



Engineering LLC

106 Schubert Drive
Downingtown, PA 19335
Phone: (484) 880-7342
Email: admin@JMRengineering.com

PCSM Narrative & Report

- Prepared for:

Data Centers
13 S. Bacton Hill Road
Malvern, PA 19355
East & West Whiteland Townships
Chester County, PA

- Applicant/Client:

Green Fig Land Company
10 Woodford Lane
Malvern, PA 19355



Prepared By:

JMR Project #1508

November 10, 2023

REVISED MAY 31, 2024

This report has been prepared together with plans entitled “Final Land Development Plan for Data Centers,” prepared by JMR Engineering, LLC, Dated November 10, 2023, as amended.

REGISTERED PROFESSIONAL ENGINEERS
Pennsylvania & Delaware
www.JMRengineering.com

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PLAN PREPARER RECORD OF TRAINING AND EXPERIENCE IN STORMWATER MANAGEMENT METHODS AND TECHNIQUES
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NAME OF PLAN PREPARER: John M. Robinson, P.E.

FORMAL EDUCATION:

Name of College: University of Delaware

Curriculum or Program: Civil Engineering

Dates of Attendance: From: 1991 To: 1995

Degree Received: Bachelor of Science in Civil Engineering

OTHER TRAINING:

Name of Training: Microsoft Certified Systems Engineer; Masters in Business Admin.

Presented By: Microsoft ; West Chester University

Date: February 2000 ; January 2009

EMPLOYMENT HISTORY:

Current Employer: JMR Engineering, LLC (President)

Telephone: (484) 880-7342

Former Employer: Edward B. Walsh and Associates, Inc.

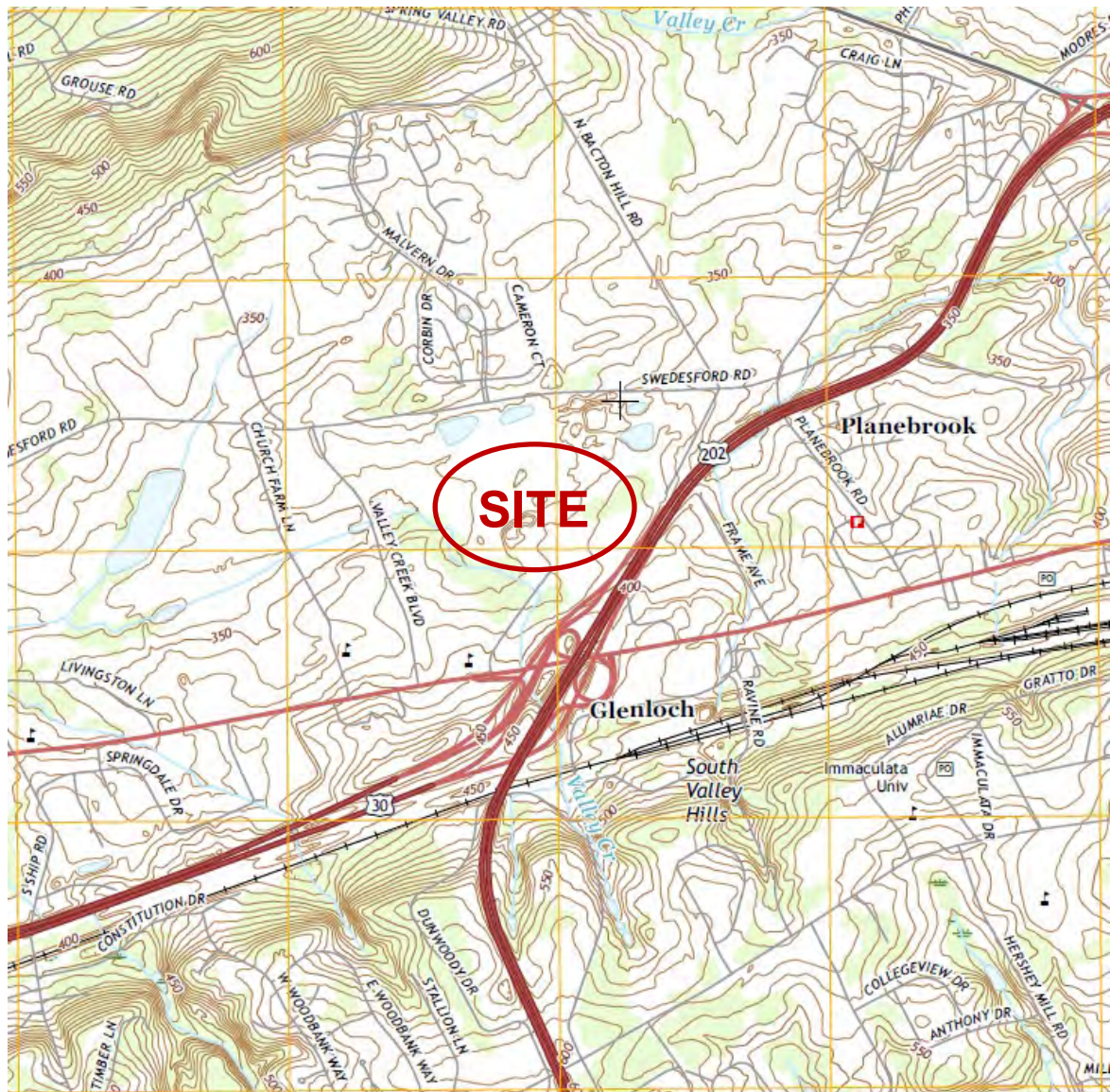
Telephone: (610) 903-0060

RECENT PCSM PLANS PREPARED:

Name of Project:	<u>Swedesford Partners</u>	<u>Foulk Manor Estates</u>	<u>446 Lenni Developers</u>
County:	<u>Chester</u>	<u>Delaware</u>	<u>Delaware</u>
Municipality:	<u>East Whiteland</u>	<u>Bethel</u>	<u>Chester Heights</u>
Permit Number:	<u>PAI011514043</u>	<u>PAG02002313003</u>	<u>PAG02002315009</u>
Approving Agency:	<u>CCCD</u>	<u>DCCD</u>	<u>DCCD</u>

LOCATION MAP

Data Centers



USGS MAP

East Whiteland Township – Chester County – Pennsylvania

Quadrangle: Malvern

Scale: NTS

HISTORIC AERIAL

Data Centers



GOOGLE EARTH IMAGE

East Whiteland Township – Chester County – Pennsylvania

Image Date: March 1992

Scale: NTS

AERIAL

Data Centers



GOOGLE EARTH IMAGE

East Whiteland Township – Chester County – Pennsylvania

Image Date: 2020

Scale: NTS

PCSM PROJECT NARRATIVE

- Data Centers -

Background:

Green Fig Land Company is the owner of multiple tracts of land located in East Whiteland Township totaling approximately 70± acres. The site is situated at 13 S. Bacton Hill Road and is identified as Tax Parcel Numbers 42-3-128, 42-3-130, 130.1 & 130.2. The parcels lie within the Institutional (INS) – Continuing Care Retirement Community (CCRC) zoning district as delineated on the East Whiteland Township Zoning Map.

The site is formerly home to the Foote Mineral Company which produced lithium metal, lithium chemicals and a variety of ores. At the height of its operations, the main plant area had 52+ buildings and process areas. Foote Mineral operated from 1941 until 1991. The site was added to the National Priorities List (NPL) in 1992, making it eligible for cleanup under the Superfund program. The site has since been remediated and removed from the National Priorities List in accordance with DEP requirements.

Since the Foote Mineral operation, the site went under a zoning modification and design development for a Continuing Care Retirement Community (CCRC) from 2002 through 2012. Plans were approved for 'Whiteland Village', an 850-unit retirement community. Two (2) miles of offsite sanitary sewer main extension were constructed to serve the future community, which was never built due to the 2008 economic downturn. The site was abandoned, and leased to local contractors for temporary lay down areas. All Brownfield remediation was completed despite the abandoned plans for construction, and onsite monitoring has continued to the present.

The Applicant is proposing to construct two Data Center buildings which will be approximately 250,000 s.f. each, for a total of approximately 500,000 s.f. of building footprint. The main access to the site will be from Swedesford Road, with a private/emergency access road provided to S. Bacton Hill Road. The site will be served by public water and sewer. It is the applicant's intention to begin construction of the proposed improvements after securing the required permits from the Township, as well as the Chester County Conservation District.

Stormwater for the site will be handled through multiple BMP's consisting of MRC rain gardens and a wet pond. Runoff from key impervious features (buildings and parking areas) will flow through pipe networks to pre-treatment forebays for each MRC facility. Water will then be slowly released from the MRC facilities and into the wet pond, which then discharges to the Valley Creek.

Controlling Ordinances:

A PCSM Plan has been developed to mitigate the impacts on the waters of the Commonwealth once the proposed project is completed. On November 9, 2022, East Whiteland Township adopted an Act 167 stormwater ordinance (Ordinance No. 2022-34). The PCSM Plan is in conformance with the Act 167 ordinance adopted as well as the requirements of the Pennsylvania Stormwater BMP Manual adopted December 30, 2006.

The calculations have been completed in accordance with the Re-development criteria of the Township stormwater management ordinance. §170-309(D)(3)(c)[1], which states "Apply the stormwater standards (redevelopment or new development) that are associated with the activity that involves the greatest land area. A drainage area plan entitled, Redevelopment Area Plan, is included within the attachments of this report and documents the areas. The entire limits of disturbance is 52% redevelopment to 48% new development. The entire project area discharges to one stormwater management facility therefor providing a quantitative means of volume and rate analysis would not be possible.

Site Features

- **Topography & Vegetation:**

The existing site was formerly known as the Foote Mineral site and is located between Swedesford Road and Route 202 in East Whiteland Township and is bordered by West Whiteland Township to the West. The site generally slopes moderately from east to west towards Valley Creek and consists of existing compacted soil / gravel areas and overgrown fields. Aerial imagery shows that up until about 4 years ago the parcel was being leased and used as large storage areas.

The tract has been the subject of multiple land development proposals ranging from healthcare and medical facilities to an active adult community. In the early 2000's, site work began and disturbed a large portion of the tract, Whiteland Village. A large wet pond was constructed and the construction was halted due to funding issues and the wet pond was filled in.

- **Receiving Waters of the Commonwealth:**

The site drains from the east to west and into Valley Creek. The site is located within the East Valley Creek Watershed, which has a Chapter 93 designation of **Cold Water Fishes (CWF), Migratory Fishes (MF)**. The site has areas that lie within a regulated floodplain zone AE, elevations determined. The majority of the parcel is located outside of the floodplain area, in Zone X.

PCSM Planning & Design

- **Preserve and Protect Receiving Stream Channels:**

The proposed stormwater management design will provide volume and rate control for the improvements in accordance with the East Whiteland Township stormwater management ordinance and PA DEP requirements which will preserve and protect the receiving stream channels.

Furthermore, the project is proposing to implement multiple Managed Release Concept Facilities and is therefore required to provide a rate reduction from 2-yr post-developed runoff rate to the 1-yr pre-developed runoff rate.

- **Prevent An Increase in The Rate of Stormwater Runoff:**

The project will utilize multiple Managed Release Concept Rain Gardens which will discharge to a large wet pond in order to provide significant runoff rate reduction for the proposed improvements.

- **Minimize Any Increase in Stormwater Runoff Volume:**

As discussed in the ***Stormwater Management Calculations*** section below, volume reduction is provided by MRC and Infiltration facilities.

- **Protection of Existing Drainage Features & Vegetation:**

There is hardly any existing vegetation onsite, however, Limited clearing measures have been provided as shown on the E&S Plan. The contractor shall install tree protection fencing prior to beginning any earth disturbance. The stormwater facilities have been designed to provide the volume reduction from the disturbed areas. The post-development runoff rates for the storm events will be less than or equal to their corresponding pre-development rates for all drainage areas.

- **Minimize Land Clearing & Grading:**

Limited clearing measures have been provided as shown on the PCSM plan. The contractor shall install tree protection fencing prior to beginning any earth disturbance.

- **Minimize Soil Compaction:**

The areas outside of the limits of disturbance will be protected from compaction, however, due to the underlying karst geologic formation, infiltration is not proposed onsite.

- **BMP Control Measures that Minimizes Changes to Stormwater Runoff:**

As discussed above, limited clearing, protection of existing vegetation, management of stormwater runoff and installation of the detention will minimize any changes to the existing stormwater runoff patterns from the site.

- **Thermal Impact Mitigation:**

The four (4) proposed MRC rain garden facilities capture runoff generated by smaller storm events and slowly release it over a period no longer than 72 hours. Release rates for the MRC facilities are limited to 0.01 CFS per acre of contributing impervious area. The MRC facilities discharge to a proposed wet pond to control larger storm events.

The Valley Creek Watershed is listed as Cold-Water Fishes, therefore, it is important to provide appropriate thermal impact mitigation measures. The wet pond has been designed with a siphon outfall to provide excellent temperature mitigation during storm events.

- **Soils and Geology:**

The project site lies within the limits of the ledger formation which is known to contain karst geology.

The soil types listed below are based on the USDA Natural Resources Conservation Soil Survey;

Urban Land-Conestoga Complex, 0 to 8% slopes (UrgB). The average depth to bedrock is 10-99 inches and the depth to the water table is 80 inches. The soil is classified with an HSG rating of "B."

Conestoga Silt Loam, 0 to 3% slopes (CtA). The average depth to bedrock is 60-99 inches and the depth to the water table is 80 inches. The soil is classified with an HSG rating of "B."

Conestoga Silt Loam, 3 to 8% slopes (CtB). The average depth to bedrock is 60-99 inches and the depth to the water table is 80 inches. The soil is classified with an HSG rating of "B."

In order to provide appropriate information in accordance with the Pre-Development Site Characterization and Assessment of Soil and Geology outlined in the Managed Release Concept document, one (1) infiltration test must be completed for every 40,000 s.f. of disturbed area. The area of disturbance for the project is **2,304,000 s.f.**, which requires a total of 58 test. The testing was completed by Uzman Engineering of Malvern PA from February 21 to March 1, 2024. In total, 67 test pits were completed to provide the geotechnical consultant with adequate information to make a recommendation for, or against, infiltration. Many of the test pits had rates ranging between 0.0 in/hr and 0.5 in/hr. The average of all testing was 0.71 in/hr. The attached geotechnical report provides recommendations again infiltration onsite.

STORMWATER MANAGEMENT DESIGN APPROACH:

Post-developed stormwater management for the site will be handled by multiple MRC Rain Gardens, Infiltration beds and a large wet pond. Stormwater runoff from the proposed buildings and adjacent pavement areas will be conveyed to the MRC Rain Gardens to provide stormwater filtration for small storm events. Runoff from larger storm events will overflow through pipe networks and will be conveyed to a large wet pond prior to being discharged to the creek.

The wet pond has been designed with an 8' deep permanent pool that will utilize the soil temperatures to cool the water during warmer months. The pond was also designed with a siphon outfall which will discharge water from the lower portions of the basin. The proposed basin and outfall structure was approved and constructed around 2008.

The MRC facilities have been designed with forebays to provide pre-treatment for runoff prior to entering the BMP's. The MRC Rain Gardens have been sized in accordance with DEP guidance for the 1.2"/2-hr event. The facility is designed to capture runoff and allow it to filter through the media, which then is slowly released via an underdrain with a limiting orifice during the 1.2"/2-hr event. Larger events have been routed through the facility, but are not permanently impounded and are bypassed into the rate control basin.

All stormwater from the project discharges to Valley Creek, therefore, a single analysis point has been utilized.

WET POND FEASIBILITY:

The proposed Wet pond is located within a watershed classified as Cold Water Fishes (CWF). In order to provide a stormwater management design that will appropriately dissipate the heat, a wet pond with a deep permanent pool has been selected as the final BMP prior to discharging to the surface waters.

The following analysis discusses in the factors that determine pond water temperature during warm weather. Various reference sources have been used to estimate the temperature of water entering and discharging from the pond. This analysis attempts to provide a conservative measure of water temperatures at different times of the year, including a "worst case scenario" in the hottest time of the year. The findings of this analysis have been compared with actual field observations completed by previous applicants in the past.

Steps to Forecasting Wet Pond Temperature

1. Determine rainfall event to model
2. Determine rainfall volume entering stormwater facility during storm event
3. Determine temperature of rainfall entering wet pond
4. Determine temperature within permanent pool
5. Determine post-discharge cooling of stormwater runoff

Step 1 involves the determination of the most appropriate rainfall event to consider in our model. The design storm event has been determined by choosing a rainfall event representative of a large percentage of annual rainfall, while being a small enough rainfall event to yield maximum runoff temperatures (i.e. smaller rainfall events will have a brief cooling effect on the impervious surfaces, and thus yield higher runoff temperatures).

The 1" storm represents 91.8% of annual rainfall and has therefore been chosen as the design storm event. The 1" rainfall event is smaller than the 2-year rainfall event and therefore considered a more frequent and/or common rainfall event. For the purposes of this analysis, it is assumed that the 1" rainfall event will have minimal heat loss on the impervious surfaces. However, it should be noted that the 1" storm will cool

impervious surfaces to some extent.

Step 2 involves the determination of stormwater runoff entering the wet pond during the design 1" rainfall event. The stormwater management wet pond shall be designed in accordance with the soil cover complex method and the procedures developed by the U.S. Department of Agriculture, Soil Conservation Service as outlined in their technical release No. 55, Urban Hydrology for small Watersheds. The wet pond inflow volume has been calculated using Hydroflow software and is shown in attached calculations.

The volume entering the Wet Pond is about 240,000 cu.ft. during the 1" storm event.

Step 3 is to calculate the temperature of the rainfall entering the wet pond. The warmest time of year the United States is statically between July and September. According to a graduate study prepared Patrick Bahr, 1996 (M.S. Thesis, University of Maryland, Solomons Island, MD 60 pg and appendices), runoff temperatures from impervious areas average 77° F.

Estimating runoff temperature is not an exact science; however some conservative assumptions can be made:

- From our hydroCAD model, we know that 41.3% of the 62.8-acre drainage area is impervious.
- From our HydroCAD Model we also know that 35.4 ac's of the 62.8 ac's, or 56% of the total drainage area to the basin is pre-treated by MRC Rain Garden BMP's. The Rain Garden facilities extend below the frost line, which remains at a constant 55° F temperature. The subsurface Rain Garden facilities will provide a natural cooling effect to the stormwater during rain events.

Runoff Temperature Calculations:

- Anticipated Runoff Temperature
 - a. 50% of the runoff to pass through a subsurface Rain Garden BMP's with a soil temperature of 55° F ~ therefore the BMP discharge temperature is estimated at 59° F
 - b. 50% of the runoff will enter the basin without passing through a subsurface BMP ~ therefore the discharge temperature is estimated at 77° F.
$$\frac{(77^{\circ} \text{ F} \times 50\%) + (59^{\circ} \text{ F} \times 50\%)}{100\%} = 68.0^{\circ} \text{ F}$$
- Worst Case Runoff Temperature - The above-mentioned graduate study by Patrick Bahr states that the worst-case runoff temperature during the warmest time of year is 87° F. Assuming the BMP's provide no cooling during a storm event, the worst case discharge temperature is 87° F.

Both temperatures will be used in the wet pond discharge analysis. It is assumed that the 1" storm will represent a rainfall event with the highest runoff temperature, as larger storm events will cause an increased cooling effect on impervious surfaces, yielding lower runoff temperatures.

Step 4 is performed to determine the temperatures within the permanent pool during the warmest time of year. The following assumptions shall be made to determine the permanent pool temperature:

- The permanent pool of water shall be 8' deep, which will allow for a stratification of water temperature.
- The entire permanent pool will be graded below existing grade, which will expose the surface of the pond to the cooler soil temperatures below the frost line.
- The water temperature of the bottom 4' of the pond is assumed to be 59° F. Existing soil temperature below the frost line is 55° F.
- The water temperature of the upper 4' of the pond is assumed to be the average historic monthly air temperature (as shown in the following table).

- Temperature Resource

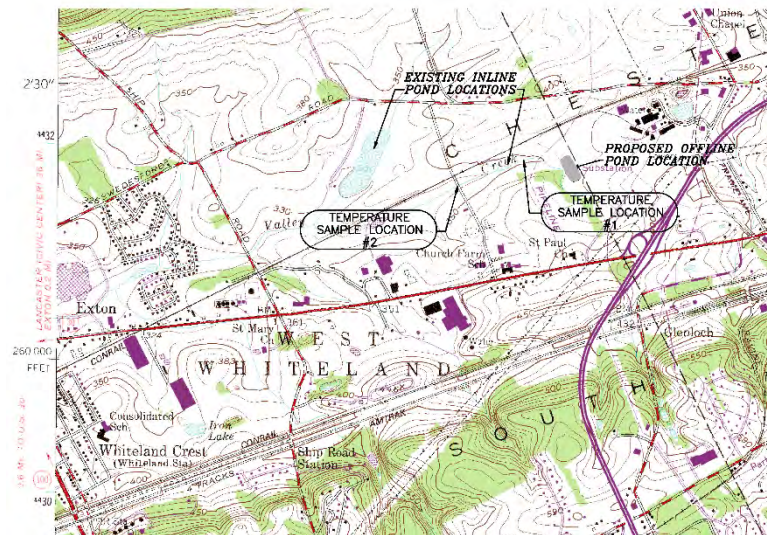
Philadelphia Weather

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg. High	54°	58°	67°	75°	81°	88°	90°	90°	85°	76°	66°	57°
Avg. Low	31°	34°	42°	50°	58°	65°	68°	68°	62°	48°	41°	34°
Mean	44°	47°	55°	64°	70°	77°	80°	78°	74°	64°	54°	46°
Avg. Precip.	5.6 in	5.3 in	6.4 in	5.7 in	4.9 in	3.9 in	5.4 in	3.5 in	3.7 in	3.4 in	5.0 in	5.8 in

Source: U.S. Department of State

Step 5 is utilized the information calculated in Steps 1 through 4 in order to determine the potential wet pond discharge temperatures to the west branch of the Valley Creek. Temperatures within the wet pond shall be calculated under the assumption that “full mixing” is occurring (i.e. the warmer stormwater inflow and upper water surface completely mixes with the cooler lower surface). Discharge temperatures shall be compared to actual field tested stream temperatures taken by a previous applicant who utilized Edward B. Walsh & Associates during the month of September 2005 (temperatures taken from digital thermometer with submersible probe). Temperature samples were taken at the locations shown on the USGS map below.

Trout are extremely sensitive to thermal pollution and temperature stress (Galli 1990). The water quality standards established by the Maryland Department of the Environment call for a temperature of no more than 68°F in a natural trout stream (COMAR 26.08.02.03-3D(3)(a)). In *Thermal impacts Associated with urbanization and stormwater management best practices*, Galli (1990, Appendix p. 91) states that brook trout begin dying at a water temperature of 75°F.



Location #1: Upstream side of Valley Creek Blvd. box culvert.

Location #2: Upstream side of culvert beneath Church Farm School access driveway.

WET POND DISCHARGE TEMPERATURE CALCULATIONS

Volume Type	Volume (cu.ft.)	Percentage
Wet Pond Inflow Volume	240,000	36.66
Upper 4' of Permanent Pool	243,087	37.13
Lower 4' of Permanent Pool	171,660	26.22
Total Volume	654,747	100.00

Volume During Storm:

Volume During Storm:							Field Tested Temperature Readings						
MONTH	Inflow Temperature (Anticipated)	Inflow Temperature (Worst-Case)	*Upper Permanent Pool Temperature	**Lower Permanent Pool Temperature	Average Anticipated Discharge Temperature	Average Worst-Case Discharge Temperature	Sample Stream Temperature (6:30AM) 67° Air Temperature 9/22/05		Sample Stream Temperature (10AM) 81° Air Temperature 9/17/05		Sample Stream Temperature (5PM) 83° Air Temperature 9/18/05		Lethal Trout Temperature
							Sample #1	Sample #2	Sample #1	Sample #2	Sample #1	Sample #2	
January	-	-	44.0	59.0	47.9	47.9							-
February	-	-	47.0	59.0	50.1	50.1							-
March	-	-	55.0	59.0	56.0	56.0							-
April	-	-	64.0	59.0	62.7	62.7							-
May	-	-	70.0	59.0	67.1	67.1							-
June	68.0	87.0	77.0	59.0	69.0	75.9							68.0
July	68.0	87.0	80.0	59.0	70.1	77.1							68.0
August	68.0	87.0	78.0	59.0	69.4	76.3							68.0
September	68.0	87.0	74.0	59.0	67.9	74.8	66.6	65.3	70.9	70.4	70.0	70.4	68.0
October	-	-	64.0	59.0	62.7	62.7							-
November	-	-	54.0	59.0	55.3	55.3							-
December	-	-	46.0	59.0	49.4	49.4							-

Red - Indicates stream temperature greater than 68 degrees

* Taken from Philadelphia Weather chart by the U.S. Department of State

** Based upon soil temperatures below the frostline.

Average Anticipated Discharge Temperature = Weighted Average of: Anticipated Inflow, Upper Permanent Pool & Lower Permanent Pool

Average Worst-Case Discharge Temperature = Weighted Average of: Worst-Case Inflow, Upper Permanent Pool & Lower Permanent Pool

Conclusion

The calculated discharge temperature results favor the wet pond design for the following reasons:

- The water quality standards established by the Maryland Department of the Environment call for a temperature of no more than 68°F in a natural trout stream, which is exceeded with the current stream temperatures recorded in the month of September. The projected stream temperatures in the month of July would most likely be greater than or equal to September stream temperatures.
- Anticipated and Worst-case discharge temperatures are below the field tested stream temperatures for the month of September.
- The proposed subsurface permanent pool is designed up to 8' below existing grade, which will provide a continuous cooling effect to the permanent pool.
- The Anticipated discharge temperature assumes "full mixing" of the water, which will likely not occur due to the 8' permanent pool depth. The wet pond discharge siphon pipes will draw water from the lowest depths of the permanent pool. Therefore, the likely discharge temperatures will likely be cooler than either of the calculated temperatures (anticipated or worst case).
- The wet pond is designed "offline" per the Maryland Manual
- The 160' corridor between the wet pond discharge point and the stream is shaded with existing mature trees. According to John Galli of the Washington Council of Governments, discharge waters can cool -0.3° F for every 100'. This could account for an additional 0.5° F of cooling before the discharge waters reach the stream.
- Rain Garden BMP's will remove nutrients from runoff prior to discharge into the wet pond, which will help prevent eutrophication of the wet pond.
- A wet pond is an excellent visual amenity to the community.

We conclude that the above-mentioned reasoning indicates the wet pond is a superior design for this project over the typical above-grade permanent pool wet pond design and the alternative stormwater wetland system designs.

2-YR Volume & Stormwater Management Facility Calculations:

Storm water runoff for the increase in post-developed volume for the 2-yr storm event was analyzed utilizing the PADEP PCSM Spreadsheet which utilizes the **SCS Methodology** as described in the NRCS Technical Release-55, Urban Hydrology for Small Watersheds and as recommended by the Pennsylvania Storm Water Best management Practices Manual (BMP Manual). **All rainfall amounts used in the design calculations were obtained from NOAA Atlas 14 data as recommended by the PA BMP Manual.**

The DEP PCSM Spreadsheet has been included following the narrative of this report and summarizes the 2-yr increase volume, as well as the credits attained by the proposed MRC designs.

The 2-year pre-developed volume for the site was calculated as **280,093 ft³** and the total post-developed runoff for the site was calculated as **323,136 ft³**, giving a 2-yr volume increase of **43,042 ft³** to be managed by structural and non-structural BMP's. The 2-yr volume credits for the MRC facilities have been determined utilizing the PA DEP PCSM Spreadsheet. The total volume provided for the project is **246,091 ft³**, which far exceeds the required volume.

Dewatering of the Managed Release Concept Rain Gardens will occur through an underdrain which limits outflow through a reduced orifice. The SCS model was used in hydroCAD to obtain the dewatering times and can be found in the 2-yr volumes and managed releases BMP calculations. Ponding depth for the 2-year storm, in conformance with the MRC Design Guidelines, does not exceed 2.0 feet, even during larger storm events.

Forebays have been provided in the MRC facilities to provide additional pre-treatment since larger storm events are routed through the BMP's. The facilities have been designed in accordance with the Maryland Stormwater Design Manual and have been sized as %10 of the total facility volume.

Waivers from the appropriate ordinance sections have been requested to allow the MRC facilities to be constructed in accordance with DEP Guidance.

Runoff Rate Calculations

Stormwater runoff rates have been calculated by utilizing the **SCS Methodology**. **All rainfall intensity data used in the design calculations were obtained from NOAA Atlas 14 data as recommended by the PA BMP Manual.**

The proposed rate calculations have been provided in accordance with the Re-development rate criteria in the ordinance.

REQUIRED RATE REDUCTIONS (WEST WHITELAND TOWNSHIP)

Pre-Developed Storm Event	Required Post Developed Storm Event
2-yr	2-yr
5-yr	5-yr
10-yr	10-yr
25-yr	25-yr
50-yr	50-yr
100-yr	100-yr

REQUIRED RATE REDUCTIONS (EAST WHITELAND TOWNSHIP)

Pre-Developed Storm Event	Required Post Developed Storm Event
2-yr	1-yr*
5-yr	90% 5-yr
10-yr	90% 10-yr
25-yr	90% 25-yr
50-yr	90% 50-yr
100-yr	90% 100-yr

*Per MRC Design Guidance

The “Maximum Allowable Post” row of the table below has been calculated for the post developed 2-yr event by adding the “Pre Developed Onsite” value of the 1-yr event to the Pre Developed Offsite value for the 2-yr event because the stormwater design is not required to reduce offsite flows through the site. For example, below 42.38 (1-yr pre onsite) + 6.20 (2-yr pre offsite) = 48.58 (max allowable post developed 2-yr).

The “Maximum Allowable Post” row of the table below has been calculated for the post developed 5-yr through 100-yr event by adding the 90% of the corresponding “Pre Developed Onsite” value to the corresponding Pre Developed Offsite value for the event because the stormwater design is not required to reduce offsite flows through the site. For example, below 0.90×74.99 (5-yr pre onsite) + 11.44 (5-yr pre offsite) = 78.93 (max allowable post developed 5-yr).

The runoff rate table below outlines the pre-developed and post-developed runoff rates for the project at Drainage Point 01.

RUNOFF RATES							
Peak Flow Summary (cfs) - DP001 (REDEVELOPMENT)							
	1 Year	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
Pre Developed Onsite	42.38	54.17	74.99	94.68	124.94	152.01	182.13
Predevelopment Offsite	3.55	6.20	11.44	16.71	25.08	32.76	41.44
Total Pre to POI #1	45.89	60.37	86.42	111.33	149.85	184.43	223.19
Maximum Allowable Post	-	48.58	78.93	101.92	137.53	169.57	205.36
Total Post to POI #1	5.93	8.85	16.80	33.02	61.23	84.45	108.78
Total Rate Reduction	-39.96	-51.52	-69.62	-78.31	-88.62	-99.98	-114.41
Reduction Percentage	-87%	-85%	-81%	-70%	-59%	-54%	-51%

In accordance with DEP Guidance for MRC facilities, the 2-yr post developed rates leaving the rate control basin have been reduced to the 1-yr pre-developed rate. Language in the DEP PCMS spreadsheet specifies the following:

“An applicant may take credit for volume routed to the MRC BMP up to the 2-year/24-hour storm event if the volume exceeding the 1.2-inch/2-hour storm event is designed to bypass the MRC BMP into a downstream BMP, assuming the downstream BMP reduces the post-construction 2-year/24-hour peak flow to the pre-construction 1-year/24-hour peak flow associated with the MRC.”

Stormwater Conveyance Calculations

Stormpipes

Stormwater conveyance has been calculated by utilizing the ***Rational Methodology for the 100-yr storm event. All rainfall intensity data used in the design calculations were obtained from NOAA Atlas 14 data as recommended by the PA BMP Manual.*** The starting water surface elevation in BMP’s was taken as the top of berm elevation to be conservative. The design incorporates flows leaving the stormwater facilities and entering the conveyance networks and has been taken from the HydroCAD modeling which utilized the SCS Methodology.

Roof leader sizing was completed using the rational method and mannings equation.

Conclusions:

It is our professional opinion, as outlined above and as shown in the enclosed supporting calculations, that the proposed site development will not have a detrimental impact on downstream property owners or existing waters of the Commonwealth after the stormwater management facility is constructed and is properly maintained. The proposed design will retain and filter the required amount of stormwater runoff volume to comply with both Township and PADEP requirements.

Soils Data



United States
Department of
Agriculture

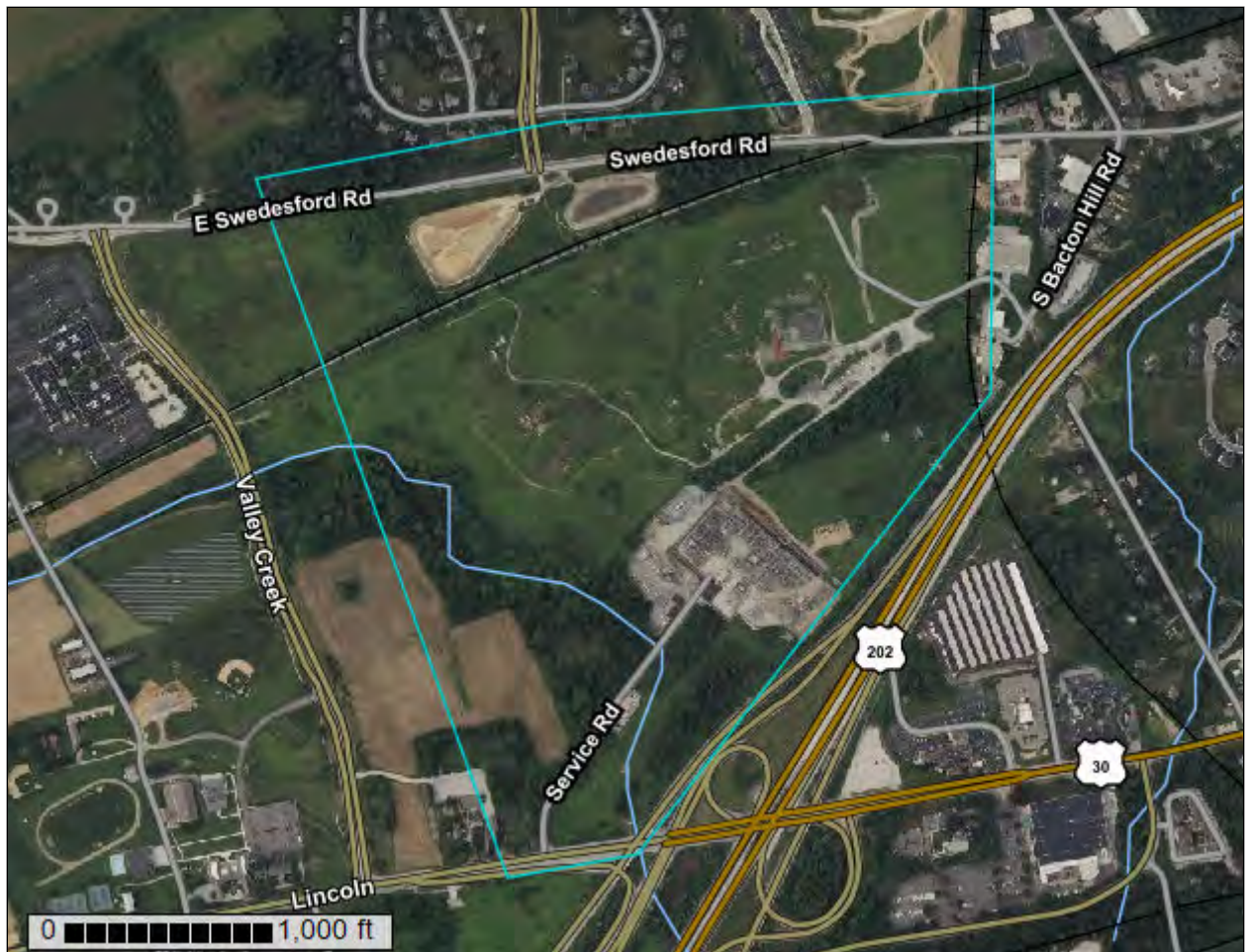
NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Chester County, Pennsylvania**

Data Center



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Chester County, Pennsylvania
Survey Area Data: Version 16, Sep 4, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 3, 2022—Jul 20, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CtA	Conestoga silt loam, 0 to 3 percent slopes	14.7	7.4%
CtB	Conestoga silt loam, 3 to 8 percent slopes	106.2	53.4%
EdB	Edgemont channery loam, 3 to 8 percent slopes	9.6	4.8%
PdB	Penlaw silt loam, 3 to 8 percent slopes	4.5	2.3%
Th	Thorndale silt loam	9.5	4.8%
UrB	Urban land, 0 to 8 percent slopes	7.3	3.7%
UrgB	Urban land-Conestoga complex, 0 to 8 percent slopes	47.3	23.7%
Totals for Area of Interest		199.0	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit

descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Chester County, Pennsylvania

CtA—Conestoga silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: pjhy
Elevation: 300 to 1,600 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 140 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Conestoga and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Conestoga

Setting

Landform: Hillsides
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from schist and/or residuum weathered from limestone

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 38 inches: silty clay loam
C - 38 to 75 inches: channery loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 60 to 99 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: F148XY026PA - Moist, High Base-Saturation, Upland, Mixed Oak
- Hickory - Conifer Forest
Hydric soil rating: No

Minor Components

Clarksburg

Percent of map unit: 5 percent
Landform: Valley flats
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Hollinger

Percent of map unit: 1 percent
Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Letort

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Duffield

Percent of map unit: 1 percent
Landform: Hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Pequea

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Penlaw

Percent of map unit: 1 percent
Landform: Swales
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

CtB—Conestoga silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: pjJ0
Elevation: 300 to 1,600 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 140 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Conestoga and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Conestoga

Setting

Landform: Hillsides
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone and/or residuum weathered from schist

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 38 inches: silty clay loam
C - 38 to 75 inches: channery loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 60 to 99 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F148XY026PA - Moist, High Base-Saturation, Upland, Mixed Oak
- Hickory - Conifer Forest
Hydric soil rating: No

Minor Components

Clarksburg

Percent of map unit: 5 percent
Landform: Valley flats
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Pequea

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Duffield

Percent of map unit: 1 percent
Landform: Hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hollinger

Percent of map unit: 1 percent
Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, interfluve
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Letort

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Penlaw

Percent of map unit: 1 percent
Landform: Swales
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

EdB—Edgemont channery loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: pjcq
Elevation: 500 to 2,400 feet
Mean annual precipitation: 35 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 120 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Edgemont and similar soils: 93 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Edgemont

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Residuum weathered from quartzite and/or residuum weathered from orthoquartzite

Typical profile

Ap - 0 to 8 inches: channery loam
Bt - 8 to 36 inches: channery fine sandy loam
C - 36 to 60 inches: channery sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 42 to 84 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: A
Ecological site: F148XY024PA - Moist, Piedmont - felsic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Buchanan

Percent of map unit: 4 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Andover

Percent of map unit: 3 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

PdB—Penlaw silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: pjks
Elevation: 300 to 1,500 feet
Mean annual precipitation: 35 to 50 inches
Mean annual air temperature: 50 to 57 degrees F
Frost-free period: 140 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Penlaw and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Penlaw

Setting

Landform: Swales
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Colluvium derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 9 inches: silt loam
Bt - 9 to 18 inches: silty clay loam
Bx1 - 18 to 31 inches: silty clay
Bx2 - 31 to 58 inches: silty clay loam
C - 58 to 60 inches: silty clay loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 15 to 30 inches to fragipan; 40 to 72 inches to lithic bedrock

Drainage class: Somewhat poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: D

Ecological site: F148XY026PA - Moist, High Base-Saturation, Upland, Mixed Oak
- Hickory - Conifer Forest

Hydric soil rating: No

Th—Thorndale silt loam

Map Unit Setting

National map unit symbol: pjkf

Elevation: 200 to 1,000 feet

Mean annual precipitation: 32 to 48 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 120 to 200 days

Farmland classification: Not prime farmland

Map Unit Composition

Thorndale and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Thorndale

Setting

Landform: Depressions, valleys, drainageways

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Head slope, side slope

Down-slope shape: Concave, linear

Across-slope shape: Concave

Parent material: Colluvium derived from calcareous shale and/or colluvium derived from limestone and siltstone

Typical profile

Ap - 0 to 9 inches: silt loam

Btg - 9 to 27 inches: silty clay loam

Bxg - 27 to 36 inches: silt loam

C - 36 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 20 to 36 inches to fragipan; 60 to 99 inches to lithic bedrock

Drainage class: Poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 0 to 6 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: C/D

Ecological site: F148XY032PA - Hydric, High Base-Saturation, Riparian Zone, Swamp Meadow-Shrub-Forest

Hydric soil rating: Yes

UrB—Urban land, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 1r3nt

Elevation: 800 to 1,500 feet

Mean annual precipitation: 36 to 46 inches

Mean annual air temperature: 41 to 62 degrees F

Frost-free period: 130 to 170 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Pavement, buildings and other artificially covered areas human transported material

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

Minor Components

Udorthents, unstable fill

Percent of map unit: 10 percent

Down-slope shape: Linear

Across-slope shape: Linear
Hydric soil rating: No

UrgB—Urban land-Conestoga complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: pjn7
Elevation: 300 to 1,600 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 140 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 50 percent
Conestoga and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Pavement, buildings and other artificially covered areas

Typical profile

C - 0 to 6 inches: variable

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 10 to 99 inches to lithic bedrock
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Conestoga

Setting

Landform: Hillsides
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex

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Parent material: Residuum weathered from schist and/or residuum weathered from limestone

Typical profile

Ap - 0 to 9 inches: silt loam
Bt - 9 to 40 inches: silty clay loam
C - 40 to 60 inches: loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 60 to 99 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F148XY026PA - Moist, High Base-Saturation, Upland, Mixed Oak
- Hickory - Conifer Forest
Hydric soil rating: No

Minor Components

Clarksburg

Percent of map unit: 5 percent
Landform: Valley flats
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Catoctin

Percent of map unit: 5 percent
Landform: Mountainsides
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Hagerstown

Percent of map unit: 3 percent
Landform: Valley floors
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

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Penlaw

Percent of map unit: 2 percent

Landform: Swales

Landform position (two-dimensional): Toeslope, footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Custom Soil Resource Report

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

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Map—Hydrologic Soil Group



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Chester County, Pennsylvania
 Survey Area Data: Version 16, Sep 4, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 3, 2022—Jul 20, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CtA	Conestoga silt loam, 0 to 3 percent slopes	B	14.7	7.4%
CtB	Conestoga silt loam, 3 to 8 percent slopes	B	106.2	53.4%
EdB	Edgemont channery loam, 3 to 8 percent slopes	A	9.6	4.8%
PdB	Penlaw silt loam, 3 to 8 percent slopes	D	4.5	2.3%
Th	Thorndale silt loam	C/D	9.5	4.8%
UrB	Urban land, 0 to 8 percent slopes		7.3	3.7%
UrgB	Urban land-Conestoga complex, 0 to 8 percent slopes		47.3	23.7%
Totals for Area of Interest			199.0	100.0%

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Depth to Bedrock

The term bedrock in soil survey refers to a continuous root and water restrictive layer of rock that occurs within the soil profile.

There are many types of restrictions that can occur within the soil profile but this theme only includes the three restrictions that use the term bedrock. These are:

- 1) Lithic Bedrock
- 2) Paralithic Bedrock
- 3) Densic Bedrock

Lithic bedrock and paralithic bedrock are comprised of igneous, metamorphic, and sedimentary rocks, which are coherent and consolidated into rock through pressure, heat, cementation, or fusion. Lithic bedrock represents the hardest type of bedrock, with a hardness of strongly coherent to indurated. Paralithic bedrock has a hardness of extremely weakly coherent to moderately coherent. It can occur as a

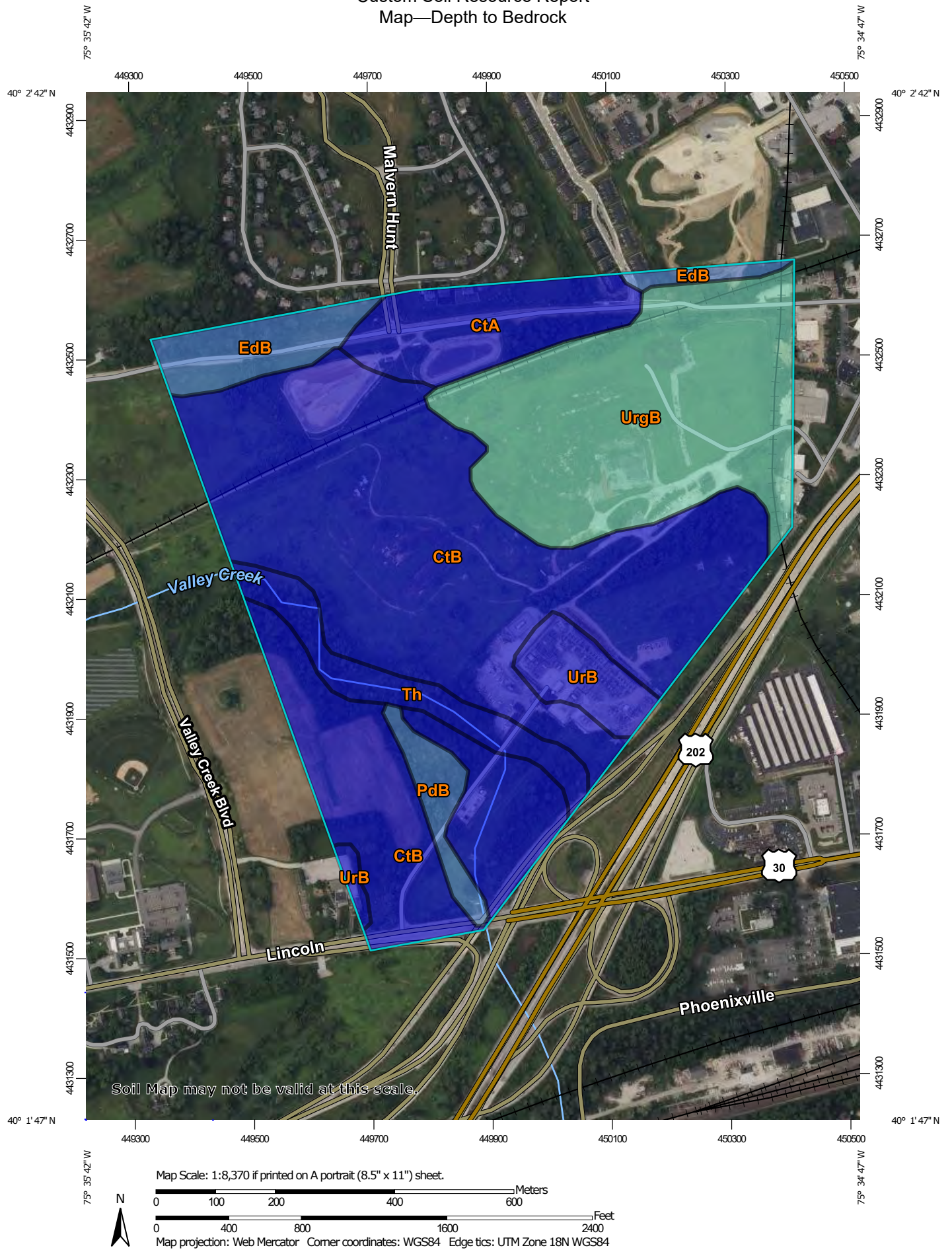
thin layer of weathered bedrock above harder lithic bedrock. Paralithic bedrock can also be much thicker, extending well below the soil profile.

Densic bedrock represents a unique kind of bedrock recognized within the soil survey. It is non-coherent and consolidated, dense root restrictive material, formed by pressure, heat, and dewatering of earth materials or sediments. Densic bedrock differs from densic materials, which formed under the compaction of glaciers, mudflows, and or human-caused compaction.

If more than one type of bedrock is described for an individual soil type, the depth to the shallowest one is given. If no bedrock is described in a map unit, it is represented by the "greater than 200" depth class.

Depth to bedrock is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Custom Soil Resource Report Map—Depth to Bedrock



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 0 - 25
 25 - 50
 50 - 100
 100 - 150
 150 - 200
 > 200
 Not rated or not available

Soil Rating Lines

 0 - 25
 25 - 50
 50 - 100
 100 - 150
 150 - 200
 > 200
 Not rated or not available

Soil Rating Points

 0 - 25
 25 - 50
 50 - 100
 100 - 150
 150 - 200
 > 200

 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Chester County, Pennsylvania
 Survey Area Data: Version 16, Sep 4, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 3, 2022—Jul 20, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Depth to Bedrock

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
CtA	Conestoga silt loam, 0 to 3 percent slopes	202	14.7	7.4%
CtB	Conestoga silt loam, 3 to 8 percent slopes	202	106.2	53.4%
EdB	Edgemont channery loam, 3 to 8 percent slopes	158	9.6	4.8%
PdB	Penlaw silt loam, 3 to 8 percent slopes	183	4.5	2.3%
Th	Thorndale silt loam	201	9.5	4.8%
UrB	Urban land, 0 to 8 percent slopes	>200	7.3	3.7%
UrgB	Urban land-Conestoga complex, 0 to 8 percent slopes	138	47.3	23.7%
Totals for Area of Interest			199.0	100.0%

Rating Options—Depth to Bedrock*Units of Measure:* centimeters*Aggregation Method:* Dominant Component*Component Percent Cutoff:* None Specified*Tie-break Rule:* Lower*Interpret Nulls as Zero:* No

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Rainfall Data



NOAA Atlas 14, Volume 2, Version 3
Location name: Exton, Pennsylvania, USA*
Latitude: 40.0404°, Longitude: -75.5966°
Elevation: 372.85 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.350 (0.321-0.382)	0.417 (0.383-0.455)	0.487 (0.446-0.531)	0.536 (0.490-0.585)	0.592 (0.538-0.645)	0.630 (0.569-0.686)	0.666 (0.600-0.727)	0.698 (0.624-0.762)	0.732 (0.650-0.802)	0.757 (0.667-0.832)
10-min	0.559 (0.513-0.610)	0.667 (0.612-0.728)	0.780 (0.713-0.851)	0.857 (0.783-0.935)	0.943 (0.858-1.03)	1.00 (0.906-1.09)	1.06 (0.953-1.16)	1.11 (0.990-1.21)	1.16 (1.03-1.27)	1.19 (1.05-1.31)
15-min	0.698 (0.641-0.763)	0.839 (0.769-0.916)	0.987 (0.903-1.08)	1.08 (0.991-1.18)	1.20 (1.09-1.30)	1.27 (1.15-1.38)	1.34 (1.21-1.46)	1.40 (1.25-1.53)	1.46 (1.29-1.60)	1.50 (1.32-1.64)
30-min	0.958 (0.879-1.05)	1.16 (1.06-1.26)	1.40 (1.28-1.53)	1.57 (1.44-1.71)	1.77 (1.61-1.93)	1.91 (1.73-2.08)	2.05 (1.85-2.24)	2.17 (1.94-2.37)	2.32 (2.06-2.54)	2.42 (2.14-2.66)
60-min	1.19 (1.10-1.30)	1.45 (1.33-1.59)	1.80 (1.64-1.96)	2.05 (1.87-2.23)	2.36 (2.14-2.57)	2.59 (2.34-2.82)	2.82 (2.54-3.08)	3.05 (2.73-3.33)	3.33 (2.95-3.64)	3.54 (3.12-3.89)
2-hr	1.42 (1.29-1.57)	1.73 (1.57-1.91)	2.15 (1.95-2.37)	2.47 (2.24-2.72)	2.89 (2.60-3.18)	3.23 (2.88-3.55)	3.55 (3.16-3.91)	3.89 (3.43-4.28)	4.33 (3.78-4.77)	4.67 (4.03-5.16)
3-hr	1.55 (1.41-1.71)	1.88 (1.71-2.07)	2.34 (2.12-2.58)	2.69 (2.44-2.97)	3.16 (2.84-3.47)	3.52 (3.14-3.87)	3.88 (3.45-4.27)	4.25 (3.74-4.68)	4.74 (4.13-5.23)	5.11 (4.41-5.65)
6-hr	1.91 (1.74-2.12)	2.31 (2.10-2.56)	2.87 (2.60-3.17)	3.32 (3.00-3.67)	3.94 (3.54-4.34)	4.44 (3.96-4.89)	4.97 (4.39-5.46)	5.51 (4.82-6.06)	6.26 (5.39-6.91)	6.86 (5.83-7.58)
12-hr	2.32 (2.11-2.60)	2.80 (2.54-3.13)	3.50 (3.17-3.90)	4.08 (3.67-4.54)	4.91 (4.38-5.44)	5.60 (4.95-6.19)	6.35 (5.55-7.03)	7.15 (6.17-7.91)	8.30 (7.02-9.20)	9.25 (7.69-10.3)
24-hr	2.69 (2.46-2.95)	3.24 (2.96-3.55)	4.06 (3.71-4.45)	4.74 (4.32-5.19)	5.73 (5.19-6.26)	6.55 (5.91-7.15)	7.44 (6.68-8.11)	8.40 (7.49-9.14)	9.79 (8.64-10.7)	10.9 (9.57-11.9)
2-day	3.11 (2.84-3.43)	3.76 (3.43-4.14)	4.71 (4.30-5.19)	5.49 (4.99-6.04)	6.60 (5.97-7.24)	7.50 (6.77-8.24)	8.47 (7.60-9.30)	9.50 (8.47-10.4)	11.0 (9.69-12.1)	12.2 (10.7-13.4)
3-day	3.28 (3.00-3.62)	3.96 (3.61-4.37)	4.95 (4.52-5.46)	5.76 (5.24-6.35)	6.91 (6.26-7.59)	7.85 (7.08-8.62)	8.85 (7.95-9.72)	9.92 (8.85-10.9)	11.4 (10.1-12.6)	12.7 (11.1-13.9)
4-day	3.45 (3.15-3.81)	4.16 (3.80-4.59)	5.20 (4.74-5.73)	6.04 (5.49-6.65)	7.23 (6.55-7.95)	8.20 (7.40-9.01)	9.24 (8.29-10.1)	10.3 (9.22-11.3)	11.9 (10.5-13.1)	13.2 (11.6-14.5)
7-day	4.03 (3.71-4.41)	4.83 (4.45-5.29)	5.98 (5.49-6.54)	6.91 (6.34-7.55)	8.24 (7.53-8.99)	9.35 (8.49-10.2)	10.5 (9.50-11.4)	11.8 (10.6-12.8)	13.5 (12.0-14.7)	15.0 (13.2-16.3)
10-day	4.59 (4.25-4.97)	5.48 (5.07-5.94)	6.68 (6.17-7.24)	7.64 (7.04-8.27)	8.97 (8.24-9.71)	10.1 (9.21-10.9)	11.2 (10.2-12.1)	12.3 (11.2-13.3)	13.9 (12.6-15.1)	15.2 (13.6-16.5)
20-day	6.20 (5.77-6.68)	7.35 (6.84-7.92)	8.77 (8.15-9.44)	9.88 (9.18-10.6)	11.4 (10.6-12.2)	12.6 (11.6-13.5)	13.7 (12.7-14.8)	14.9 (13.7-16.0)	16.5 (15.1-17.8)	17.7 (16.1-19.1)
30-day	7.71 (7.25-8.20)	9.09 (8.54-9.67)	10.6 (9.95-11.3)	11.8 (11.0-12.5)	13.3 (12.4-14.1)	14.4 (13.5-15.4)	15.6 (14.5-16.6)	16.7 (15.5-17.8)	18.1 (16.8-19.3)	19.2 (17.7-20.5)
45-day	9.78 (9.25-10.4)	11.5 (10.9-12.2)	13.2 (12.5-14.0)	14.5 (13.7-15.3)	16.1 (15.2-17.1)	17.3 (16.3-18.4)	18.5 (17.4-19.6)	19.5 (18.4-20.7)	20.9 (19.6-22.1)	21.8 (20.4-23.2)
60-day	11.7 (11.1-12.4)	13.7 (13.0-14.5)	15.7 (14.9-16.5)	17.1 (16.2-18.0)	18.9 (17.9-19.9)	20.2 (19.1-21.3)	21.4 (20.2-22.6)	22.5 (21.3-23.8)	23.9 (22.5-25.3)	24.9 (23.4-26.3)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

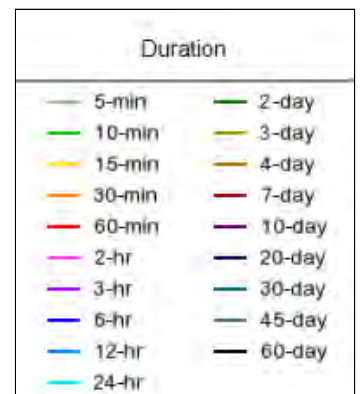
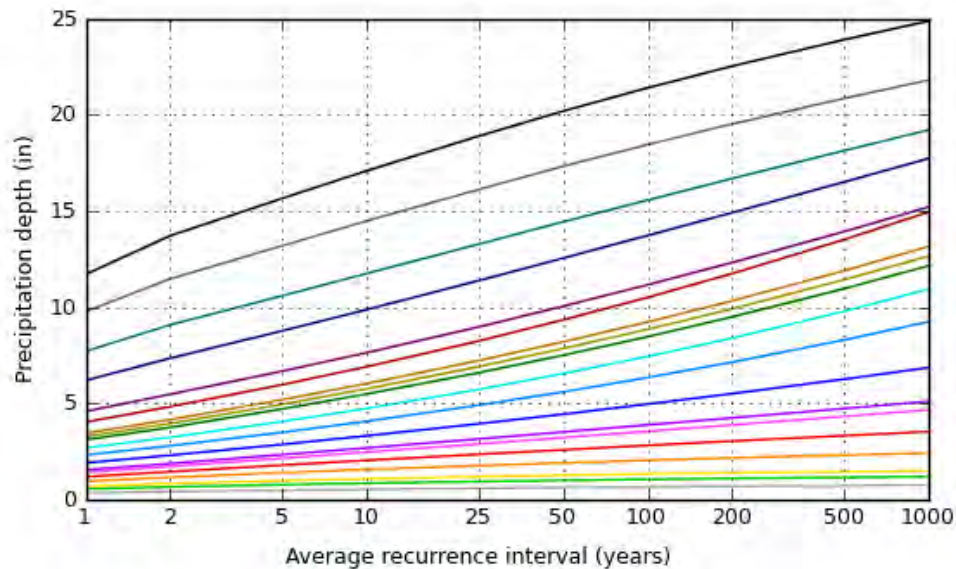
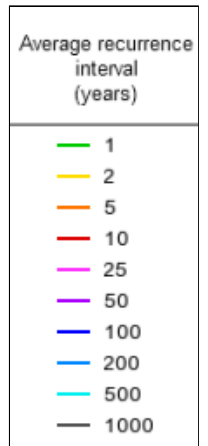
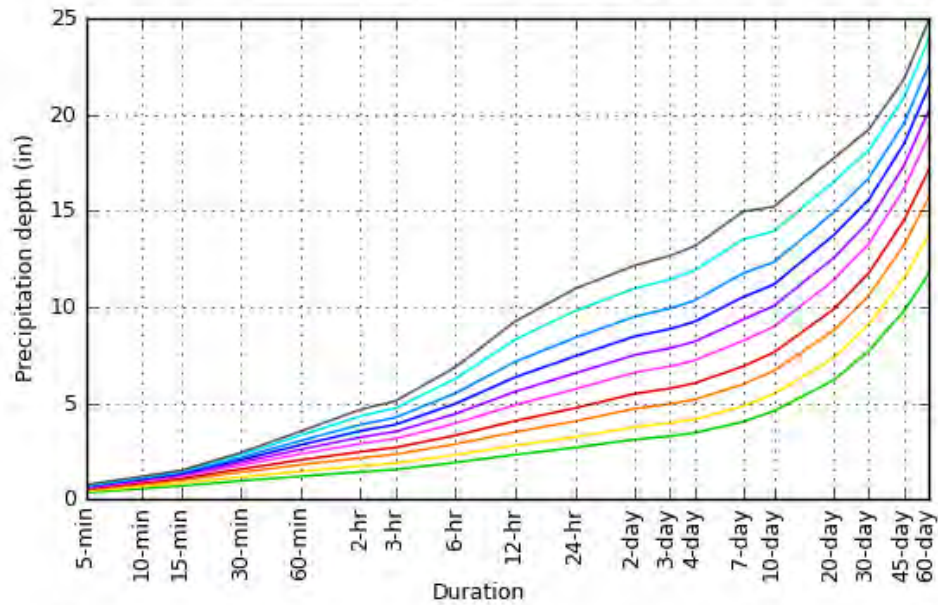
Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves

Latitude: 40.0404°, Longitude: -75.5966°



NOAA Atlas 14, Volume 2, Version 3

Created (GMT): Tue Apr 14 14:25:09 2020

[Back to Top](#)**Maps & arials****Small scale terrain**



Large scale terrain



Large scale map



Large scale aerial



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[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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VOLUME AND WATER QUALITY CALCULATIONS

General Information

Instructions

General

Volume

Rate

Quality

Project Name:	Data Centers	Application Type:	PAG-02 NOI
County:	Chester	Municipality:	East Whiteland Township
Project Type:	Redevelopment	☒ New Project ☐ Minor / Major Amendment	
Area: (In Watershed)	57.37 acres	Total Earth Disturbance: (In Watershed)	52.89 acres
No. of Post-Construction Discharge Points:	1	Start DP Numbering at:	001

Discharge Point (DP) No.	Drainage Area (DA) (acres)	Earth Disturbance in DA (acres)	Existing Impervious in DA (acres)	Proposed Impervious in DA (acres)	Receiving Waters	Ch. 93 Class	Structural BMP(s)
001	51.11	48.60	26.67	25.39	Valley Creek	CWF, MF	Yes
Undetained Areas	6.26	4.29	0.84	0.62	Valley Creek	CWF, MF	
Totals:	57.37	52.89	27.51	26.01			

Volume Management

Project: Data Centers

Instructions General **Volume** Rate Quality

2-Year / 24-Hour Storm Event (NOAA Atlas 14): inches Alternative 2-Year / 24-Hour Storm Event inches
Alternative Source:

Pre-Construction Conditions: No. Rows: ☐ Exempt from Meadow in Good Condition ☒ Automatically Calculate CN, Ia, Runoff and Volume

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Pervious as Meadow	25.38	B	58	1.448	0.36	32,742
Impervious as Meadow	5.50	B	58	1.448	0.36	7,098
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	22.01	B	98	0.041	3.01	240,254
TOTAL (ACRES):		52.89	TOTAL (CF):		280,093	

Post-Construction Conditions: No. Rows:

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	26.01	B	98	0.041	3.01	283,942
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	26.88	B	61	1.279	0.46	44,926
TOTAL (ACRES):		52.89	TOTAL (CF):		328,868	

IET CHANGE IN VOLUME TO MANAGE (CF):

Non-Structural BMP Volume Credits:

☐ Tree Planting Credit

☐ Other (attach calculations):

Structural BMP Volume Credits:

No. Structural BMPs:

9

Start BMP Numbering at:

1

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegetated?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Wet Pond / Retention Basin	-	Off-Site	14.11	64,442	0	0.00		Yes		0		
001	2	Rain Garden / Bioretention	Y	Off-Site	8.22	64,747	7,500	0.00		Yes	4.0	20,991		7,410
001	3	Rain Garden / Bioretention	Y	Off-Site	6.18	49,183	7,500	0.00		Yes	4.0	15,629		7,410
001	4	Rain Garden / Bioretention	Y	Off-Site	11.20	67,625	10,000	0.00		Yes	3.0	19,755		7,590
001	5	Rain Garden / Bioretention	Y	Off-Site	9.04	64,536	10,000	0.00		Yes	3.0	20,222		7,590
	6													
	7													
	8													
	9													

Totals: 30,000

INFILTRATION & ET CREDITS (CF): 30,000

MANAGED RELEASE CREDIT (CF): 216,091

NET CHANGE IN VOLUME TO MANAGE (CF): 48,774

TOTAL CREDITS (CF): 246,091

VOLUME REQUIREMENT SATISFIED

Rate Control

Project: Data Centers

Instructions

General

Volume

Rate

Quality

Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):

3.24

NOAA 10-Year 24-Hour Storm Event (in):

Alternative 2-Year 24-Hour Storm Event (in):

Alternative 10-Year 24-Hour Storm Event (in):

NOAA 50-Year 24-Hour Storm Event (in):

Alternative 50-Year 24-Hour Storm Event (in):

NOAA 100-Year 24-Hour Storm Event (in):

Alternative 100-Year 24-Hour Storm Event (in):

☐ Report Summary of Peak Rates Only

☐ Time of Concentration (Tc) - Pre-Construction

☐ Use Default (0.1 hr)

☐ Time of Concentration (Tc) - Post-Construction

☐ Use Default (0.1 hr)

☐ Sheet Flow

☐ Shallow Concentrated Flow

☐ Channel Flow

Tc, 2-Year Storm (hr):

Tc, 2-Year Storm (min):

Tc, 10-Year Storm (hr):

Tc, 10-Year Storm (min):

Tc, 50-Year Storm (hr):

Tc, 50-Year Storm (min):

Tc, 100-Year Storm (hr):

Tc, 100-Year Storm (min):

Peak Rate Analysis:

	Pre-Construction	Post-Construction without BMPs
<i>Disturbed Area (mi²)</i>	0.083	0.083
	<i>Runoff Depth (inches)</i>	
2-Year Storm:	1.35	1.38
10-Year Storm:		
50-Year Storm:		
100-Year Storm:		
	<i>Unit Peak Discharge (csm/in)</i>	
2-Year Storm:		
10-Year Storm:		
50-Year Storm:		
100-Year Storm:		
	<i>Peak Discharge Rate (cfs)</i>	
2-Year Storm:		
10-Year Storm:		
50-Year Storm:		
100-Year Storm:		

Water Quality

Project: Data Centers

PRINT

Instructions

General

Volume

Rate

Quality

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Pervious as Meadow	Grassland/Herbaceous	25.38	B	32,742	48.8	0.22	2.30	99.77	0.45	4.70
Impervious as Meadow	Grassland/Herbaceous	5.50	B	7,098	48.8	0.22	2.30	21.63	0.10	1.02
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	22.01	B	240,254	65.0	0.29	2.05	975.13	4.35	30.75
TOTAL (ACRES):		52.89			TOTALS:			#####	4.90	36.48

Post-Construction Pollutant Loads (without BMPs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	26.01	B	283,942	65.0	0.29	2.05	#####	5.14	36.35
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	26.88	B	44,926	78.0	0.25	1.25	218.81	0.70	3.51

TOTAL (ACRES): 52.89

TOTALS: ##### 5.84 39.85

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS): **274.73** **0.95** **3.38**☐ Characterize Undetained Areas (for Untreated Stormwater)

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)

Non-Structural BMP Water Quality Credits:

☐ Pervious Undetained Area Credit☐ Other (attach calculations)

Structural BMP Water Quality Credits:

☒ Use default BMP Outflows and Median BMP Outflow Concentrations

DP No.	BMP No.	BMP Name	MRC?	BMP DA (acres)	Vol. Routed to BMP (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
001	1	Wet Pond / Retention Basin	-	14.11	64,442			64,442	12.00	0.12	1.20	48.29	0.48	4.83
001	2	Rain Garden / Bioretention	Y	8.22	64,747	7,410		57,337	-	-	-	-	-	-
001	3	Rain Garden / Bioretention	Y	6.18	49,183	7,410		41,773	-	-	-	-	-	-
001	4	Rain Garden / Bioretention	Y	11.20	67,625	7,590		60,035	-	-	-	-	-	-
001	5	Rain Garden / Bioretention	Y	9.04	64,536	7,590		56,946	-	-	-	-	-	-

	6												
	7												
	8												
	9												

POLLUTANT LOADS FROM STRUCTURAL BMP (TREATED) OUTFLOWS (LBS):

POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):

NON-STRUCTURAL BMP WATER QUALITY CREDITS (LBS):

NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):

POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):

TSS	TP	TN
48.29	0.48	4.83
76.45	0.33	2.22
124.74	0.81	7.05
#####	4.90	36.48

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

SED

Spreadsheet User Name

5/7/2024

Date

MANAGED RELEASE CONCEPT (MRC) DESIGN SUMMARY

Complete One Design Summary Sheet for Each BMP Designed for MRC

GENERAL INFORMATION

Applicant Name: **Green Fig Land Company** Project Name: **Data Centers**
Applicant Address: **10 Woodford Lane** Municipality: **East Whiteland Township**
City, State, Zip: **Malvern, PA 19355** County: **Chester**
Permit Type: ☒ NPDES PAG-02 ☐ NPDES IP ☐ ESCGP ☐ ESP

	Pre-Development	Post-Development	Change
Impervious Area (acres):	27.51	26.01	-1.50

MRC BMP INFORMATION

MRC BMP Type: **BMP-02 MRC Rain Garden** Stormwater BMP Manual Section: **6.4.5**

Will the BMP Include Vegetation? ☒ Yes ☐ No

If Yes, Identify Proposed Vegetation: **The basin bottom will be planted with shrubs and meadow mix**

For Non-Vegetated BMPs Will There Be Pre- or Post-Treatment? ☐ Yes (Pre-) ☐ Yes (Post-) ☐ No

If Yes, Identify Proposed Pre- or Post-Treatment: _____

Name of Surface Water to Receive MRC BMP Discharges: **Valley Creek - Water flows to overflow rate control basin**

Designated Use of Surface Water: **CWF, MF** Existing Use of Surface Water (if different): _____

Is the Surface Water Impaired? ☒ Yes ☐ No

If Yes, Identify Cause(s): **Siltation, Flow Regime Modification**

Will the BMP have an impermeable liner? ☒ Yes ☐ No

If Yes, explain why a liner is proposed: **Underlain by Karst Geology**

BMP Media Description: **70-80% Topsoil and 20-30% Compost**

Are Any Deviations from MRC Design Standards Proposed? ☐ Yes ☒ No

If Yes, Identify Deviations: _____

MRC BMP DESIGN VALUES AND STANDARDS

Parameter	Design Value	Design Standard
Actual Contributing Impervious Area to BMP (acres)	5.52	
Equivalent Contributing Impervious Area to BMP (acres)	5.73	
Total Drainage Area to BMP (acres)	8.22	
MRC BMP Release Rate (cfs)	0.06	<i>No greater than 0.01 cfs / acre of equivalent contributing impervious</i>
Underdrain Outflow Rate During 1.2-Inch/2-Hour Storm (cfs)	0.06	<i><= MRC BMP Release Rate (cfs)</i>
Maximum Storm Event Routed to MRC BMP	100	

MRC BMP Design Summary
Revised, August 25, 2020

Parameter	Design Value	Design Standard
BMP Footprint Area (ft ²)	7,500	
Bottom BMP Elevation (Native Soils) (ft)	358.00	
2-Yr/24-Hr Storm Ponding Depth (ft)	1.8	1 ft (recommended) (2 ft max)
Maximum Ponding Depth (ft)	3.1	4 ft (max)
Overflow Bypass Elevation (ft)	363.25	
Media Depth (ft)	4.0	2 ft (min) – 4 ft (max)
Media Void Space (%)	30%	
Internal Water Storage (IWS) Depth (ft)	1.0	1 ft recommended
Top of IWS Elevation (ft)	359.00	
Underdrain Pipe Diameter (in)	6	
Underdrain Orifice Diameter (in)	1.1"	
Underdrain Outlet Elevation (ft)	358.00	
IWS Available for Routing (%)	50	50% max
Separation Distance (Groundwater) (ft)	>2	1 ft (min) (2 ft recommended)
Infiltration Rate (in/hr)	N/A	
Volume of Overflow During 1.2-Inch/2-Hour Storm (cf)	0.00	0 (No overflow allowed)
1-Yr/24-Hr Pre -Development Peak Rate (cfs)	45.89	
2-Yr/24-Hr Post -Development Peak Rate (cfs)	8.85	1-Yr/24-Hr Pre-Development Peak Rate (or per approved Act 167 Plan)
10-Yr/24-Hr Post -Development Peak Rate (cfs)	33.02	10-Yr/24-Hr Pre-Development Peak Rate
50-Yr/24-Hr Post -Development Peak Rate (cfs)	84.45	50-Yr/24-Hr Pre-Development Peak Rate
100-Yr/24-Hr Post -Development Peak Rate (cfs)	108.78	100-Yr/24-Hr Pre-Development Peak Rate
Total 2-Yr/24-Hr Runoff Volume Managed by BMP (cf)	64,747	
Ponding Time @ 2-Yr/24-Hr Storm (hrs)	62, 6	72 hrs (surface), 7 days (underground)
Ponding Time @ 10-Yr/24-Hr Storm (hrs)	62, 6	72 hrs (surface), 7 days (underground)
Ponding Time @ 50-Yr/24-Hr Storm (hrs)	62, 6	72 hrs (surface), 7 days (underground)
Ponding Time @ 100-Yr/24-Hr Storm (hrs)	62, 6	72 hrs (surface), 7 days (underground)

John M. Robinson, P.E.
Licensed P.E. Name

John M. Robinson

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05/07/2024
Date



MANAGED RELEASE CONCEPT (MRC) DESIGN SUMMARY

Complete One Design Summary Sheet for Each BMP Designed for MRC

GENERAL INFORMATION

Applicant Name: **Green Fig Land Company** Project Name: **Data Centers**
Applicant Address: **10 Woodford Lane** Municipality: **East Whiteland Township**
City, State, Zip: **Malvern, PA 19355** County: **Chester**
Permit Type: ☒ NPDES PAG-02 ☐ NPDES IP ☐ ESCGP ☐ ESP

	Pre-Development	Post-Development	Change
Impervious Area (acres):	27.51	26.01	-1.50

MRC BMP INFORMATION

MRC BMP Type: **BMP-03 MRC Rain Garden** Stormwater BMP Manual Section: **6.4.5**

Will the BMP Include Vegetation? ☒ Yes ☐ No

If Yes, Identify Proposed Vegetation: **The basin bottom will be planted with shrubs and meadow mix**

For Non-Vegetated BMPs Will There Be Pre- or Post-Treatment? ☐ Yes (Pre-) ☐ Yes (Post-) ☐ No

If Yes, Identify Proposed Pre- or Post-Treatment: _____

Name of Surface Water to Receive MRC BMP Discharges: **Valley Creek - Water flows to overflow rate control basin**

Designated Use of Surface Water: **CWF, MF** Existing Use of Surface Water (if different): _____

Is the Surface Water Impaired? ☒ Yes ☐ No

If Yes, Identify Cause(s): **Siltation, Flow Regime Modification**

Will the BMP have an impermeable liner? ☒ Yes ☐ No

If Yes, explain why a liner is proposed: **Underlain by Karst Geology**

BMP Media Description: **70-80% Topsoil and 20-30% Compost**

Are Any Deviations from MRC Design Standards Proposed? ☐ Yes ☒ No

If Yes, Identify Deviations: _____

MRC BMP DESIGN VALUES AND STANDARDS

Parameter	Design Value	Design Standard
Actual Contributing Impervious Area to BMP (acres)	4.20	
Equivalent Contributing Impervious Area to BMP (acres)	4.37	
Total Drainage Area to BMP (acres)	6.18	
MRC BMP Release Rate (cfs)	0.05	<i>No greater than 0.01 cfs / acre of equivalent contributing impervious</i>
Underdrain Outflow Rate During 1.2-Inch/2-Hour Storm (cfs)	0.05	<i><= MRC BMP Release Rate (cfs)</i>
Maximum Storm Event Routed to MRC BMP	100	

MRC BMP Design Summary
Revised, August 25, 2020

Parameter	Design Value	Design Standard
BMP Footprint Area (ft ²)	7,500	
Bottom BMP Elevation (Native Soils) (ft)	358.00	
2-Yr/24-Hr Storm Ponding Depth (ft)	1.3	1 ft (recommended) (2 ft max)
Maximum Ponding Depth (ft)	2.1	4 ft (max)
Overflow Bypass Elevation (ft)	362.75	
Media Depth (ft)	4.0	2 ft (min) – 4 ft (max)
Media Void Space (%)	30%	
Internal Water Storage (IWS) Depth (ft)	1.0	1 ft recommended
Top of IWS Elevation (ft)	359.00	
Underdrain Pipe Diameter (in)	6	
Underdrain Orifice Diameter (in)	1"	
Underdrain Outlet Elevation (ft)	358.00	
IWS Available for Routing (%)	50	50% max
Separation Distance (Groundwater) (ft)	>2	1 ft (min) (2 ft recommended)
Infiltration Rate (in/hr)	N/A	
Volume of Overflow During 1.2-Inch/2-Hour Storm (cf)	0.00	0 (No overflow allowed)
1-Yr/24-Hr Pre -Development Peak Rate (cfs)	45.89	
2-Yr/24-Hr Post -Development Peak Rate (cfs)	8.85	1-Yr/24-Hr Pre-Development Peak Rate (or per approved Act 167 Plan)
10-Yr/24-Hr Post -Development Peak Rate (cfs)	33.02	10-Yr/24-Hr Pre-Development Peak Rate
50-Yr/24-Hr Post -Development Peak Rate (cfs)	84.45	50-Yr/24-Hr Pre-Development Peak Rate
100-Yr/24-Hr Post -Development Peak Rate (cfs)	108.78	100-Yr/24-Hr Pre-Development Peak Rate
Total 2-Yr/24-Hr Runoff Volume Managed by BMP (cf)	49,183	
Ponding Time @ 2-Yr/24-Hr Storm (hrs)	46, 6	72 hrs (surface), 7 days (underground)
Ponding Time @ 10-Yr/24-Hr Storm (hrs)	46, 6	72 hrs (surface), 7 days (underground)
Ponding Time @ 50-Yr/24-Hr Storm (hrs)	46, 6	72 hrs (surface), 7 days (underground)
Ponding Time @ 100-Yr/24-Hr Storm (hrs)	46, 6	72 hrs (surface), 7 days (underground)

John M. Robinson, P.E.
Licensed P.E. Name

John M. Robinson

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05/07/2024
Date



MANAGED RELEASE CONCEPT (MRC) DESIGN SUMMARY

Complete One Design Summary Sheet for Each BMP Designed for MRC

GENERAL INFORMATION

Applicant Name: **Green Fig Land Company** Project Name: **Data Centers**
 Applicant Address: **10 Woodford Lane** Municipality: **East Whiteland Township**
 City, State, Zip: **Malvern, PA 19355** County: **Chester**
 Permit Type: ☒ NPDES PAG-02 ☐ NPDES IP ☐ ESCGP ☐ ESP

	Pre-Development	Post-Development	Change
Impervious Area (acres):	27.51	26.01	-1.50

MRC BMP INFORMATION

MRC BMP Type: **BMP-04 MRC Rain Garden** Stormwater BMP Manual Section: **6.4.5**

Will the BMP Include Vegetation? ☒ Yes ☐ No

If Yes, Identify Proposed Vegetation: **The basin bottom will be planted with shrubs and meadow mix**

For Non-Vegetated BMPs Will There Be Pre- or Post-Treatment? ☐ Yes (Pre-) ☐ Yes (Post-) ☐ No

If Yes, Identify Proposed Pre- or Post-Treatment: _____

Name of Surface Water to Receive MRC BMP Discharges: **Valley Creek - Water flows to overflow rate control basin**

Designated Use of Surface Water: **CWF, MF** Existing Use of Surface Water (if different): _____

Is the Surface Water Impaired? ☒ Yes ☐ No

If Yes, Identify Cause(s): **Siltation, Flow Regime Modification**

Will the BMP have an impermeable liner? ☒ Yes ☐ No

If Yes, explain why a liner is proposed: **Underlain by Karst Geology**

BMP Media Description: **70-80% Topsoil and 20-30% Compost**

Are Any Deviations from MRC Design Standards Proposed? ☐ Yes ☒ No

If Yes, Identify Deviations: _____

MRC BMP DESIGN VALUES AND STANDARDS

Parameter	Design Value	Design Standard
Actual Contributing Impervious Area to BMP (acres)	5.29	
Equivalent Contributing Impervious Area to BMP (acres)	5.50	
Total Drainage Area to BMP (acres)	13.18	
MRC BMP Release Rate (cfs)	0.05	<i>No greater than 0.01 cfs / acre of equivalent contributing impervious</i>
Underdrain Outflow Rate During 1.2-Inch/2-Hour Storm (cfs)	0.05	<i><= MRC BMP Release Rate (cfs)</i>
Maximum Storm Event Routed to MRC BMP	100	

MRC BMP Design Summary
Revised, August 25, 2020

Parameter	Design Value	Design Standard
BMP Footprint Area (ft ²)	10,000	
Bottom BMP Elevation (Native Soils) (ft)	369.00	
2-Yr/24-Hr Storm Ponding Depth (ft)	1.2	1 ft (recommended) (2 ft max)
Maximum Ponding Depth (ft)	2.7	4 ft (max)
Overflow Bypass Elevation (ft)	372.65	
Media Depth (ft)	3.0	2 ft (min) – 4 ft (max)
Media Void Space (%)	30%	
Internal Water Storage (IWS) Depth (ft)	1.0	1 ft recommended
Top of IWS Elevation (ft)	370.00	
Underdrain Pipe Diameter (in)	6	
Underdrain Orifice Diameter (in)	1.1"	
Underdrain Outlet Elevation (ft)	369.00	
IWS Available for Routing (%)	50	50% max
Separation Distance (Groundwater) (ft)	>2	1 ft (min) (2 ft recommended)
Infiltration Rate (in/hr)	N/A	
Volume of Overflow During 1.2-Inch/2-Hour Storm (cf)	0.00	0 (No overflow allowed)
1-Yr/24-Hr Pre -Development Peak Rate (cfs)	45.89	
2-Yr/24-Hr Post -Development Peak Rate (cfs)	8.85	1-Yr/24-Hr Pre-Development Peak Rate (or per approved Act 167 Plan)
10-Yr/24-Hr Post -Development Peak Rate (cfs)	33.02	10-Yr/24-Hr Pre-Development Peak Rate
50-Yr/24-Hr Post -Development Peak Rate (cfs)	84.45	50-Yr/24-Hr Pre-Development Peak Rate
100-Yr/24-Hr Post -Development Peak Rate (cfs)	108.78	100-Yr/24-Hr Pre-Development Peak Rate
Total 2-Yr/24-Hr Runoff Volume Managed by BMP (cf)	67,625	
Ponding Time @ 2-Yr/24-Hr Storm (hrs)	74, 7	72 hrs (surface), 7 days (underground)
Ponding Time @ 10-Yr/24-Hr Storm (hrs)	74, 7	72 hrs (surface), 7 days (underground)
Ponding Time @ 50-Yr/24-Hr Storm (hrs)	74, 7	72 hrs (surface), 7 days (underground)
Ponding Time @ 100-Yr/24-Hr Storm (hrs)	74, 7	72 hrs (surface), 7 days (underground)

John M. Robinson, P.E.
Licensed P.E. Name

John M. Robinson

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05/07/2024
Date



MANAGED RELEASE CONCEPT (MRC) DESIGN SUMMARY

Complete One Design Summary Sheet for Each BMP Designed for MRC

GENERAL INFORMATION

Applicant Name: **Green Fig Land Company** Project Name: **Data Centers**
Applicant Address: **10 Woodford Lane** Municipality: **East Whiteland Township**
City, State, Zip: **Malvern, PA 19355** County: **Chester**
Permit Type: ☒ NPDES PAG-02 ☐ NPDES IP ☐ ESCGP ☐ ESP

	Pre-Development	Post-Development	Change
Impervious Area (acres):	27.51	26.01	-1.50

MRC BMP INFORMATION

MRC BMP Type: **BMP-05 MRC Rain Garden** Stormwater BMP Manual Section: **6.4.5**

Will the BMP Include Vegetation? ☒ Yes ☐ No

If Yes, Identify Proposed Vegetation: **The basin bottom will be planted with shrubs and meadow mix**

For Non-Vegetated BMPs Will There Be Pre- or Post-Treatment? ☐ Yes (Pre-) ☐ Yes (Post-) ☐ No

If Yes, Identify Proposed Pre- or Post-Treatment: _____

Name of Surface Water to Receive MRC BMP Discharges: **Valley Creek - Water flows to overflow rate control basin**

Designated Use of Surface Water: **CWF, MF** Existing Use of Surface Water (if different): _____

Is the Surface Water Impaired? ☒ Yes ☐ No

If Yes, Identify Cause(s): **Siltation, Flow Regime Modification**

Will the BMP have an impermeable liner? ☒ Yes ☐ No

If Yes, explain why a liner is proposed: **Underlain by Karst Geology**

BMP Media Description: **70-80% Topsoil and 20-30% Compost**

Are Any Deviations from MRC Design Standards Proposed? ☐ Yes ☒ No

If Yes, Identify Deviations: _____

MRC BMP DESIGN VALUES AND STANDARDS

Parameter	Design Value	Design Standard
Actual Contributing Impervious Area to BMP (acres)	5.35	
Equivalent Contributing Impervious Area to BMP (acres)	5.55	
Total Drainage Area to BMP (acres)	9.04	
MRC BMP Release Rate (cfs)	0.06	<i>No greater than 0.01 cfs / acre of equivalent contributing impervious</i>
Underdrain Outflow Rate During 1.2-Inch/2-Hour Storm (cfs)	0.06	<i><= MRC BMP Release Rate (cfs)</i>
Maximum Storm Event Routed to MRC BMP	100	

MRC BMP Design Summary
Revised, August 25, 2020

Parameter	Design Value	Design Standard
BMP Footprint Area (ft ²)	10,000	
Bottom BMP Elevation (Native Soils) (ft)	369.00	
2-Yr/24-Hr Storm Ponding Depth (ft)	1.2	1 ft (recommended) (2 ft max)
Maximum Ponding Depth (ft)	2.4	4 ft (max)
Overflow Bypass Elevation (ft)	372.70	
Media Depth (ft)	3.0	2 ft (min) – 4 ft (max)
Media Void Space (%)	30%	
Internal Water Storage (IWS) Depth (ft)	1.0	1 ft recommended
Top of IWS Elevation (ft)	370.00	
Underdrain Pipe Diameter (in)	6	
Underdrain Orifice Diameter (in)	1.2"	
Underdrain Outlet Elevation (ft)	369.00	
IWS Available for Routing (%)	50	50% max
Separation Distance (Groundwater) (ft)	>2	1 ft (min) (2 ft recommended)
Infiltration Rate (in/hr)	N/A	
Volume of Overflow During 1.2-Inch/2-Hour Storm (cf)	0.00	0 (No overflow allowed)
1-Yr/24-Hr Pre -Development Peak Rate (cfs)	45.89	
2-Yr/24-Hr Post -Development Peak Rate (cfs)	8.85	1-Yr/24-Hr Pre-Development Peak Rate (or per approved Act 167 Plan)
10-Yr/24-Hr Post -Development Peak Rate (cfs)	33.02	10-Yr/24-Hr Pre-Development Peak Rate
50-Yr/24-Hr Post -Development Peak Rate (cfs)	84.45	50-Yr/24-Hr Pre-Development Peak Rate
100-Yr/24-Hr Post -Development Peak Rate (cfs)	108.78	100-Yr/24-Hr Pre-Development Peak Rate
Total 2-Yr/24-Hr Runoff Volume Managed by BMP (cf)	64,536	
Ponding Time @ 2-Yr/24-Hr Storm (hrs)	64, 7	72 hrs (surface), 7 days (underground)
Ponding Time @ 10-Yr/24-Hr Storm (hrs)	64, 7	72 hrs (surface), 7 days (underground)
Ponding Time @ 50-Yr/24-Hr Storm (hrs)	64, 7	72 hrs (surface), 7 days (underground)
Ponding Time @ 100-Yr/24-Hr Storm (hrs)	64, 7	72 hrs (surface), 7 days (underground)

John M. Robinson, P.E.
Licensed P.E. Name

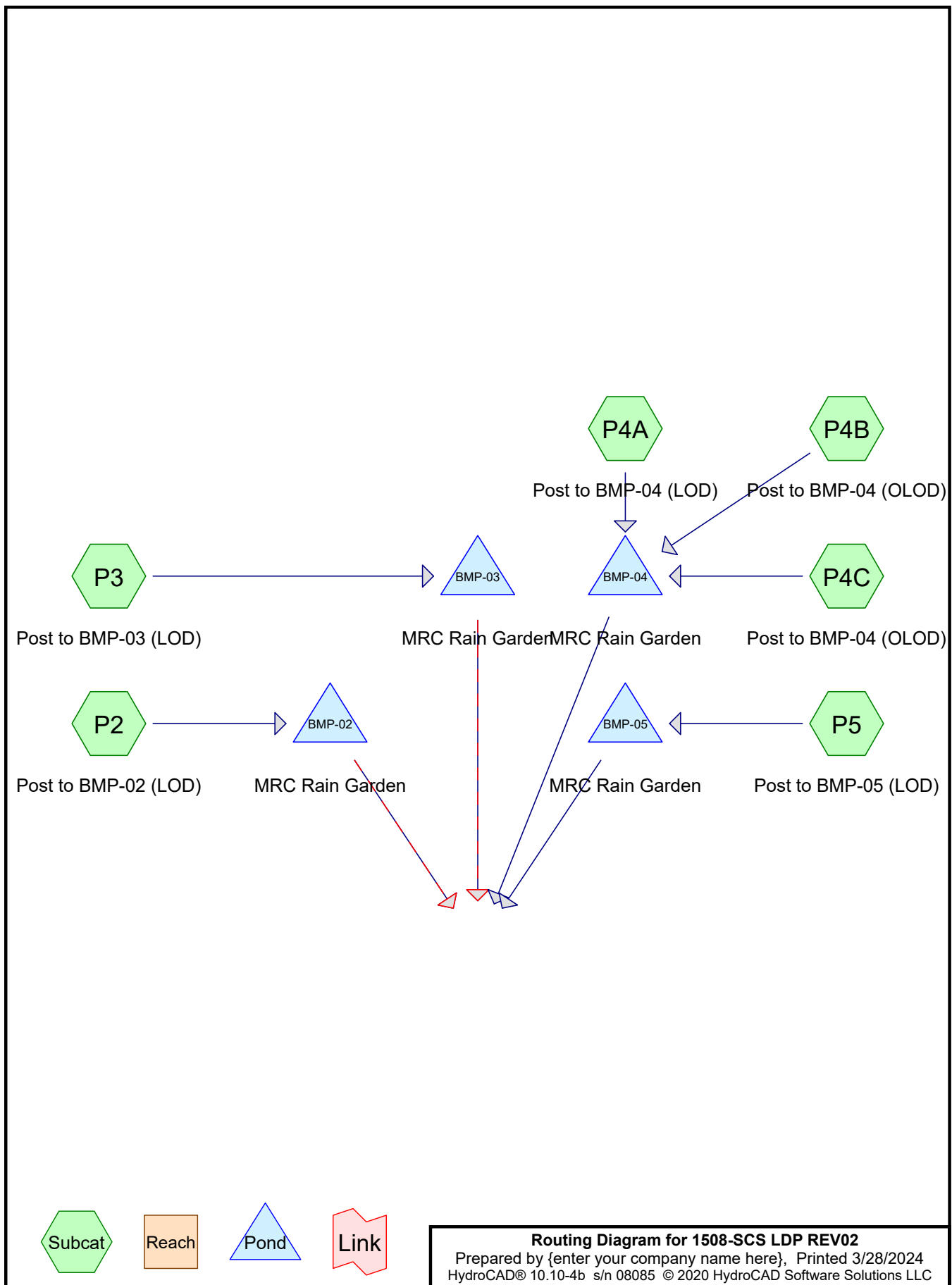
John M. Robinson

Licensed P.E. Signature

056271
License No.

05/07/2024
Date





Summary for Subcatchment P2: Post to BMP-02 (LOD)

Runoff = 16.48 cfs @ 1.10 hrs, Volume= 20,719 cf, Depth= 0.69"

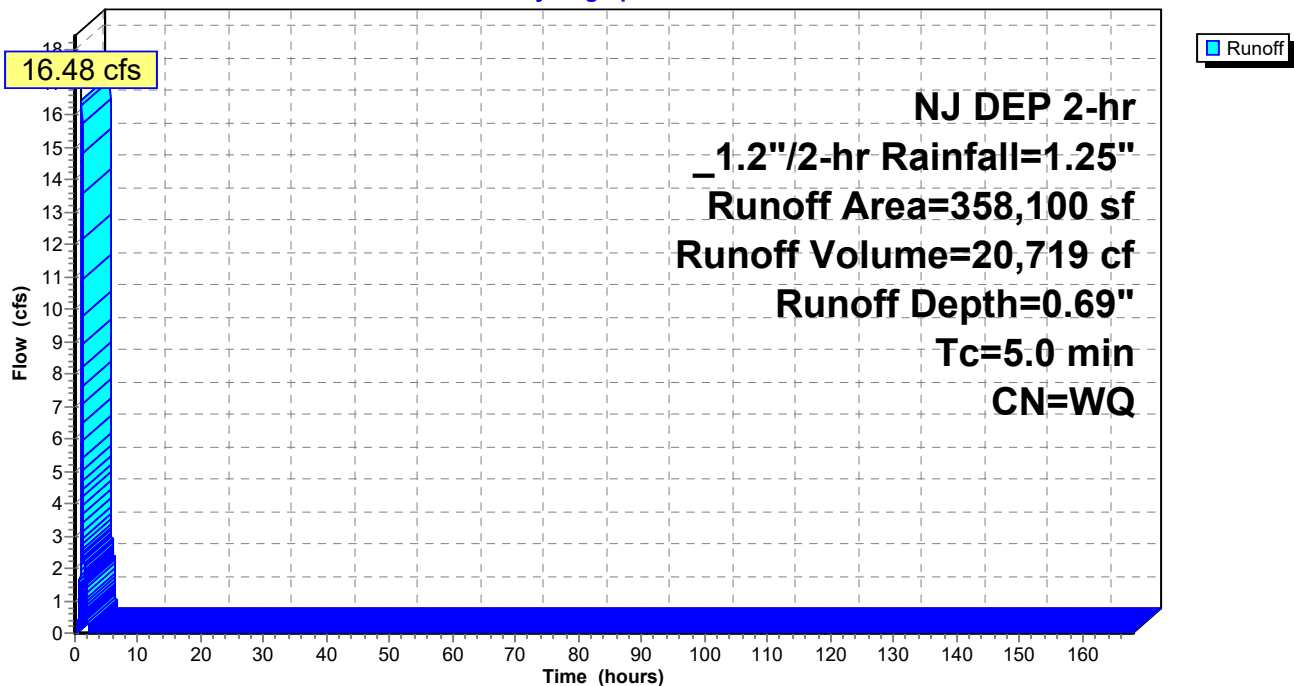
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	106,100	98	Impervious
	117,775	61	>75% Grass cover, Good, HSG B
	358,100		Weighted Average
	117,775	61	32.89% Pervious Area
	240,325	98	67.11% Impervious Area

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

Subcatchment P2: Post to BMP-02 (LOD)

Hydrograph



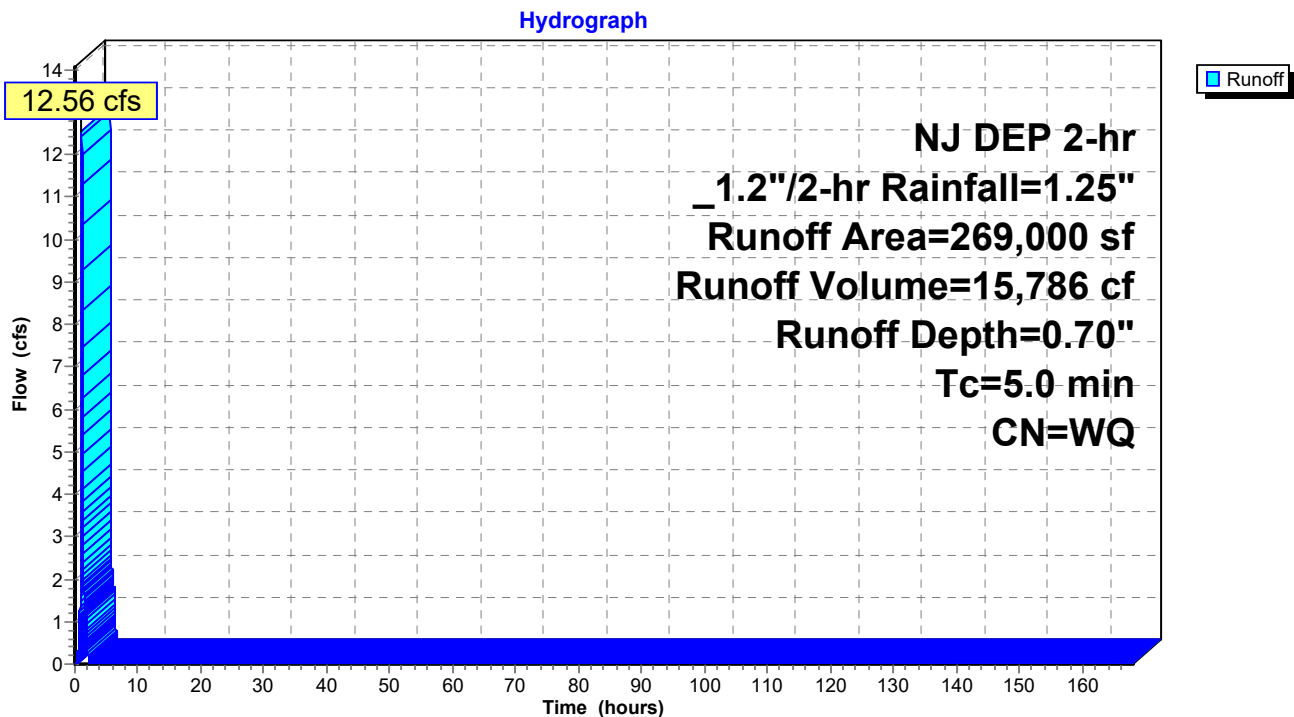
Summary for Subcatchment P3: Post to BMP-03 (LOD)

Runoff = 12.56 cfs @ 1.10 hrs, Volume= 15,786 cf, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	59,870	98	Impervious
	85,900	61	>75% Grass cover, Good, HSG B
	269,000		Weighted Average
	85,900	61	31.93% Pervious Area
	183,100	98	68.07% Impervious Area

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

Subcatchment P3: Post to BMP-03 (LOD)

Summary for Subcatchment P4A: Post to BMP-04 (LOD)

Runoff = 15.80 cfs @ 1.10 hrs, Volume= 19,869 cf, Depth= 0.49"

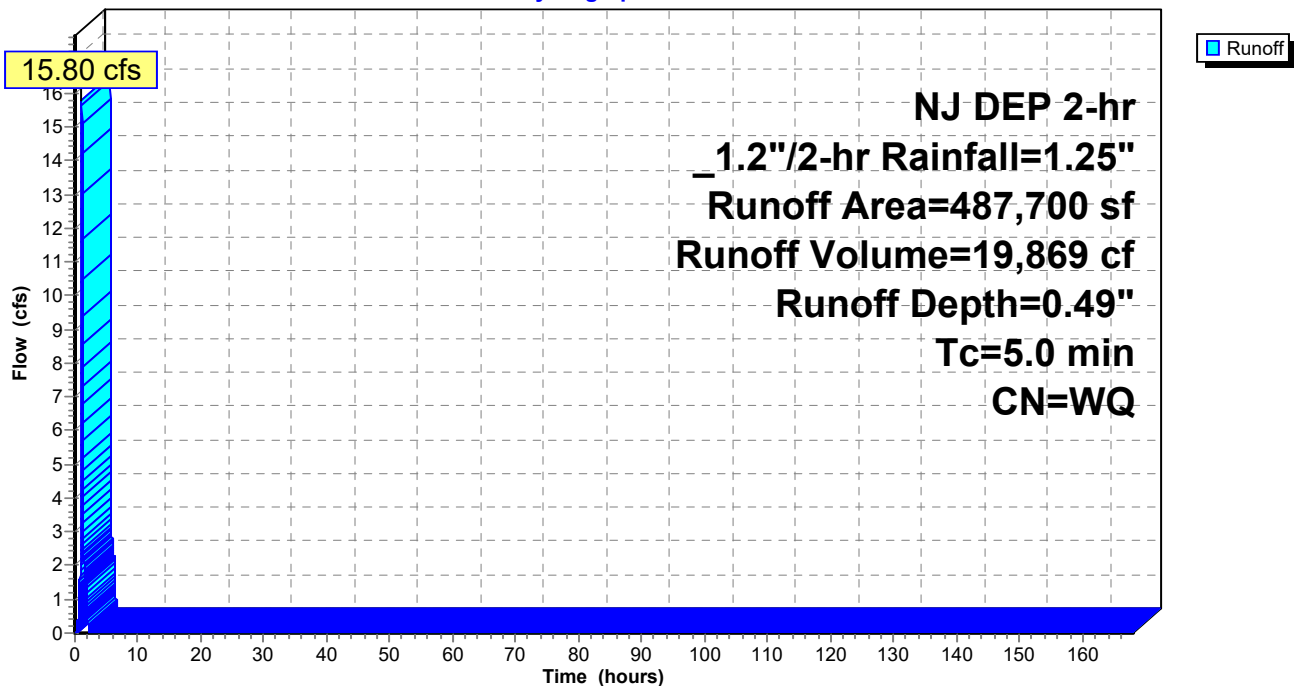
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	96,230	98	Impervious
	257,245	61	>75% Grass cover, Good, HSG B
	487,700		Weighted Average
	257,245	61	52.75% Pervious Area
	230,455	98	47.25% Impervious Area

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

Subcatchment P4A: Post to BMP-04 (LOD)

Hydrograph



Summary for Subcatchment P4B: Post to BMP-04 (OLOD)

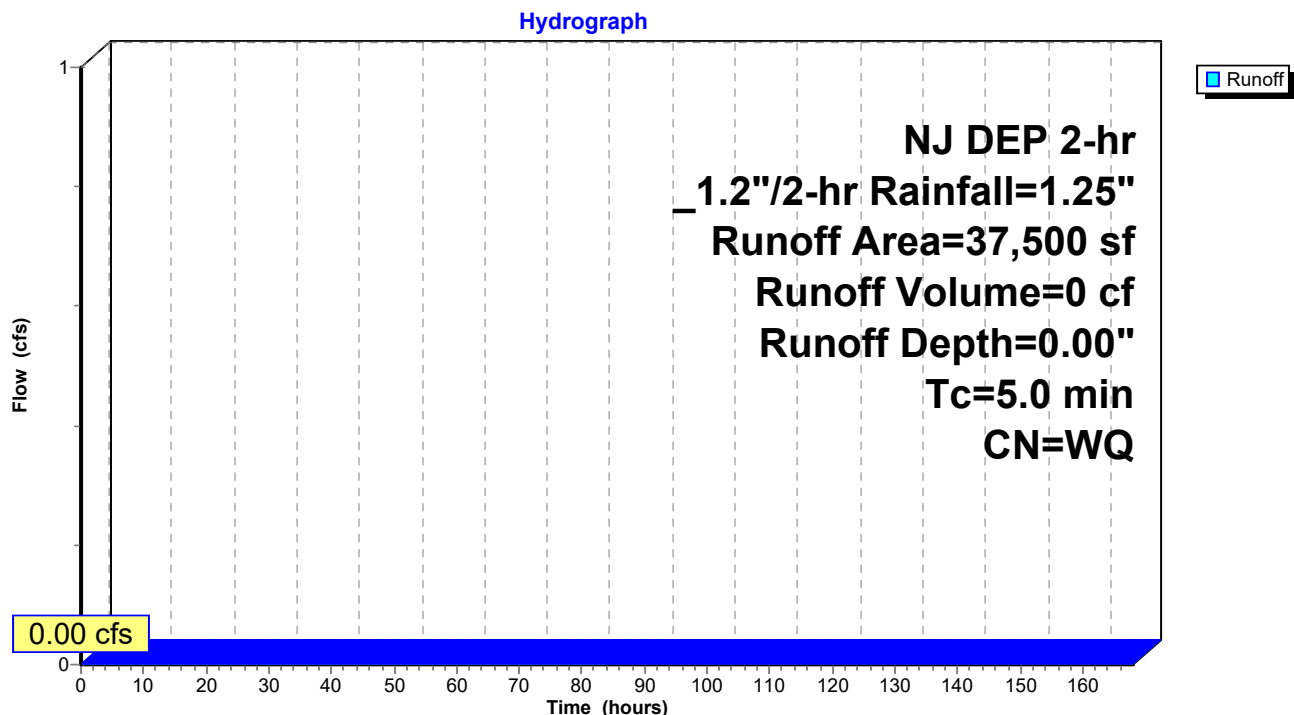
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	37,500	61	>75% Grass cover, Good, HSG B
	37,500		Weighted Average
	37,500	61	100.00% Pervious Area

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

Subcatchment P4B: Post to BMP-04 (OLOD)

Summary for Subcatchment P4C: Post to BMP-04 (OLOD)

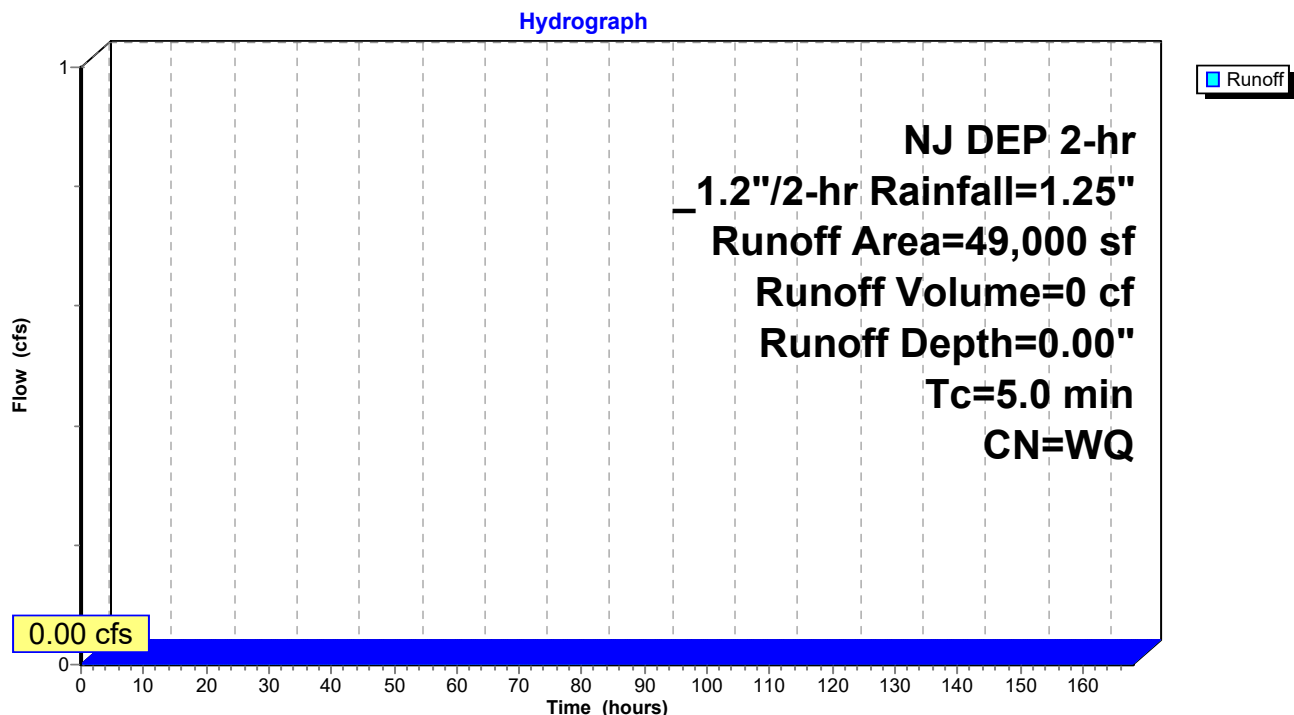
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	49,000	61	>75% Grass cover, Good, HSG B
	49,000		Weighted Average
	49,000	61	100.00% Pervious Area

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

Subcatchment P4C: Post to BMP-04 (OLOD)

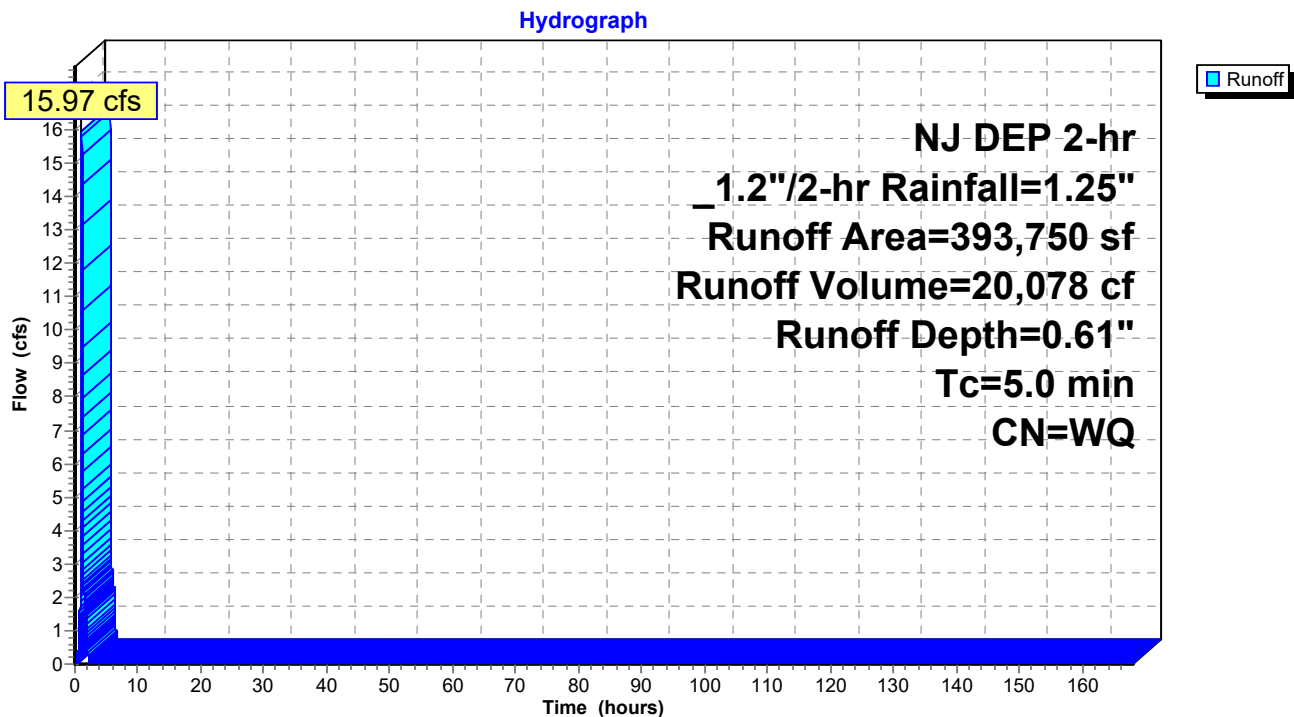
Summary for Subcatchment P5: Post to BMP-05 (LOD)

Runoff = 15.97 cfs @ 1.10 hrs, Volume= 20,078 cf, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	109,655	98	Impervious
	160,865	61	>75% Grass cover, Good, HSG B
	393,750		Weighted Average
	160,865	61	40.85% Pervious Area
	232,885	98	59.15% Impervious Area

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

Subcatchment P5: Post to BMP-05 (LOD)

Summary for Pond BMP-02: MRC Rain Garden

Inflow Area = 358,100 sf, 67.11% Impervious, Inflow Depth = 0.69" for $_1.2''/2\text{-hr}$ event
 Inflow = 16.48 cfs @ 1.10 hrs, Volume= 20,719 cf
 Outflow = 0.06 cfs @ 2.12 hrs, Volume= 19,590 cf, Atten= 100%, Lag= 61.4 min
 Primary = 0.06 cfs @ 2.12 hrs, Volume= 19,590 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
 Peak Elev= 363.20' @ 2.12 hrs Surf.Area= 28,510 sf Storage= 20,446 cf

Plug-Flow detention time= 2,828.9 min calculated for 19,589 cf (95% of inflow)
 Center-of-Mass det. time= 2,826.9 min (2,896.3 - 69.4)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Prismatic) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	67,900 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		75,775 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
358.00	7,500	0	0
359.00	7,500	7,500	7,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	7,500	0	0
363.00	12,450	9,975	9,975
364.00	17,750	15,100	25,075
365.00	21,300	19,525	44,600
366.00	25,300	23,300	67,900

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	363.25'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
 Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
 Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=0.06 cfs @ 2.12 hrs HW=363.20' (Free Discharge)

1=Outflow Pipe (Passes 0.06 cfs of 27.06 cfs potential flow)

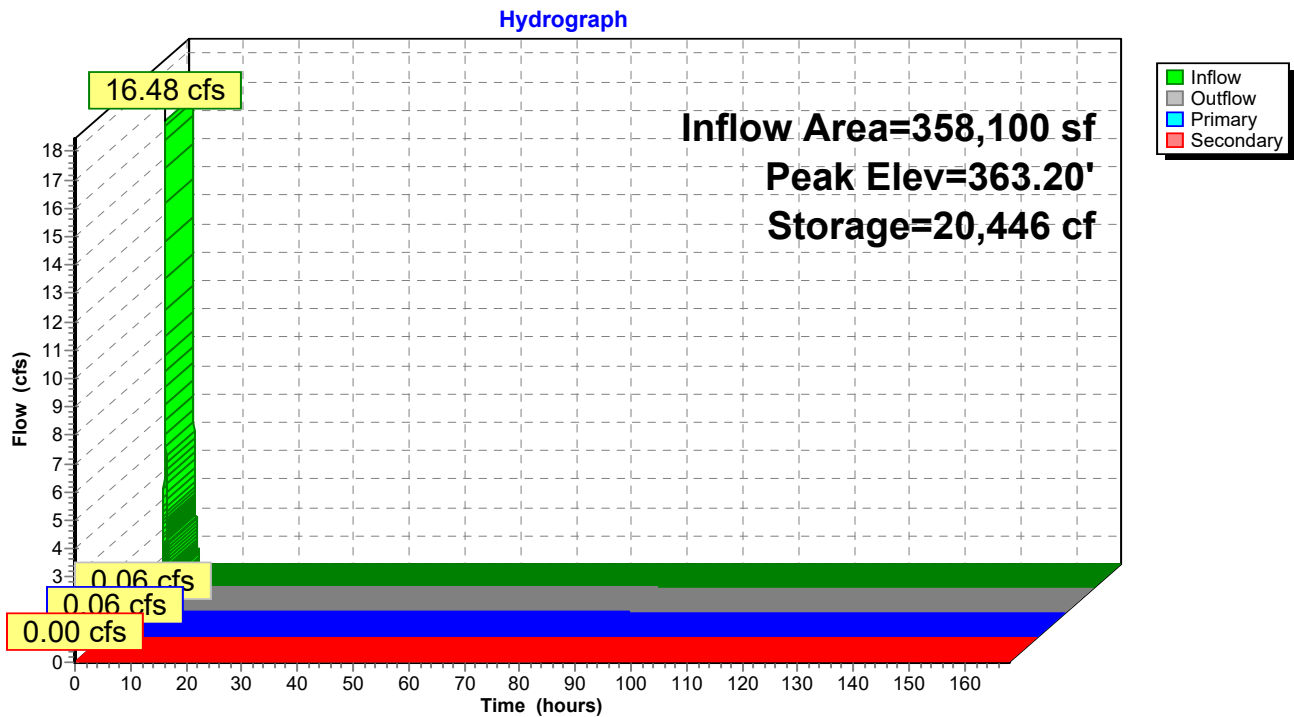
2=MRC Low Flow Orifice (Orifice Controls 0.06 cfs @ 9.81 fps)

3=Type M Overflow (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-02: MRC Rain Garden



Summary for Pond BMP-03: MRC Rain Garden

Inflow Area = 269,000 sf, 68.07% Impervious, Inflow Depth = 0.70" for $_1.2''/2\text{-hr}$ event
 Inflow = 12.56 cfs @ 1.10 hrs, Volume= 15,786 cf
 Outflow = 0.05 cfs @ 2.12 hrs, Volume= 14,655 cf, Atten= 100%, Lag= 61.3 min
 Primary = 0.05 cfs @ 2.12 hrs, Volume= 14,655 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
 Peak Elev= 362.74' @ 2.12 hrs Surf.Area= 27,087 sf Storage= 15,577 cf

Plug-Flow detention time= 2,761.9 min calculated for 14,655 cf (93% of inflow)
 Center-of-Mass det. time= 2,759.3 min (2,828.6 - 69.4)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	72,725 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		80,600 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
358.00	7,500	0	0	7,500
359.00	7,500	7,500	7,500	7,846

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	8,850	0	0
363.00	13,250	11,050	11,050
364.00	20,050	16,650	27,700
365.00	22,700	21,375	49,075
366.00	24,600	23,650	72,725

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.0" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	362.75'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
 Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
 Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=0.05 cfs @ 2.12 hrs HW=362.74' (Free Discharge)

1=Outflow Pipe (Passes 0.05 cfs of 25.02 cfs potential flow)

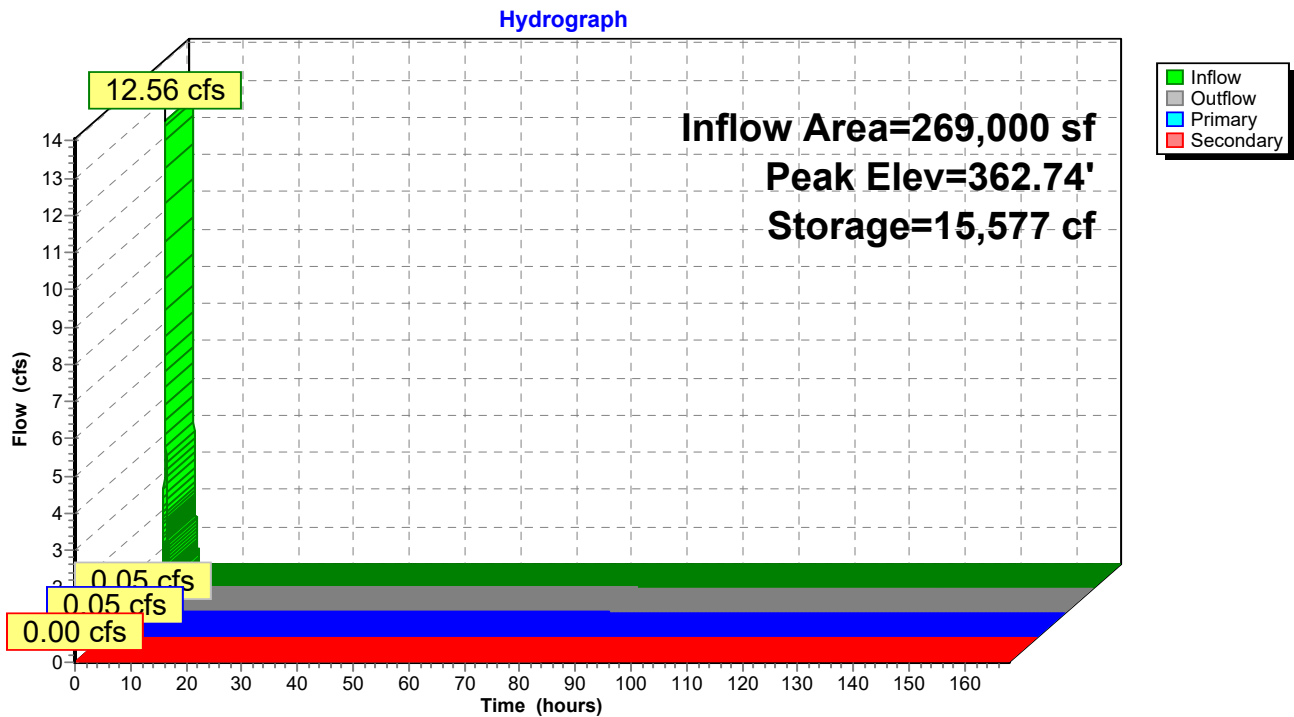
2=MRC Low Flow Orifice (Orifice Controls 0.05 cfs @ 9.25 fps)

3=Type M Overflow (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-03: MRC Rain Garden



Summary for Pond BMP-04: MRC Rain Garden

Inflow Area = 574,200 sf, 40.13% Impervious, Inflow Depth = 0.42" for 1.2"/2-hr event
 Inflow = 15.80 cfs @ 1.10 hrs, Volume= 19,869 cf
 Outflow = 0.05 cfs @ 2.13 hrs, Volume= 18,341 cf, Atten= 100%, Lag= 61.7 min
 Primary = 0.05 cfs @ 2.13 hrs, Volume= 18,341 cf

Routing by Stor-Ind method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
 Peak Elev= 372.64' @ 2.13 hrs Surf.Area= 42,745 sf Storage= 19,652 cf

Plug-Flow detention time= 3,301.3 min calculated for 18,340 cf (92% of inflow)
 Center-of-Mass det. time= 3,298.5 min (3,367.8 - 69.4)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	116,625 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		124,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	15,500	0	0
373.00	26,900	21,200	21,200
374.00	30,150	28,525	49,725
375.00	33,400	31,775	81,500
376.00	36,850	35,125	116,625

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.65'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

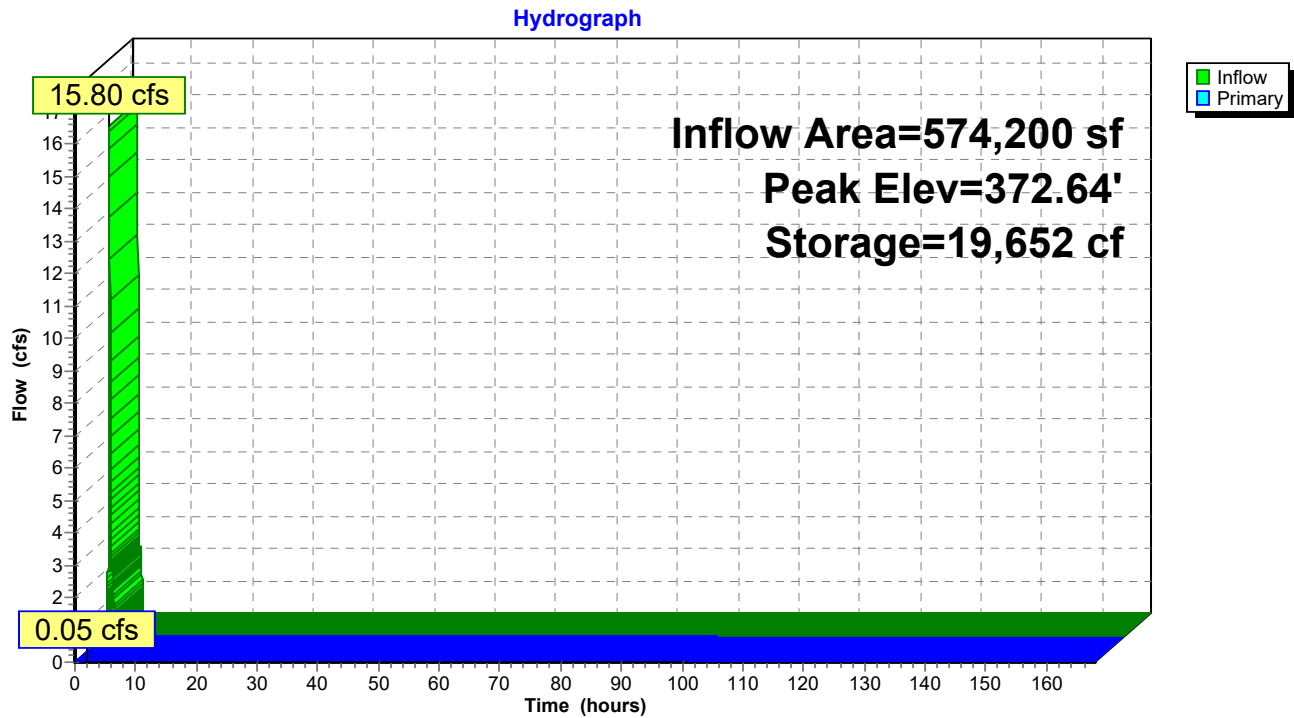
Primary OutFlow Max=0.05 cfs @ 2.13 hrs HW=372.64' (Free Discharge)

1=24" Outflow Pipe (Passes 0.05 cfs of 18.74 cfs potential flow)

2=MRC Low Flow Orifice (Orifice Controls 0.05 cfs @ 7.75 fps)

3=Type M Overflow (Controls 0.00 cfs)

Pond BMP-04: MRC Rain Garden



Summary for Pond BMP-05: MRC Rain Garden

Inflow Area = 393,750 sf, 59.15% Impervious, Inflow Depth = 0.61" for 1.2"/2-hr event
 Inflow = 15.97 cfs @ 1.10 hrs, Volume= 20,078 cf
 Outflow = 0.06 cfs @ 2.12 hrs, Volume= 18,573 cf, Atten= 100%, Lag= 61.4 min
 Primary = 0.06 cfs @ 2.12 hrs, Volume= 18,573 cf

Routing by Stor-Ind method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
 Peak Elev= 372.68' @ 2.12 hrs Surf.Area= 42,324 sf Storage= 19,817 cf

Plug-Flow detention time= 2,795.7 min calculated for 18,571 cf (92% of inflow)
 Center-of-Mass det. time= 2,792.9 min (2,862.3 - 69.4)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	111,850 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		119,350 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	13,800	0	0
373.00	26,300	20,050	20,050
374.00	29,100	27,700	47,750
375.00	32,000	30,550	78,300
376.00	35,100	33,550	111,850

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.2" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.70'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

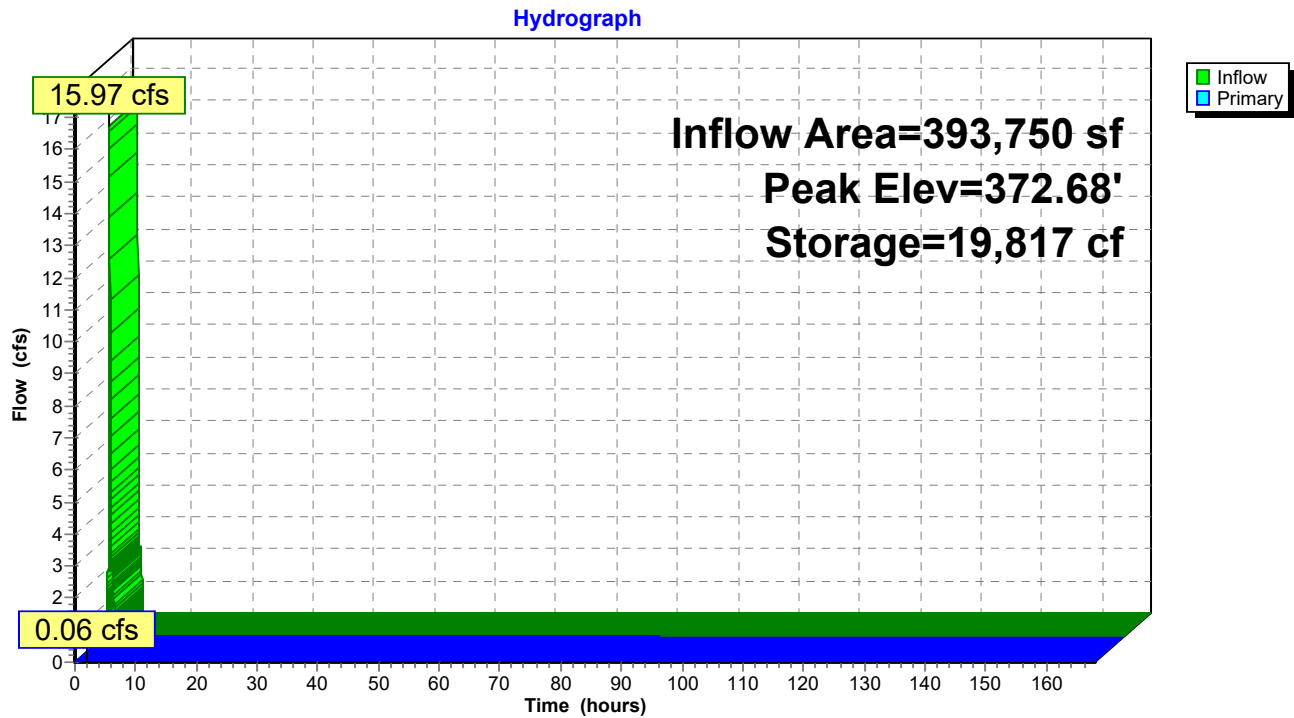
Primary OutFlow Max=0.06 cfs @ 2.12 hrs HW=372.68' (Free Discharge)

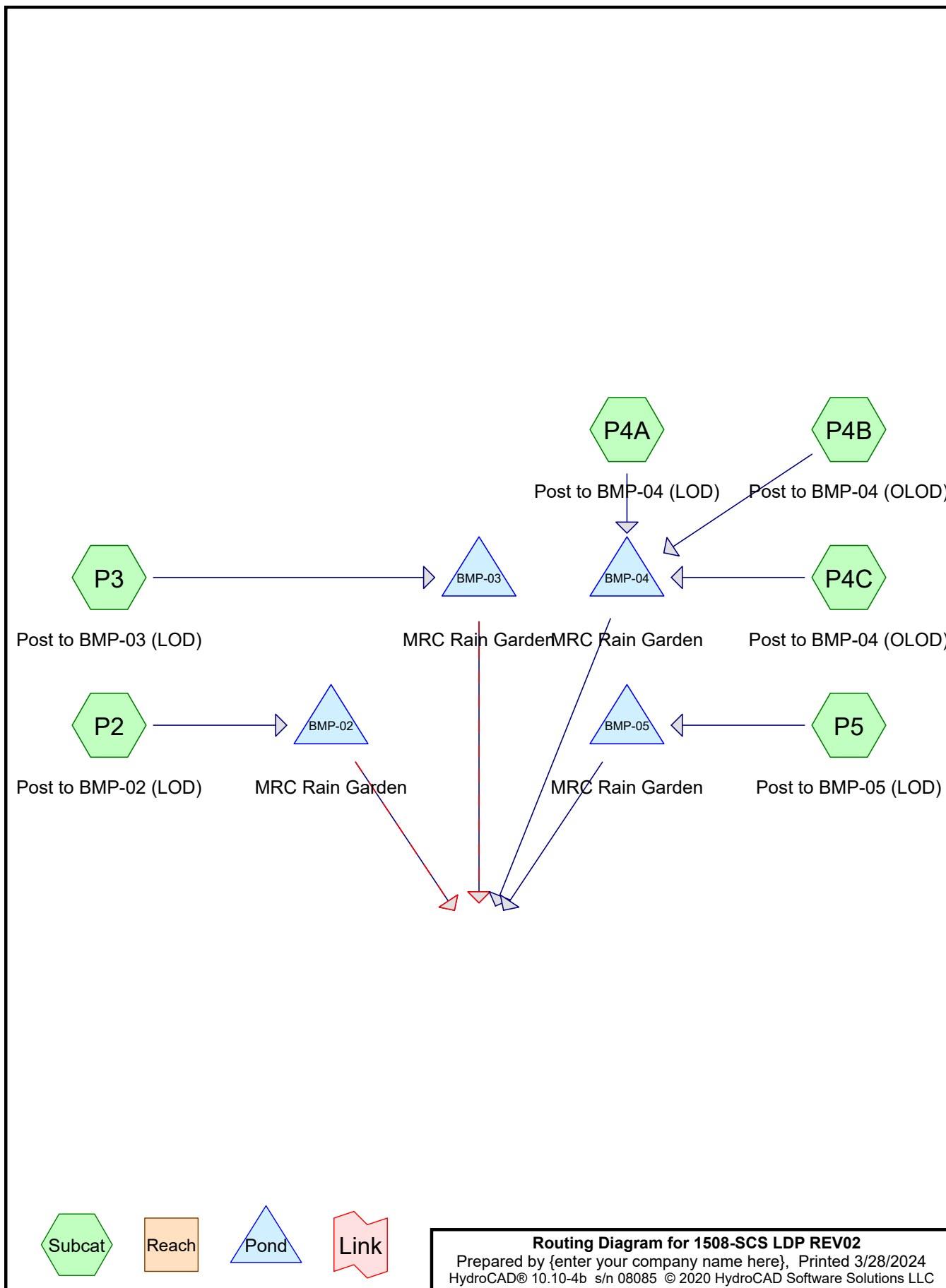
1=24" Outflow Pipe (Passes 0.06 cfs of 18.79 cfs potential flow)

2=MRC Low Flow Orifice (Orifice Controls 0.06 cfs @ 7.81 fps)

3=Type M Overflow (Controls 0.00 cfs)

Pond BMP-05: MRC Rain Garden





1508-SCS LDP REV02

Prepared by {enter your company name here}

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Type II 24-hr 2-yr Rainfall=3.24"

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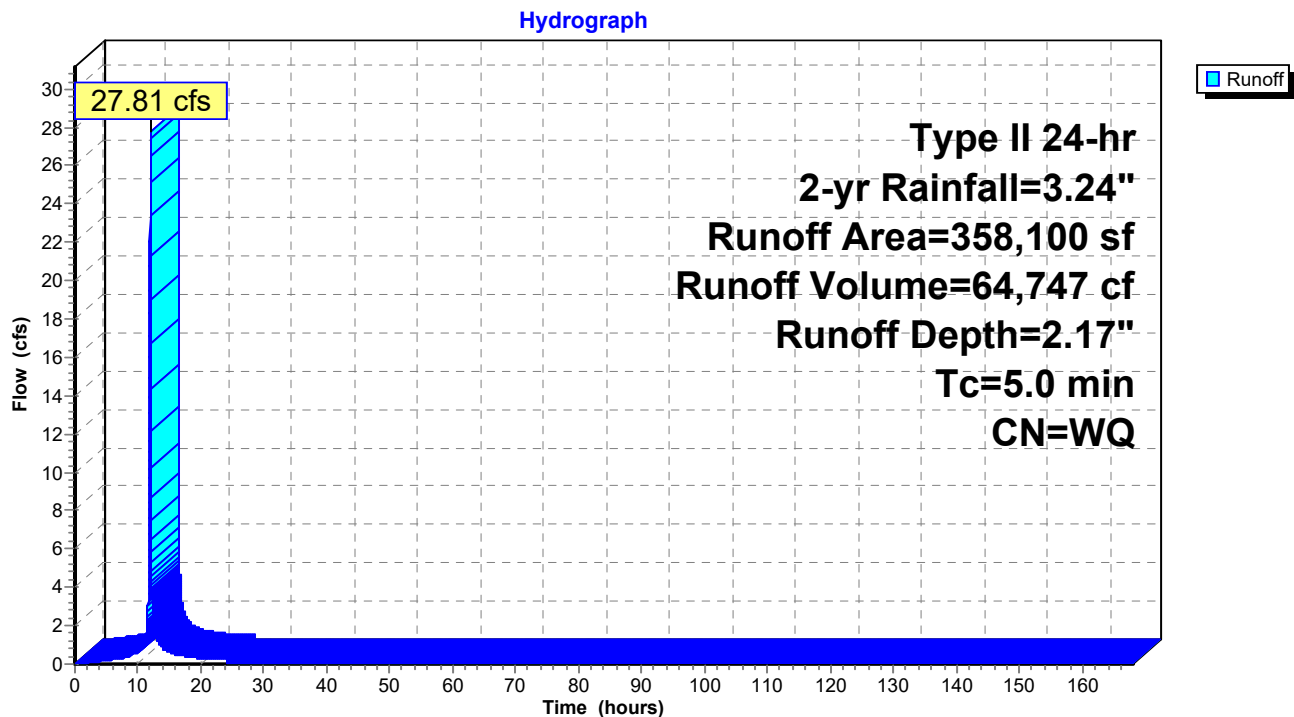
Summary for Subcatchment P2: Post to BMP-02 (LOD)

Runoff = 27.81 cfs @ 11.96 hrs, Volume= 64,747 cf, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	106,100	98	Impervious
	117,775	61	>75% Grass cover, Good, HSG B
	358,100		Weighted Average
	117,775	61	32.89% Pervious Area
	240,325	98	67.11% Impervious Area

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

Subcatchment P2: Post to BMP-02 (LOD)

Summary for Subcatchment P3: Post to BMP-03 (LOD)

Runoff = 21.14 cfs @ 11.96 hrs, Volume= 49,183 cf, Depth= 2.19"

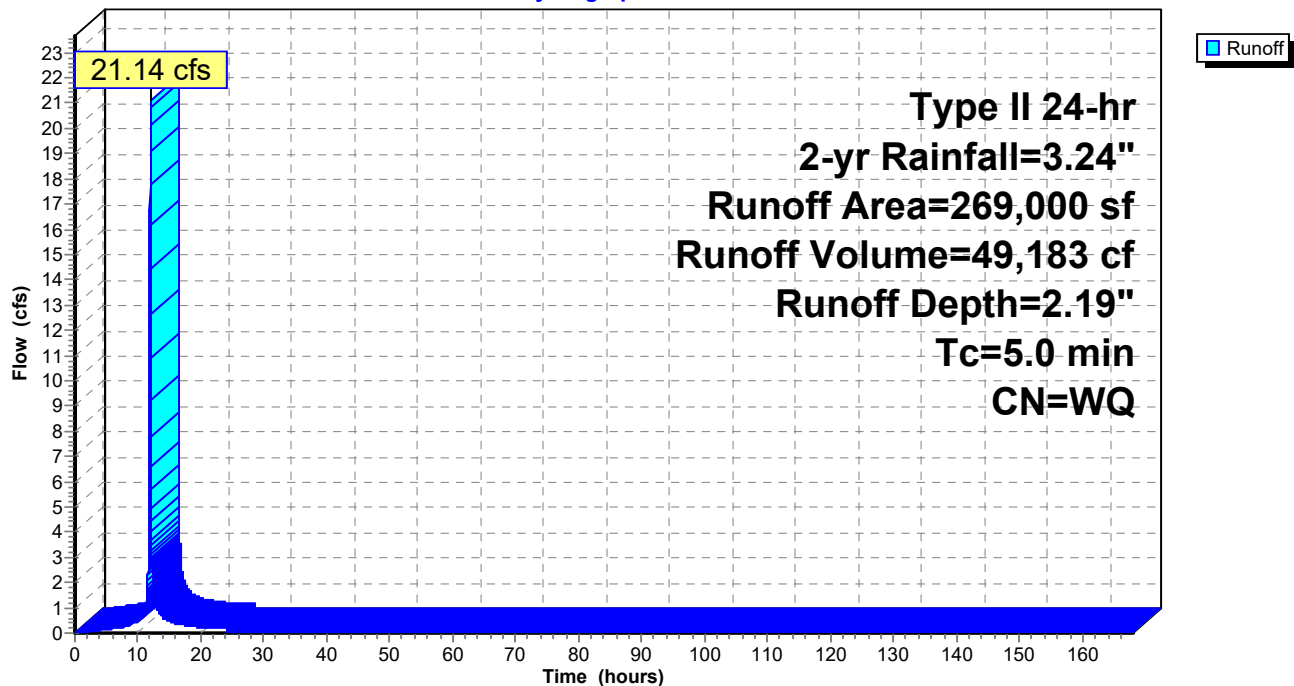
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	59,870	98	Impervious
	85,900	61	>75% Grass cover, Good, HSG B
	269,000		Weighted Average
	85,900	61	31.93% Pervious Area
	183,100	98	68.07% Impervious Area

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

Subcatchment P3: Post to BMP-03 (LOD)

Hydrograph



1508-SCS LDP REV02

Prepared by {enter your company name here}

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Type II 24-hr 2-yr Rainfall=3.24"

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Summary for Subcatchment P4A: Post to BMP-04 (LOD)

Runoff = 28.82 cfs @ 11.96 hrs, Volume= 67,625 cf, Depth= 1.66"

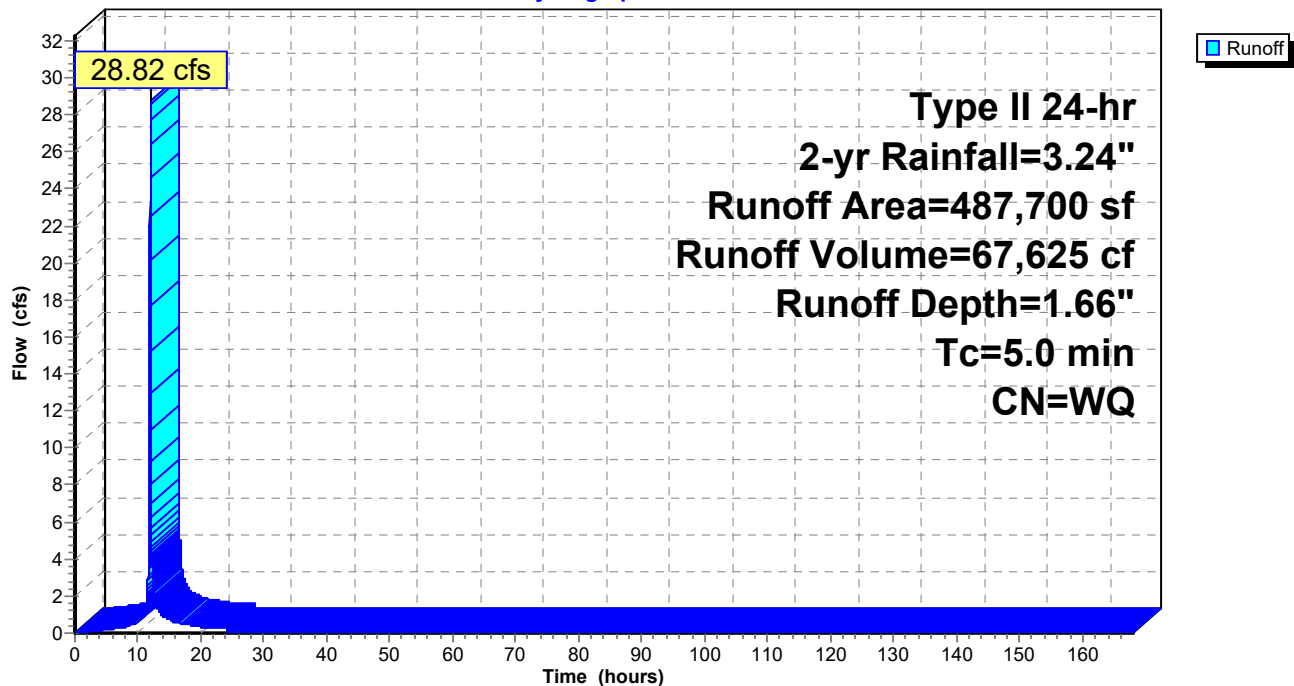
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	96,230	98	Impervious
	257,245	61	>75% Grass cover, Good, HSG B
	487,700		Weighted Average
	257,245	61	52.75% Pervious Area
	230,455	98	47.25% Impervious Area

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

Subcatchment P4A: Post to BMP-04 (LOD)

Hydrograph



Summary for Subcatchment P4B: Post to BMP-04 (OLOD)

Runoff = 0.60 cfs @ 11.98 hrs, Volume= 1,439 cf, Depth= 0.46"

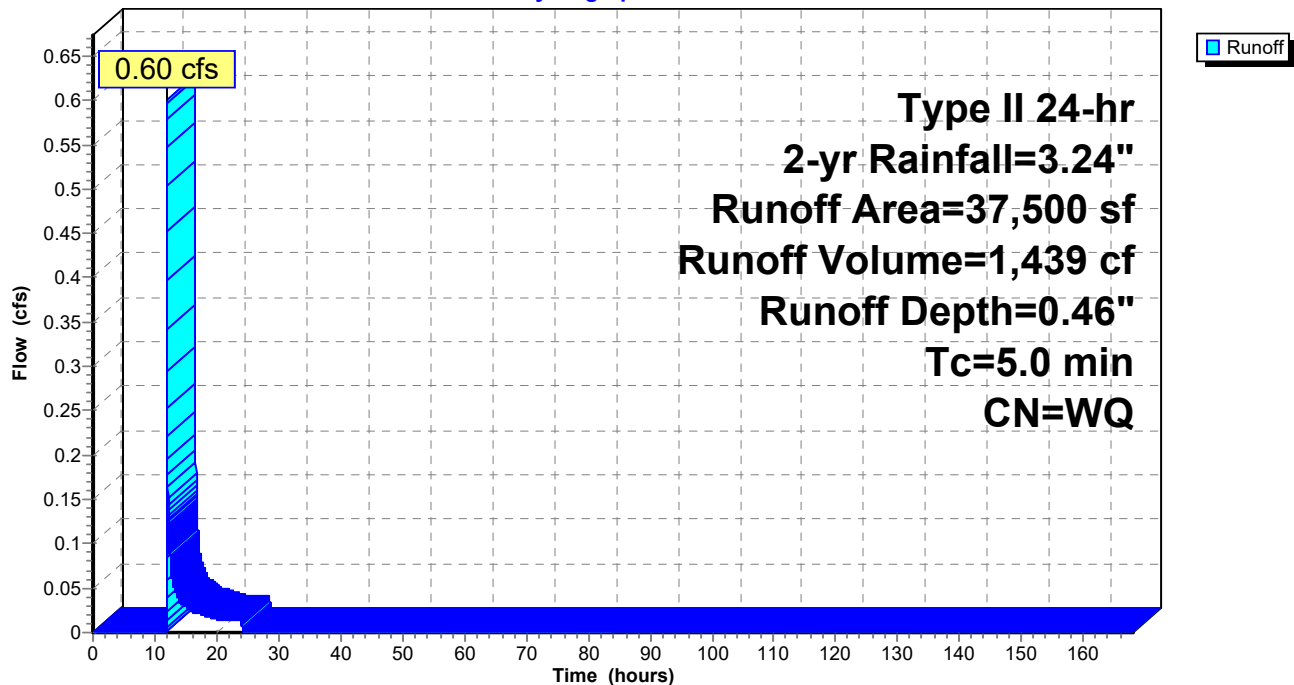
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
37,500	61	>75% Grass cover, Good, HSG B
37,500		Weighted Average
37,500	61	100.00% Pervious Area

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

Subcatchment P4B: Post to BMP-04 (OLOD)

