

PRELIMINARY **DRAINAGE ANALYSIS REPORT**

ANTHEM CHAPEL GOLETA

**APN 077-160-022
CITY OF GOLETA, CALIFORNIA**

December 13, 2024

PREPARED FOR:

**Anthem Chapel Goleta
6595 Covington Way
Goleta, CA 93111**

PREPARED BY:



CIVIL ENGINEERING • PLANNING
CONSTRUCTION ENGINEERING

FLOWERS & ASSOCIATES, INC.
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Vernon E. Williams, P.E.
Principal Engineer

12/13/2024
Date



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Prepared by Earth Systems Pacific, Project No. 306481-001, dated 3/8/2024 (revised
6/13/24)

PURPOSE OF REPORT

The purpose of this report is to analyze existing and proposed drainage of the project site, evaluate the impacts of the proposed development, and identify the mitigation measures proposed as part of the development.

PROJECT DESCRIPTION

The proposed project is a result of a lot split that will subdivide the existing 3.423-acre lot located at 6595 Covington Way in Goleta, CA (APN: 077-160-022) into two (2) parcels: Parcel 1 is proposed to be 0.881 acres and contains the existing Christ Lutheran Church (CLC) commercial operation (building and parking lot; out of scope) while the remaining vacant and largely undeveloped 2.54 ac (gross) 2.12 acre lot will become Parcel 2 (hereon referred as the subject/proposed project).

The project site consists entirely of pervious gravel and unimproved vegetated areas and is adjacent to the existing commercial CLC property to the north, Los Carneros Road to the west, Santa Barbara County Fire Station 14 to the south, and Lake Los Carneros Park to the east. See *Figure 1, Vicinity Map*, below indicating the approximate location and extents of the proposed project.



Figure 1 - Vicinity Map

The proposed development is a two story, approximately 22,000 square foot (SF) multipurpose building featuring a church with classrooms and a daycare/preschool. The project also proposes a parking lot that will accommodate 125 parking spaces. Access will be provided via two, 25-foot wide driveways. Additional drainage improvements,

landscaping, and flatwork are proposed. See Attachment 3, Post-Development Drainage Exhibit, for more information.

SITE ASSESSMENT

Subsurface evaluation indicates that much of the project site consists of alluvium soils composed of lean sand clays, clayey sands, and silty sands. Stiff fat clay was encountered at depths of 23.5 feet and hard sandy clay was observed at depths of 40 feet. Bedrock is thought to be weathered and unweathered Rincon Formation. Groundwater was encountered in one boring location at a depth of about 20 feet (other borings were less than 20 feet deep), acknowledging that groundwater levels are not static and they do fluctuate due to rainfall, regional climate, and other factors. See Appendix A for more information, boring logs, and testing data.

Per the attached NRCS Web Soil Survey in Attachment 1, most of the site soils consist of Milpas-Positas fine sandy loams, which is classified as Hydrologic Soil Group (HSG) D. HSG D was used in the HydroCAD hydrologic analysis of the site for existing and proposed conditions.

EXISTING DRAINAGE PATTERNS

The existing site is undeveloped and generally flat with gentle slopes downward in the southerly direction. The site has areas previously (and periodically) improved with a permeable gravel topping that covers approximately 175-feet by 270-feet (47,250 SF or 1.08 acres) of the site.

The site is composed of Soil Type D, which only allow for partial percolation of runoff flows into the ground. Therefore, the majority of stormwater is discharged from the site, draining southwest to North Los Carneros Road, and ultimately conveyed to the City of Goleta's storm drain system further south of the project site. Part of the site is draining to the Stow House Park to the south. Ultimately the storm runoff is discharged into the Pacific Ocean. See Attachment 2, Pre-Project Drainage Exhibit.

POST-DEVELOPMENT DRAINAGE PATTERNS

The proposed project site will result in approximately 55% of the property becoming impervious (approx. 51,290 SF of impervious area). Proposed site drainage management areas (DMAs) are shown in the Preliminary Post-Development Drainage Exhibit (Attachment 3). Runoff from proposed impervious areas will be conveyed to the proposed storm water BMPs which include permeable paving, bioretention areas, and self-retaining areas which will treat, retain, and detain stormwater prior discharging offsite to Los Carneros Road. See Table 1 for discharge locations associated with each drainage area.

For analysis purposes, the site is divided into 15 drainage management areas (DMAs): DMAs 1 through 14 direct on-site runoff into an associated stormwater control measure (SCM), while DMA Z (the 15th DMA) collects run-on from Parcel 1 and discharges it through the site, without treatment or storage, onto Los Carneros Road per existing drainage flow patterns.

DMA 1 is located in the eastern corner of the site and consists of a church structure, a permeable paving patio, a bioretention basin, and self-treating landscape areas. Runoff from the proposed roof will be conveyed to the bioretention basin that provides treatment, infiltration, and retention of the stormwater.

DMA 2 encompasses the landscape area in the northwestern corner of the site and is composed of landscape area only. Runoff will drain overland, un-detained, to North Los Carneros Road.

DMA 3, 5, 6, 8, and 12 consist of permeable parking stalls that will capture runoff from the adjacent impervious areas to retain/detain stormwater. Additionally, the permeable paving in DMA 3 and 6 (western driving isle) will be interconnected with storm drains to expand storage for the captured water. Stormwater captured in DMA 3, 5, 6, 8, and 12 will then be conveyed to an outlet on the North Los Carneros right-of-way and ultimately into the City of Goleta storm drain system.

DMA 4 is a self-treating landscape strip located between to aisles of permeable paving at the northern part of the site. Runoff will then drain to the permeable pavers in DMA 3 where stormwater will be retained/detained before discharging offsite.

DMA 7 drains southwest to a bioretention area where stormwater will be treated, detained, and retained. The bioretention basin will also receive runoff from DMA 10.

DMA 9 is a self-treating landscape strip located between to aisles of permeable paving at the northern part of the site. Runoff will then drain to the permeable pavers in DMA 6 where stormwater will be retained/detained before discharging offsite.

DMA 10 drains northeast to a bioretention area where stormwater will be treated, detained, and retained. The bioretention basin will also receive runoff from DMA 7.

DMA 11 encompasses the landscape area in the southwestern part of the site and is classified as a self-treating (landscape) area. Runoff will drain overland, un-detained, to North Los Carneros Road.

DMA 13 is composed of landscape area only and will drain overland, un-detained, to North Los Carneros Road.

DMA 14 is a self-treating area, composed of landscape only, that borders the bioretention area and the property line. Runoff will drain overland, un-detained, towards Stow Park.

See Post-Development Drainage Exhibit, Attachment 3 for the location of DMAs and associated treatment features (permeable pavers, self-treating areas, bioretention areas, etc.)

METHOD OF ANALYSIS

This analysis is based on existing and proposed conditions. The existing runoff analysis is based on topography compiled by Water Cardenas Land Surveying, LLP, dated June 2024 for the Tentative Parcel Map package with vertical datum established as NAVD88. The proposed conditions are based on Preliminary Site Development Plans by Flowers & Associates, Inc (dated December 13, 2024) and the consulting development team. Hydrology calculations for the pre-project and post-project conditions for the 2-year through 100-year, 24-hour storm events were generated using HydroCAD software with Santa Barbara Urban Hydrograph calculation method and input variables for the South Coast area, as described in the County of Santa Barbara Flood Control Standard Conditions. See below input parameters used in analysis.

