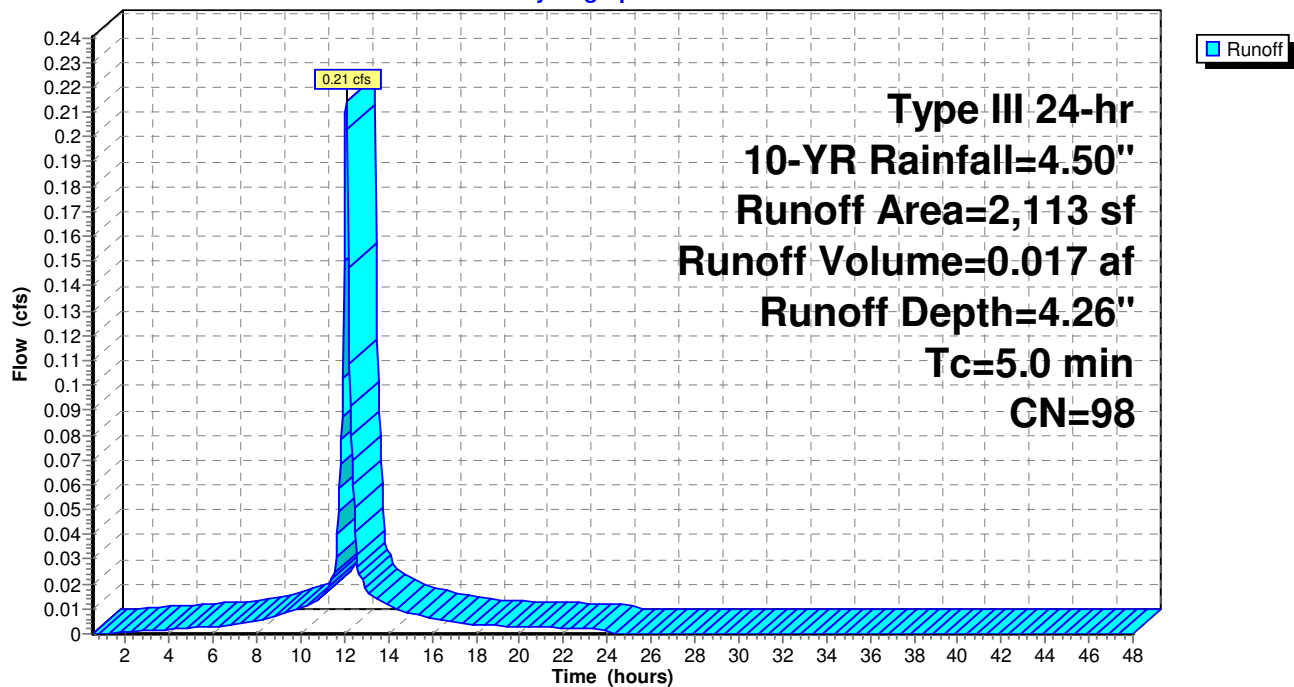
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 9S: Unit 3 & 4 Roofs

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 11S: Unit 5 & 6 Roofs

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af, Depth= 4.26"
Routed to Pond 15P : Roof Recharge Chambers

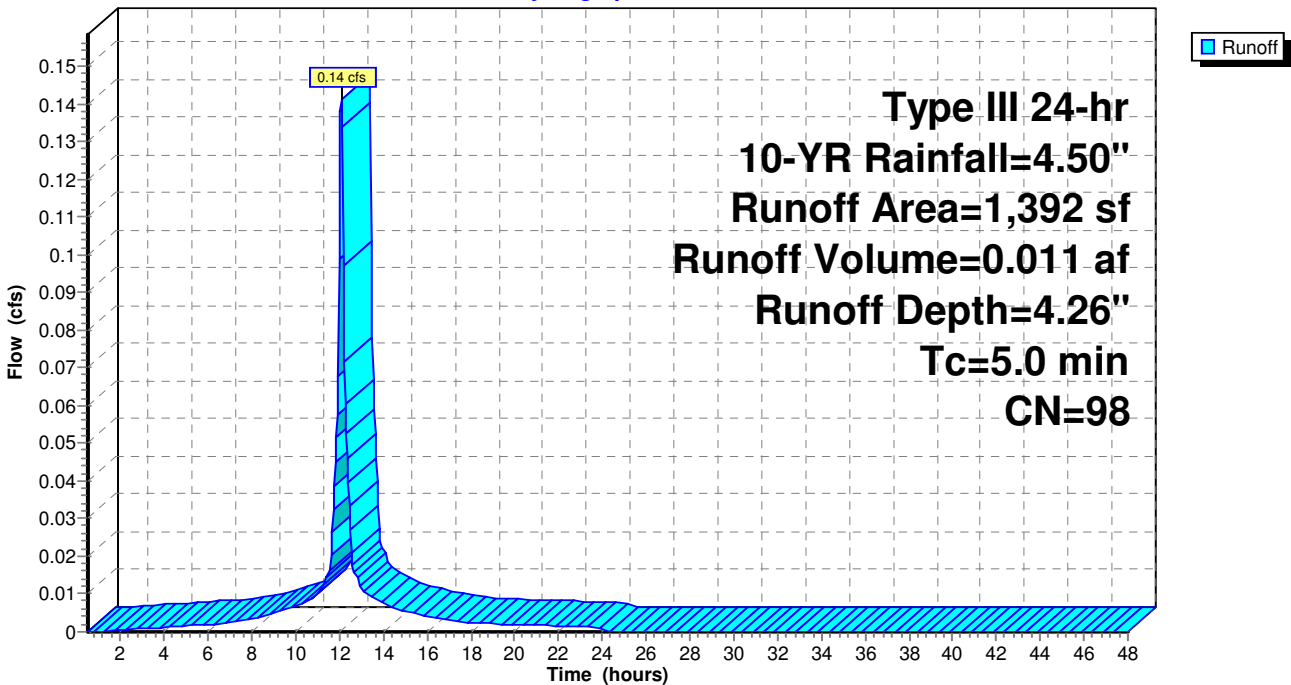
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 11S: Unit 5 & 6 Roofs

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 12S: Unit 7 & 8 Roofs

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af, Depth= 4.26"
Routed to Pond 16P : Roof Recharge Chambers

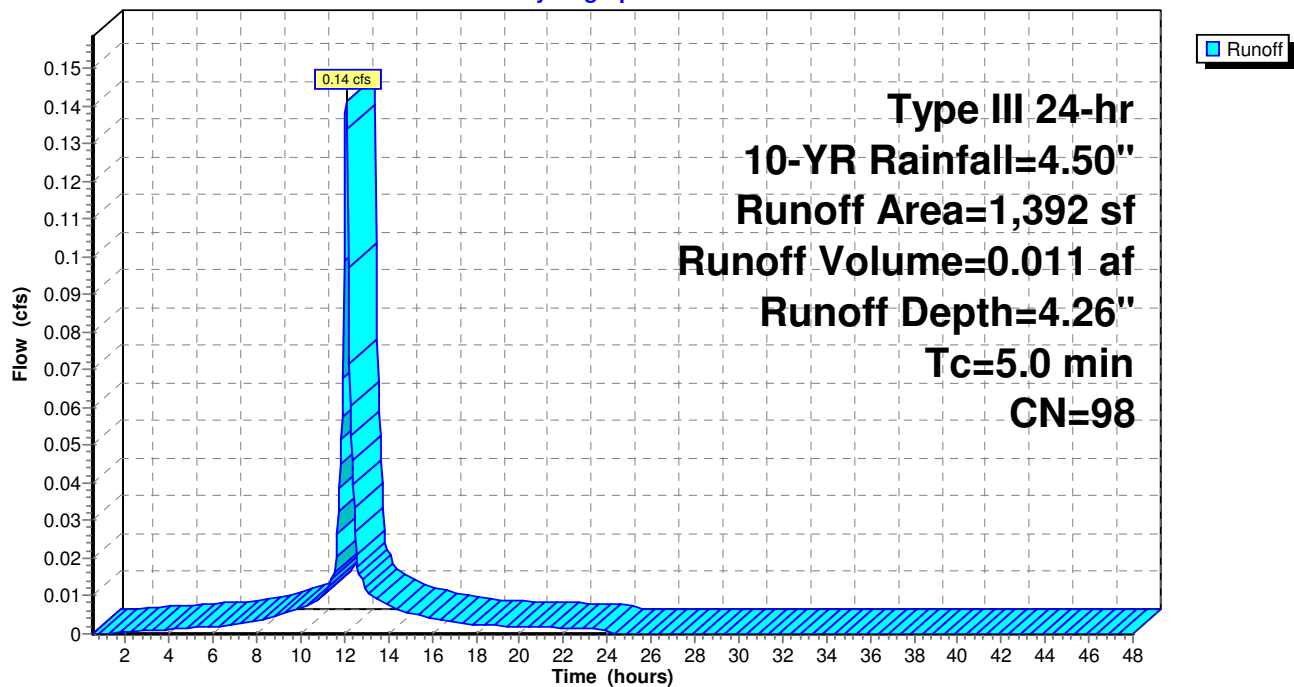
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 12S: Unit 7 & 8 Roofs

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 13S: Unit 9 & 10 Roofs

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af, Depth= 4.26"
Routed to Pond 17P : Roof Recharge Chambers

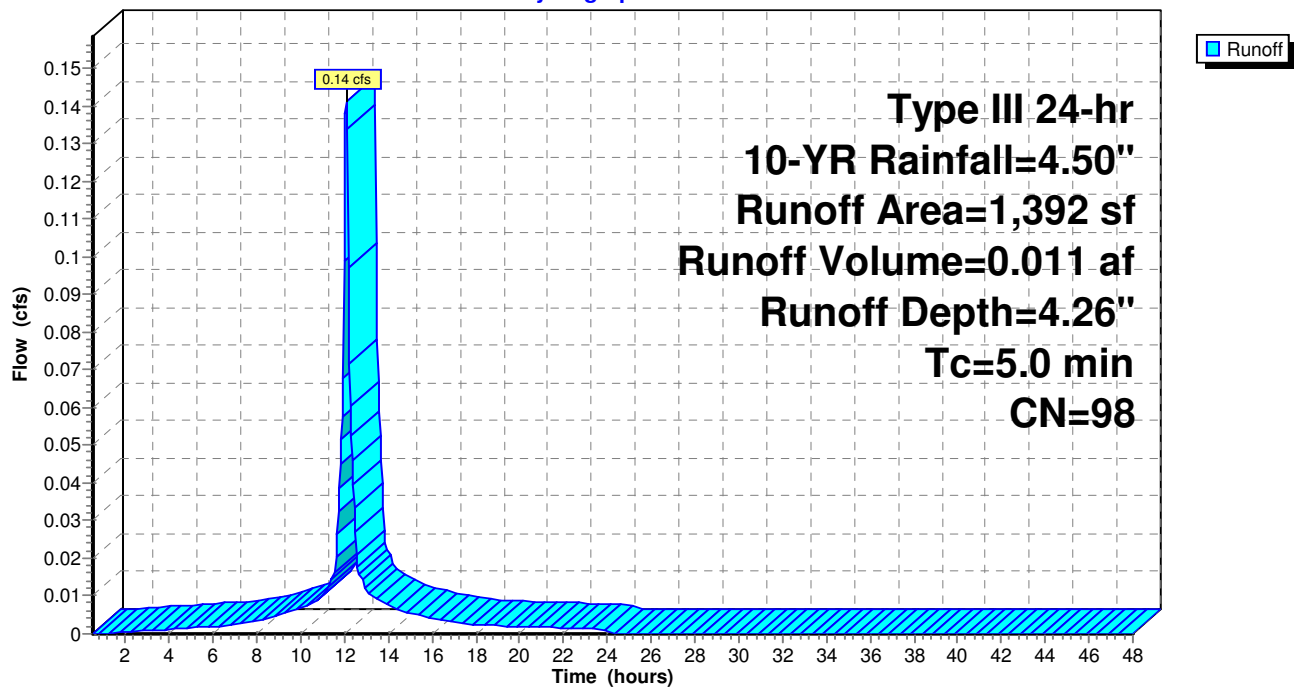
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 13S: Unit 9 & 10 Roofs

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 14S: Unit 11 & 12 Roofs

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af, Depth= 4.26"
Routed to Pond 18P : Roof Recharge Chambers

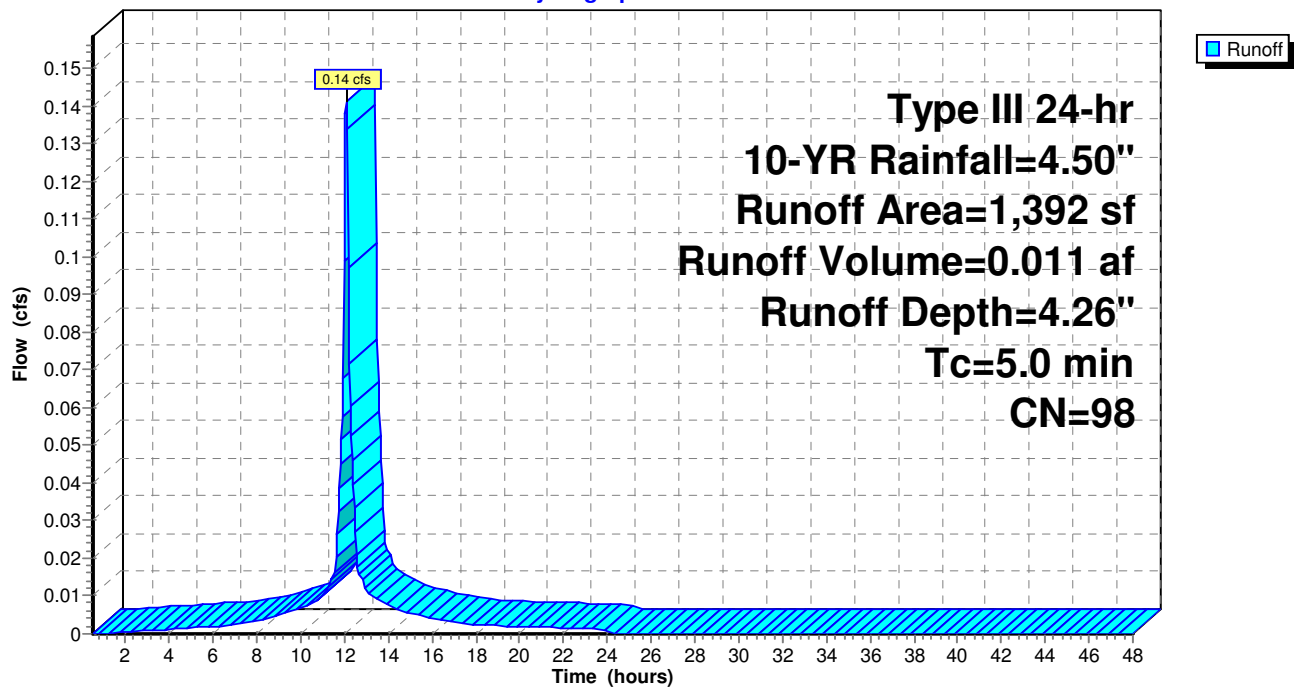
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 14S: Unit 11 & 12 Roofs

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 19S: Unit 13 Roof

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 0.006 af, Depth= 4.26"
Routed to Pond 20P : Roof Recharge Chamber

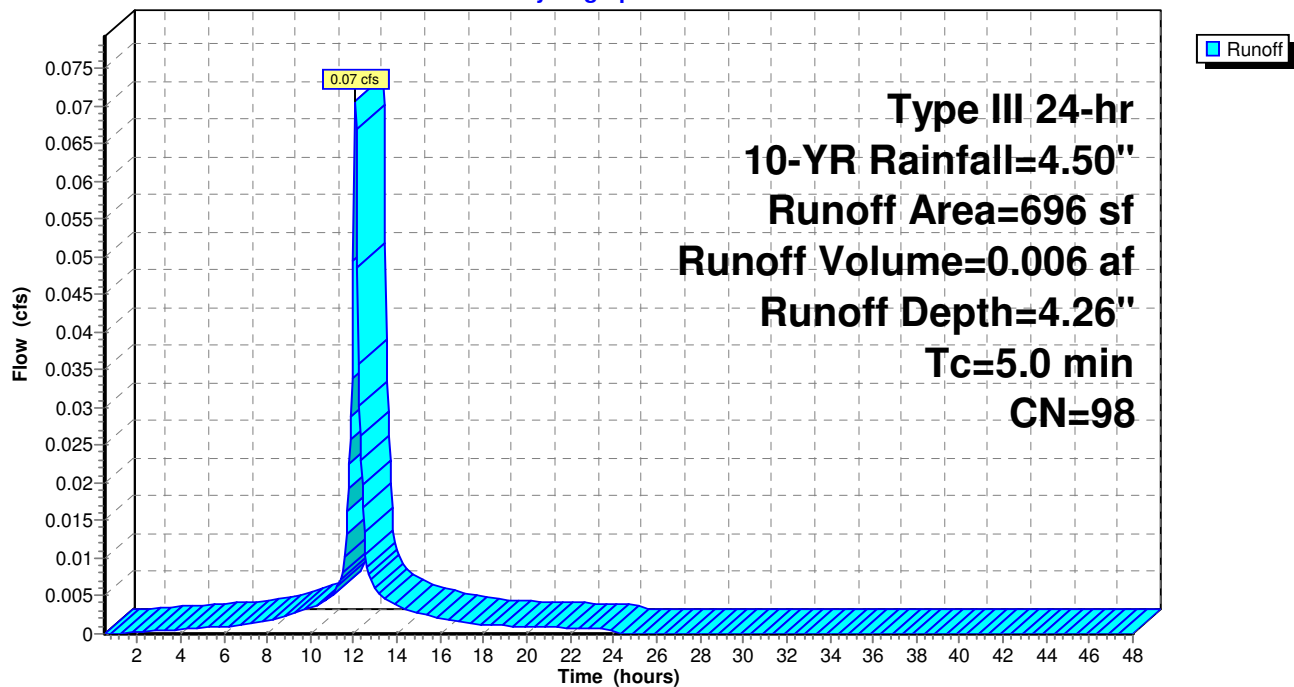
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
696	98	Roofs, HSG D
696		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 19S: Unit 13 Roof

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 21S: Unit 21 & 22 Roofs

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af, Depth= 4.26"
Routed to Pond 27P : Roof Recharge Chambers

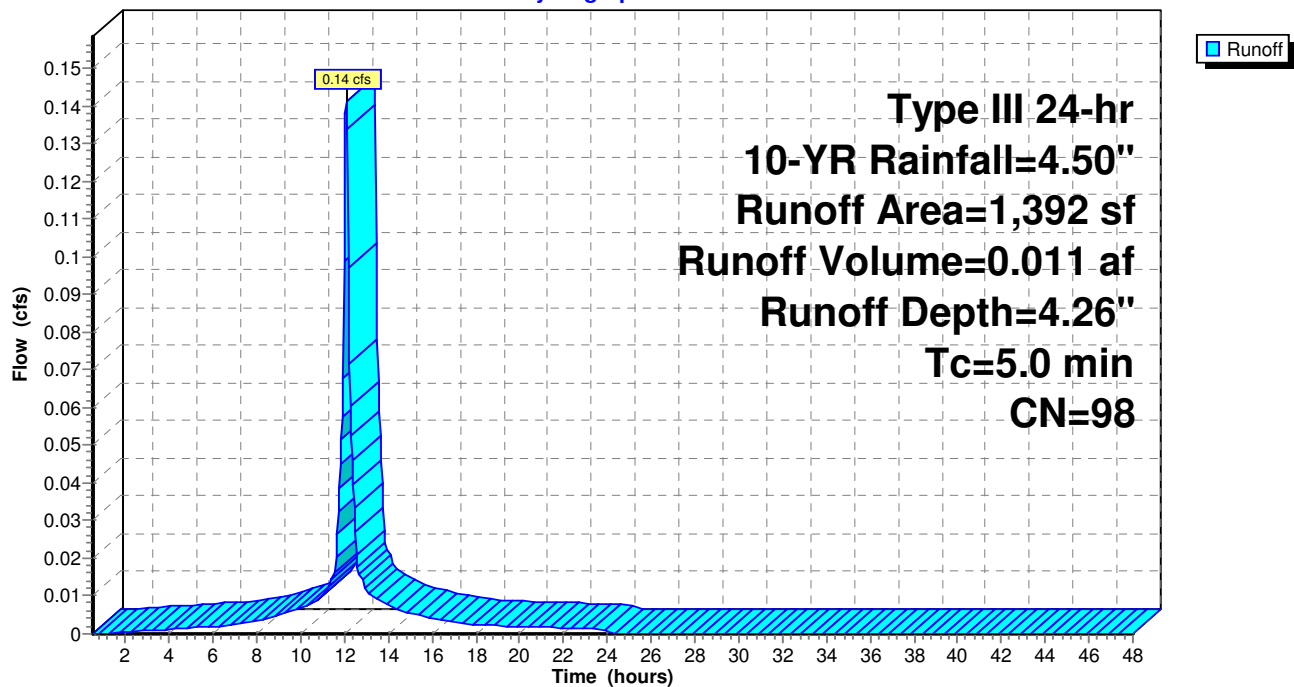
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 21S: Unit 21 & 22 Roofs

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 23S: Unit 25 & 26 Roofs

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.017 af, Depth= 4.26"
Routed to Pond 24P : Roof Recharge Chambers

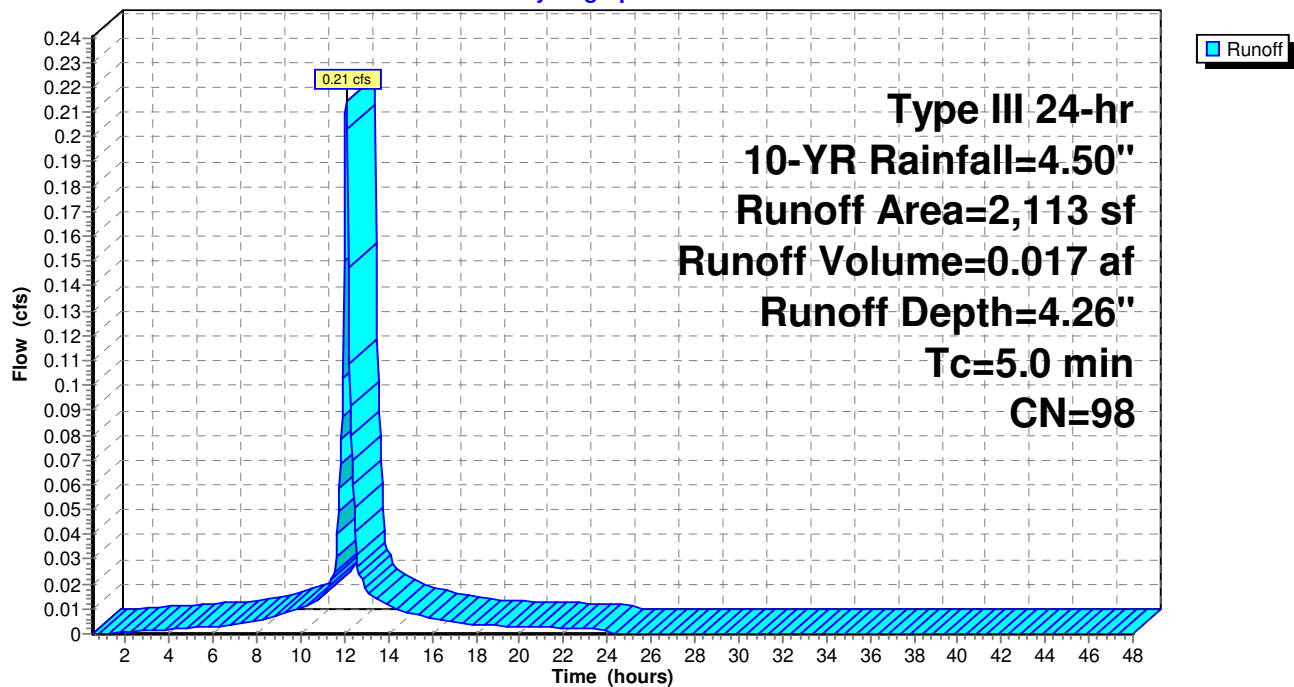
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 23S: Unit 25 & 26 Roofs

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 25S: Unit 23 & 24 Roofs

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.017 af, Depth= 4.26"
Routed to Pond 26P : Roof Recharge Chambers

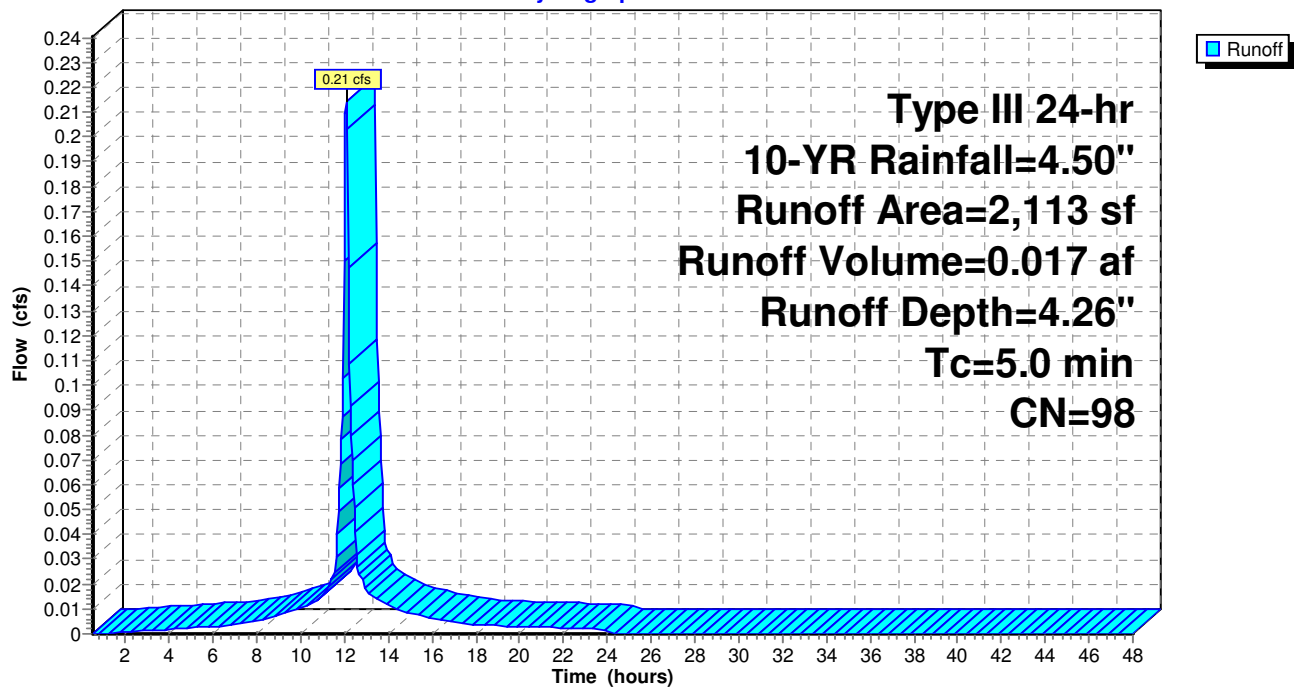
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 25S: Unit 23 & 24 Roofs

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 32S: Unit 19 & 20 Roofs

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af, Depth= 4.26"
Routed to Pond 28P : Roof Recharge Chambers

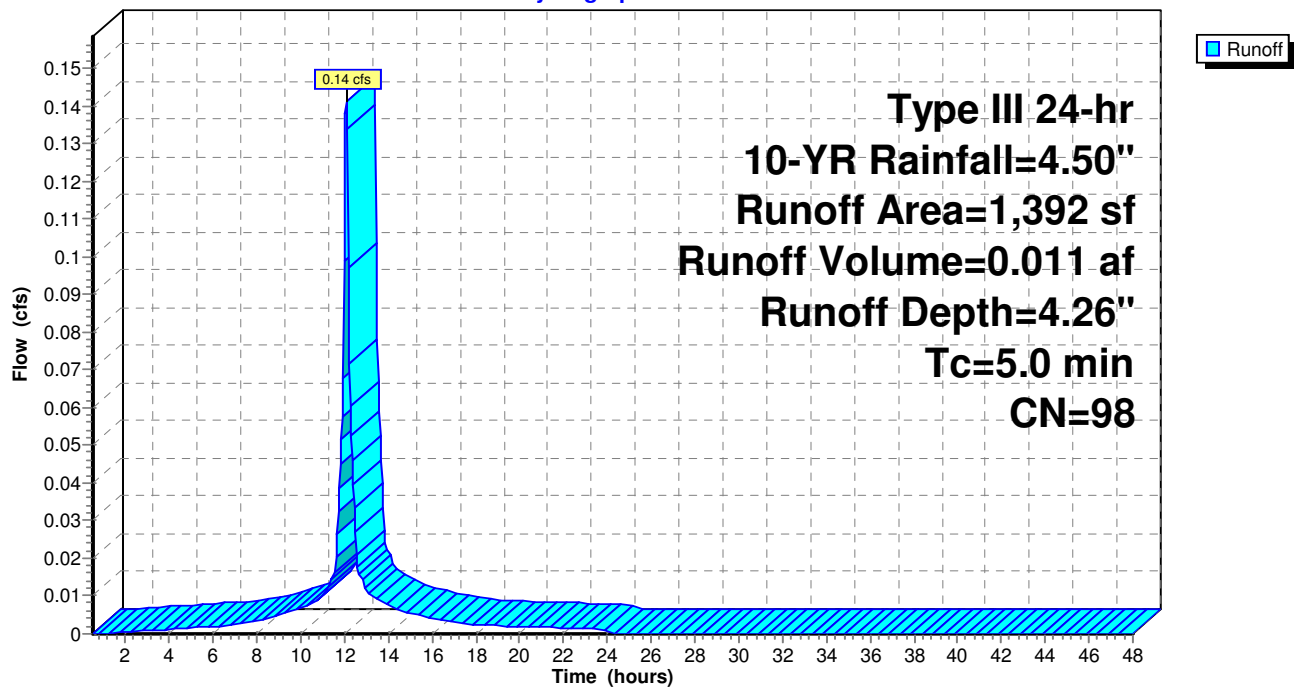
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 32S: Unit 19 & 20 Roofs

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 33S: Unit 17 & 18 Roofs

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af, Depth= 4.26"
Routed to Pond 29P : Roof Recharge Chambers

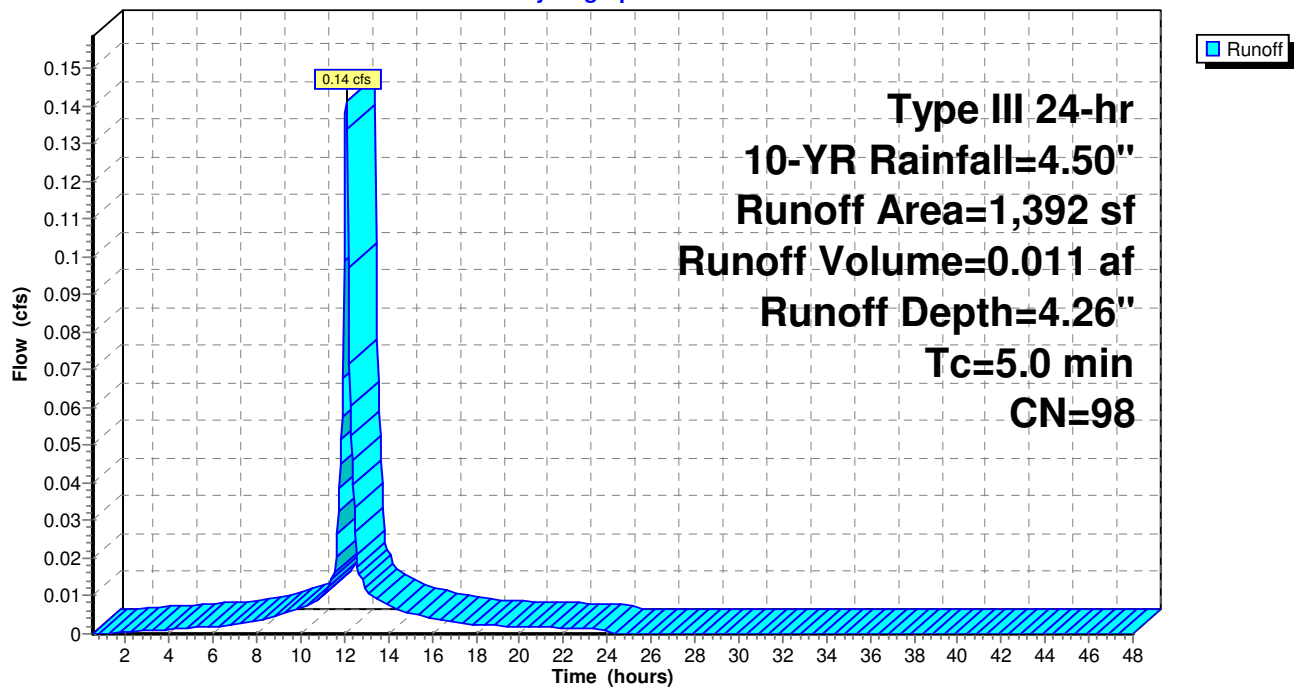
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 33S: Unit 17 & 18 Roofs

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 34S: Unit 15 & 16 Roofs

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af, Depth= 4.26"
Routed to Pond 30P : Roof Recharge Chambers

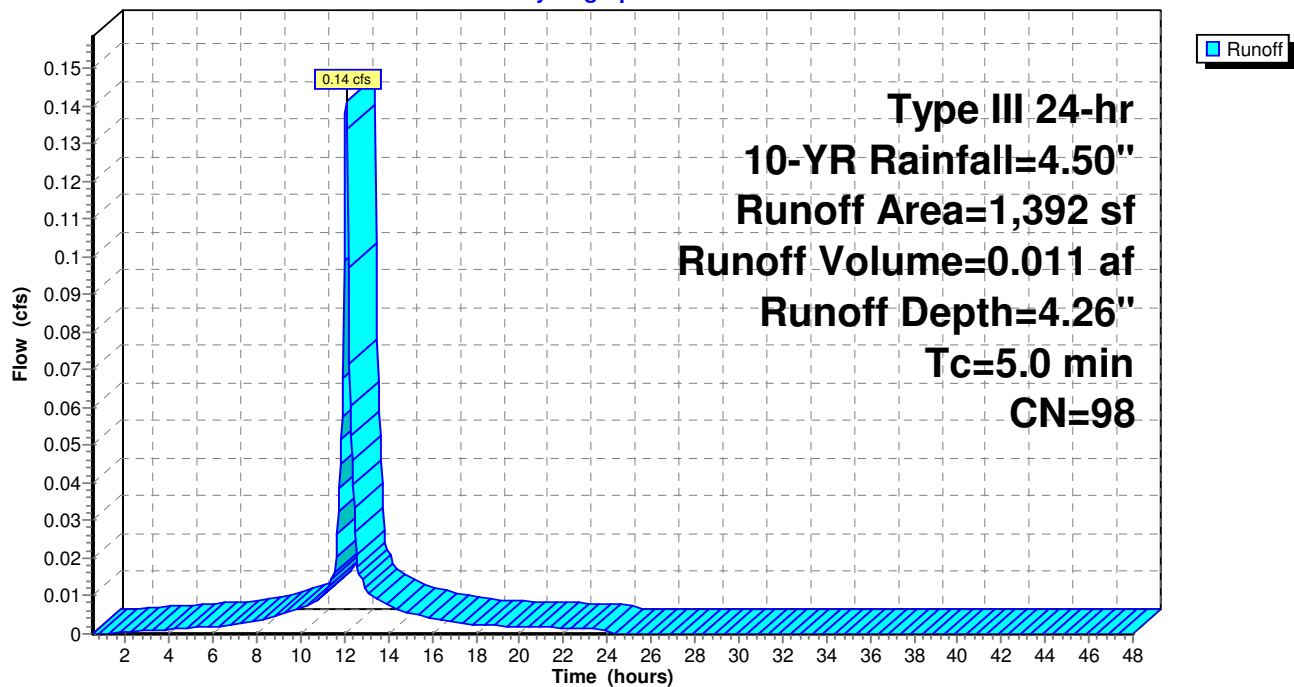
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 34S: Unit 15 & 16 Roofs

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 35S: Unit 14 Roof

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 0.006 af, Depth= 4.26"
Routed to Pond 31P : Roof Recharge Chambers

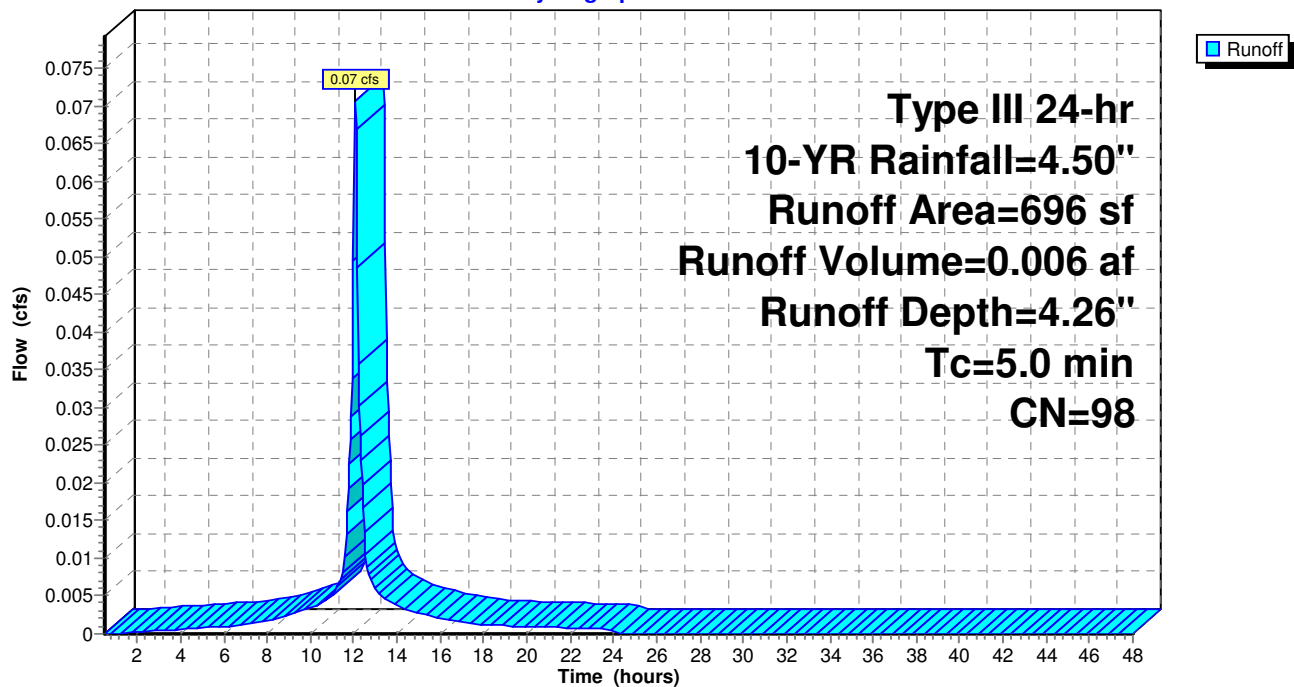
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
696	98	Roofs, HSG D
696		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 35S: Unit 14 Roof

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Subcatchment 36S: Landscape Area including Wet Basin

Runoff = 0.49 cfs @ 12.19 hrs, Volume= 0.045 af, Depth= 2.46"
 Routed to Pond 12P : Outlet Det Pond

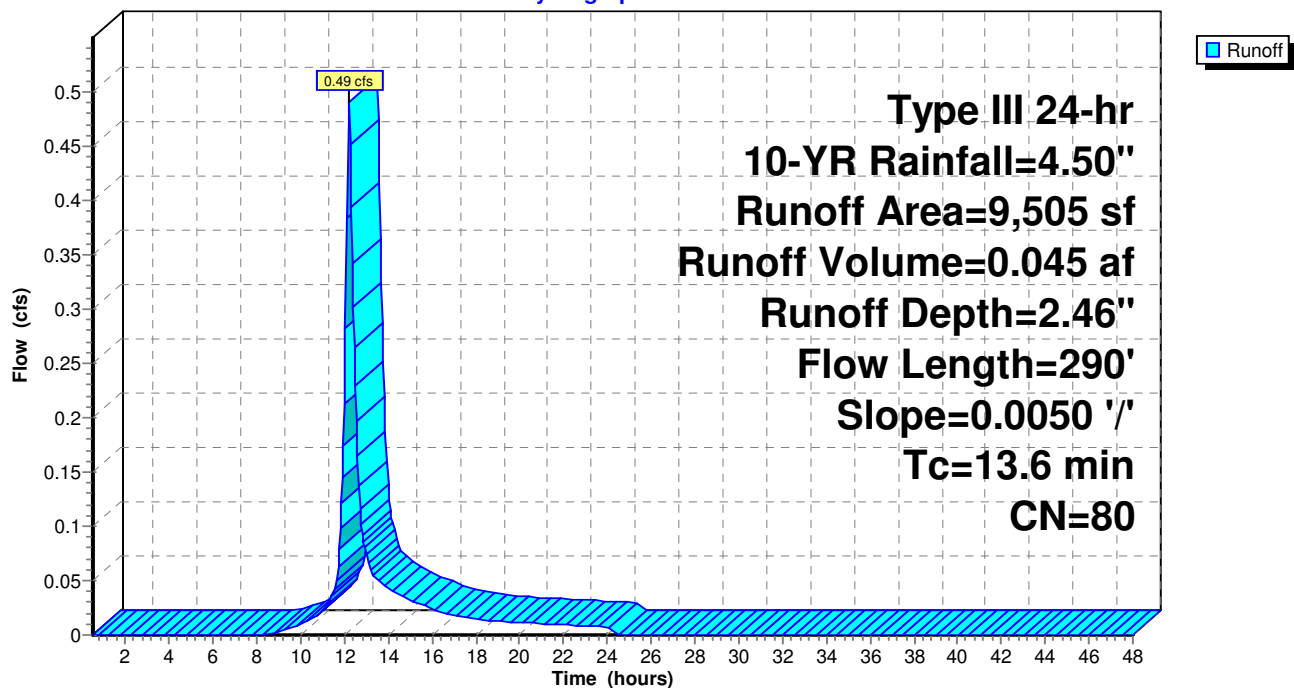
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YR Rainfall=4.50"

Area (sf)	CN	Description
9,505	80	>75% Grass cover, Good, HSG D
9,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0050	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.8	240	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
13.6	290	Total			

Subcatchment 36S: Landscape Area including Wet Basin

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 1P: ADS 30" Pipe Det Basin

Inflow Area = 1.612 ac, 57.74% Impervious, Inflow Depth = 2.84" for 10-YR event
 Inflow = 4.84 cfs @ 12.12 hrs, Volume= 0.382 af
 Outflow = 1.82 cfs @ 12.48 hrs, Volume= 0.382 af, Atten= 62%, Lag= 21.3 min
 Primary = 1.82 cfs @ 12.48 hrs, Volume= 0.382 af
 Routed to Pond 11P : Sediment Forebay

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 159.59' @ 12.48 hrs Surf.Area= 4,335 sf Storage= 5,909 cf

Plug-Flow detention time= 68.6 min calculated for 0.382 af (100% of inflow)
 Center-of-Mass det. time= 68.9 min (868.7 - 799.7)

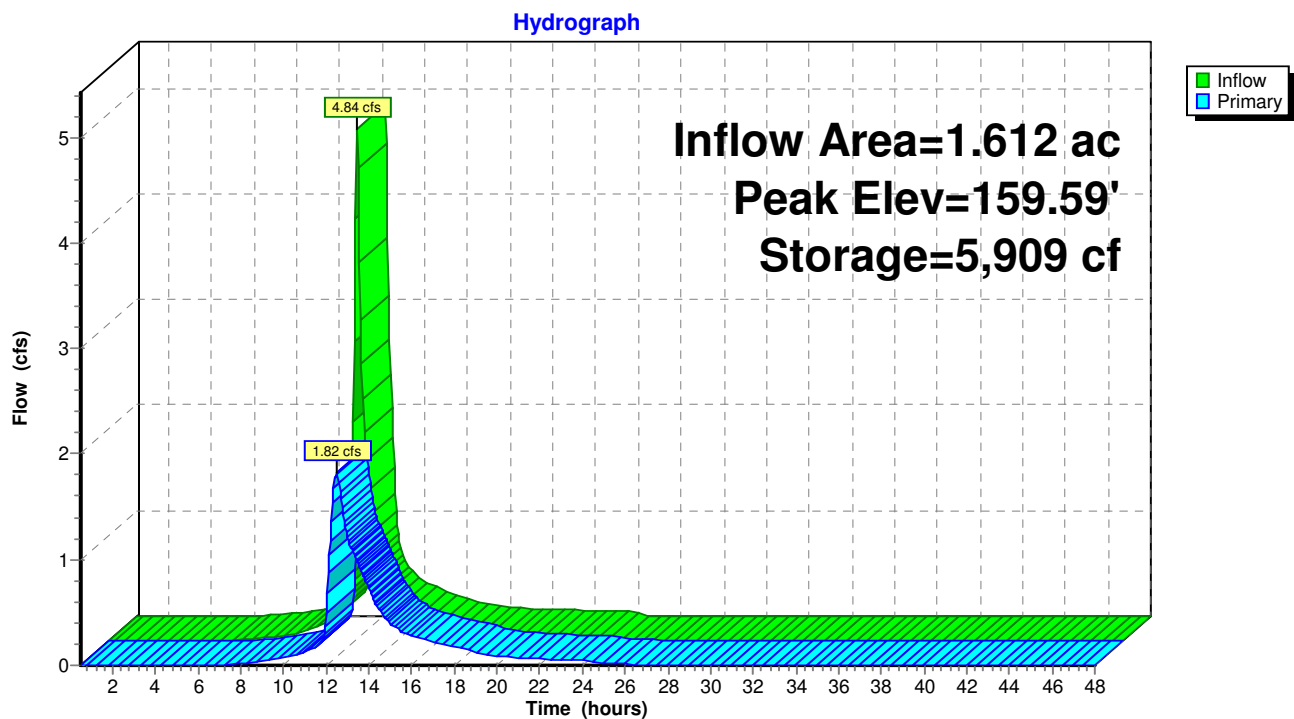
Volume	Invert	Avail.Storage	Storage Description
#1	158.00'	8,836 cf	30.0" Round Pipe Storage x 6 L= 300.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	159.25'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	158.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	158.50'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.82 cfs @ 12.48 hrs HW=159.58' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.45 cfs @ 1.97 fps)
- 2=Orifice/Grate (Orifice Controls 0.50 cfs @ 5.73 fps)
- 3=Orifice/Grate (Orifice Controls 0.86 cfs @ 4.40 fps)

Pond 1P: ADS 30" Pipe Det Basin



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 3P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.21 cfs @ 12.07 hrs, Volume= 0.017 af
 Outflow = 0.19 cfs @ 12.12 hrs, Volume= 0.017 af, Atten= 14%, Lag= 2.9 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.18 cfs @ 12.12 hrs, Volume= 0.011 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.36' @ 12.12 hrs Surf.Area= 189 sf Storage= 153 cf