Hydrograph



Summary for Subcatchment P4C: Post to BMP-04 (OLOD)

Runoff = 0.79 cfs @ 11.98 hrs, Volume= 1,880 cf, Depth= 0.46"

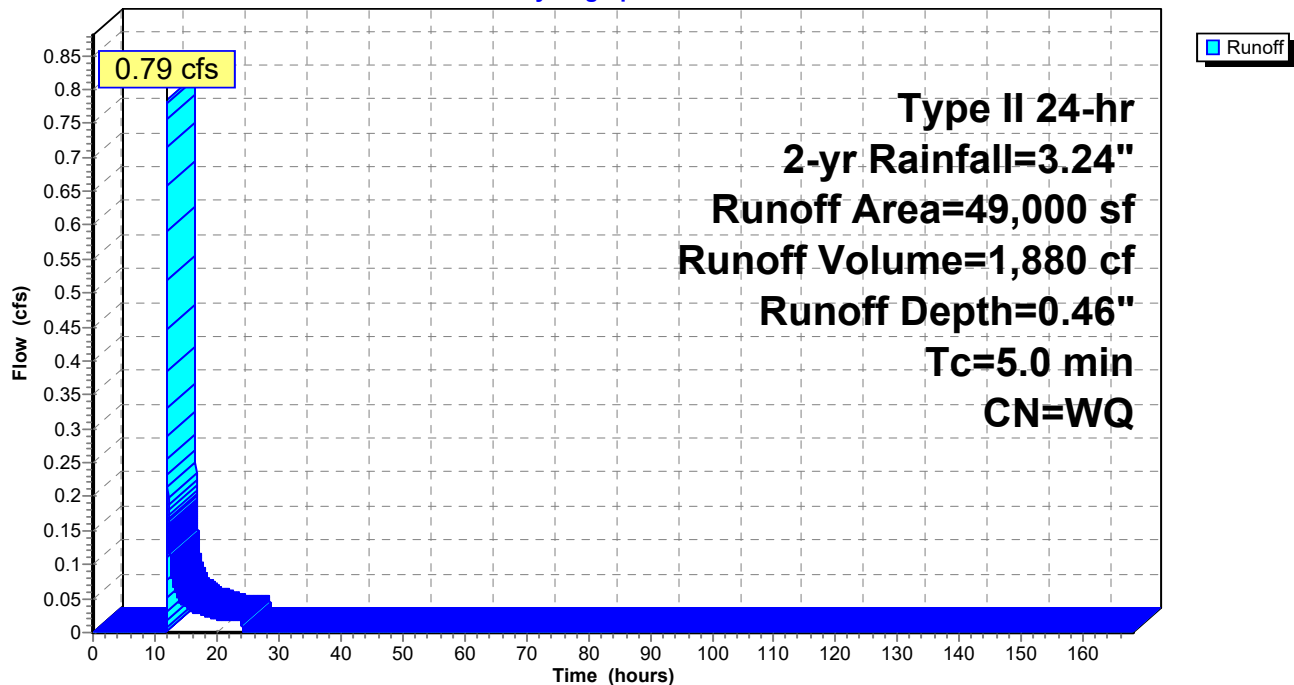
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
49,000	61	>75% Grass cover, Good, HSG B
49,000		Weighted Average
49,000	61	100.00% Pervious Area

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

Subcatchment P4C: Post to BMP-04 (OLOD)

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.24"

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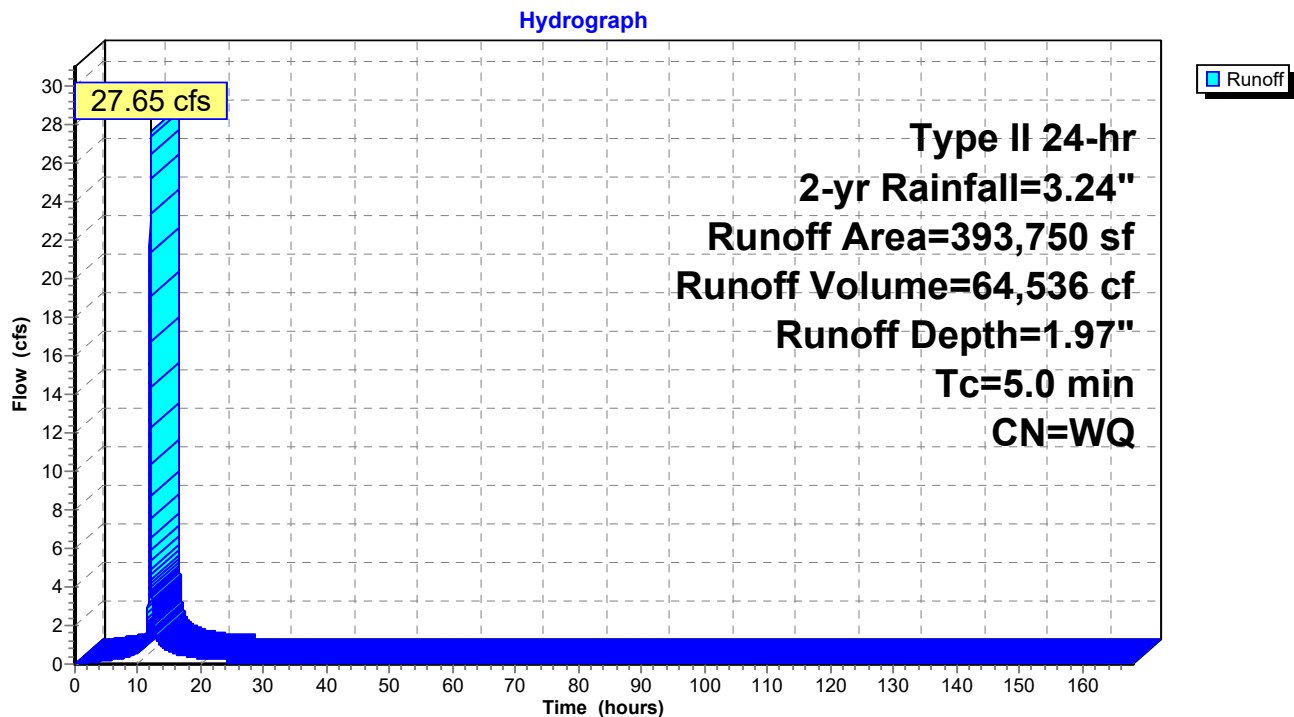
Summary for Subcatchment P5: Post to BMP-05 (LOD)

Runoff = 27.65 cfs @ 11.96 hrs, Volume= 64,536 cf, Depth= 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	109,655	98	Impervious
	160,865	61	>75% Grass cover, Good, HSG B
	393,750		Weighted Average
	160,865	61	40.85% Pervious Area
	232,885	98	59.15% Impervious Area

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

Subcatchment P5: Post to BMP-05 (LOD)

Summary for Pond BMP-02: MRC Rain Garden

Inflow Area = 358,100 sf, 67.11% Impervious, Inflow Depth = 2.17" for 2-yr event
 Inflow = 27.81 cfs @ 11.96 hrs, Volume= 64,747 cf
 Outflow = 17.12 cfs @ 12.03 hrs, Volume= 63,591 cf, Atten= 38%, Lag= 4.2 min
 Primary = 17.12 cfs @ 12.03 hrs, Volume= 63,591 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
 Peak Elev= 363.84' @ 12.03 hrs Surf.Area= 31,903 sf Storage= 30,180 cf

Plug-Flow detention time= 1,208.8 min calculated for 63,587 cf (98% of inflow)
 Center-of-Mass det. time= 1,197.6 min (1,960.0 - 762.4)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Prismatic) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	67,900 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		75,775 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
358.00	7,500	0	0
359.00	7,500	7,500	7,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	7,500	0	0
363.00	12,450	9,975	9,975
364.00	17,750	15,100	25,075
365.00	21,300	19,525	44,600
366.00	25,300	23,300	67,900

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	363.25'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

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Type II 24-hr 2-yr Rainfall=3.24"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=17.10 cfs @ 12.03 hrs HW=363.84' (Free Discharge)

1=Outflow Pipe (Passes 17.10 cfs of 29.64 cfs potential flow)

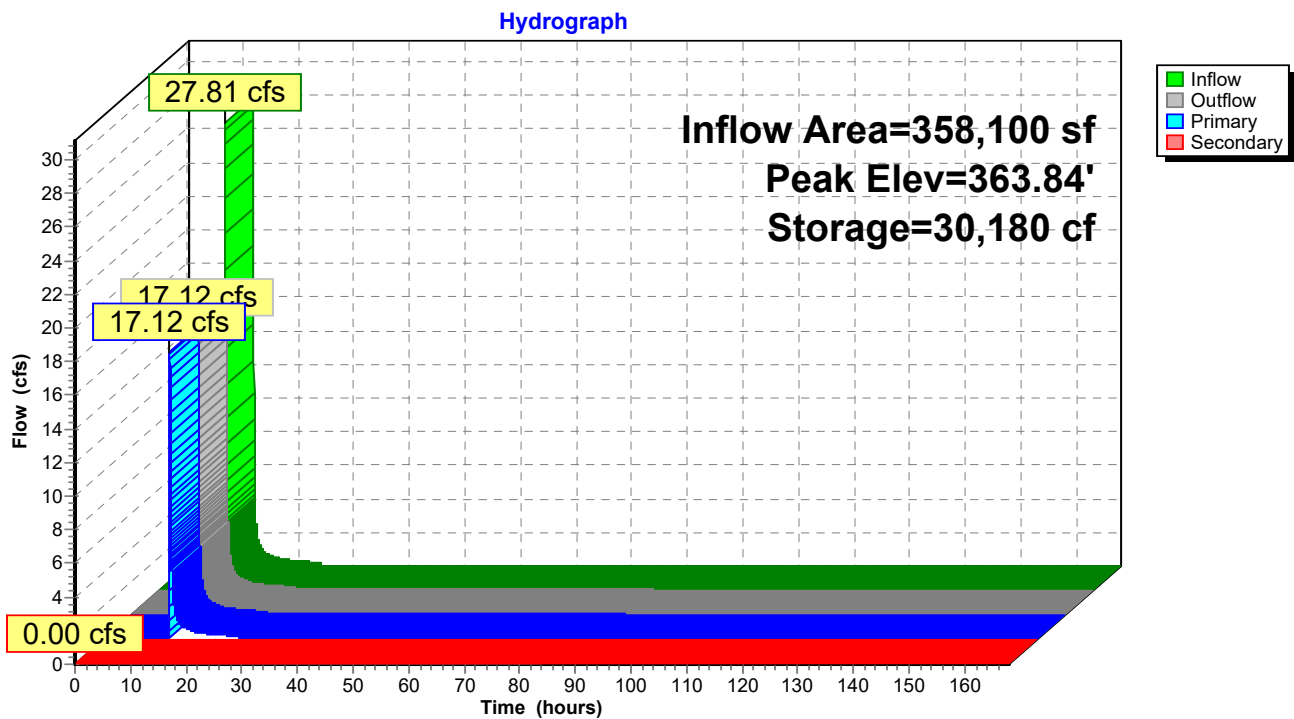
2=MRC Low Flow Orifice (Orifice Controls 0.07 cfs @ 10.54 fps)

3=Type M Overflow (Weir Controls 17.03 cfs @ 2.51 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-02: MRC Rain Garden



Summary for Pond BMP-03: MRC Rain Garden

Inflow Area = 269,000 sf, 68.07% Impervious, Inflow Depth = 2.19" for 2-yr event
 Inflow = 21.14 cfs @ 11.96 hrs, Volume= 49,183 cf
 Outflow = 13.64 cfs @ 12.02 hrs, Volume= 48,030 cf, Atten= 35%, Lag= 4.0 min
 Primary = 13.64 cfs @ 12.02 hrs, Volume= 48,030 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
 Peak Elev= 363.26' @ 12.02 hrs Surf.Area= 29,995 sf Storage= 22,550 cf

Plug-Flow detention time= 1,134.2 min calculated for 48,030 cf (98% of inflow)
 Center-of-Mass det. time= 1,119.0 min (1,881.0 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	72,725 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		80,600 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
358.00	7,500	0	0	7,500
359.00	7,500	7,500	7,500	7,846

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	8,850	0	0
363.00	13,250	11,050	11,050
364.00	20,050	16,650	27,700
365.00	22,700	21,375	49,075
366.00	24,600	23,650	72,725

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.0" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	362.75'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

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Type II 24-hr 2-yr Rainfall=3.24"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=13.59 cfs @ 12.02 hrs HW=363.26' (Free Discharge)

1=Outflow Pipe (Passes 13.59 cfs of 27.30 cfs potential flow)

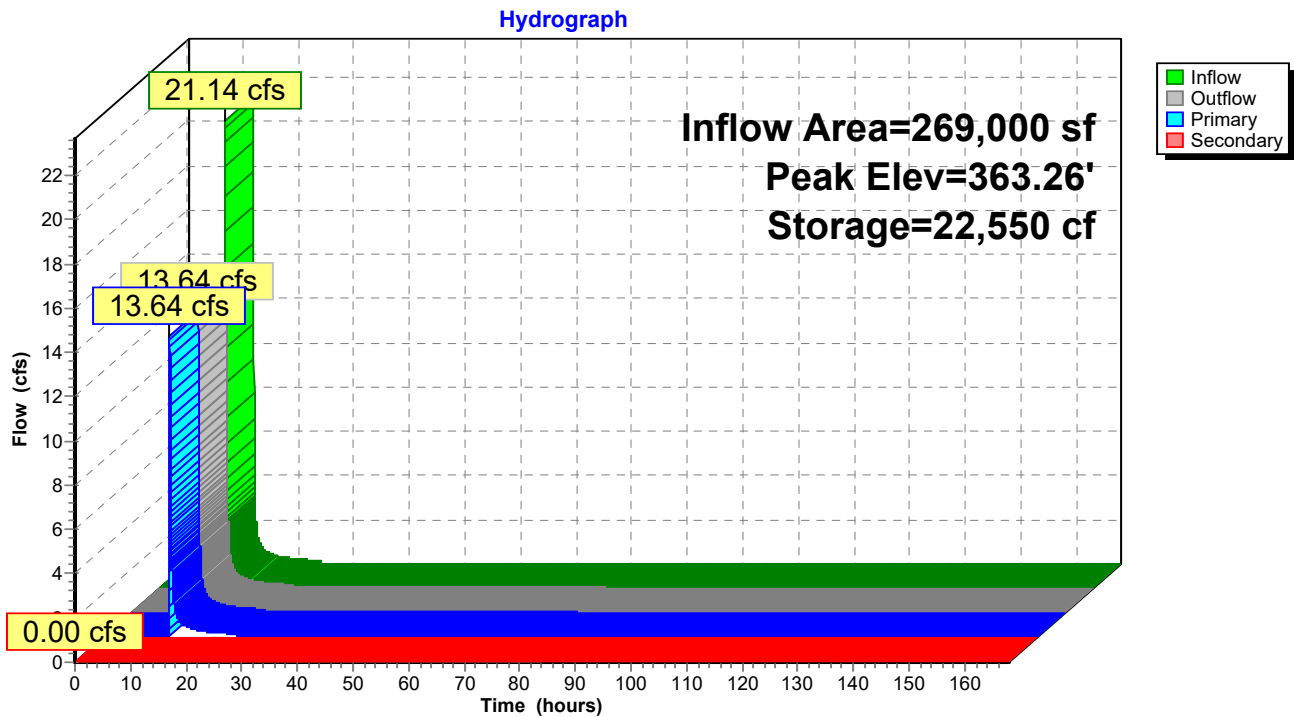
2=MRC Low Flow Orifice (Orifice Controls 0.05 cfs @ 9.88 fps)

3=Type M Overflow (Weir Controls 13.54 cfs @ 2.33 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-03: MRC Rain Garden



Summary for Pond BMP-04: MRC Rain Garden

Inflow Area = 574,200 sf, 40.13% Impervious, Inflow Depth = 1.48" for 2-yr event
 Inflow = 30.12 cfs @ 11.96 hrs, Volume= 70,944 cf
 Outflow = 13.19 cfs @ 12.05 hrs, Volume= 69,295 cf, Atten= 56%, Lag= 5.5 min
 Primary = 13.19 cfs @ 12.05 hrs, Volume= 69,295 cf

Routing by Stor-Ind method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
 Peak Elev= 373.15' @ 12.05 hrs Surf.Area= 47,373 sf Storage= 32,647 cf

Plug-Flow detention time= 1,153.3 min calculated for 69,291 cf (98% of inflow)
 Center-of-Mass det. time= 1,139.0 min (1,920.0 - 780.9)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	116,625 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		124,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	15,500	0	0
373.00	26,900	21,200	21,200
374.00	30,150	28,525	49,725
375.00	33,400	31,775	81,500
376.00	36,850	35,125	116,625

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.65'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=13.16 cfs @ 12.05 hrs HW=373.15' (Free Discharge)

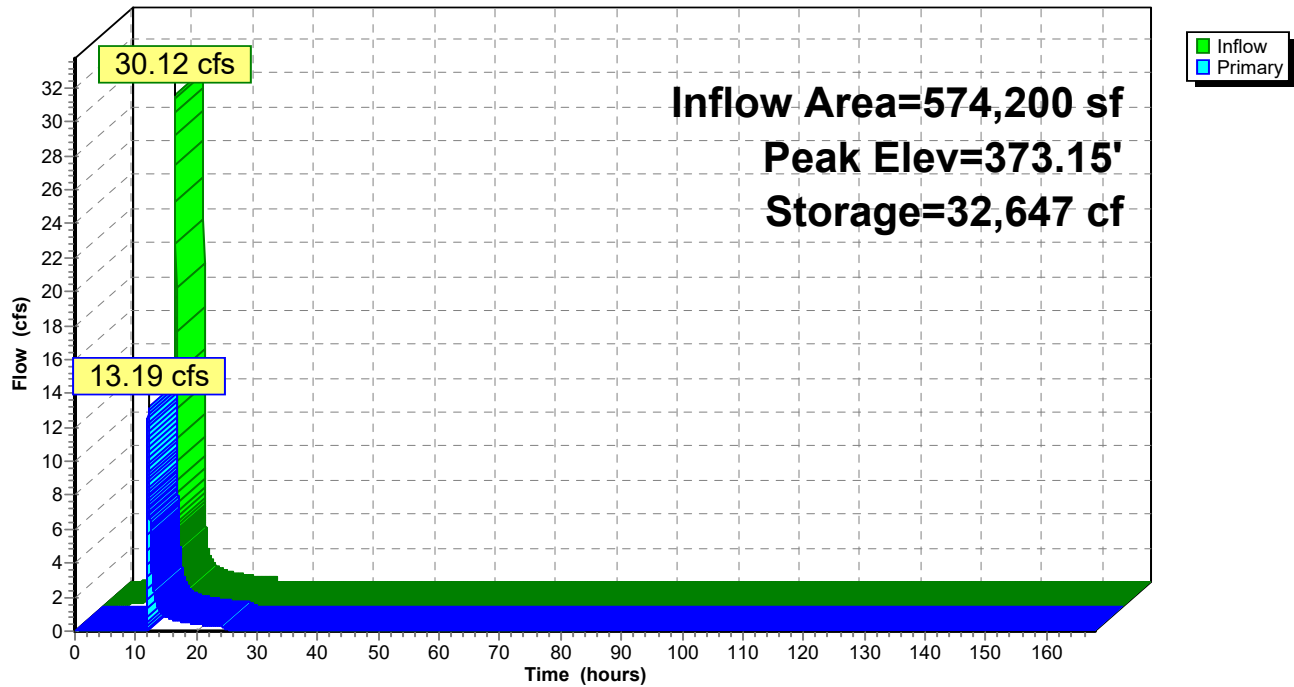
1=24" Outflow Pipe (Passes 13.16 cfs of 22.15 cfs potential flow)

2=MRC Low Flow Orifice (Orifice Controls 0.06 cfs @ 8.48 fps)

3=Type M Overflow (Weir Controls 13.10 cfs @ 2.30 fps)

Pond BMP-04: MRC Rain Garden

Hydrograph



Summary for Pond BMP-05: MRC Rain Garden

Inflow Area = 393,750 sf, 59.15% Impervious, Inflow Depth = 1.97" for 2-yr event
 Inflow = 27.65 cfs @ 11.96 hrs, Volume= 64,536 cf
 Outflow = 11.96 cfs @ 12.05 hrs, Volume= 63,003 cf, Atten= 57%, Lag= 5.5 min
 Primary = 11.96 cfs @ 12.05 hrs, Volume= 63,003 cf

Routing by Stor-Ind method, Time Span= 0.00-168.00 hrs, dt= 0.01 hrs
 Peak Elev= 373.16' @ 12.05 hrs Surf.Area= 46,758 sf Storage= 31,892 cf

Plug-Flow detention time= 1,146.5 min calculated for 62,999 cf (98% of inflow)
 Center-of-Mass det. time= 1,131.6 min (1,898.2 - 766.6)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	111,850 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		119,350 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	13,800	0	0
373.00	26,300	20,050	20,050
374.00	29,100	27,700	47,750
375.00	32,000	30,550	78,300
376.00	35,100	33,550	111,850

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.2" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.70'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

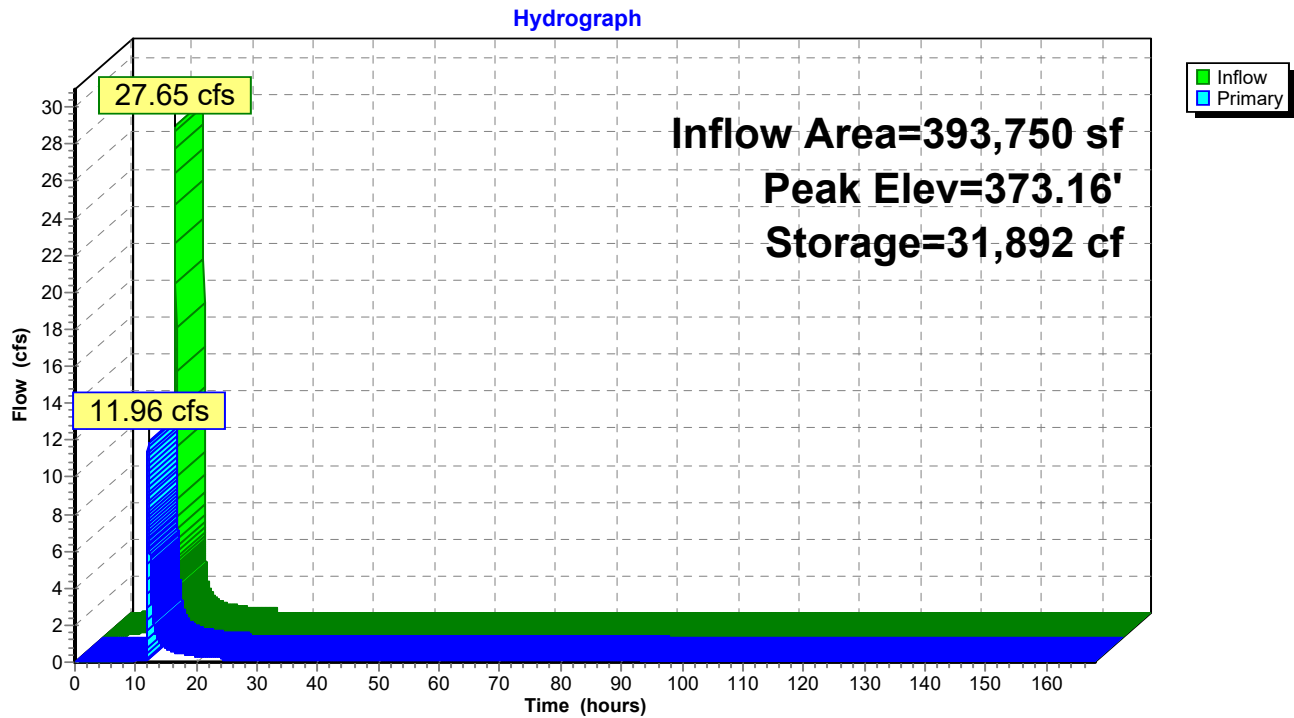
Primary OutFlow Max=11.93 cfs @ 12.05 hrs HW=373.16' (Free Discharge)

1=24" Outflow Pipe (Passes 11.93 cfs of 22.25 cfs potential flow)

2=MRC Low Flow Orifice (Orifice Controls 0.07 cfs @ 8.50 fps)

3=Type M Overflow (Weir Controls 11.86 cfs @ 2.23 fps)

Pond BMP-05: MRC Rain Garden



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Type II 24-hr 2-yr Rainfall=3.24"

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Hydrograph for Pond BMP-01: Wet Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	355.00	0.00
2.00	0.05	65	355.00	0.00
4.00	0.15	749	355.01	0.01
6.00	0.31	2,123	355.03	0.04
8.00	0.46	4,518	355.06	0.08
10.00	0.83	8,066	355.12	0.23
12.00	86.85	49,515	355.69	4.08
14.00	5.38	119,837	356.63	7.44
16.00	3.23	98,697	356.35	6.63
18.00	2.47	74,915	356.04	5.56
20.00	1.85	54,552	355.76	4.41
22.00	1.63	39,226	355.55	3.30
24.00	1.51	30,430	355.43	2.36
26.00	0.23	20,665	355.29	1.25
28.00	0.23	15,404	355.22	0.74
30.00	0.23	12,615	355.18	0.52
32.00	0.23	10,970	355.16	0.40
34.00	0.22	9,994	355.14	0.33
36.00	0.22	9,387	355.13	0.29
38.00	0.22	8,953	355.13	0.27
40.00	0.22	8,638	355.12	0.26
42.00	0.22	8,408	355.12	0.25
44.00	0.22	8,239	355.12	0.24
46.00	0.22	8,113	355.12	0.23
48.00	0.22	8,018	355.11	0.23
50.00	0.22	7,943	355.11	0.23
52.00	0.22	7,885	355.11	0.22
54.00	0.22	7,837	355.11	0.22
56.00	0.21	7,796	355.11	0.22
58.00	0.21	7,761	355.11	0.22
60.00	0.21	7,729	355.11	0.22
62.00	0.21	7,700	355.11	0.21
64.00	0.21	7,673	355.11	0.21
66.00	0.21	7,647	355.11	0.21
68.00	0.21	7,621	355.11	0.21
70.00	0.21	7,596	355.11	0.21
72.00	0.20	7,569	355.11	0.21
74.00	0.20	7,537	355.11	0.21
76.00	0.20	7,502	355.11	0.21
78.00	0.20	7,464	355.11	0.20
80.00	0.20	7,425	355.11	0.20
82.00	0.19	7,384	355.11	0.20
84.00	0.19	7,342	355.10	0.20
86.00	0.19	7,299	355.10	0.20
88.00	0.19	7,250	355.10	0.19
90.00	0.18	7,186	355.10	0.19
92.00	0.18	7,113	355.10	0.19
94.00	0.17	7,032	355.10	0.18
96.00	0.17	6,947	355.10	0.18
98.00	0.16	6,857	355.10	0.17
100.00	0.16	6,760	355.10	0.17
102.00	0.15	6,657	355.10	0.17
104.00	0.14	6,549	355.09	0.16

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Hydrograph for Pond BMP-01: Wet Pond (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
106.00	0.14	6,437	355.09	0.15
108.00	0.13	6,324	355.09	0.15
110.00	0.13	6,208	355.09	0.14
112.00	0.12	6,092	355.09	0.14
114.00	0.12	5,974	355.09	0.13
116.00	0.11	5,856	355.08	0.13
118.00	0.11	5,738	355.08	0.12
120.00	0.10	5,619	355.08	0.12
122.00	0.09	5,500	355.08	0.11
124.00	0.09	5,381	355.08	0.11
126.00	0.08	5,262	355.08	0.10
128.00	0.08	5,143	355.07	0.09
130.00	0.07	5,023	355.07	0.09
132.00	0.07	4,903	355.07	0.08
134.00	0.06	4,773	355.07	0.08
136.00	0.05	4,619	355.07	0.08
138.00	0.05	4,445	355.06	0.07
140.00	0.04	4,250	355.06	0.07
142.00	0.04	4,037	355.06	0.07
144.00	0.03	3,813	355.05	0.06
146.00	0.03	3,579	355.05	0.06
148.00	0.02	3,344	355.05	0.06
150.00	0.02	3,112	355.04	0.05
152.00	0.02	2,888	355.04	0.05
154.00	0.02	2,671	355.04	0.04
156.00	0.01	2,465	355.04	0.04
158.00	0.01	2,269	355.03	0.04
160.00	0.01	2,082	355.03	0.03
162.00	0.01	1,905	355.03	0.03
164.00	0.01	1,738	355.02	0.03
166.00	0.01	1,582	355.02	0.03
168.00	0.00	1,436	355.02	0.02
170.00	0.00	1,303	355.02	0.02
172.00	0.00	1,180	355.02	0.02
174.00	0.00	1,069	355.02	0.02
176.00	0.00	967	355.01	0.02
178.00	0.00	874	355.01	0.01
180.00	0.00	789	355.01	0.01
182.00	0.00	713	355.01	0.01
184.00	0.00	643	355.01	0.01
186.00	0.00	580	355.01	0.01
188.00	0.00	522	355.01	0.01
190.00	0.00	470	355.01	0.01
192.00	0.00	423	355.01	0.01

Hydrograph for Pond BMP-02: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	358.00	0.00	0.00	0.00
2.00	0.05	65	358.06	0.00	0.00	0.00
4.00	0.15	786	358.70	0.00	0.00	0.00
6.00	0.24	2,133	359.45	0.02	0.02	0.00
8.00	0.34	4,036	360.29	0.04	0.04	0.00
10.00	0.65	7,197	361.70	0.05	0.05	0.00
12.00	23.37	29,823	363.82	16.22	16.22	0.00
14.00	0.80	22,178	363.32	0.92	0.92	0.00
16.00	0.50	21,807	363.30	0.53	0.53	0.00
18.00	0.39	21,678	363.29	0.40	0.40	0.00
20.00	0.28	21,578	363.28	0.30	0.30	0.00
22.00	0.26	21,545	363.28	0.26	0.26	0.00
24.00	0.24	21,509	363.28	0.24	0.24	0.00
26.00	0.00	20,860	363.23	0.07	0.07	0.00
28.00	0.00	20,393	363.20	0.06	0.06	0.00
30.00	0.00	19,928	363.16	0.06	0.06	0.00
32.00	0.00	19,465	363.13	0.06	0.06	0.00
34.00	0.00	19,004	363.09	0.06	0.06	0.00
36.00	0.00	18,545	363.05	0.06	0.06	0.00
38.00	0.00	18,088	363.02	0.06	0.06	0.00
40.00	0.00	17,633	362.98	0.06	0.06	0.00
42.00	0.00	17,180	362.95	0.06	0.06	0.00
44.00	0.00	16,729	362.91	0.06	0.06	0.00
46.00	0.00	16,281	362.87	0.06	0.06	0.00
48.00	0.00	15,834	362.83	0.06	0.06	0.00
50.00	0.00	15,390	362.79	0.06	0.06	0.00
52.00	0.00	14,948	362.75	0.06	0.06	0.00
54.00	0.00	14,509	362.72	0.06	0.06	0.00
56.00	0.00	14,072	362.68	0.06	0.06	0.00
58.00	0.00	13,637	362.64	0.06	0.06	0.00
60.00	0.00	13,205	362.59	0.06	0.06	0.00
62.00	0.00	12,775	362.55	0.06	0.06	0.00
64.00	0.00	12,348	362.51	0.06	0.06	0.00
66.00	0.00	11,924	362.47	0.06	0.06	0.00
68.00	0.00	11,502	362.42	0.06	0.06	0.00
70.00	0.00	11,083	362.38	0.06	0.06	0.00
72.00	0.00	10,666	362.33	0.06	0.06	0.00
74.00	0.00	10,253	362.29	0.06	0.06	0.00
76.00	0.00	9,842	362.24	0.06	0.06	0.00
78.00	0.00	9,435	362.19	0.06	0.06	0.00
80.00	0.00	9,030	362.15	0.06	0.06	0.00
82.00	0.00	8,629	362.10	0.06	0.06	0.00
84.00	0.00	8,231	362.05	0.06	0.06	0.00
86.00	0.00	7,837	361.98	0.05	0.05	0.00
88.00	0.00	7,450	361.81	0.05	0.05	0.00
90.00	0.00	7,076	361.64	0.05	0.05	0.00
92.00	0.00	6,713	361.48	0.05	0.05	0.00
94.00	0.00	6,361	361.33	0.05	0.05	0.00
96.00	0.00	6,021	361.18	0.05	0.05	0.00
98.00	0.00	5,693	361.03	0.04	0.04	0.00
100.00	0.00	5,377	360.89	0.04	0.04	0.00
102.00	0.00	5,072	360.75	0.04	0.04	0.00
104.00	0.00	4,779	360.62	0.04	0.04	0.00

1508-SCS LDP REV02

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Hydrograph for Pond BMP-02: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
106.00	0.00	4,497	360.50	0.04	0.04	0.00
108.00	0.00	4,227	360.38	0.04	0.04	0.00
110.00	0.00	3,969	360.26	0.04	0.04	0.00
112.00	0.00	3,722	360.15	0.03	0.03	0.00
114.00	0.00	3,487	360.05	0.03	0.03	0.00
116.00	0.00	3,264	359.95	0.03	0.03	0.00
118.00	0.00	3,052	359.86	0.03	0.03	0.00
120.00	0.00	2,852	359.77	0.03	0.03	0.00
122.00	0.00	2,663	359.68	0.03	0.03	0.00
124.00	0.00	2,487	359.61	0.02	0.02	0.00
126.00	0.00	2,321	359.53	0.02	0.02	0.00
128.00	0.00	2,168	359.46	0.02	0.02	0.00
130.00	0.00	2,026	359.40	0.02	0.02	0.00
132.00	0.00	1,896	359.34	0.02	0.02	0.00
134.00	0.00	1,777	359.29	0.02	0.02	0.00
136.00	0.00	1,670	359.24	0.01	0.01	0.00
138.00	0.00	1,575	359.20	0.01	0.01	0.00
140.00	0.00	1,492	359.16	0.01	0.01	0.00
142.00	0.00	1,420	359.13	0.01	0.01	0.00
144.00	0.00	1,360	359.10	0.01	0.01	0.00
146.00	0.00	1,314	359.08	0.01	0.01	0.00
148.00	0.00	1,278	359.07	0.00	0.00	0.00
150.00	0.00	1,252	359.06	0.00	0.00	0.00
152.00	0.00	1,231	359.05	0.00	0.00	0.00
154.00	0.00	1,215	359.04	0.00	0.00	0.00
156.00	0.00	1,203	359.03	0.00	0.00	0.00
158.00	0.00	1,192	359.03	0.00	0.00	0.00
160.00	0.00	1,182	359.03	0.00	0.00	0.00
162.00	0.00	1,174	359.02	0.00	0.00	0.00
164.00	0.00	1,168	359.02	0.00	0.00	0.00
166.00	0.00	1,162	359.02	0.00	0.00	0.00
168.00	0.00	1,156	359.01	0.00	0.00	0.00
170.00	0.00	1,152	359.01	0.00	0.00	0.00
172.00	0.00	1,148	359.01	0.00	0.00	0.00
174.00	0.00	1,145	359.01	0.00	0.00	0.00
176.00	0.00	1,142	359.01	0.00	0.00	0.00
178.00	0.00	1,140	359.01	0.00	0.00	0.00
180.00	0.00	1,138	359.01	0.00	0.00	0.00
182.00	0.00	1,136	359.00	0.00	0.00	0.00
184.00	0.00	1,134	359.00	0.00	0.00	0.00
186.00	0.00	1,133	359.00	0.00	0.00	0.00
188.00	0.00	1,132	359.00	0.00	0.00	0.00
190.00	0.00	1,131	359.00	0.00	0.00	0.00
192.00	0.00	1,130	359.00	0.00	0.00	0.00

Hydrograph for Pond BMP-03: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	358.00	0.00	0.00	0.00
2.00	0.04	50	358.04	0.00	0.00	0.00
4.00	0.11	599	358.53	0.00	0.00	0.00
6.00	0.19	1,650	359.23	0.01	0.01	0.00
8.00	0.26	3,123	359.89	0.02	0.02	0.00
10.00	0.49	5,552	360.97	0.04	0.04	0.00
12.00	17.74	22,350	363.24	13.10	13.10	0.00
14.00	0.61	16,515	362.81	0.67	0.67	0.00
16.00	0.38	16,282	362.79	0.42	0.42	0.00
18.00	0.29	16,126	362.78	0.31	0.31	0.00
20.00	0.21	16,011	362.77	0.23	0.23	0.00
22.00	0.20	15,967	362.77	0.20	0.20	0.00
24.00	0.18	15,944	362.77	0.18	0.18	0.00
26.00	0.00	15,495	362.73	0.05	0.05	0.00
28.00	0.00	15,133	362.70	0.05	0.05	0.00
30.00	0.00	14,772	362.67	0.05	0.05	0.00
32.00	0.00	14,413	362.64	0.05	0.05	0.00
34.00	0.00	14,055	362.61	0.05	0.05	0.00
36.00	0.00	13,699	362.58	0.05	0.05	0.00
38.00	0.00	13,344	362.54	0.05	0.05	0.00
40.00	0.00	12,991	362.51	0.05	0.05	0.00
42.00	0.00	12,640	362.48	0.05	0.05	0.00
44.00	0.00	12,290	362.45	0.05	0.05	0.00
46.00	0.00	11,942	362.42	0.05	0.05	0.00
48.00	0.00	11,595	362.38	0.05	0.05	0.00
50.00	0.00	11,250	362.35	0.05	0.05	0.00
52.00	0.00	10,907	362.32	0.05	0.05	0.00
54.00	0.00	10,566	362.28	0.05	0.05	0.00
56.00	0.00	10,226	362.25	0.05	0.05	0.00
58.00	0.00	9,889	362.22	0.05	0.05	0.00
60.00	0.00	9,553	362.18	0.05	0.05	0.00
62.00	0.00	9,219	362.15	0.05	0.05	0.00
64.00	0.00	8,886	362.11	0.05	0.05	0.00
66.00	0.00	8,556	362.08	0.05	0.05	0.00
68.00	0.00	8,228	362.04	0.05	0.05	0.00
70.00	0.00	7,901	362.00	0.05	0.05	0.00
72.00	0.00	7,580	361.87	0.04	0.04	0.00
74.00	0.00	7,266	361.73	0.04	0.04	0.00
76.00	0.00	6,960	361.59	0.04	0.04	0.00
78.00	0.00	6,662	361.46	0.04	0.04	0.00
80.00	0.00	6,371	361.33	0.04	0.04	0.00
82.00	0.00	6,089	361.21	0.04	0.04	0.00
84.00	0.00	5,815	361.08	0.04	0.04	0.00
86.00	0.00	5,549	360.97	0.04	0.04	0.00
88.00	0.00	5,290	360.85	0.04	0.04	0.00
90.00	0.00	5,040	360.74	0.03	0.03	0.00
92.00	0.00	4,798	360.63	0.03	0.03	0.00
94.00	0.00	4,563	360.53	0.03	0.03	0.00
96.00	0.00	4,337	360.43	0.03	0.03	0.00
98.00	0.00	4,118	360.33	0.03	0.03	0.00
100.00	0.00	3,907	360.24	0.03	0.03	0.00
102.00	0.00	3,705	360.15	0.03	0.03	0.00
104.00	0.00	3,510	360.06	0.03	0.03	0.00

Hydrograph for Pond BMP-03: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
106.00	0.00	3,323	359.98	0.03	0.03	0.00
108.00	0.00	3,144	359.90	0.02	0.02	0.00
110.00	0.00	2,973	359.82	0.02	0.02	0.00
112.00	0.00	2,810	359.75	0.02	0.02	0.00
114.00	0.00	2,655	359.68	0.02	0.02	0.00
116.00	0.00	2,508	359.61	0.02	0.02	0.00
118.00	0.00	2,369	359.55	0.02	0.02	0.00
120.00	0.00	2,238	359.49	0.02	0.02	0.00
122.00	0.00	2,115	359.44	0.02	0.02	0.00
124.00	0.00	2,000	359.39	0.02	0.02	0.00
126.00	0.00	1,892	359.34	0.01	0.01	0.00
128.00	0.00	1,793	359.30	0.01	0.01	0.00
130.00	0.00	1,702	359.26	0.01	0.01	0.00
132.00	0.00	1,618	359.22	0.01	0.01	0.00
134.00	0.00	1,543	359.19	0.01	0.01	0.00
136.00	0.00	1,476	359.16	0.01	0.01	0.00
138.00	0.00	1,417	359.13	0.01	0.01	0.00
140.00	0.00	1,365	359.11	0.01	0.01	0.00
142.00	0.00	1,324	359.09	0.01	0.01	0.00
144.00	0.00	1,291	359.07	0.00	0.00	0.00
146.00	0.00	1,264	359.06	0.00	0.00	0.00
148.00	0.00	1,243	359.05	0.00	0.00	0.00
150.00	0.00	1,226	359.04	0.00	0.00	0.00
152.00	0.00	1,212	359.04	0.00	0.00	0.00
154.00	0.00	1,201	359.03	0.00	0.00	0.00
156.00	0.00	1,191	359.03	0.00	0.00	0.00
158.00	0.00	1,182	359.03	0.00	0.00	0.00
160.00	0.00	1,175	359.02	0.00	0.00	0.00
162.00	0.00	1,168	359.02	0.00	0.00	0.00
164.00	0.00	1,162	359.02	0.00	0.00	0.00
166.00	0.00	1,158	359.01	0.00	0.00	0.00
168.00	0.00	1,153	359.01	0.00	0.00	0.00
170.00	0.00	1,150	359.01	0.00	0.00	0.00
172.00	0.00	1,146	359.01	0.00	0.00	0.00
174.00	0.00	1,144	359.01	0.00	0.00	0.00
176.00	0.00	1,141	359.01	0.00	0.00	0.00
178.00	0.00	1,139	359.01	0.00	0.00	0.00
180.00	0.00	1,137	359.01	0.00	0.00	0.00
182.00	0.00	1,136	359.00	0.00	0.00	0.00
184.00	0.00	1,134	359.00	0.00	0.00	0.00
186.00	0.00	1,133	359.00	0.00	0.00	0.00
188.00	0.00	1,132	359.00	0.00	0.00	0.00
190.00	0.00	1,131	359.00	0.00	0.00	0.00
192.00	0.00	1,130	359.00	0.00	0.00	0.00

1508-SCS LDP REV02

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Hydrograph for Pond BMP-04: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	369.00	0.00
2.00	0.05	63	369.04	0.00
4.00	0.14	753	369.50	0.00
6.00	0.23	2,085	370.19	0.01
8.00	0.32	3,955	370.82	0.03
10.00	0.62	7,032	371.84	0.04
12.00	25.97	31,297	373.10	11.28
14.00	0.98	22,231	372.75	1.22
16.00	0.62	21,495	372.71	0.69
18.00	0.49	21,194	372.70	0.53
20.00	0.36	20,877	372.69	0.41
22.00	0.33	20,719	372.68	0.34
24.00	0.31	20,653	372.68	0.32
26.00	0.00	19,864	372.64	0.05
28.00	0.00	19,495	372.63	0.05
30.00	0.00	19,128	372.61	0.05
32.00	0.00	18,762	372.60	0.05
34.00	0.00	18,398	372.58	0.05
36.00	0.00	18,034	372.56	0.05
38.00	0.00	17,672	372.55	0.05
40.00	0.00	17,310	372.53	0.05
42.00	0.00	16,951	372.51	0.05
44.00	0.00	16,592	372.50	0.05
46.00	0.00	16,234	372.48	0.05
48.00	0.00	15,878	372.46	0.05
50.00	0.00	15,523	372.44	0.05
52.00	0.00	15,169	372.43	0.05
54.00	0.00	14,817	372.41	0.05
56.00	0.00	14,466	372.39	0.05
58.00	0.00	14,116	372.37	0.05
60.00	0.00	13,767	372.36	0.05
62.00	0.00	13,420	372.34	0.05
64.00	0.00	13,075	372.32	0.05
66.00	0.00	12,730	372.30	0.05
68.00	0.00	12,387	372.29	0.05
70.00	0.00	12,045	372.27	0.05
72.00	0.00	11,705	372.25	0.05
74.00	0.00	11,366	372.23	0.05
76.00	0.00	11,029	372.21	0.05
78.00	0.00	10,693	372.19	0.05
80.00	0.00	10,359	372.17	0.05
82.00	0.00	10,026	372.15	0.05
84.00	0.00	9,694	372.13	0.05
86.00	0.00	9,364	372.11	0.05
88.00	0.00	9,036	372.10	0.05
90.00	0.00	8,709	372.08	0.05
92.00	0.00	8,384	372.06	0.05
94.00	0.00	8,061	372.04	0.04
96.00	0.00	7,739	372.02	0.04
98.00	0.00	7,419	371.97	0.04
100.00	0.00	7,105	371.87	0.04
102.00	0.00	6,801	371.77	0.04
104.00	0.00	6,505	371.67	0.04

Hydrograph for Pond BMP-04: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
106.00	0.00	6,218	371.57	0.04
108.00	0.00	5,940	371.48	0.04
110.00	0.00	5,670	371.39	0.04
112.00	0.00	5,409	371.30	0.04
114.00	0.00	5,157	371.22	0.03
116.00	0.00	4,914	371.14	0.03
118.00	0.00	4,679	371.06	0.03
120.00	0.00	4,453	370.98	0.03
122.00	0.00	4,236	370.91	0.03
124.00	0.00	4,027	370.84	0.03
126.00	0.00	3,827	370.78	0.03
128.00	0.00	3,636	370.71	0.03
130.00	0.00	3,454	370.65	0.02
132.00	0.00	3,280	370.59	0.02
134.00	0.00	3,115	370.54	0.02
136.00	0.00	2,959	370.49	0.02
138.00	0.00	2,812	370.44	0.02
140.00	0.00	2,673	370.39	0.02
142.00	0.00	2,543	370.35	0.02
144.00	0.00	2,422	370.31	0.02
146.00	0.00	2,310	370.27	0.02
148.00	0.00	2,206	370.24	0.01
150.00	0.00	2,111	370.20	0.01
152.00	0.00	2,025	370.17	0.01
154.00	0.00	1,948	370.15	0.01
156.00	0.00	1,879	370.13	0.01
158.00	0.00	1,820	370.11	0.01
160.00	0.00	1,770	370.09	0.01
162.00	0.00	1,730	370.08	0.01
164.00	0.00	1,697	370.07	0.00
166.00	0.00	1,671	370.06	0.00
168.00	0.00	1,648	370.05	0.00
170.00	0.00	1,630	370.04	0.00
172.00	0.00	1,613	370.04	0.00
174.00	0.00	1,599	370.03	0.00
176.00	0.00	1,587	370.03	0.00
178.00	0.00	1,576	370.03	0.00
180.00	0.00	1,566	370.02	0.00
182.00	0.00	1,558	370.02	0.00
184.00	0.00	1,551	370.02	0.00
186.00	0.00	1,544	370.01	0.00
188.00	0.00	1,539	370.01	0.00
190.00	0.00	1,534	370.01	0.00
192.00	0.00	1,530	370.01	0.00

1508-SCS LDP REV02

Type II 24-hr 2-yr Rainfall=3.24"

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Hydrograph for Pond BMP-05: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	369.00	0.00
2.00	0.05	63	369.04	0.00
4.00	0.14	761	369.51	0.00
6.00	0.24	2,103	370.20	0.01
8.00	0.33	3,966	370.82	0.03
10.00	0.63	7,031	371.84	0.05
12.00	23.37	30,729	373.12	10.32
14.00	0.82	22,190	372.79	1.01
16.00	0.51	21,430	372.75	0.59
18.00	0.40	21,105	372.74	0.43
20.00	0.29	20,891	372.73	0.32
22.00	0.27	20,797	372.73	0.27
24.00	0.25	20,754	372.72	0.25
26.00	0.00	20,087	372.69	0.06
28.00	0.00	19,645	372.67	0.06
30.00	0.00	19,205	372.65	0.06
32.00	0.00	18,767	372.63	0.06
34.00	0.00	18,330	372.61	0.06
36.00	0.00	17,895	372.59	0.06
38.00	0.00	17,461	372.57	0.06
40.00	0.00	17,030	372.55	0.06
42.00	0.00	16,600	372.53	0.06
44.00	0.00	16,172	372.51	0.06
46.00	0.00	15,746	372.49	0.06
48.00	0.00	15,322	372.47	0.06
50.00	0.00	14,899	372.45	0.06
52.00	0.00	14,479	372.42	0.06
54.00	0.00	14,060	372.40	0.06
56.00	0.00	13,644	372.38	0.06
58.00	0.00	13,229	372.36	0.06
60.00	0.00	12,816	372.33	0.06
62.00	0.00	12,406	372.31	0.06
64.00	0.00	11,998	372.29	0.06
66.00	0.00	11,591	372.26	0.06
68.00	0.00	11,187	372.24	0.06
70.00	0.00	10,785	372.22	0.06
72.00	0.00	10,386	372.19	0.06
74.00	0.00	9,988	372.17	0.06
76.00	0.00	9,593	372.14	0.05
78.00	0.00	9,201	372.12	0.05
80.00	0.00	8,811	372.09	0.05
82.00	0.00	8,423	372.06	0.05
84.00	0.00	8,038	372.04	0.05
86.00	0.00	7,655	372.01	0.05
88.00	0.00	7,277	371.93	0.05
90.00	0.00	6,910	371.80	0.05
92.00	0.00	6,556	371.69	0.05
94.00	0.00	6,214	371.57	0.05
96.00	0.00	5,884	371.46	0.04
98.00	0.00	5,567	371.36	0.04
100.00	0.00	5,262	371.25	0.04
102.00	0.00	4,969	371.16	0.04
104.00	0.00	4,689	371.06	0.04

Hydrograph for Pond BMP-05: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
106.00	0.00	4,421	370.97	0.04
108.00	0.00	4,166	370.89	0.03
110.00	0.00	3,923	370.81	0.03
112.00	0.00	3,692	370.73	0.03
114.00	0.00	3,474	370.66	0.03
116.00	0.00	3,267	370.59	0.03
118.00	0.00	3,074	370.52	0.03
120.00	0.00	2,892	370.46	0.02
122.00	0.00	2,724	370.41	0.02
124.00	0.00	2,567	370.36	0.02
126.00	0.00	2,423	370.31	0.02
128.00	0.00	2,291	370.26	0.02
130.00	0.00	2,172	370.22	0.02
132.00	0.00	2,065	370.19	0.01
134.00	0.00	1,970	370.16	0.01
136.00	0.00	1,889	370.13	0.01
138.00	0.00	1,819	370.11	0.01
140.00	0.00	1,764	370.09	0.01
142.00	0.00	1,720	370.07	0.01
144.00	0.00	1,686	370.06	0.00
146.00	0.00	1,659	370.05	0.00
148.00	0.00	1,638	370.05	0.00
150.00	0.00	1,619	370.04	0.00
152.00	0.00	1,603	370.03	0.00
154.00	0.00	1,590	370.03	0.00
156.00	0.00	1,578	370.03	0.00
158.00	0.00	1,567	370.02	0.00
160.00	0.00	1,558	370.02	0.00
162.00	0.00	1,550	370.02	0.00
164.00	0.00	1,544	370.01	0.00
166.00	0.00	1,538	370.01	0.00
168.00	0.00	1,533	370.01	0.00
170.00	0.00	1,528	370.01	0.00
172.00	0.00	1,525	370.01	0.00
174.00	0.00	1,521	370.01	0.00
176.00	0.00	1,518	370.01	0.00
178.00	0.00	1,516	370.01	0.00
180.00	0.00	1,514	370.00	0.00
182.00	0.00	1,512	370.00	0.00
184.00	0.00	1,510	370.00	0.00
186.00	0.00	1,509	370.00	0.00
188.00	0.00	1,508	370.00	0.00
190.00	0.00	1,507	370.00	0.00
192.00	0.00	1,506	370.00	0.00

1508-SCS LDP REV02

Type II 24-hr 10-yr Rainfall=4.75"

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Hydrograph for Pond BMP-01: Wet Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	355.00	0.00
2.00	0.13	264	355.00	0.00
4.00	0.29	1,646	355.02	0.03
6.00	0.52	4,304	355.06	0.07
8.00	0.71	7,789	355.11	0.22
10.00	1.20	12,197	355.17	0.49
12.00	179.04	125,310	356.70	7.63
14.00	9.03	179,698	357.38	15.29
16.00	5.43	150,686	357.02	8.55
18.00	4.16	126,430	356.71	7.67
20.00	3.09	100,710	356.38	6.71
22.00	2.76	76,951	356.06	5.66
24.00	2.55	58,880	355.82	4.68
26.00	0.23	35,324	355.50	2.92
28.00	0.23	22,157	355.31	1.41
30.00	0.23	16,139	355.23	0.81
32.00	0.23	13,026	355.19	0.55
34.00	0.22	11,208	355.16	0.42
36.00	0.22	10,130	355.14	0.34
38.00	0.22	9,472	355.14	0.30
40.00	0.22	9,008	355.13	0.28
42.00	0.22	8,673	355.12	0.26
44.00	0.22	8,428	355.12	0.25
46.00	0.22	8,248	355.12	0.24
48.00	0.22	8,114	355.12	0.23
50.00	0.22	8,013	355.11	0.23
52.00	0.22	7,935	355.11	0.23
54.00	0.22	7,873	355.11	0.22
56.00	0.21	7,823	355.11	0.22
58.00	0.21	7,781	355.11	0.22
60.00	0.21	7,744	355.11	0.22
62.00	0.21	7,712	355.11	0.22
64.00	0.21	7,682	355.11	0.21
66.00	0.21	7,654	355.11	0.21
68.00	0.21	7,627	355.11	0.21
70.00	0.21	7,601	355.11	0.21
72.00	0.20	7,573	355.11	0.21
74.00	0.20	7,541	355.11	0.21
76.00	0.20	7,506	355.11	0.21
78.00	0.20	7,469	355.11	0.20
80.00	0.20	7,430	355.11	0.20
82.00	0.19	7,389	355.11	0.20
84.00	0.19	7,347	355.10	0.20
86.00	0.19	7,304	355.10	0.20
88.00	0.19	7,255	355.10	0.19
90.00	0.18	7,193	355.10	0.19
92.00	0.18	7,121	355.10	0.19
94.00	0.17	7,041	355.10	0.18
96.00	0.17	6,956	355.10	0.18
98.00	0.16	6,866	355.10	0.18
100.00	0.16	6,771	355.10	0.17
102.00	0.15	6,668	355.10	0.17
104.00	0.15	6,561	355.09	0.16

Hydrograph for Pond BMP-01: Wet Pond (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
106.00	0.14	6,450	355.09	0.16
108.00	0.13	6,337	355.09	0.15
110.00	0.13	6,222	355.09	0.14
112.00	0.12	6,105	355.09	0.14
114.00	0.12	5,988	355.09	0.13
116.00	0.11	5,870	355.08	0.13
118.00	0.11	5,752	355.08	0.12
120.00	0.10	5,633	355.08	0.12
122.00	0.09	5,514	355.08	0.11
124.00	0.09	5,395	355.08	0.11
126.00	0.08	5,276	355.08	0.10
128.00	0.08	5,156	355.07	0.09
130.00	0.07	5,037	355.07	0.09
132.00	0.07	4,917	355.07	0.08
134.00	0.06	4,790	355.07	0.08
136.00	0.06	4,638	355.07	0.08
138.00	0.05	4,466	355.06	0.07
140.00	0.04	4,273	355.06	0.07
142.00	0.04	4,062	355.06	0.07
144.00	0.03	3,839	355.05	0.06
146.00	0.03	3,607	355.05	0.06
148.00	0.02	3,371	355.05	0.06
150.00	0.02	3,139	355.04	0.05
152.00	0.02	2,914	355.04	0.05
154.00	0.02	2,696	355.04	0.05
156.00	0.01	2,489	355.04	0.04
158.00	0.01	2,293	355.03	0.04
160.00	0.01	2,106	355.03	0.04
162.00	0.01	1,927	355.03	0.03
164.00	0.01	1,759	355.03	0.03
166.00	0.01	1,602	355.02	0.03
168.00	0.00	1,455	355.02	0.02
170.00	0.00	1,320	355.02	0.02
172.00	0.00	1,196	355.02	0.02
174.00	0.00	1,083	355.02	0.02
176.00	0.00	980	355.01	0.02
178.00	0.00	886	355.01	0.01
180.00	0.00	800	355.01	0.01
182.00	0.00	723	355.01	0.01
184.00	0.00	652	355.01	0.01
186.00	0.00	588	355.01	0.01
188.00	0.00	530	355.01	0.01
190.00	0.00	477	355.01	0.01
192.00	0.00	429	355.01	0.01

1508-SCS LDP REV02

Type II 24-hr 10-yr Rainfall=4.75"

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Hydrograph for Pond BMP-02: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	358.00	0.00	0.00	0.00
2.00	0.13	268	358.24	0.00	0.00	0.00
4.00	0.27	1,700	359.26	0.01	0.01	0.00
6.00	0.40	3,926	360.25	0.03	0.03	0.00
8.00	0.53	6,989	361.61	0.05	0.05	0.00
10.00	0.98	11,939	362.47	0.06	0.06	0.00
12.00	37.16	36,356	364.19	30.96	30.96	0.00
14.00	1.26	22,641	363.36	1.40	1.40	0.00
16.00	0.78	22,102	363.32	0.84	0.84	0.00
18.00	0.61	21,899	363.31	0.63	0.63	0.00
20.00	0.44	21,741	363.29	0.47	0.47	0.00
22.00	0.41	21,688	363.29	0.41	0.41	0.00
24.00	0.37	21,657	363.29	0.38	0.38	0.00
26.00	0.00	20,893	363.23	0.07	0.07	0.00
28.00	0.00	20,426	363.20	0.06	0.06	0.00
30.00	0.00	19,961	363.16	0.06	0.06	0.00
32.00	0.00	19,497	363.13	0.06	0.06	0.00
34.00	0.00	19,036	363.09	0.06	0.06	0.00
36.00	0.00	18,577	363.06	0.06	0.06	0.00
38.00	0.00	18,120	363.02	0.06	0.06	0.00
40.00	0.00	17,664	362.98	0.06	0.06	0.00
42.00	0.00	17,211	362.95	0.06	0.06	0.00
44.00	0.00	16,761	362.91	0.06	0.06	0.00
46.00	0.00	16,312	362.87	0.06	0.06	0.00
48.00	0.00	15,865	362.83	0.06	0.06	0.00
50.00	0.00	15,421	362.80	0.06	0.06	0.00
52.00	0.00	14,979	362.76	0.06	0.06	0.00
54.00	0.00	14,540	362.72	0.06	0.06	0.00
56.00	0.00	14,102	362.68	0.06	0.06	0.00
58.00	0.00	13,668	362.64	0.06	0.06	0.00
60.00	0.00	13,235	362.60	0.06	0.06	0.00
62.00	0.00	12,805	362.56	0.06	0.06	0.00
64.00	0.00	12,378	362.51	0.06	0.06	0.00
66.00	0.00	11,953	362.47	0.06	0.06	0.00
68.00	0.00	11,531	362.43	0.06	0.06	0.00
70.00	0.00	11,112	362.38	0.06	0.06	0.00
72.00	0.00	10,695	362.34	0.06	0.06	0.00
74.00	0.00	10,282	362.29	0.06	0.06	0.00
76.00	0.00	9,871	362.25	0.06	0.06	0.00
78.00	0.00	9,463	362.20	0.06	0.06	0.00
80.00	0.00	9,059	362.15	0.06	0.06	0.00
82.00	0.00	8,657	362.10	0.06	0.06	0.00
84.00	0.00	8,259	362.05	0.06	0.06	0.00
86.00	0.00	7,864	362.00	0.05	0.05	0.00
88.00	0.00	7,477	361.82	0.05	0.05	0.00
90.00	0.00	7,101	361.66	0.05	0.05	0.00
92.00	0.00	6,738	361.49	0.05	0.05	0.00
94.00	0.00	6,385	361.34	0.05	0.05	0.00
96.00	0.00	6,045	361.19	0.05	0.05	0.00
98.00	0.00	5,716	361.04	0.04	0.04	0.00
100.00	0.00	5,399	360.90	0.04	0.04	0.00
102.00	0.00	5,093	360.76	0.04	0.04	0.00
104.00	0.00	4,799	360.63	0.04	0.04	0.00

Hydrograph for Pond BMP-02: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
106.00	0.00	4,517	360.51	0.04	0.04	0.00
108.00	0.00	4,246	360.39	0.04	0.04	0.00
110.00	0.00	3,987	360.27	0.04	0.04	0.00
112.00	0.00	3,739	360.16	0.03	0.03	0.00
114.00	0.00	3,503	360.06	0.03	0.03	0.00
116.00	0.00	3,279	359.96	0.03	0.03	0.00
118.00	0.00	3,067	359.86	0.03	0.03	0.00
120.00	0.00	2,866	359.77	0.03	0.03	0.00
122.00	0.00	2,676	359.69	0.03	0.03	0.00
124.00	0.00	2,499	359.61	0.02	0.02	0.00
126.00	0.00	2,333	359.54	0.02	0.02	0.00
128.00	0.00	2,178	359.47	0.02	0.02	0.00
130.00	0.00	2,035	359.40	0.02	0.02	0.00
132.00	0.00	1,904	359.35	0.02	0.02	0.00
134.00	0.00	1,785	359.29	0.02	0.02	0.00
136.00	0.00	1,677	359.25	0.01	0.01	0.00
138.00	0.00	1,581	359.20	0.01	0.01	0.00
140.00	0.00	1,497	359.17	0.01	0.01	0.00
142.00	0.00	1,425	359.13	0.01	0.01	0.00
144.00	0.00	1,364	359.11	0.01	0.01	0.00
146.00	0.00	1,317	359.09	0.01	0.01	0.00
148.00	0.00	1,281	359.07	0.00	0.00	0.00
150.00	0.00	1,253	359.06	0.00	0.00	0.00
152.00	0.00	1,232	359.05	0.00	0.00	0.00
154.00	0.00	1,216	359.04	0.00	0.00	0.00
156.00	0.00	1,203	359.03	0.00	0.00	0.00
158.00	0.00	1,193	359.03	0.00	0.00	0.00
160.00	0.00	1,183	359.03	0.00	0.00	0.00
162.00	0.00	1,175	359.02	0.00	0.00	0.00
164.00	0.00	1,168	359.02	0.00	0.00	0.00
166.00	0.00	1,162	359.02	0.00	0.00	0.00
168.00	0.00	1,157	359.01	0.00	0.00	0.00
170.00	0.00	1,152	359.01	0.00	0.00	0.00
172.00	0.00	1,149	359.01	0.00	0.00	0.00
174.00	0.00	1,145	359.01	0.00	0.00	0.00
176.00	0.00	1,142	359.01	0.00	0.00	0.00
178.00	0.00	1,140	359.01	0.00	0.00	0.00
180.00	0.00	1,138	359.01	0.00	0.00	0.00
182.00	0.00	1,136	359.00	0.00	0.00	0.00
184.00	0.00	1,135	359.00	0.00	0.00	0.00
186.00	0.00	1,133	359.00	0.00	0.00	0.00
188.00	0.00	1,132	359.00	0.00	0.00	0.00
190.00	0.00	1,131	359.00	0.00	0.00	0.00
192.00	0.00	1,130	359.00	0.00	0.00	0.00

Hydrograph for Pond BMP-03: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	358.00	0.00	0.00	0.00
2.00	0.10	204	358.18	0.00	0.00	0.00
4.00	0.20	1,308	359.08	0.00	0.00	0.00
6.00	0.31	3,030	359.85	0.02	0.02	0.00
8.00	0.40	5,384	360.89	0.04	0.04	0.00
10.00	0.75	9,161	362.14	0.05	0.05	0.00
12.00	28.14	26,818	363.52	25.66	25.66	0.00
14.00	0.95	16,804	362.84	1.06	1.06	0.00
16.00	0.59	16,478	362.81	0.63	0.63	0.00
18.00	0.46	16,364	362.80	0.47	0.47	0.00
20.00	0.33	16,201	362.79	0.36	0.36	0.00
22.00	0.31	16,131	362.78	0.31	0.31	0.00
24.00	0.28	16,095	362.78	0.29	0.29	0.00
26.00	0.00	15,528	362.73	0.05	0.05	0.00
28.00	0.00	15,166	362.70	0.05	0.05	0.00
30.00	0.00	14,805	362.67	0.05	0.05	0.00
32.00	0.00	14,445	362.64	0.05	0.05	0.00
34.00	0.00	14,087	362.61	0.05	0.05	0.00
36.00	0.00	13,731	362.58	0.05	0.05	0.00
38.00	0.00	13,376	362.55	0.05	0.05	0.00
40.00	0.00	13,023	362.52	0.05	0.05	0.00
42.00	0.00	12,671	362.48	0.05	0.05	0.00
44.00	0.00	12,322	362.45	0.05	0.05	0.00
46.00	0.00	11,973	362.42	0.05	0.05	0.00
48.00	0.00	11,627	362.39	0.05	0.05	0.00
50.00	0.00	11,282	362.35	0.05	0.05	0.00
52.00	0.00	10,938	362.32	0.05	0.05	0.00
54.00	0.00	10,597	362.29	0.05	0.05	0.00
56.00	0.00	10,257	362.25	0.05	0.05	0.00
58.00	0.00	9,919	362.22	0.05	0.05	0.00
60.00	0.00	9,583	362.18	0.05	0.05	0.00
62.00	0.00	9,249	362.15	0.05	0.05	0.00
64.00	0.00	8,916	362.11	0.05	0.05	0.00
66.00	0.00	8,586	362.08	0.05	0.05	0.00
68.00	0.00	8,257	362.04	0.05	0.05	0.00
70.00	0.00	7,931	362.01	0.05	0.05	0.00
72.00	0.00	7,608	361.88	0.04	0.04	0.00
74.00	0.00	7,294	361.74	0.04	0.04	0.00
76.00	0.00	6,987	361.61	0.04	0.04	0.00
78.00	0.00	6,688	361.47	0.04	0.04	0.00
80.00	0.00	6,397	361.34	0.04	0.04	0.00
82.00	0.00	6,115	361.22	0.04	0.04	0.00
84.00	0.00	5,840	361.10	0.04	0.04	0.00
86.00	0.00	5,573	360.98	0.04	0.04	0.00
88.00	0.00	5,314	360.86	0.04	0.04	0.00
90.00	0.00	5,062	360.75	0.03	0.03	0.00
92.00	0.00	4,819	360.64	0.03	0.03	0.00
94.00	0.00	4,584	360.54	0.03	0.03	0.00
96.00	0.00	4,357	360.44	0.03	0.03	0.00
98.00	0.00	4,138	360.34	0.03	0.03	0.00
100.00	0.00	3,926	360.24	0.03	0.03	0.00
102.00	0.00	3,723	360.15	0.03	0.03	0.00
104.00	0.00	3,527	360.07	0.03	0.03	0.00

Hydrograph for Pond BMP-03: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
106.00	0.00	3,340	359.98	0.03	0.03	0.00
108.00	0.00	3,160	359.90	0.02	0.02	0.00
110.00	0.00	2,988	359.83	0.02	0.02	0.00
112.00	0.00	2,825	359.76	0.02	0.02	0.00
114.00	0.00	2,669	359.69	0.02	0.02	0.00
116.00	0.00	2,521	359.62	0.02	0.02	0.00
118.00	0.00	2,381	359.56	0.02	0.02	0.00
120.00	0.00	2,250	359.50	0.02	0.02	0.00
122.00	0.00	2,126	359.44	0.02	0.02	0.00
124.00	0.00	2,010	359.39	0.02	0.02	0.00
126.00	0.00	1,902	359.35	0.01	0.01	0.00
128.00	0.00	1,802	359.30	0.01	0.01	0.00
130.00	0.00	1,710	359.26	0.01	0.01	0.00
132.00	0.00	1,626	359.22	0.01	0.01	0.00
134.00	0.00	1,549	359.19	0.01	0.01	0.00
136.00	0.00	1,482	359.16	0.01	0.01	0.00
138.00	0.00	1,422	359.13	0.01	0.01	0.00
140.00	0.00	1,369	359.11	0.01	0.01	0.00
142.00	0.00	1,327	359.09	0.01	0.01	0.00
144.00	0.00	1,293	359.07	0.00	0.00	0.00
146.00	0.00	1,266	359.06	0.00	0.00	0.00
148.00	0.00	1,245	359.05	0.00	0.00	0.00
150.00	0.00	1,227	359.05	0.00	0.00	0.00
152.00	0.00	1,213	359.04	0.00	0.00	0.00
154.00	0.00	1,202	359.03	0.00	0.00	0.00
156.00	0.00	1,192	359.03	0.00	0.00	0.00
158.00	0.00	1,183	359.03	0.00	0.00	0.00
160.00	0.00	1,175	359.02	0.00	0.00	0.00
162.00	0.00	1,169	359.02	0.00	0.00	0.00
164.00	0.00	1,163	359.02	0.00	0.00	0.00
166.00	0.00	1,158	359.01	0.00	0.00	0.00
168.00	0.00	1,154	359.01	0.00	0.00	0.00
170.00	0.00	1,150	359.01	0.00	0.00	0.00
172.00	0.00	1,147	359.01	0.00	0.00	0.00
174.00	0.00	1,144	359.01	0.00	0.00	0.00
176.00	0.00	1,141	359.01	0.00	0.00	0.00
178.00	0.00	1,139	359.01	0.00	0.00	0.00
180.00	0.00	1,137	359.01	0.00	0.00	0.00
182.00	0.00	1,136	359.00	0.00	0.00	0.00
184.00	0.00	1,134	359.00	0.00	0.00	0.00
186.00	0.00	1,133	359.00	0.00	0.00	0.00
188.00	0.00	1,132	359.00	0.00	0.00	0.00
190.00	0.00	1,131	359.00	0.00	0.00	0.00
192.00	0.00	1,130	359.00	0.00	0.00	0.00

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Hydrograph for Pond BMP-04: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	369.00	0.00
2.00	0.12	257	369.17	0.00
4.00	0.25	1,648	370.05	0.00
6.00	0.39	3,832	370.78	0.03
8.00	0.51	6,816	371.77	0.04
10.00	0.94	11,623	372.24	0.05
12.00	46.23	44,437	373.57	24.23
14.00	1.70	23,260	372.79	2.00
16.00	1.06	22,177	372.74	1.18
18.00	0.84	21,757	372.73	0.88
20.00	0.61	21,450	372.71	0.66
22.00	0.56	21,313	372.71	0.58
24.00	0.52	21,206	372.70	0.54
26.00	0.00	19,932	372.65	0.05
28.00	0.00	19,563	372.63	0.05
30.00	0.00	19,196	372.62	0.05
32.00	0.00	18,830	372.60	0.05
34.00	0.00	18,465	372.58	0.05
36.00	0.00	18,101	372.57	0.05
38.00	0.00	17,738	372.55	0.05
40.00	0.00	17,377	372.53	0.05
42.00	0.00	17,017	372.52	0.05
44.00	0.00	16,658	372.50	0.05
46.00	0.00	16,300	372.48	0.05
48.00	0.00	15,944	372.46	0.05
50.00	0.00	15,588	372.45	0.05
52.00	0.00	15,234	372.43	0.05
54.00	0.00	14,882	372.41	0.05
56.00	0.00	14,530	372.40	0.05
58.00	0.00	14,180	372.38	0.05
60.00	0.00	13,832	372.36	0.05
62.00	0.00	13,484	372.34	0.05
64.00	0.00	13,138	372.32	0.05
66.00	0.00	12,794	372.31	0.05
68.00	0.00	12,450	372.29	0.05
70.00	0.00	12,108	372.27	0.05
72.00	0.00	11,768	372.25	0.05
74.00	0.00	11,429	372.23	0.05
76.00	0.00	11,091	372.21	0.05
78.00	0.00	10,755	372.20	0.05
80.00	0.00	10,420	372.18	0.05
82.00	0.00	10,087	372.16	0.05
84.00	0.00	9,755	372.14	0.05
86.00	0.00	9,425	372.12	0.05
88.00	0.00	9,096	372.10	0.05
90.00	0.00	8,769	372.08	0.05
92.00	0.00	8,444	372.06	0.05
94.00	0.00	8,120	372.04	0.04
96.00	0.00	7,798	372.02	0.04
98.00	0.00	7,477	371.99	0.04
100.00	0.00	7,163	371.89	0.04
102.00	0.00	6,856	371.79	0.04
104.00	0.00	6,559	371.69	0.04

Hydrograph for Pond BMP-04: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
106.00	0.00	6,270	371.59	0.04
108.00	0.00	5,990	371.50	0.04
110.00	0.00	5,719	371.41	0.04
112.00	0.00	5,457	371.32	0.04
114.00	0.00	5,203	371.23	0.03
116.00	0.00	4,958	371.15	0.03
118.00	0.00	4,722	371.07	0.03
120.00	0.00	4,494	371.00	0.03
122.00	0.00	4,275	370.93	0.03
124.00	0.00	4,065	370.86	0.03
126.00	0.00	3,864	370.79	0.03
128.00	0.00	3,671	370.72	0.03
130.00	0.00	3,487	370.66	0.02
132.00	0.00	3,312	370.60	0.02
134.00	0.00	3,145	370.55	0.02
136.00	0.00	2,987	370.50	0.02
138.00	0.00	2,838	370.45	0.02
140.00	0.00	2,698	370.40	0.02
142.00	0.00	2,567	370.36	0.02
144.00	0.00	2,444	370.31	0.02
146.00	0.00	2,330	370.28	0.02
148.00	0.00	2,224	370.24	0.01
150.00	0.00	2,128	370.21	0.01
152.00	0.00	2,040	370.18	0.01
154.00	0.00	1,961	370.15	0.01
156.00	0.00	1,891	370.13	0.01
158.00	0.00	1,830	370.11	0.01
160.00	0.00	1,779	370.09	0.01
162.00	0.00	1,737	370.08	0.01
164.00	0.00	1,703	370.07	0.00
166.00	0.00	1,675	370.06	0.00
168.00	0.00	1,652	370.05	0.00
170.00	0.00	1,633	370.04	0.00
172.00	0.00	1,616	370.04	0.00
174.00	0.00	1,602	370.03	0.00
176.00	0.00	1,589	370.03	0.00
178.00	0.00	1,578	370.03	0.00
180.00	0.00	1,568	370.02	0.00
182.00	0.00	1,559	370.02	0.00
184.00	0.00	1,552	370.02	0.00
186.00	0.00	1,545	370.02	0.00
188.00	0.00	1,540	370.01	0.00
190.00	0.00	1,535	370.01	0.00
192.00	0.00	1,530	370.01	0.00

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Hydrograph for Pond BMP-05: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	369.00	0.00
2.00	0.12	259	369.17	0.00
4.00	0.26	1,665	370.05	0.00
6.00	0.39	3,849	370.78	0.03
8.00	0.52	6,819	371.77	0.05
10.00	0.95	11,618	372.27	0.06
12.00	38.16	41,124	373.50	23.93
14.00	1.32	22,940	372.82	1.61
16.00	0.82	22,055	372.78	0.91
18.00	0.64	21,620	372.76	0.69
20.00	0.47	21,276	372.75	0.52
22.00	0.43	21,125	372.74	0.44
24.00	0.40	21,056	372.74	0.40
26.00	0.00	20,145	372.70	0.06
28.00	0.00	19,702	372.68	0.06
30.00	0.00	19,262	372.66	0.06
32.00	0.00	18,823	372.64	0.06
34.00	0.00	18,386	372.62	0.06
36.00	0.00	17,951	372.60	0.06
38.00	0.00	17,517	372.58	0.06
40.00	0.00	17,086	372.55	0.06
42.00	0.00	16,656	372.53	0.06
44.00	0.00	16,227	372.51	0.06
46.00	0.00	15,801	372.49	0.06
48.00	0.00	15,376	372.47	0.06
50.00	0.00	14,954	372.45	0.06
52.00	0.00	14,533	372.43	0.06
54.00	0.00	14,114	372.40	0.06
56.00	0.00	13,697	372.38	0.06
58.00	0.00	13,283	372.36	0.06
60.00	0.00	12,870	372.34	0.06
62.00	0.00	12,459	372.31	0.06
64.00	0.00	12,050	372.29	0.06
66.00	0.00	11,644	372.27	0.06
68.00	0.00	11,240	372.24	0.06
70.00	0.00	10,837	372.22	0.06
72.00	0.00	10,437	372.20	0.06
74.00	0.00	10,040	372.17	0.06
76.00	0.00	9,644	372.15	0.05
78.00	0.00	9,252	372.12	0.05
80.00	0.00	8,861	372.09	0.05
82.00	0.00	8,473	372.07	0.05
84.00	0.00	8,087	372.04	0.05
86.00	0.00	7,705	372.01	0.05
88.00	0.00	7,325	371.94	0.05
90.00	0.00	6,957	371.82	0.05
92.00	0.00	6,601	371.70	0.05
94.00	0.00	6,257	371.59	0.05
96.00	0.00	5,926	371.48	0.05
98.00	0.00	5,607	371.37	0.04
100.00	0.00	5,301	371.27	0.04
102.00	0.00	5,007	371.17	0.04
104.00	0.00	4,725	371.07	0.04

Hydrograph for Pond BMP-05: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
106.00	0.00	4,455	370.99	0.04
108.00	0.00	4,198	370.90	0.03
110.00	0.00	3,954	370.82	0.03
112.00	0.00	3,721	370.74	0.03
114.00	0.00	3,501	370.67	0.03
116.00	0.00	3,293	370.60	0.03
118.00	0.00	3,098	370.53	0.03
120.00	0.00	2,915	370.47	0.02
122.00	0.00	2,745	370.41	0.02
124.00	0.00	2,587	370.36	0.02
126.00	0.00	2,441	370.31	0.02
128.00	0.00	2,307	370.27	0.02
130.00	0.00	2,186	370.23	0.02
132.00	0.00	2,078	370.19	0.01
134.00	0.00	1,982	370.16	0.01
136.00	0.00	1,899	370.13	0.01
138.00	0.00	1,827	370.11	0.01
140.00	0.00	1,770	370.09	0.01
142.00	0.00	1,725	370.08	0.01
144.00	0.00	1,690	370.06	0.00
146.00	0.00	1,662	370.05	0.00
148.00	0.00	1,640	370.05	0.00
150.00	0.00	1,622	370.04	0.00
152.00	0.00	1,605	370.04	0.00
154.00	0.00	1,591	370.03	0.00
156.00	0.00	1,579	370.03	0.00
158.00	0.00	1,569	370.02	0.00
160.00	0.00	1,559	370.02	0.00
162.00	0.00	1,551	370.02	0.00
164.00	0.00	1,545	370.01	0.00
166.00	0.00	1,539	370.01	0.00
168.00	0.00	1,533	370.01	0.00
170.00	0.00	1,529	370.01	0.00
172.00	0.00	1,525	370.01	0.00
174.00	0.00	1,522	370.01	0.00
176.00	0.00	1,519	370.01	0.00
178.00	0.00	1,516	370.01	0.00
180.00	0.00	1,514	370.00	0.00
182.00	0.00	1,512	370.00	0.00
184.00	0.00	1,511	370.00	0.00
186.00	0.00	1,509	370.00	0.00
188.00	0.00	1,508	370.00	0.00
190.00	0.00	1,507	370.00	0.00
192.00	0.00	1,506	370.00	0.00

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Hydrograph for Pond BMP-01: Wet Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	355.00	0.00
2.00	0.24	619	355.01	0.01
4.00	0.51	3,073	355.04	0.05
6.00	0.76	6,954	355.10	0.18
8.00	0.97	11,185	355.16	0.42
10.00	1.62	16,112	355.23	0.80
12.00	242.56	226,519	357.95	33.92
14.00	13.70	203,158	357.67	23.78
16.00	8.25	165,710	357.21	11.35
18.00	6.29	148,695	357.00	8.40
20.00	4.67	129,776	356.76	7.78
22.00	4.16	107,921	356.47	6.99
24.00	3.84	89,175	356.23	6.22
26.00	0.23	55,776	355.78	4.49
28.00	0.23	32,009	355.45	2.54
30.00	0.23	20,693	355.29	1.25
32.00	0.23	15,410	355.22	0.74
34.00	0.22	12,610	355.18	0.52
36.00	0.22	10,958	355.16	0.40
38.00	0.22	9,977	355.14	0.33
40.00	0.22	9,365	355.13	0.29
42.00	0.22	8,927	355.13	0.27
44.00	0.22	8,609	355.12	0.26
46.00	0.22	8,378	355.12	0.25
48.00	0.22	8,207	355.12	0.24
50.00	0.22	8,079	355.12	0.23
52.00	0.22	7,982	355.11	0.23
54.00	0.22	7,907	355.11	0.22
56.00	0.21	7,848	355.11	0.22
58.00	0.21	7,799	355.11	0.22
60.00	0.21	7,758	355.11	0.22
62.00	0.21	7,722	355.11	0.22
64.00	0.21	7,690	355.11	0.21
66.00	0.21	7,660	355.11	0.21
68.00	0.21	7,632	355.11	0.21
70.00	0.21	7,605	355.11	0.21
72.00	0.20	7,577	355.11	0.21
74.00	0.20	7,545	355.11	0.21
76.00	0.20	7,510	355.11	0.21
78.00	0.20	7,472	355.11	0.20
80.00	0.20	7,433	355.11	0.20
82.00	0.19	7,392	355.11	0.20
84.00	0.19	7,350	355.11	0.20
86.00	0.19	7,307	355.10	0.20
88.00	0.19	7,259	355.10	0.19
90.00	0.18	7,199	355.10	0.19
92.00	0.18	7,127	355.10	0.19
94.00	0.17	7,047	355.10	0.18
96.00	0.17	6,962	355.10	0.18
98.00	0.16	6,873	355.10	0.18
100.00	0.16	6,779	355.10	0.17
102.00	0.15	6,677	355.10	0.17
104.00	0.15	6,570	355.09	0.16

Hydrograph for Pond BMP-01: Wet Pond (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
106.00	0.14	6,459	355.09	0.16
108.00	0.13	6,346	355.09	0.15
110.00	0.13	6,231	355.09	0.15
112.00	0.12	6,115	355.09	0.14
114.00	0.12	5,998	355.09	0.13
116.00	0.11	5,880	355.08	0.13
118.00	0.11	5,762	355.08	0.12
120.00	0.10	5,643	355.08	0.12
122.00	0.10	5,524	355.08	0.11
124.00	0.09	5,405	355.08	0.11
126.00	0.08	5,286	355.08	0.10
128.00	0.08	5,166	355.07	0.09
130.00	0.07	5,047	355.07	0.09
132.00	0.07	4,927	355.07	0.08
134.00	0.06	4,801	355.07	0.08
136.00	0.06	4,652	355.07	0.08
138.00	0.05	4,481	355.06	0.07
140.00	0.04	4,290	355.06	0.07
142.00	0.04	4,080	355.06	0.07
144.00	0.03	3,858	355.06	0.06
146.00	0.03	3,626	355.05	0.06
148.00	0.02	3,390	355.05	0.06
150.00	0.02	3,158	355.05	0.05
152.00	0.02	2,932	355.04	0.05
154.00	0.02	2,713	355.04	0.05
156.00	0.01	2,506	355.04	0.04
158.00	0.01	2,309	355.03	0.04
160.00	0.01	2,121	355.03	0.04
162.00	0.01	1,942	355.03	0.03
164.00	0.01	1,773	355.03	0.03
166.00	0.01	1,614	355.02	0.03
168.00	0.00	1,467	355.02	0.02
170.00	0.00	1,331	355.02	0.02
172.00	0.00	1,206	355.02	0.02
174.00	0.00	1,092	355.02	0.02
176.00	0.00	988	355.01	0.02
178.00	0.00	894	355.01	0.01
180.00	0.00	807	355.01	0.01
182.00	0.00	729	355.01	0.01
184.00	0.00	658	355.01	0.01
186.00	0.00	593	355.01	0.01
188.00	0.00	534	355.01	0.01
190.00	0.00	481	355.01	0.01
192.00	0.00	433	355.01	0.01

Hydrograph for Pond BMP-02: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	358.00	0.00	0.00	0.00
2.00	0.24	631	358.56	0.00	0.00	0.00
4.00	0.41	2,941	359.81	0.03	0.03	0.00
6.00	0.59	6,289	361.30	0.05	0.05	0.00
8.00	0.76	10,772	362.35	0.06	0.06	0.00
10.00	1.38	17,914	363.01	0.06	0.06	0.00
12.00	54.57	45,825	364.68	32.72	32.72	0.00
14.00	1.84	23,065	363.39	2.02	2.02	0.00
16.00	1.13	22,466	363.35	1.22	1.22	0.00
18.00	0.88	22,171	363.32	0.91	0.91	0.00
20.00	0.64	21,941	363.31	0.67	0.67	0.00
22.00	0.59	21,864	363.30	0.59	0.59	0.00
24.00	0.54	21,819	363.30	0.55	0.55	0.00
26.00	0.00	20,916	363.23	0.07	0.07	0.00
28.00	0.00	20,449	363.20	0.06	0.06	0.00
30.00	0.00	19,984	363.17	0.06	0.06	0.00
32.00	0.00	19,520	363.13	0.06	0.06	0.00
34.00	0.00	19,059	363.09	0.06	0.06	0.00
36.00	0.00	18,599	363.06	0.06	0.06	0.00
38.00	0.00	18,142	363.02	0.06	0.06	0.00
40.00	0.00	17,687	362.99	0.06	0.06	0.00
42.00	0.00	17,234	362.95	0.06	0.06	0.00
44.00	0.00	16,783	362.91	0.06	0.06	0.00
46.00	0.00	16,334	362.88	0.06	0.06	0.00
48.00	0.00	15,887	362.84	0.06	0.06	0.00
50.00	0.00	15,443	362.80	0.06	0.06	0.00
52.00	0.00	15,001	362.76	0.06	0.06	0.00
54.00	0.00	14,561	362.72	0.06	0.06	0.00
56.00	0.00	14,124	362.68	0.06	0.06	0.00
58.00	0.00	13,689	362.64	0.06	0.06	0.00
60.00	0.00	13,256	362.60	0.06	0.06	0.00
62.00	0.00	12,826	362.56	0.06	0.06	0.00
64.00	0.00	12,399	362.52	0.06	0.06	0.00
66.00	0.00	11,974	362.47	0.06	0.06	0.00
68.00	0.00	11,552	362.43	0.06	0.06	0.00
70.00	0.00	11,133	362.39	0.06	0.06	0.00
72.00	0.00	10,716	362.34	0.06	0.06	0.00
74.00	0.00	10,302	362.29	0.06	0.06	0.00
76.00	0.00	9,891	362.25	0.06	0.06	0.00
78.00	0.00	9,483	362.20	0.06	0.06	0.00
80.00	0.00	9,078	362.15	0.06	0.06	0.00
82.00	0.00	8,677	362.10	0.06	0.06	0.00
84.00	0.00	8,278	362.05	0.06	0.06	0.00
86.00	0.00	7,883	362.00	0.05	0.05	0.00
88.00	0.00	7,496	361.83	0.05	0.05	0.00
90.00	0.00	7,120	361.66	0.05	0.05	0.00
92.00	0.00	6,755	361.50	0.05	0.05	0.00
94.00	0.00	6,402	361.35	0.05	0.05	0.00
96.00	0.00	6,061	361.19	0.05	0.05	0.00
98.00	0.00	5,732	361.05	0.04	0.04	0.00
100.00	0.00	5,414	360.91	0.04	0.04	0.00
102.00	0.00	5,108	360.77	0.04	0.04	0.00
104.00	0.00	4,813	360.64	0.04	0.04	0.00

Hydrograph for Pond BMP-02: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
106.00	0.00	4,530	360.51	0.04	0.04	0.00
108.00	0.00	4,259	360.39	0.04	0.04	0.00
110.00	0.00	3,999	360.28	0.04	0.04	0.00
112.00	0.00	3,751	360.17	0.03	0.03	0.00
114.00	0.00	3,515	360.06	0.03	0.03	0.00
116.00	0.00	3,290	359.96	0.03	0.03	0.00
118.00	0.00	3,077	359.87	0.03	0.03	0.00
120.00	0.00	2,875	359.78	0.03	0.03	0.00
122.00	0.00	2,685	359.69	0.03	0.03	0.00
124.00	0.00	2,507	359.61	0.02	0.02	0.00
126.00	0.00	2,340	359.54	0.02	0.02	0.00
128.00	0.00	2,186	359.47	0.02	0.02	0.00
130.00	0.00	2,042	359.41	0.02	0.02	0.00
132.00	0.00	1,911	359.35	0.02	0.02	0.00
134.00	0.00	1,791	359.30	0.02	0.02	0.00
136.00	0.00	1,682	359.25	0.01	0.01	0.00
138.00	0.00	1,586	359.20	0.01	0.01	0.00
140.00	0.00	1,501	359.17	0.01	0.01	0.00
142.00	0.00	1,428	359.13	0.01	0.01	0.00
144.00	0.00	1,366	359.11	0.01	0.01	0.00
146.00	0.00	1,319	359.09	0.01	0.01	0.00
148.00	0.00	1,282	359.07	0.00	0.00	0.00
150.00	0.00	1,254	359.06	0.00	0.00	0.00
152.00	0.00	1,233	359.05	0.00	0.00	0.00
154.00	0.00	1,217	359.04	0.00	0.00	0.00
156.00	0.00	1,204	359.04	0.00	0.00	0.00
158.00	0.00	1,193	359.03	0.00	0.00	0.00
160.00	0.00	1,183	359.03	0.00	0.00	0.00
162.00	0.00	1,175	359.02	0.00	0.00	0.00
164.00	0.00	1,168	359.02	0.00	0.00	0.00
166.00	0.00	1,162	359.02	0.00	0.00	0.00
168.00	0.00	1,157	359.01	0.00	0.00	0.00
170.00	0.00	1,153	359.01	0.00	0.00	0.00
172.00	0.00	1,149	359.01	0.00	0.00	0.00
174.00	0.00	1,145	359.01	0.00	0.00	0.00
176.00	0.00	1,143	359.01	0.00	0.00	0.00
178.00	0.00	1,140	359.01	0.00	0.00	0.00
180.00	0.00	1,138	359.01	0.00	0.00	0.00
182.00	0.00	1,136	359.00	0.00	0.00	0.00
184.00	0.00	1,135	359.00	0.00	0.00	0.00
186.00	0.00	1,133	359.00	0.00	0.00	0.00
188.00	0.00	1,132	359.00	0.00	0.00	0.00
190.00	0.00	1,131	359.00	0.00	0.00	0.00
192.00	0.00	1,130	359.00	0.00	0.00	0.00

1508-SCS LDP REV02

Type II 24-hr 50-yr Rainfall=6.56"

Prepared by {enter your company name here}

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Hydrograph for Pond BMP-03: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	358.00	0.00	0.00	0.00
2.00	0.18	481	358.43	0.00	0.00	0.00
4.00	0.31	2,264	359.51	0.02	0.02	0.00
6.00	0.45	4,837	360.65	0.03	0.03	0.00
8.00	0.58	8,263	362.04	0.05	0.05	0.00
10.00	1.05	13,694	362.58	0.05	0.05	0.00
12.00	41.23	32,542	363.84	29.66	29.66	0.00
14.00	1.39	17,157	362.86	1.53	1.53	0.00
16.00	0.85	16,688	362.83	0.91	0.91	0.00
18.00	0.66	16,521	362.81	0.68	0.68	0.00
20.00	0.48	16,387	362.80	0.50	0.50	0.00
22.00	0.44	16,332	362.80	0.45	0.45	0.00
24.00	0.41	16,280	362.79	0.41	0.41	0.00
26.00	0.00	15,555	362.73	0.05	0.05	0.00
28.00	0.00	15,193	362.70	0.05	0.05	0.00
30.00	0.00	14,832	362.67	0.05	0.05	0.00
32.00	0.00	14,472	362.64	0.05	0.05	0.00
34.00	0.00	14,114	362.61	0.05	0.05	0.00
36.00	0.00	13,758	362.58	0.05	0.05	0.00
38.00	0.00	13,403	362.55	0.05	0.05	0.00
40.00	0.00	13,049	362.52	0.05	0.05	0.00
42.00	0.00	12,698	362.49	0.05	0.05	0.00
44.00	0.00	12,347	362.45	0.05	0.05	0.00
46.00	0.00	11,999	362.42	0.05	0.05	0.00
48.00	0.00	11,652	362.39	0.05	0.05	0.00
50.00	0.00	11,307	362.36	0.05	0.05	0.00
52.00	0.00	10,964	362.32	0.05	0.05	0.00
54.00	0.00	10,622	362.29	0.05	0.05	0.00
56.00	0.00	10,282	362.26	0.05	0.05	0.00
58.00	0.00	9,944	362.22	0.05	0.05	0.00
60.00	0.00	9,608	362.19	0.05	0.05	0.00
62.00	0.00	9,274	362.15	0.05	0.05	0.00
64.00	0.00	8,941	362.12	0.05	0.05	0.00
66.00	0.00	8,610	362.08	0.05	0.05	0.00
68.00	0.00	8,282	362.05	0.05	0.05	0.00
70.00	0.00	7,955	362.01	0.05	0.05	0.00
72.00	0.00	7,632	361.89	0.04	0.04	0.00
74.00	0.00	7,317	361.75	0.04	0.04	0.00
76.00	0.00	7,009	361.62	0.04	0.04	0.00
78.00	0.00	6,710	361.48	0.04	0.04	0.00
80.00	0.00	6,419	361.35	0.04	0.04	0.00
82.00	0.00	6,135	361.23	0.04	0.04	0.00
84.00	0.00	5,860	361.10	0.04	0.04	0.00
86.00	0.00	5,592	360.99	0.04	0.04	0.00
88.00	0.00	5,332	360.87	0.04	0.04	0.00
90.00	0.00	5,081	360.76	0.03	0.03	0.00
92.00	0.00	4,837	360.65	0.03	0.03	0.00
94.00	0.00	4,601	360.55	0.03	0.03	0.00
96.00	0.00	4,373	360.44	0.03	0.03	0.00
98.00	0.00	4,154	360.35	0.03	0.03	0.00
100.00	0.00	3,942	360.25	0.03	0.03	0.00
102.00	0.00	3,738	360.16	0.03	0.03	0.00
104.00	0.00	3,541	360.07	0.03	0.03	0.00

Hydrograph for Pond BMP-03: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
106.00	0.00	3,353	359.99	0.03	0.03	0.00
108.00	0.00	3,173	359.91	0.02	0.02	0.00
110.00	0.00	3,001	359.83	0.02	0.02	0.00
112.00	0.00	2,837	359.76	0.02	0.02	0.00
114.00	0.00	2,680	359.69	0.02	0.02	0.00
116.00	0.00	2,532	359.63	0.02	0.02	0.00
118.00	0.00	2,392	359.56	0.02	0.02	0.00
120.00	0.00	2,259	359.50	0.02	0.02	0.00
122.00	0.00	2,135	359.45	0.02	0.02	0.00
124.00	0.00	2,018	359.40	0.02	0.02	0.00
126.00	0.00	1,909	359.35	0.01	0.01	0.00
128.00	0.00	1,809	359.30	0.01	0.01	0.00
130.00	0.00	1,716	359.26	0.01	0.01	0.00
132.00	0.00	1,632	359.23	0.01	0.01	0.00
134.00	0.00	1,555	359.19	0.01	0.01	0.00
136.00	0.00	1,486	359.16	0.01	0.01	0.00
138.00	0.00	1,426	359.13	0.01	0.01	0.00
140.00	0.00	1,373	359.11	0.01	0.01	0.00
142.00	0.00	1,330	359.09	0.01	0.01	0.00
144.00	0.00	1,296	359.08	0.00	0.00	0.00
146.00	0.00	1,268	359.06	0.00	0.00	0.00
148.00	0.00	1,246	359.05	0.00	0.00	0.00
150.00	0.00	1,228	359.05	0.00	0.00	0.00
152.00	0.00	1,214	359.04	0.00	0.00	0.00
154.00	0.00	1,203	359.03	0.00	0.00	0.00
156.00	0.00	1,192	359.03	0.00	0.00	0.00
158.00	0.00	1,184	359.03	0.00	0.00	0.00
160.00	0.00	1,176	359.02	0.00	0.00	0.00
162.00	0.00	1,169	359.02	0.00	0.00	0.00
164.00	0.00	1,163	359.02	0.00	0.00	0.00
166.00	0.00	1,158	359.01	0.00	0.00	0.00
168.00	0.00	1,154	359.01	0.00	0.00	0.00
170.00	0.00	1,150	359.01	0.00	0.00	0.00
172.00	0.00	1,147	359.01	0.00	0.00	0.00
174.00	0.00	1,144	359.01	0.00	0.00	0.00
176.00	0.00	1,141	359.01	0.00	0.00	0.00
178.00	0.00	1,139	359.01	0.00	0.00	0.00
180.00	0.00	1,137	359.01	0.00	0.00	0.00
182.00	0.00	1,136	359.00	0.00	0.00	0.00
184.00	0.00	1,134	359.00	0.00	0.00	0.00
186.00	0.00	1,133	359.00	0.00	0.00	0.00
188.00	0.00	1,132	359.00	0.00	0.00	0.00
190.00	0.00	1,131	359.00	0.00	0.00	0.00
192.00	0.00	1,130	359.00	0.00	0.00	0.00

1508-SCS LDP REV02

Type II 24-hr 50-yr Rainfall=6.56"

Prepared by {enter your company name here}

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Hydrograph for Pond BMP-04: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	369.00	0.00
2.00	0.23	605	369.40	0.00
4.00	0.40	2,859	370.45	0.02
6.00	0.57	6,116	371.54	0.04
8.00	0.73	10,473	372.18	0.05
10.00	1.32	17,391	372.53	0.05
12.00	73.12	62,781	374.18	26.99
14.00	2.61	24,408	372.83	3.06
16.00	1.63	23,005	372.78	1.78
18.00	1.27	22,396	372.75	1.34
20.00	0.93	21,924	372.73	1.00
22.00	0.86	21,745	372.73	0.87
24.00	0.79	21,652	372.72	0.80
26.00	0.00	19,968	372.65	0.05
28.00	0.00	19,599	372.63	0.05
30.00	0.00	19,232	372.62	0.05
32.00	0.00	18,865	372.60	0.05
34.00	0.00	18,500	372.58	0.05
36.00	0.00	18,136	372.57	0.05
38.00	0.00	17,774	372.55	0.05
40.00	0.00	17,412	372.53	0.05
42.00	0.00	17,052	372.52	0.05
44.00	0.00	16,693	372.50	0.05
46.00	0.00	16,335	372.48	0.05
48.00	0.00	15,978	372.47	0.05
50.00	0.00	15,623	372.45	0.05
52.00	0.00	15,269	372.43	0.05
54.00	0.00	14,916	372.41	0.05
56.00	0.00	14,565	372.40	0.05
58.00	0.00	14,214	372.38	0.05
60.00	0.00	13,866	372.36	0.05
62.00	0.00	13,518	372.34	0.05
64.00	0.00	13,172	372.33	0.05
66.00	0.00	12,827	372.31	0.05
68.00	0.00	12,484	372.29	0.05
70.00	0.00	12,142	372.27	0.05
72.00	0.00	11,801	372.25	0.05
74.00	0.00	11,462	372.23	0.05
76.00	0.00	11,124	372.22	0.05
78.00	0.00	10,788	372.20	0.05
80.00	0.00	10,453	372.18	0.05
82.00	0.00	10,119	372.16	0.05
84.00	0.00	9,787	372.14	0.05
86.00	0.00	9,457	372.12	0.05
88.00	0.00	9,128	372.10	0.05
90.00	0.00	8,801	372.08	0.05
92.00	0.00	8,476	372.06	0.05
94.00	0.00	8,152	372.04	0.04
96.00	0.00	7,829	372.02	0.04
98.00	0.00	7,509	372.00	0.04
100.00	0.00	7,193	371.90	0.04
102.00	0.00	6,886	371.80	0.04
104.00	0.00	6,588	371.70	0.04

Hydrograph for Pond BMP-04: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
106.00	0.00	6,298	371.60	0.04
108.00	0.00	6,017	371.51	0.04
110.00	0.00	5,745	371.42	0.04
112.00	0.00	5,482	371.33	0.04
114.00	0.00	5,227	371.24	0.03
116.00	0.00	4,981	371.16	0.03
118.00	0.00	4,744	371.08	0.03
120.00	0.00	4,516	371.01	0.03
122.00	0.00	4,296	370.93	0.03
124.00	0.00	4,085	370.86	0.03
126.00	0.00	3,883	370.79	0.03
128.00	0.00	3,689	370.73	0.03
130.00	0.00	3,504	370.67	0.03
132.00	0.00	3,328	370.61	0.02
134.00	0.00	3,161	370.55	0.02
136.00	0.00	3,002	370.50	0.02
138.00	0.00	2,853	370.45	0.02
140.00	0.00	2,711	370.40	0.02
142.00	0.00	2,579	370.36	0.02
144.00	0.00	2,455	370.32	0.02
146.00	0.00	2,340	370.28	0.02
148.00	0.00	2,234	370.24	0.01
150.00	0.00	2,137	370.21	0.01
152.00	0.00	2,048	370.18	0.01
154.00	0.00	1,969	370.16	0.01
156.00	0.00	1,898	370.13	0.01
158.00	0.00	1,835	370.11	0.01
160.00	0.00	1,783	370.09	0.01
162.00	0.00	1,741	370.08	0.01
164.00	0.00	1,706	370.07	0.00
166.00	0.00	1,678	370.06	0.00
168.00	0.00	1,654	370.05	0.00
170.00	0.00	1,635	370.04	0.00
172.00	0.00	1,618	370.04	0.00
174.00	0.00	1,603	370.03	0.00
176.00	0.00	1,590	370.03	0.00
178.00	0.00	1,579	370.03	0.00
180.00	0.00	1,569	370.02	0.00
182.00	0.00	1,560	370.02	0.00
184.00	0.00	1,553	370.02	0.00
186.00	0.00	1,546	370.02	0.00
188.00	0.00	1,540	370.01	0.00
190.00	0.00	1,535	370.01	0.00
192.00	0.00	1,531	370.01	0.00

1508-SCS LDP REV02

Type II 24-hr 50-yr Rainfall=6.56"

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Hydrograph for Pond BMP-05: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	369.00	0.00
2.00	0.23	611	369.41	0.00
4.00	0.40	2,880	370.46	0.02
6.00	0.57	6,133	371.54	0.05
8.00	0.74	10,477	372.20	0.06
10.00	1.34	17,405	372.57	0.06
12.00	57.09	53,758	373.95	25.97
14.00	1.95	23,794	372.85	2.29
16.00	1.21	22,593	372.80	1.33
18.00	0.94	22,157	372.78	0.99
20.00	0.69	21,751	372.77	0.75
22.00	0.63	21,531	372.76	0.64
24.00	0.58	21,429	372.75	0.59
26.00	0.00	20,191	372.70	0.06
28.00	0.00	19,749	372.68	0.06
30.00	0.00	19,308	372.66	0.06
32.00	0.00	18,869	372.64	0.06
34.00	0.00	18,432	372.62	0.06
36.00	0.00	17,997	372.60	0.06
38.00	0.00	17,563	372.58	0.06
40.00	0.00	17,131	372.56	0.06
42.00	0.00	16,701	372.54	0.06
44.00	0.00	16,272	372.52	0.06
46.00	0.00	15,846	372.49	0.06
48.00	0.00	15,421	372.47	0.06
50.00	0.00	14,998	372.45	0.06
52.00	0.00	14,577	372.43	0.06
54.00	0.00	14,158	372.41	0.06
56.00	0.00	13,741	372.38	0.06
58.00	0.00	13,326	372.36	0.06
60.00	0.00	12,913	372.34	0.06
62.00	0.00	12,502	372.32	0.06
64.00	0.00	12,093	372.29	0.06
66.00	0.00	11,687	372.27	0.06
68.00	0.00	11,282	372.25	0.06
70.00	0.00	10,880	372.22	0.06
72.00	0.00	10,479	372.20	0.06
74.00	0.00	10,082	372.17	0.06
76.00	0.00	9,686	372.15	0.05
78.00	0.00	9,293	372.12	0.05
80.00	0.00	8,902	372.10	0.05
82.00	0.00	8,514	372.07	0.05
84.00	0.00	8,128	372.04	0.05
86.00	0.00	7,745	372.02	0.05
88.00	0.00	7,365	371.95	0.05
90.00	0.00	6,995	371.83	0.05
92.00	0.00	6,638	371.71	0.05
94.00	0.00	6,293	371.60	0.05
96.00	0.00	5,960	371.49	0.05
98.00	0.00	5,640	371.38	0.04
100.00	0.00	5,332	371.28	0.04
102.00	0.00	5,037	371.18	0.04
104.00	0.00	4,754	371.08	0.04

Hydrograph for Pond BMP-05: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
106.00	0.00	4,483	370.99	0.04
108.00	0.00	4,225	370.91	0.04
110.00	0.00	3,979	370.83	0.03
112.00	0.00	3,745	370.75	0.03
114.00	0.00	3,524	370.67	0.03
116.00	0.00	3,315	370.60	0.03
118.00	0.00	3,118	370.54	0.03
120.00	0.00	2,934	370.48	0.02
122.00	0.00	2,762	370.42	0.02
124.00	0.00	2,603	370.37	0.02
126.00	0.00	2,456	370.32	0.02
128.00	0.00	2,321	370.27	0.02
130.00	0.00	2,199	370.23	0.02
132.00	0.00	2,089	370.20	0.01
134.00	0.00	1,991	370.16	0.01
136.00	0.00	1,907	370.14	0.01
138.00	0.00	1,834	370.11	0.01
140.00	0.00	1,775	370.09	0.01
142.00	0.00	1,730	370.08	0.01
144.00	0.00	1,693	370.06	0.00
146.00	0.00	1,665	370.05	0.00
148.00	0.00	1,643	370.05	0.00
150.00	0.00	1,623	370.04	0.00
152.00	0.00	1,607	370.04	0.00
154.00	0.00	1,593	370.03	0.00
156.00	0.00	1,580	370.03	0.00
158.00	0.00	1,570	370.02	0.00
160.00	0.00	1,560	370.02	0.00
162.00	0.00	1,552	370.02	0.00
164.00	0.00	1,545	370.02	0.00
166.00	0.00	1,539	370.01	0.00
168.00	0.00	1,534	370.01	0.00
170.00	0.00	1,529	370.01	0.00
172.00	0.00	1,525	370.01	0.00
174.00	0.00	1,522	370.01	0.00
176.00	0.00	1,519	370.01	0.00
178.00	0.00	1,517	370.01	0.00
180.00	0.00	1,514	370.00	0.00
182.00	0.00	1,512	370.00	0.00
184.00	0.00	1,511	370.00	0.00
186.00	0.00	1,509	370.00	0.00
188.00	0.00	1,508	370.00	0.00
190.00	0.00	1,507	370.00	0.00
192.00	0.00	1,506	370.00	0.00

1508-SCS LDP REV02

Type II 24-hr 100-yr Rainfall=7.45"

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Hydrograph for Pond BMP-01: Wet Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	355.00	0.00
2.00	0.30	827	355.01	0.01
4.00	0.60	3,833	355.05	0.06
6.00	0.88	8,178	355.12	0.24
8.00	1.09	12,624	355.18	0.52
10.00	2.19	17,829	355.25	0.97
12.00	274.24	272,720	358.49	57.62
14.00	16.07	213,393	357.79	28.04
16.00	9.66	171,627	357.28	12.90
18.00	7.38	155,123	357.08	9.17
20.00	5.46	140,148	356.89	8.13
22.00	4.87	120,647	356.64	7.47
24.00	4.49	102,969	356.41	6.80
26.00	0.23	65,983	355.92	5.09
28.00	0.23	37,886	355.53	3.17
30.00	0.23	23,285	355.33	1.53
32.00	0.23	16,684	355.24	0.86
34.00	0.22	13,323	355.19	0.57
36.00	0.22	11,379	355.16	0.43
38.00	0.22	10,226	355.15	0.35
40.00	0.22	9,530	355.14	0.30
42.00	0.22	9,044	355.13	0.28
44.00	0.22	8,693	355.12	0.26
46.00	0.22	8,437	355.12	0.25
48.00	0.22	8,249	355.12	0.24
50.00	0.22	8,110	355.12	0.23
52.00	0.22	8,004	355.11	0.23
54.00	0.22	7,923	355.11	0.23
56.00	0.21	7,859	355.11	0.22
58.00	0.21	7,807	355.11	0.22
60.00	0.21	7,764	355.11	0.22
62.00	0.21	7,726	355.11	0.22
64.00	0.21	7,693	355.11	0.21
66.00	0.21	7,662	355.11	0.21
68.00	0.21	7,634	355.11	0.21
70.00	0.21	7,607	355.11	0.21
72.00	0.20	7,579	355.11	0.21
74.00	0.20	7,546	355.11	0.21
76.00	0.20	7,511	355.11	0.21
78.00	0.20	7,474	355.11	0.20
80.00	0.20	7,434	355.11	0.20
82.00	0.19	7,393	355.11	0.20
84.00	0.19	7,352	355.11	0.20
86.00	0.19	7,309	355.10	0.20
88.00	0.19	7,261	355.10	0.19
90.00	0.18	7,200	355.10	0.19
92.00	0.18	7,129	355.10	0.19
94.00	0.17	7,050	355.10	0.18
96.00	0.17	6,965	355.10	0.18
98.00	0.16	6,876	355.10	0.18
100.00	0.16	6,782	355.10	0.17
102.00	0.15	6,680	355.10	0.17
104.00	0.15	6,573	355.09	0.16

Hydrograph for Pond BMP-01: Wet Pond (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
106.00	0.14	6,463	355.09	0.16
108.00	0.13	6,349	355.09	0.15
110.00	0.13	6,235	355.09	0.15
112.00	0.12	6,118	355.09	0.14
114.00	0.12	6,001	355.09	0.13
116.00	0.11	5,883	355.08	0.13
118.00	0.11	5,765	355.08	0.12
120.00	0.10	5,646	355.08	0.12
122.00	0.10	5,527	355.08	0.11
124.00	0.09	5,408	355.08	0.11
126.00	0.08	5,289	355.08	0.10
128.00	0.08	5,170	355.07	0.10
130.00	0.07	5,050	355.07	0.09
132.00	0.07	4,931	355.07	0.08
134.00	0.06	4,805	355.07	0.08
136.00	0.06	4,656	355.07	0.08
138.00	0.05	4,486	355.06	0.08
140.00	0.04	4,296	355.06	0.07
142.00	0.04	4,086	355.06	0.07
144.00	0.03	3,864	355.06	0.06
146.00	0.03	3,632	355.05	0.06
148.00	0.02	3,397	355.05	0.06
150.00	0.02	3,164	355.05	0.05
152.00	0.02	2,938	355.04	0.05
154.00	0.02	2,720	355.04	0.05
156.00	0.01	2,511	355.04	0.04
158.00	0.01	2,314	355.03	0.04
160.00	0.01	2,126	355.03	0.04
162.00	0.01	1,947	355.03	0.03
164.00	0.01	1,777	355.03	0.03
166.00	0.01	1,619	355.02	0.03
168.00	0.00	1,471	355.02	0.02
170.00	0.00	1,335	355.02	0.02
172.00	0.00	1,210	355.02	0.02
174.00	0.00	1,095	355.02	0.02
176.00	0.00	991	355.01	0.02
178.00	0.00	896	355.01	0.01
180.00	0.00	810	355.01	0.01
182.00	0.00	731	355.01	0.01
184.00	0.00	660	355.01	0.01
186.00	0.00	595	355.01	0.01
188.00	0.00	536	355.01	0.01
190.00	0.00	483	355.01	0.01
192.00	0.00	435	355.01	0.01

Hydrograph for Pond BMP-02: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	358.00	0.00	0.00	0.00
2.00	0.29	845	358.75	0.00	0.00	0.00
4.00	0.49	3,597	360.10	0.03	0.03	0.00
6.00	0.68	7,503	361.83	0.05	0.05	0.00
8.00	0.87	12,700	362.55	0.06	0.06	0.00
10.00	1.59	20,919	363.23	0.07	0.07	0.00
12.00	63.33	51,330	364.95	33.64	33.64	0.00
14.00	2.12	23,274	363.40	2.33	2.33	0.00
16.00	1.31	22,633	363.36	1.39	1.39	0.00
18.00	1.02	22,306	363.33	1.05	1.05	0.00
20.00	0.74	22,041	363.32	0.78	0.78	0.00
22.00	0.68	21,952	363.31	0.69	0.69	0.00
24.00	0.62	21,899	363.31	0.63	0.63	0.00
26.00	0.00	20,925	363.24	0.07	0.07	0.00
28.00	0.00	20,458	363.20	0.06	0.06	0.00
30.00	0.00	19,992	363.17	0.06	0.06	0.00
32.00	0.00	19,529	363.13	0.06	0.06	0.00
34.00	0.00	19,067	363.10	0.06	0.06	0.00
36.00	0.00	18,608	363.06	0.06	0.06	0.00
38.00	0.00	18,151	363.02	0.06	0.06	0.00
40.00	0.00	17,695	362.99	0.06	0.06	0.00
42.00	0.00	17,242	362.95	0.06	0.06	0.00
44.00	0.00	16,791	362.91	0.06	0.06	0.00
46.00	0.00	16,342	362.88	0.06	0.06	0.00
48.00	0.00	15,896	362.84	0.06	0.06	0.00
50.00	0.00	15,451	362.80	0.06	0.06	0.00
52.00	0.00	15,009	362.76	0.06	0.06	0.00
54.00	0.00	14,570	362.72	0.06	0.06	0.00
56.00	0.00	14,132	362.68	0.06	0.06	0.00
58.00	0.00	13,697	362.64	0.06	0.06	0.00
60.00	0.00	13,265	362.60	0.06	0.06	0.00
62.00	0.00	12,835	362.56	0.06	0.06	0.00
64.00	0.00	12,407	362.52	0.06	0.06	0.00
66.00	0.00	11,982	362.47	0.06	0.06	0.00
68.00	0.00	11,560	362.43	0.06	0.06	0.00
70.00	0.00	11,140	362.39	0.06	0.06	0.00
72.00	0.00	10,724	362.34	0.06	0.06	0.00
74.00	0.00	10,310	362.30	0.06	0.06	0.00
76.00	0.00	9,899	362.25	0.06	0.06	0.00
78.00	0.00	9,491	362.20	0.06	0.06	0.00
80.00	0.00	9,086	362.15	0.06	0.06	0.00
82.00	0.00	8,684	362.10	0.06	0.06	0.00
84.00	0.00	8,286	362.05	0.06	0.06	0.00
86.00	0.00	7,891	362.00	0.05	0.05	0.00
88.00	0.00	7,503	361.83	0.05	0.05	0.00
90.00	0.00	7,127	361.67	0.05	0.05	0.00
92.00	0.00	6,762	361.51	0.05	0.05	0.00
94.00	0.00	6,409	361.35	0.05	0.05	0.00
96.00	0.00	6,068	361.20	0.05	0.05	0.00
98.00	0.00	5,738	361.05	0.04	0.04	0.00
100.00	0.00	5,420	360.91	0.04	0.04	0.00
102.00	0.00	5,113	360.77	0.04	0.04	0.00
104.00	0.00	4,819	360.64	0.04	0.04	0.00

Hydrograph for Pond BMP-02: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
106.00	0.00	4,535	360.52	0.04	0.04	0.00
108.00	0.00	4,264	360.40	0.04	0.04	0.00
110.00	0.00	4,004	360.28	0.04	0.04	0.00
112.00	0.00	3,756	360.17	0.03	0.03	0.00
114.00	0.00	3,519	360.06	0.03	0.03	0.00
116.00	0.00	3,294	359.96	0.03	0.03	0.00
118.00	0.00	3,081	359.87	0.03	0.03	0.00
120.00	0.00	2,879	359.78	0.03	0.03	0.00
122.00	0.00	2,689	359.70	0.03	0.03	0.00
124.00	0.00	2,510	359.62	0.02	0.02	0.00
126.00	0.00	2,344	359.54	0.02	0.02	0.00
128.00	0.00	2,188	359.47	0.02	0.02	0.00
130.00	0.00	2,045	359.41	0.02	0.02	0.00
132.00	0.00	1,913	359.35	0.02	0.02	0.00
134.00	0.00	1,793	359.30	0.02	0.02	0.00
136.00	0.00	1,684	359.25	0.01	0.01	0.00
138.00	0.00	1,587	359.21	0.01	0.01	0.00
140.00	0.00	1,502	359.17	0.01	0.01	0.00
142.00	0.00	1,429	359.14	0.01	0.01	0.00
144.00	0.00	1,367	359.11	0.01	0.01	0.00
146.00	0.00	1,319	359.09	0.01	0.01	0.00
148.00	0.00	1,283	359.07	0.00	0.00	0.00
150.00	0.00	1,255	359.06	0.00	0.00	0.00
152.00	0.00	1,233	359.05	0.00	0.00	0.00
154.00	0.00	1,217	359.04	0.00	0.00	0.00
156.00	0.00	1,204	359.04	0.00	0.00	0.00
158.00	0.00	1,193	359.03	0.00	0.00	0.00
160.00	0.00	1,184	359.03	0.00	0.00	0.00
162.00	0.00	1,175	359.02	0.00	0.00	0.00
164.00	0.00	1,168	359.02	0.00	0.00	0.00
166.00	0.00	1,162	359.02	0.00	0.00	0.00
168.00	0.00	1,157	359.01	0.00	0.00	0.00
170.00	0.00	1,153	359.01	0.00	0.00	0.00
172.00	0.00	1,149	359.01	0.00	0.00	0.00
174.00	0.00	1,145	359.01	0.00	0.00	0.00
176.00	0.00	1,143	359.01	0.00	0.00	0.00
178.00	0.00	1,140	359.01	0.00	0.00	0.00
180.00	0.00	1,138	359.01	0.00	0.00	0.00
182.00	0.00	1,136	359.00	0.00	0.00	0.00
184.00	0.00	1,135	359.00	0.00	0.00	0.00
186.00	0.00	1,133	359.00	0.00	0.00	0.00
188.00	0.00	1,132	359.00	0.00	0.00	0.00
190.00	0.00	1,131	359.00	0.00	0.00	0.00
192.00	0.00	1,130	359.00	0.00	0.00	0.00

Hydrograph for Pond BMP-03: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	358.00	0.00	0.00	0.00
2.00	0.22	643	358.57	0.00	0.00	0.00
4.00	0.37	2,766	359.73	0.02	0.02	0.00
6.00	0.52	5,764	361.06	0.04	0.04	0.00
8.00	0.66	9,724	362.20	0.05	0.05	0.00
10.00	1.21	15,962	362.77	0.20	0.20	0.00
12.00	47.81	36,245	364.03	30.38	30.38	0.00
14.00	1.60	17,317	362.88	1.75	1.75	0.00
16.00	0.99	16,793	362.83	1.05	1.05	0.00
18.00	0.77	16,600	362.82	0.79	0.79	0.00
20.00	0.56	16,444	362.81	0.58	0.58	0.00
22.00	0.51	16,396	362.80	0.51	0.51	0.00
24.00	0.47	16,365	362.80	0.47	0.47	0.00
26.00	0.00	15,565	362.73	0.05	0.05	0.00
28.00	0.00	15,202	362.70	0.05	0.05	0.00
30.00	0.00	14,841	362.67	0.05	0.05	0.00
32.00	0.00	14,482	362.64	0.05	0.05	0.00
34.00	0.00	14,124	362.61	0.05	0.05	0.00
36.00	0.00	13,767	362.58	0.05	0.05	0.00
38.00	0.00	13,412	362.55	0.05	0.05	0.00
40.00	0.00	13,059	362.52	0.05	0.05	0.00
42.00	0.00	12,707	362.49	0.05	0.05	0.00
44.00	0.00	12,357	362.45	0.05	0.05	0.00
46.00	0.00	12,008	362.42	0.05	0.05	0.00
48.00	0.00	11,661	362.39	0.05	0.05	0.00
50.00	0.00	11,316	362.36	0.05	0.05	0.00
52.00	0.00	10,973	362.32	0.05	0.05	0.00
54.00	0.00	10,631	362.29	0.05	0.05	0.00
56.00	0.00	10,291	362.26	0.05	0.05	0.00
58.00	0.00	9,953	362.22	0.05	0.05	0.00
60.00	0.00	9,617	362.19	0.05	0.05	0.00
62.00	0.00	9,283	362.15	0.05	0.05	0.00
64.00	0.00	8,950	362.12	0.05	0.05	0.00
66.00	0.00	8,619	362.08	0.05	0.05	0.00
68.00	0.00	8,291	362.05	0.05	0.05	0.00
70.00	0.00	7,964	362.01	0.05	0.05	0.00
72.00	0.00	7,641	361.90	0.04	0.04	0.00
74.00	0.00	7,325	361.76	0.04	0.04	0.00
76.00	0.00	7,018	361.62	0.04	0.04	0.00
78.00	0.00	6,718	361.49	0.04	0.04	0.00
80.00	0.00	6,426	361.36	0.04	0.04	0.00
82.00	0.00	6,143	361.23	0.04	0.04	0.00
84.00	0.00	5,867	361.11	0.04	0.04	0.00
86.00	0.00	5,599	360.99	0.04	0.04	0.00
88.00	0.00	5,339	360.87	0.04	0.04	0.00
90.00	0.00	5,087	360.76	0.03	0.03	0.00
92.00	0.00	4,843	360.65	0.03	0.03	0.00
94.00	0.00	4,607	360.55	0.03	0.03	0.00
96.00	0.00	4,379	360.45	0.03	0.03	0.00
98.00	0.00	4,159	360.35	0.03	0.03	0.00
100.00	0.00	3,947	360.25	0.03	0.03	0.00
102.00	0.00	3,743	360.16	0.03	0.03	0.00
104.00	0.00	3,547	360.08	0.03	0.03	0.00

Hydrograph for Pond BMP-03: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
106.00	0.00	3,358	359.99	0.03	0.03	0.00
108.00	0.00	3,178	359.91	0.02	0.02	0.00
110.00	0.00	3,005	359.84	0.02	0.02	0.00
112.00	0.00	2,841	359.76	0.02	0.02	0.00
114.00	0.00	2,684	359.69	0.02	0.02	0.00
116.00	0.00	2,536	359.63	0.02	0.02	0.00
118.00	0.00	2,395	359.56	0.02	0.02	0.00
120.00	0.00	2,263	359.51	0.02	0.02	0.00
122.00	0.00	2,138	359.45	0.02	0.02	0.00
124.00	0.00	2,021	359.40	0.02	0.02	0.00
126.00	0.00	1,912	359.35	0.01	0.01	0.00
128.00	0.00	1,811	359.31	0.01	0.01	0.00
130.00	0.00	1,718	359.26	0.01	0.01	0.00
132.00	0.00	1,634	359.23	0.01	0.01	0.00
134.00	0.00	1,557	359.19	0.01	0.01	0.00
136.00	0.00	1,488	359.16	0.01	0.01	0.00
138.00	0.00	1,427	359.13	0.01	0.01	0.00
140.00	0.00	1,374	359.11	0.01	0.01	0.00
142.00	0.00	1,331	359.09	0.01	0.01	0.00
144.00	0.00	1,296	359.08	0.00	0.00	0.00
146.00	0.00	1,269	359.06	0.00	0.00	0.00
148.00	0.00	1,247	359.05	0.00	0.00	0.00
150.00	0.00	1,229	359.05	0.00	0.00	0.00
152.00	0.00	1,215	359.04	0.00	0.00	0.00
154.00	0.00	1,203	359.03	0.00	0.00	0.00
156.00	0.00	1,193	359.03	0.00	0.00	0.00
158.00	0.00	1,184	359.03	0.00	0.00	0.00
160.00	0.00	1,176	359.02	0.00	0.00	0.00
162.00	0.00	1,169	359.02	0.00	0.00	0.00
164.00	0.00	1,164	359.02	0.00	0.00	0.00
166.00	0.00	1,158	359.01	0.00	0.00	0.00
168.00	0.00	1,154	359.01	0.00	0.00	0.00
170.00	0.00	1,150	359.01	0.00	0.00	0.00
172.00	0.00	1,147	359.01	0.00	0.00	0.00
174.00	0.00	1,144	359.01	0.00	0.00	0.00
176.00	0.00	1,142	359.01	0.00	0.00	0.00
178.00	0.00	1,139	359.01	0.00	0.00	0.00
180.00	0.00	1,137	359.01	0.00	0.00	0.00
182.00	0.00	1,136	359.00	0.00	0.00	0.00
184.00	0.00	1,134	359.00	0.00	0.00	0.00
186.00	0.00	1,133	359.00	0.00	0.00	0.00
188.00	0.00	1,132	359.00	0.00	0.00	0.00
190.00	0.00	1,131	359.00	0.00	0.00	0.00
192.00	0.00	1,130	359.00	0.00	0.00	0.00

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Hydrograph for Pond BMP-04: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	369.00	0.00
2.00	0.28	810	369.54	0.00
4.00	0.47	3,494	370.66	0.02
6.00	0.66	7,288	371.93	0.04
8.00	0.83	12,334	372.28	0.05
10.00	1.55	20,283	372.66	0.17
12.00	86.95	72,879	374.51	28.32
14.00	3.07	24,953	372.86	3.59
16.00	1.91	23,342	372.79	2.08
18.00	1.49	22,716	372.77	1.57
20.00	1.09	22,162	372.74	1.17
22.00	1.00	21,950	372.73	1.02
24.00	0.92	21,841	372.73	0.94
26.00	0.00	19,979	372.65	0.05
28.00	0.00	19,610	372.63	0.05
30.00	0.00	19,243	372.62	0.05
32.00	0.00	18,876	372.60	0.05
34.00	0.00	18,511	372.58	0.05
36.00	0.00	18,147	372.57	0.05
38.00	0.00	17,785	372.55	0.05
40.00	0.00	17,423	372.53	0.05
42.00	0.00	17,063	372.52	0.05
44.00	0.00	16,704	372.50	0.05
46.00	0.00	16,346	372.48	0.05
48.00	0.00	15,989	372.47	0.05
50.00	0.00	15,634	372.45	0.05
52.00	0.00	15,280	372.43	0.05
54.00	0.00	14,927	372.42	0.05
56.00	0.00	14,575	372.40	0.05
58.00	0.00	14,225	372.38	0.05
60.00	0.00	13,876	372.36	0.05
62.00	0.00	13,529	372.34	0.05
64.00	0.00	13,182	372.33	0.05
66.00	0.00	12,837	372.31	0.05
68.00	0.00	12,494	372.29	0.05
70.00	0.00	12,152	372.27	0.05
72.00	0.00	11,811	372.25	0.05
74.00	0.00	11,472	372.24	0.05
76.00	0.00	11,134	372.22	0.05
78.00	0.00	10,798	372.20	0.05
80.00	0.00	10,463	372.18	0.05
82.00	0.00	10,129	372.16	0.05
84.00	0.00	9,797	372.14	0.05
86.00	0.00	9,467	372.12	0.05
88.00	0.00	9,138	372.10	0.05
90.00	0.00	8,811	372.08	0.05
92.00	0.00	8,485	372.06	0.05
94.00	0.00	8,161	372.04	0.04
96.00	0.00	7,839	372.02	0.04
98.00	0.00	7,518	372.00	0.04
100.00	0.00	7,202	371.90	0.04
102.00	0.00	6,895	371.80	0.04
104.00	0.00	6,597	371.70	0.04

Hydrograph for Pond BMP-04: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
106.00	0.00	6,307	371.60	0.04
108.00	0.00	6,026	371.51	0.04
110.00	0.00	5,753	371.42	0.04
112.00	0.00	5,490	371.33	0.04
114.00	0.00	5,235	371.24	0.03
116.00	0.00	4,989	371.16	0.03
118.00	0.00	4,751	371.08	0.03
120.00	0.00	4,523	371.01	0.03
122.00	0.00	4,303	370.93	0.03
124.00	0.00	4,091	370.86	0.03
126.00	0.00	3,889	370.80	0.03
128.00	0.00	3,695	370.73	0.03
130.00	0.00	3,510	370.67	0.03
132.00	0.00	3,334	370.61	0.02
134.00	0.00	3,166	370.56	0.02
136.00	0.00	3,007	370.50	0.02
138.00	0.00	2,857	370.45	0.02
140.00	0.00	2,716	370.41	0.02
142.00	0.00	2,583	370.36	0.02
144.00	0.00	2,459	370.32	0.02
146.00	0.00	2,344	370.28	0.02
148.00	0.00	2,237	370.25	0.01
150.00	0.00	2,140	370.21	0.01
152.00	0.00	2,051	370.18	0.01
154.00	0.00	1,971	370.16	0.01
156.00	0.00	1,900	370.13	0.01
158.00	0.00	1,837	370.11	0.01
160.00	0.00	1,785	370.09	0.01
162.00	0.00	1,742	370.08	0.01
164.00	0.00	1,707	370.07	0.00
166.00	0.00	1,678	370.06	0.00
168.00	0.00	1,655	370.05	0.00
170.00	0.00	1,635	370.05	0.00
172.00	0.00	1,618	370.04	0.00
174.00	0.00	1,603	370.03	0.00
176.00	0.00	1,590	370.03	0.00
178.00	0.00	1,579	370.03	0.00
180.00	0.00	1,569	370.02	0.00
182.00	0.00	1,560	370.02	0.00
184.00	0.00	1,553	370.02	0.00
186.00	0.00	1,546	370.02	0.00
188.00	0.00	1,540	370.01	0.00
190.00	0.00	1,535	370.01	0.00
192.00	0.00	1,531	370.01	0.00

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Hydrograph for Pond BMP-05: MRC Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	369.00	0.00
2.00	0.28	818	369.55	0.00
4.00	0.47	3,517	370.67	0.03
6.00	0.66	7,305	371.93	0.05
8.00	0.84	12,344	372.31	0.06
10.00	1.54	20,318	372.70	0.08
12.00	66.68	60,572	374.18	26.98
14.00	2.27	24,177	372.87	2.67
16.00	1.40	22,861	372.81	1.54
18.00	1.09	22,354	372.79	1.14
20.00	0.79	21,968	372.78	0.86
22.00	0.73	21,733	372.77	0.75
24.00	0.67	21,615	372.76	0.69
26.00	0.00	20,209	372.70	0.06
28.00	0.00	19,767	372.68	0.06
30.00	0.00	19,326	372.66	0.06
32.00	0.00	18,887	372.64	0.06
34.00	0.00	18,450	372.62	0.06
36.00	0.00	18,014	372.60	0.06
38.00	0.00	17,580	372.58	0.06
40.00	0.00	17,148	372.56	0.06
42.00	0.00	16,718	372.54	0.06
44.00	0.00	16,290	372.52	0.06
46.00	0.00	15,863	372.49	0.06
48.00	0.00	15,438	372.47	0.06
50.00	0.00	15,015	372.45	0.06
52.00	0.00	14,594	372.43	0.06
54.00	0.00	14,175	372.41	0.06
56.00	0.00	13,758	372.39	0.06
58.00	0.00	13,343	372.36	0.06
60.00	0.00	12,930	372.34	0.06
62.00	0.00	12,519	372.32	0.06
64.00	0.00	12,110	372.29	0.06
66.00	0.00	11,703	372.27	0.06
68.00	0.00	11,298	372.25	0.06
70.00	0.00	10,896	372.22	0.06
72.00	0.00	10,496	372.20	0.06
74.00	0.00	10,098	372.17	0.06
76.00	0.00	9,702	372.15	0.05
78.00	0.00	9,309	372.12	0.05
80.00	0.00	8,918	372.10	0.05
82.00	0.00	8,529	372.07	0.05
84.00	0.00	8,143	372.05	0.05
86.00	0.00	7,760	372.02	0.05
88.00	0.00	7,380	371.96	0.05
90.00	0.00	7,010	371.84	0.05
92.00	0.00	6,652	371.72	0.05
94.00	0.00	6,307	371.60	0.05
96.00	0.00	5,974	371.49	0.05
98.00	0.00	5,653	371.38	0.04
100.00	0.00	5,345	371.28	0.04
102.00	0.00	5,049	371.18	0.04
104.00	0.00	4,765	371.09	0.04

Hydrograph for Pond BMP-05: MRC Rain Garden (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
106.00	0.00	4,494	371.00	0.04
108.00	0.00	4,235	370.91	0.04
110.00	0.00	3,988	370.83	0.03
112.00	0.00	3,754	370.75	0.03
114.00	0.00	3,532	370.68	0.03
116.00	0.00	3,323	370.61	0.03
118.00	0.00	3,126	370.54	0.03
120.00	0.00	2,941	370.48	0.02
122.00	0.00	2,769	370.42	0.02
124.00	0.00	2,609	370.37	0.02
126.00	0.00	2,461	370.32	0.02
128.00	0.00	2,326	370.28	0.02
130.00	0.00	2,203	370.23	0.02
132.00	0.00	2,093	370.20	0.01
134.00	0.00	1,995	370.17	0.01
136.00	0.00	1,910	370.14	0.01
138.00	0.00	1,837	370.11	0.01
140.00	0.00	1,778	370.09	0.01
142.00	0.00	1,731	370.08	0.01
144.00	0.00	1,695	370.06	0.00
146.00	0.00	1,666	370.06	0.00
148.00	0.00	1,643	370.05	0.00
150.00	0.00	1,624	370.04	0.00
152.00	0.00	1,608	370.04	0.00
154.00	0.00	1,593	370.03	0.00
156.00	0.00	1,581	370.03	0.00
158.00	0.00	1,570	370.02	0.00
160.00	0.00	1,561	370.02	0.00
162.00	0.00	1,552	370.02	0.00
164.00	0.00	1,545	370.02	0.00
166.00	0.00	1,539	370.01	0.00
168.00	0.00	1,534	370.01	0.00
170.00	0.00	1,530	370.01	0.00
172.00	0.00	1,526	370.01	0.00
174.00	0.00	1,522	370.01	0.00
176.00	0.00	1,519	370.01	0.00
178.00	0.00	1,517	370.01	0.00
180.00	0.00	1,514	370.00	0.00
182.00	0.00	1,512	370.00	0.00
184.00	0.00	1,511	370.00	0.00
186.00	0.00	1,509	370.00	0.00
188.00	0.00	1,508	370.00	0.00
190.00	0.00	1,507	370.00	0.00
192.00	0.00	1,506	370.00	0.00

STORMWATER MANAGEMENT MODELLING CALCULATIONS

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- 40 Subcat P1B: Post to BMP-01 (LOD)
- 41 Subcat P1C: Post to BMP-01 (OLOD)
- 42 Subcat P2: Post to BMP-02 (LOD)
- 43 Subcat P3: Post to BMP-03 (LOD)
- 44 Subcat P4A: Post to BMP-04 (LOD)
- 45 Subcat P4B: Post to BMP-04 (OLOD)
- 46 Subcat P4C: Post to BMP-04 (OLOD)
- 47 Subcat P5: Post to BMP-05 (LOD)
- 48 Pond BMP-01: Wet Pond
- 50 Pond BMP-02: MRC Rain Garden
- 52 Pond BMP-03: MRC Rain Garden
- 54 Pond BMP-04: MRC Rain Garden

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- 60 Link 2: TOTAL OFFSITE
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5-yr Event

- 62 Subcat B1: BYPASS (LOD)
- 63 Subcat B2: BYPASS (LOD)
- 64 Subcat B3: BYPASS (LOD)
- 65 Subcat B4: BYPASS (LOD)
- 66 Subcat E1: PRE (LOD)
- 67 Subcat E2: PRE (OLOD)
- 68 Subcat E3: PRE (OLOD)
- 69 Subcat P1A: Post to BMP-01 (LOD)
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- 73 Subcat P3: Post to BMP-03 (LOD)
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- 90 Link 2: TOTAL OFFSITE
- 91 Link 3: LOD to BMP-01

10-yr Event

- 92 Subcat B1: BYPASS (LOD)
- 93 Subcat B2: BYPASS (LOD)
- 94 Subcat B3: BYPASS (LOD)
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- 99 Subcat P1A: Post to BMP-01 (LOD)
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- 104 Subcat P4A: Post to BMP-04 (LOD)
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- 106 Subcat P4C: Post to BMP-04 (OLOD)
- 107 Subcat P5: Post to BMP-05 (LOD)
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- 110 Pond BMP-02: MRC Rain Garden
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- 121 Link 3: LOD to BMP-01

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- 122 Subcat B1: BYPASS (LOD)
- 123 Subcat B2: BYPASS (LOD)
- 124 Subcat B3: BYPASS (LOD)
- 125 Subcat B4: BYPASS (LOD)
- 126 Subcat E1: PRE (LOD)
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- 128 Subcat E3: PRE (OLOD)
- 129 Subcat P1A: Post to BMP-01 (LOD)
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- 131 Subcat P1C: Post to BMP-01 (OLOD)
- 132 Subcat P2: Post to BMP-02 (LOD)
- 133 Subcat P3: Post to BMP-03 (LOD)
- 134 Subcat P4A: Post to BMP-04 (LOD)
- 135 Subcat P4B: Post to BMP-04 (OLOD)
- 136 Subcat P4C: Post to BMP-04 (OLOD)
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- 140 Pond BMP-02: MRC Rain Garden
- 142 Pond BMP-03: MRC Rain Garden
- 144 Pond BMP-04: MRC Rain Garden
- 146 Pond BMP-05: MRC Rain Garden
- 148 Link 001A: POA
- 149 Link 001B: POA
- 150 Link 2: TOTAL OFFSITE
- 151 Link 3: LOD to BMP-01

50-yr Event

- 152 Subcat B1: BYPASS (LOD)
- 153 Subcat B2: BYPASS (LOD)
- 154 Subcat B3: BYPASS (LOD)
- 155 Subcat B4: BYPASS (LOD)
- 156 Subcat E1: PRE (LOD)
- 157 Subcat E2: PRE (OLOD)
- 158 Subcat E3: PRE (OLOD)
- 159 Subcat P1A: Post to BMP-01 (LOD)
- 160 Subcat P1B: Post to BMP-01 (LOD)
- 161 Subcat P1C: Post to BMP-01 (OLOD)
- 162 Subcat P2: Post to BMP-02 (LOD)
- 163 Subcat P3: Post to BMP-03 (LOD)
- 164 Subcat P4A: Post to BMP-04 (LOD)
- 165 Subcat P4B: Post to BMP-04 (OLOD)
- 166 Subcat P4C: Post to BMP-04 (OLOD)
- 167 Subcat P5: Post to BMP-05 (LOD)
- 168 Pond BMP-01: Wet Pond
- 170 Pond BMP-02: MRC Rain Garden

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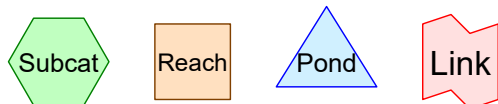
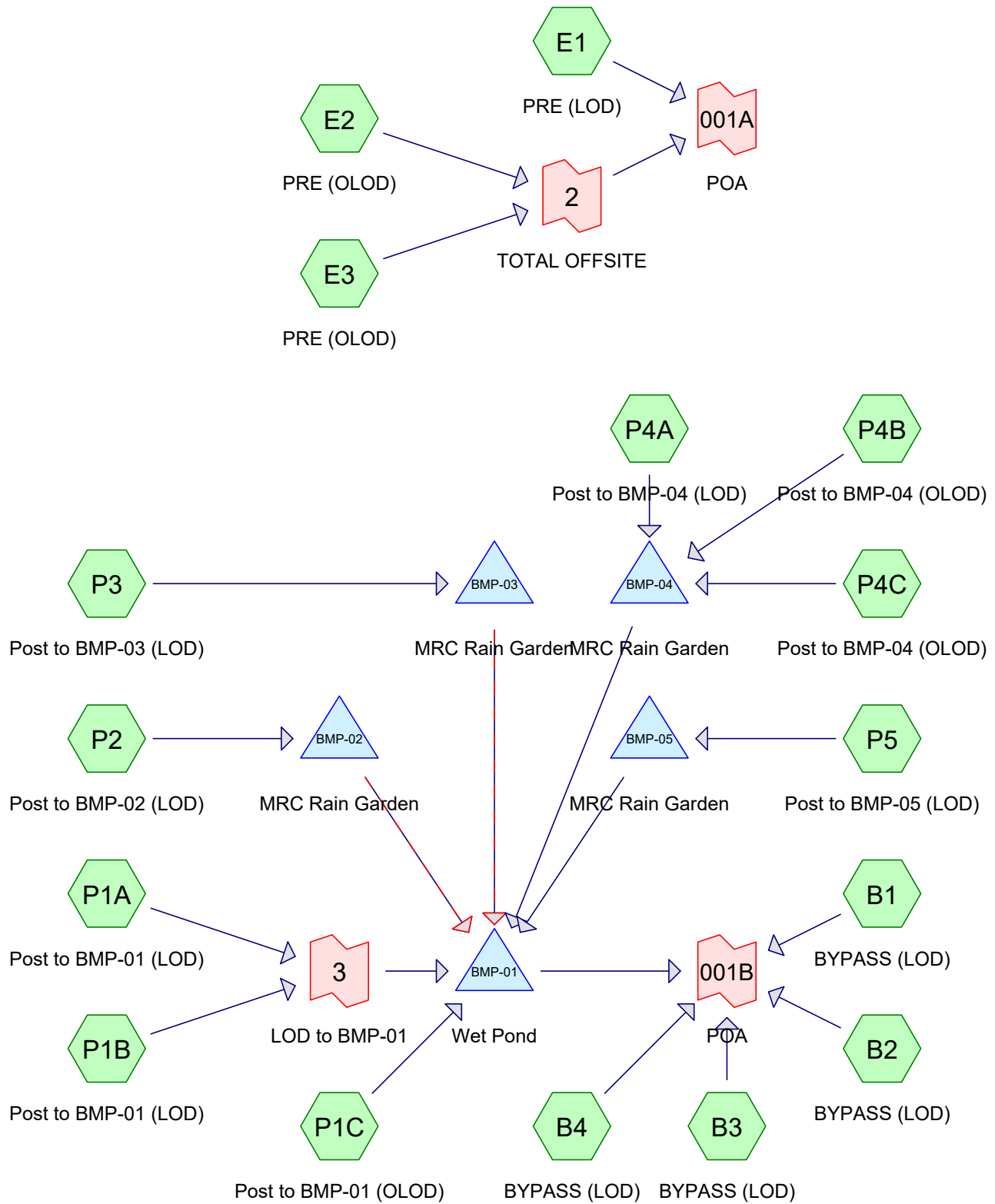
172 Pond BMP-03: MRC Rain Garden
174 Pond BMP-04: MRC Rain Garden
176 Pond BMP-05: MRC Rain Garden
178 Link 001A: POA
179 Link 001B: POA
180 Link 2: TOTAL OFFSITE
181 Link 3: LOD to BMP-01

100-yr Event

182 Subcat B1: BYPASS (LOD)
183 Subcat B2: BYPASS (LOD)
184 Subcat B3: BYPASS (LOD)
185 Subcat B4: BYPASS (LOD)
186 Subcat E1: PRE (LOD)
187 Subcat E2: PRE (OLOD)
188 Subcat E3: PRE (OLOD)
189 Subcat P1A: Post to BMP-01 (LOD)
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194 Subcat P4A: Post to BMP-04 (LOD)
195 Subcat P4B: Post to BMP-04 (OLOD)
196 Subcat P4C: Post to BMP-04 (OLOD)
197 Subcat P5: Post to BMP-05 (LOD)
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200 Pond BMP-02: MRC Rain Garden
202 Pond BMP-03: MRC Rain Garden
204 Pond BMP-04: MRC Rain Garden
206 Pond BMP-05: MRC Rain Garden
208 Link 001A: POA
209 Link 001B: POA
210 Link 2: TOTAL OFFSITE
211 Link 3: LOD to BMP-01

1.2"/2-hr Event

212 Subcat B1: BYPASS (LOD)
213 Subcat B2: BYPASS (LOD)
214 Subcat B3: BYPASS (LOD)
215 Subcat B4: BYPASS (LOD)
216 Subcat E1: PRE (LOD)
217 Subcat E2: PRE (OLOD)
218 Subcat E3: PRE (OLOD)
219 Subcat P1A: Post to BMP-01 (LOD)
220 Subcat P1B: Post to BMP-01 (LOD)
221 Subcat P1C: Post to BMP-01 (OLOD)
222 Subcat P2: Post to BMP-02 (LOD)
223 Subcat P3: Post to BMP-03 (LOD)
224 Subcat P4A: Post to BMP-04 (LOD)
225 Subcat P4B: Post to BMP-04 (OLOD)
226 Subcat P4C: Post to BMP-04 (OLOD)
227 Subcat P5: Post to BMP-05 (LOD)
228 Pond BMP-01: Wet Pond



Routing Diagram for 1508-SCS LDP REV02
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Summary for Subcatchment B1: BYPASS (LOD)

Runoff = 0.11 cfs @ 12.00 hrs, Volume= 352 cf, Depth= 0.26"