- Runoff Method: SBUH
- Pond Routing Method: Storage-Indication
- Rainfall Distribution: SCS 24-hour, Type I distribution
- Antecedent Moisture Condition: AMC II
- Hydrograph ordinate time increment: 0.10 hour
- Rainfall Amounts, 24-hour totals:

Area	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Buellton/Santa Ynez	2.83 in.	4.10 in.	4.93 in.	5.97 in.	6.72 in.	7.45 in.
Lompoc	2.20	3.17	3.82	4.62	5.20	5.76
Los Alamos	2.01	2.92	3.51	4.25	4.79	5.30
Sisquoc	1.89	2.74	3.30	3.99	4.49	4.98
South Coast	3.20	4.61	5.55	6.71	7.56	8.38
Santa Maria/Orcutt	1.81	2.62	3.15	3.81	4.29	4.76

The hydrologic soil groups used for the runoff calculation is Group 'D' based on the site Web Soil Survey provided by the USDA NRCS. Time of concentration was calculated by using the coverage condition and average slope to determine an average overland flow velocity per chapter 3 of NRCS 'Urban Hydrology for Small Watersheds, TR-55' (210-VI-TR-55) and entering the maximum inner tributary distance and the overland flow velocity into HydroCAD. A value of 12 minutes is the minimum time of concentration per the County Flood Control standards. The calculated time of concentrations are less than 12 minutes. Therefore 12 minutes is used for the analysis of the existing and proposed conditions.

Curve numbers used in the analysis for existing and proposed surfaces were assigned to each soil type depending on the associated hydrologic soil group. They were determined

using the tables provided in HydroCAD and Technical Resource 55 (TR-55) based on the surface materials and site soils information. For the undeveloped ground cover description, a brush/weed/grass mix was used and assumed to be in a poor condition, HSG D.

ANALYSIS RESULTS

County of Santa Barbara Flood Control requires that runoff from the proposed project site does not exceed existing peak runoff from the existing project site. Using the methodology above, the peak flow discharge for drainage areas of existing and proposed conditions for the 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year storm events were analyzed.

EXISTING HYDROLOGY CALCULATIONS

Calculated existing peak flows for the existing project site are summarized in Table 1 below. See Attachment 4, Pre-Project Hydrology Calculations for supporting pre-project calculations.

Table 1 – Pre-Project Peak Flows

	<u>Area</u> (SF)	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q25 (cfs)	Q50 (cfs)	Q100 (cfs)
Site	92,400	0.90	2.07	2.94	4.09	4.96	5.98

POST-DEVELOPMENT HYDROLOGY CALCULATIONS

Due to an increase in impervious area, the proposed improvements result in increased peak flows for all storm events (before mitigation). Calculated proposed peak flows for the proposed project site are summarized in Table 2 below. See Attachment 5, Post-Project Hydrology Calculations for supporting post-project calculations.

Table 2 - Post Development Peak Flows

	Area (SF)	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q25 (cfs)	Q50 (cfs)	Q100 (cfs)
DMA 1	30,044	0.79	1.25	1.57	1.97	2.26	2.54
DMA 2	4,320	0.07	0.13	0.18	0.23	0.28	0.32
DMA 3,5,6 & 8	42,981	1.31	2.00	2.46	3.03	3.44	3.84
DMA 4&9	2,875	0.05	0.09	0.12	0.16	0.19	0.22
DMA 7	1,650	0.05	0.08	0.1	0.12	0.13	0.15
DMA 10	1,440	0.05	0.07	0.08	0.1	0.12	0.13
DMA 11	1,385	0.02	0.04	0.06	0.08	0.09	0.1
DMA 12	4,685	0.15	0.22	0.27	0.33	0.38	0.42
DMA 13	1,320	0.03	0.05	0.06	0.08	0.09	0.1
DMA 14	890	0.01	0.03	0.04	0.05	0.06	0.07
DMA Z	810						
Total	92,400	2.53	3.96	4.94	6.15	7.04	7.89

PRE-PROJECT VS POST-DEVELOPMENT PEAK FLOW COMPARISON

Detention has been analyzed to show that post-development peak flows do not exceed the pre-project conditions for the 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour storm events. Table 3 summarizes the existing runoff, the proposed runoff, and the detention requirements for the subject project.

Table 3 – Project Detention Requirements

	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q25 (cfs)	Q50 (cfs)	Q100 (cfs)
Existing Runoff (Table 1)	0.90	2.07	2.94	4.09	4.96	5.98
Proposed Runoff (Table 2)	2.53	3.96	4.94	6.15	7.04	7.89
Flow Detention Requirements	1.63	1.89	3.00	2.06	2.04	1.91

Detention facilities are proposed to ensure that the detention of peak flows provided by the proposed SCMs results in an overall reduction in peak flows in the proposed condition compared to the pre-project condition. Table 4 summarizes associated drainage facilities for each DMA.

Table 4 – Drainage Facilities Associated with Each DMA

DMA	Associated Drainage Facility
1	Bioretention Basin (SCM-1)
2	Un-detained
3	Self-Retaining (Permeable Pavers)
4	Self-retaining (Landscape)
5	Self-Retaining (Permeable Pavers)
6	Self-Retaining (Permeable Pavers)
7	Bioretention Basin (SCM-2)
8	Self-Retaining (Permeable Pavers)
9	Self-retaining (Landscape)
10	Bioretention Basin (SCM-2)
11	Un-detained
12	Self-Retaining (Permeable Pavers)
13	Un-detained
14	Un-detained
Z- offsite	Un-detained

Detention analyses were conducted using HydroCAD Stormwater Modeling System software.

Table 5 summarizes the total peak flows that will be released offsite after runoff has drained through each associated drainage facility or drained offsite un-detained. Exfiltration into the underlying subgrade and storage proposed below the invert elevation for each system was excluded from the HydroCAD model as required by Santa Barbara Flood Control Requirements. Supporting calculations can be found in Attachment 5.

Table 5. Detention Summary: Peak Flows Released from Site

	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q25 (cfs)	Q50 (cfs)	Q100 (cfs)
Total Offsite Runoff	0.44	0.99	1.37	1.65	1.84	2.49

Table 5 (next page) shows that the post-project runoff does not exceed pre-project flows, thereby satisfying County of Santa Barbara Project Clean Water Requirements.

9,670 CF of storage is required to detain the 100-year storm event for the project site. The proposed system provides 26,958 CF of storage - exceeding the Flood Control Standard Conditions.

The detention of peak flows provided by the proposed SCMs results in an overall reduction in peak flows in the proposed condition compared to the pre-project condition. The resulting additive peak flows show that the mitigation by utilizing the proposed SCMs is adequate to lower the total peak flow discharge from existing conditions for the site.

Table 6. Pre-Project vs. Post Project Comparison

	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q25 (cfs)	Q50 (cfs)	Q100 (cfs)
Pre-Project	0.90	2.07	2.94	4.09	4.96	5.98
Post-Project	0.54	1.21	1.70	2.18	2.60	2.93
Change	-0.36	-0.86	-1.24	-1.91	-2.36	-3.05

CONCLUSION

Design of the drainage facilities meets County of Santa Barbara requirements. Runoff is detained within the permeable pavers and bioretention basins so that peak flows from the project do not exceed existing flows for the 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year storm events for runoff draining to the Los Carneros Road right-of-way.