Plug-Flow detention time= 184.6 min calculated for 0.017 af (100% of inflow)
 Center-of-Mass det. time= 184.4 min (933.3 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

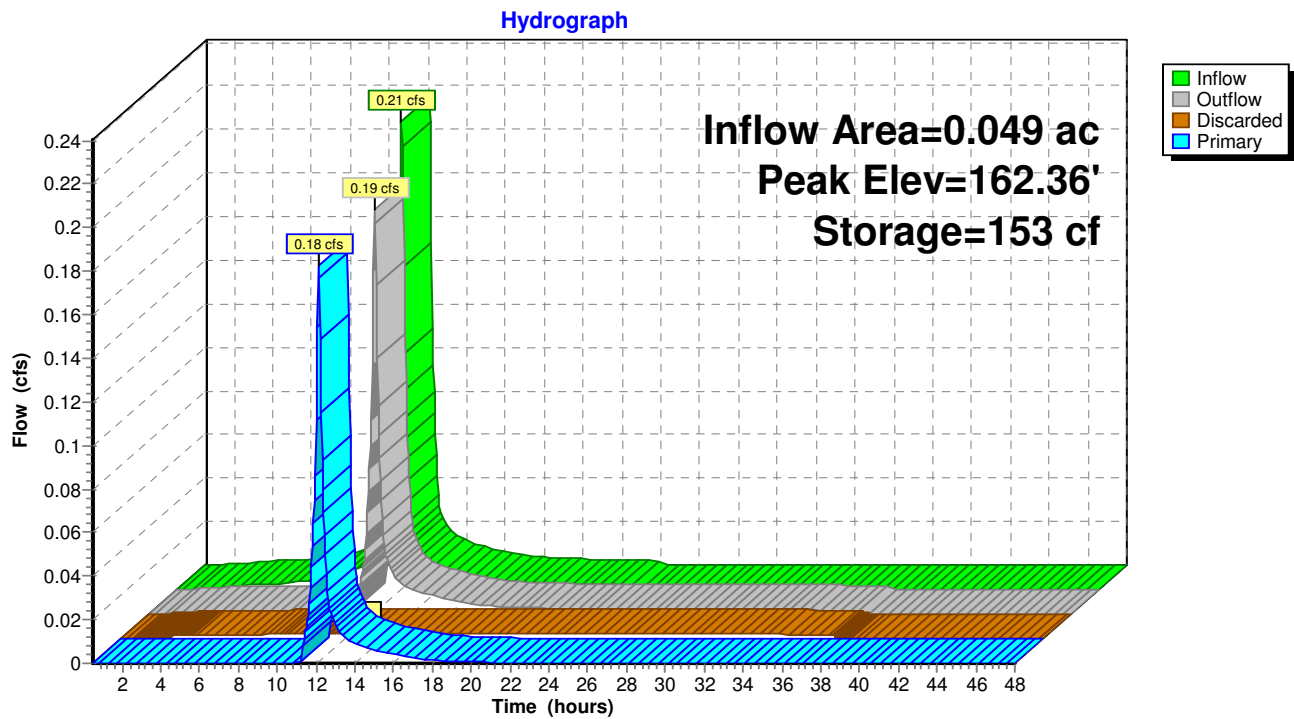
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.35' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.18 cfs @ 12.12 hrs HW=162.35' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 2.06 fps)

Pond 3P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 10P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.21 cfs @ 12.07 hrs, Volume= 0.017 af
 Outflow = 0.19 cfs @ 12.12 hrs, Volume= 0.017 af, Atten= 14%, Lag= 2.9 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.18 cfs @ 12.12 hrs, Volume= 0.011 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.36' @ 12.12 hrs Surf.Area= 189 sf Storage= 153 cf

Plug-Flow detention time= 184.6 min calculated for 0.017 af (100% of inflow)
 Center-of-Mass det. time= 184.4 min (933.3 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

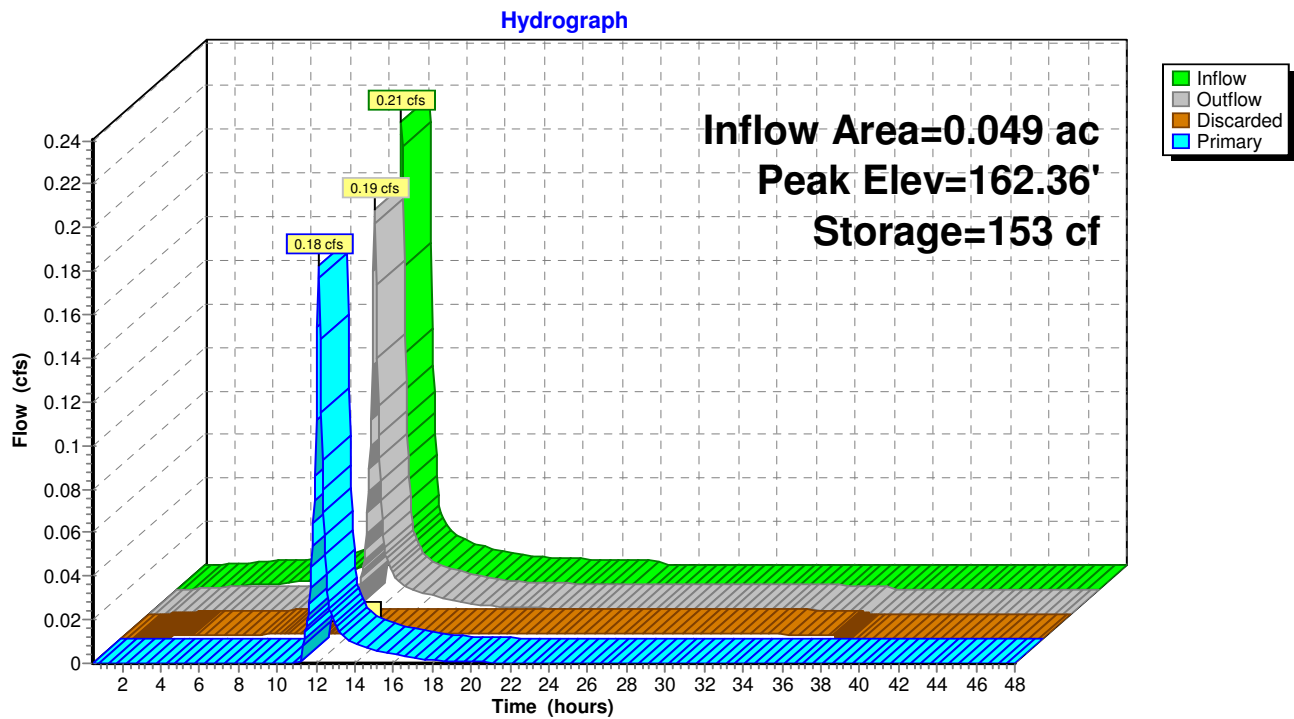
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.35' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.18 cfs @ 12.12 hrs HW=162.35' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 2.06 fps)

Pond 10P: Roof Recharge Chambers



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 11P: Sediment Forebay

Inflow Area = 1.962 ac, 47.45% Impervious, Inflow Depth = 2.78" for 10-YR event
 Inflow = 2.23 cfs @ 12.41 hrs, Volume= 0.454 af
 Outflow = 2.23 cfs @ 12.43 hrs, Volume= 0.447 af, Atten= 0%, Lag= 1.2 min
 Primary = 2.23 cfs @ 12.43 hrs, Volume= 0.447 af
 Routed to Pond 12P : Outlet Det Pond

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 157.78' @ 12.43 hrs Surf.Area= 884 sf Storage= 544 cf

Plug-Flow detention time= 18.6 min calculated for 0.447 af (98% of inflow)
 Center-of-Mass det. time= 7.8 min (870.8 - 862.9)

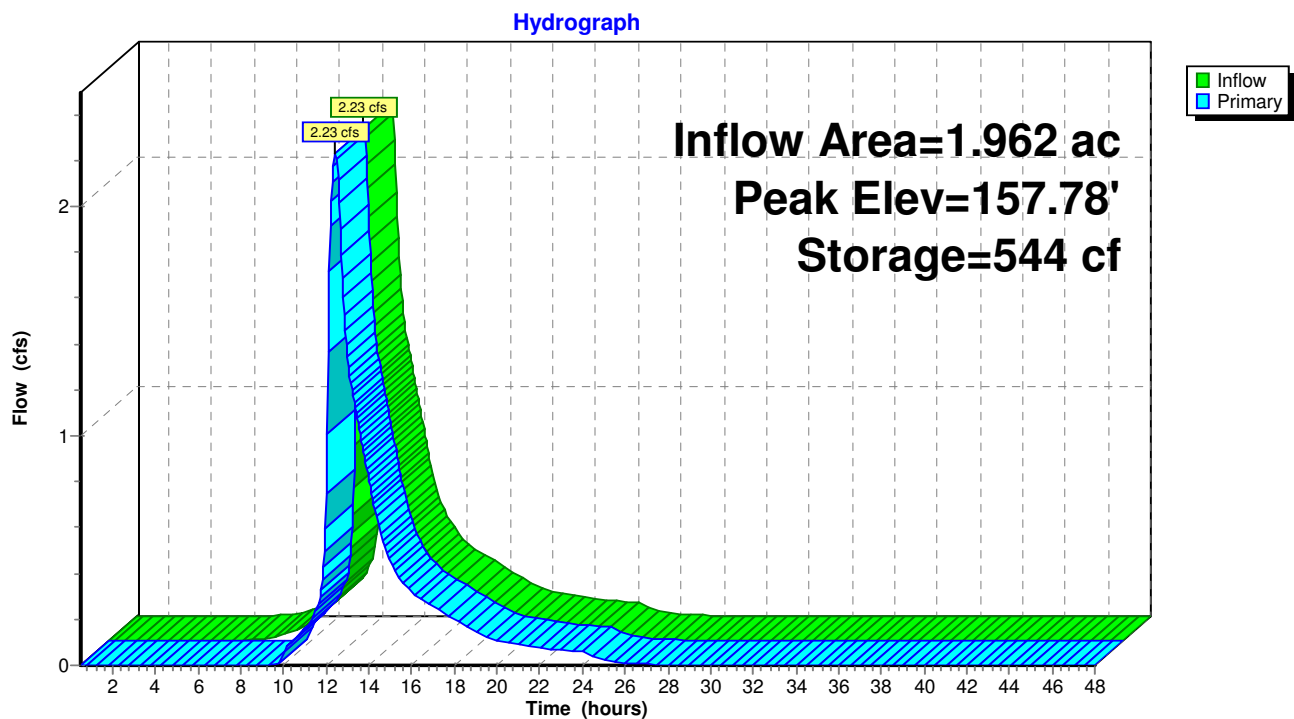
Volume	Invert	Avail.Storage	Storage Description
#1	157.00'	1,907 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
157.00	525	86.0	0	0	525
158.00	1,002	124.0	751	751	1,169
159.00	1,318	140.0	1,156	1,907	1,530

Device	Routing	Invert	Outlet Devices
#1	Primary	157.50'	6.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=2.22 cfs @ 12.43 hrs HW=157.78' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 2.22 cfs @ 1.32 fps)

Pond 11P: Sediment Forebay



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 12P: Outlet Det Pond

Inflow Area = 2.180 ac, 42.70% Impervious, Inflow Depth = 2.70" for 10-YR event
 Inflow = 2.52 cfs @ 12.38 hrs, Volume= 0.491 af
 Outflow = 1.93 cfs @ 12.70 hrs, Volume= 0.393 af, Atten= 24%, Lag= 19.2 min
 Primary = 1.93 cfs @ 12.70 hrs, Volume= 0.393 af
 Routed to Link DP#2 : DP#2 - Rear Wetlands

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 155.76' @ 12.70 hrs Surf.Area= 5,458 sf Storage= 5,619 cf

Plug-Flow detention time= 131.6 min calculated for 0.393 af (80% of inflow)
 Center-of-Mass det. time= 56.9 min (924.3 - 867.4)

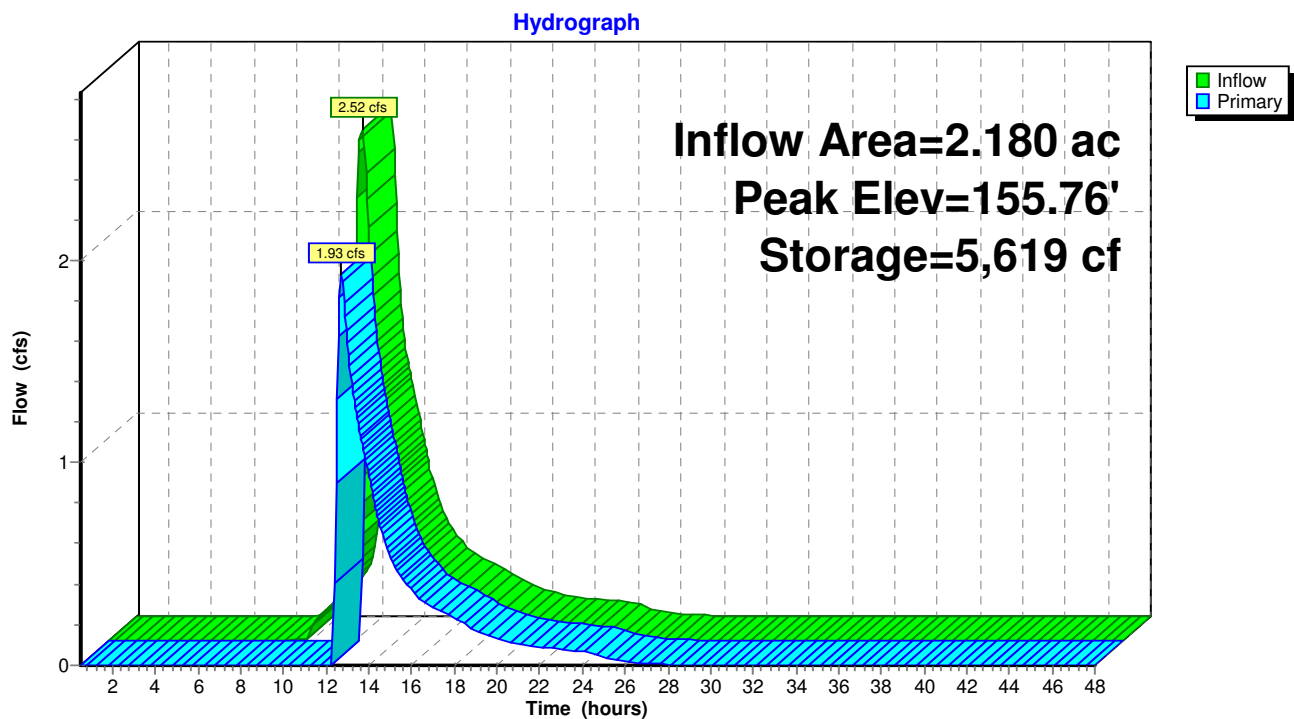
Volume	Invert	Avail.Storage	Storage Description
#1	154.00'	10,265 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
154.00	774	119.0	0	0	774
155.00	3,826	723.0	2,107	2,107	41,247
156.00	6,032	670.0	4,887	6,994	47,163
156.50	7,063	687.0	3,270	10,265	49,030

Device	Routing	Invert	Outlet Devices
#1	Primary	155.50'	6.0' long x 6.0' 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) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=1.92 cfs @ 12.70 hrs HW=155.76' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 1.92 cfs @ 1.23 fps)

Pond 12P: Outlet Det Pond



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 15P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af
 Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.011 af, Atten= 11%, Lag= 2.7 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.12 cfs @ 12.12 hrs, Volume= 0.005 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.26' @ 12.12 hrs Surf.Area= 186 sf Storage= 137 cf

Plug-Flow detention time= 232.0 min calculated for 0.011 af (100% of inflow)
 Center-of-Mass det. time= 232.6 min (981.5 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

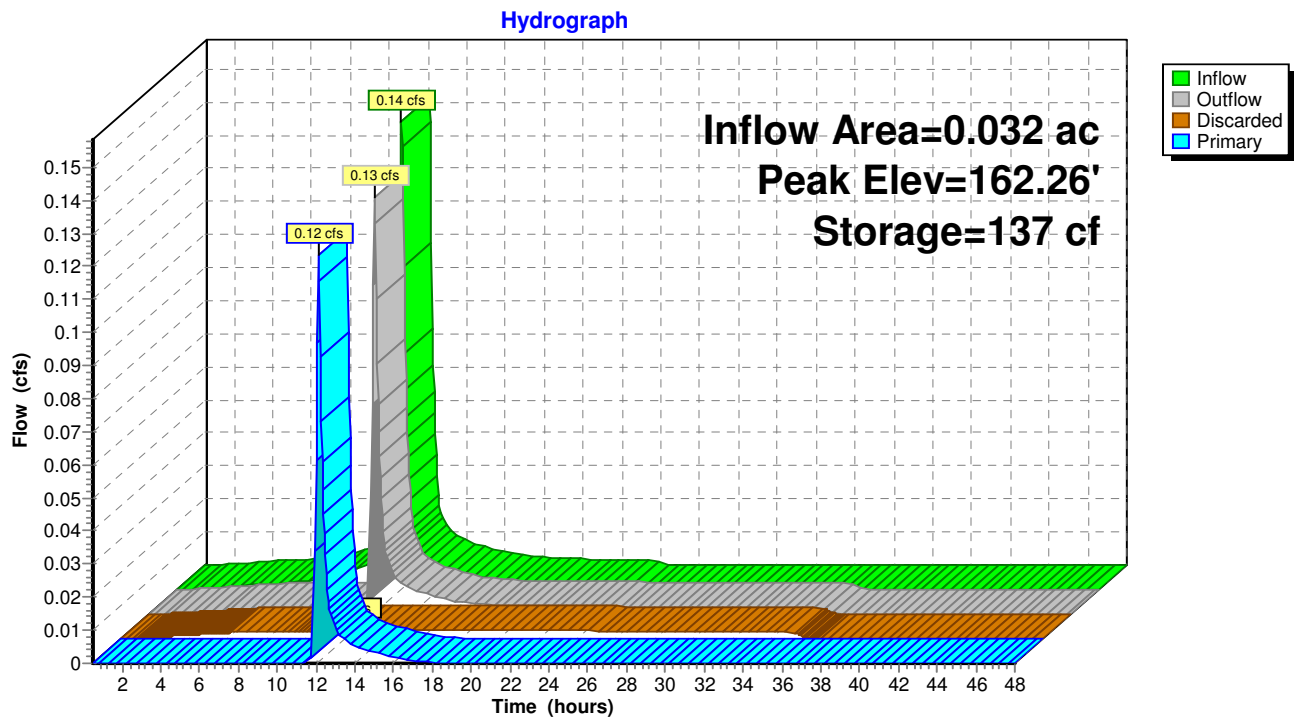
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.12 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 1.70 fps)

Pond 15P: Roof Recharge Chambers



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 16P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af
 Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.011 af, Atten= 11%, Lag= 2.7 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.12 cfs @ 12.12 hrs, Volume= 0.005 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.26' @ 12.12 hrs Surf.Area= 186 sf Storage= 137 cf

Plug-Flow detention time= 232.0 min calculated for 0.011 af (100% of inflow)
 Center-of-Mass det. time= 232.6 min (981.5 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

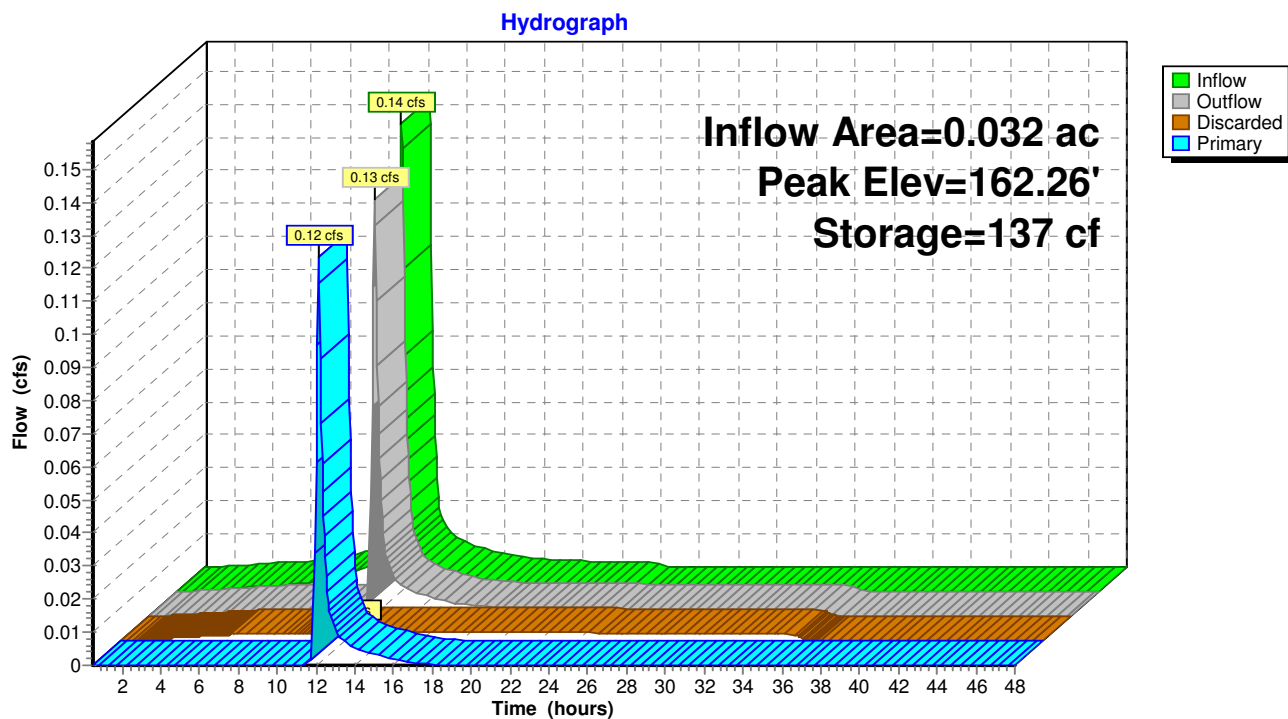
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.12 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 1.70 fps)

Pond 16P: Roof Recharge Chambers



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Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 17P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af
 Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.011 af, Atten= 11%, Lag= 2.7 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.12 cfs @ 12.12 hrs, Volume= 0.005 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.26' @ 12.12 hrs Surf.Area= 186 sf Storage= 137 cf

Plug-Flow detention time= 232.0 min calculated for 0.011 af (100% of inflow)
 Center-of-Mass det. time= 232.6 min (981.5 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

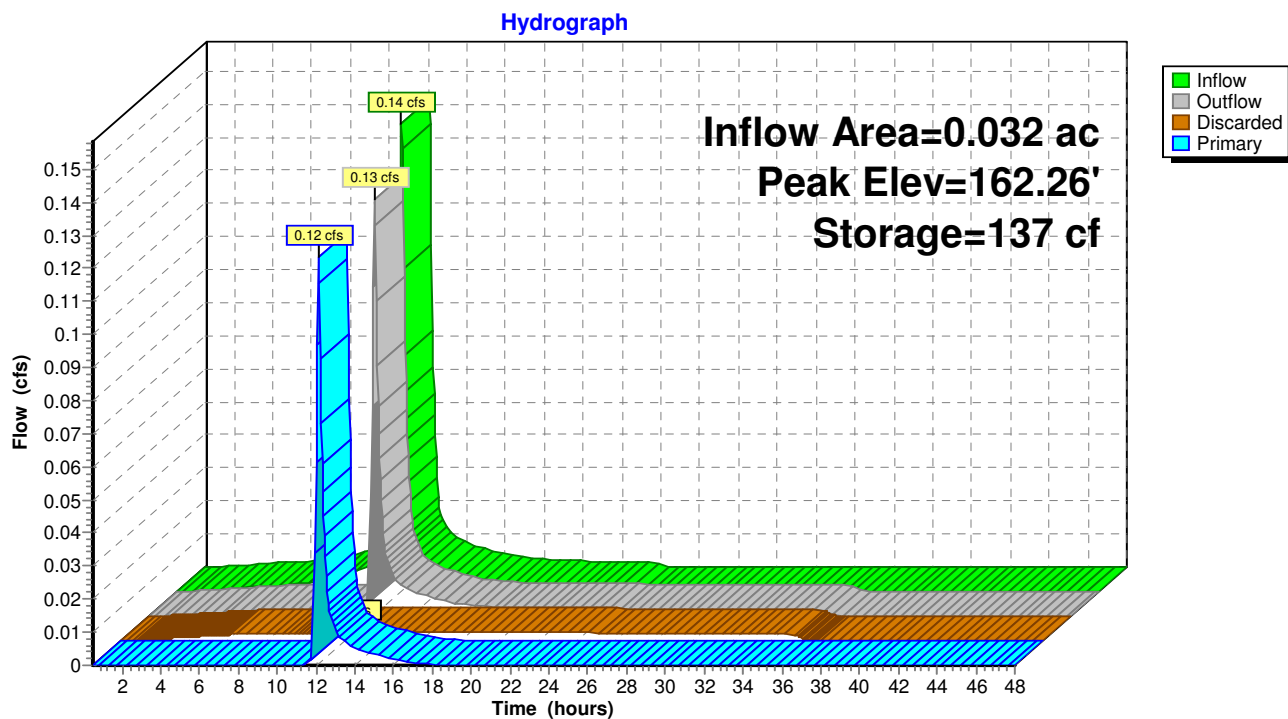
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.12 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 1.70 fps)

Pond 17P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 18P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af
 Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.011 af, Atten= 11%, Lag= 2.7 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.12 cfs @ 12.12 hrs, Volume= 0.005 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.26' @ 12.12 hrs Surf.Area= 186 sf Storage= 137 cf

Plug-Flow detention time= 232.0 min calculated for 0.011 af (100% of inflow)
 Center-of-Mass det. time= 232.6 min (981.5 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

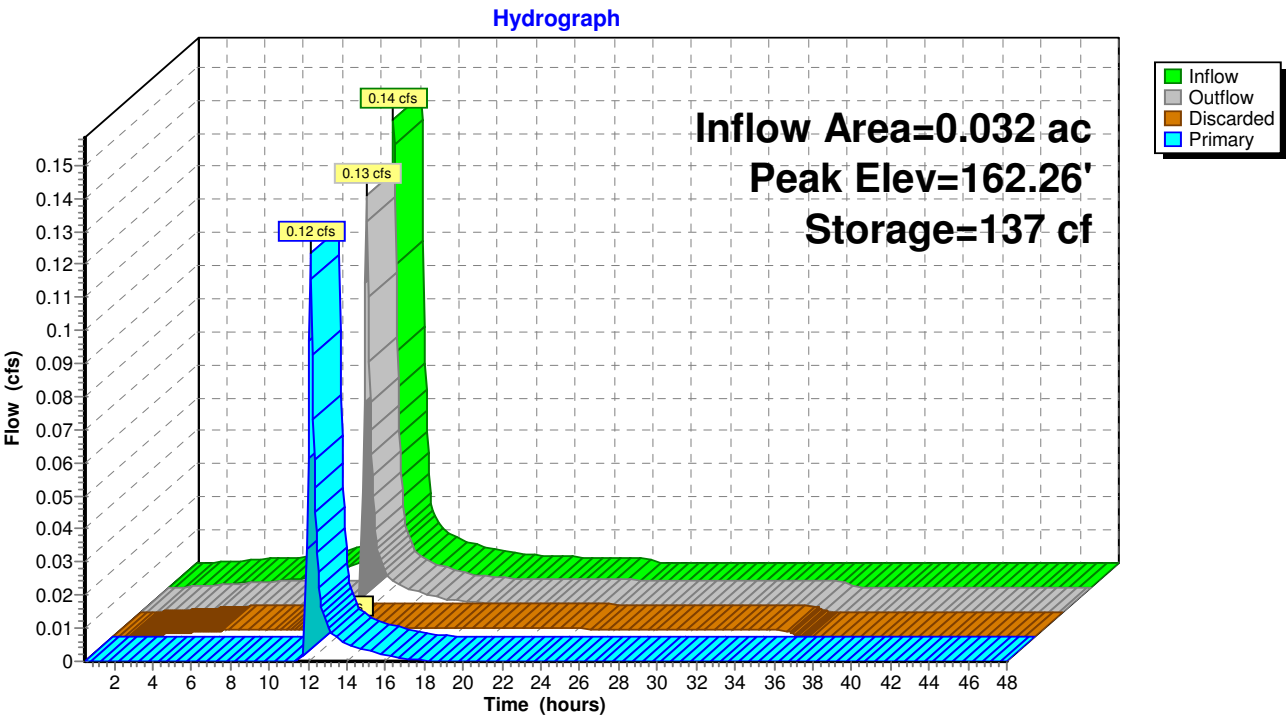
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.12 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 1.70 fps)

Pond 18P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 20P: Roof Recharge Chamber

Inflow Area = 0.016 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.006 af
 Outflow = 0.01 cfs @ 12.51 hrs, Volume= 0.006 af, Atten= 81%, Lag= 26.4 min
 Discarded = 0.00 cfs @ 12.51 hrs, Volume= 0.005 af
 Primary = 0.01 cfs @ 12.51 hrs, Volume= 0.001 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.07' @ 12.51 hrs Surf.Area= 186 sf Storage= 113 cf

Plug-Flow detention time= 350.3 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 350.1 min (1,099.0 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

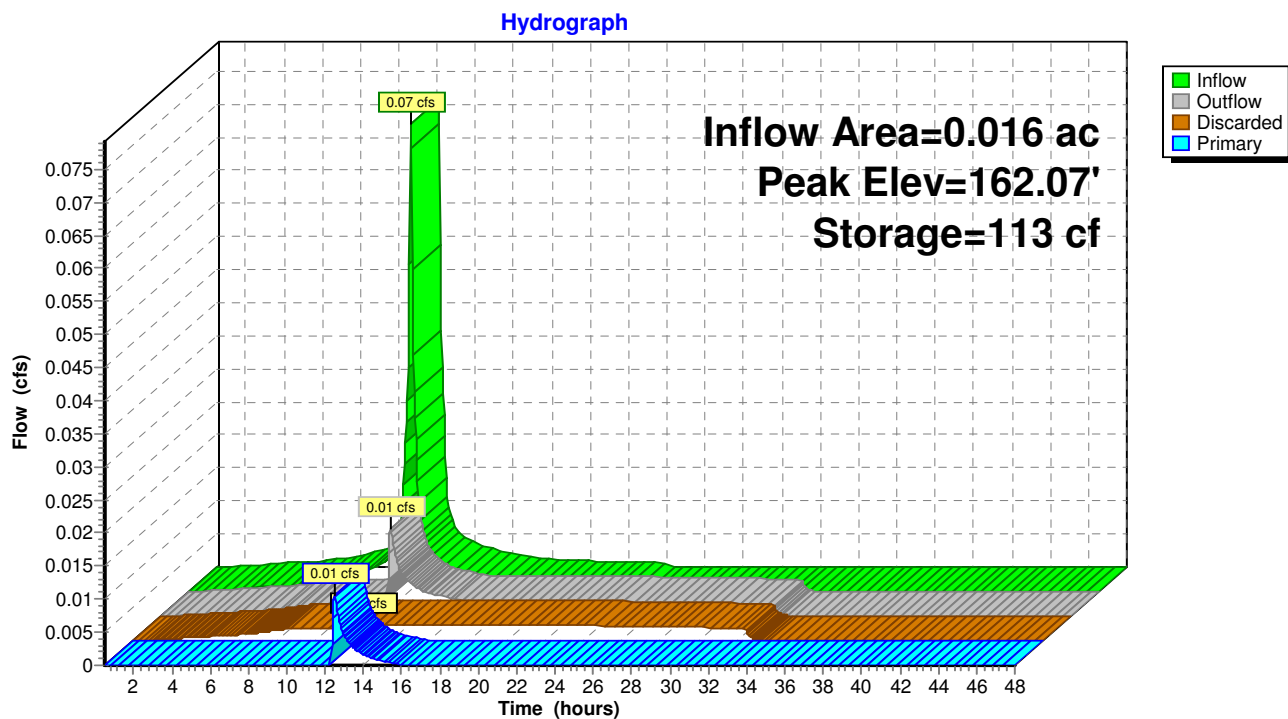
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.51 hrs HW=162.07' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.01 cfs @ 12.51 hrs HW=162.07' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.87 fps)

Pond 20P: Roof Recharge Chamber



Prop-Conditions REVISED 060124

Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 24P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.21 cfs @ 12.07 hrs, Volume= 0.017 af
 Outflow = 0.19 cfs @ 12.12 hrs, Volume= 0.017 af, Atten= 14%, Lag= 2.9 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.18 cfs @ 12.12 hrs, Volume= 0.011 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.36' @ 12.12 hrs Surf.Area= 189 sf Storage= 153 cf

Plug-Flow detention time= 184.6 min calculated for 0.017 af (100% of inflow)
 Center-of-Mass det. time= 184.4 min (933.3 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

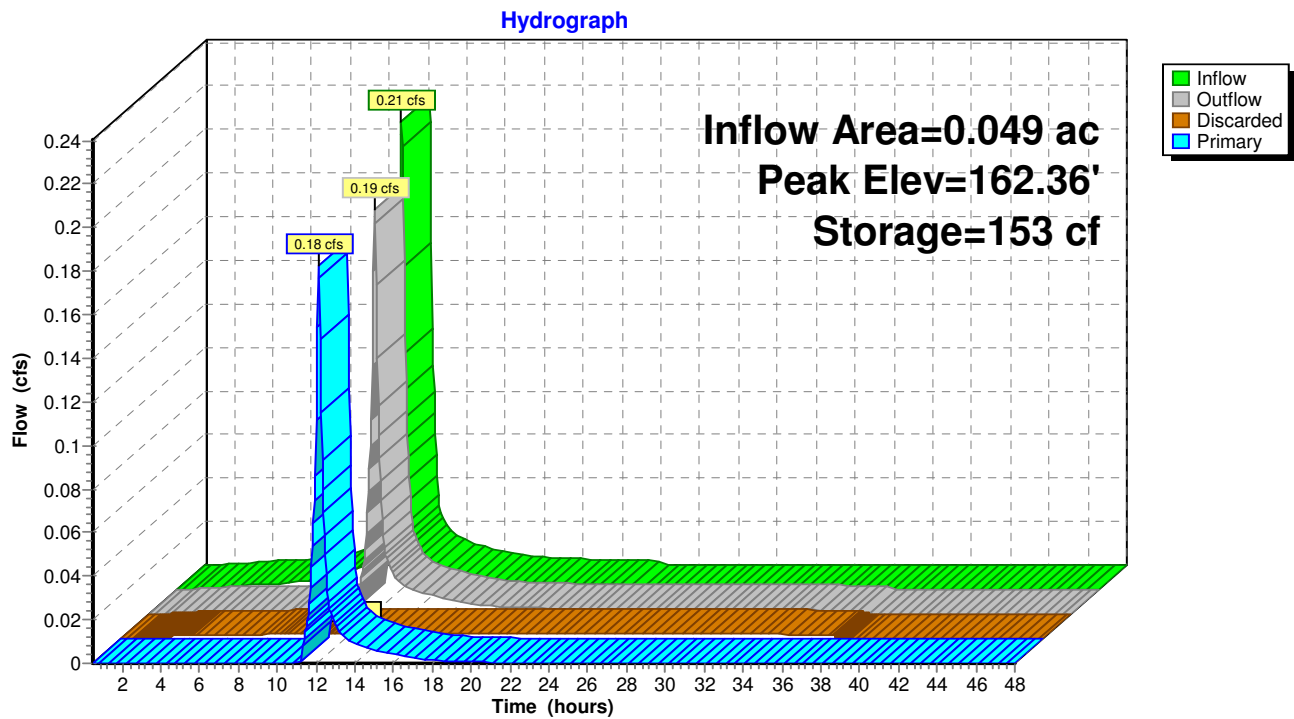
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.35' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.18 cfs @ 12.12 hrs HW=162.35' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 2.06 fps)

Pond 24P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 26P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.21 cfs @ 12.07 hrs, Volume= 0.017 af
 Outflow = 0.19 cfs @ 12.12 hrs, Volume= 0.017 af, Atten= 14%, Lag= 2.9 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.18 cfs @ 12.12 hrs, Volume= 0.011 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.36' @ 12.12 hrs Surf.Area= 189 sf Storage= 153 cf

Plug-Flow detention time= 184.6 min calculated for 0.017 af (100% of inflow)
 Center-of-Mass det. time= 184.4 min (933.3 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
262 cf			Total Available Storage

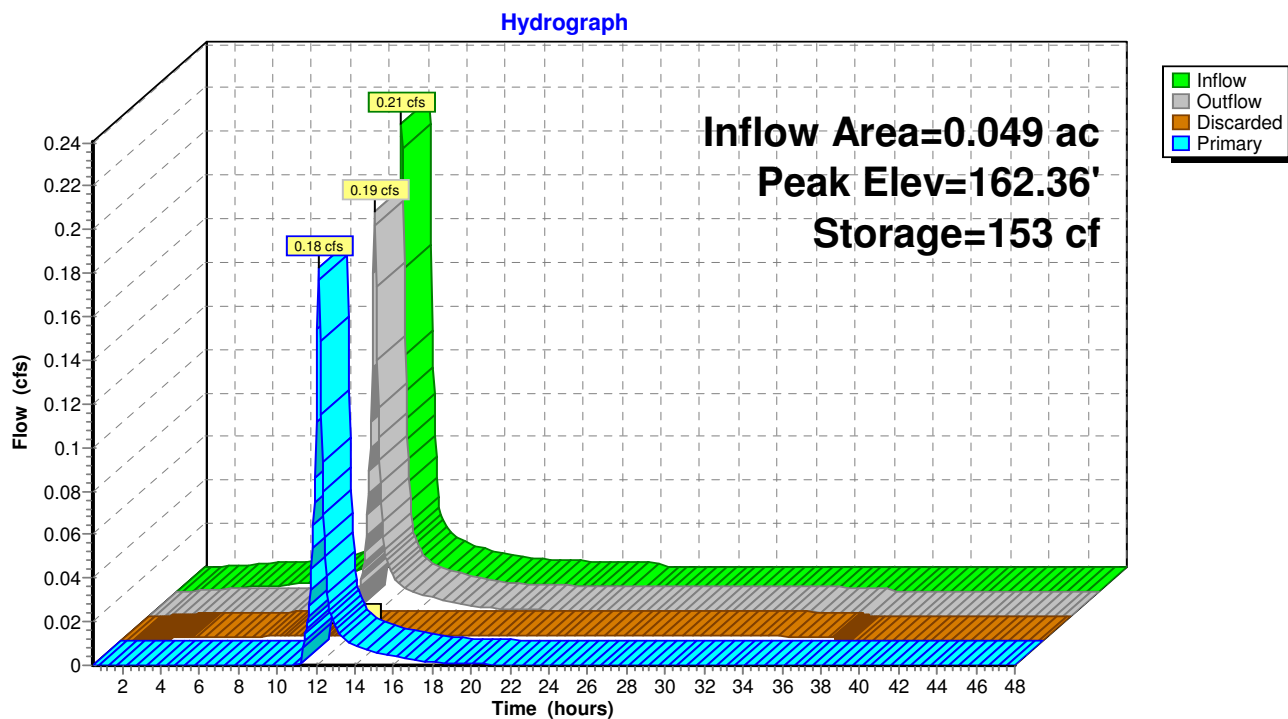
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.35' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.18 cfs @ 12.12 hrs HW=162.35' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 2.06 fps)

Pond 26P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 27P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af
 Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.011 af, Atten= 11%, Lag= 2.7 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.12 cfs @ 12.12 hrs, Volume= 0.005 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.26' @ 12.12 hrs Surf.Area= 186 sf Storage= 137 cf

Plug-Flow detention time= 232.0 min calculated for 0.011 af (100% of inflow)
 Center-of-Mass det. time= 232.6 min (981.5 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

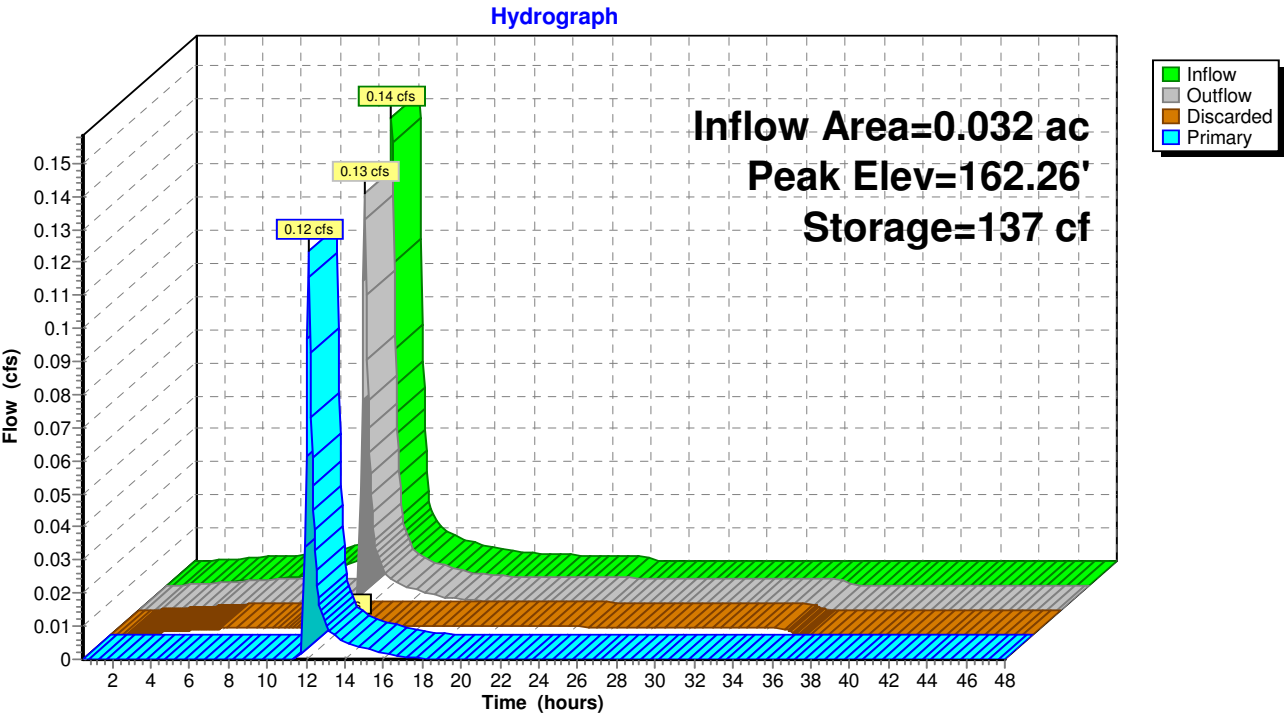
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.12 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 1.70 fps)

Pond 27P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 28P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af
 Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.011 af, Atten= 11%, Lag= 2.7 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.12 cfs @ 12.12 hrs, Volume= 0.005 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.26' @ 12.12 hrs Surf.Area= 186 sf Storage= 137 cf

Plug-Flow detention time= 232.0 min calculated for 0.011 af (100% of inflow)
 Center-of-Mass det. time= 232.6 min (981.5 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

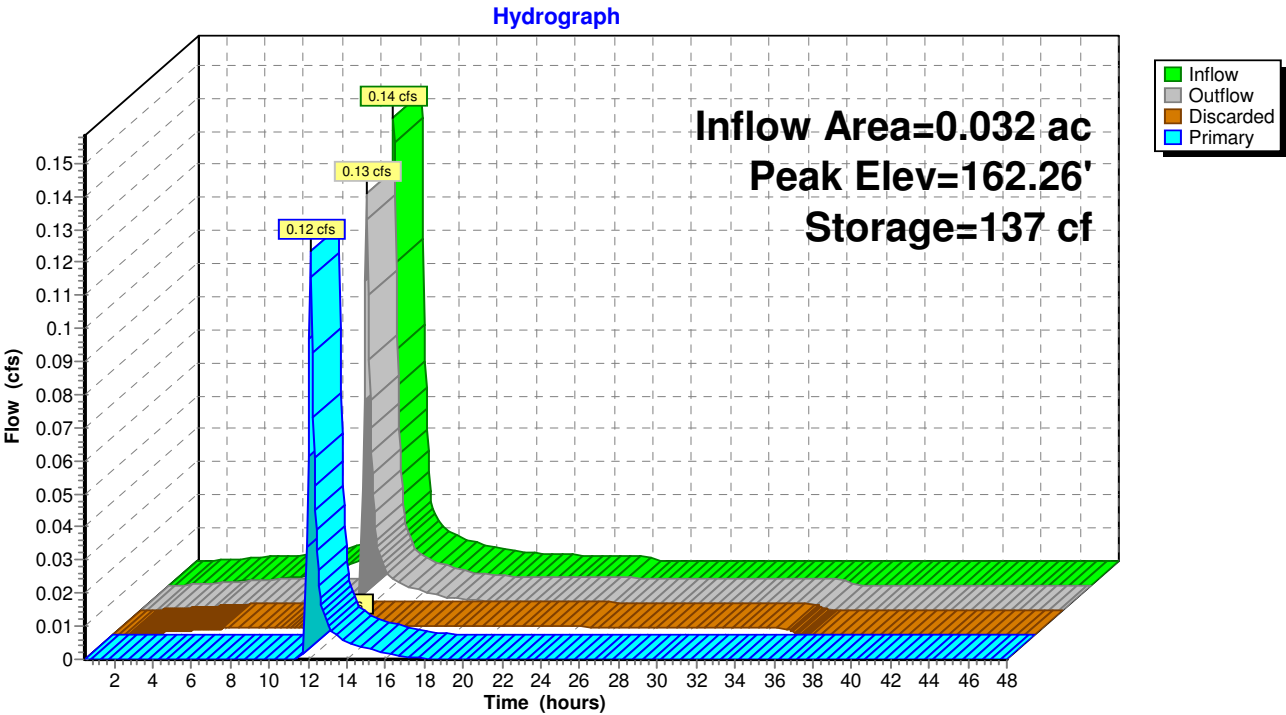
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.12 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 1.70 fps)

Pond 28P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 29P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af
 Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.011 af, Atten= 11%, Lag= 2.7 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.12 cfs @ 12.12 hrs, Volume= 0.005 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.26' @ 12.12 hrs Surf.Area= 186 sf Storage= 137 cf

Plug-Flow detention time= 232.0 min calculated for 0.011 af (100% of inflow)
 Center-of-Mass det. time= 232.6 min (981.5 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