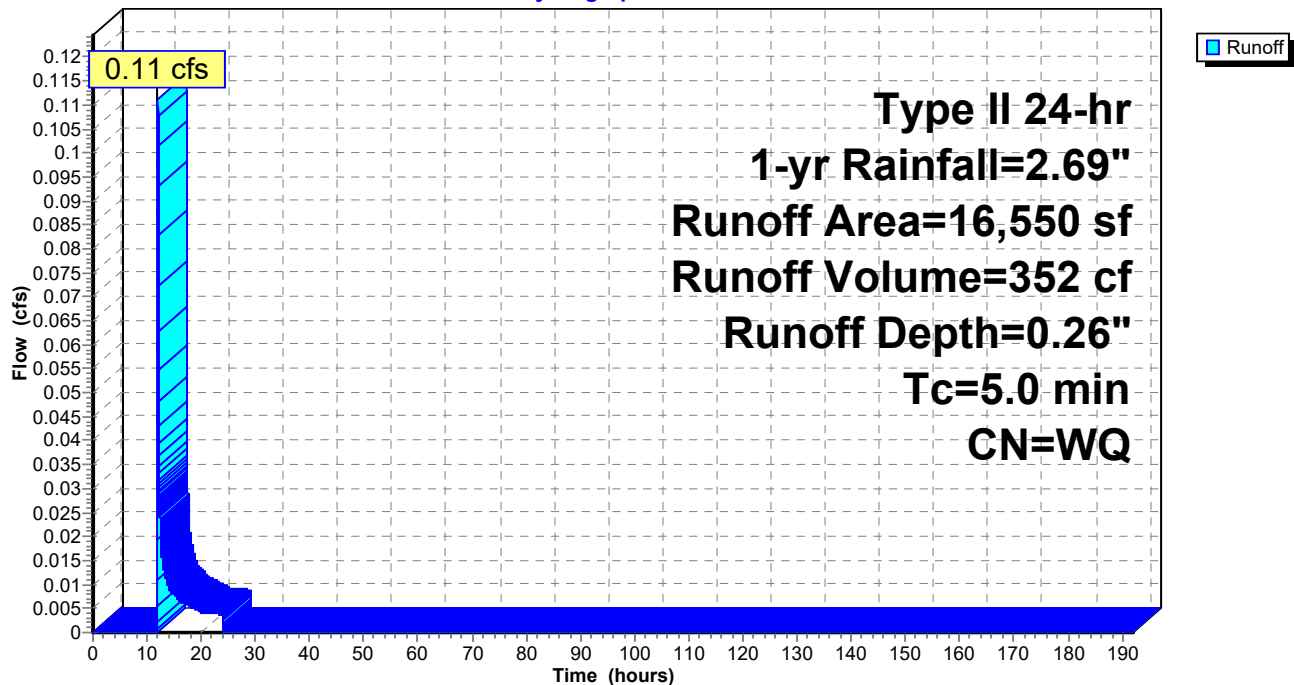
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
16,550	61	>75% Grass cover, Good, HSG B
16,550		Weighted Average
16,550	61	100.00% Pervious Area

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

Subcatchment B1: BYPASS (LOD)

Hydrograph



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Type II 24-hr 1-yr Rainfall=2.69"

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Summary for Subcatchment B2: BYPASS (LOD)

Runoff = 0.59 cfs @ 11.97 hrs, Volume= 1,530 cf, Depth= 0.70"

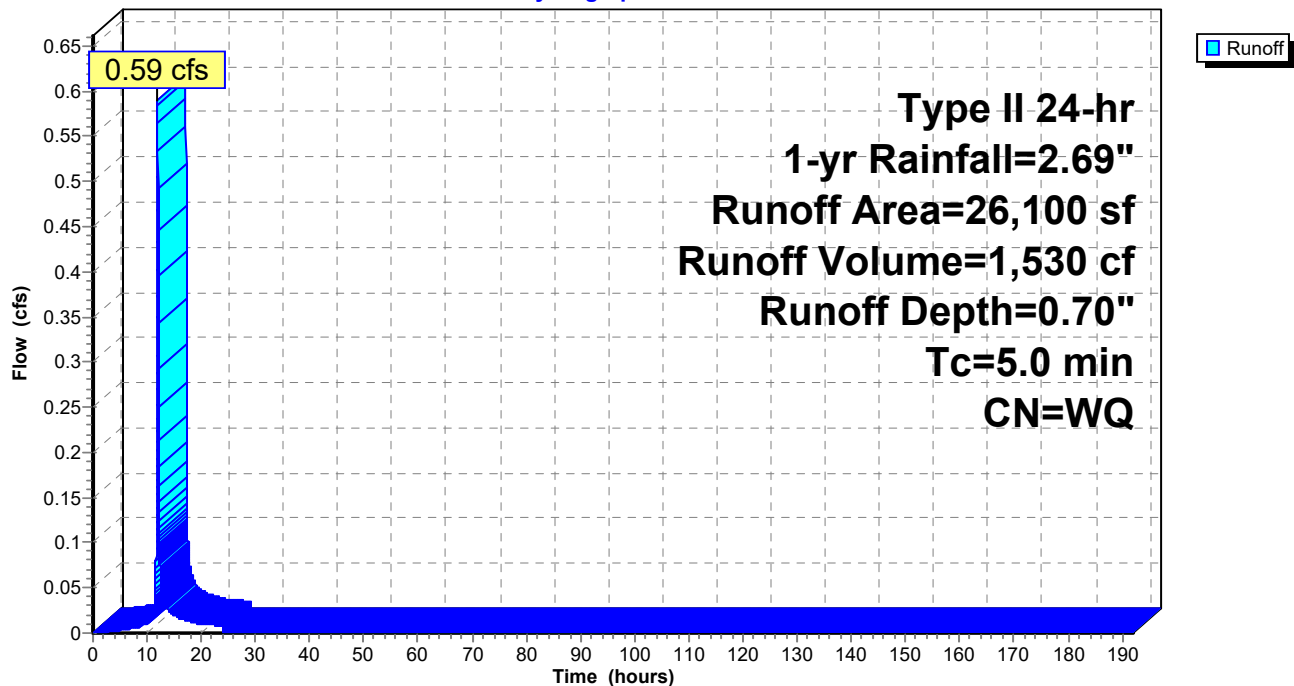
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	0	98	Buildings
*	5,305	98	Impervious
	20,795	61	>75% Grass cover, Good, HSG B
	26,100		Weighted Average
	20,795	61	79.67% Pervious Area
	5,305	98	20.33% Impervious Area

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

Subcatchment B2: BYPASS (LOD)

Hydrograph



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Type II 24-hr 1-yr Rainfall=2.69"

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Summary for Subcatchment B3: BYPASS (LOD)

Runoff = 2.49 cfs @ 11.97 hrs, Volume= 6,539 cf, Depth= 0.65"

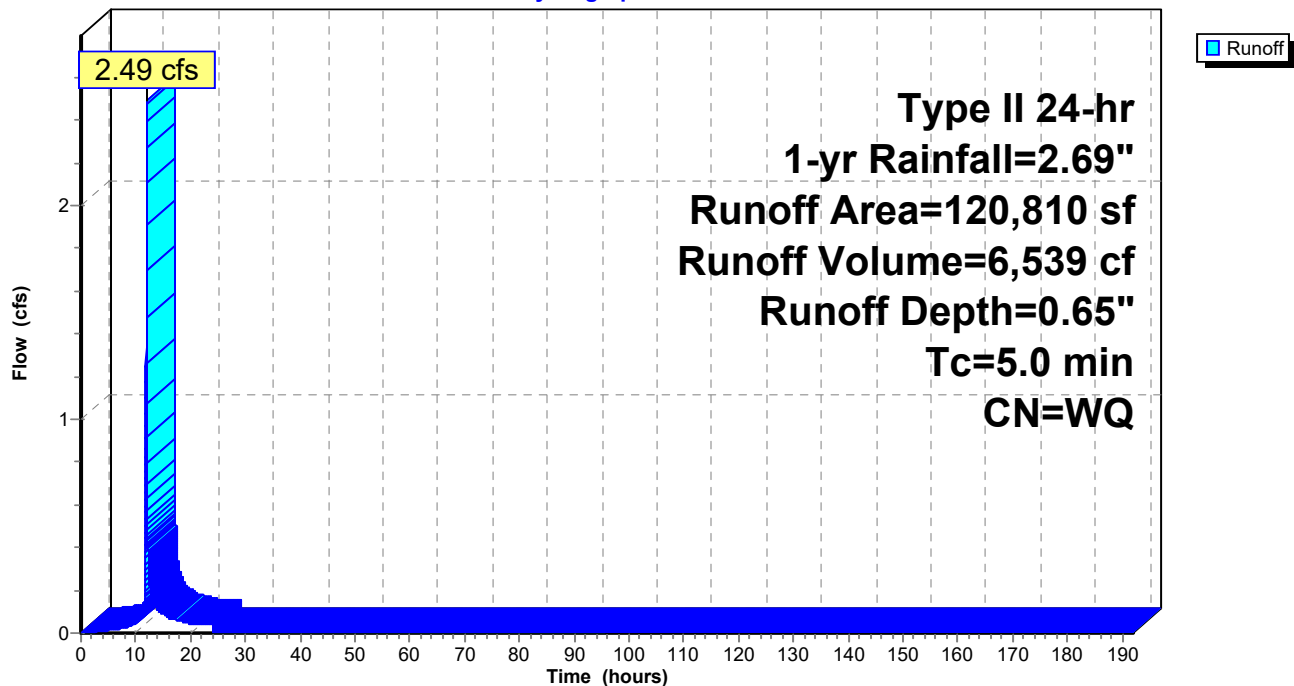
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	80	98	Buildings
*	21,530	98	Impervious
	99,200	61	>75% Grass cover, Good, HSG B
	120,810		Weighted Average
	99,200	61	82.11% Pervious Area
	21,610	98	17.89% Impervious Area

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

Subcatchment B3: BYPASS (LOD)

Hydrograph



Summary for Subcatchment B4: BYPASS (LOD)

Runoff = 0.09 cfs @ 12.00 hrs, Volume= 281 cf, Depth= 0.26"

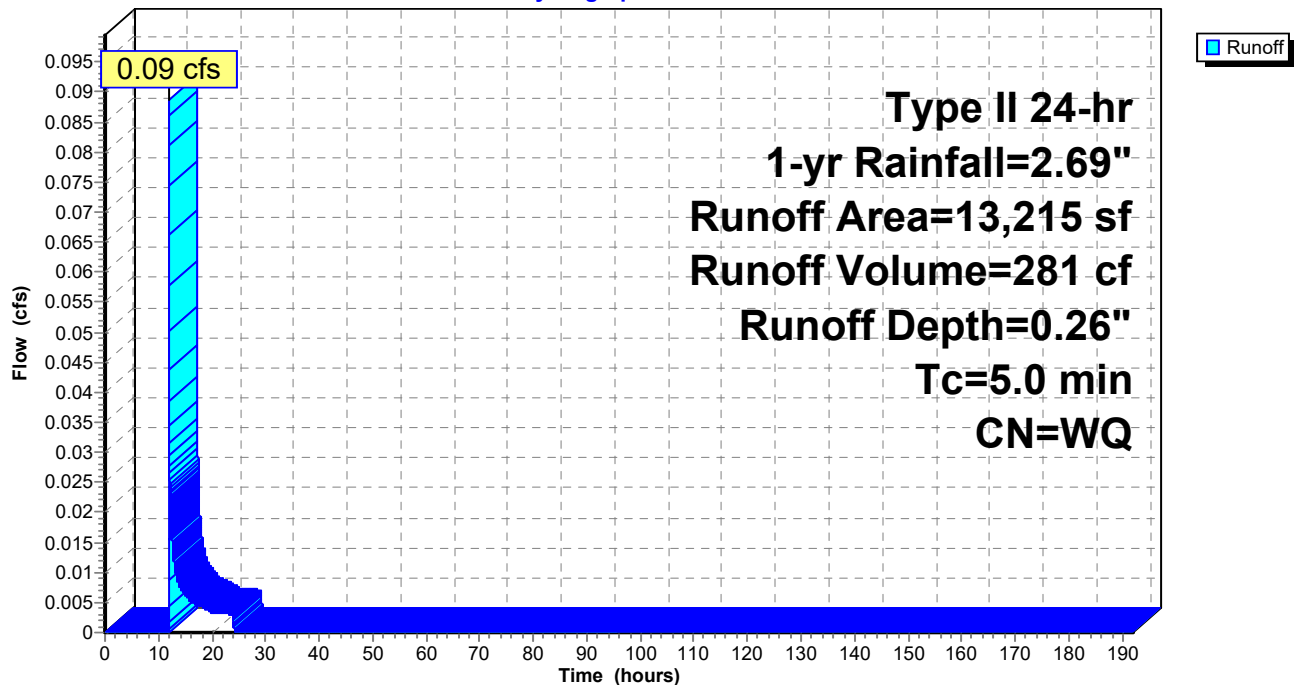
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	13,215	61	>75% Grass cover, Good, HSG B
	13,215		Weighted Average
	13,215	61	100.00% Pervious Area

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

Subcatchment B4: BYPASS (LOD)

Hydrograph



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Type II 24-hr 1-yr Rainfall=2.69"

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Summary for Subcatchment E1: PRE (LOD)

Runoff = 42.38 cfs @ 12.24 hrs, Volume= 216,880 cf, Depth= 1.13"

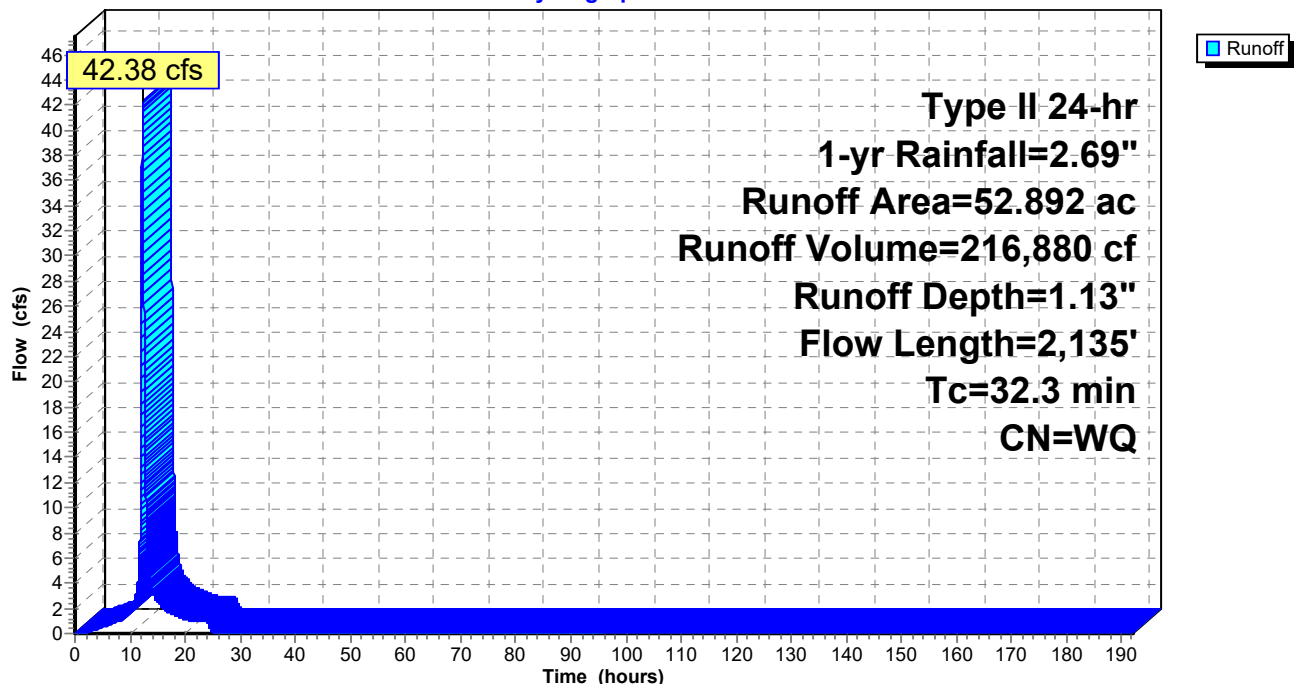
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

Area (ac)	CN	Description
25.382	58	Meadow, non-grazed, HSG B
* 5.502	58	Meadow (20% of Ex. Impervious)
* 22.008	98	Existing Impervious
52.892		Weighted Average
30.884	58	58.39% Pervious Area
22.008	98	41.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
4.4	425	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
2.7	410	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
32.3	2,135	Total			

Subcatchment E1: PRE (LOD)

Hydrograph



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Type II 24-hr 1-yr Rainfall=2.69"

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Summary for Subcatchment E2: PRE (OLOD)

Runoff = 0.06 cfs @ 12.38 hrs, Volume= 550 cf, Depth= 0.26"

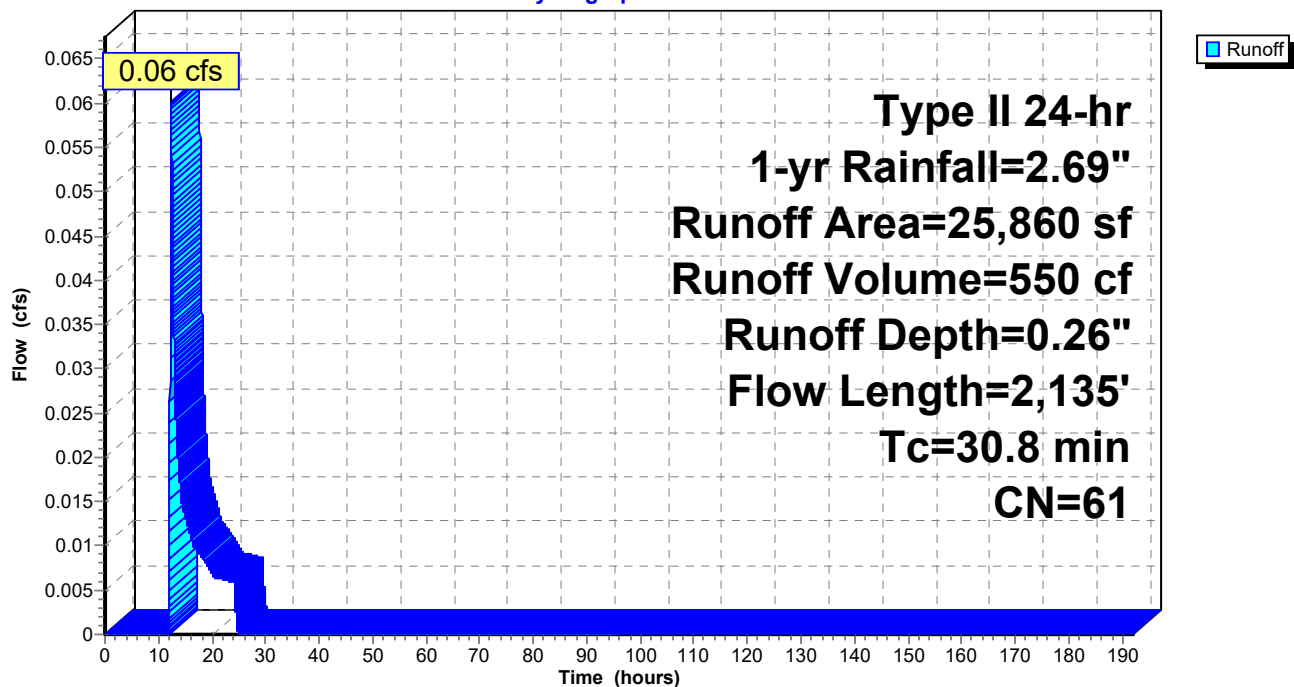
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

Area (sf)	CN	Description
25,860	61	>75% Grass cover, Good, HSG B
25,860	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
3.5	425	0.0100	2.03		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
2.1	410	0.0250	3.21		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
30.8	2,135	Total			

Subcatchment E2: PRE (OLOD)

Hydrograph



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Type II 24-hr 1-yr Rainfall=2.69"

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Summary for Subcatchment E3: PRE (OLOD)

Runoff = 3.50 cfs @ 12.27 hrs, Volume= 22,029 cf, Depth= 0.44"

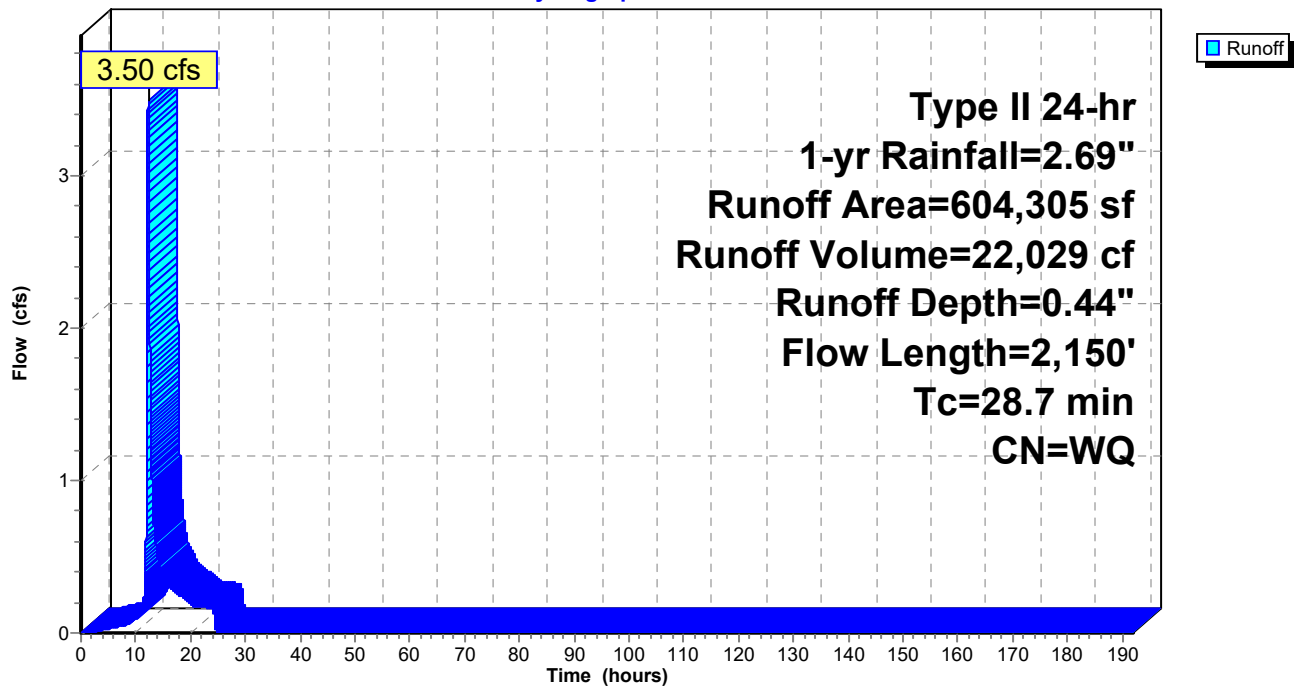
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	49,955	98	Existing Impervious
	554,350	61	>75% Grass cover, Good, HSG B
	604,305		Weighted Average
	554,350	61	91.73% Pervious Area
	49,955	98	8.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
9.2	1,400	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
6.7	650	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
28.7	2,150	Total			

Subcatchment E3: PRE (OLOD)

Hydrograph



Summary for Subcatchment P1A: Post to BMP-01 (LOD)

Runoff = 13.65 cfs @ 11.97 hrs, Volume= 34,228 cf, Depth= 0.87"

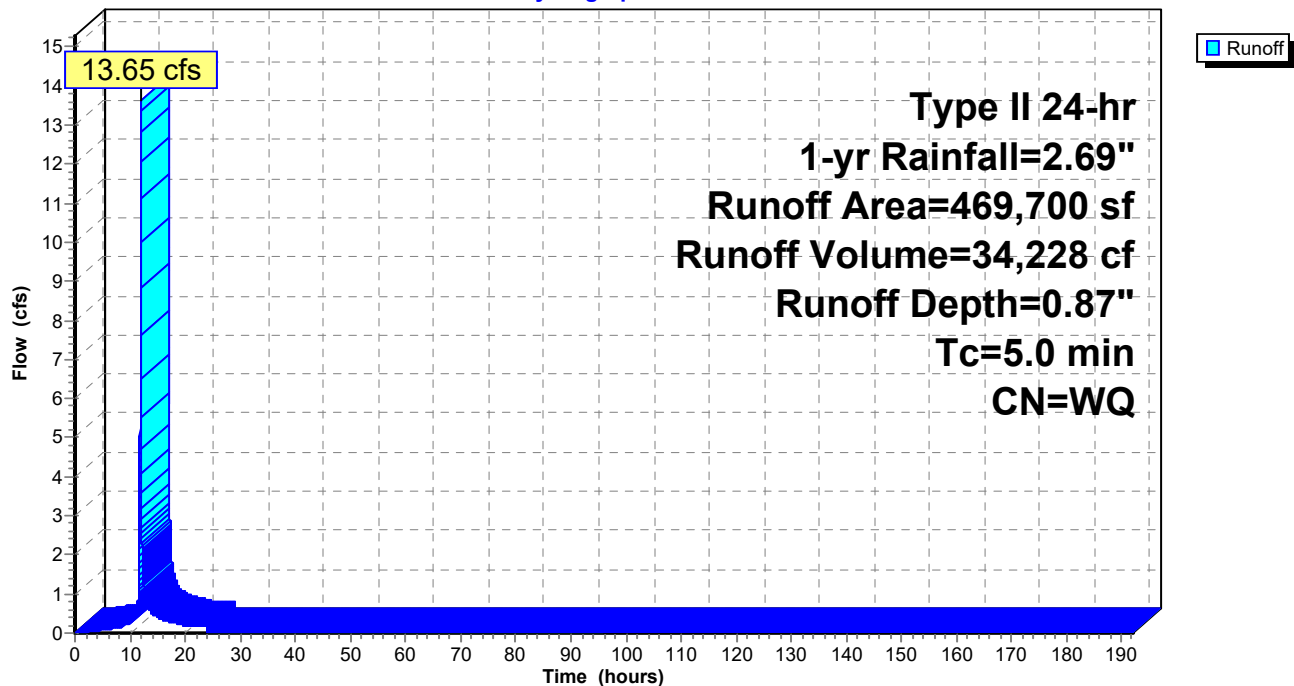
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	240	98	Buildings
*	131,700	98	Impervious
	337,760	61	>75% Grass cover, Good, HSG B
	469,700		Weighted Average
	337,760	61	71.91% Pervious Area
	131,940	98	28.09% Impervious Area

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

Subcatchment P1A: Post to BMP-01 (LOD)

Hydrograph



Summary for Subcatchment P1B: Post to BMP-01 (LOD)

Runoff = 5.87 cfs @ 11.96 hrs, Volume= 14,211 cf, Depth= 1.18"

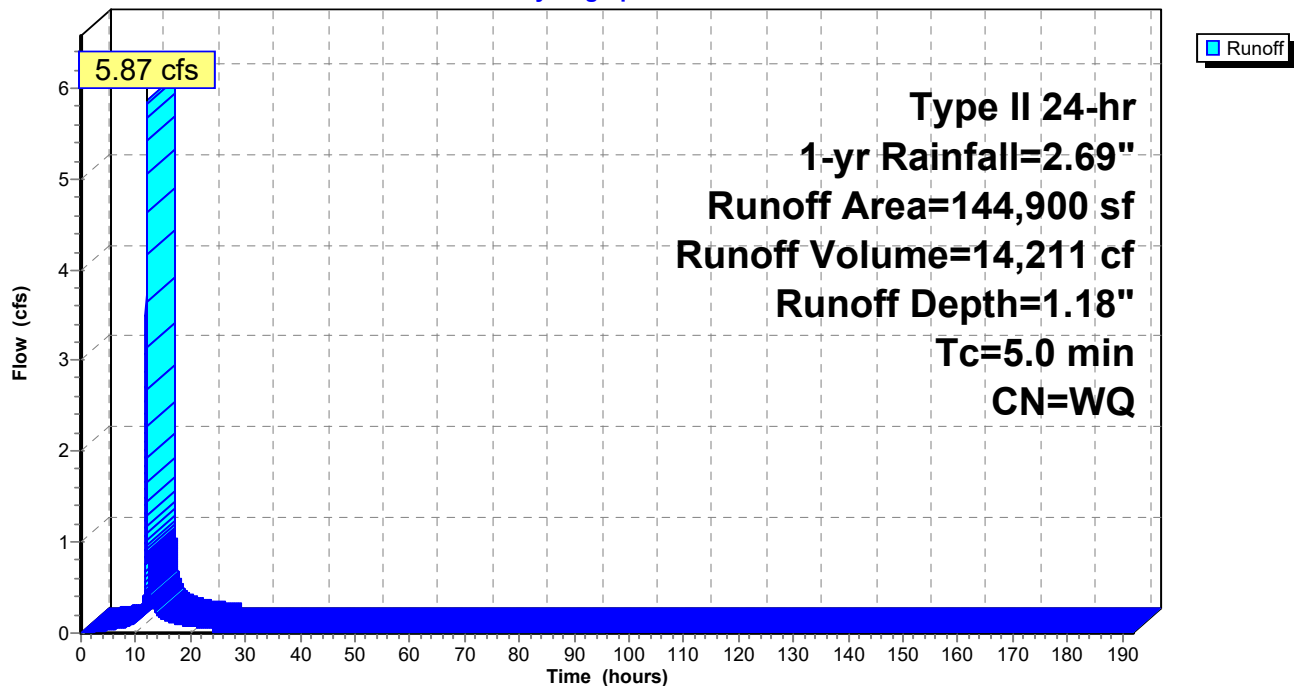
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	0	98	Buildings
*	60,580	98	Impervious
	84,320	61	>75% Grass cover, Good, HSG B
	144,900		Weighted Average
	84,320	61	58.19% Pervious Area
	60,580	98	41.81% Impervious Area

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

Subcatchment P1B: Post to BMP-01 (LOD)

Hydrograph



Summary for Subcatchment P1C: Post to BMP-01 (OLOD)

Runoff = 7.43 cfs @ 11.98 hrs, Volume= 20,827 cf, Depth= 0.46"

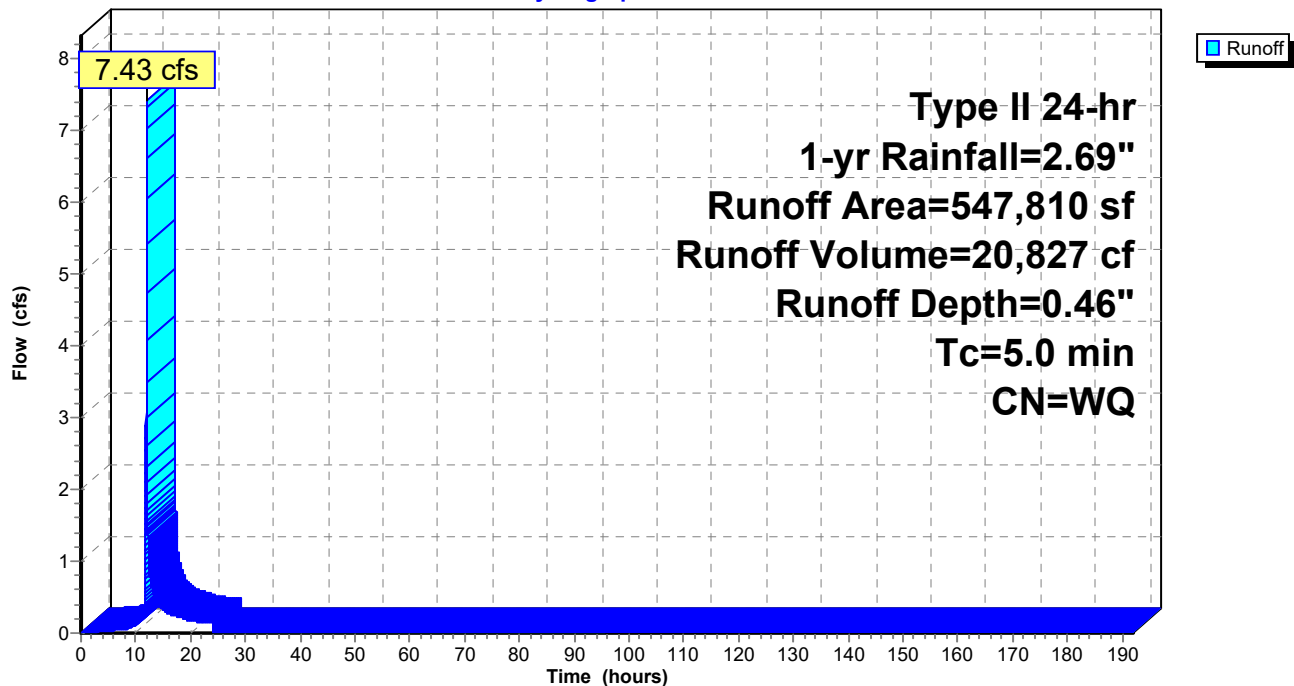
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	0	98	Buildings
*	49,955	98	Impervious
	497,855	61	>75% Grass cover, Good, HSG B
	547,810		Weighted Average
	497,855	61	90.88% Pervious Area
	49,955	98	9.12% Impervious Area

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

Subcatchment P1C: Post to BMP-01 (OLOD)

Hydrograph



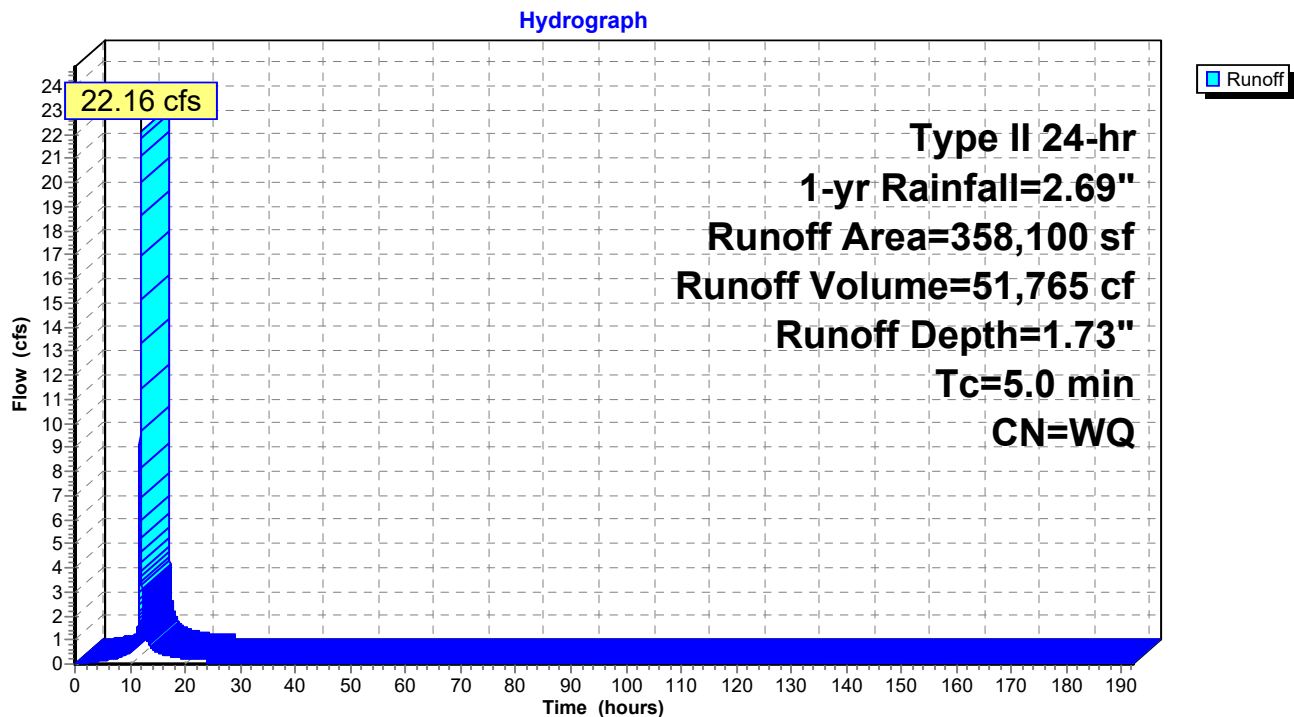
Summary for Subcatchment P2: Post to BMP-02 (LOD)

Runoff = 22.16 cfs @ 11.96 hrs, Volume= 51,765 cf, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	106,100	98	Impervious
	117,775	61	>75% Grass cover, Good, HSG B
	358,100		Weighted Average
	117,775	61	32.89% Pervious Area
	240,325	98	67.11% Impervious Area

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

Subcatchment P2: Post to BMP-02 (LOD)

Summary for Subcatchment P3: Post to BMP-03 (LOD)

Runoff = 16.86 cfs @ 11.96 hrs, Volume= 39,358 cf, Depth= 1.76"

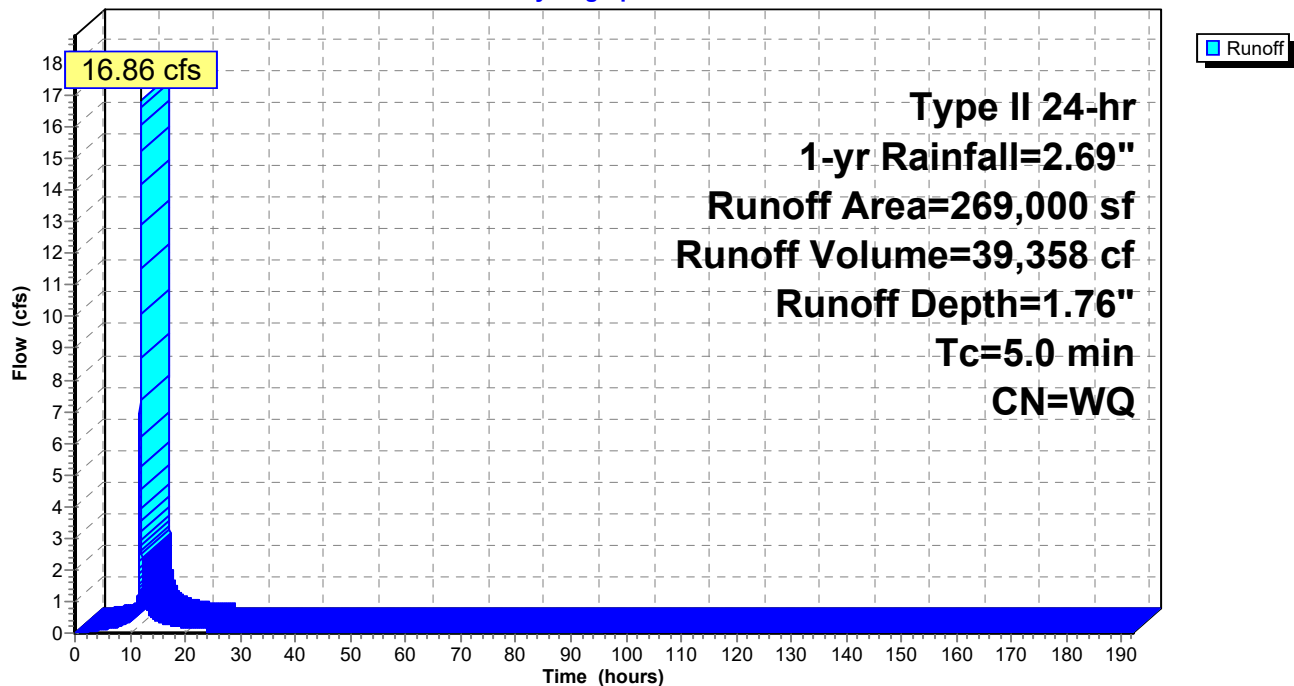
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	59,870	98	Impervious
	85,900	61	>75% Grass cover, Good, HSG B
	269,000		Weighted Average
	85,900	61	31.93% Pervious Area
	183,100	98	68.07% Impervious Area

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

Subcatchment P3: Post to BMP-03 (LOD)

Hydrograph



Summary for Subcatchment P4A: Post to BMP-04 (LOD)

Runoff = 22.00 cfs @ 11.96 hrs, Volume= 52,708 cf, Depth= 1.30"

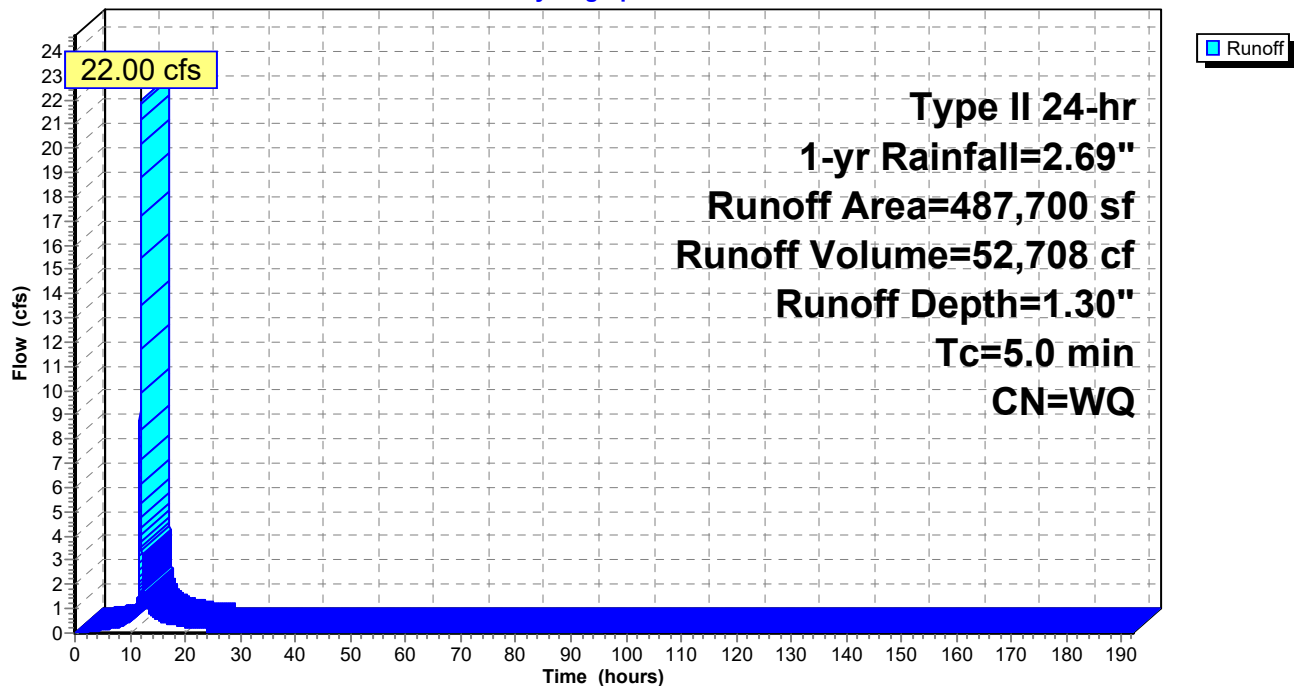
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	96,230	98	Impervious
	257,245	61	>75% Grass cover, Good, HSG B
	487,700		Weighted Average
	257,245	61	52.75% Pervious Area
	230,455	98	47.25% Impervious Area

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

Subcatchment P4A: Post to BMP-04 (LOD)

Hydrograph



Summary for Subcatchment P4B: Post to BMP-04 (OLOD)

Runoff = 0.25 cfs @ 12.00 hrs, Volume= 798 cf, Depth= 0.26"

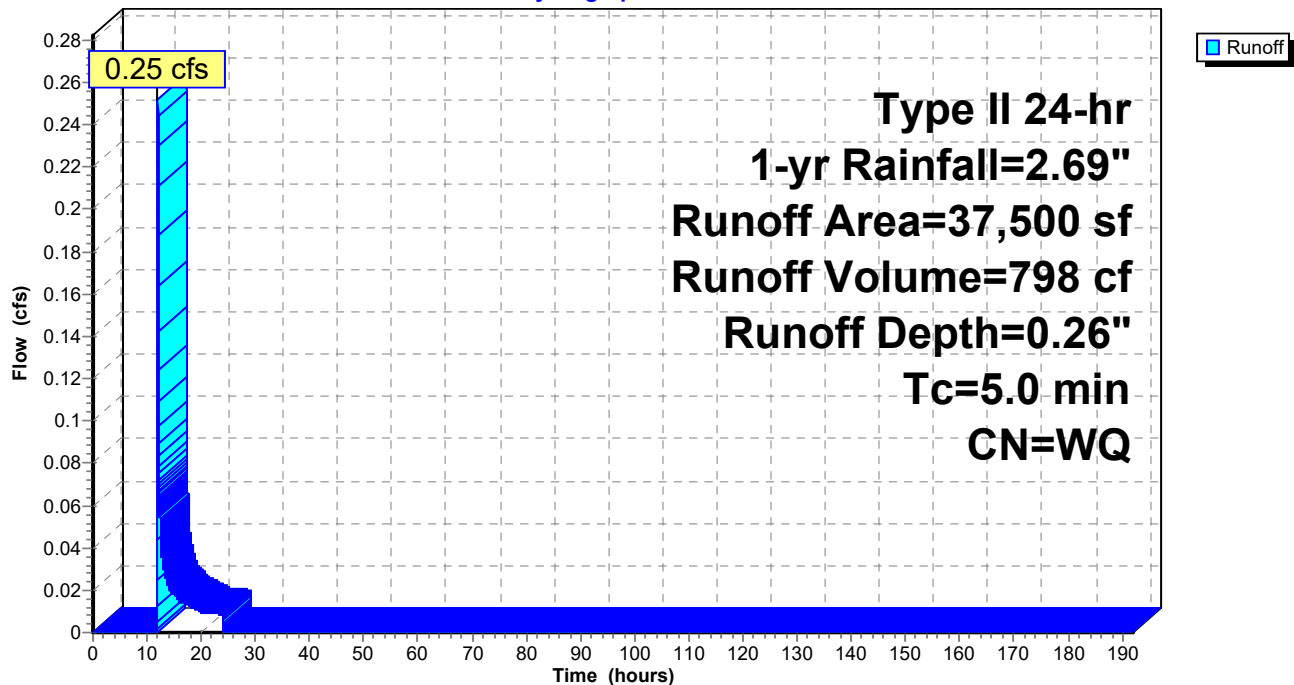
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
37,500	61	>75% Grass cover, Good, HSG B
37,500		Weighted Average
37,500	61	100.00% Pervious Area

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

Subcatchment P4B: Post to BMP-04 (OLOD)

Hydrograph



Summary for Subcatchment P4C: Post to BMP-04 (OLOD)

Runoff = 0.33 cfs @ 12.00 hrs, Volume= 1,042 cf, Depth= 0.26"

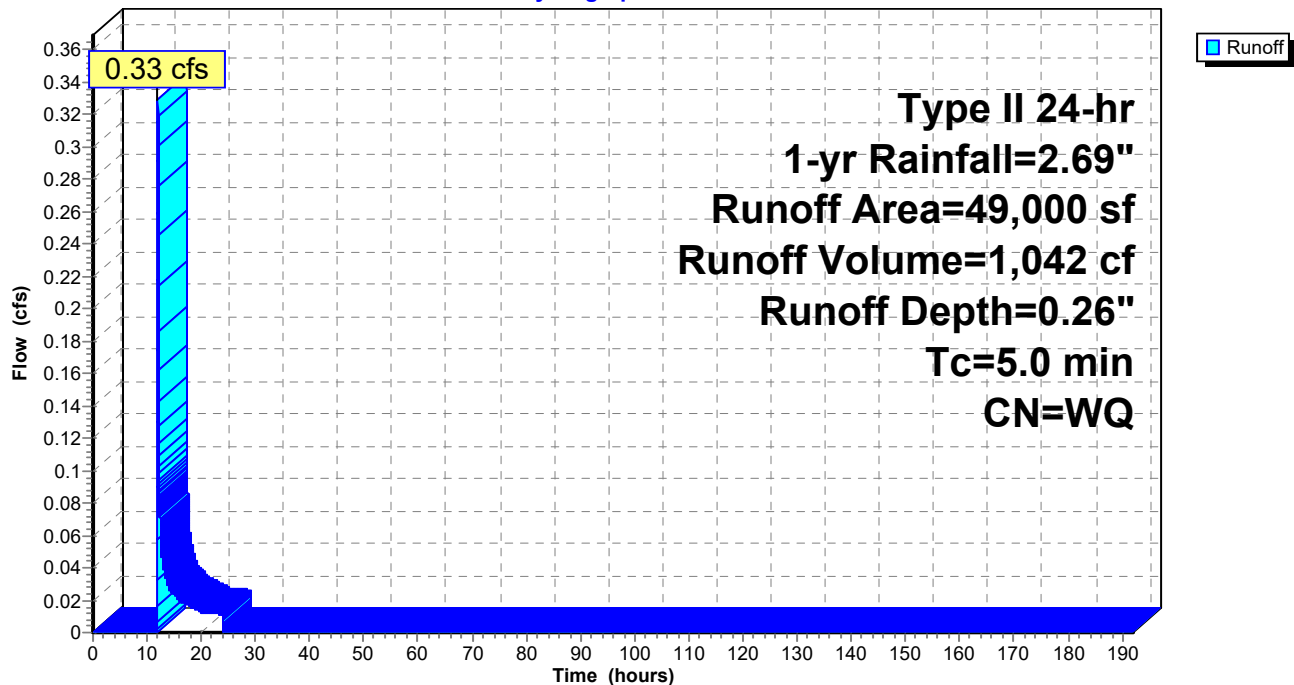
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
49,000	61	>75% Grass cover, Good, HSG B
49,000		Weighted Average
49,000	61	100.00% Pervious Area

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

Subcatchment P4C: Post to BMP-04 (OLOD)

Hydrograph



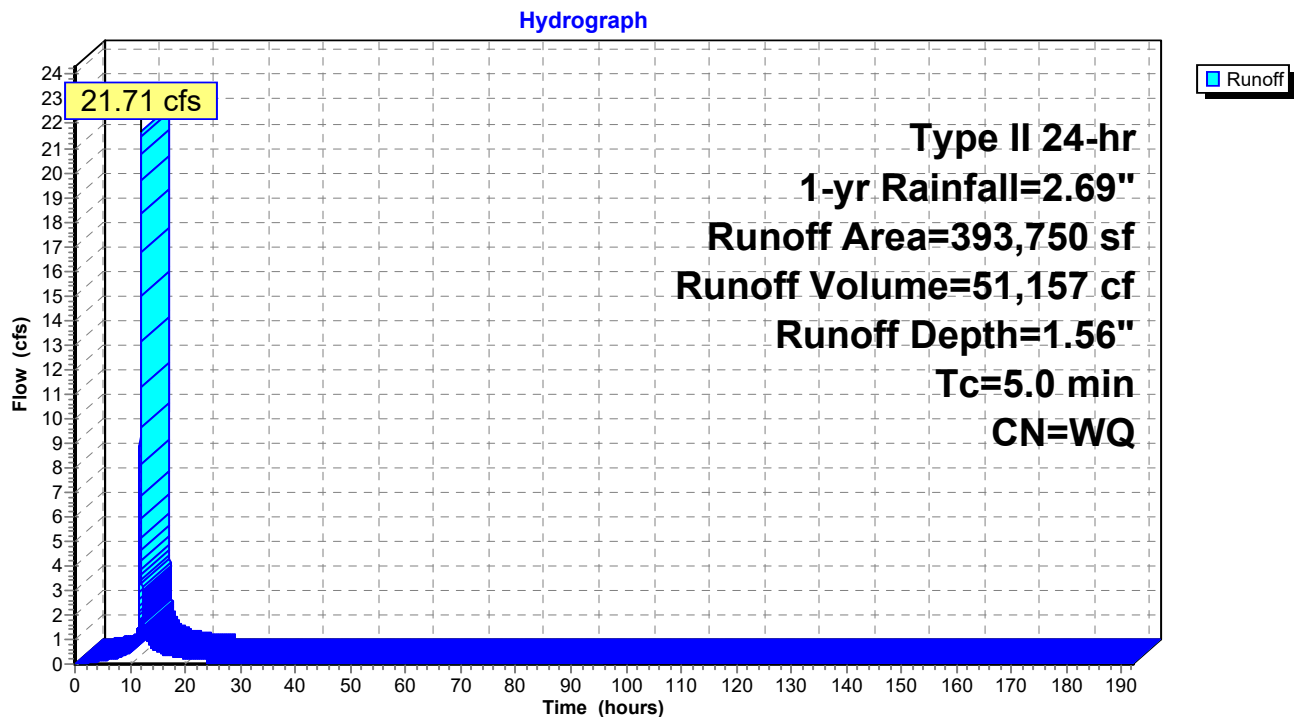
Summary for Subcatchment P5: Post to BMP-05 (LOD)

Runoff = 21.71 cfs @ 11.96 hrs, Volume= 51,157 cf, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.69"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	109,655	98	Impervious
	160,865	61	>75% Grass cover, Good, HSG B
	393,750		Weighted Average
	160,865	61	40.85% Pervious Area
	232,885	98	59.15% Impervious Area

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

Subcatchment P5: Post to BMP-05 (LOD)

Summary for Pond BMP-01: Wet Pond

Inflow Area = 2,757,460 sf, 40.95% Impervious, Inflow Depth = 1.13" for 1-yr event
 Inflow = 47.82 cfs @ 12.01 hrs, Volume= 260,798 cf
 Outflow = 5.73 cfs @ 13.38 hrs, Volume= 260,378 cf, Atten= 88%, Lag= 82.2 min
 Primary = 5.73 cfs @ 13.38 hrs, Volume= 260,378 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 356.09' @ 13.38 hrs Surf.Area= 74,923 sf Storage= 78,547 cf

Plug-Flow detention time= 361.7 min calculated for 260,365 cf (100% of inflow)
 Center-of-Mass det. time= 348.3 min (2,195.6 - 1,847.3)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	613,350 cf	Storage Above Perm. Pool (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	69,700	0	0
356.00	74,500	72,100	72,100
357.00	79,400	76,950	149,050
358.00	84,400	81,900	230,950
359.00	89,550	86,975	317,925
360.00	95,600	92,575	410,500
361.00	101,400	98,500	509,000
362.00	107,300	104,350	613,350

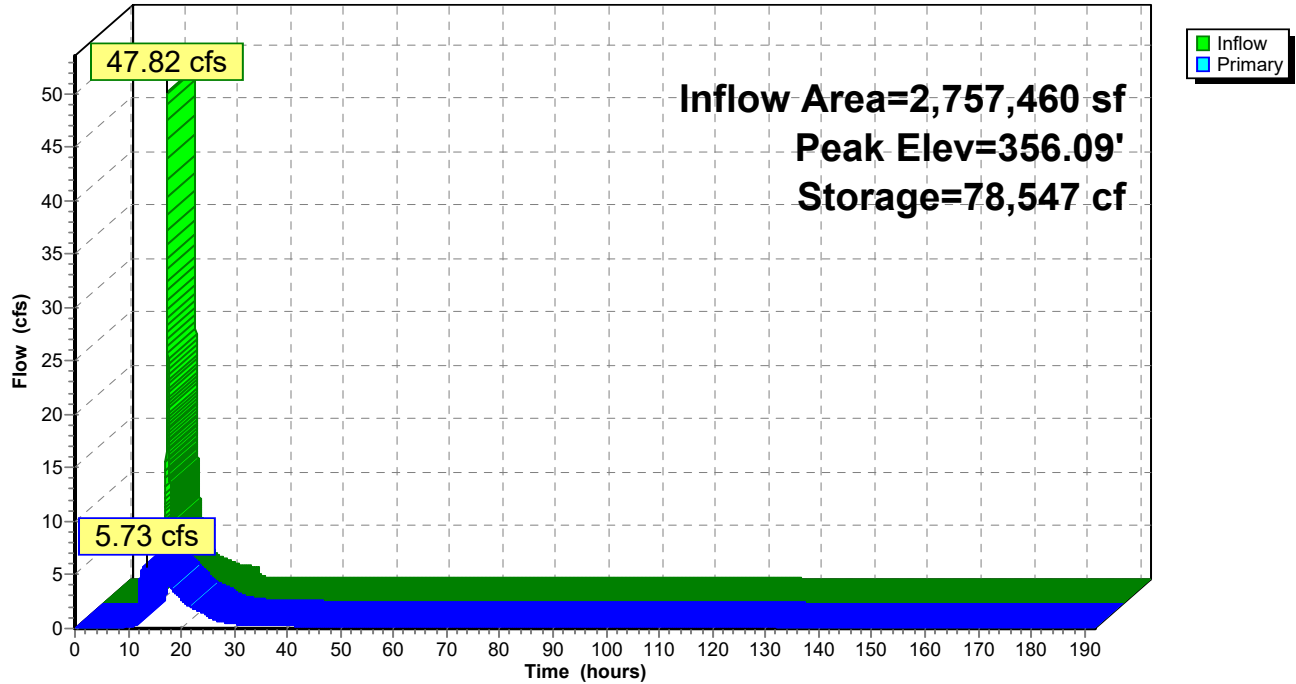
Device	Routing	Invert	Outlet Devices
#1	Primary	355.00'	36.0" Round 36" Outfall X 5.00 L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 355.00' / 354.50' S= 0.0156 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	355.00'	7.0" Vert. 7" Siphon Orifice X 5.00 C= 0.600 Limited to weir flow at low heads
#3	Device 1	357.00'	19.0" W x 30.0" H Vert. 19"Wx30"H Weir X 5.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	360.10'	24.0" x 45.0" Horiz. Type M Inlet X 5.00 C= 0.600 Limited to weir flow at low heads
#5	Primary	360.60'	100.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=5.74 cfs @ 13.38 hrs HW=356.09' (Free Discharge)

1=36" Outfall (Passes 5.74 cfs of 39.38 cfs potential flow)
 2=7" Siphon Orifice (Orifice Controls 5.74 cfs @ 4.29 fps)
 3=19"Wx30"H Weir (Controls 0.00 cfs)
 4=Type M Inlet (Controls 0.00 cfs)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond BMP-01: Wet Pond

Hydrograph



Summary for Pond BMP-02: MRC Rain Garden

Inflow Area = 358,100 sf, 67.11% Impervious, Inflow Depth = 1.73" for 1-yr event
 Inflow = 22.16 cfs @ 11.96 hrs, Volume= 51,765 cf
 Outflow = 9.62 cfs @ 12.05 hrs, Volume= 50,635 cf, Atten= 57%, Lag= 5.6 min
 Primary = 9.62 cfs @ 12.05 hrs, Volume= 50,635 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 363.65' @ 12.05 hrs Surf.Area= 30,896 sf Storage= 27,065 cf

Plug-Flow detention time= 1,505.6 min calculated for 50,635 cf (98% of inflow)
 Center-of-Mass det. time= 1,491.5 min (2,255.9 - 764.4)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Prismatic) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	67,900 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		75,775 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
358.00	7,500	0	0
359.00	7,500	7,500	7,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	7,500	0	0
363.00	12,450	9,975	9,975
364.00	17,750	15,100	25,075
365.00	21,300	19,525	44,600
366.00	25,300	23,300	67,900

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	363.25'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

1508-SCS LDP REV02

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Type II 24-hr 1-yr Rainfall=2.69"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=9.58 cfs @ 12.05 hrs HW=363.65' (Free Discharge)

1=Outflow Pipe (Passes 9.58 cfs of 28.90 cfs potential flow)

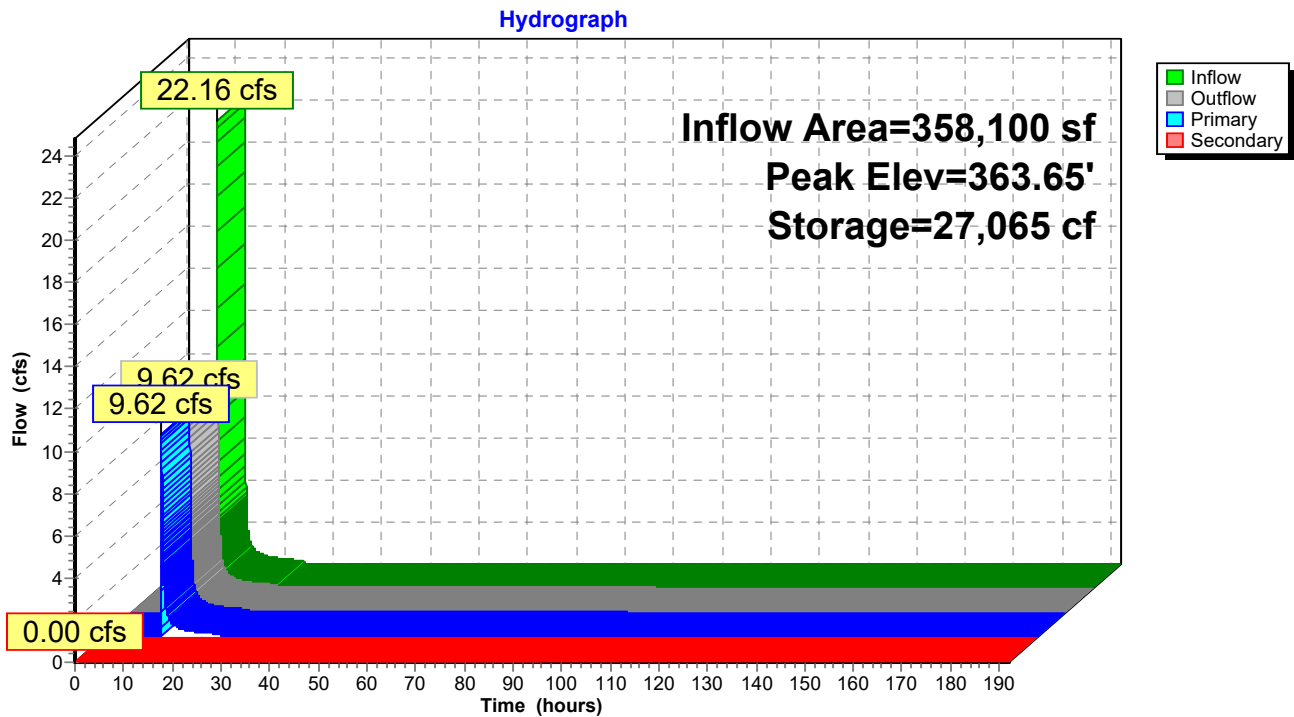
2=MRC Low Flow Orifice (Orifice Controls 0.07 cfs @ 10.33 fps)

3=Type M Overflow (Weir Controls 9.51 cfs @ 2.07 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-02: MRC Rain Garden



Summary for Pond BMP-03: MRC Rain Garden

Inflow Area = 269,000 sf, 68.07% Impervious, Inflow Depth = 1.76" for 1-yr event
 Inflow = 16.86 cfs @ 11.96 hrs, Volume= 39,358 cf
 Outflow = 7.99 cfs @ 12.05 hrs, Volume= 38,228 cf, Atten= 53%, Lag= 5.2 min
 Primary = 7.99 cfs @ 12.05 hrs, Volume= 38,228 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 363.10' @ 12.05 hrs Surf.Area= 28,956 sf Storage= 20,338 cf

Plug-Flow detention time= 1,413.0 min calculated for 38,226 cf (97% of inflow)
 Center-of-Mass det. time= 1,395.3 min (2,159.3 - 764.1)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	72,725 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		80,600 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
358.00	7,500	0	0	7,500
359.00	7,500	7,500	7,500	7,846

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	8,850	0	0
363.00	13,250	11,050	11,050
364.00	20,050	16,650	27,700
365.00	22,700	21,375	49,075
366.00	24,600	23,650	72,725

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.0" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	362.75'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

1508-SCS LDP REV02

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Type II 24-hr 1-yr Rainfall=2.69"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=7.96 cfs @ 12.05 hrs HW=363.10' (Free Discharge)

1=Outflow Pipe (Passes 7.96 cfs of 26.65 cfs potential flow)

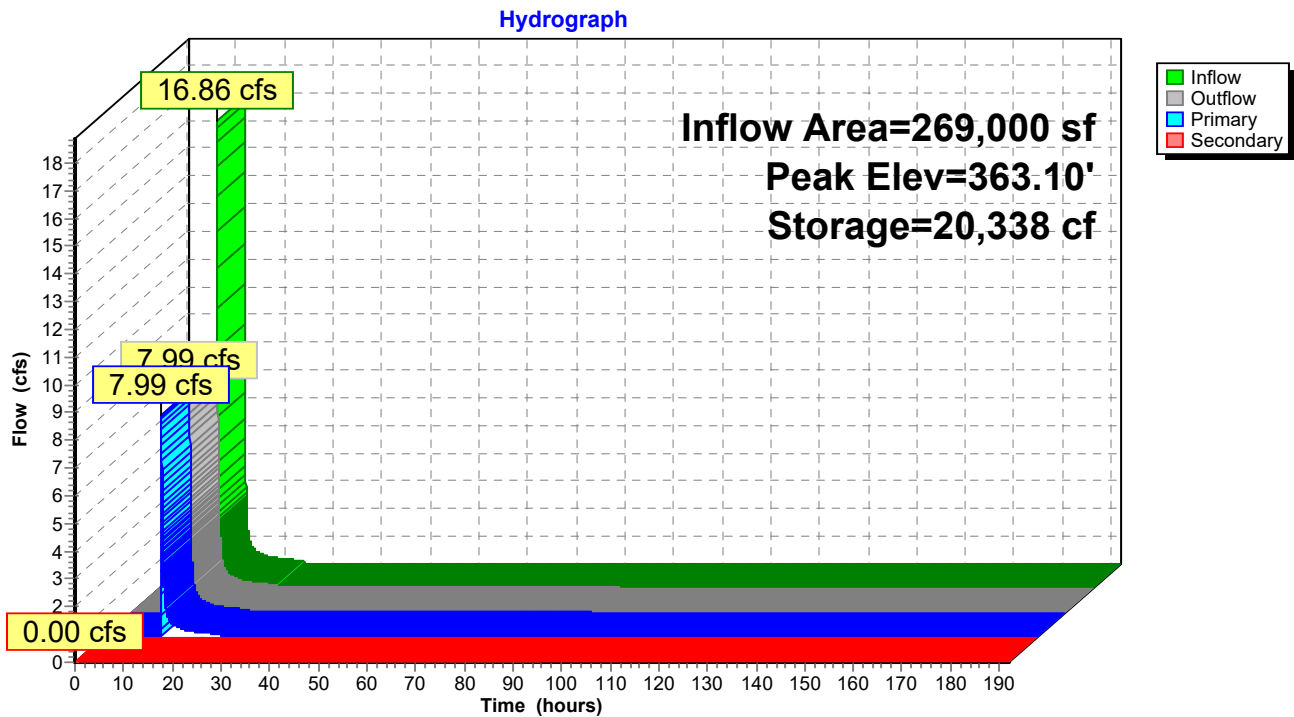
2=MRC Low Flow Orifice (Orifice Controls 0.05 cfs @ 9.70 fps)

3=Type M Overflow (Weir Controls 7.90 cfs @ 1.94 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-03: MRC Rain Garden



Summary for Pond BMP-04: MRC Rain Garden

Inflow Area = 574,200 sf, 40.13% Impervious, Inflow Depth = 1.14" for 1-yr event
 Inflow = 22.47 cfs @ 11.96 hrs, Volume= 54,548 cf
 Outflow = 6.68 cfs @ 12.08 hrs, Volume= 53,019 cf, Atten= 70%, Lag= 6.9 min
 Primary = 6.68 cfs @ 12.08 hrs, Volume= 53,019 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 372.96' @ 12.08 hrs Surf.Area= 46,484 sf Storage= 27,725 cf

Plug-Flow detention time= 1,507.3 min calculated for 53,019 cf (97% of inflow)
 Center-of-Mass det. time= 1,489.6 min (2,269.9 - 780.3)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	116,625 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		124,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	15,500	0	0
373.00	26,900	21,200	21,200
374.00	30,150	28,525	49,725
375.00	33,400	31,775	81,500
376.00	36,850	35,125	116,625

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.65'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

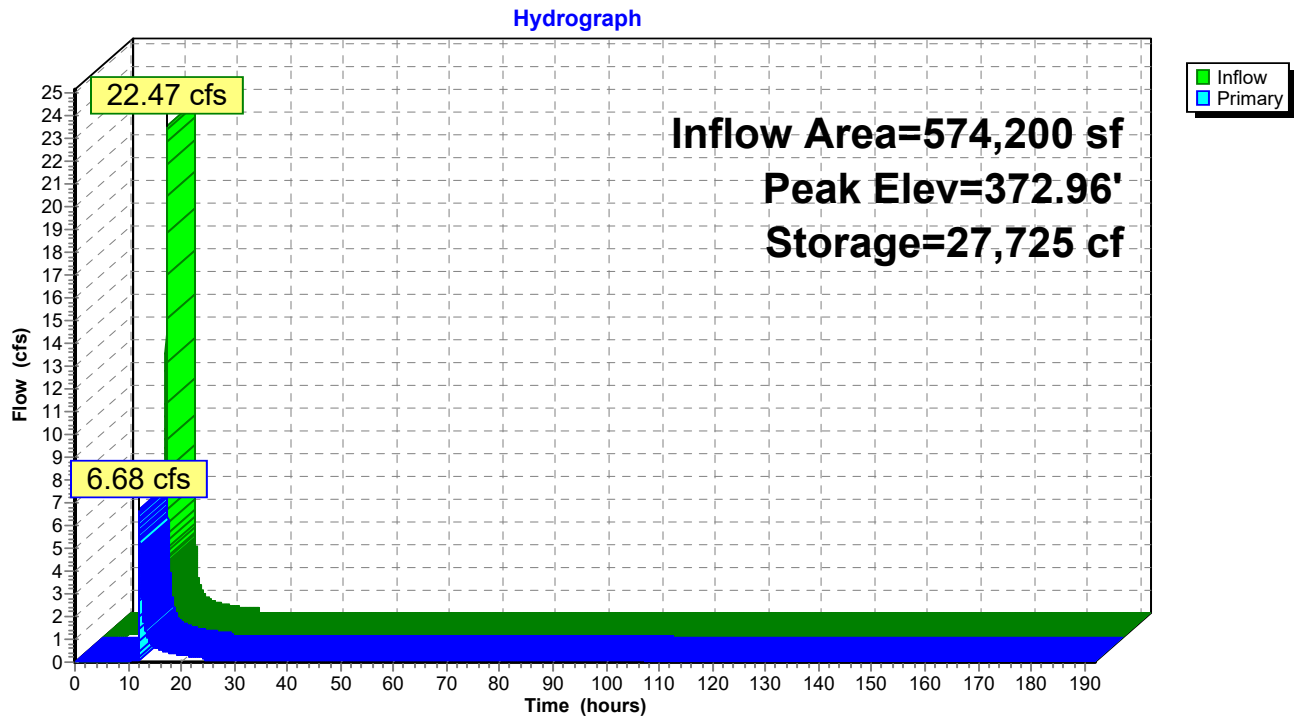
Primary OutFlow Max=6.65 cfs @ 12.08 hrs HW=372.96' (Free Discharge)

1=24" Outflow Pipe (Passes 6.65 cfs of 21.09 cfs potential flow)

2=MRC Low Flow Orifice (Orifice Controls 0.05 cfs @ 8.22 fps)

3=Type M Overflow (Weir Controls 6.60 cfs @ 1.83 fps)

Pond BMP-04: MRC Rain Garden



Summary for Pond BMP-05: MRC Rain Garden

Inflow Area = 393,750 sf, 59.15% Impervious, Inflow Depth = 1.56" for 1-yr event
 Inflow = 21.71 cfs @ 11.96 hrs, Volume= 51,157 cf
 Outflow = 6.24 cfs @ 12.08 hrs, Volume= 49,651 cf, Atten= 71%, Lag= 7.1 min
 Primary = 6.24 cfs @ 12.08 hrs, Volume= 49,651 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 373.00' @ 12.08 hrs Surf.Area= 46,297 sf Storage= 27,544 cf

Plug-Flow detention time= 1,439.8 min calculated for 49,648 cf (97% of inflow)
 Center-of-Mass det. time= 1,421.6 min (2,189.5 - 767.8)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	111,850 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		119,350 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	13,800	0	0
373.00	26,300	20,050	20,050
374.00	29,100	27,700	47,750
375.00	32,000	30,550	78,300
376.00	35,100	33,550	111,850

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.2" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.70'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

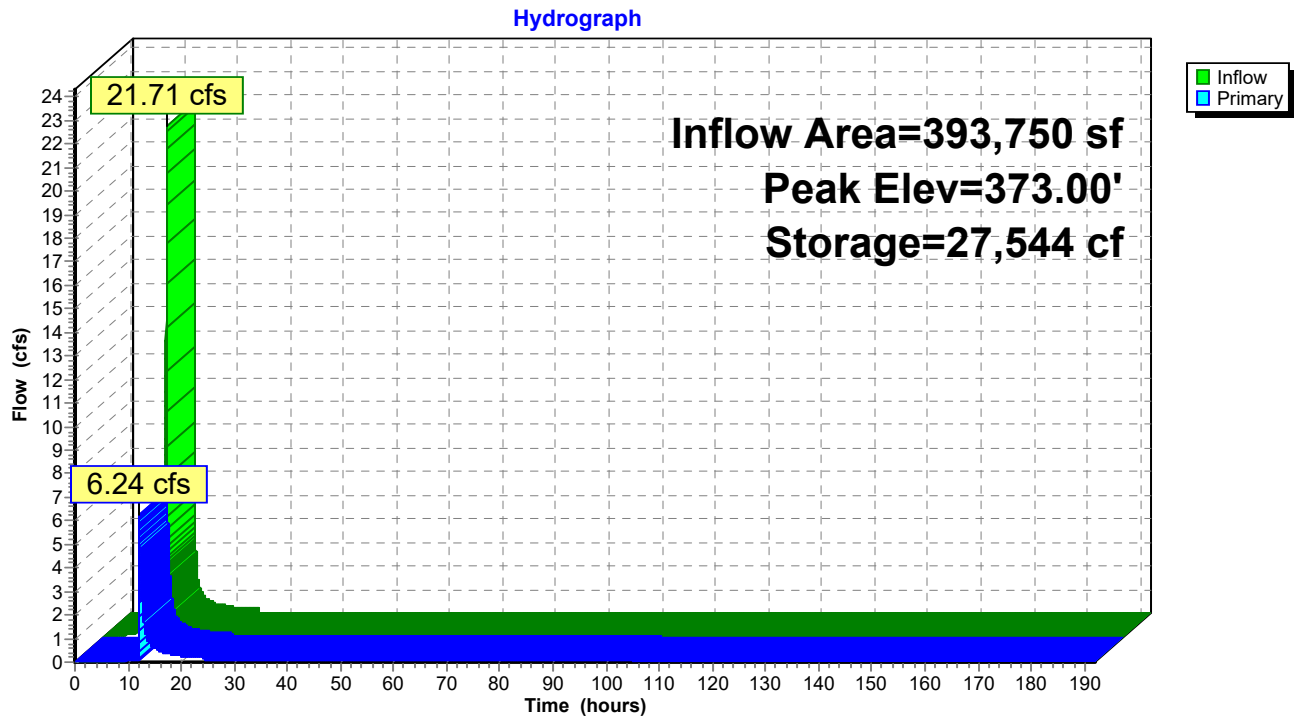
Primary OutFlow Max=6.23 cfs @ 12.08 hrs HW=373.00' (Free Discharge)

1=24" Outflow Pipe (Passes 6.23 cfs of 21.37 cfs potential flow)

2=MRC Low Flow Orifice (Orifice Controls 0.06 cfs @ 8.27 fps)

3=Type M Overflow (Weir Controls 6.17 cfs @ 1.79 fps)

Pond BMP-05: MRC Rain Garden



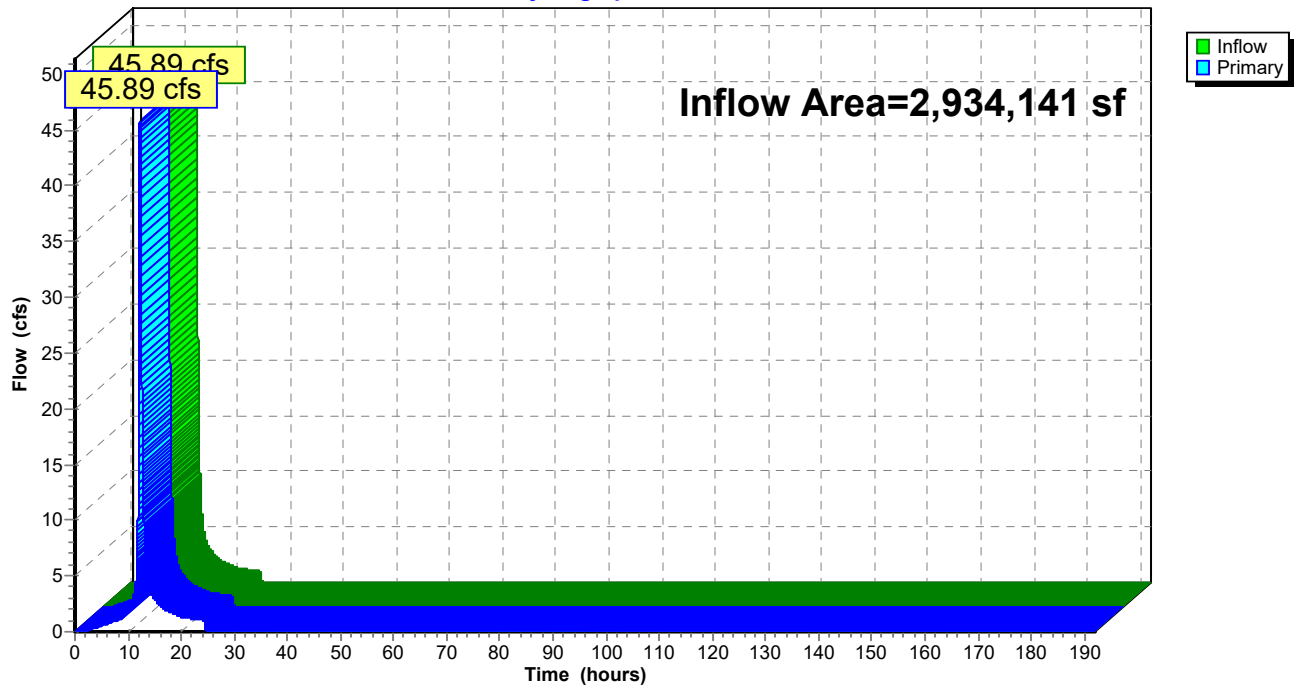
Summary for Link 001A: POA

Inflow Area = 2,934,141 sf, 34.38% Impervious, Inflow Depth = 0.98" for 1-yr event
Inflow = 45.89 cfs @ 12.25 hrs, Volume= 239,459 cf
Primary = 45.89 cfs @ 12.25 hrs, Volume= 239,459 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001A: POA

Hydrograph



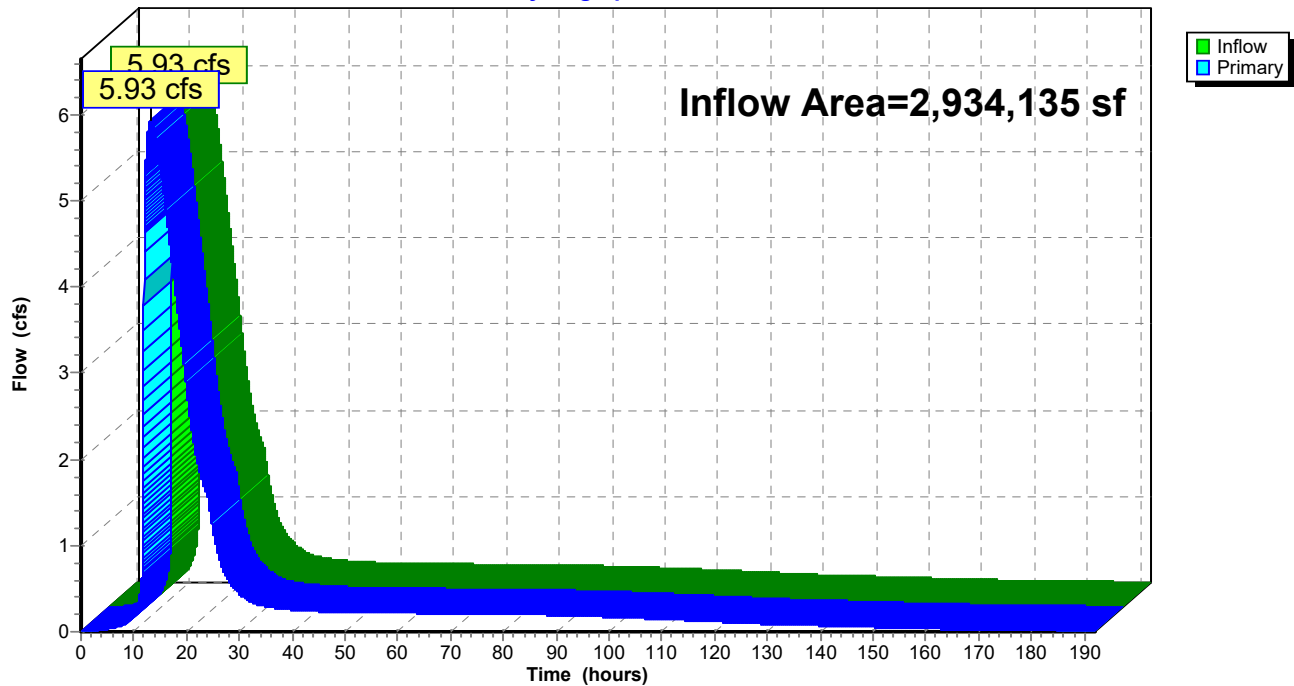
Summary for Link 001B: POA

Inflow Area = 2,934,135 sf, 39.40% Impervious, Inflow Depth > 1.10" for 1-yr event
Inflow = 5.93 cfs @ 13.25 hrs, Volume= 269,080 cf
Primary = 5.93 cfs @ 13.25 hrs, Volume= 269,080 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001B: POA

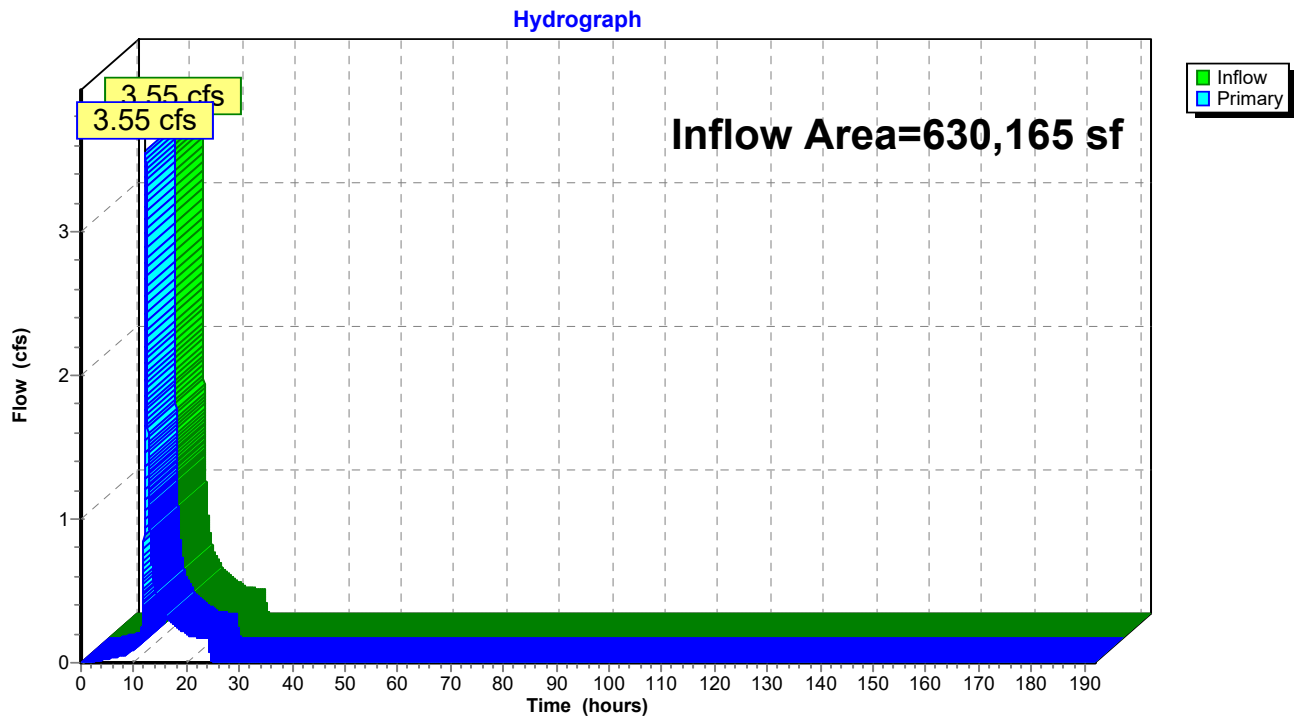
Hydrograph



Summary for Link 2: TOTAL OFFSITE

Inflow Area = 630,165 sf, 7.93% Impervious, Inflow Depth = 0.43" for 1-yr event
Inflow = 3.55 cfs @ 12.27 hrs, Volume= 22,579 cf
Primary = 3.55 cfs @ 12.27 hrs, Volume= 22,579 cf, Atten= 0%, Lag= 0.0 min

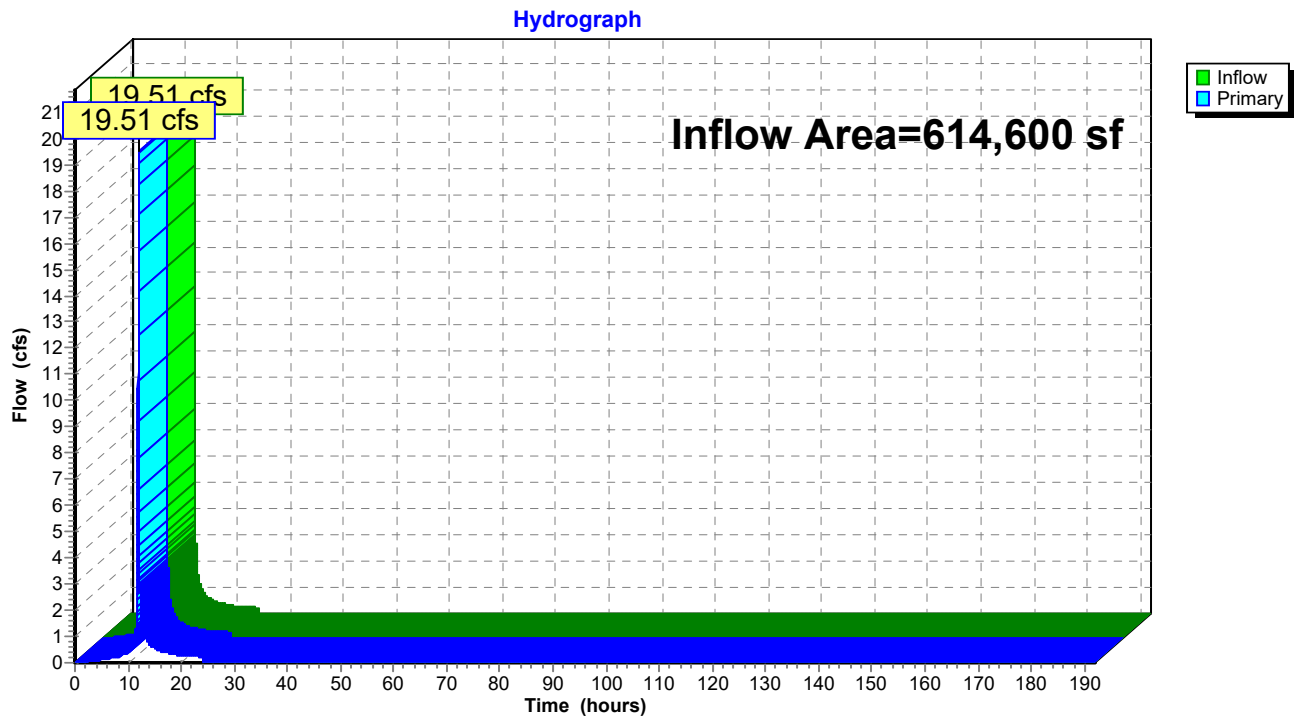
Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 2: TOTAL OFFSITE

Summary for Link 3: LOD to BMP-01

Inflow Area = 614,600 sf, 31.32% Impervious, Inflow Depth = 0.95" for 1-yr event
Inflow = 19.51 cfs @ 11.96 hrs, Volume= 48,438 cf
Primary = 19.51 cfs @ 11.96 hrs, Volume= 48,438 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 3: LOD to BMP-01

Summary for Subcatchment B1: BYPASS (LOD)

Runoff = 0.27 cfs @ 11.98 hrs, Volume= 635 cf, Depth= 0.46"

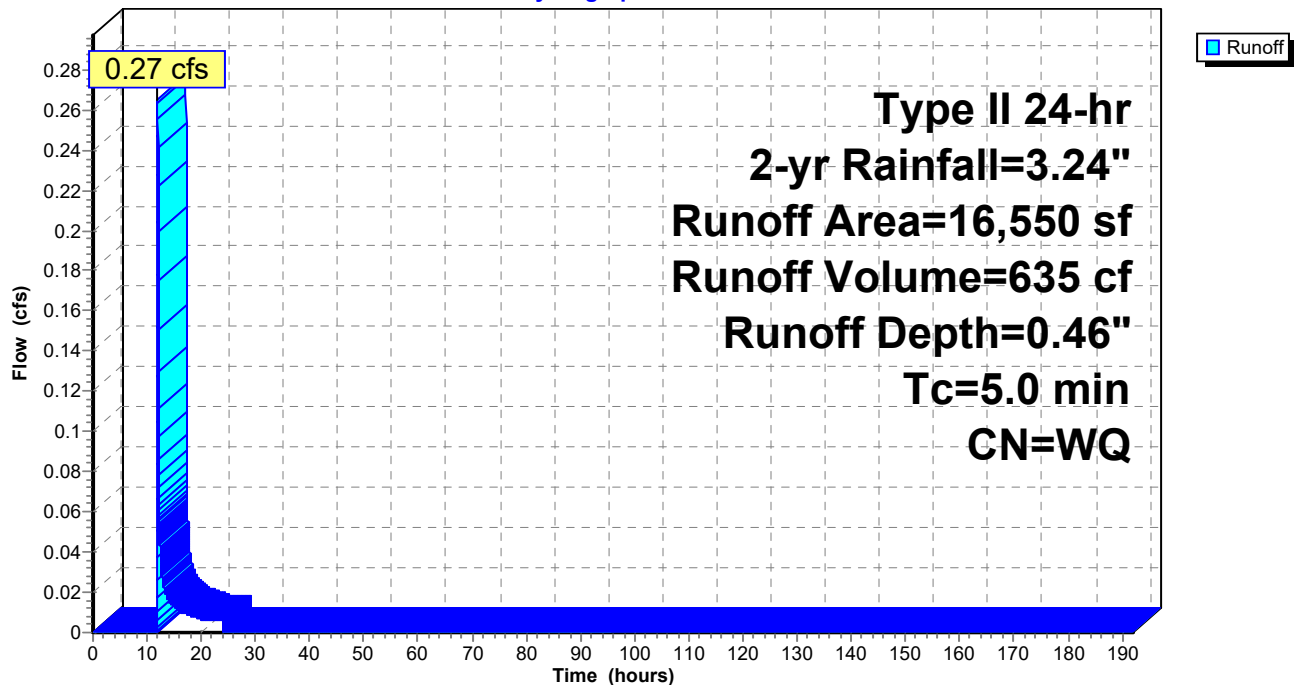
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
16,550	61	>75% Grass cover, Good, HSG B
16,550		Weighted Average
16,550	61	100.00% Pervious Area

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

Subcatchment B1: BYPASS (LOD)

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.24"

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Summary for Subcatchment B2: BYPASS (LOD)

Runoff = 0.89 cfs @ 11.97 hrs, Volume= 2,127 cf, Depth= 0.98"

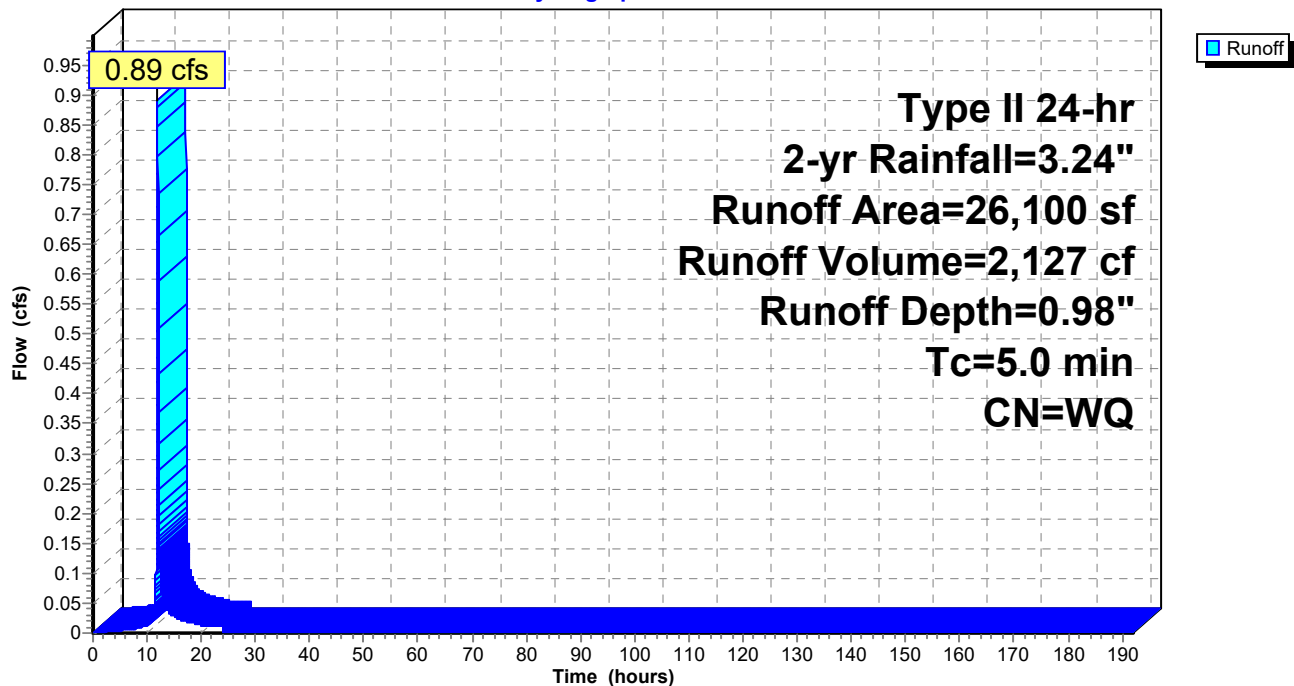
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	0	98	Buildings
*	5,305	98	Impervious
	20,795	61	>75% Grass cover, Good, HSG B
	26,100		Weighted Average
	20,795	61	79.67% Pervious Area
	5,305	98	20.33% Impervious Area

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

Subcatchment B2: BYPASS (LOD)

Hydrograph



Summary for Subcatchment B3: BYPASS (LOD)

Runoff = 3.86 cfs @ 11.97 hrs, Volume= 9,222 cf, Depth= 0.92"

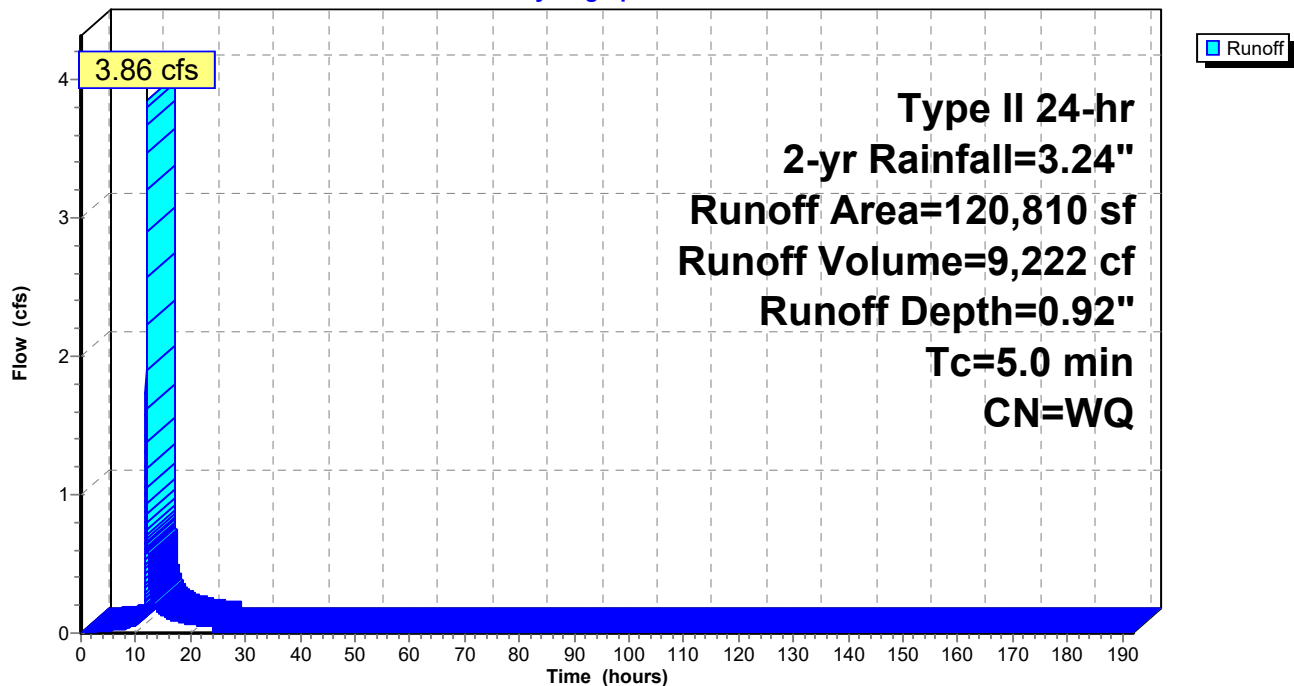
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	80	98	Buildings
*	21,530	98	Impervious
	99,200	61	>75% Grass cover, Good, HSG B
	120,810		Weighted Average
	99,200	61	82.11% Pervious Area
	21,610	98	17.89% Impervious Area

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

Subcatchment B3: BYPASS (LOD)

Hydrograph



Summary for Subcatchment B4: BYPASS (LOD)

Runoff = 0.21 cfs @ 11.98 hrs, Volume= 507 cf, Depth= 0.46"

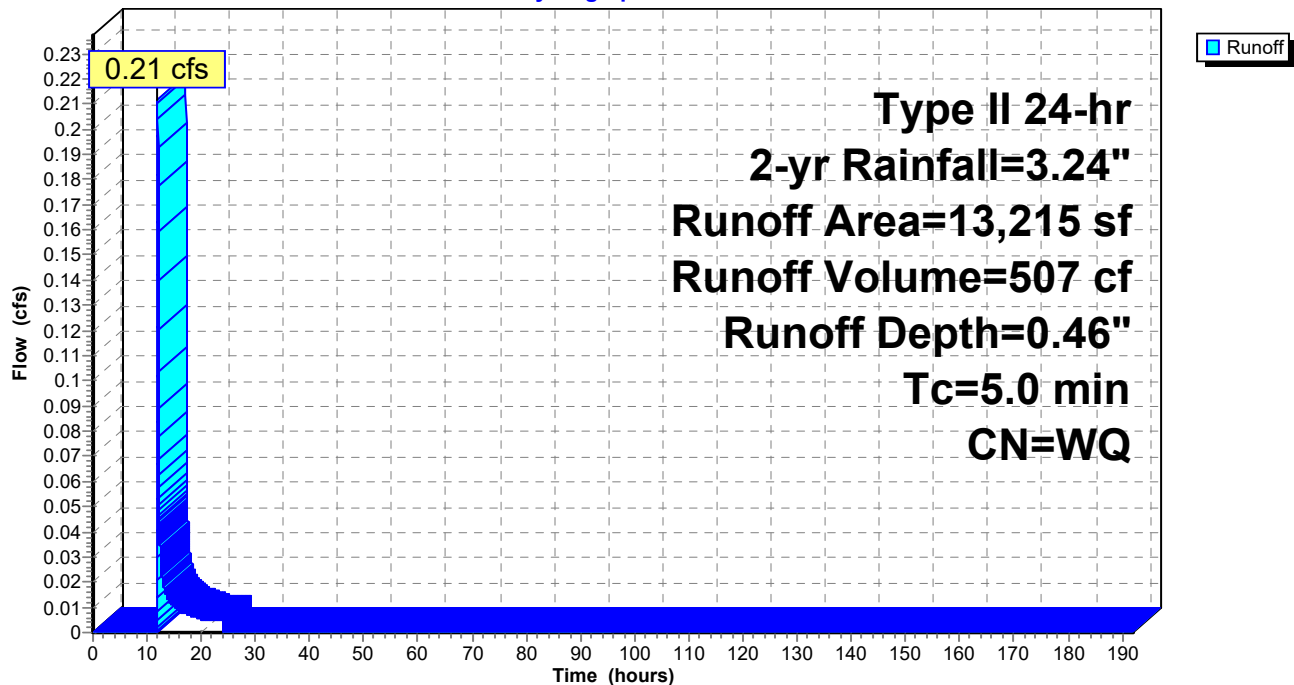
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
13,215	61	>75% Grass cover, Good, HSG B
13,215		Weighted Average
13,215	61	100.00% Pervious Area

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

Subcatchment B4: BYPASS (LOD)

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.24"

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Summary for Subcatchment E1: PRE (LOD)

Runoff = 54.17 cfs @ 12.27 hrs, Volume= 280,096 cf, Depth= 1.46"

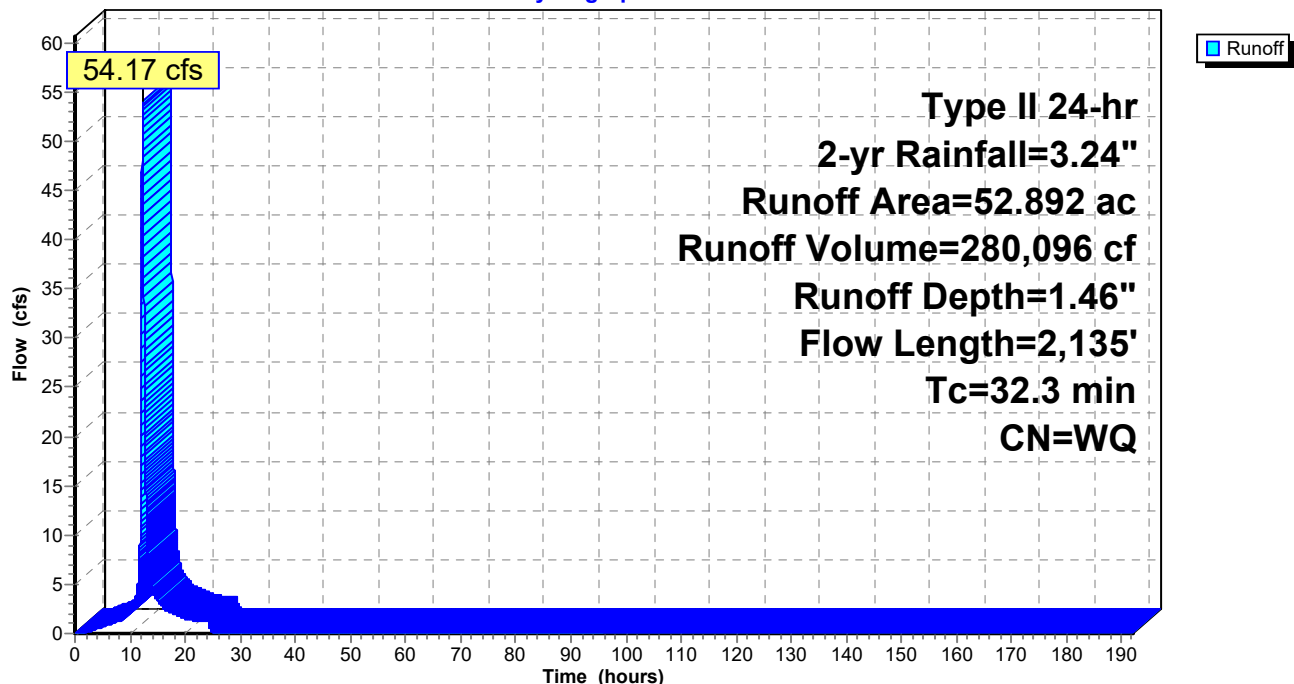
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

Area (ac)	CN	Description
25.382	58	Meadow, non-grazed, HSG B
* 5.502	58	Meadow (20% of Ex. Impervious)
* 22.008	98	Existing Impervious
52.892		Weighted Average
30.884	58	58.39% Pervious Area
22.008	98	41.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
4.4	425	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
2.7	410	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
32.3	2,135	Total			

Subcatchment E1: PRE (LOD)

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.24"

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Summary for Subcatchment E2: PRE (OLOD)

Runoff = 0.15 cfs @ 12.35 hrs, Volume= 992 cf, Depth= 0.46"

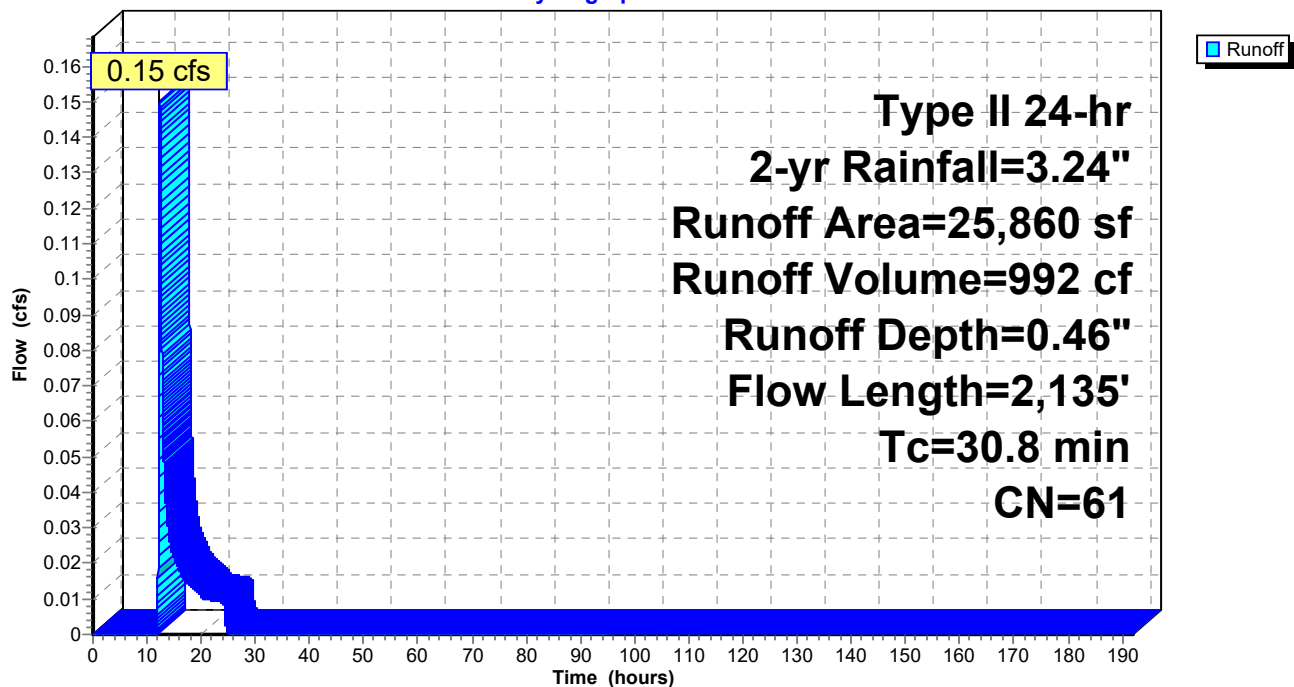
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

Area (sf)	CN	Description
25,860	61	>75% Grass cover, Good, HSG B
25,860	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
3.5	425	0.0100	2.03		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
2.1	410	0.0250	3.21		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
30.8	2,135	Total			

Subcatchment E2: PRE (OLOD)

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.24"

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Summary for Subcatchment E3: PRE (OLOD)

Runoff = 6.05 cfs @ 12.27 hrs, Volume= 33,789 cf, Depth= 0.67"

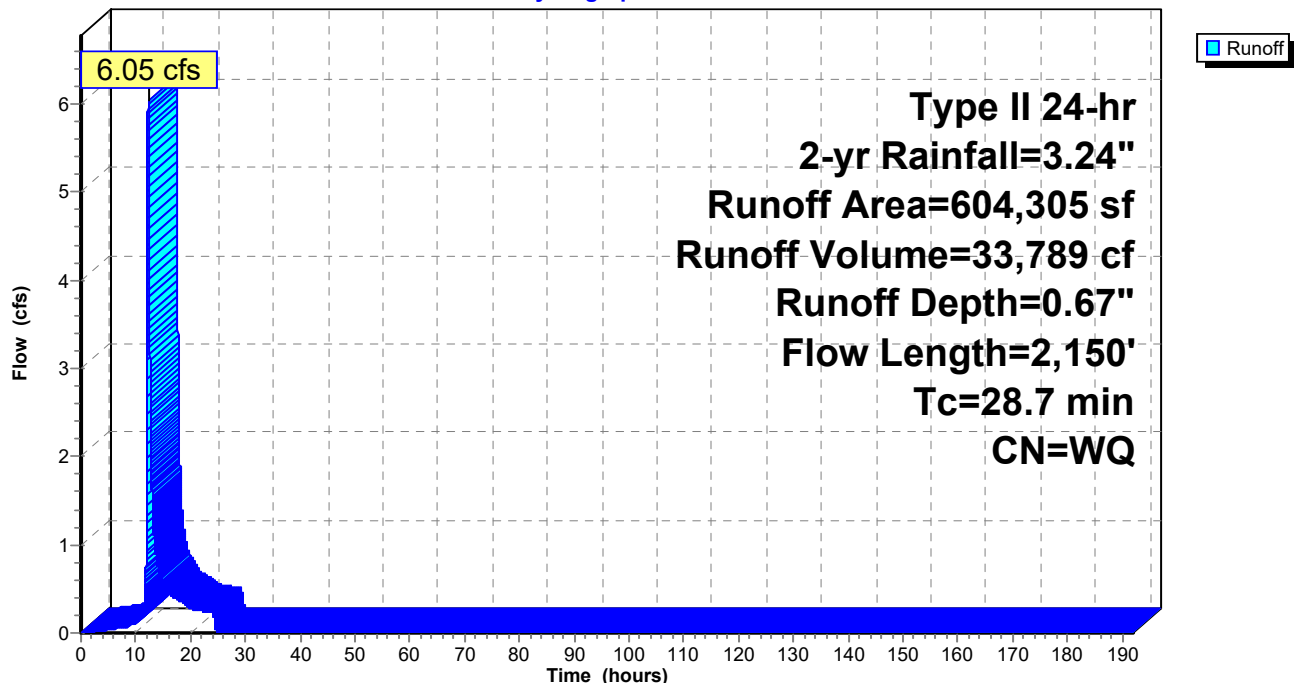
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	49,955	98	Existing Impervious
	554,350	61	>75% Grass cover, Good, HSG B
	604,305		Weighted Average
	554,350	61	91.73% Pervious Area
	49,955	98	8.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
9.2	1,400	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
6.7	650	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
28.7	2,150	Total			

Subcatchment E3: PRE (OLOD)

Hydrograph



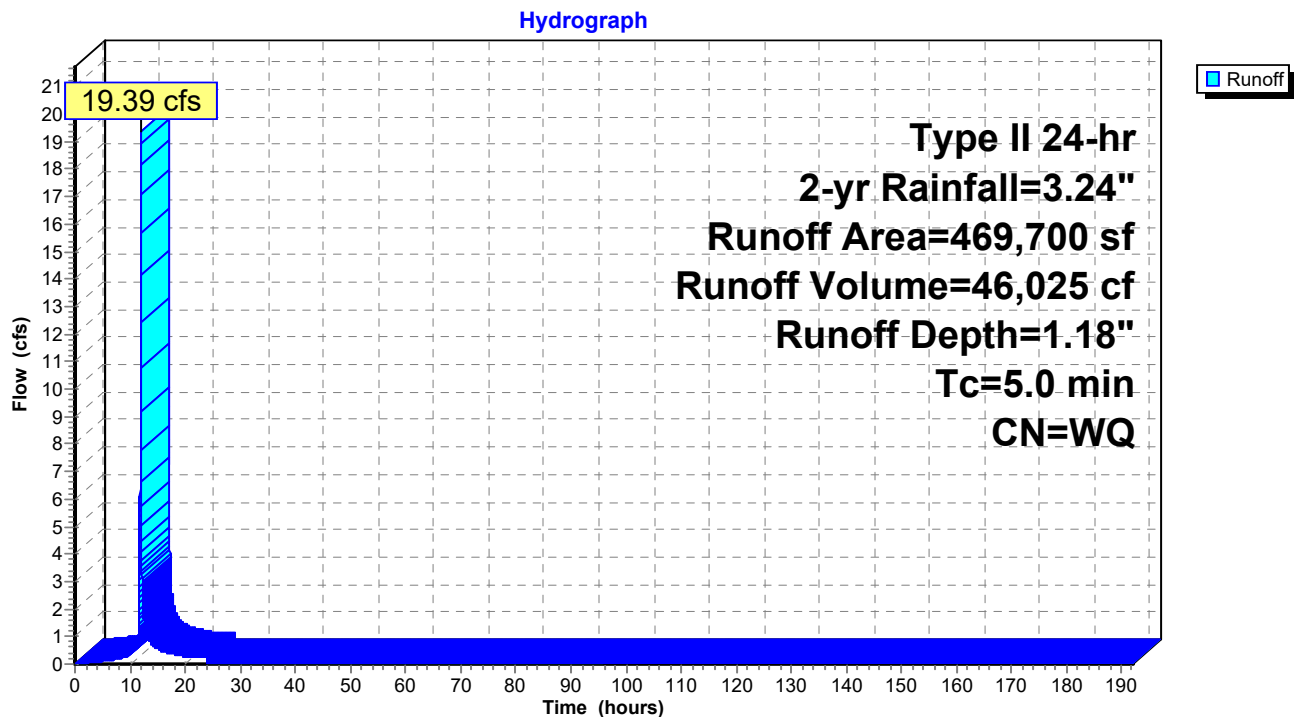
Summary for Subcatchment P1A: Post to BMP-01 (LOD)

Runoff = 19.39 cfs @ 11.97 hrs, Volume= 46,025 cf, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	240	98	Buildings
*	131,700	98	Impervious
	337,760	61	>75% Grass cover, Good, HSG B
	469,700		Weighted Average
	337,760	61	71.91% Pervious Area
	131,940	98	28.09% Impervious Area

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

Subcatchment P1A: Post to BMP-01 (LOD)

Summary for Subcatchment P1B: Post to BMP-01 (LOD)

Runoff = 7.83 cfs @ 11.96 hrs, Volume= 18,417 cf, Depth= 1.53"

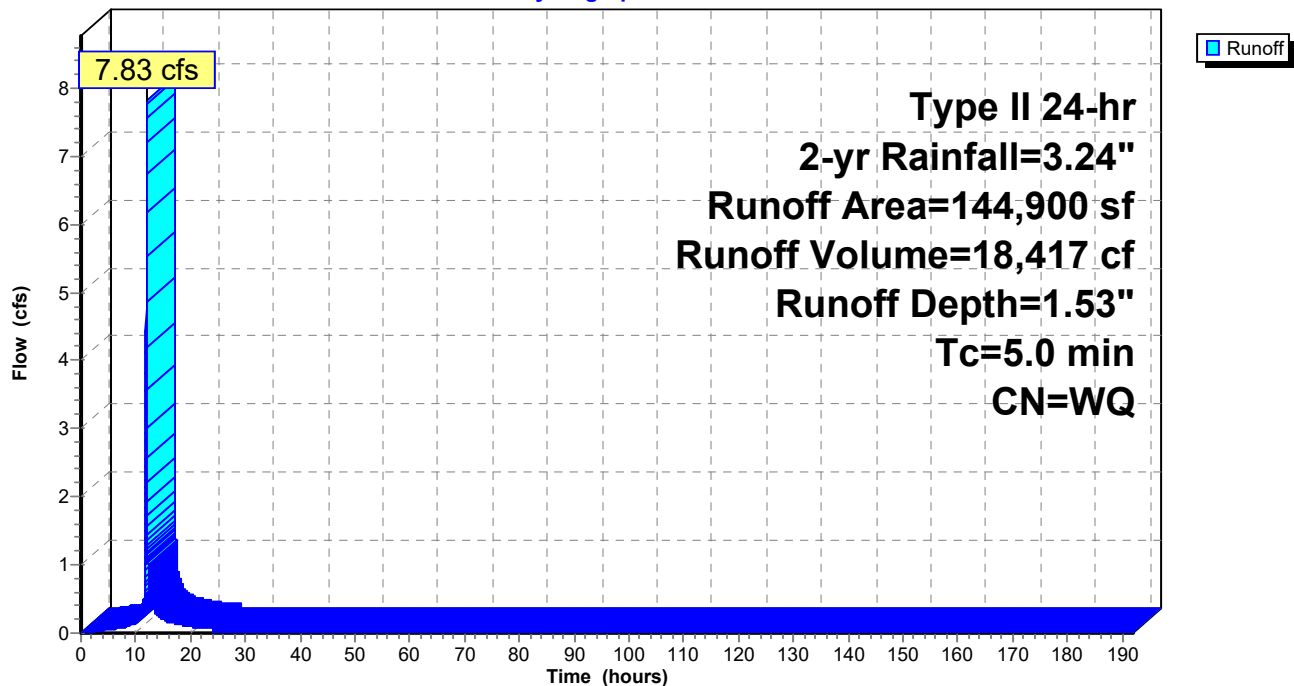
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	0	98	Buildings
*	60,580	98	Impervious
	84,320	61	>75% Grass cover, Good, HSG B
	144,900		Weighted Average
	84,320	61	58.19% Pervious Area
	60,580	98	41.81% Impervious Area

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

Subcatchment P1B: Post to BMP-01 (LOD)

Hydrograph



Summary for Subcatchment P1C: Post to BMP-01 (OLOD)

Runoff = 13.15 cfs @ 11.97 hrs, Volume= 31,621 cf, Depth= 0.69"

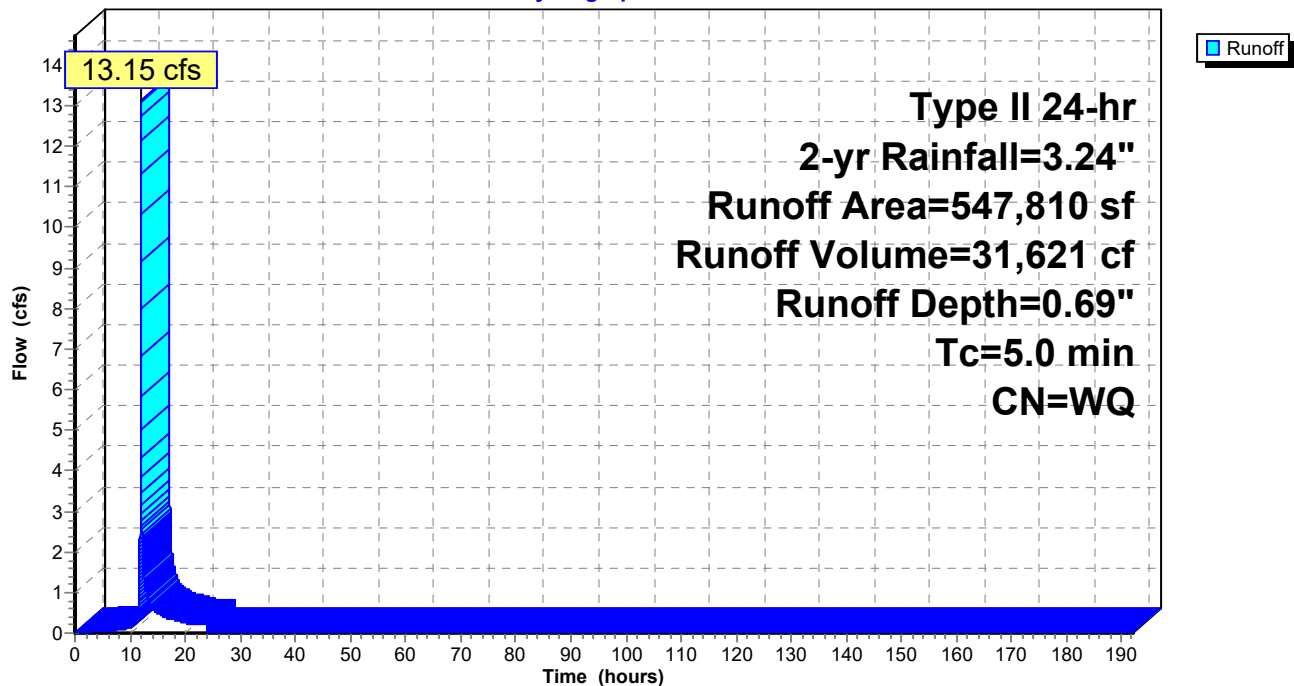
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	0	98	Buildings
*	49,955	98	Impervious
	497,855	61	>75% Grass cover, Good, HSG B
	547,810		Weighted Average
	497,855	61	90.88% Pervious Area
	49,955	98	9.12% Impervious Area

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

Subcatchment P1C: Post to BMP-01 (OLOD)

Hydrograph



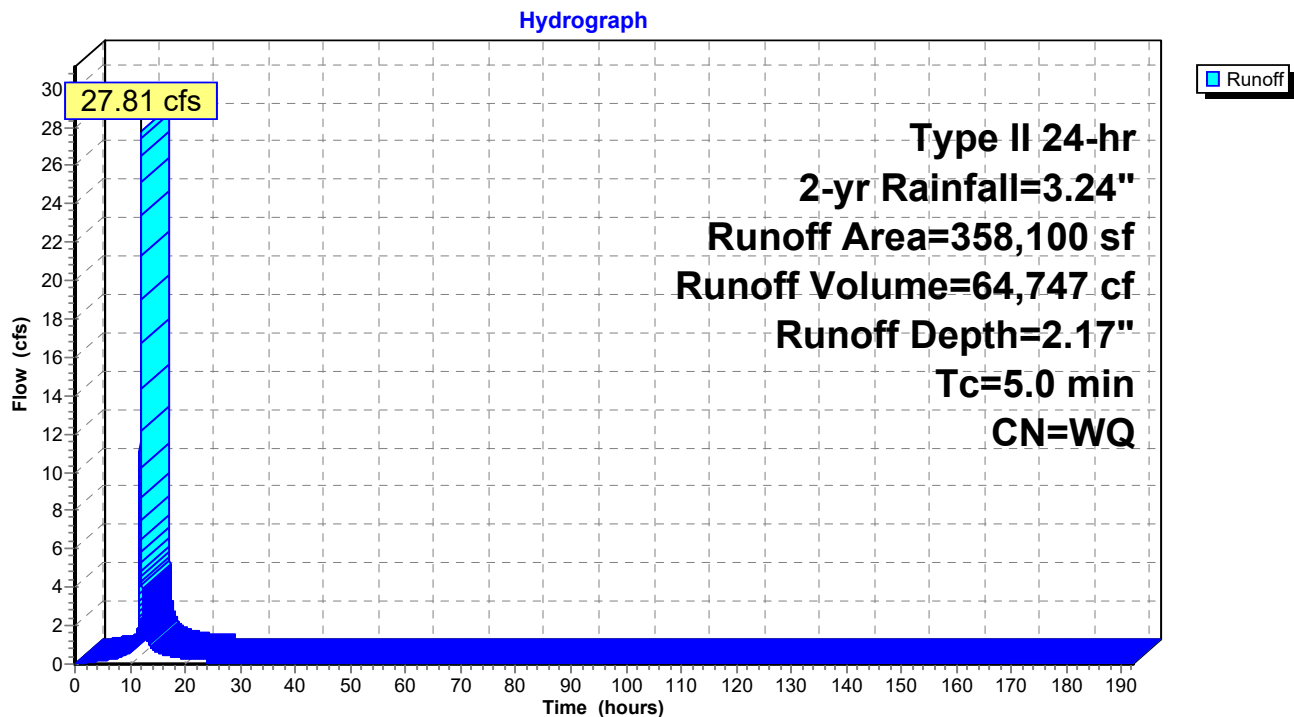
Summary for Subcatchment P2: Post to BMP-02 (LOD)

Runoff = 27.81 cfs @ 11.96 hrs, Volume= 64,747 cf, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	106,100	98	Impervious
	117,775	61	>75% Grass cover, Good, HSG B
	358,100		Weighted Average
	117,775	61	32.89% Pervious Area
	240,325	98	67.11% Impervious Area

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

Subcatchment P2: Post to BMP-02 (LOD)

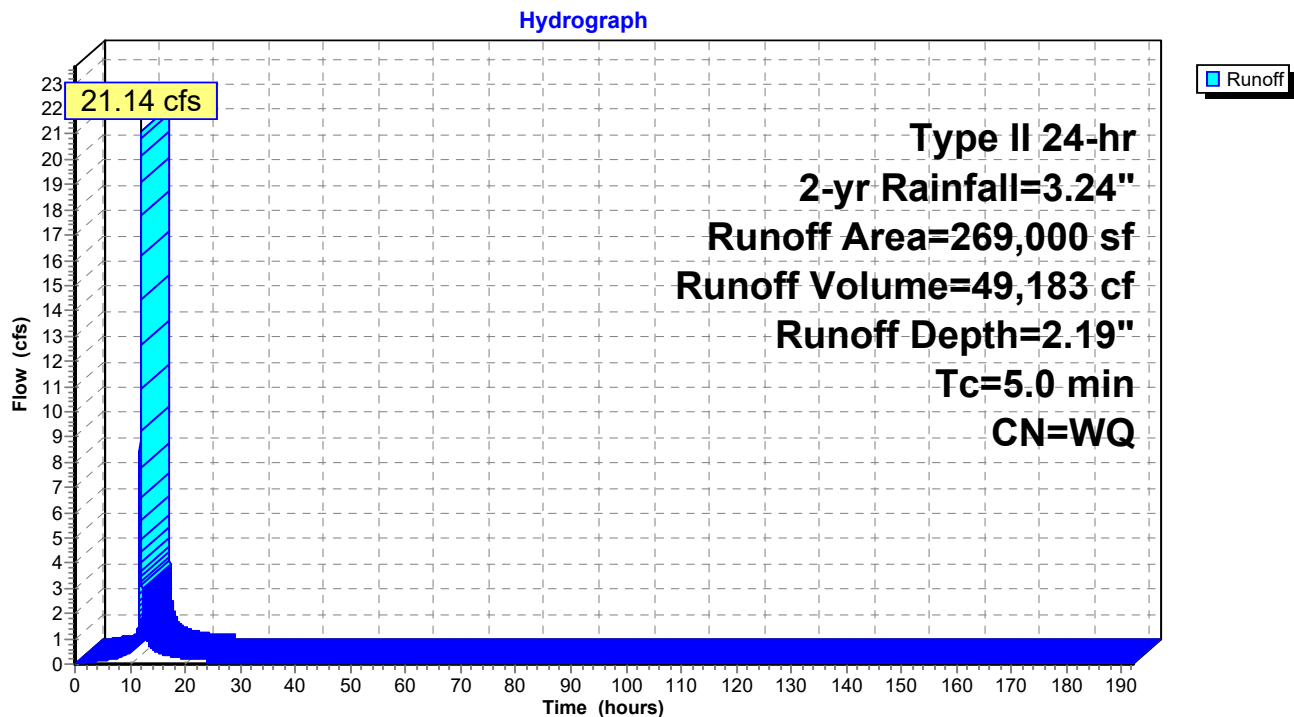
Summary for Subcatchment P3: Post to BMP-03 (LOD)

Runoff = 21.14 cfs @ 11.96 hrs, Volume= 49,183 cf, Depth= 2.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	59,870	98	Impervious
	85,900	61	>75% Grass cover, Good, HSG B
	269,000		Weighted Average
	85,900	61	31.93% Pervious Area
	183,100	98	68.07% Impervious Area

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

Subcatchment P3: Post to BMP-03 (LOD)

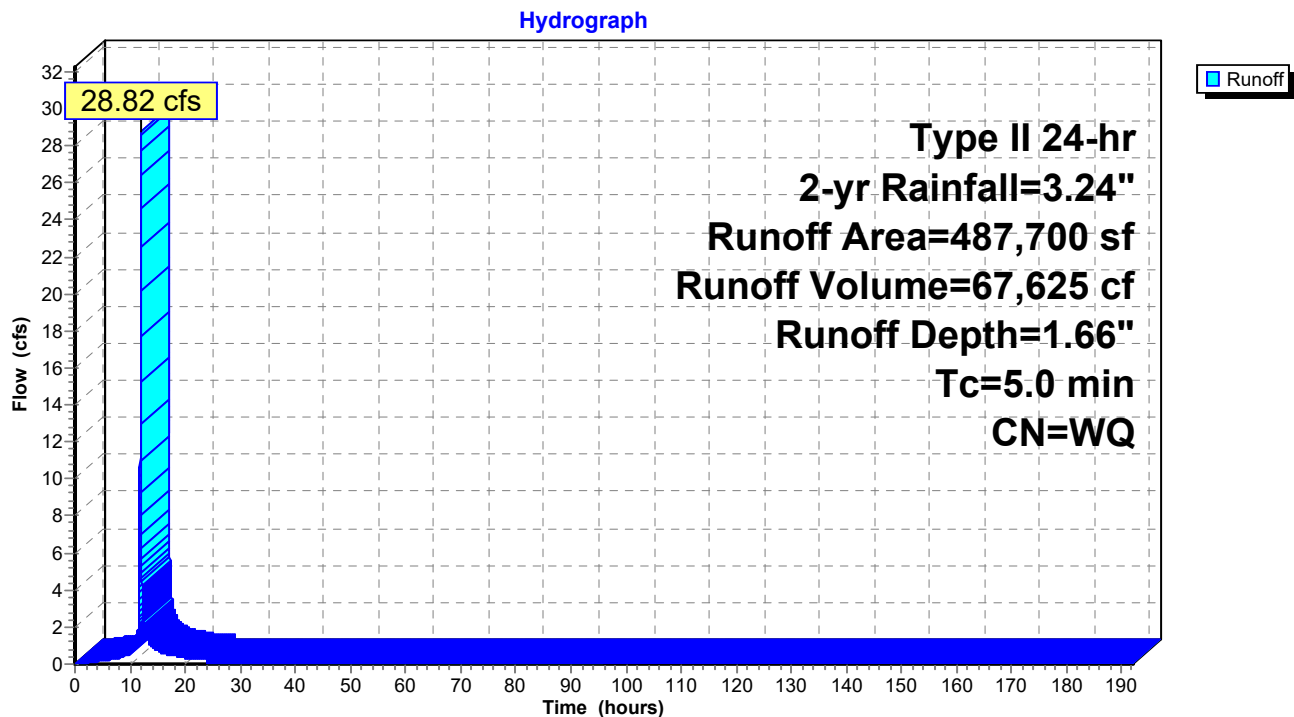
Summary for Subcatchment P4A: Post to BMP-04 (LOD)

Runoff = 28.82 cfs @ 11.96 hrs, Volume= 67,625 cf, Depth= 1.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	96,230	98	Impervious
	257,245	61	>75% Grass cover, Good, HSG B
	487,700		Weighted Average
	257,245	61	52.75% Pervious Area
	230,455	98	47.25% Impervious Area

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

Subcatchment P4A: Post to BMP-04 (LOD)

Summary for Subcatchment P4B: Post to BMP-04 (OLOD)

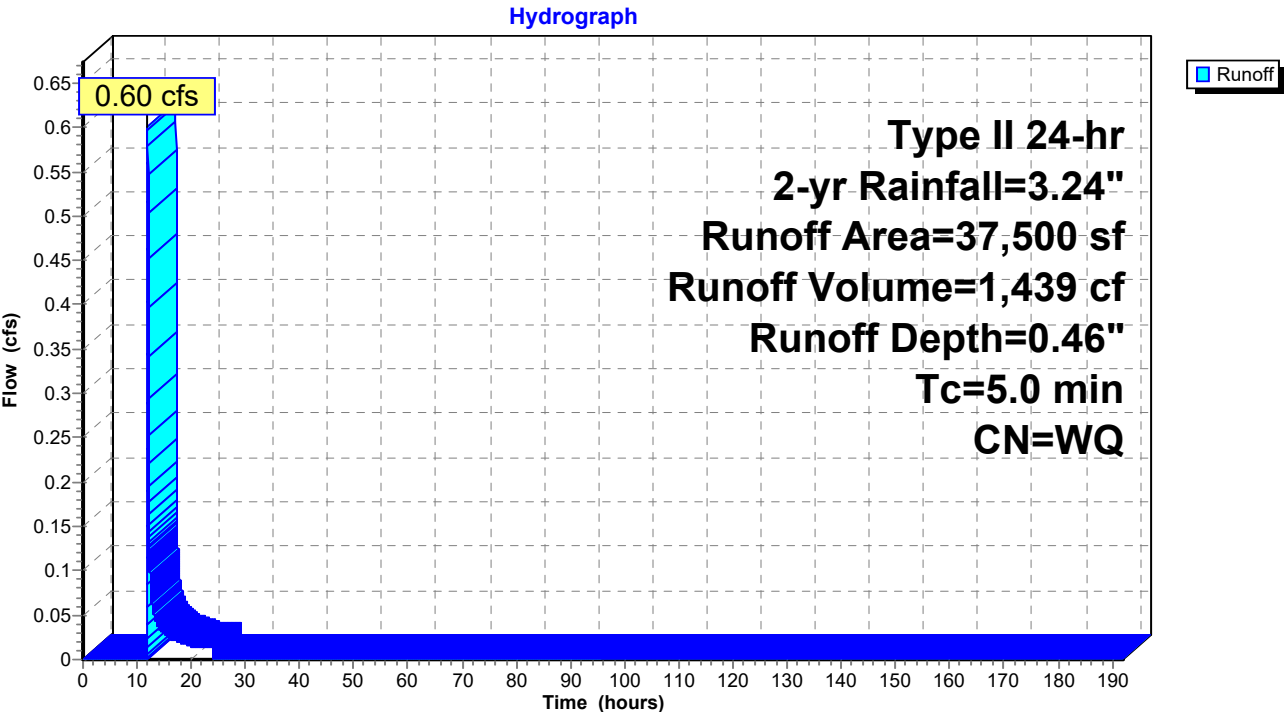
Runoff = 0.60 cfs @ 11.98 hrs, Volume= 1,439 cf, Depth= 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	37,500	61	>75% Grass cover, Good, HSG B
	37,500		Weighted Average
	37,500	61	100.00% Pervious Area

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

Subcatchment P4B: Post to BMP-04 (OLOD)



Summary for Subcatchment P4C: Post to BMP-04 (OLOD)

Runoff = 0.79 cfs @ 11.98 hrs, Volume= 1,880 cf, Depth= 0.46"

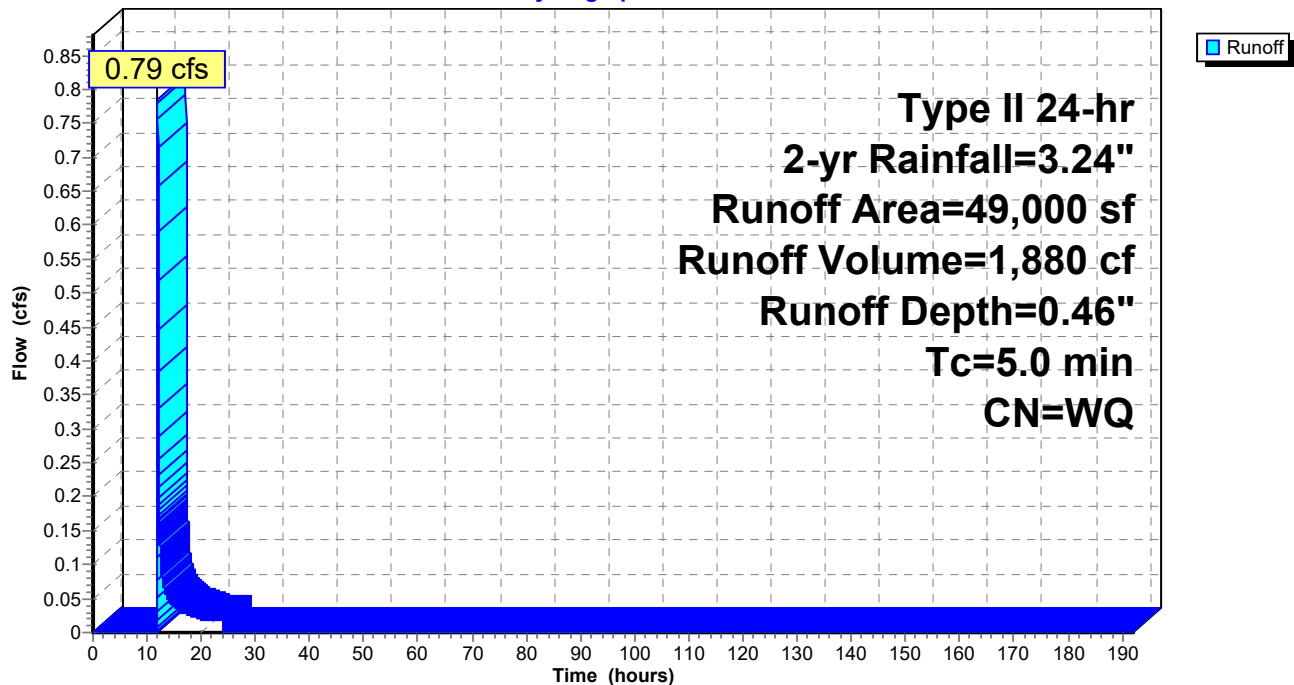
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	49,000	61	>75% Grass cover, Good, HSG B
	49,000		Weighted Average
	49,000	61	100.00% Pervious Area

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

Subcatchment P4C: Post to BMP-04 (OLOD)

Hydrograph



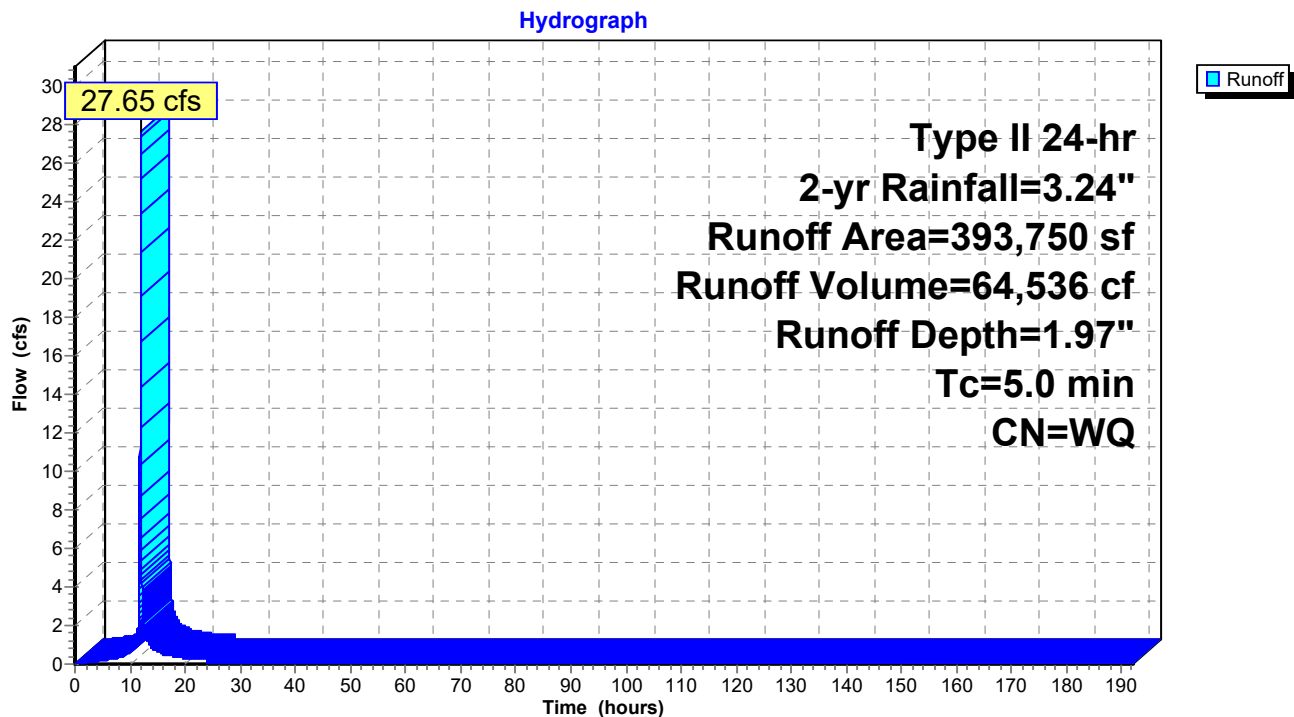
Summary for Subcatchment P5: Post to BMP-05 (LOD)

Runoff = 27.65 cfs @ 11.96 hrs, Volume= 64,536 cf, Depth= 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	109,655	98	Impervious
	160,865	61	>75% Grass cover, Good, HSG B
	393,750		Weighted Average
	160,865	61	40.85% Pervious Area
	232,885	98	59.15% Impervious Area

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

Subcatchment P5: Post to BMP-05 (LOD)

Summary for Pond BMP-01: Wet Pond

Inflow Area = 2,757,460 sf, 40.95% Impervious, Inflow Depth = 1.48" for 2-yr event
 Inflow = 86.85 cfs @ 12.00 hrs, Volume= 340,178 cf
 Outflow = 7.53 cfs @ 13.36 hrs, Volume= 339,755 cf, Atten= 91%, Lag= 81.8 min
 Primary = 7.53 cfs @ 13.36 hrs, Volume= 339,755 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 356.66' @ 13.36 hrs Surf.Area= 77,741 sf Storage= 122,454 cf

Plug-Flow detention time= 341.9 min calculated for 339,755 cf (100% of inflow)
 Center-of-Mass det. time= 331.3 min (1,940.7 - 1,609.4)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	613,350 cf	Storage Above Perm. Pool (Prismatic) Listed below (Recalc)

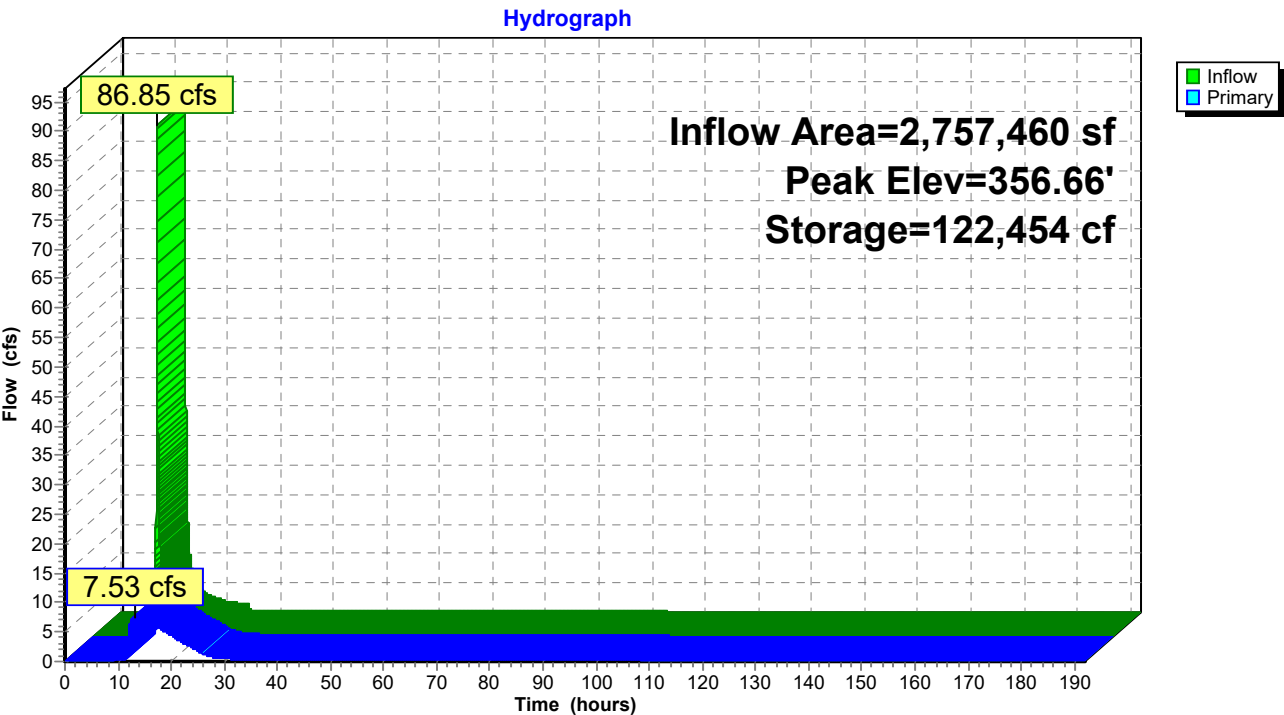
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	69,700	0	0
356.00	74,500	72,100	72,100
357.00	79,400	76,950	149,050
358.00	84,400	81,900	230,950
359.00	89,550	86,975	317,925
360.00	95,600	92,575	410,500
361.00	101,400	98,500	509,000
362.00	107,300	104,350	613,350

Device	Routing	Invert	Outlet Devices
#1	Primary	355.00'	36.0" Round 36" Outfall X 5.00 L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 355.00' / 354.50' S= 0.0156 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	355.00'	7.0" Vert. 7" Siphon Orifice X 5.00 C= 0.600 Limited to weir flow at low heads
#3	Device 1	357.00'	19.0" W x 30.0" H Vert. 19"Wx30"H Weir X 5.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	360.10'	24.0" x 45.0" Horiz. Type M Inlet X 5.00 C= 0.600 Limited to weir flow at low heads
#5	Primary	360.60'	100.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=7.53 cfs @ 13.36 hrs HW=356.66' (Free Discharge)

1=36" Outfall (Passes 7.53 cfs of 80.00 cfs potential flow)
 2=7" Siphon Orifice (Orifice Controls 7.53 cfs @ 5.64 fps)
 3=19"Wx30"H Weir (Controls 0.00 cfs)
 4=Type M Inlet (Controls 0.00 cfs)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond BMP-01: Wet Pond



Summary for Pond BMP-02: MRC Rain Garden

Inflow Area = 358,100 sf, 67.11% Impervious, Inflow Depth = 2.17" for 2-yr event
 Inflow = 27.81 cfs @ 11.96 hrs, Volume= 64,747 cf
 Outflow = 17.12 cfs @ 12.03 hrs, Volume= 63,617 cf, Atten= 38%, Lag= 4.2 min
 Primary = 17.12 cfs @ 12.03 hrs, Volume= 63,617 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 363.84' @ 12.03 hrs Surf.Area= 31,903 sf Storage= 30,180 cf

Plug-Flow detention time= 1,212.1 min calculated for 63,614 cf (98% of inflow)
 Center-of-Mass det. time= 1,201.1 min (1,963.6 - 762.4)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Prismatic) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	67,900 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		75,775 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
358.00	7,500	0	0
359.00	7,500	7,500	7,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	7,500	0	0
363.00	12,450	9,975	9,975
364.00	17,750	15,100	25,075
365.00	21,300	19,525	44,600
366.00	25,300	23,300	67,900