ATTACHMENT 1
NRCS WEB SOIL SURVEY

Soil Map—Santa Barbara County, California, South Coastal Part



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: Santa Barbara County, California, South Coastal Part

Survey Area Data: Version 16, Sep 12, 2023

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

Date(s) aerial images were photographed: Apr 12, 2022—Apr 29, 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
MeC	Milpitas-Positas fine sandy loams, 2 to 9 percent slopes	3.2	100.0%
Totals for Area of Interest		3.2	100.0%

Santa Barbara County, California, South Coastal Part

MeC—Milpitas-Positas fine sandy loams, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hc63

Elevation: 20 to 520 feet

Mean annual precipitation: 20 to 23 inches

Mean annual air temperature: 59 to 62 degrees F

Frost-free period: 360 to 365 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Milpitas and similar soils: 45 percent

Positas and similar soils: 35 percent

Minor components: 20 percent

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

Description of Milpitas

Setting

Landform: Terraces

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Mixed alluvium

Typical profile

H1 - 0 to 25 inches: fine sandy loam

H2 - 25 to 54 inches: gravelly clay

H3 - 54 to 68 inches: very gravelly sandy loam

Properties and qualities

Slope: 2 to 9 percent

Depth to restrictive feature: 20 to 28 inches to abrupt textural change

Drainage class: Moderately well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 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 3.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D

Ecological site: R015XD115CA - CLAYPAN

Hydric soil rating: No

Description of Positas

Setting

Landform: Terraces

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Mixed alluvium

Typical profile

H1 - 0 to 19 inches: fine sandy loam

H2 - 19 to 41 inches: clay

H3 - 41 to 68 inches: clay loam

Properties and qualities

Slope: 2 to 9 percent

Depth to restrictive feature: 14 to 26 inches to abrupt textural change

Drainage class: Moderately well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D

Ecological site: R015XD115CA - CLAYPAN

Hydric soil rating: No

Minor Components

Botella

Percent of map unit: 7 percent

Landform: Valleys

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Ballard

Percent of map unit: 7 percent

Landform: Alluvial fans

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Convex

Hydric soil rating: No

Eroded soils

Percent of map unit: 6 percent

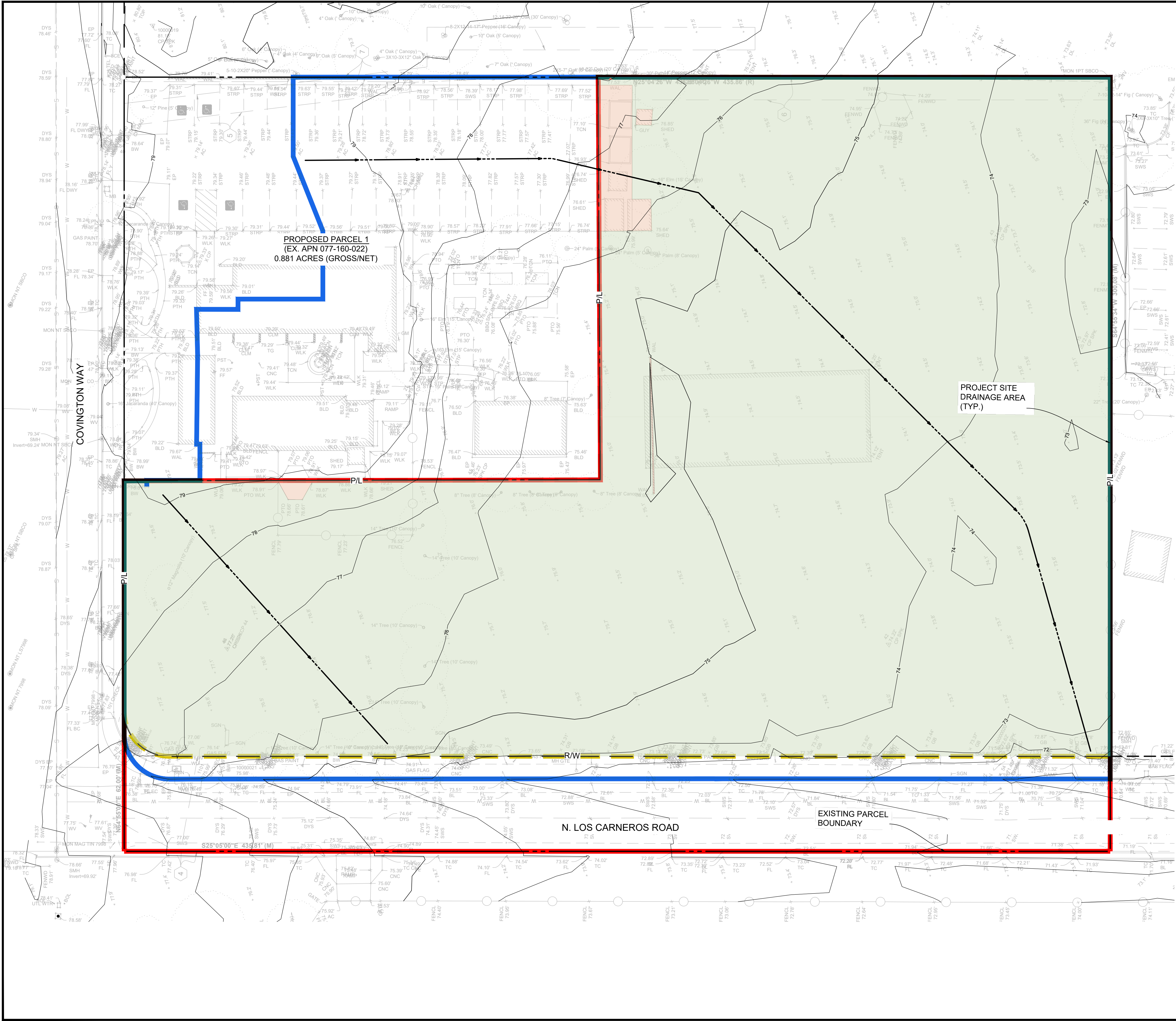
Hydric soil rating: No

Data Source Information

Soil Survey Area: Santa Barbara County, California, South Coastal Part

Survey Area Data: Version 16, Sep 12, 2023

ATTACHMENT 2
PRE-PROJECT DRAINAGE EXHIBIT



LEGEND

- PROPERTY LINE
- EXISTING FLOW PATH
- EXISTING DRAINAGE AREA BOUNDARY (2.86 AC)
- EXISTING PARCEL BOUNDARY (2.56 AC GROSS)
- PROJECT SITE DRAINAGE AREA (2.12 AC)
- EXISTING IMPERVIOUS AREA
- EXISTING PERVIOUS AREA

EXISTING SITE COVERAGE STATISTICS

PERVIOUS AREA	91,100 SF (2.09 AC)
IMPERVIOUS AREA	1,300 SF (0.03 AC)
TOTAL EXISTING PROJECT PARCEL	92,400 SF (2.12 AC)

PRELIMINARY - NOT FOR CONSTRUCTION

PRE-PROJECT DRAINAGE EXHIBIT

PRELIMINARY ANTHEM CHAPEL GOLETA IMPROVEMENT PLANS
6595 COVINGTON WAY
APN 077-160-022
CITY OF GOLETA, CALIFORNIA

EXHIBIT

DECEMBER 13, 2024

SHT. 1 OF 1

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PROFESSIONAL ENGINEER
JENNIFER E. WILLIAMS
No. 33690
CIVIL
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