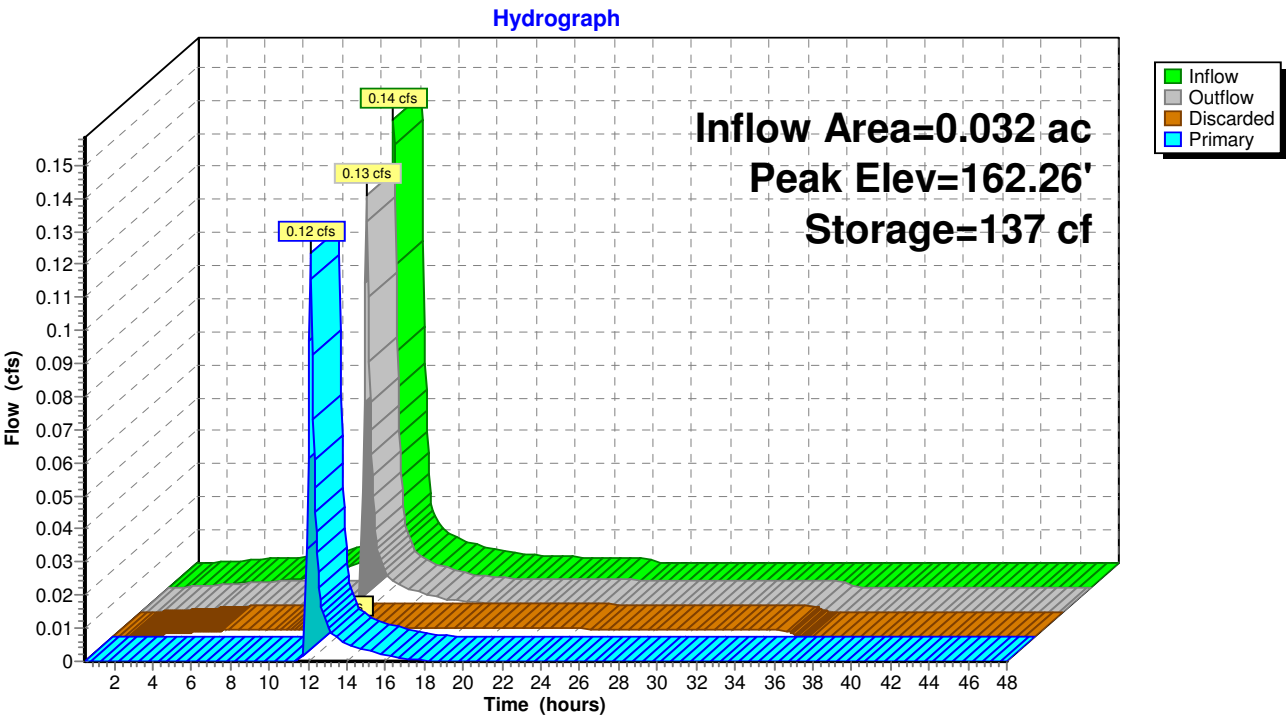
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.12 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 1.70 fps)

Pond 29P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 30P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.14 cfs @ 12.07 hrs, Volume= 0.011 af
 Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.011 af, Atten= 11%, Lag= 2.7 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.12 cfs @ 12.12 hrs, Volume= 0.005 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.26' @ 12.12 hrs Surf.Area= 186 sf Storage= 137 cf

Plug-Flow detention time= 232.0 min calculated for 0.011 af (100% of inflow)
 Center-of-Mass det. time= 232.6 min (981.5 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

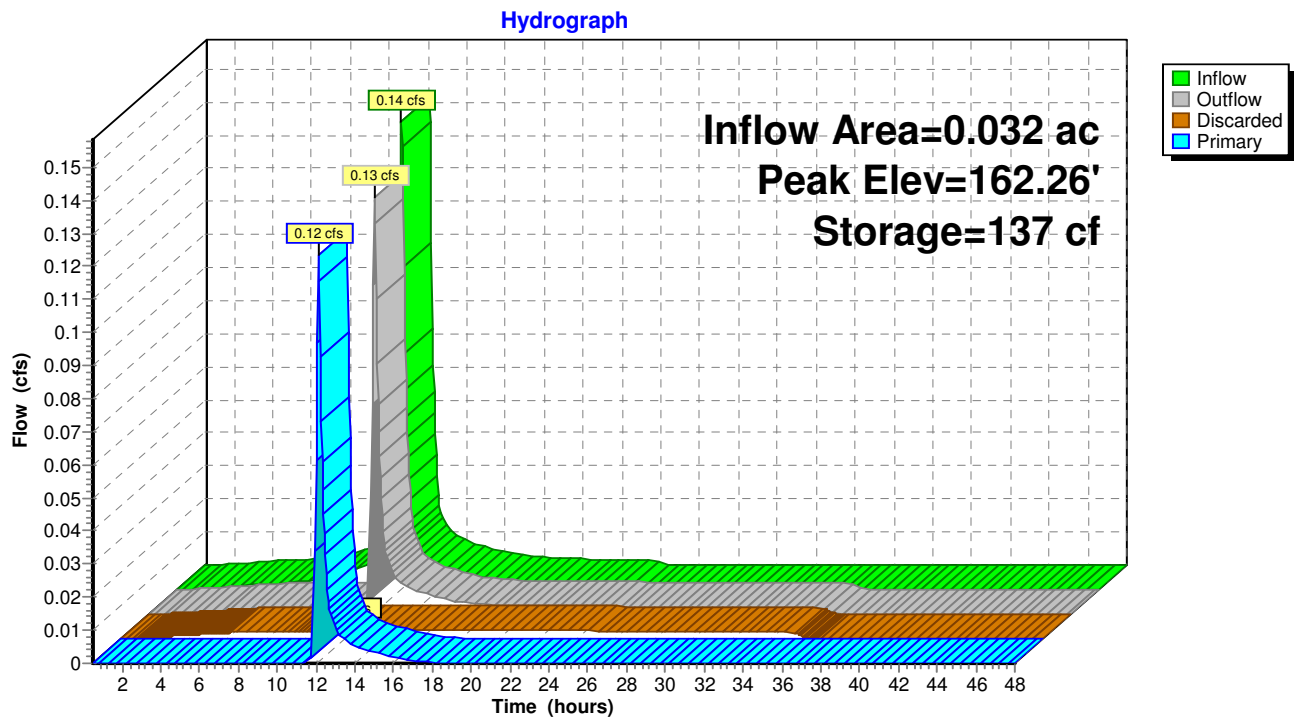
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.12 cfs @ 12.12 hrs HW=162.25' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 1.70 fps)

Pond 30P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 10-YR Rainfall=4.50"

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Summary for Pond 31P: Roof Recharge Chambers

Inflow Area = 0.016 ac, 100.00% Impervious, Inflow Depth = 4.26" for 10-YR event
 Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.006 af
 Outflow = 0.01 cfs @ 12.51 hrs, Volume= 0.006 af, Atten= 81%, Lag= 26.4 min
 Discarded = 0.00 cfs @ 12.51 hrs, Volume= 0.005 af
 Primary = 0.01 cfs @ 12.51 hrs, Volume= 0.001 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.07' @ 12.51 hrs Surf.Area= 186 sf Storage= 113 cf

Plug-Flow detention time= 350.3 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 350.1 min (1,099.0 - 748.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

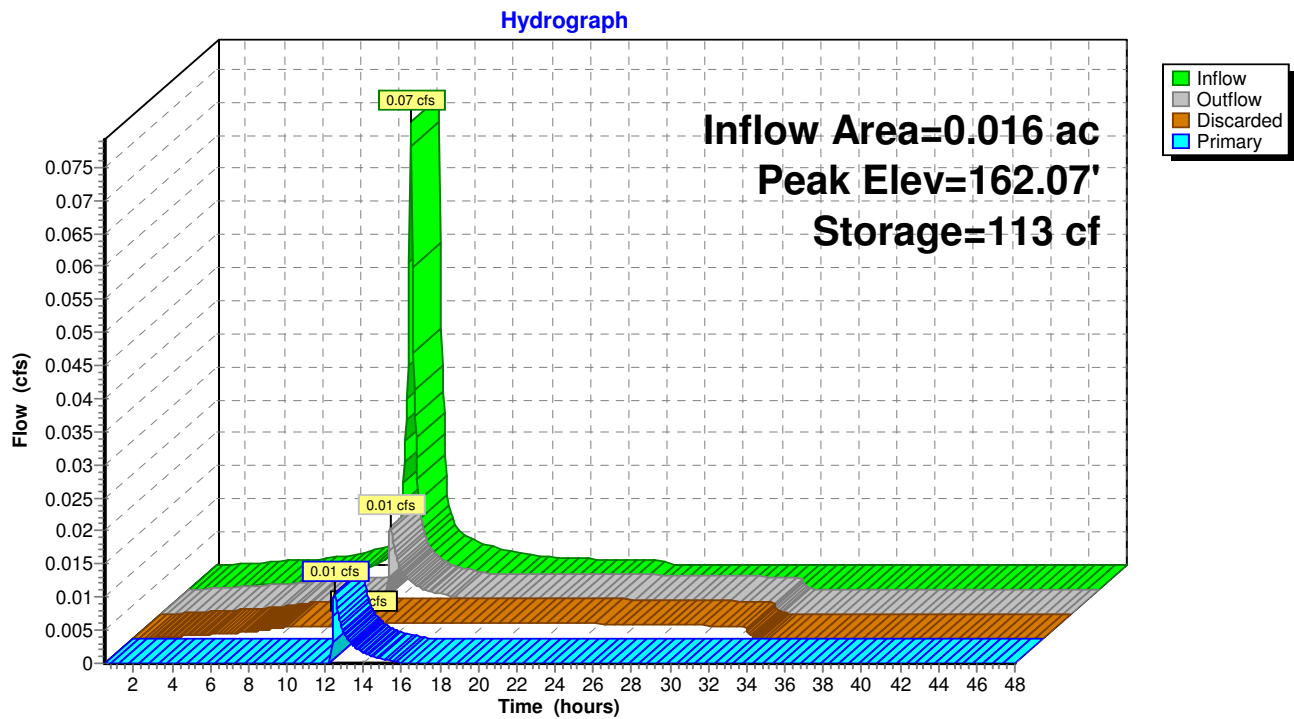
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.51 hrs HW=162.07' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.01 cfs @ 12.51 hrs HW=162.07' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.87 fps)

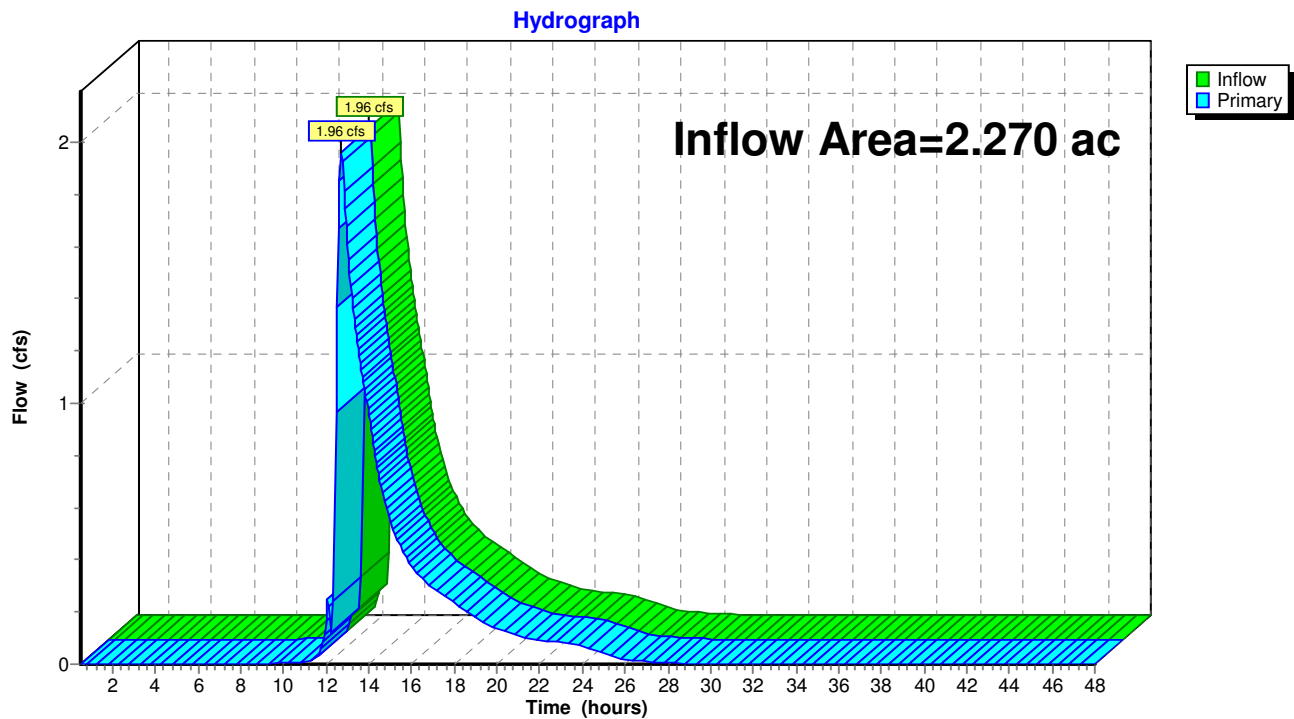
Pond 31P: Roof Recharge Chambers



Summary for Link DP#2: DP#2 - Rear Wetlands

Inflow Area = 2.270 ac, 41.00% Impervious, Inflow Depth = 2.18" for 10-YR event
Inflow = 1.96 cfs @ 12.69 hrs, Volume= 0.412 af
Primary = 1.96 cfs @ 12.69 hrs, Volume= 0.412 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs

Link DP#2: DP#2 - Rear Wetlands

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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 1S: Flow to PCB#1

Runoff = 0.75 cfs @ 12.07 hrs, Volume= 0.055 af, Depth= 4.06"
Routed to Pond 1P : ADS 30" Pipe Det Basin

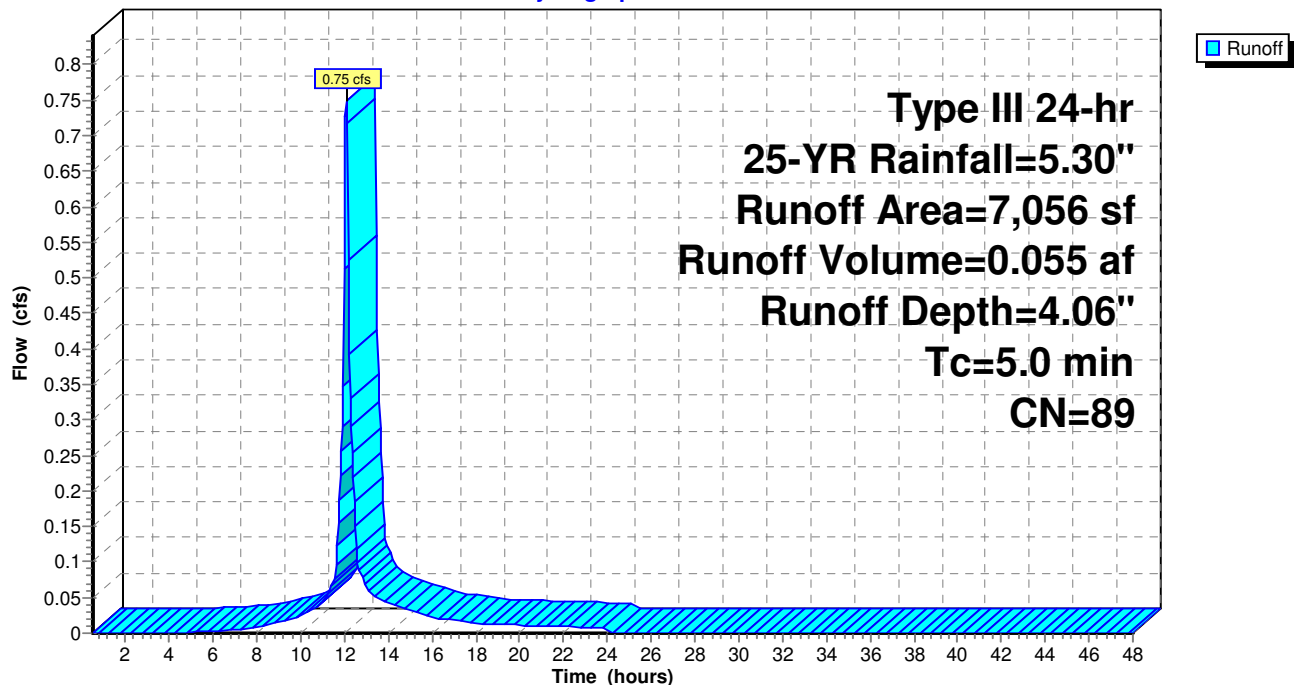
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
3,578	98	Paved parking, HSG D
3,478	80	>75% Grass cover, Good, HSG D
7,056	89	Weighted Average
3,478		49.29% Pervious Area
3,578		50.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: Flow to PCB#1

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 2S: Units 1 & 2 Roofs

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.020 af, Depth= 5.06"
Routed to Pond 3P : Roof Recharge Chambers

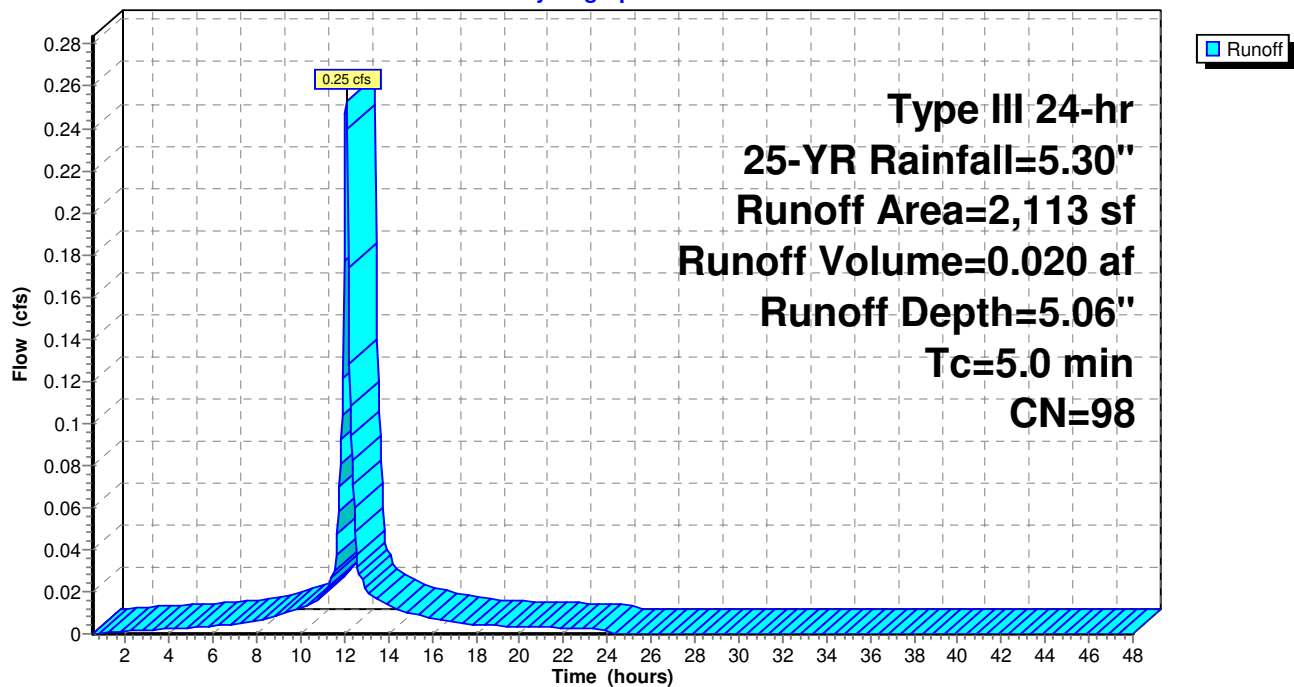
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S: Units 1 & 2 Roofs

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 3S: Flow to PCB#2

Runoff = 0.75 cfs @ 12.07 hrs, Volume= 0.055 af, Depth= 4.06"
Routed to Pond 1P : ADS 30" Pipe Det Basin

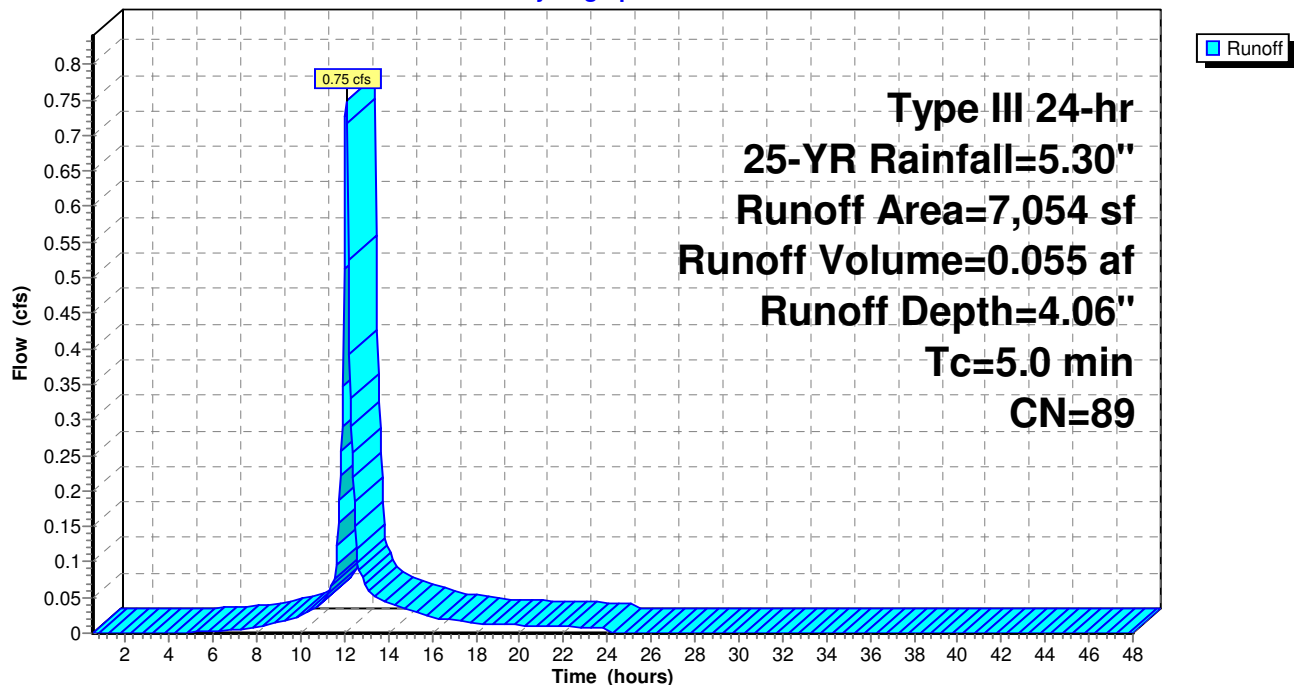
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
3,568	98	Paved parking, HSG D
3,486	80	>75% Grass cover, Good, HSG D
7,054	89	Weighted Average
3,486		49.42% Pervious Area
3,568		50.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S: Flow to PCB#2

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 4S: Undetained Flow to Greenmont Ave - DP#1

Runoff = 0.66 cfs @ 12.08 hrs, Volume= 0.047 af, Depth= 3.16"

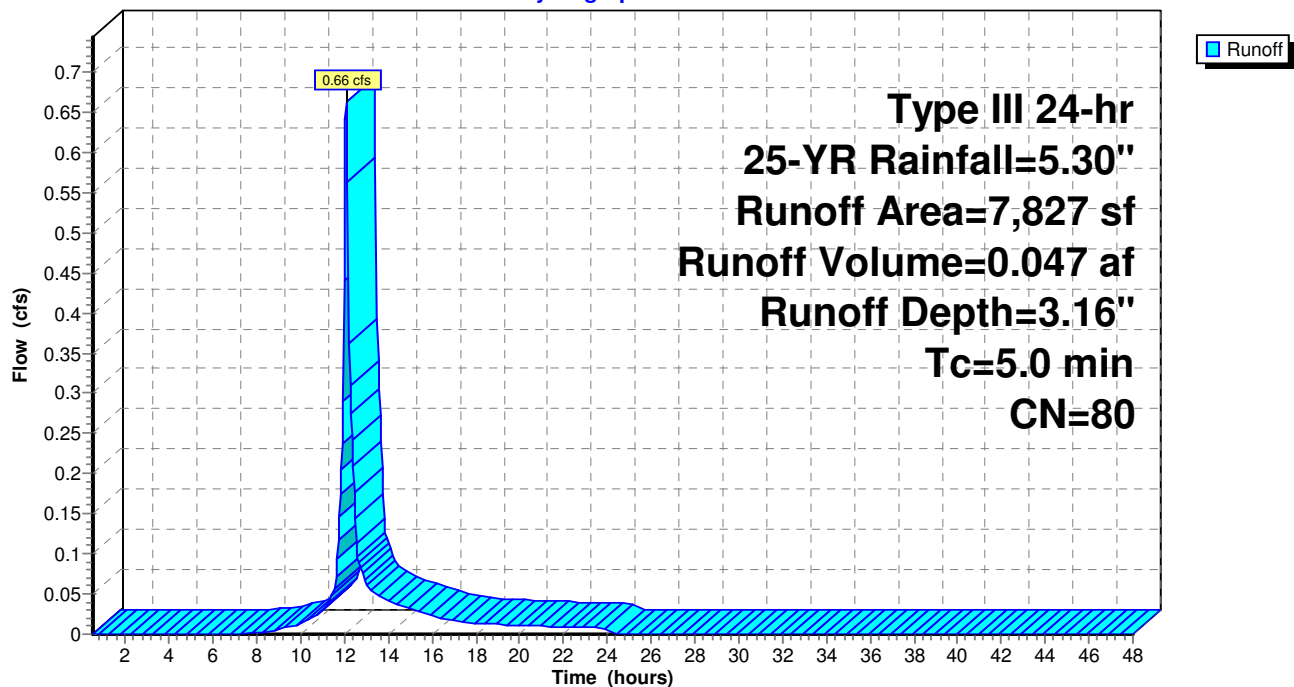
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
7,827	80	>75% Grass cover, Good, HSG D
7,827		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 4S: Undetained Flow to Greenmont Ave - DP#1

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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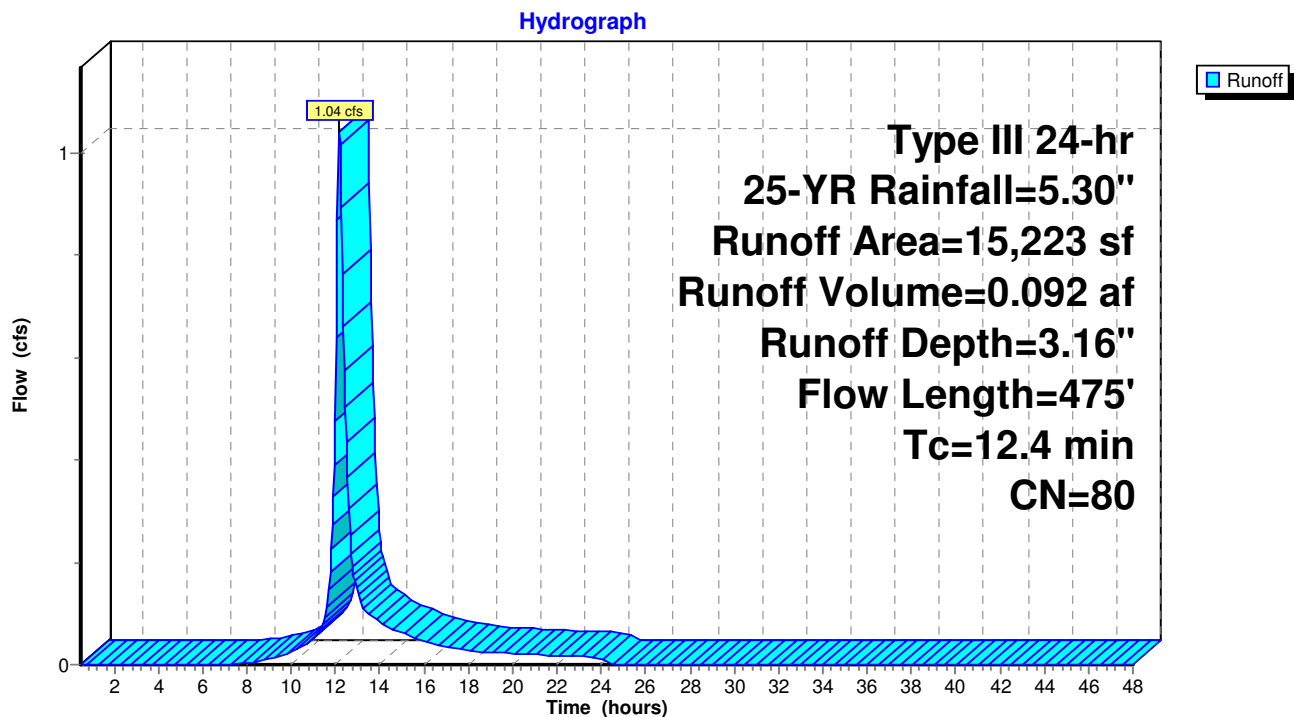
Summary for Subcatchment 5S: Landscape Area including Sed Forebay

Runoff = 1.04 cfs @ 12.17 hrs, Volume= 0.092 af, Depth= 3.16"
Routed to Pond 11P : Sediment Forebay

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
7,905	80	>75% Grass cover, Good, HSG D
7,318	80	>75% Grass cover, Good, HSG D
15,223	80	Weighted Average
15,223		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	50	0.0150	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
6.1	425	0.0060	1.16		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
12.4	475	Total			

Subcatchment 5S: Landscape Area including Sed Forebay

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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 6S: Undetained Flow to Wetlands

Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 3.16"
Routed to Link DP#2 : DP#2 - Rear Wetlands

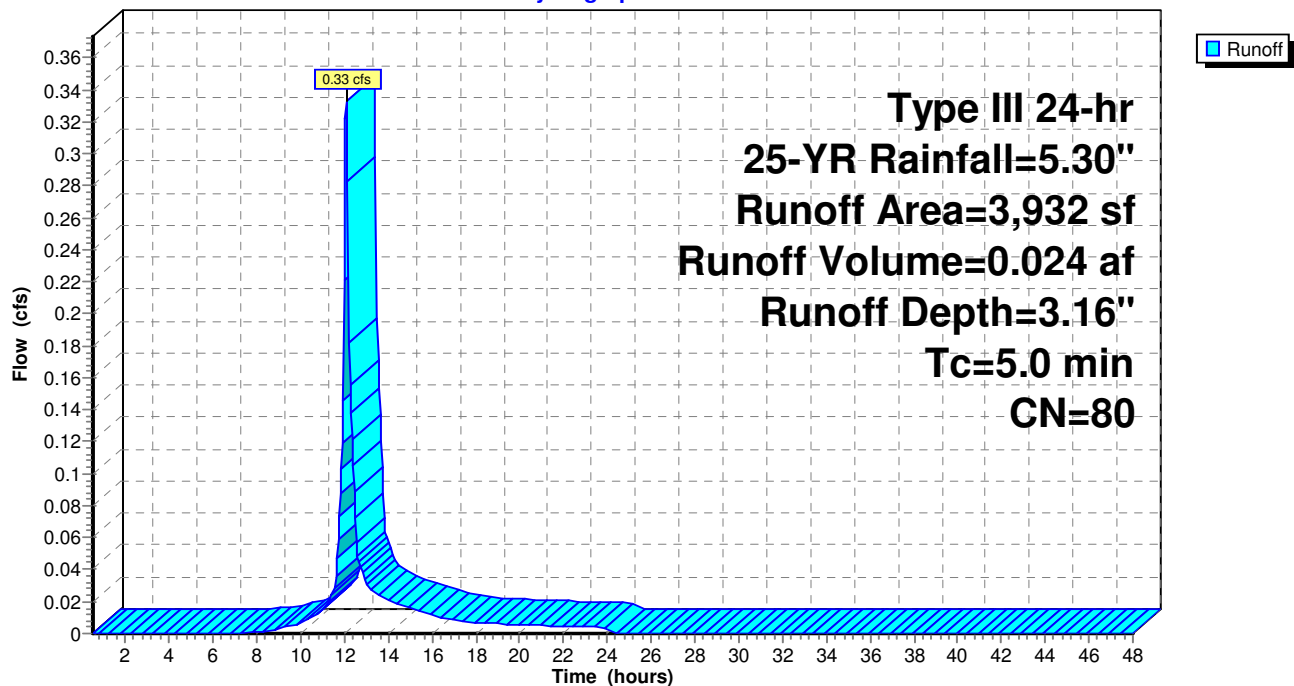
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
2,032	80	>75% Grass cover, Good, HSG D
1,900	80	>75% Grass cover, Good, HSG D
3,932	80	Weighted Average
3,932		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 6S: Undetained Flow to Wetlands

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 7S: Flow to PCB#3

Runoff = 1.39 cfs @ 12.17 hrs, Volume= 0.126 af, Depth= 3.85"
 Routed to Pond 1P : ADS 30" Pipe Det Basin

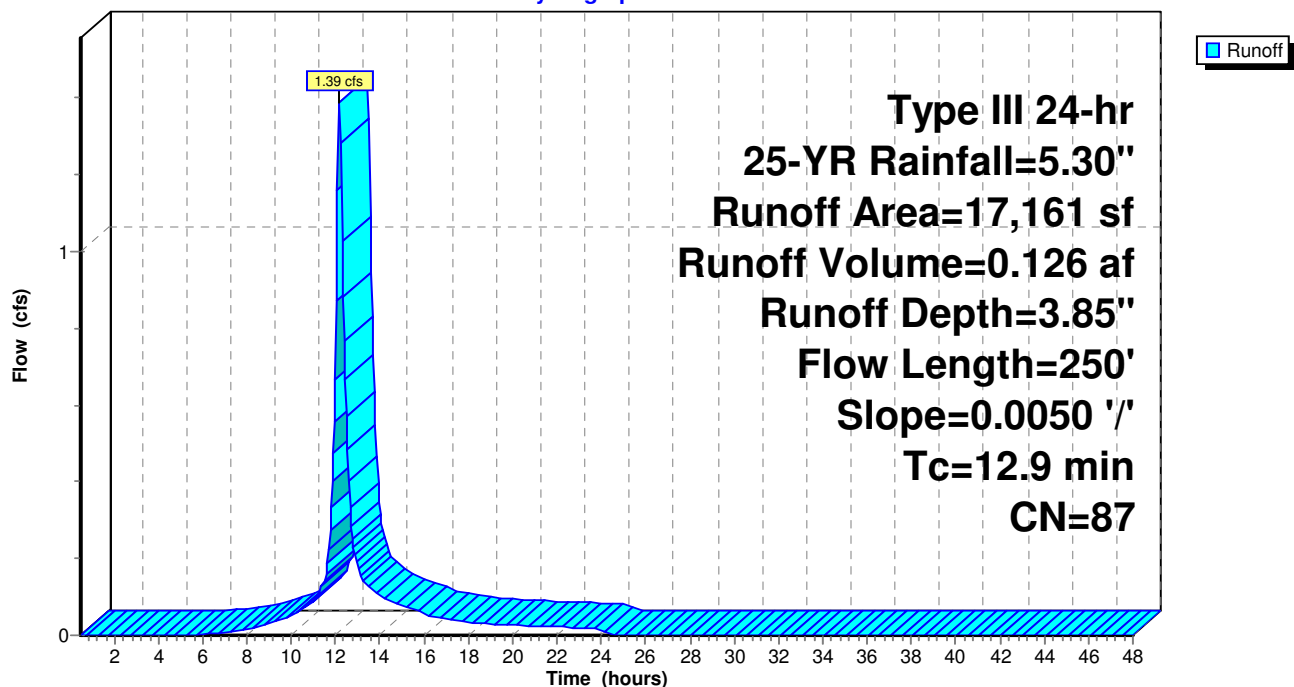
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
10,938	80	>75% Grass cover, Good, HSG D
6,223	98	Paved parking, HSG D
17,161	87	Weighted Average
10,938		63.74% Pervious Area
6,223		36.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0050	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.1	200	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
12.9	250	Total			

Subcatchment 7S: Flow to PCB#3

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 8S: Flow to PCB#4

Runoff = 1.42 cfs @ 12.17 hrs, Volume= 0.129 af, Depth= 3.75"
 Routed to Pond 1P : ADS 30" Pipe Det Basin

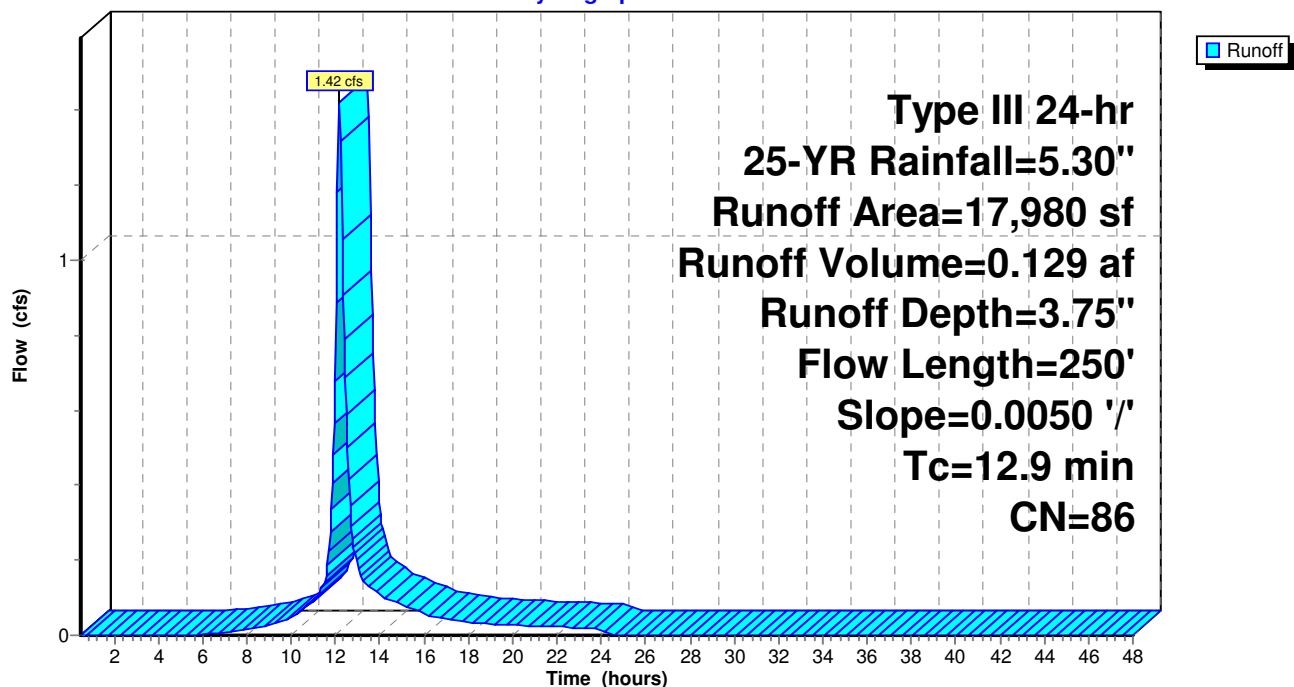
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
11,779	80	>75% Grass cover, Good, HSG D
6,201	98	Paved parking, HSG D
17,980	86	Weighted Average
11,779		65.51% Pervious Area
6,201		34.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0050	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.1	200	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
12.9	250	Total			

Subcatchment 8S: Flow to PCB#4

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 9S: Unit 3 & 4 Roofs

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.020 af, Depth= 5.06"
Routed to Pond 10P : Roof Recharge Chambers

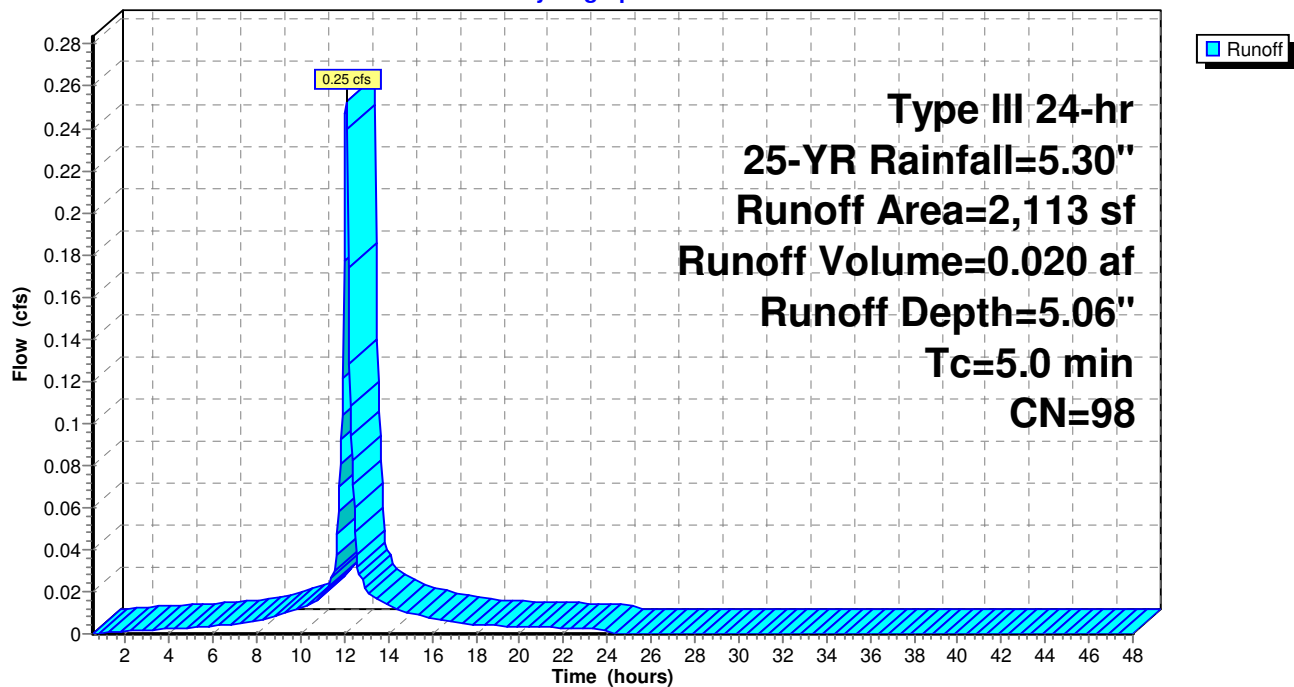
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 9S: Unit 3 & 4 Roofs

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 11S: Unit 5 & 6 Roofs

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af, Depth= 5.06"
Routed to Pond 15P : Roof Recharge Chambers

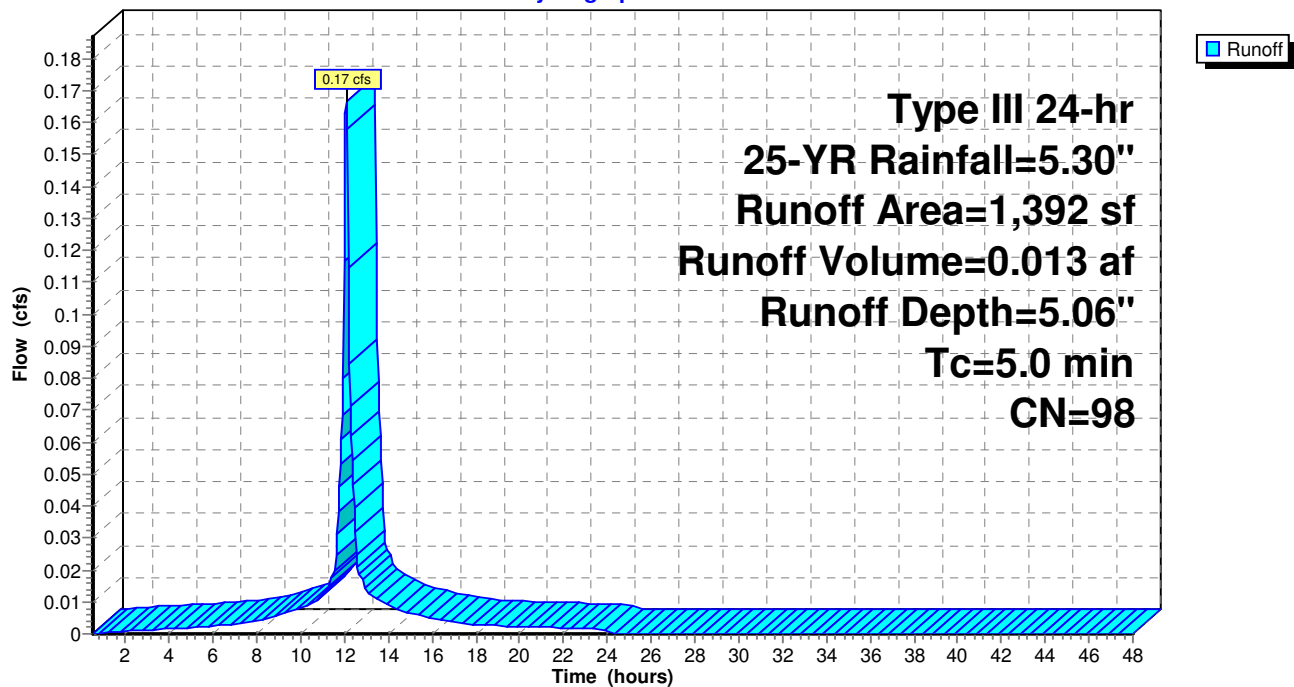
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 11S: Unit 5 & 6 Roofs

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 12S: Unit 7 & 8 Roofs

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af, Depth= 5.06"
Routed to Pond 16P : Roof Recharge Chambers

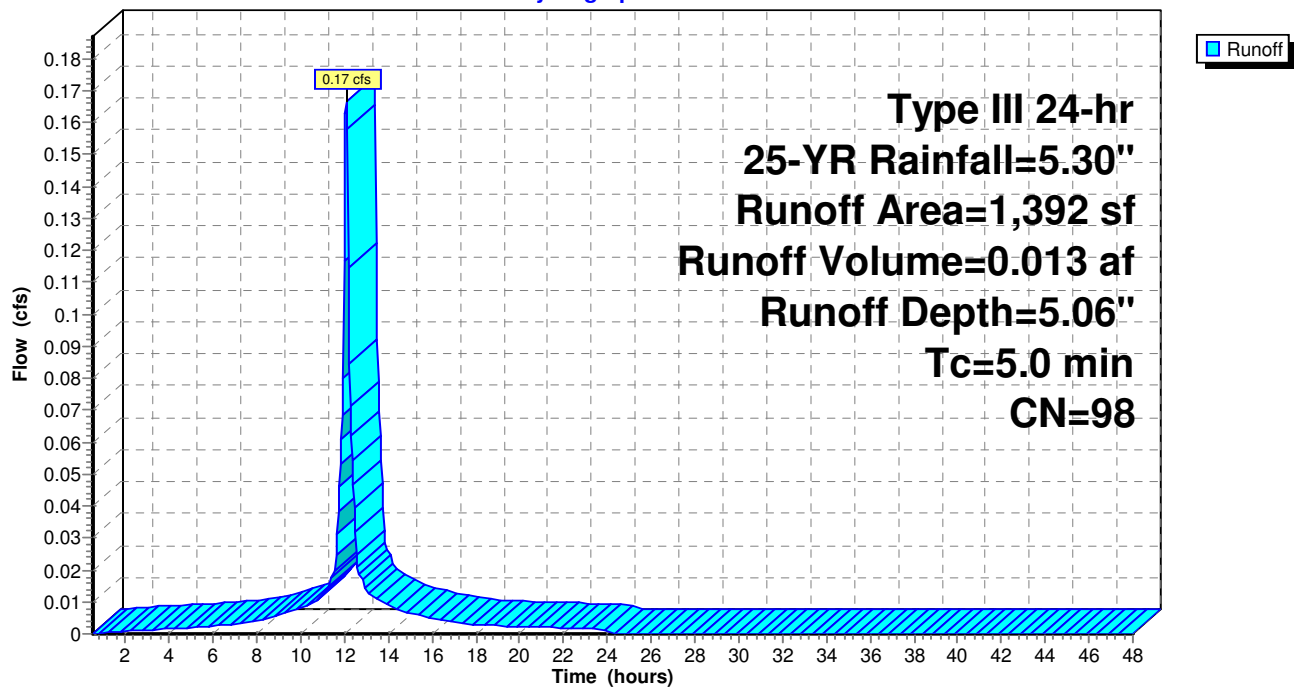
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 12S: Unit 7 & 8 Roofs