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	363.25'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

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Type II 24-hr 2-yr Rainfall=3.24"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=17.10 cfs @ 12.03 hrs HW=363.84' (Free Discharge)

1=Outflow Pipe (Passes 17.10 cfs of 29.64 cfs potential flow)

2=MRC Low Flow Orifice (Orifice Controls 0.07 cfs @ 10.54 fps)

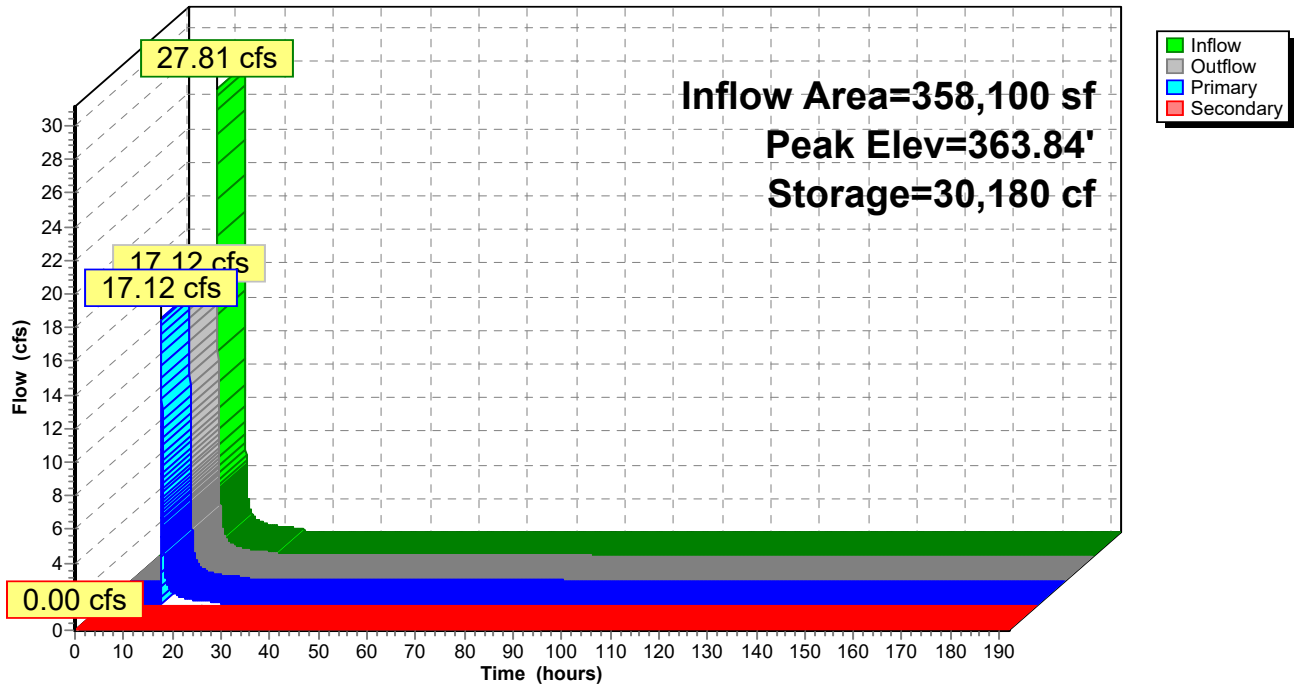
3=Type M Overflow (Weir Controls 17.03 cfs @ 2.51 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-02: MRC Rain Garden

Hydrograph



Summary for Pond BMP-03: MRC Rain Garden

Inflow Area = 269,000 sf, 68.07% Impervious, Inflow Depth = 2.19" for 2-yr event
 Inflow = 21.14 cfs @ 11.96 hrs, Volume= 49,183 cf
 Outflow = 13.64 cfs @ 12.02 hrs, Volume= 48,053 cf, Atten= 35%, Lag= 4.0 min
 Primary = 13.64 cfs @ 12.02 hrs, Volume= 48,053 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 363.26' @ 12.02 hrs Surf.Area= 29,995 sf Storage= 22,550 cf

Plug-Flow detention time= 1,138.1 min calculated for 48,053 cf (98% of inflow)
 Center-of-Mass det. time= 1,123.2 min (1,885.2 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	72,725 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		80,600 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
358.00	7,500	0	0	7,500
359.00	7,500	7,500	7,500	7,846

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	8,850	0	0
363.00	13,250	11,050	11,050
364.00	20,050	16,650	27,700
365.00	22,700	21,375	49,075
366.00	24,600	23,650	72,725

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.0" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	362.75'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

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Type II 24-hr 2-yr Rainfall=3.24"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=13.59 cfs @ 12.02 hrs HW=363.26' (Free Discharge)

↑ **1=Outflow Pipe** (Passes 13.59 cfs of 27.30 cfs potential flow)

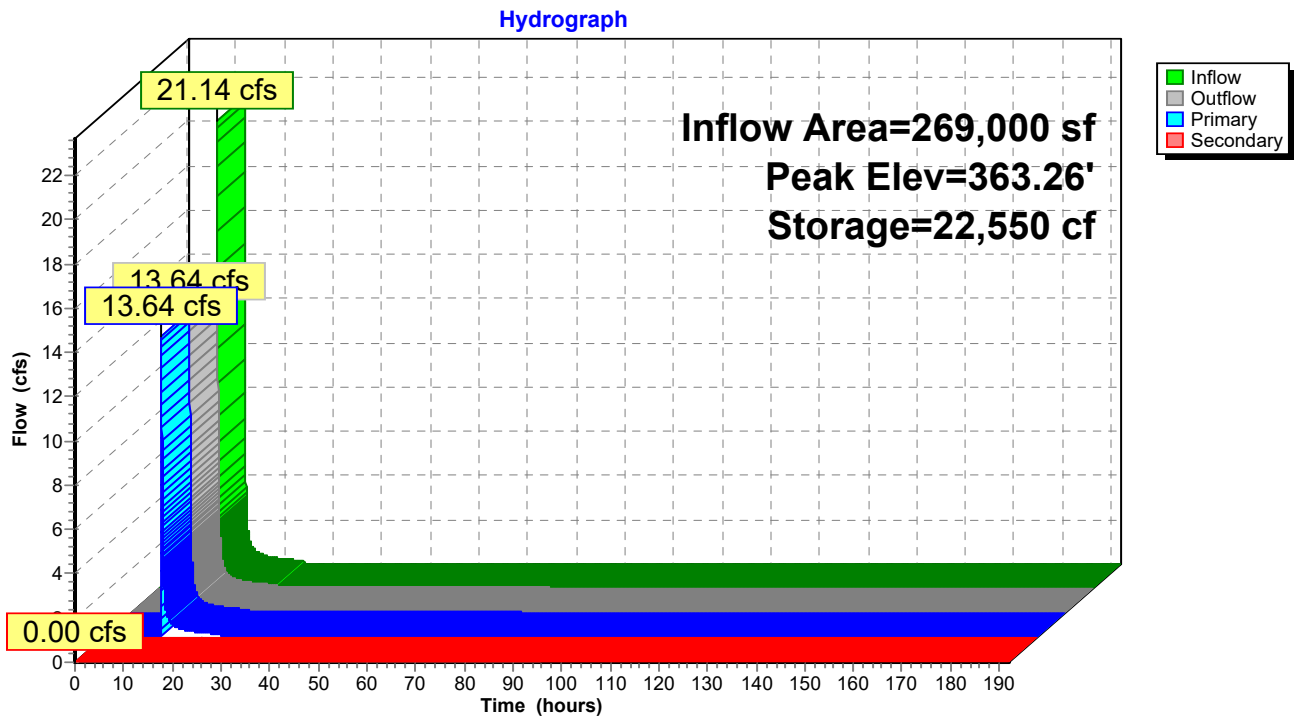
↑ **2=MRC Low Flow Orifice** (Orifice Controls 0.05 cfs @ 9.88 fps)

↑ **3=Type M Overflow** (Weir Controls 13.54 cfs @ 2.33 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

↑ **4=Emergency Spillway** (Controls 0.00 cfs)

Pond BMP-03: MRC Rain Garden



Summary for Pond BMP-04: MRC Rain Garden

Inflow Area = 574,200 sf, 40.13% Impervious, Inflow Depth = 1.48" for 2-yr event
 Inflow = 30.12 cfs @ 11.96 hrs, Volume= 70,944 cf
 Outflow = 13.19 cfs @ 12.05 hrs, Volume= 69,414 cf, Atten= 56%, Lag= 5.5 min
 Primary = 13.19 cfs @ 12.05 hrs, Volume= 69,414 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 373.15' @ 12.05 hrs Surf.Area= 47,373 sf Storage= 32,647 cf

Plug-Flow detention time= 1,167.2 min calculated for 69,411 cf (98% of inflow)
 Center-of-Mass det. time= 1,153.9 min (1,934.9 - 780.9)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	116,625 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		124,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	15,500	0	0
373.00	26,900	21,200	21,200
374.00	30,150	28,525	49,725
375.00	33,400	31,775	81,500
376.00	36,850	35,125	116,625

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.65'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=13.16 cfs @ 12.05 hrs HW=373.15' (Free Discharge)

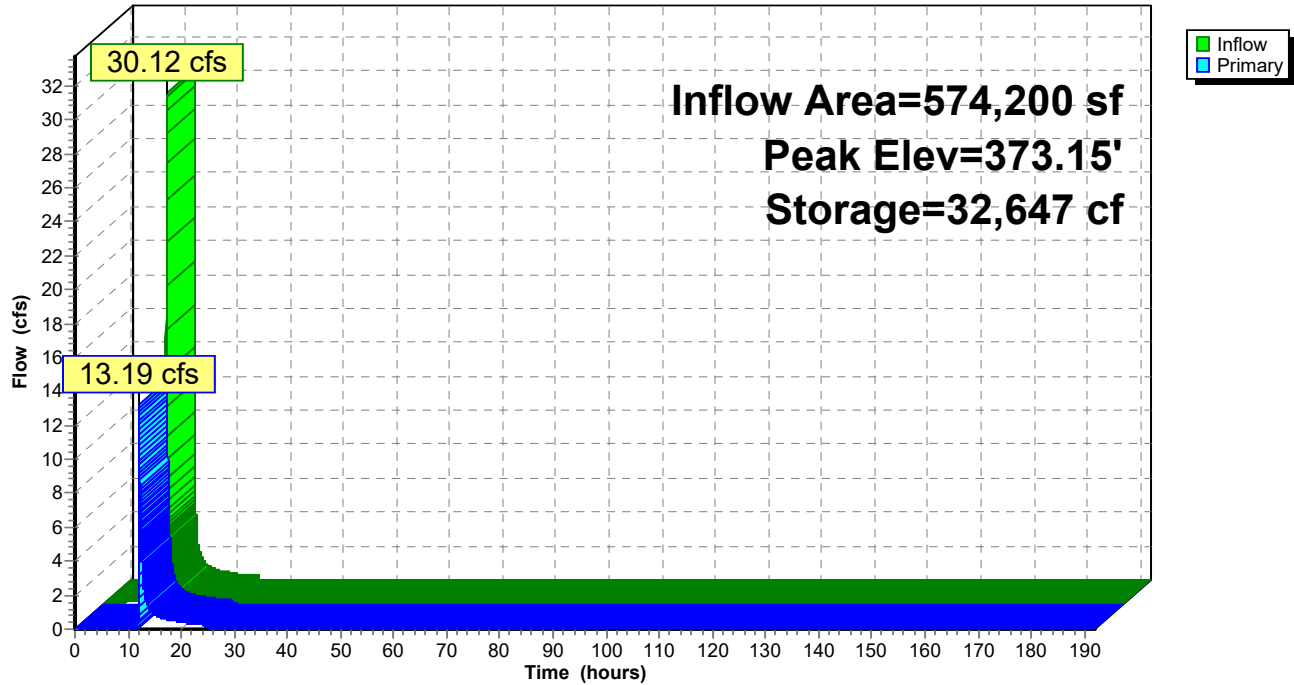
1=24" Outflow Pipe (Passes 13.16 cfs of 22.15 cfs potential flow)

2=MRC Low Flow Orifice (Orifice Controls 0.06 cfs @ 8.48 fps)

3=Type M Overflow (Weir Controls 13.10 cfs @ 2.30 fps)

Pond BMP-04: MRC Rain Garden

Hydrograph



Summary for Pond BMP-05: MRC Rain Garden

Inflow Area = 393,750 sf, 59.15% Impervious, Inflow Depth = 1.97" for 2-yr event
 Inflow = 27.65 cfs @ 11.96 hrs, Volume= 64,536 cf
 Outflow = 11.96 cfs @ 12.05 hrs, Volume= 63,030 cf, Atten= 57%, Lag= 5.5 min
 Primary = 11.96 cfs @ 12.05 hrs, Volume= 63,030 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 373.16' @ 12.05 hrs Surf.Area= 46,758 sf Storage= 31,892 cf

Plug-Flow detention time= 1,150.4 min calculated for 63,030 cf (98% of inflow)
 Center-of-Mass det. time= 1,135.4 min (1,901.9 - 766.6)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	111,850 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		119,350 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	13,800	0	0
373.00	26,300	20,050	20,050
374.00	29,100	27,700	47,750
375.00	32,000	30,550	78,300
376.00	35,100	33,550	111,850

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.2" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.70'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

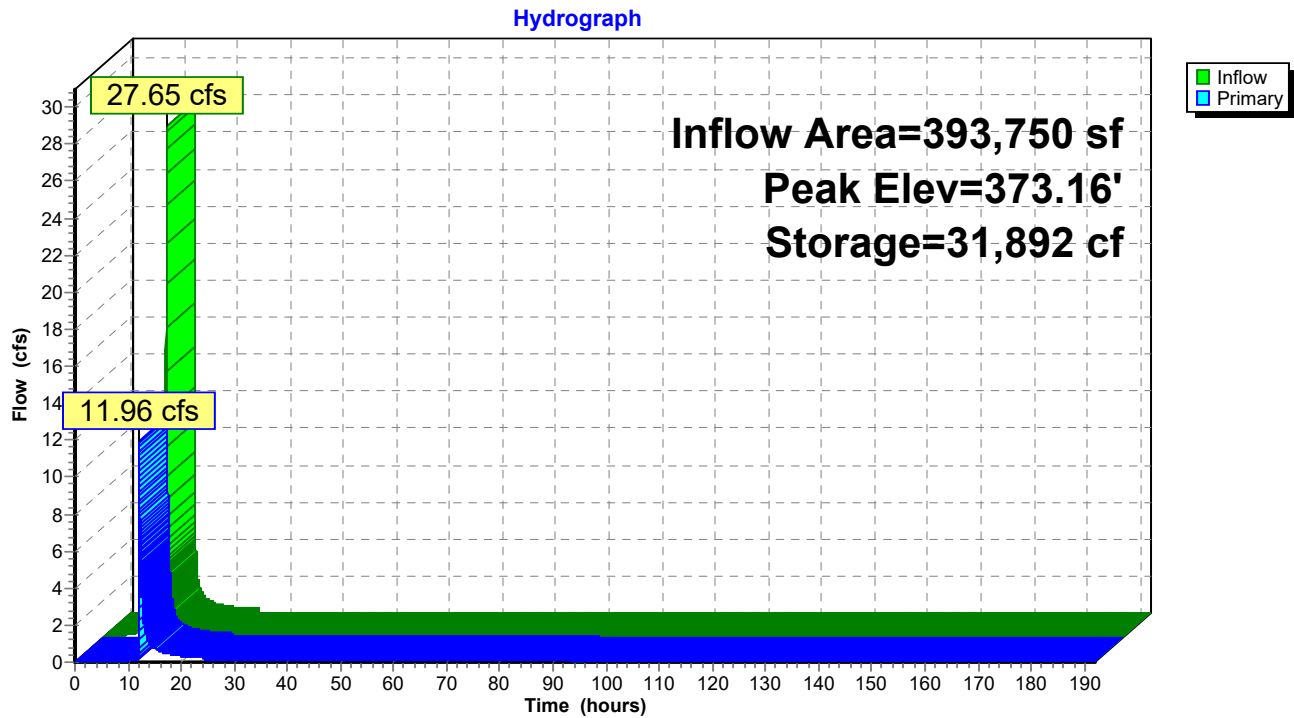
Primary OutFlow Max=11.93 cfs @ 12.05 hrs HW=373.16' (Free Discharge)

1=24" Outflow Pipe (Passes 11.93 cfs of 22.25 cfs potential flow)

2=MRC Low Flow Orifice (Orifice Controls 0.07 cfs @ 8.50 fps)

3=Type M Overflow (Weir Controls 11.86 cfs @ 2.23 fps)

Pond BMP-05: MRC Rain Garden



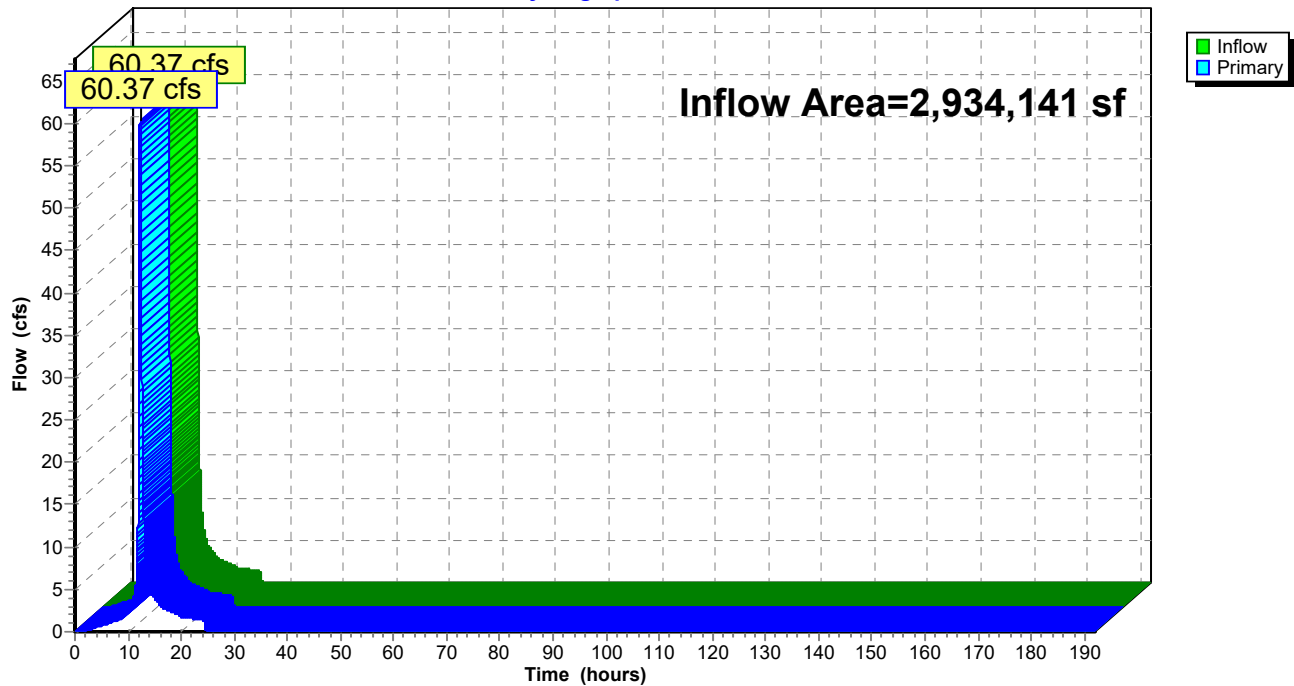
Summary for Link 001A: POA

Inflow Area = 2,934,141 sf, 34.38% Impervious, Inflow Depth = 1.29" for 2-yr event
Inflow = 60.37 cfs @ 12.27 hrs, Volume= 314,877 cf
Primary = 60.37 cfs @ 12.27 hrs, Volume= 314,877 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001A: POA

Hydrograph



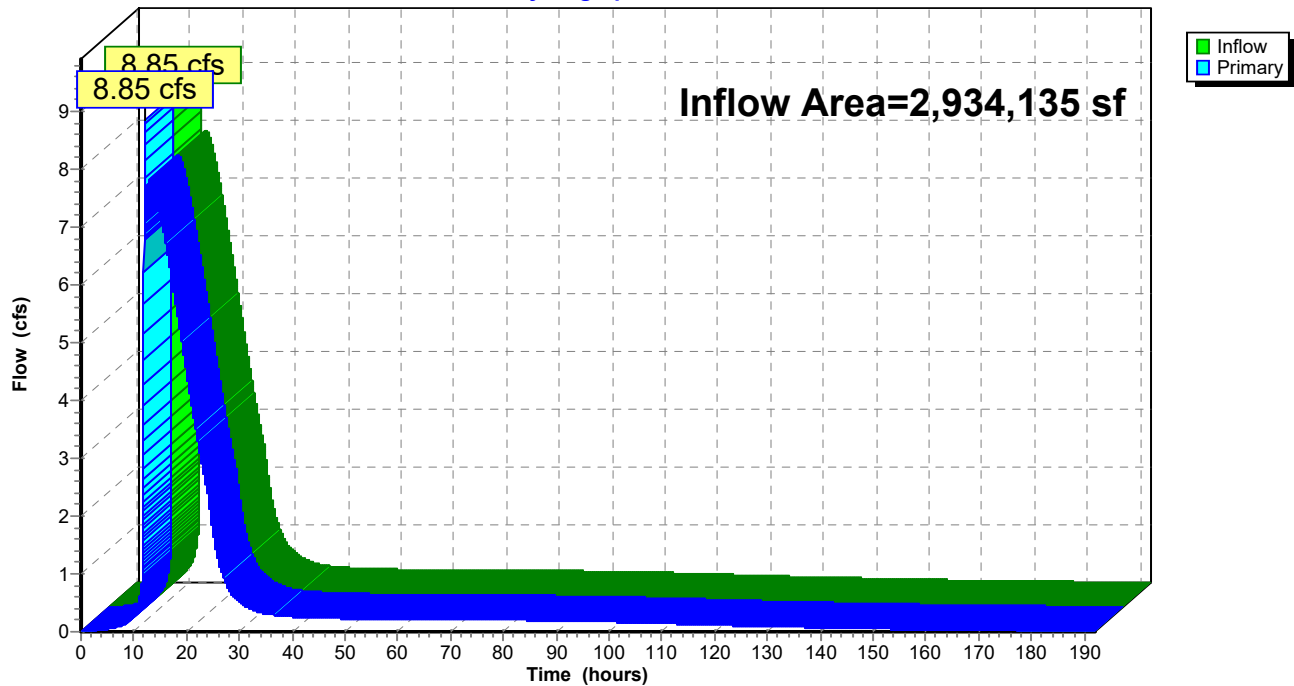
Summary for Link 001B: POA

Inflow Area = 2,934,135 sf, 39.40% Impervious, Inflow Depth > 1.44" for 2-yr event
Inflow = 8.85 cfs @ 11.99 hrs, Volume= 352,246 cf
Primary = 8.85 cfs @ 11.99 hrs, Volume= 352,246 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001B: POA

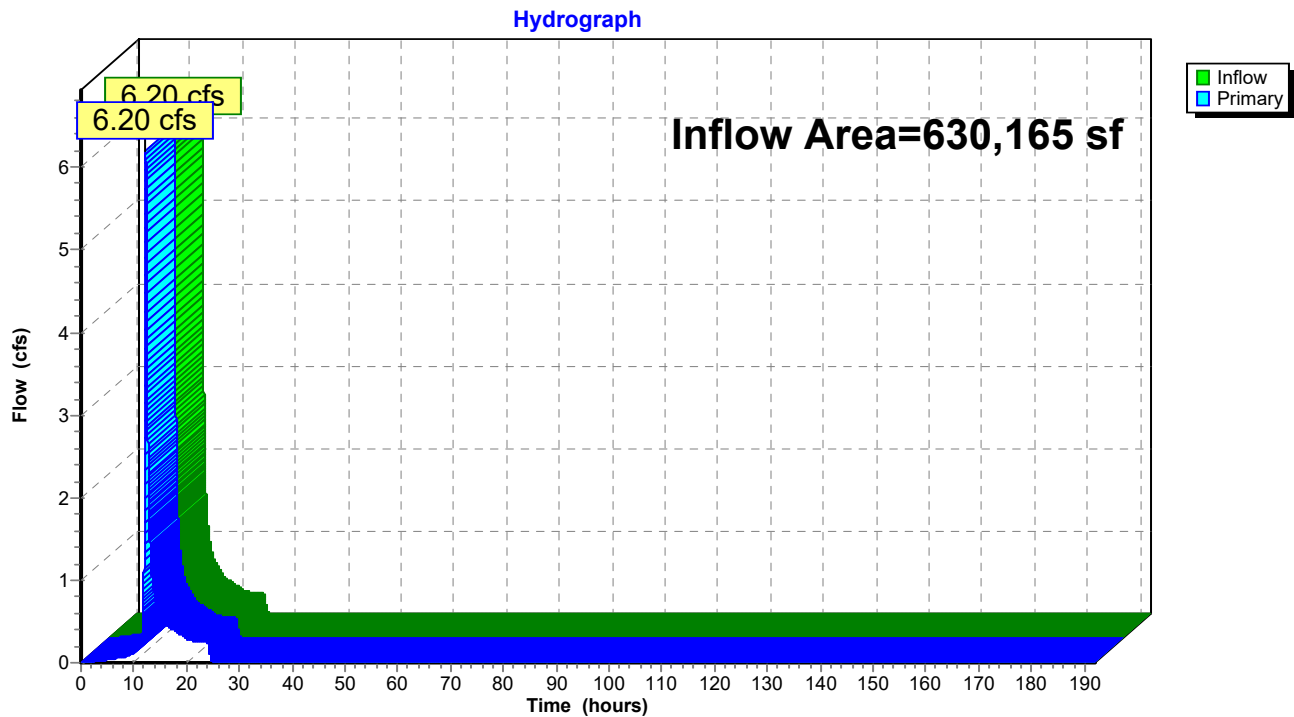
Hydrograph



Summary for Link 2: TOTAL OFFSITE

Inflow Area = 630,165 sf, 7.93% Impervious, Inflow Depth = 0.66" for 2-yr event
Inflow = 6.20 cfs @ 12.27 hrs, Volume= 34,781 cf
Primary = 6.20 cfs @ 12.27 hrs, Volume= 34,781 cf, Atten= 0%, Lag= 0.0 min

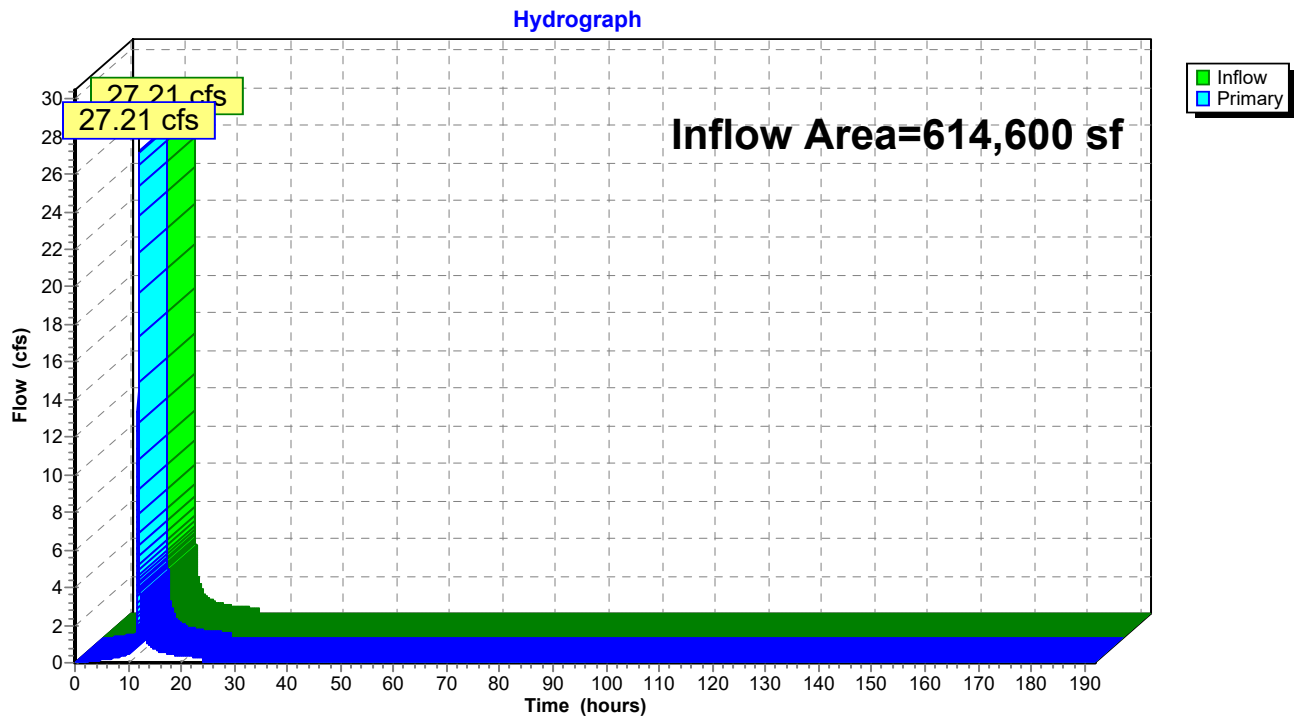
Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 2: TOTAL OFFSITE

Summary for Link 3: LOD to BMP-01

Inflow Area = 614,600 sf, 31.32% Impervious, Inflow Depth = 1.26" for 2-yr event
Inflow = 27.21 cfs @ 11.96 hrs, Volume= 64,442 cf
Primary = 27.21 cfs @ 11.96 hrs, Volume= 64,442 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 3: LOD to BMP-01

Summary for Subcatchment B1: BYPASS (LOD)

Runoff = 0.55 cfs @ 11.97 hrs, Volume= 1,163 cf, Depth= 0.84"

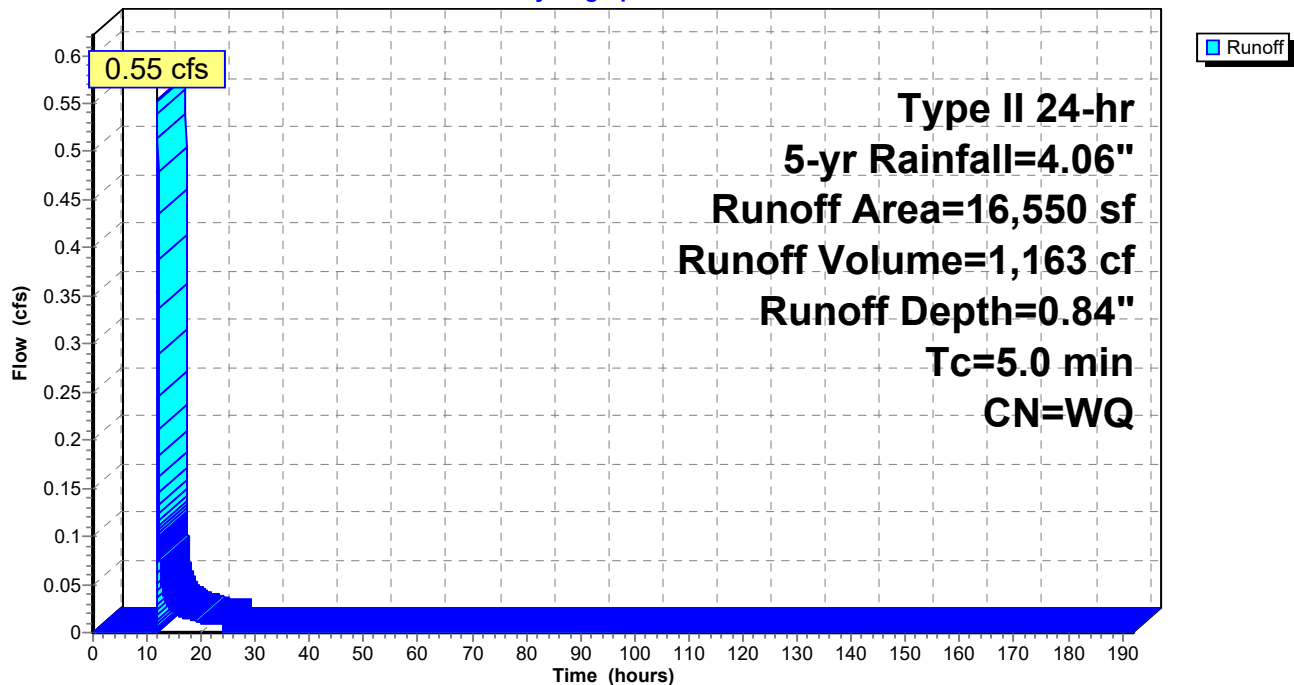
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
16,550	61	>75% Grass cover, Good, HSG B
16,550		Weighted Average
16,550	61	100.00% Pervious Area

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

Subcatchment B1: BYPASS (LOD)

Hydrograph



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Type II 24-hr 5-yr Rainfall=4.06"

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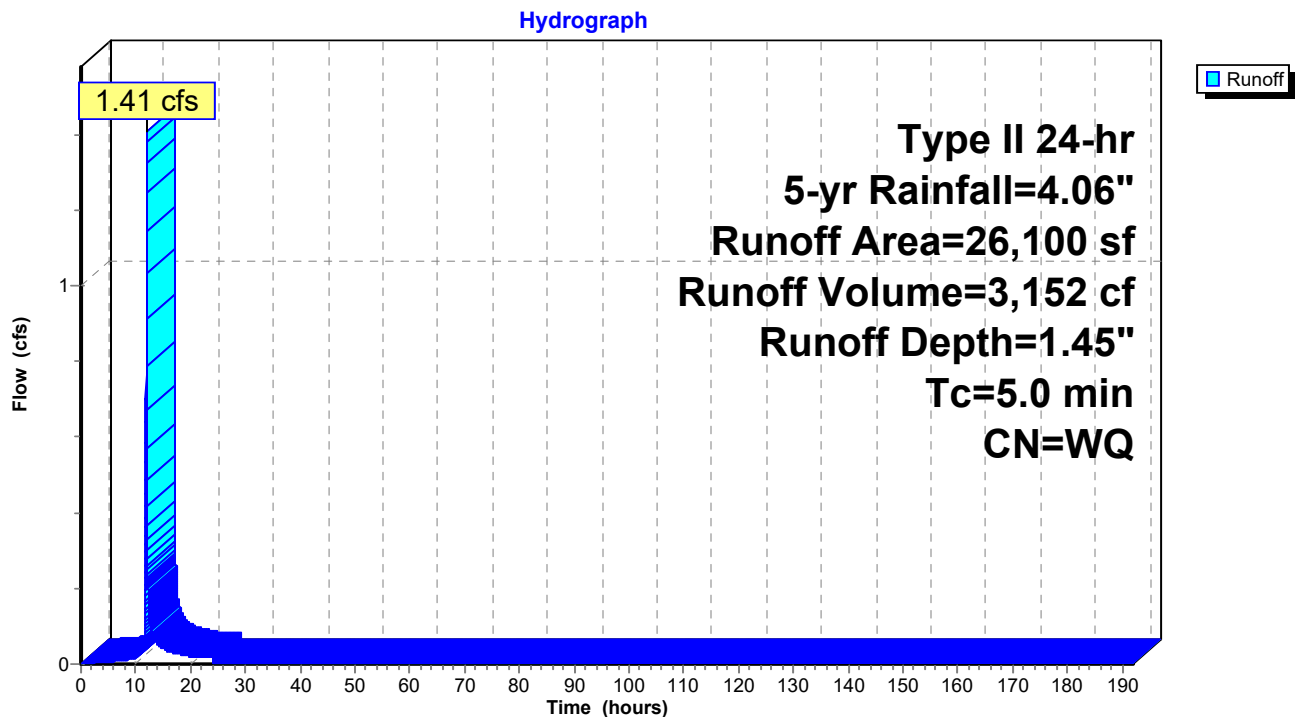
Summary for Subcatchment B2: BYPASS (LOD)

Runoff = 1.41 cfs @ 11.97 hrs, Volume= 3,152 cf, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

	Area (sf)	CN	Description
*	0	98	Buildings
*	5,305	98	Impervious
	20,795	61	>75% Grass cover, Good, HSG B
	26,100		Weighted Average
	20,795	61	79.67% Pervious Area
	5,305	98	20.33% Impervious Area

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

Subcatchment B2: BYPASS (LOD)

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Type II 24-hr 5-yr Rainfall=4.06"

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Summary for Subcatchment B3: BYPASS (LOD)

Runoff = 6.22 cfs @ 11.97 hrs, Volume= 13,858 cf, Depth= 1.38"

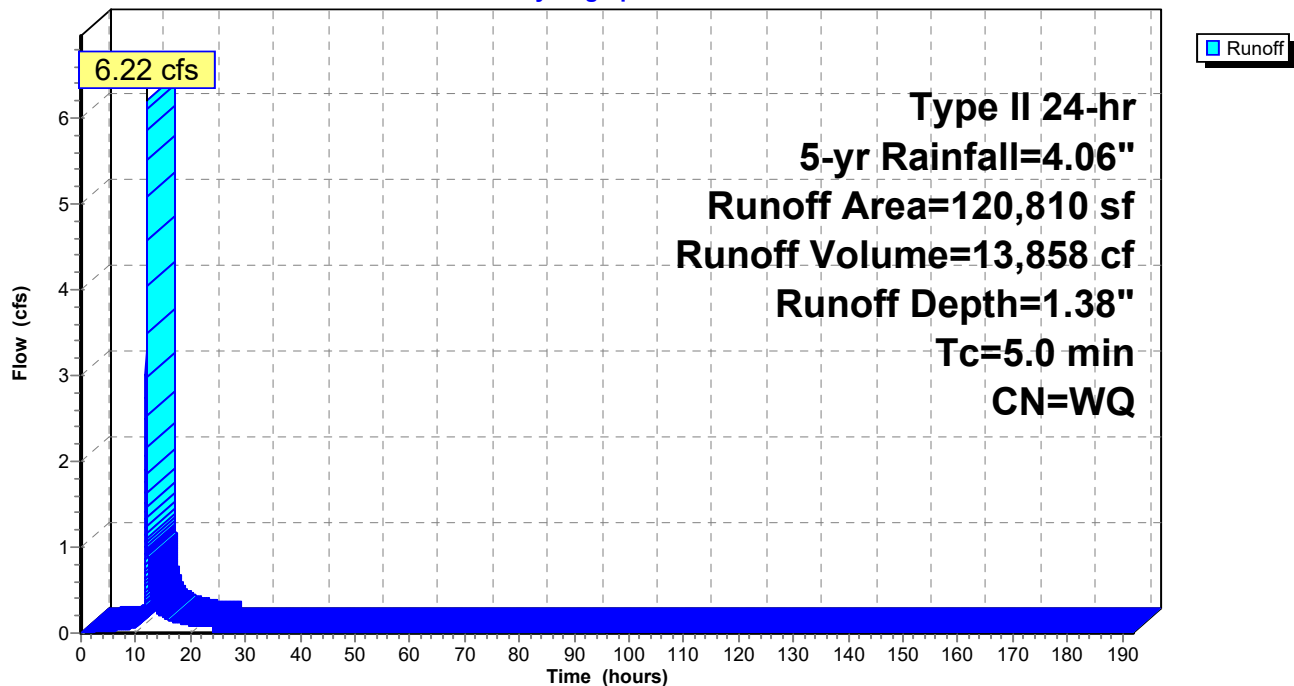
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

	Area (sf)	CN	Description
*	80	98	Buildings
*	21,530	98	Impervious
	99,200	61	>75% Grass cover, Good, HSG B
	120,810		Weighted Average
	99,200	61	82.11% Pervious Area
	21,610	98	17.89% Impervious Area

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

Subcatchment B3: BYPASS (LOD)

Hydrograph



Summary for Subcatchment B4: BYPASS (LOD)

Runoff = 0.44 cfs @ 11.97 hrs, Volume= 929 cf, Depth= 0.84"

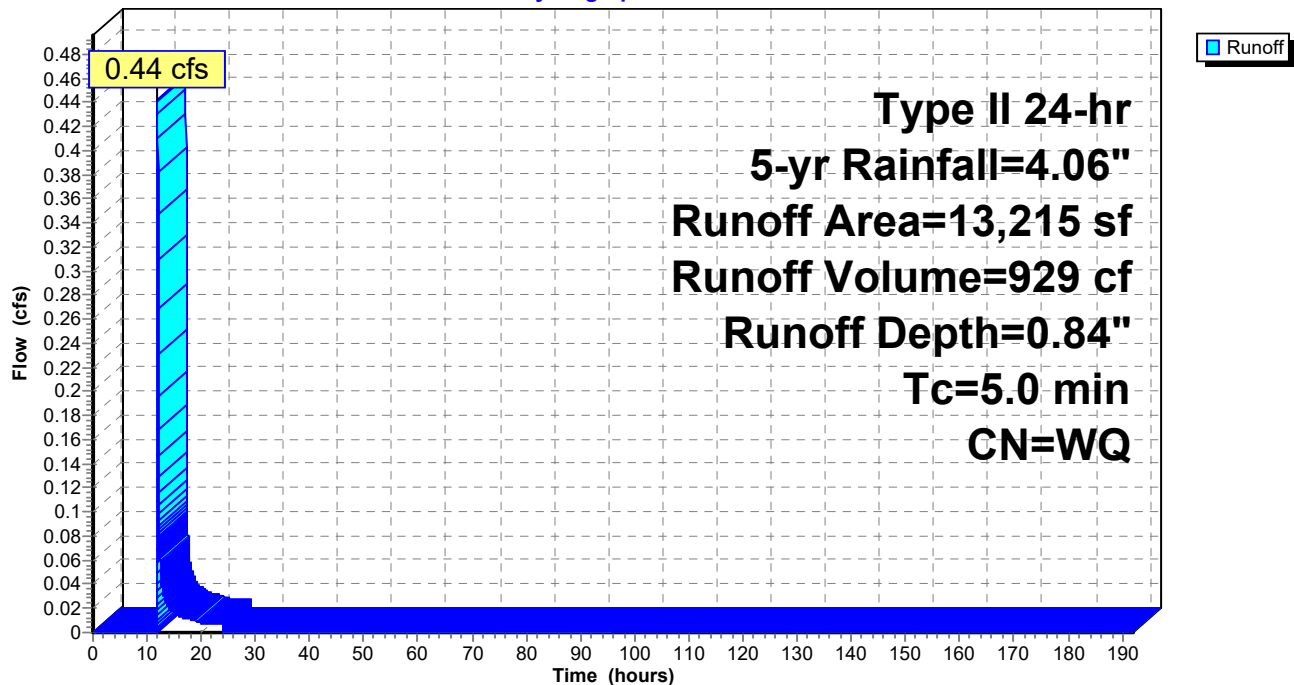
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
13,215	61	>75% Grass cover, Good, HSG B
13,215		Weighted Average
13,215	61	100.00% Pervious Area

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

Subcatchment B4: BYPASS (LOD)

Hydrograph



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Type II 24-hr 5-yr Rainfall=4.06"

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Summary for Subcatchment E1: PRE (LOD)

Runoff = 74.99 cfs @ 12.27 hrs, Volume= 383,183 cf, Depth= 2.00"

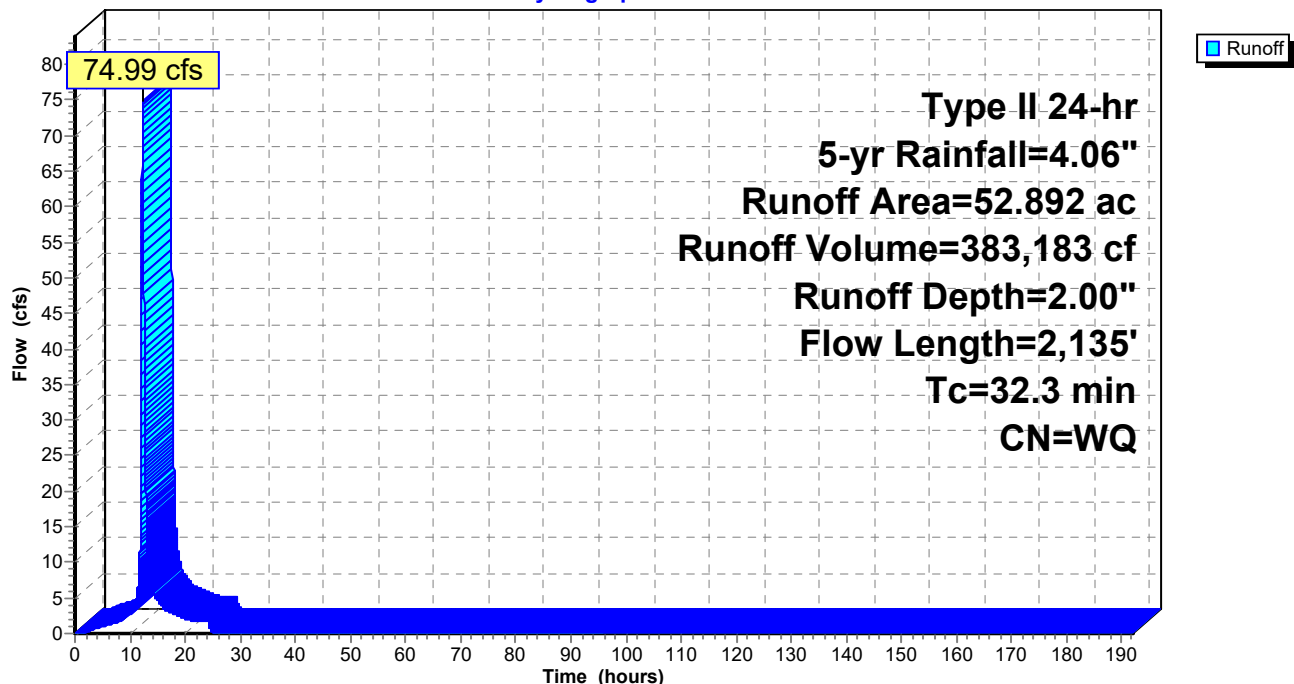
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

Area (ac)	CN	Description
25.382	58	Meadow, non-grazed, HSG B
* 5.502	58	Meadow (20% of Ex. Impervious)
* 22.008	98	Existing Impervious
52.892		Weighted Average
30.884	58	58.39% Pervious Area
22.008	98	41.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
4.4	425	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
2.7	410	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
32.3	2,135	Total			

Subcatchment E1: PRE (LOD)

Hydrograph



Summary for Subcatchment E2: PRE (OLOD)

Runoff = 0.34 cfs @ 12.29 hrs, Volume= 1,817 cf, Depth= 0.84"

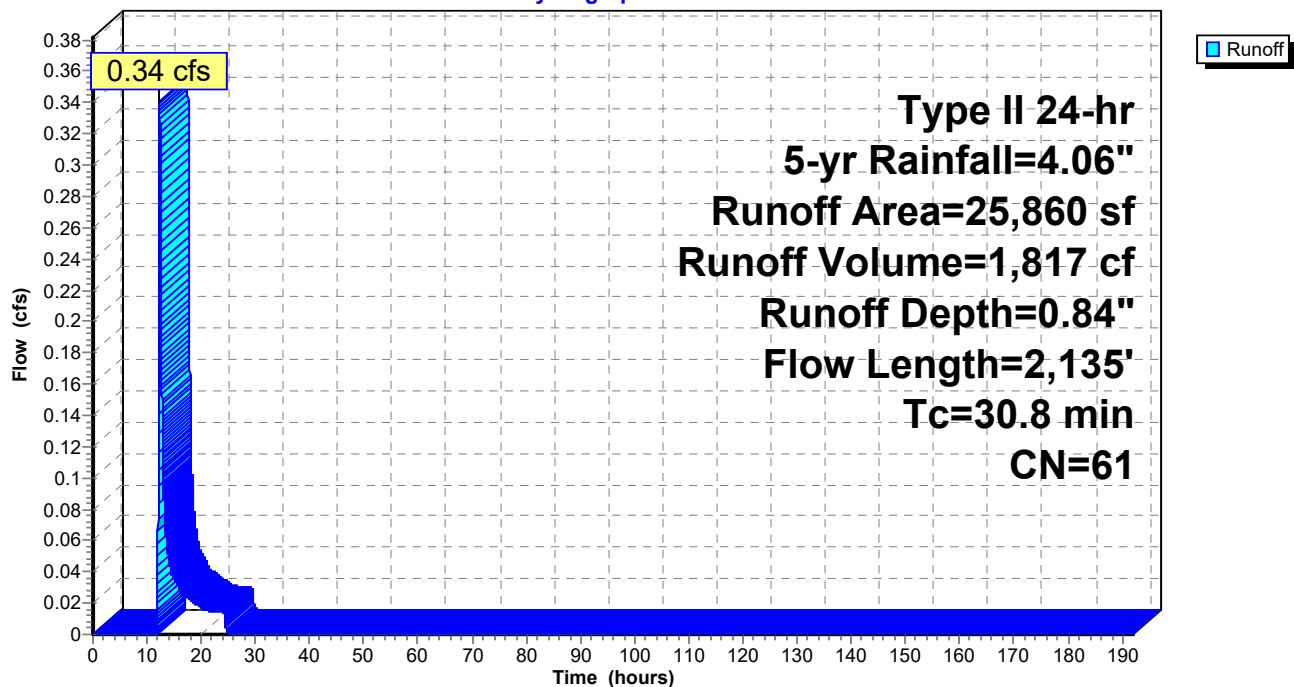
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

Area (sf)	CN	Description
25,860	61	>75% Grass cover, Good, HSG B
25,860	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
3.5	425	0.0100	2.03		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
2.1	410	0.0250	3.21		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
30.8	2,135	Total			

Subcatchment E2: PRE (OLOD)

Hydrograph



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Type II 24-hr 5-yr Rainfall=4.06"

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Summary for Subcatchment E3: PRE (OLOD)

Runoff = 11.11 cfs @ 12.25 hrs, Volume= 54,873 cf, Depth= 1.09"

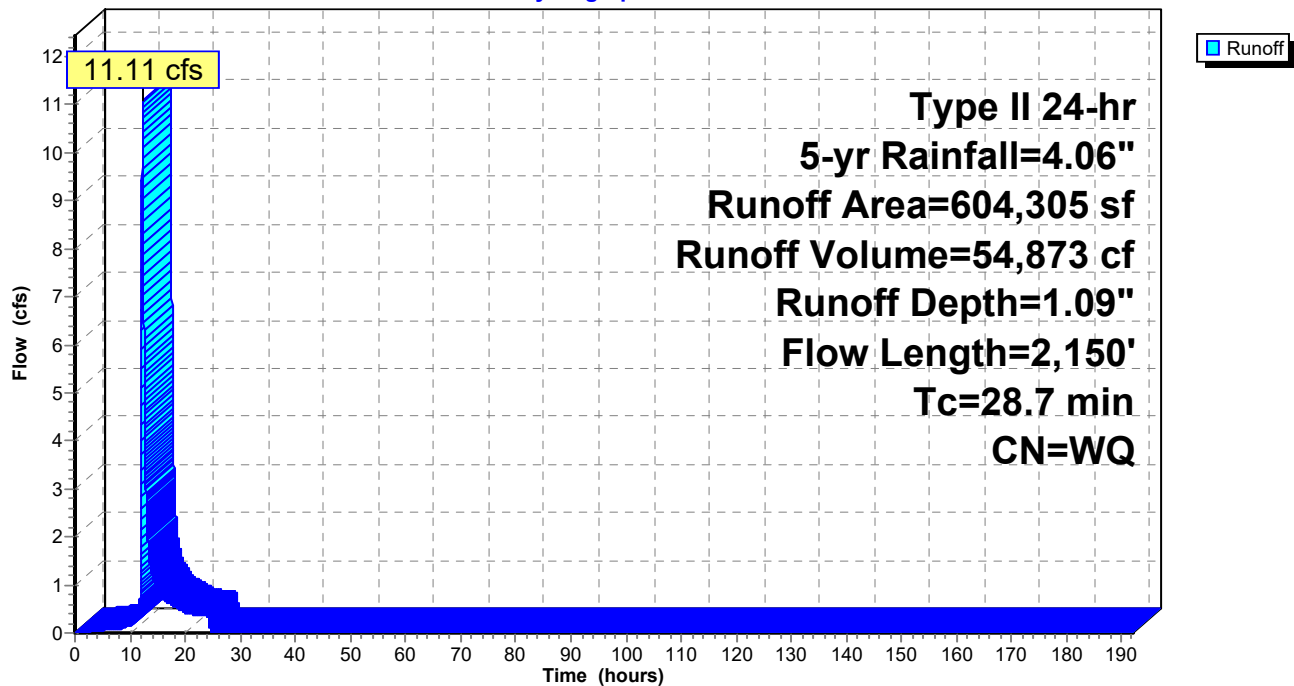
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

	Area (sf)	CN	Description
*	49,955	98	Existing Impervious
	554,350	61	>75% Grass cover, Good, HSG B
	604,305		Weighted Average
	554,350	61	91.73% Pervious Area
	49,955	98	8.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
9.2	1,400	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
6.7	650	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
28.7	2,150	Total			

Subcatchment E3: PRE (OLOD)

Hydrograph



Summary for Subcatchment P1A: Post to BMP-01 (LOD)

Runoff = 29.07 cfs @ 11.96 hrs, Volume= 65,787 cf, Depth= 1.68"

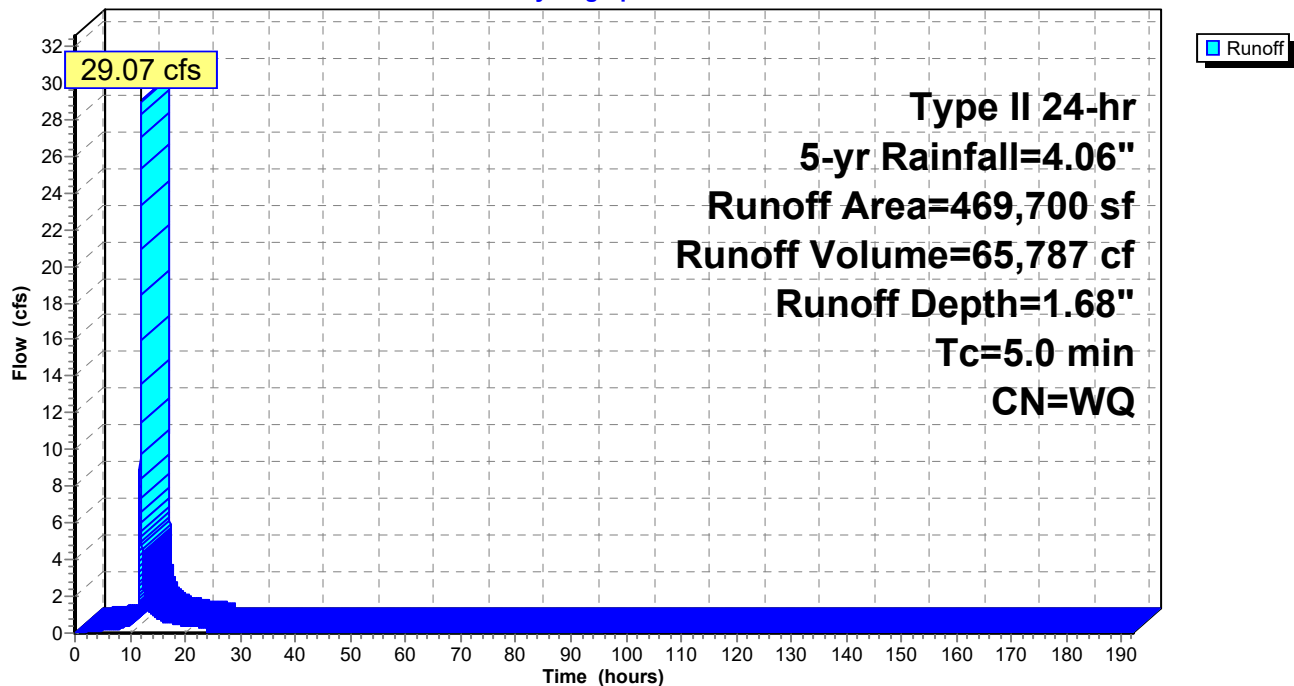
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

	Area (sf)	CN	Description
*	240	98	Buildings
*	131,700	98	Impervious
	337,760	61	>75% Grass cover, Good, HSG B
	469,700		Weighted Average
	337,760	61	71.91% Pervious Area
	131,940	98	28.09% Impervious Area

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

Subcatchment P1A: Post to BMP-01 (LOD)

Hydrograph



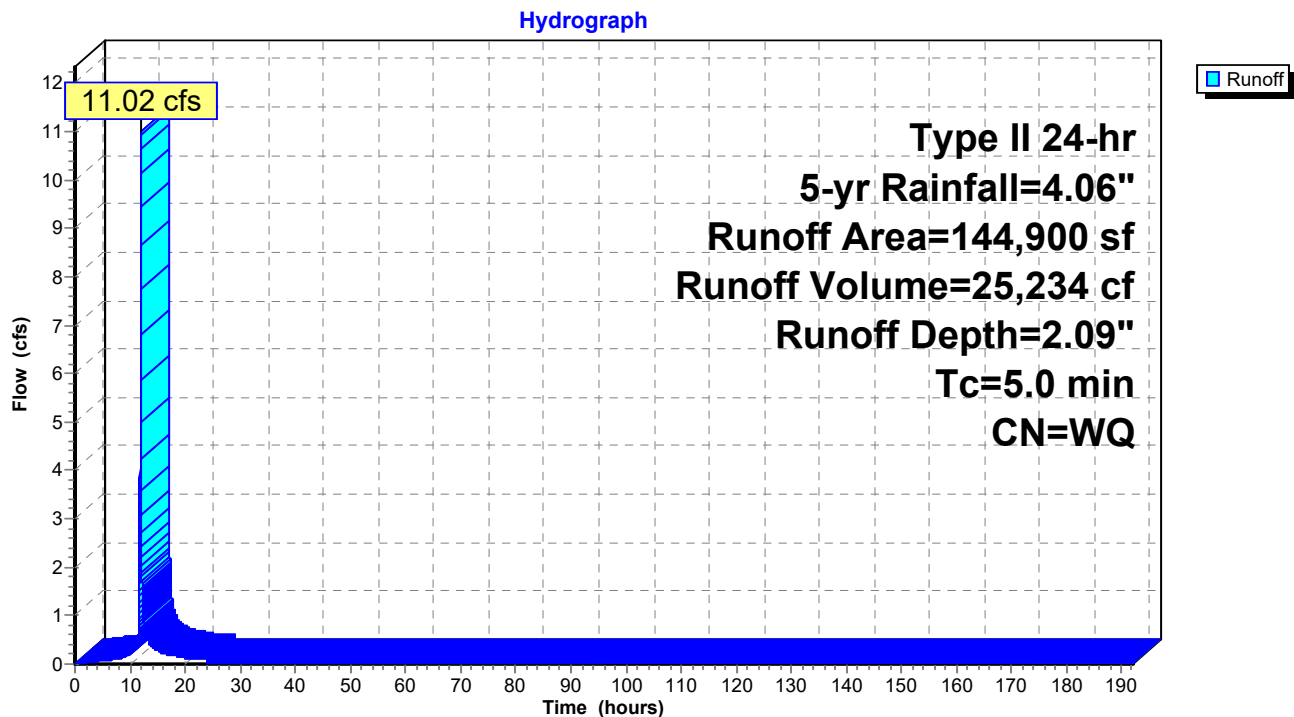
Summary for Subcatchment P1B: Post to BMP-01 (LOD)

Runoff = 11.02 cfs @ 11.96 hrs, Volume= 25,234 cf, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

	Area (sf)	CN	Description
*	0	98	Buildings
*	60,580	98	Impervious
	84,320	61	>75% Grass cover, Good, HSG B
	144,900		Weighted Average
	84,320	61	58.19% Pervious Area
	60,580	98	41.81% Impervious Area

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

Subcatchment P1B: Post to BMP-01 (LOD)

Summary for Subcatchment P1C: Post to BMP-01 (OLOD)

Runoff = 23.33 cfs @ 11.97 hrs, Volume= 50,904 cf, Depth= 1.12"

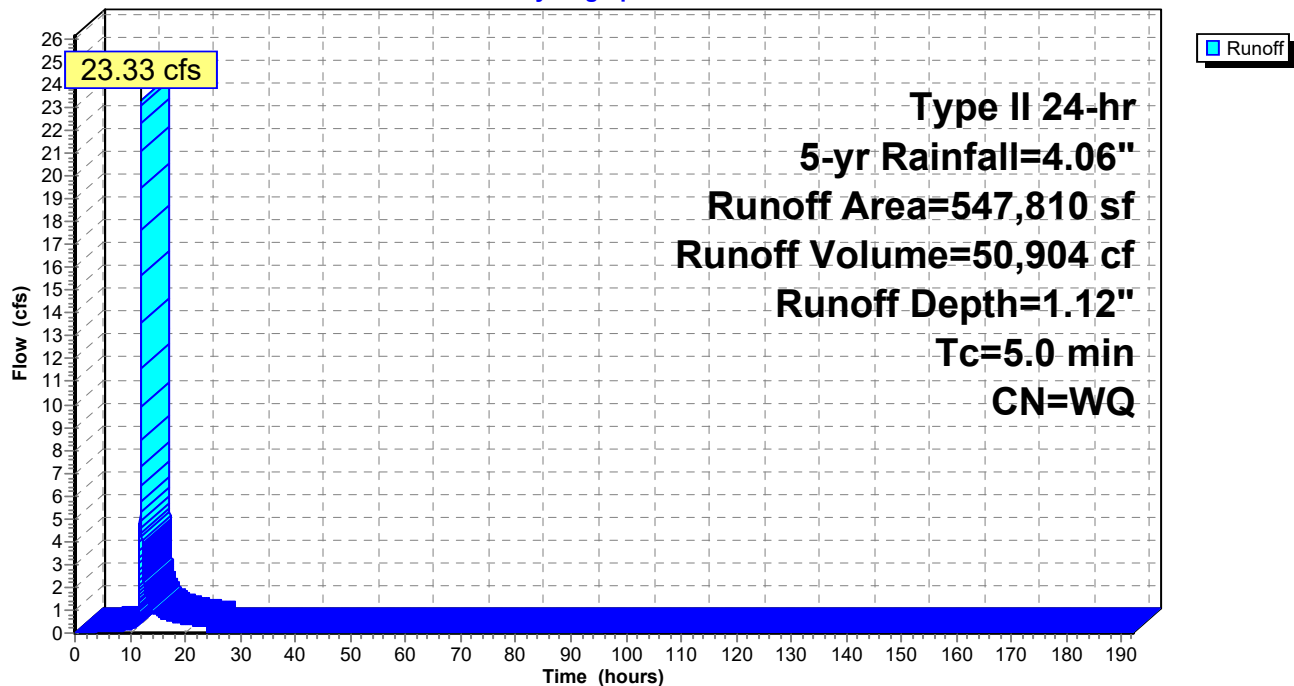
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

	Area (sf)	CN	Description
*	0	98	Buildings
*	49,955	98	Impervious
	497,855	61	>75% Grass cover, Good, HSG B
	547,810		Weighted Average
	497,855	61	90.88% Pervious Area
	49,955	98	9.12% Impervious Area

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

Subcatchment P1C: Post to BMP-01 (OLOD)

Hydrograph



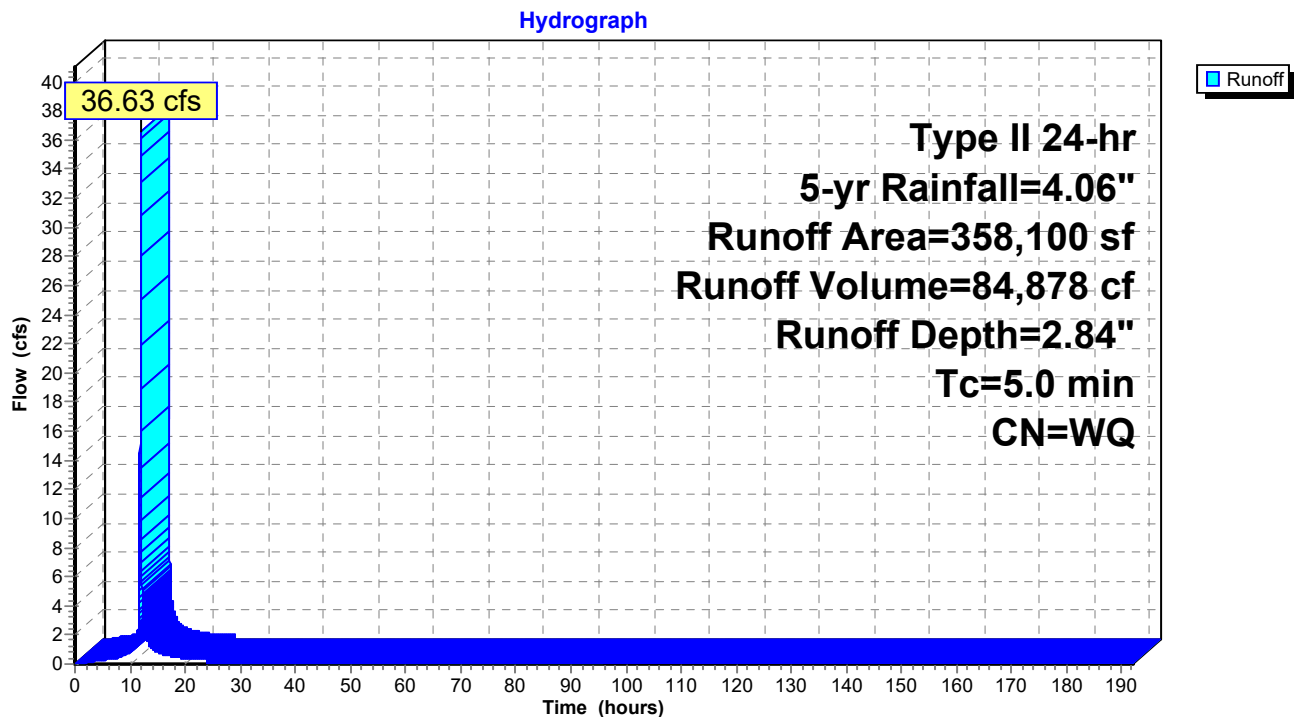
Summary for Subcatchment P2: Post to BMP-02 (LOD)

Runoff = 36.63 cfs @ 11.96 hrs, Volume= 84,878 cf, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	106,100	98	Impervious
	117,775	61	>75% Grass cover, Good, HSG B
	358,100		Weighted Average
	117,775	61	32.89% Pervious Area
	240,325	98	67.11% Impervious Area

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

Subcatchment P2: Post to BMP-02 (LOD)

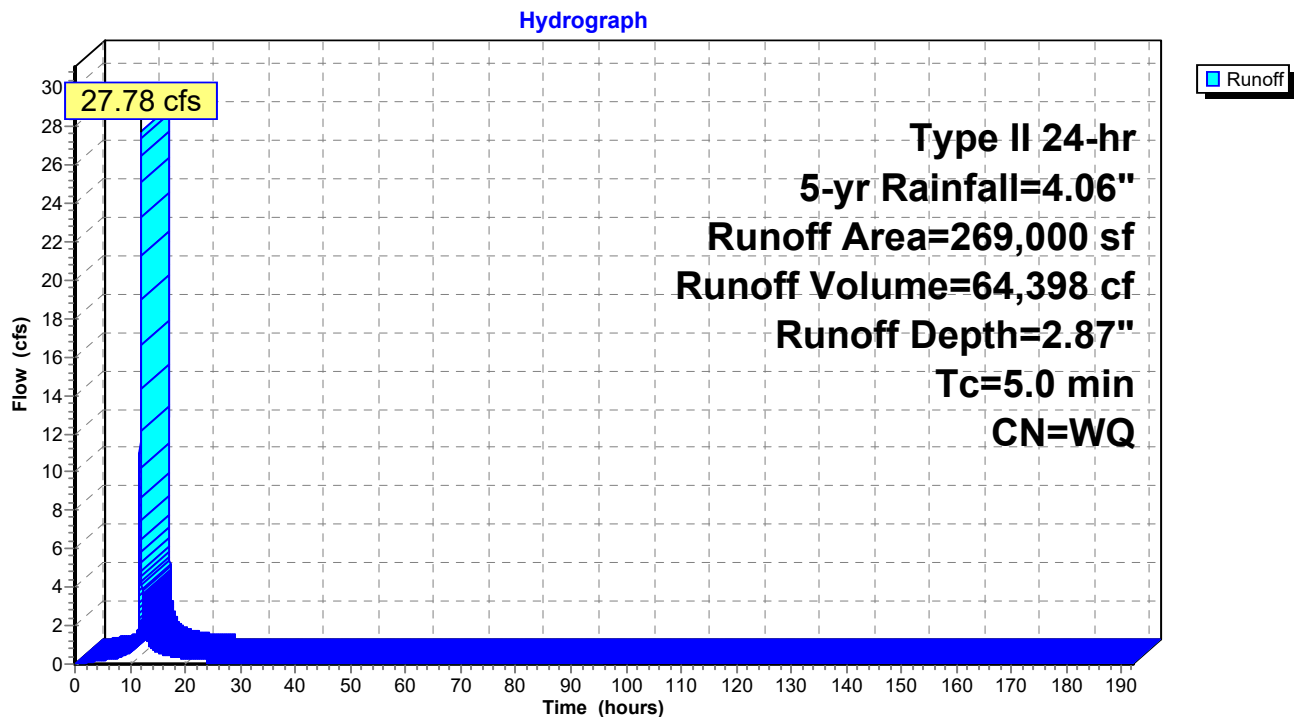
Summary for Subcatchment P3: Post to BMP-03 (LOD)

Runoff = 27.78 cfs @ 11.96 hrs, Volume= 64,398 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	59,870	98	Impervious
	85,900	61	>75% Grass cover, Good, HSG B
	269,000		Weighted Average
	85,900	61	31.93% Pervious Area
	183,100	98	68.07% Impervious Area

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

Subcatchment P3: Post to BMP-03 (LOD)

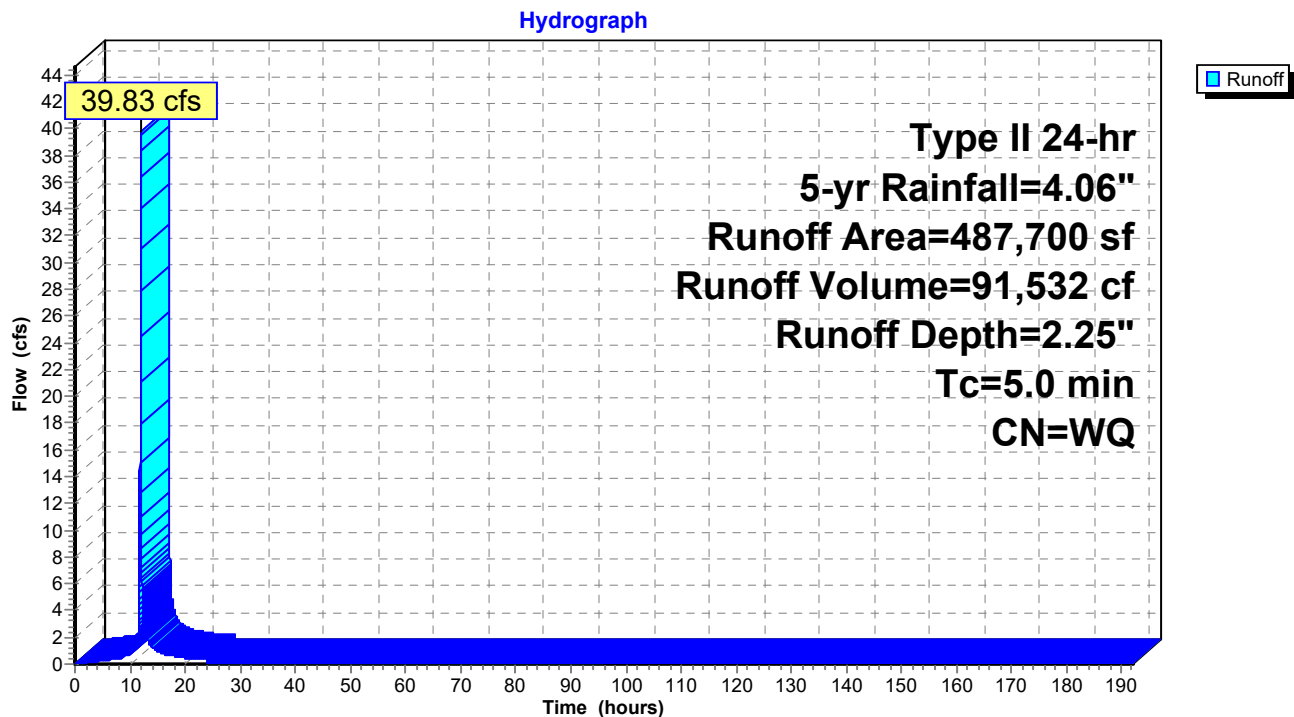
Summary for Subcatchment P4A: Post to BMP-04 (LOD)

Runoff = 39.83 cfs @ 11.96 hrs, Volume= 91,532 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	96,230	98	Impervious
	257,245	61	>75% Grass cover, Good, HSG B
	487,700		Weighted Average
	257,245	61	52.75% Pervious Area
	230,455	98	47.25% Impervious Area

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

Subcatchment P4A: Post to BMP-04 (LOD)

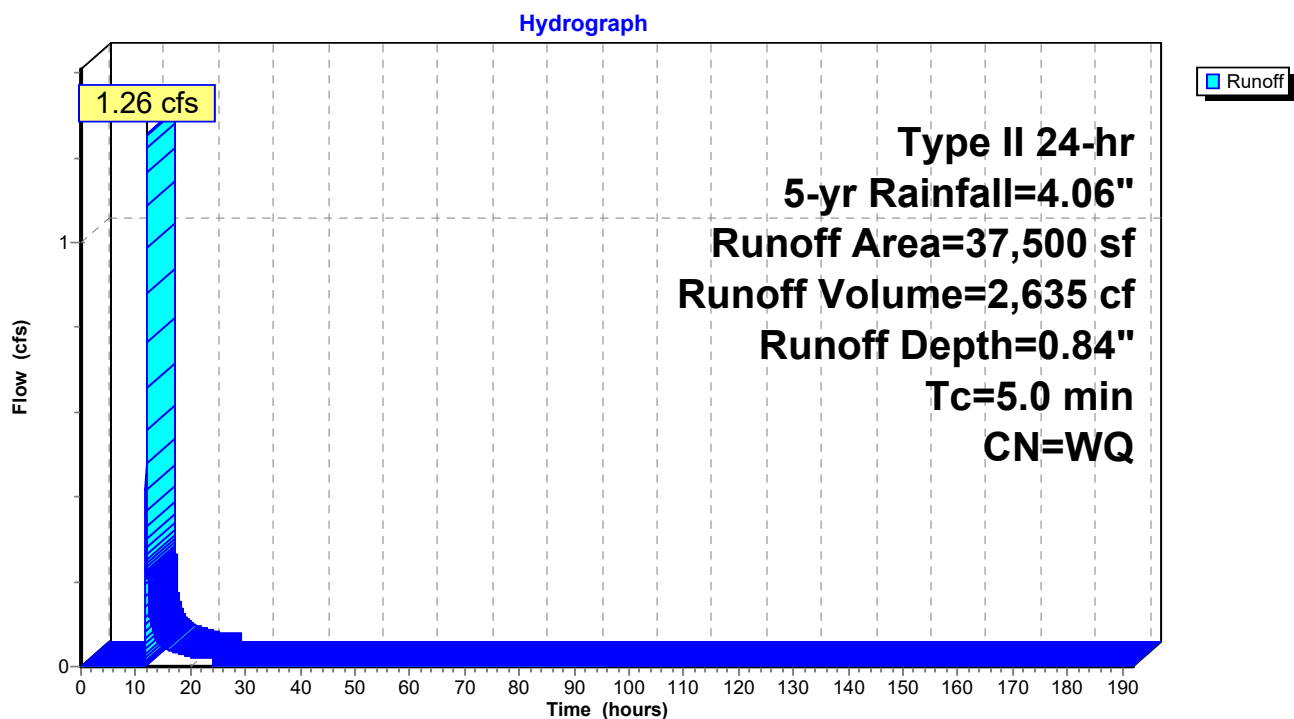
Summary for Subcatchment P4B: Post to BMP-04 (OLOD)

Runoff = 1.26 cfs @ 11.97 hrs, Volume= 2,635 cf, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
37,500	61	>75% Grass cover, Good, HSG B
37,500		Weighted Average
37,500	61	100.00% Pervious Area

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

Subcatchment P4B: Post to BMP-04 (OLOD)

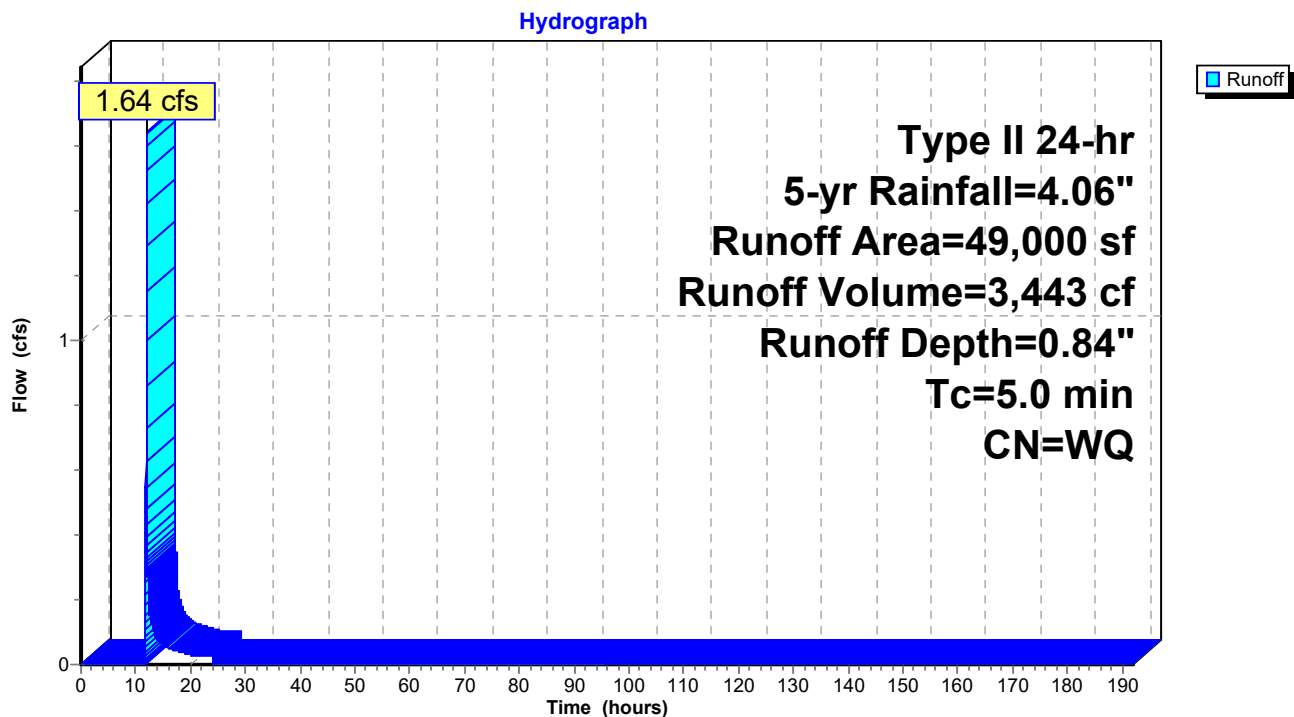
Summary for Subcatchment P4C: Post to BMP-04 (OLOD)

Runoff = 1.64 cfs @ 11.97 hrs, Volume= 3,443 cf, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
49,000	61	>75% Grass cover, Good, HSG B
49,000		Weighted Average
49,000	61	100.00% Pervious Area

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

Subcatchment P4C: Post to BMP-04 (OLOD)

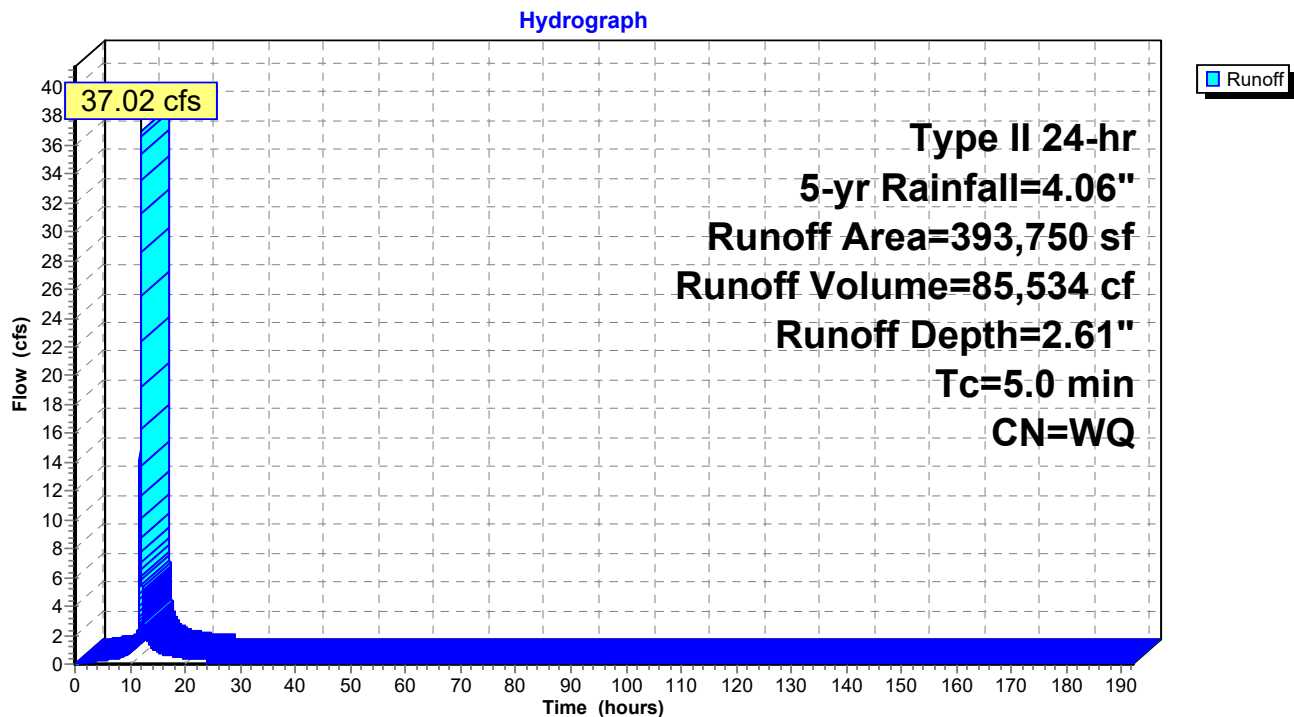
Summary for Subcatchment P5: Post to BMP-05 (LOD)

Runoff = 37.02 cfs @ 11.96 hrs, Volume= 85,534 cf, Depth= 2.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.06"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	109,655	98	Impervious
	160,865	61	>75% Grass cover, Good, HSG B
	393,750		Weighted Average
	160,865	61	40.85% Pervious Area
	232,885	98	59.15% Impervious Area

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

Subcatchment P5: Post to BMP-05 (LOD)

Summary for Pond BMP-01: Wet Pond

Inflow Area = 2,757,460 sf, 40.95% Impervious, Inflow Depth = 2.04" for 5-yr event
 Inflow = 145.26 cfs @ 11.99 hrs, Volume= 469,048 cf
 Outflow = 16.20 cfs @ 12.80 hrs, Volume= 468,621 cf, Atten= 89%, Lag= 48.5 min
 Primary = 16.20 cfs @ 12.80 hrs, Volume= 468,621 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 357.42' @ 12.80 hrs Surf.Area= 81,477 sf Storage= 182,457 cf

Plug-Flow detention time= 314.3 min calculated for 468,597 cf (100% of inflow)
 Center-of-Mass det. time= 306.4 min (1,699.0 - 1,392.6)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	613,350 cf	Storage Above Perm. Pool (Prismatic) Listed below (Recalc)

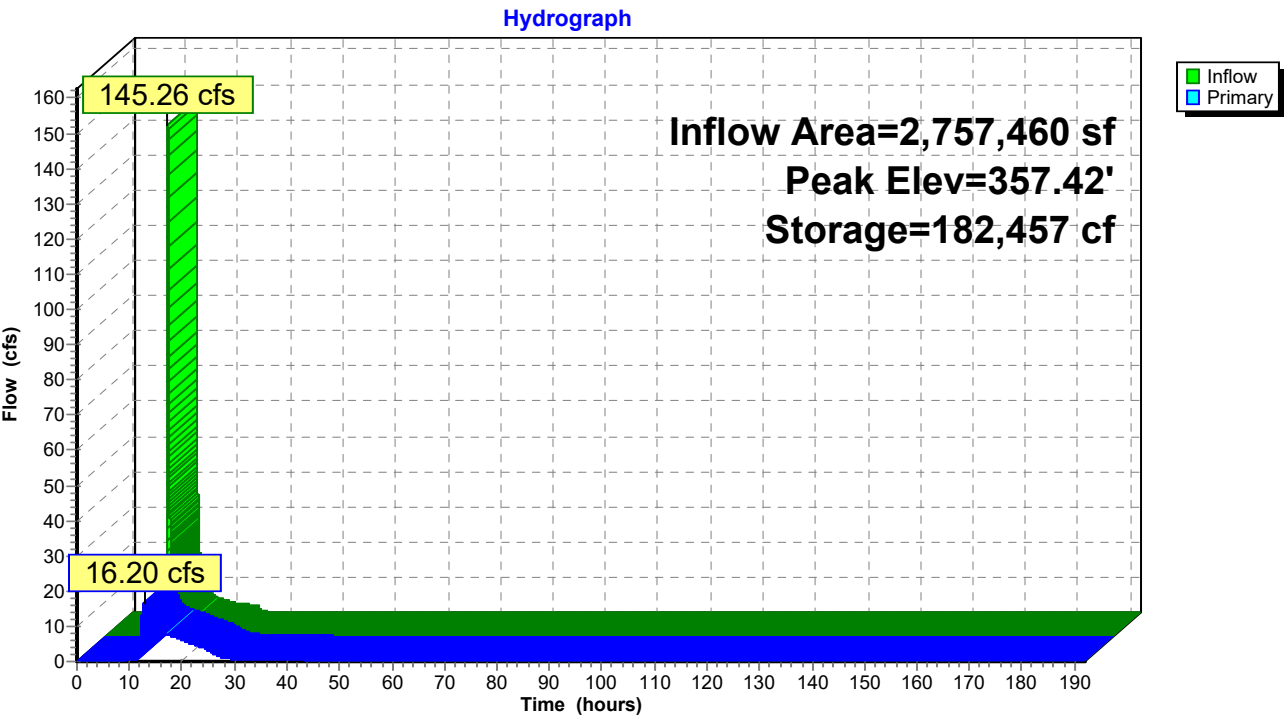
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	69,700	0	0
356.00	74,500	72,100	72,100
357.00	79,400	76,950	149,050
358.00	84,400	81,900	230,950
359.00	89,550	86,975	317,925
360.00	95,600	92,575	410,500
361.00	101,400	98,500	509,000
362.00	107,300	104,350	613,350

Device	Routing	Invert	Outlet Devices
#1	Primary	355.00'	36.0" Round 36" Outfall X 5.00 L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 355.00' / 354.50' S= 0.0156 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	355.00'	7.0" Vert. 7" Siphon Orifice X 5.00 C= 0.600 Limited to weir flow at low heads
#3	Device 1	357.00'	19.0" W x 30.0" H Vert. 19"Wx30"H Weir X 5.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	360.10'	24.0" x 45.0" Horiz. Type M Inlet X 5.00 C= 0.600 Limited to weir flow at low heads
#5	Primary	360.60'	100.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=16.18 cfs @ 12.80 hrs HW=357.42' (Free Discharge)

1=36" Outfall (Passes 16.18 cfs of 144.22 cfs potential flow)
 2=7" Siphon Orifice (Orifice Controls 9.38 cfs @ 7.02 fps)
 3=19"Wx30"H Weir (Orifice Controls 6.80 cfs @ 2.07 fps)
 4=Type M Inlet (Controls 0.00 cfs)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond BMP-01: Wet Pond



Summary for Pond BMP-02: MRC Rain Garden

Inflow Area = 358,100 sf, 67.11% Impervious, Inflow Depth = 2.84" for 5-yr event
 Inflow = 36.63 cfs @ 11.96 hrs, Volume= 84,878 cf
 Outflow = 26.72 cfs @ 12.01 hrs, Volume= 83,748 cf, Atten= 27%, Lag= 3.4 min
 Primary = 26.72 cfs @ 12.01 hrs, Volume= 83,748 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 364.04' @ 12.01 hrs Surf.Area= 32,907 sf Storage= 33,740 cf

Plug-Flow detention time= 935.0 min calculated for 83,743 cf (99% of inflow)
 Center-of-Mass det. time= 926.6 min (1,686.9 - 760.3)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Prismatic) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	67,900 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		75,775 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
358.00	7,500	0	0
359.00	7,500	7,500	7,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	7,500	0	0
363.00	12,450	9,975	9,975
364.00	17,750	15,100	25,075
365.00	21,300	19,525	44,600
366.00	25,300	23,300	67,900

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	363.25'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

1508-SCS LDP REV02

Prepared by {enter your company name here}

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Type II 24-hr 5-yr Rainfall=4.06"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=26.66 cfs @ 12.01 hrs HW=364.04' (Free Discharge)

1=Outflow Pipe (Passes 26.66 cfs of 30.42 cfs potential flow)

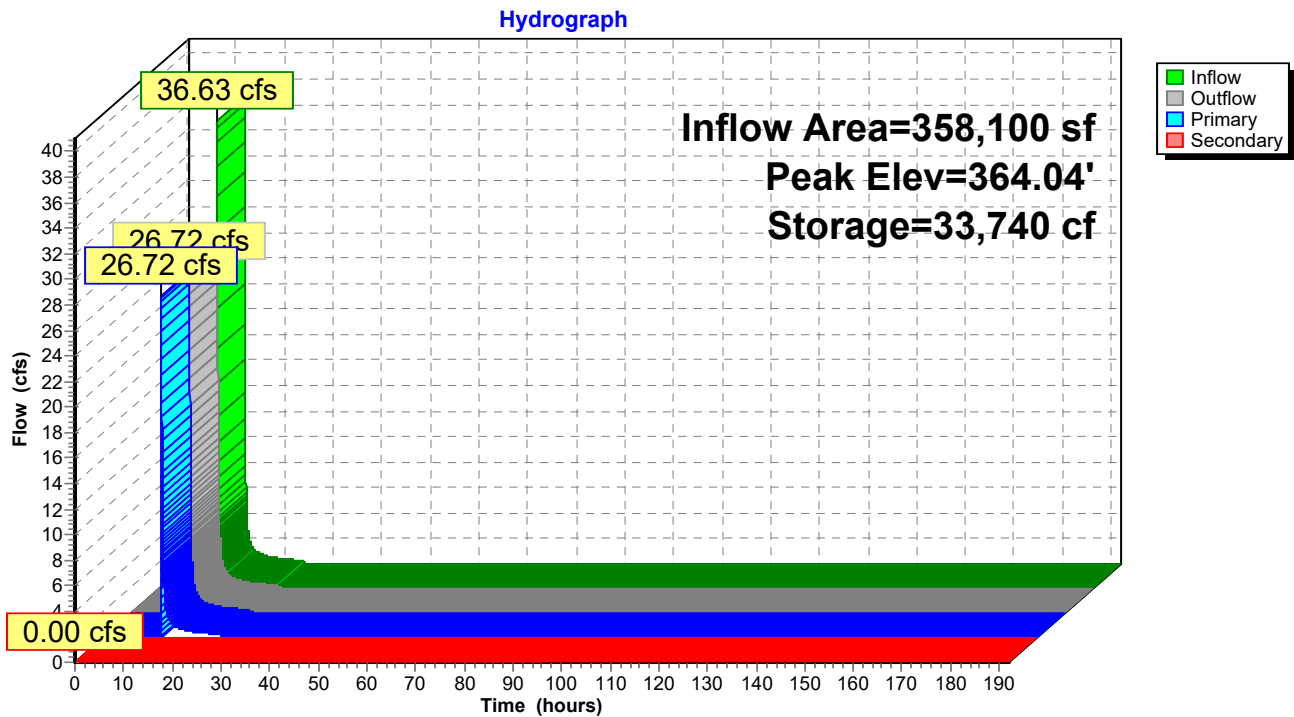
2=MRC Low Flow Orifice (Orifice Controls 0.07 cfs @ 10.76 fps)

3=Type M Overflow (Weir Controls 26.58 cfs @ 2.91 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-02: MRC Rain Garden



Summary for Pond BMP-03: MRC Rain Garden

Inflow Area = 269,000 sf, 68.07% Impervious, Inflow Depth = 2.87" for 5-yr event
 Inflow = 27.78 cfs @ 11.96 hrs, Volume= 64,398 cf
 Outflow = 20.68 cfs @ 12.01 hrs, Volume= 63,268 cf, Atten= 26%, Lag= 3.3 min
 Primary = 20.68 cfs @ 12.01 hrs, Volume= 63,268 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 363.42' @ 12.01 hrs Surf.Area= 31,102 sf Storage= 25,081 cf

Plug-Flow detention time= 878.8 min calculated for 63,265 cf (98% of inflow)
 Center-of-Mass det. time= 867.7 min (1,627.5 - 759.7)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	72,725 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		80,600 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
358.00	7,500	0	0	7,500
359.00	7,500	7,500	7,500	7,846

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	8,850	0	0
363.00	13,250	11,050	11,050
364.00	20,050	16,650	27,700
365.00	22,700	21,375	49,075
366.00	24,600	23,650	72,725

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.0" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	362.75'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
 Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
 Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=20.63 cfs @ 12.01 hrs HW=363.42' (Free Discharge)

1=Outflow Pipe (Passes 20.63 cfs of 27.97 cfs potential flow)

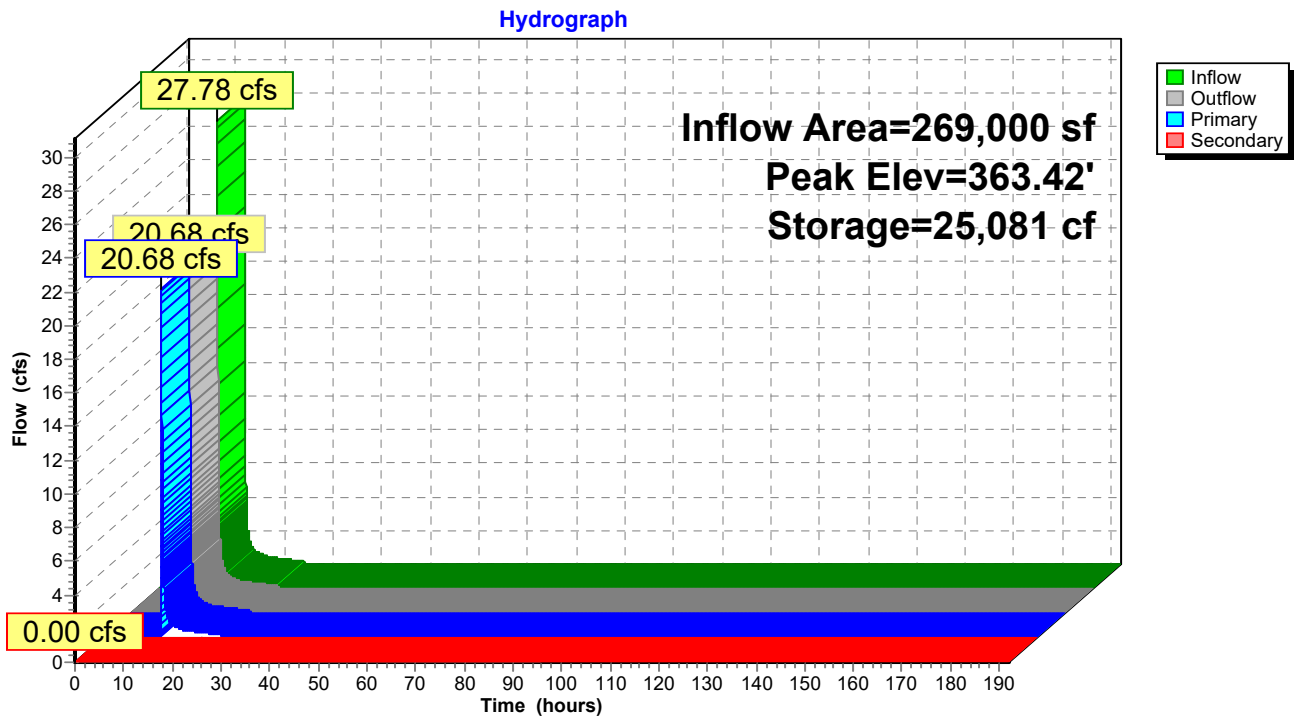
2=MRC Low Flow Orifice (Orifice Controls 0.05 cfs @ 10.07 fps)

3=Type M Overflow (Weir Controls 20.58 cfs @ 2.67 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-03: MRC Rain Garden



Summary for Pond BMP-04: MRC Rain Garden

Inflow Area = 574,200 sf, 40.13% Impervious, Inflow Depth = 2.04" for 5-yr event
 Inflow = 42.67 cfs @ 11.96 hrs, Volume= 97,609 cf
 Outflow = 22.95 cfs @ 12.04 hrs, Volume= 96,079 cf, Atten= 46%, Lag= 4.7 min
 Primary = 22.95 cfs @ 12.04 hrs, Volume= 96,079 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 373.39' @ 12.04 hrs Surf.Area= 48,168 sf Storage= 39,440 cf

Plug-Flow detention time= 860.3 min calculated for 96,079 cf (98% of inflow)
 Center-of-Mass det. time= 850.2 min (1,631.3 - 781.1)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	116,625 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		124,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	15,500	0	0
373.00	26,900	21,200	21,200
374.00	30,150	28,525	49,725
375.00	33,400	31,775	81,500
376.00	36,850	35,125	116,625

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.65'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

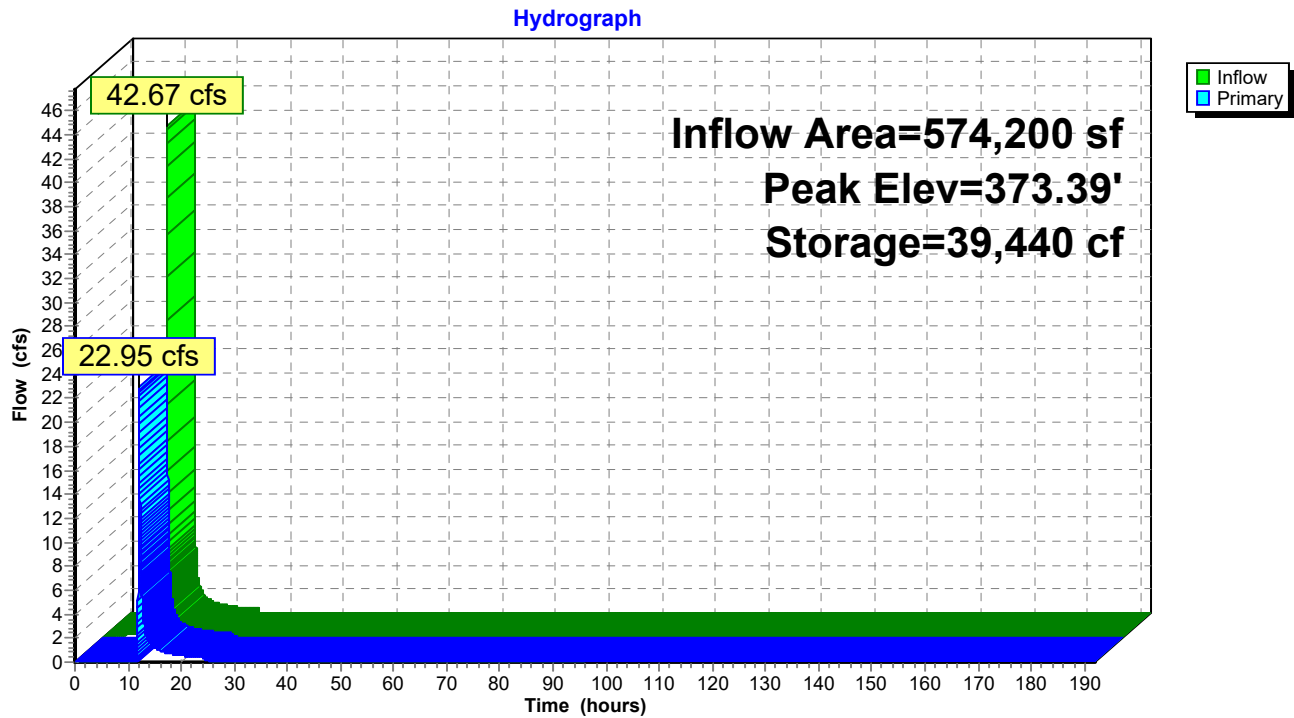
Primary OutFlow Max=23.39 cfs @ 12.04 hrs HW=373.39' (Free Discharge)

1=24" Outflow Pipe (Inlet Controls 23.39 cfs @ 7.44 fps)

2=MRC Low Flow Orifice (Passes < 0.06 cfs potential flow)

3=Type M Overflow (Passes < 23.94 cfs potential flow)

Pond BMP-04: MRC Rain Garden



Summary for Pond BMP-05: MRC Rain Garden

Inflow Area = 393,750 sf, 59.15% Impervious, Inflow Depth = 2.61" for 5-yr event
 Inflow = 37.02 cfs @ 11.96 hrs, Volume= 85,534 cf
 Outflow = 20.72 cfs @ 12.04 hrs, Volume= 84,028 cf, Atten= 44%, Lag= 4.6 min
 Primary = 20.72 cfs @ 12.04 hrs, Volume= 84,028 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 373.37' @ 12.04 hrs Surf.Area= 47,336 sf Storage= 37,474 cf

Plug-Flow detention time= 879.9 min calculated for 84,028 cf (98% of inflow)
 Center-of-Mass det. time= 868.4 min (1,633.5 - 765.1)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	111,850 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		119,350 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	13,800	0	0
373.00	26,300	20,050	20,050
374.00	29,100	27,700	47,750
375.00	32,000	30,550	78,300
376.00	35,100	33,550	111,850

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.2" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.70'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

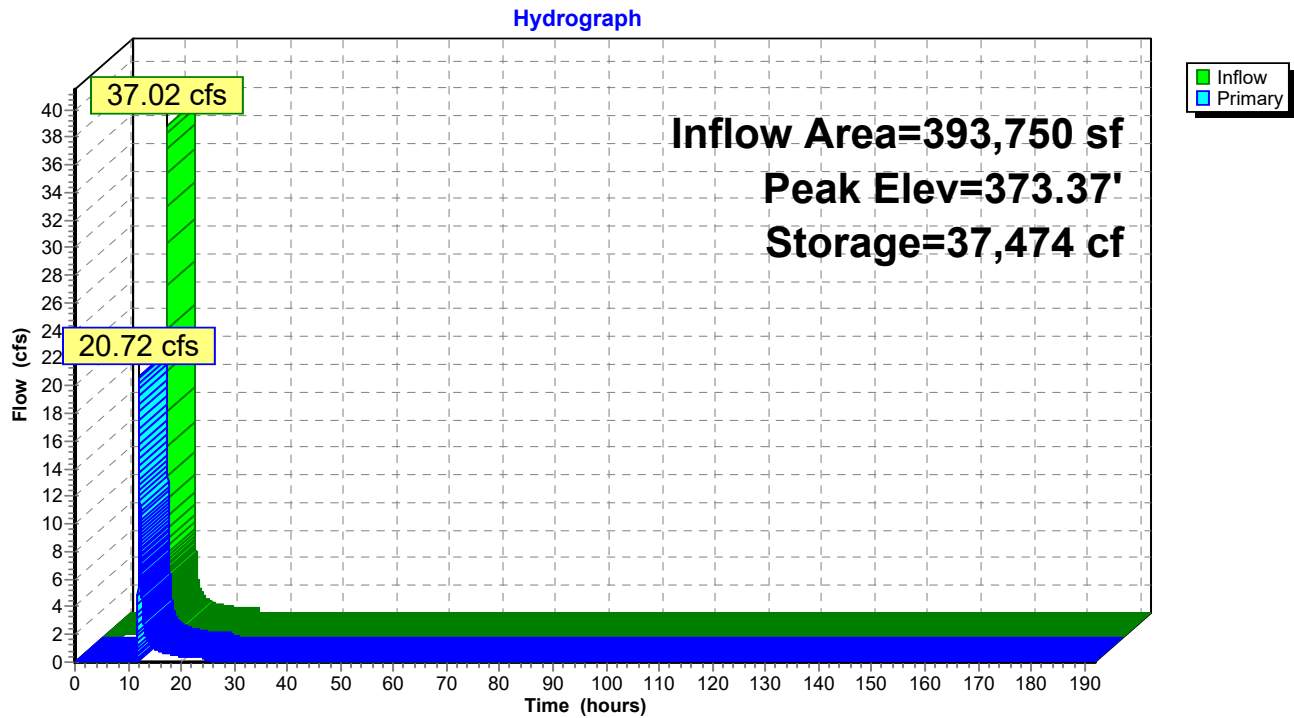
Primary OutFlow Max=20.67 cfs @ 12.04 hrs HW=373.37' (Free Discharge)

1=24" Outflow Pipe (Passes 20.67 cfs of 23.29 cfs potential flow)

2=MRC Low Flow Orifice (Orifice Controls 0.07 cfs @ 8.77 fps)

3=Type M Overflow (Weir Controls 20.60 cfs @ 2.68 fps)

Pond BMP-05: MRC Rain Garden



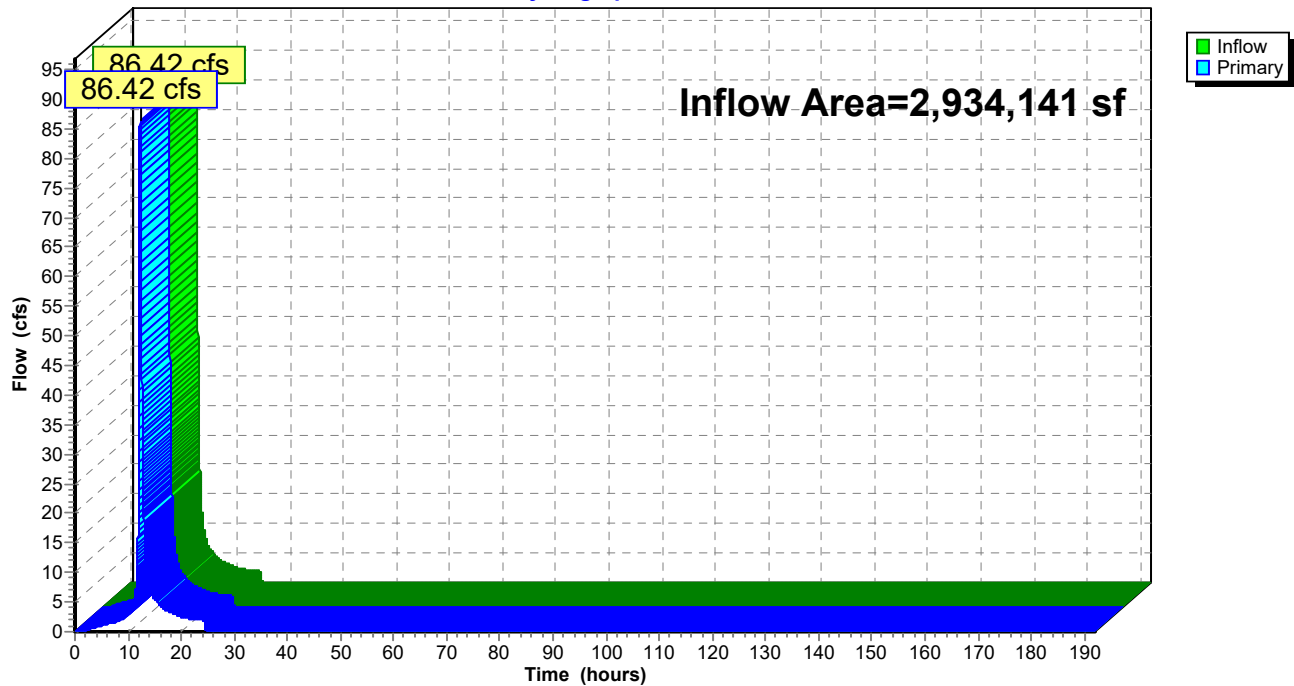
Summary for Link 001A: POA

Inflow Area = 2,934,141 sf, 34.38% Impervious, Inflow Depth = 1.80" for 5-yr event
Inflow = 86.42 cfs @ 12.27 hrs, Volume= 439,873 cf
Primary = 86.42 cfs @ 12.27 hrs, Volume= 439,873 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001A: POA

Hydrograph



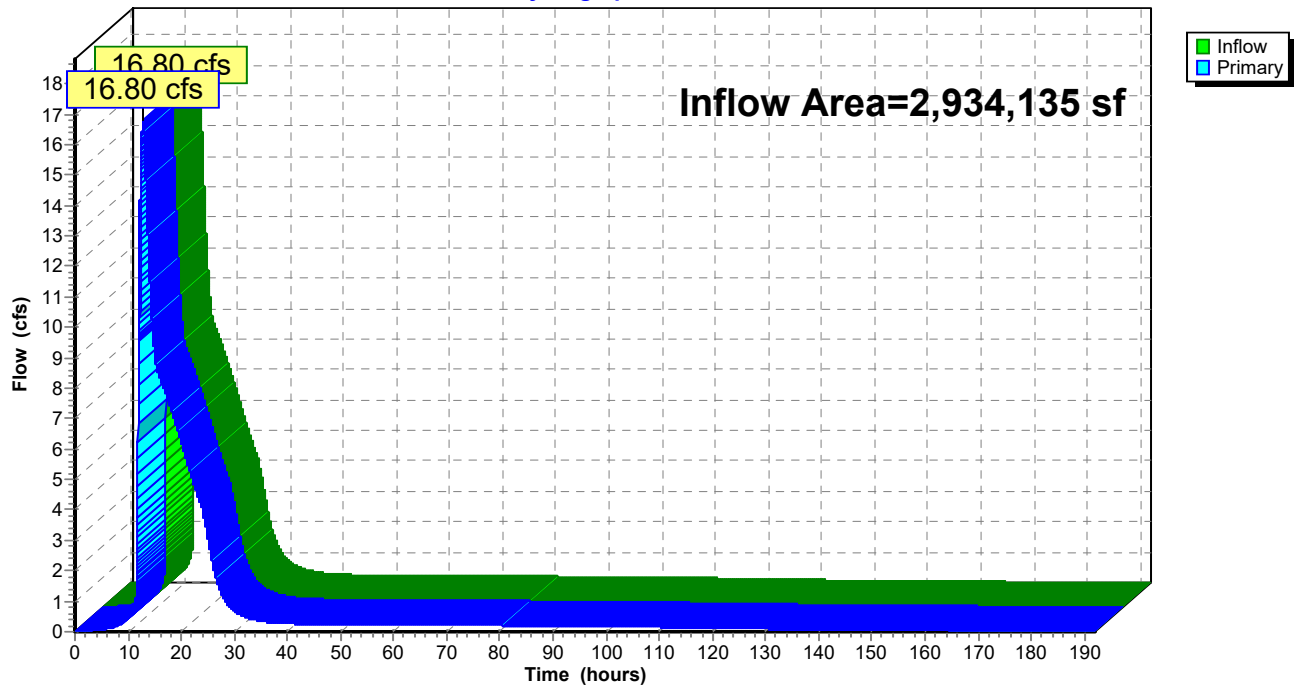
Summary for Link 001B: POA

Inflow Area = 2,934,135 sf, 39.40% Impervious, Inflow Depth > 1.99" for 5-yr event
Inflow = 16.80 cfs @ 12.78 hrs, Volume= 487,723 cf
Primary = 16.80 cfs @ 12.78 hrs, Volume= 487,723 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001B: POA

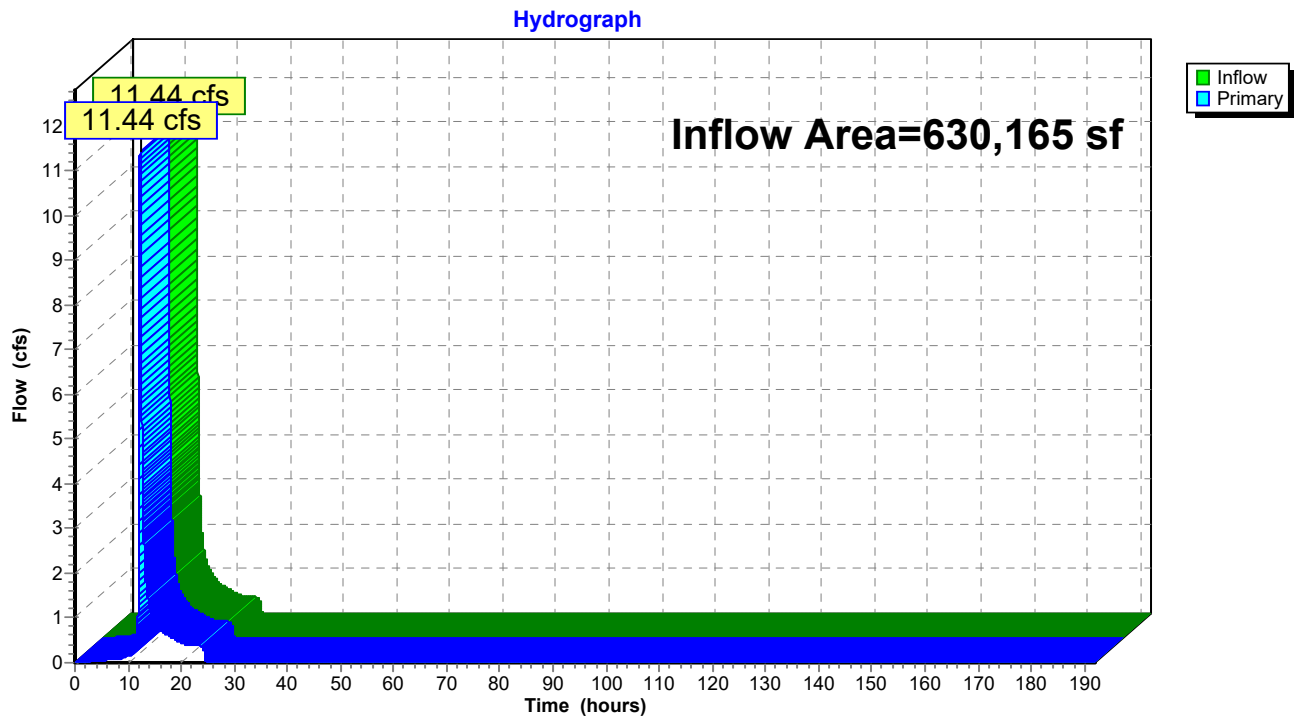
Hydrograph



Summary for Link 2: TOTAL OFFSITE

Inflow Area = 630,165 sf, 7.93% Impervious, Inflow Depth = 1.08" for 5-yr event
Inflow = 11.44 cfs @ 12.25 hrs, Volume= 56,690 cf
Primary = 11.44 cfs @ 12.25 hrs, Volume= 56,690 cf, Atten= 0%, Lag= 0.0 min

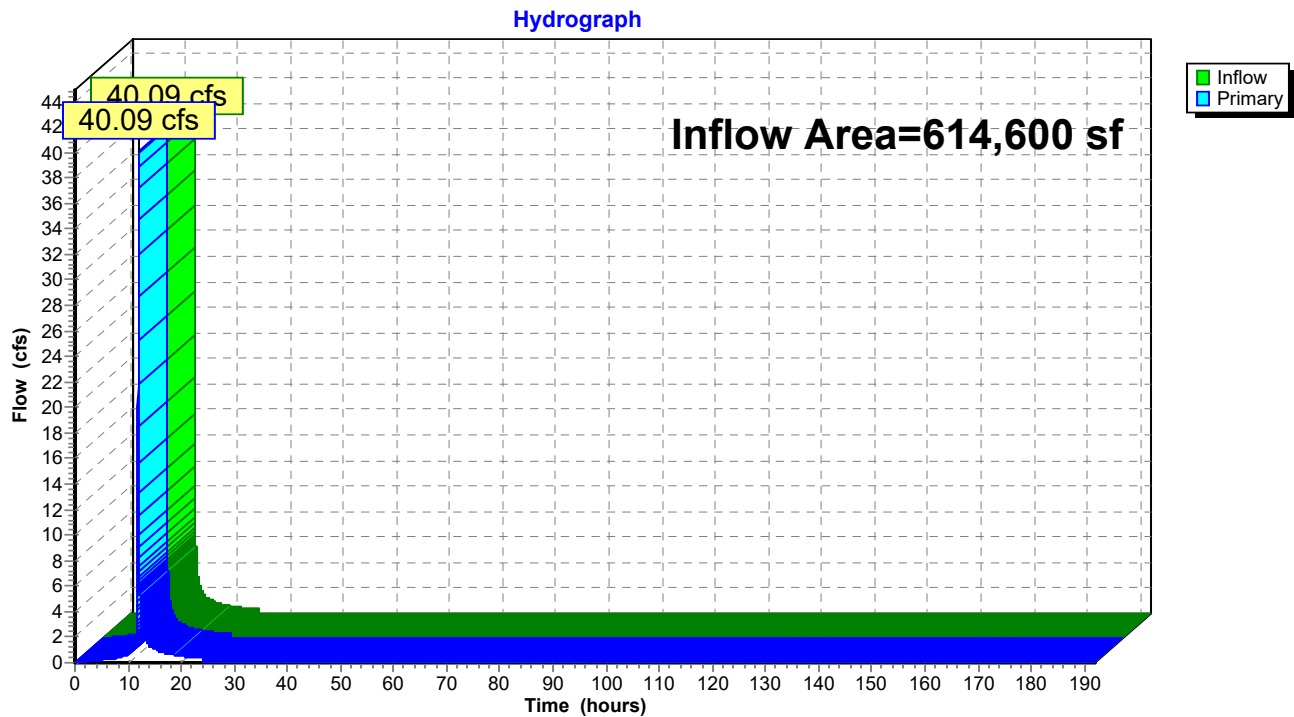
Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 2: TOTAL OFFSITE

Summary for Link 3: LOD to BMP-01

Inflow Area = 614,600 sf, 31.32% Impervious, Inflow Depth = 1.78" for 5-yr event
Inflow = 40.09 cfs @ 11.96 hrs, Volume= 91,022 cf
Primary = 40.09 cfs @ 11.96 hrs, Volume= 91,022 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 3: LOD to BMP-01

Summary for Subcatchment B1: BYPASS (LOD)

Runoff = 0.84 cfs @ 11.97 hrs, Volume= 1,685 cf, Depth= 1.22"

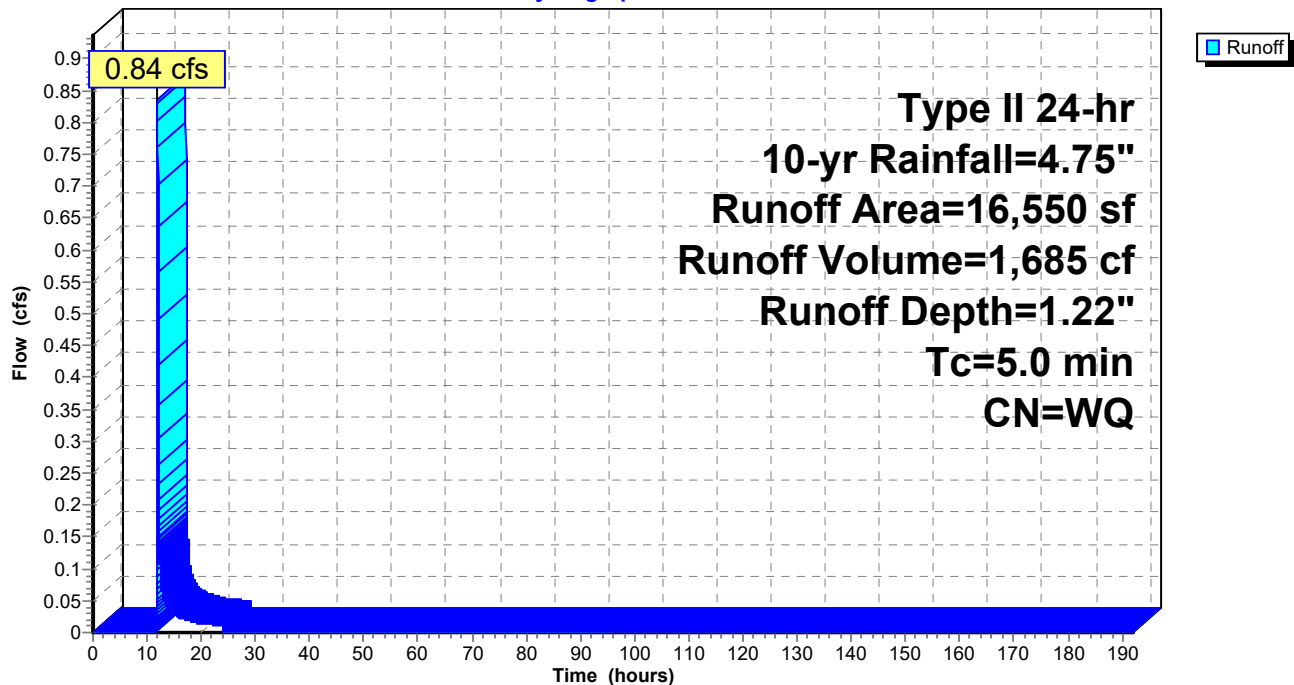
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	16,550	61	>75% Grass cover, Good, HSG B
	16,550		Weighted Average
	16,550	61	100.00% Pervious Area

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

Subcatchment B1: BYPASS (LOD)

Hydrograph



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Type II 24-hr 10-yr Rainfall=4.75"

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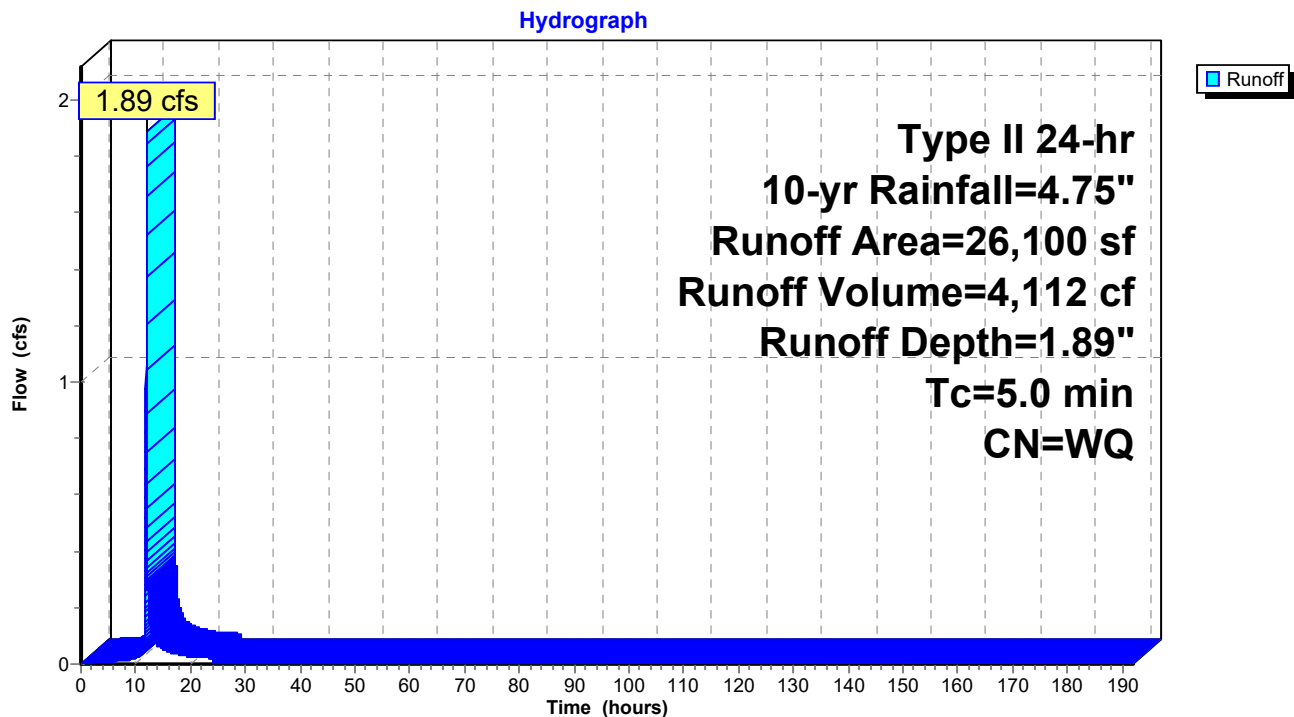
Summary for Subcatchment B2: BYPASS (LOD)

Runoff = 1.89 cfs @ 11.96 hrs, Volume= 4,112 cf, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	0	98	Buildings
*	5,305	98	Impervious
	20,795	61	>75% Grass cover, Good, HSG B
	26,100		Weighted Average
	20,795	61	79.67% Pervious Area
	5,305	98	20.33% Impervious Area

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

Subcatchment B2: BYPASS (LOD)

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Type II 24-hr 10-yr Rainfall=4.75"

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Summary for Subcatchment B3: BYPASS (LOD)

Runoff = 8.43 cfs @ 11.97 hrs, Volume= 18,226 cf, Depth= 1.81"

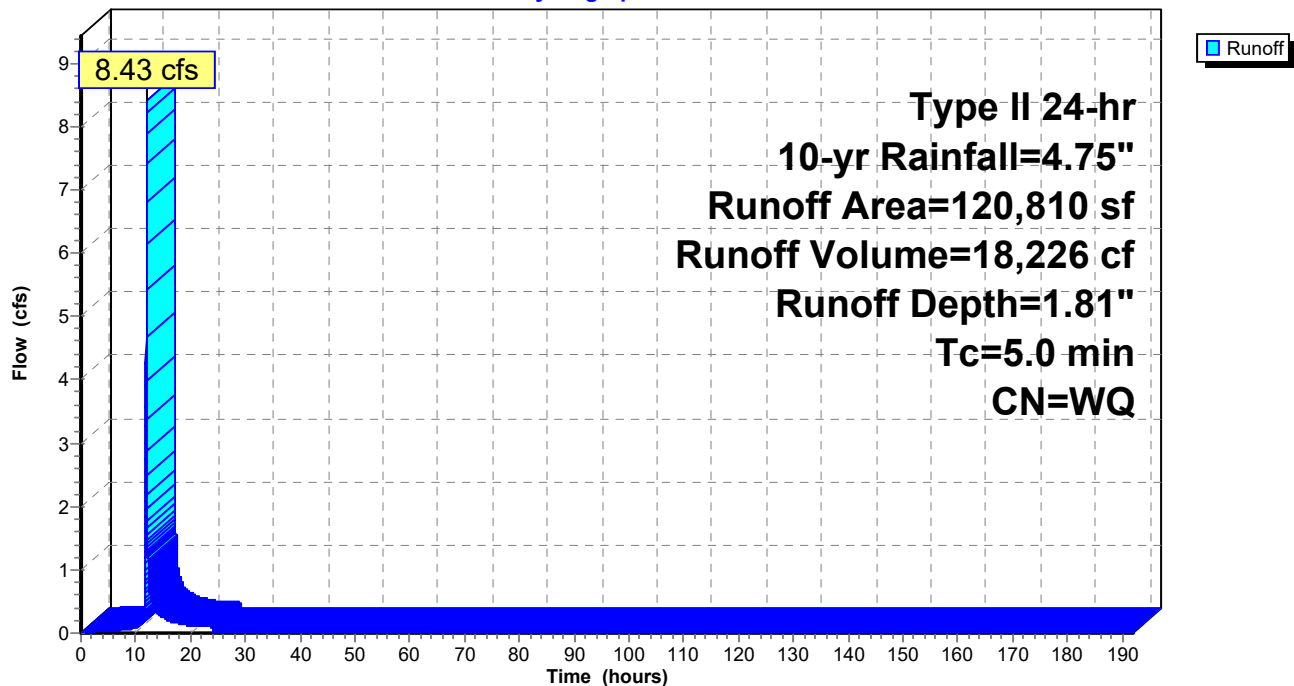
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	80	98	Buildings
*	21,530	98	Impervious
	99,200	61	>75% Grass cover, Good, HSG B
	120,810		Weighted Average
	99,200	61	82.11% Pervious Area
	21,610	98	17.89% Impervious Area

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

Subcatchment B3: BYPASS (LOD)

Hydrograph



Summary for Subcatchment B4: BYPASS (LOD)

Runoff = 0.67 cfs @ 11.97 hrs, Volume= 1,345 cf, Depth= 1.22"

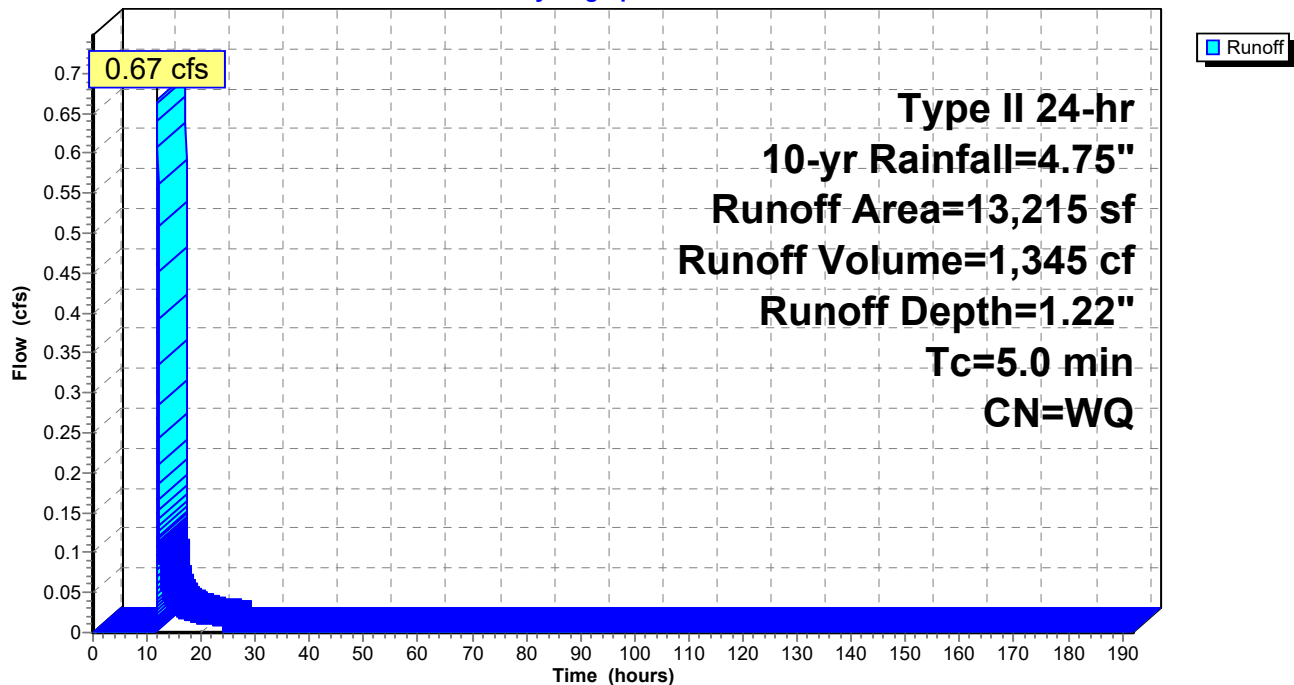
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	13,215	61	>75% Grass cover, Good, HSG B
	13,215		Weighted Average
	13,215	61	100.00% Pervious Area

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

Subcatchment B4: BYPASS (LOD)

Hydrograph



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Type II 24-hr 10-yr Rainfall=4.75"

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Summary for Subcatchment E1: PRE (LOD)

Runoff = 94.68 cfs @ 12.27 hrs, Volume= 476,504 cf, Depth= 2.48"

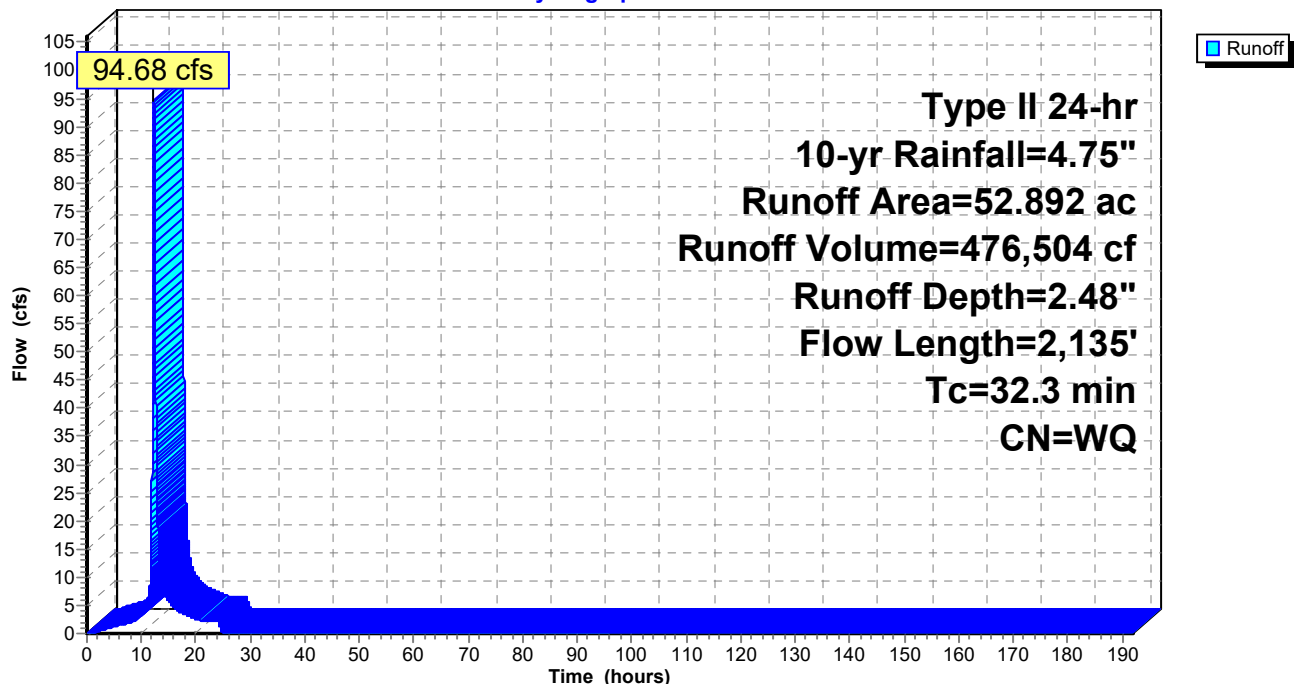
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

Area (ac)	CN	Description
25.382	58	Meadow, non-grazed, HSG B
* 5.502	58	Meadow (20% of Ex. Impervious)
* 22.008	98	Existing Impervious
52.892		Weighted Average
30.884	58	58.39% Pervious Area
22.008	98	41.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
4.4	425	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
2.7	410	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
32.3	2,135	Total			

Subcatchment E1: PRE (LOD)

Hydrograph



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Type II 24-hr 10-yr Rainfall=4.75"

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Summary for Subcatchment E2: PRE (OLOD)

Runoff = 0.54 cfs @ 12.29 hrs, Volume= 2,632 cf, Depth= 1.22"

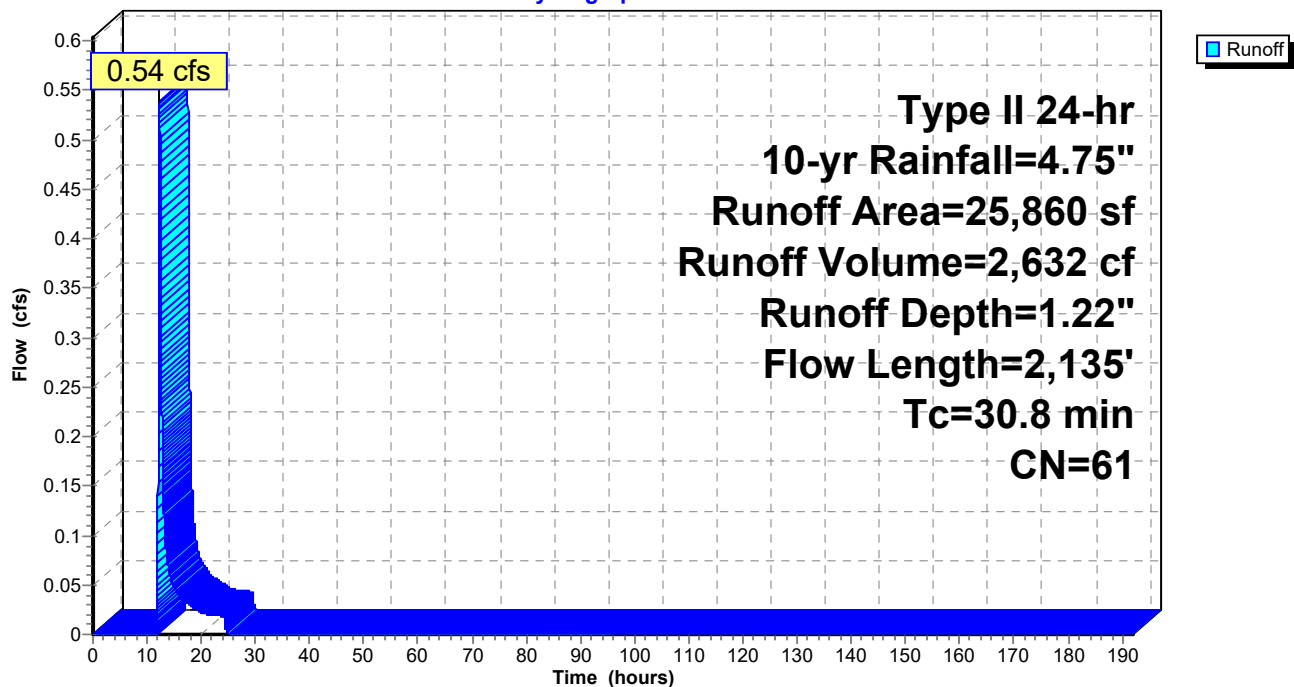
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

Area (sf)	CN	Description
25,860	61	>75% Grass cover, Good, HSG B
25,860	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
3.5	425	0.0100	2.03		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
2.1	410	0.0250	3.21		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
30.8	2,135	Total			

Subcatchment E2: PRE (OLOD)

Hydrograph



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Type II 24-hr 10-yr Rainfall=4.75"

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Summary for Subcatchment E3: PRE (OLOD)

Runoff = 16.18 cfs @ 12.25 hrs, Volume= 75,219 cf, Depth= 1.49"

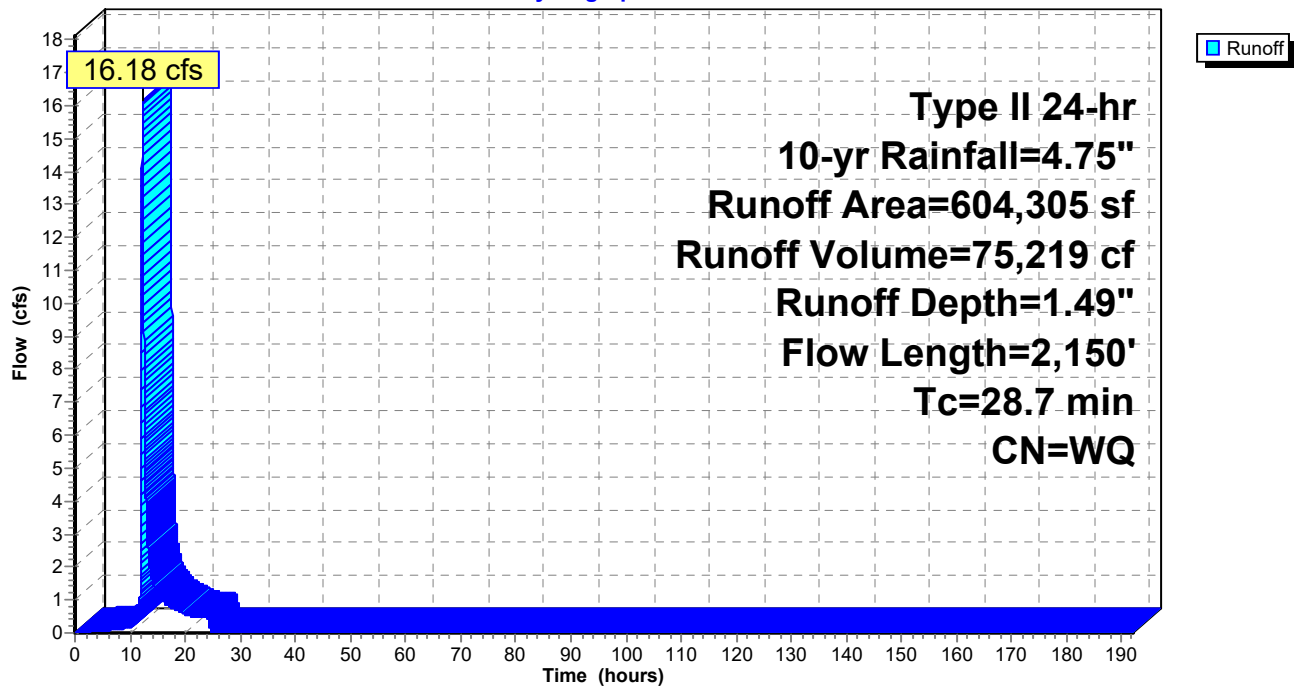
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

Area (sf)	CN	Description
* 49,955	98	Existing Impervious
554,350	61	>75% Grass cover, Good, HSG B
604,305		Weighted Average
554,350	61	91.73% Pervious Area
49,955	98	8.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
9.2	1,400	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
6.7	650	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
28.7	2,150	Total			

Subcatchment E3: PRE (OLOD)

Hydrograph



Summary for Subcatchment P1A: Post to BMP-01 (LOD)

Runoff = 37.97 cfs @ 11.96 hrs, Volume= 84,009 cf, Depth= 2.15"

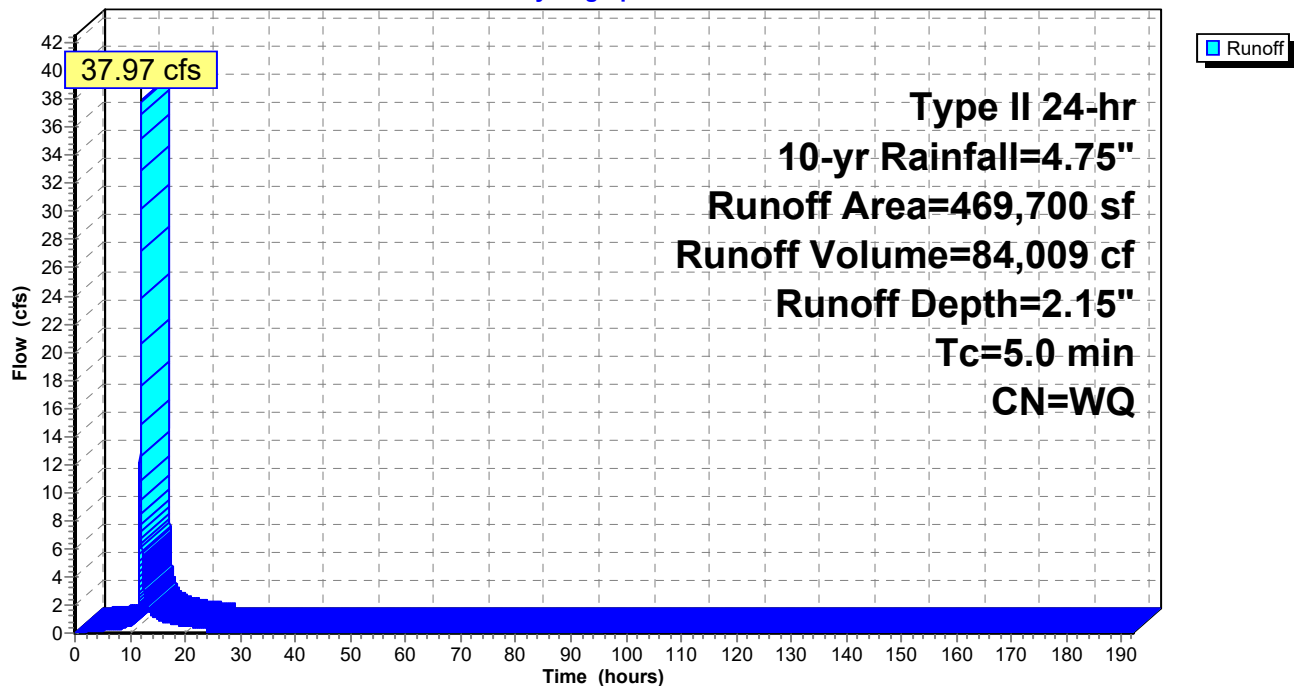
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	240	98	Buildings
*	131,700	98	Impervious
	337,760	61	>75% Grass cover, Good, HSG B
	469,700		Weighted Average
	337,760	61	71.91% Pervious Area
	131,940	98	28.09% Impervious Area

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

Subcatchment P1A: Post to BMP-01 (LOD)

Hydrograph



Summary for Subcatchment P1B: Post to BMP-01 (LOD)

Runoff = 13.89 cfs @ 11.96 hrs, Volume= 31,369 cf, Depth= 2.60"