DATE: _____

DESCRIPTION

REVISIONS

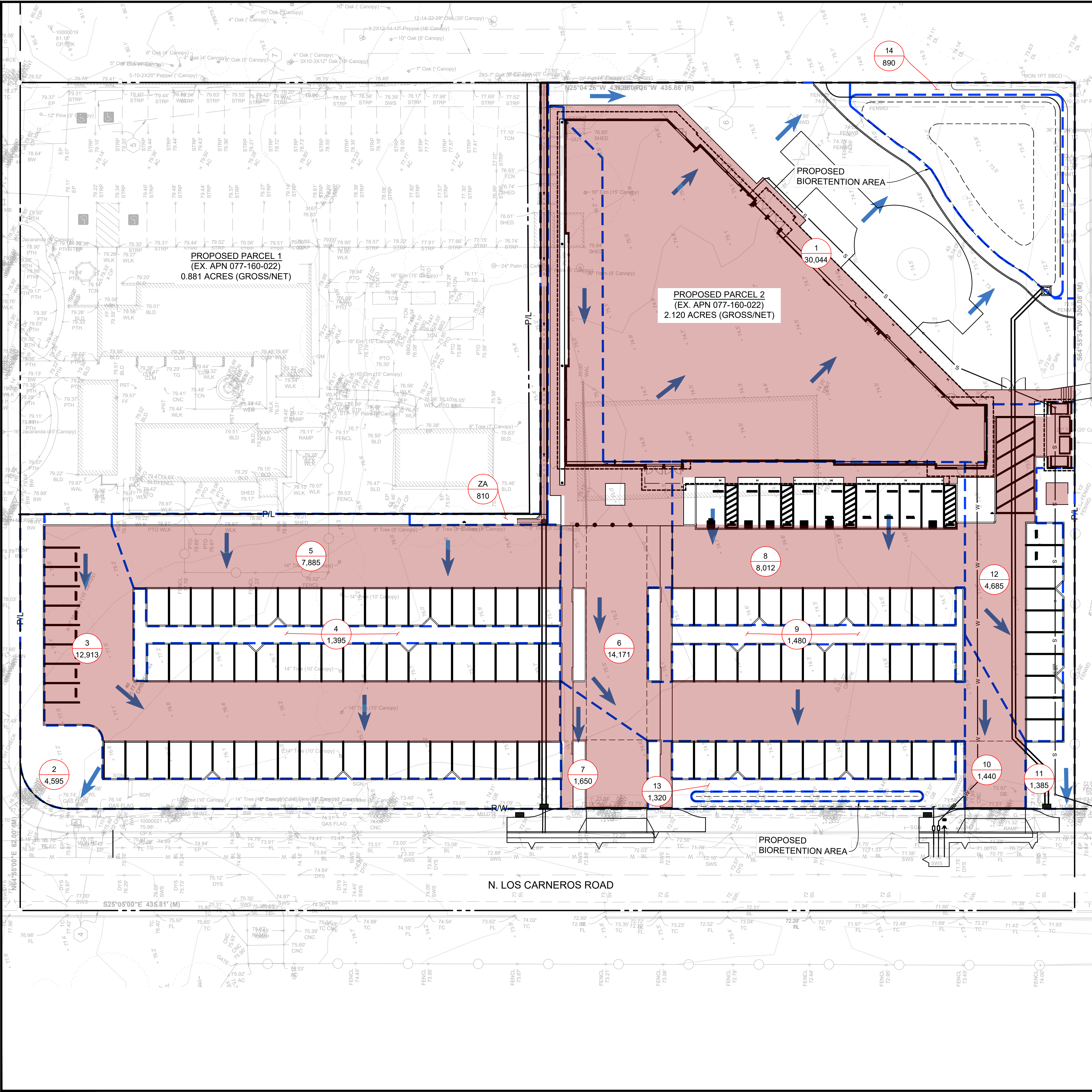
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DATE

APPROVED

PLOTTED: Friday, December 13, 2024 5:19:18 PM 22027_DRAINAGE EXHIBITS_PRE & POST.DWG W.O. 22027

ATTACHMENT 3
POST-DEVELOPMENT DRAINAGE EXHIBIT



GENERAL NOTES

- SEE ARCHITECT'S PLAN FOR CONCEPT BUILDING ROOF CONFIGURATION.
- FOR DETAILS ON STORMWATER CONTROL MEASURES (BIORETENTION / PERMEABLE PAVERS) - SEE PRELIMINARY STORM WATER CONTROL PLAN (REPORT).

LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- EXISTING EASEMENT
- AREA BOUNDARY
- DRAINAGE MANAGEMENT AREA (DMA) DESIGNATION TOTAL AREA (SF)
- SURFACE RUNOFF FLOW DIRECTION
- PROPOSED NEW IMPERVIOUS SURFACE

SITE STATISTICS

TOTAL PARCEL NET AREA =	92,400 SF (2.12 AC)
IMPERVIOUS AREA	
NEW TOTAL IMPERVIOUS AREA (BUILDING, PAVING, AND HARDSCAPE) =	48,865 SF (1.12 AC)
PERVIOUS AREA	
PROPOSED LANDSCAPING =	22,085 SF (0.51 AC)
PROPOSED PERMEABLE PAVEMENT =	17,586 SF (0.40 AC)
PROPOSED BIORETENTION AREAS STORMWATER CONTROL MEASURE (SCMs) =	3,864 SF (0.09 AC)
PROPOSED LANDSCAPED AREA AND DRAINAGE COURSE (INCLUDING SCMs AND PERMEABLE PAVEMENT) =	43,535 SF (1.00 AC)

PRELIMINARY - NOT FOR CONSTRUCTION

POST-PROJECT DRAINAGE EXHIBIT

PRELIMINARY ANTHEM CHAPEL GOLETA IMPROVEMENT PLANS
6595 COVINGTON WAY
APN 077-160-022
CITY OF GOLETA, CALIFORNIA

EXHIBIT

DECEMBER 13, 2024

SHT. 1 OF 1

FLOWERS & ASSOCIATES, INC.
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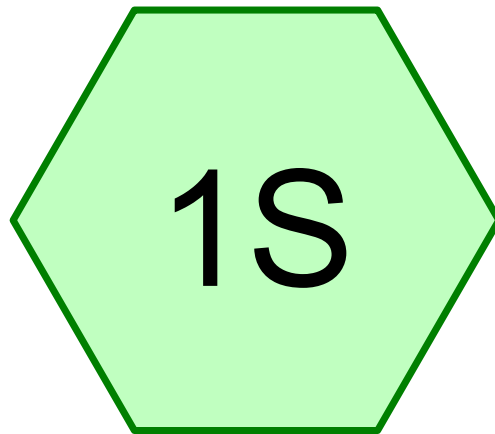
PROFESSIONAL ENGINEER
JENNIFER E. WILLIAMS
No. 33690
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STATE OF CALIFORNIA

NOT FOR CONSTRUCTION
BY: _____ DATE: _____
THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR OR LIABLE FOR, USE OF ANY PART OF THESE PLANS, INCLUDING ANY NOTE OR DETAIL, FOR ANY UNAPPROVED OR REVISED PROJECT SCOPE, OR FOR ANY OTHER PROJECT AT THIS OR ANY OTHER SITE.

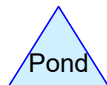
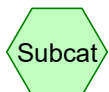
REVISIONS

NO.	DESCRIPTION	DATE

ATTACHMENT 4
PRE-PROJECT HYDROLOGY CALCULATIONS



Existing_1300
IMP/92400 TOT



Routing Diagram for 22027_DRAINAGE

Prepared by Flowers & Associates, Inc, Printed 12/13/2024
HydroCAD® 10.20-5c s/n 03026 © 2023 HydroCAD Software Solutions LLC

22027_DRAINAGE

Prepared by Flowers & Associates, Inc

Printed 12/13/2024

HydroCAD® 10.20-5c s/n 03026 © 2023 HydroCAD Software Solutions LLC

Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year Storm	Type I 24-hr		Default	24.00	1	3.20	2
2	5-Year Storm	Type I 24-hr		Default	24.00	1	4.61	2
3	10-Year Storm	Type I 24-hr		Default	24.00	1	5.55	2
4	25-Year Storm	Type I 24-hr		Default	24.00	1	6.71	2
5	50-Year Storm	Type I 24-hr		Default	24.00	1	7.56	2
6	95th Percentile	Type I 24-hr		Default	24.00	1	2.30	2
7	100-Year Storm	Type I 24-hr		Default	24.00	1	8.38	2

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.085	89	<50% Grass cover, Poor, HSG D (1S)
1.007	83	Brush, Poor, HSG D (1S)
0.030	98	roof (1S)
2.121	86	TOTAL AREA

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Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
2.091	HSG D	1S
0.030	Other	1S
2.121		TOTAL AREA

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Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	1.085	0.000	1.085	<50% Grass cover, Poor	1S
0.000	0.000	0.000	1.007	0.000	1.007	Brush, Poor	1S
0.000	0.000	0.000	0.000	0.030	0.030	roof	1S
0.000	0.000	0.000	2.091	0.030	2.121	TOTAL AREA	

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Type I 24-hr 2-Year Storm Rainfall=3.20"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment1S: Existing_1300IMP/92400 Runoff Area=92,400 sf 1.41% Impervious Runoff Depth>1.84"

Tc=12.0 min CN=86/98 Runoff=2.05 cfs 0.326 af

Total Runoff Area = 2.121 ac Runoff Volume = 0.326 af Average Runoff Depth = 1.84"