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 13S: Unit 9 & 10 Roofs

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af, Depth= 5.06"
Routed to Pond 17P : Roof Recharge Chambers

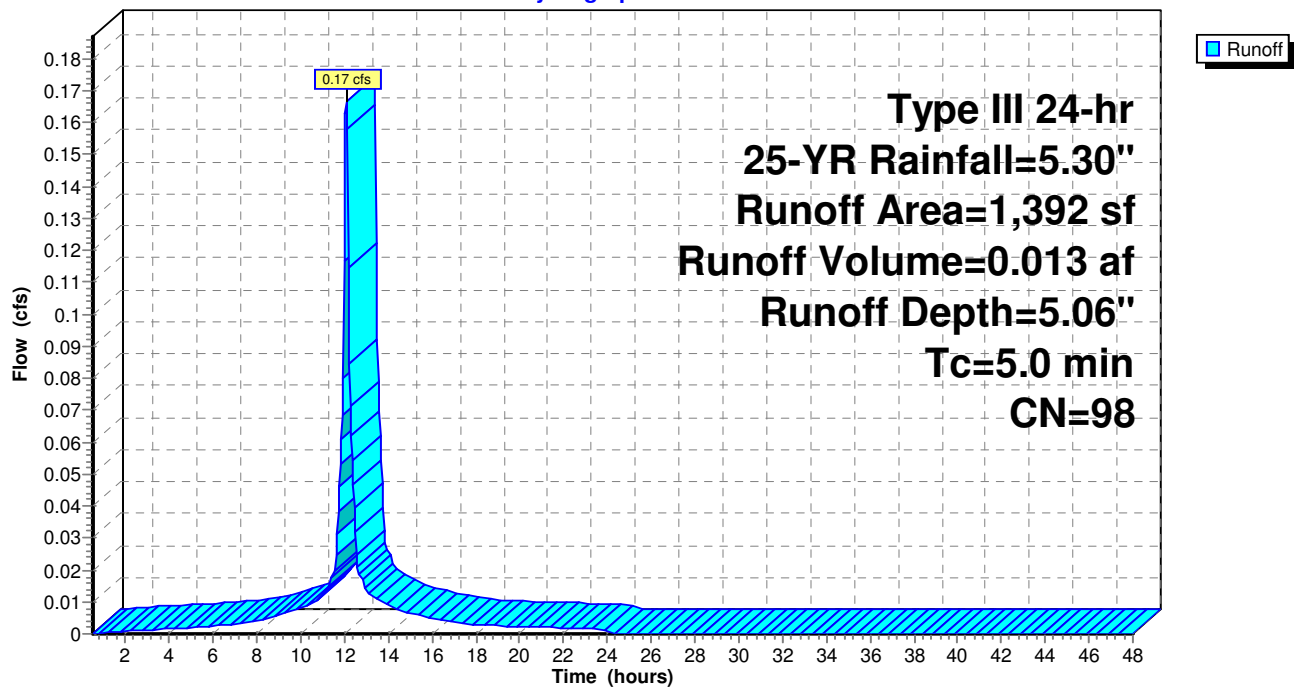
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 13S: Unit 9 & 10 Roofs

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 14S: Unit 11 & 12 Roofs

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af, Depth= 5.06"
Routed to Pond 18P : Roof Recharge Chambers

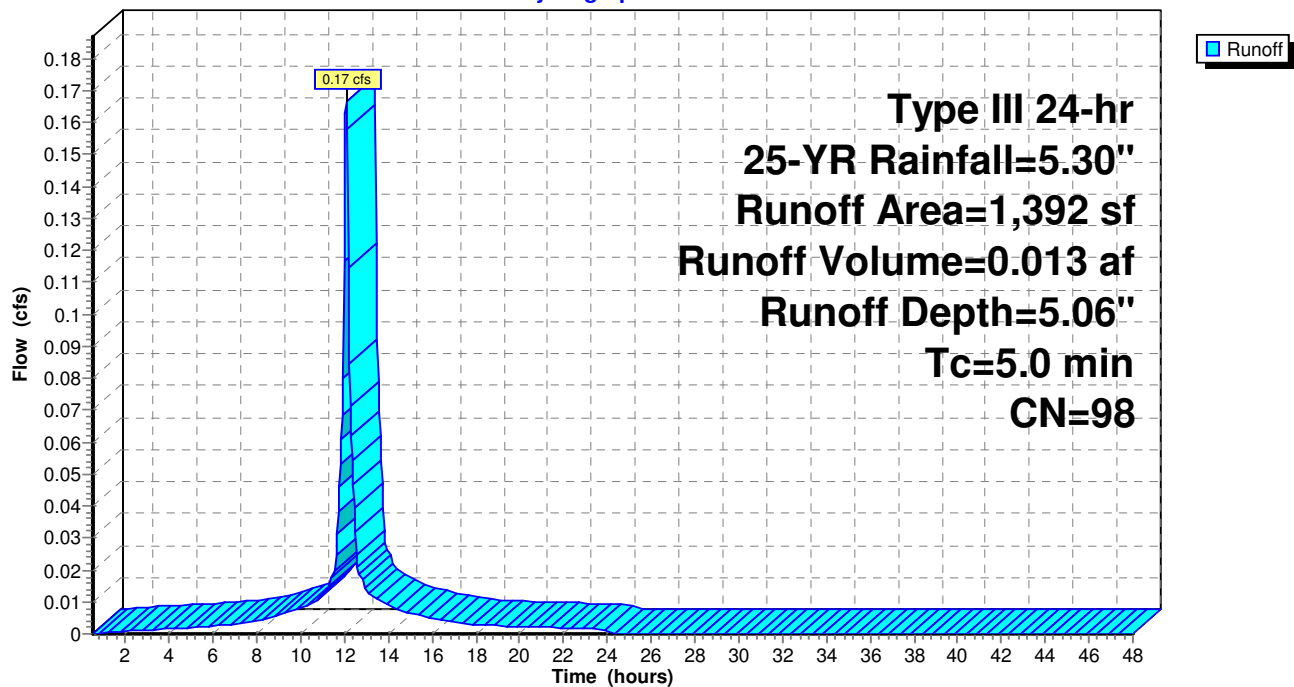
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 14S: Unit 11 & 12 Roofs

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 19S: Unit 13 Roof

Runoff = 0.08 cfs @ 12.07 hrs, Volume= 0.007 af, Depth= 5.06"
Routed to Pond 20P : Roof Recharge Chamber

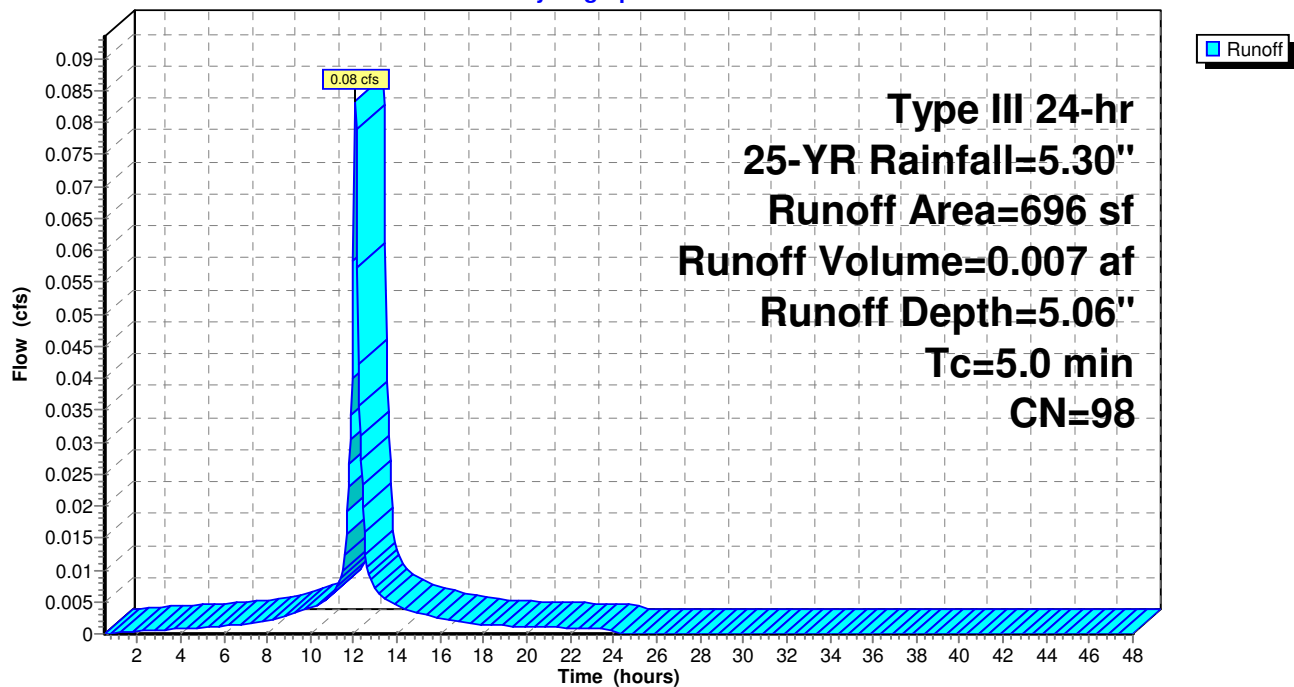
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
696	98	Roofs, HSG D
696		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 19S: Unit 13 Roof

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 21S: Unit 21 & 22 Roofs

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af, Depth= 5.06"
Routed to Pond 27P : Roof Recharge Chambers

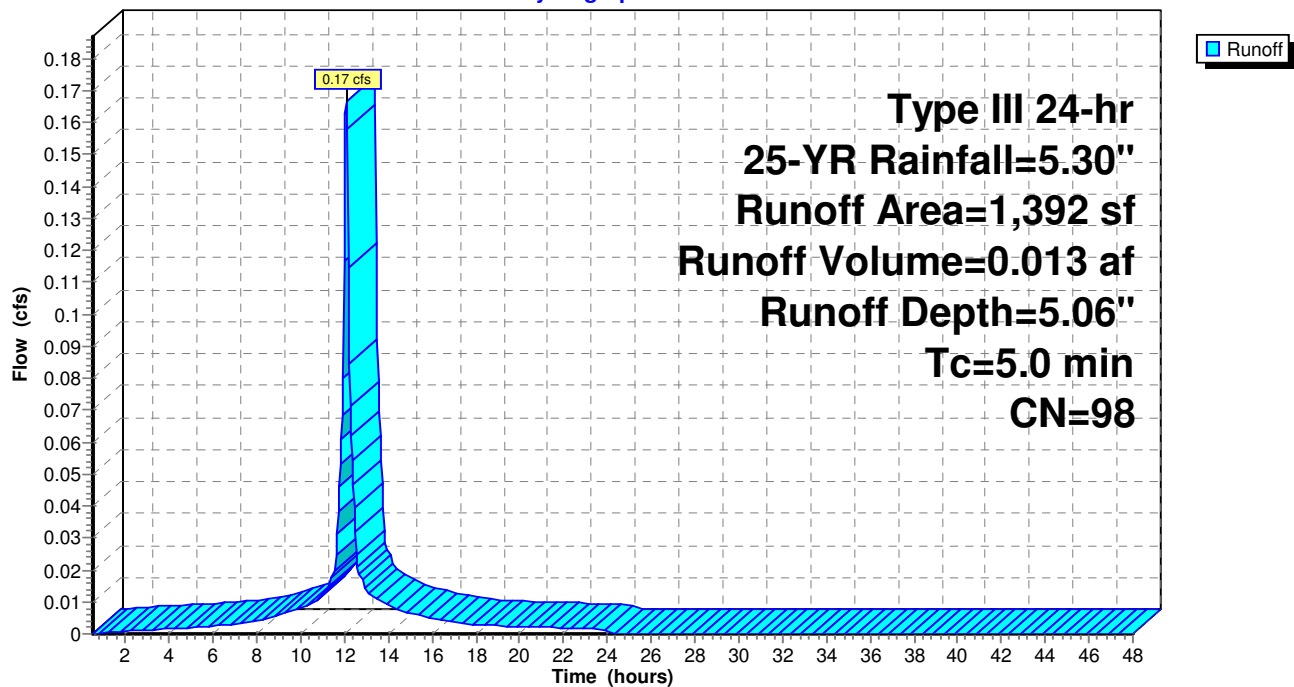
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 21S: Unit 21 & 22 Roofs

Hydrograph



Summary for Subcatchment 23S: Unit 25 & 26 Roofs

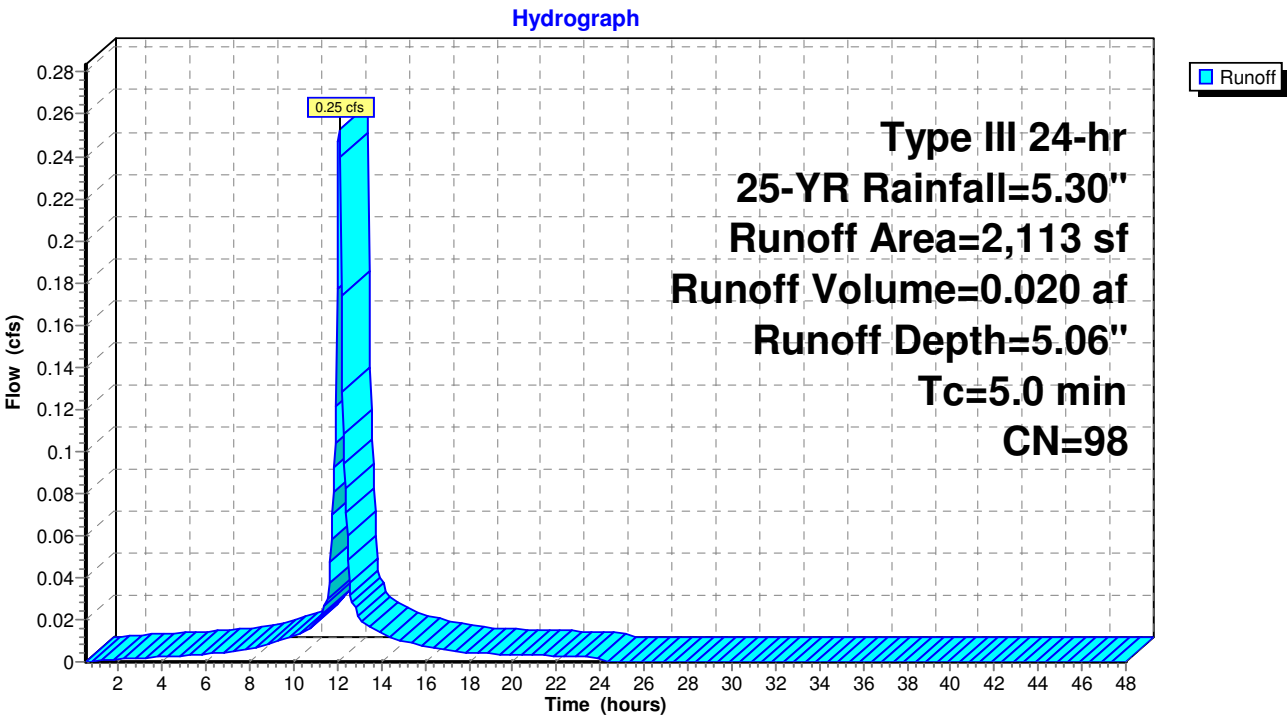
Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.020 af, Depth= 5.06"
Routed to Pond 24P : Roof Recharge Chambers

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 23S: Unit 25 & 26 Roofs



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 25S: Unit 23 & 24 Roofs

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.020 af, Depth= 5.06"
Routed to Pond 26P : Roof Recharge Chambers

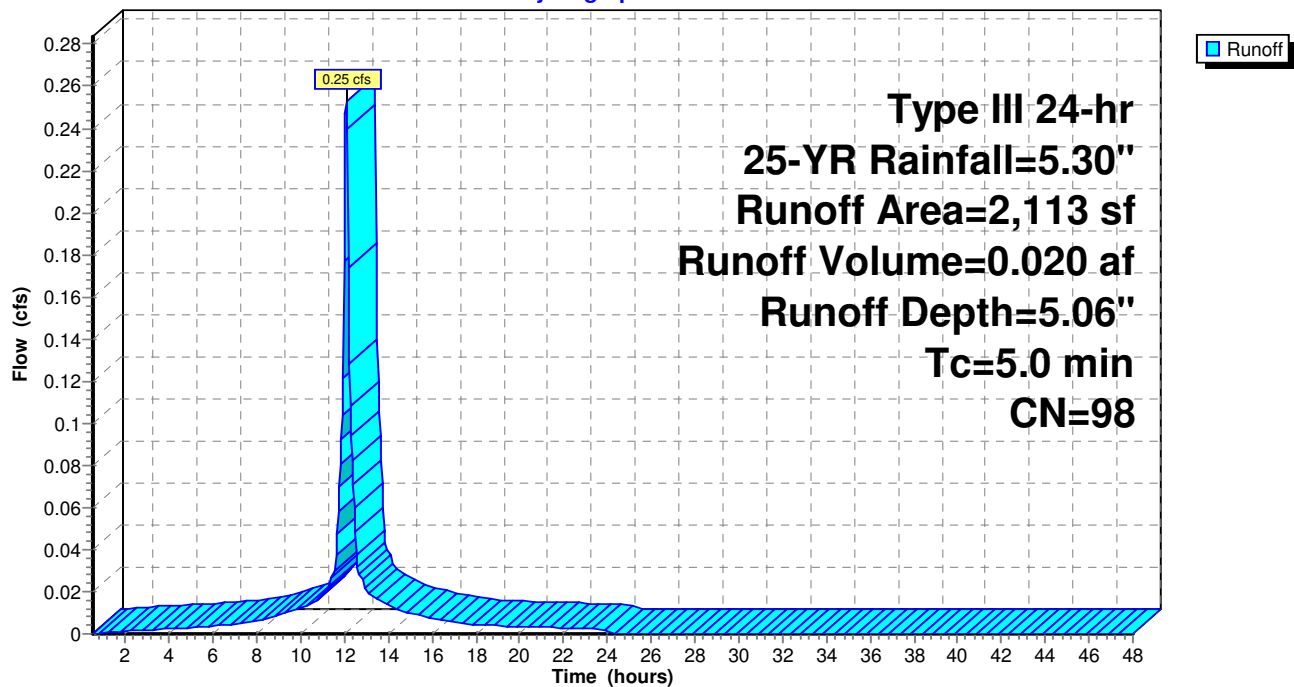
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 25S: Unit 23 & 24 Roofs

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 32S: Unit 19 & 20 Roofs

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af, Depth= 5.06"
Routed to Pond 28P : Roof Recharge Chambers

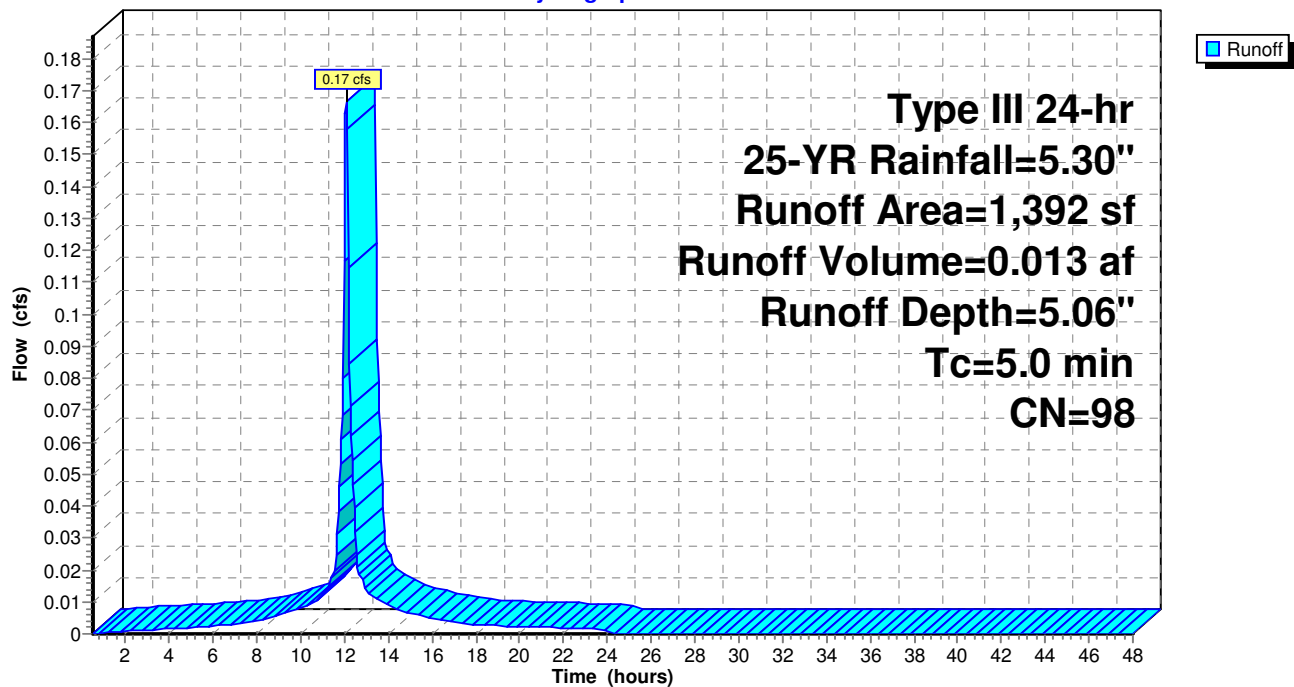
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 32S: Unit 19 & 20 Roofs

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 33S: Unit 17 & 18 Roofs

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af, Depth= 5.06"
Routed to Pond 29P : Roof Recharge Chambers

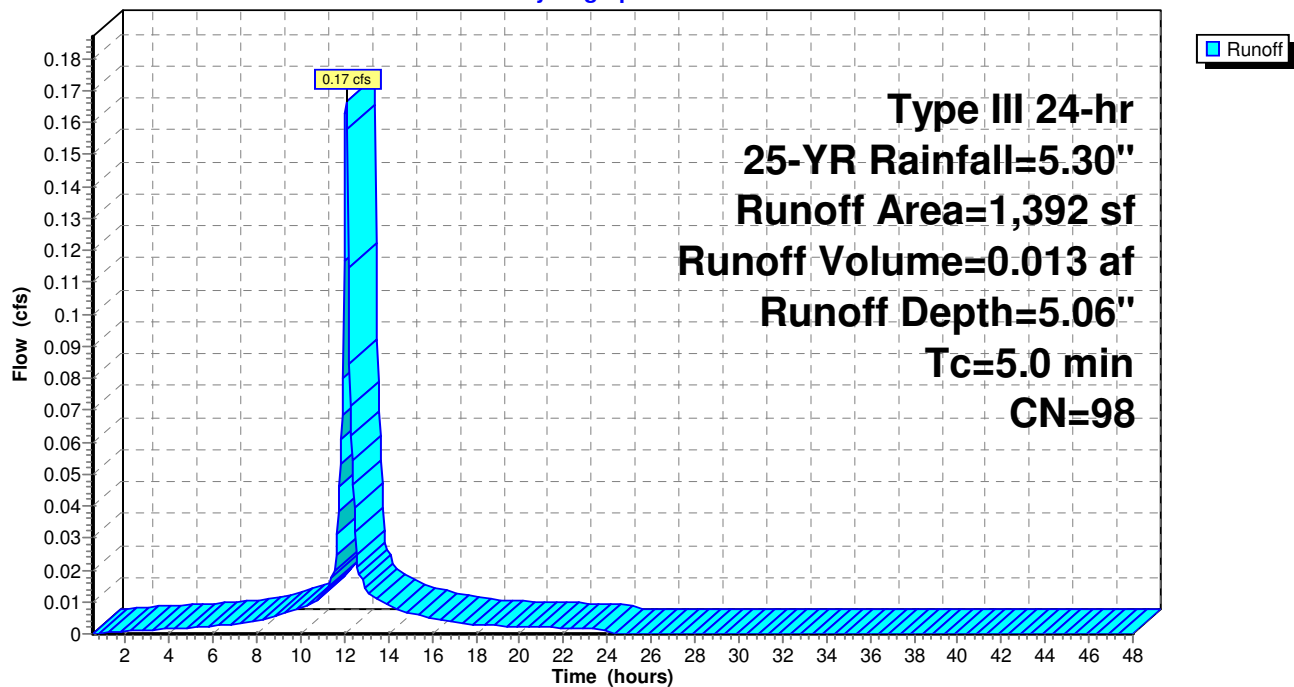
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 33S: Unit 17 & 18 Roofs

Hydrograph



Summary for Subcatchment 34S: Unit 15 & 16 Roofs

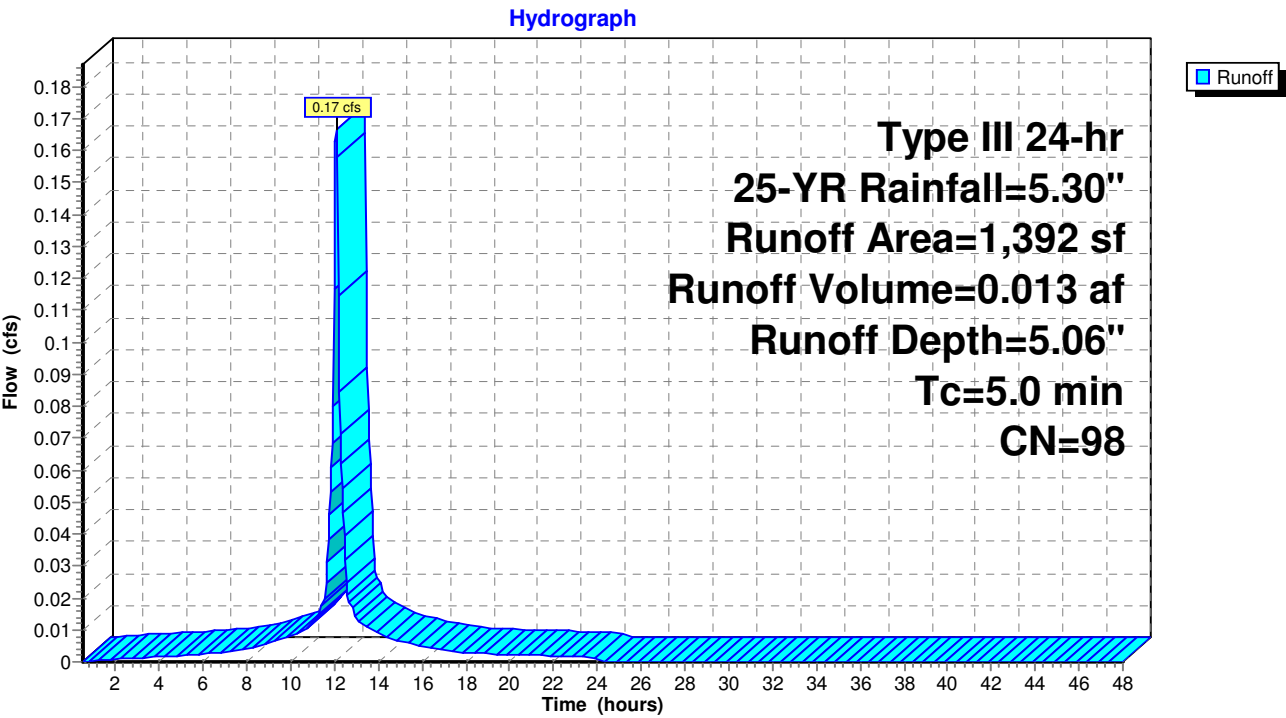
Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af, Depth= 5.06"
Routed to Pond 30P : Roof Recharge Chambers

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 34S: Unit 15 & 16 Roofs



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Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Subcatchment 35S: Unit 14 Roof

Runoff = 0.08 cfs @ 12.07 hrs, Volume= 0.007 af, Depth= 5.06"
Routed to Pond 31P : Roof Recharge Chambers

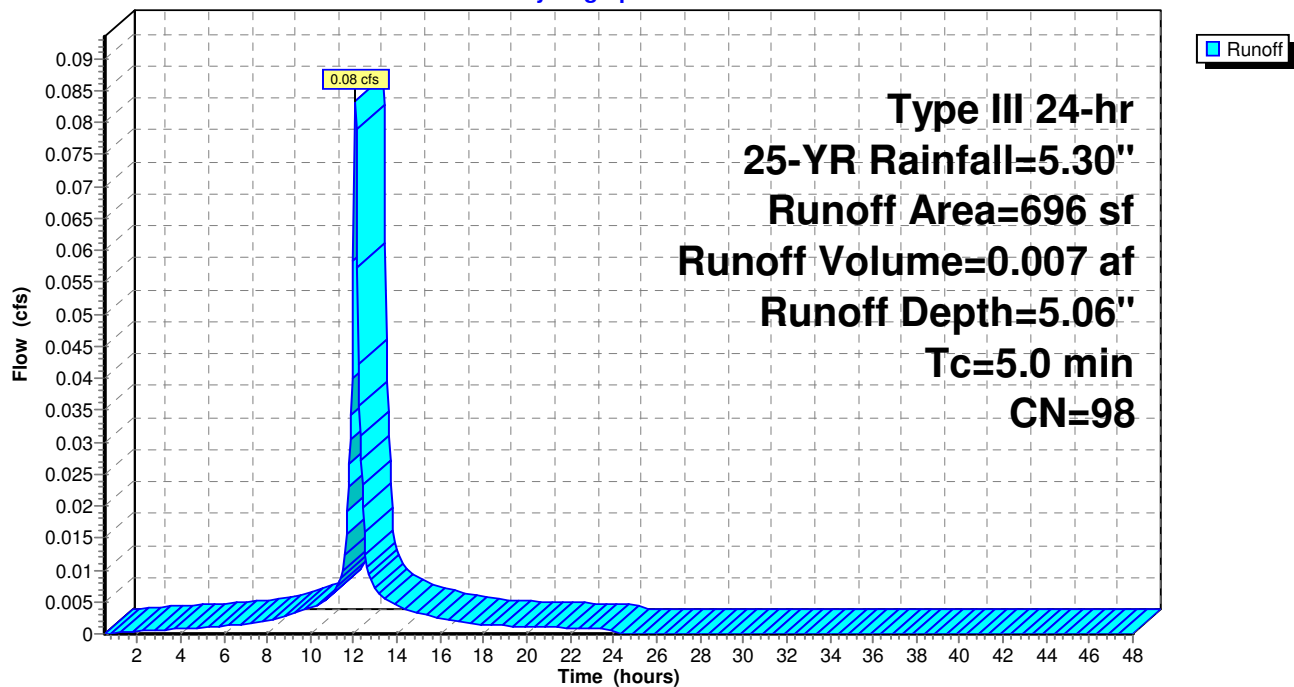
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
696	98	Roofs, HSG D
696		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 35S: Unit 14 Roof

Hydrograph



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Type III 24-hr 25-YR Rainfall=5.30"

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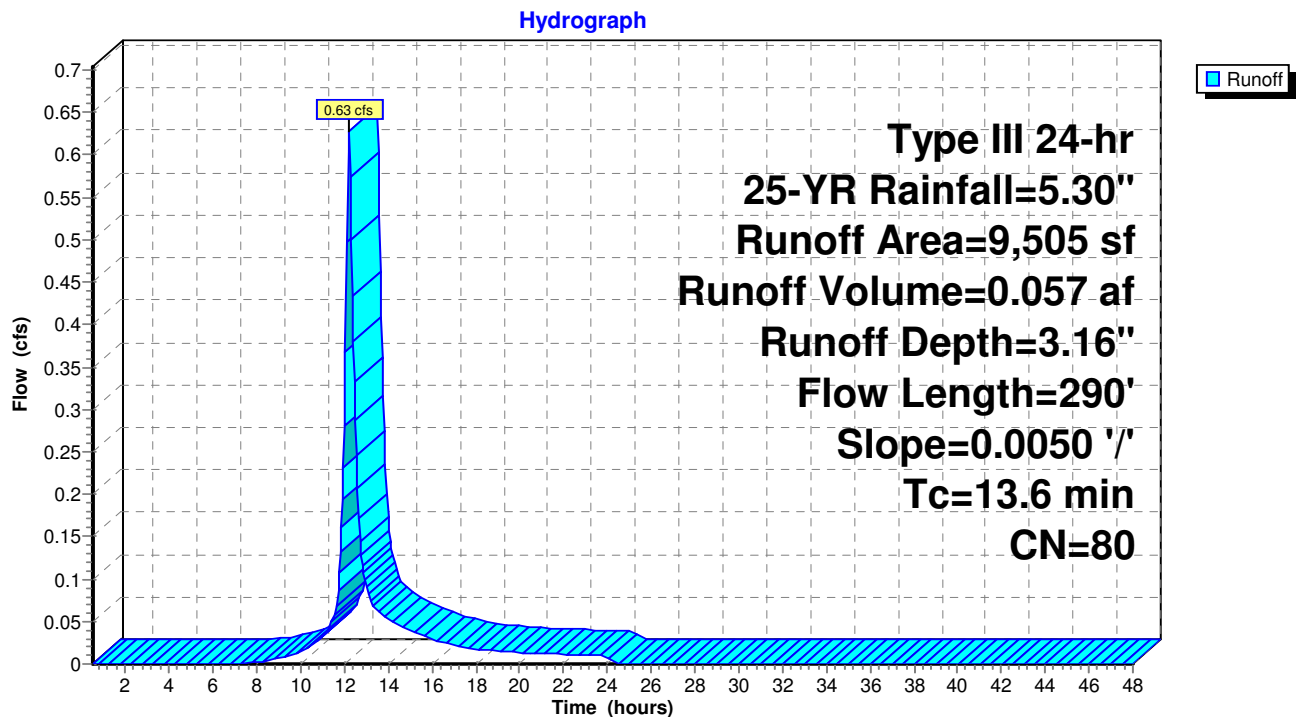
Summary for Subcatchment 36S: Landscape Area including Wet Basin

Runoff = 0.63 cfs @ 12.19 hrs, Volume= 0.057 af, Depth= 3.16"
Routed to Pond 12P : Outlet Det Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.30"

Area (sf)	CN	Description
9,505	80	>75% Grass cover, Good, HSG D
9,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0050	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.8	240	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
13.6	290	Total			

Subcatchment 36S: Landscape Area including Wet Basin

Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 1P: ADS 30" Pipe Det Basin

Inflow Area = 1.612 ac, 57.74% Impervious, Inflow Depth = 3.59" for 25-YR event
 Inflow = 5.87 cfs @ 12.12 hrs, Volume= 0.482 af
 Outflow = 2.77 cfs @ 12.41 hrs, Volume= 0.482 af, Atten= 53%, Lag= 17.0 min
 Primary = 2.77 cfs @ 12.41 hrs, Volume= 0.482 af
 Routed to Pond 11P : Sediment Forebay

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 159.83' @ 12.41 hrs Surf.Area= 3,978 sf Storage= 6,949 cf

Plug-Flow detention time= 64.3 min calculated for 0.481 af (100% of inflow)
 Center-of-Mass det. time= 64.7 min (859.5 - 794.8)

Volume	Invert	Avail.Storage	Storage Description
#1	158.00'	8,836 cf	30.0" Round Pipe Storage x 6 L= 300.0'

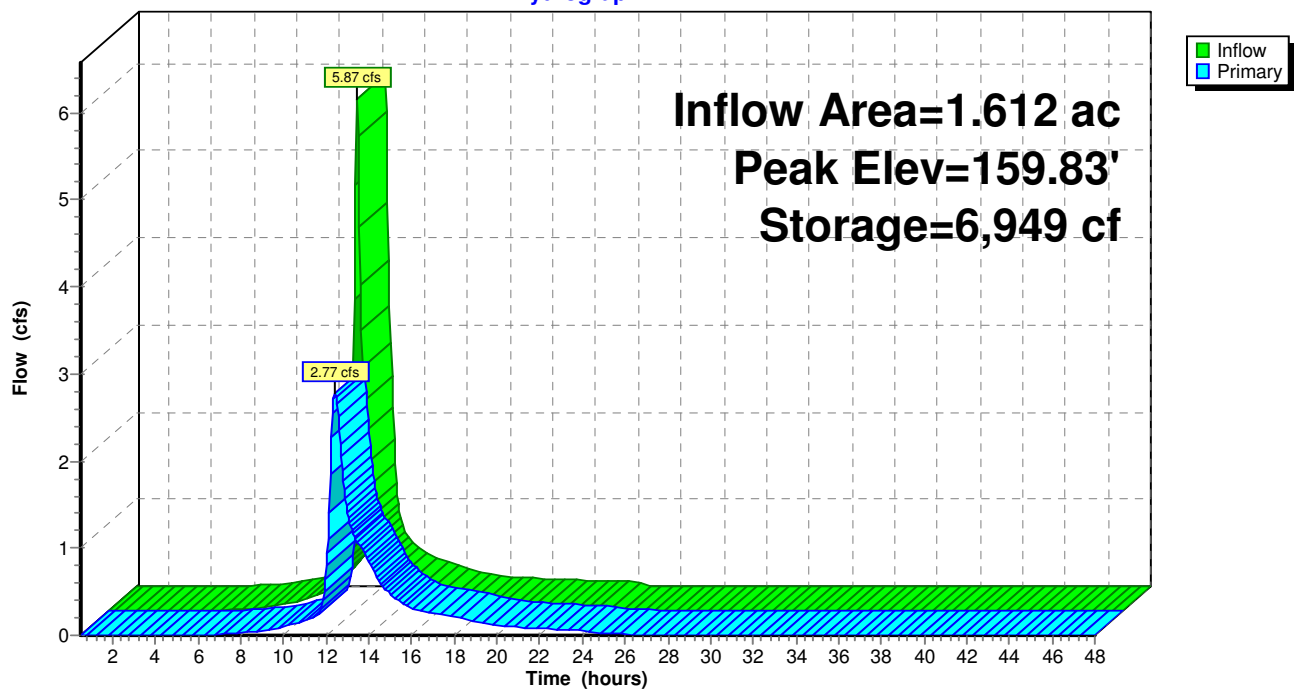
Device	Routing	Invert	Outlet Devices
#1	Primary	159.25'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	158.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	158.50'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.76 cfs @ 12.41 hrs HW=159.83' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 1.24 cfs @ 2.60 fps)
- 2=Orifice/Grate (Orifice Controls 0.54 cfs @ 6.22 fps)
- 3=Orifice/Grate (Orifice Controls 0.98 cfs @ 5.01 fps)

Pond 1P: ADS 30" Pipe Det Basin

Hydrograph



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 3P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.25 cfs @ 12.07 hrs, Volume= 0.020 af
 Outflow = 0.21 cfs @ 12.12 hrs, Volume= 0.020 af, Atten= 15%, Lag= 3.1 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.007 af
 Primary = 0.21 cfs @ 12.12 hrs, Volume= 0.014 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.42' @ 12.12 hrs Surf.Area= 189 sf Storage= 161 cf

Plug-Flow detention time= 162.6 min calculated for 0.020 af (100% of inflow)
 Center-of-Mass det. time= 163.3 min (909.4 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

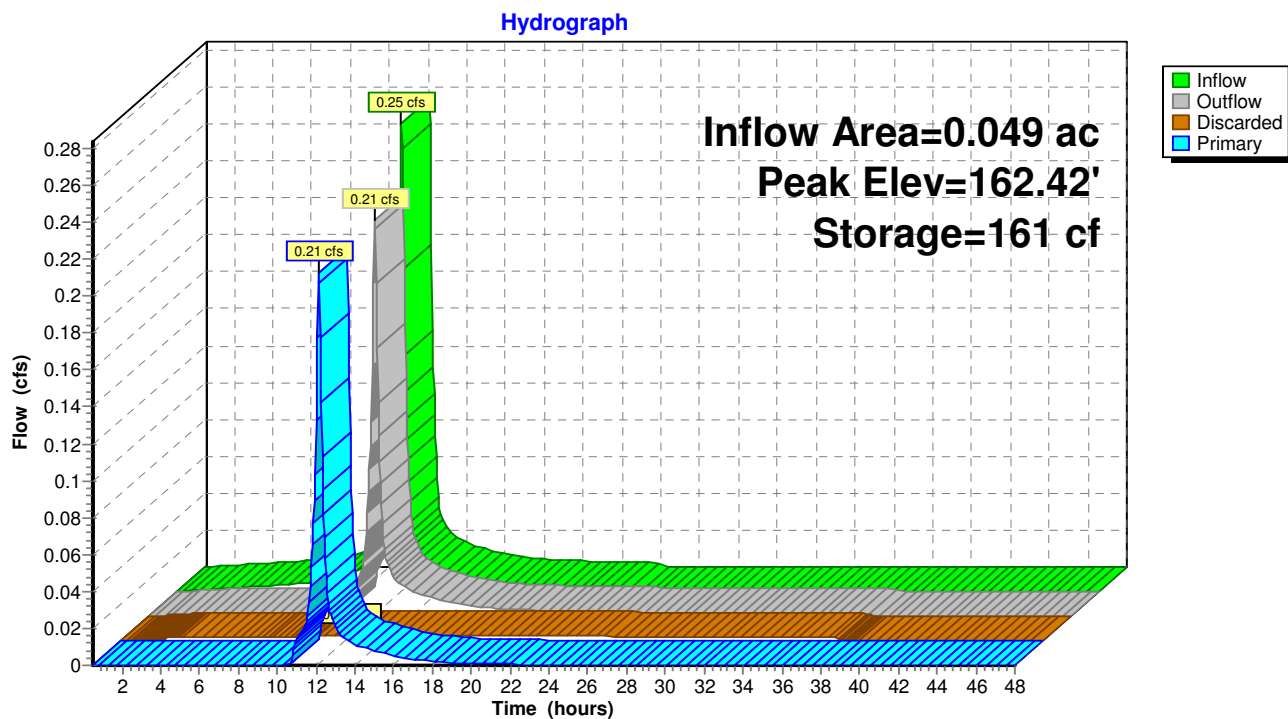
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.41' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.21 cfs @ 12.12 hrs HW=162.41' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.21 cfs @ 2.38 fps)

Pond 3P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 10P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.25 cfs @ 12.07 hrs, Volume= 0.020 af
 Outflow = 0.21 cfs @ 12.12 hrs, Volume= 0.020 af, Atten= 15%, Lag= 3.1 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.007 af
 Primary = 0.21 cfs @ 12.12 hrs, Volume= 0.014 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.42' @ 12.12 hrs Surf.Area= 189 sf Storage= 161 cf

Plug-Flow detention time= 162.6 min calculated for 0.020 af (100% of inflow)
 Center-of-Mass det. time= 163.3 min (909.4 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

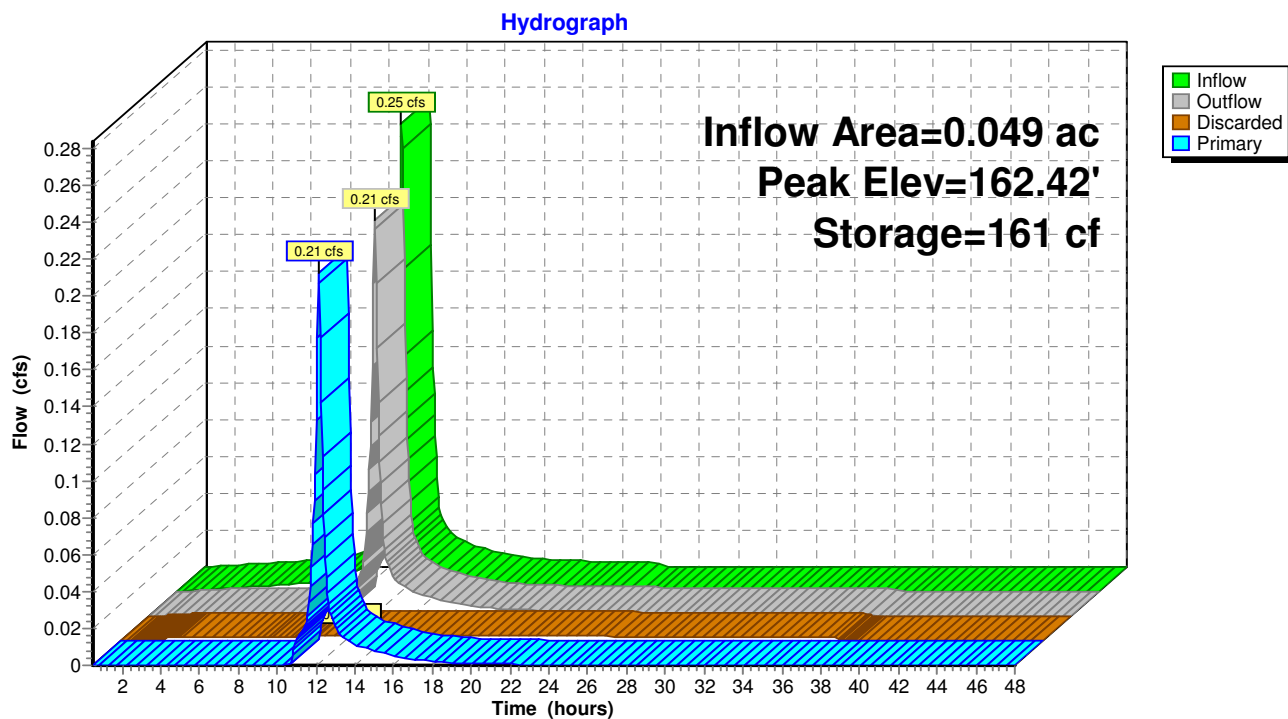
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.41' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.21 cfs @ 12.12 hrs HW=162.41' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.21 cfs @ 2.38 fps)

Pond 10P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 11P: Sediment Forebay