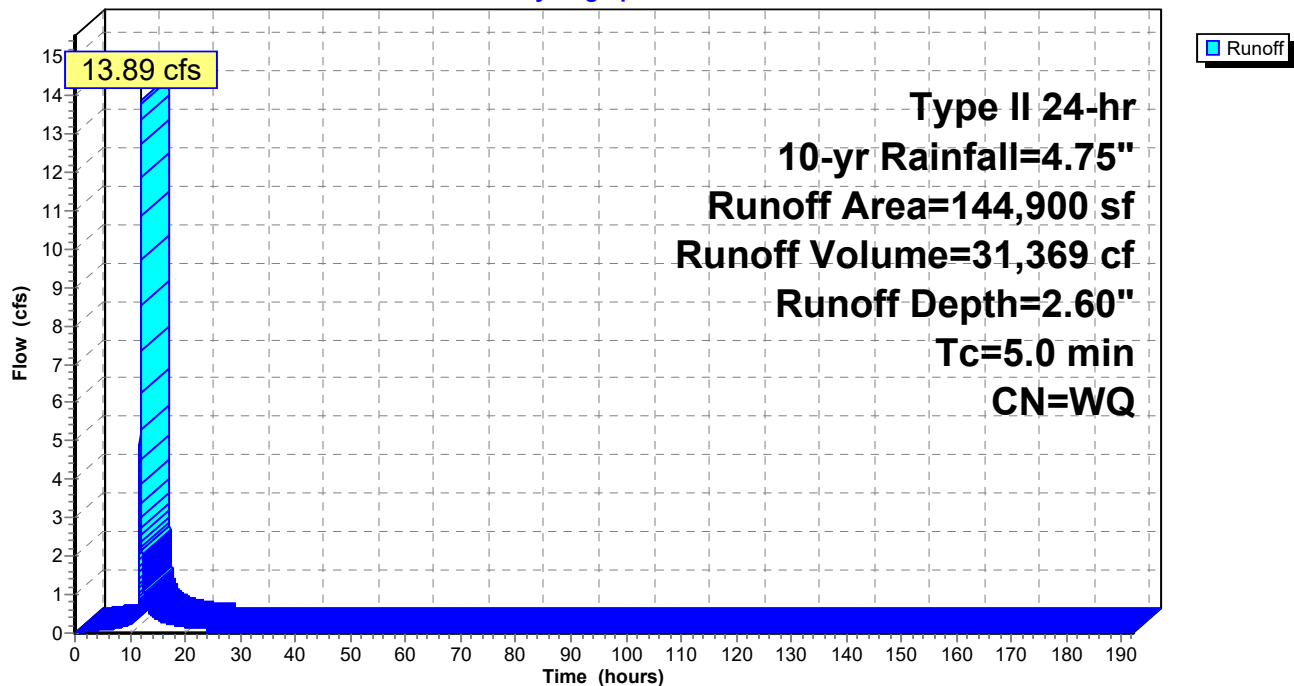
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	0	98	Buildings
*	60,580	98	Impervious
	84,320	61	>75% Grass cover, Good, HSG B
	144,900		Weighted Average
	84,320	61	58.19% Pervious Area
	60,580	98	41.81% Impervious Area

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

Subcatchment P1B: Post to BMP-01 (LOD)

Hydrograph



Summary for Subcatchment P1C: Post to BMP-01 (OLOD)

Runoff = 33.02 cfs @ 11.97 hrs, Volume= 69,468 cf, Depth= 1.52"

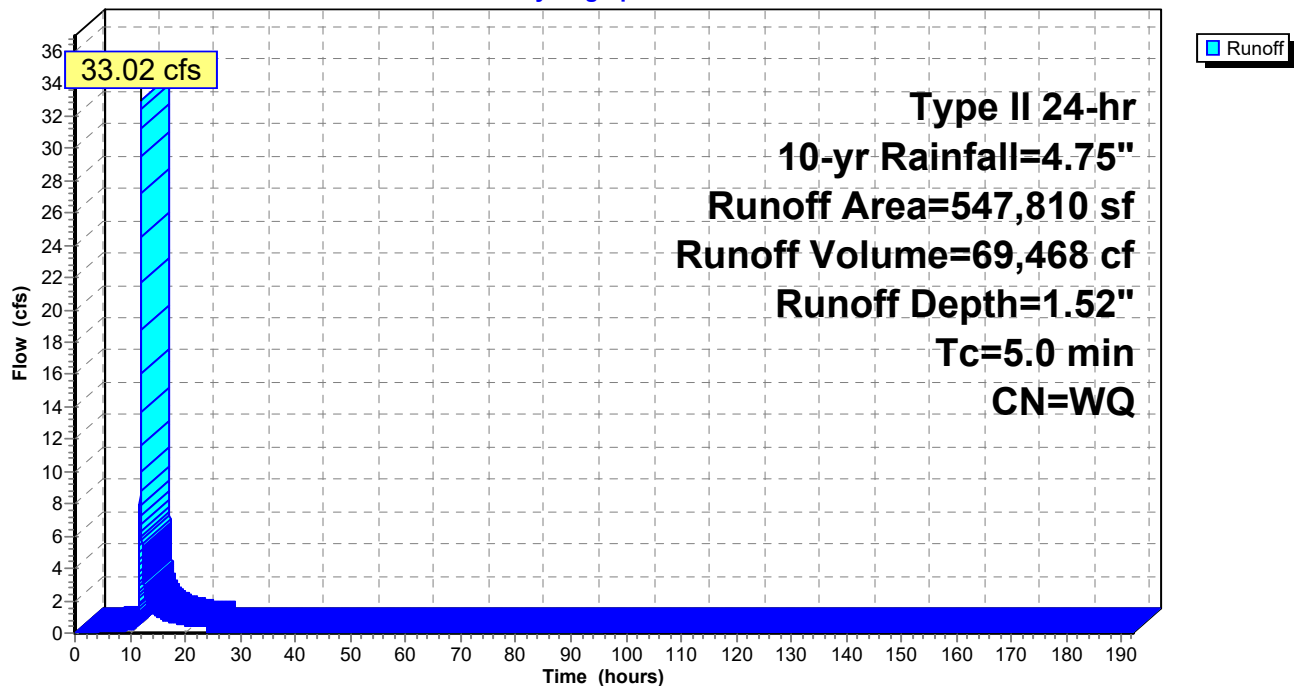
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	0	98	Buildings
*	49,955	98	Impervious
	497,855	61	>75% Grass cover, Good, HSG B
	547,810		Weighted Average
	497,855	61	90.88% Pervious Area
	49,955	98	9.12% Impervious Area

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

Subcatchment P1C: Post to BMP-01 (OLOD)

Hydrograph



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Type II 24-hr 10-yr Rainfall=4.75"

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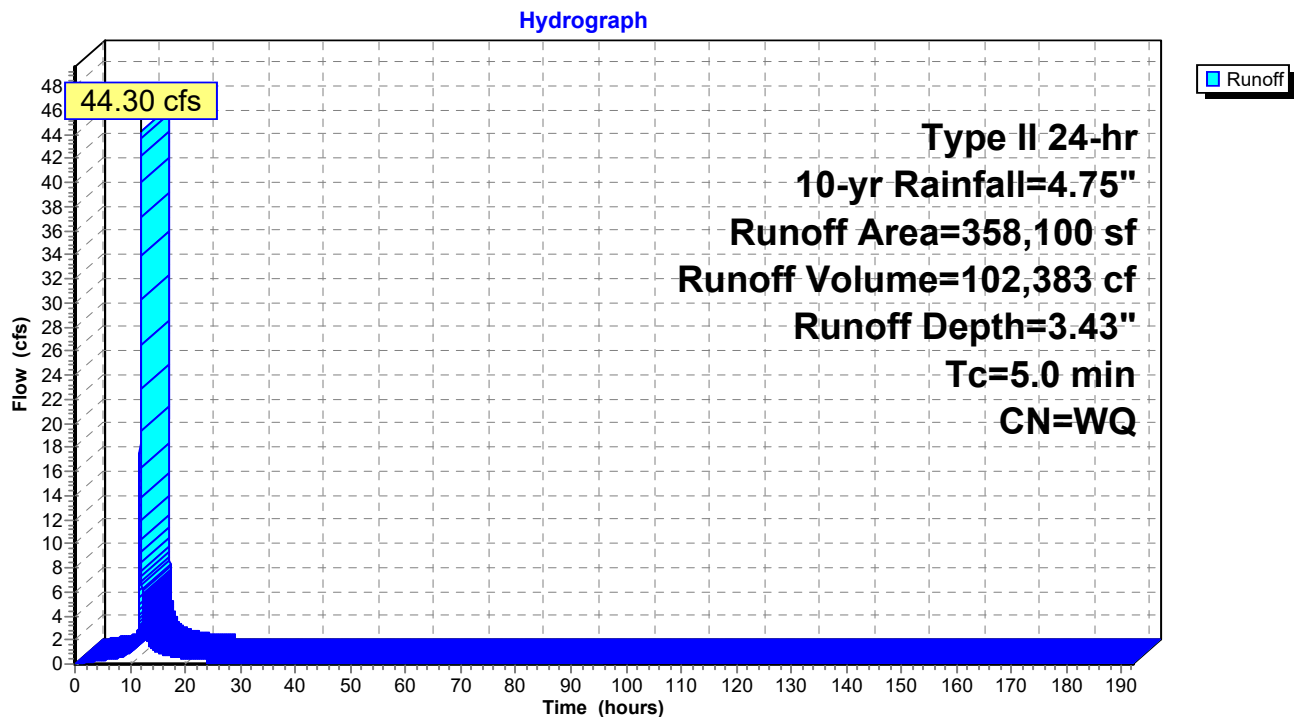
Summary for Subcatchment P2: Post to BMP-02 (LOD)

Runoff = 44.30 cfs @ 11.96 hrs, Volume= 102,383 cf, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	106,100	98	Impervious
	117,775	61	>75% Grass cover, Good, HSG B
	358,100		Weighted Average
	117,775	61	32.89% Pervious Area
	240,325	98	67.11% Impervious Area

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

Subcatchment P2: Post to BMP-02 (LOD)

Summary for Subcatchment P3: Post to BMP-03 (LOD)

Runoff = 33.56 cfs @ 11.96 hrs, Volume= 77,614 cf, Depth= 3.46"

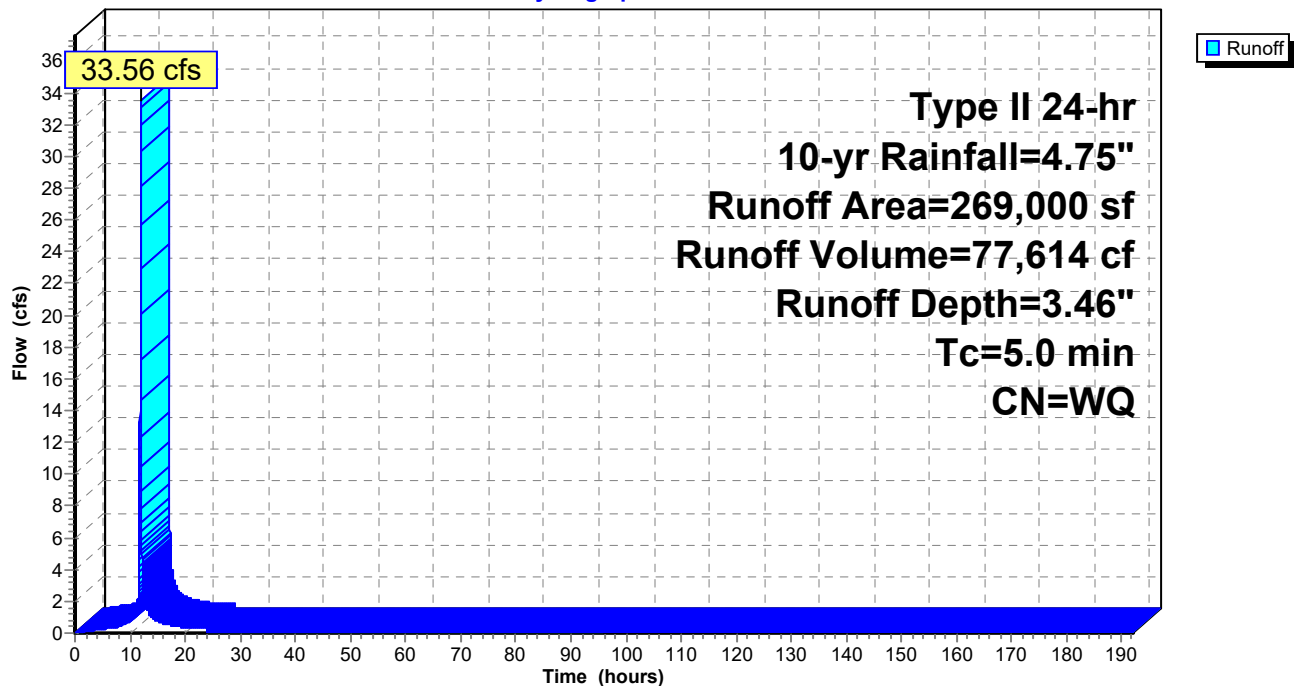
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	59,870	98	Impervious
	85,900	61	>75% Grass cover, Good, HSG B
	269,000		Weighted Average
	85,900	61	31.93% Pervious Area
	183,100	98	68.07% Impervious Area

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

Subcatchment P3: Post to BMP-03 (LOD)

Hydrograph



Summary for Subcatchment P4A: Post to BMP-04 (LOD)

Runoff = 49.66 cfs @ 11.96 hrs, Volume= 112,867 cf, Depth= 2.78"

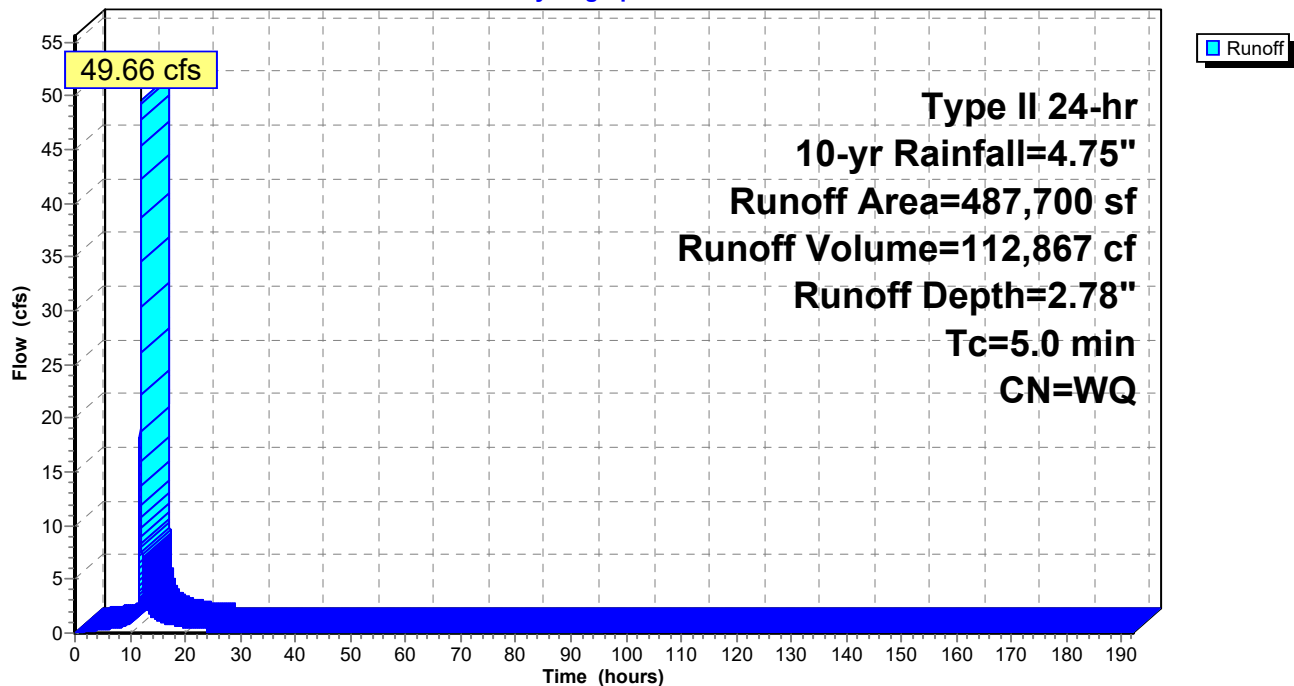
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	96,230	98	Impervious
	257,245	61	>75% Grass cover, Good, HSG B
	487,700		Weighted Average
	257,245	61	52.75% Pervious Area
	230,455	98	47.25% Impervious Area

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

Subcatchment P4A: Post to BMP-04 (LOD)

Hydrograph



Summary for Subcatchment P4B: Post to BMP-04 (OLOD)

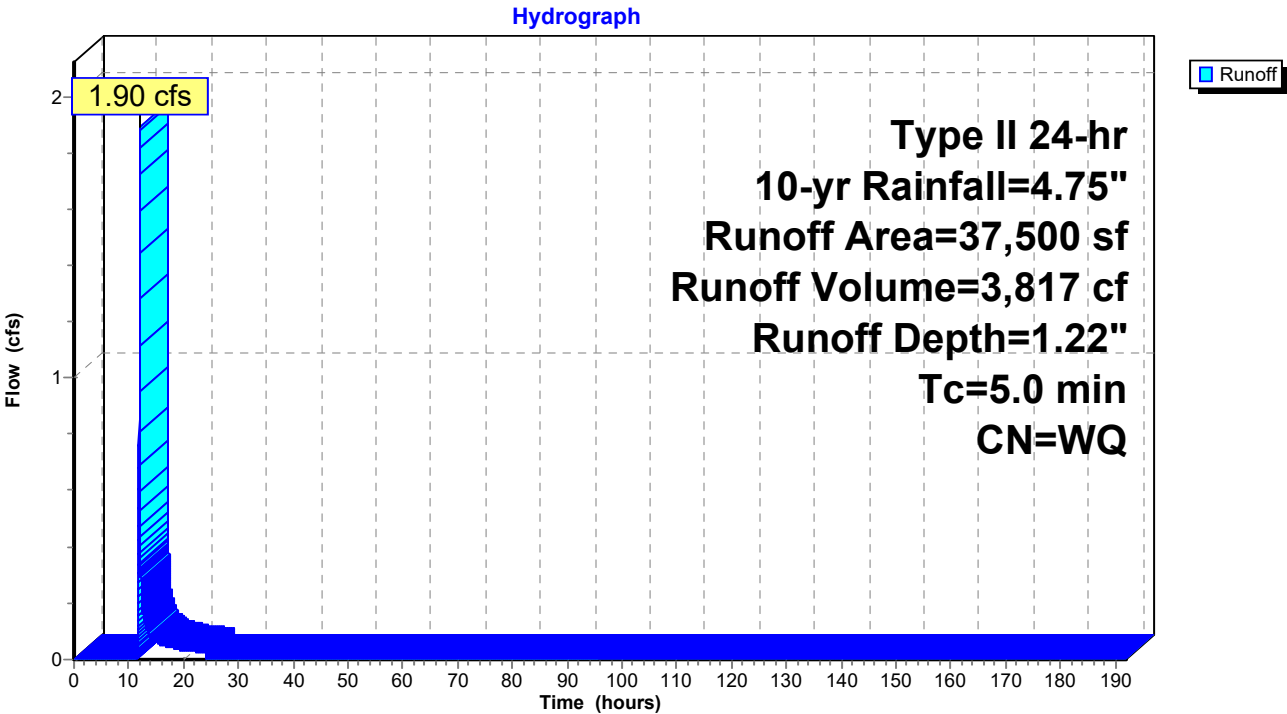
Runoff = 1.90 cfs @ 11.97 hrs, Volume= 3,817 cf, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	37,500	61	>75% Grass cover, Good, HSG B
	37,500		Weighted Average
	37,500	61	100.00% Pervious Area

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

Subcatchment P4B: Post to BMP-04 (OLOD)



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Type II 24-hr 10-yr Rainfall=4.75"

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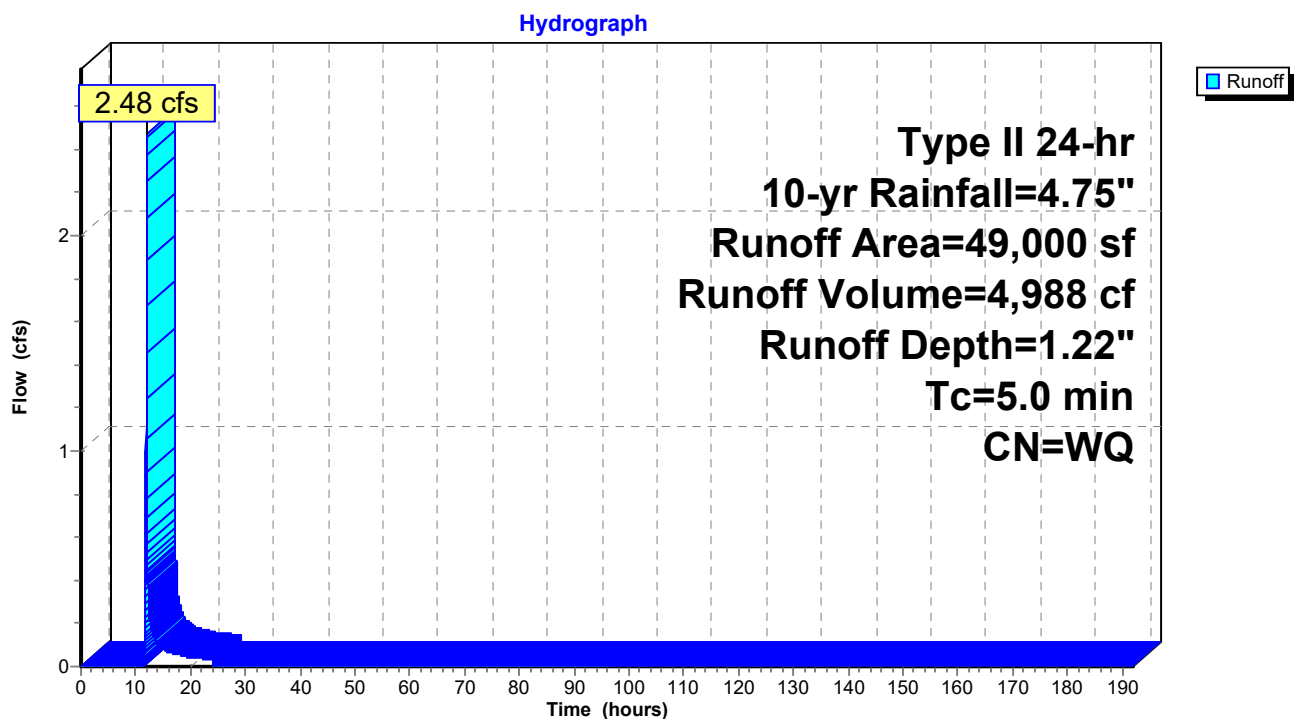
Summary for Subcatchment P4C: Post to BMP-04 (OLOD)

Runoff = 2.48 cfs @ 11.97 hrs, Volume= 4,988 cf, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	49,000	61	>75% Grass cover, Good, HSG B
	49,000		Weighted Average
	49,000	61	100.00% Pervious Area

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

Subcatchment P4C: Post to BMP-04 (OLOD)

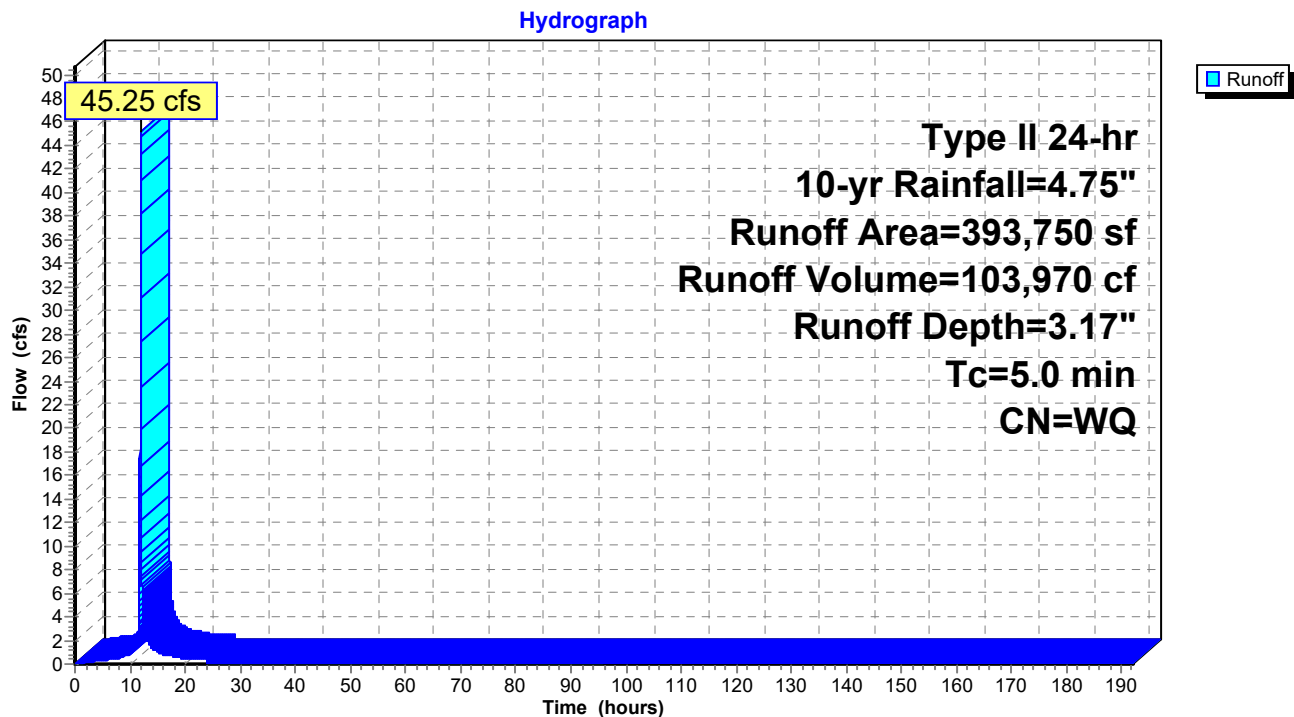
Summary for Subcatchment P5: Post to BMP-05 (LOD)

Runoff = 45.25 cfs @ 11.96 hrs, Volume= 103,970 cf, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	109,655	98	Impervious
	160,865	61	>75% Grass cover, Good, HSG B
	393,750		Weighted Average
	160,865	61	40.85% Pervious Area
	232,885	98	59.15% Impervious Area

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

Subcatchment P5: Post to BMP-05 (LOD)

Summary for Pond BMP-01: Wet Pond

Inflow Area = 2,757,460 sf, 40.95% Impervious, Inflow Depth = 2.55" for 10-yr event
 Inflow = 185.51 cfs @ 11.98 hrs, Volume= 585,188 cf
 Outflow = 31.95 cfs @ 12.51 hrs, Volume= 584,759 cf, Atten= 83%, Lag= 32.0 min
 Primary = 31.95 cfs @ 12.51 hrs, Volume= 584,759 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 357.90' @ 12.51 hrs Surf.Area= 83,881 sf Storage= 222,210 cf

Plug-Flow detention time= 276.5 min calculated for 584,728 cf (100% of inflow)
 Center-of-Mass det. time= 270.1 min (1,548.1 - 1,277.9)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	613,350 cf	Storage Above Perm. Pool (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	69,700	0	0
356.00	74,500	72,100	72,100
357.00	79,400	76,950	149,050
358.00	84,400	81,900	230,950
359.00	89,550	86,975	317,925
360.00	95,600	92,575	410,500
361.00	101,400	98,500	509,000
362.00	107,300	104,350	613,350

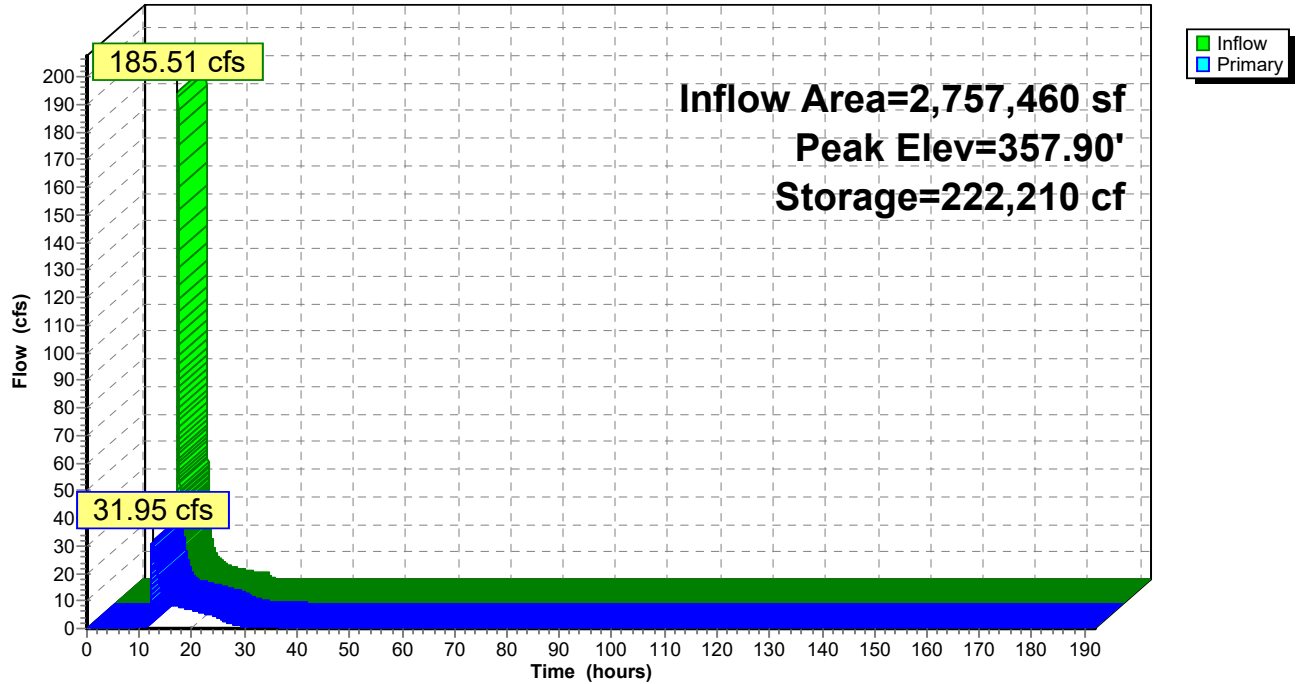
Device	Routing	Invert	Outlet Devices
#1	Primary	355.00'	36.0" Round 36" Outfall X 5.00 L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 355.00' / 354.50' S= 0.0156 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	355.00'	7.0" Vert. 7" Siphon Orifice X 5.00 C= 0.600 Limited to weir flow at low heads
#3	Device 1	357.00'	19.0" W x 30.0" H Vert. 19"Wx30"H Weir X 5.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	360.10'	24.0" x 45.0" Horiz. Type M Inlet X 5.00 C= 0.600 Limited to weir flow at low heads
#5	Primary	360.60'	100.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=31.94 cfs @ 12.51 hrs HW=357.90' (Free Discharge)

1=36" Outfall (Passes 31.94 cfs of 187.56 cfs potential flow)
 2=7" Siphon Orifice (Orifice Controls 10.38 cfs @ 7.77 fps)
 3=19"Wx30"H Weir (Orifice Controls 21.56 cfs @ 3.04 fps)
 4=Type M Inlet (Controls 0.00 cfs)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond BMP-01: Wet Pond

Hydrograph



Summary for Pond BMP-02: MRC Rain Garden

Inflow Area = 358,100 sf, 67.11% Impervious, Inflow Depth = 3.43" for 10-yr event
 Inflow = 44.30 cfs @ 11.96 hrs, Volume= 102,383 cf
 Outflow = 31.00 cfs @ 12.02 hrs, Volume= 101,252 cf, Atten= 30%, Lag= 3.6 min
 Primary = 31.00 cfs @ 12.02 hrs, Volume= 101,252 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 364.20' @ 12.02 hrs Surf.Area= 33,458 sf Storage= 36,558 cf

Plug-Flow detention time= 783.4 min calculated for 101,252 cf (99% of inflow)
 Center-of-Mass det. time= 776.1 min (1,534.9 - 758.9)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Prismatic) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	67,900 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		75,775 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
358.00	7,500	0	0
359.00	7,500	7,500	7,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	7,500	0	0
363.00	12,450	9,975	9,975
364.00	17,750	15,100	25,075
365.00	21,300	19,525	44,600
366.00	25,300	23,300	67,900

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	363.25'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

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Type II 24-hr 10-yr Rainfall=4.75"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=31.00 cfs @ 12.02 hrs HW=364.20' (Free Discharge)

1=Outflow Pipe (Inlet Controls 31.00 cfs @ 9.87 fps)

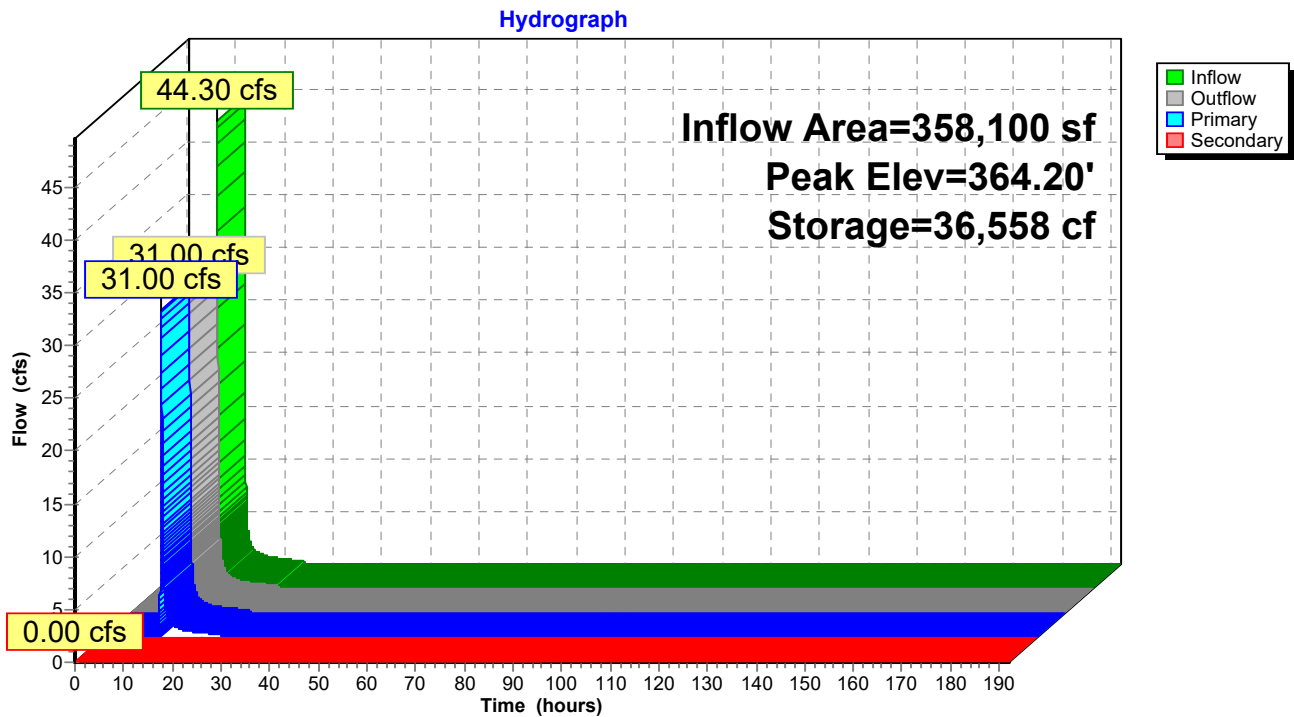
2=MRC Low Flow Orifice (Passes < 0.07 cfs potential flow)

3=Type M Overflow (Passes < 34.75 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-02: MRC Rain Garden



Summary for Pond BMP-03: MRC Rain Garden

Inflow Area = 269,000 sf, 68.07% Impervious, Inflow Depth = 3.46" for 10-yr event
 Inflow = 33.56 cfs @ 11.96 hrs, Volume= 77,614 cf
 Outflow = 25.76 cfs @ 12.01 hrs, Volume= 76,483 cf, Atten= 23%, Lag= 3.1 min
 Primary = 25.76 cfs @ 12.01 hrs, Volume= 76,483 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 363.53' @ 12.01 hrs Surf.Area= 31,836 sf Storage= 26,859 cf

Plug-Flow detention time= 737.3 min calculated for 76,483 cf (99% of inflow)
 Center-of-Mass det. time= 727.7 min (1,486.0 - 758.3)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	72,725 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		80,600 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
358.00	7,500	0	0	7,500
359.00	7,500	7,500	7,500	7,846

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	8,850	0	0
363.00	13,250	11,050	11,050
364.00	20,050	16,650	27,700
365.00	22,700	21,375	49,075
366.00	24,600	23,650	72,725

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.0" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	362.75'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

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Type II 24-hr 10-yr Rainfall=4.75"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=25.83 cfs @ 12.01 hrs HW=363.53' (Free Discharge)

1=Outflow Pipe (Passes 25.83 cfs of 28.41 cfs potential flow)

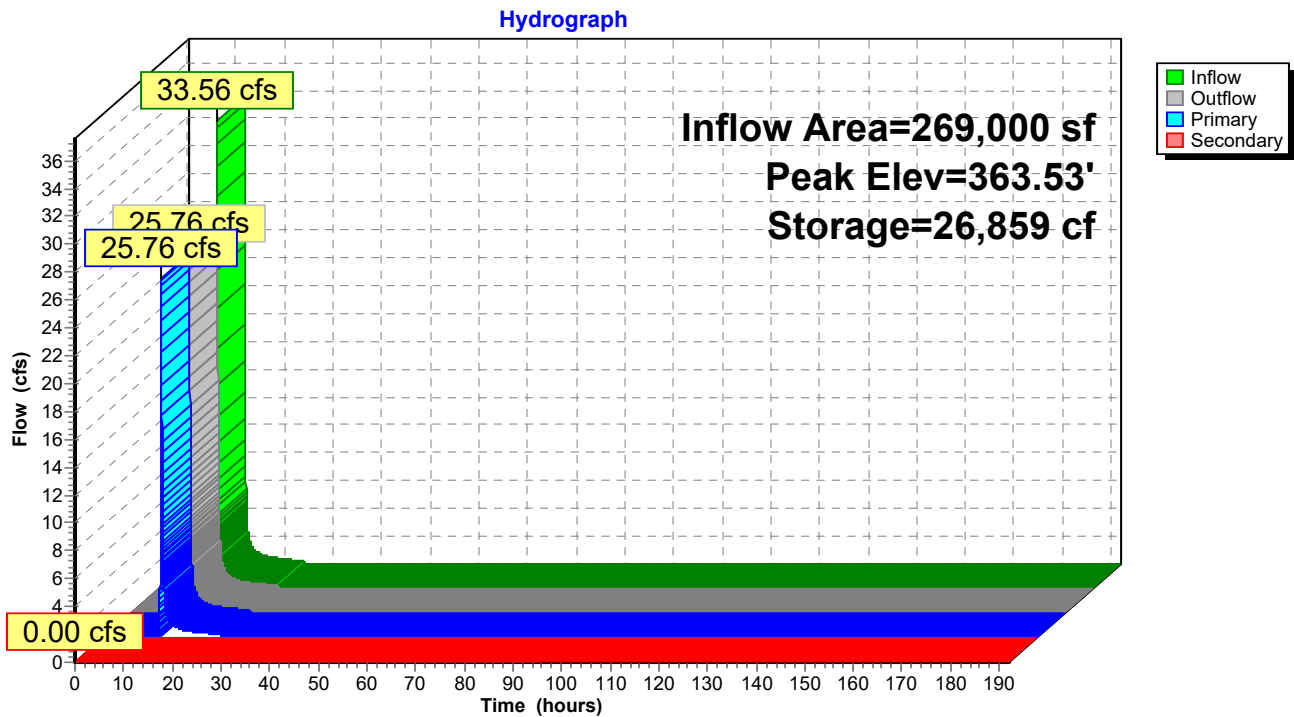
2=MRC Low Flow Orifice (Orifice Controls 0.06 cfs @ 10.20 fps)

3=Type M Overflow (Weir Controls 25.77 cfs @ 2.88 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-03: MRC Rain Garden



Summary for Pond BMP-04: MRC Rain Garden

Inflow Area = 574,200 sf, 40.13% Impervious, Inflow Depth = 2.54" for 10-yr event
 Inflow = 53.98 cfs @ 11.96 hrs, Volume= 121,672 cf
 Outflow = 24.55 cfs @ 12.05 hrs, Volume= 120,142 cf, Atten= 55%, Lag= 5.3 min
 Primary = 24.55 cfs @ 12.05 hrs, Volume= 120,142 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 373.63' @ 12.05 hrs Surf.Area= 48,963 sf Storage= 46,427 cf

Plug-Flow detention time= 698.8 min calculated for 120,136 cf (99% of inflow)
 Center-of-Mass det. time= 691.2 min (1,471.9 - 780.7)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	116,625 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		124,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	15,500	0	0
373.00	26,900	21,200	21,200
374.00	30,150	28,525	49,725
375.00	33,400	31,775	81,500
376.00	36,850	35,125	116,625

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.65'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

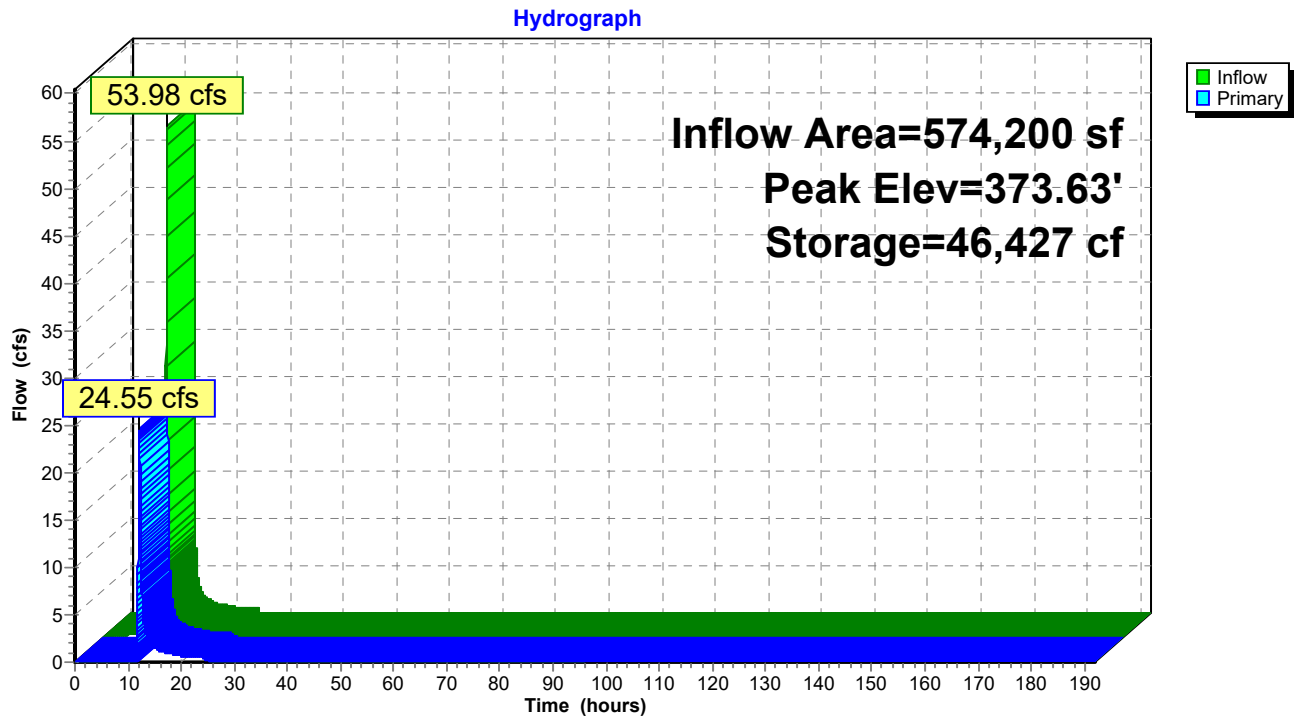
Primary OutFlow Max=24.55 cfs @ 12.05 hrs HW=373.63' (Free Discharge)

1=24" Outflow Pipe (Inlet Controls 24.55 cfs @ 7.82 fps)

2=MRC Low Flow Orifice (Passes < 0.06 cfs potential flow)

3=Type M Overflow (Passes < 35.83 cfs potential flow)

Pond BMP-04: MRC Rain Garden



Summary for Pond BMP-05: MRC Rain Garden

Inflow Area = 393,750 sf, 59.15% Impervious, Inflow Depth = 3.17" for 10-yr event
 Inflow = 45.25 cfs @ 11.96 hrs, Volume= 103,970 cf
 Outflow = 24.10 cfs @ 12.04 hrs, Volume= 102,464 cf, Atten= 47%, Lag= 4.8 min
 Primary = 24.10 cfs @ 12.04 hrs, Volume= 102,464 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 373.54' @ 12.04 hrs Surf.Area= 47,809 sf Storage= 42,127 cf

Plug-Flow detention time= 733.1 min calculated for 102,464 cf (99% of inflow)
 Center-of-Mass det. time= 723.5 min (1,487.6 - 764.1)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	111,850 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		119,350 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	13,800	0	0
373.00	26,300	20,050	20,050
374.00	29,100	27,700	47,750
375.00	32,000	30,550	78,300
376.00	35,100	33,550	111,850

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.2" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.70'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

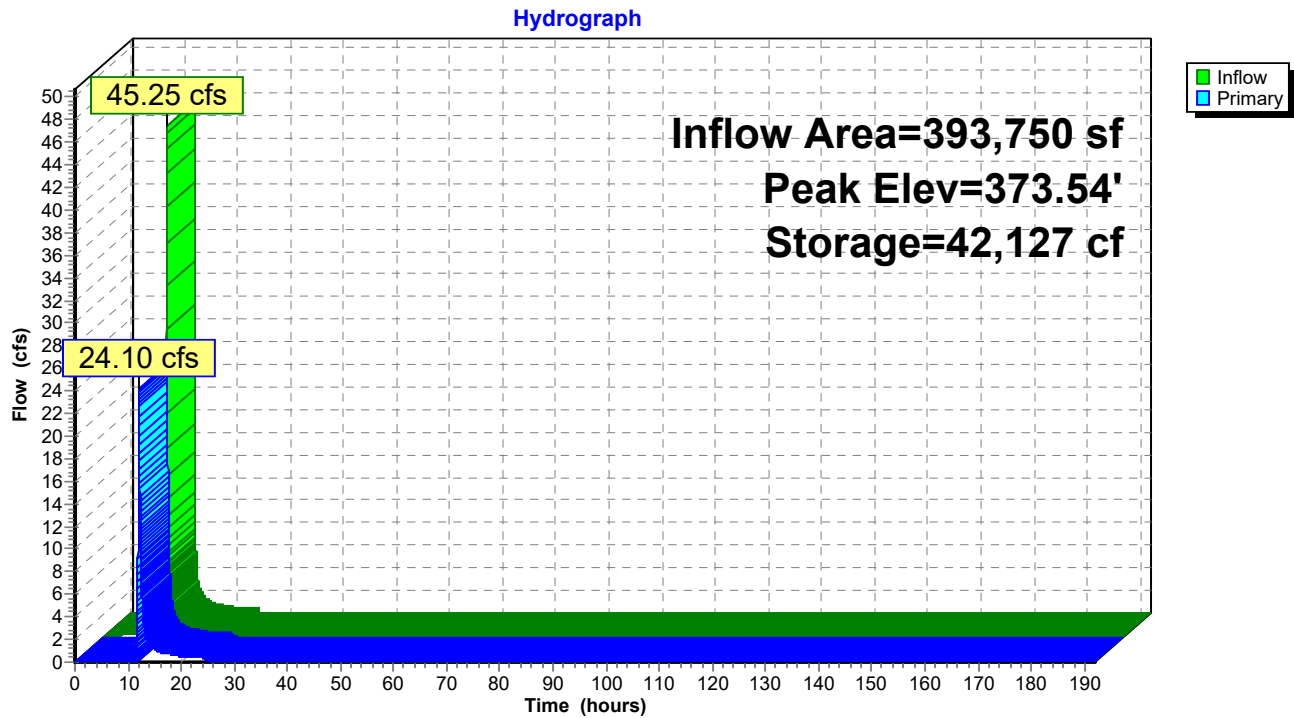
Primary OutFlow Max=24.10 cfs @ 12.04 hrs HW=373.54' (Free Discharge)

1=24" Outflow Pipe (Inlet Controls 24.10 cfs @ 7.67 fps)

2=MRC Low Flow Orifice (Passes < 0.07 cfs potential flow)

3=Type M Overflow (Passes < 28.87 cfs potential flow)

Pond BMP-05: MRC Rain Garden



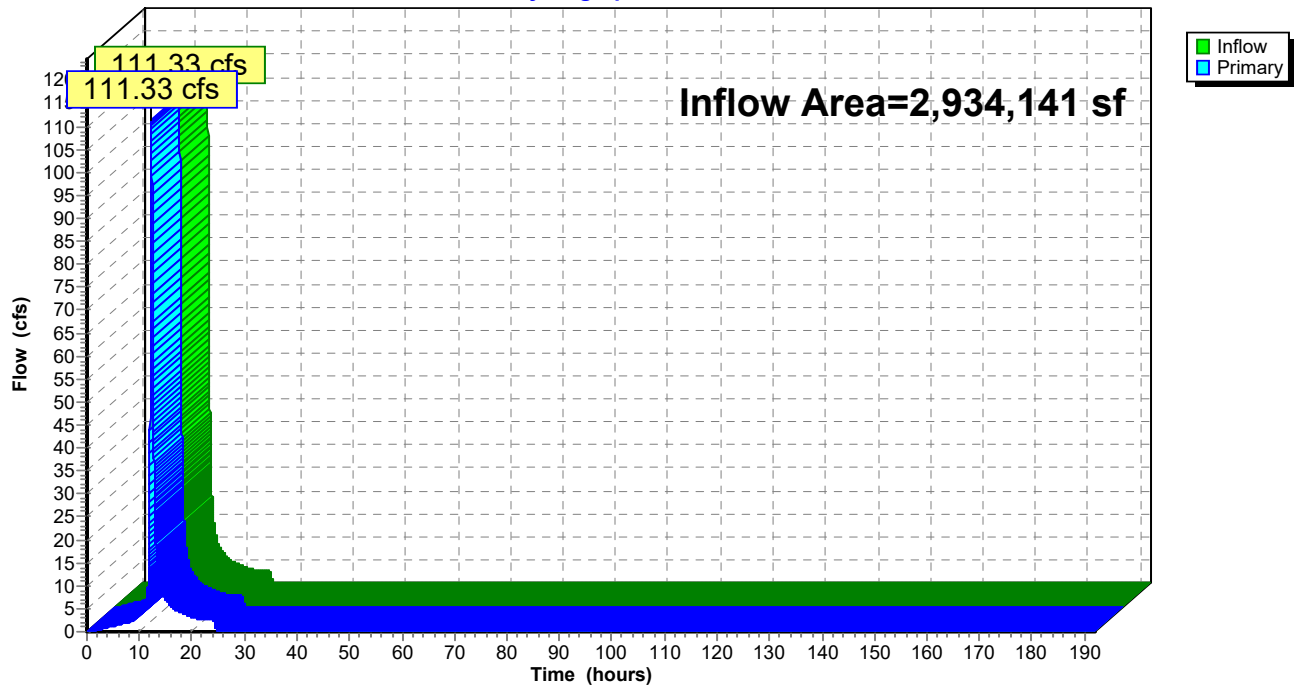
Summary for Link 001A: POA

Inflow Area = 2,934,141 sf, 34.38% Impervious, Inflow Depth = 2.27" for 10-yr event
Inflow = 111.33 cfs @ 12.27 hrs, Volume= 554,355 cf
Primary = 111.33 cfs @ 12.27 hrs, Volume= 554,355 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001A: POA

Hydrograph



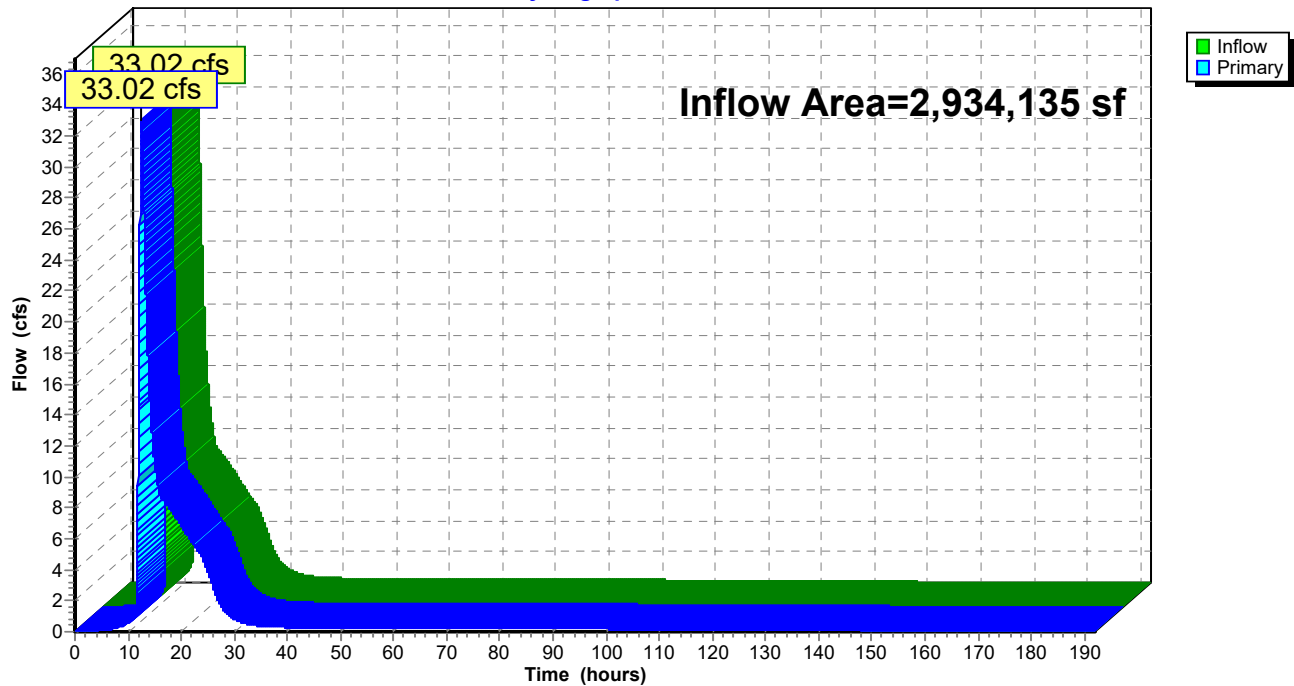
Summary for Link 001B: POA

Inflow Area = 2,934,135 sf, 39.40% Impervious, Inflow Depth > 2.50" for 10-yr event
Inflow = 33.02 cfs @ 12.49 hrs, Volume= 610,127 cf
Primary = 33.02 cfs @ 12.49 hrs, Volume= 610,127 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001B: POA

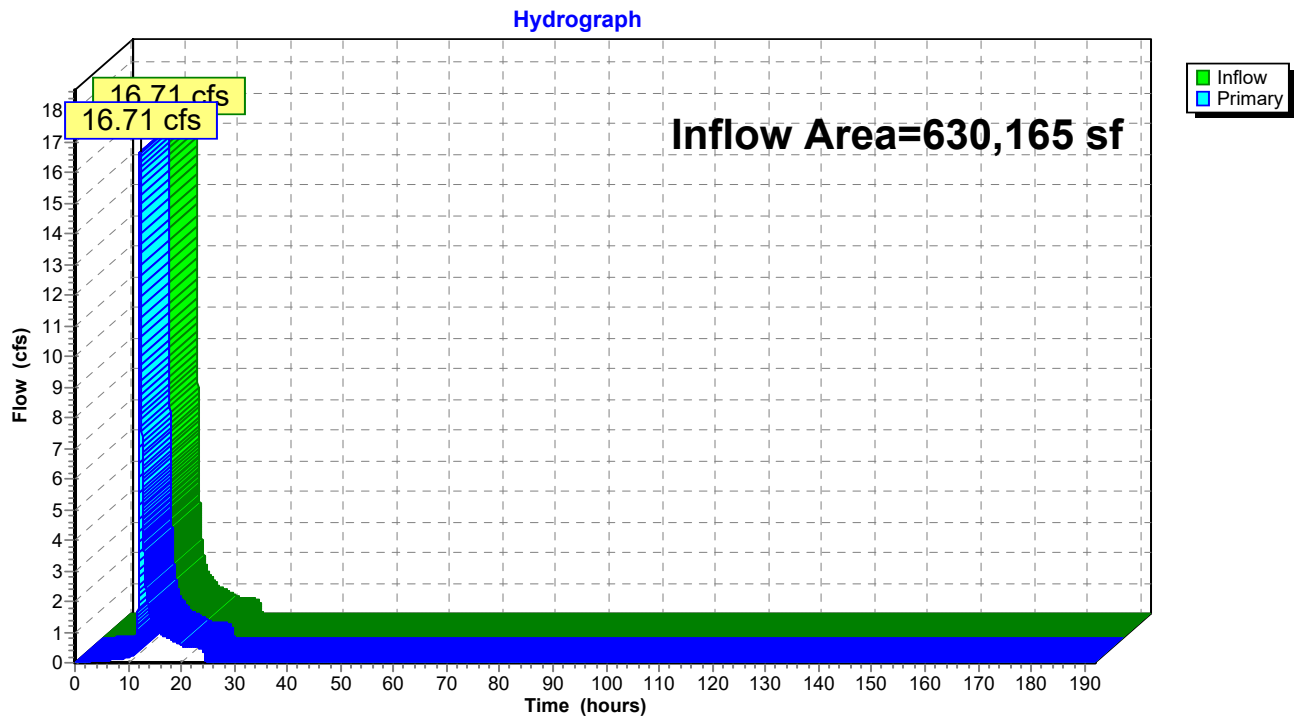
Hydrograph



Summary for Link 2: TOTAL OFFSITE

Inflow Area = 630,165 sf, 7.93% Impervious, Inflow Depth = 1.48" for 10-yr event
Inflow = 16.71 cfs @ 12.25 hrs, Volume= 77,851 cf
Primary = 16.71 cfs @ 12.25 hrs, Volume= 77,851 cf, Atten= 0%, Lag= 0.0 min

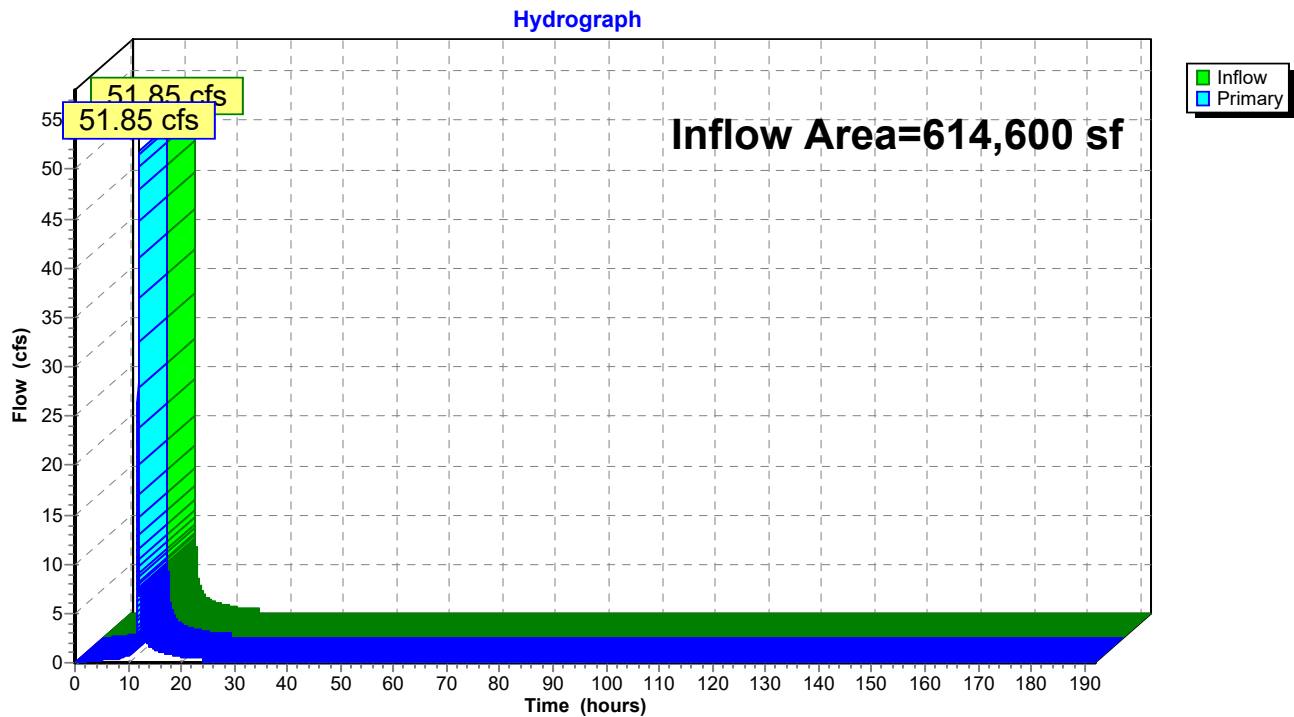
Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 2: TOTAL OFFSITE

Summary for Link 3: LOD to BMP-01

Inflow Area = 614,600 sf, 31.32% Impervious, Inflow Depth = 2.25" for 10-yr event
Inflow = 51.85 cfs @ 11.96 hrs, Volume= 115,378 cf
Primary = 51.85 cfs @ 11.96 hrs, Volume= 115,378 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 3: LOD to BMP-01

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Type II 24-hr 25-yr Rainfall=5.73"

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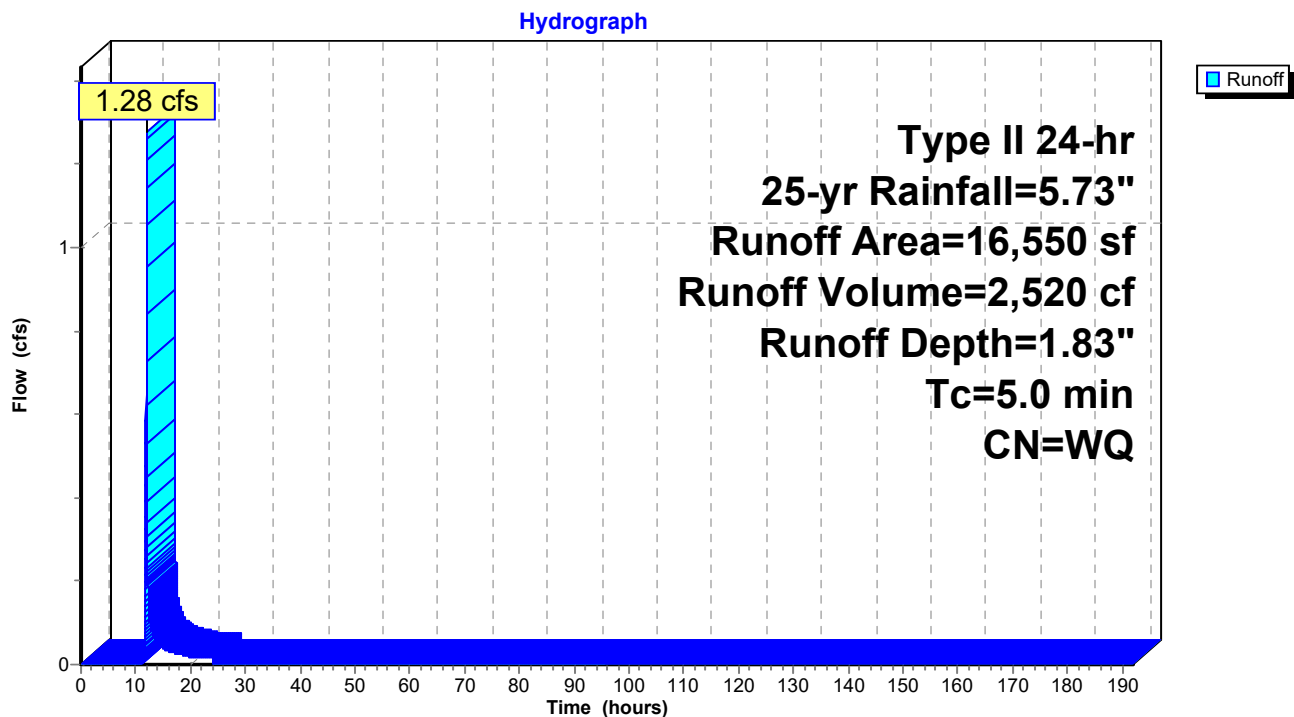
Summary for Subcatchment B1: BYPASS (LOD)

Runoff = 1.28 cfs @ 11.97 hrs, Volume= 2,520 cf, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	16,550	61	>75% Grass cover, Good, HSG B
	16,550		Weighted Average
	16,550	61	100.00% Pervious Area

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

Subcatchment B1: BYPASS (LOD)

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Type II 24-hr 25-yr Rainfall=5.73"

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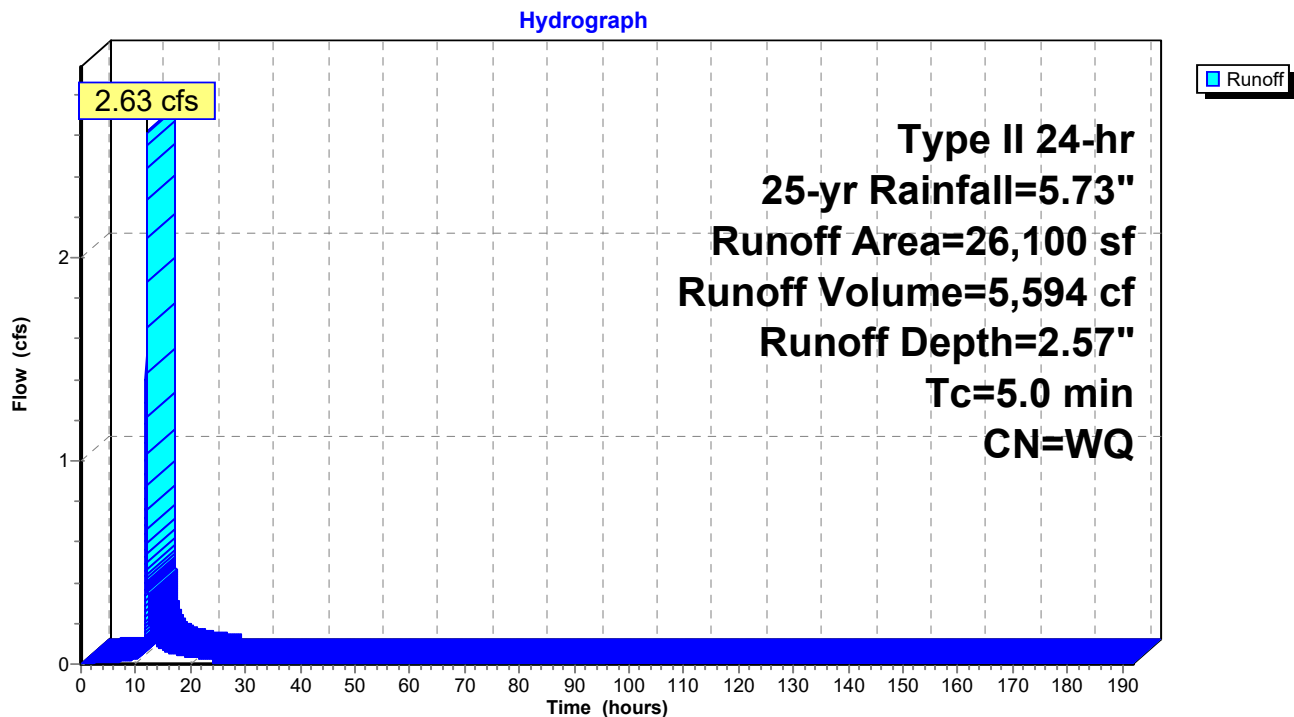
Summary for Subcatchment B2: BYPASS (LOD)

Runoff = 2.63 cfs @ 11.96 hrs, Volume= 5,594 cf, Depth= 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

	Area (sf)	CN	Description
*	0	98	Buildings
*	5,305	98	Impervious
	20,795	61	>75% Grass cover, Good, HSG B
	26,100		Weighted Average
	20,795	61	79.67% Pervious Area
	5,305	98	20.33% Impervious Area

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

Subcatchment B2: BYPASS (LOD)

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Type II 24-hr 25-yr Rainfall=5.73"

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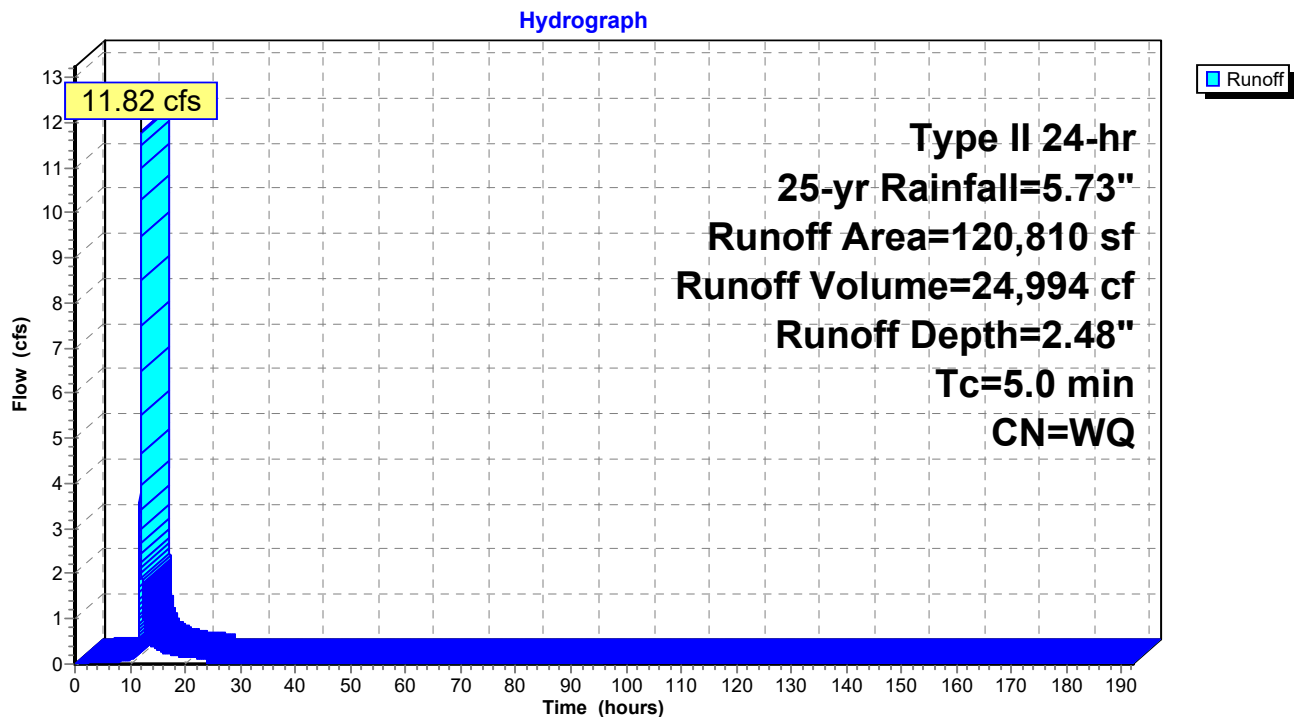
Summary for Subcatchment B3: BYPASS (LOD)

Runoff = 11.82 cfs @ 11.96 hrs, Volume= 24,994 cf, Depth= 2.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

	Area (sf)	CN	Description
*	80	98	Buildings
*	21,530	98	Impervious
	99,200	61	>75% Grass cover, Good, HSG B
	120,810		Weighted Average
	99,200	61	82.11% Pervious Area
	21,610	98	17.89% Impervious Area

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

Subcatchment B3: BYPASS (LOD)

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Type II 24-hr 25-yr Rainfall=5.73"

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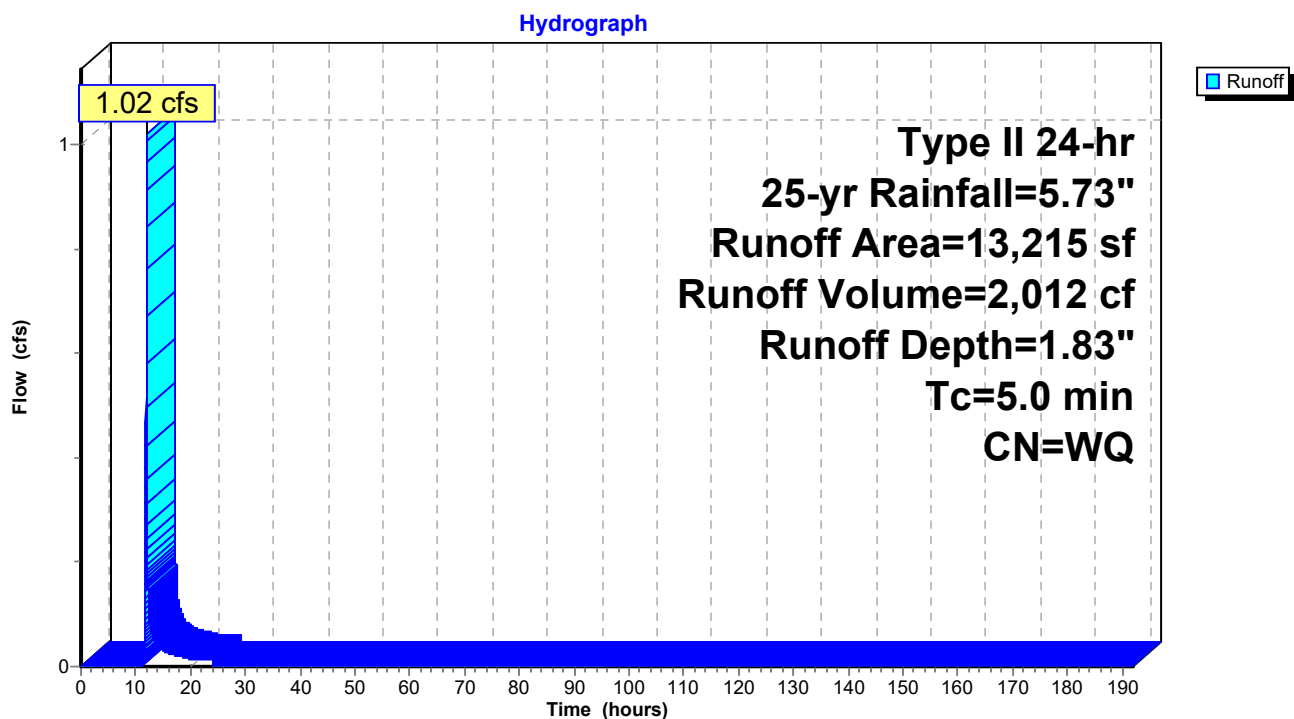
Summary for Subcatchment B4: BYPASS (LOD)

Runoff = 1.02 cfs @ 11.97 hrs, Volume= 2,012 cf, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	13,215	61	>75% Grass cover, Good, HSG B
	13,215		Weighted Average
	13,215	61	100.00% Pervious Area

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

Subcatchment B4: BYPASS (LOD)

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Type II 24-hr 25-yr Rainfall=5.73"

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Summary for Subcatchment E1: PRE (LOD)

Runoff = 124.94 cfs @ 12.27 hrs, Volume= 617,128 cf, Depth= 3.21"

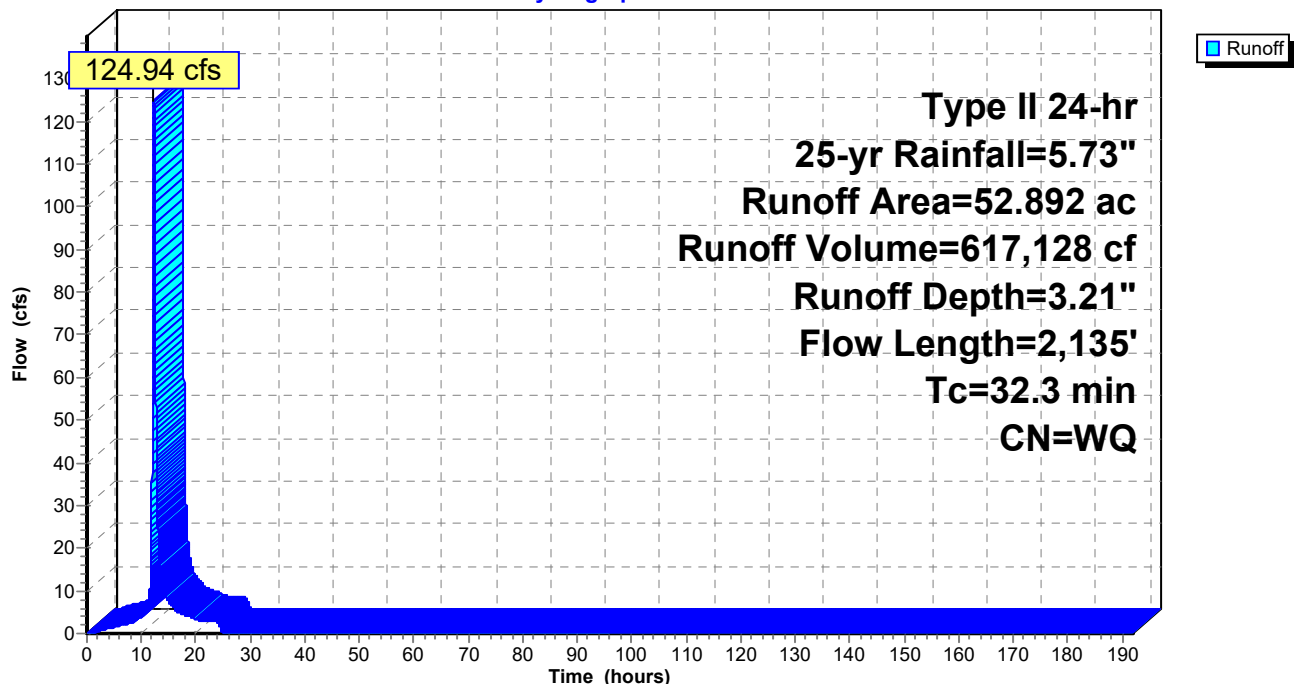
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

Area (ac)	CN	Description
25.382	58	Meadow, non-grazed, HSG B
* 5.502	58	Meadow (20% of Ex. Impervious)
* 22.008	98	Existing Impervious
52.892		Weighted Average
30.884	58	58.39% Pervious Area
22.008	98	41.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
4.4	425	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
2.7	410	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
32.3	2,135	Total			

Subcatchment E1: PRE (LOD)

Hydrograph



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Type II 24-hr 25-yr Rainfall=5.73"

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Summary for Subcatchment E2: PRE (OLOD)

Runoff = 0.86 cfs @ 12.28 hrs, Volume= 3,937 cf, Depth= 1.83"

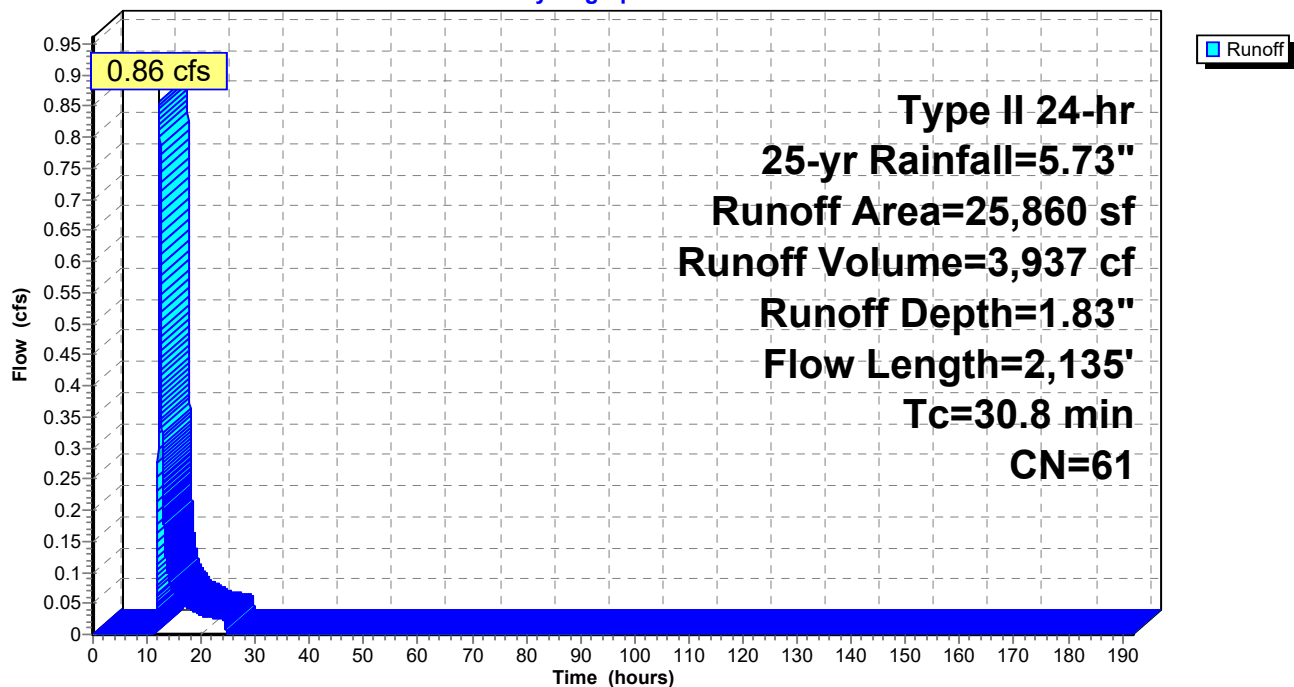
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

Area (sf)	CN	Description
25,860	61	>75% Grass cover, Good, HSG B
25,860	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
3.5	425	0.0100	2.03		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
2.1	410	0.0250	3.21		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
30.8	2,135	Total			

Subcatchment E2: PRE (OLOD)

Hydrograph



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Type II 24-hr 25-yr Rainfall=5.73"

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Summary for Subcatchment E3: PRE (OLOD)

Runoff = 24.23 cfs @ 12.24 hrs, Volume= 107,267 cf, Depth= 2.13"

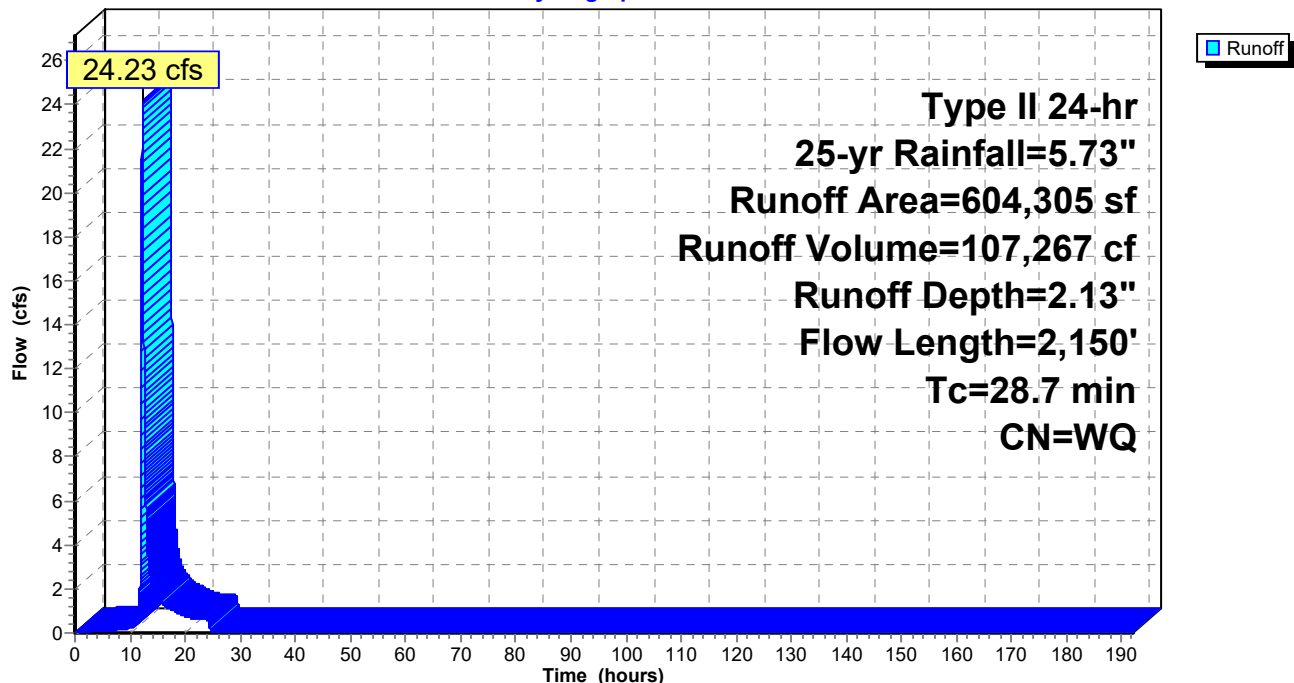
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

	Area (sf)	CN	Description
*	49,955	98	Existing Impervious
	554,350	61	>75% Grass cover, Good, HSG B
	604,305		Weighted Average
	554,350	61	91.73% Pervious Area
	49,955	98	8.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
9.2	1,400	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
6.7	650	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
28.7	2,150	Total			

Subcatchment E3: PRE (OLOD)

Hydrograph



Summary for Subcatchment P1A: Post to BMP-01 (LOD)

Runoff = 51.47 cfs @ 11.96 hrs, Volume= 111,812 cf, Depth= 2.86"

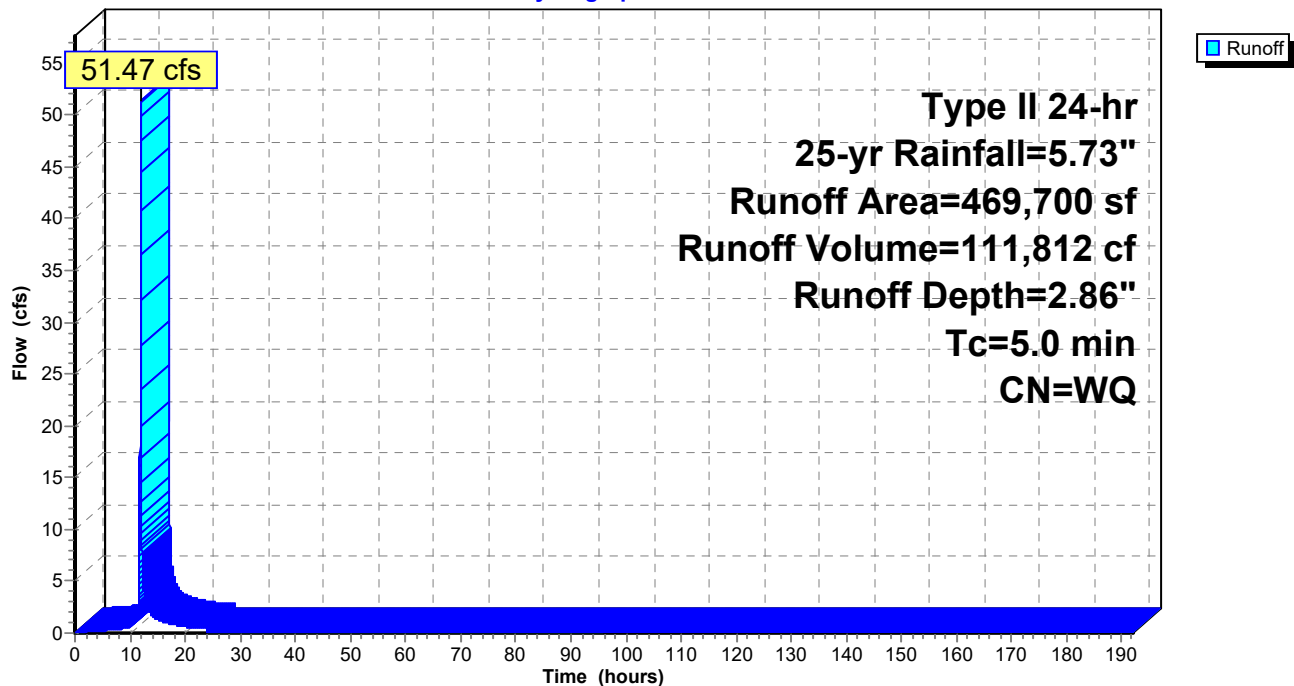
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

	Area (sf)	CN	Description
*	240	98	Buildings
*	131,700	98	Impervious
	337,760	61	>75% Grass cover, Good, HSG B
	469,700		Weighted Average
	337,760	61	71.91% Pervious Area
	131,940	98	28.09% Impervious Area

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

Subcatchment P1A: Post to BMP-01 (LOD)

Hydrograph



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Type II 24-hr 25-yr Rainfall=5.73"

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Summary for Subcatchment P1B: Post to BMP-01 (LOD)

Runoff = 18.18 cfs @ 11.96 hrs, Volume= 40,565 cf, Depth= 3.36"

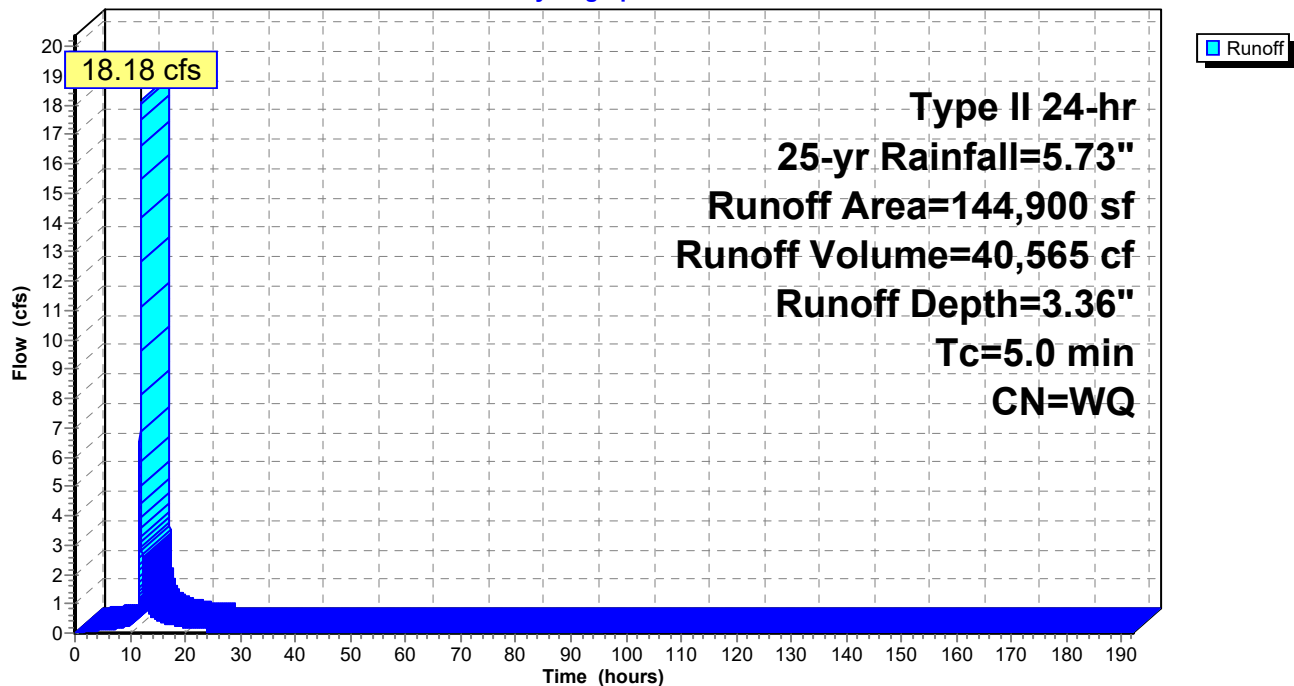
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

	Area (sf)	CN	Description
*	0	98	Buildings
*	60,580	98	Impervious
	84,320	61	>75% Grass cover, Good, HSG B
	144,900		Weighted Average
	84,320	61	58.19% Pervious Area
	60,580	98	41.81% Impervious Area

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

Subcatchment P1B: Post to BMP-01 (LOD)

Hydrograph



Summary for Subcatchment P1C: Post to BMP-01 (OLOD)

Runoff = 48.08 cfs @ 11.97 hrs, Volume= 98,665 cf, Depth= 2.16"

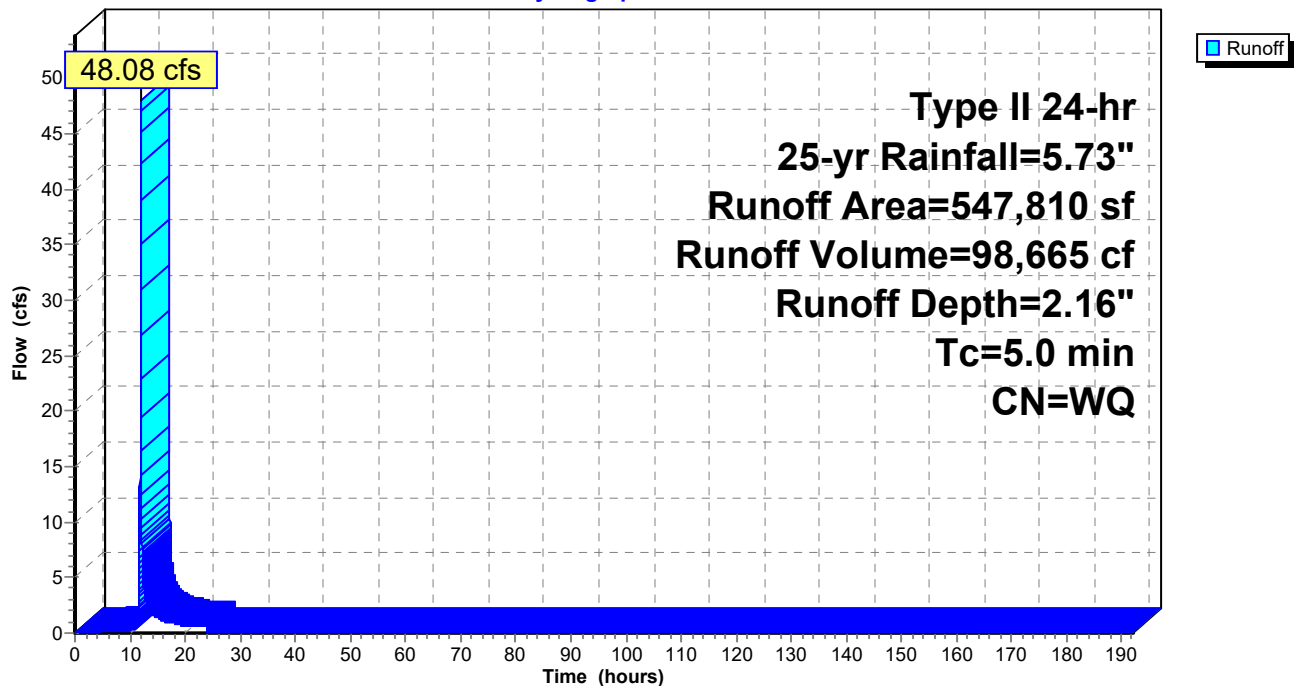
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

	Area (sf)	CN	Description
*	0	98	Buildings
*	49,955	98	Impervious
	497,855	61	>75% Grass cover, Good, HSG B
	547,810		Weighted Average
	497,855	61	90.88% Pervious Area
	49,955	98	9.12% Impervious Area

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

Subcatchment P1C: Post to BMP-01 (OLOD)

Hydrograph



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Type II 24-hr 25-yr Rainfall=5.73"

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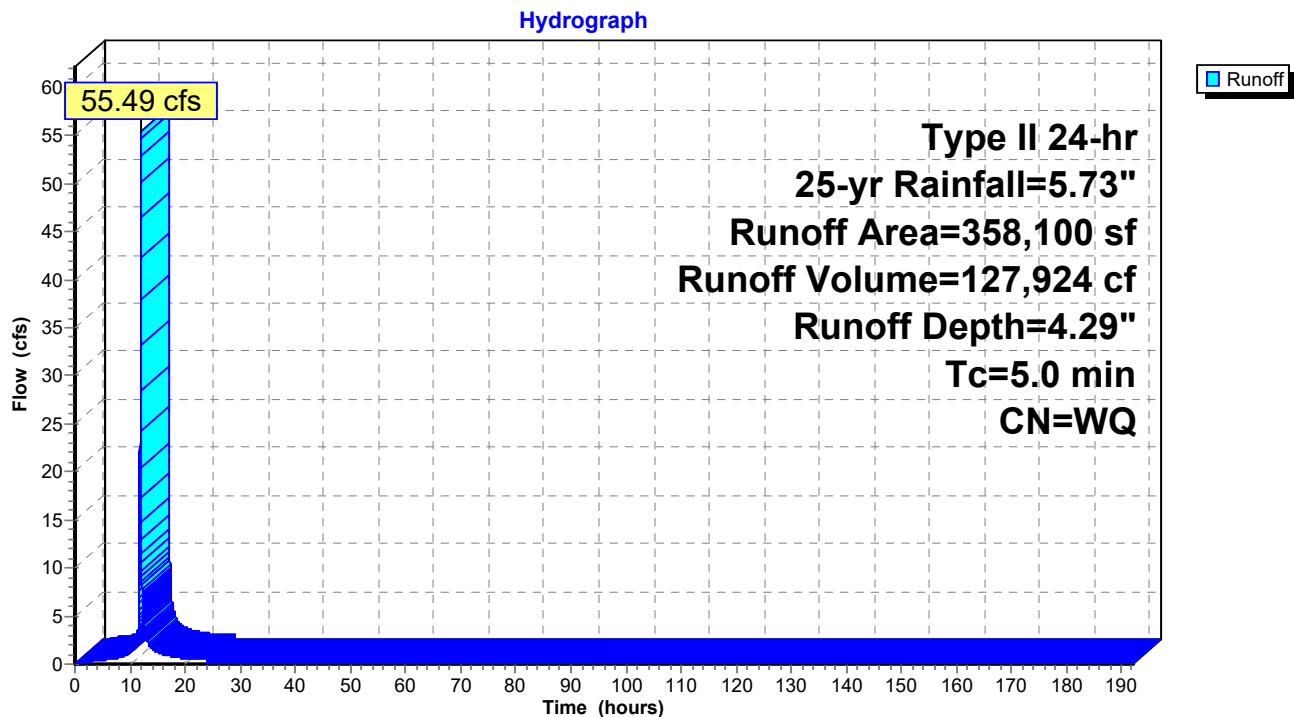
Summary for Subcatchment P2: Post to BMP-02 (LOD)

Runoff = 55.49 cfs @ 11.96 hrs, Volume= 127,924 cf, Depth= 4.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	106,100	98	Impervious
	117,775	61	>75% Grass cover, Good, HSG B
	358,100		Weighted Average
	117,775	61	32.89% Pervious Area
	240,325	98	67.11% Impervious Area

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

Subcatchment P2: Post to BMP-02 (LOD)

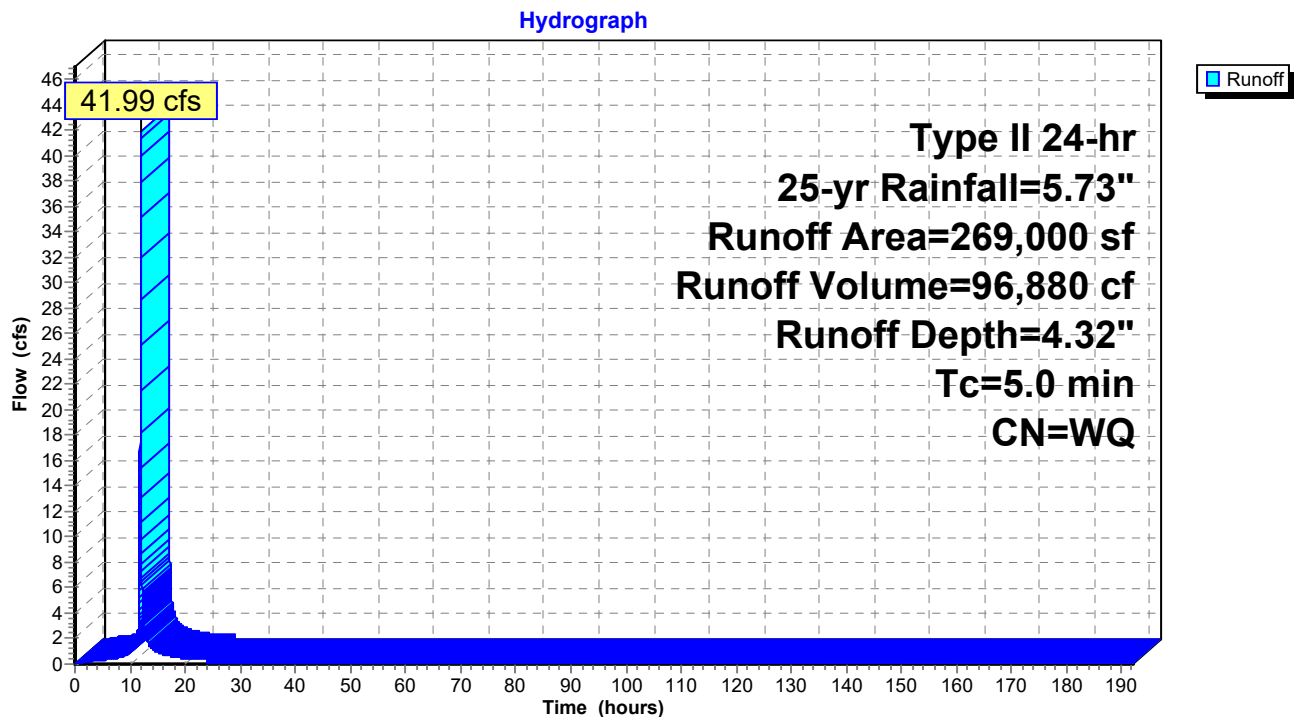
Summary for Subcatchment P3: Post to BMP-03 (LOD)

Runoff = 41.99 cfs @ 11.96 hrs, Volume= 96,880 cf, Depth= 4.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	59,870	98	Impervious
	85,900	61	>75% Grass cover, Good, HSG B
	269,000		Weighted Average
	85,900	61	31.93% Pervious Area
	183,100	98	68.07% Impervious Area

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

Subcatchment P3: Post to BMP-03 (LOD)

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Type II 24-hr 25-yr Rainfall=5.73"

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Summary for Subcatchment P4A: Post to BMP-04 (LOD)

Runoff = 64.28 cfs @ 11.96 hrs, Volume= 144,642 cf, Depth= 3.56"

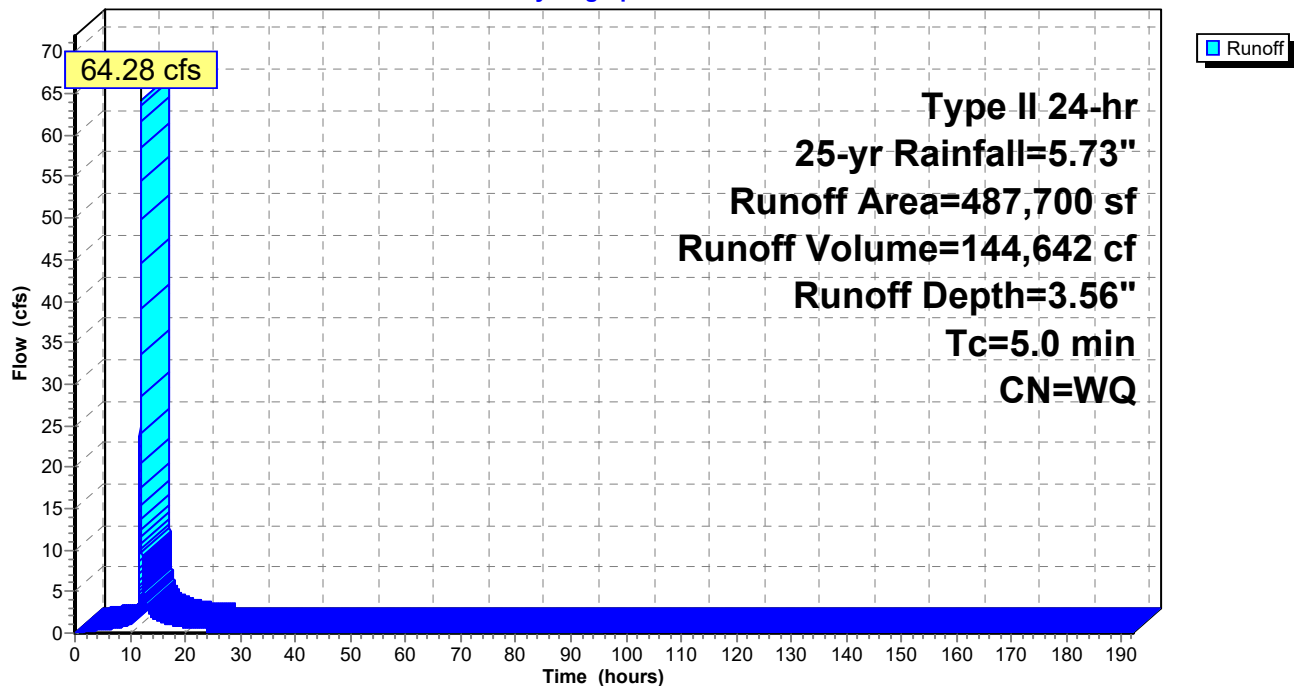
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	96,230	98	Impervious
	257,245	61	>75% Grass cover, Good, HSG B
	487,700		Weighted Average
	257,245	61	52.75% Pervious Area
	230,455	98	47.25% Impervious Area

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

Subcatchment P4A: Post to BMP-04 (LOD)

Hydrograph



Summary for Subcatchment P4B: Post to BMP-04 (OLOD)

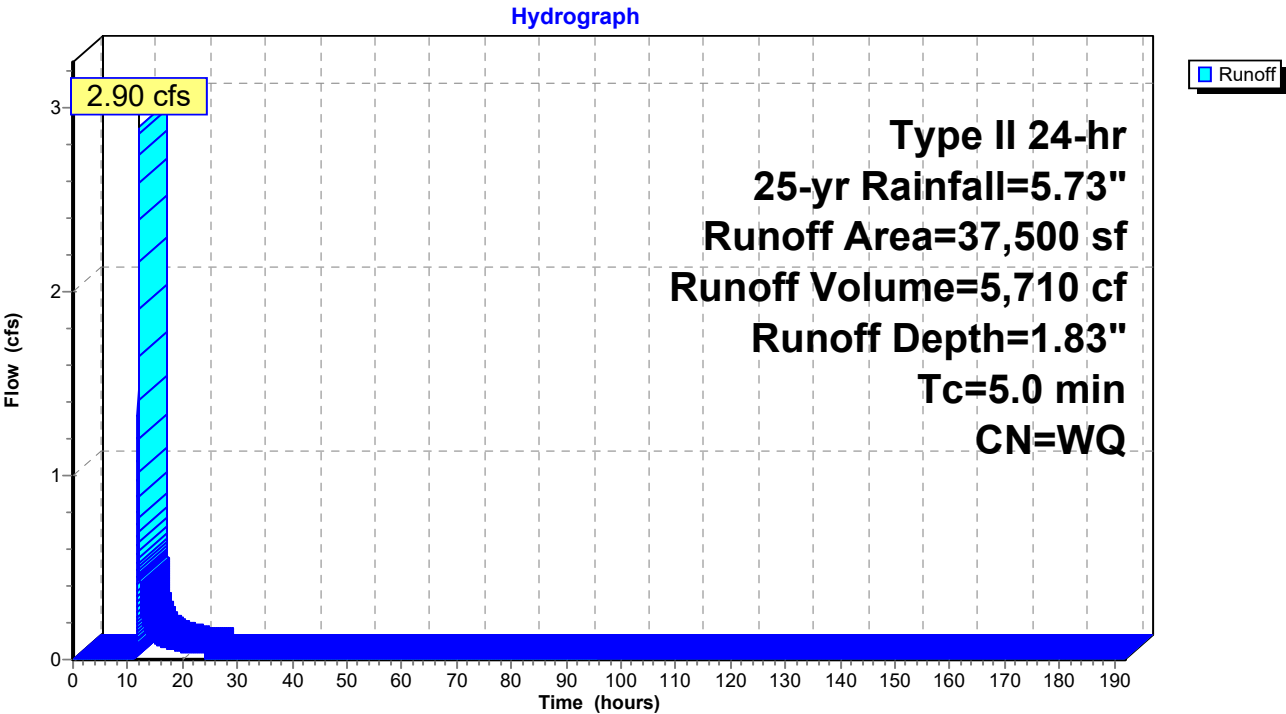
Runoff = 2.90 cfs @ 11.97 hrs, Volume= 5,710 cf, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	37,500	61	>75% Grass cover, Good, HSG B
	37,500		Weighted Average
	37,500	61	100.00% Pervious Area

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

Subcatchment P4B: Post to BMP-04 (OLOD)



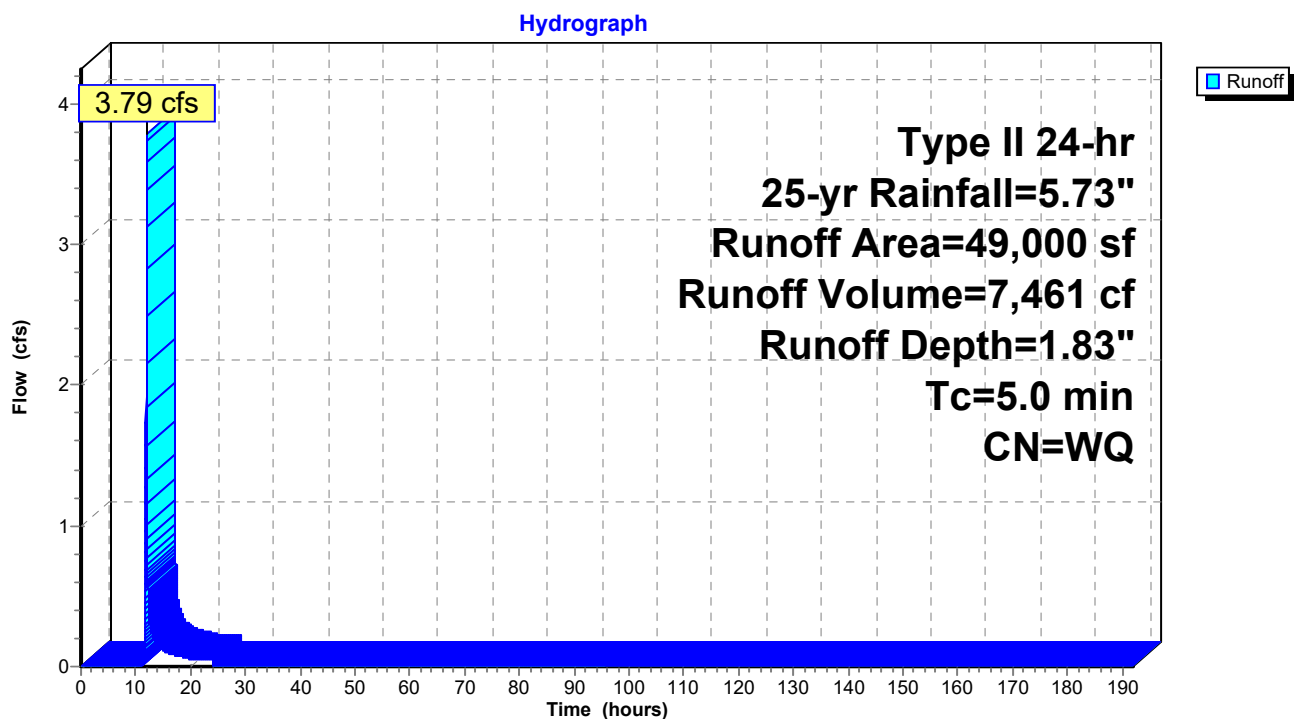
Summary for Subcatchment P4C: Post to BMP-04 (OLOD)

Runoff = 3.79 cfs @ 11.97 hrs, Volume= 7,461 cf, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
49,000	61	>75% Grass cover, Good, HSG B
49,000		Weighted Average
49,000	61	100.00% Pervious Area

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

Subcatchment P4C: Post to BMP-04 (OLOD)

Summary for Subcatchment P5: Post to BMP-05 (LOD)

Runoff = 57.35 cfs @ 11.96 hrs, Volume= 131,080 cf, Depth= 3.99"

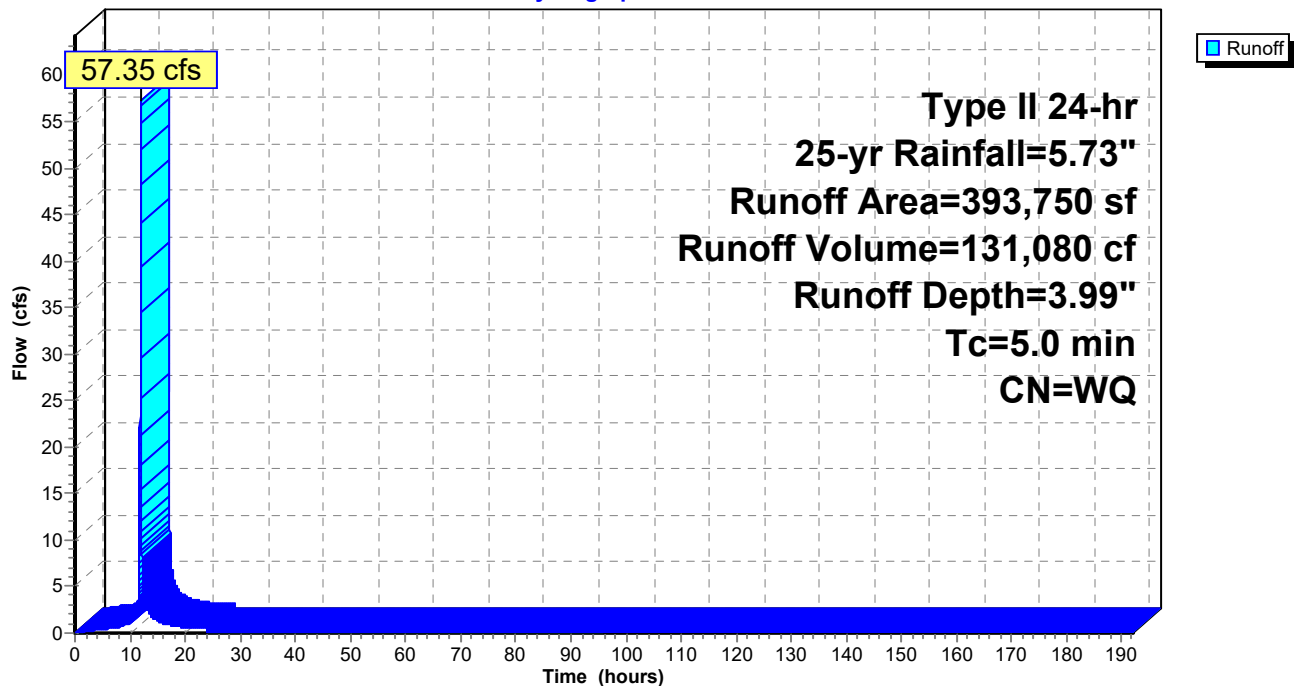
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.73"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	109,655	98	Impervious
	160,865	61	>75% Grass cover, Good, HSG B
	393,750		Weighted Average
	160,865	61	40.85% Pervious Area
	232,885	98	59.15% Impervious Area

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

Subcatchment P5: Post to BMP-05 (LOD)

Hydrograph



Summary for Pond BMP-01: Wet Pond

Inflow Area = 2,757,460 sf, 40.95% Impervious, Inflow Depth = 3.30" for 25-yr event
 Inflow = 227.13 cfs @ 11.97 hrs, Volume= 759,441 cf
 Outflow = 59.53 cfs @ 12.43 hrs, Volume= 759,009 cf, Atten= 74%, Lag= 27.6 min
 Primary = 59.53 cfs @ 12.43 hrs, Volume= 759,009 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 358.53' @ 12.43 hrs Surf.Area= 87,114 sf Storage= 276,143 cf

Plug-Flow detention time= 236.9 min calculated for 759,009 cf (100% of inflow)
 Center-of-Mass det. time= 231.7 min (1,402.4 - 1,170.7)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	613,350 cf	Storage Above Perm. Pool (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	69,700	0	0
356.00	74,500	72,100	72,100
357.00	79,400	76,950	149,050
358.00	84,400	81,900	230,950
359.00	89,550	86,975	317,925
360.00	95,600	92,575	410,500
361.00	101,400	98,500	509,000
362.00	107,300	104,350	613,350

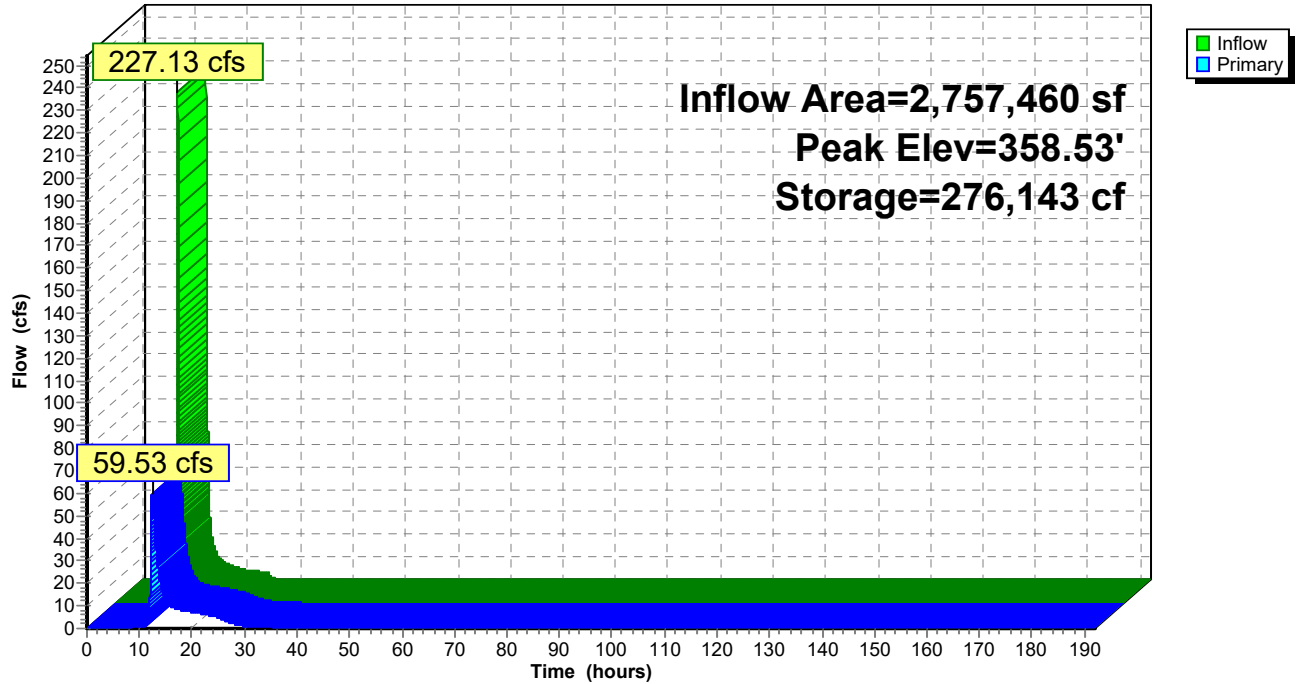
Device	Routing	Invert	Outlet Devices
#1	Primary	355.00'	36.0" Round 36" Outfall X 5.00 L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 355.00' / 354.50' S= 0.0156 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	355.00'	7.0" Vert. 7" Siphon Orifice X 5.00 C= 0.600 Limited to weir flow at low heads
#3	Device 1	357.00'	19.0" W x 30.0" H Vert. 19"Wx30"H Weir X 5.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	360.10'	24.0" x 45.0" Horiz. Type M Inlet X 5.00 C= 0.600 Limited to weir flow at low heads
#5	Primary	360.60'	100.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=59.52 cfs @ 12.43 hrs HW=358.53' (Free Discharge)

1=36" Outfall (Passes 59.52 cfs of 239.98 cfs potential flow)
 2=7" Siphon Orifice (Orifice Controls 11.57 cfs @ 8.66 fps)
 3=19"Wx30"H Weir (Orifice Controls 47.95 cfs @ 3.97 fps)
 4=Type M Inlet (Controls 0.00 cfs)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond BMP-01: Wet Pond

Hydrograph



Summary for Pond BMP-02: MRC Rain Garden

Inflow Area = 358,100 sf, 67.11% Impervious, Inflow Depth = 4.29" for 25-yr event
 Inflow = 55.49 cfs @ 11.96 hrs, Volume= 127,924 cf
 Outflow = 32.04 cfs @ 12.03 hrs, Volume= 126,794 cf, Atten= 42%, Lag= 4.5 min
 Primary = 32.04 cfs @ 12.03 hrs, Volume= 126,794 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 364.49' @ 12.03 hrs Surf.Area= 34,479 sf Storage= 42,015 cf

Plug-Flow detention time= 636.4 min calculated for 126,794 cf (99% of inflow)
 Center-of-Mass det. time= 630.4 min (1,387.8 - 757.3)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Prismatic) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	67,900 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		75,775 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
358.00	7,500	0	0
359.00	7,500	7,500	7,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	7,500	0	0
363.00	12,450	9,975	9,975
364.00	17,750	15,100	25,075
365.00	21,300	19,525	44,600
366.00	25,300	23,300	67,900

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	363.25'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

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Type II 24-hr 25-yr Rainfall=5.73"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=32.04 cfs @ 12.03 hrs HW=364.49' (Free Discharge)

1=Outflow Pipe (Inlet Controls 32.04 cfs @ 10.20 fps)

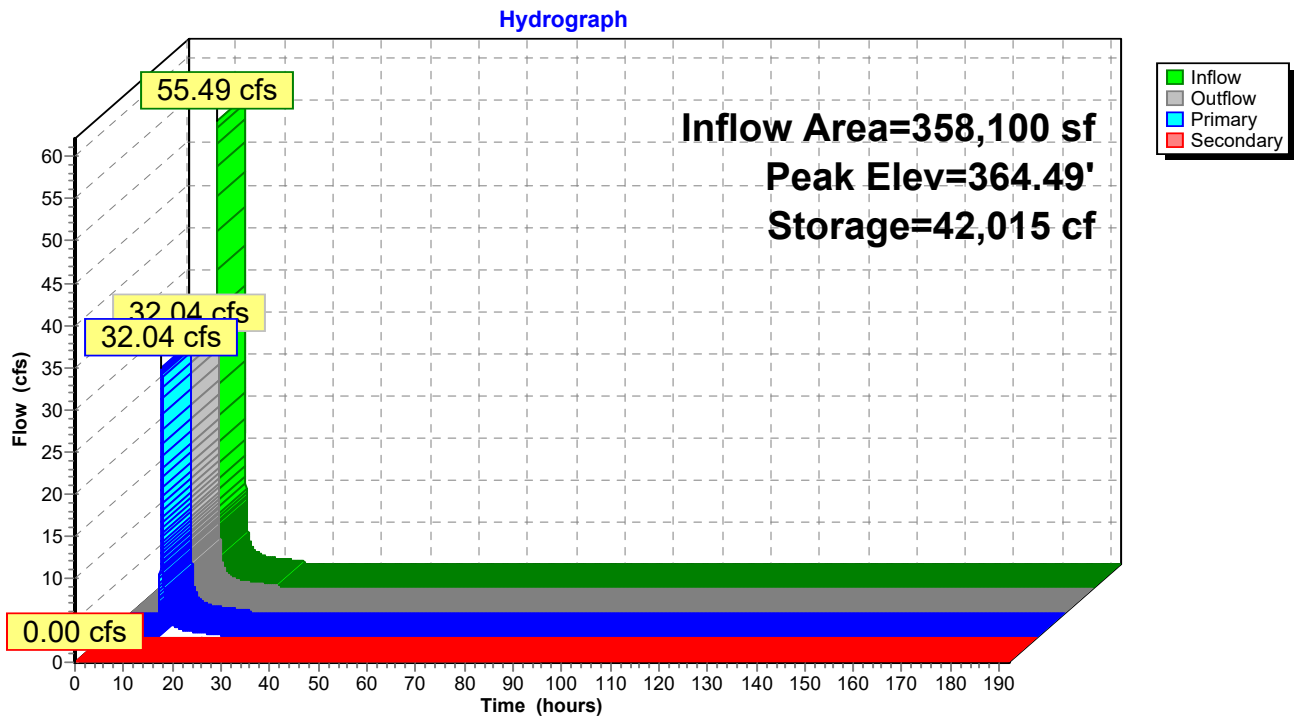
2=MRC Low Flow Orifice (Passes < 0.07 cfs potential flow)

3=Type M Overflow (Passes < 40.15 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-02: MRC Rain Garden



Summary for Pond BMP-03: MRC Rain Garden

Inflow Area = 269,000 sf, 68.07% Impervious, Inflow Depth = 4.32" for 25-yr event
 Inflow = 41.99 cfs @ 11.96 hrs, Volume= 96,880 cf
 Outflow = 29.07 cfs @ 12.02 hrs, Volume= 95,750 cf, Atten= 31%, Lag= 3.6 min
 Primary = 29.07 cfs @ 12.02 hrs, Volume= 95,750 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 363.69' @ 12.02 hrs Surf.Area= 32,960 sf Storage= 29,734 cf

Plug-Flow detention time= 599.7 min calculated for 95,750 cf (99% of inflow)
 Center-of-Mass det. time= 591.9 min (1,348.6 - 756.7)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	72,725 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		80,600 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
358.00	7,500	0	0	7,500
359.00	7,500	7,500	7,500	7,846

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	8,850	0	0
363.00	13,250	11,050	11,050
364.00	20,050	16,650	27,700
365.00	22,700	21,375	49,075
366.00	24,600	23,650	72,725

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.0" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	362.75'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

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Type II 24-hr 25-yr Rainfall=5.73"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=29.07 cfs @ 12.02 hrs HW=363.69' (Free Discharge)

1=Outflow Pipe (Inlet Controls 29.07 cfs @ 9.25 fps)

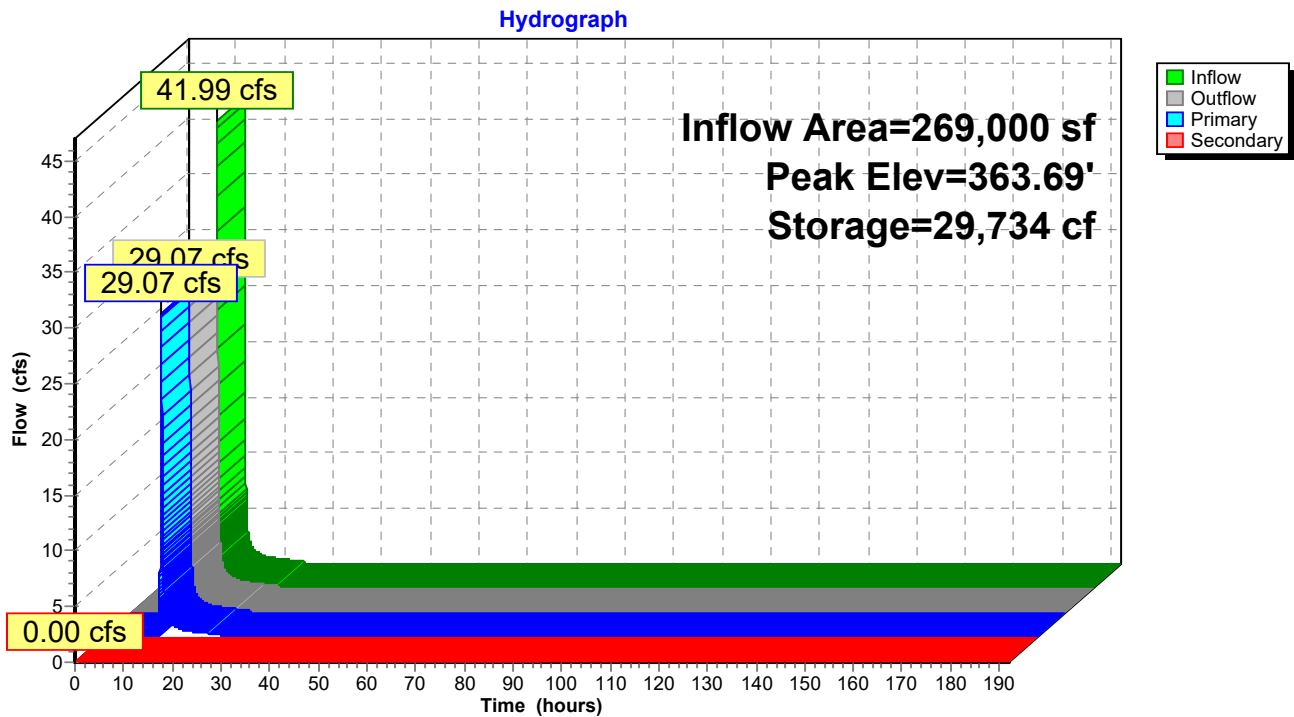
2=MRC Low Flow Orifice (Passes < 0.06 cfs potential flow)

3=Type M Overflow (Passes < 34.40 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-03: MRC Rain Garden



Summary for Pond BMP-04: MRC Rain Garden

Inflow Area = 574,200 sf, 40.13% Impervious, Inflow Depth = 3.30" for 25-yr event
 Inflow = 70.93 cfs @ 11.96 hrs, Volume= 157,812 cf
 Outflow = 26.28 cfs @ 12.06 hrs, Volume= 156,282 cf, Atten= 63%, Lag= 6.1 min
 Primary = 26.28 cfs @ 12.06 hrs, Volume= 156,282 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 374.02' @ 12.06 hrs Surf.Area= 50,211 sf Storage= 57,791 cf

Plug-Flow detention time= 549.8 min calculated for 156,282 cf (99% of inflow)
 Center-of-Mass det. time= 543.5 min (1,323.4 - 779.9)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	116,625 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		124,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	15,500	0	0
373.00	26,900	21,200	21,200
374.00	30,150	28,525	49,725
375.00	33,400	31,775	81,500
376.00	36,850	35,125	116,625

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.65'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=26.28 cfs @ 12.06 hrs HW=374.02' (Free Discharge)

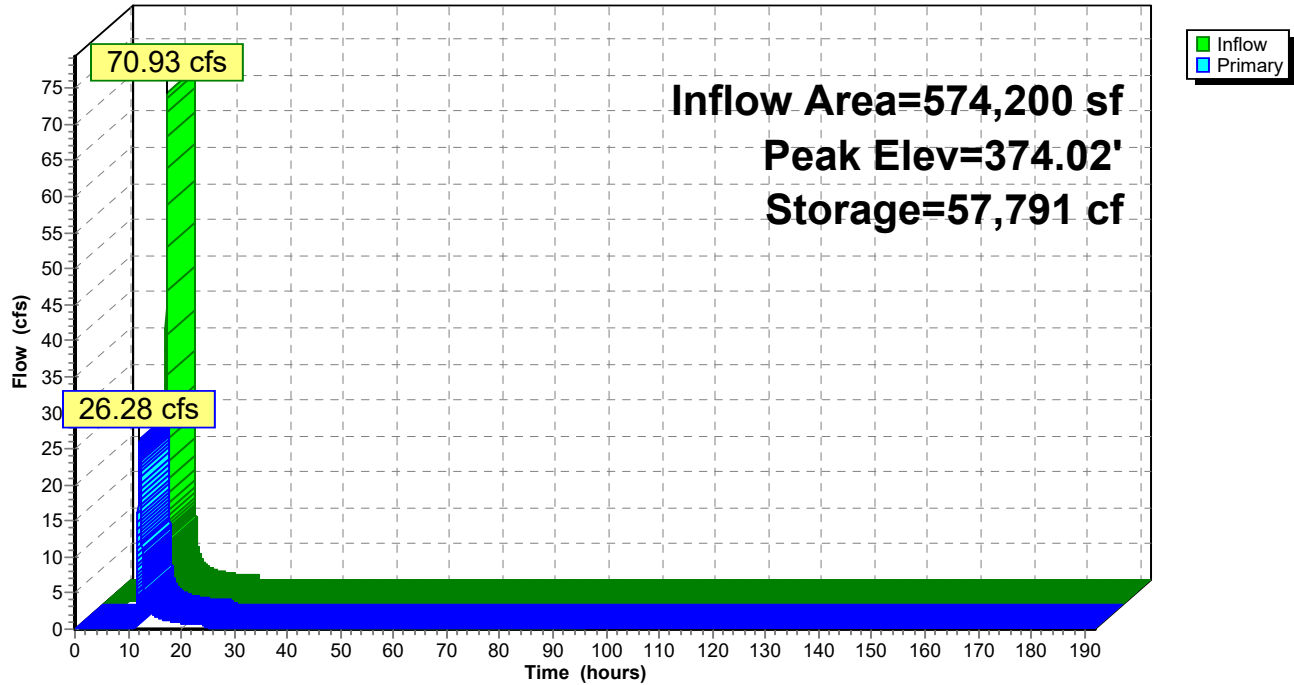
1=24" Outflow Pipe (Inlet Controls 26.28 cfs @ 8.37 fps)

2=MRC Low Flow Orifice (Passes < 0.06 cfs potential flow)

3=Type M Overflow (Passes < 42.24 cfs potential flow)

Pond BMP-04: MRC Rain Garden

Hydrograph



Summary for Pond BMP-05: MRC Rain Garden

Inflow Area = 393,750 sf, 59.15% Impervious, Inflow Depth = 3.99" for 25-yr event
 Inflow = 57.35 cfs @ 11.96 hrs, Volume= 131,080 cf
 Outflow = 25.37 cfs @ 12.05 hrs, Volume= 129,574 cf, Atten= 56%, Lag= 5.5 min
 Primary = 25.37 cfs @ 12.05 hrs, Volume= 129,574 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 373.81' @ 12.05 hrs Surf.Area= 48,577 sf Storage= 49,867 cf

Plug-Flow detention time= 592.1 min calculated for 129,567 cf (99% of inflow)
 Center-of-Mass det. time= 584.9 min (1,347.8 - 762.8)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	111,850 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		119,350 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	13,800	0	0
373.00	26,300	20,050	20,050
374.00	29,100	27,700	47,750
375.00	32,000	30,550	78,300
376.00	35,100	33,550	111,850

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.2" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.70'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=25.37 cfs @ 12.05 hrs HW=373.81' (Free Discharge)

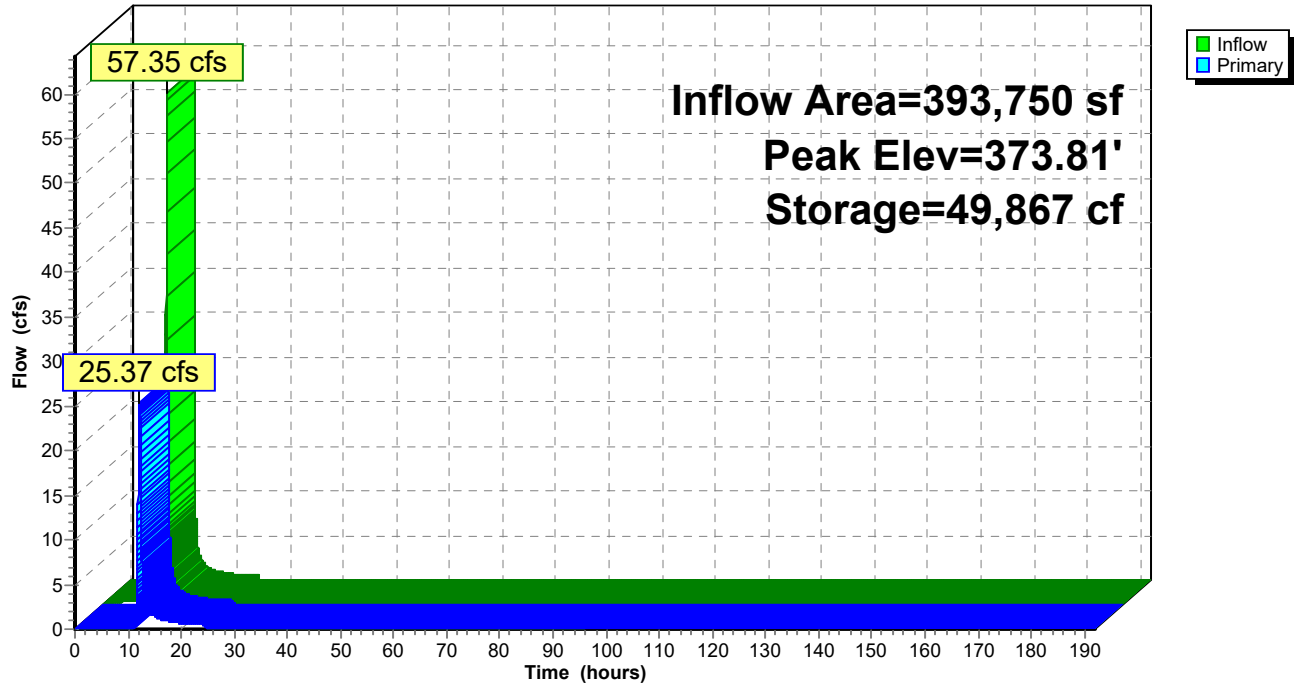
1=24" Outflow Pipe (Inlet Controls 25.37 cfs @ 8.08 fps)

2=MRC Low Flow Orifice (Passes < 0.07 cfs potential flow)

3=Type M Overflow (Passes < 38.10 cfs potential flow)

Pond BMP-05: MRC Rain Garden

Hydrograph



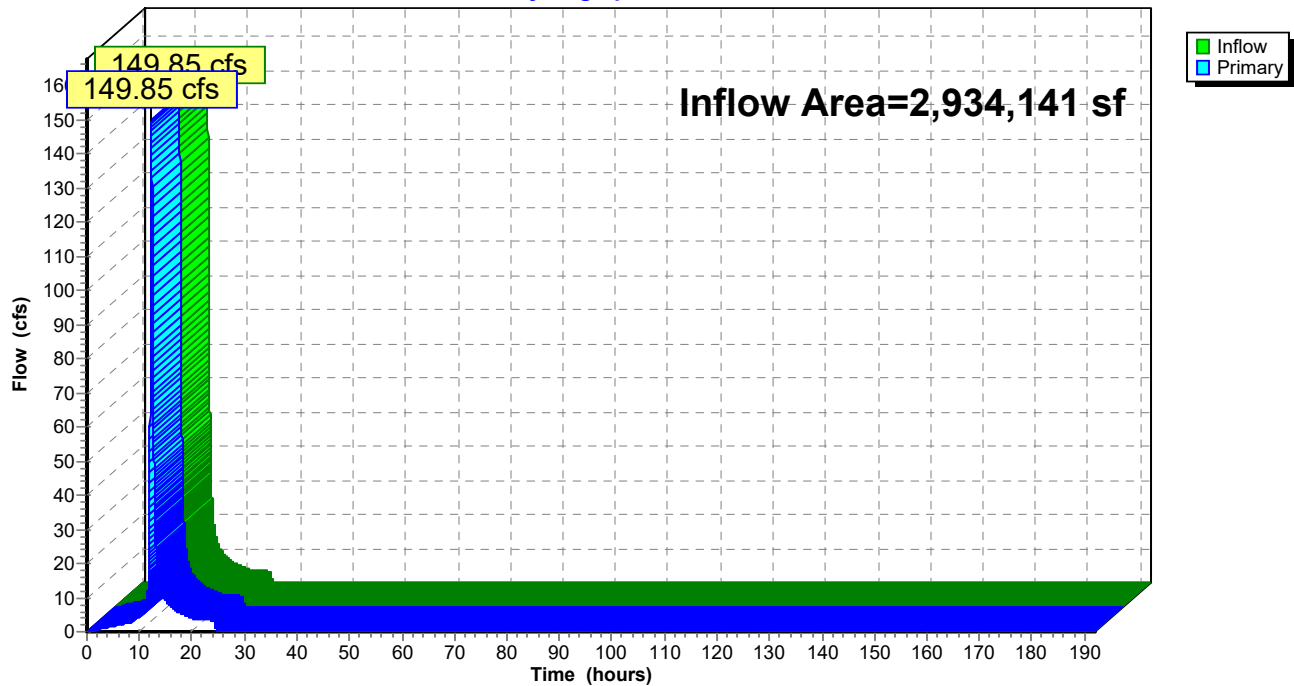
Summary for Link 001A: POA

Inflow Area = 2,934,141 sf, 34.38% Impervious, Inflow Depth = 2.98" for 25-yr event
Inflow = 149.85 cfs @ 12.27 hrs, Volume= 728,333 cf
Primary = 149.85 cfs @ 12.27 hrs, Volume= 728,333 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001A: POA

Hydrograph



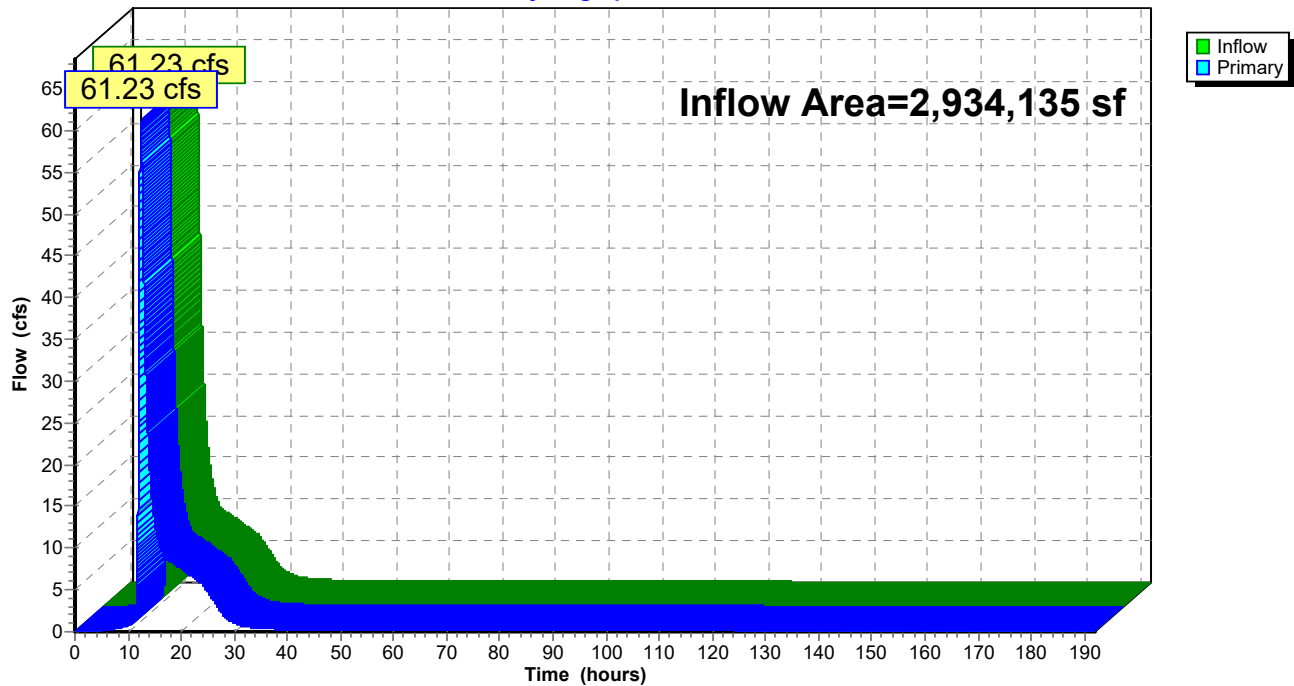
Summary for Link 001B: POA

Inflow Area = 2,934,135 sf, 39.40% Impervious, Inflow Depth > 3.25" for 25-yr event
Inflow = 61.23 cfs @ 12.42 hrs, Volume= 794,129 cf
Primary = 61.23 cfs @ 12.42 hrs, Volume= 794,129 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001B: POA

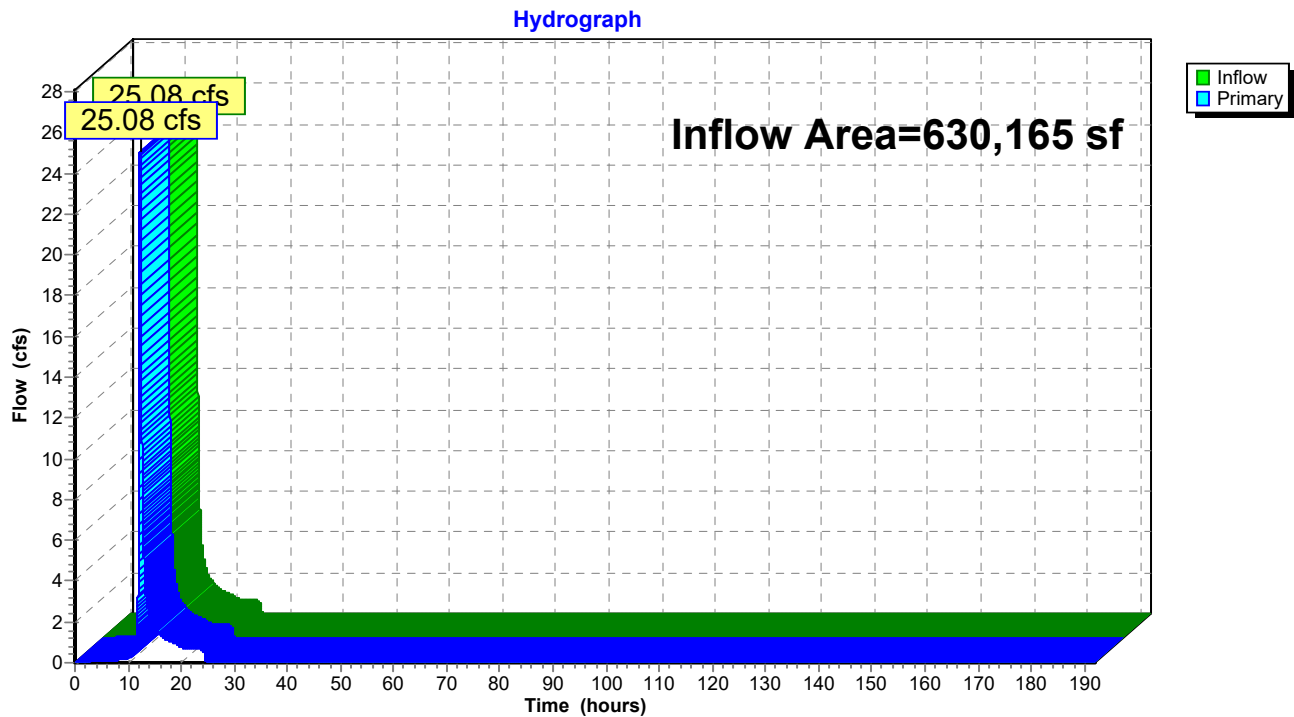
Hydrograph



Summary for Link 2: TOTAL OFFSITE

Inflow Area = 630,165 sf, 7.93% Impervious, Inflow Depth = 2.12" for 25-yr event
Inflow = 25.08 cfs @ 12.24 hrs, Volume= 111,204 cf
Primary = 25.08 cfs @ 12.24 hrs, Volume= 111,204 cf, Atten= 0%, Lag= 0.0 min