98.59% Pervious = 2.091 ac 1.41% Impervious = 0.030 ac

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Type I 24-hr 2-Year Storm Rainfall=3.20"

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Summary for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Runoff = 2.05 cfs @ 10.03 hrs, Volume= 0.326 af, Depth> 1.84"

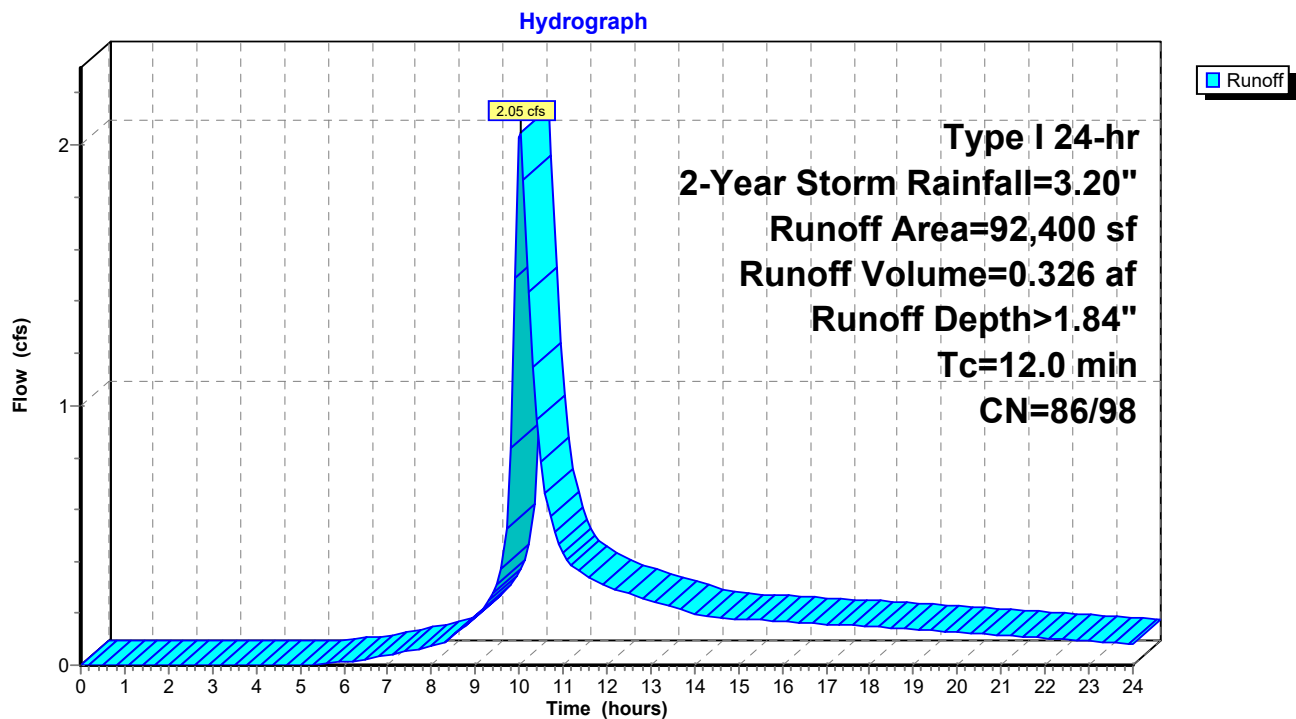
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Type I 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
	43,850	83	Brush, Poor, HSG D
*	1,300	98	roof
	47,250	89	<50% Grass cover, Poor, HSG D
	92,400	86	Weighted Average
	91,100	86	98.59% Pervious Area
	1,300	98	1.41% Impervious Area

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

Subcatchment 1S: Existing_1300 IMP/92400 TOT



22027_DRAINAGE

Type I 24-hr 2-Year Storm Rainfall=3.20"

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Hydrograph for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00	0.00
1.00	0.06	0.00	0.00	0.00
1.50	0.08	0.00	0.01	0.00
2.00	0.11	0.00	0.02	0.00
2.50	0.14	0.00	0.03	0.00
3.00	0.17	0.00	0.05	0.00
3.50	0.21	0.00	0.07	0.00
4.00	0.24	0.00	0.10	0.00
4.50	0.28	0.00	0.13	0.00
5.00	0.32	0.00	0.16	0.00
5.50	0.36	0.00	0.19	0.01
6.00	0.40	0.00	0.23	0.01
6.50	0.45	0.01	0.27	0.02
7.00	0.50	0.02	0.32	0.04
7.50	0.56	0.03	0.37	0.06
8.00	0.62	0.05	0.43	0.07
8.50	0.70	0.07	0.50	0.11
9.00	0.81	0.11	0.61	0.18
9.50	0.97	0.18	0.76	0.31
10.00	1.65	0.59	1.43	2.03
10.50	1.87	0.75	1.64	0.78
11.00	1.99	0.84	1.77	0.43
11.50	2.10	0.92	1.87	0.35
12.00	2.19	0.99	1.96	0.30
12.50	2.27	1.06	2.04	0.27
13.00	2.34	1.12	2.11	0.25
13.50	2.41	1.17	2.18	0.22
14.00	2.46	1.21	2.23	0.20
14.50	2.52	1.26	2.29	0.18
15.00	2.57	1.30	2.34	0.18
15.50	2.62	1.34	2.39	0.17
16.00	2.66	1.38	2.43	0.17
16.50	2.71	1.42	2.48	0.16
17.00	2.75	1.45	2.52	0.16
17.50	2.79	1.49	2.56	0.15
18.00	2.84	1.52	2.60	0.15
18.50	2.87	1.56	2.64	0.14
19.00	2.91	1.59	2.68	0.14
19.50	2.95	1.62	2.72	0.13
20.00	2.98	1.65	2.75	0.13
20.50	3.02	1.68	2.78	0.12
21.00	3.05	1.70	2.81	0.11
21.50	3.08	1.73	2.84	0.11
22.00	3.10	1.75	2.87	0.10
22.50	3.13	1.77	2.90	0.10
23.00	3.16	1.80	2.92	0.09
23.50	3.18	1.82	2.95	0.09
24.00	3.20	1.84	2.97	0.08

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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment1S: Existing_1300IMP/92400 Runoff Area=92,400 sf 1.41% Impervious Runoff Depth>3.11"

Tc=12.0 min CN=86/98 Runoff=3.54 cfs 0.550 af

Total Runoff Area = 2.121 ac Runoff Volume = 0.550 af Average Runoff Depth = 3.11"

98.59% Pervious = 2.091 ac 1.41% Impervious = 0.030 ac

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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Summary for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Runoff = 3.54 cfs @ 10.02 hrs, Volume= 0.550 af, Depth> 3.11"