Inflow Area = 1.962 ac, 47.45% Impervious, Inflow Depth = 3.51" for 25-YR event
 Inflow = 3.38 cfs @ 12.36 hrs, Volume= 0.574 af
 Outflow = 3.37 cfs @ 12.37 hrs, Volume= 0.567 af, Atten= 0%, Lag= 1.0 min
 Primary = 3.37 cfs @ 12.37 hrs, Volume= 0.567 af
 Routed to Pond 12P : Outlet Det Pond

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 157.86' @ 12.37 hrs Surf.Area= 928 sf Storage= 620 cf

Plug-Flow detention time= 15.0 min calculated for 0.566 af (99% of inflow)
 Center-of-Mass det. time= 7.0 min (861.0 - 854.0)

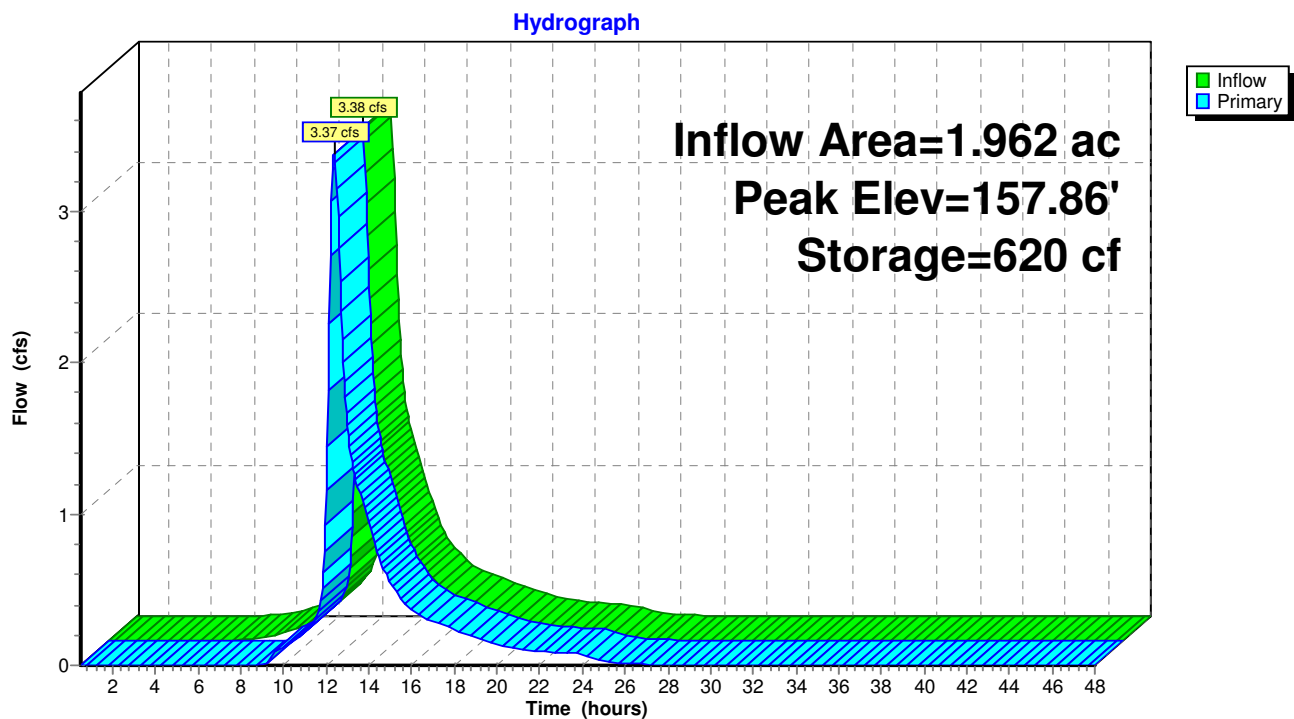
Volume	Invert	Avail.Storage	Storage Description
#1	157.00'	1,907 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
157.00	525	86.0	0	0	525
158.00	1,002	124.0	751	751	1,169
159.00	1,318	140.0	1,156	1,907	1,530

Device	Routing	Invert	Outlet Devices
#1	Primary	157.50'	6.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=3.36 cfs @ 12.37 hrs HW=157.86' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 3.36 cfs @ 1.54 fps)

Pond 11P: Sediment Forebay



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 12P: Outlet Det Pond

Inflow Area = 2.180 ac, 42.70% Impervious, Inflow Depth = 3.43" for 25-YR event
 Inflow = 3.80 cfs @ 12.34 hrs, Volume= 0.624 af
 Outflow = 3.26 cfs @ 12.54 hrs, Volume= 0.526 af, Atten= 14%, Lag= 12.0 min
 Primary = 3.26 cfs @ 12.54 hrs, Volume= 0.526 af
 Routed to Link DP#2 : DP#2 - Rear Wetlands

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 155.86' @ 12.54 hrs Surf.Area= 5,701 sf Storage= 6,192 cf

Plug-Flow detention time= 112.8 min calculated for 0.526 af (84% of inflow)
 Center-of-Mass det. time= 47.0 min (904.8 - 857.8)

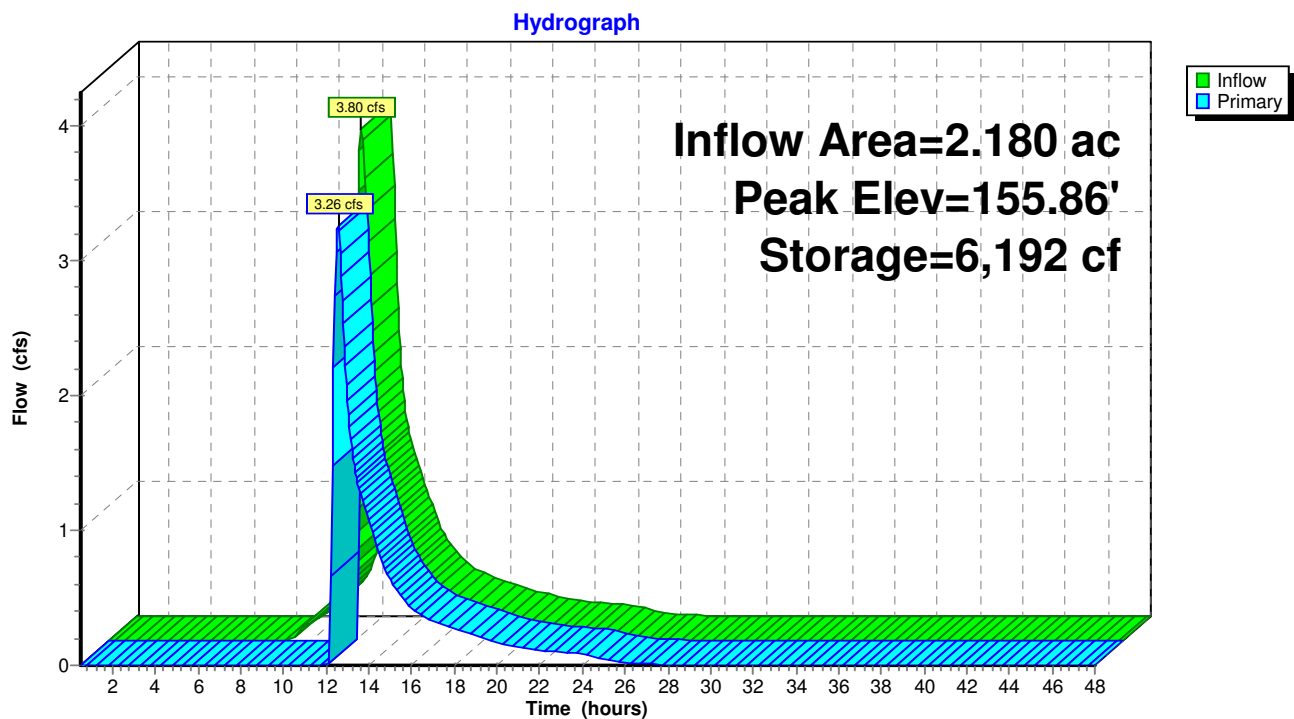
Volume	Invert	Avail.Storage	Storage Description
#1	154.00'	10,265 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
154.00	774	119.0	0	0	774
155.00	3,826	723.0	2,107	2,107	41,247
156.00	6,032	670.0	4,887	6,994	47,163
156.50	7,063	687.0	3,270	10,265	49,030

Device	Routing	Invert	Outlet Devices
#1	Primary	155.50'	6.0' long x 6.0' 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) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=3.25 cfs @ 12.54 hrs HW=155.86' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 3.25 cfs @ 1.50 fps)

Pond 12P: Outlet Det Pond



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 15P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af
 Outflow = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 11%, Lag= 2.6 min
 Discarded = 0.00 cfs @ 12.11 hrs, Volume= 0.006 af
 Primary = 0.15 cfs @ 12.11 hrs, Volume= 0.007 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.29' @ 12.11 hrs Surf.Area= 186 sf Storage= 141 cf

Plug-Flow detention time= 209.6 min calculated for 0.013 af (100% of inflow)
 Center-of-Mass det. time= 210.2 min (956.3 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

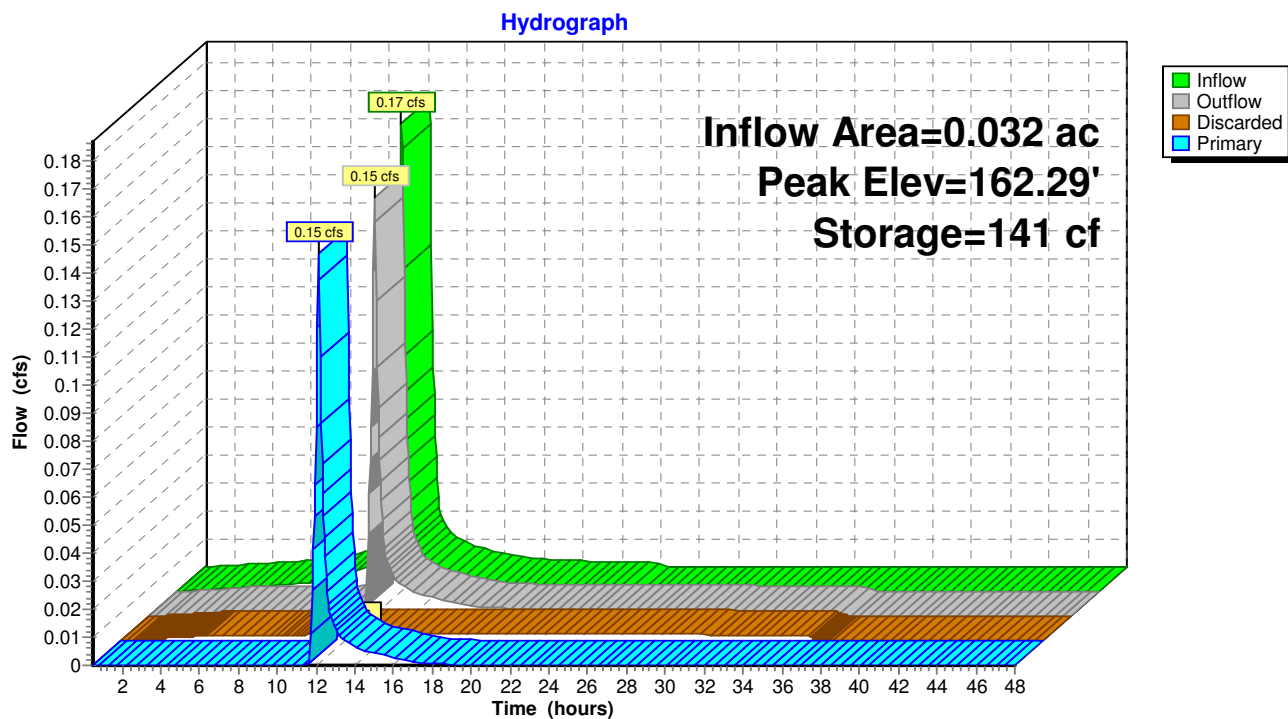
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.14 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.14 cfs @ 1.81 fps)

Pond 15P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 16P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af
 Outflow = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 11%, Lag= 2.6 min
 Discarded = 0.00 cfs @ 12.11 hrs, Volume= 0.006 af
 Primary = 0.15 cfs @ 12.11 hrs, Volume= 0.007 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.29' @ 12.11 hrs Surf.Area= 186 sf Storage= 141 cf

Plug-Flow detention time= 209.6 min calculated for 0.013 af (100% of inflow)
 Center-of-Mass det. time= 210.2 min (956.3 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

Storage Group A created with Chamber Wizard

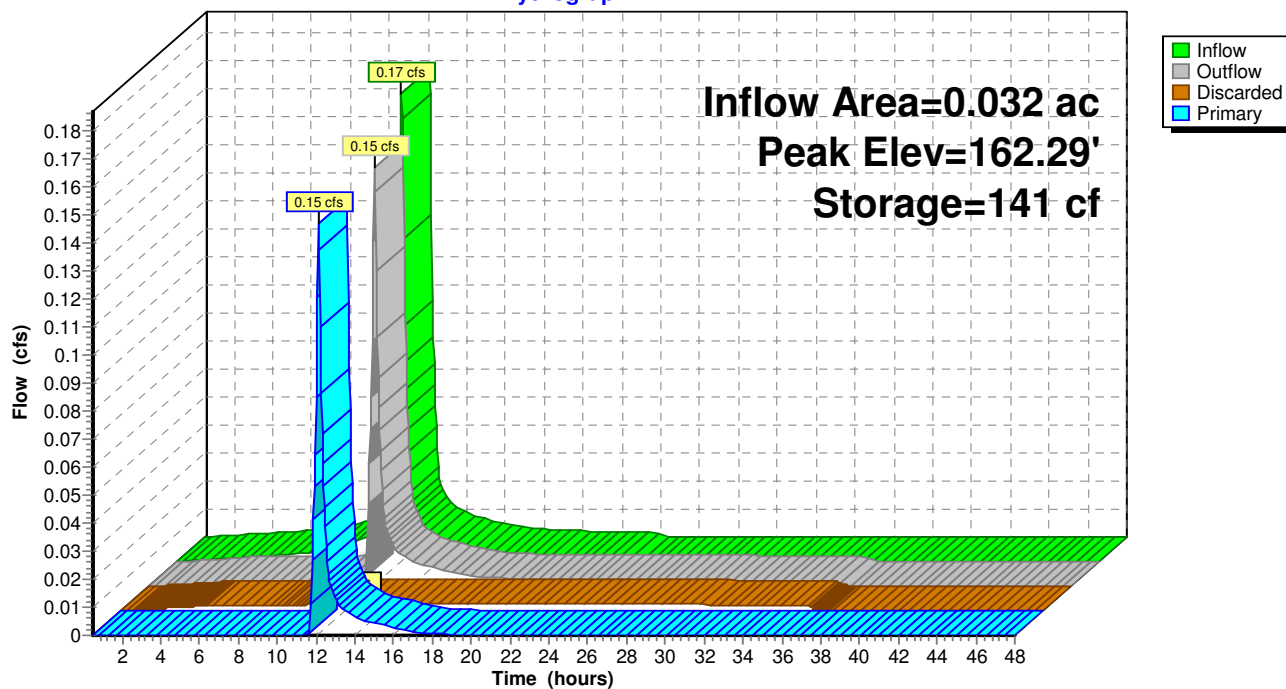
Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.14 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.14 cfs @ 1.81 fps)

Pond 16P: Roof Recharge Chambers

Hydrograph



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 17P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af
 Outflow = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 11%, Lag= 2.6 min
 Discarded = 0.00 cfs @ 12.11 hrs, Volume= 0.006 af
 Primary = 0.15 cfs @ 12.11 hrs, Volume= 0.007 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.29' @ 12.11 hrs Surf.Area= 186 sf Storage= 141 cf

Plug-Flow detention time= 209.6 min calculated for 0.013 af (100% of inflow)
 Center-of-Mass det. time= 210.2 min (956.3 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

Storage Group A created with Chamber Wizard

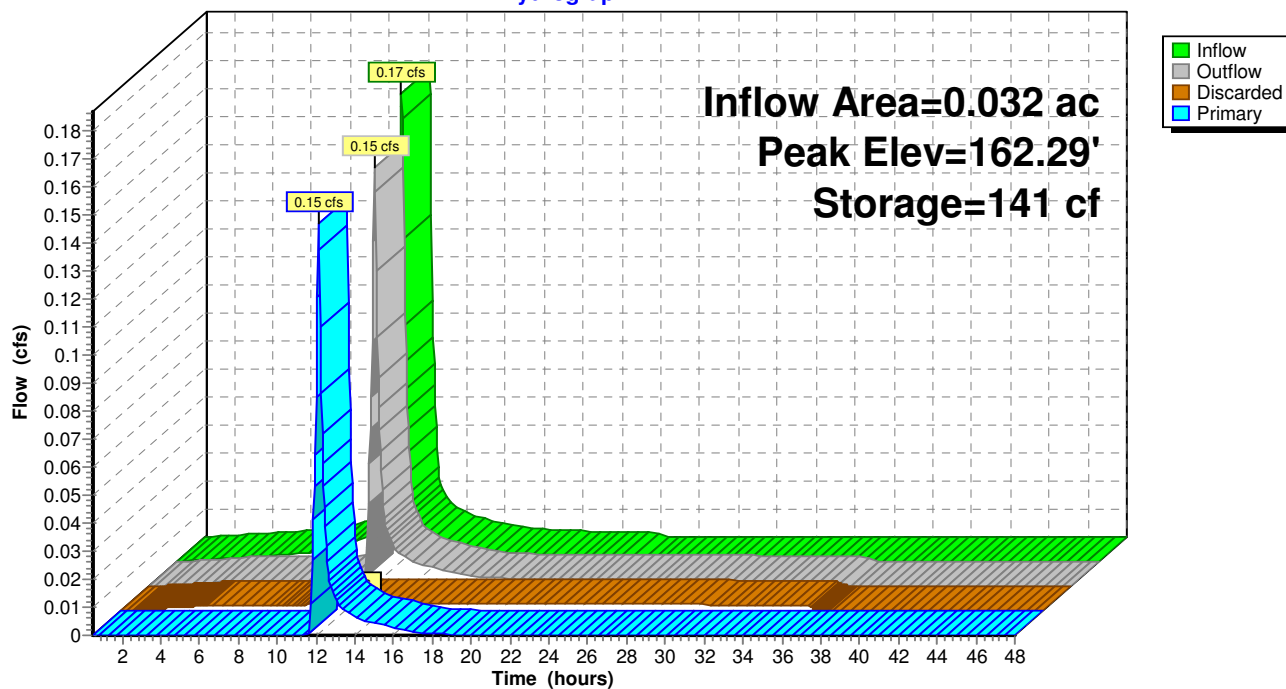
Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.14 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.14 cfs @ 1.81 fps)

Pond 17P: Roof Recharge Chambers

Hydrograph



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 18P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af
 Outflow = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 11%, Lag= 2.6 min
 Discarded = 0.00 cfs @ 12.11 hrs, Volume= 0.006 af
 Primary = 0.15 cfs @ 12.11 hrs, Volume= 0.007 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.29' @ 12.11 hrs Surf.Area= 186 sf Storage= 141 cf

Plug-Flow detention time= 209.6 min calculated for 0.013 af (100% of inflow)
 Center-of-Mass det. time= 210.2 min (956.3 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

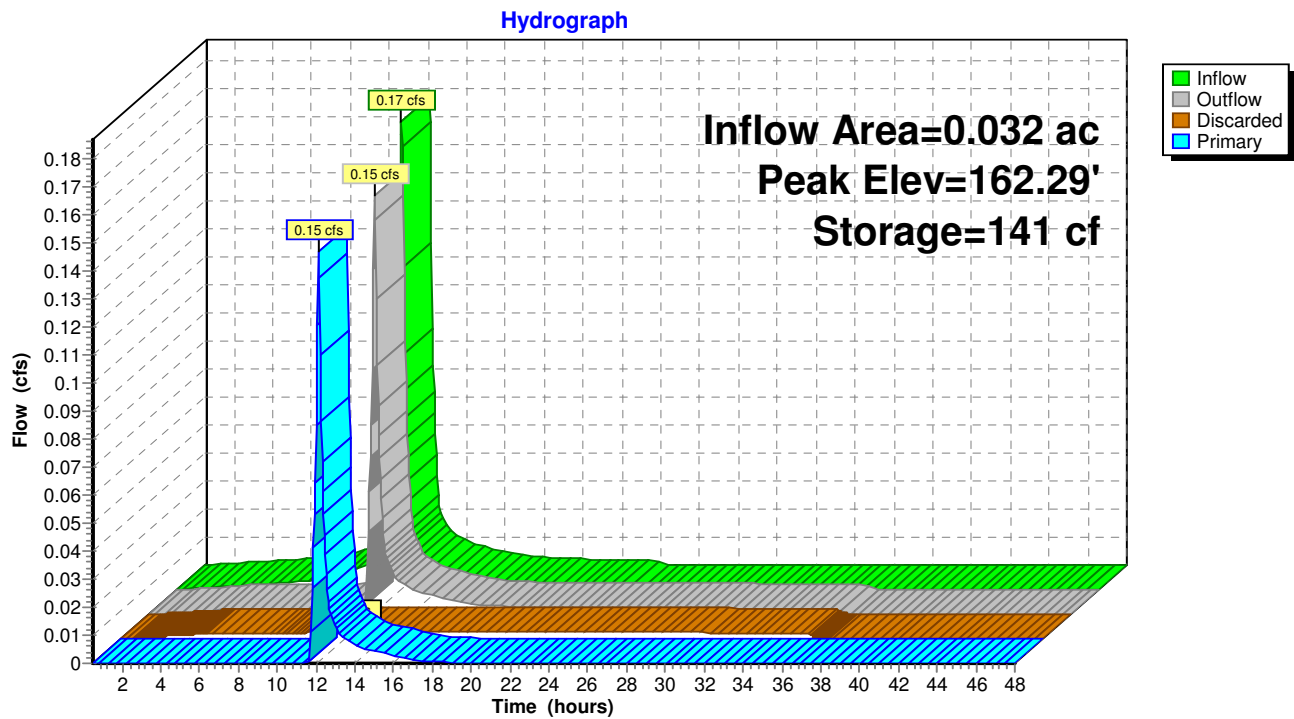
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.14 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.14 cfs @ 1.81 fps)

Pond 18P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 20P: Roof Recharge Chamber

Inflow Area = 0.016 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.08 cfs @ 12.07 hrs, Volume= 0.007 af
 Outflow = 0.03 cfs @ 12.31 hrs, Volume= 0.007 af, Atten= 63%, Lag= 14.6 min
 Discarded = 0.00 cfs @ 12.31 hrs, Volume= 0.005 af
 Primary = 0.03 cfs @ 12.31 hrs, Volume= 0.002 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.11' @ 12.31 hrs Surf.Area= 186 sf Storage= 118 cf

Plug-Flow detention time= 315.3 min calculated for 0.007 af (100% of inflow)
 Center-of-Mass det. time= 315.6 min (1,061.7 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

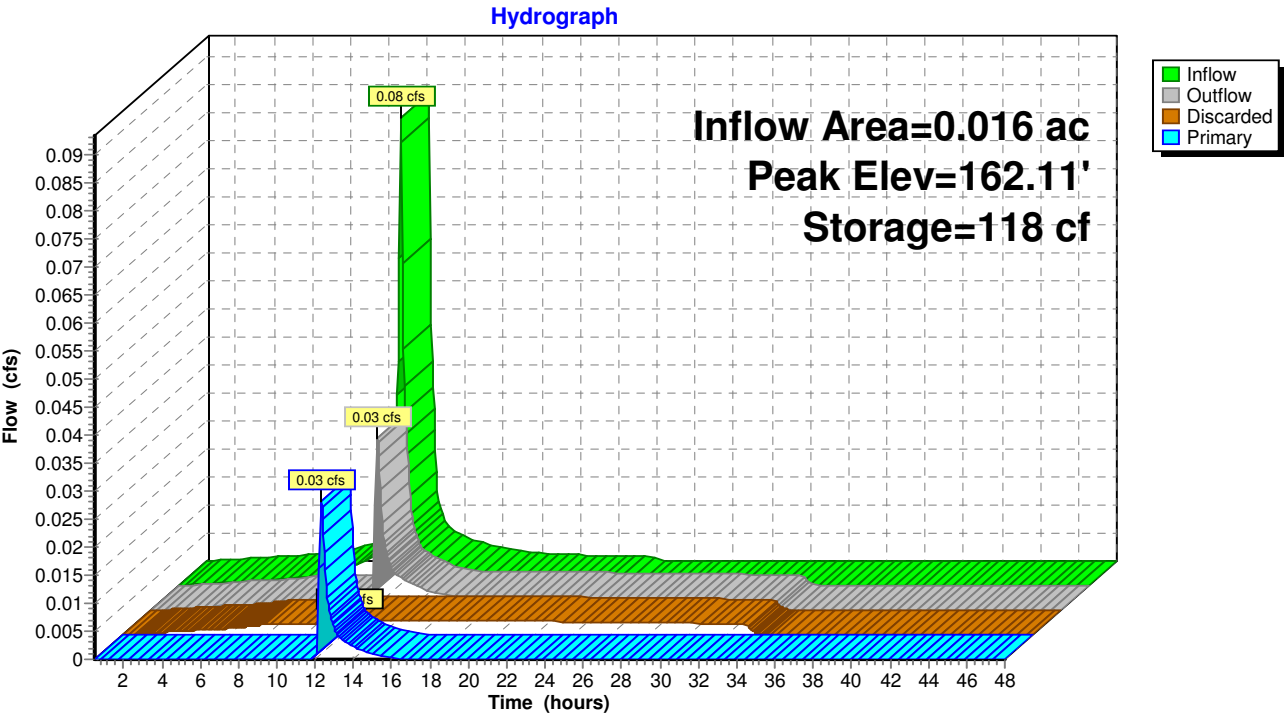
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.31 hrs HW=162.11' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.03 cfs @ 12.31 hrs HW=162.11' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.03 cfs @ 1.12 fps)

Pond 20P: Roof Recharge Chamber



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 24P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.25 cfs @ 12.07 hrs, Volume= 0.020 af
 Outflow = 0.21 cfs @ 12.12 hrs, Volume= 0.020 af, Atten= 15%, Lag= 3.1 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.007 af
 Primary = 0.21 cfs @ 12.12 hrs, Volume= 0.014 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.42' @ 12.12 hrs Surf.Area= 189 sf Storage= 161 cf

Plug-Flow detention time= 162.6 min calculated for 0.020 af (100% of inflow)
 Center-of-Mass det. time= 163.3 min (909.4 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

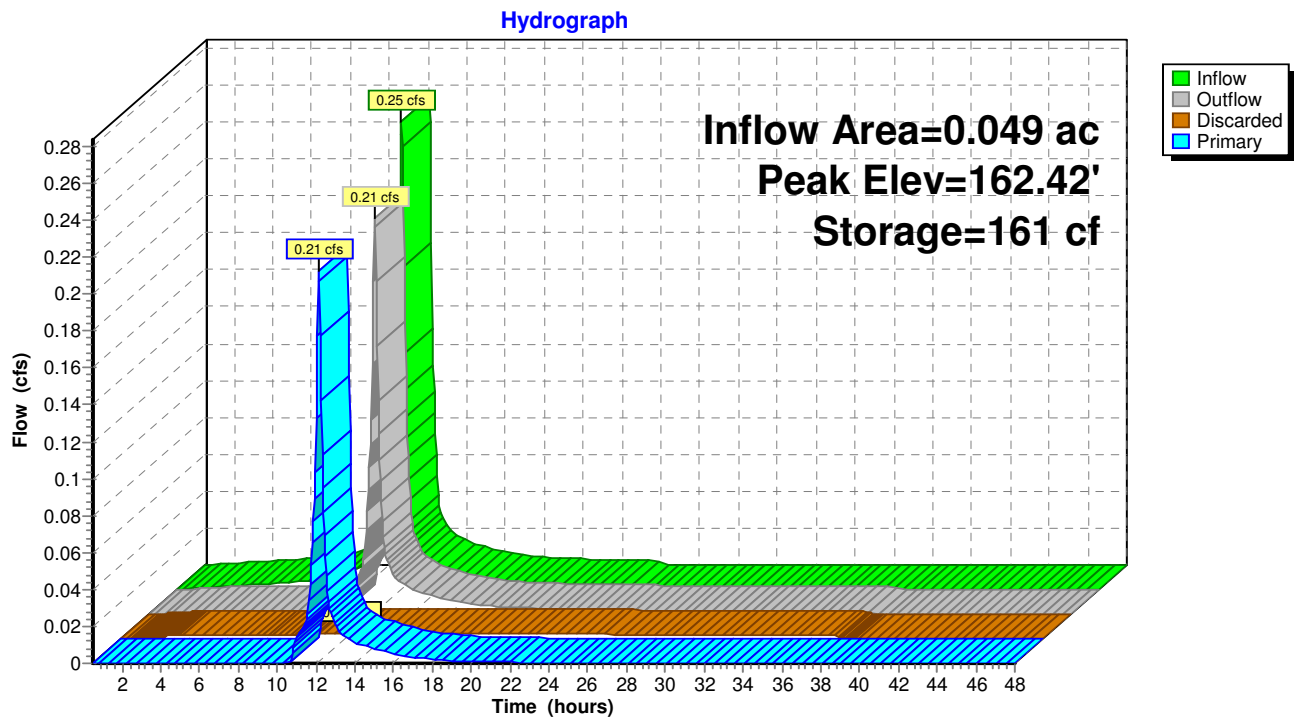
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.41' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.21 cfs @ 12.12 hrs HW=162.41' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.21 cfs @ 2.38 fps)

Pond 24P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 26P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.25 cfs @ 12.07 hrs, Volume= 0.020 af
 Outflow = 0.21 cfs @ 12.12 hrs, Volume= 0.020 af, Atten= 15%, Lag= 3.1 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.007 af
 Primary = 0.21 cfs @ 12.12 hrs, Volume= 0.014 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.42' @ 12.12 hrs Surf.Area= 189 sf Storage= 161 cf

Plug-Flow detention time= 162.6 min calculated for 0.020 af (100% of inflow)
 Center-of-Mass det. time= 163.3 min (909.4 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

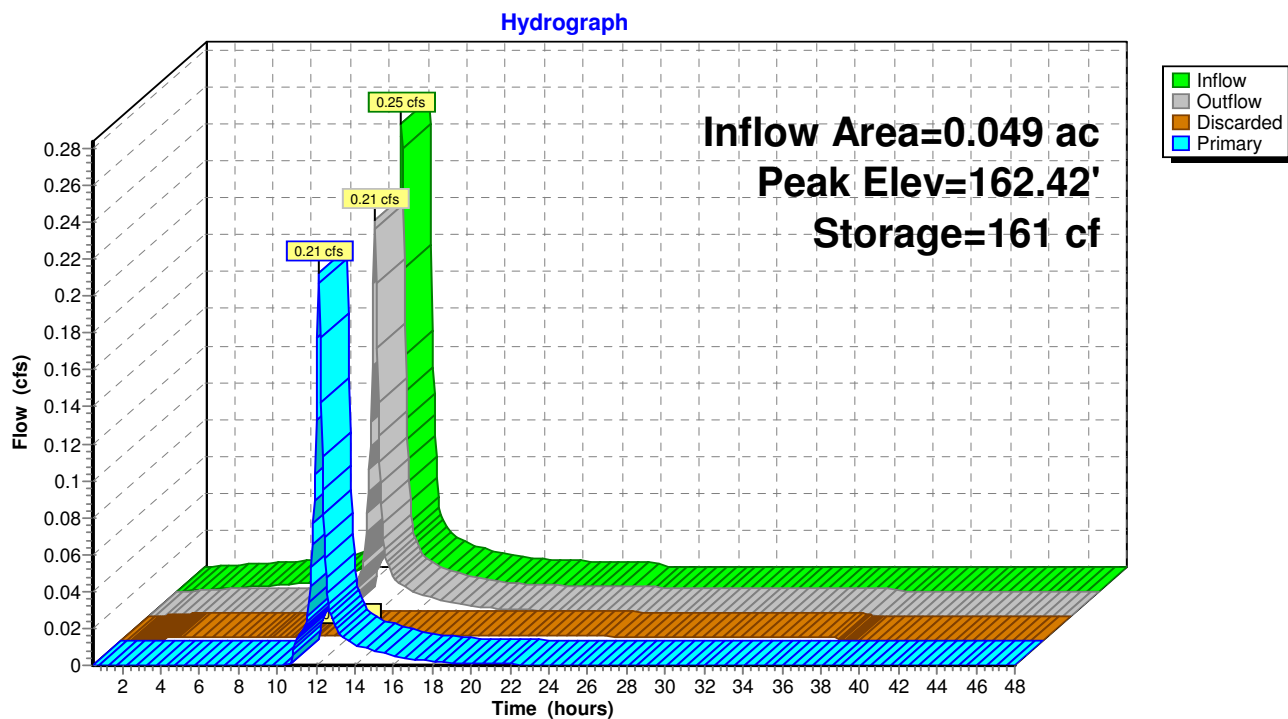
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.41' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.21 cfs @ 12.12 hrs HW=162.41' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.21 cfs @ 2.38 fps)

Pond 26P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 27P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af
 Outflow = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 11%, Lag= 2.6 min
 Discarded = 0.00 cfs @ 12.11 hrs, Volume= 0.006 af
 Primary = 0.15 cfs @ 12.11 hrs, Volume= 0.007 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.29' @ 12.11 hrs Surf.Area= 186 sf Storage= 141 cf

Plug-Flow detention time= 209.6 min calculated for 0.013 af (100% of inflow)
 Center-of-Mass det. time= 210.2 min (956.3 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

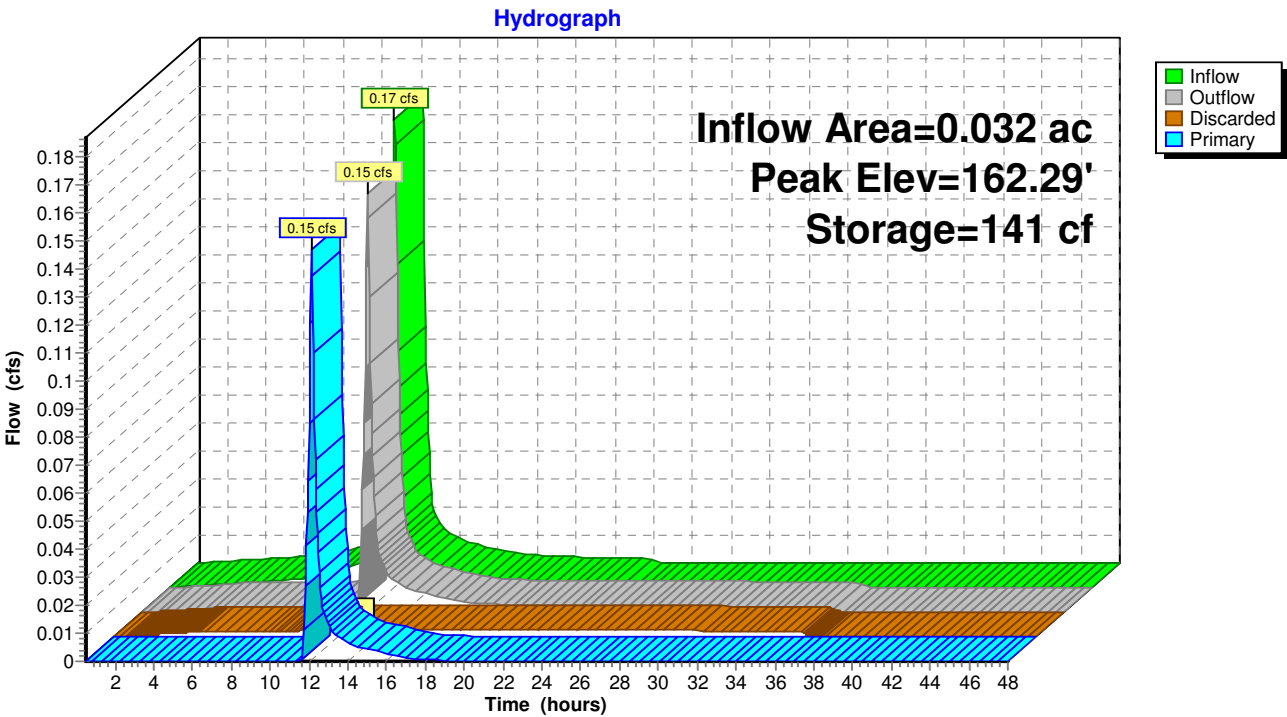
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.14 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.14 cfs @ 1.81 fps)

Pond 27P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 28P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af
 Outflow = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 11%, Lag= 2.6 min
 Discarded = 0.00 cfs @ 12.11 hrs, Volume= 0.006 af
 Primary = 0.15 cfs @ 12.11 hrs, Volume= 0.007 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.29' @ 12.11 hrs Surf.Area= 186 sf Storage= 141 cf

Plug-Flow detention time= 209.6 min calculated for 0.013 af (100% of inflow)
 Center-of-Mass det. time= 210.2 min (956.3 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

Storage Group A created with Chamber Wizard

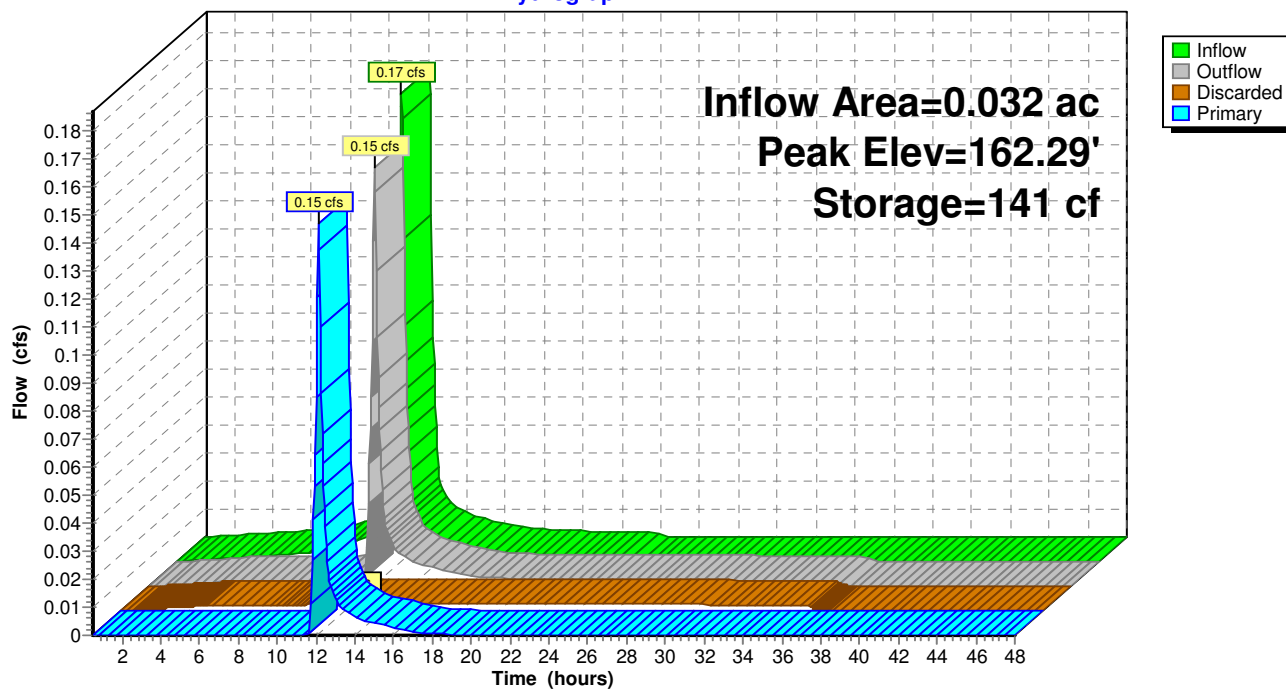
Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.14 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.14 cfs @ 1.81 fps)

Pond 28P: Roof Recharge Chambers

Hydrograph



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 29P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af
 Outflow = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 11%, Lag= 2.6 min
 Discarded = 0.00 cfs @ 12.11 hrs, Volume= 0.006 af
 Primary = 0.15 cfs @ 12.11 hrs, Volume= 0.007 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.29' @ 12.11 hrs Surf.Area= 186 sf Storage= 141 cf

Plug-Flow detention time= 209.6 min calculated for 0.013 af (100% of inflow)
 Center-of-Mass det. time= 210.2 min (956.3 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

Storage Group A created with Chamber Wizard

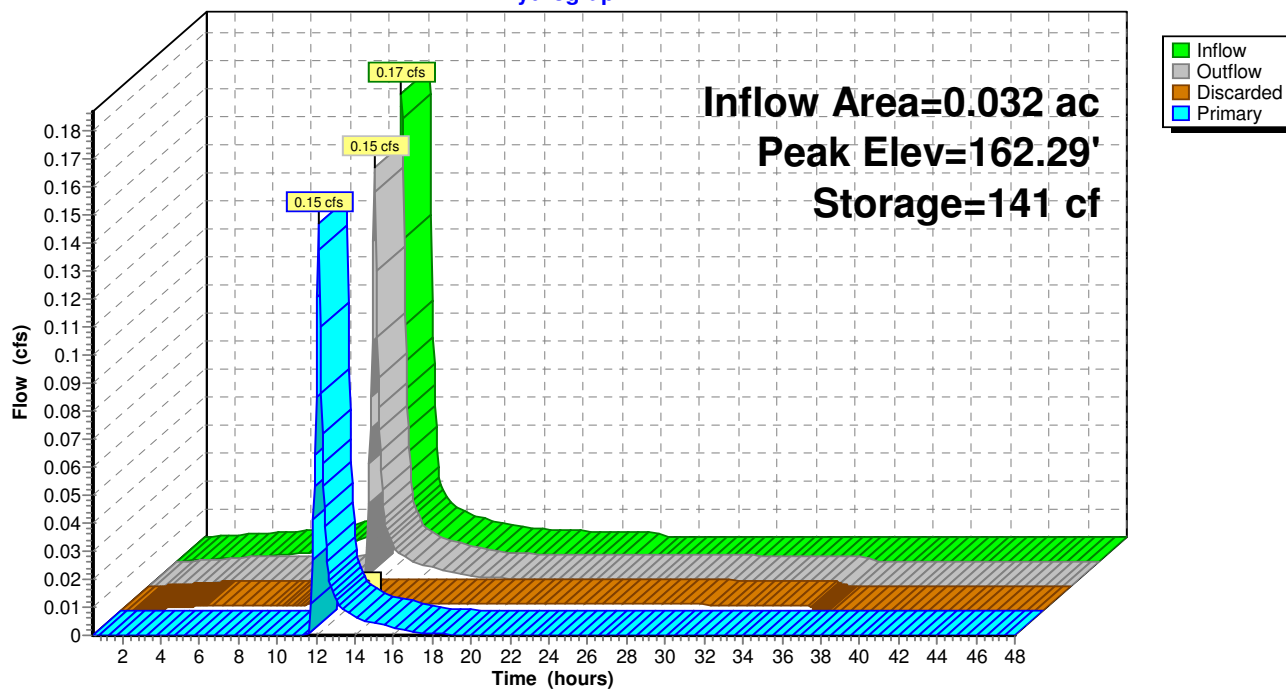
Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.14 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.14 cfs @ 1.81 fps)

Pond 29P: Roof Recharge Chambers

Hydrograph



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 30P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af
 Outflow = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 11%, Lag= 2.6 min
 Discarded = 0.00 cfs @ 12.11 hrs, Volume= 0.006 af
 Primary = 0.15 cfs @ 12.11 hrs, Volume= 0.007 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.29' @ 12.11 hrs Surf.Area= 186 sf Storage= 141 cf

Plug-Flow detention time= 209.6 min calculated for 0.013 af (100% of inflow)
 Center-of-Mass det. time= 210.2 min (956.3 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

Storage Group A created with Chamber Wizard

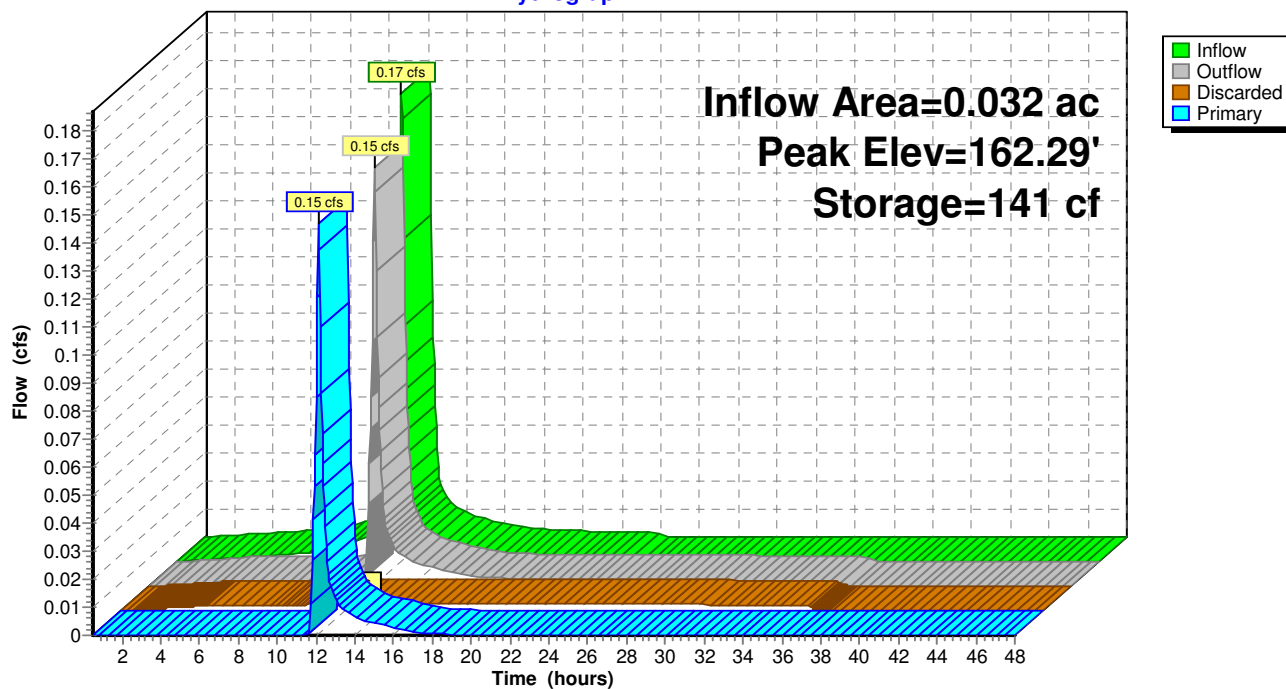
Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.14 cfs @ 12.11 hrs HW=162.28' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.14 cfs @ 1.81 fps)

Pond 30P: Roof Recharge Chambers

Hydrograph



Prop-Conditions REVISED 060124

Type III 24-hr 25-YR Rainfall=5.30"

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Summary for Pond 31P: Roof Recharge Chambers