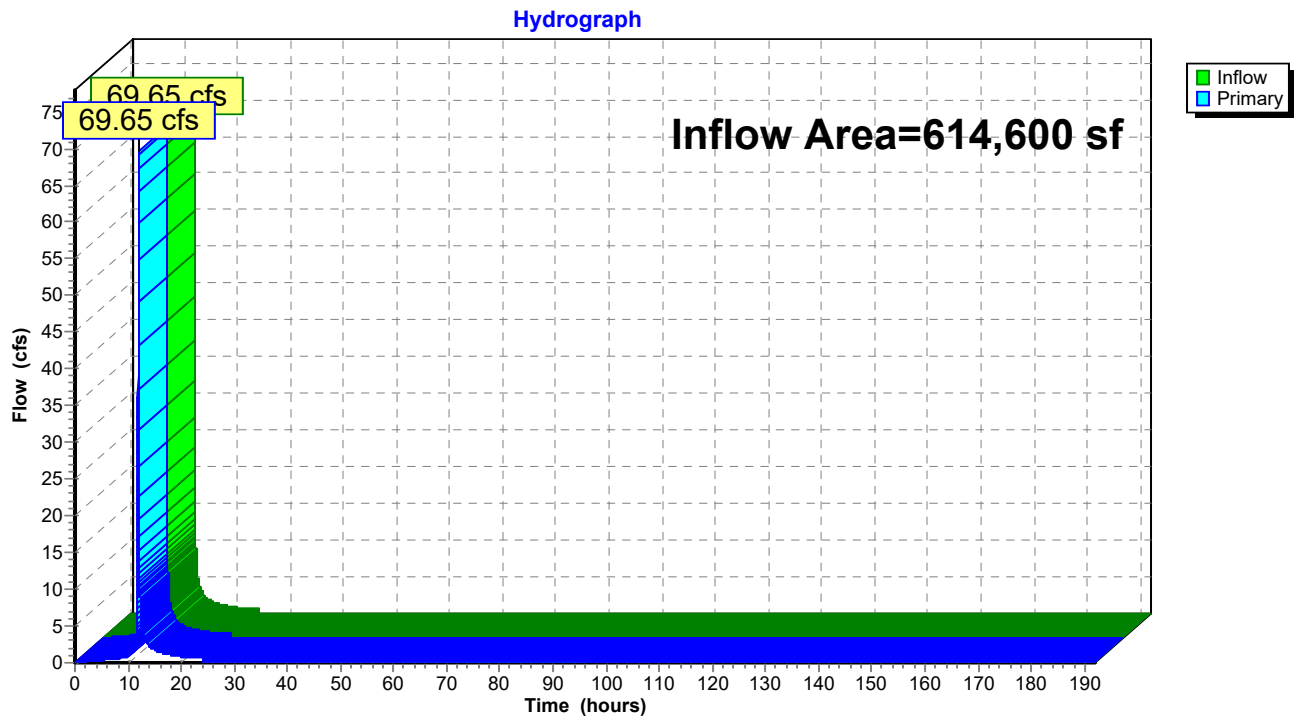
Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 2: TOTAL OFFSITE

Summary for Link 3: LOD to BMP-01

Inflow Area = 614,600 sf, 31.32% Impervious, Inflow Depth = 2.98" for 25-yr event
Inflow = 69.65 cfs @ 11.96 hrs, Volume= 152,377 cf
Primary = 69.65 cfs @ 11.96 hrs, Volume= 152,377 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 3: LOD to BMP-01

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Type II 24-hr 50-yr Rainfall=6.56"

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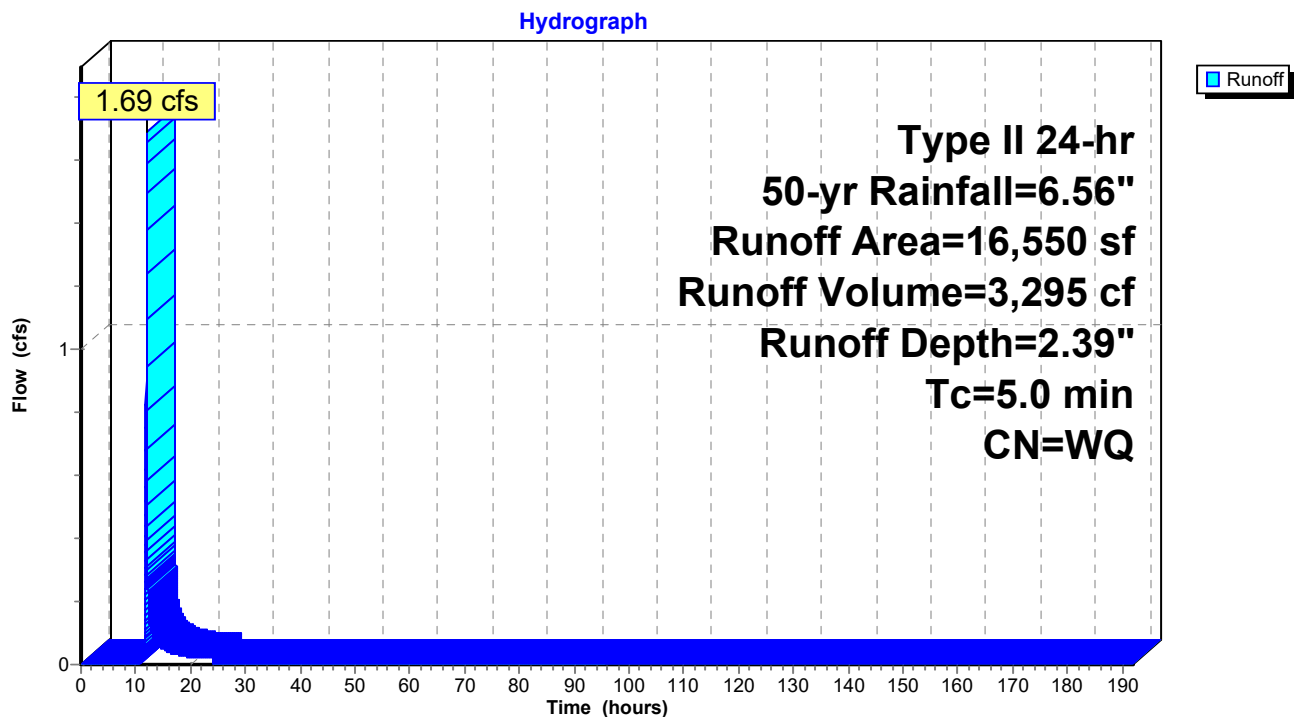
Summary for Subcatchment B1: BYPASS (LOD)

Runoff = 1.69 cfs @ 11.97 hrs, Volume= 3,295 cf, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	16,550	61	>75% Grass cover, Good, HSG B
	16,550		Weighted Average
	16,550	61	100.00% Pervious Area

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

Subcatchment B1: BYPASS (LOD)

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Type II 24-hr 50-yr Rainfall=6.56"

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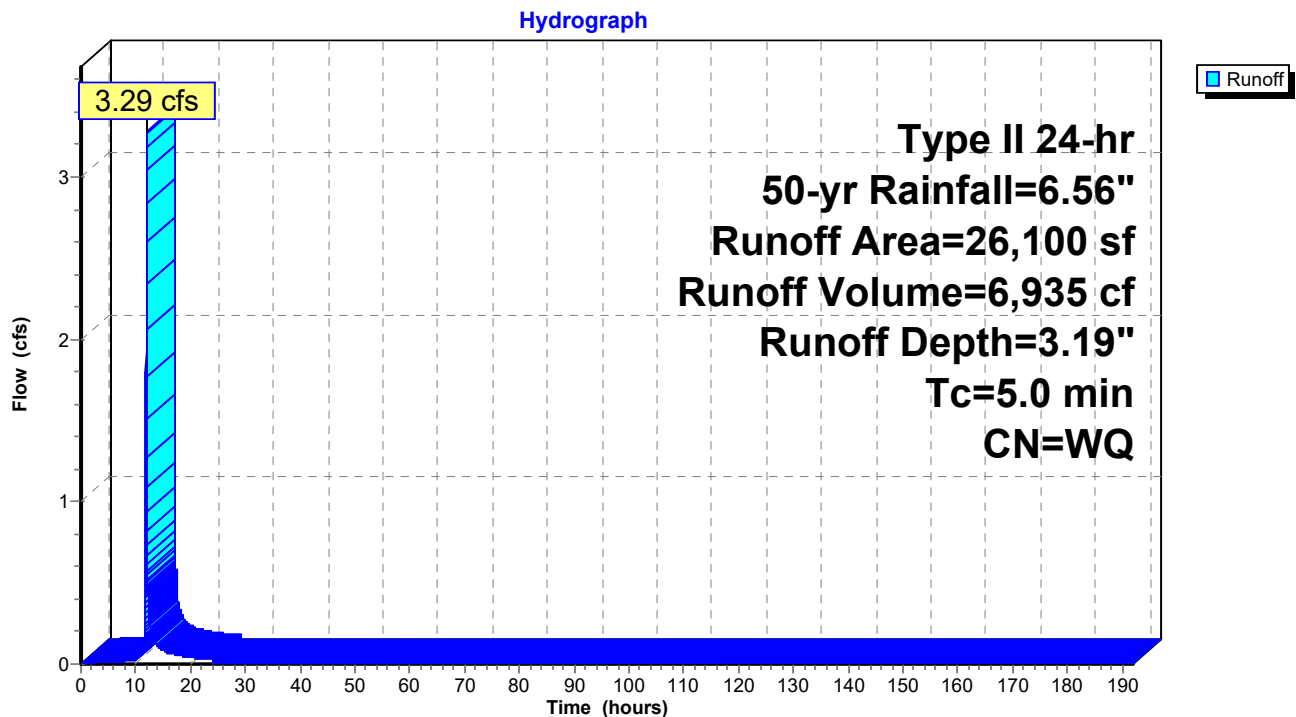
Summary for Subcatchment B2: BYPASS (LOD)

Runoff = 3.29 cfs @ 11.96 hrs, Volume= 6,935 cf, Depth= 3.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

	Area (sf)	CN	Description
*	0	98	Buildings
*	5,305	98	Impervious
	20,795	61	>75% Grass cover, Good, HSG B
	26,100		Weighted Average
	20,795	61	79.67% Pervious Area
	5,305	98	20.33% Impervious Area

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

Subcatchment B2: BYPASS (LOD)

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Type II 24-hr 50-yr Rainfall=6.56"

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Summary for Subcatchment B3: BYPASS (LOD)

Runoff = 14.87 cfs @ 11.96 hrs, Volume= 31,134 cf, Depth= 3.09"

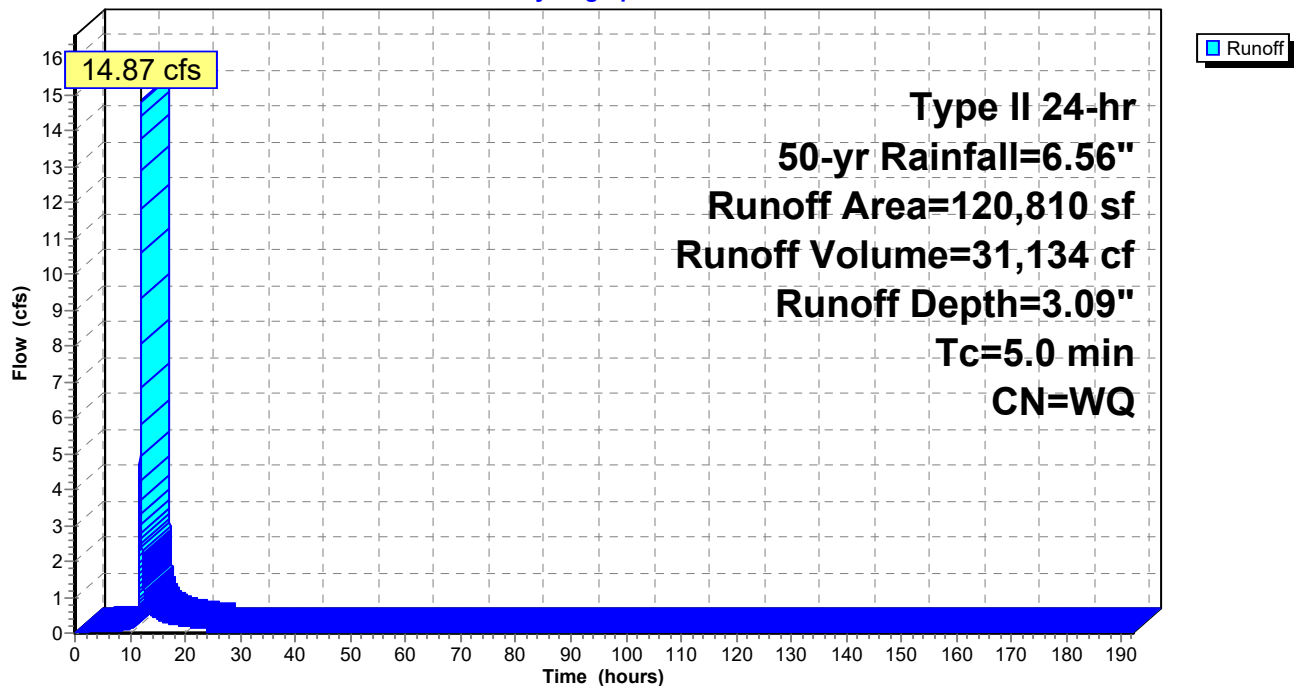
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

	Area (sf)	CN	Description
*	80	98	Buildings
*	21,530	98	Impervious
	99,200	61	>75% Grass cover, Good, HSG B
	120,810		Weighted Average
	99,200	61	82.11% Pervious Area
	21,610	98	17.89% Impervious Area

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

Subcatchment B3: BYPASS (LOD)

Hydrograph



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Type II 24-hr 50-yr Rainfall=6.56"

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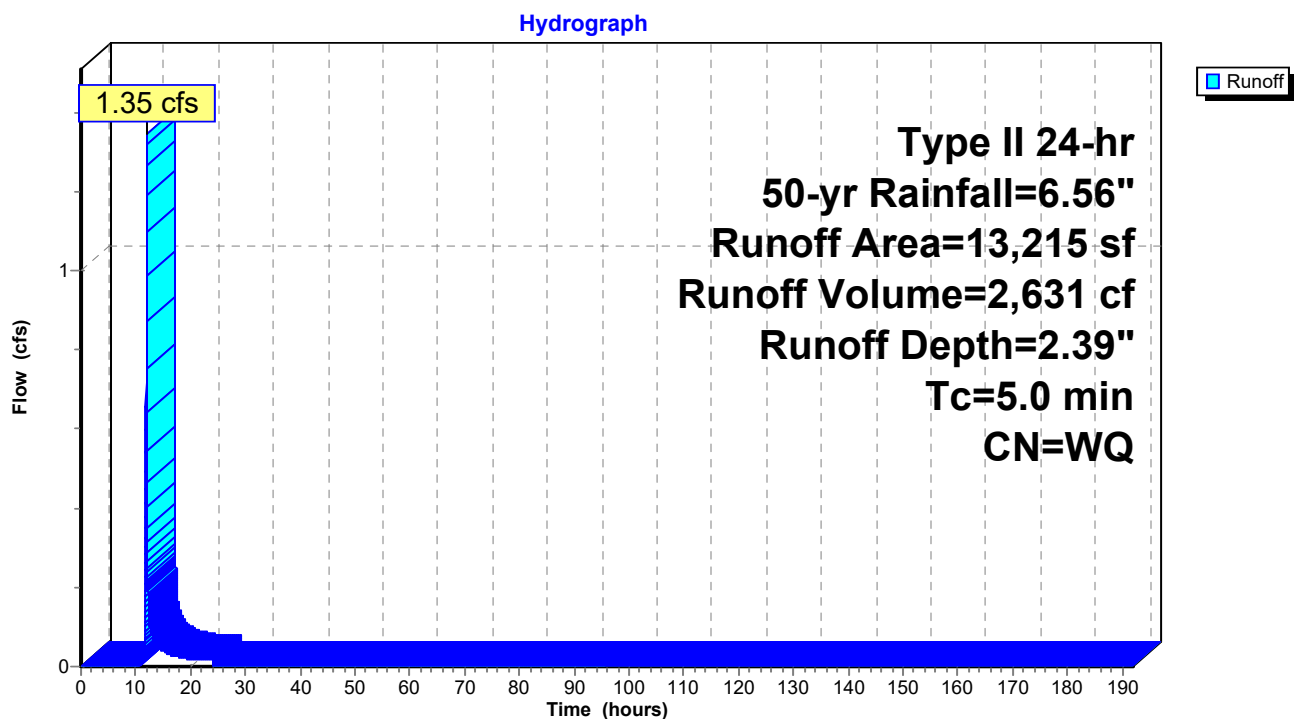
Summary for Subcatchment B4: BYPASS (LOD)

Runoff = 1.35 cfs @ 11.97 hrs, Volume= 2,631 cf, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	13,215	61	>75% Grass cover, Good, HSG B
	13,215		Weighted Average
	13,215	61	100.00% Pervious Area

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

Subcatchment B4: BYPASS (LOD)

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Type II 24-hr 50-yr Rainfall=6.56"

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Summary for Subcatchment E1: PRE (LOD)

Runoff = 152.01 cfs @ 12.27 hrs, Volume= 742,139 cf, Depth= 3.87"

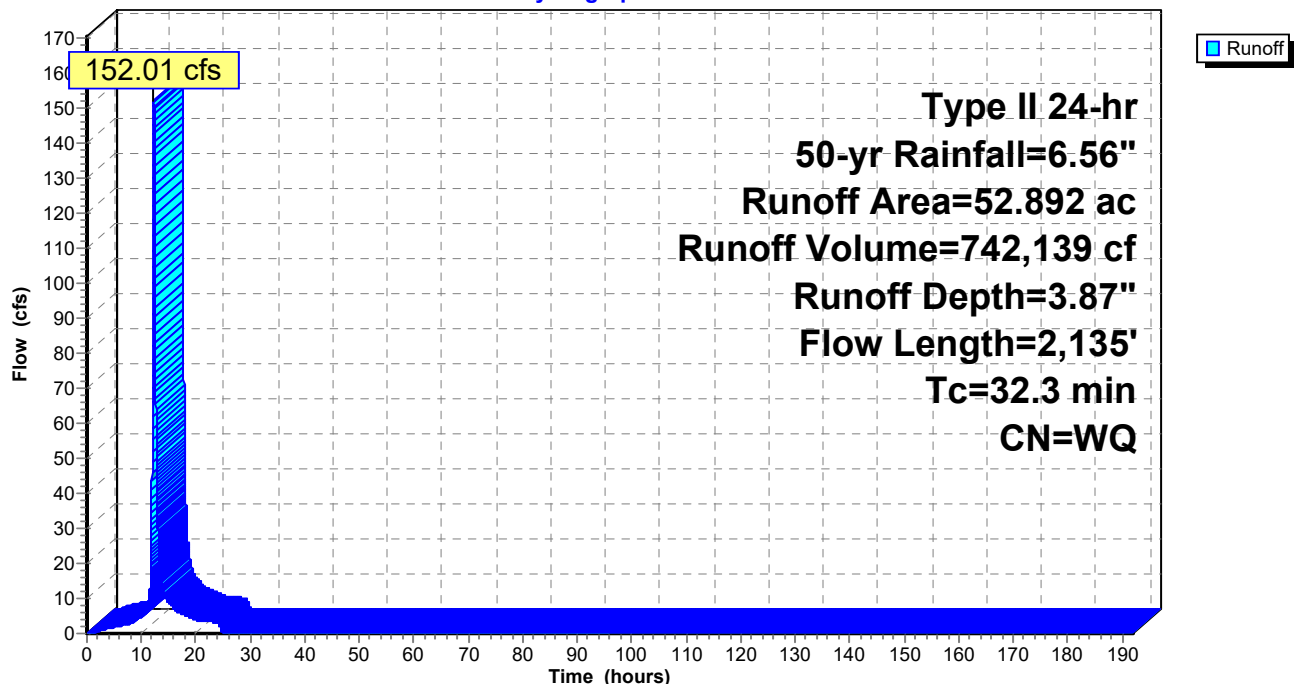
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

Area (ac)	CN	Description
25.382	58	Meadow, non-grazed, HSG B
* 5.502	58	Meadow (20% of Ex. Impervious)
* 22.008	98	Existing Impervious
52.892		Weighted Average
30.884	58	58.39% Pervious Area
22.008	98	41.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
4.4	425	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
2.7	410	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
32.3	2,135	Total			

Subcatchment E1: PRE (LOD)

Hydrograph



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Type II 24-hr 50-yr Rainfall=6.56"

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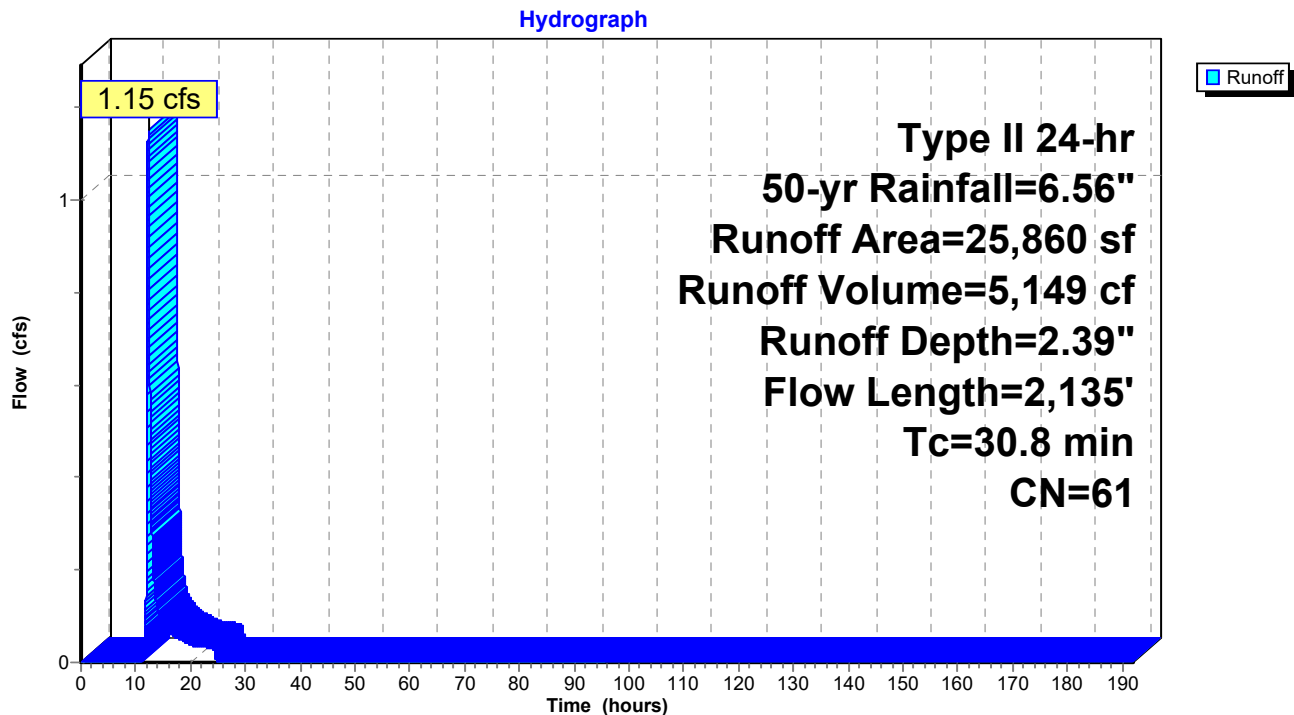
Summary for Subcatchment E2: PRE (OLOD)

Runoff = 1.15 cfs @ 12.28 hrs, Volume= 5,149 cf, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

Area (sf)	CN	Description
25,860	61	>75% Grass cover, Good, HSG B
25,860	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
3.5	425	0.0100	2.03		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
2.1	410	0.0250	3.21		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
30.8	2,135	Total			

Subcatchment E2: PRE (OLOD)

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Type II 24-hr 50-yr Rainfall=6.56"

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Summary for Subcatchment E3: PRE (OLOD)

Runoff = 31.62 cfs @ 12.24 hrs, Volume= 136,682 cf, Depth= 2.71"

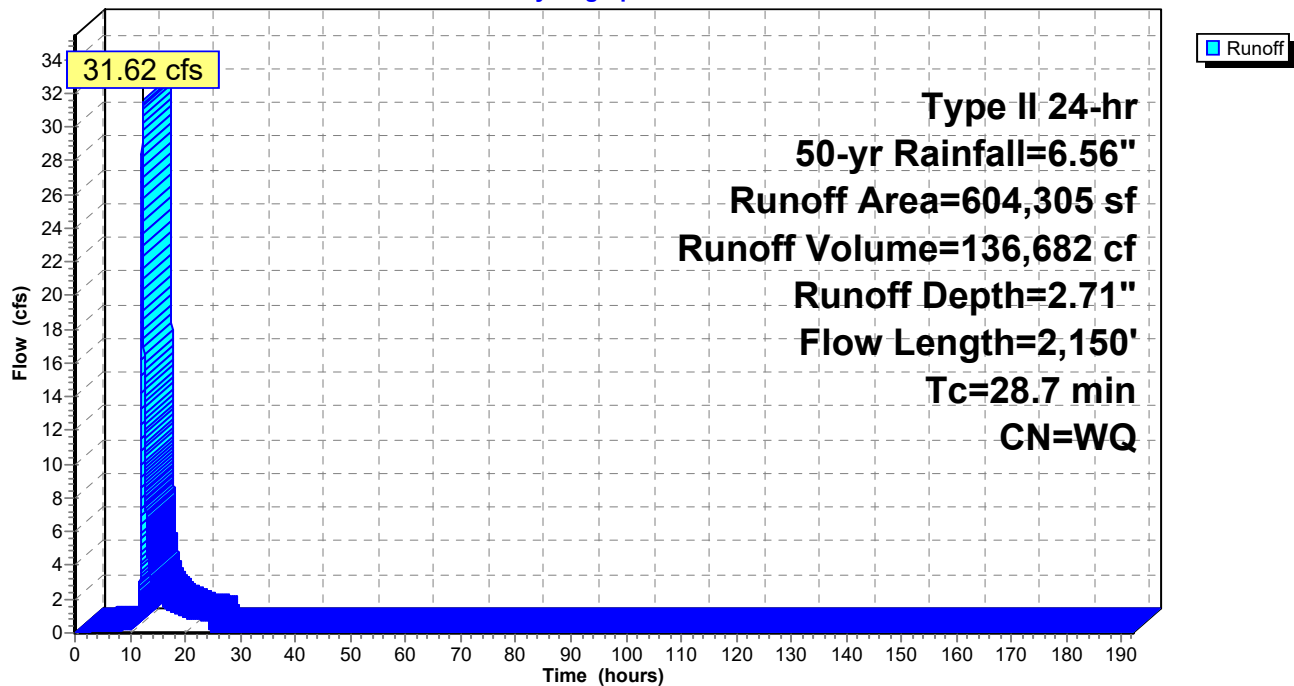
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

	Area (sf)	CN	Description
*	49,955	98	Existing Impervious
	554,350	61	>75% Grass cover, Good, HSG B
	604,305		Weighted Average
	554,350	61	91.73% Pervious Area
	49,955	98	8.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
9.2	1,400	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
6.7	650	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
28.7	2,150	Total			

Subcatchment E3: PRE (OLOD)

Hydrograph



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Type II 24-hr 50-yr Rainfall=6.56"

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Summary for Subcatchment P1A: Post to BMP-01 (LOD)

Runoff = 63.51 cfs @ 11.96 hrs, Volume= 136,748 cf, Depth= 3.49"

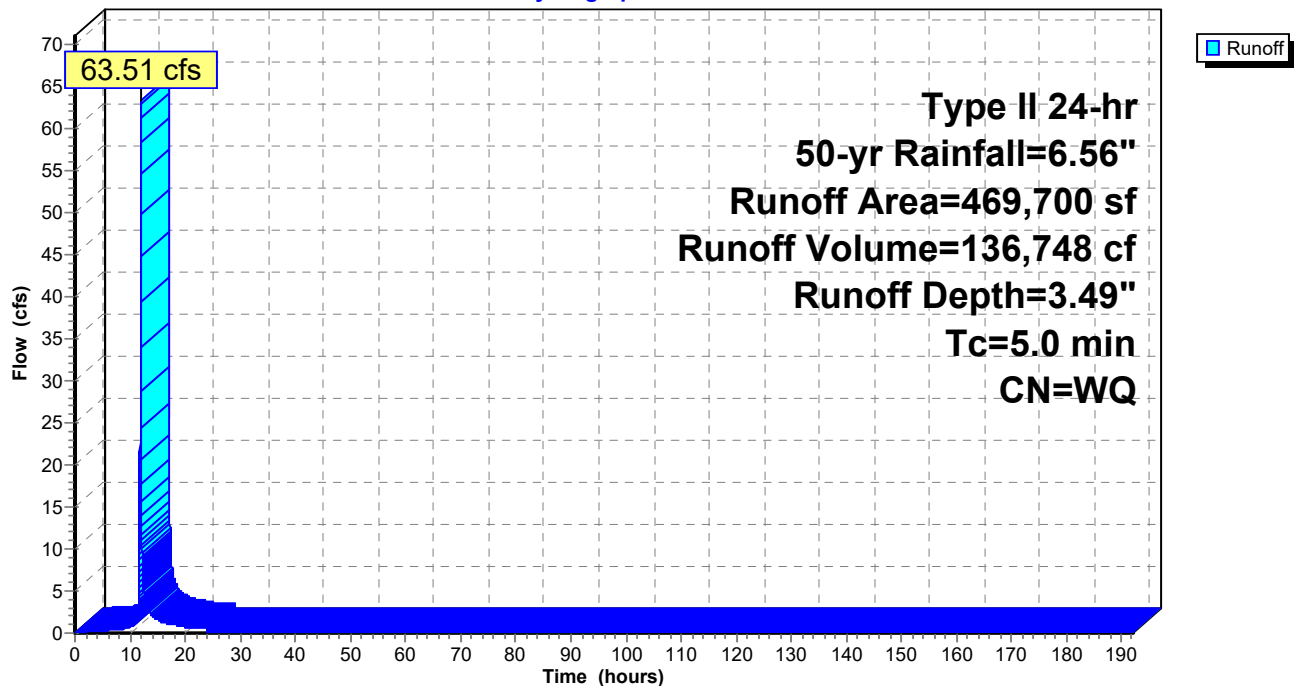
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

	Area (sf)	CN	Description
*	240	98	Buildings
*	131,700	98	Impervious
	337,760	61	>75% Grass cover, Good, HSG B
	469,700		Weighted Average
	337,760	61	71.91% Pervious Area
	131,940	98	28.09% Impervious Area

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

Subcatchment P1A: Post to BMP-01 (LOD)

Hydrograph



Summary for Subcatchment P1B: Post to BMP-01 (LOD)

Runoff = 21.97 cfs @ 11.96 hrs, Volume= 48,699 cf, Depth= 4.03"

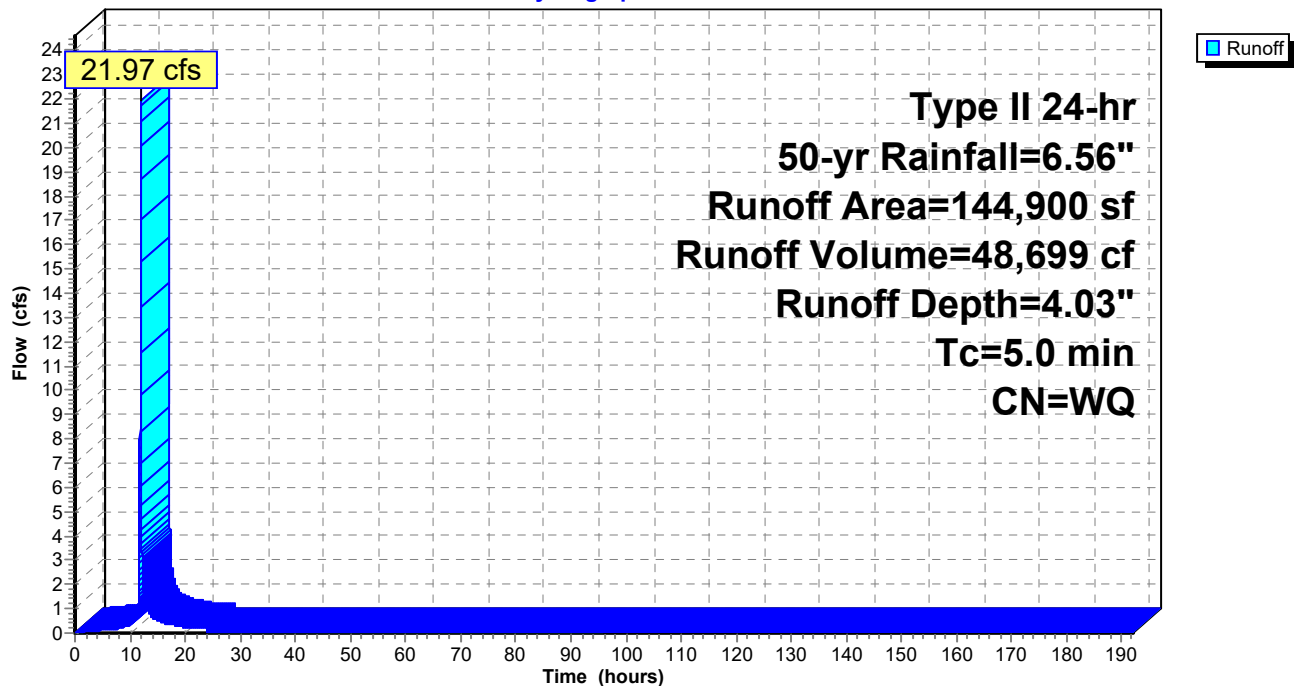
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

	Area (sf)	CN	Description
*	0	98	Buildings
*	60,580	98	Impervious
	84,320	61	>75% Grass cover, Good, HSG B
	144,900		Weighted Average
	84,320	61	58.19% Pervious Area
	60,580	98	41.81% Impervious Area

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

Subcatchment P1B: Post to BMP-01 (LOD)

Hydrograph



Summary for Subcatchment P1C: Post to BMP-01 (OLOD)

Runoff = 61.73 cfs @ 11.96 hrs, Volume= 125,434 cf, Depth= 2.75"

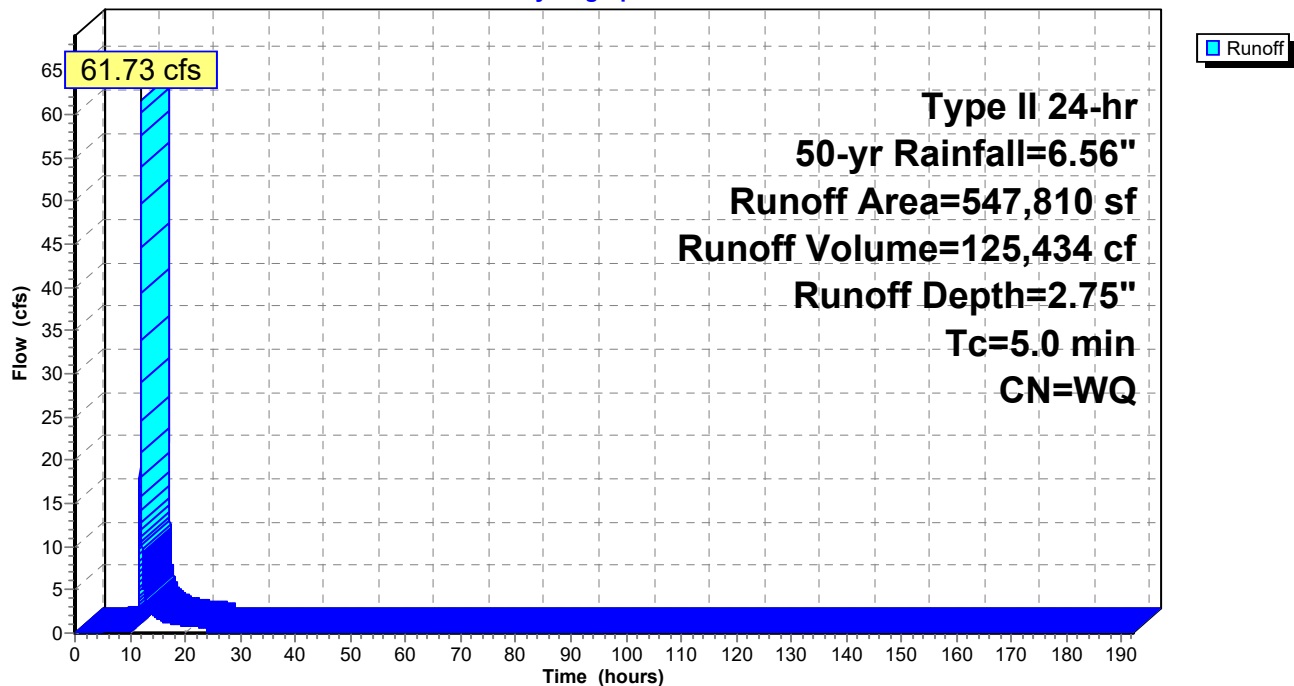
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

	Area (sf)	CN	Description
*	0	98	Buildings
*	49,955	98	Impervious
	497,855	61	>75% Grass cover, Good, HSG B
	547,810		Weighted Average
	497,855	61	90.88% Pervious Area
	49,955	98	9.12% Impervious Area

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

Subcatchment P1C: Post to BMP-01 (OLOD)

Hydrograph



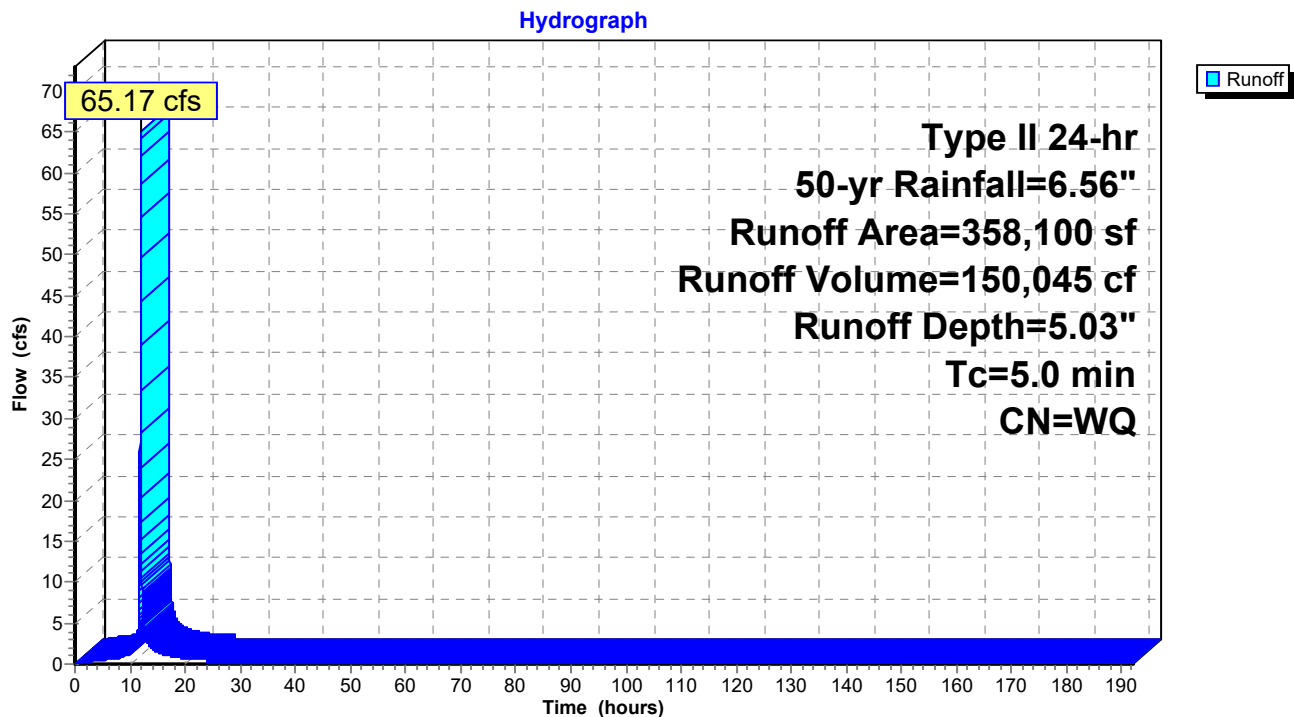
Summary for Subcatchment P2: Post to BMP-02 (LOD)

Runoff = 65.17 cfs @ 11.96 hrs, Volume= 150,045 cf, Depth= 5.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	106,100	98	Impervious
	117,775	61	>75% Grass cover, Good, HSG B
	358,100		Weighted Average
	117,775	61	32.89% Pervious Area
	240,325	98	67.11% Impervious Area

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

Subcatchment P2: Post to BMP-02 (LOD)

Summary for Subcatchment P3: Post to BMP-03 (LOD)

Runoff = 49.27 cfs @ 11.96 hrs, Volume= 113,554 cf, Depth= 5.07"

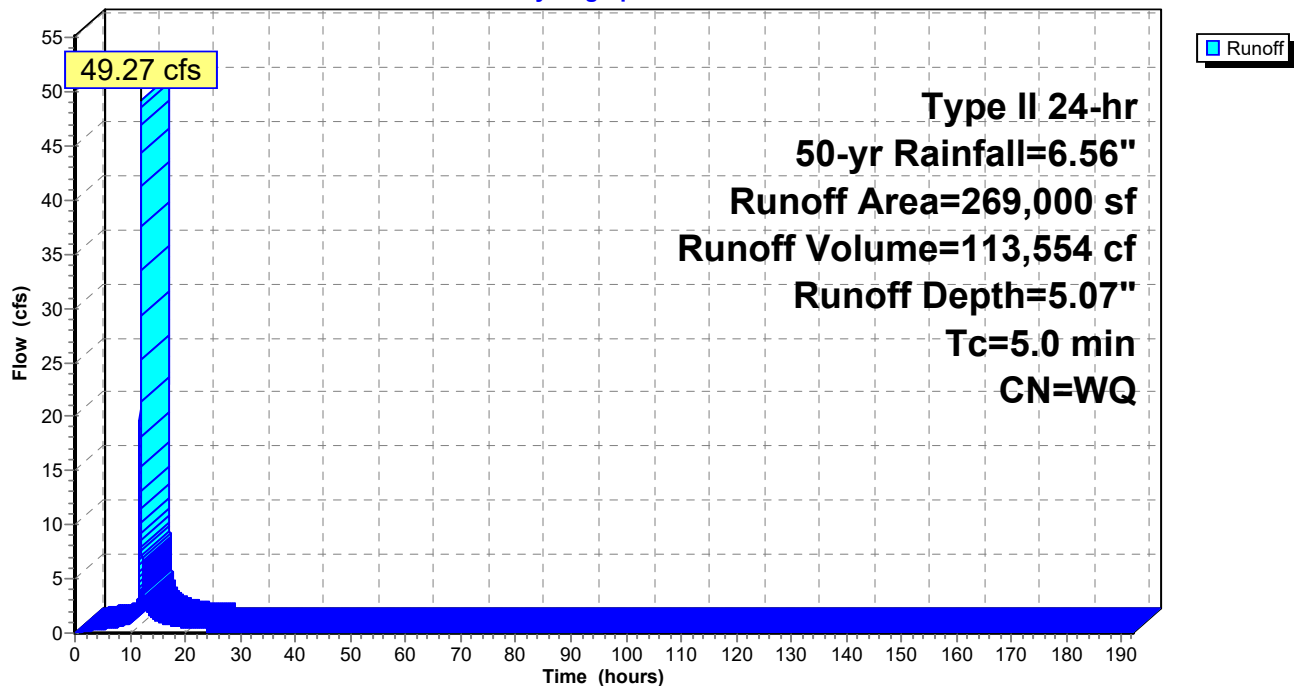
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	59,870	98	Impervious
	85,900	61	>75% Grass cover, Good, HSG B
	269,000		Weighted Average
	85,900	61	31.93% Pervious Area
	183,100	98	68.07% Impervious Area

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

Subcatchment P3: Post to BMP-03 (LOD)

Hydrograph



Summary for Subcatchment P4A: Post to BMP-04 (LOD)

Runoff = 77.12 cfs @ 11.96 hrs, Volume= 172,613 cf, Depth= 4.25"

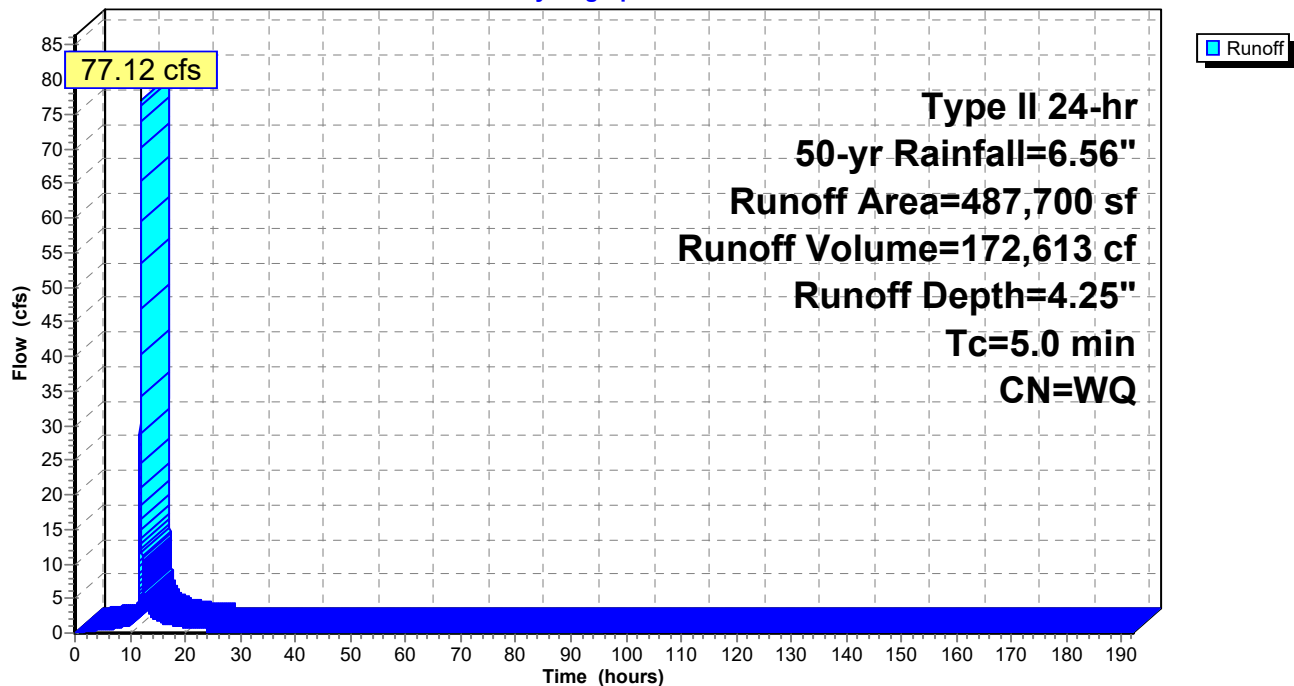
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	96,230	98	Impervious
	257,245	61	>75% Grass cover, Good, HSG B
	487,700		Weighted Average
	257,245	61	52.75% Pervious Area
	230,455	98	47.25% Impervious Area

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

Subcatchment P4A: Post to BMP-04 (LOD)

Hydrograph



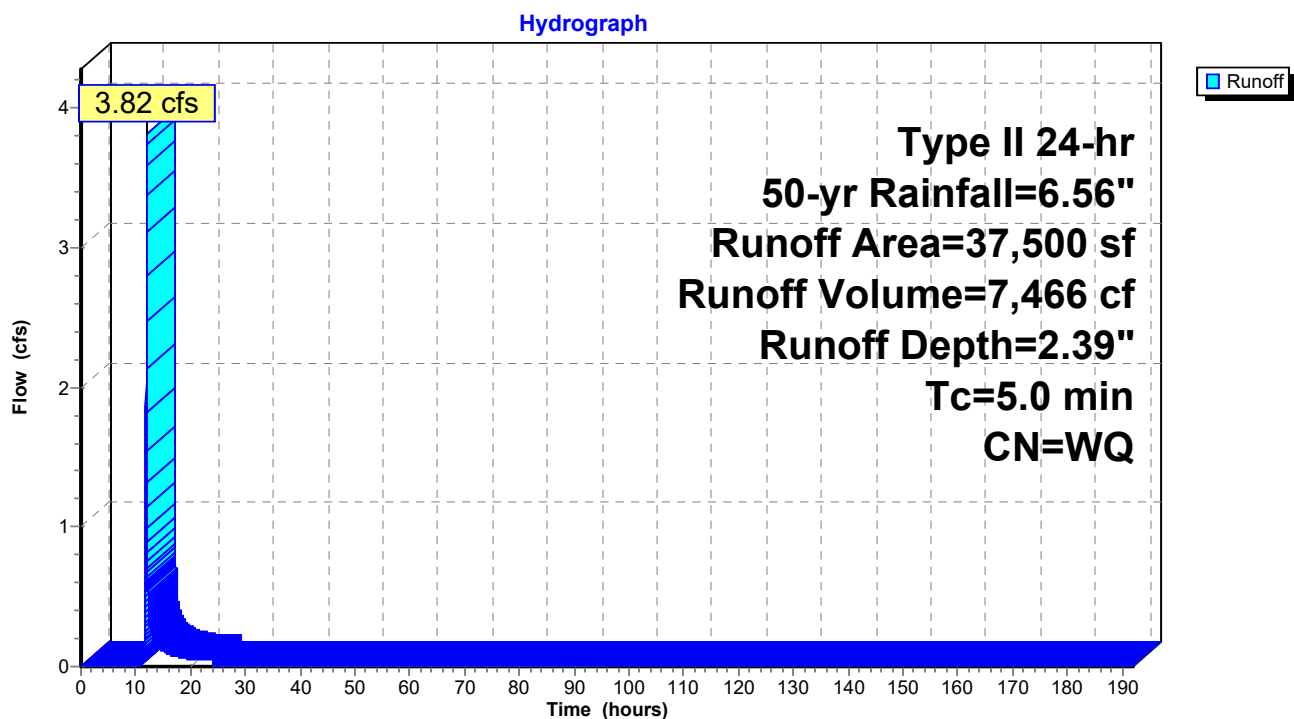
Summary for Subcatchment P4B: Post to BMP-04 (OLOD)

Runoff = 3.82 cfs @ 11.97 hrs, Volume= 7,466 cf, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
37,500	61	>75% Grass cover, Good, HSG B
37,500		Weighted Average
37,500	61	100.00% Pervious Area

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

Subcatchment P4B: Post to BMP-04 (OLOD)

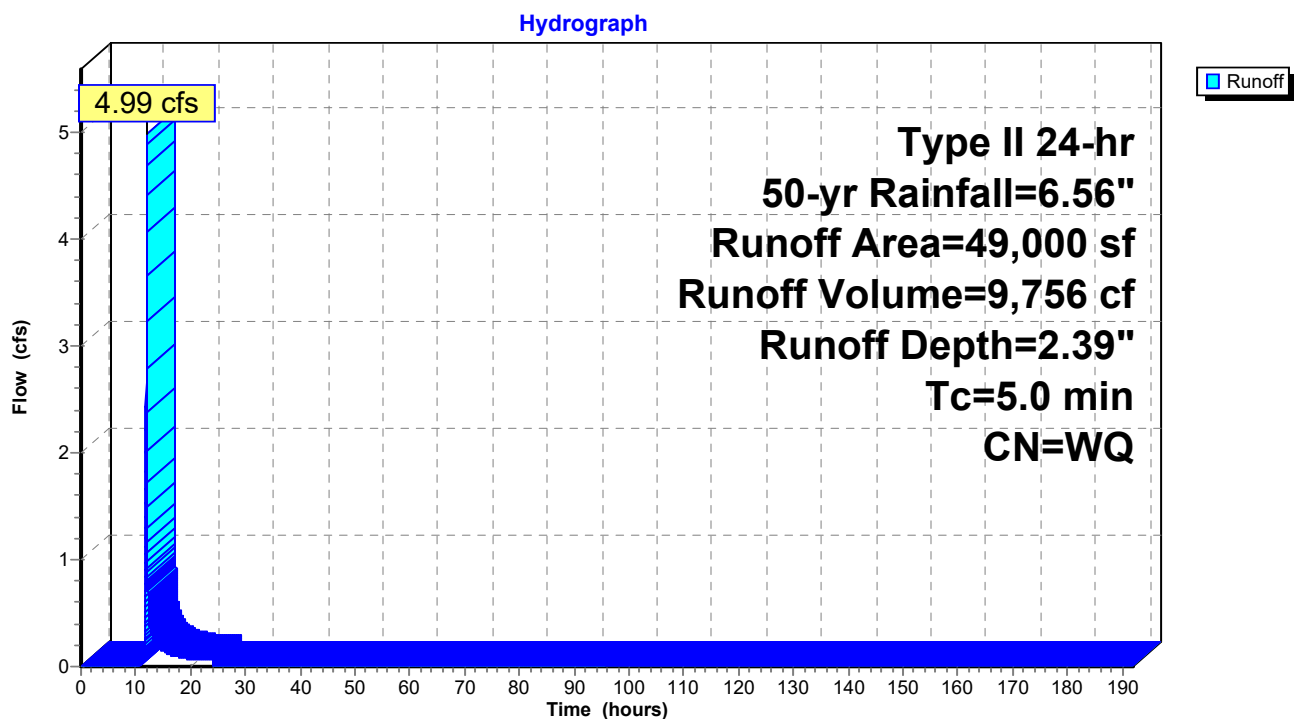
Summary for Subcatchment P4C: Post to BMP-04 (OLOD)

Runoff = 4.99 cfs @ 11.97 hrs, Volume= 9,756 cf, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
49,000	61	>75% Grass cover, Good, HSG B
49,000		Weighted Average
49,000	61	100.00% Pervious Area

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

Subcatchment P4C: Post to BMP-04 (OLOD)

Summary for Subcatchment P5: Post to BMP-05 (LOD)

Runoff = 67.89 cfs @ 11.96 hrs, Volume= 154,705 cf, Depth= 4.71"

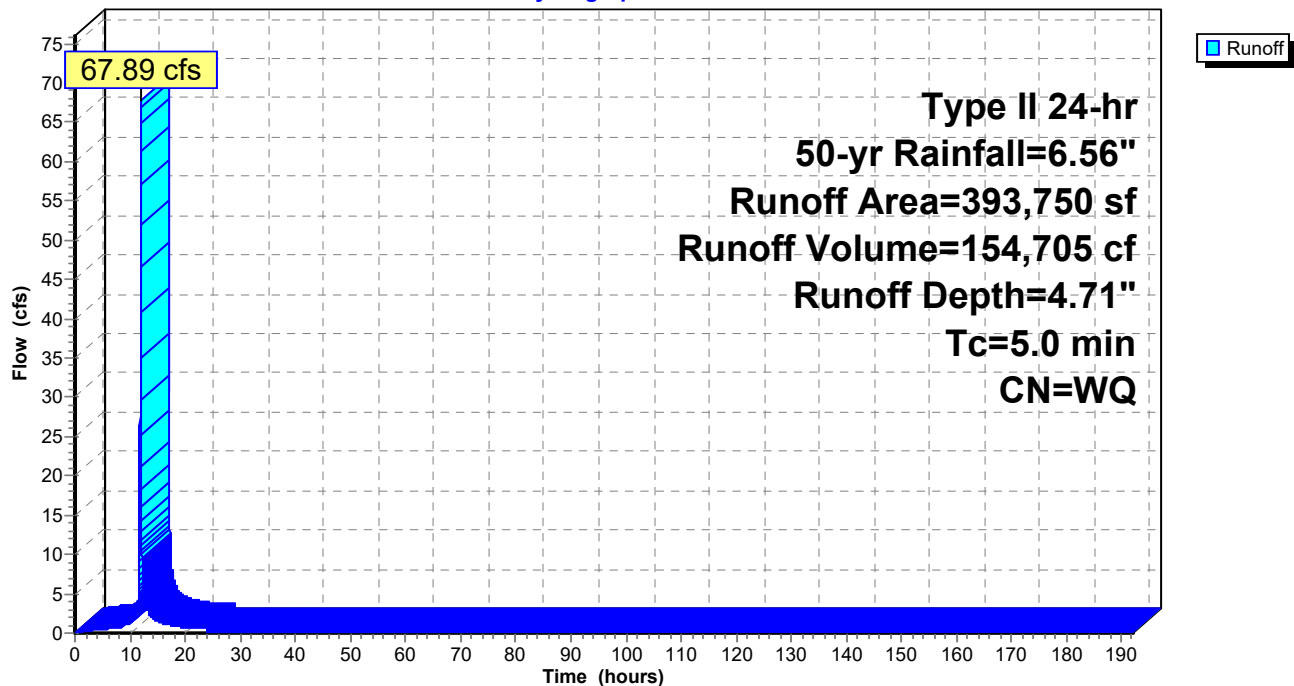
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.56"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	109,655	98	Impervious
	160,865	61	>75% Grass cover, Good, HSG B
	393,750		Weighted Average
	160,865	61	40.85% Pervious Area
	232,885	98	59.15% Impervious Area

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

Subcatchment P5: Post to BMP-05 (LOD)

Hydrograph



Summary for Pond BMP-01: Wet Pond

[79] Warning: Submerged Pond BMP-02 Primary device # 1 OUTLET by 0.26'

[79] Warning: Submerged Pond BMP-03 Primary device # 1 OUTLET by 0.26'

Inflow Area = 2,757,460 sf, 40.95% Impervious, Inflow Depth = 3.98" for 50-yr event
 Inflow = 259.65 cfs @ 11.97 hrs, Volume= 913,724 cf
 Outflow = 82.21 cfs @ 12.39 hrs, Volume= 913,291 cf, Atten= 68%, Lag= 25.5 min
 Primary = 82.21 cfs @ 12.39 hrs, Volume= 913,291 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 358.96' @ 12.39 hrs Surf.Area= 89,358 sf Storage= 314,588 cf

Plug-Flow detention time= 212.5 min calculated for 913,291 cf (100% of inflow)
 Center-of-Mass det. time= 208.2 min (1,317.2 - 1,109.0)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	613,350 cf	Storage Above Perm. Pool (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	69,700	0	0
356.00	74,500	72,100	72,100
357.00	79,400	76,950	149,050
358.00	84,400	81,900	230,950
359.00	89,550	86,975	317,925
360.00	95,600	92,575	410,500
361.00	101,400	98,500	509,000
362.00	107,300	104,350	613,350

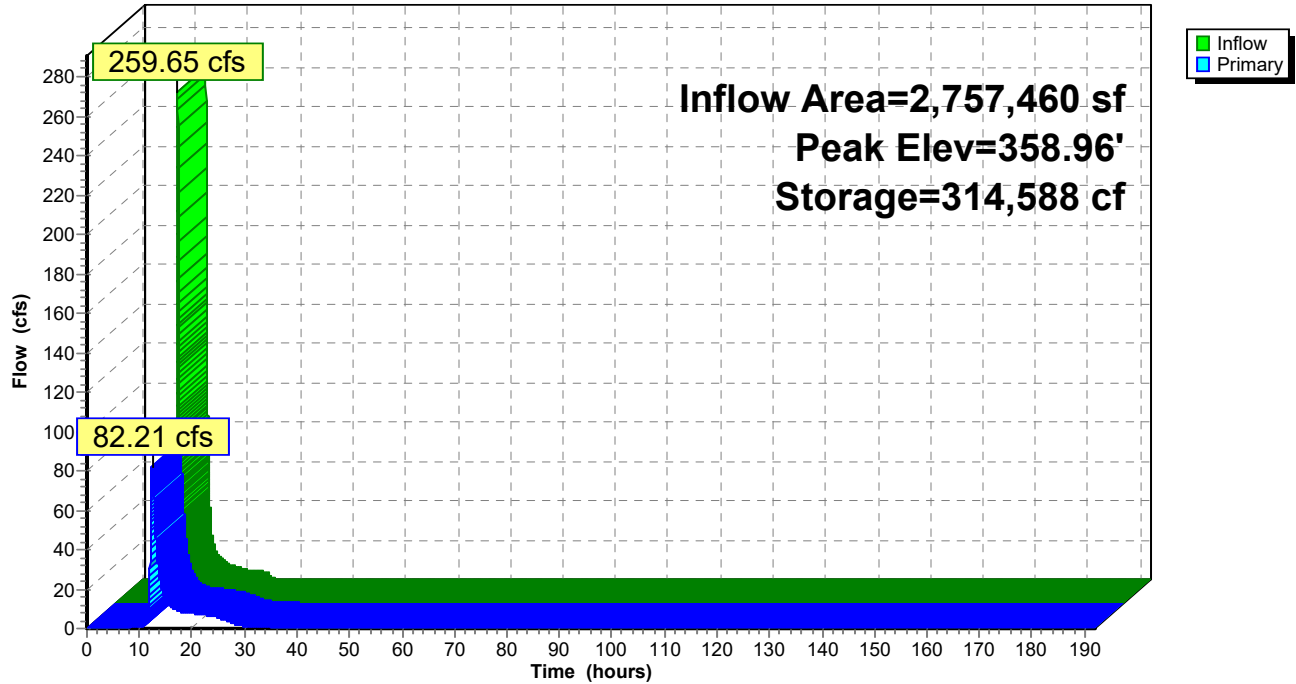
Device	Routing	Invert	Outlet Devices
#1	Primary	355.00'	36.0" Round 36" Outfall X 5.00 L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 355.00' / 354.50' S= 0.0156 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	355.00'	7.0" Vert. 7" Siphon Orifice X 5.00 C= 0.600 Limited to weir flow at low heads
#3	Device 1	357.00'	19.0" W x 30.0" H Vert. 19"Wx30"H Weir X 5.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	360.10'	24.0" x 45.0" Horiz. Type M Inlet X 5.00 C= 0.600 Limited to weir flow at low heads
#5	Primary	360.60'	100.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=82.20 cfs @ 12.39 hrs HW=358.96' (Free Discharge)

1=36" Outfall (Passes 82.20 cfs of 264.11 cfs potential flow)
 2=7" Siphon Orifice (Orifice Controls 12.33 cfs @ 9.23 fps)
 3=19"Wx30"H Weir (Orifice Controls 69.88 cfs @ 4.50 fps)
 4=Type M Inlet (Controls 0.00 cfs)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond BMP-01: Wet Pond

Hydrograph



Summary for Pond BMP-02: MRC Rain Garden

Inflow Area = 358,100 sf, 67.11% Impervious, Inflow Depth = 5.03" for 50-yr event
 Inflow = 65.17 cfs @ 11.96 hrs, Volume= 150,045 cf
 Outflow = 33.00 cfs @ 12.04 hrs, Volume= 148,915 cf, Atten= 49%, Lag= 5.0 min
 Primary = 33.00 cfs @ 12.04 hrs, Volume= 148,915 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 364.76' @ 12.04 hrs Surf.Area= 35,446 sf Storage= 47,456 cf

Plug-Flow detention time= 548.8 min calculated for 148,907 cf (99% of inflow)
 Center-of-Mass det. time= 544.2 min (1,300.4 - 756.2)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Prismatic) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	67,900 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		75,775 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
358.00	7,500	0	0
359.00	7,500	7,500	7,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	7,500	0	0
363.00	12,450	9,975	9,975
364.00	17,750	15,100	25,075
365.00	21,300	19,525	44,600
366.00	25,300	23,300	67,900

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	363.25'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

1508-SCS LDP REV02

Prepared by {enter your company name here}

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Type II 24-hr 50-yr Rainfall=6.56"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=33.00 cfs @ 12.04 hrs HW=364.76' (Free Discharge)

↑1=Outflow Pipe (Inlet Controls 33.00 cfs @ 10.50 fps)

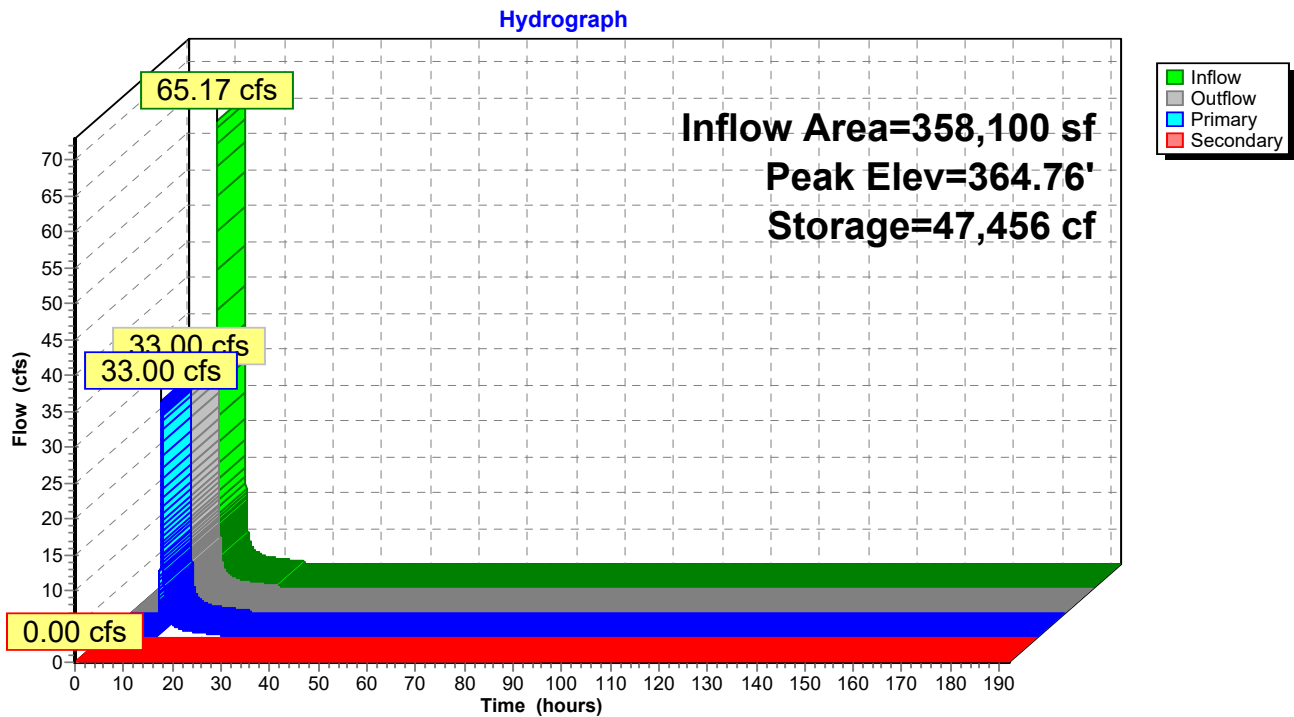
↑2=MRC Low Flow Orifice (Passes < 0.08 cfs potential flow)

↑3=Type M Overflow (Passes < 44.36 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

↑4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-02: MRC Rain Garden



Summary for Pond BMP-03: MRC Rain Garden

Inflow Area = 269,000 sf, 68.07% Impervious, Inflow Depth = 5.07" for 50-yr event
 Inflow = 49.27 cfs @ 11.96 hrs, Volume= 113,554 cf
 Outflow = 29.78 cfs @ 12.03 hrs, Volume= 112,424 cf, Atten= 40%, Lag= 4.3 min
 Primary = 29.78 cfs @ 12.03 hrs, Volume= 112,424 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 363.88' @ 12.03 hrs Surf.Area= 34,212 sf Storage= 33,156 cf

Plug-Flow detention time= 517.4 min calculated for 112,418 cf (99% of inflow)
 Center-of-Mass det. time= 511.2 min (1,266.8 - 755.6)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	72,725 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		80,600 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
358.00	7,500	0	0	7,500
359.00	7,500	7,500	7,500	7,846

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	8,850	0	0
363.00	13,250	11,050	11,050
364.00	20,050	16,650	27,700
365.00	22,700	21,375	49,075
366.00	24,600	23,650	72,725

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.0" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	362.75'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

1508-SCS LDP REV02

Prepared by {enter your company name here}

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Type II 24-hr 50-yr Rainfall=6.56"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=29.78 cfs @ 12.03 hrs HW=363.88' (Free Discharge)

1=Outflow Pipe (Inlet Controls 29.78 cfs @ 9.48 fps)

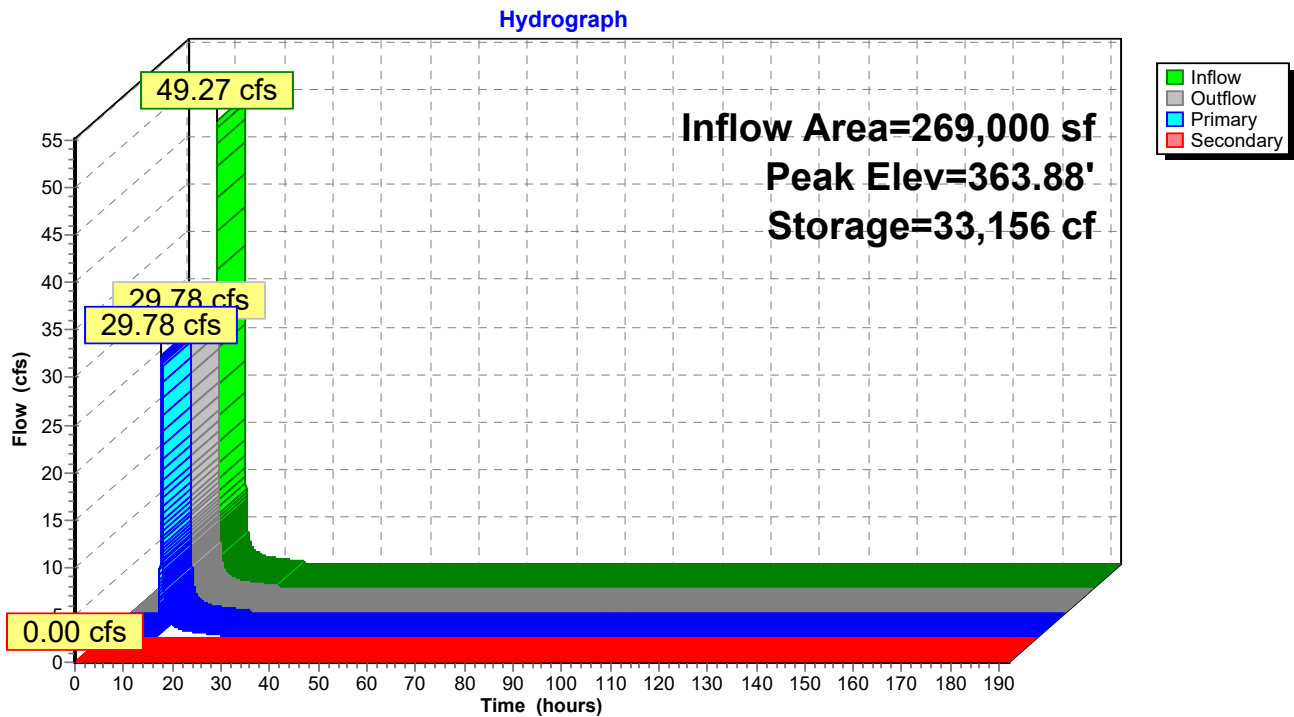
2=MRC Low Flow Orifice (Passes < 0.06 cfs potential flow)

3=Type M Overflow (Passes < 38.33 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-03: MRC Rain Garden



Summary for Pond BMP-04: MRC Rain Garden

Inflow Area = 574,200 sf, 40.13% Impervious, Inflow Depth = 3.97" for 50-yr event
 Inflow = 85.90 cfs @ 11.96 hrs, Volume= 189,835 cf
 Outflow = 27.73 cfs @ 12.07 hrs, Volume= 188,304 cf, Atten= 68%, Lag= 6.6 min
 Primary = 27.73 cfs @ 12.07 hrs, Volume= 188,304 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 374.36' @ 12.07 hrs Surf.Area= 51,320 sf Storage= 68,289 cf

Plug-Flow detention time= 464.5 min calculated for 188,294 cf (99% of inflow)
 Center-of-Mass det. time= 459.7 min (1,238.7 - 779.1)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	116,625 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		124,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	15,500	0	0
373.00	26,900	21,200	21,200
374.00	30,150	28,525	49,725
375.00	33,400	31,775	81,500
376.00	36,850	35,125	116,625

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.65'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

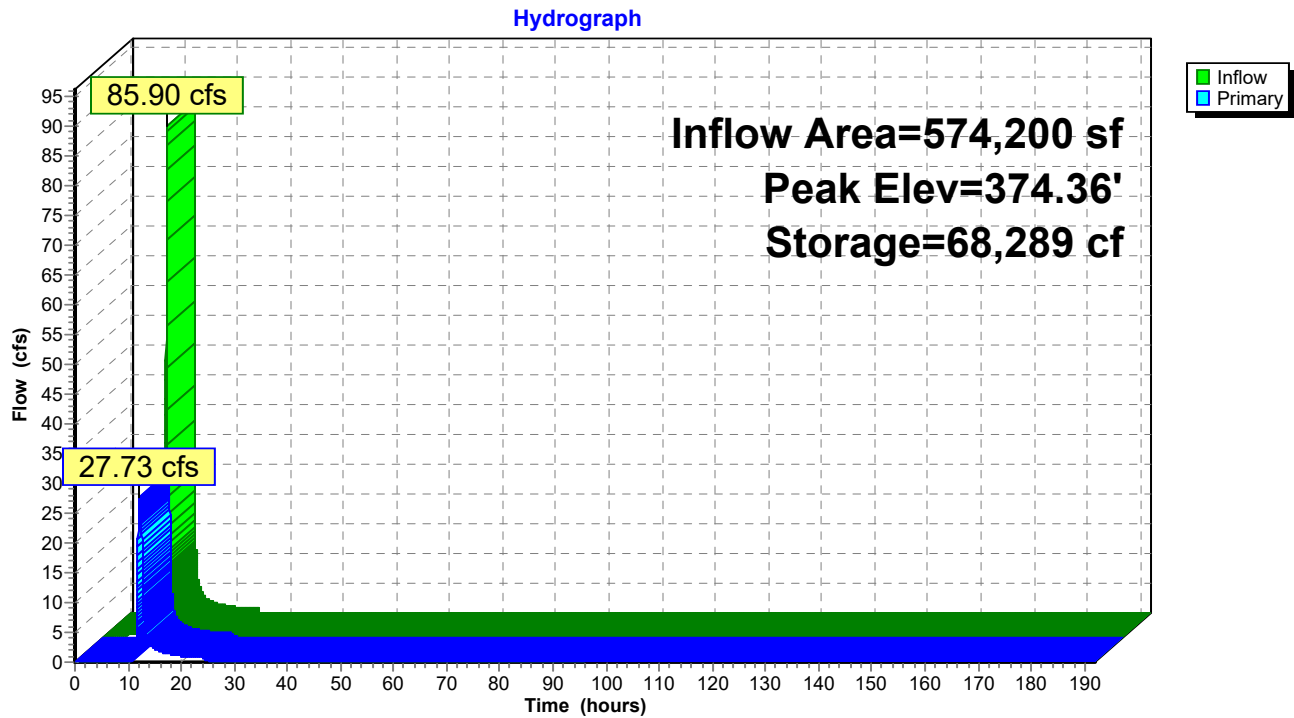
Primary OutFlow Max=27.73 cfs @ 12.07 hrs HW=374.36' (Free Discharge)

1=24" Outflow Pipe (Inlet Controls 27.73 cfs @ 8.83 fps)

2=MRC Low Flow Orifice (Passes < 0.07 cfs potential flow)

3=Type M Overflow (Passes < 47.22 cfs potential flow)

Pond BMP-04: MRC Rain Garden



Summary for Pond BMP-05: MRC Rain Garden

Inflow Area = 393,750 sf, 59.15% Impervious, Inflow Depth = 4.71" for 50-yr event
 Inflow = 67.89 cfs @ 11.96 hrs, Volume= 154,705 cf
 Outflow = 26.45 cfs @ 12.06 hrs, Volume= 153,199 cf, Atten= 61%, Lag= 5.9 min
 Primary = 26.45 cfs @ 12.06 hrs, Volume= 153,199 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 374.06' @ 12.06 hrs Surf.Area= 49,265 sf Storage= 56,909 cf

Plug-Flow detention time= 510.2 min calculated for 153,199 cf (99% of inflow)
 Center-of-Mass det. time= 503.7 min (1,265.5 - 761.9)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	111,850 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		119,350 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	13,800	0	0
373.00	26,300	20,050	20,050
374.00	29,100	27,700	47,750
375.00	32,000	30,550	78,300
376.00	35,100	33,550	111,850

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.2" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.70'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

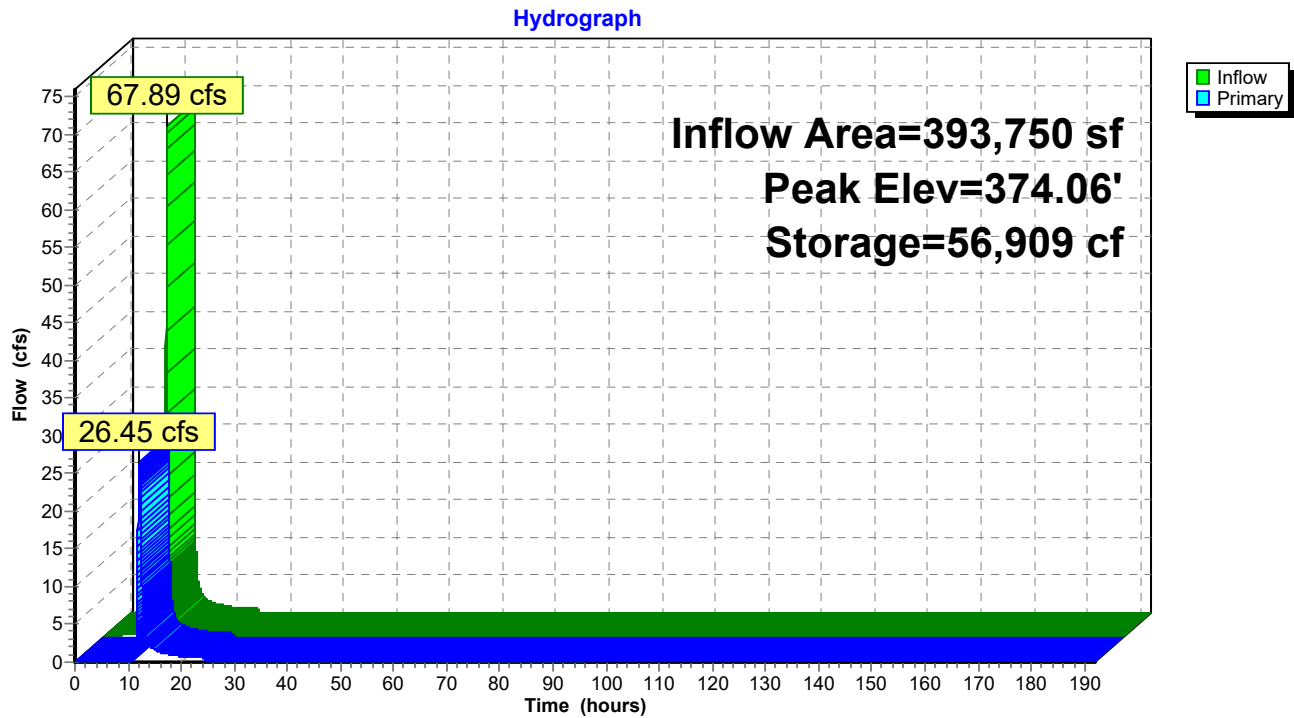
Primary OutFlow Max=26.45 cfs @ 12.06 hrs HW=374.06' (Free Discharge)

1=24" Outflow Pipe (Inlet Controls 26.45 cfs @ 8.42 fps)

2=MRC Low Flow Orifice (Passes < 0.08 cfs potential flow)

3=Type M Overflow (Passes < 42.06 cfs potential flow)

Pond BMP-05: MRC Rain Garden



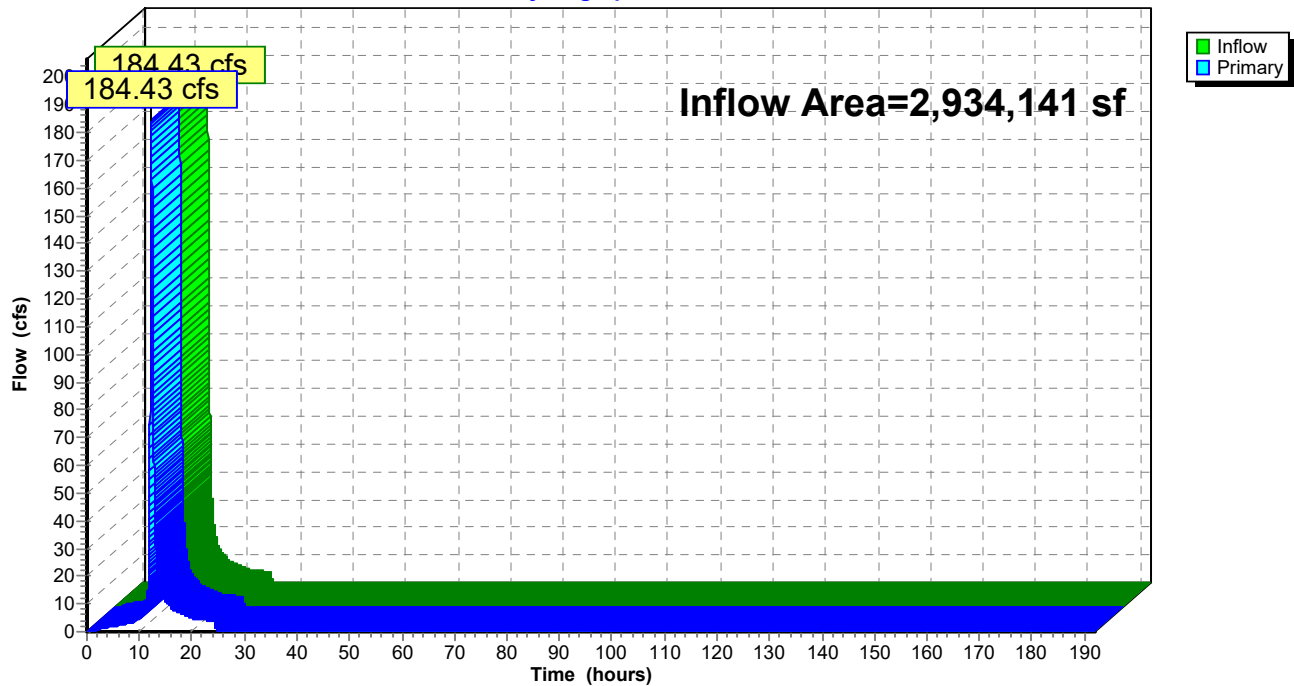
Summary for Link 001A: POA

Inflow Area = 2,934,141 sf, 34.38% Impervious, Inflow Depth = 3.62" for 50-yr event
Inflow = 184.43 cfs @ 12.26 hrs, Volume= 883,970 cf
Primary = 184.43 cfs @ 12.26 hrs, Volume= 883,970 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001A: POA

Hydrograph



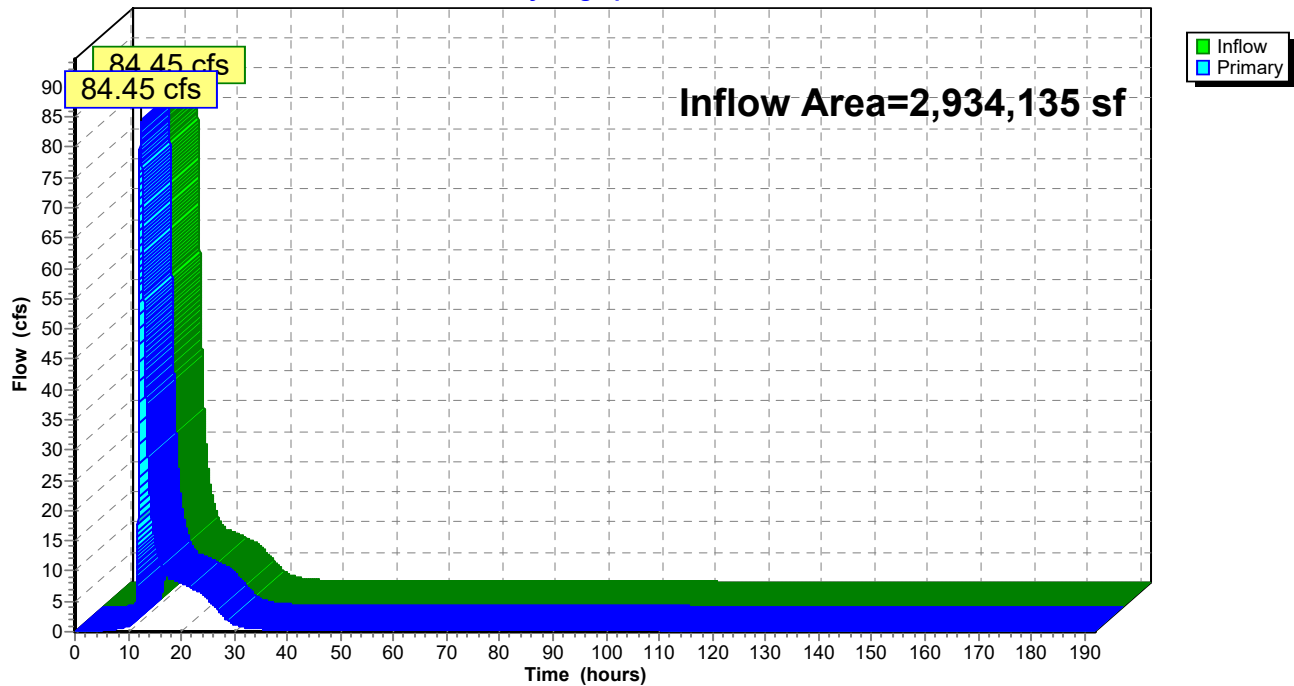
Summary for Link 001B: POA

Inflow Area = 2,934,135 sf, 39.40% Impervious, Inflow Depth = 3.92" for 50-yr event
Inflow = 84.45 cfs @ 12.38 hrs, Volume= 957,285 cf
Primary = 84.45 cfs @ 12.38 hrs, Volume= 957,285 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001B: POA

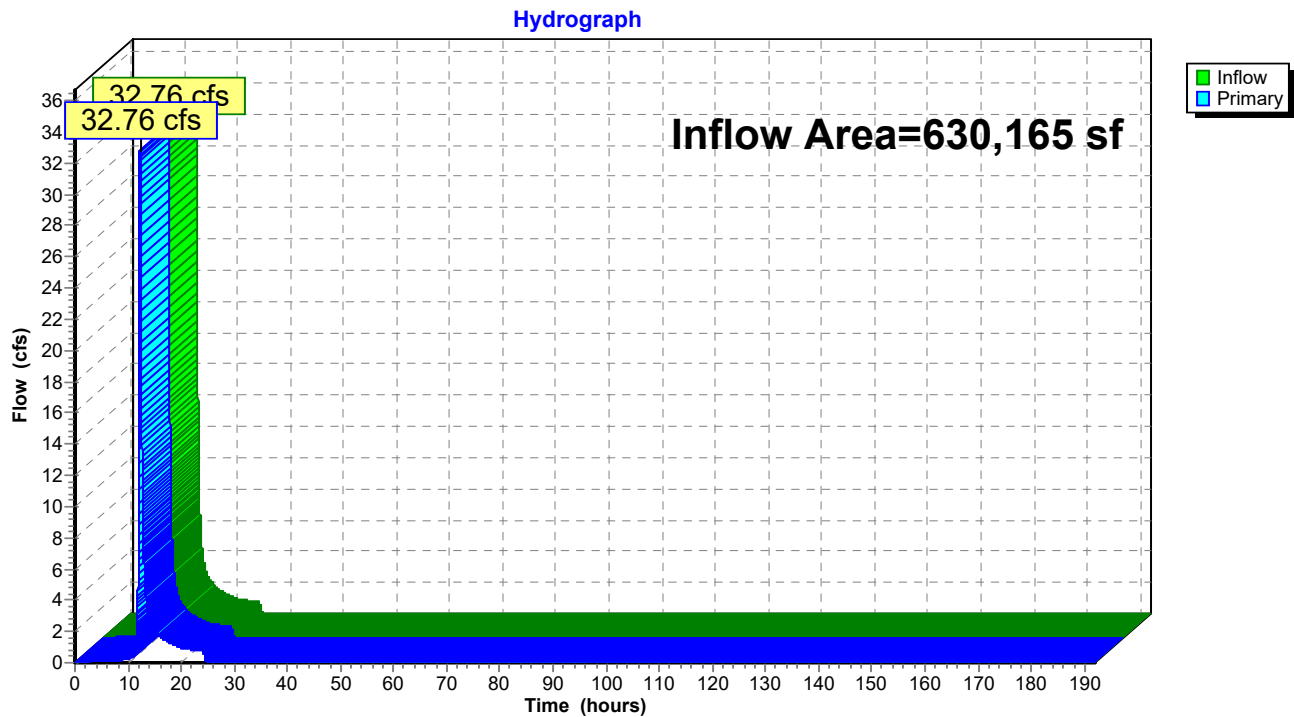
Hydrograph



Summary for Link 2: TOTAL OFFSITE

Inflow Area = 630,165 sf, 7.93% Impervious, Inflow Depth = 2.70" for 50-yr event
Inflow = 32.76 cfs @ 12.24 hrs, Volume= 141,830 cf
Primary = 32.76 cfs @ 12.24 hrs, Volume= 141,830 cf, Atten= 0%, Lag= 0.0 min

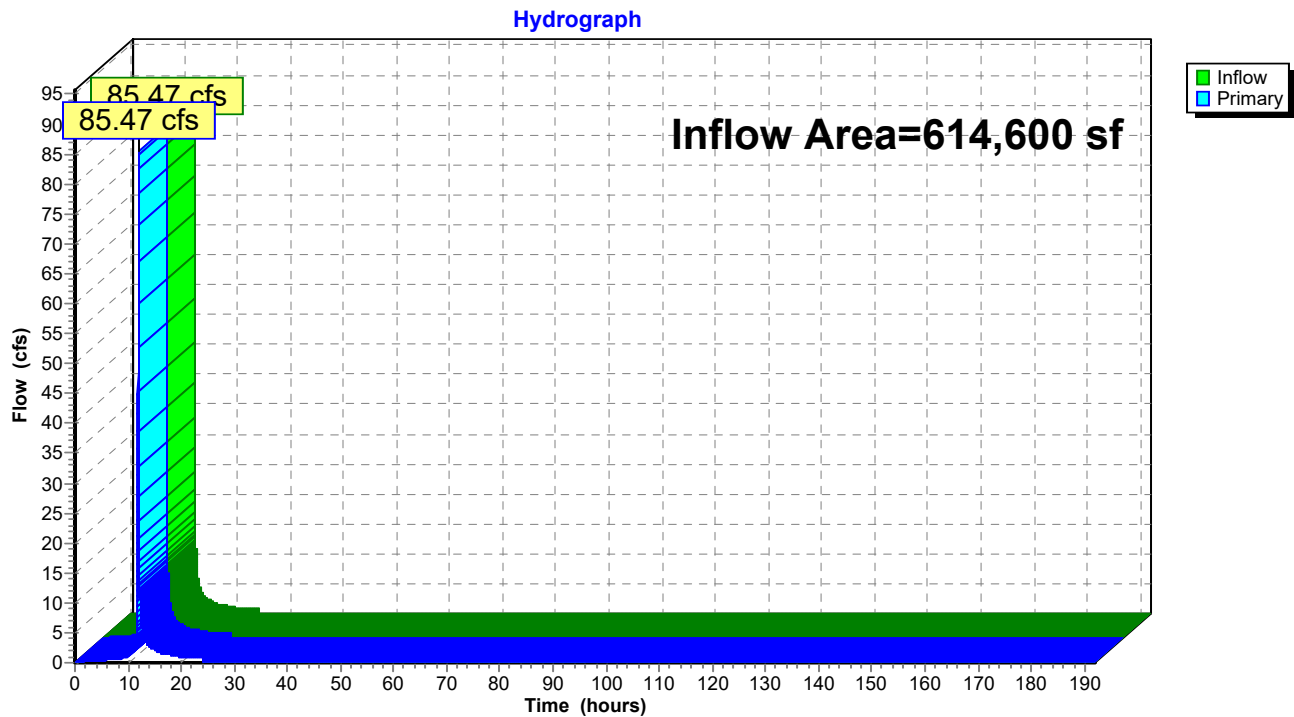
Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 2: TOTAL OFFSITE

Summary for Link 3: LOD to BMP-01

Inflow Area = 614,600 sf, 31.32% Impervious, Inflow Depth = 3.62" for 50-yr event
Inflow = 85.47 cfs @ 11.96 hrs, Volume= 185,448 cf
Primary = 85.47 cfs @ 11.96 hrs, Volume= 185,448 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 3: LOD to BMP-01

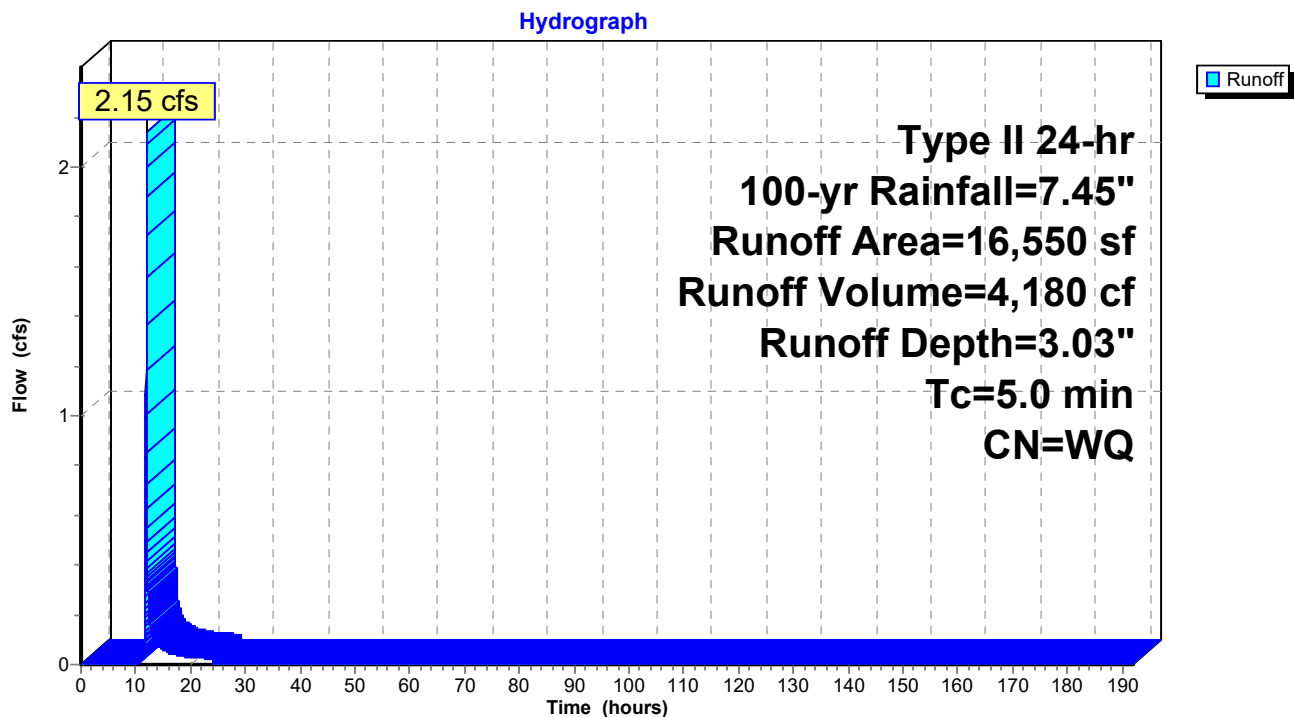
Summary for Subcatchment B1: BYPASS (LOD)

Runoff = 2.15 cfs @ 11.96 hrs, Volume= 4,180 cf, Depth= 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	16,550	61	>75% Grass cover, Good, HSG B
	16,550		Weighted Average
	16,550	61	100.00% Pervious Area

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

Subcatchment B1: BYPASS (LOD)

Summary for Subcatchment B2: BYPASS (LOD)

Runoff = 4.02 cfs @ 11.96 hrs, Volume= 8,440 cf, Depth= 3.88"

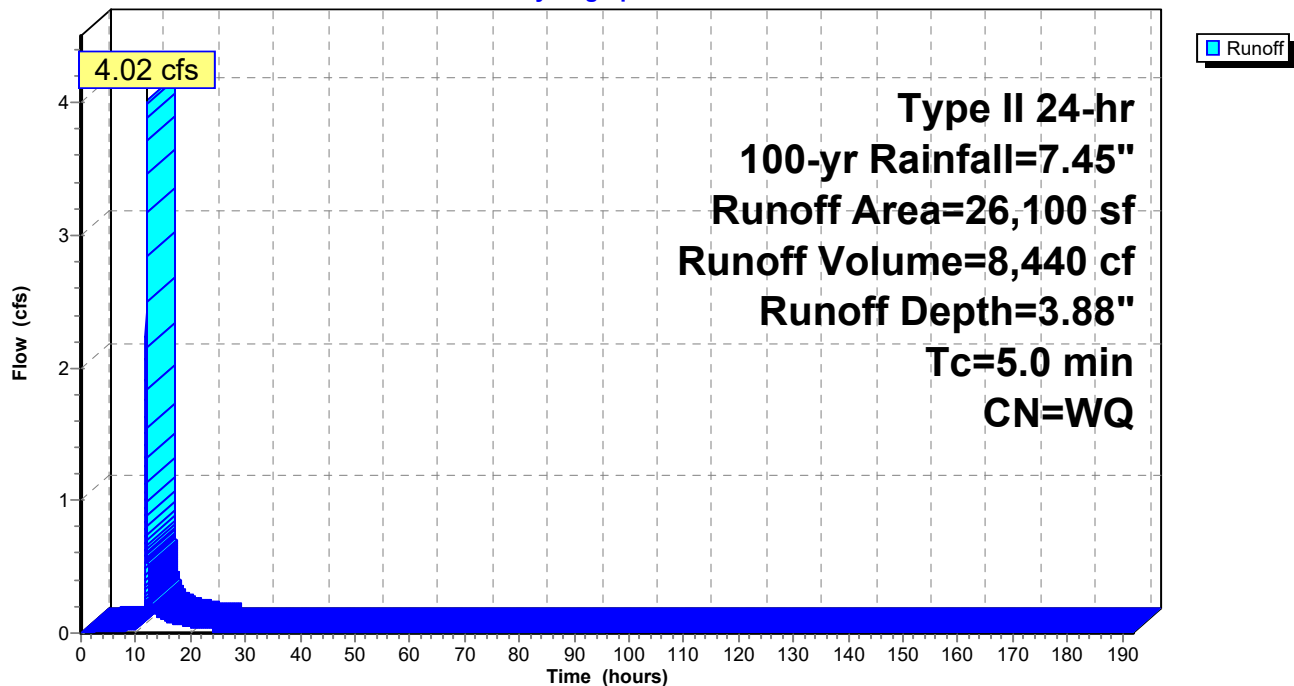
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

	Area (sf)	CN	Description
*	0	98	Buildings
*	5,305	98	Impervious
	20,795	61	>75% Grass cover, Good, HSG B
	26,100		Weighted Average
	20,795	61	79.67% Pervious Area
	5,305	98	20.33% Impervious Area

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

Subcatchment B2: BYPASS (LOD)

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.45"

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Summary for Subcatchment B3: BYPASS (LOD)

Runoff = 18.27 cfs @ 11.96 hrs, Volume= 38,042 cf, Depth= 3.78"

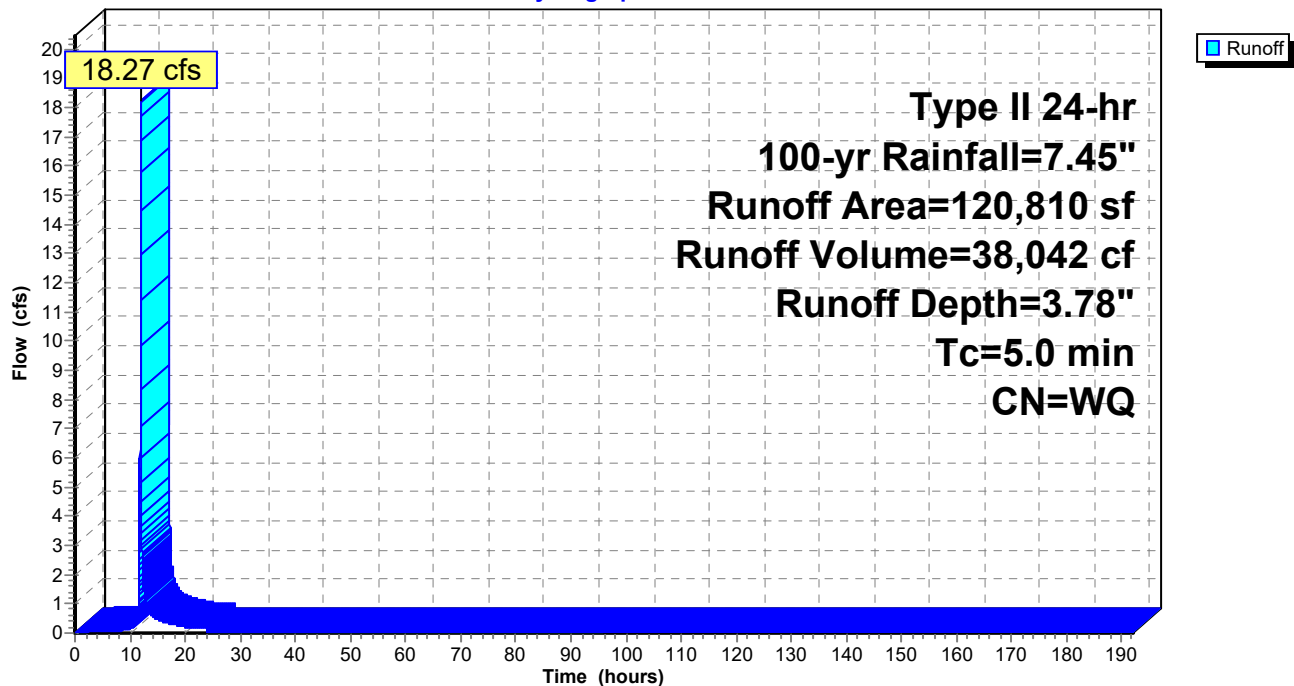
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

	Area (sf)	CN	Description
*	80	98	Buildings
*	21,530	98	Impervious
	99,200	61	>75% Grass cover, Good, HSG B
	120,810		Weighted Average
	99,200	61	82.11% Pervious Area
	21,610	98	17.89% Impervious Area

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

Subcatchment B3: BYPASS (LOD)

Hydrograph



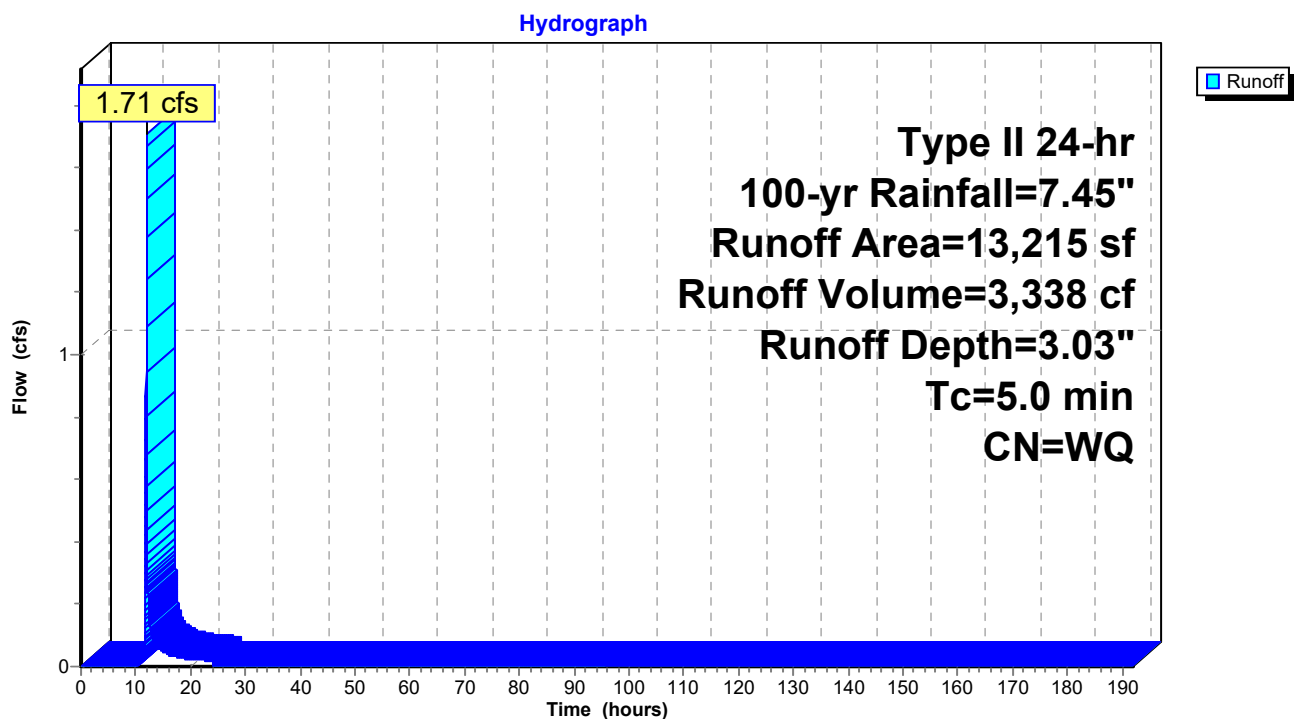
Summary for Subcatchment B4: BYPASS (LOD)

Runoff = 1.71 cfs @ 11.96 hrs, Volume= 3,338 cf, Depth= 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
13,215	61	>75% Grass cover, Good, HSG B
13,215		Weighted Average
13,215	61	100.00% Pervious Area

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

Subcatchment B4: BYPASS (LOD)

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Type II 24-hr 100-yr Rainfall=7.45"

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Summary for Subcatchment E1: PRE (LOD)

Runoff = 182.13 cfs @ 12.27 hrs, Volume= 880,977 cf, Depth= 4.59"

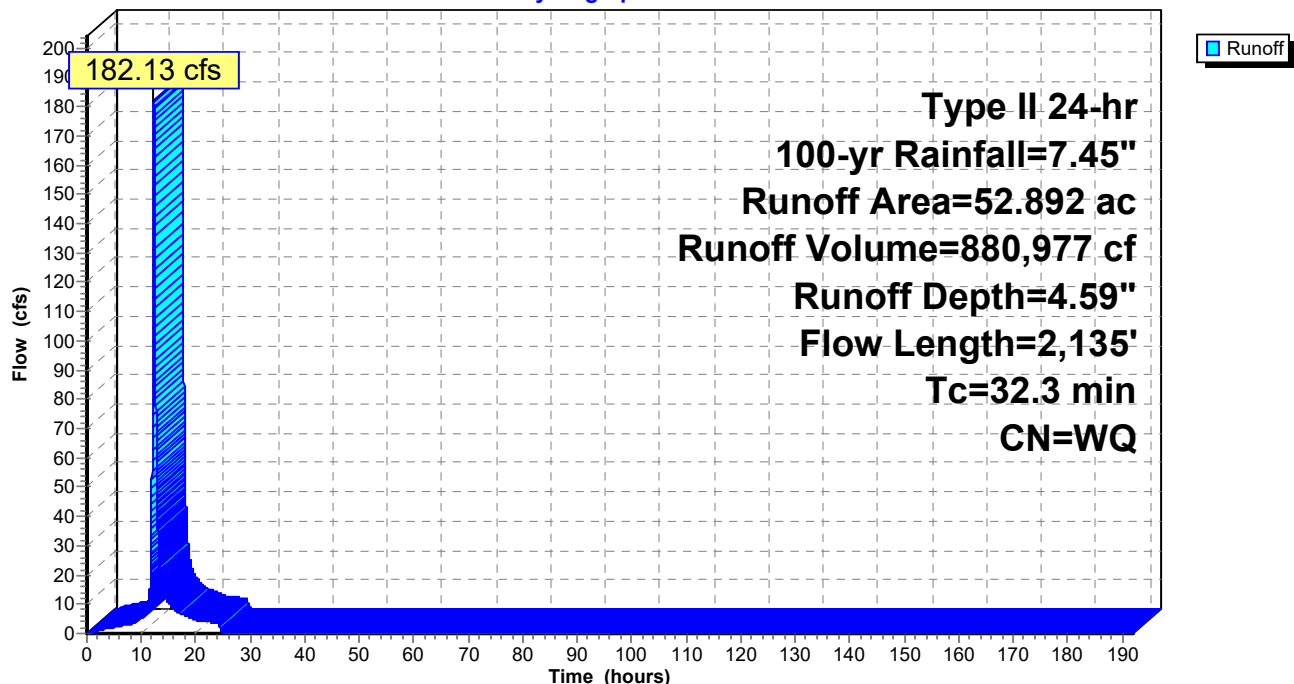
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

Area (ac)	CN	Description
25.382	58	Meadow, non-grazed, HSG B
* 5.502	58	Meadow (20% of Ex. Impervious)
* 22.008	98	Existing Impervious
52.892		Weighted Average
30.884	58	58.39% Pervious Area
22.008	98	41.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
4.4	425	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
2.7	410	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
32.3	2,135	Total			

Subcatchment E1: PRE (LOD)

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.45"

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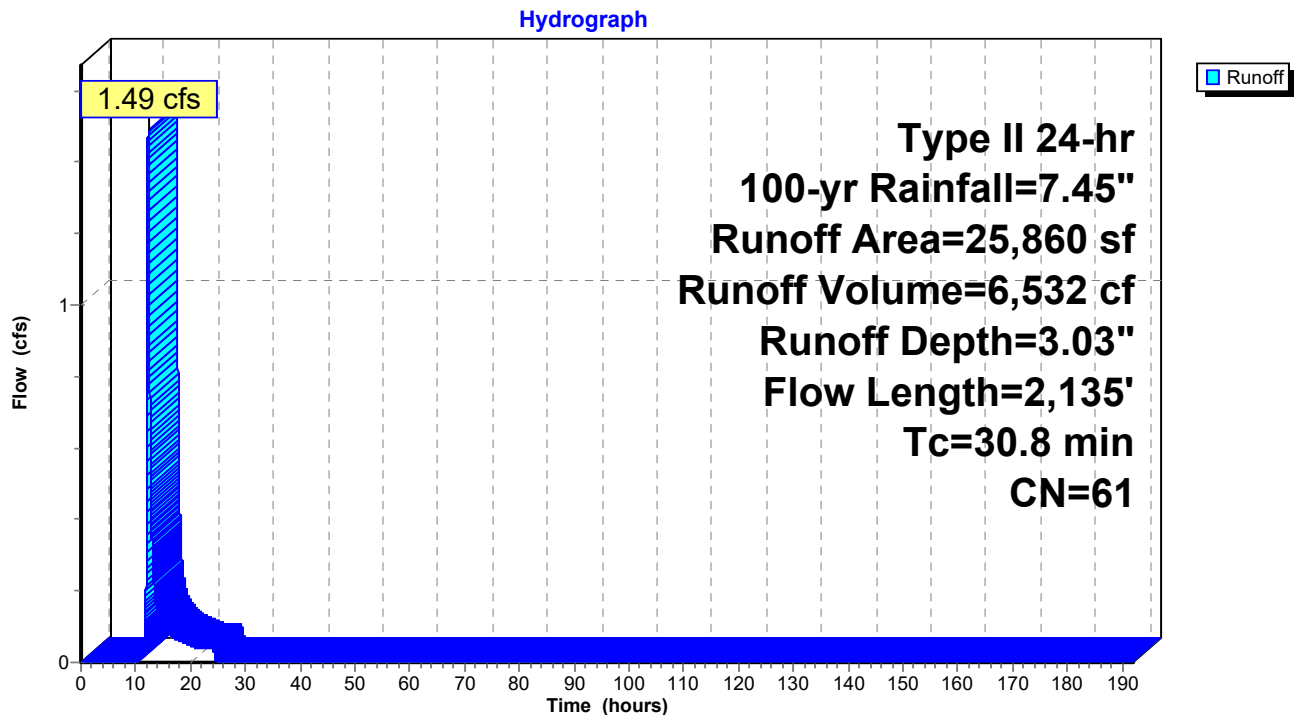
Summary for Subcatchment E2: PRE (OLOD)

Runoff = 1.49 cfs @ 12.28 hrs, Volume= 6,532 cf, Depth= 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

Area (sf)	CN	Description
25,860	61	>75% Grass cover, Good, HSG B
25,860	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
3.5	425	0.0100	2.03		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
2.1	410	0.0250	3.21		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
30.8	2,135	Total			

Subcatchment E2: PRE (OLOD)

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Type II 24-hr 100-yr Rainfall=7.45"

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Summary for Subcatchment E3: PRE (OLOD)

Runoff = 39.97 cfs @ 12.22 hrs, Volume= 170,041 cf, Depth= 3.38"

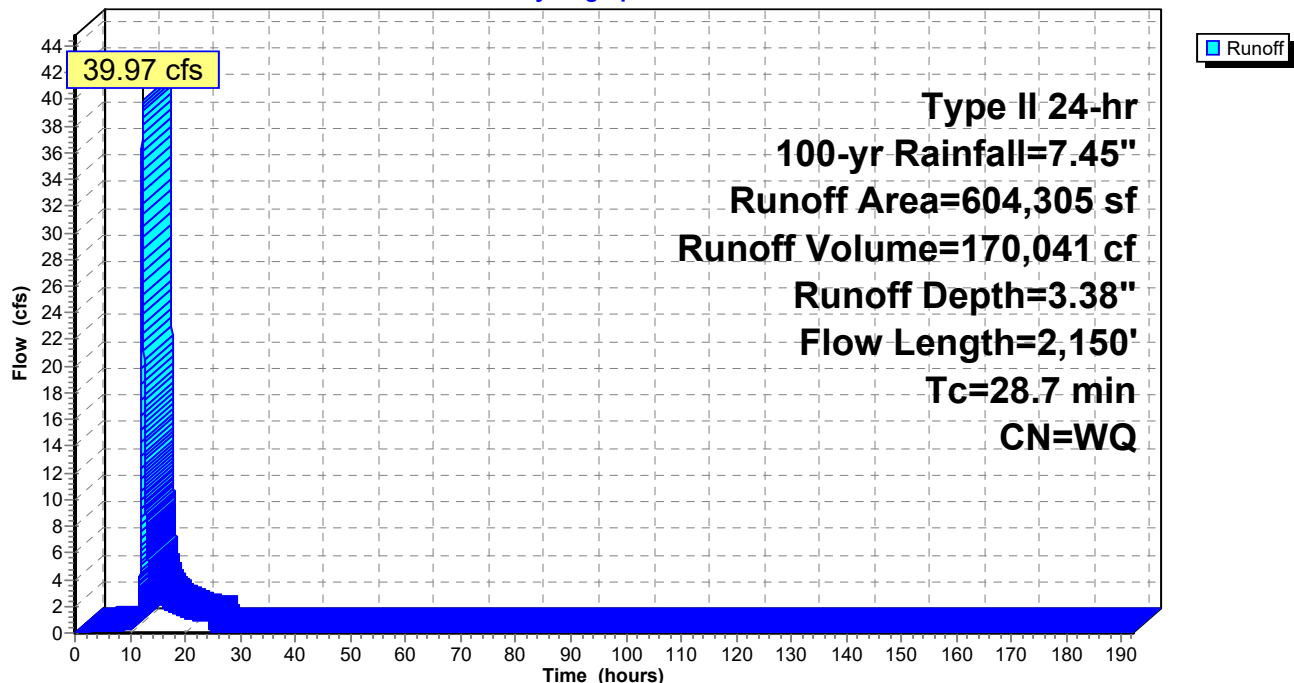
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

Area (sf)	CN	Description
* 49,955	98	Existing Impervious
554,350	61	>75% Grass cover, Good, HSG B
604,305		Weighted Average
554,350	61	91.73% Pervious Area
49,955	98	8.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
9.2	1,400	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
6.7	650	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
28.7	2,150	Total			

Subcatchment E3: PRE (OLOD)

Hydrograph



Summary for Subcatchment P1A: Post to BMP-01 (LOD)

Runoff = 76.87 cfs @ 11.96 hrs, Volume= 164,596 cf, Depth= 4.21"

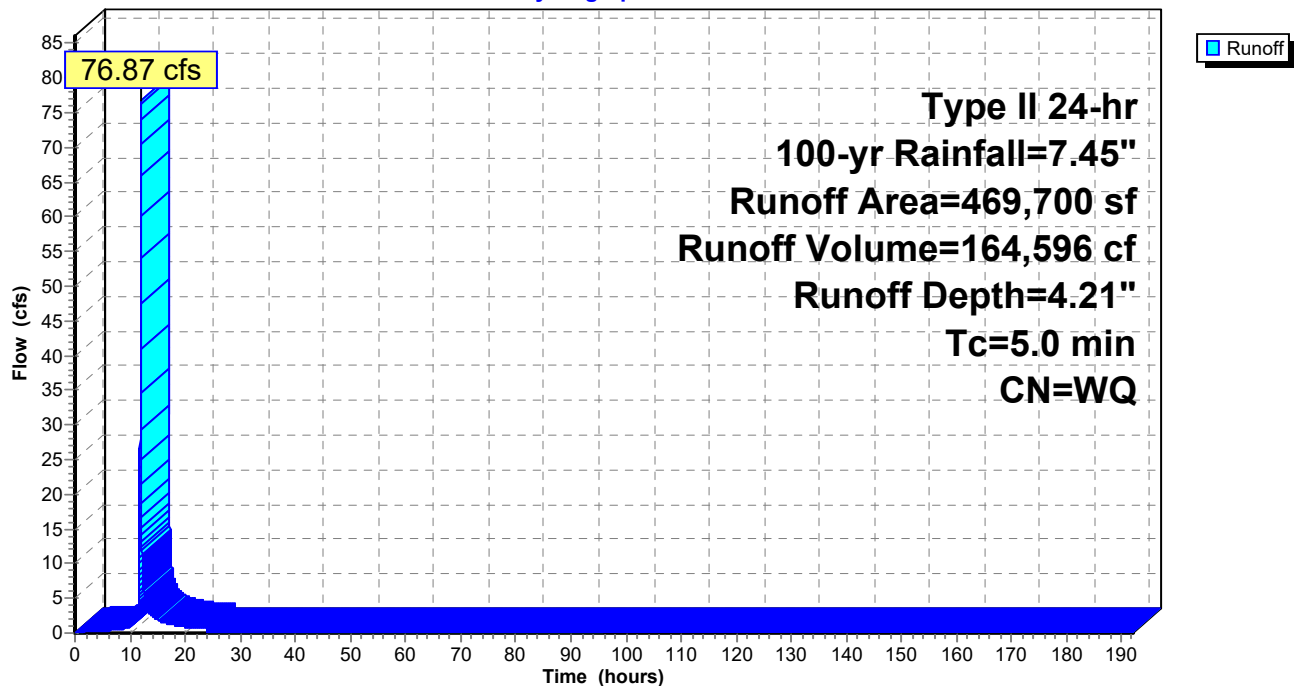
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

	Area (sf)	CN	Description
*	240	98	Buildings
*	131,700	98	Impervious
	337,760	61	>75% Grass cover, Good, HSG B
	469,700		Weighted Average
	337,760	61	71.91% Pervious Area
	131,940	98	28.09% Impervious Area

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

Subcatchment P1A: Post to BMP-01 (LOD)

Hydrograph



Summary for Subcatchment P1B: Post to BMP-01 (LOD)

Runoff = 26.14 cfs @ 11.96 hrs, Volume= 57,700 cf, Depth= 4.78"

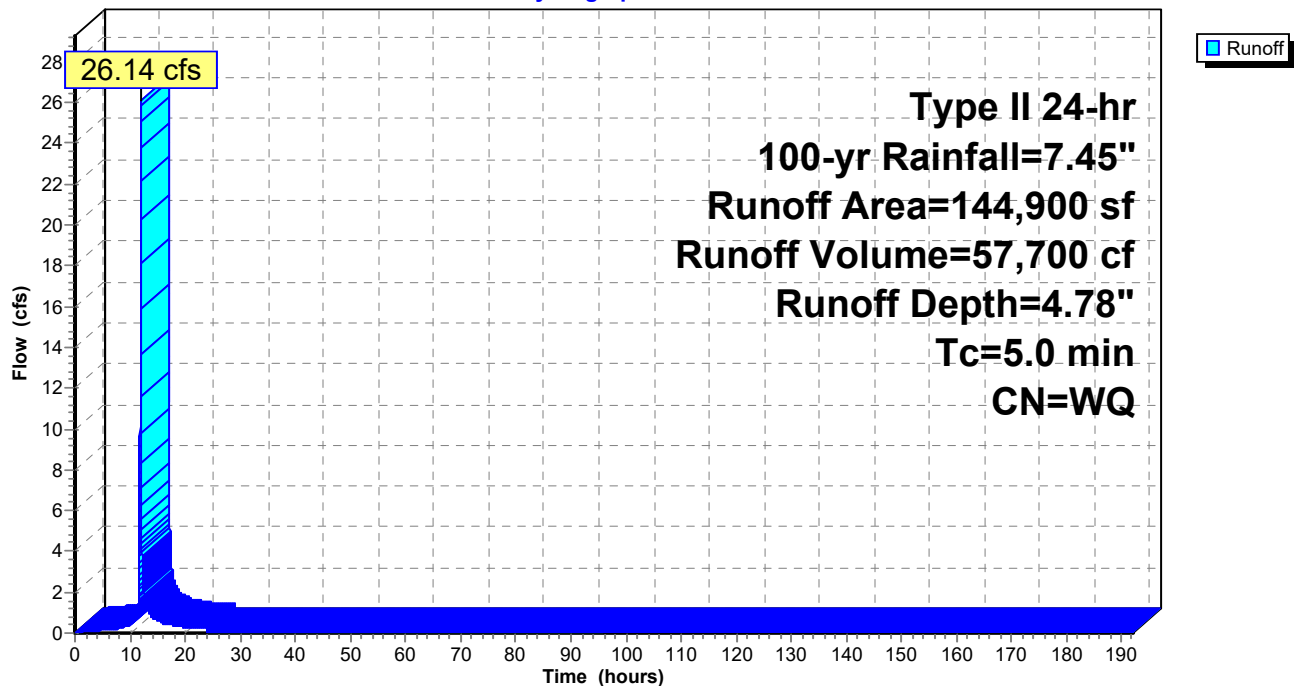
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

	Area (sf)	CN	Description
*	0	98	Buildings
*	60,580	98	Impervious
	84,320	61	>75% Grass cover, Good, HSG B
	144,900		Weighted Average
	84,320	61	58.19% Pervious Area
	60,580	98	41.81% Impervious Area

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

Subcatchment P1B: Post to BMP-01 (LOD)

Hydrograph



Summary for Subcatchment P1C: Post to BMP-01 (OLOD)

Runoff = 77.04 cfs @ 11.96 hrs, Volume= 155,771 cf, Depth= 3.41"

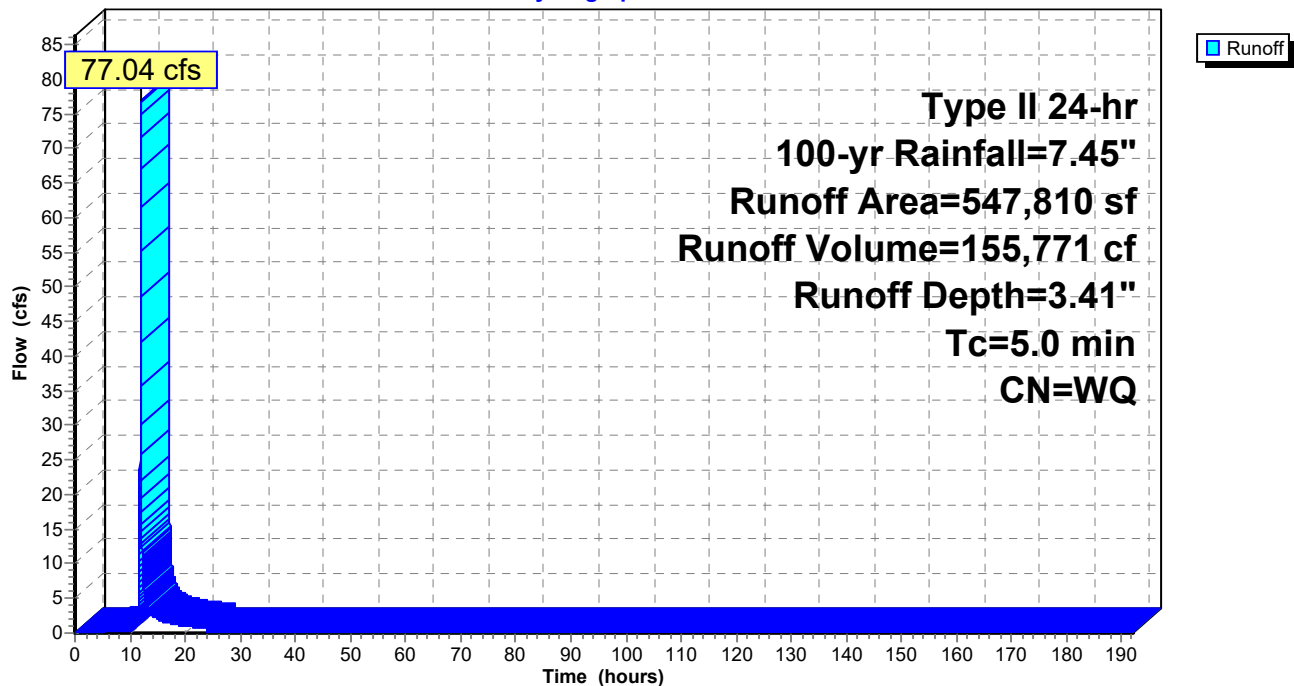
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

	Area (sf)	CN	Description
*	0	98	Buildings
*	49,955	98	Impervious
	497,855	61	>75% Grass cover, Good, HSG B
	547,810		Weighted Average
	497,855	61	90.88% Pervious Area
	49,955	98	9.12% Impervious Area

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

Subcatchment P1C: Post to BMP-01 (OLOD)

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.45"

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Summary for Subcatchment P2: Post to BMP-02 (LOD)

Runoff = 75.71 cfs @ 11.96 hrs, Volume= 174,156 cf, Depth= 5.84"

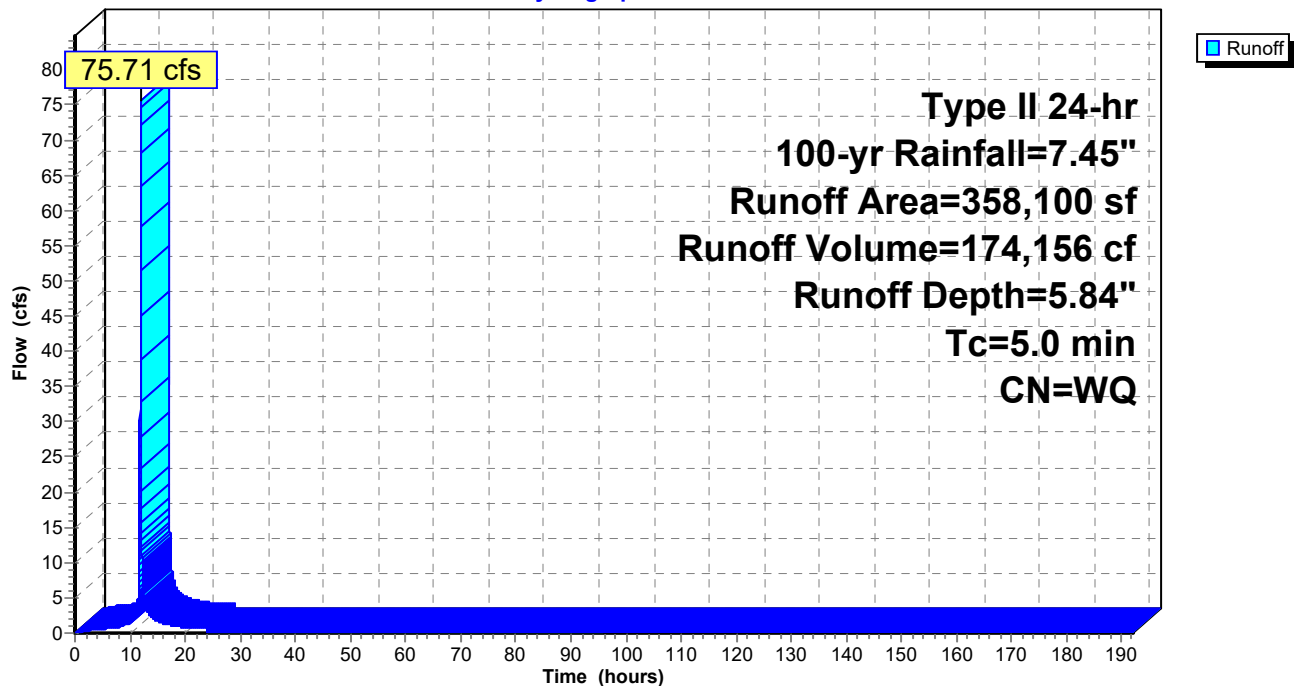
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	106,100	98	Impervious
	117,775	61	>75% Grass cover, Good, HSG B
	358,100		Weighted Average
	117,775	61	32.89% Pervious Area
	240,325	98	67.11% Impervious Area

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

Subcatchment P2: Post to BMP-02 (LOD)

Hydrograph



Summary for Subcatchment P3: Post to BMP-03 (LOD)

Runoff = 57.19 cfs @ 11.96 hrs, Volume= 131,719 cf, Depth= 5.88"

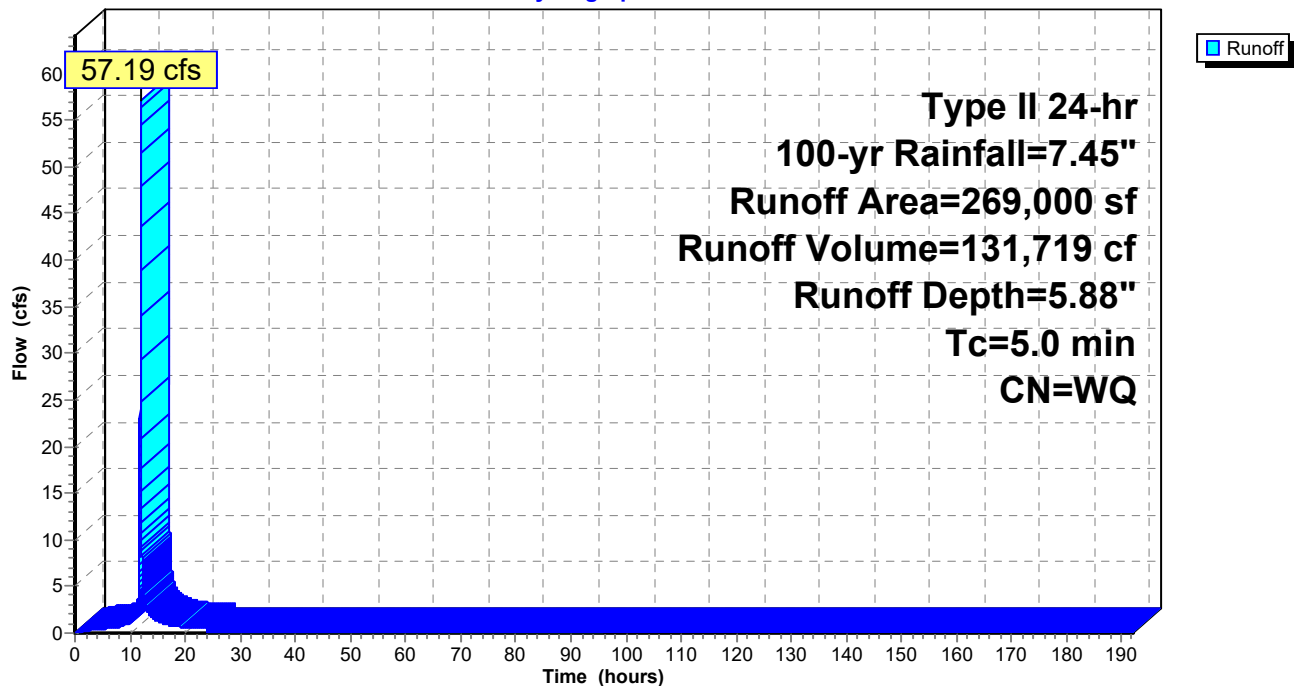
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	59,870	98	Impervious
	85,900	61	>75% Grass cover, Good, HSG B
	269,000		Weighted Average
	85,900	61	31.93% Pervious Area
	183,100	98	68.07% Impervious Area

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

Subcatchment P3: Post to BMP-03 (LOD)

Hydrograph



Summary for Subcatchment P4A: Post to BMP-04 (LOD)

Runoff = 91.23 cfs @ 11.96 hrs, Volume= 203,454 cf, Depth= 5.01"

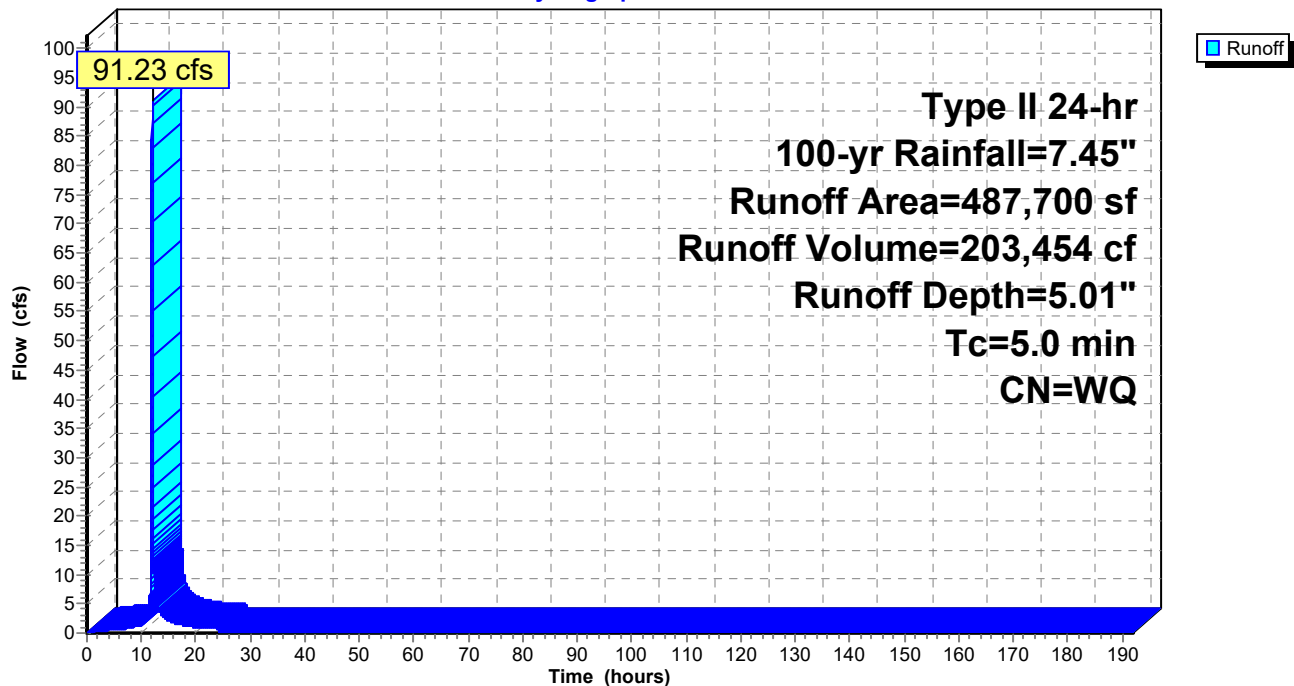
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	96,230	98	Impervious
	257,245	61	>75% Grass cover, Good, HSG B
	487,700		Weighted Average
	257,245	61	52.75% Pervious Area
	230,455	98	47.25% Impervious Area

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

Subcatchment P4A: Post to BMP-04 (LOD)

Hydrograph



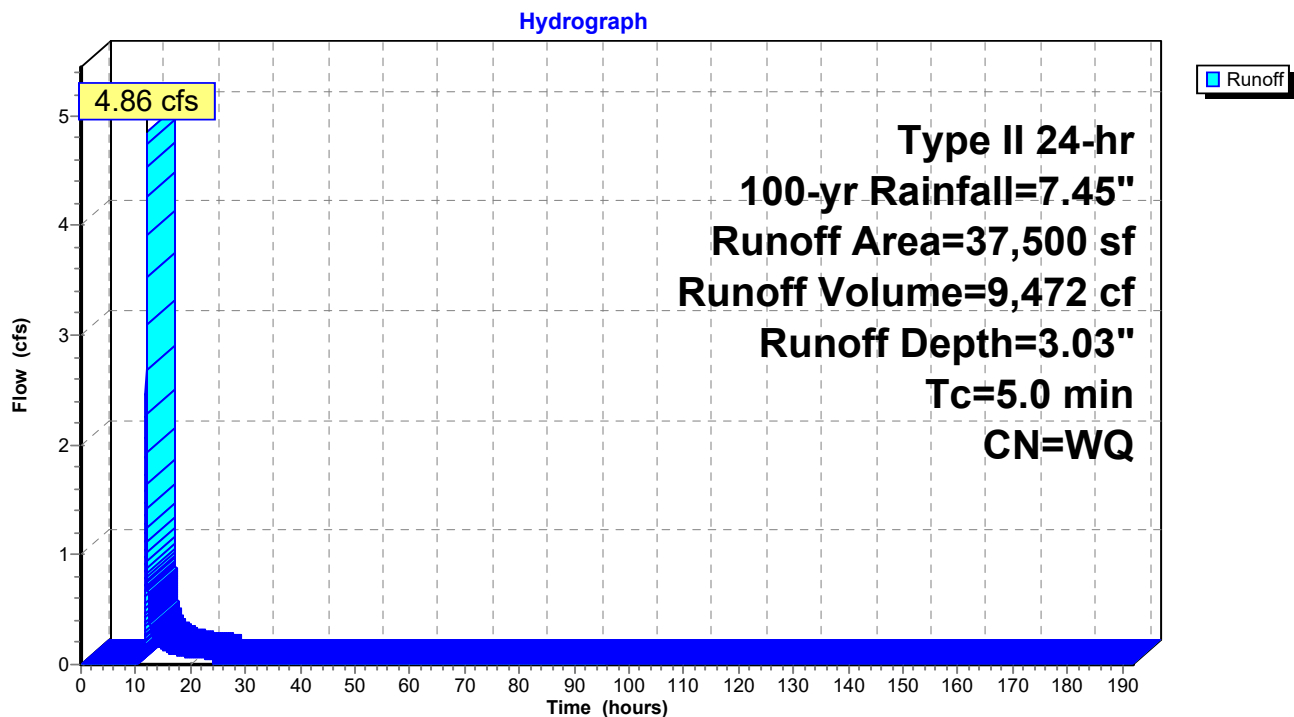
Summary for Subcatchment P4B: Post to BMP-04 (OLOD)

Runoff = 4.86 cfs @ 11.96 hrs, Volume= 9,472 cf, Depth= 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
37,500	61	>75% Grass cover, Good, HSG B
37,500		Weighted Average
37,500	61	100.00% Pervious Area

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

Subcatchment P4B: Post to BMP-04 (OLOD)

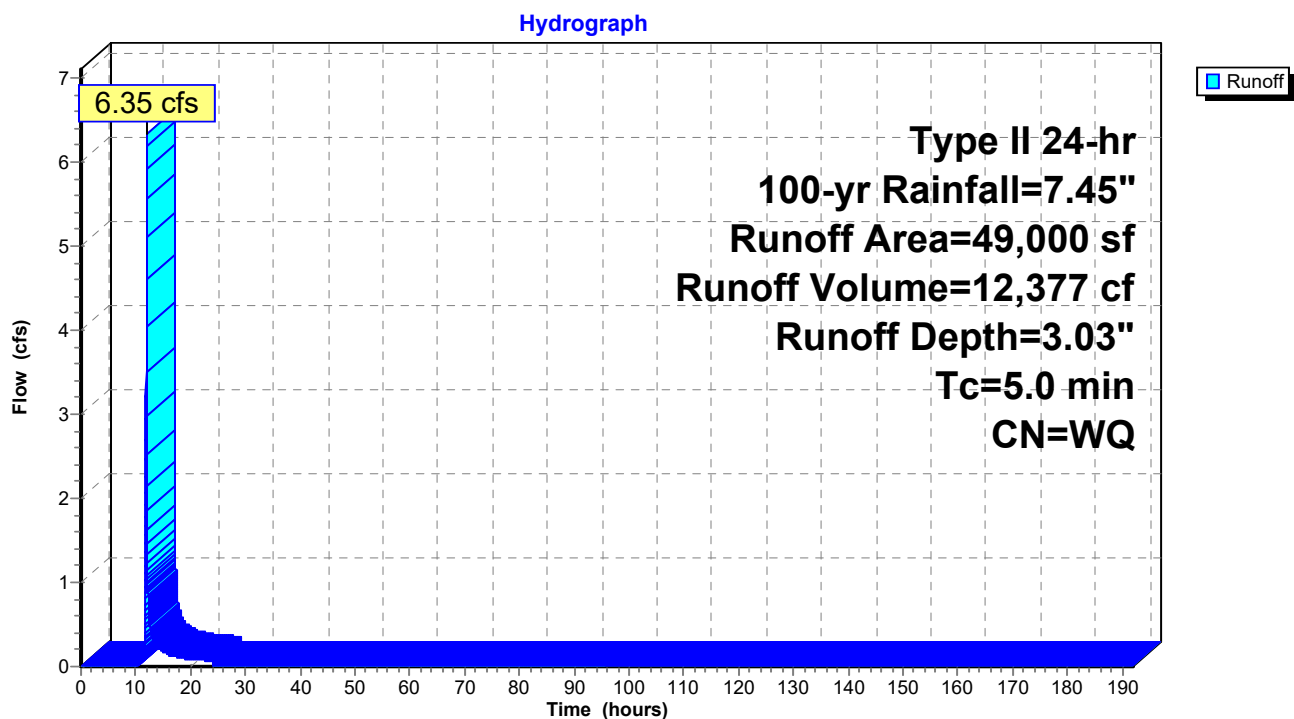
Summary for Subcatchment P4C: Post to BMP-04 (OLOD)

Runoff = 6.35 cfs @ 11.96 hrs, Volume= 12,377 cf, Depth= 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

Area (sf)	CN	Description
* 0	98	Buildings
* 0	98	Impervious
49,000	61	>75% Grass cover, Good, HSG B
49,000		Weighted Average
49,000	61	100.00% Pervious Area

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

Subcatchment P4C: Post to BMP-04 (OLOD)

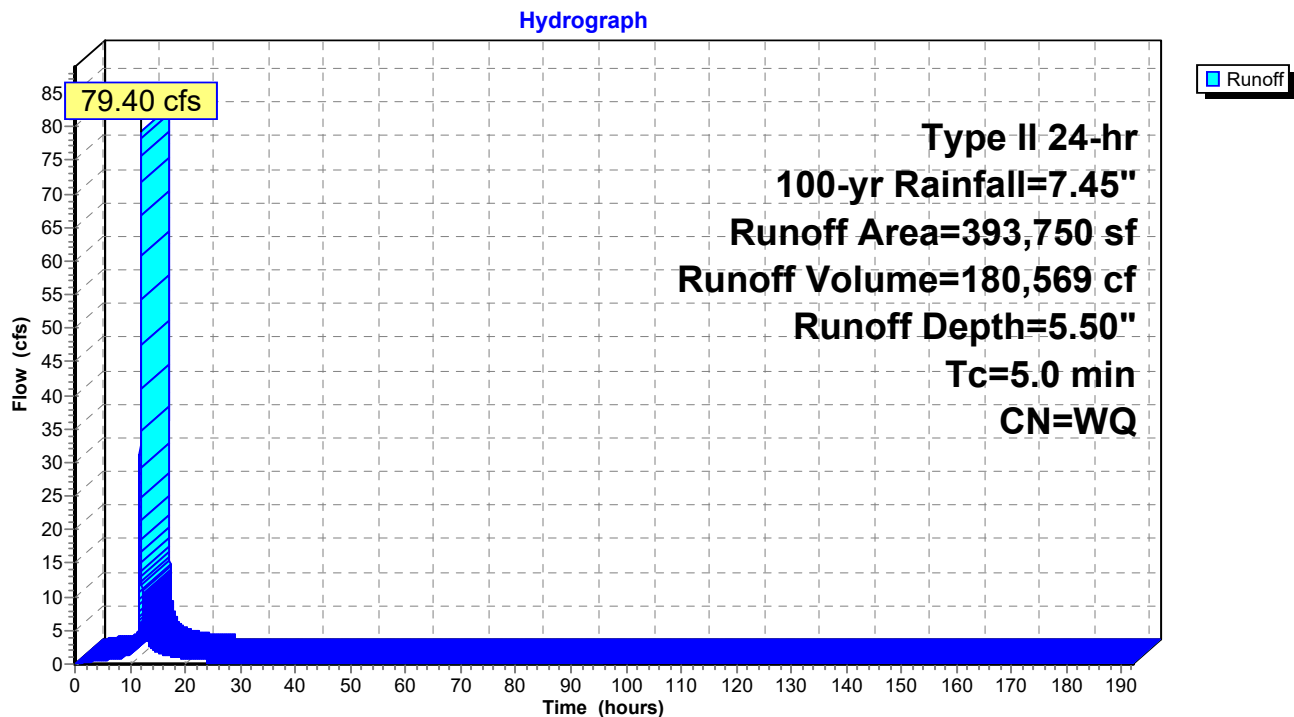
Summary for Subcatchment P5: Post to BMP-05 (LOD)