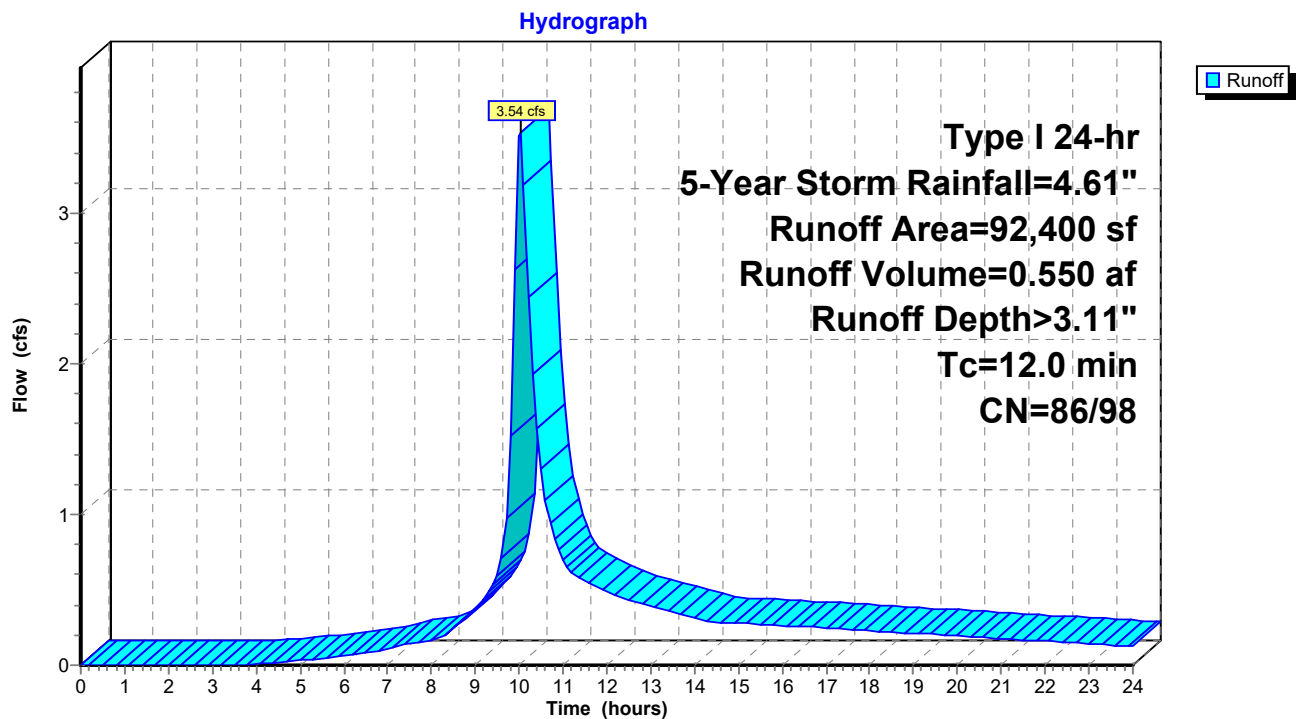
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Type I 24-hr 5-Year Storm Rainfall=4.61"

	Area (sf)	CN	Description
	43,850	83	Brush, Poor, HSG D
*	1,300	98	roof
	47,250	89	<50% Grass cover, Poor, HSG D
	92,400	86	Weighted Average
	91,100	86	98.59% Pervious Area
	1,300	98	1.41% Impervious Area

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

Subcatchment 1S: Existing_1300 IMP/92400 TOT



22027_DRAINAGE*Type I 24-hr 5-Year Storm Rainfall=4.61"*

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Hydrograph for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00	0.00
1.00	0.08	0.00	0.01	0.00
1.50	0.12	0.00	0.02	0.00
2.00	0.16	0.00	0.04	0.00
2.50	0.20	0.00	0.07	0.00
3.00	0.25	0.00	0.11	0.00
3.50	0.30	0.00	0.14	0.00
4.00	0.35	0.00	0.19	0.00
4.50	0.40	0.00	0.23	0.02
5.00	0.46	0.01	0.28	0.03
5.50	0.52	0.02	0.33	0.05
6.00	0.58	0.03	0.39	0.06
6.50	0.64	0.05	0.45	0.08
7.00	0.72	0.08	0.52	0.11
7.50	0.80	0.11	0.60	0.14
8.00	0.89	0.15	0.69	0.17
8.50	1.01	0.20	0.80	0.24
9.00	1.17	0.29	0.96	0.38
9.50	1.40	0.43	1.18	0.59
10.00	2.37	1.14	2.15	3.51
10.50	2.69	1.40	2.46	1.30
11.00	2.87	1.55	2.64	0.70
11.50	3.02	1.68	2.79	0.56
12.00	3.15	1.79	2.92	0.49
12.50	3.27	1.90	3.04	0.44
13.00	3.37	1.99	3.14	0.39
13.50	3.47	2.07	3.23	0.35
14.00	3.55	2.14	3.32	0.31
14.50	3.62	2.21	3.39	0.29
15.00	3.70	2.27	3.46	0.28
15.50	3.77	2.34	3.53	0.27
16.00	3.84	2.40	3.60	0.26
16.50	3.90	2.46	3.67	0.25
17.00	3.96	2.51	3.73	0.25
17.50	4.03	2.57	3.79	0.24
18.00	4.08	2.62	3.85	0.23
18.50	4.14	2.67	3.91	0.22
19.00	4.20	2.72	3.96	0.21
19.50	4.25	2.77	4.01	0.20
20.00	4.30	2.82	4.06	0.19
20.50	4.34	2.86	4.11	0.19
21.00	4.39	2.90	4.15	0.18
21.50	4.43	2.94	4.20	0.17
22.00	4.47	2.98	4.24	0.16
22.50	4.51	3.01	4.27	0.15
23.00	4.55	3.05	4.31	0.14
23.50	4.58	3.08	4.34	0.13
24.00	4.61	3.10	4.37	0.12

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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment1S: Existing_1300IMP/92400 Runoff Area=92,400 sf 1.41% Impervious Runoff Depth>3.99"

Tc=12.0 min CN=86/98 Runoff=4.55 cfs 0.705 af

Total Runoff Area = 2.121 ac Runoff Volume = 0.705 af Average Runoff Depth = 3.99"

98.59% Pervious = 2.091 ac 1.41% Impervious = 0.030 ac

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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Summary for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Runoff = 4.55 cfs @ 10.02 hrs, Volume= 0.705 af, Depth> 3.99"

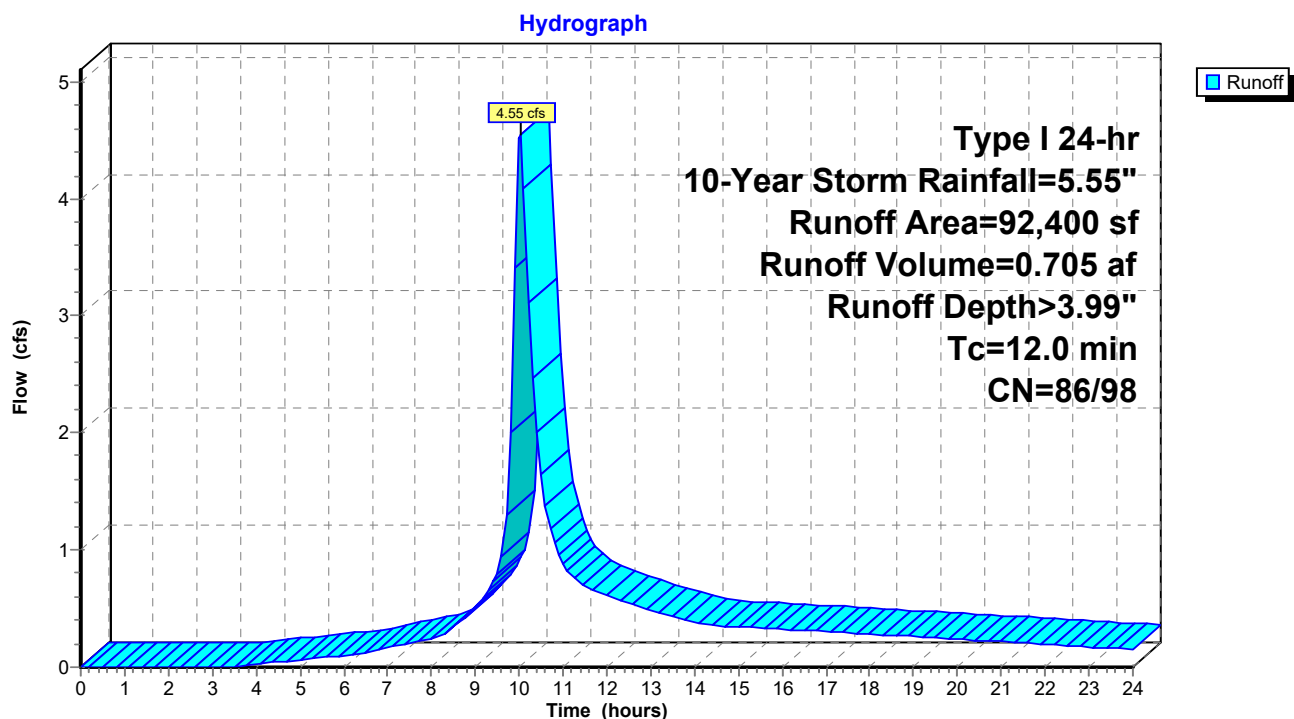
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Type I 24-hr 10-Year Storm Rainfall=5.55"