Inflow Area = 0.016 ac, 100.00% Impervious, Inflow Depth = 5.06" for 25-YR event
 Inflow = 0.08 cfs @ 12.07 hrs, Volume= 0.007 af
 Outflow = 0.03 cfs @ 12.31 hrs, Volume= 0.007 af, Atten= 63%, Lag= 14.6 min
 Discarded = 0.00 cfs @ 12.31 hrs, Volume= 0.005 af
 Primary = 0.03 cfs @ 12.31 hrs, Volume= 0.002 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.11' @ 12.31 hrs Surf.Area= 186 sf Storage= 118 cf

Plug-Flow detention time= 315.3 min calculated for 0.007 af (100% of inflow)
 Center-of-Mass det. time= 315.6 min (1,061.7 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

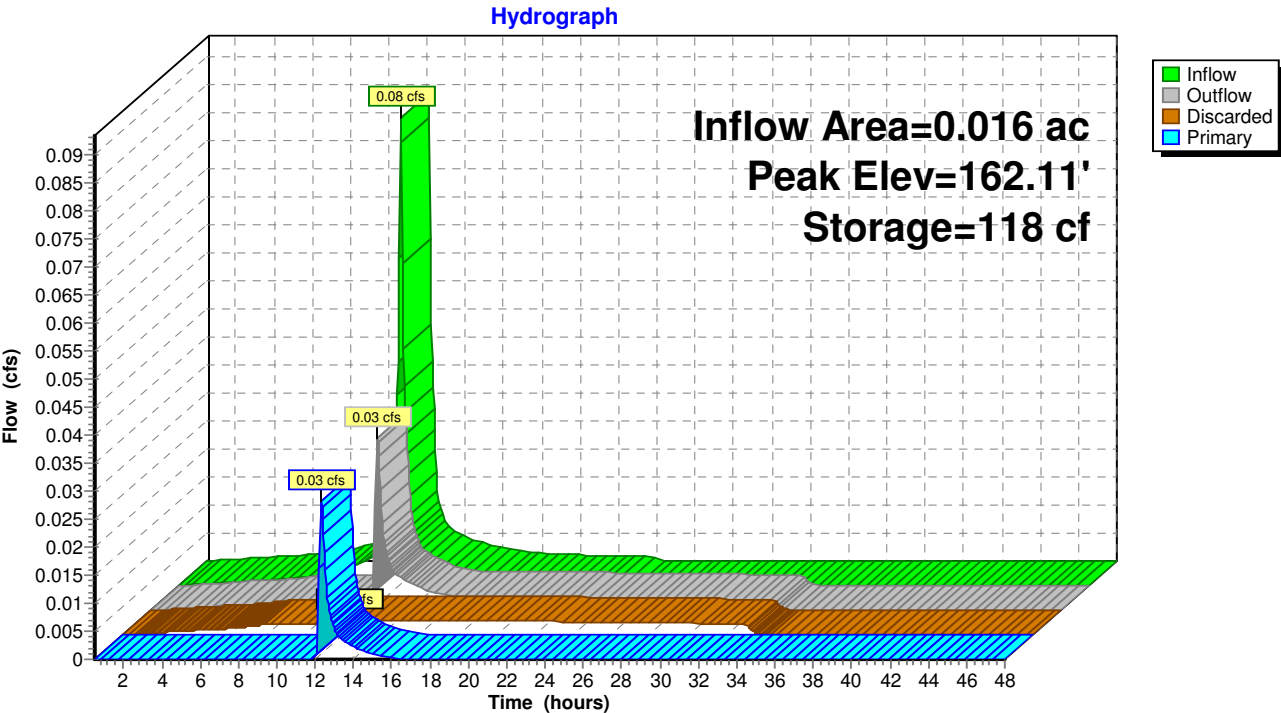
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.31 hrs HW=162.11' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.03 cfs @ 12.31 hrs HW=162.11' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.03 cfs @ 1.12 fps)

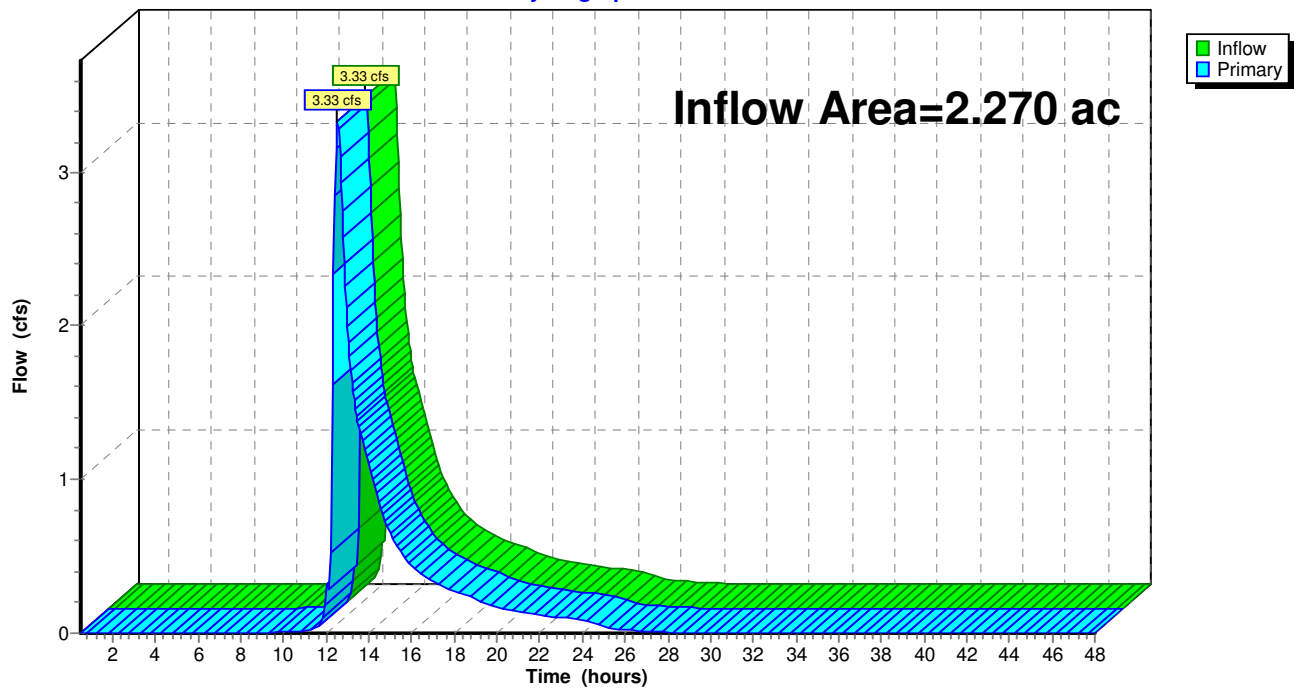
Pond 31P: Roof Recharge Chambers



Summary for Link DP#2: DP#2 - Rear Wetlands

Inflow Area = 2.270 ac, 41.00% Impervious, Inflow Depth = 2.90" for 25-YR event
Inflow = 3.33 cfs @ 12.53 hrs, Volume= 0.549 af
Primary = 3.33 cfs @ 12.53 hrs, Volume= 0.549 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs

Link DP#2: DP#2 - Rear Wetlands**Hydrograph**

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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 1S: Flow to PCB#1

Runoff = 0.94 cfs @ 12.07 hrs, Volume= 0.069 af, Depth= 5.12"
Routed to Pond 1P : ADS 30" Pipe Det Basin

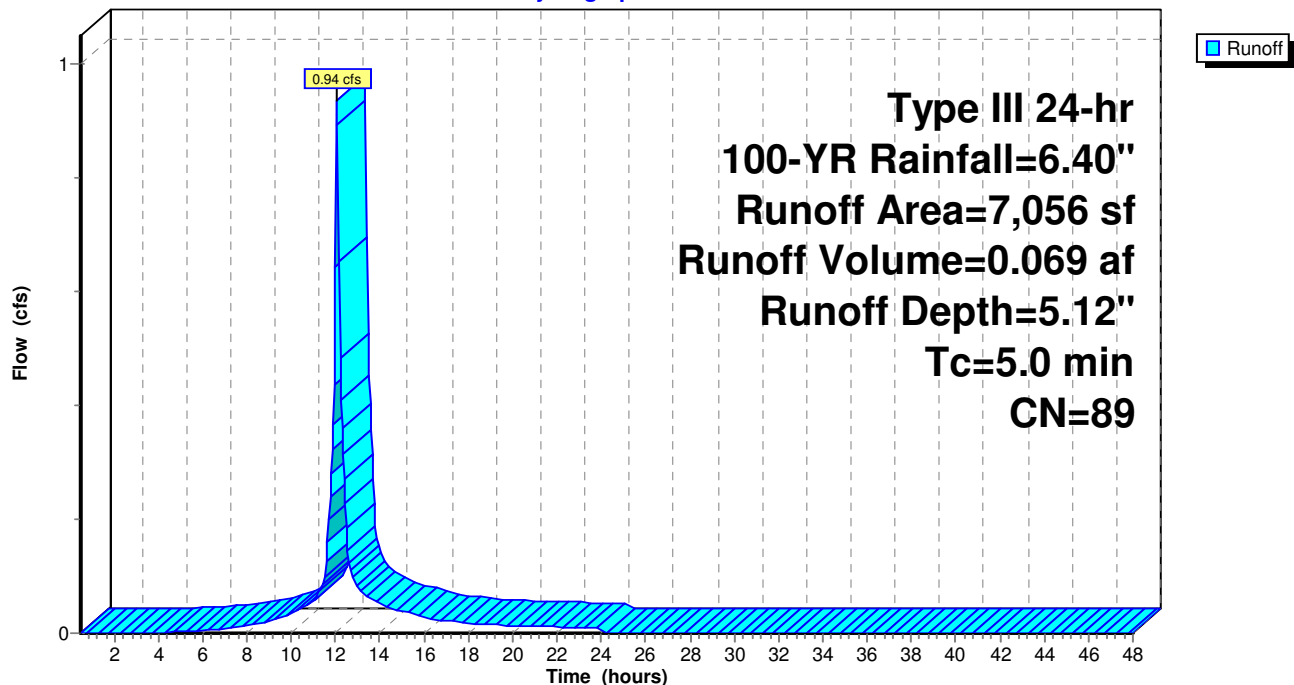
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
3,578	98	Paved parking, HSG D
3,478	80	>75% Grass cover, Good, HSG D
7,056	89	Weighted Average
3,478		49.29% Pervious Area
3,578		50.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S: Flow to PCB#1

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 2S: Units 1 & 2 Roofs

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 0.025 af, Depth= 6.16"
Routed to Pond 3P : Roof Recharge Chambers

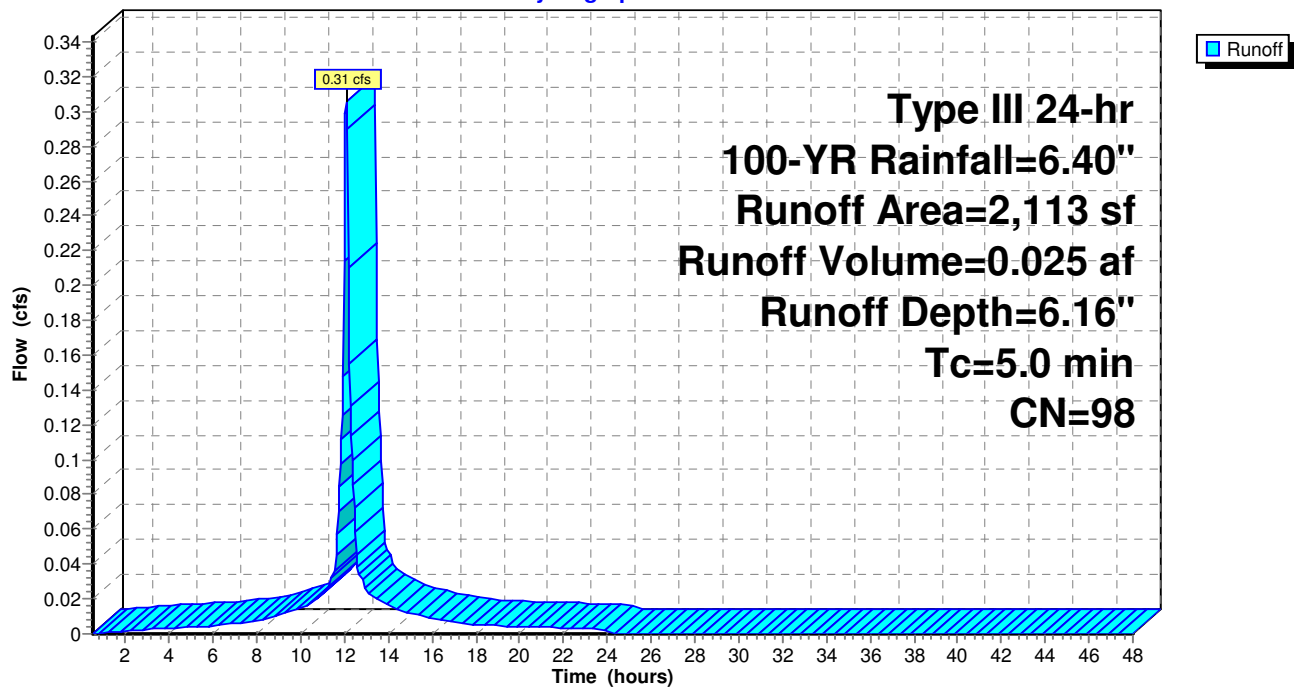
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S: Units 1 & 2 Roofs

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 3S: Flow to PCB#2

Runoff = 0.94 cfs @ 12.07 hrs, Volume= 0.069 af, Depth= 5.12"
Routed to Pond 1P : ADS 30" Pipe Det Basin

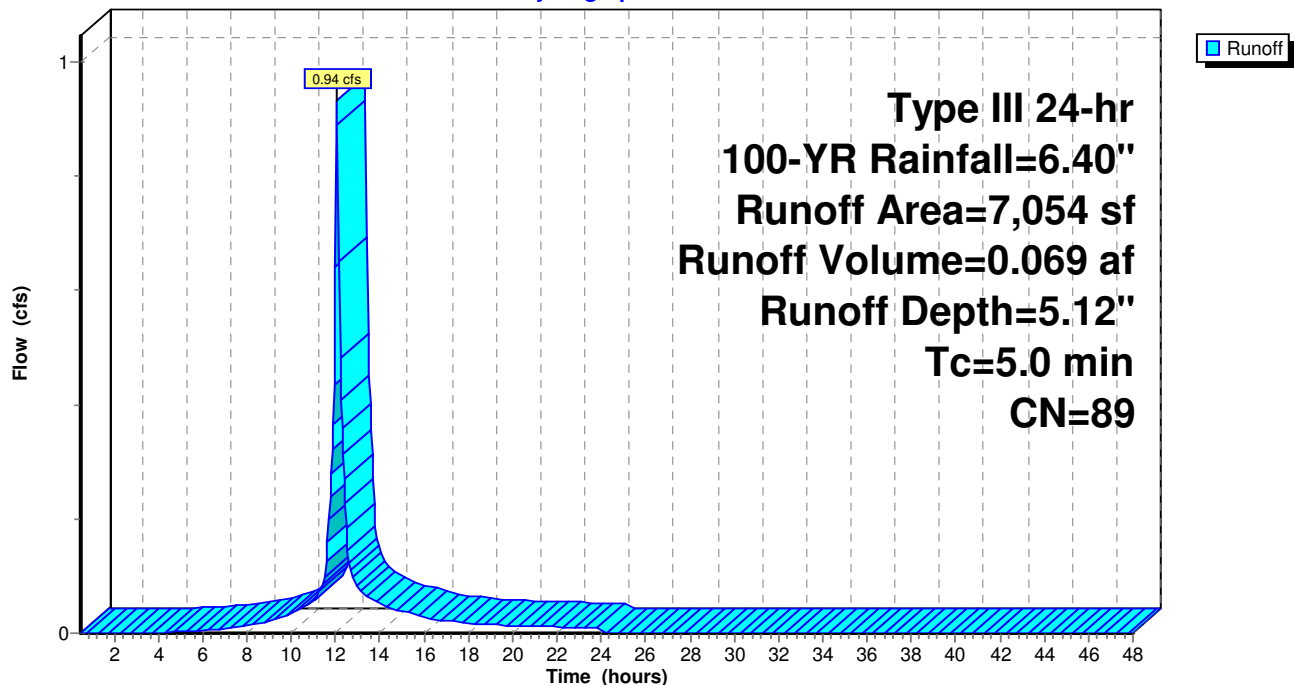
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
3,568	98	Paved parking, HSG D
3,486	80	>75% Grass cover, Good, HSG D
7,054	89	Weighted Average
3,486		49.42% Pervious Area
3,568		50.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S: Flow to PCB#2

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 4S: Undetained Flow to Greenmont Ave - DP#1

Runoff = 0.87 cfs @ 12.07 hrs, Volume= 0.062 af, Depth= 4.14"

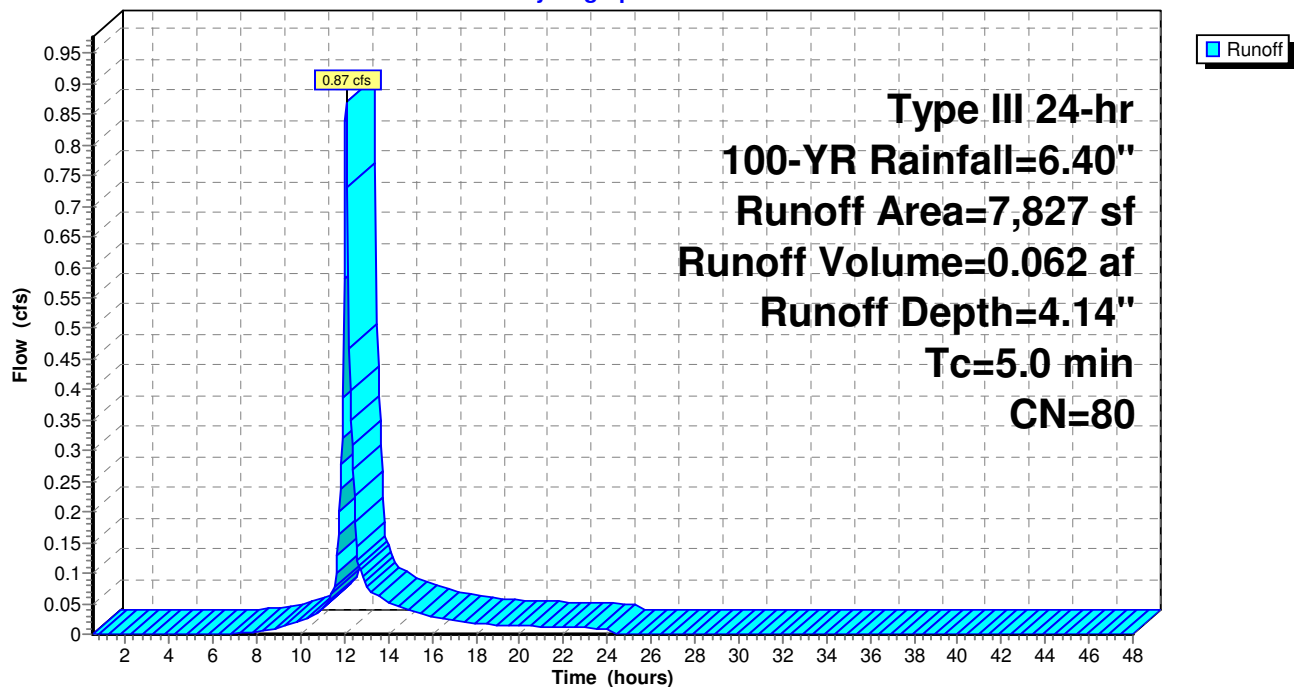
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
7,827	80	>75% Grass cover, Good, HSG D
7,827		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 4S: Undetained Flow to Greenmont Ave - DP#1

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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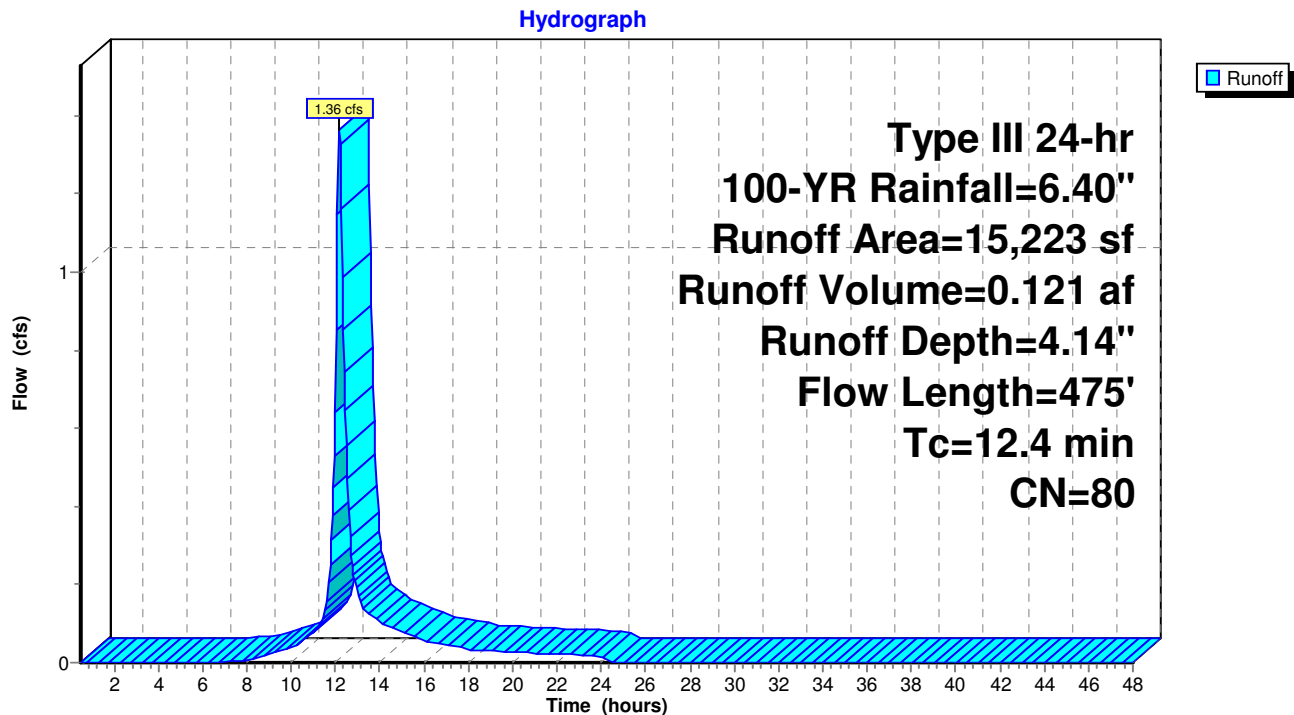
Summary for Subcatchment 5S: Landscape Area including Sed Forebay

Runoff = 1.36 cfs @ 12.17 hrs, Volume= 0.121 af, Depth= 4.14"
Routed to Pond 11P : Sediment Forebay

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
7,905	80	>75% Grass cover, Good, HSG D
7,318	80	>75% Grass cover, Good, HSG D
15,223	80	Weighted Average
15,223		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	50	0.0150	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
6.1	425	0.0060	1.16		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
12.4	475	Total			

Subcatchment 5S: Landscape Area including Sed Forebay

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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 6S: Undetained Flow to Wetlands

Runoff = 0.44 cfs @ 12.07 hrs, Volume= 0.031 af, Depth= 4.14"
Routed to Link DP#2 : DP#2 - Rear Wetlands

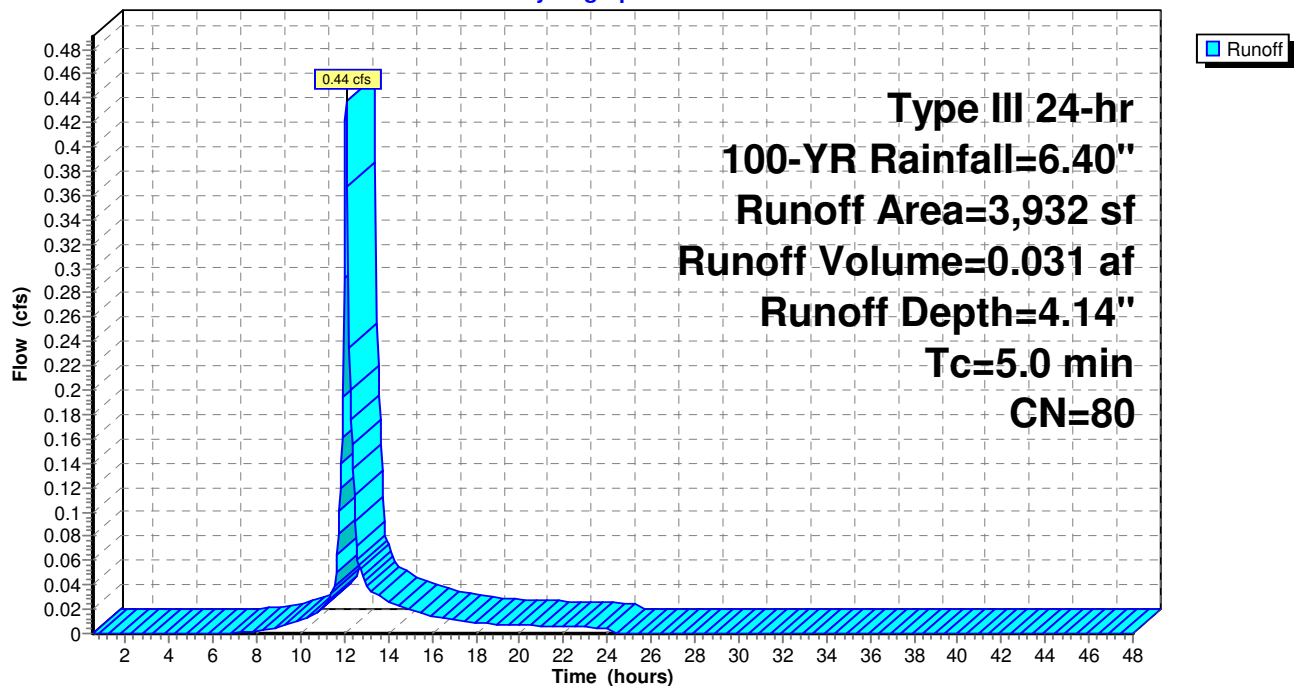
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
2,032	80	>75% Grass cover, Good, HSG D
1,900	80	>75% Grass cover, Good, HSG D
3,932	80	Weighted Average
3,932		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 6S: Undetained Flow to Wetlands

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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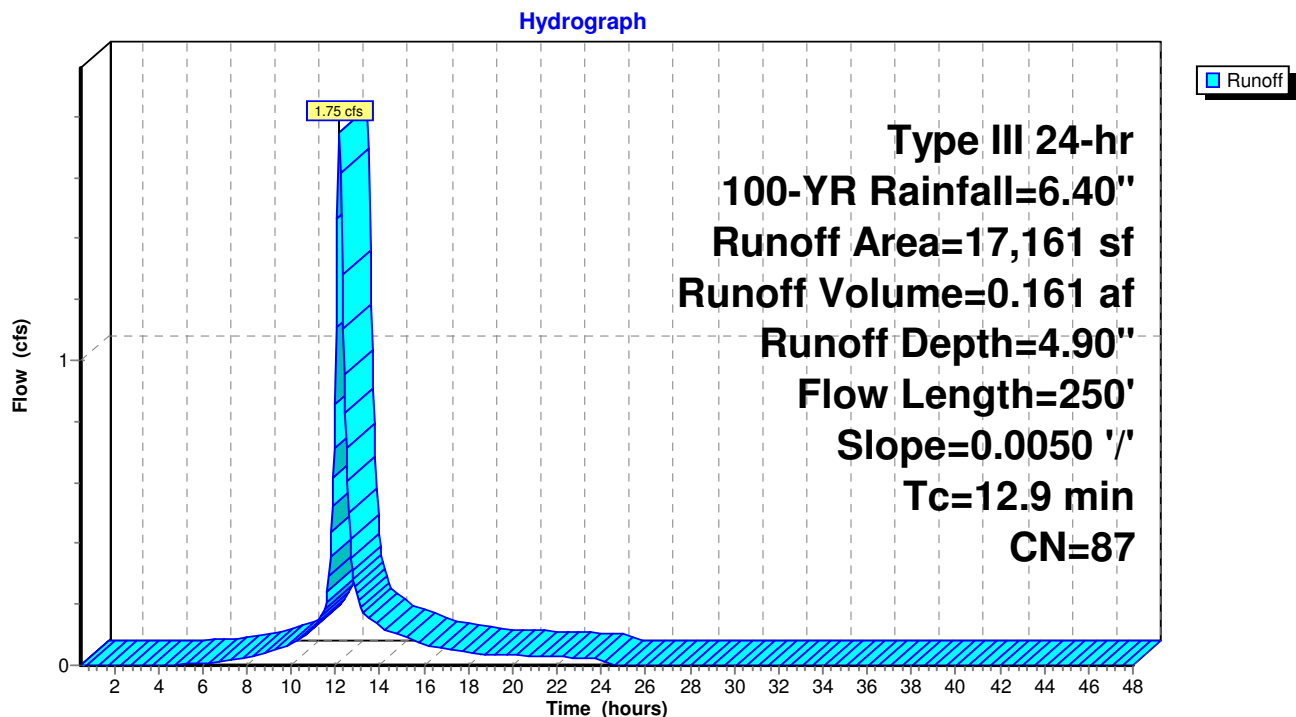
Summary for Subcatchment 7S: Flow to PCB#3

Runoff = 1.75 cfs @ 12.17 hrs, Volume= 0.161 af, Depth= 4.90"
Routed to Pond 1P : ADS 30" Pipe Det Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
10,938	80	>75% Grass cover, Good, HSG D
6,223	98	Paved parking, HSG D
17,161	87	Weighted Average
10,938		63.74% Pervious Area
6,223		36.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0050	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.1	200	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
12.9	250	Total			

Subcatchment 7S: Flow to PCB#3

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Type III 24-hr 100-YR Rainfall=6.40"

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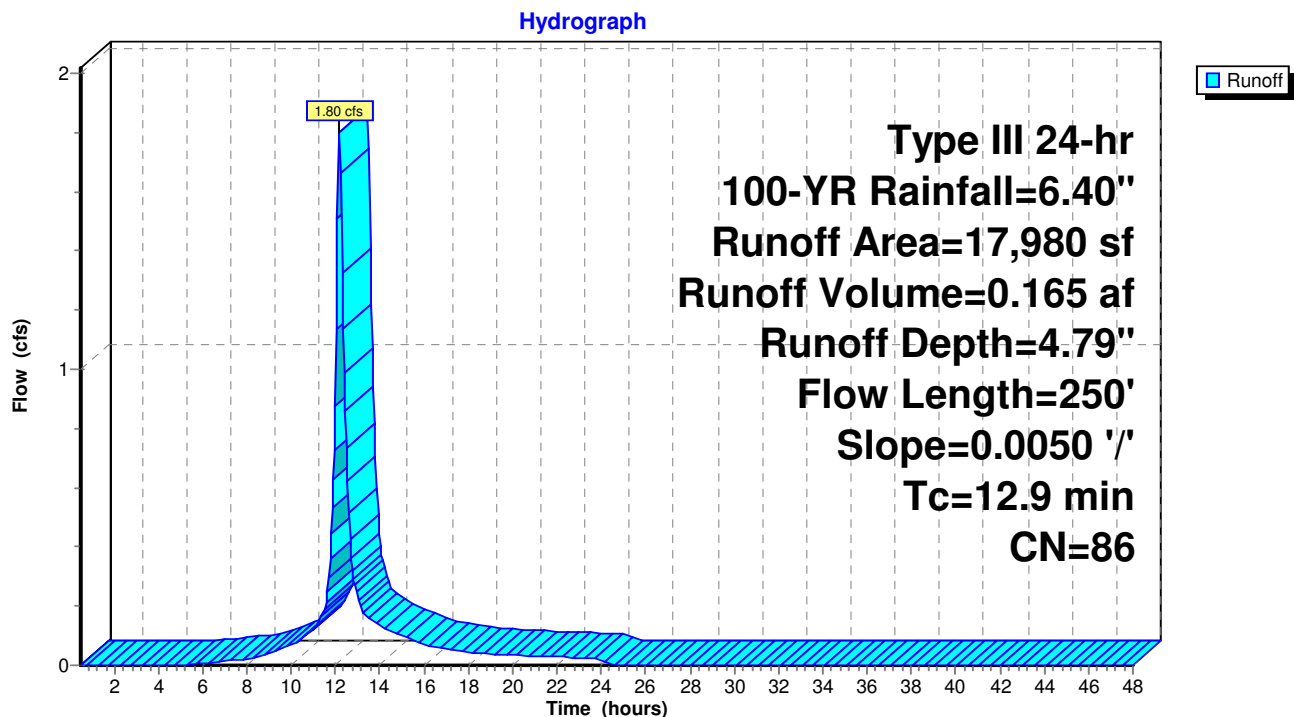
Summary for Subcatchment 8S: Flow to PCB#4

Runoff = 1.80 cfs @ 12.17 hrs, Volume= 0.165 af, Depth= 4.79"
Routed to Pond 1P : ADS 30" Pipe Det Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
11,779	80	>75% Grass cover, Good, HSG D
6,201	98	Paved parking, HSG D
17,980	86	Weighted Average
11,779		65.51% Pervious Area
6,201		34.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0050	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.1	200	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
12.9	250	Total			

Subcatchment 8S: Flow to PCB#4

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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 9S: Unit 3 & 4 Roofs

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 0.025 af, Depth= 6.16"
Routed to Pond 10P : Roof Recharge Chambers

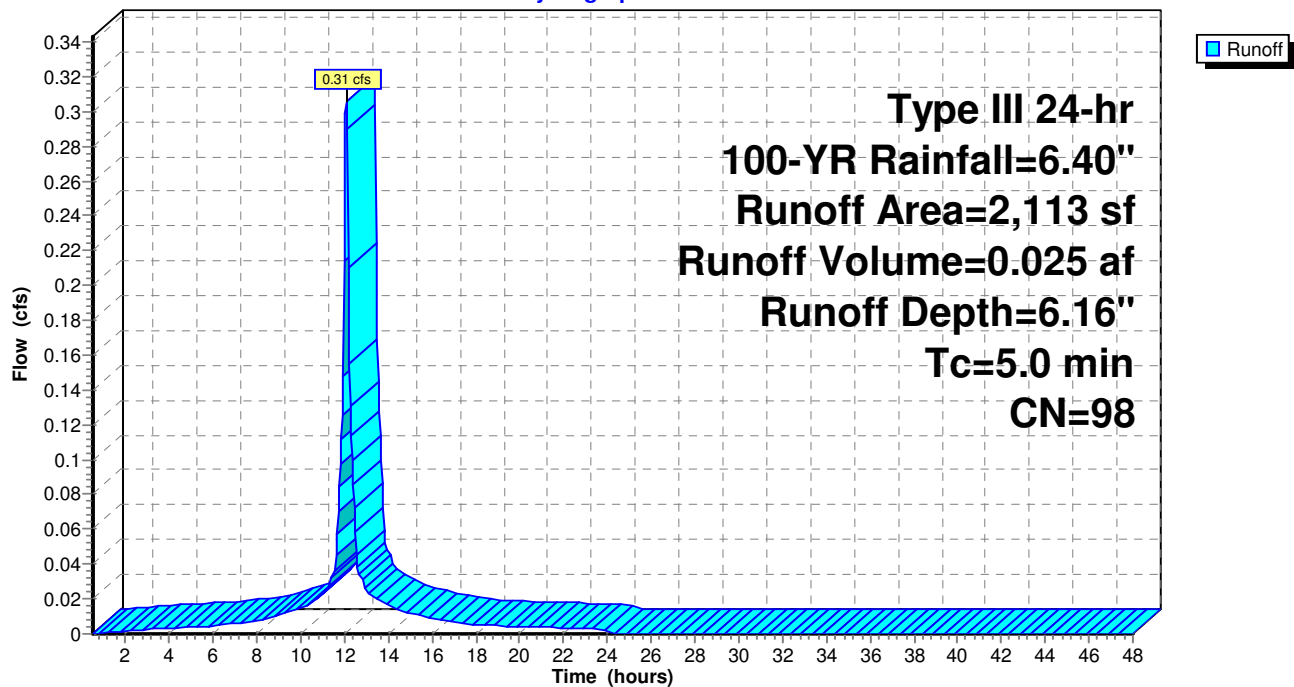
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 9S: Unit 3 & 4 Roofs

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 11S: Unit 5 & 6 Roofs

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af, Depth= 6.16"
Routed to Pond 15P : Roof Recharge Chambers

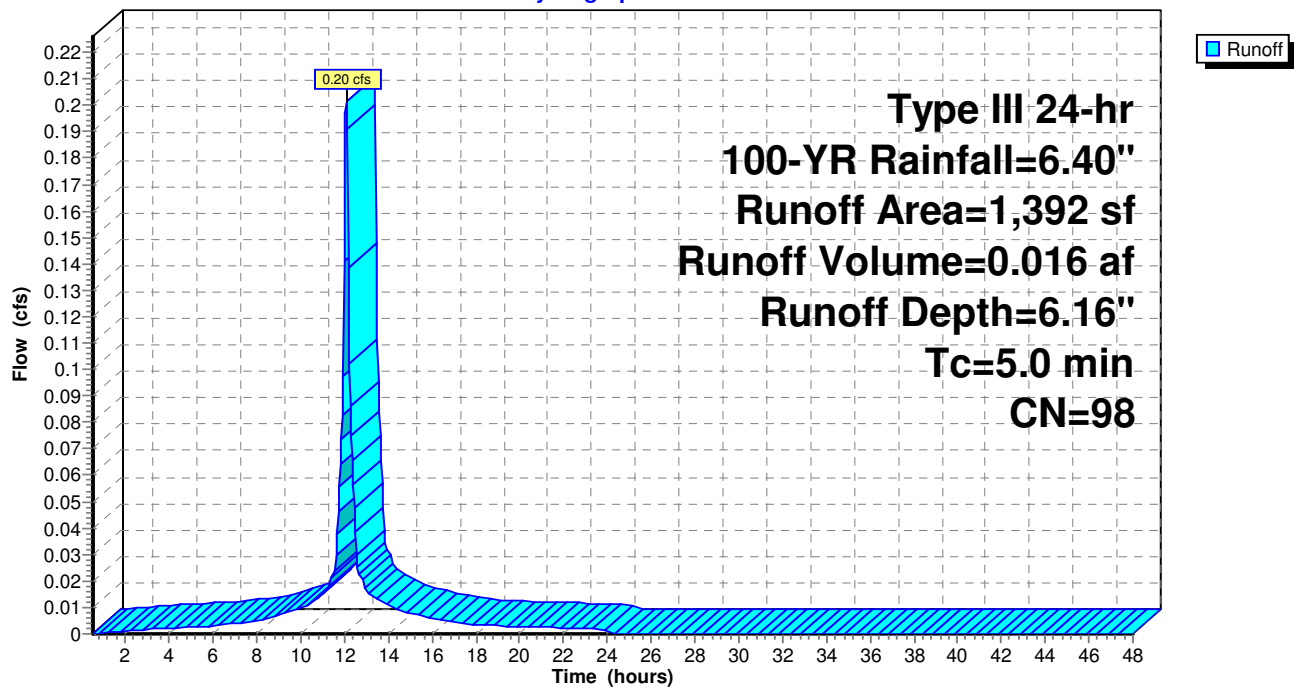
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 11S: Unit 5 & 6 Roofs

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 12S: Unit 7 & 8 Roofs

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af, Depth= 6.16"
Routed to Pond 16P : Roof Recharge Chambers

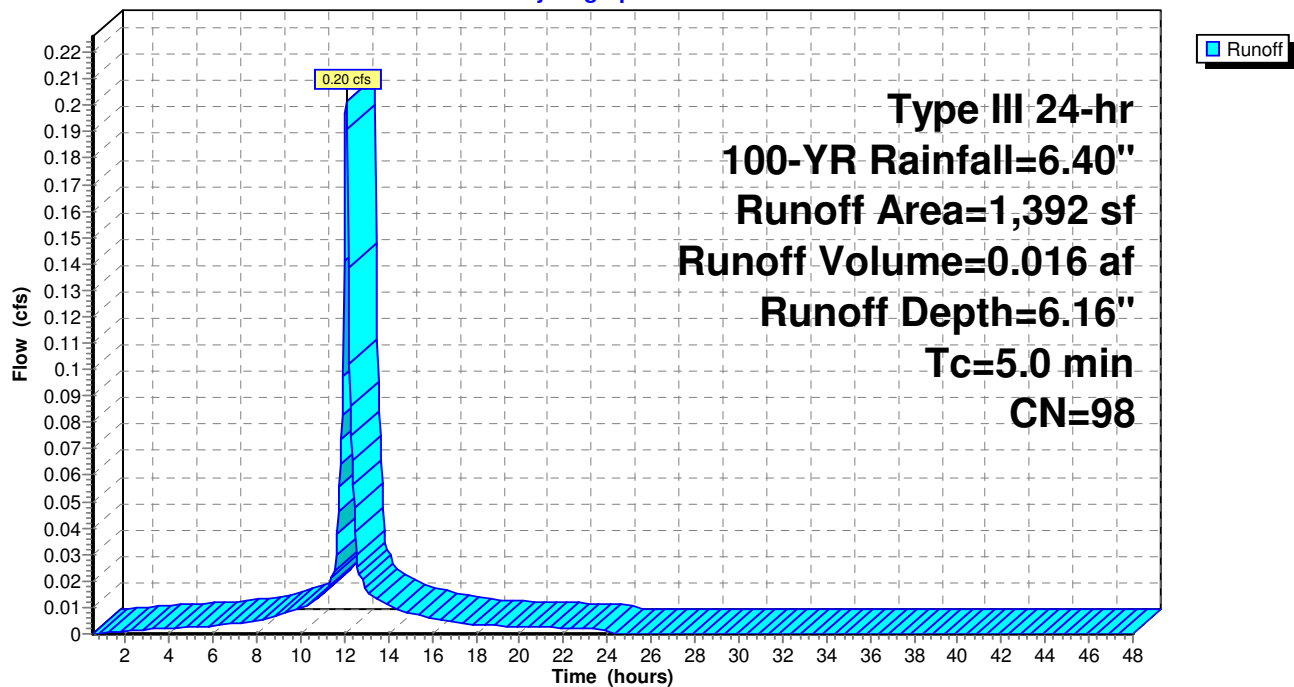
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 12S: Unit 7 & 8 Roofs

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 13S: Unit 9 & 10 Roofs

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af, Depth= 6.16"
Routed to Pond 17P : Roof Recharge Chambers

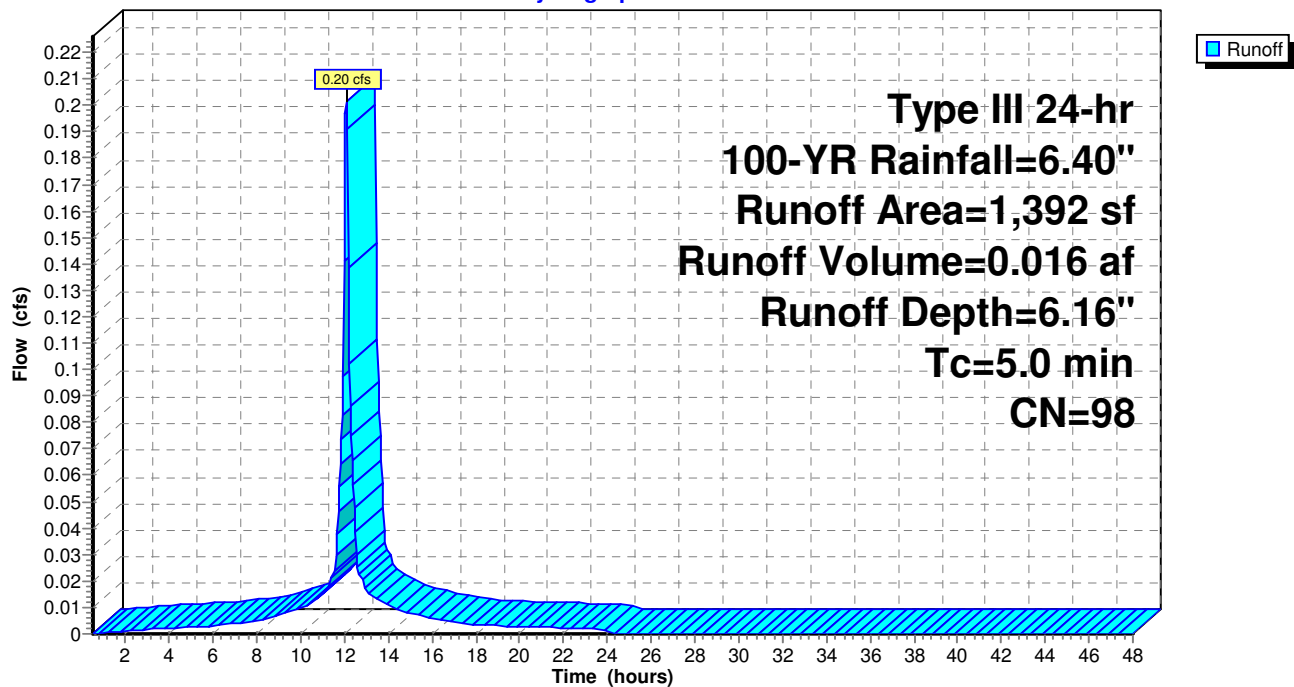
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 13S: Unit 9 & 10 Roofs

Hydrograph



Summary for Subcatchment 14S: Unit 11 & 12 Roofs

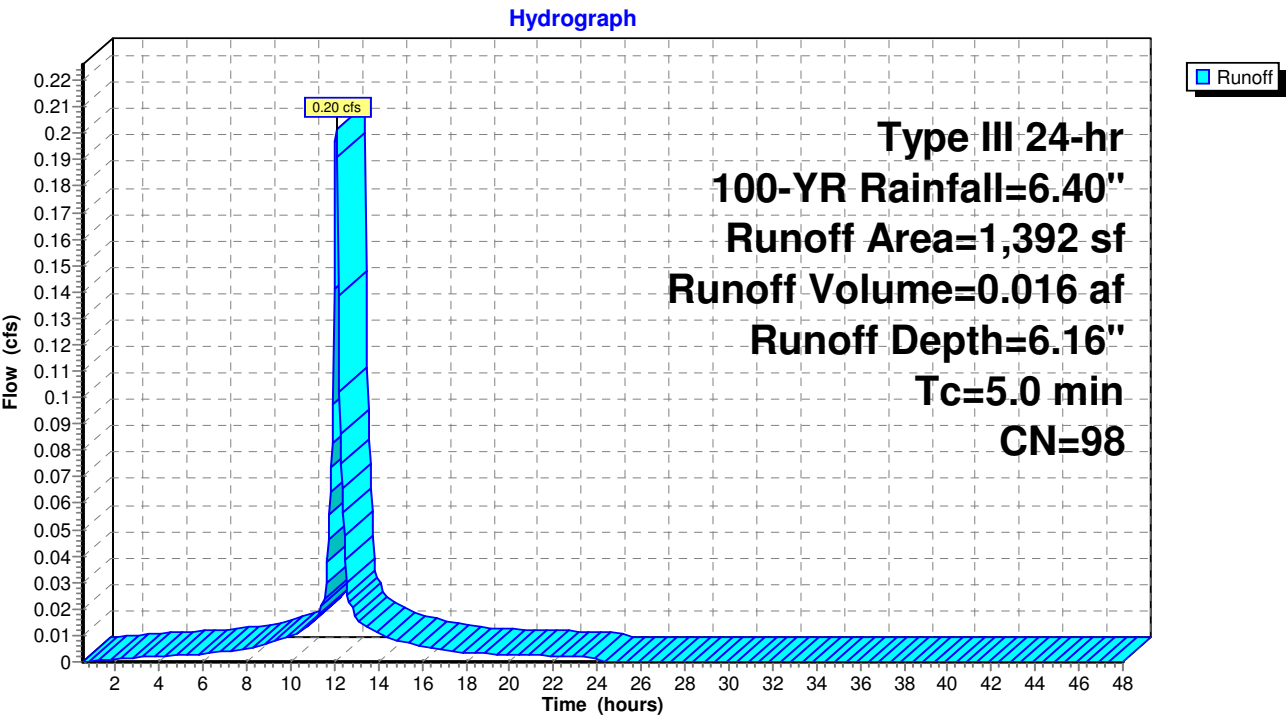
Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af, Depth= 6.16"
Routed to Pond 18P : Roof Recharge Chambers