Runoff = 79.40 cfs @ 11.96 hrs, Volume= 180,569 cf, Depth= 5.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.45"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	109,655	98	Impervious
	160,865	61	>75% Grass cover, Good, HSG B
	393,750		Weighted Average
	160,865	61	40.85% Pervious Area
	232,885	98	59.15% Impervious Area

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

Subcatchment P5: Post to BMP-05 (LOD)

Summary for Pond BMP-01: Wet Pond

[79] Warning: Submerged Pond BMP-02 Primary device # 1 INLET by 0.37'

[79] Warning: Submerged Pond BMP-03 Primary device # 1 INLET by 0.37'

Inflow Area = 2,757,460 sf, 40.95% Impervious, Inflow Depth = 4.72" for 100-yr event
 Inflow = 295.81 cfs @ 11.96 hrs, Volume= 1,084,517 cf
 Outflow = 105.88 cfs @ 12.35 hrs, Volume= 1,084,082 cf, Atten= 64%, Lag= 23.1 min
 Primary = 105.88 cfs @ 12.35 hrs, Volume= 1,084,082 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 359.37' @ 12.35 hrs Surf.Area= 91,805 sf Storage= 351,723 cf

Plug-Flow detention time= 192.2 min calculated for 1,084,026 cf (100% of inflow)
 Center-of-Mass det. time= 188.7 min (1,249.3 - 1,060.7)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	613,350 cf	Storage Above Perm. Pool (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	69,700	0	0
356.00	74,500	72,100	72,100
357.00	79,400	76,950	149,050
358.00	84,400	81,900	230,950
359.00	89,550	86,975	317,925
360.00	95,600	92,575	410,500
361.00	101,400	98,500	509,000
362.00	107,300	104,350	613,350

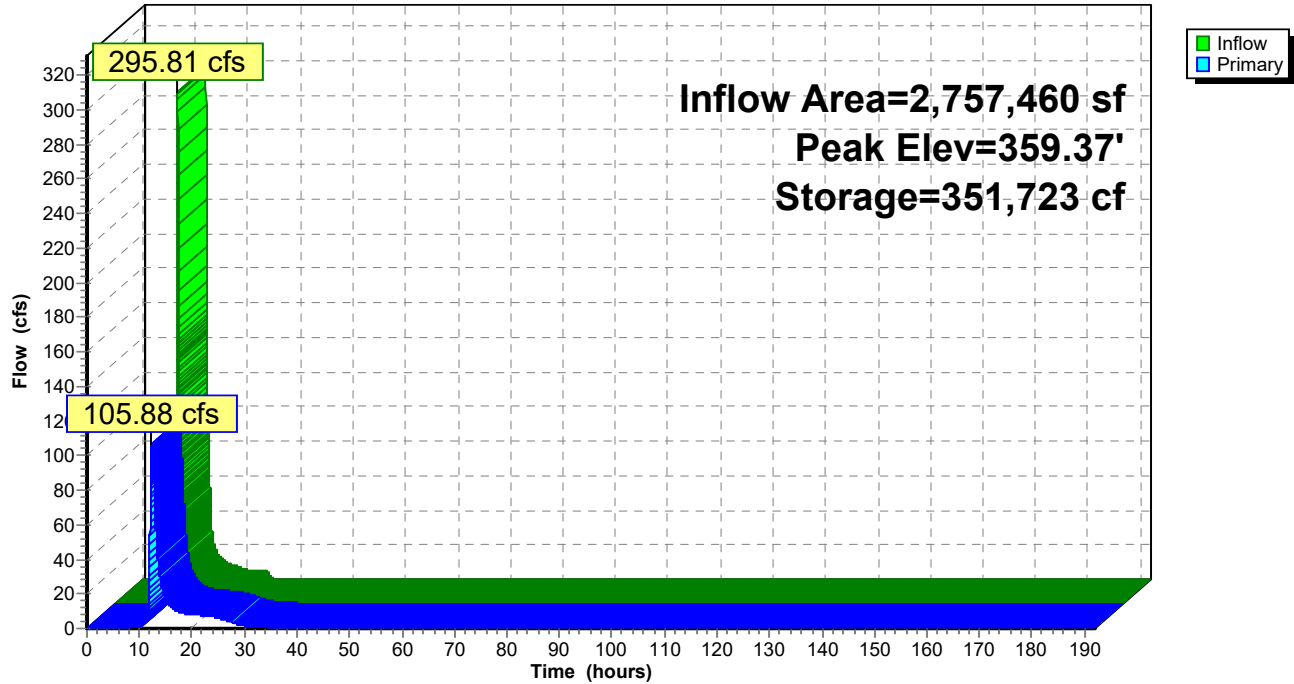
Device	Routing	Invert	Outlet Devices
#1	Primary	355.00'	36.0" Round 36" Outfall X 5.00 L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 355.00' / 354.50' S= 0.0156 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	355.00'	7.0" Vert. 7" Siphon Orifice X 5.00 C= 0.600 Limited to weir flow at low heads
#3	Device 1	357.00'	19.0" W x 30.0" H Vert. 19"Wx30"H Weir X 5.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	360.10'	24.0" x 45.0" Horiz. Type M Inlet X 5.00 C= 0.600 Limited to weir flow at low heads
#5	Primary	360.60'	100.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=105.88 cfs @ 12.35 hrs HW=359.37' (Free Discharge)

1=36" Outfall (Passes 105.88 cfs of 288.43 cfs potential flow)
 2=7" Siphon Orifice (Orifice Controls 13.00 cfs @ 9.73 fps)
 3=19"Wx30"H Weir (Orifice Controls 92.88 cfs @ 4.94 fps)
 4=Type M Inlet (Controls 0.00 cfs)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond BMP-01: Wet Pond

Hydrograph



Summary for Pond BMP-02: MRC Rain Garden

Inflow Area = 358,100 sf, 67.11% Impervious, Inflow Depth = 5.84" for 100-yr event
 Inflow = 75.71 cfs @ 11.96 hrs, Volume= 174,156 cf
 Outflow = 36.47 cfs @ 12.04 hrs, Volume= 173,026 cf, Atten= 52%, Lag= 5.2 min
 Primary = 34.02 cfs @ 12.04 hrs, Volume= 172,657 cf
 Secondary = 2.45 cfs @ 12.04 hrs, Volume= 369 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 365.06' @ 12.04 hrs Surf.Area= 36,534 sf Storage= 53,725 cf

Plug-Flow detention time= 478.7 min calculated for 173,016 cf (99% of inflow)
 Center-of-Mass det. time= 474.8 min (1,229.9 - 755.2)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Prismatic) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	67,900 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		75,775 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
358.00	7,500	0	0
359.00	7,500	7,500	7,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	7,500	0	0
363.00	12,450	9,975	9,975
364.00	17,750	15,100	25,075
365.00	21,300	19,525	44,600
366.00	25,300	23,300	67,900

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	363.25'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

1508-SCS LDP REV02

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Type II 24-hr 100-yr Rainfall=7.45"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=34.02 cfs @ 12.04 hrs HW=365.06' (Free Discharge)

1=Outflow Pipe (Inlet Controls 34.02 cfs @ 10.83 fps)

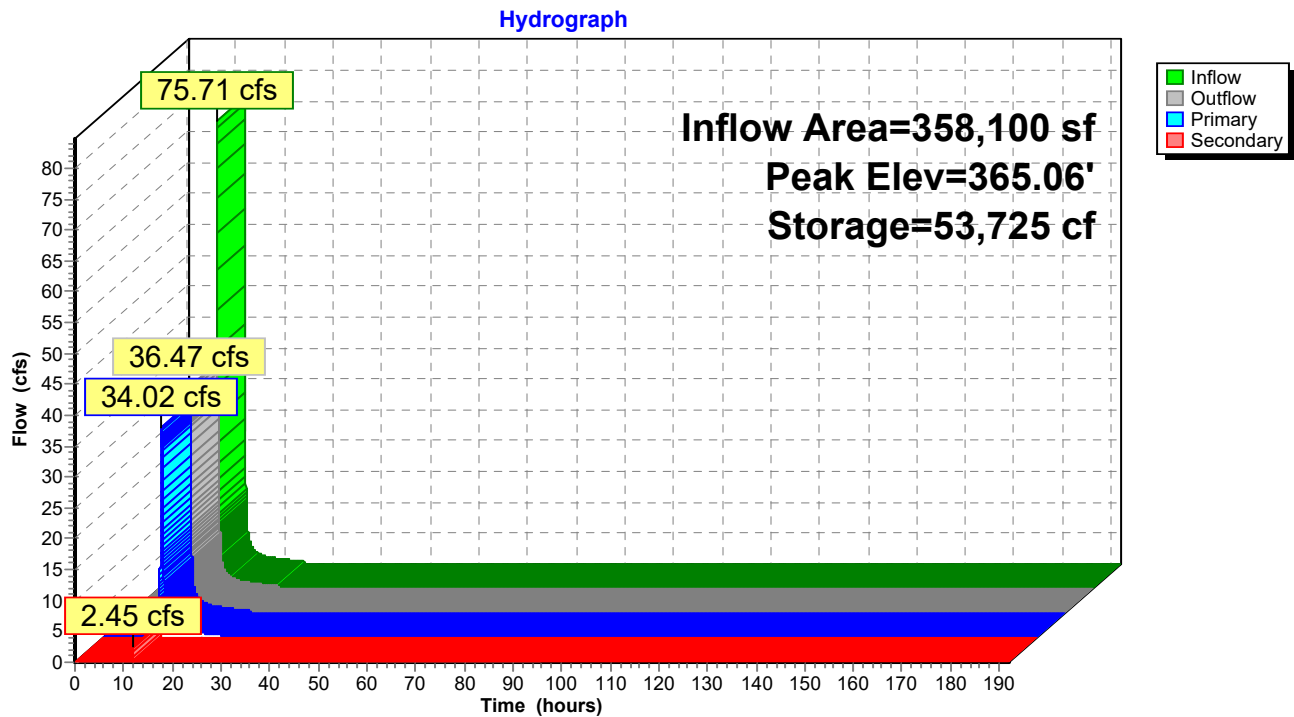
2=MRC Low Flow Orifice (Passes < 0.08 cfs potential flow)

3=Type M Overflow (Passes < 48.55 cfs potential flow)

Secondary OutFlow Max=2.13 cfs @ 12.04 hrs HW=365.06' (Free Discharge)

4=Emergency Spillway (Weir Controls 2.13 cfs @ 0.62 fps)

Pond BMP-02: MRC Rain Garden



Summary for Pond BMP-03: MRC Rain Garden

Inflow Area = 269,000 sf, 68.07% Impervious, Inflow Depth = 5.88" for 100-yr event
 Inflow = 57.19 cfs @ 11.96 hrs, Volume= 131,719 cf
 Outflow = 30.60 cfs @ 12.04 hrs, Volume= 130,589 cf, Atten= 46%, Lag= 4.8 min
 Primary = 30.60 cfs @ 12.04 hrs, Volume= 130,589 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 364.09' @ 12.04 hrs Surf.Area= 35,294 sf Storage= 37,435 cf

Plug-Flow detention time= 452.1 min calculated for 130,589 cf (99% of inflow)
 Center-of-Mass det. time= 446.3 min (1,200.8 - 754.5)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	72,725 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		80,600 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
358.00	7,500	0	0	7,500
359.00	7,500	7,500	7,500	7,846

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	8,850	0	0
363.00	13,250	11,050	11,050
364.00	20,050	16,650	27,700
365.00	22,700	21,375	49,075
366.00	24,600	23,650	72,725

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.0" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	362.75'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

1508-SCS LDP REV02

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Type II 24-hr 100-yr Rainfall=7.45"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=30.60 cfs @ 12.04 hrs HW=364.09' (Free Discharge)

1=Outflow Pipe (Inlet Controls 30.60 cfs @ 9.74 fps)

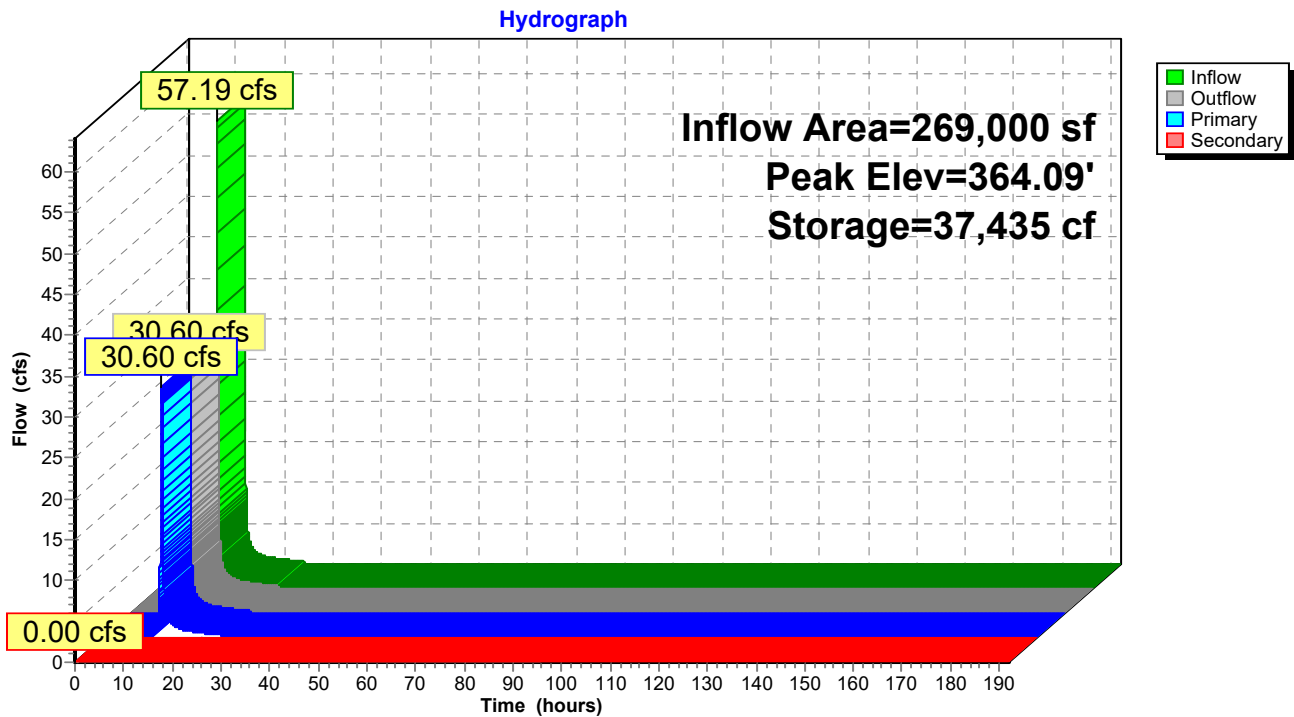
2=MRC Low Flow Orifice (Passes < 0.06 cfs potential flow)

3=Type M Overflow (Passes < 41.82 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-03: MRC Rain Garden



Summary for Pond BMP-04: MRC Rain Garden

Inflow Area = 574,200 sf, 40.13% Impervious, Inflow Depth = 4.71" for 100-yr event
 Inflow = 102.41 cfs @ 11.96 hrs, Volume= 225,303 cf
 Outflow = 29.25 cfs @ 12.08 hrs, Volume= 223,772 cf, Atten= 71%, Lag= 7.1 min
 Primary = 29.25 cfs @ 12.08 hrs, Volume= 223,772 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 374.74' @ 12.08 hrs Surf.Area= 52,553 sf Storage= 80,407 cf

Plug-Flow detention time= 399.4 min calculated for 223,772 cf (99% of inflow)
 Center-of-Mass det. time= 394.9 min (1,172.9 - 778.0)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	116,625 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		124,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	15,500	0	0
373.00	26,900	21,200	21,200
374.00	30,150	28,525	49,725
375.00	33,400	31,775	81,500
376.00	36,850	35,125	116,625

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.65'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

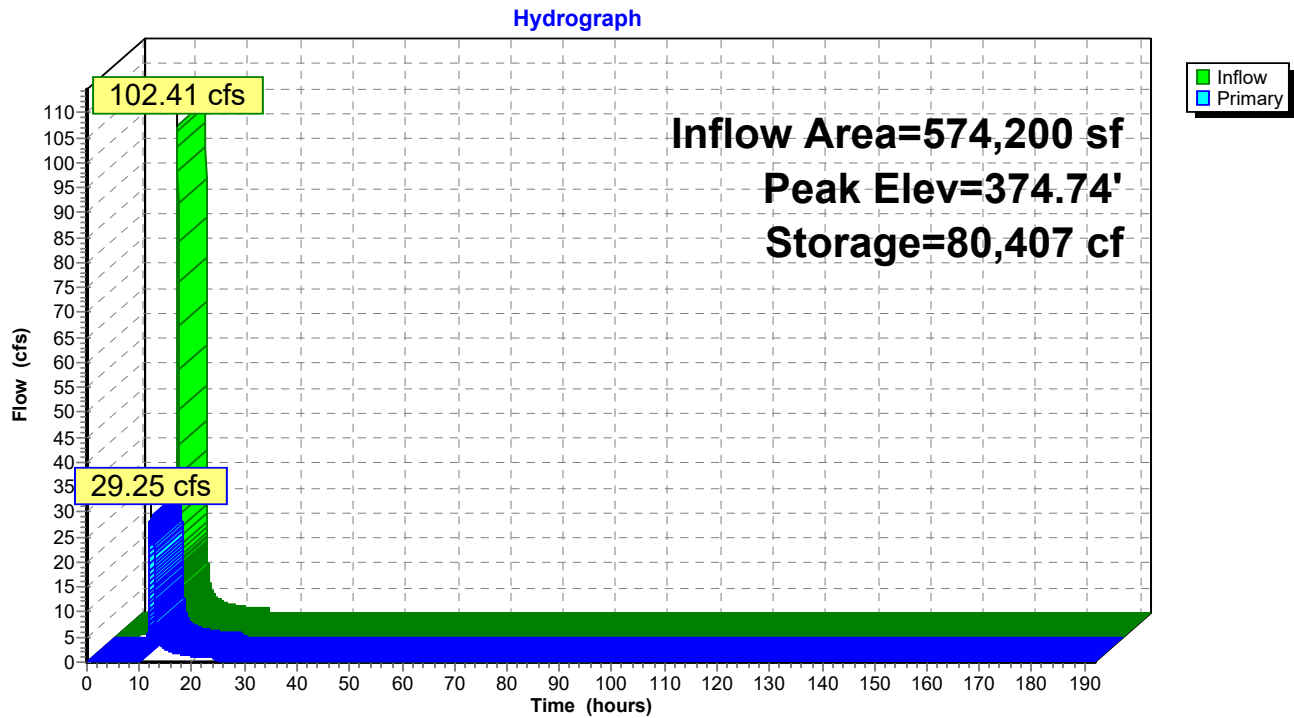
Primary OutFlow Max=29.25 cfs @ 12.08 hrs HW=374.74' (Free Discharge)

1=24" Outflow Pipe (Inlet Controls 29.25 cfs @ 9.31 fps)

2=MRC Low Flow Orifice (Passes < 0.07 cfs potential flow)

3=Type M Overflow (Passes < 52.20 cfs potential flow)

Pond BMP-04: MRC Rain Garden



Summary for Pond BMP-05: MRC Rain Garden

Inflow Area = 393,750 sf, 59.15% Impervious, Inflow Depth = 5.50" for 100-yr event
 Inflow = 79.40 cfs @ 11.96 hrs, Volume= 180,569 cf
 Outflow = 27.60 cfs @ 12.06 hrs, Volume= 179,063 cf, Atten= 65%, Lag= 6.3 min
 Primary = 27.60 cfs @ 12.06 hrs, Volume= 179,063 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 374.33' @ 12.06 hrs Surf.Area= 50,053 sf Storage= 64,974 cf

Plug-Flow detention time= 444.1 min calculated for 179,054 cf (99% of inflow)
 Center-of-Mass det. time= 438.9 min (1,199.9 - 760.9)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	111,850 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		119,350 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	13,800	0	0
373.00	26,300	20,050	20,050
374.00	29,100	27,700	47,750
375.00	32,000	30,550	78,300
376.00	35,100	33,550	111,850

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.2" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.70'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

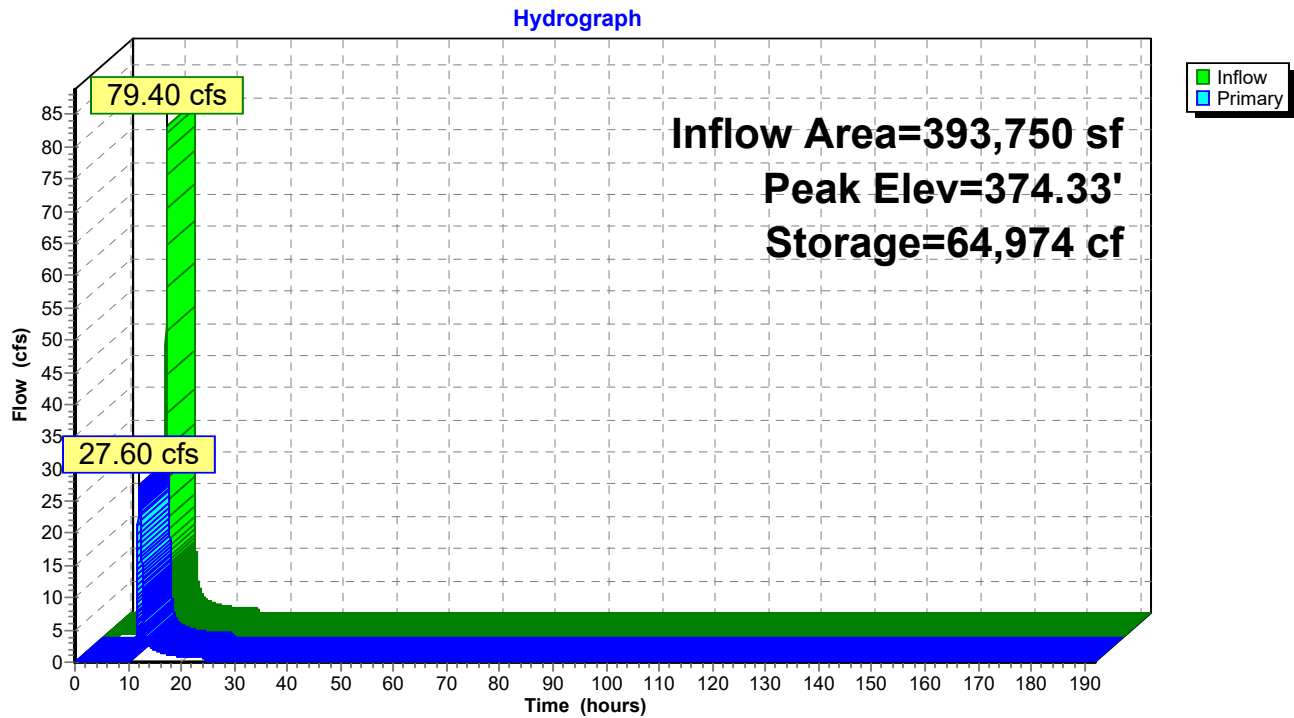
Primary OutFlow Max=27.60 cfs @ 12.06 hrs HW=374.33' (Free Discharge)

1=24" Outflow Pipe (Inlet Controls 27.60 cfs @ 8.78 fps)

2=MRC Low Flow Orifice (Passes < 0.08 cfs potential flow)

3=Type M Overflow (Passes < 46.08 cfs potential flow)

Pond BMP-05: MRC Rain Garden



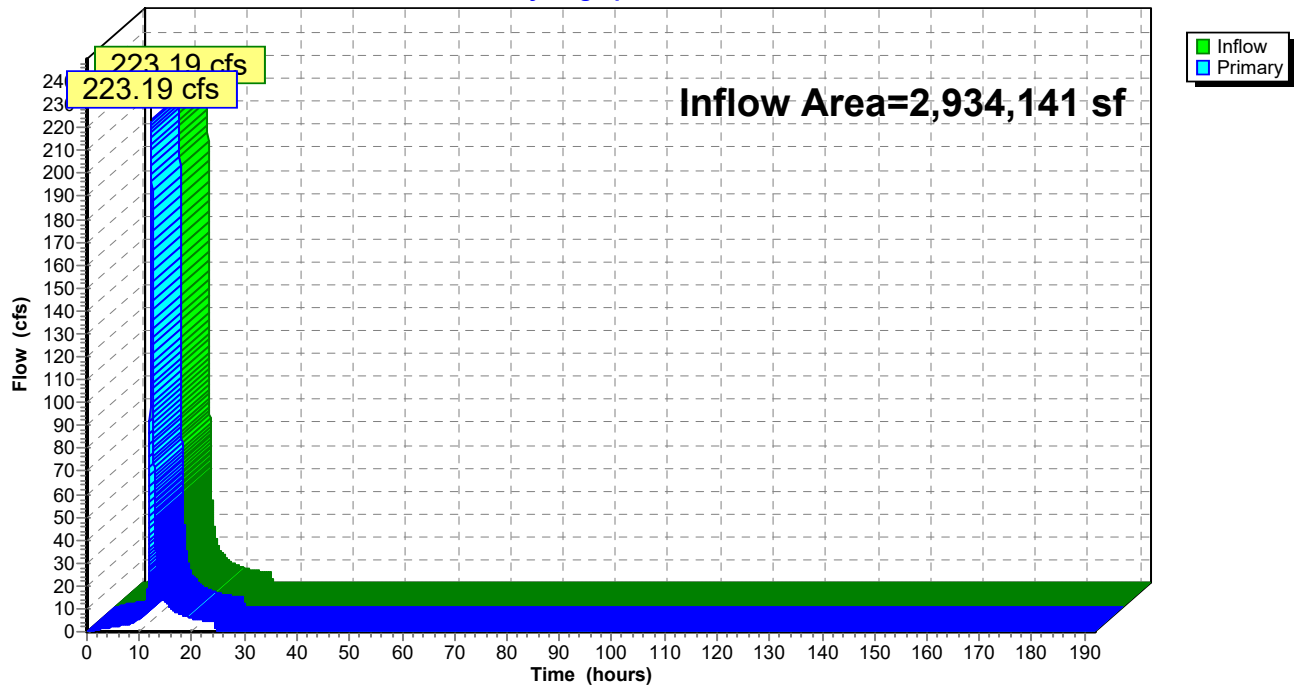
Summary for Link 001A: POA

Inflow Area = 2,934,141 sf, 34.38% Impervious, Inflow Depth = 4.33" for 100-yr event
Inflow = 223.19 cfs @ 12.25 hrs, Volume= 1,057,551 cf
Primary = 223.19 cfs @ 12.25 hrs, Volume= 1,057,551 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001A: POA

Hydrograph



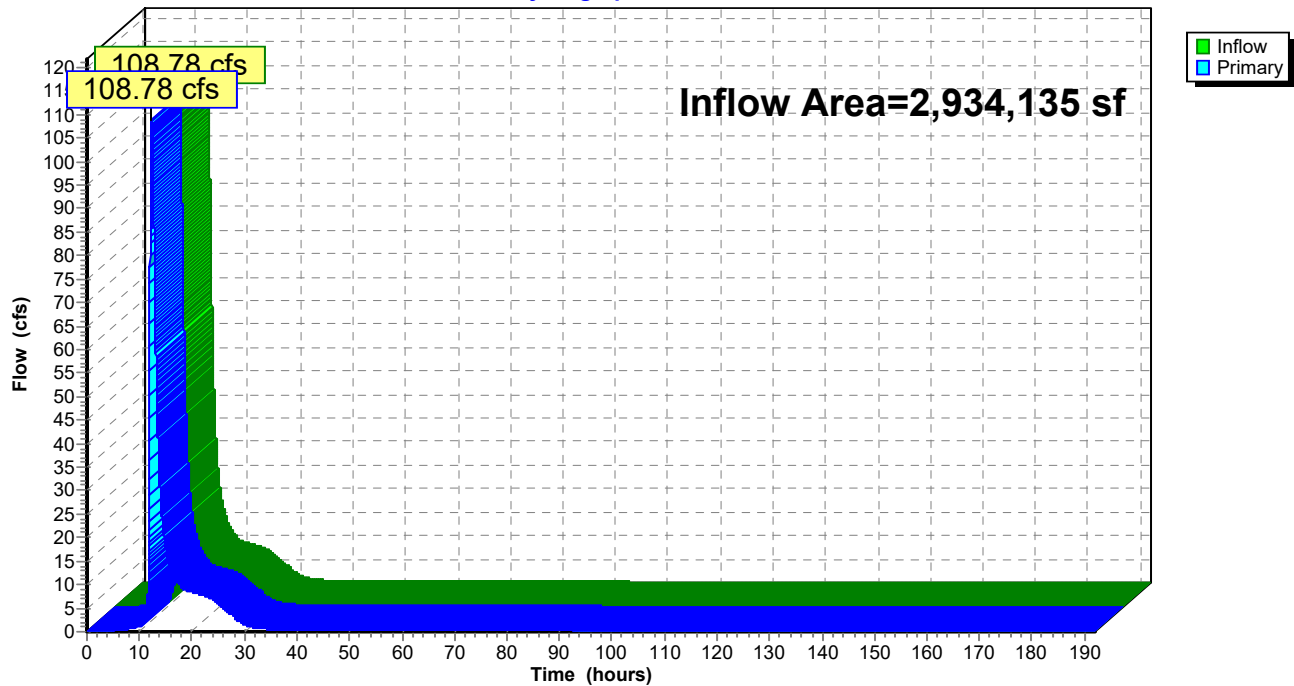
Summary for Link 001B: POA

Inflow Area = 2,934,135 sf, 39.40% Impervious, Inflow Depth = 4.65" for 100-yr event
Inflow = 108.78 cfs @ 12.34 hrs, Volume= 1,138,083 cf
Primary = 108.78 cfs @ 12.34 hrs, Volume= 1,138,083 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001B: POA

Hydrograph



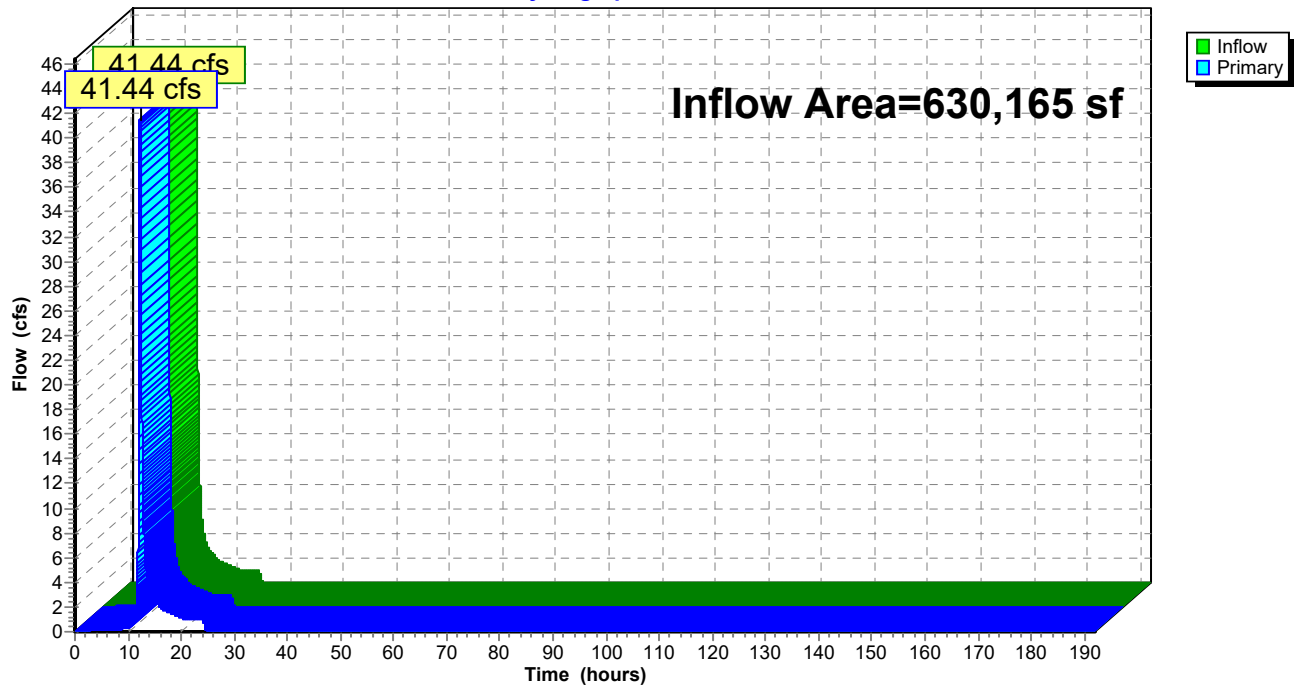
Summary for Link 2: TOTAL OFFSITE

Inflow Area = 630,165 sf, 7.93% Impervious, Inflow Depth = 3.36" for 100-yr event
Inflow = 41.44 cfs @ 12.24 hrs, Volume= 176,573 cf
Primary = 41.44 cfs @ 12.24 hrs, Volume= 176,573 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 2: TOTAL OFFSITE

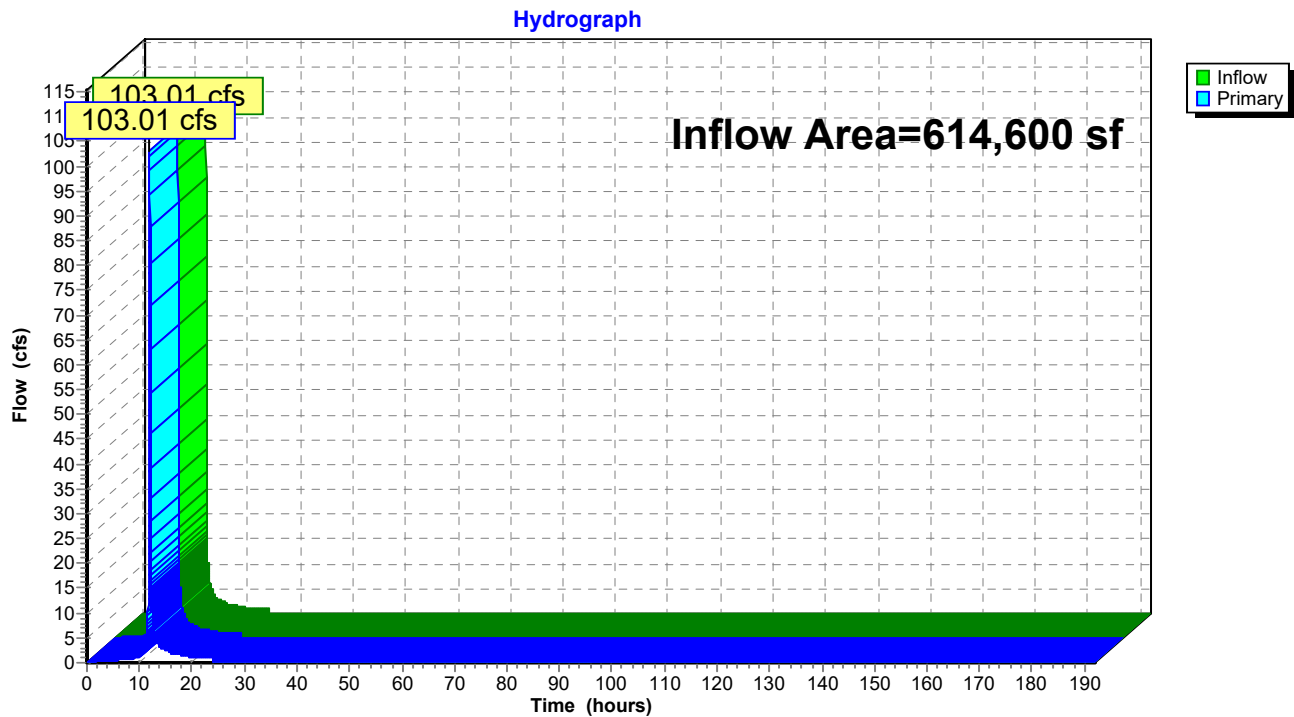
Hydrograph



Summary for Link 3: LOD to BMP-01

Inflow Area = 614,600 sf, 31.32% Impervious, Inflow Depth = 4.34" for 100-yr event
Inflow = 103.01 cfs @ 11.96 hrs, Volume= 222,296 cf
Primary = 103.01 cfs @ 11.96 hrs, Volume= 222,296 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 3: LOD to BMP-01

Summary for Subcatchment B1: BYPASS (LOD)

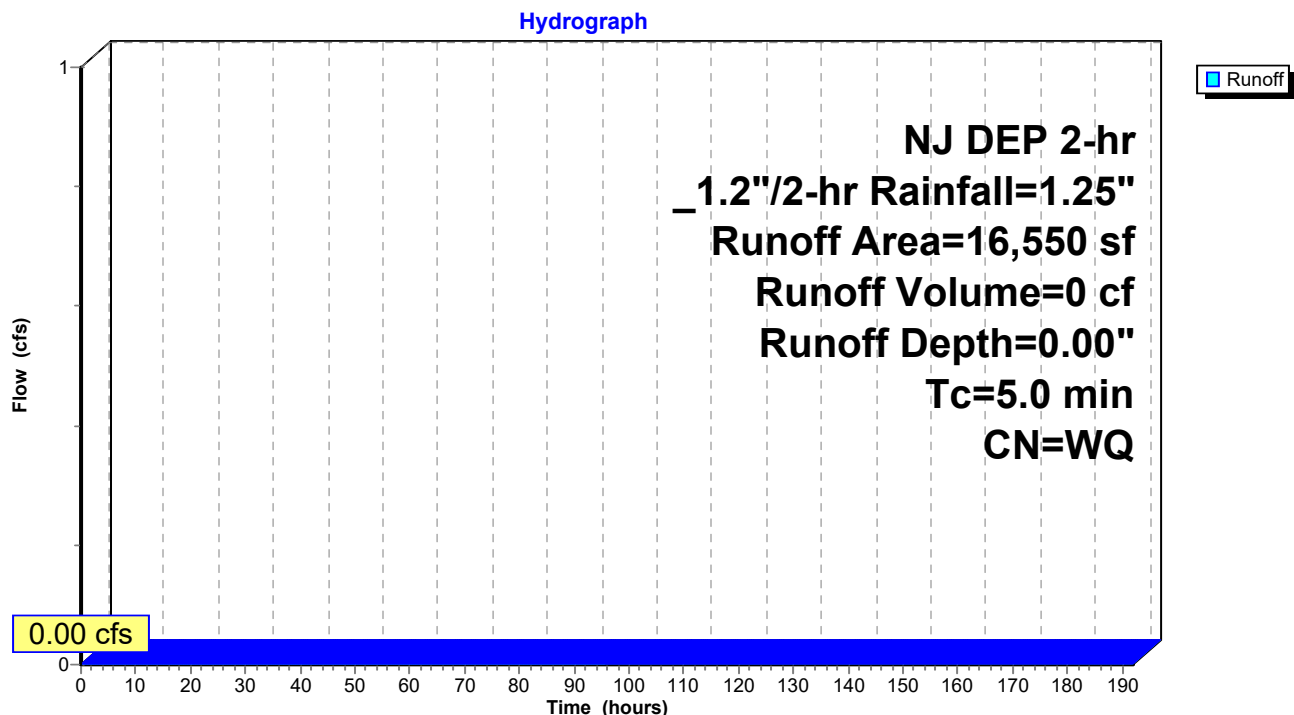
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	16,550	61	>75% Grass cover, Good, HSG B
	16,550		Weighted Average
	16,550	61	100.00% Pervious Area

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

Subcatchment B1: BYPASS (LOD)

Summary for Subcatchment B2: BYPASS (LOD)

Runoff = 0.36 cfs @ 1.10 hrs, Volume= 457 cf, Depth= 0.21"

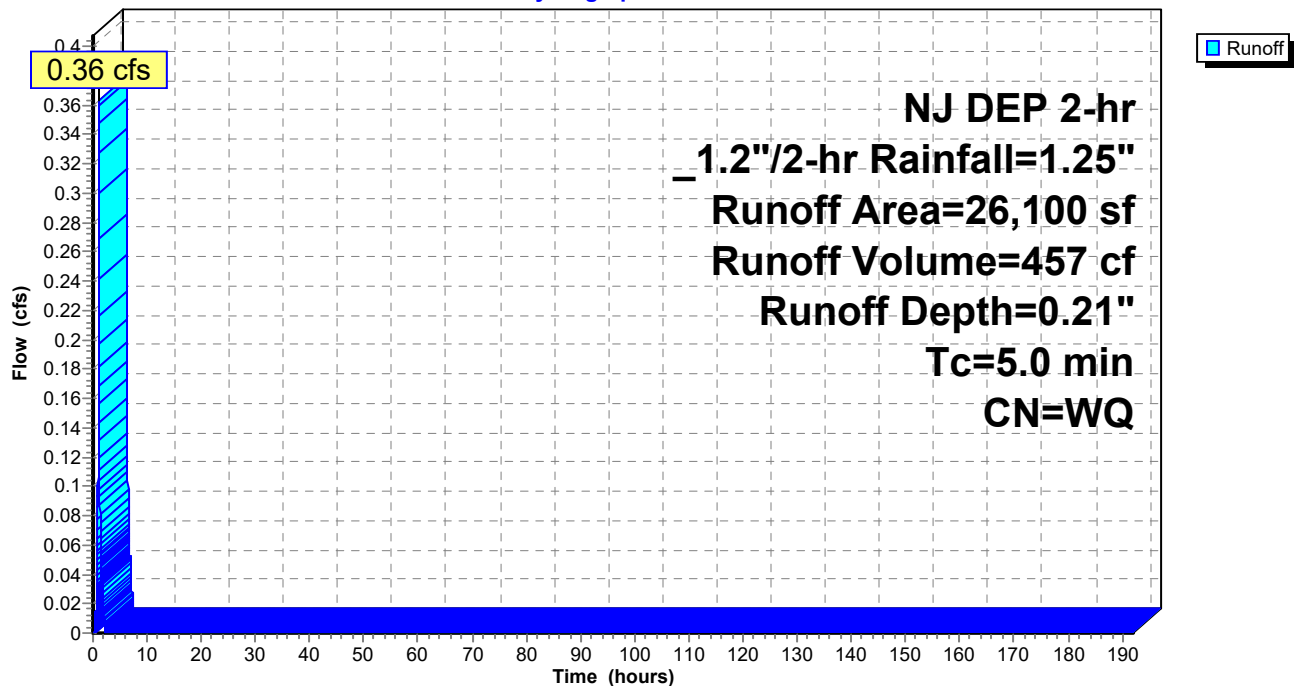
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	0	98	Buildings
*	5,305	98	Impervious
	20,795	61	>75% Grass cover, Good, HSG B
	26,100		Weighted Average
	20,795	61	79.67% Pervious Area
	5,305	98	20.33% Impervious Area

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

Subcatchment B2: BYPASS (LOD)

Hydrograph



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NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

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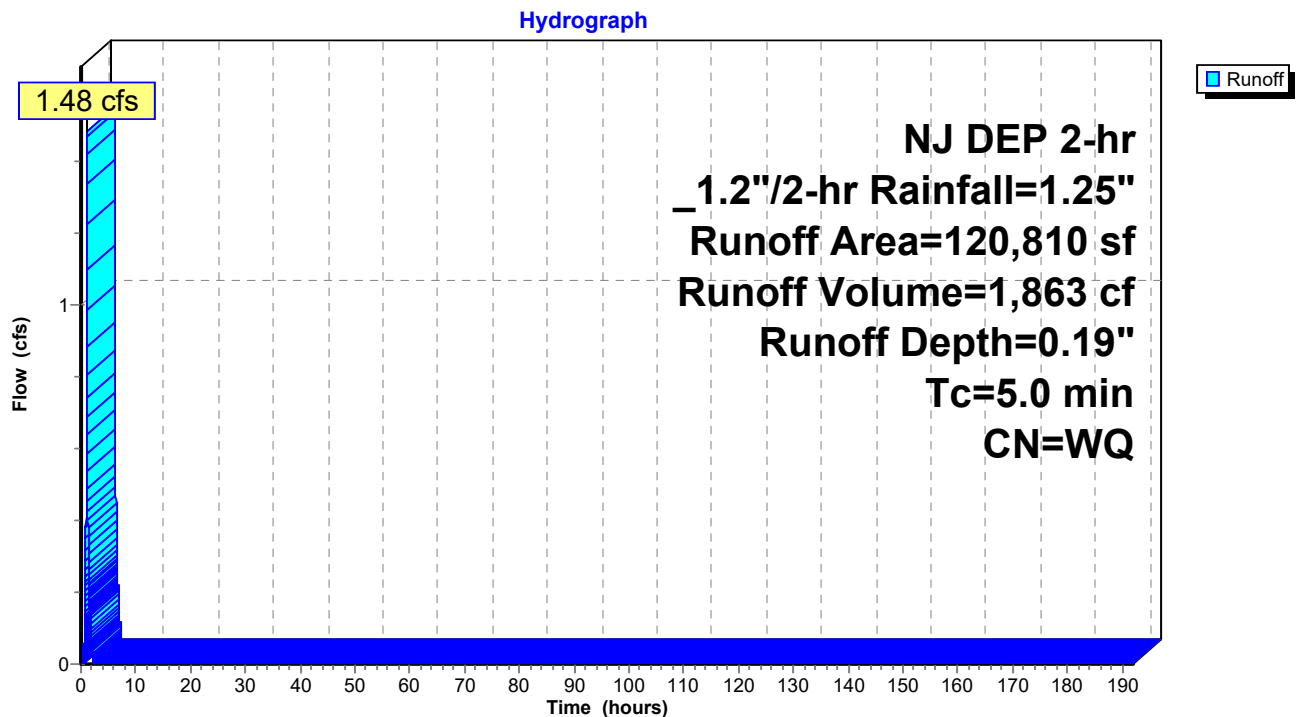
Summary for Subcatchment B3: BYPASS (LOD)

Runoff = 1.48 cfs @ 1.10 hrs, Volume= 1,863 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	80	98	Buildings
*	21,530	98	Impervious
	99,200	61	>75% Grass cover, Good, HSG B
	120,810		Weighted Average
	99,200	61	82.11% Pervious Area
	21,610	98	17.89% Impervious Area

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

Subcatchment B3: BYPASS (LOD)

Summary for Subcatchment B4: BYPASS (LOD)

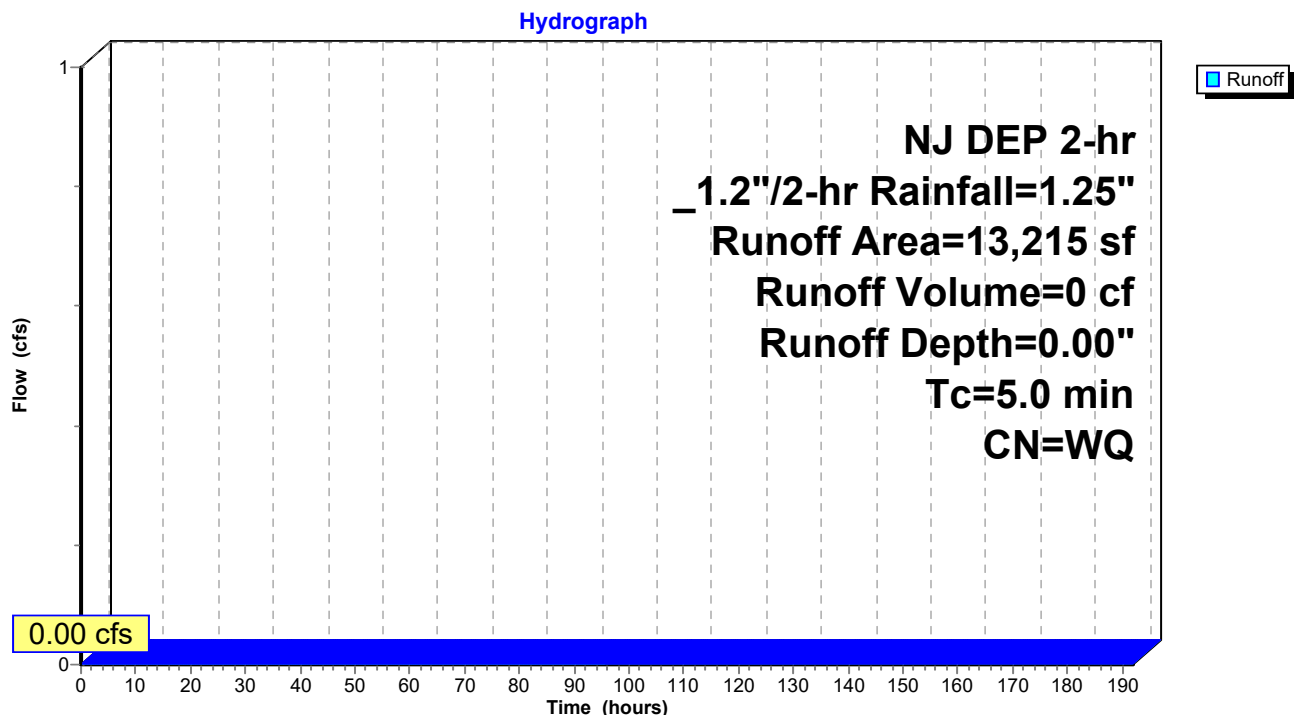
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	13,215	61	>75% Grass cover, Good, HSG B
	13,215		Weighted Average
	13,215	61	100.00% Pervious Area

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

Subcatchment B4: BYPASS (LOD)

Summary for Subcatchment E1: PRE (LOD)

Runoff = 31.62 cfs @ 1.41 hrs, Volume= 82,651 cf, Depth= 0.43"

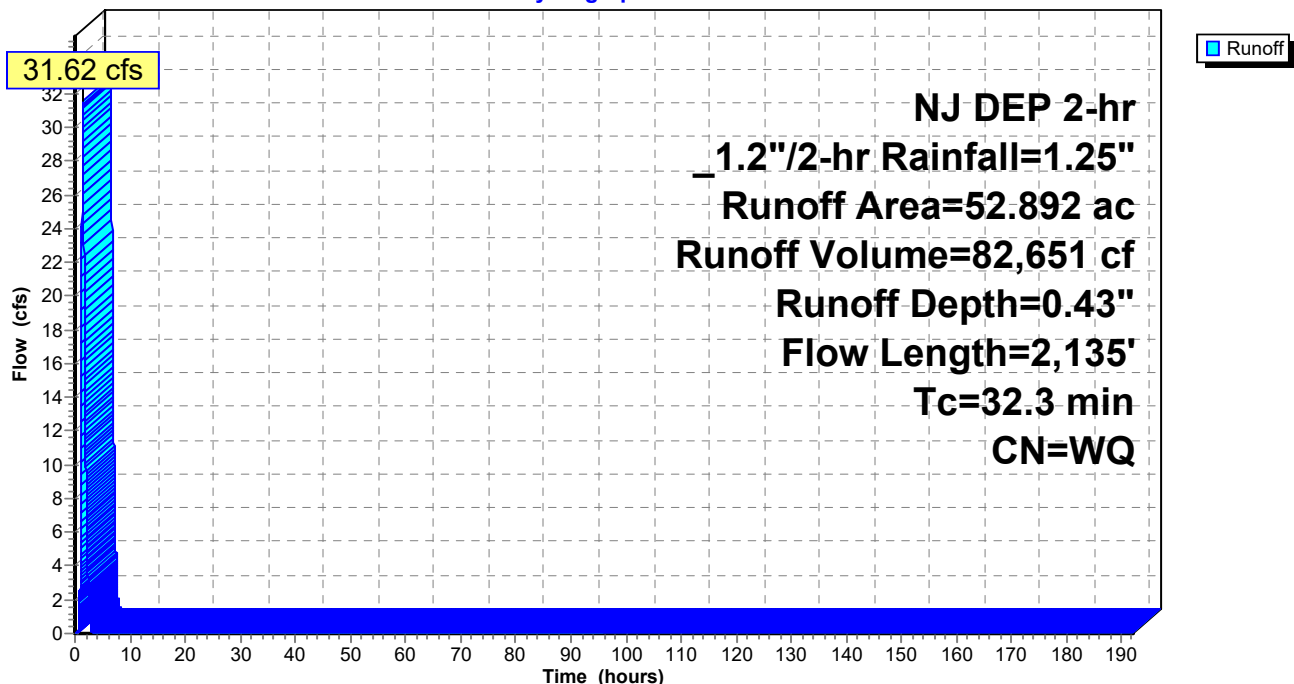
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

Area (ac)	CN	Description
25.382	58	Meadow, non-grazed, HSG B
* 5.502	58	Meadow (20% of Ex. Impervious)
* 22.008	98	Existing Impervious
52.892		Weighted Average
30.884	58	58.39% Pervious Area
22.008	98	41.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
4.4	425	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
2.7	410	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
32.3	2,135	Total			

Subcatchment E1: PRE (LOD)

Hydrograph



Summary for Subcatchment E2: PRE (OLOD)

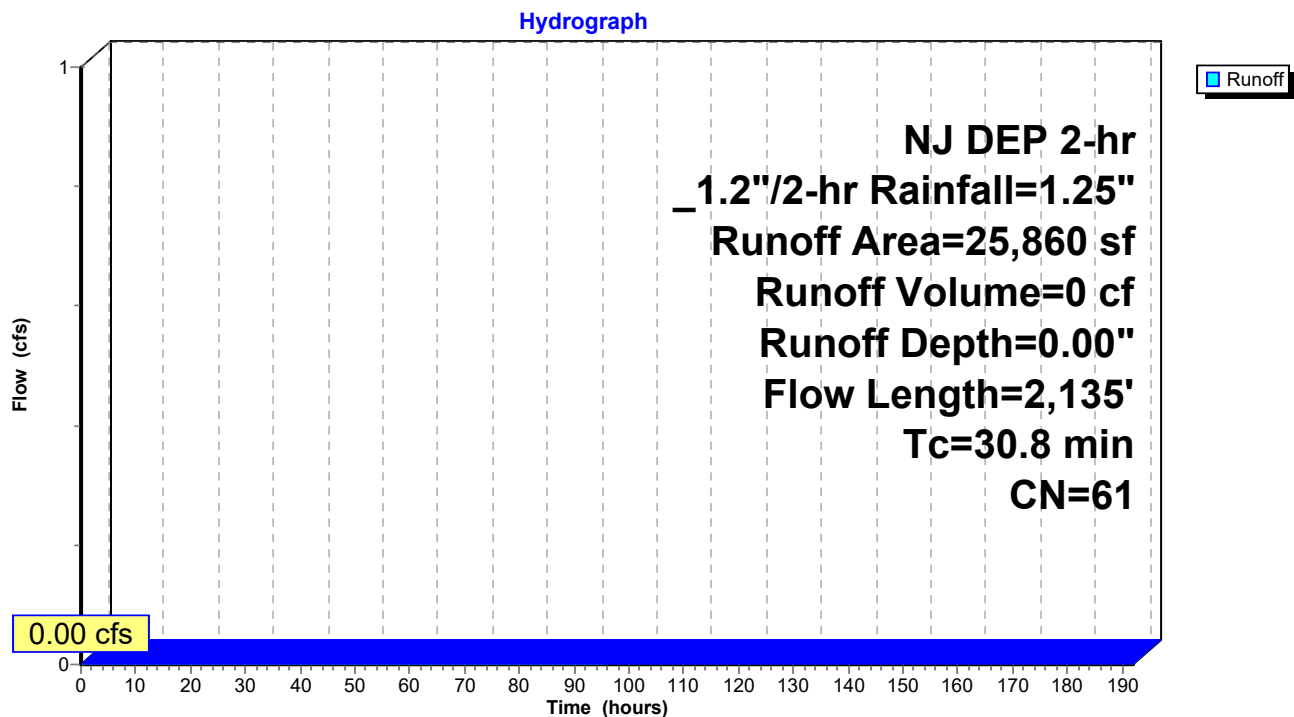
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

Area (sf)	CN	Description
25,860	61	>75% Grass cover, Good, HSG B
25,860	61	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
3.5	425	0.0100	2.03		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
2.1	410	0.0250	3.21		Shallow Concentrated Flow, SCF Paved Kv= 20.3 fps
12.4	1,200	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
30.8	2,135	Total			

Subcatchment E2: PRE (OLOD)

Summary for Subcatchment E3: PRE (OLOD)

Runoff = 1.79 cfs @ 1.37 hrs, Volume= 4,307 cf, Depth= 0.09"

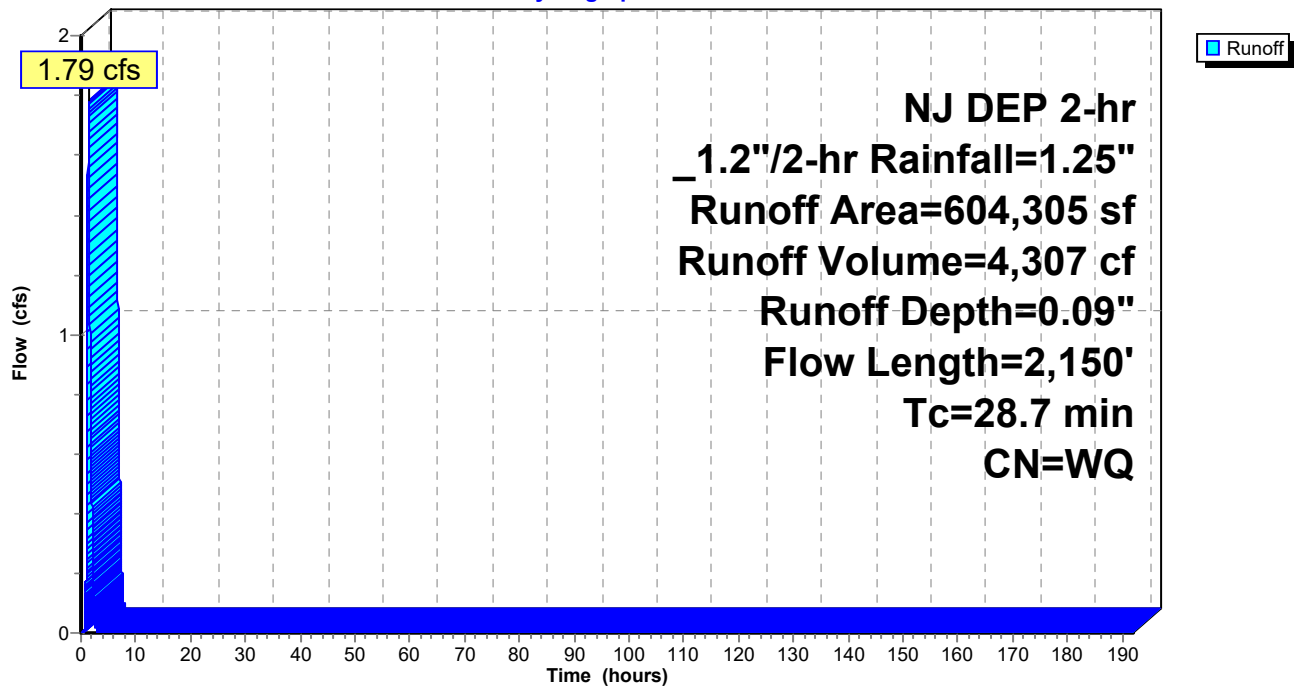
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

Area (sf)	CN	Description
* 49,955	98	Existing Impervious
554,350	61	>75% Grass cover, Good, HSG B
604,305		Weighted Average
554,350	61	91.73% Pervious Area
49,955	98	8.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	100	0.0100	0.13		Sheet Flow, SF Grass: Short n= 0.150 P2= 3.24"
9.2	1,400	0.0250	2.55		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
6.7	650	0.0100	1.61		Shallow Concentrated Flow, SCF Unpaved Kv= 16.1 fps
28.7	2,150	Total			

Subcatchment E3: PRE (OLOD)

Hydrograph



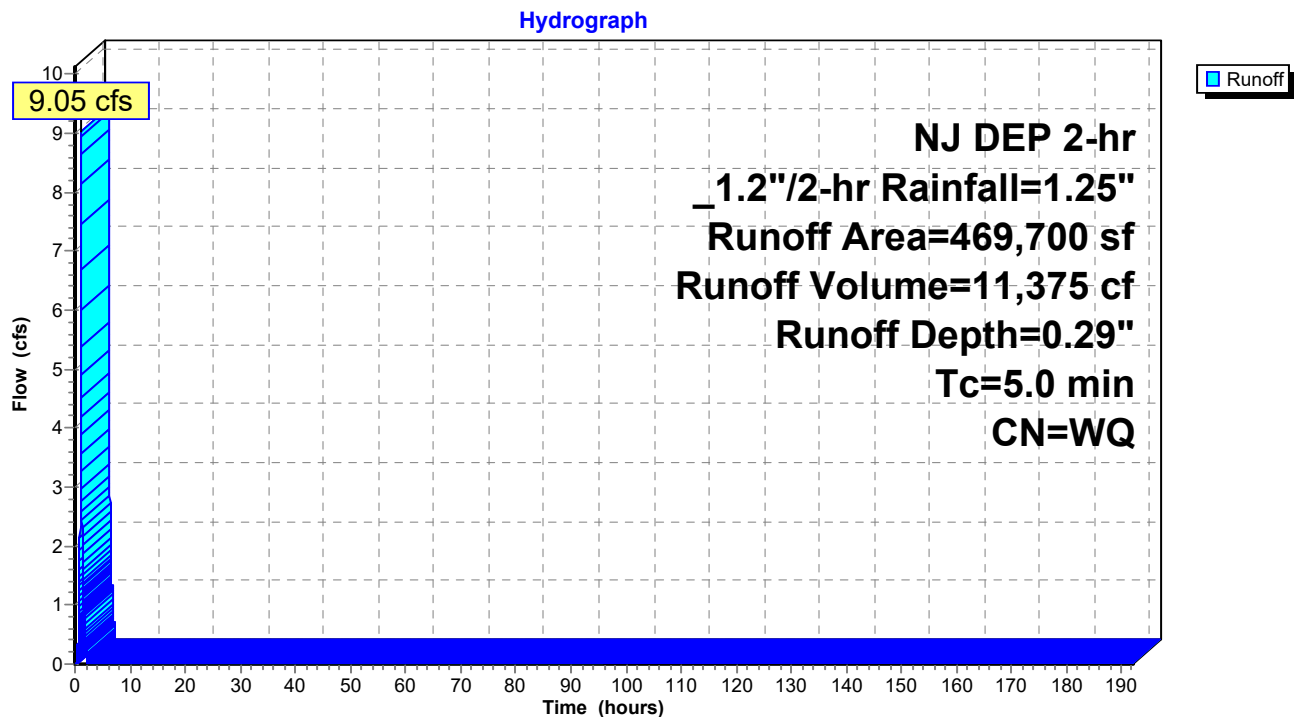
Summary for Subcatchment P1A: Post to BMP-01 (LOD)

Runoff = 9.05 cfs @ 1.10 hrs, Volume= 11,375 cf, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	240	98	Buildings
*	131,700	98	Impervious
	337,760	61	>75% Grass cover, Good, HSG B
	469,700		Weighted Average
	337,760	61	71.91% Pervious Area
	131,940	98	28.09% Impervious Area

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

Subcatchment P1A: Post to BMP-01 (LOD)

Summary for Subcatchment P1B: Post to BMP-01 (LOD)

Runoff = 4.15 cfs @ 1.10 hrs, Volume= 5,223 cf, Depth= 0.43"

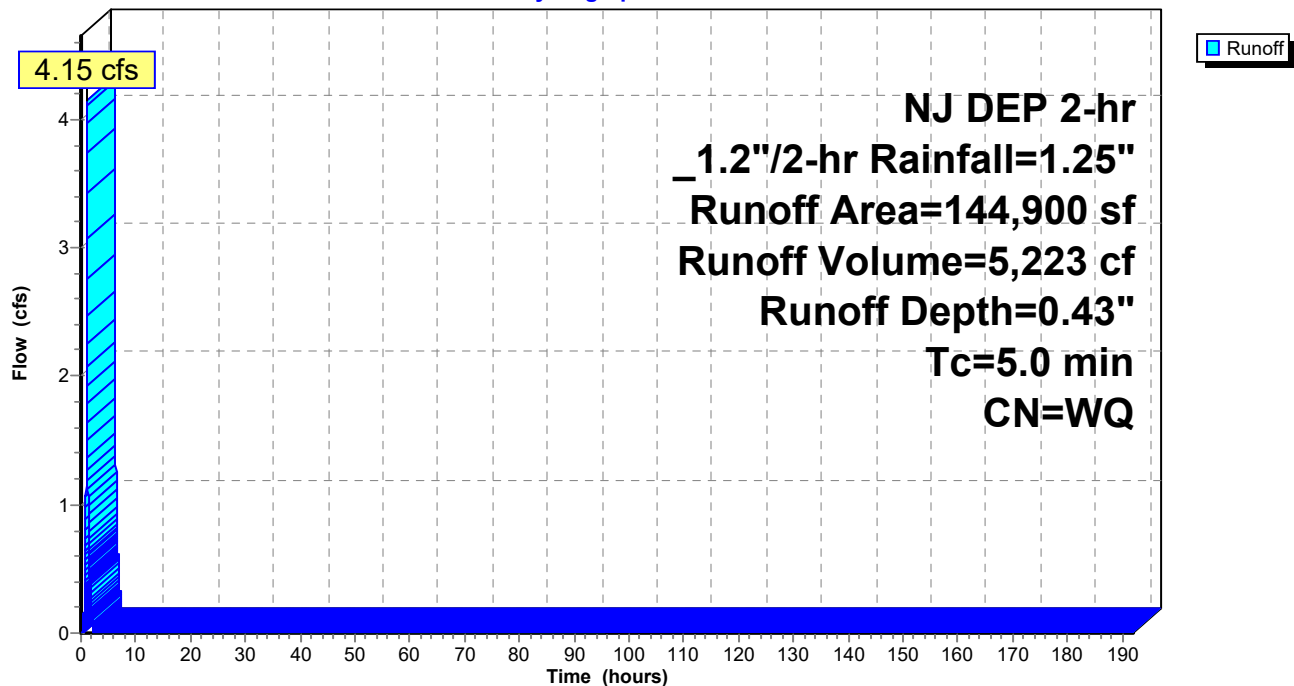
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	0	98	Buildings
*	60,580	98	Impervious
	84,320	61	>75% Grass cover, Good, HSG B
	144,900		Weighted Average
	84,320	61	58.19% Pervious Area
	60,580	98	41.81% Impervious Area

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

Subcatchment P1B: Post to BMP-01 (LOD)

Hydrograph



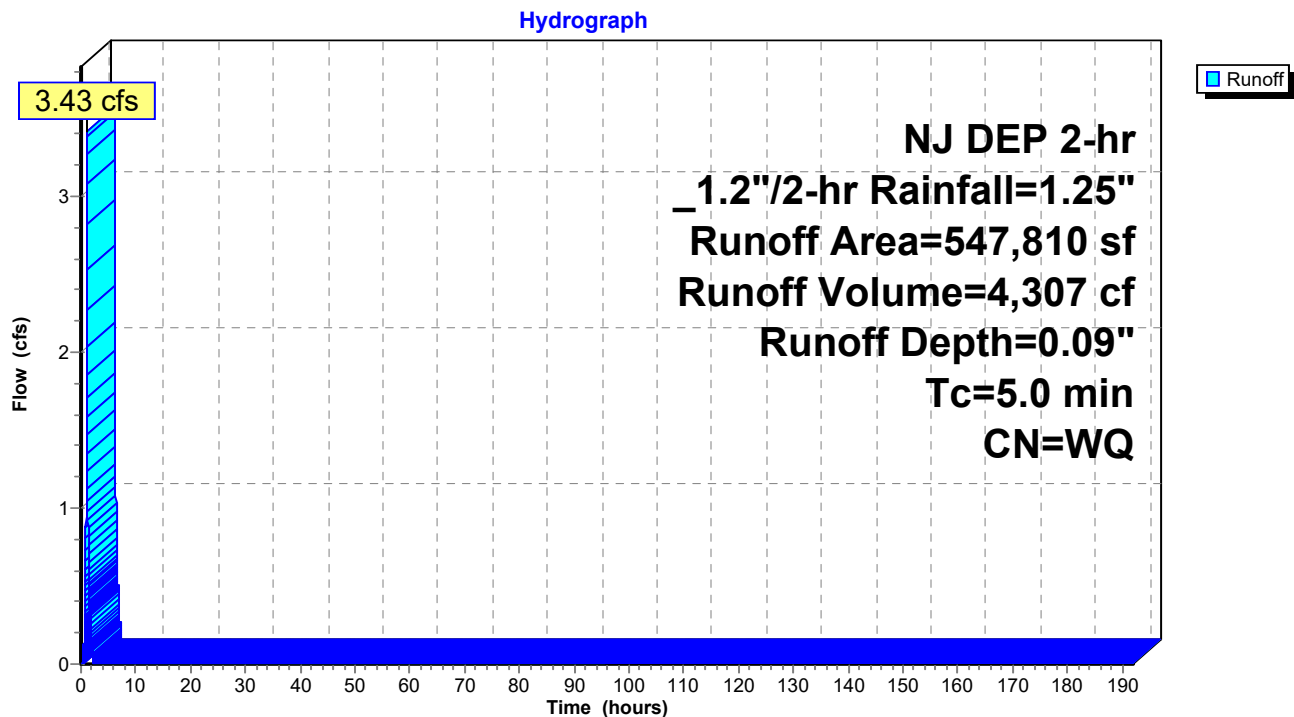
Summary for Subcatchment P1C: Post to BMP-01 (OLOD)

Runoff = 3.43 cfs @ 1.10 hrs, Volume= 4,307 cf, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	0	98	Buildings
*	49,955	98	Impervious
	497,855	61	>75% Grass cover, Good, HSG B
	547,810		Weighted Average
	497,855	61	90.88% Pervious Area
	49,955	98	9.12% Impervious Area

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

Subcatchment P1C: Post to BMP-01 (OLOD)

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NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

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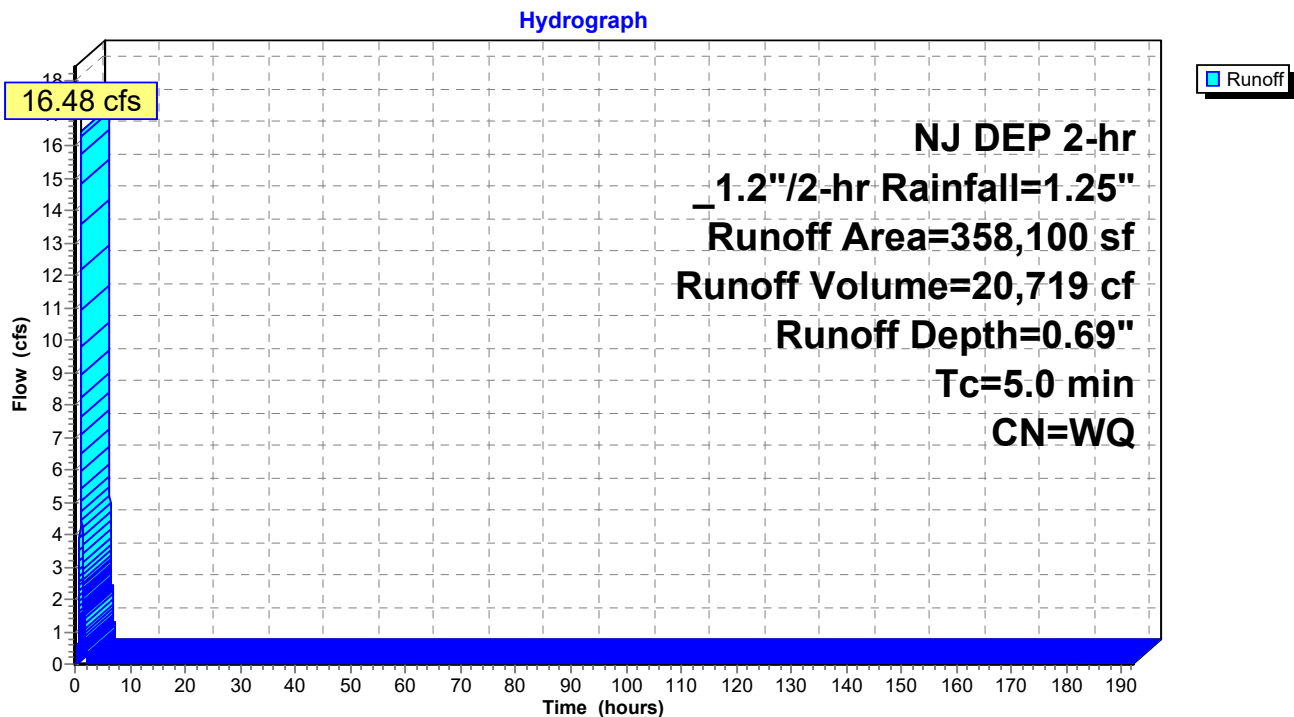
Summary for Subcatchment P2: Post to BMP-02 (LOD)

Runoff = 16.48 cfs @ 1.10 hrs, Volume= 20,719 cf, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	106,100	98	Impervious
	117,775	61	>75% Grass cover, Good, HSG B
	358,100		Weighted Average
	117,775	61	32.89% Pervious Area
	240,325	98	67.11% Impervious Area

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

Subcatchment P2: Post to BMP-02 (LOD)

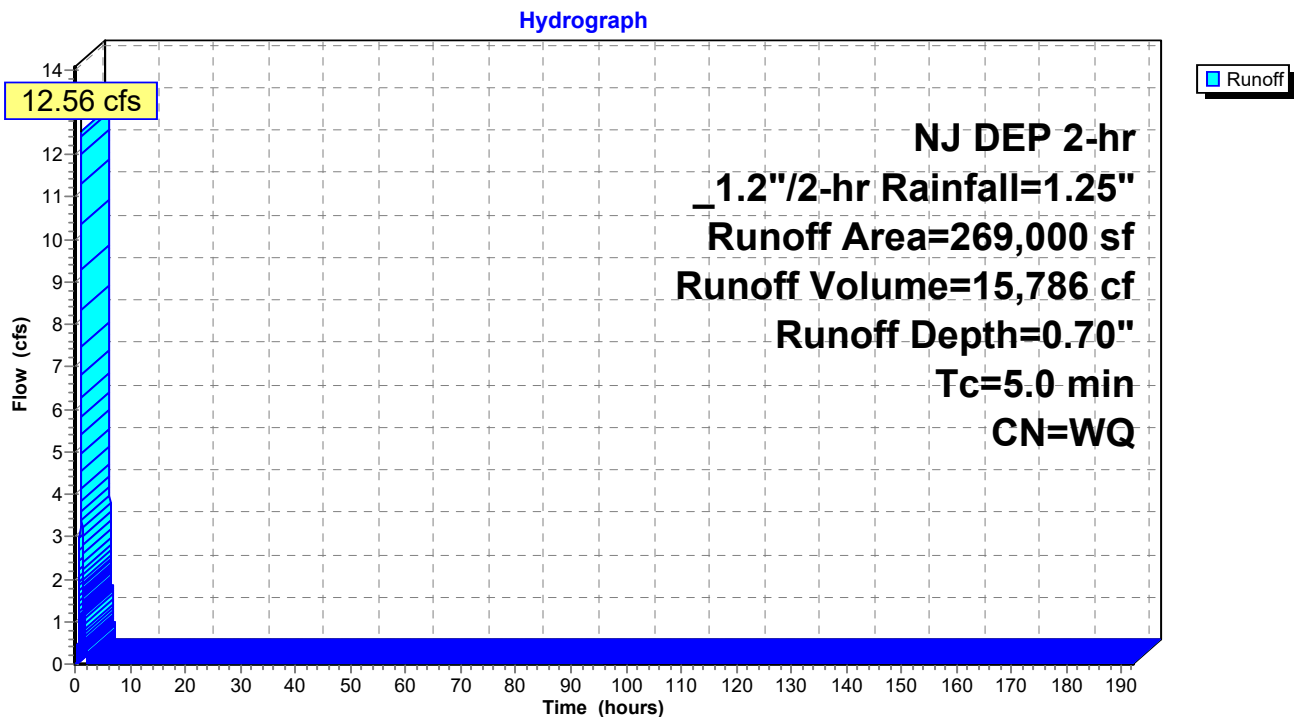
Summary for Subcatchment P3: Post to BMP-03 (LOD)

Runoff = 12.56 cfs @ 1.10 hrs, Volume= 15,786 cf, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	59,870	98	Impervious
	85,900	61	>75% Grass cover, Good, HSG B
	269,000		Weighted Average
	85,900	61	31.93% Pervious Area
	183,100	98	68.07% Impervious Area

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

Subcatchment P3: Post to BMP-03 (LOD)

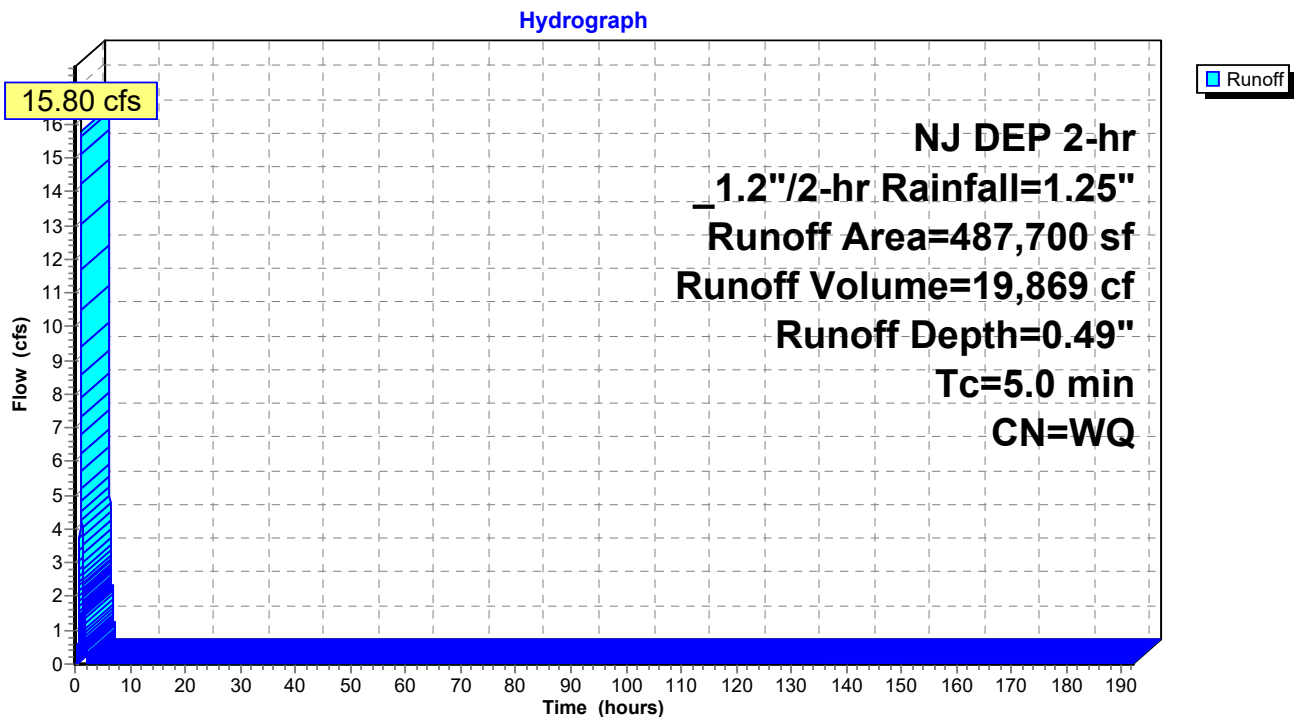
Summary for Subcatchment P4A: Post to BMP-04 (LOD)

Runoff = 15.80 cfs @ 1.10 hrs, Volume= 19,869 cf, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	134,225	98	Buildings
*	96,230	98	Impervious
	257,245	61	>75% Grass cover, Good, HSG B
	487,700		Weighted Average
	257,245	61	52.75% Pervious Area
	230,455	98	47.25% Impervious Area

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

Subcatchment P4A: Post to BMP-04 (LOD)

Summary for Subcatchment P4B: Post to BMP-04 (OLOD)

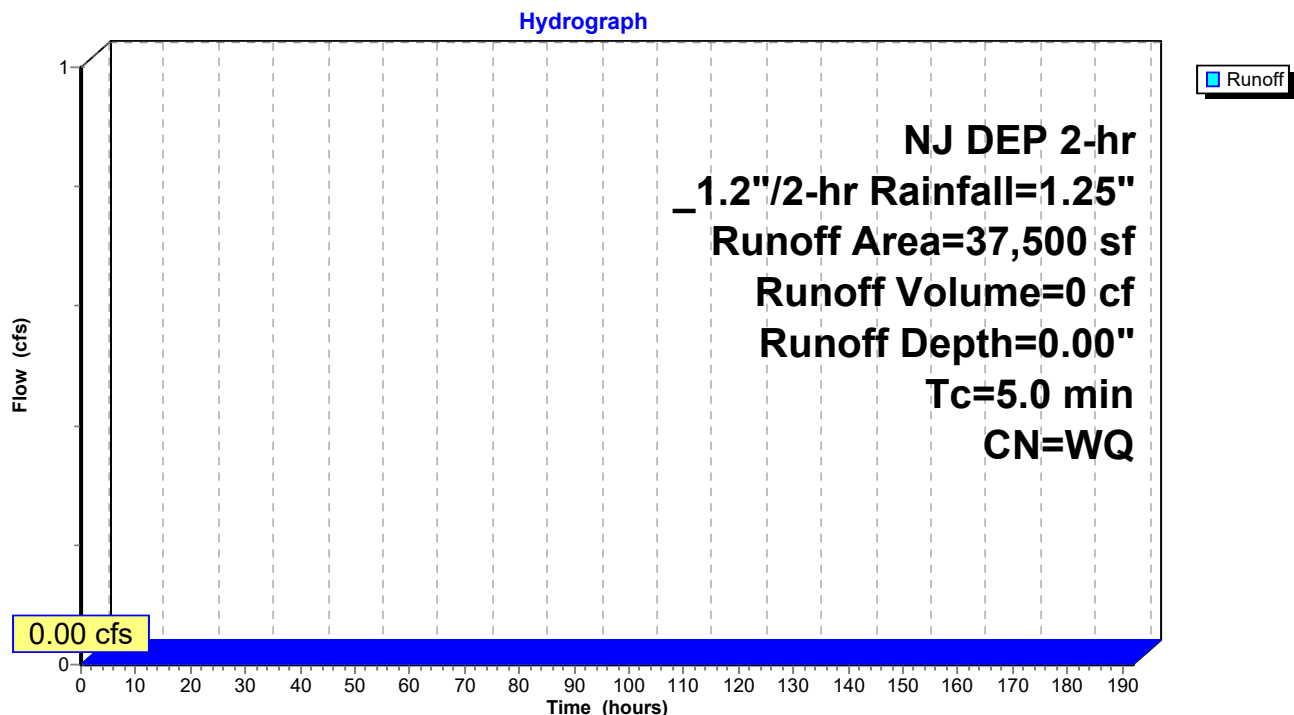
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	37,500	61	>75% Grass cover, Good, HSG B
	37,500		Weighted Average
	37,500	61	100.00% Pervious Area

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

Subcatchment P4B: Post to BMP-04 (OLOD)

Summary for Subcatchment P4C: Post to BMP-04 (OLOD)

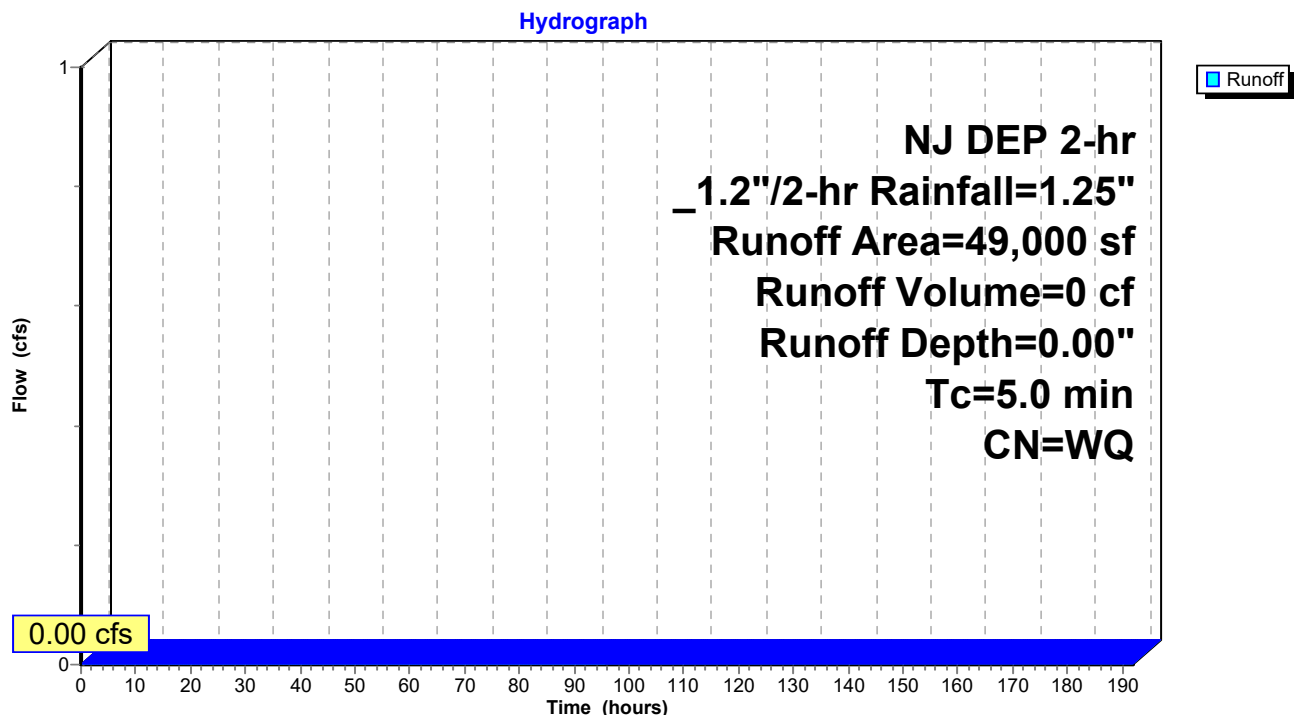
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	0	98	Buildings
*	0	98	Impervious
	49,000	61	>75% Grass cover, Good, HSG B
	49,000		Weighted Average
	49,000	61	100.00% Pervious Area

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

Subcatchment P4C: Post to BMP-04 (OLOD)

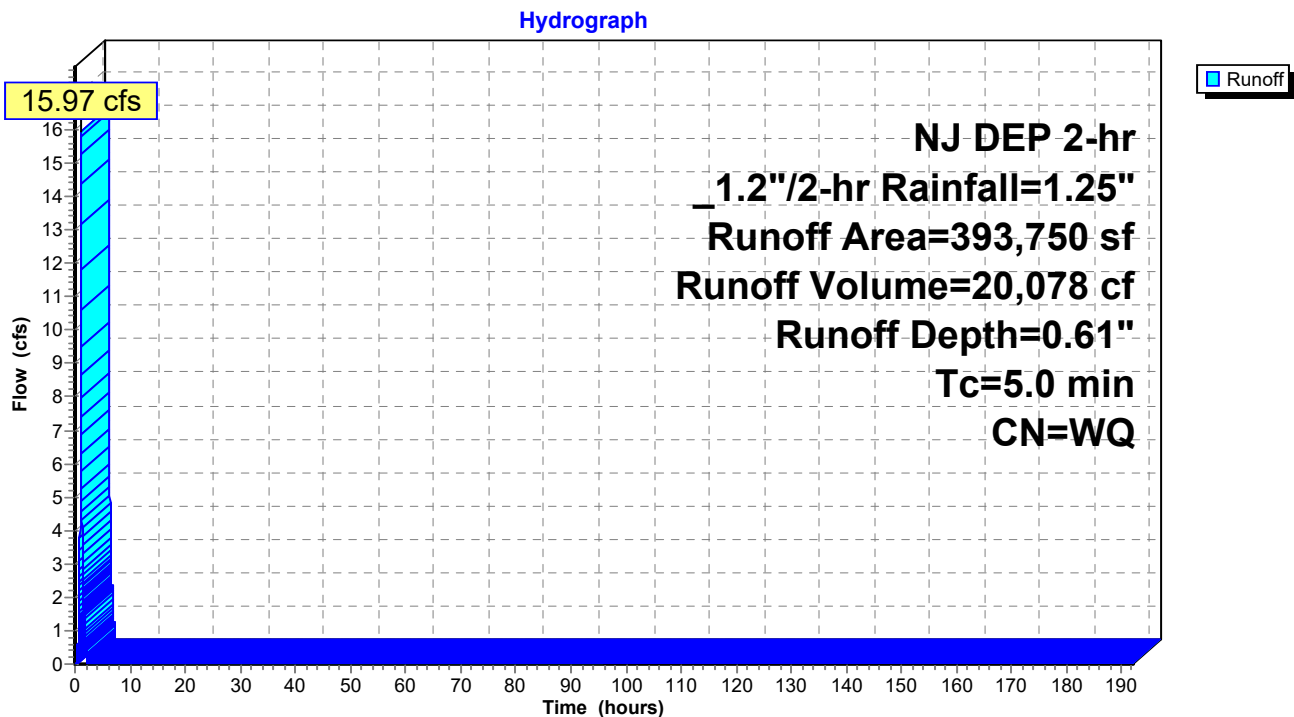
Summary for Subcatchment P5: Post to BMP-05 (LOD)

Runoff = 15.97 cfs @ 1.10 hrs, Volume= 20,078 cf, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 NJ DEP 2-hr _1.2"/2-hr Rainfall=1.25"

	Area (sf)	CN	Description
*	123,230	98	Buildings
*	109,655	98	Impervious
	160,865	61	>75% Grass cover, Good, HSG B
	393,750		Weighted Average
	160,865	61	40.85% Pervious Area
	232,885	98	59.15% Impervious Area

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

Subcatchment P5: Post to BMP-05 (LOD)

Summary for Pond BMP-01: Wet Pond

Inflow Area = 2,757,460 sf, 40.95% Impervious, Inflow Depth = 0.40" for 1.2"/2-hr event
 Inflow = 16.83 cfs @ 1.10 hrs, Volume= 92,098 cf
 Outflow = 1.04 cfs @ 1.85 hrs, Volume= 91,988 cf, Atten= 94%, Lag= 44.9 min
 Primary = 1.04 cfs @ 1.85 hrs, Volume= 91,988 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 355.27' @ 1.85 hrs Surf.Area= 70,973 sf Storage= 18,661 cf

Plug-Flow detention time= 616.1 min calculated for 91,988 cf (100% of inflow)
 Center-of-Mass det. time= 607.0 min (2,940.8 - 2,333.8)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	613,350 cf	Storage Above Perm. Pool (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	69,700	0	0
356.00	74,500	72,100	72,100
357.00	79,400	76,950	149,050
358.00	84,400	81,900	230,950
359.00	89,550	86,975	317,925
360.00	95,600	92,575	410,500
361.00	101,400	98,500	509,000
362.00	107,300	104,350	613,350

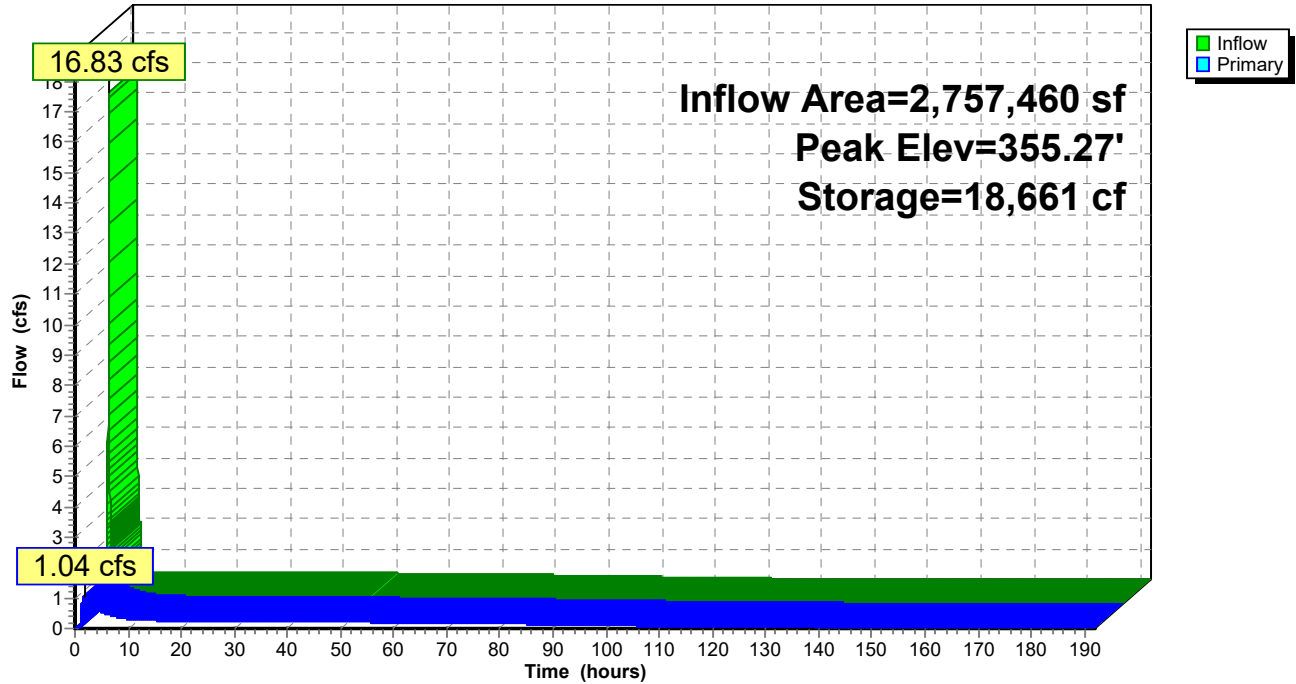
Device	Routing	Invert	Outlet Devices
#1	Primary	355.00'	36.0" Round 36" Outfall X 5.00 L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 355.00' / 354.50' S= 0.0156 1' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	355.00'	7.0" Vert. 7" Siphon Orifice X 5.00 C= 0.600 Limited to weir flow at low heads
#3	Device 1	357.00'	19.0" W x 30.0" H Vert. 19"Wx30"H Weir X 5.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	360.10'	24.0" x 45.0" Horiz. Type M Inlet X 5.00 C= 0.600 Limited to weir flow at low heads
#5	Primary	360.60'	100.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.04 cfs @ 1.85 hrs HW=355.27' (Free Discharge)

1=36" Outfall (Passes 1.04 cfs of 2.69 cfs potential flow)
 2=7" Siphon Orifice (Orifice Controls 1.04 cfs @ 1.75 fps)
 3=19"Wx30"H Weir (Controls 0.00 cfs)
 4=Type M Inlet (Controls 0.00 cfs)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond BMP-01: Wet Pond

Hydrograph



Summary for Pond BMP-02: MRC Rain Garden

Inflow Area = 358,100 sf, 67.11% Impervious, Inflow Depth = 0.69" for $_1.2''/2\text{-hr}$ event
 Inflow = 16.48 cfs @ 1.10 hrs, Volume= 20,719 cf
 Outflow = 0.06 cfs @ 2.12 hrs, Volume= 19,594 cf, Atten= 100%, Lag= 61.4 min
 Primary = 0.06 cfs @ 2.12 hrs, Volume= 19,594 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 363.20' @ 2.12 hrs Surf.Area= 28,510 sf Storage= 20,446 cf

Plug-Flow detention time= 2,830.4 min calculated for 19,593 cf (95% of inflow)
 Center-of-Mass det. time= 2,828.4 min (2,897.8 - 69.4)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Prismatic) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	67,900 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		75,775 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
358.00	7,500	0	0
359.00	7,500	7,500	7,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	7,500	0	0
363.00	12,450	9,975	9,975
364.00	17,750	15,100	25,075
365.00	21,300	19,525	44,600
366.00	25,300	23,300	67,900

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 ' / ' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	363.25'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

1508-SCS LDP REV02

NJ DEP 2-hr 1.2"/2-hr Rainfall=1.25"

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=0.06 cfs @ 2.12 hrs HW=363.20' (Free Discharge)

1=Outflow Pipe (Passes 0.06 cfs of 27.06 cfs potential flow)

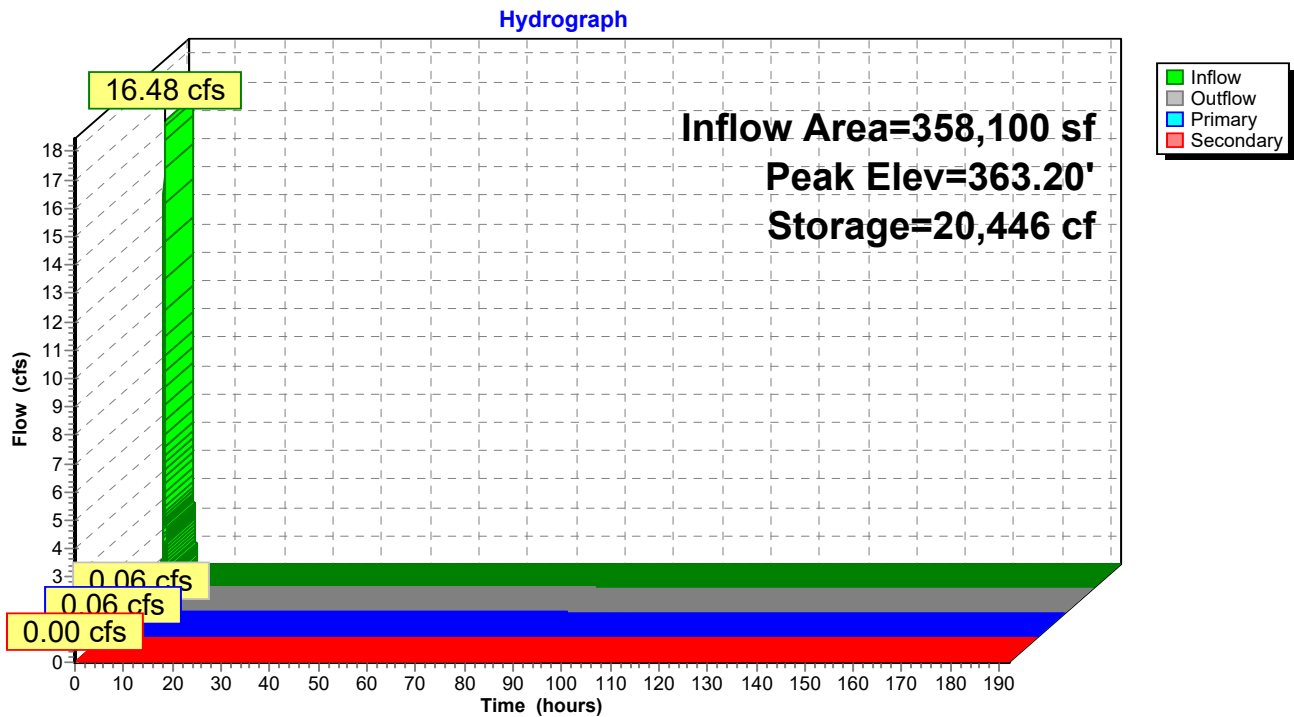
2=MRC Low Flow Orifice (Orifice Controls 0.06 cfs @ 9.81 fps)

3=Type M Overflow (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-02: MRC Rain Garden



Summary for Pond BMP-03: MRC Rain Garden

Inflow Area = 269,000 sf, 68.07% Impervious, Inflow Depth = 0.70" for $_1.2''/2\text{-hr}$ event
 Inflow = 12.56 cfs @ 1.10 hrs, Volume= 15,786 cf
 Outflow = 0.05 cfs @ 2.12 hrs, Volume= 14,660 cf, Atten= 100%, Lag= 61.3 min
 Primary = 0.05 cfs @ 2.12 hrs, Volume= 14,660 cf
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 362.74' @ 2.12 hrs Surf.Area= 27,087 sf Storage= 15,577 cf

Plug-Flow detention time= 2,764.7 min calculated for 14,660 cf (93% of inflow)
 Center-of-Mass det. time= 2,761.6 min (2,831.0 - 69.4)

Volume	Invert	Avail.Storage	Storage Description
#1	358.00'	1,125 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 7,500 cf Overall x 15.0% Voids
#2	359.00'	6,750 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 22,500 cf Overall x 30.0% Voids
#3	362.00'	72,725 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		80,600 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
358.00	7,500	0	0	7,500
359.00	7,500	7,500	7,500	7,846

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
359.00	7,500	0	0	7,500
360.00	7,500	7,500	7,500	7,846
361.00	7,500	7,500	15,000	8,193
362.00	7,500	7,500	22,500	8,539

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
362.00	8,850	0	0
363.00	13,250	11,050	11,050
364.00	20,050	16,650	27,700
365.00	22,700	21,375	49,075
366.00	24,600	23,650	72,725

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	24.0" Round Outflow Pipe L= 26.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 359.00' / 358.70' S= 0.0115 1' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	359.00'	1.0" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	362.75'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

1508-SCS LDP REV02

NJ DEP 2-hr 1.2"/2-hr Rainfall=1.25"

Prepared by {enter your company name here}

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#4 Secondary 365.00' **60.0' long x 13.0' breadth Emergency Spillway**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=0.05 cfs @ 2.12 hrs HW=362.74' (Free Discharge)

1=Outflow Pipe (Passes 0.05 cfs of 25.02 cfs potential flow)

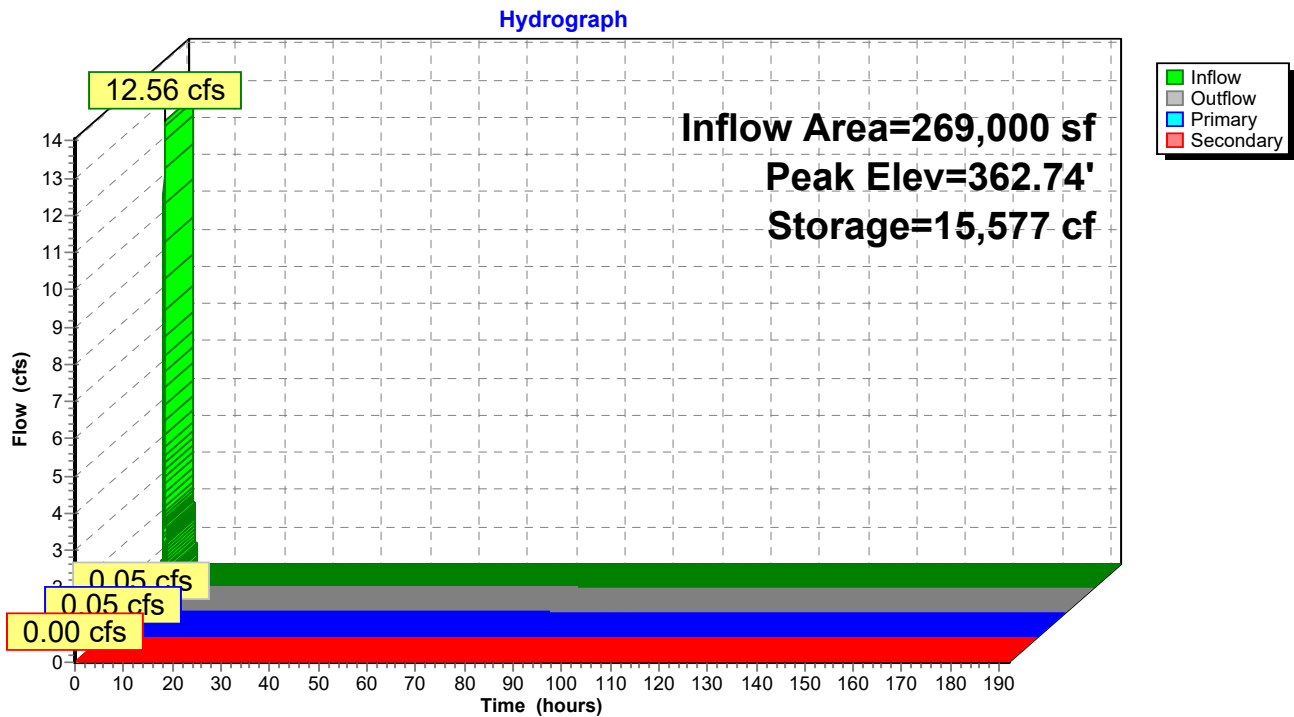
2=MRC Low Flow Orifice (Orifice Controls 0.05 cfs @ 9.25 fps)

3=Type M Overflow (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=358.00' (Free Discharge)

4=Emergency Spillway (Controls 0.00 cfs)

Pond BMP-03: MRC Rain Garden



Summary for Pond BMP-04: MRC Rain Garden

Inflow Area = 574,200 sf, 40.13% Impervious, Inflow Depth = 0.42" for 1.2"/2-hr event
 Inflow = 15.80 cfs @ 1.10 hrs, Volume= 19,869 cf
 Outflow = 0.05 cfs @ 2.13 hrs, Volume= 18,363 cf, Atten= 100%, Lag= 61.7 min
 Primary = 0.05 cfs @ 2.13 hrs, Volume= 18,363 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 372.64' @ 2.13 hrs Surf.Area= 42,745 sf Storage= 19,652 cf

Plug-Flow detention time= 3,310.4 min calculated for 18,363 cf (92% of inflow)
 Center-of-Mass det. time= 3,307.2 min (3,376.6 - 69.4)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	116,625 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		124,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	15,500	0	0
373.00	26,900	21,200	21,200
374.00	30,150	28,525	49,725
375.00	33,400	31,775	81,500
376.00	36,850	35,125	116,625

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.1" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.65'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

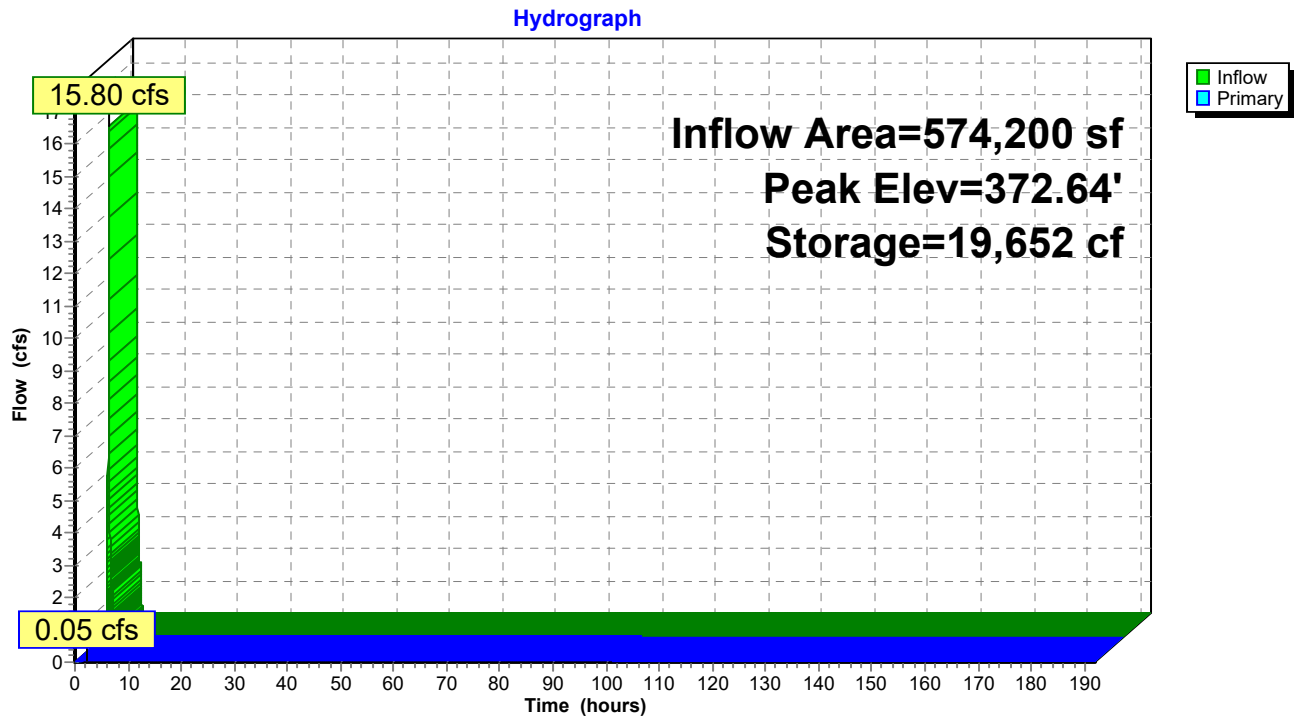
Primary OutFlow Max=0.05 cfs @ 2.13 hrs HW=372.64' (Free Discharge)

1=24" Outflow Pipe (Passes 0.05 cfs of 18.74 cfs potential flow)

2=MRC Low Flow Orifice (Orifice Controls 0.05 cfs @ 7.75 fps)

3=Type M Overflow (Controls 0.00 cfs)

Pond BMP-04: MRC Rain Garden



Summary for Pond BMP-05: MRC Rain Garden

Inflow Area = 393,750 sf, 59.15% Impervious, Inflow Depth = 0.61" for 1.2"/2-hr event
 Inflow = 15.97 cfs @ 1.10 hrs, Volume= 20,078 cf
 Outflow = 0.06 cfs @ 2.12 hrs, Volume= 18,577 cf, Atten= 100%, Lag= 61.4 min
 Primary = 0.06 cfs @ 2.12 hrs, Volume= 18,577 cf

Routing by Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
 Peak Elev= 372.68' @ 2.12 hrs Surf.Area= 42,324 sf Storage= 19,817 cf

Plug-Flow detention time= 2,797.5 min calculated for 18,576 cf (93% of inflow)
 Center-of-Mass det. time= 2,794.8 min (2,864.1 - 69.4)

Volume	Invert	Avail.Storage	Storage Description
#1	369.00'	1,500 cf	Filter Media Below Invert (Pyramidal) Listed below (Recalc) 10,000 cf Overall x 15.0% Voids
#2	370.00'	6,000 cf	Filter Media Above Invert (Pyramidal) Listed below (Recalc) 20,000 cf Overall x 30.0% Voids
#3	372.00'	111,850 cf	Above Ground Storage (Prismatic) Listed below (Recalc)
		119,350 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	10,000	0	0	10,000
370.00	10,000	10,000	10,000	10,400

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
370.00	10,000	0	0	10,000
371.00	10,000	10,000	10,000	10,400
372.00	10,000	10,000	20,000	10,800

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
372.00	13,800	0	0
373.00	26,300	20,050	20,050
374.00	29,100	27,700	47,750
375.00	32,000	30,550	78,300
376.00	35,100	33,550	111,850

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	24.0" Round 24" Outflow Pipe L= 36.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 370.00' / 369.60' S= 0.0111 ' /' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	370.00'	1.2" Vert. MRC Low Flow Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	372.70'	24.0" x 45.0" Horiz. Type M Overflow C= 0.600 Limited to weir flow at low heads

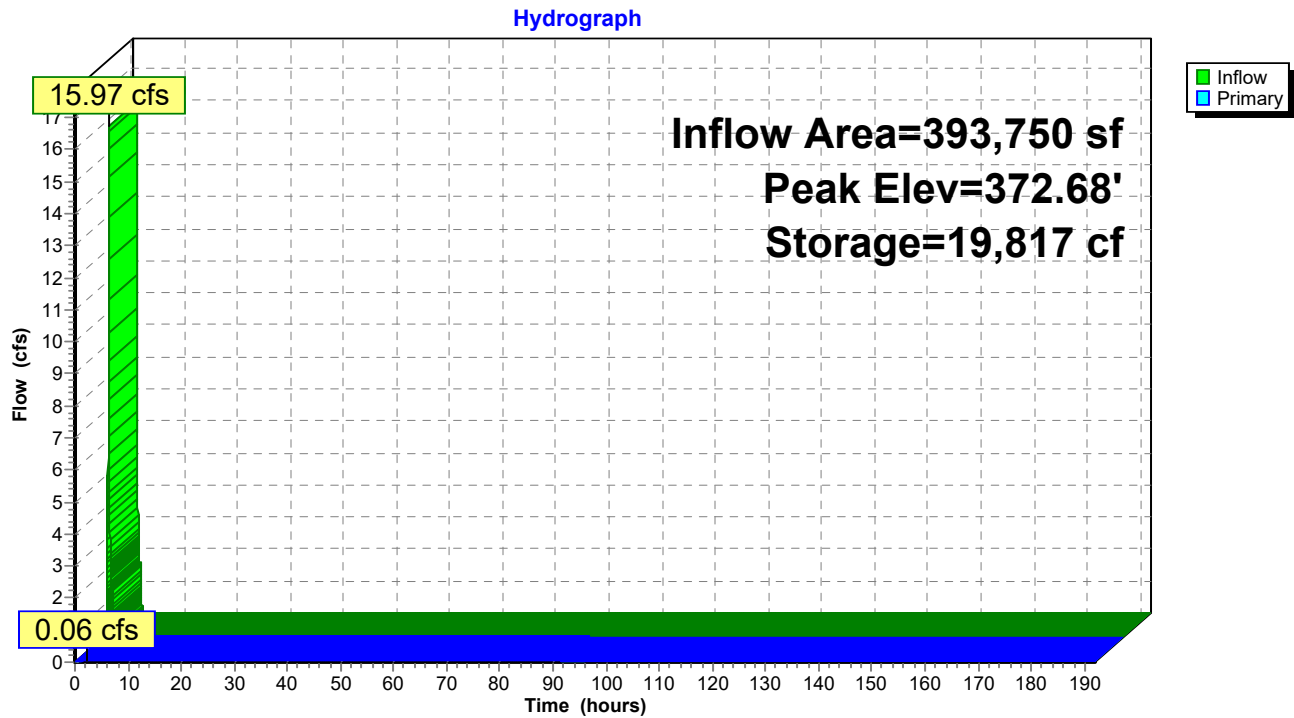
Primary OutFlow Max=0.06 cfs @ 2.12 hrs HW=372.68' (Free Discharge)

1=24" Outflow Pipe (Passes 0.06 cfs of 18.79 cfs potential flow)

2=MRC Low Flow Orifice (Orifice Controls 0.06 cfs @ 7.81 fps)

3=Type M Overflow (Controls 0.00 cfs)

Pond BMP-05: MRC Rain Garden



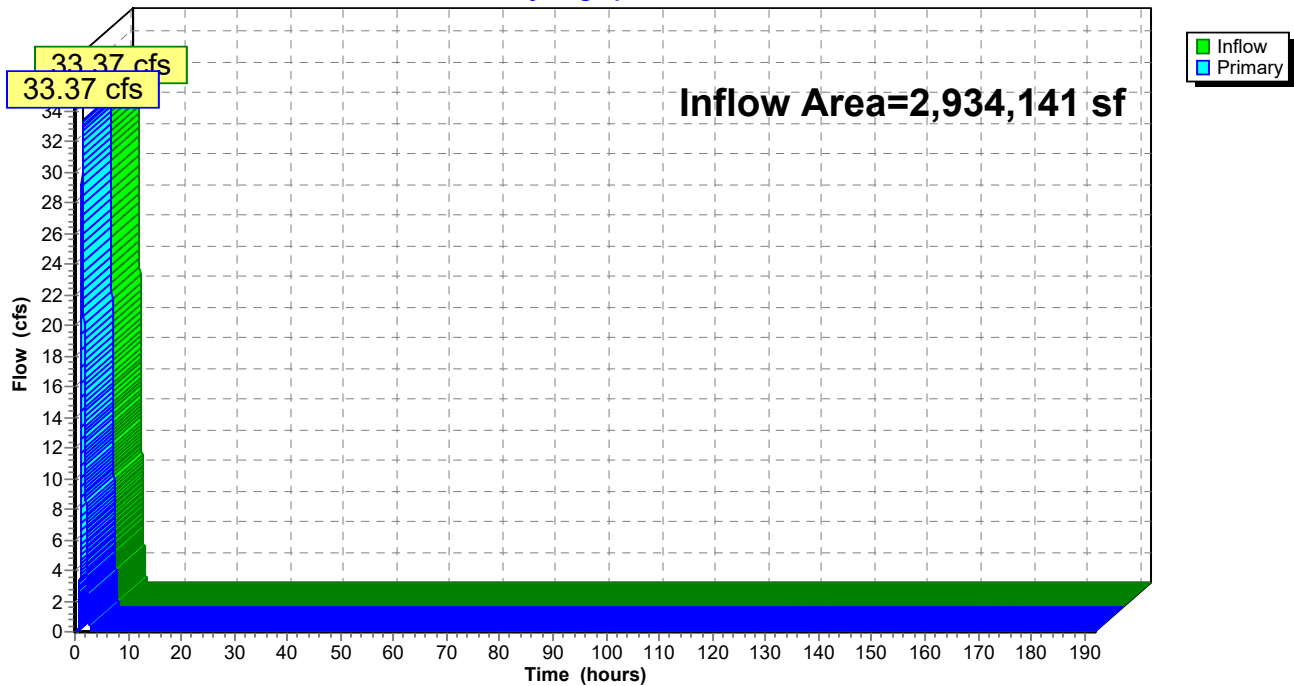
Summary for Link 001A: POA

Inflow Area = 2,934,141 sf, 34.38% Impervious, Inflow Depth = 0.36" for _1.2"/2-hr event
Inflow = 33.37 cfs @ 1.41 hrs, Volume= 86,958 cf
Primary = 33.37 cfs @ 1.41 hrs, Volume= 86,958 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001A: POA

Hydrograph



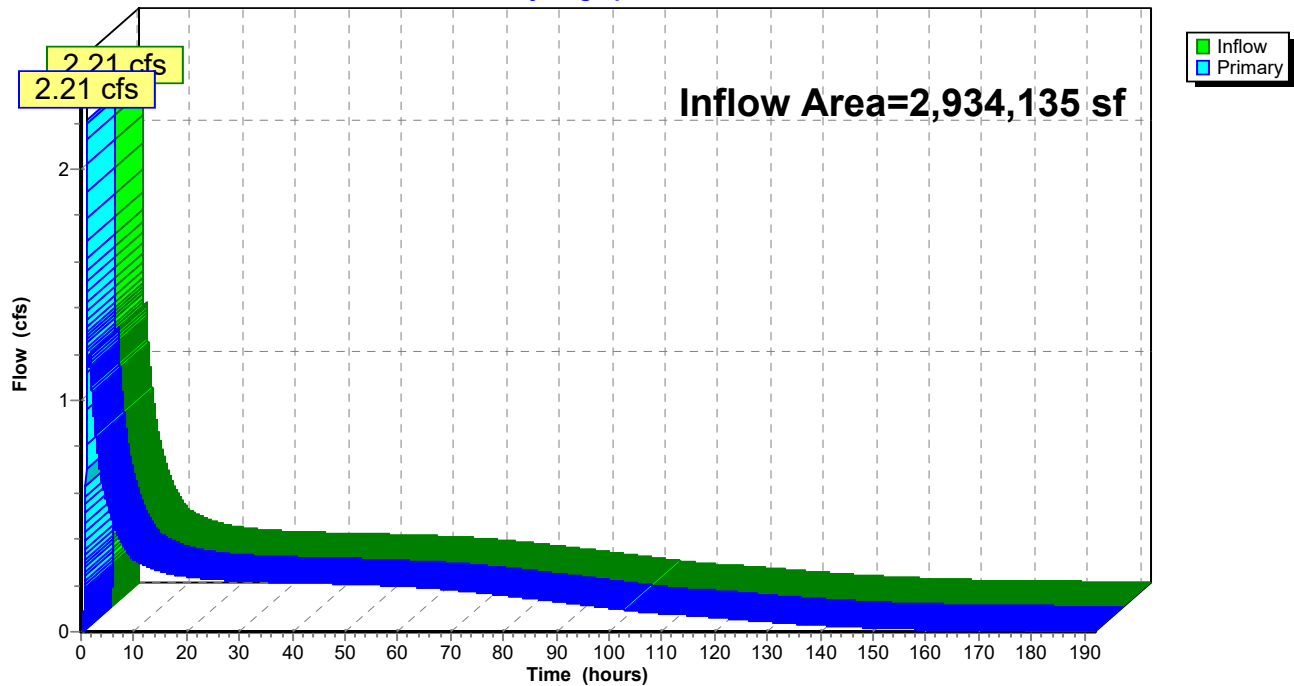
Summary for Link 001B: POA

Inflow Area = 2,934,135 sf, 39.40% Impervious, Inflow Depth > 0.39" for _1.2"/2-hr event
Inflow = 2.21 cfs @ 1.11 hrs, Volume= 94,309 cf
Primary = 2.21 cfs @ 1.11 hrs, Volume= 94,309 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 001B: POA

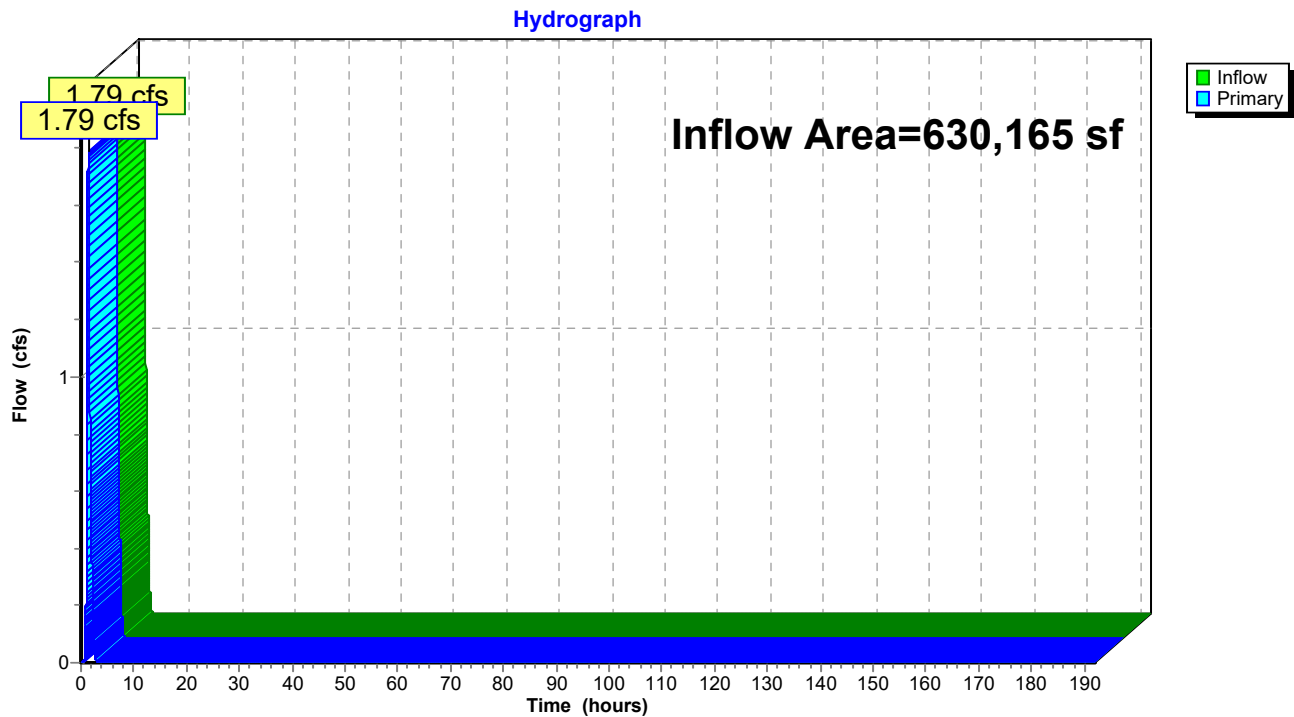
Hydrograph



Summary for Link 2: TOTAL OFFSITE

Inflow Area = 630,165 sf, 7.93% Impervious, Inflow Depth = 0.08" for _1.2"/2-hr event
Inflow = 1.79 cfs @ 1.37 hrs, Volume= 4,307 cf
Primary = 1.79 cfs @ 1.37 hrs, Volume= 4,307 cf, Atten= 0%, Lag= 0.0 min

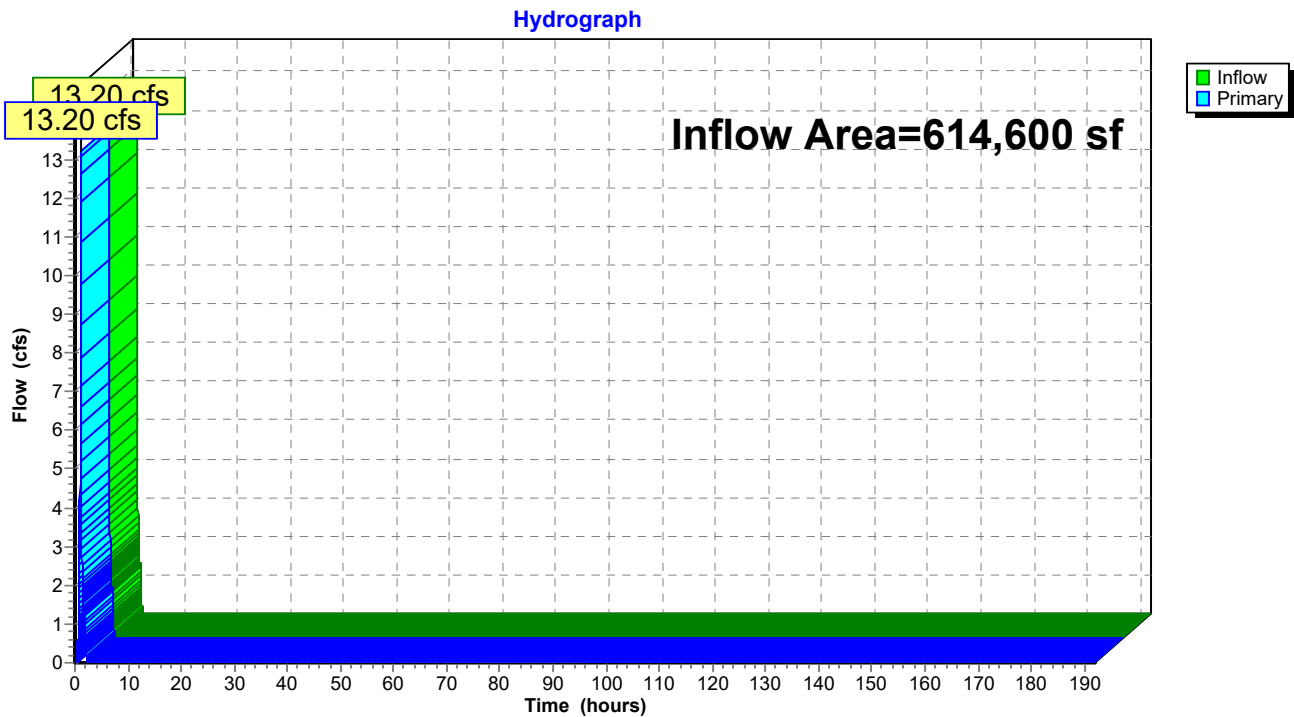
Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 2: TOTAL OFFSITE

Summary for Link 3: LOD to BMP-01

Inflow Area = 614,600 sf, 31.32% Impervious, Inflow Depth = 0.32" for _1.2"/2-hr event
Inflow = 13.20 cfs @ 1.10 hrs, Volume= 16,598 cf
Primary = 13.20 cfs @ 1.10 hrs, Volume= 16,598 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Link 3: LOD to BMP-01

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Events for Subcatchment B1: BYPASS (LOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	0.11	352	0.26
2-yr	3.24	0.27	635	0.46
5-yr	4.06	0.55	1,163	0.84
10-yr	4.75	0.84	1,685	1.22
25-yr	5.73	1.28	2,520	1.83
50-yr	6.56	1.69	3,295	2.39
100-yr	7.45	2.15	4,180	3.03
_1.2"/2-hr	1.25	0.00	0	0.00

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Events for Subcatchment B2: BYPASS (LOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	0.59	1,530	0.70
2-yr	3.24	0.89	2,127	0.98
5-yr	4.06	1.41	3,152	1.45
10-yr	4.75	1.89	4,112	1.89
25-yr	5.73	2.63	5,594	2.57
50-yr	6.56	3.29	6,935	3.19
100-yr	7.45	4.02	8,440	3.88
_1.2"/2-hr	1.25	0.36	457	0.21

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Events for Subcatchment B3: BYPASS (LOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	2.49	6,539	0.65
2-yr	3.24	3.86	9,222	0.92
5-yr	4.06	6.22	13,858	1.38
10-yr	4.75	8.43	18,226	1.81
25-yr	5.73	11.82	24,994	2.48
50-yr	6.56	14.87	31,134	3.09
100-yr	7.45	18.27	38,042	3.78
_1.2"/2-hr	1.25	1.48	1,863	0.19

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Events for Subcatchment B4: BYPASS (LOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	0.09	281	0.26
2-yr	3.24	0.21	507	0.46
5-yr	4.06	0.44	929	0.84
10-yr	4.75	0.67	1,345	1.22
25-yr	5.73	1.02	2,012	1.83
50-yr	6.56	1.35	2,631	2.39
100-yr	7.45	1.71	3,338	3.03
_1.2"/2-hr	1.25	0.00	0	0.00

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Events for Subcatchment E1: PRE (LOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	42.38	216,880	1.13
2-yr	3.24	54.17	280,096	1.46
5-yr	4.06	74.99	383,183	2.00
10-yr	4.75	94.68	476,504	2.48
25-yr	5.73	124.94	617,128	3.21
50-yr	6.56	152.01	742,139	3.87
100-yr	7.45	182.13	880,977	4.59
_1.2"/2-hr	1.25	31.62	82,651	0.43

Events for Subcatchment E2: PRE (OLOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	0.06	550	0.26
2-yr	3.24	0.15	992	0.46
5-yr	4.06	0.34	1,817	0.84
10-yr	4.75	0.54	2,632	1.22
25-yr	5.73	0.86	3,937	1.83
50-yr	6.56	1.15	5,149	2.39
100-yr	7.45	1.49	6,532	3.03
_1.2"/2-hr	1.25	0.00	0	0.00

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Events for Subcatchment E3: PRE (OLOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	3.50	22,029	0.44
2-yr	3.24	6.05	33,789	0.67
5-yr	4.06	11.11	54,873	1.09
10-yr	4.75	16.18	75,219	1.49
25-yr	5.73	24.23	107,267	2.13
50-yr	6.56	31.62	136,682	2.71
100-yr	7.45	39.97	170,041	3.38
_1.2"/2-hr	1.25	1.79	4,307	0.09

Events for Subcatchment P1A: Post to BMP-01 (LOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	13.65	34,228	0.87
2-yr	3.24	19.39	46,025	1.18
5-yr	4.06	29.07	65,787	1.68
10-yr	4.75	37.97	84,009	2.15
25-yr	5.73	51.47	111,812	2.86
50-yr	6.56	63.51	136,748	3.49
100-yr	7.45	76.87	164,596	4.21
_1.2"/2-hr	1.25	9.05	11,375	0.29

Events for Subcatchment P1B: Post to BMP-01 (LOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	5.87	14,211	1.18
2-yr	3.24	7.83	18,417	1.53
5-yr	4.06	11.02	25,234	2.09
10-yr	4.75	13.89	31,369	2.60
25-yr	5.73	18.18	40,565	3.36
50-yr	6.56	21.97	48,699	4.03
100-yr	7.45	26.14	57,700	4.78
_1.2"/2-hr	1.25	4.15	5,223	0.43

Events for Subcatchment P1C: Post to BMP-01 (OLOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	7.43	20,827	0.46
2-yr	3.24	13.15	31,621	0.69
5-yr	4.06	23.33	50,904	1.12
10-yr	4.75	33.02	69,468	1.52
25-yr	5.73	48.08	98,665	2.16
50-yr	6.56	61.73	125,434	2.75
100-yr	7.45	77.04	155,771	3.41
_1.2"/2-hr	1.25	3.43	4,307	0.09

Events for Subcatchment P2: Post to BMP-02 (LOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	22.16	51,765	1.73
2-yr	3.24	27.81	64,747	2.17
5-yr	4.06	36.63	84,878	2.84
10-yr	4.75	44.30	102,383	3.43
25-yr	5.73	55.49	127,924	4.29
50-yr	6.56	65.17	150,045	5.03
100-yr	7.45	75.71	174,156	5.84
_1.2"/2-hr	1.25	16.48	20,719	0.69

Events for Subcatchment P3: Post to BMP-03 (LOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	16.86	39,358	1.76
2-yr	3.24	21.14	49,183	2.19
5-yr	4.06	27.78	64,398	2.87
10-yr	4.75	33.56	77,614	3.46
25-yr	5.73	41.99	96,880	4.32
50-yr	6.56	49.27	113,554	5.07
100-yr	7.45	57.19	131,719	5.88
_1.2"/2-hr	1.25	12.56	15,786	0.70

Events for Subcatchment P4A: Post to BMP-04 (LOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	22.00	52,708	1.30
2-yr	3.24	28.82	67,625	1.66
5-yr	4.06	39.83	91,532	2.25
10-yr	4.75	49.66	112,867	2.78
25-yr	5.73	64.28	144,642	3.56
50-yr	6.56	77.12	172,613	4.25
100-yr	7.45	91.23	203,454	5.01
_1.2"/2-hr	1.25	15.80	19,869	0.49

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Events for Subcatchment P4B: Post to BMP-04 (OLOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	0.25	798	0.26
2-yr	3.24	0.60	1,439	0.46
5-yr	4.06	1.26	2,635	0.84
10-yr	4.75	1.90	3,817	1.22
25-yr	5.73	2.90	5,710	1.83
50-yr	6.56	3.82	7,466	2.39
100-yr	7.45	4.86	9,472	3.03
_1.2"/2-hr	1.25	0.00	0	0.00

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Events for Subcatchment P4C: Post to BMP-04 (OLOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	0.33	1,042	0.26
2-yr	3.24	0.79	1,880	0.46
5-yr	4.06	1.64	3,443	0.84
10-yr	4.75	2.48	4,988	1.22
25-yr	5.73	3.79	7,461	1.83
50-yr	6.56	4.99	9,756	2.39
100-yr	7.45	6.35	12,377	3.03
_1.2"/2-hr	1.25	0.00	0	0.00

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Events for Subcatchment P5: Post to BMP-05 (LOD)

Event	Rainfall (inches)	Runoff (cfs)	Volume (cubic-feet)	Depth (inches)
1-yr	2.69	21.71	51,157	1.56
2-yr	3.24	27.65	64,536	1.97
5-yr	4.06	37.02	85,534	2.61
10-yr	4.75	45.25	103,970	3.17
25-yr	5.73	57.35	131,080	3.99
50-yr	6.56	67.89	154,705	4.71
100-yr	7.45	79.40	180,569	5.50
_1.2"/2-hr	1.25	15.97	20,078	0.61

Events for Pond BMP-01: Wet Pond

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-yr	47.82	5.73	356.09	78,547
2-yr	86.85	7.53	356.66	122,454
5-yr	145.26	16.20	357.42	182,457
10-yr	185.51	31.95	357.90	222,210
25-yr	227.13	59.53	358.53	276,143
50-yr	259.65	82.21	358.96	314,588
100-yr	295.81	105.88	359.37	351,723
_1.2"/2-hr	16.83	1.04	355.27	18,661

Events for Pond BMP-02: MRC Rain Garden

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-yr	22.16	9.62	9.62	0.00	363.65	27,065
2-yr	27.81	17.12	17.12	0.00	363.84	30,180
5-yr	36.63	26.72	26.72	0.00	364.04	33,740
10-yr	44.30	31.00	31.00	0.00	364.20	36,558
25-yr	55.49	32.04	32.04	0.00	364.49	42,015
50-yr	65.17	33.00	33.00	0.00	364.76	47,456
100-yr	75.71	36.47	34.02	2.45	365.06	53,725
_1.2"/2-hr	16.48	0.06	0.06	0.00	363.20	20,446

Events for Pond BMP-03: MRC Rain Garden

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-yr	16.86	7.99	7.99	0.00	363.10	20,338
2-yr	21.14	13.64	13.64	0.00	363.26	22,550
5-yr	27.78	20.68	20.68	0.00	363.42	25,081
10-yr	33.56	25.76	25.76	0.00	363.53	26,859
25-yr	41.99	29.07	29.07	0.00	363.69	29,734
50-yr	49.27	29.78	29.78	0.00	363.88	33,156
100-yr	57.19	30.60	30.60	0.00	364.09	37,435
_1.2"/2-hr	12.56	0.05	0.05	0.00	362.74	15,577

Events for Pond BMP-04: MRC Rain Garden

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-yr	22.47	6.68	372.96	27,725
2-yr	30.12	13.19	373.15	32,647
5-yr	42.67	22.95	373.39	39,440
10-yr	53.98	24.55	373.63	46,427
25-yr	70.93	26.28	374.02	57,791
50-yr	85.90	27.73	374.36	68,289
100-yr	102.41	29.25	374.74	80,407
_1.2"/2-hr	15.80	0.05	372.64	19,652

Events for Pond BMP-05: MRC Rain Garden

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-yr	21.71	6.24	373.00	27,544
2-yr	27.65	11.96	373.16	31,892
5-yr	37.02	20.72	373.37	37,474
10-yr	45.25	24.10	373.54	42,127
25-yr	57.35	25.37	373.81	49,867
50-yr	67.89	26.45	374.06	56,909
100-yr	79.40	27.60	374.33	64,974
_1.2"/2-hr	15.97	0.06	372.68	19,817

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Events for Link 001A: POA

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	45.89	45.89	0.00
2-yr	60.37	60.37	0.00
5-yr	86.42	86.42	0.00
10-yr	111.33	111.33	0.00
25-yr	149.85	149.85	0.00
50-yr	184.43	184.43	0.00
100-yr	223.19	223.19	0.00
_1.2"/2-hr	33.37	33.37	0.00

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Events for Link 001B: POA

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	5.93	5.93	0.00
2-yr	8.85	8.85	0.00
5-yr	16.80	16.80	0.00
10-yr	33.02	33.02	0.00
25-yr	61.23	61.23	0.00
50-yr	84.45	84.45	0.00
100-yr	108.78	108.78	0.00
_1.2"/2-hr	2.21	2.21	0.00

Events for Link 2: TOTAL OFFSITE

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	3.55	3.55	0.00
2-yr	6.20	6.20	0.00
5-yr	11.44	11.44	0.00
10-yr	16.71	16.71	0.00
25-yr	25.08	25.08	0.00
50-yr	32.76	32.76	0.00
100-yr	41.44	41.44	0.00
_1.2"/2-hr	1.79	1.79	0.00

Events for Link 3: LOD to BMP-01

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-yr	19.51	19.51	0.00
2-yr	27.21	27.21	0.00
5-yr	40.09	40.09	0.00
10-yr	51.85	51.85	0.00
25-yr	69.65	69.65	0.00
50-yr	85.47	85.47	0.00
100-yr	103.01	103.01	0.00
_1.2"/2-hr	13.20	13.20	0.00

1508-SCS LDP REV02

Prepared by {enter your company name here}

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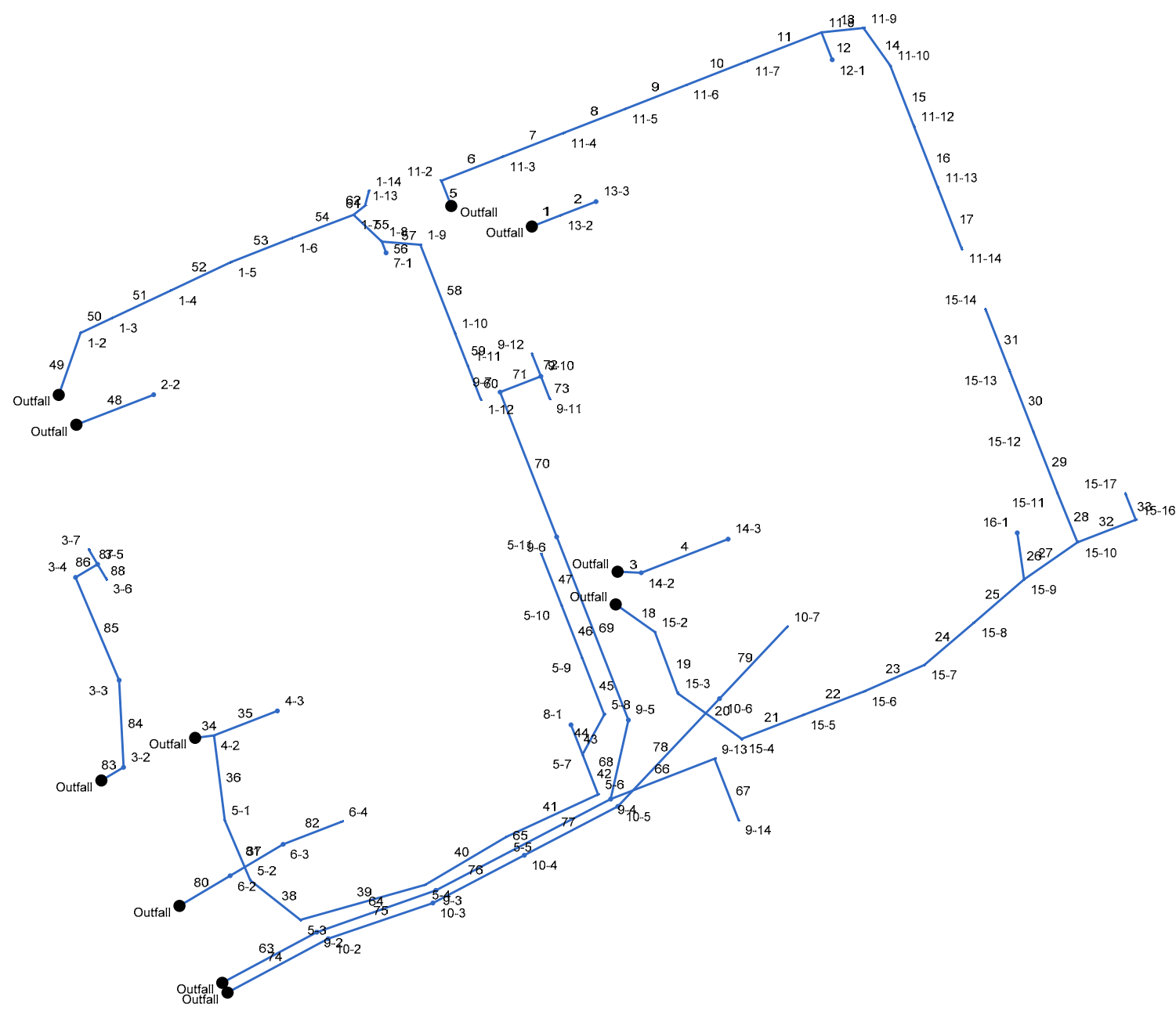
230	Pond BMP-02: MRC Rain Garden
232	Pond BMP-03: MRC Rain Garden
234	Pond BMP-04: MRC Rain Garden
236	Pond BMP-05: MRC Rain Garden
238	Link 001A: POA
239	Link 001B: POA
240	Link 2: TOTAL OFFSITE
241	Link 3: LOD to BMP-01

Multi-Event Tables

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250	Subcat P1B: Post to BMP-01 (LOD)
251	Subcat P1C: Post to BMP-01 (OLOD)
252	Subcat P2: Post to BMP-02 (LOD)
253	Subcat P3: Post to BMP-03 (LOD)
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262	Pond BMP-05: MRC Rain Garden
263	Link 001A: POA
264	Link 001B: POA
265	Link 2: TOTAL OFFSITE
266	Link 3: LOD to BMP-01