	Area (sf)	CN	Description
	43,850	83	Brush, Poor, HSG D
*	1,300	98	roof
	47,250	89	<50% Grass cover, Poor, HSG D
	92,400	86	Weighted Average
	91,100	86	98.59% Pervious Area
	1,300	98	1.41% Impervious Area

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

Subcatchment 1S: Existing_1300 IMP/92400 TOT



22027_DRAINAGE

Type I 24-hr 10-Year Storm Rainfall=5.55"

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Hydrograph for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.05	0.00	0.00	0.00
1.00	0.10	0.00	0.01	0.00
1.50	0.15	0.00	0.04	0.00
2.00	0.19	0.00	0.07	0.00
2.50	0.25	0.00	0.10	0.00
3.00	0.30	0.00	0.14	0.00
3.50	0.36	0.00	0.19	0.01
4.00	0.42	0.01	0.25	0.02
4.50	0.49	0.01	0.31	0.04
5.00	0.55	0.03	0.37	0.06
5.50	0.62	0.05	0.43	0.08
6.00	0.69	0.07	0.50	0.10
6.50	0.77	0.10	0.57	0.12
7.00	0.87	0.13	0.66	0.17
7.50	0.97	0.18	0.76	0.21
8.00	1.08	0.24	0.87	0.24
8.50	1.22	0.31	1.00	0.34
9.00	1.41	0.43	1.19	0.51
9.50	1.68	0.62	1.46	0.80
10.00	2.86	1.54	2.63	4.52
10.50	3.24	1.87	3.00	1.65
11.00	3.46	2.06	3.22	0.88
11.50	3.64	2.22	3.40	0.70
12.00	3.80	2.36	3.56	0.61
12.50	3.94	2.49	3.70	0.54
13.00	4.06	2.60	3.83	0.49
13.50	4.17	2.71	3.94	0.44
14.00	4.27	2.80	4.04	0.39
14.50	4.36	2.88	4.13	0.36
15.00	4.45	2.96	4.22	0.34
15.50	4.54	3.04	4.30	0.33
16.00	4.62	3.11	4.38	0.32
16.50	4.70	3.18	4.46	0.31
17.00	4.77	3.26	4.54	0.30
17.50	4.85	3.32	4.61	0.29
18.00	4.92	3.39	4.68	0.28
18.50	4.99	3.45	4.75	0.27
19.00	5.05	3.51	4.81	0.26
19.50	5.11	3.57	4.88	0.25
20.00	5.17	3.63	4.94	0.24
20.50	5.23	3.68	4.99	0.23
21.00	5.28	3.73	5.05	0.22
21.50	5.33	3.78	5.10	0.21
22.00	5.38	3.83	5.15	0.20
22.50	5.43	3.87	5.19	0.18
23.00	5.47	3.91	5.23	0.17
23.50	5.51	3.95	5.27	0.16
24.00	5.55	3.98	5.31	0.15

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment1S: Existing_1300IMP/92400 Runoff Area=92,400 sf 1.41% Impervious Runoff Depth>5.09"

Tc=12.0 min CN=86/98 Runoff=5.81 cfs 0.900 af

Total Runoff Area = 2.121 ac Runoff Volume = 0.900 af Average Runoff Depth = 5.09"

98.59% Pervious = 2.091 ac 1.41% Impervious = 0.030 ac

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Runoff = 5.81 cfs @ 10.02 hrs, Volume= 0.900 af, Depth> 5.09"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

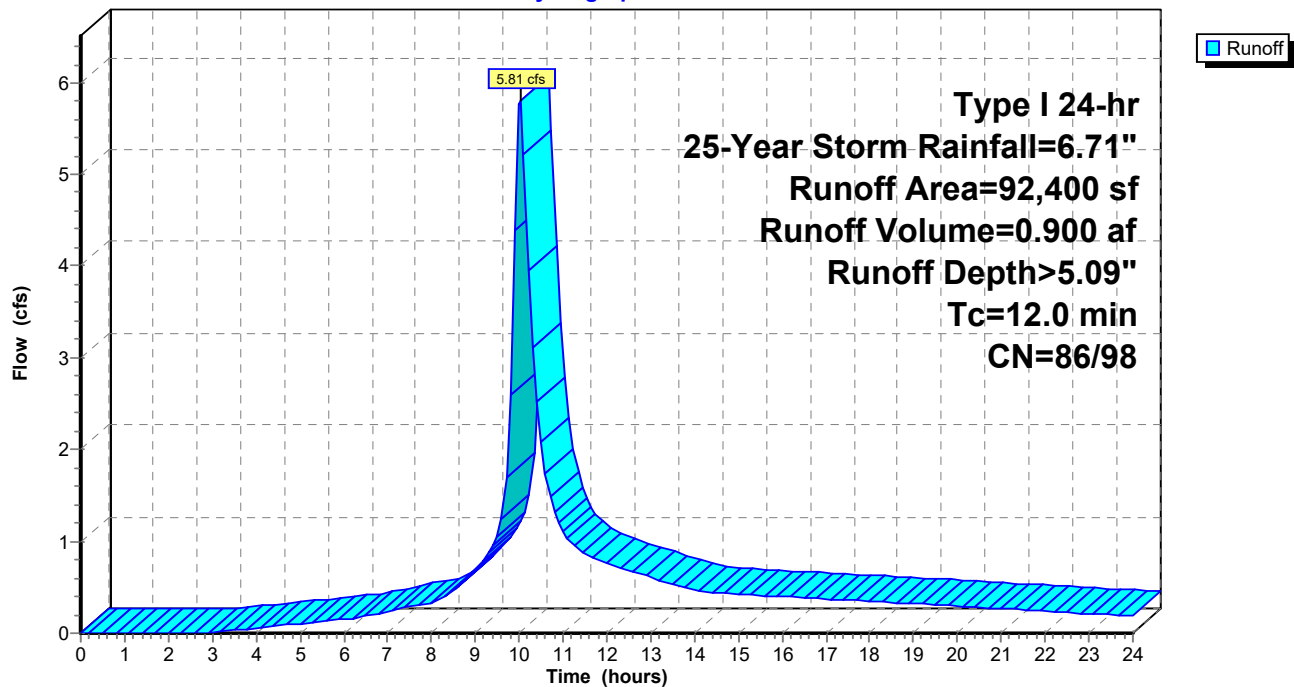
Type I 24-hr 25-Year Storm Rainfall=6.71"

	Area (sf)	CN	Description
	43,850	83	Brush, Poor, HSG D
*	1,300	98	roof
	47,250	89	<50% Grass cover, Poor, HSG D
	92,400	86	Weighted Average
	91,100	86	98.59% Pervious Area
	1,300	98	1.41% Impervious Area

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

Subcatchment 1S: Existing_1300 IMP/92400 TOT

Hydrograph



22027_DRAINAGE

Type I 24-hr 25-Year Storm Rainfall=6.71"