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 14S: Unit 11 & 12 Roofs



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 19S: Unit 13 Roof

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 6.16"
Routed to Pond 20P : Roof Recharge Chamber

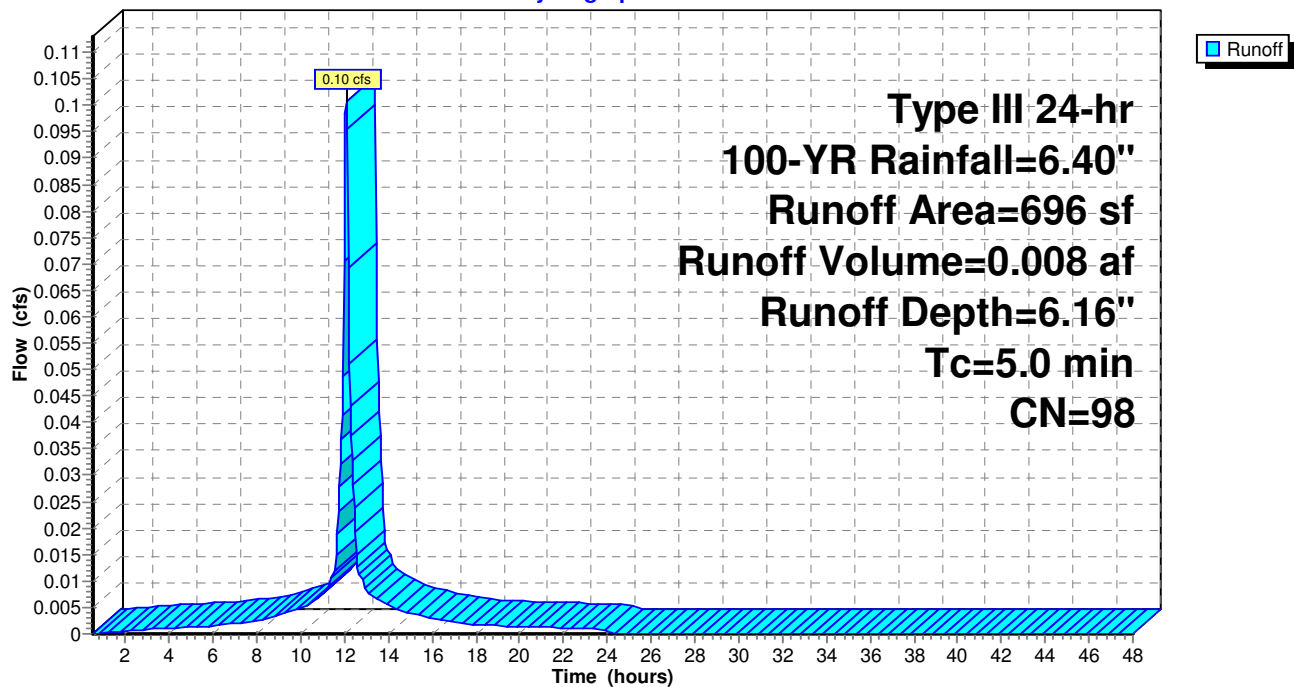
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
696	98	Roofs, HSG D
696		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 19S: Unit 13 Roof

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 21S: Unit 21 & 22 Roofs

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af, Depth= 6.16"
Routed to Pond 27P : Roof Recharge Chambers

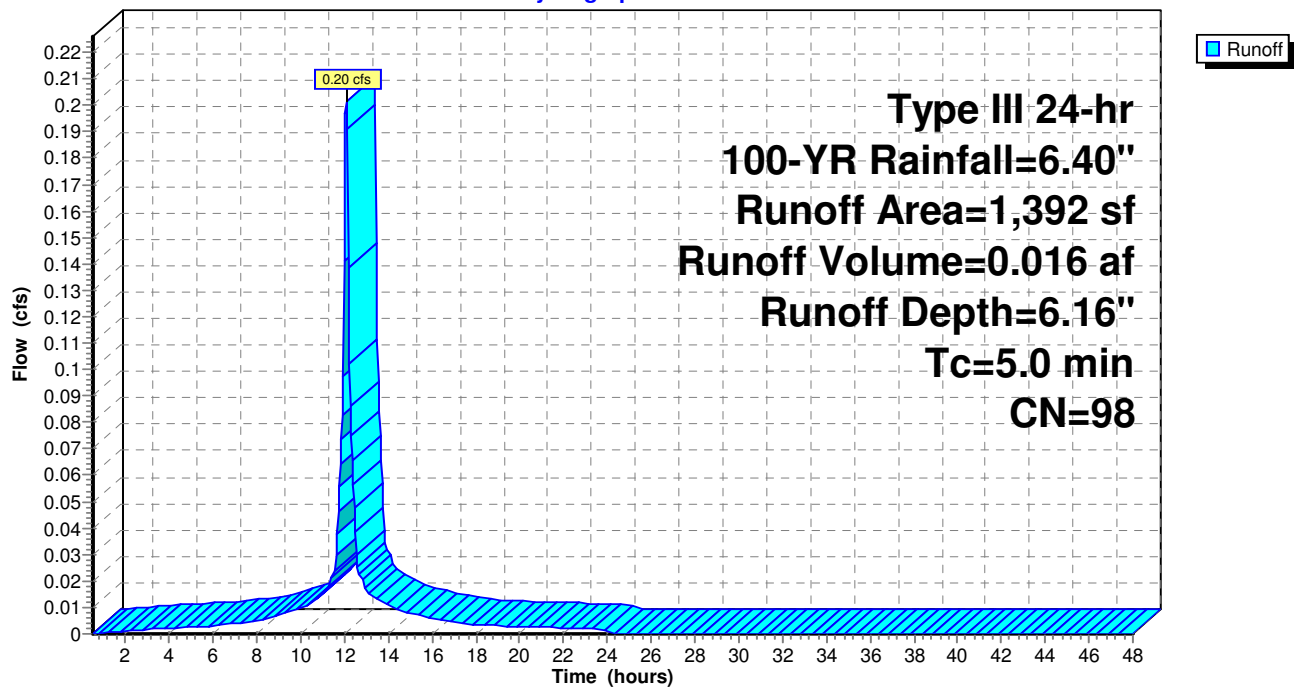
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 21S: Unit 21 & 22 Roofs

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 23S: Unit 25 & 26 Roofs

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 0.025 af, Depth= 6.16"
Routed to Pond 24P : Roof Recharge Chambers

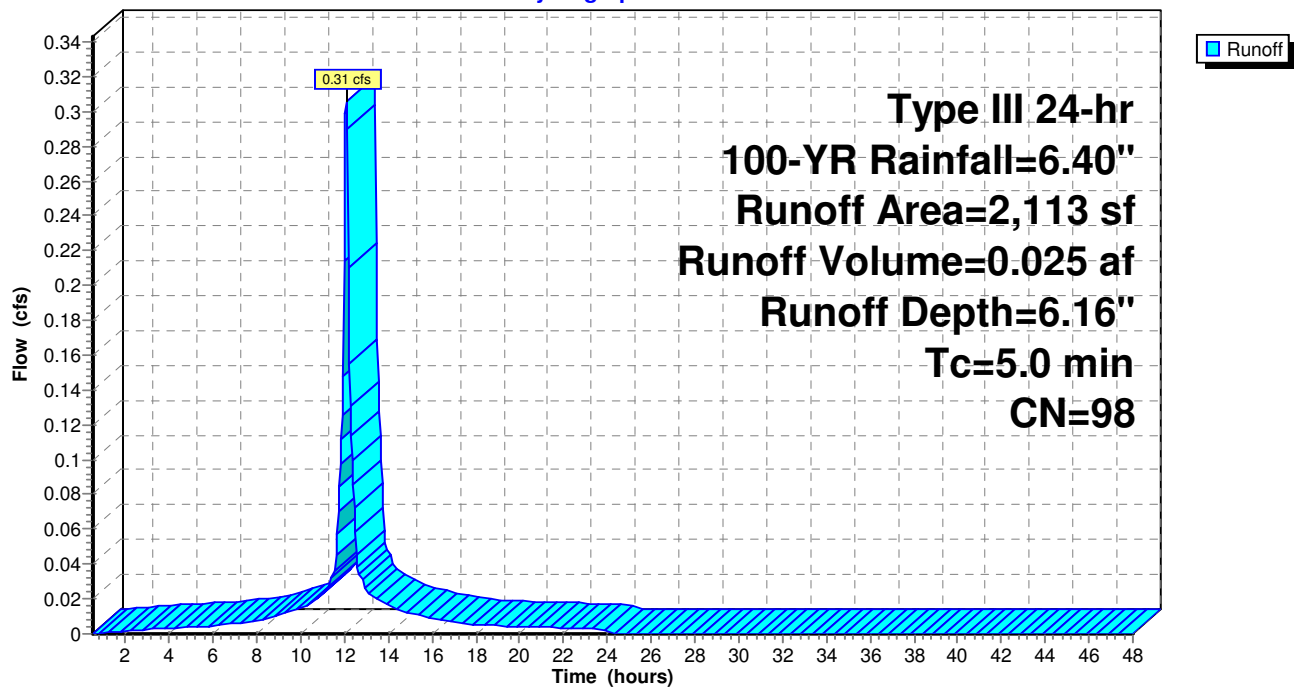
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 23S: Unit 25 & 26 Roofs

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 25S: Unit 23 & 24 Roofs

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 0.025 af, Depth= 6.16"
Routed to Pond 26P : Roof Recharge Chambers

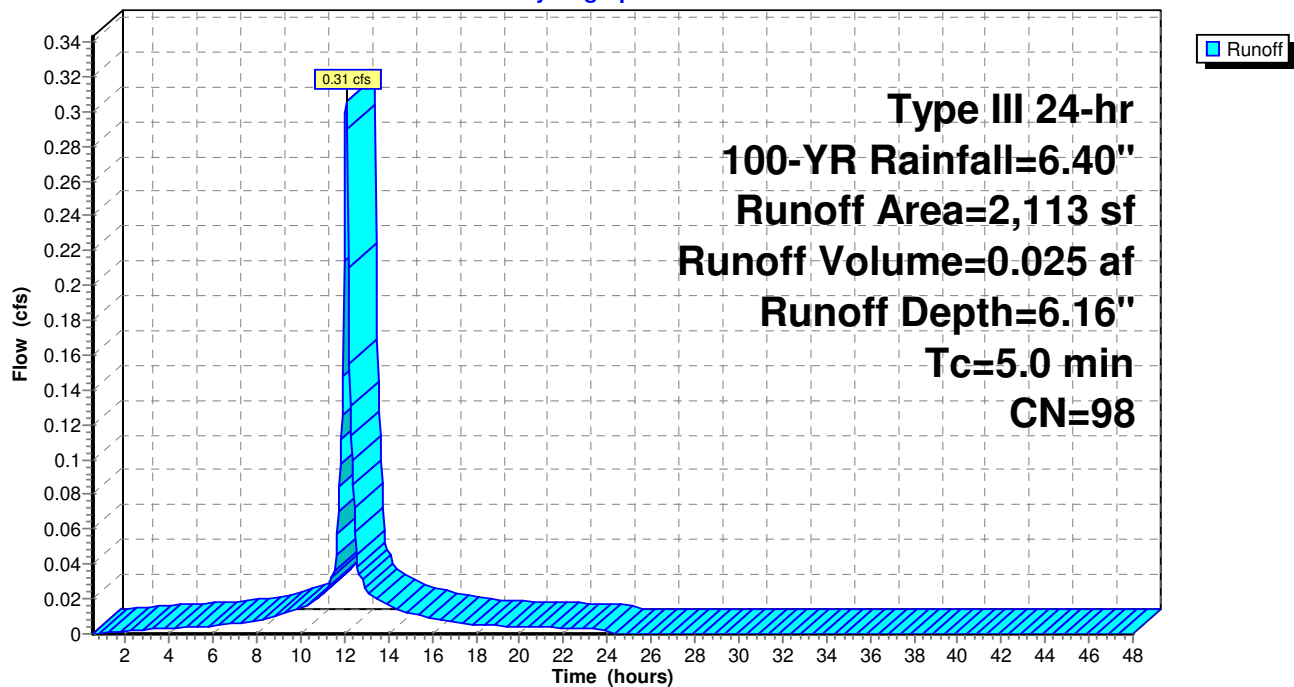
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
2,113	98	Roofs, HSG D
2,113		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 25S: Unit 23 & 24 Roofs

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 32S: Unit 19 & 20 Roofs

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af, Depth= 6.16"
Routed to Pond 28P : Roof Recharge Chambers

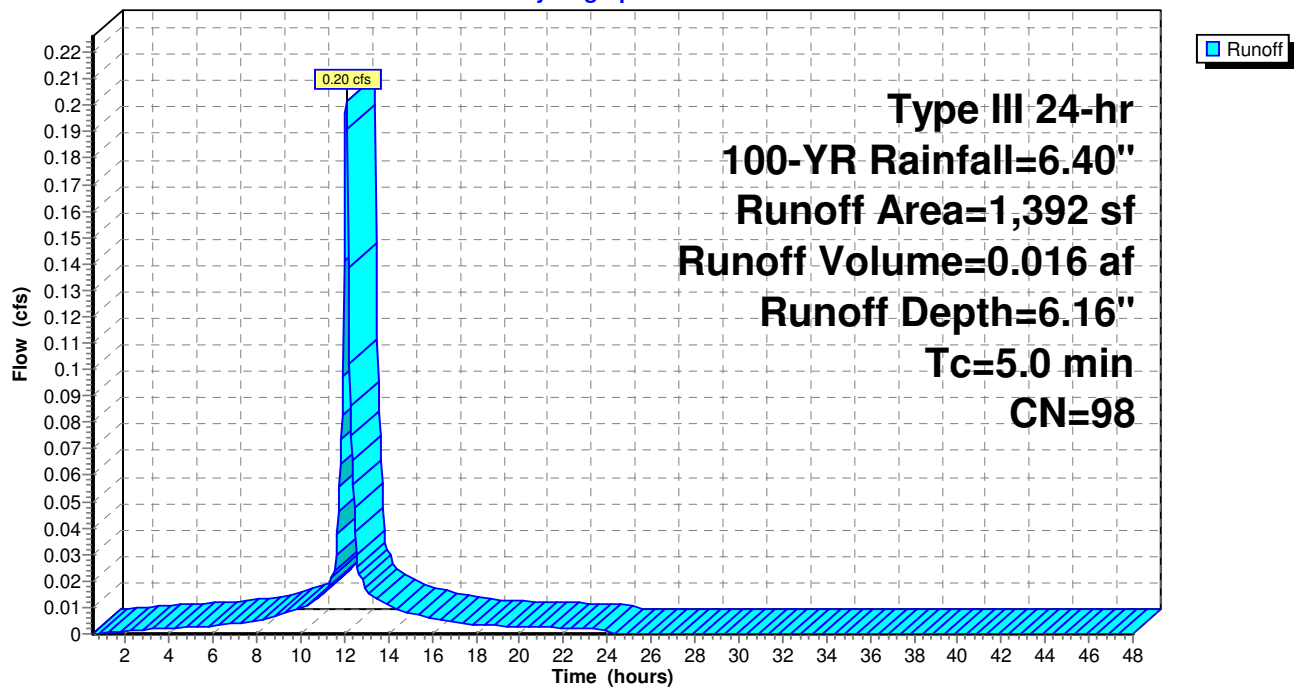
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 32S: Unit 19 & 20 Roofs

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 33S: Unit 17 & 18 Roofs

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af, Depth= 6.16"
Routed to Pond 29P : Roof Recharge Chambers

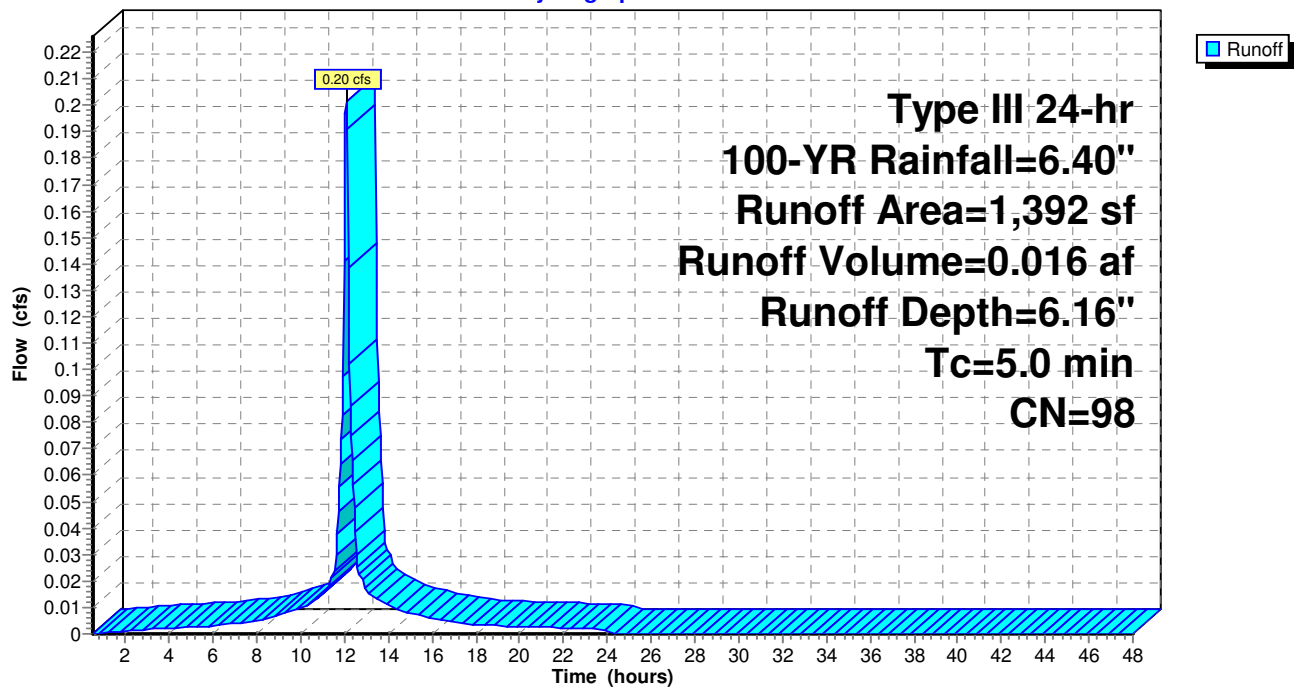
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 33S: Unit 17 & 18 Roofs

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 34S: Unit 15 & 16 Roofs

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af, Depth= 6.16"
Routed to Pond 30P : Roof Recharge Chambers

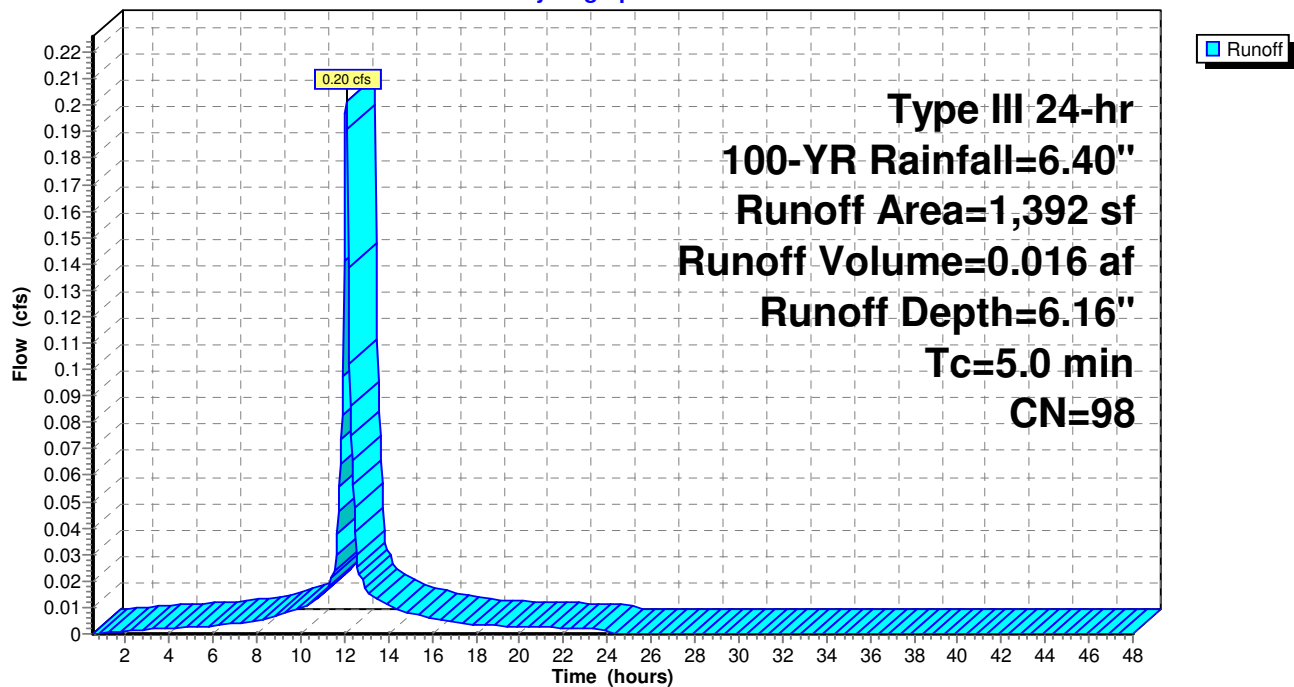
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
1,392	98	Roofs, HSG D
1,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 34S: Unit 15 & 16 Roofs

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Subcatchment 35S: Unit 14 Roof

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 6.16"
Routed to Pond 31P : Roof Recharge Chambers

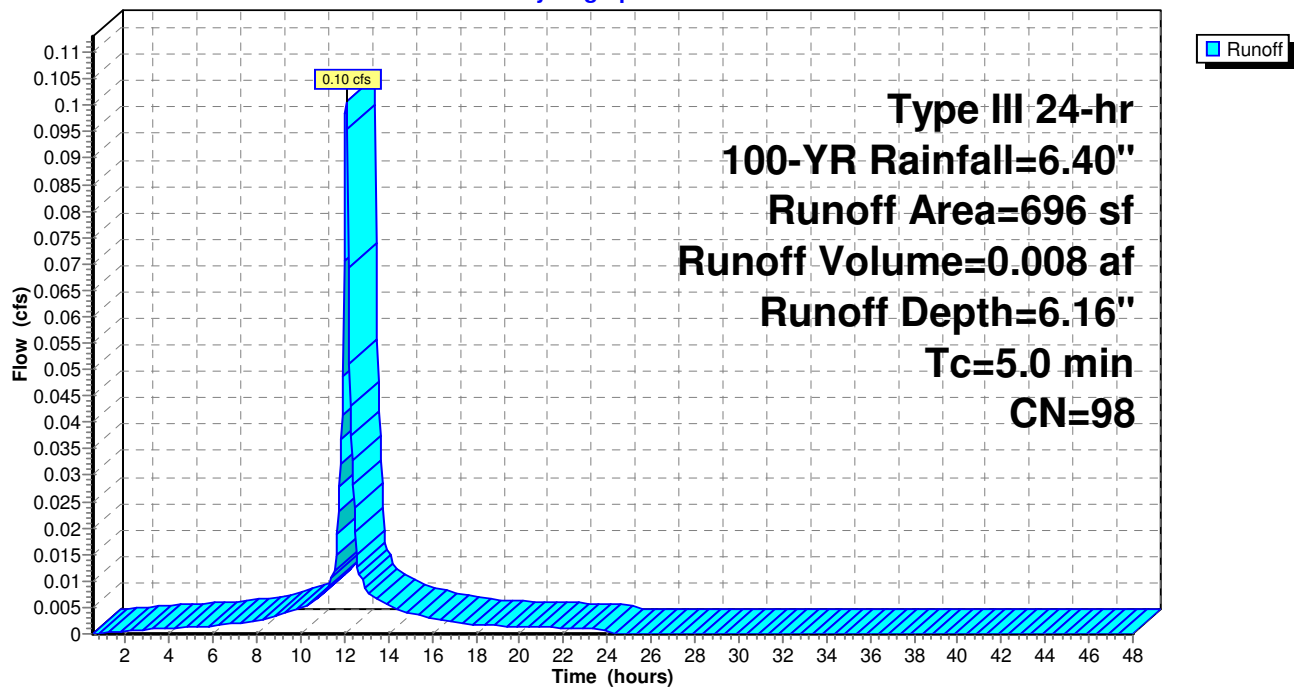
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
696	98	Roofs, HSG D
696		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 35S: Unit 14 Roof

Hydrograph



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Type III 24-hr 100-YR Rainfall=6.40"

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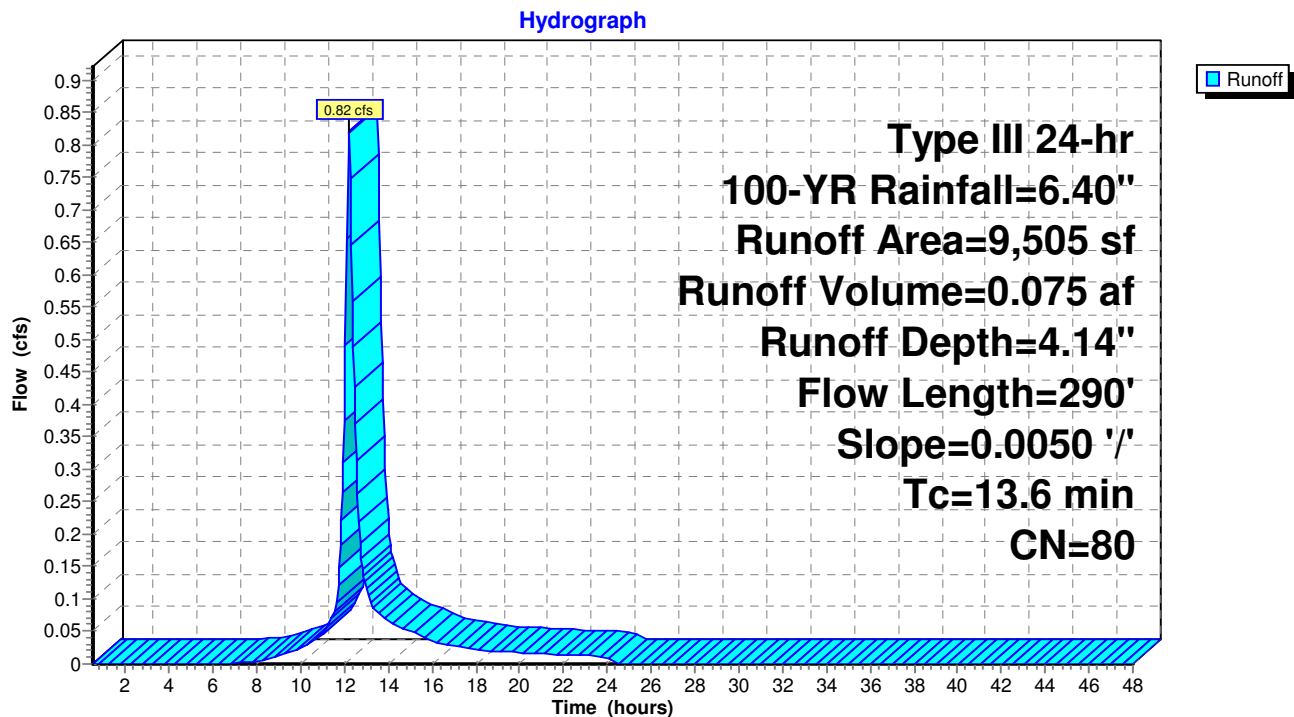
Summary for Subcatchment 36S: Landscape Area including Wet Basin

Runoff = 0.82 cfs @ 12.19 hrs, Volume= 0.075 af, Depth= 4.14"
Routed to Pond 12P : Outlet Det Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.40"

Area (sf)	CN	Description
9,505	80	>75% Grass cover, Good, HSG D
9,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.0050	0.09		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.8	240	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
13.6	290	Total			

Subcatchment 36S: Landscape Area including Wet Basin

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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 1P: ADS 30" Pipe Det Basin

Inflow Area = 1.612 ac, 57.74% Impervious, Inflow Depth = 4.63" for 100-YR event
 Inflow = 7.31 cfs @ 12.13 hrs, Volume= 0.622 af
 Outflow = 4.18 cfs @ 12.34 hrs, Volume= 0.622 af, Atten= 43%, Lag= 12.7 min
 Primary = 4.18 cfs @ 12.34 hrs, Volume= 0.622 af
 Routed to Pond 11P : Sediment Forebay

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 160.17' @ 12.34 hrs Surf.Area= 3,054 sf Storage= 8,140 cf

Plug-Flow detention time= 60.5 min calculated for 0.622 af (100% of inflow)
 Center-of-Mass det. time= 60.0 min (849.7 - 789.7)

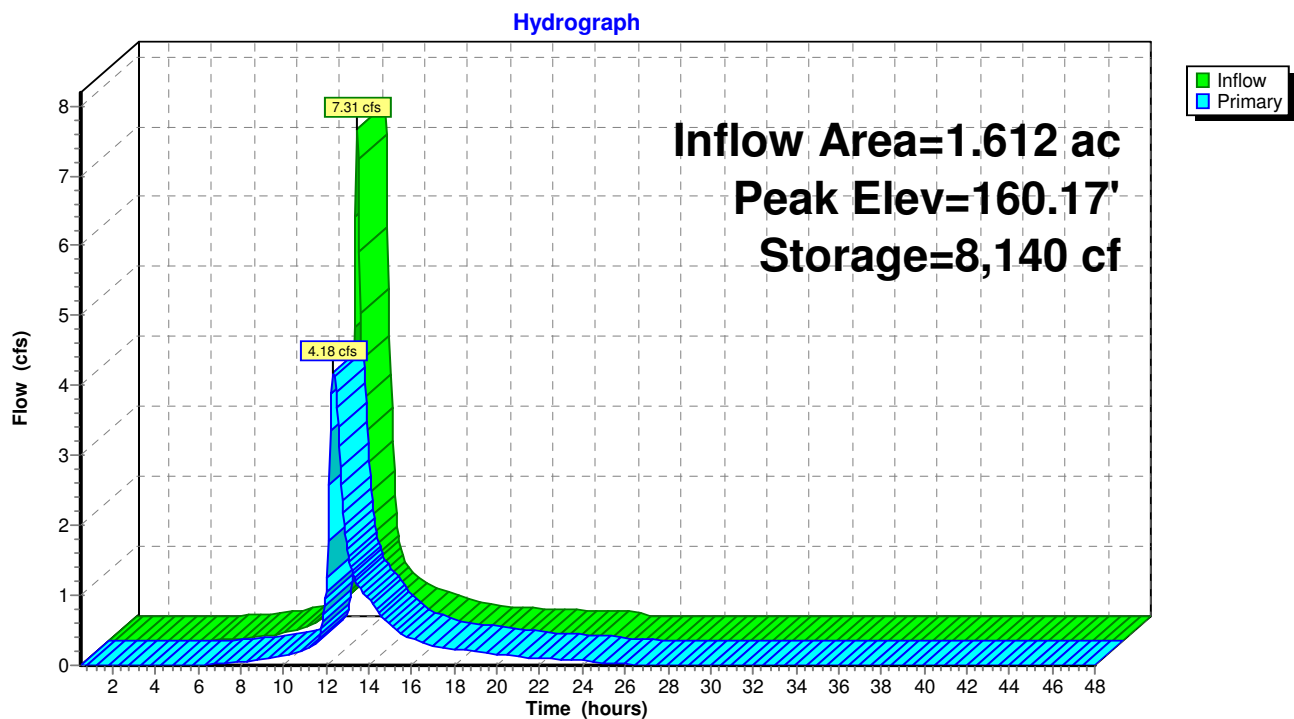
Volume	Invert	Avail.Storage	Storage Description
#1	158.00'	8,836 cf	30.0" Round Pipe Storage x 6 L= 300.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	159.25'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	158.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	158.50'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.17 cfs @ 12.34 hrs HW=160.17' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 2.45 cfs @ 3.26 fps)
- 2=Orifice/Grate (Orifice Controls 0.59 cfs @ 6.81 fps)
- 3=Orifice/Grate (Orifice Controls 1.12 cfs @ 5.73 fps)

Pond 1P: ADS 30" Pipe Det Basin



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 3P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.31 cfs @ 12.07 hrs, Volume= 0.025 af
 Outflow = 0.25 cfs @ 12.13 hrs, Volume= 0.025 af, Atten= 18%, Lag= 3.4 min
 Discarded = 0.00 cfs @ 12.13 hrs, Volume= 0.007 af
 Primary = 0.25 cfs @ 12.13 hrs, Volume= 0.018 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.52' @ 12.13 hrs Surf.Area= 189 sf Storage= 173 cf

Plug-Flow detention time= 140.7 min calculated for 0.025 af (100% of inflow)
 Center-of-Mass det. time= 141.5 min (884.7 - 743.3)

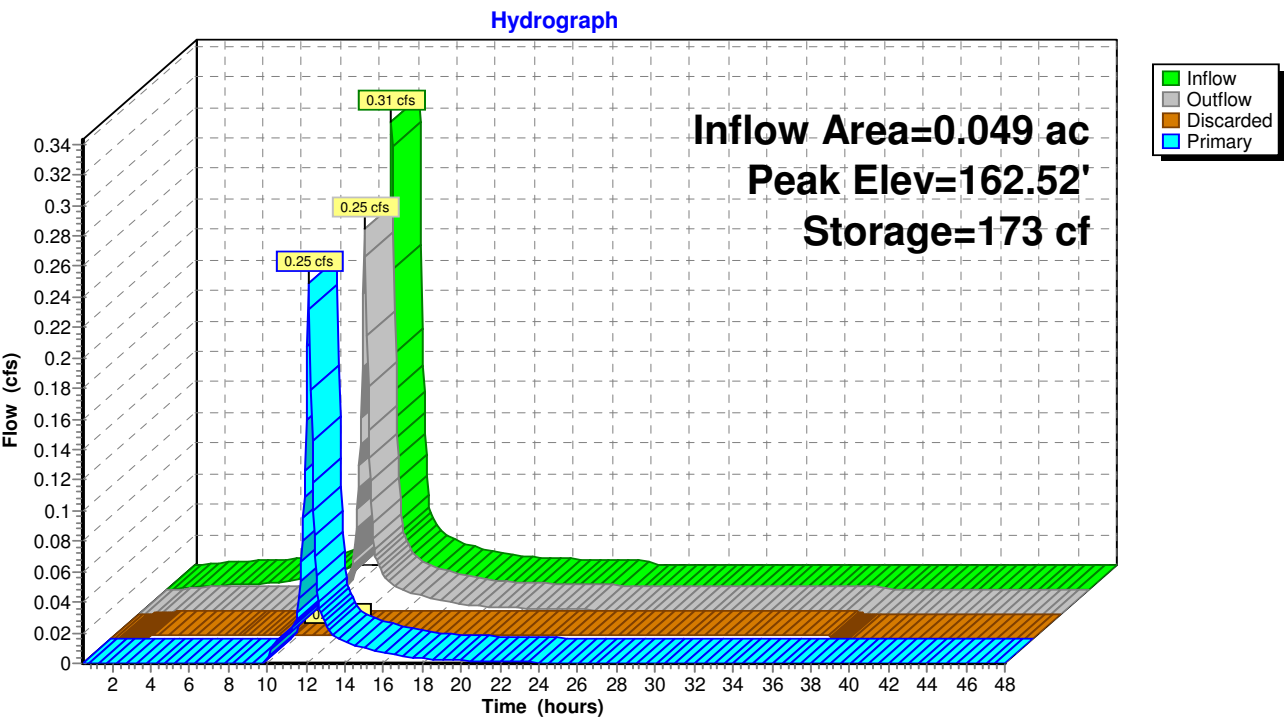
Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.13 hrs HW=162.51' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)**Primary OutFlow** Max=0.25 cfs @ 12.13 hrs HW=162.51' (Free Discharge)↑ **2=Orifice/Grate** (Orifice Controls 0.25 cfs @ 2.82 fps)

Pond 3P: Roof Recharge Chambers



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 10P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.31 cfs @ 12.07 hrs, Volume= 0.025 af
 Outflow = 0.25 cfs @ 12.13 hrs, Volume= 0.025 af, Atten= 18%, Lag= 3.4 min
 Discarded = 0.00 cfs @ 12.13 hrs, Volume= 0.007 af
 Primary = 0.25 cfs @ 12.13 hrs, Volume= 0.018 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.52' @ 12.13 hrs Surf.Area= 189 sf Storage= 173 cf

Plug-Flow detention time= 140.7 min calculated for 0.025 af (100% of inflow)
 Center-of-Mass det. time= 141.5 min (884.7 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

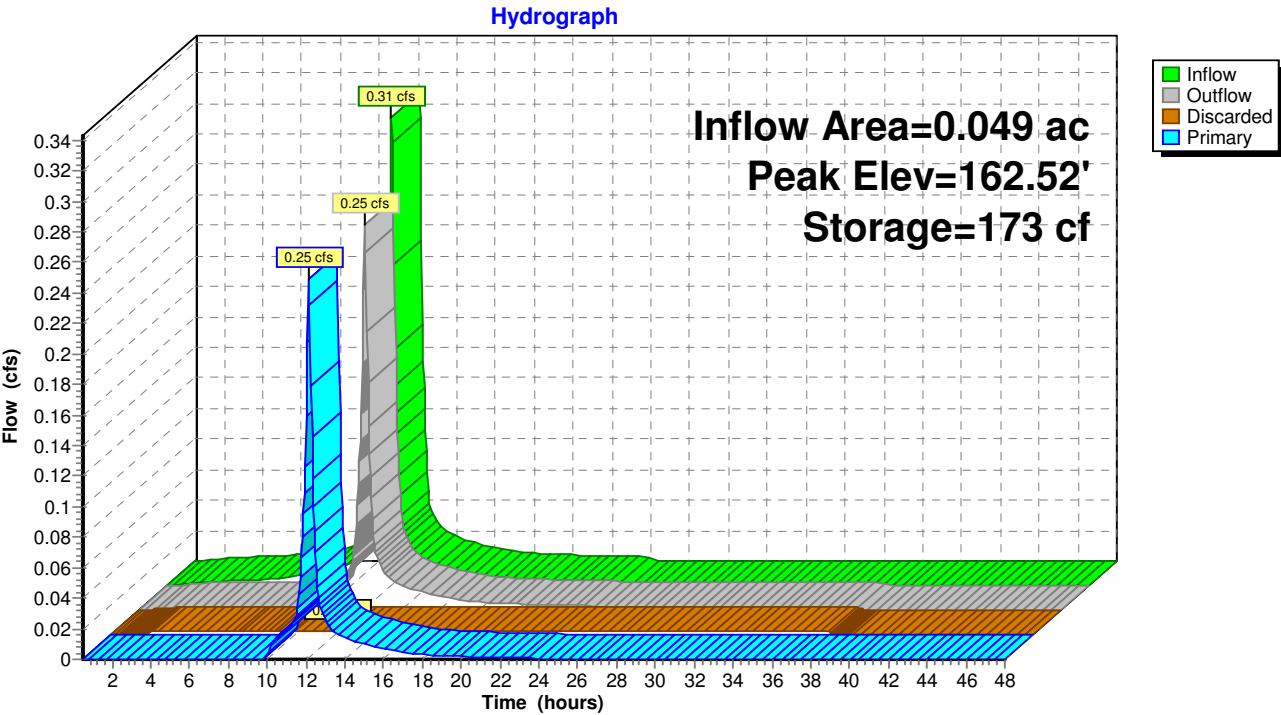
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.13 hrs HW=162.51' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.25 cfs @ 12.13 hrs HW=162.51' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.25 cfs @ 2.82 fps)

Pond 10P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 11P: Sediment Forebay

Inflow Area = 1.962 ac, 47.45% Impervious, Inflow Depth = 4.54" for 100-YR event
 Inflow = 5.13 cfs @ 12.30 hrs, Volume= 0.742 af
 Outflow = 5.13 cfs @ 12.31 hrs, Volume= 0.735 af, Atten= 0%, Lag= 1.0 min
 Primary = 5.13 cfs @ 12.31 hrs, Volume= 0.735 af
 Routed to Pond 12P : Outlet Det Pond

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 157.97' @ 12.31 hrs Surf.Area= 988 sf Storage= 725 cf

Plug-Flow detention time= 12.5 min calculated for 0.734 af (99% of inflow)
 Center-of-Mass det. time= 6.1 min (850.6 - 844.4)

Volume	Invert	Avail.Storage	Storage Description
#1	157.00'	1,907 cf	Custom Stage Data (Irregular) Listed below (Recalc)

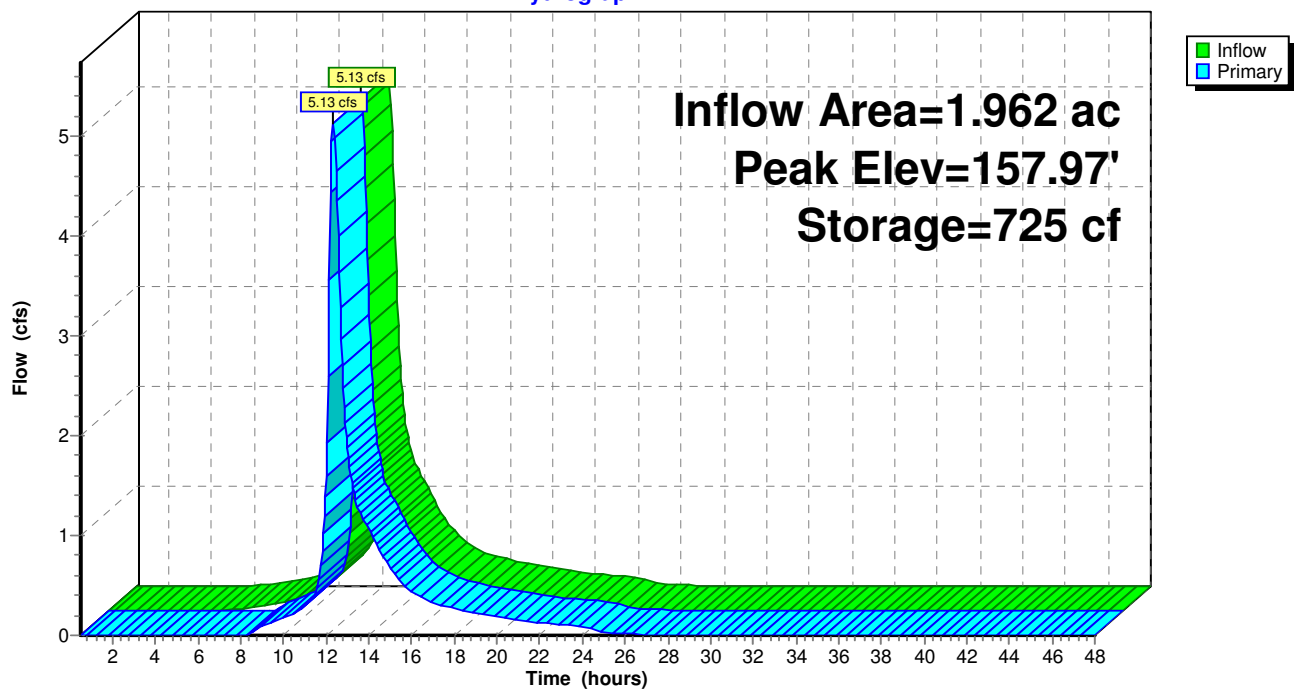
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
157.00	525	86.0	0	0	525
158.00	1,002	124.0	751	751	1,169
159.00	1,318	140.0	1,156	1,907	1,530

Device	Routing	Invert	Outlet Devices
#1	Primary	157.50'	6.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=5.10 cfs @ 12.31 hrs HW=157.97' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 5.10 cfs @ 1.80 fps)

Pond 11P: Sediment Forebay

Hydrograph



Prop-Conditions REVISED 060124

Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 12P: Outlet Det Pond

Inflow Area = 2.180 ac, 42.70% Impervious, Inflow Depth = 4.46" for 100-YR event
 Inflow = 5.77 cfs @ 12.29 hrs, Volume= 0.810 af
 Outflow = 5.23 cfs @ 12.43 hrs, Volume= 0.712 af, Atten= 9%, Lag= 8.2 min
 Primary = 5.23 cfs @ 12.43 hrs, Volume= 0.712 af
 Routed to Link DP#2 : DP#2 - Rear Wetlands

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 155.98' @ 12.43 hrs Surf.Area= 5,992 sf Storage= 6,897 cf

Plug-Flow detention time= 94.5 min calculated for 0.712 af (88% of inflow)
 Center-of-Mass det. time= 39.8 min (887.4 - 847.6)