STORMWATER **CONVEYANCE**

Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan



Project File: Storm Sewer Analysis.stm	Number of lines: 88	Date: 1/27/2024
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Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (l)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Dn	Up	Dn	Up	Dn	Up	
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
1	End	46.781	0.00	0.00	0.00	0.00	0.00	0.0	5.1	0.0	11.24	18.80	6.68	18	3.21	373.50	375.00	375.00	376.28	385.33	389.07	46 (111)
2	1	57.900	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	11.24	23.64	10.10	18	4.32	382.50	385.00	383.23	386.28	389.07	391.97	46 (110)
3	End	36.136	0.00	0.00	0.00	0.00	0.00	0.0	5.3	0.0	10.15	21.39	6.15	18	4.15	373.50	375.00	375.00	376.23	376.00	385.03	46 (46)
4	3	141.562	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	10.15	19.60	8.88	18	2.97	381.00	385.20	381.77	386.43	385.03	392.79	46 (51)
5	End	41.524	0.04	2.10	0.99	0.04	1.52	5.0	8.3	7.0	21.81	31.82	6.81	30	0.60	373.50	373.75	375.02	375.34	375.91	380.10	46 (108)
6	5	100.000	0.23	2.06	0.66	0.15	1.48	5.0	8.1	7.0	21.63	18.98	6.89	24	0.60	373.95	374.55	375.95	376.73	380.10	381.59	46 (107)
7	6	100.000	0.09	1.83	0.67	0.06	1.33	5.0	7.8	7.1	20.66	24.50	6.58	24	1.00	374.70	375.70	377.10	377.81	381.59	382.82	46 (106)
8	7	100.000	0.11	1.74	0.62	0.07	1.27	5.0	7.6	7.2	20.32	24.50	6.51	24	1.00	375.85	376.85	378.15	378.77	382.82	383.38	46 (105)
9	8	100.000	0.11	1.63	0.61	0.07	1.20	5.0	7.3	7.2	19.92	24.50	6.85	24	1.00	377.00	378.00	379.11	379.61	383.38	383.87	46 (104)
10	9	100.000	0.13	1.52	0.61	0.08	1.13	5.0	7.1	7.3	19.52	18.98	6.48	24	0.60	378.15	378.75	380.03	380.54	383.87	384.37	46 (103)
11	10	120.564	0.06	1.39	0.58	0.03	1.05	5.0	6.8	7.4	19.03	19.96	6.64	24	0.66	378.90	379.70	380.88	381.27	384.37	384.96	46 (101)
12	11	44.900	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	11.24	13.69	6.75	18	1.45	379.85	380.50	381.27	381.78	384.96	391.91	46 (65)
13	11	64.221	0.13	1.33	0.84	0.11	1.02	5.0	6.5	7.5	7.62	20.51	4.09	24	0.70	379.85	380.30	381.27	381.28	384.96	385.25	46 (100)
14	13	70.000	0.31	1.20	0.73	0.23	0.91	5.0	6.3	7.5	6.86	10.08	5.77	18	0.79	380.45	381.00	381.36	382.01	385.25	385.57	46 (99)
15	14	100.000	0.31	0.89	0.73	0.23	0.68	5.0	6.0	7.6	5.23	9.52	4.91	18	0.70	381.15	381.85	382.01	382.73	385.57	386.06	46 (98)
16	15	100.000	0.37	0.58	0.79	0.29	0.46	5.0	5.6	7.8	3.57	9.52	4.21	18	0.70	382.00	382.70	382.73	383.42	386.06	386.56	46 (97)
17	16	100.000	0.21	0.21	0.79	0.17	0.17	5.0	5.0	8.0	1.33	6.06	2.86	15	0.75	382.85	383.60	383.42	384.05	386.56	387.05	46 (96)
18	End	72.905	0.00	6.02	0.00	0.00	3.47	0.0	8.3	6.9	38.46	49.40	7.67	36	0.55	373.50	373.90	375.49	375.92	376.00	386.23	46 (134)
19	18	99.901	0.00	6.02	0.00	0.00	3.47	0.0	8.1	7.0	38.64	64.66	8.13	36	0.80	374.10	374.90	375.92	376.92	386.23	384.42	46 (133)
20	19	119.375	0.00	6.02	0.00	0.00	3.47	0.0	7.9	7.1	38.88	70.92	8.01	36	0.96	375.05	376.20	376.92	378.23	384.42	384.61	46 (94)
21	20	100.000	0.00	6.02	0.00	0.00	3.47	0.0	7.7	7.1	39.08	64.62	8.03	36	0.80	376.35	377.15	378.23	379.18	384.61	387.96	46 (92)
22	21	100.000	0.00	6.02	0.00	0.00	3.47	5.0	7.5	7.2	39.28	55.97	8.05	36	0.60	377.30	377.90	379.18	379.94	387.96	389.18	46 (91)
Project File: Storm Sewer Analysis.stm																Number of lines: 88				Run Date: 3/28/2024		
NOTES:Intensity = 44.04 / (Inlet time + 8.90) ^ 0.65; Return period =Yrs. 100 ; c = cir e = ellip b = box																						

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (l)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Dn	Up	Dn	Up	Dn	Up	
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
23	22	99.758	0.00	6.02	0.00	0.00	3.47	0.0	7.3	7.2	36.39	56.03	7.60	36	0.60	378.05	378.65	379.94	380.61	389.18	388.70	46 (90)
24	23	99.966	0.00	6.02	0.00	0.00	3.47	0.0	7.0	7.3	36.60	55.98	7.83	36	0.60	378.80	379.40	380.61	381.37	388.70	387.80	46 (89)
25	24	100.000	0.00	6.02	0.00	0.00	3.47	0.0	6.8	7.4	36.82	55.97	7.85	36	0.60	379.55	380.15	381.37	382.12	387.80	386.87	46 (88)
26	25	71.794	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	11.24	11.23	6.36	18	0.98	380.30	381.00	382.12	382.82	386.87	389.01	46 (40)
27	25	99.000	2.29	6.02	0.72	1.65	3.47	5.0	6.6	7.4	25.84	34.59	6.93	30	0.61	380.30	380.90	382.12	382.63	386.87	386.19	46 (87)
28	27	81.688	0.40	1.39	0.79	0.32	1.08	5.0	6.3	7.6	8.19	19.17	4.08	24	0.61	381.05	381.55	382.63	382.57	386.19	386.24	46 (86)
29	28	100.000	0.40	0.99	0.75	0.30	0.77	5.0	5.9	7.7	5.88	8.81	5.21	18	0.60	381.70	382.30	382.60	383.24	386.24	386.54	46 (85)
30	29	100.000	0.40	0.59	0.79	0.32	0.47	5.0	5.6	7.8	3.64	5.42	4.54	15	0.60	382.45	383.05	383.24	383.82	386.54	386.84	46 (84)
31	30	100.000	0.19	0.19	0.80	0.15	0.15	5.0	5.0	8.0	1.21	2.99	2.89	12	0.60	383.20	383.80	383.82	384.26	386.84	387.15	46 (83)
32	27	95.000	0.80	2.34	0.44	0.35	0.74	5.0	5.2	7.9	5.84	17.78	3.38	24	0.53	381.05	381.55	382.63	382.40	386.19	387.27	46 (196)
33	32	42.488	1.54	1.54	0.25	0.39	0.39	5.0	5.0	8.0	3.08	7.80	3.92	18	0.47	381.70	381.90	382.40	382.57	387.27	382.60	46 (195)
34	End	29.054	0.00	4.43	0.00	0.00	2.80	0.0	8.4	6.9	43.90	55.34	8.37	36	0.69	363.50	363.70	365.52	365.86	367.71	375.32	42
35	34	103.267	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	11.03	39.74	6.58	18	12.20	363.70	376.30	365.86	377.57	375.32	383.20	45
36	34	130.666	0.00	4.43	0.00	0.00	2.80	0.0	8.1	7.0	33.10	52.88	6.97	36	0.54	363.90	364.60	365.86	366.47	375.32	373.37	46 (132)
37	36	99.681	0.00	4.43	0.00	0.00	2.80	0.0	7.9	7.1	33.27	51.17	7.44	36	0.50	364.80	365.30	366.56	367.17	373.37	373.69	46 (131)
38	37	96.825	0.00	4.43	0.00	0.00	2.80	0.0	7.6	7.1	33.44	51.92	7.50	36	0.52	365.50	366.00	367.25	367.88	373.69	375.05	46 (130)
39	38	197.072	0.00	4.43	0.00	0.00	2.80	5.0	7.2	7.3	33.79	59.80	7.62	36	0.69	366.15	367.50	367.88	369.39	375.05	379.18	46 (128)
40	39	143.282	0.00	4.43	0.00	0.00	2.80	0.0	6.9	7.4	31.85	60.36	7.28	36	0.70	367.65	368.65	369.39	370.48	379.18	378.70	46 (127)
41	40	153.992	3.23	4.43	0.66	2.13	2.80	5.0	6.5	7.5	32.14	59.66	7.49	36	0.68	368.80	369.85	370.48	371.69	378.70	377.65	46 (125)
42	41	65.568	0.00	1.20	0.00	0.00	0.67	0.0	6.3	7.5	16.27	38.80	5.28	30	0.76	370.00	370.50	371.69	371.86	377.65	379.56	46 (124)
43	42	48.480	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	11.24	17.55	9.25	15	6.29	370.65	373.70	371.86	374.91	379.56	380.19	46 (136)
44	42	69.272	0.25	1.20	0.33	0.08	0.67	5.0	6.1	7.6	5.09	8.64	4.14	18	0.58	370.70	371.10	371.86	371.97	379.56	378.95	46 (142)
Project File: Storm Sewer Analysis.stm																Number of lines: 88				Run Date: 3/28/2024		
NOTES:Intensity = 44.04 / (Inlet time + 8.90) ^ 0.65; Return period =Yrs. 100 ; c = cir e = ellip b = box																						

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID	
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Dn	Up	Dn	Up	Dn	Up		
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)		
45	44	93.500	0.34	0.95	0.58	0.20	0.59	5.0	5.7	7.7	4.53	8.32	4.71	18	0.53	371.30	371.80	372.09	372.62	378.95	377.64	46 (141)	
46	45	85.256	0.38	0.61	0.49	0.19	0.39	5.0	5.4	7.8	3.05	5.36	4.40	15	0.59	372.00	372.50	372.68	373.20	377.64	376.17	46 (140)	
47	46	83.756	0.23	0.23	0.88	0.20	0.20	5.0	5.0	8.0	1.62	6.84	3.50	15	0.96	372.70	373.50	373.20	374.00	376.17	377.60	46 (139)	
48	End	126.144	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	11.24	26.94	9.75	18	6.58	366.00	374.30	366.76	375.58	368.13	383.20	46 (122)	
49	End	100.000	0.10	1.65	0.47	0.05	1.07	5.0	7.5	7.2	18.93	17.33	6.66	24	0.50	363.50	364.00	365.10	365.82	366.21	372.67	46 (120)	
50	49	52.972	0.11	1.55	0.57	0.06	1.02	5.0	7.4	7.2	18.63	24.97	5.93	24	1.04	364.20	364.75	366.52	366.83	372.67	373.64	46 (119)	
51	50	100.000	0.17	1.44	0.49	0.08	0.96	5.0	7.1	7.3	18.25	24.50	6.42	24	1.00	364.95	365.95	367.10	367.49	373.64	374.58	46 (118)	
52	51	100.000	0.18	1.27	0.48	0.09	0.88	5.0	6.8	7.4	17.71	24.50	6.54	24	1.00	366.15	367.15	367.88	368.67	374.58	374.58	46 (117)	
53	52	99.974	0.17	1.09	0.50	0.09	0.79	5.0	6.6	7.4	17.13	24.51	7.32	24	1.00	367.35	368.35	368.67	369.84	374.58	375.74	46 (116)	
54	53	100.000	0.00	0.92	0.00	0.00	0.71	0.0	6.4	7.5	16.55	24.50	7.21	24	1.00	368.55	369.55	369.84	371.02	375.74	377.74	46 (115)	
55	54	59.261	0.00	0.77	0.00	0.00	0.60	0.0	6.2	7.6	15.76	24.65	7.04	24	1.01	369.75	370.35	371.02	371.78	377.74	380.50	46 (143)	
56	55	18.241	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	11.24	33.69	12.07	18	8.77	371.40	373.00	372.00	374.28	380.50	381.56	46 (18)	
57	55	58.830	0.02	0.77	0.99	0.02	0.60	5.0	5.9	7.7	4.58	24.75	3.25	24	1.02	370.55	371.15	371.78	371.90	380.50	379.58	46 (147)	
58	57	145.000	0.27	0.75	0.90	0.24	0.58	5.0	5.5	7.8	4.52	5.66	5.07	15	0.66	371.95	372.90	372.80	373.76	379.58	377.36	46 (146)	
59	58	53.756	0.23	0.48	0.50	0.12	0.34	5.0	5.2	7.9	2.65	5.64	3.88	15	0.65	373.05	373.40	373.76	374.05	377.36	376.80	46 (145)	
60	59	54.000	0.25	0.25	0.88	0.22	0.22	5.0	5.0	8.0	1.76	6.02	3.92	15	0.74	373.80	374.20	374.26	374.73	376.80	377.61	46 (144)	
61	54	22.481	0.10	0.15	0.59	0.06	0.11	5.0	5.1	7.9	0.86	7.38	2.89	15	1.11	370.65	370.90	371.02	371.26	377.74	377.14	46 (114)	
62	61	22.481	0.05	0.05	0.99	0.05	0.05	5.0	5.0	8.0	0.40	8.08	2.87	15	1.33	371.10	371.40	371.29	371.64	377.14	376.48	46 (113)	
63	End	162.888	0.00	0.65	0.00	0.00	0.21	0.0	7.7	7.1	59.39	137.8	4.73	48	0.92	355.00	356.50	360.60	360.88	359.24	374.51	46 (171)	
64	63	192.026	0.00	0.65	0.00	0.00	0.21	0.0	7.2	7.3	59.42	154.8	5.95	48	0.99	356.50	358.40	360.94	360.91	374.51	379.11	46 (170)	
65	64	300.000	0.00	0.65	0.00	0.00	0.21	0.0	6.5	7.5	59.46	155.6	7.54	48	1.00	358.55	361.55	361.04	363.87	379.11	377.87	46 (168)	
66	65	169.664	0.00	0.65	0.00	0.00	0.21	0.0	5.4	7.8	1.63	7.21	4.12	15	1.06	372.00	373.80	372.40	374.31	377.87	382.80	46 (194)	
Project File: Storm Sewer Analysis.stm																Number of lines: 88				Run Date: 3/28/2024			
NOTES:Intensity = 44.04 / (Inlet time + 8.90) ^ 0.65; Return period =Yrs. 100 ; c = cir e = ellip b = box																							

Storm Sewer Tabulation

Station		Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr (ac)	Total (ac)		Incr	Total	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
67	66	100.000	0.65	0.65	0.32	0.21	0.21	5.0	5.0	8.0	1.66	7.00	4.10	15	1.00	374.00	375.00	374.41	375.51	382.80	377.13	46 (193)
68	65	123.706	0.00	0.00	0.00	0.00	0.00	0.0	6.3	0.0	57.91	156.4	8.05	48	1.01	361.70	362.95	363.87	365.24	377.87	379.95	46 (167)
69	68	300.071	0.00	0.00	0.00	0.00	0.00	0.0	5.6	0.0	57.91	155.6	8.13	48	1.00	363.10	366.10	365.24	368.39	379.95	376.40	46 (166)
70	69	237.162	0.00	0.00	0.00	0.00	0.00	0.0	5.2	0.0	57.91	109.6	8.85	42	1.01	366.25	368.65	368.39	371.03	376.40	377.54	46 (165)
71	70	66.423	0.00	0.00	0.00	0.00	0.00	0.0	5.1	0.0	57.91	107.8	8.63	42	0.98	368.80	369.45	371.03	371.83	377.54	376.00	46 (163)
72	71	36.000	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	28.19	25.83	8.97	24	1.11	369.60	370.00	371.83	372.31	376.00	372.75	46 (162)
73	71	36.000	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	29.72	25.83	9.46	24	1.11	369.60	370.00	371.83	372.36	376.00	372.72	46 (164)
74	End	173.803	0.00	1.72	0.00	0.00	1.22	0.0	7.1	7.3	8.90	21.52	5.57	18	4.20	355.00	362.30	360.60	363.45	356.60	374.78	46 (191)
75	74	167.901	0.00	1.72	0.00	0.00	1.22	0.0	6.7	7.4	9.05	11.45	6.67	18	1.01	362.50	364.20	363.51	365.36	374.78	379.04	46 (190)
76	75	157.086	0.00	1.72	0.00	0.00	1.22	0.0	6.3	7.5	9.20	11.48	6.72	18	1.02	364.40	366.00	365.42	367.17	379.04	378.66	46 (189)
77	76	160.603	0.00	1.72	0.00	0.00	1.22	0.0	5.9	7.7	9.36	11.35	6.72	18	1.00	366.20	367.80	367.24	368.98	378.66	378.22	46 (188)
78	77	225.740	0.00	1.72	0.00	0.00	1.22	0.0	5.4	7.9	9.60	11.48	6.81	18	1.02	368.00	370.30	369.05	371.50	378.22	384.24	46 (187)
79	78	150.000	1.72	1.72	0.71	1.22	1.22	5.0	5.0	8.0	9.76	11.38	6.83	18	1.00	370.50	372.00	371.57	373.20	384.24	374.37	46 (186)
80	End	89.765	0.00	1.67	0.00	0.00	1.24	0.0	5.5	7.8	9.65	23.77	5.46	18	5.12	355.00	359.60	360.60	361.36	356.10	365.81	46 (184)
81	80	93.765	0.00	1.67	0.00	0.00	1.24	0.0	5.2	7.9	9.77	11.75	5.97	18	1.07	359.80	360.80	361.43	362.01	365.81	370.57	46 (183)
82	81	95.686	1.67	1.67	0.74	1.24	1.24	5.0	5.0	8.0	9.88	11.63	6.67	18	1.05	361.00	362.00	362.14	363.21	370.57	364.26	46 (182)
83	End	39.380	0.00	0.00	0.00	0.00	0.00	0.0	6.3	0.0	65.37	252.7	4.11	54	1.65	354.00	354.65	360.60	360.64	356.79	364.11	46 (179)
84	83	133.000	0.00	0.00	0.00	0.00	0.00	0.0	5.7	0.0	65.37	198.1	4.11	54	1.02	354.80	356.15	360.88	361.03	364.11	366.00	46 (192)
85	84	170.505	0.00	0.00	0.00	0.00	0.00	0.0	5.1	0.0	65.37	196.4	4.80	54	1.00	356.30	358.00	361.13	361.16	366.00	366.00	46 (178)
86	85	39.022	0.00	0.00	0.00	0.00	0.00	0.0	5.0	0.0	65.37	199.1	6.37	54	1.03	358.15	358.55	361.62	360.90	366.00	366.00	46 (177)
87	86	26.002	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	31.42	24.29	10.00	24	1.15	358.70	359.00	360.90	361.40	366.00	362.87	46 (180)
88	86	26.002	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	33.95	24.29	10.81	24	1.15	358.70	359.00	360.90	361.49	366.00	363.22	46 (176)

Project File: Storm Sewer Analysis.stm

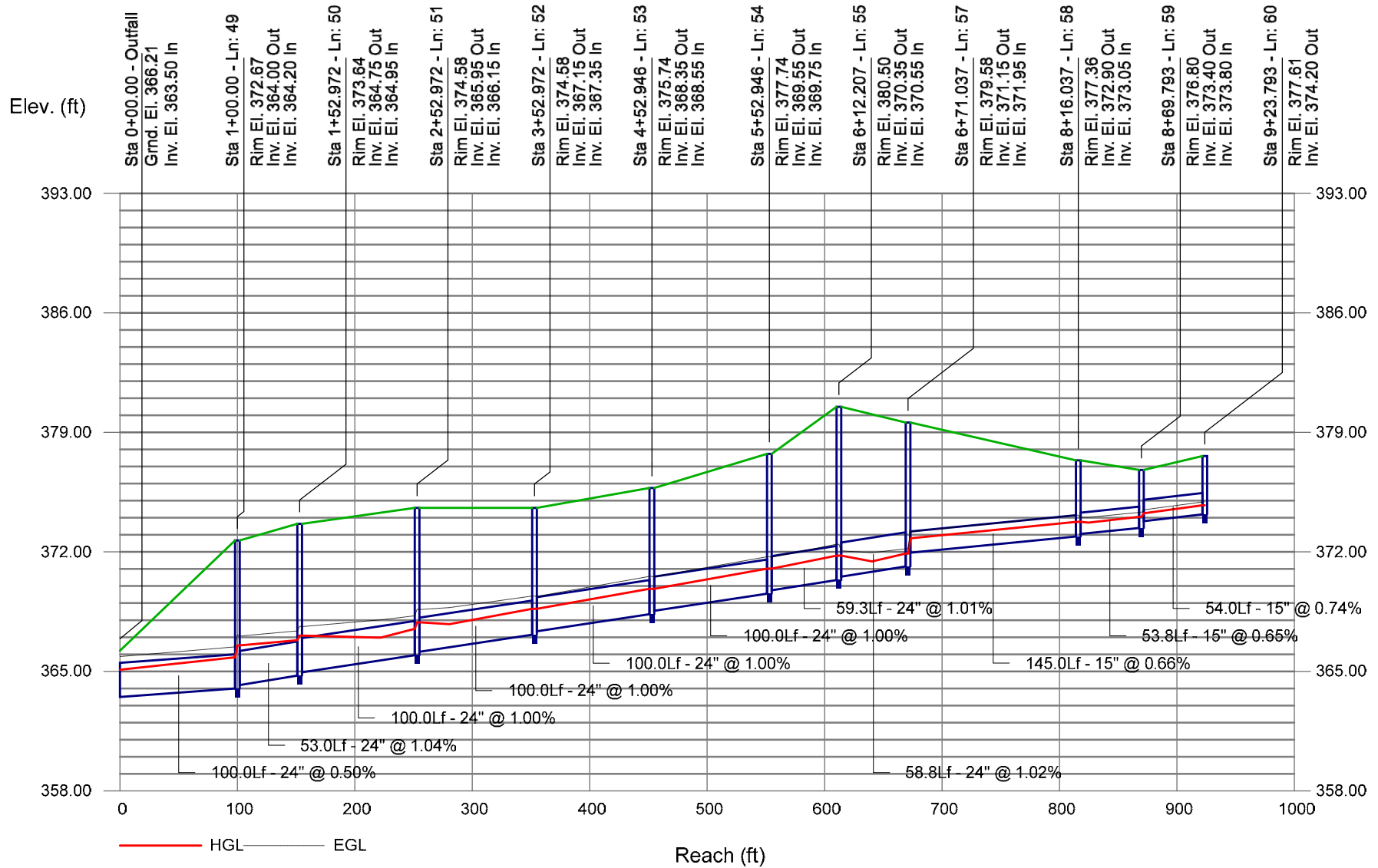
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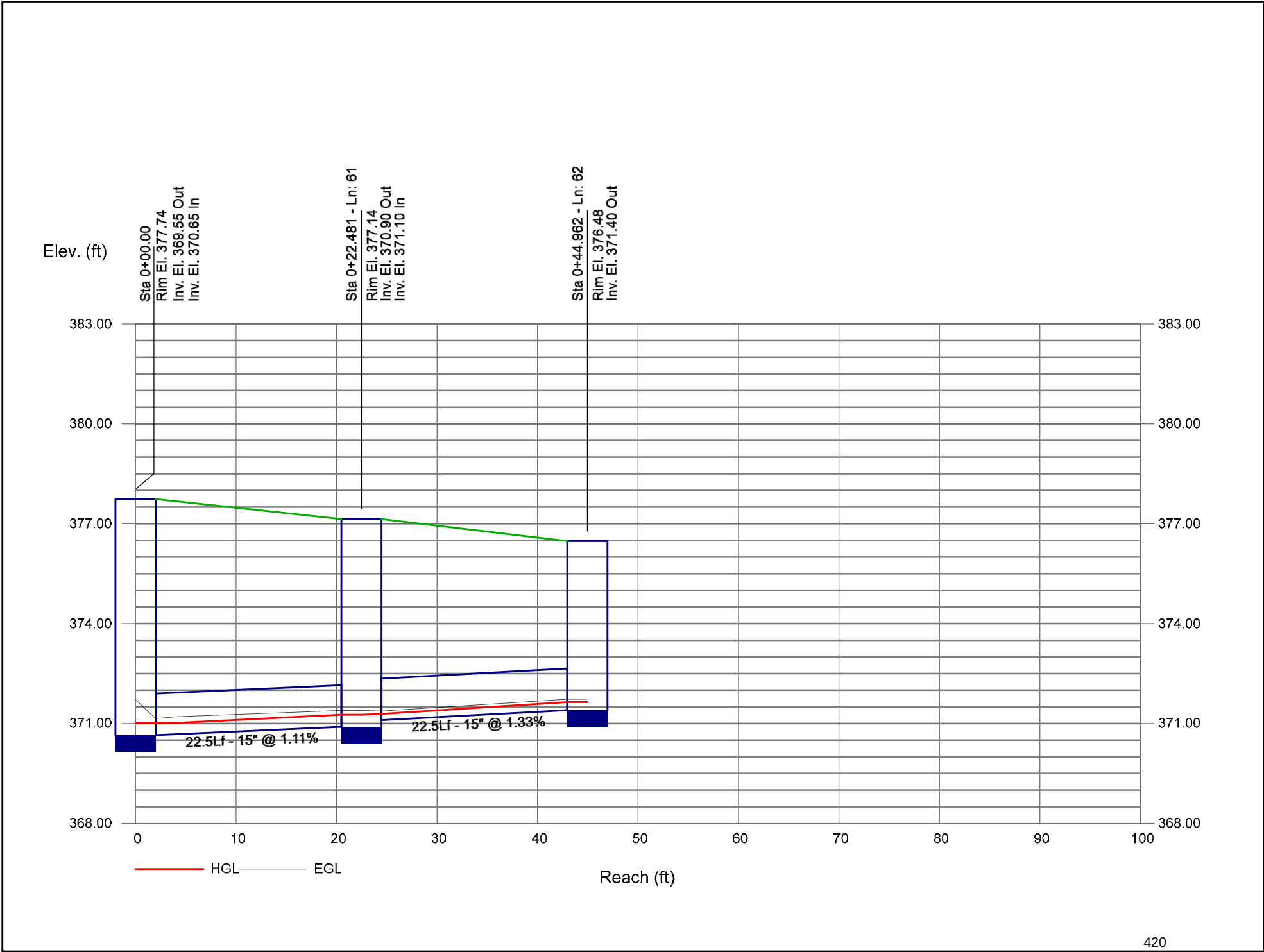
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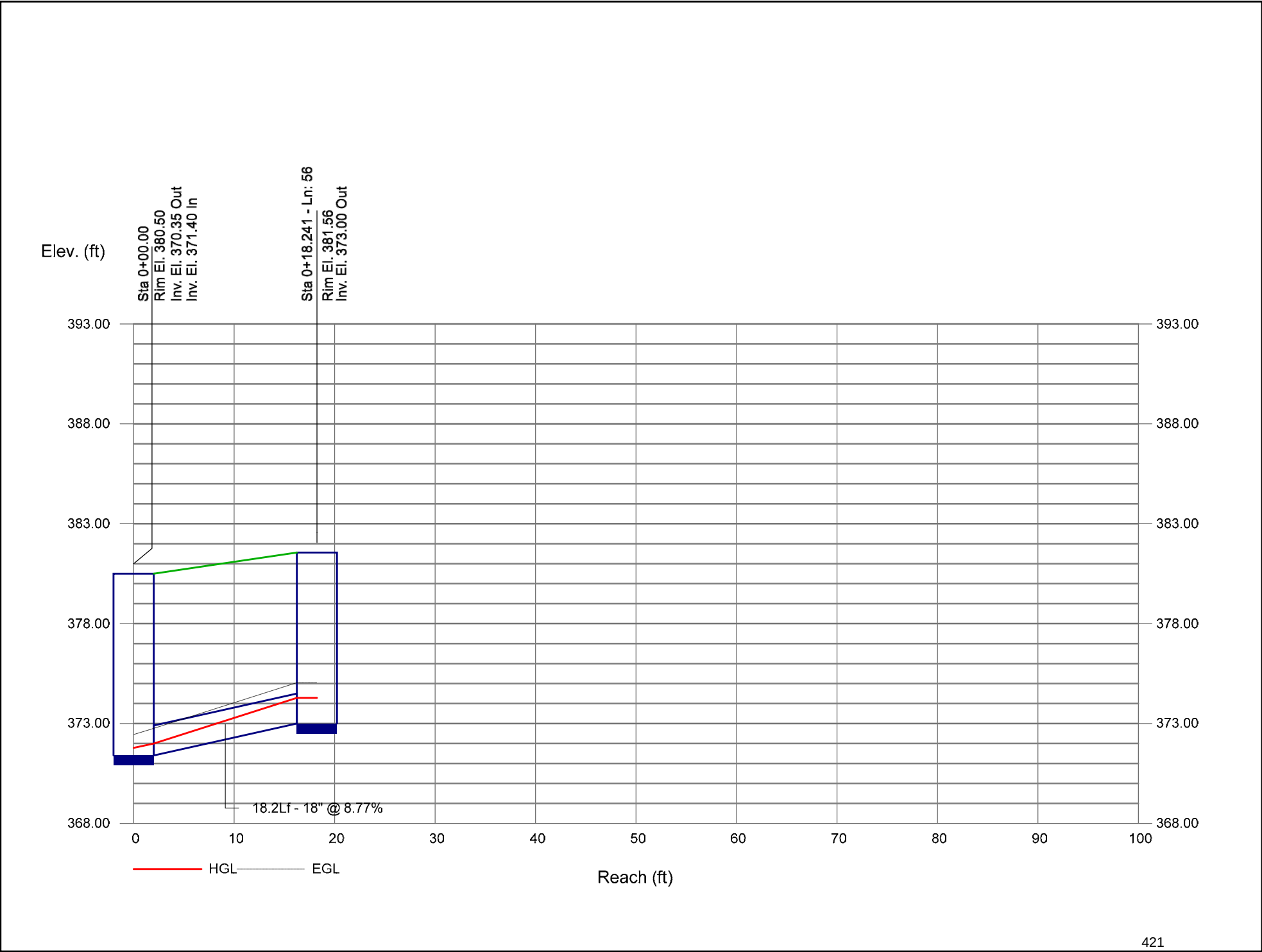
NOTES: Intensity = 44.04 / (Inlet time + 8.90) ^ 0.65; Return period = Yrs. 100 ; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: Storm Sewer Analysis.stm

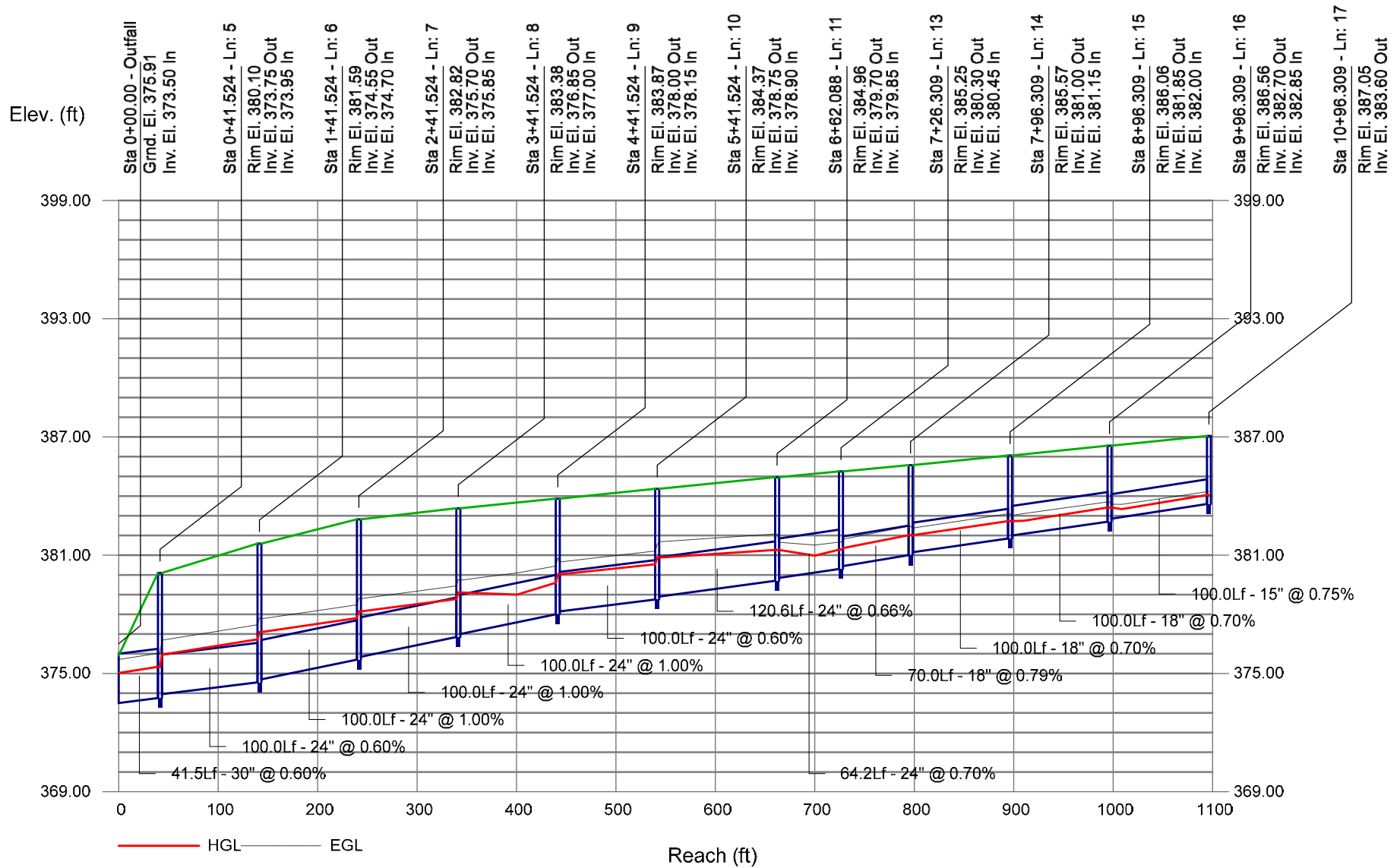


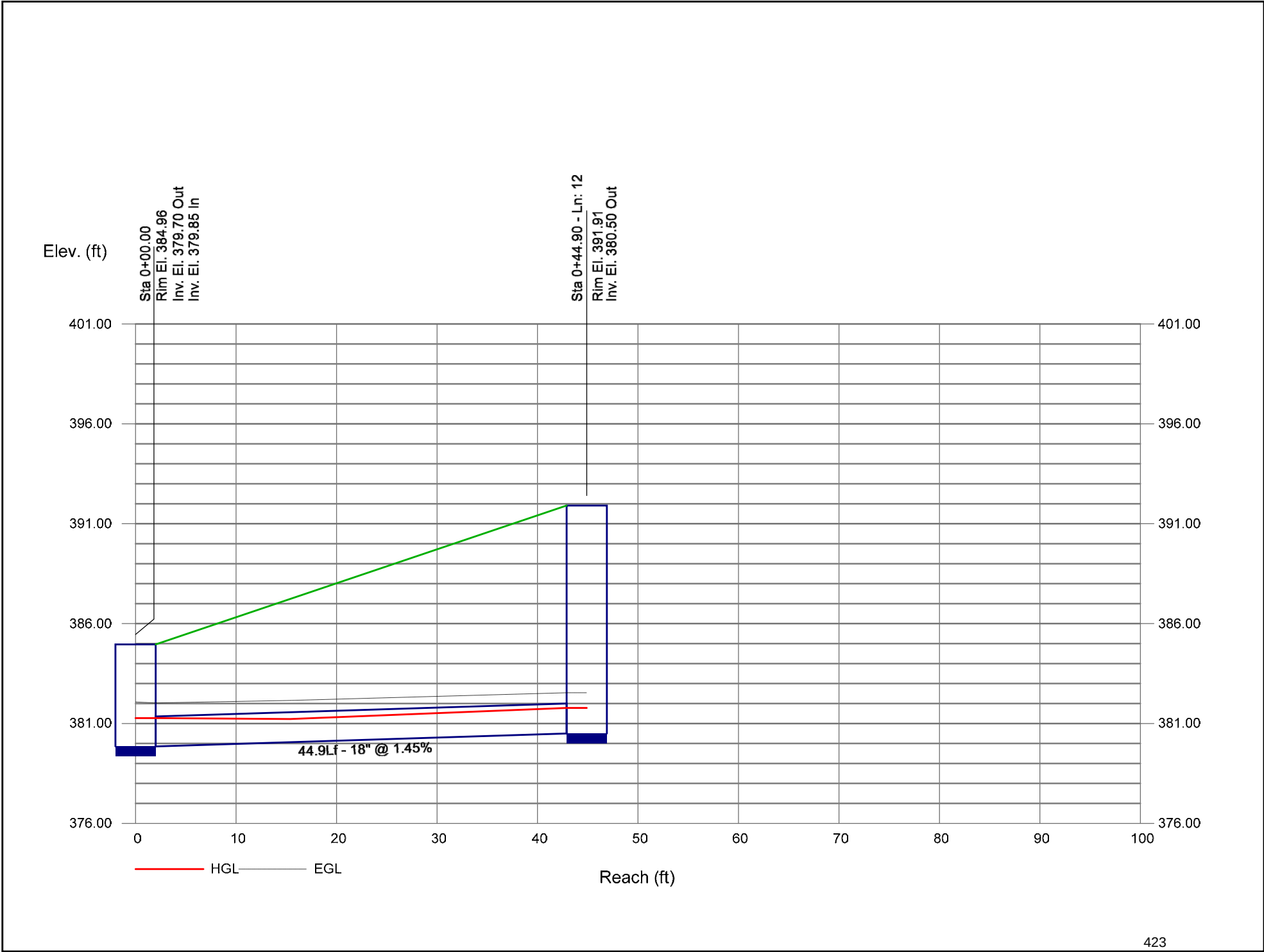


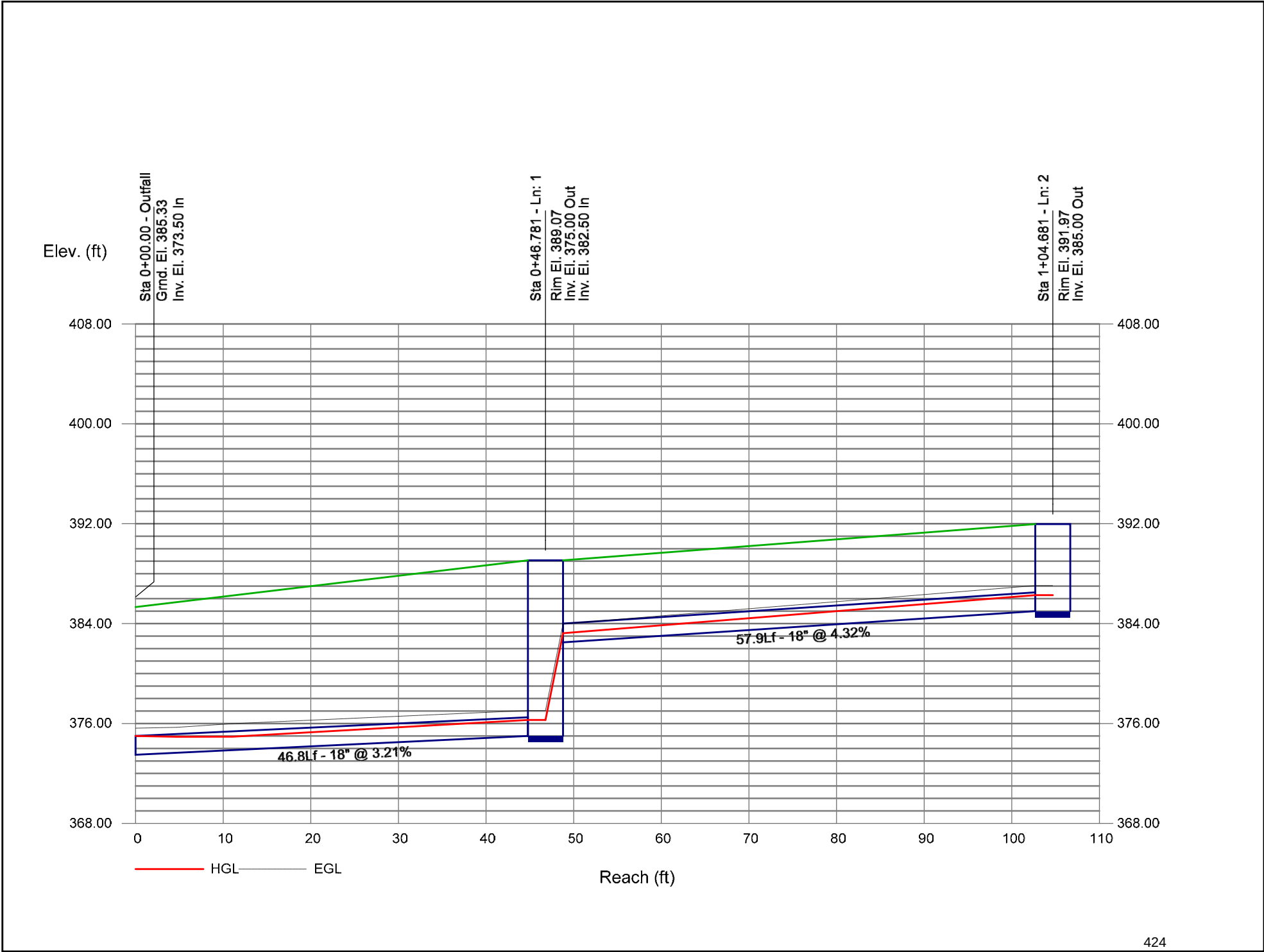


Storm Sewer Profile

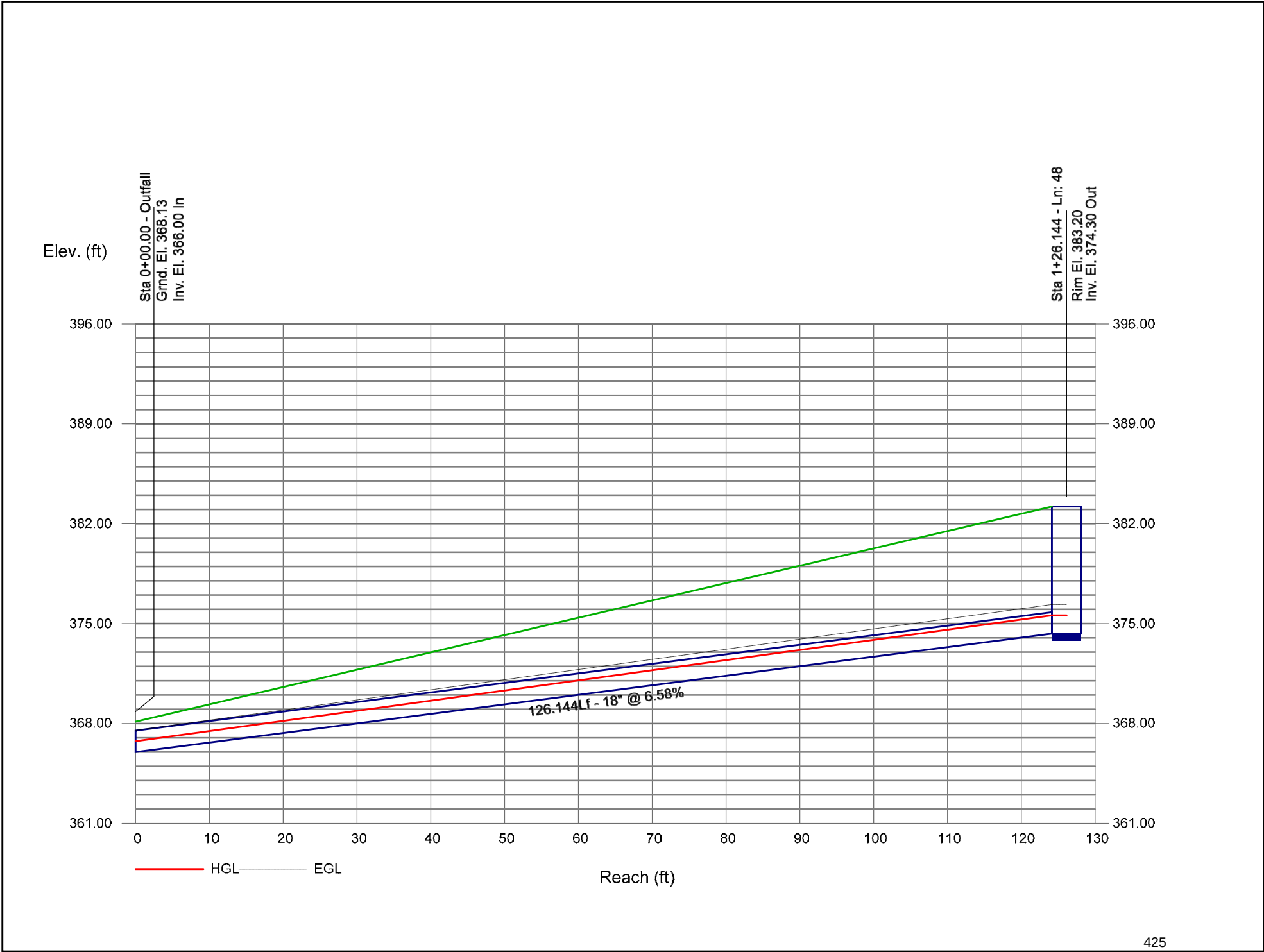
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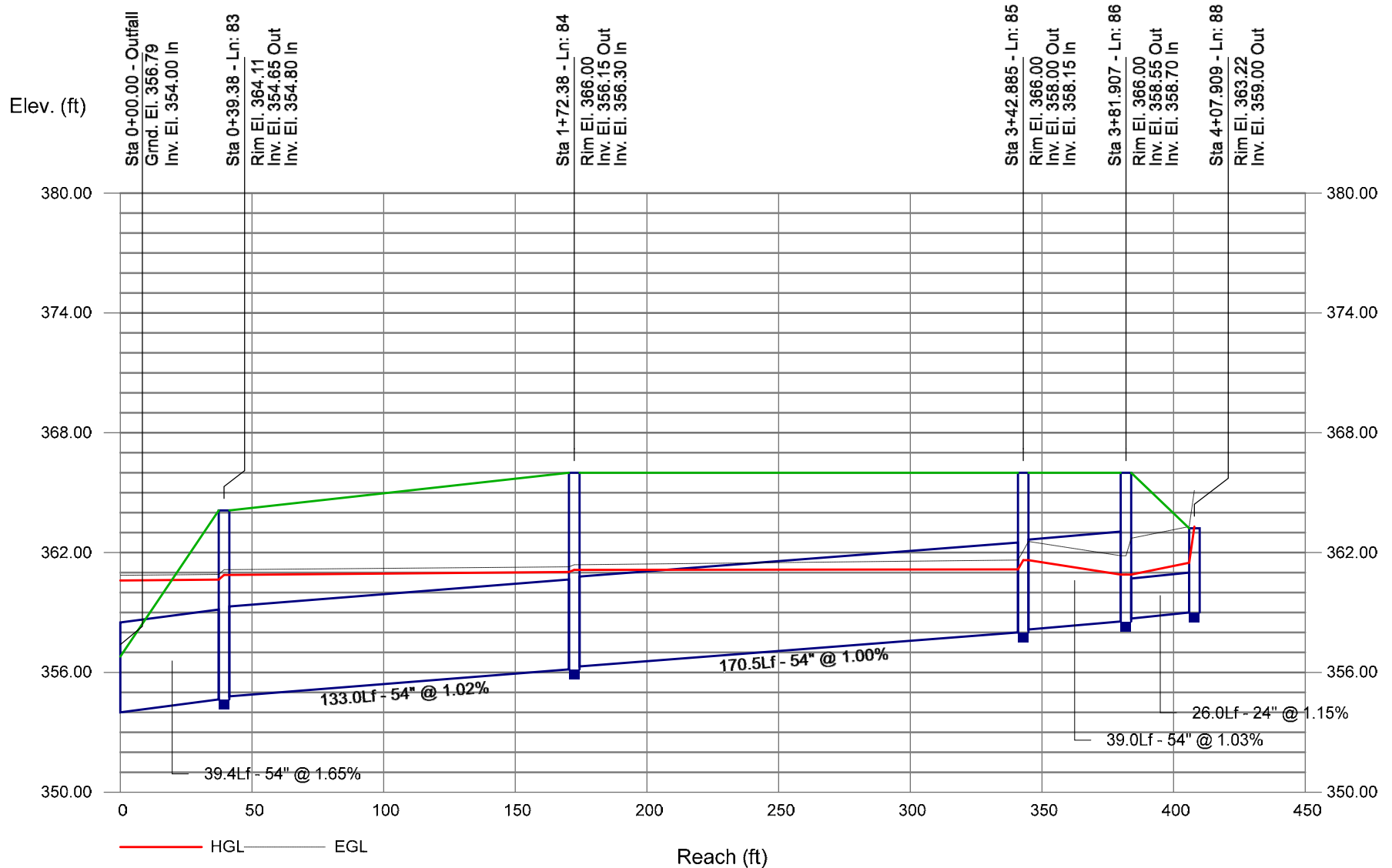


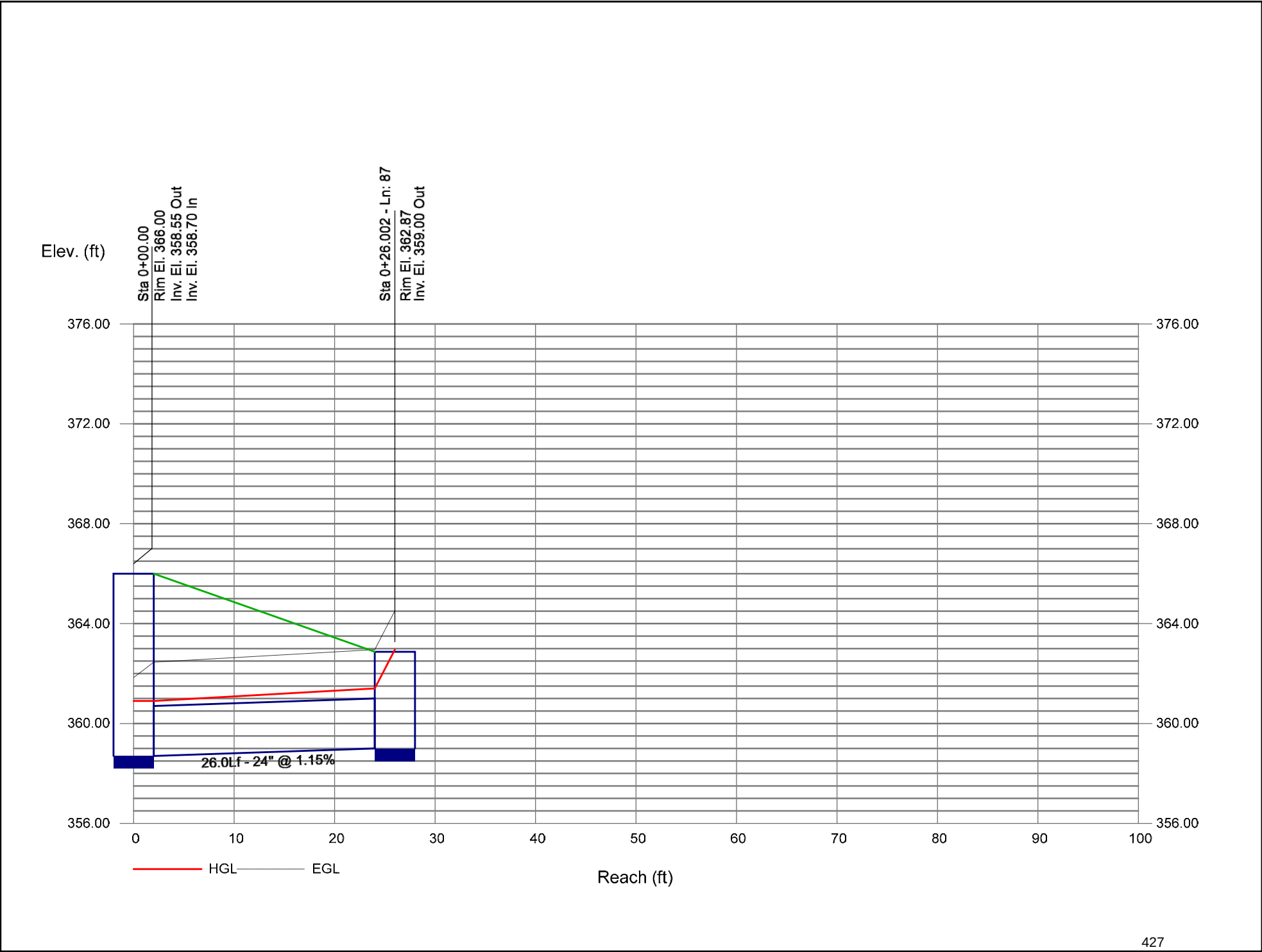
Storm Sewer Profile



Storm Sewer Profile

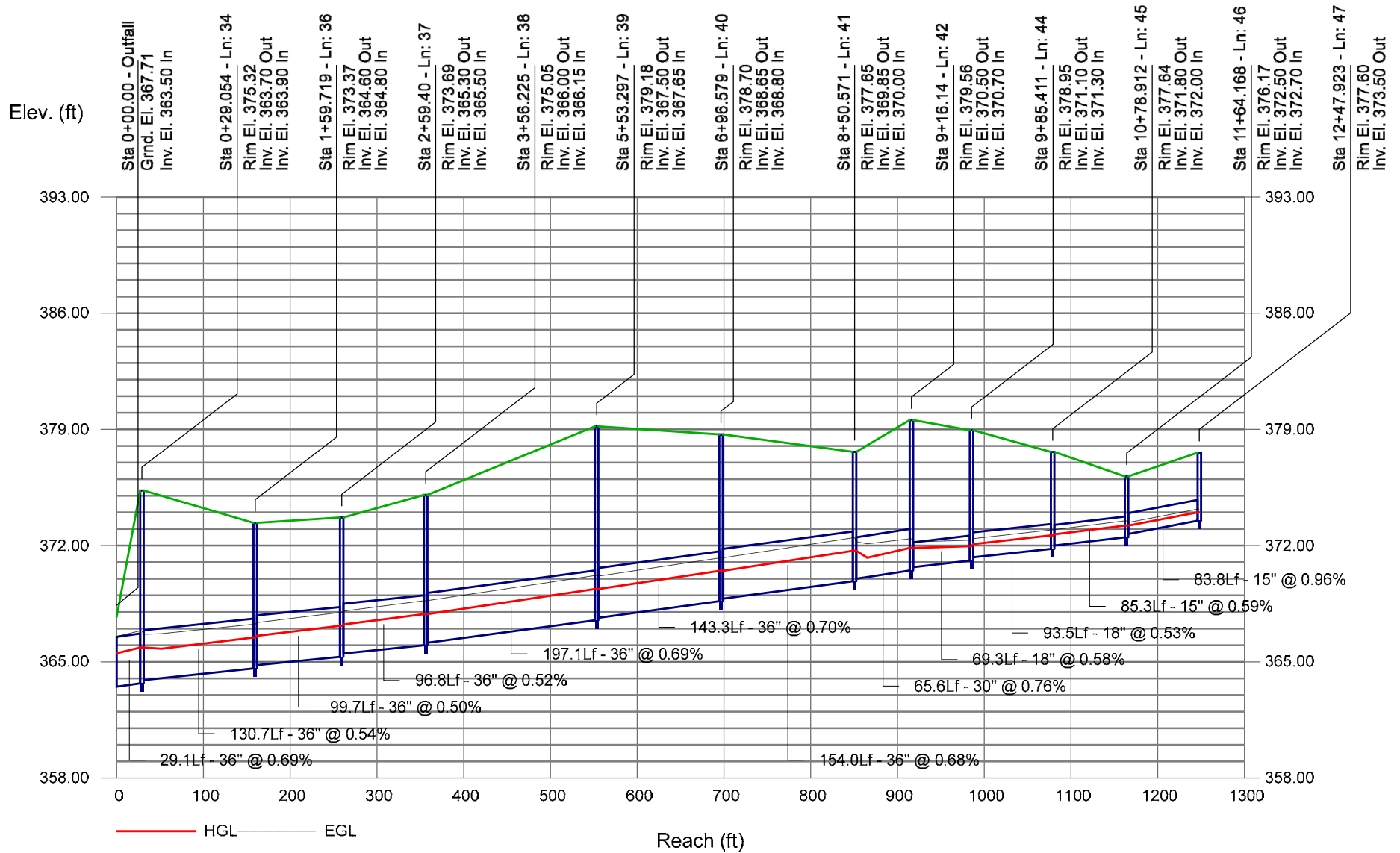
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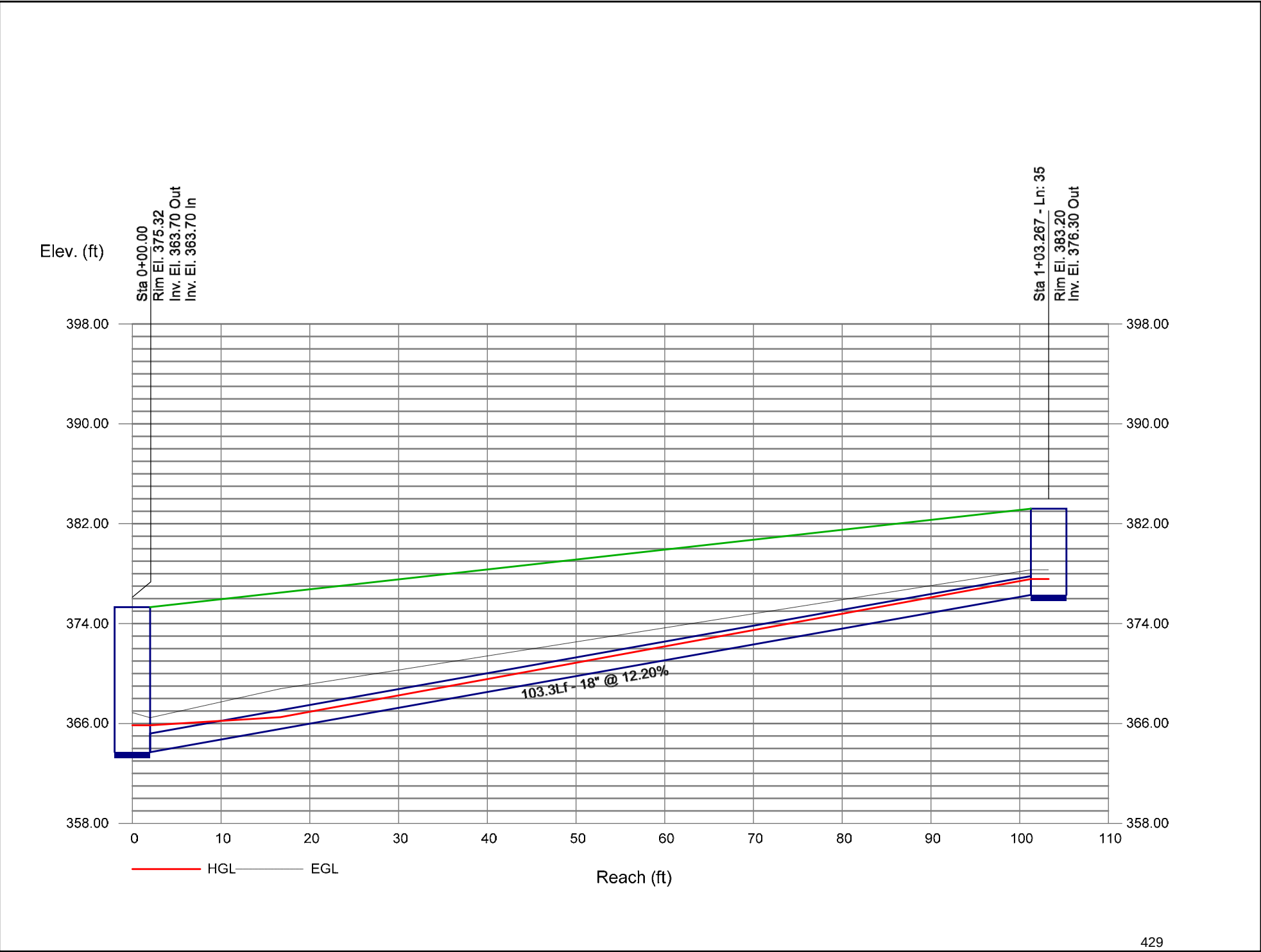


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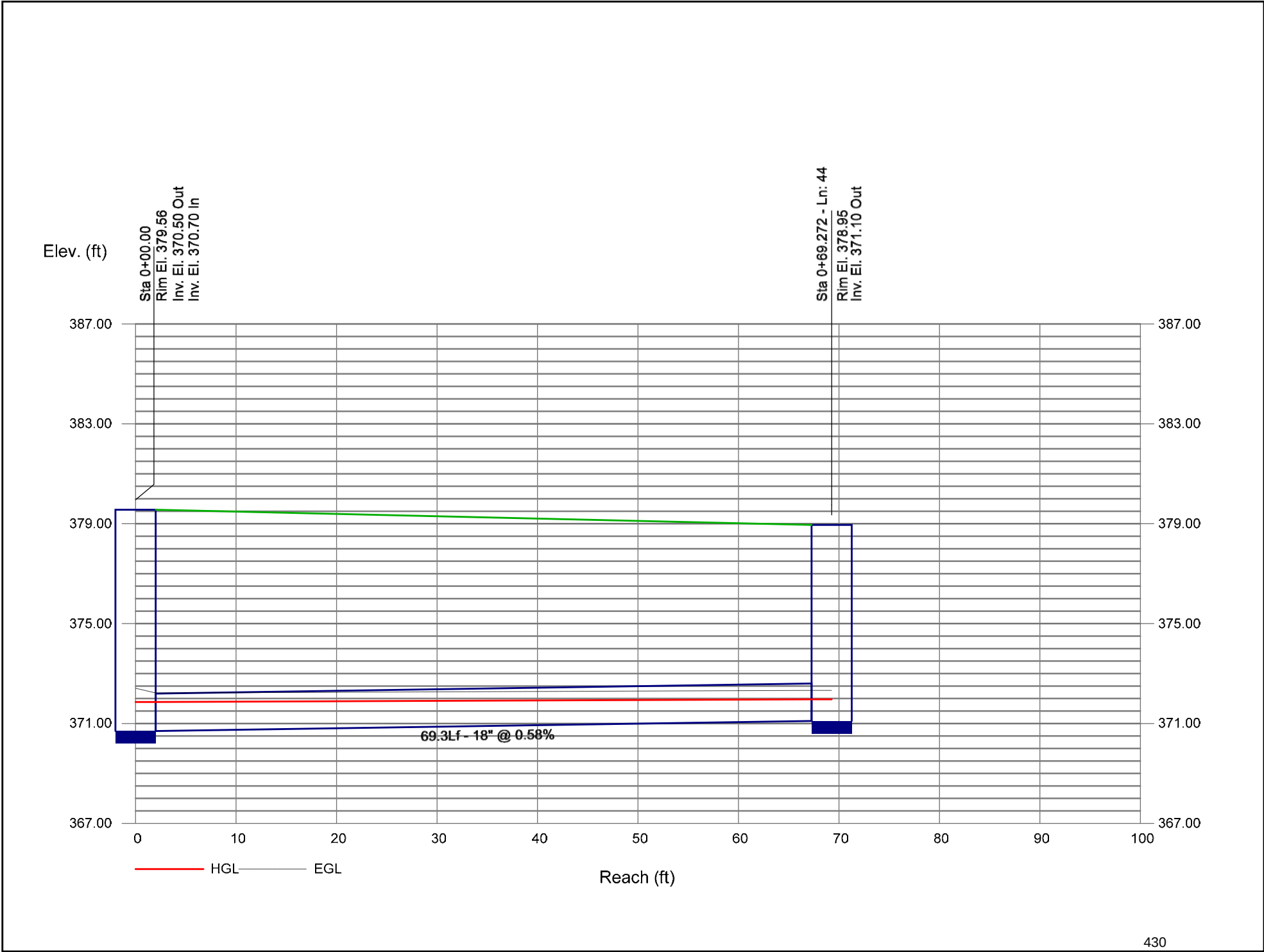
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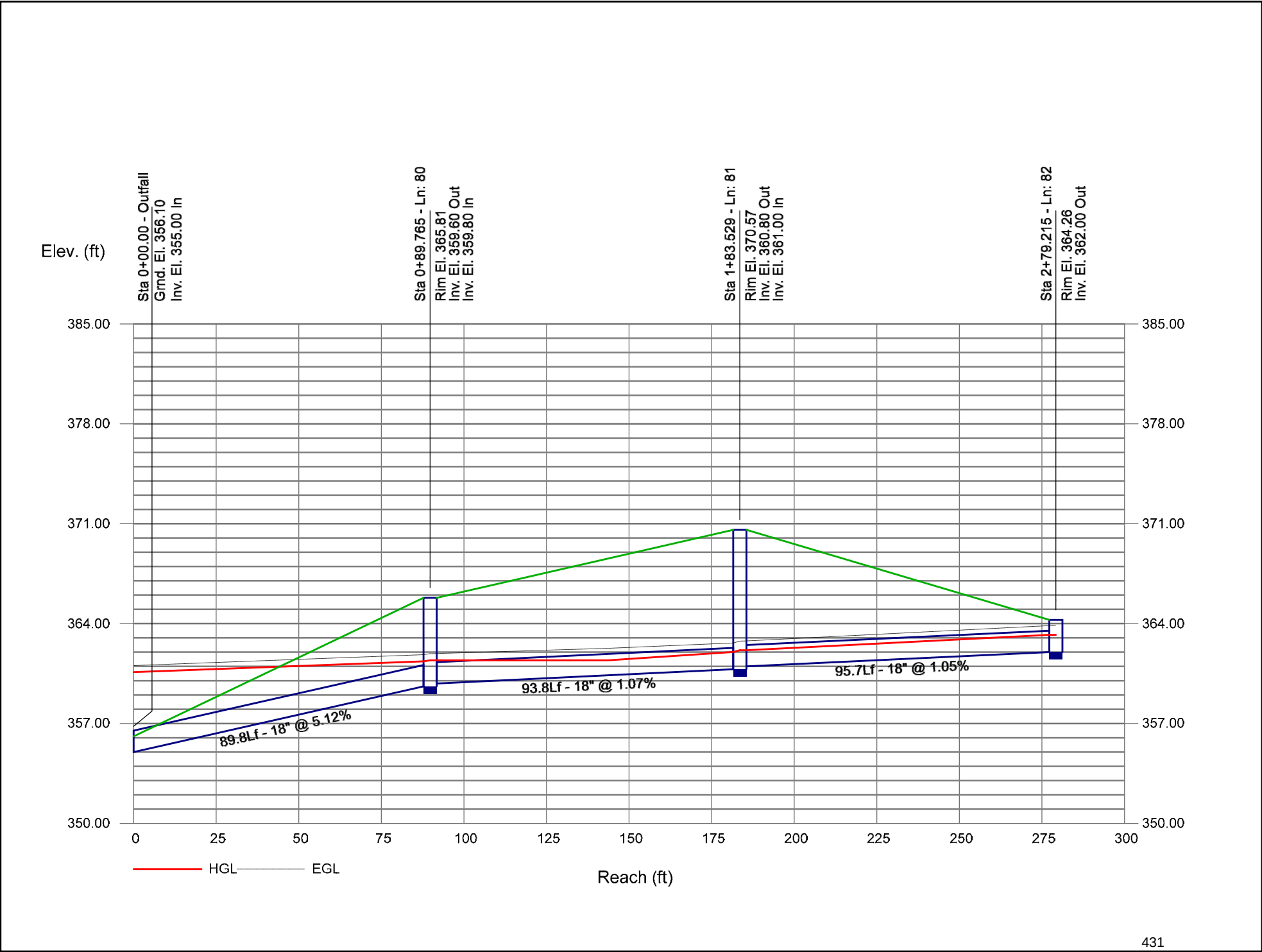
Storm Sewer Profile



Storm Sewer Profile

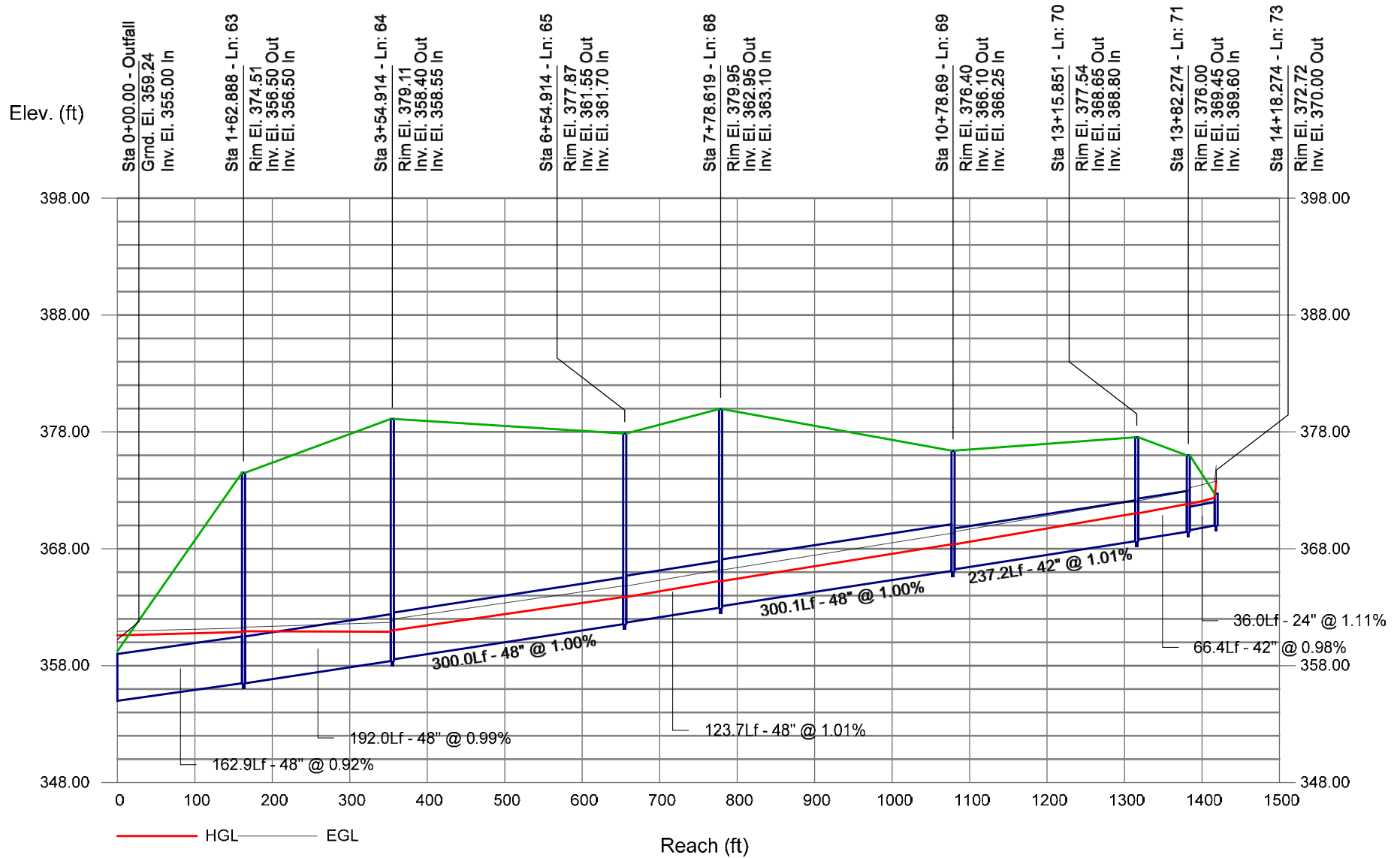


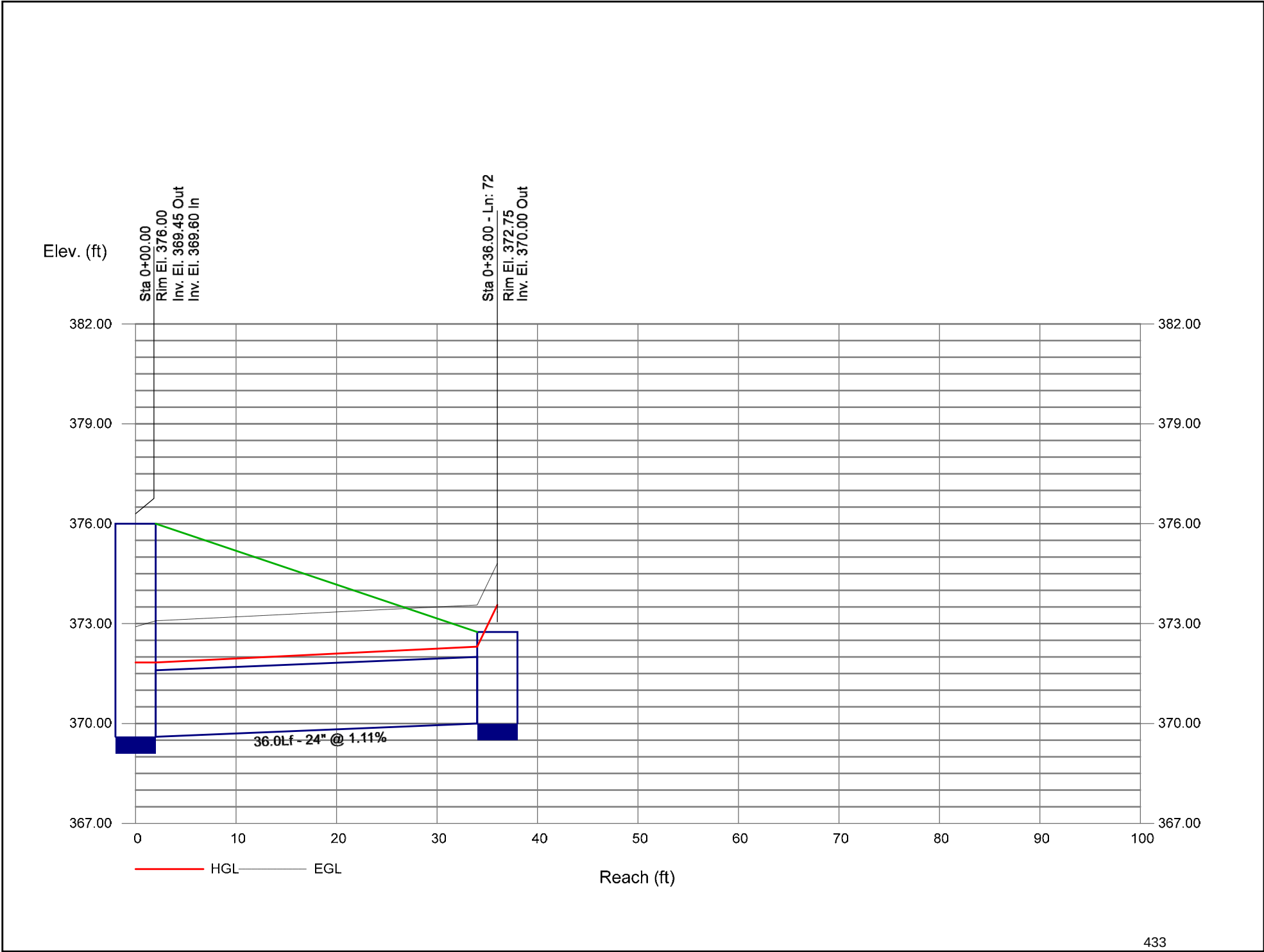
Storm Sewer Profile

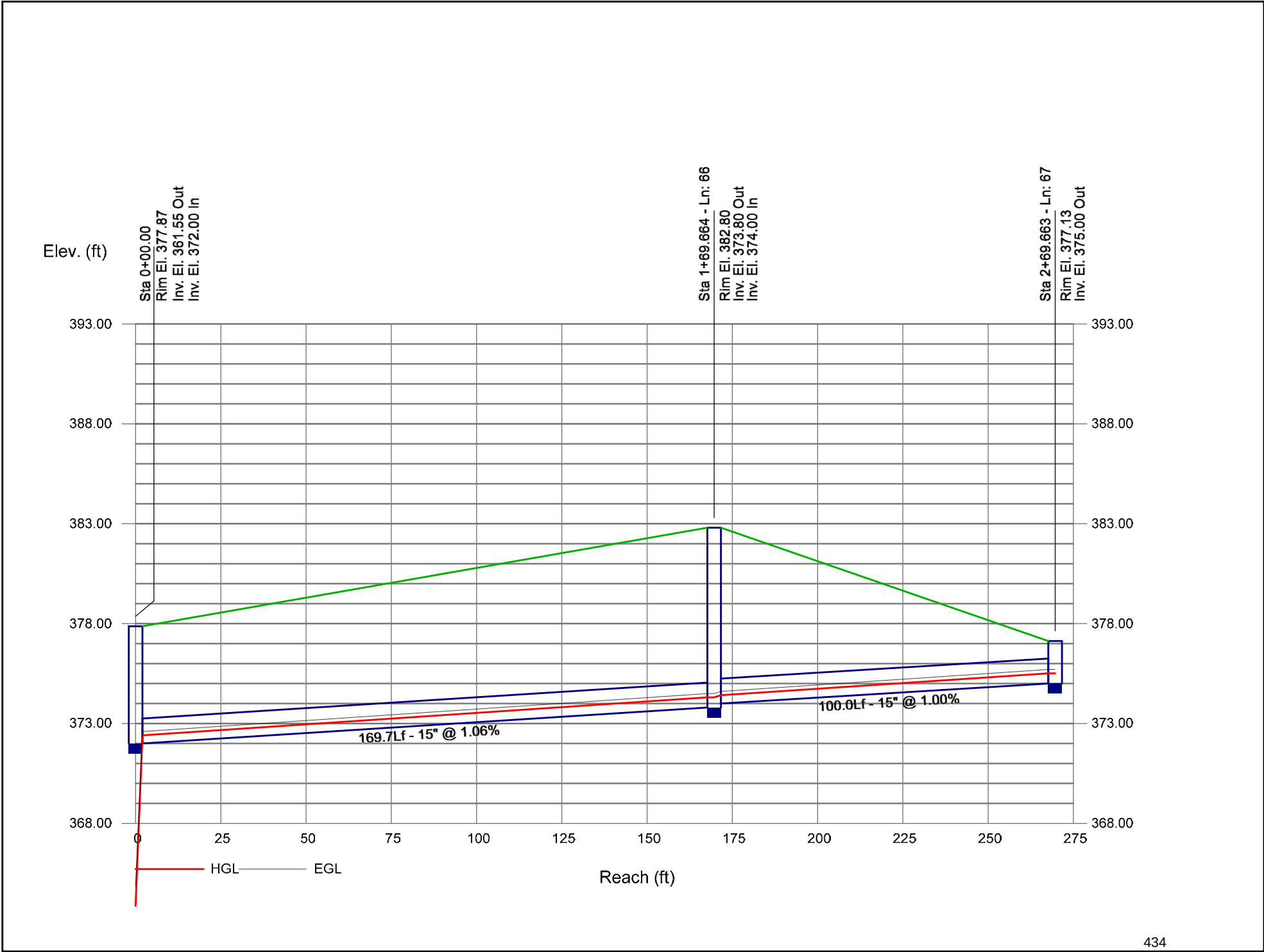


Storm Sewer Profile

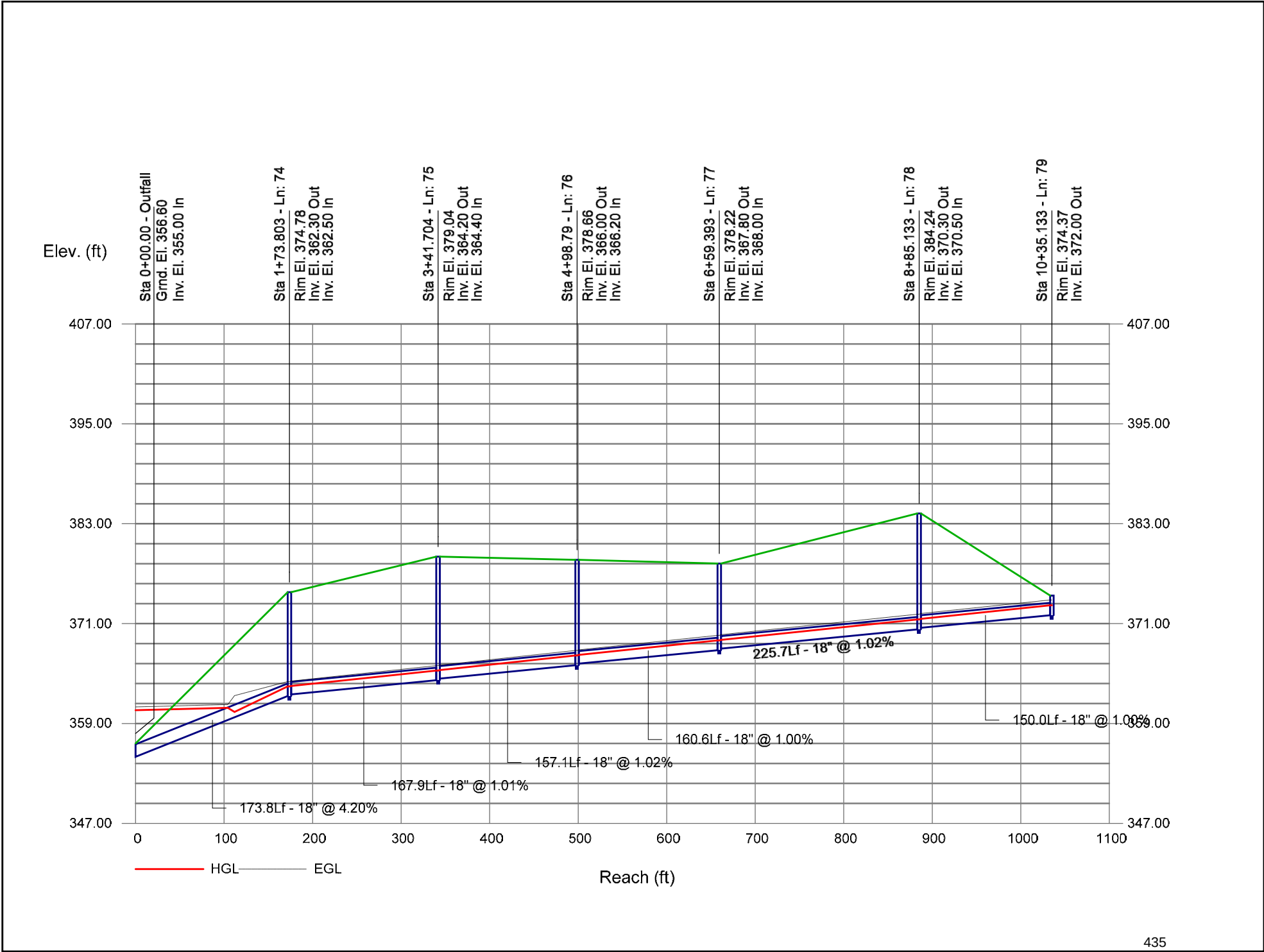
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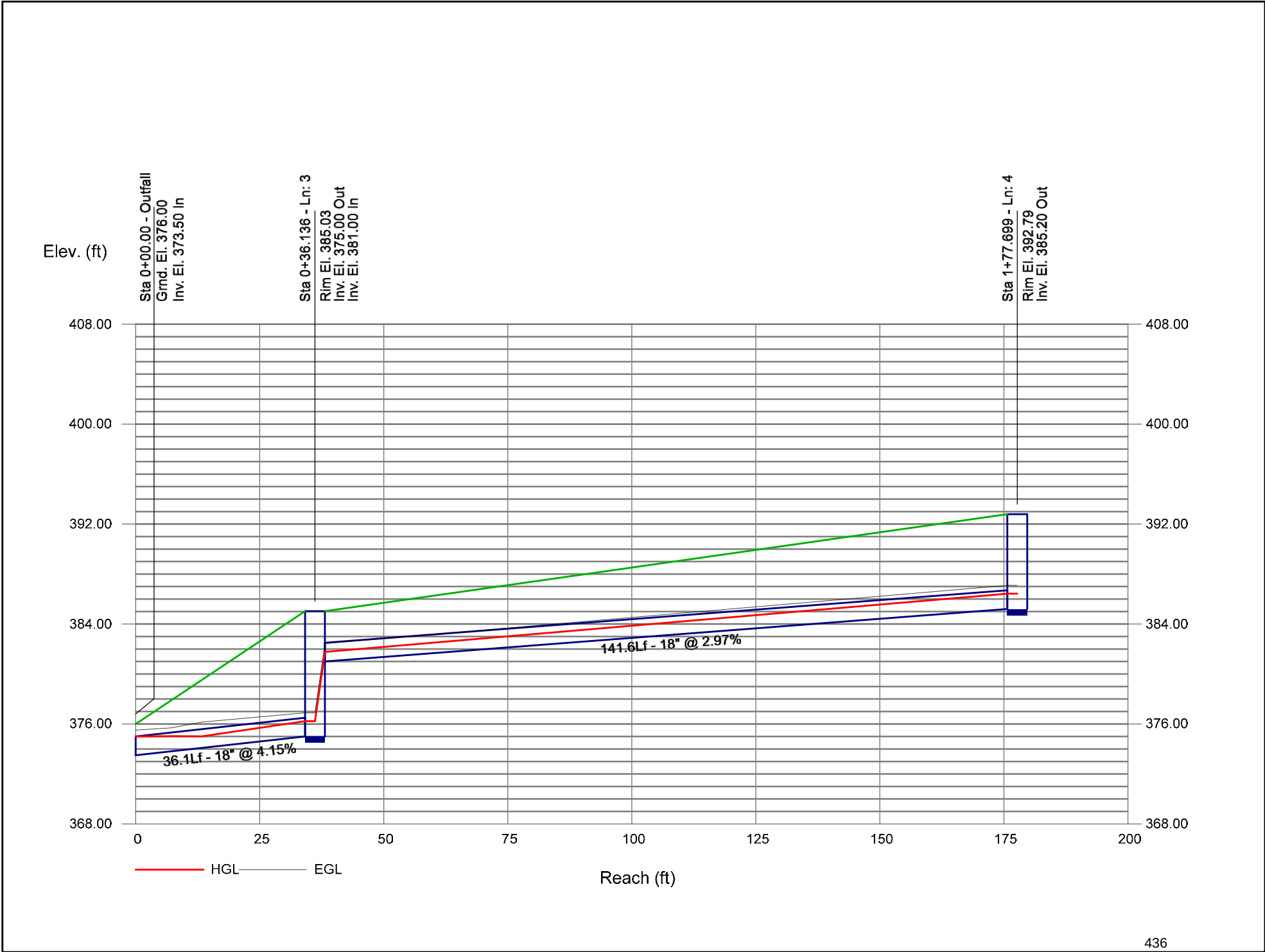




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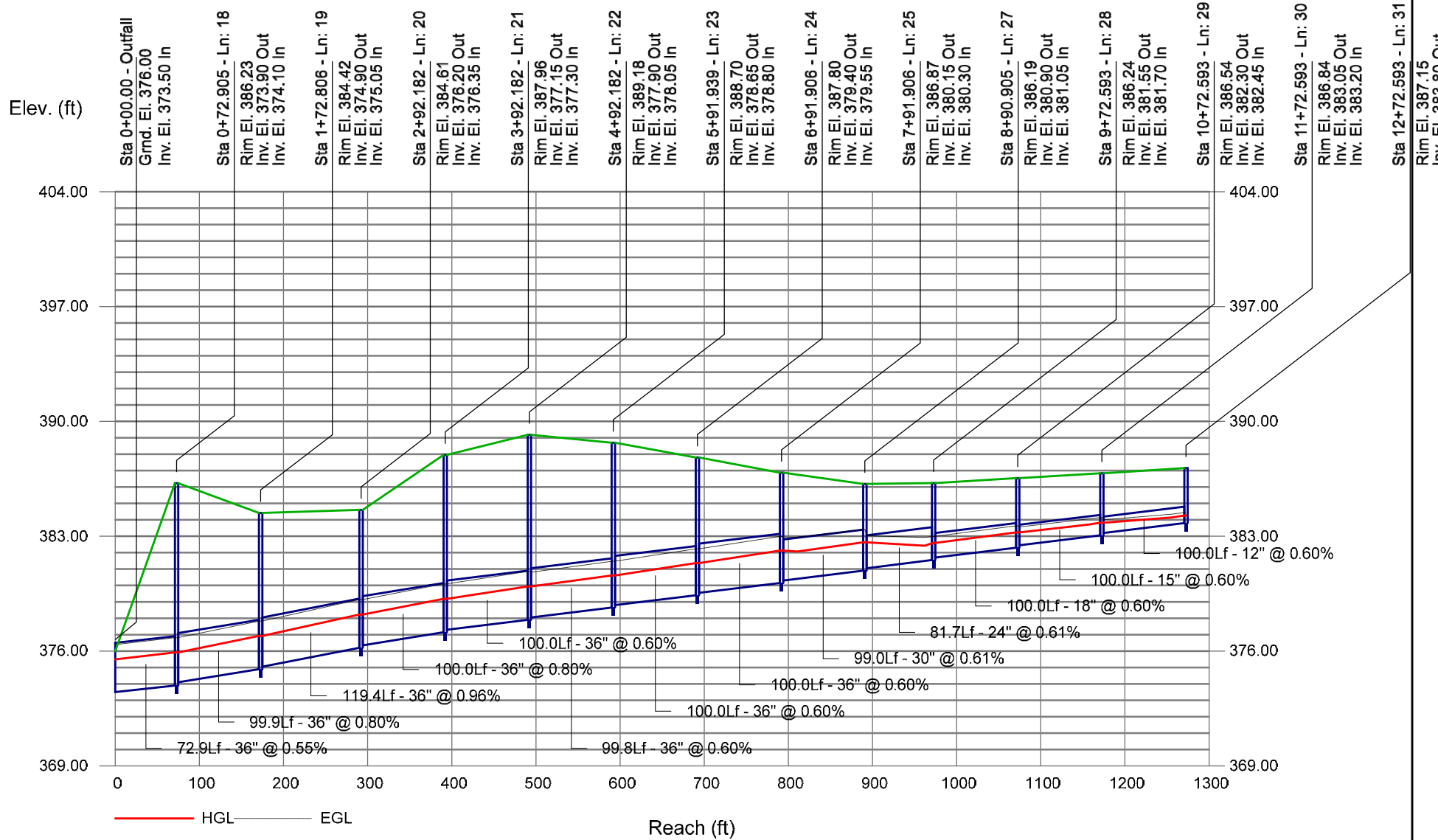


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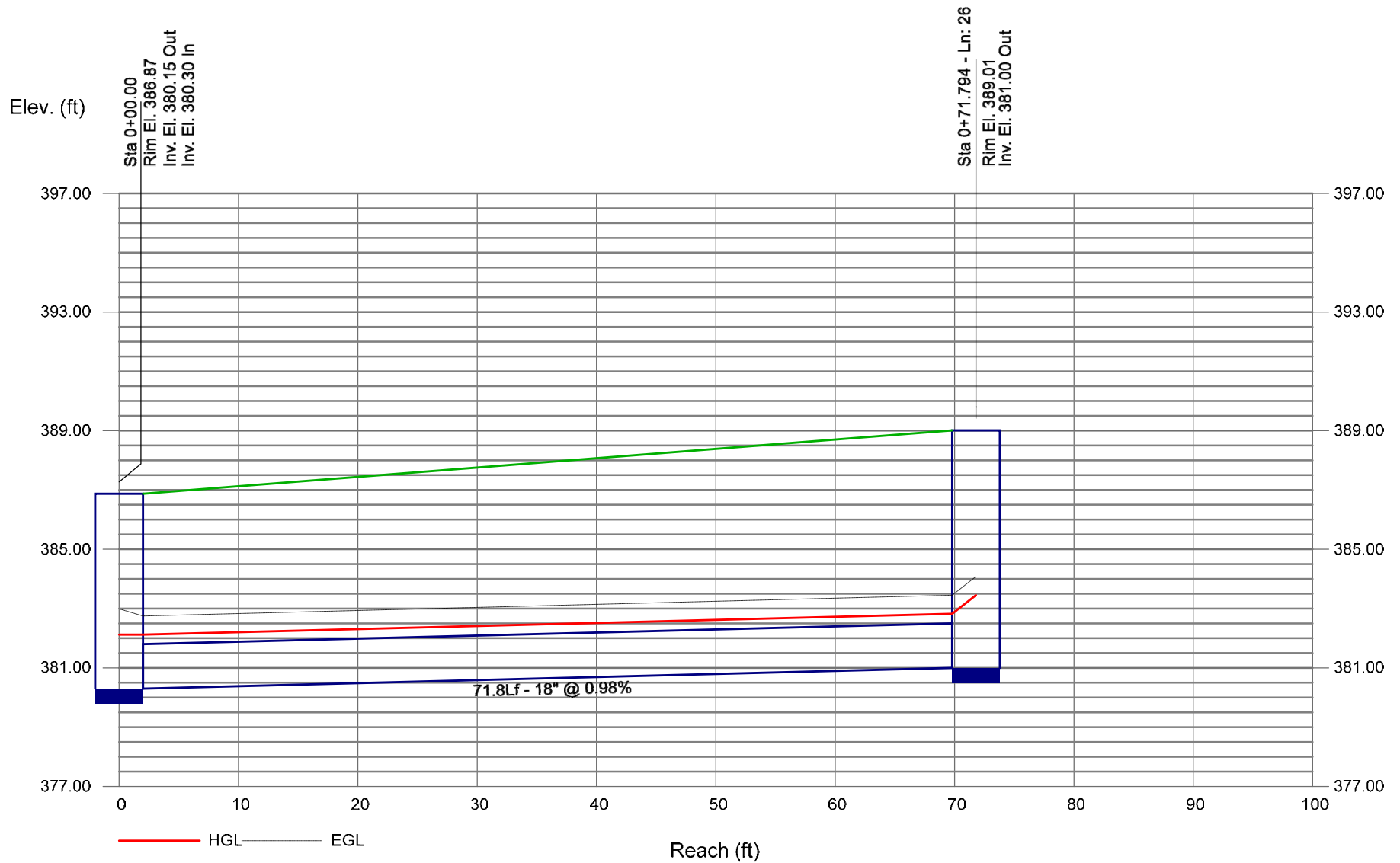
Storm Sewer Profile

Proj. file: Storm Sewer Analysis.stm

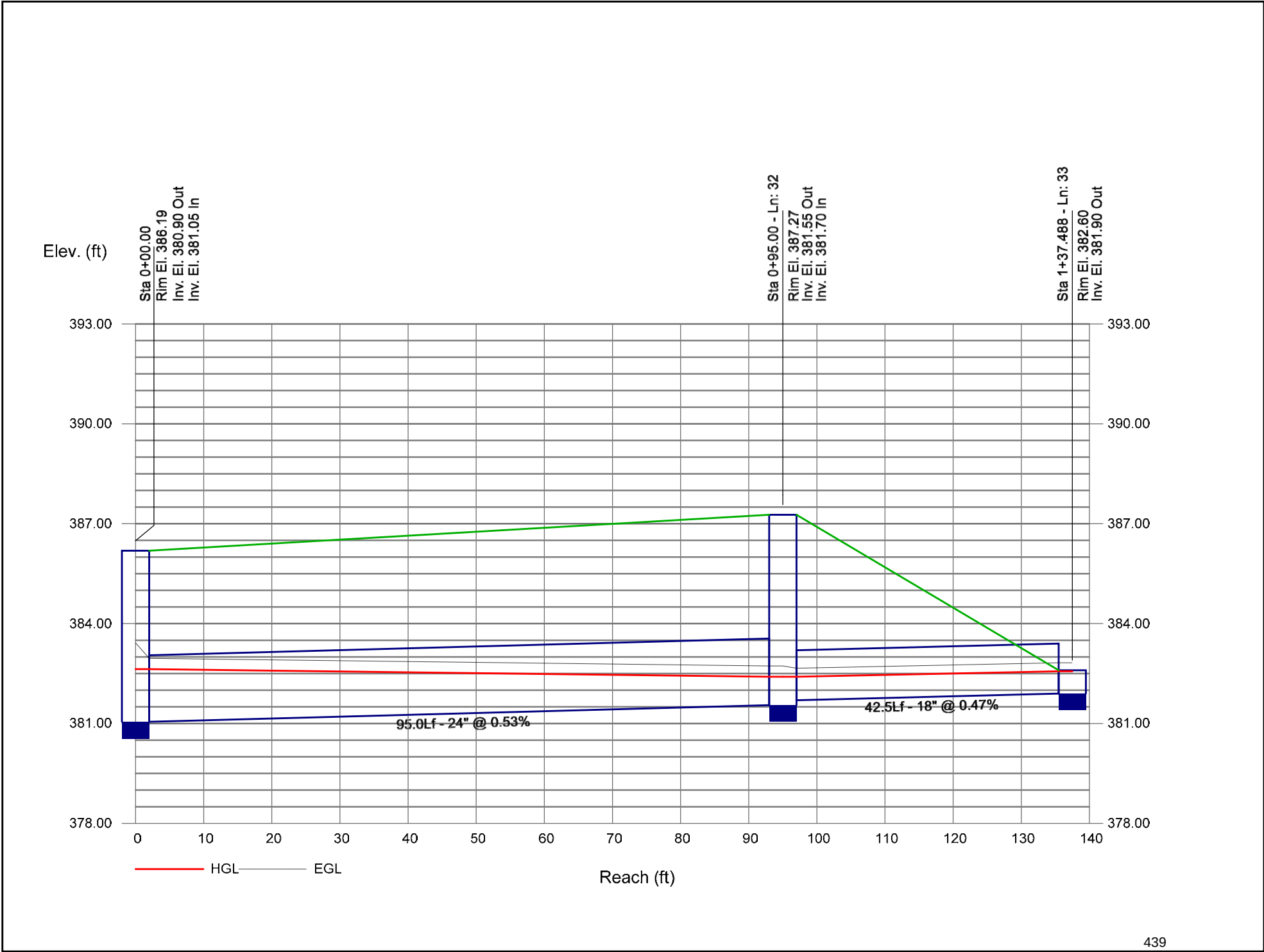


Storm Sewer Profile

Proj. file: Storm Sewer Analysis.stm



Storm Sewer Profile



DATE: 10/23/2023
BY: S.E.D.

JOB NO.: 1508

PROJECT: Data Centers

DESCRIPTION: Building 1 - Roof Leader Sizing

Design Storm (yr) = 100
i (in/hr) = 8.03

$$Q = CiA$$

$$Q = \frac{1.486}{n} AR^{2/3} \sqrt{S}$$

Description	DRAINAGE AREA		PIPE DATA				
	Area (sf)	Q _{DA} (cfs)	Dia. (in)	Slope %	n	Q _{pipe} (cfs)	V (ft/s)
Building 1-1 EAST	9,462	1.73	12	1%	0.012	3.84	4.89
Building 1-2 EAST	21,229	3.87	18	1%	0.012	11.34	6.42
Building 1-3 EAST	32,995	6.02	18	1%	0.012	11.34	6.42
Building 1-4 EAST	44,762	8.17	18	1%	0.012	11.34	6.42
Building 1-5 EAST	56,504	10.31	18	1%	0.012	11.34	6.42
Building 1-6 EAST	61,593	11.24	18	1%	0.012	11.34	6.42
BUILDING 1 EAST (TOTAL)	61,593	11.24	18	1%	0.012	11.34	6.42
Building 1-1 WEST	9,462	1.73	12	1%	0.012	3.84	4.89
Building 1-2 WEST	21,229	3.87	18	1%	0.012	11.34	6.42
Building 1-3 WEST	32,995	6.02	18	1%	0.012	11.34	6.42
Building 1-4 WEST	44,762	8.17	18	1%	0.012	11.34	6.42
Building 1-5 WEST	56,504	10.31	18	1%	0.012	11.34	6.42
Building 1-6 WEST	61,593	11.24	12	1%	0.012	3.84	4.89
BUILDING 1-1 WEST (TOTAL)	61,593	11.24	21	1%	0.012	16.81	7.08
BUILDING 1-1 SOUTHEAST	14069.9	2.57	12	1%	0.012	3.84	4.89
BUILDING 1-2 SOUTHEAST	25836	4.72	18	1%	0.012	11.34	6.42
BUILDING 1-3 SOUTHEAST	37602	6.86	18	1%	0.012	11.34	6.42
BUILDING 1-4 SOUTHEAST	52052	9.50	18	1%	0.012	11.34	6.42
BUILDING 1-5 SOUTHEAST	61613	11.24	18	1%	0.012	11.34	6.42
BUILDING SOUTHEAST TOTAL	61613	11.24	18	1%	0.012	11.34	6.42
BUILDING 1-1 SOUTHWEST	14069.9	2.57	12	1%	0.012	3.84	4.89
BUILDING 1-2 SOUTHWEST	25836	4.72	18	1%	0.012	11.34	6.42
BUILDING 1-3 SOUTHWEST	37602	6.86	18	1%	0.012	11.34	6.42
BUILDING 1-4 SOUTHWEST	60422	11.03	18	1%	0.012	11.34	6.42

BUILDING SOUTHWEST TOTAL	60422	11.03	18	1%	0.012	11.34	6.42
BUILDING 1 BOTTOM	12095	2.21	12	1%	0.012	3.84	4.89
BUILDING 2-1 NORTHEAST	7196	1.31	12	1%	0.012	3.84	4.89
BUILDING 2-2 NORTHEAST	19161	3.50	12	1%	0.012	3.84	4.89
BUILDING 2-3 NORTHEAST	31722	5.79	18	1%	0.012	11.34	6.42
BUILDING 2-4 NORTHEAST	44283	8.08	18	1%	0.012	11.34	6.42
BUILDING 2-5 NORTHEAST	56247	10.27	18	1%	0.012	11.34	6.42
BUILDING 2-6 NORTHEAST	61612	11.24	18	1%	0.012	11.34	6.42
BUILDING NORTHEAST TOTAL	61614	11.24	18	1%	0.012	11.34	6.42
BUILDING 2-1 NORTHWEST	7196	1.31	12	1%	0.012	3.84	4.89
BUILDING 2-2 NORTHWEST	19161	3.50	12	1%	0.012	3.84	4.89
BUILDING 2-3 NORTHWEST	31722	5.79	18	1%	0.012	11.34	6.42
BUILDING 2-4 NORTHWEST	44283	8.08	18	1%	0.012	11.34	6.42
BUILDING 2-5 NORTHWEST	56247	10.27	18	1%	0.012	11.34	6.42
BUILDING 2-6 NORTHWEST	61612	11.24	18	1%	0.012	11.34	6.42
BUILDING NORTHEAST TOTAL	61614	11.24	18	1%	0.012	11.34	6.42
BUILDING 2-1 SOUTHEAST	6551	1.20	12	1%	0.012	3.84	4.89
BUILDING 2-2 SOUTHEAST	18523	3.38	12	1%	0.012	3.84	4.89
BUILDING 2-3 SOUTHEAST	30551	5.58	18	1%	0.012	11.34	6.42
BUILDING 2-4 SOUTHEAST	43643	7.96	18	1%	0.012	11.34	6.42
BUILDING 2-5 SOUTHEAST	55606	10.15	18	1%	0.012	11.34	6.42
BUILDING 2-6 SOUTHEAST	61610	11.24	18	1%	0.012	11.34	6.42
BUILDING 2 SOUTHEAST TOTAL	61610	11.24	18	1%	0.012	11.34	6.42
BUILDING 2-1 SOUTHWEST	6551	1.20	12	1%	0.012	3.84	4.89
BUILDING 2-2 SOUTHWEST	18523	3.38	12	1%	0.012	3.84	4.89
BUILDING 2-3 SOUTHWEST	30551	5.58	18	1%	0.012	11.34	6.42
BUILDING 2-4 SOUTHWEST	43643	7.96	18	1%	0.012	11.34	6.42
BUILDING 2-5 SOUTHWEST	55606	10.15	18	1%	0.012	11.34	6.42
BUILDING 2 SOUTHWEST TOTAL	55606	10.15	18	1%	0.012	11.34	6.42
BUILDING 2 BOTTOM TOTAL	17015	3.11	12	1%	0.012	3.84	4.89

APPENDIX

STORMWATER INFILTRATION TESTING



March 4, 2024

Jack Robinson, P.E.
President
JMR Engineering

**RE: PA3868 Stormwater Testing for MRC Testing, East Whiteland Twp. Chesco
South Bacton Hill Road, Malvern, PA, 19355**

Mr. Robinson,

Per your request Uzman Engineering (UE) representatives Jason Culp, P.E. and Stephen Posner E.I.T. were present on-site February 21st, 22nd, 26th, 27th, 29th, and March 1st to perform a stormwater investigation at the above-mentioned project location. The investigation was required in order to provide design data as it relates to the subsurface infiltration suitability for proposed new data center and associated infrastructure.

PURPOSE:

This report shall serve as the stormwater facility design data. No other conclusions other than those specifically stated shall be drawn from this report.

INVESTIGATION:

A test pit study consisting of soil classification and double ring infiltrometer testing (based on appendix C of the PA BMP manual) was performed at 67 total test pit locations. Test pit locations were laid out based on a net testing criteria of 1 test per 40,000 square feet as well as at predetermined stormwater management locations. The design engineer (JMR Engineering) pre-determined these locations and survey staked them in the field. UE then excavated and tested these locations between four and six feet below ground surface (BGS), unless field conditions suggested that there was limitation or more favorable infiltrating soils at deeper or shallower depths. Test pits were also extended in most cases a minimum of 4' below the tested depth with generally a total depth of 10 feet or more with a few exceptions. This extended depth was to survey the soil below the test to determine if restrictive or more favorable strata existed and to ensure the tested data was reliable for the underlying soils.



The topography in general was relatively flat with previous disturbance from prior development of the area. This site had most recently been partially developed for proposed senior living housing starting in the late 2000s to early 2010s. This project was later abandoned. Various infrastructure such as manhole inlets, rough graded roadways etc. existed. Additionally, there were numerous stockpiles with one large stockpile bisecting the site north to south near the midpoint of the proposed development. It was apparent that many of the areas had been 'leveled' or flattened off and it is believed this was partially from the recent development as well as the remediation of the site following its use as the Foote Mineral site which required an Act 2 cleanup conducted in the early 2000s. There appeared to be historical fill covering most of the property, with less presence at the southern and western border line. Land cover was mostly undeveloped with secondary meadow gravelly, grassy areas with no pavement.

Weather conditions at the time of testing were:

- **Wednesday February 21:** 35 degrees and mostly cloudy. No rain or other precipitation had affected the area within the previous 24 hours.
- **Thursday February 22:** 39 degrees and mostly cloudy. No rain or other precipitation had affected the area within the previous 2 days.
- **Monday February 26:** 45 degrees and partly cloudy. No rain or other precipitation had affected the area within the previous 2 days.
- **Tuesday February 27:** 53 degrees and partly cloudy. No rain or other precipitation had affected the area within the previous 2 days.
- **Thursday February 29:** 38 degrees and partly cloudy. It had rained prior 24 hours prior to testing.
- **Friday March 1:** 40 degrees and partly/mostly cloudy. No rain or other precipitation had affected the area within the previous 24 hours.

FINDINGS:

The findings below use abbreviated nomenclature and terminology germane to soil classification and infiltration testing.

TP no. 1 | 363.11ft Moved 25' East | Tested @ 57" BGS |

0-23"	Gravelly Sandy SILT	
23"-27"	Dk Brn SILT stiff Old Topsoil	
27"-64"	Lt Brn Clayey SILT stiff	
64"-123"	Gravelly f/c Sandy SILT tr Clay Reddish Brn	

No GW or LZ encountered



TP no. 2 | 365.16ft | Tested @ 56" BGS |

0-18"	Topsoil	Topsoil
16"-46"	Lt Brn Gravelly Sandy Clayey SILT	
46"-114"	Dk Brn-Blk Gravelly f Sandy SILT	Topsoil FILL

No GW or LZ encountered

TP no. 3 | 366.87ft | Tested @ 78" BGS | C-20

0-16"	Topsoil	Topsoil
16"-92"	Tan Gravels & Sandy SILT Fill saturated at bottom	FILL
92"-174"	Dk Brn Gravelly SILT l clay & SAND topsoily FILL	Topsoil FILL

*GW @ 160" From seepage above

TP no. 4 | 365.41ft | Tested @ 84" BGS | C-20

0-9"	Topsoil	Topsoil
9"-62"	Tan Gravels & Sandy SILT Fill saturated at bottom	FILL
62"-122"	Dk Brn Gravelly SILT l clay & SAND topsoil FILL	Topsoil FILL
122"-156"	Org Brn med Stiff SILT	Native

*GW @ 12' from collected seepage water

TP no. 5 | 363.36.13ft | Tested @ 66" BGS |

0-30"	Dk Brn SILT l Sand	Topsoil Fill
30"-70"	Org Brn Clayey SILT	Fill
70"-120"	Channery Schist & Silty SAND	

No GW or LZ encountered

TP no. 6 | 364.79ft | Tested @ 64" BGS | C-XX

0-6"	Topsoil	Topsoil
6"-23"	Gravels & Clayey SILT	Fill
23"-60"	Channery Schist & Silty SAND	Fill
60"-120"	Org Brn SILT	

No GW or LZ encountered



TP no. 7 | 365.37ft | Tested @ 96" BGS | C-19

0-64"	Topsoil Fill	Topsoil Fill
64"-120"	Dk Brn Channery silty SAND	Fill
11"-120"	Org/Lt Brn SILT	

No GW or LZ encountered

TP no. 8 | 366.90ft | Tested @ 55" BGS |

0-23"	Dk Brn Gravelly Clayey SILT	Topsoil
23"-40"	Lt Brn f Gravelly Clayey SILT v. Stiff	
40"-123"	Dk Brn Channery Silty SAND Schistose Frags	Native
90"-126"	Reddish Brn Sandy SILT l gravels	

No GW or LZ encountered

TP no. 9 | 372.7ft | Tested @ 36" BGS | C-3

0-7"	Topsoil	Topsoil
7"-40"	Purple Gravelly Clayey SILT	
40"-70"	Lt Brn SILT	Native
70"-84"	Channery Silty SAND	Schist Residium

No GW or LZ encountered

TP no. 10 | 367.87ft | Tested @ 54" BGS |

0-38"	Brn Gravelly Sandy SILT l Clay	FILL
38"-45"	Dk Grey Millings & Silty Schist Blend	FILL
45"-64"	Lt Brn Clayey SILT	
64"-112"	Reddish/Org-Brn Sandy Clayey SILT	Stiff

No GW or LZ encountered

*Sewer trench at front of pit ~ 6'

TP no. 11 | 367.10ft | Tested @ 58" BGS | C-2

0-11"	Topsoil	
11"-50"	Lt Brn Clayey SILT	Plastic
50"-115"	Red Brn-Org Brn Sandy Clayey SILT	

No GW or LZ encountered



TP no. 12 | 363ft | Tested @ 38" BGS | C-3

0-16"	Lt Brn Sandy SILT	
16"-20"	Topsoil	Topsoil
20"-32"	Lt Brn Clayey SILT	
32"-64"	Reddish Brn Gravelly Sandy Clayey SILT	
64"-90"	Lt Brn Clayey SILT	

No GW or LZ encountered

TP no. 13 | 369ft | Tested @ 68" BGS |

0-58"	Brn Gravelly Clayey SILT	Stiff
58"-118"	Lt Brn Clayey SILT	sl. Plastic Stiff

No GW or LZ encountered

TP no. 14 | 363.46ft | Tested @ 72" BGS | C-6

0-9"	Modified	
9"-32"	Brn GRAVELS & Sandy SILT v. stiff	FILL
32"-64"	Reddish Brn Clayey SILT Sand & Gravels	
64"-132"	Lt Brn-Yellow SILT virgin	

No GW or LZ encountered

TP no. 15 | 363.75ft | Tested @ 71" BGS | C-7

0-16"	Modified	
16"-55"	Gravelly Sandy SILT	v. Stiff
55"-123"	Lt Brn SILT	v. Stiff

No GW or LZ encountered

TP no. 16 | ~364ft | Tested @ 64" BGS |

0-16"	Grey modified	
16"-26"	Topsoil	
26"-120"	Tan-Lt Brn Clayey SILT	Stiff

No GW or LZ encountered

TP no. 17 | 368.11 | Tested @ 63" BGS |

0-24"	Purplish Gravelly Clayey SILT	
24"-130"	Lt Brn Clayey SILT	sl. Plastic v. Stiff

No GW or LZ encountered



TP no. 18 | 363.52ft Moved 12' NE | Tested @ 68" BGS | C-6

0-12"	Modified	
12"-49"	Lt Brn Gravelly SILT	Fill
49"-52"	Dk Brn SILT	Topsoil
52"-82"	Lt Brn Clayey SILT l Gravels & f/c Sand	Stiff
82"-125"	Lt Brn Clayey SILT	Stiff

No GW or LZ encountered

TP no. 19 | 363.77ft | Tested @ 72" BGS | C-6

0-28"	Lt Brn Gravels & Sandy SILT tr Clay	Fill
28"-56"	Lt Brn Clayey SILT	Plastic Stiff
56"-84"	Sl. Reddish Brn Gravelly Sandy SILT	
84"-130"	Lt Brn Clayey SILT	Stiff

No GW or LZ encountered

TP no. 20 | 364.52ft | Tested @ 29" BGS | C-2

0-23"	Gravelly Sandy SILT	Fill
23"-27"	Topsoil Remnant	
27"-96"	Tan-Lt Brn Clayey SILT hard	Redox C/F episaturated

No GW or LZ encountered

TP no. 21 | 366.26ft | Tested @ 60" BGS |

0-29"	Purplish Gravelly Clayey SILT	
29"-34"	Old Topsoil	
34"-56"	Lt Brn Clayey SILT	Hard
56"-125"	Brn f/c Sandy SILT tr Clay	

No GW or LZ encountered

TP no. 22 | 366.03ft | Tested @ 56" BGS |

0-20"	Dk Brn SILT	Topsoil
20-125"	Lt Brn Clayey SILT	Stiff Redox C/F episaturated

No GW or LZ encountered



TP no. 23 | 366.23ft | Tested @ 62" BGS |

0-2"	Topsoil	
2"-40"	Lt Brn to Purple Gravelly f/c Sandy SILT tr Clay	Fill Redox C/D in upper 2' episaturation
40"-48"	Dk Brn SILT	Topsoil Old G.S.
48"-120"	Lt Brn Clayey SILT v. Stiff	

No GW or LZ encountered

TP no. 24 | 372.91ft | Tested @ 52" BGS |

0-62"	Lt Brn Gravelly Sandy Clayey SILT stiff	Fill
62"-72"	Org Brn Clayey SILT	Native
72"+	Purple Gravelly Sandy Clayey SILT v. stiff	

RR @ 72"

No GW

LZ encountered @ 72" BGS - Rock

TP no. 25 | 369.25ft | Tested @ 55" BGS |

0-57"	Gravelly Lt Brn Clayey SILT	v. Stiff Clayey Pkts
57"-67"	Dk Brn Sandy SILT	Topsoil Old G.S.
67"-90"	Lt Brn Clayey SILT	Native
90"-126"	Reddish Brn Sandy SILT l gravels	

No GW or LZ encountered

TP no. 26 | 369.10ft | Tested @ 54" BGS |

0-37"	Gravelly Lt Brn Clayey SILT	v. Stiff s. more Clayey Pkts
37"-65"	Dk Brn Sandy SILT	Topsoil Old G.S.
65"-123"	Lt Brn/ Reddish Brn Clayey SILT	Native

No GW or LZ encountered

TP no. 27 | 367.86ft | Tested @ 56" BGS |

0-22"	Dk Brn-Org Brn Topsoil & Clayey SILT Blend	Fill
22"-34"	Dk Brn SILT l f Sand to Clay	
34"-120"	Org-Brn Clayey SILT	Plastic

No GW or LZ encountered

TP no. 28 | 374.27ft | Tested @ 24" BGS | C-2

0-40"	Purple-Brn Gravelly Sandy SILT	Fill
40"-73"	Lt Brn Clayey SILT	

No GW or LZ encountered



TP no. 29 | 374.44ft | Tested @ 24" BGS | C-2

0-3"	Topsoil	Topsoil
3"-14"	Purplish Brn Gravels f Sandy Clay SILT	Fill
14"-50"	Lt Brn Clayey SILT tr Sand & Gravels	Native
50"-68"	Brn-White f SAND & SILT	Weathered Limestone Pinnacles

RR @ 68"

No GW

LZ encountered @ 68" BGS

TP no. 30 | 372.41ft | Tested @ 36" BGS | F-3

0-5"	Dk Brn Sandy SILT	Topsoil
5"-16"	Lt Brn Gravelly Sandy SILT tr Clay	Fill
16"-25"	Purplish Gravels/St & Sandy SILT	
25"-70"	Lt Brn Gravelly f Sandy SILT w cobbles	Boulders Limestone Pinnacles

RR @ 70"

No GW

LZ encountered @ 70" - Rock

TP no. 31 | ~374ft | Tested @ 54" BGS |

0-7"	Purple-Brn Gravels & Sandy SILT	Fill
7"-11"	3A AASHTO underlay w Fabric	
11"-60"	Lt Brn Clayey SILT	sl. Plastic
60"-123"	Red-Lt Brn SILT l f Sandy & Clay	Native/Virgin

No GW or LZ encountered

TP no. 32 | 385.13ft | Tested @ 54" BGS |

0-11"	Topsoil	
11"-45"	Lt Brn Clayey SILT	sl. Plastic
45"-80"	Brn Gravelly f/c Sandy SILT	
80"-122"	Lt Brn vf Sandy SILT	

No GW or LZ encountered

TP no. 33 | ~373ft | Tested @ 42" BGS |

0-126"	Lt Brn Gravelly Sandy SILT	Fill Loose
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GW @ 126" BGS

*Large Boulder at Bottom



TP no. 34 | 373.36ft | Tested @ 64" BGS |

0-117"	Lt Brn manf. Gravelly Sandy SILT	Fill Loose
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No GW or LZ encountered

TP no. 35 | 367.29ft | Tested @ 57" BGS |

0-43"	Lt Brn to Purple Gravelly f/c Sandy SILT tr Clay	Fill
46"-108"	Lt/Org Brn Clayey SILT stiff	

No GW or LZ encountered

TP no. 36 | 369ft | Tested @ 42" BGS | F-6

0-4"	Topsoil	
4"-12"	Lt Brn Gravelly Sandy SILT	Soft
12"-38"	Lt Brn Strong SBK SILT	Stiff
38"-70"	Gravelly Org Brn Clayey SILT	Plastic Stiff

No GW or LZ encountered

TP no. 37 | 373.38ft | Tested @ 52" BGS | C-5

0-3"	Topsoil	
3"-77"	Lt Brn Cobbly/Stoney Gravelly Silty SAND loose	Fill Loose
77"-93"	Dk Brn Sandy SILT topsoil	
93"-120"	Lt Brn Clayey SILT	Med Stiff to Stiff

No GW or LZ encountered

TP no. 38 | 374.70ft | Tested @ 71" BGS |

0-4"	Topsoil	Topsoil
4"-75"	Reddish-Purplish Gravelly Silty CLAY	v. Stiff w/ s. Gravels to Cobbly
75"-78"	Topsoil remnant	Old G.S.
78"-126"	Org/Rd Brn Clayey SILT	Stiff

No GW or LZ encountered

TP no. 39 | 376.54ft | Tested @ 84" BGS | C-8

0-4"	Topsoil	
4"-100"	Reddish-Purplish Gravelly Silty CLAY	Fill v Stiff w/ s.Gravels to Cobbly
100"-105"	Topsoil remnant	Old G.S.
105"-144"	Lt Brn Clayey SILT	Virgin Stiff

No GW or LZ encountered



TP no. 40 | 376.35ft | Tested @ 84" BGS |

0-6"	Topsoil	
6"-100"	Brn Gravelly Sandy SILT	
100"-140"	Brn-Org Brn Clayey SILT virgin	

GW @ 88"

TP no. 41 | 373ft | Tested @ 55" BGS | F-3

0-48"	Bouldery/Clayey SILT Fill cobbly Fill	Fill
48"-120"	Gravelly Clayey SILT	Virgin

No GW or LZ encountered

TP no. 42 | 373.50ft | Tested @ 52" BGS |

0-2"	Topsoil	
2"-65"	Lt Brn Gravelly Cobbly l boulders	Fill
65"-108"	Purplish Clayey Silty SAND w/ Gravels	Fill
108"+	Water	

GW @ 96" Seepage 60"

LZ @ 60"

TP no. 43 | 373.38ft | Tested @ 67" BGS |

0-7"	Topsoil	
7"-47"	Yellow-Lt Brn Clayey SILT	sl. Plastic Stiff
47"-126"	Yellow-Lt Brn v.f. SAND & SILT	Stiff to Dense Limestone Pinnacles @ 110"-126" on side of pit

LZ @ 126" BGS

TP no. 44 | 378.5ft | Tested @ 25" BGS | F-1

0-6"	Brn Gravelly Sandy SILT	Topsoil mixed w Road Gravel
6"-30"	Tan SILT tr/l Clay	v. Stiff Redox C/D episat. seepage
30"-72"	Brn f/c Gravelly f/c Sandy SILT	v. Stiff

No GW or LZ encountered

TP no. 45 | 372.48ft | Tested @ 69" BGS |

0-24"	Brn Gravelly SILT	Fill v. Platy compact
24"-37"	Med/Lt Brn SILT	Virgin
37"-84"	Yellowish Brn Clayey SILT l f/c Sand	sl. Plastic v. Stiff to Hard
84"-116"	Purple-Brn Sapilitic Rock	Fractured & Vert. Bedded Channery to Flaggy

No GW or LZ encountered



TP no. 46 | 372ft | Tested @ 84" BGS |

0-108"	Gravels/Cobbles & SILT l/tr Clay & Sand	Fill & tr Organic Pockets
108"-125"	Org Brn Clayey SILT	Native

No GW or LZ encountered

TP no. 47 | 376.14ft | Tested @ 84" BGS |

0-72"	Gravels & f Sandy SILT 2A or 2RC	
72"-76"	Topsoil Remnants	Old G.S.
76"-130"	Org Brn Clayey SILT	

No GW or LZ encountered

TP no. 48 | ~379ft | Tested @ 54" BGS |

0-2"	Topsoil	Topsoil
2"-106"	Brn Gravelly Sandy SILT tr Clay	Fill Stiff
106"-126"	Clayey SILT Lt Brn	Virgin

No GW or LZ encountered

TP no. 49 | 376.14ft | Tested @ 54" BGS |

0-2"	Topsoil	Topsoil
2"-120"	Lt Brn manf. Gravels & Silty SAND	Fill v. Loose
120"-132"	Clayey SILT	Native

GW @ 120" BGS Rock/Boulders Limestone @ Bottom

TP no. 50 | 382.95ft | Tested @ 60" BGS |

0-3"	Topsoil	
3"-100"	Dk Brn-Yellowish Gravelly Cobble Sandy SILT tr Clay	Fill Loose

No GW or LZ encountered

* Collapsed Below 100"

TP no. 51 | 383.41ft | Tested @ 48" BGS |

0-5"	Topsoil	
5"-96"	Lt Brn-Tan Gravelly Cobbly Sandy SILT	Fill Loose

GW @ 66"

TP no. 52 | 381.76ft | Tested @ 59" BGS |

0-84"	Lt Brn-Yellow Brn Gravelly/Cobbley Clayey SILT	Seepage T/O
84"-120"	Gravels & f Sandy SILT imported 2A or 2RC	Loose

No GW or LZ encountered



TP no. 53 | 375.73ft | Tested @ 66" BGS |

0-4"	Topsoil	Topsoil
4"-48"	Tan-Red Var Gravelly SILT l Clay	Fill v. Stiff to Hard
48"-120"	Org-Lt Brn Clayey SILT	Native v. Stiff

No GW or LZ encountered

TP no. 54 | 374.60ft | Tested @ 60" BGS | C-XX

0-5"	Topsoil w Gravel	Topsoil
5"-11"	Millings	Seepage T/O
11"-30"	Yellow-Tan Gravelly Cobble SILT	Hard Fill Seepage T/O
30"-50"	Dk Grey Gravels & SILT – Topsoil	Old G.S.
50"-120"	Yellow Brn SILT tr Gravels/Cobbles	v. Stiff

No GW or LZ encountered

TP no. 55 | 379.61ft | Tested @ 44" BGS | C-1

0-12"	Brn Gravelly Sandy SILT topsoil mixed w Road Gravel	
12"-43"	Tan SILT tr/l Clay v. stiff redox C/D episat.	
43"-60"	Brn f/c Gravelly f/c Sandy SILT	v. Stiff

No GW or LZ encountered

TP no. 56 | 384.77ft | Tested @ 84" BGS | C-6

0-8"	Humus & Root Mat	
8"-17"	Dk Brn Clayey SILT	Topsoil
17"-42"	Brn SILT l clay v. sl.	sl. Plastic v. Stiff
42"-116"	Yellow/Org Brn Clayey SILT v. stiff	v. Stiff

No GW or LZ encountered

TP no. 57 | 379.04ft | Exc. ~8" Below Stake | Tested @ 68" BGS |

0-20"	Dk Brn Millings	Topsoil
20"-120"	Brn Clayey SILT to Silty CLAY	Stiff

No GW or LZ encountered



TP no. 58 | 384.88ft | Tested @ 52" BGS |

0-5"	Modified fabric @ bottom	
5"-30"	Org. Lt Brn Gravelly Sandy SILT	
30"-34"	Topsoil Dk Brn SILT – old topsoil	
34"- 114"	Gr/cb clayey SILT	Stiff

RR in Limestone frags @ 114"

No GW

LZ @ 114" – Rock

TP no. 59A | ~35' W of Stake | Tested @ 61" BGS |

0-4"	Topsoil	Topsoil
4"-51"	Lt Brn Gr/Cobbles w f Sandy SILT	Seepage T/O
51"-100"	Lt Brn Gravelly Sandy SILT tr Clay stiff	

RR at 100"

No GW

LZ @ 100" – Rock

TP no. 59 | 385.13ft | Tested @ 32" BGS |

0-8"	Tan Cobbly to Bouldery f Sandy SILT	Topsoil
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Open fracture of significant trapped water

GW @ 32"

TP no. 60 | 384.70ft | Tested @ 62" BGS |

0-6"	Topsoil	Topsoil
6"-8"	Millings	
8"-54"	Brn Gravelly & Sandy Loose	Fill
54"-115"	Yellowish Brn Gravelly SILT l Sand & Clay	Virgin

Seepage Heavy @ 4'

Fills bottom of TP to 8' BGS

GW Perked @ 4'

TP no. 61 | 385.23ft | Tested @ 76" BGS |

0-3"	Gravelly Topsoil	Topsoil
3"-54"	Gravels & Lt. Brn Clayey SILT saturated trapped water	
54"-114"	Lt Brn Clayey SILT tr/lt Gravel + Cobble	

GW Perked @ 4'



TP no. 62 | 387.04ft | Tested @ 76" BGS |

0-8"	Topsoil/Gravel	Topsoil
8"-60"	Lt Brn-Yellow Brn Grvl/Cbbly w/ Clayey SILT stiff Fvb	
60"-71"	Dk Brn SILT roots old Top	
71"-120"	Brn-Lt Brn v stiff Clayey SILT Gravelly	

No GW or LZ encountered

TP no. 63 | 385.38ft | Tested @ 85" BGS |

0-8"	Modified w/ Fabric	
8"-75"	Lt to Org Brn Gr/Cob f sandy SILT tr Clay	
75"-85"	Topsoil w Root Mat	Old G.S.
85"-132"	Grey-Brn Clayey SILT stiff	

No GW or LZ encountered

TP no. 64 | 383.27ft | Tested @ 71" BGS |

0-7"	Millings & Stone	
7"-36"	Gravelly Clayey SILT Fill Platy	vcr. Stiff
36"-84"	Grey Gravelly m/c SAND tr. SILT imported 2A or similar	
84"-116"	Brn-Red-Brn Clayey SILT	

No GW or LZ encountered

TP no. 65 | 384.70ft | Tested @ 32" BGS | C-1'

0-8"	Drk Brn SILT	Topsoil
8"-41"	Org Brn Clayey SILT tr Gravel	
41"-66"	Fracture Limestone & Org Brn SILT	
66"+	RR	

No GW or LZ encountered

TP no. 66 | ~390ft | Tested @ 66" BGS | C-2'

0-16"	AASHTO 2A	
16"-25"	Brn-Grey SILT	tr Organics
25"-60"	Reddish Brn Clayey SILT Stiff	
60"-120"	Yellow-Lt Brn vf Sandy SILT stiff	

No GW or LZ encountered



TP no. 67 | 392.08ft | Tested @ 32" BGS | F-1'

0-8"	Humus & Root Mat	
8"-22"	Dk Brn Clayey SILT	Topsoil
22"-40"	Brn Clayey SILT	Plastic
40"-80"	Reddish Brn to Yellowish Brn Clayey SILT tr c. Sand	

No GW or LZ encountered

TP no. **1** 0, 0, 0, 0→ 0 Final Reading w/30-minute intervals
0 inches/hour @ 57 inches BGS

TP no. **2** 0, 0, 1/8", 0→ 0 Final Reading w/30-minute intervals
0 inches/hour @ 56 inches BGS

TP no. **3** TEST ABANDONED DUE TO FLOODING FROM PERCHED WATER ABOVE
i.e. 0 inches/hour

TP no. **4** TEST ABANDONED DUE TO FLOODING FROM PERCHED WATER ABOVE
i.e. 0 inches/hour

TP no. **5** 0, 0, 1/4", 1/4"→ 0.25" Final Reading w/30-minute intervals
0.5 inches/hour @ 66 inches BGS

TP no. **6** 0, 0, 0, 0→ 0 Final Reading w/30-minute intervals
0 inches/hour @ 64 inches BGS

TP no. **7** 4", 4", 4", 4"→ 4" Final Reading w/4-minute intervals
60" inches/hour @ 96 inches BGS

TP no. **8** 0, 0, 0, 0→ 0 Final Reading w/30-minute intervals
0 inches/hour @ 55 inches BGS

TP no. **9** 0, 0, 0, 0→ 0 Final Reading w/30-minute intervals
0 inches/hour @ 36 inches BGS

TP no. **10** 1/8", 0, 0, 0→ 0 Final Reading w/30-minute intervals
0 inches/hour @ 54 inches BGS

TP no. **11** 1", 3/4", 3/4", 1/2"→ 0.5" Final Reading w/30-minute intervals
1 inches/hour @ 58 inches BGS

TP no. **12** 1/8", 1/4", 1/4", 1/4"→ 0.25" Final Reading w/30-minute intervals



0.5 inches/hour @ 38 inches BGS

TP no. **14** $\frac{1}{4}$ ", $\frac{1}{4}$ ", 0, 0 $\rightarrow$ 0 Final Reading w/ 30-minute intervals
0 inches/hour @ 72 inches BGS

TP no. **13** $\frac{1}{2}$ ", $\frac{1}{4}$ ", $\frac{1}{4}$ ", $\frac{1}{4}$ " $\rightarrow$ 0.25" Final Reading w/30-minute intervals
0.5 inches/hour @ 68 inches BGS

TP no. **15** 0, 0, 0, 0 $\rightarrow$ 0 Final Reading w/30-minute intervals
0 inches/hour @ 71 inches BGS

TP no. **16** 0, 0, 0, 0 $\rightarrow$ 0 Final Reading w/30-minute intervals
0 inches/hour @ 64 inches BGS

TP no. **17** 0, 0, 0, 0 $\rightarrow$ 0 Final Reading w/30-minute intervals
0 inches/hour @ 63 inches BGS

TP no. **18** 0, $\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ " $\rightarrow$ 0.125 Final Reading w/30-minute intervals
0.25 inches/hour @ 68 inches BGS

TP no. **19** $\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ " $\rightarrow$ 0.125" Final Reading w/30-minute intervals
0.25 inches/hour @ 72 inches BGS

TP no. **20** $\frac{1}{4}$ ", $\frac{1}{4}$ ", $\frac{1}{4}$ ", $\frac{1}{4}$ " $\rightarrow$ 0.25" Final Reading w/30-minute intervals
0.5 inches/hour @ 29 inches BGS

TP no. **21** $\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ " $\rightarrow$ 0.125" Final Reading w/30-minute intervals
0.25 inches/hour @ 60 inches BGS

TP no. **22** 0, 0, 0, 0 $\rightarrow$ 0 Final Reading w/30-minute intervals
0 inches/hour @ 56 inches BGS

TP no. **23** $\frac{1}{2}$ ", $\frac{1}{2}$ ", $\frac{1}{4}$ ", $\frac{1}{4}$ " $\rightarrow$ 0.25" Final Reading w/30-minute intervals
0.5 inches/hour @ 62 inches BGS

TP no. **24** 0, 0, 0, 0 $\rightarrow$ 0 Final Reading w/30-minute intervals
0 inches/hour @ 52 inches BGS



TP no. **25** $\frac{1}{2}$ ", $\frac{1}{4}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ " $\rightarrow$ 0.125" Final Reading w/30-minute intervals
0.25 inches/hour @ 55 inches BGS

TP no. **26** 2", 2", $\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ " $\rightarrow$ 0.125" Final Reading w/30-minute intervals
0.25 inches/hour @ 54 inches BGS

TP no. **27** $\frac{1}{4}$ ", $\frac{1}{4}$ ", $\frac{1}{4}$ ", $\frac{1}{4}$ " $\rightarrow$ 0.25 Final Reading w/ 30-minute intervals
0.5 inches/hour @ 56 inches BGS

TP no. **28** $\frac{1}{2}$ ", $\frac{1}{2}$ ", 0, 0 $\rightarrow$ 0 Final Reading w/ 30-minute intervals
0 inches/hour @ 24 inches BGS

TP no. **29** $1\frac{1}{2}$ ", $1\frac{1}{2}$ ", $1\frac{1}{2}$ ", $1\frac{1}{2}$ " $\rightarrow$ 1.50" Final Reading w/30-minute intervals
3 inches/hour @ 24 inches BGS

TP no. **30** $\frac{1}{4}$ ", $\frac{1}{4}$ ", $\frac{1}{2}$ ", $\frac{1}{4}$ " $\rightarrow$ 0.25" Final Reading w/30-minute intervals
0.5 inches/hour @ 36 inches BGS

TP no. **31** $\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ " $\rightarrow$ 0.125" Final Reading w/30-minute intervals
0.25 inches/hour @ 54 inches BGS

TP no. **32** 1", $1\frac{1}{4}$ ", 1", 1" $\rightarrow$ 1" Final Reading w/30-minute intervals
2 inches/hour @ 54 inches BGS

TP no. **33** 1", 1", $\frac{3}{4}$ ", $\frac{3}{4}$ " $\rightarrow$ 0.75" Final Reading w/30-minute intervals
1.5 inches/hour @ 42 inches BGS

TP no. **34** $\frac{1}{4}$ ", $\frac{1}{4}$ ", $\frac{1}{4}$ ", $\frac{1}{4}$ " $\rightarrow$ 0.25" Final Reading w/30-minute intervals
0.5 inches/hour @ 64 inches BGS

TP no. **35** 3", 3", $1\frac{1}{2}$ ", $1\frac{1}{4}$ " $\rightarrow$ 1.25" Final Reading w/30-minute intervals
2.5 inches/hour @ 54 inches BGS

TP no. **36** $\frac{3}{8}$ ", $\frac{1}{4}$ ", $\frac{1}{4}$ ", $\frac{1}{4}$ " $\rightarrow$ 0.25" Final Reading w/ 30-minute intervals
0.5 inches/hour @ 42 inches BGS

TP no. **37** $\frac{1}{8}$ ", $\frac{1}{8}$ ", $\frac{1}{8}$ " $\rightarrow$ 0.125" Final Reading w/30-minute intervals
0.25 inches/hour @ 52 inches BGS



- TP no. **38** 5/8", 5/8", 5/8", 5/8" → 0.625" Final Reading w/ 30-minute intervals
1.25 inches/hour @ 71 inches BGS
- TP no. **39** 5/8", 1/2", 1/2", 1/2" → 0.5" Final Reading w/ 30-minute intervals
0.5 inches/hour @ 84 inches BGS
- TP no. **40** 1-1/4", 1-1/8", 1-1/8", 1-1/8" → 1.125" Final Reading w/ 30-minute intervals
2.25 inches/hour @ 84 inches BGS
- TP no. **41** 0, 0, 0, 0 → 0 Final Reading w/ 30-minute intervals
0 inches/hour @ 36 inches BGS
- TP no. **42** 0, 0, 0, 0 → 0 Final Reading w/ 30-minute intervals
0 inches/hour @ 52 inches BGS
- TP no. **43** 0, 0, 0, 0 → 0 Final Reading w/ 30-minute intervals
0 inches/hour @ 67 inches BGS
- TP no. **44** 1/4", 1/4", 1/4", 1/4" → 0.25" Final Reading w/ 30-minute intervals
0.5 inches/hour @ 25 inches BGS
- TP no. **45** 0, 1/16", 1/16", 1/16" → 0.0625" Final Reading w/ 30-minute intervals
0.125 inches/hour @ 69 inches BGS
- TP no. **46** 1/8", 1/8", 1/8", 1/8" → 0.125" Final Reading w/ 30-minute intervals
0.25 inches/hour @ 84 inches BGS
- TP no. **47** 1/4", 3/16", 3/16", 3/16" → 0.1875" Final Reading w/ 30-minute intervals
0.375 inches/hour @ 84 inches BGS
- TP no. **48** 1/8", 1/8", 1/8", 1/8" → 0.125" Final Reading w/ 30-minute intervals
0.25 inches/hour @ 54 inches BGS
- TP no. **49** 3", 3", 3", 3" → 3" Final Reading w/ 10-minute intervals
18 inches/hour @ 54 inches BGS
- TP no. **50** 0, 0, 0, 0 → 0 Final Reading w/ 30-minute intervals
0 inches/hour @ 60 inches BGS
- TP no. **51** 1", 1", 1", 1" → 1" Final Reading w/ 30-minute intervals
2 inches/hour @ 48 inches BGS



- TP no. **52** 0, 0, 0, 0 → 0 Final Reading w/ 30 min. intervals
0 inches/hour @ 59 inches BGS
- TP no. **53** 1/16", 1/16", 1/16", 1/16" → 0.125 Final Reading w/ 30 min. intervals
0.125 inches/hour @ 66 inches BGS
- TP no. **54** 1/8", 1/8", 1/8", 1/8" → 0.25" Final Reading w/ 30 min. intervals
0.25 inches/hour @ 60 inches BGS
- TP no. **55** 1/16", 1/16", 1/16", 1/16" → 0.0625" Final Reading w/ 30 min. intervals
0.125 inches/hour @ 40 inches BGS
- TP no. **56** 1/8", 1/8", 1/8", 1/8" → 0.125" Final Reading w/30 min. intervals
0.25 inches/hour @ 84 inches BGS
- TP no. **57** 0", 0", 0", 0" → 0 Final Reading w/ 30 min. intervals
0 inches/hour @ 68 inches BGS
- TP no. **58** 0", 0", 0", 0" → 0 Final Reading w/ 30 min. intervals
0 inches/hour @ 52 inches BGS
- TP no. **59A** 0", 0", 0", 0" → 0 Final Reading w/ 30 min. intervals
0 inches/hour @ 50 inches BGS
- TP no. **60** 1/2", 5/8", 1/2", 1/2" → 0.5 Final Reading w/ 30 min. intervals
1 inches/hour @ 62 inches BGS
- TP no. **61** 1/2", 1/2", 1/2", 1/2" → 0.5" Final Reading w/ 30 min. intervals
1 inches/hour @ 76 inches BGS
- TP no. **62** 0, 0, 1/16", 1/16" → 0.0625" Final Reading w/ 30 min. intervals
.125 inches/hour @ 76 inches BGS
- TP no. **63** 0", 1/16", 1/16", 1/16" → 0.0625 Final Reading w/ 30 min. intervals
0.125 inches/hour @ 85 inches BGS
- TP no. **64** 0, 0, 1/16", 1/16" → 0.0625 Final Reading w/ 30 min. intervals
0.125 inches/hour @ 71 inches BGS



TP no. **65** 1/8", 1/8", 1/8", 1/8" → 0.125" Final Reading w/ 30 min. intervals
0.25 inches/hour @ 32 inches BGS

TP no. **66** 1/8", 1/8", 1/8", 1/8" → 0.125" Final Reading w/ 30 min. intervals
0.25 inches/hour @ 66 inches BGS

TP no. **67** 1/4", 1/4", 1/4", 1/4" → 0.25" Final Reading w/ 30-minute intervals
0.5 inches/hour @ 32 inches BGS

CONCLUSIONS AND RECOMMENDATIONS:

1. The design engineer is recommended to utilize the above findings for initial BMP infiltration system design. Typical rate reductions required is suitable for the design. Given the sizes of the facilities more testing is warranted to confirm the initial assumptions.
2. The site is located mainly within the Ledger Formation, and very small portions are within the Chickies Formation to the north and Elbrook Formation to the south. The Ledger geologic formation is a carbonate geology that is susceptible to karst formation. Additionally, numerous surface depressions have been mapped across the site including the western portion of the test pits. In general, UE does not recommend infiltration atop karst geology, particularly where the site has nearby, mapped surface depressions (SEE BELOW) and sinkholes. UE does not recommend infiltration at this site given the nearby mapped depressions and known geologic conditions.
3. It is recommended to have the stormwater facility construction inspected by the geotechnical engineer or representative to ensure the infiltration interface is located in the correct stratum and/or to visually inspect the bottom to ensure no at surface karst features are present given the highly variable infiltration rates this is especially important so areas can be over excavated as needed.

Contact the undersigned should any additional questions or concerns arise.

Sincerely,

Jason Culp, P.E.
Vice President
jason@uzmanengineering.com



OVERALL TEST PIT LOCATIONS
N.T.S.

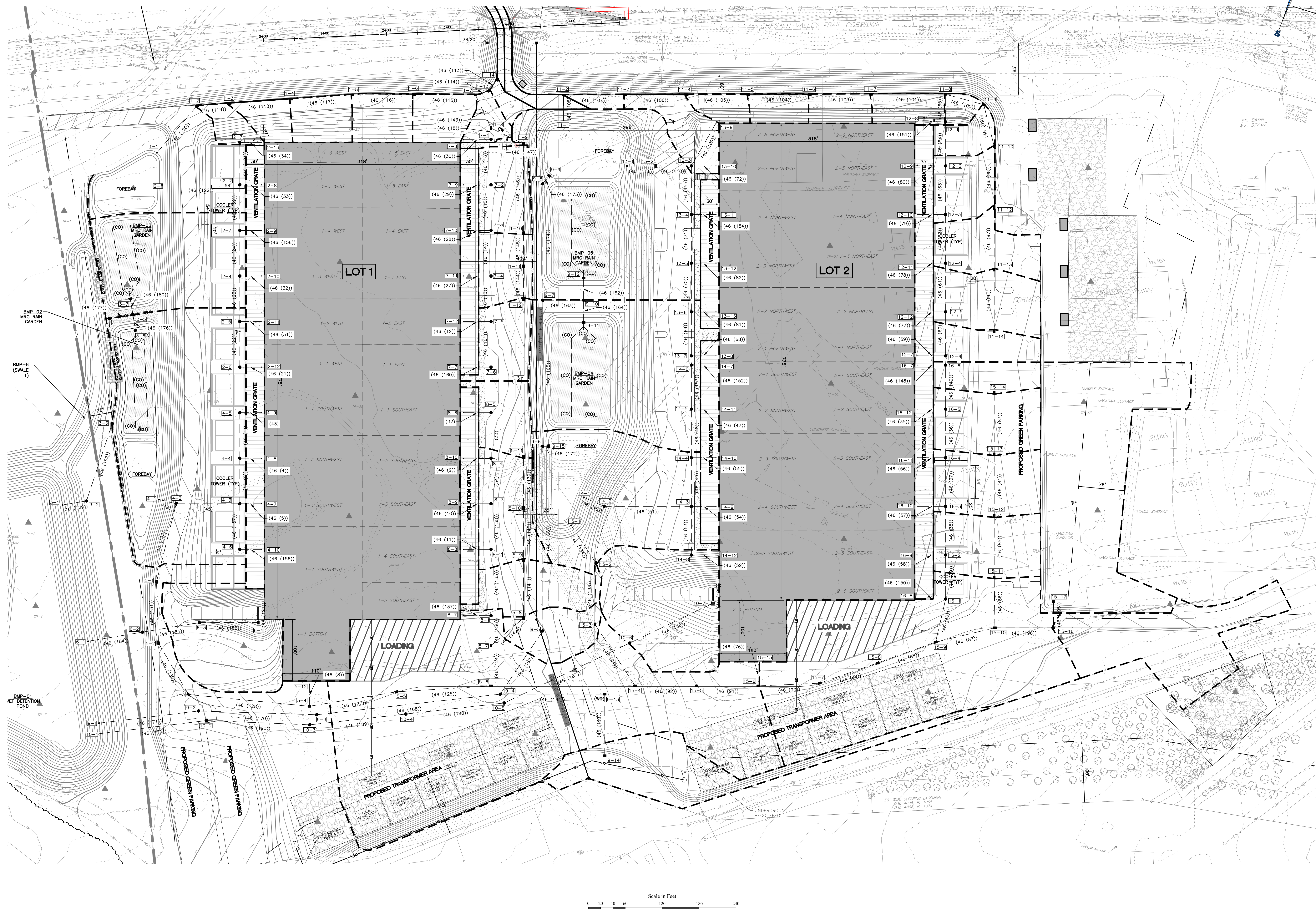


KARST FEATURES LOCATION PLAN
N.T.S.

UZMAN ENGINEERING, LLC.

116 E. King Street,
Malvern, PA 19355.

P: (610) 320-2100
F: (484) 329-6158



JMR ENGINEERING, LLC
 PROFESSIONAL CIVIL ENGINEERING • LAND PLANNING SERVICES
 106 SCHUBERT DRIVE - DOWNTOWN, PA 19335
 PHONE: (484) 880-7342
 EMAIL: ADMIN@JMRENGINEERING.COM
 WEBSITE: WWW.JMRENGINEERING.COM

JOHN M. ROBINSON
 PROFESSIONAL ENGINEER
 PENNSYLVANIA LICENSE NO. PE006271

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PLAN REVISIONS

REV.	DATE	DESCRIPTION OF CHANGES
1	02/21/24	REVISED PER TOWNSHIP COMMENTS
2	04/21/24	REVISED PER TOWNSHIP COMMENTS
3	05/07/24	REVISED FOR NPDES SUBMITTAL
4	05/21/24	REVISED FOR TOWNSHIP COMMENTS

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 EMAIL: ADMIN@JMRENGINEERING.COM
 WEBSITE: WWW.JMRENGINEERING.COM

FINAL LAND DEVELOPMENT PLAN FOR DATA CENTERS

LOCATION:
 13 S. BACTON HILL ROAD
 MALVERN, PA 19355
 EAST & WEST
 WHITELAND TOWNSHIPS
 CHESTER COUNTY, PA

PARCELS:
 TAX PARCEL NUMBER:
 42-3-128, 42-3-130,
 42-3-130.1 & 42-3-130.2
 CLIENT:
 GREEN FIG LAND COMPANY
 10 WOODFORD LANE
 MALVERN, PA 19355

PROJECT No.: 1508-B
 SURVEY REF.: 1195-B (DSS)
 DRAWN BY: E.C.R.
 CHECKED BY: J.M.R.
 PLAN DATE: NOVEMBER 10, 2023
 PLAN SCALE: 1" = 100'

POST-DEVELOPED DRAINAGE AREA PLAN - INLETS

SHEET NUMBER:
3 OF **4**

Plot Date: Thu, May 30, 2024
 File: 1508-B-3.dwg