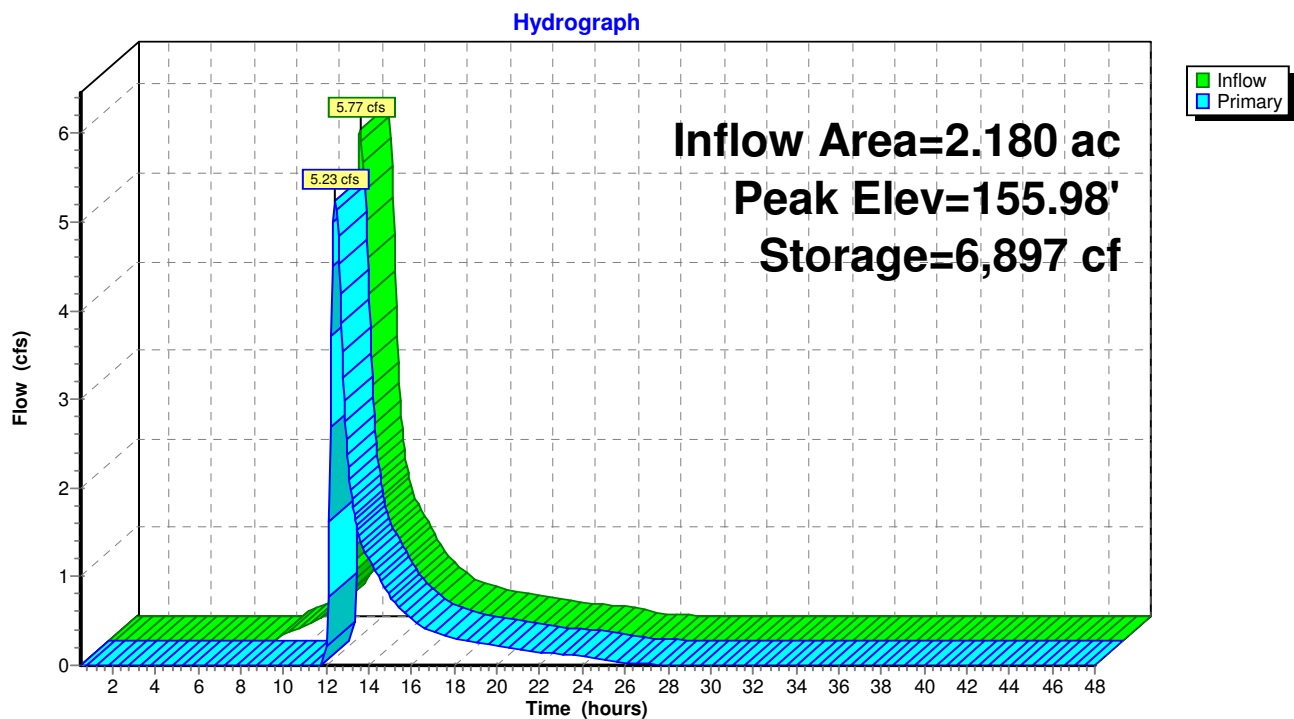
Volume	Invert	Avail.Storage	Storage Description
#1	154.00'	10,265 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
154.00	774	119.0	0	0	774
155.00	3,826	723.0	2,107	2,107	41,247
156.00	6,032	670.0	4,887	6,994	47,163
156.50	7,063	687.0	3,270	10,265	49,030

Device	Routing	Invert	Outlet Devices
#1	Primary	155.50'	6.0' long x 6.0' 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) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=5.21 cfs @ 12.43 hrs HW=155.98' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 5.21 cfs @ 1.80 fps)

Pond 12P: Outlet Det Pond



Prop-Conditions REVISED 060124

Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 15P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af
 Outflow = 0.18 cfs @ 12.12 hrs, Volume= 0.016 af, Atten= 12%, Lag= 2.8 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.17 cfs @ 12.12 hrs, Volume= 0.010 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.34' @ 12.12 hrs Surf.Area= 186 sf Storage= 147 cf

Plug-Flow detention time= 185.7 min calculated for 0.016 af (100% of inflow)
 Center-of-Mass det. time= 186.4 min (929.6 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

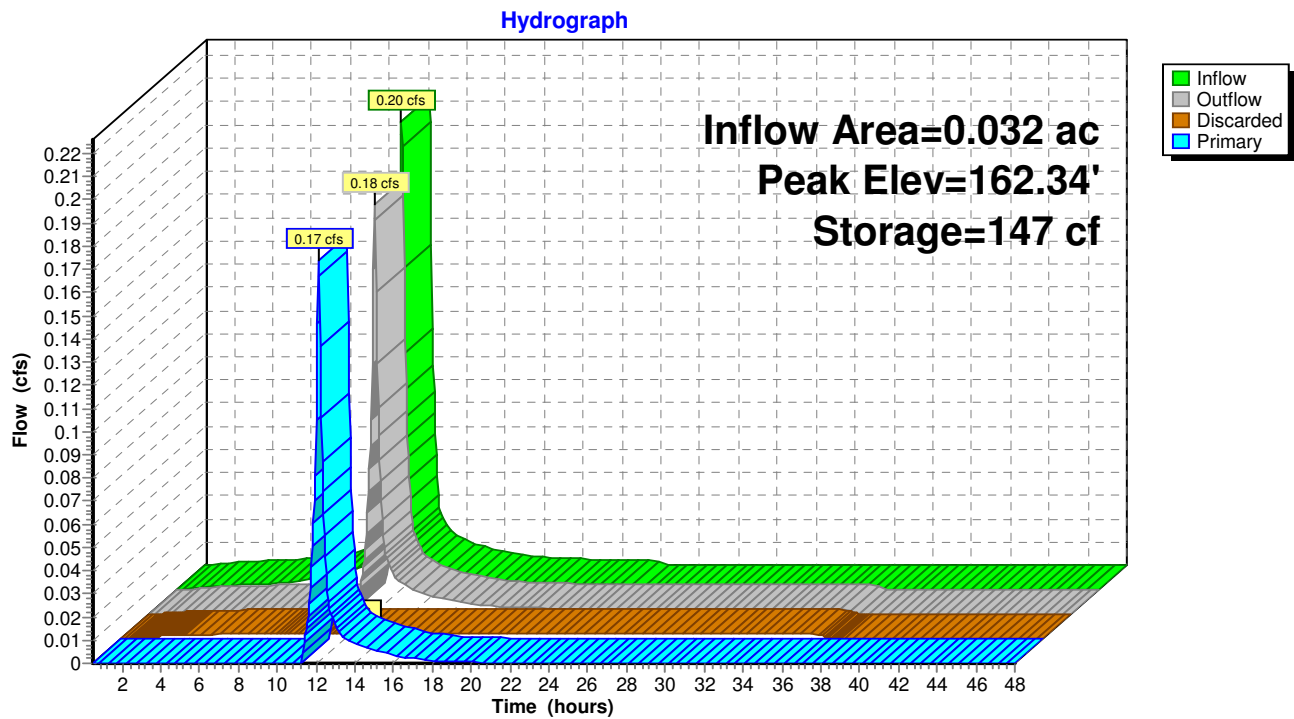
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.17 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.17 cfs @ 1.96 fps)

Pond 15P: Roof Recharge Chambers



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 16P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af
 Outflow = 0.18 cfs @ 12.12 hrs, Volume= 0.016 af, Atten= 12%, Lag= 2.8 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.17 cfs @ 12.12 hrs, Volume= 0.010 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.34' @ 12.12 hrs Surf.Area= 186 sf Storage= 147 cf

Plug-Flow detention time= 185.7 min calculated for 0.016 af (100% of inflow)
 Center-of-Mass det. time= 186.4 min (929.6 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

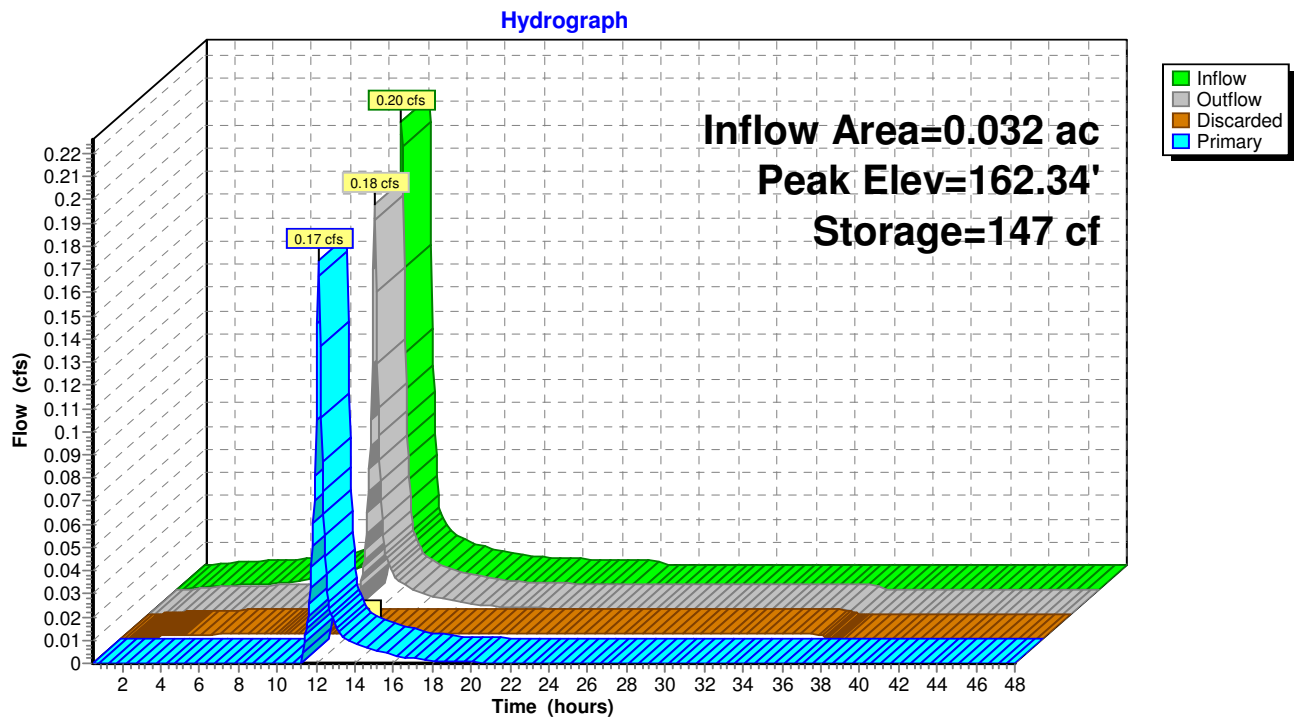
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.17 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.17 cfs @ 1.96 fps)

Pond 16P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 17P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af
 Outflow = 0.18 cfs @ 12.12 hrs, Volume= 0.016 af, Atten= 12%, Lag= 2.8 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.17 cfs @ 12.12 hrs, Volume= 0.010 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.34' @ 12.12 hrs Surf.Area= 186 sf Storage= 147 cf

Plug-Flow detention time= 185.7 min calculated for 0.016 af (100% of inflow)
 Center-of-Mass det. time= 186.4 min (929.6 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

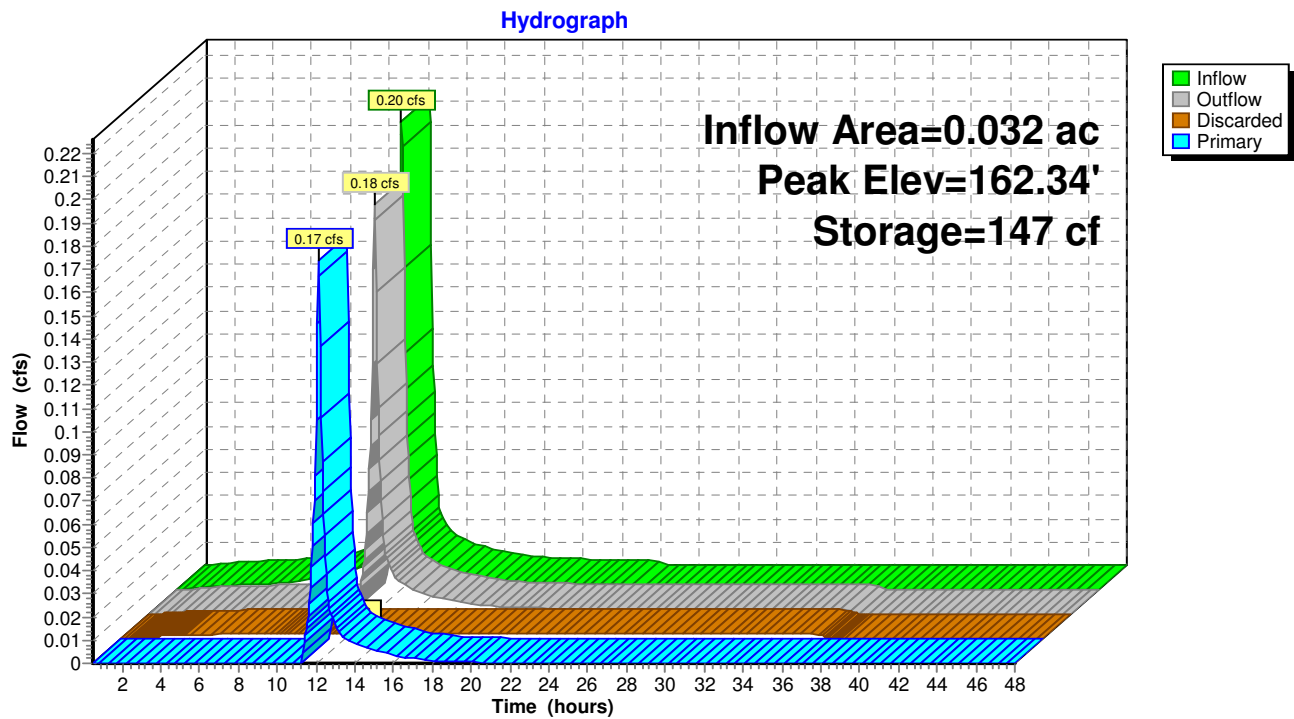
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.17 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.17 cfs @ 1.96 fps)

Pond 17P: Roof Recharge Chambers



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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 18P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af
 Outflow = 0.18 cfs @ 12.12 hrs, Volume= 0.016 af, Atten= 12%, Lag= 2.8 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.17 cfs @ 12.12 hrs, Volume= 0.010 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.34' @ 12.12 hrs Surf.Area= 186 sf Storage= 147 cf

Plug-Flow detention time= 185.7 min calculated for 0.016 af (100% of inflow)
 Center-of-Mass det. time= 186.4 min (929.6 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

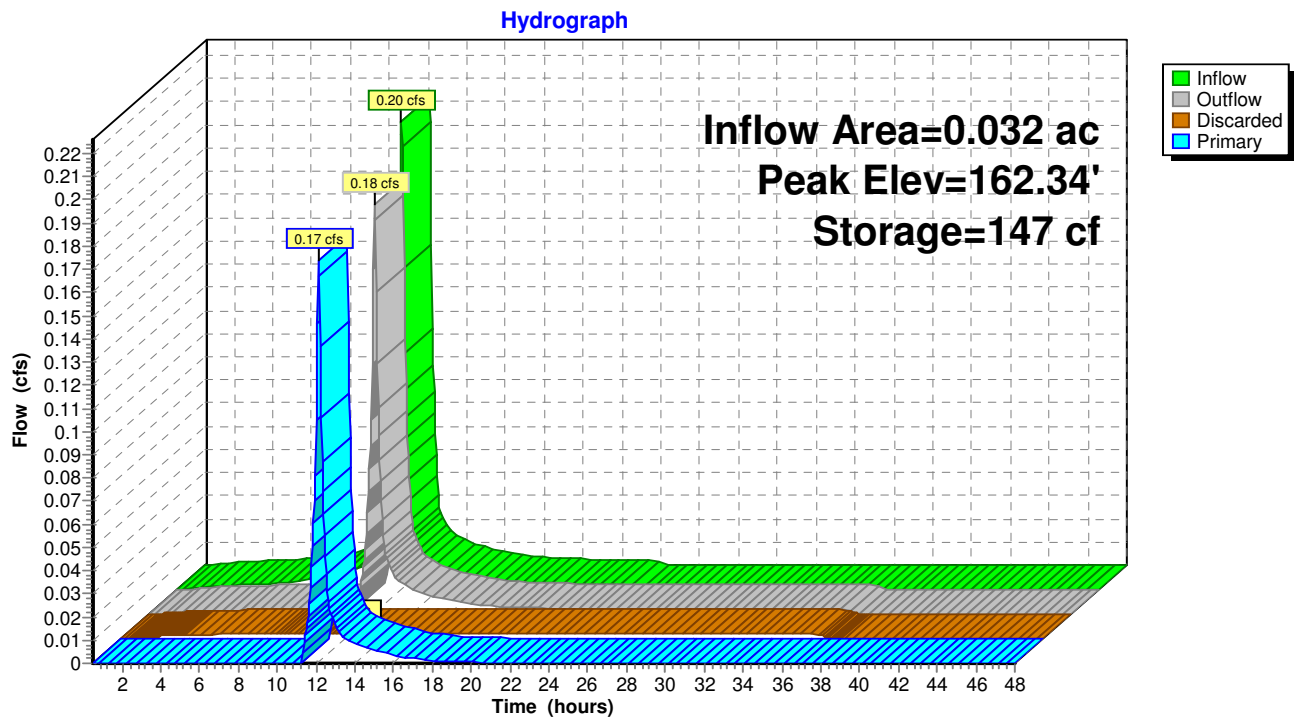
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.17 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.17 cfs @ 1.96 fps)

Pond 18P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 20P: Roof Recharge Chamber

Inflow Area = 0.016 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af
 Outflow = 0.07 cfs @ 12.17 hrs, Volume= 0.008 af, Atten= 34%, Lag= 6.1 min
 Discarded = 0.00 cfs @ 12.17 hrs, Volume= 0.006 af
 Primary = 0.06 cfs @ 12.17 hrs, Volume= 0.003 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.17' @ 12.17 hrs Surf.Area= 186 sf Storage= 127 cf

Plug-Flow detention time= 280.2 min calculated for 0.008 af (100% of inflow)
 Center-of-Mass det. time= 280.6 min (1,023.8 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

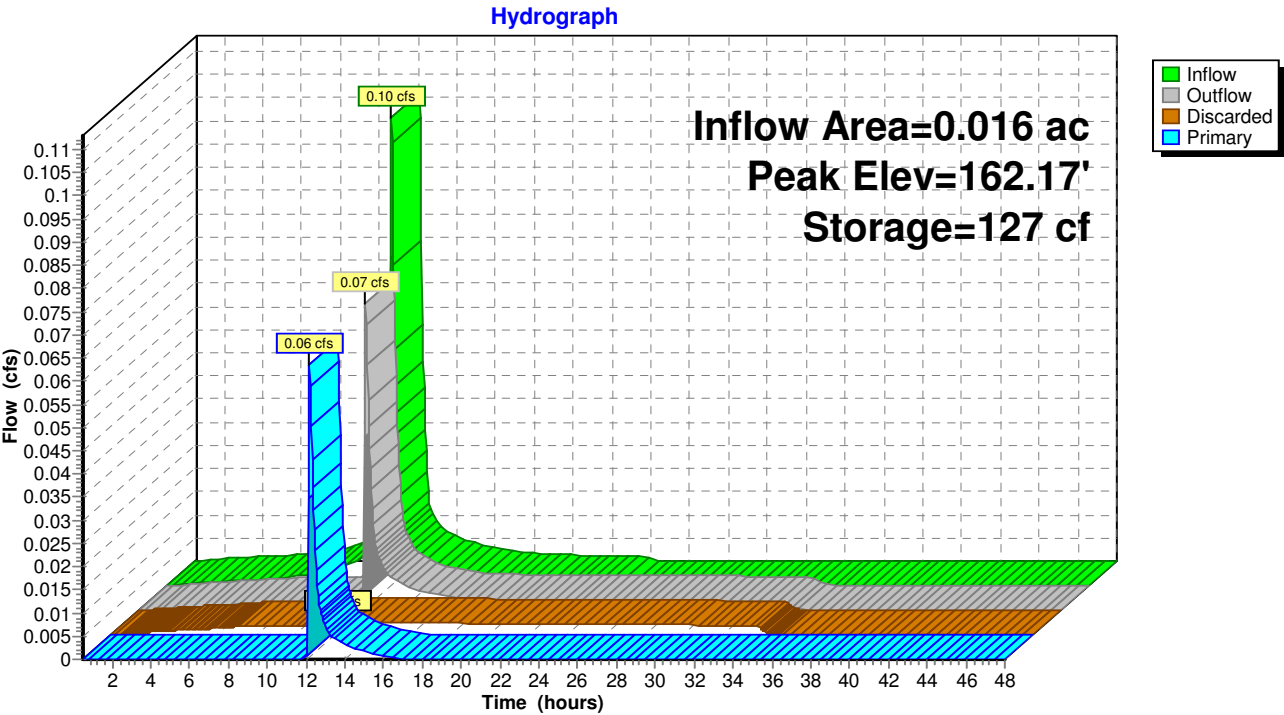
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.17 hrs HW=162.17' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.06 cfs @ 12.17 hrs HW=162.17' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.39 fps)

Pond 20P: Roof Recharge Chamber



Prop-Conditions REVISED 060124

Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 24P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.31 cfs @ 12.07 hrs, Volume= 0.025 af
 Outflow = 0.25 cfs @ 12.13 hrs, Volume= 0.025 af, Atten= 18%, Lag= 3.4 min
 Discarded = 0.00 cfs @ 12.13 hrs, Volume= 0.007 af
 Primary = 0.25 cfs @ 12.13 hrs, Volume= 0.018 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.52' @ 12.13 hrs Surf.Area= 189 sf Storage= 173 cf

Plug-Flow detention time= 140.7 min calculated for 0.025 af (100% of inflow)
 Center-of-Mass det. time= 141.5 min (884.7 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

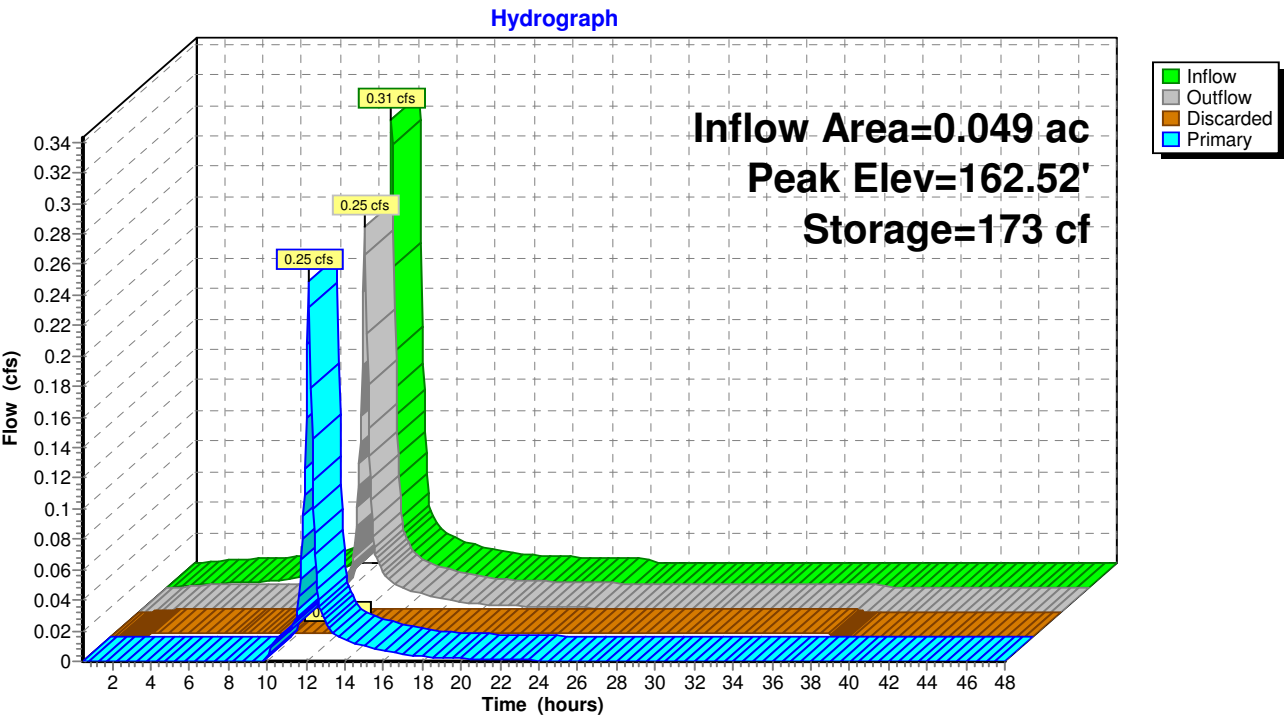
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.13 hrs HW=162.51' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.25 cfs @ 12.13 hrs HW=162.51' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.25 cfs @ 2.82 fps)

Pond 24P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 26P: Roof Recharge Chambers

Inflow Area = 0.049 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.31 cfs @ 12.07 hrs, Volume= 0.025 af
 Outflow = 0.25 cfs @ 12.13 hrs, Volume= 0.025 af, Atten= 18%, Lag= 3.4 min
 Discarded = 0.00 cfs @ 12.13 hrs, Volume= 0.007 af
 Primary = 0.25 cfs @ 12.13 hrs, Volume= 0.018 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.52' @ 12.13 hrs Surf.Area= 189 sf Storage= 173 cf

Plug-Flow detention time= 140.7 min calculated for 0.025 af (100% of inflow)
 Center-of-Mass det. time= 141.5 min (884.7 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	145 cf	14.50'W x 13.00'L x 2.54'H Field A 479 cf Overall - 117 cf Embedded = 363 cf x 40.0% Voids
#2A	161.50'	117 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		262 cf	Total Available Storage

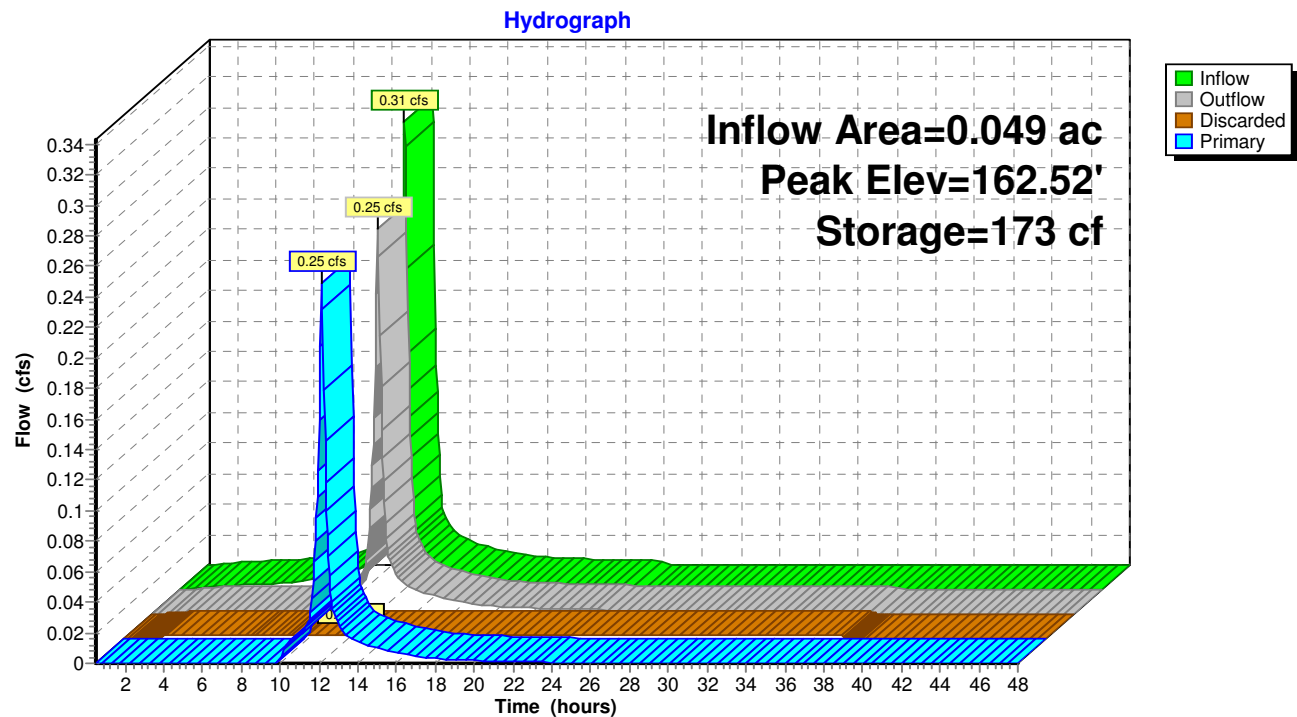
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.13 hrs HW=162.51' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.25 cfs @ 12.13 hrs HW=162.51' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.25 cfs @ 2.82 fps)

Pond 26P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 27P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af
 Outflow = 0.18 cfs @ 12.12 hrs, Volume= 0.016 af, Atten= 12%, Lag= 2.8 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.17 cfs @ 12.12 hrs, Volume= 0.010 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.34' @ 12.12 hrs Surf.Area= 186 sf Storage= 147 cf

Plug-Flow detention time= 185.7 min calculated for 0.016 af (100% of inflow)
 Center-of-Mass det. time= 186.4 min (929.6 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

Storage Group A created with Chamber Wizard

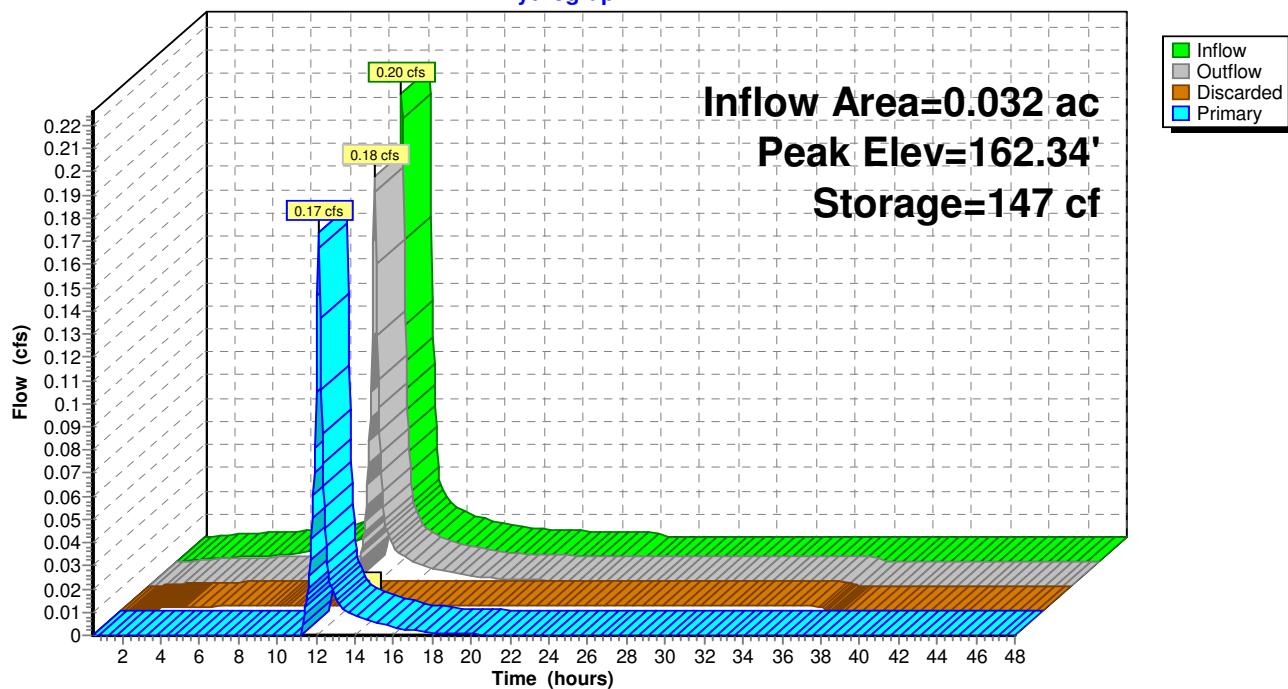
Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.17 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.17 cfs @ 1.96 fps)

Pond 27P: Roof Recharge Chambers

Hydrograph



Prop-Conditions REVISED 060124

Type III 24-hr 100-YR Rainfall=6.40"

Prepared by Cornerstone Land Consultants LLC

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Summary for Pond 28P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af
 Outflow = 0.18 cfs @ 12.12 hrs, Volume= 0.016 af, Atten= 12%, Lag= 2.8 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.17 cfs @ 12.12 hrs, Volume= 0.010 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.34' @ 12.12 hrs Surf.Area= 186 sf Storage= 147 cf

Plug-Flow detention time= 185.7 min calculated for 0.016 af (100% of inflow)
 Center-of-Mass det. time= 186.4 min (929.6 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

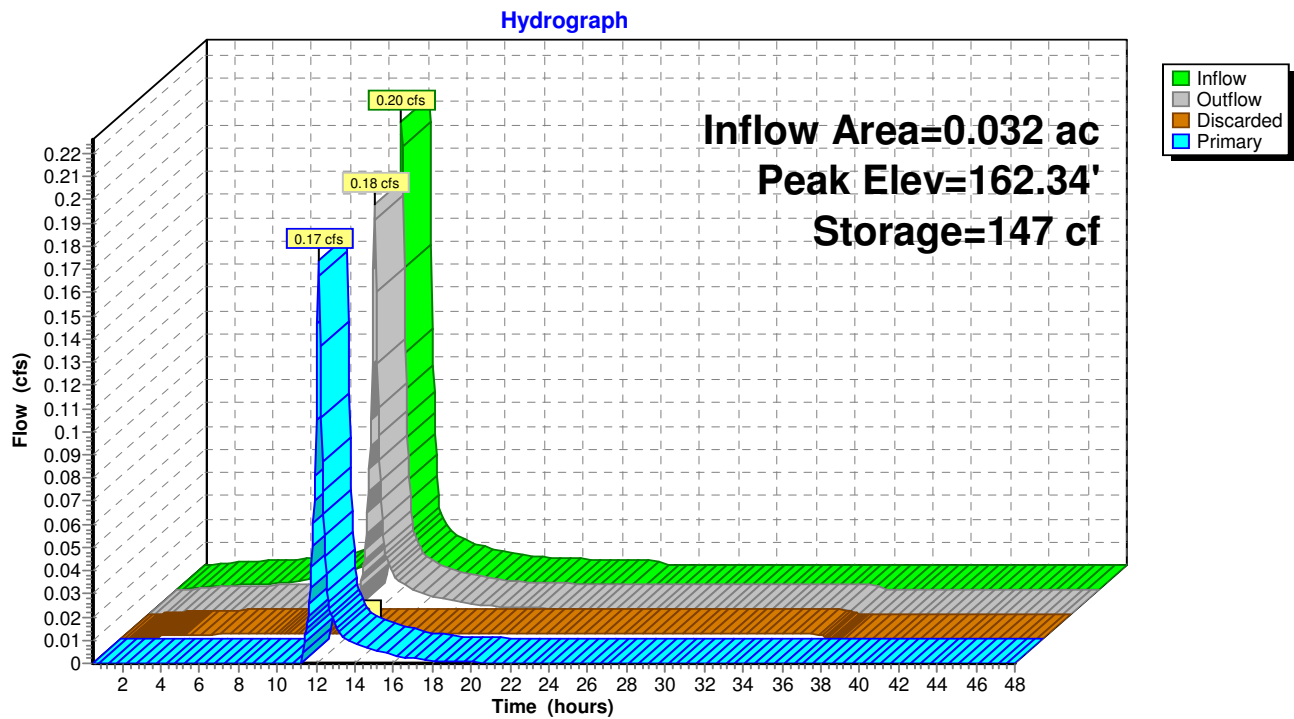
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.17 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.17 cfs @ 1.96 fps)

Pond 28P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

Type III 24-hr 100-YR Rainfall=6.40"

Prepared by Cornerstone Land Consultants LLC

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Summary for Pond 29P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af
 Outflow = 0.18 cfs @ 12.12 hrs, Volume= 0.016 af, Atten= 12%, Lag= 2.8 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.17 cfs @ 12.12 hrs, Volume= 0.010 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.34' @ 12.12 hrs Surf.Area= 186 sf Storage= 147 cf

Plug-Flow detention time= 185.7 min calculated for 0.016 af (100% of inflow)
 Center-of-Mass det. time= 186.4 min (929.6 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

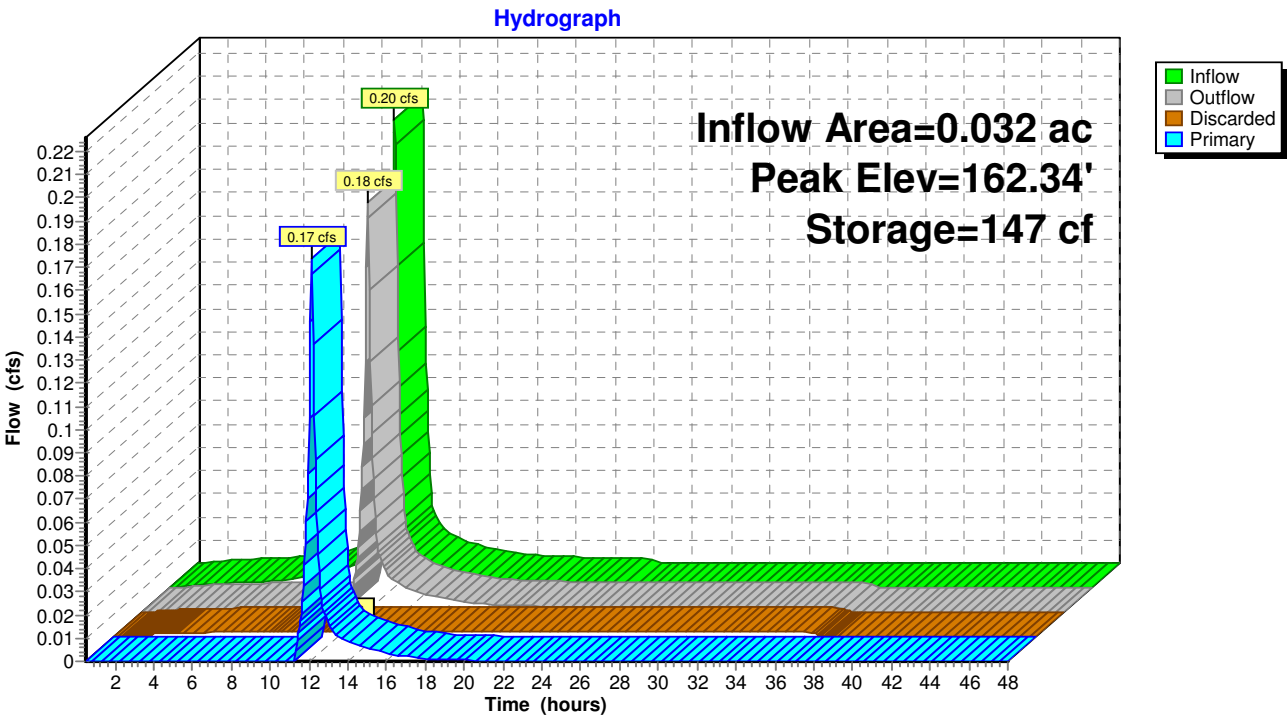
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.17 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.17 cfs @ 1.96 fps)

Pond 29P: Roof Recharge Chambers



Prop-Conditions REVISED 060124

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Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 30P: Roof Recharge Chambers

Inflow Area = 0.032 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.20 cfs @ 12.07 hrs, Volume= 0.016 af
 Outflow = 0.18 cfs @ 12.12 hrs, Volume= 0.016 af, Atten= 12%, Lag= 2.8 min
 Discarded = 0.00 cfs @ 12.12 hrs, Volume= 0.006 af
 Primary = 0.17 cfs @ 12.12 hrs, Volume= 0.010 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.34' @ 12.12 hrs Surf.Area= 186 sf Storage= 147 cf

Plug-Flow detention time= 185.7 min calculated for 0.016 af (100% of inflow)
 Center-of-Mass det. time= 186.4 min (929.6 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

Storage Group A created with Chamber Wizard

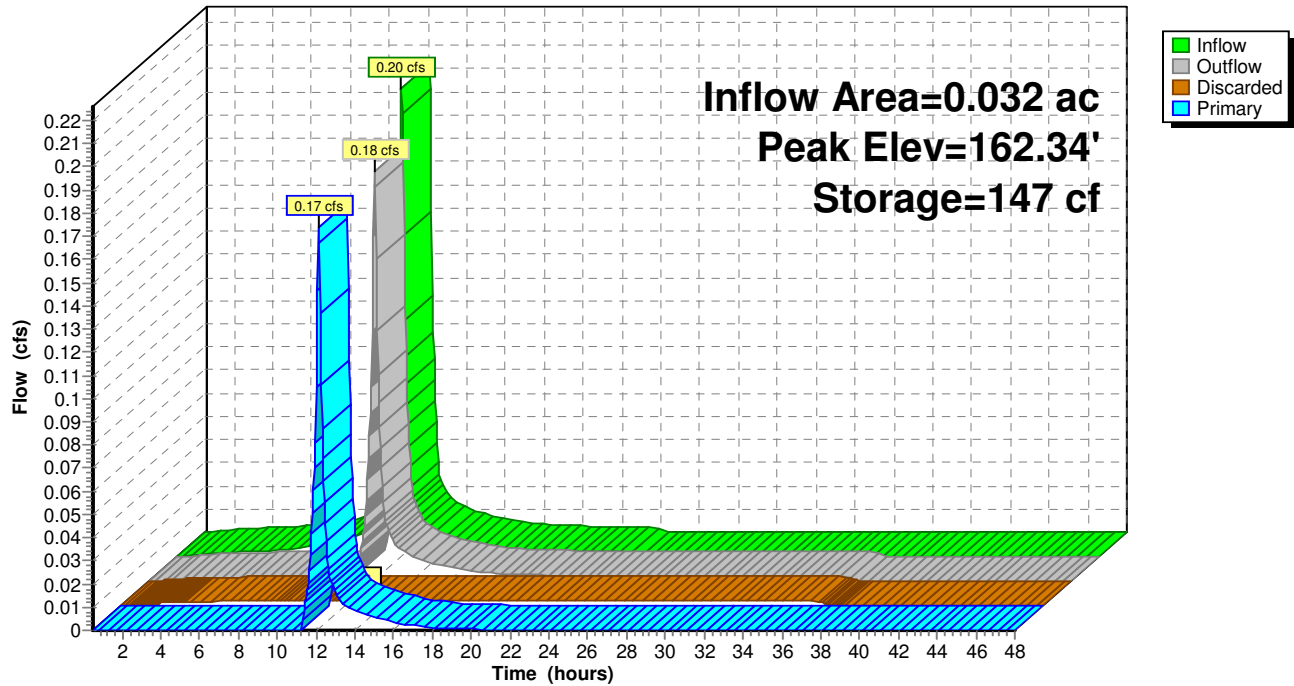
Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.17 cfs @ 12.12 hrs HW=162.33' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.17 cfs @ 1.96 fps)

Pond 30P: Roof Recharge Chambers

Hydrograph



Prop-Conditions REVISED 060124

Type III 24-hr 100-YR Rainfall=6.40"

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Summary for Pond 31P: Roof Recharge Chambers

Inflow Area = 0.016 ac, 100.00% Impervious, Inflow Depth = 6.16" for 100-YR event
 Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af
 Outflow = 0.07 cfs @ 12.17 hrs, Volume= 0.008 af, Atten= 34%, Lag= 6.1 min
 Discarded = 0.00 cfs @ 12.17 hrs, Volume= 0.006 af
 Primary = 0.06 cfs @ 12.17 hrs, Volume= 0.003 af
 Routed to Pond 1P : ADS 30" Pipe Det Basin

Routing by Stor-Ind method, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 162.17' @ 12.17 hrs Surf.Area= 186 sf Storage= 127 cf

Plug-Flow detention time= 280.2 min calculated for 0.008 af (100% of inflow)
 Center-of-Mass det. time= 280.6 min (1,023.8 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	161.00'	144 cf	8.00'W x 23.25'L x 2.54'H Field A 473 cf Overall - 113 cf Embedded = 360 cf x 40.0% Voids
#2A	161.50'	113 cf	Cultec R-150XLHD x 4 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
		257 cf	Total Available Storage

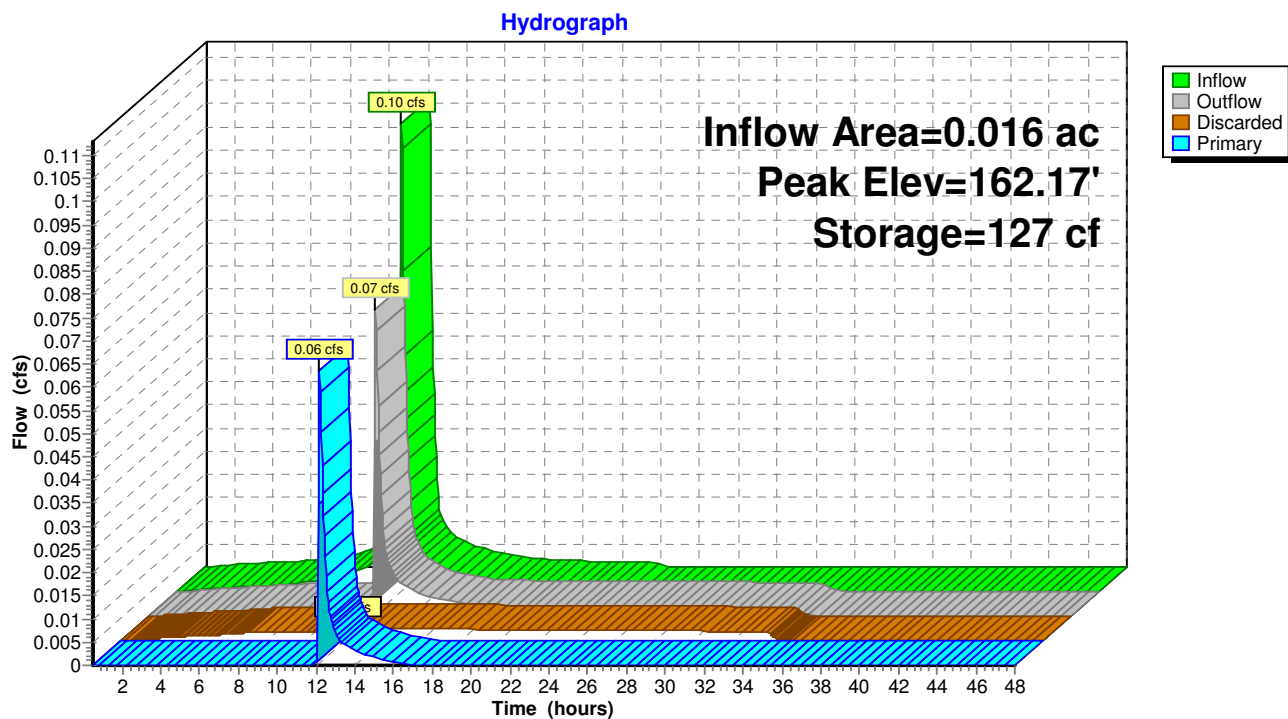
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	161.00'	0.430 in/hr Exfiltration over Wetted area
#2	Primary	162.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.17 hrs HW=162.17' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.06 cfs @ 12.17 hrs HW=162.17' (Free Discharge)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.39 fps)

Pond 31P: Roof Recharge Chambers



Summary for Link DP#2: DP#2 - Rear Wetlands

Inflow Area = 2.270 ac, 41.00% Impervious, Inflow Depth = 3.93" for 100-YR event
Inflow = 5.36 cfs @ 12.42 hrs, Volume= 0.743 af
Primary = 5.36 cfs @ 12.42 hrs, Volume= 0.743 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.50-48.00 hrs, dt= 0.05 hrs

Link DP#2: DP#2 - Rear Wetlands