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Hydrograph for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.06	0.00	0.00	0.00
1.00	0.12	0.00	0.02	0.00
1.50	0.18	0.00	0.05	0.00
2.00	0.23	0.00	0.09	0.00
2.50	0.30	0.00	0.14	0.00
3.00	0.36	0.00	0.20	0.01
3.50	0.43	0.01	0.26	0.03
4.00	0.51	0.02	0.33	0.05
4.50	0.59	0.04	0.40	0.08
5.00	0.67	0.06	0.48	0.10
5.50	0.75	0.09	0.55	0.13
6.00	0.84	0.12	0.64	0.15
6.50	0.93	0.17	0.73	0.19
7.00	1.05	0.22	0.84	0.24
7.50	1.17	0.29	0.96	0.29
8.00	1.30	0.37	1.09	0.33
8.50	1.47	0.47	1.25	0.47
9.00	1.70	0.63	1.48	0.69
9.50	2.03	0.87	1.81	1.05
10.00	3.46	2.06	3.22	5.77
10.50	3.91	2.47	3.68	2.08
11.00	4.18	2.71	3.95	1.10
11.50	4.40	2.91	4.16	0.87
12.00	4.59	3.09	4.35	0.76
12.50	4.76	3.24	4.52	0.67
13.00	4.91	3.38	4.68	0.61
13.50	5.05	3.51	4.81	0.54
14.00	5.17	3.62	4.93	0.48
14.50	5.28	3.73	5.04	0.44
15.00	5.38	3.82	5.14	0.43
15.50	5.48	3.92	5.25	0.41
16.00	5.58	4.01	5.35	0.40
16.50	5.68	4.10	5.44	0.39
17.00	5.77	4.19	5.53	0.37
17.50	5.86	4.28	5.62	0.36
18.00	5.95	4.36	5.71	0.35
18.50	6.03	4.44	5.79	0.33
19.00	6.11	4.51	5.87	0.32
19.50	6.18	4.58	5.94	0.31
20.00	6.25	4.65	6.02	0.29
20.50	6.32	4.72	6.08	0.28
21.00	6.39	4.78	6.15	0.27
21.50	6.45	4.84	6.21	0.25
22.00	6.51	4.89	6.27	0.24
22.50	6.56	4.95	6.33	0.23
23.00	6.62	5.00	6.38	0.21
23.50	6.66	5.04	6.43	0.20
24.00	6.71	5.09	6.47	0.19

22027_DRAINAGE

Type I 24-hr 50-Year Storm Rainfall=7.56"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment1S: Existing_1300IMP/92400 Runoff Area=92,400 sf 1.41% Impervious Runoff Depth>5.91"

Tc=12.0 min CN=86/98 Runoff=6.73 cfs 1.044 af

Total Runoff Area = 2.121 ac Runoff Volume = 1.044 af Average Runoff Depth = 5.91"

98.59% Pervious = 2.091 ac 1.41% Impervious = 0.030 ac

22027_DRAINAGE

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Runoff = 6.73 cfs @ 10.02 hrs, Volume= 1.044 af, Depth> 5.91"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

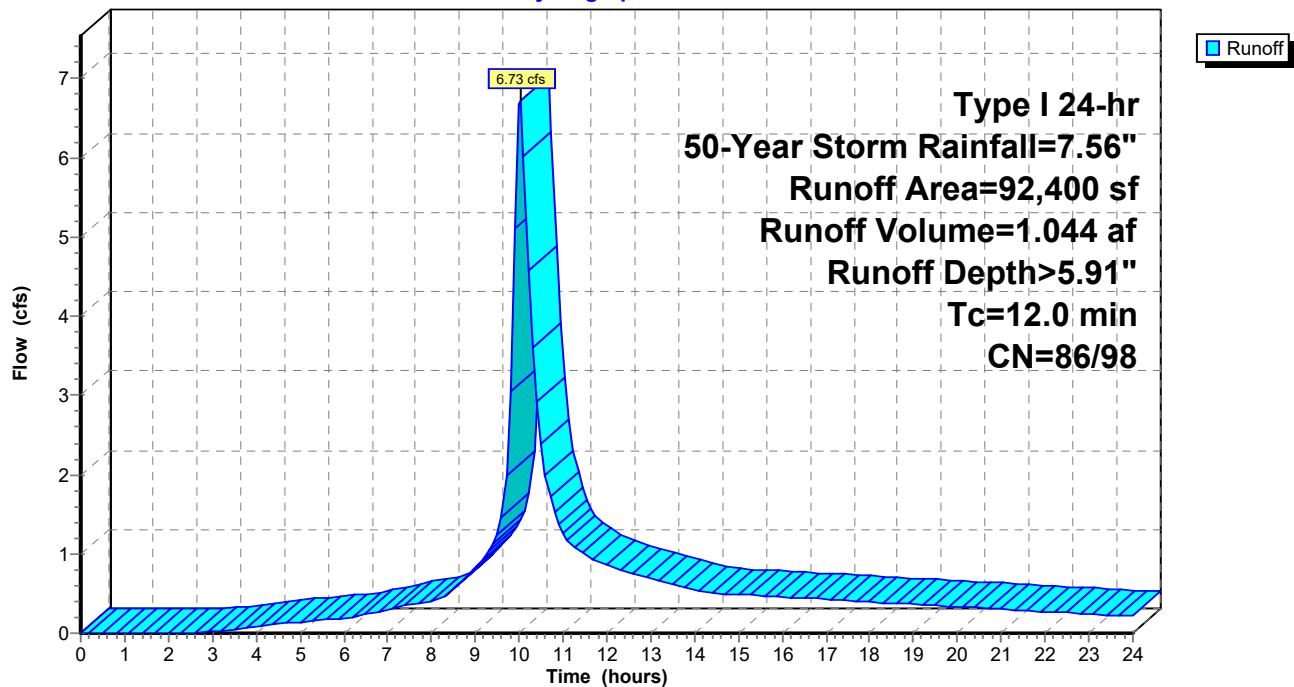
Type I 24-hr 50-Year Storm Rainfall=7.56"

	Area (sf)	CN	Description
	43,850	83	Brush, Poor, HSG D
*	1,300	98	roof
	47,250	89	<50% Grass cover, Poor, HSG D
	92,400	86	Weighted Average
	91,100	86	98.59% Pervious Area
	1,300	98	1.41% Impervious Area

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

Subcatchment 1S: Existing_1300 IMP/92400 TOT

Hydrograph



22027_DRAINAGE

Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.13	0.00	0.03	0.00
1.50	0.20	0.00	0.07	0.00
2.00	0.26	0.00	0.12	0.00
2.50	0.33	0.00	0.17	0.00
3.00	0.41	0.00	0.24	0.02
3.50	0.49	0.01	0.31	0.05
4.00	0.57	0.03	0.39	0.08
4.50	0.66	0.06	0.47	0.11
5.00	0.76	0.09	0.56	0.14
5.50	0.85	0.13	0.65	0.16
6.00	0.95	0.17	0.74	0.19
6.50	1.05	0.22	0.84	0.23
7.00	1.18	0.29	0.97	0.30
7.50	1.32	0.38	1.10	0.36
8.00	1.47	0.47	1.25	0.40
8.50	1.66	0.60	1.43	0.56
9.00	1.92	0.79	1.70	0.82
9.50	2.29	1.07	2.06	1.24
10.00	3.89	2.45	3.66	6.69
10.50	4.41	2.92	4.17	2.39
11.00	4.71	3.20	4.47	1.27
11.50	4.96	3.43	4.72	0.99
12.00	5.17	3.63	4.93	0.86
12.50	5.36	3.81	5.12	0.77
13.00	5.53	3.97	5.30	0.69
13.50	5.69	4.11	5.45	0.62
14.00	5.82	4.24	5.58	0.54
14.50	5.94	4.36	5.71	0.50
15.00	6.06	4.47	5.82	0.48
15.50	6.18	4.58	5.94	0.47
16.00	6.29	4.69	6.05	0.46
16.50	6.40	4.79	6.16	0.44
17.00	6.50	4.89	6.26	0.43
17.50	6.60	4.98	6.36	0.41
18.00	6.70	5.08	6.46	0.40
18.50	6.79	5.16	6.55	0.38
19.00	6.88	5.25	6.64	0.36
19.50	6.96	5.33	6.73	0.35
20.00	7.05	5.41	6.81	0.33
20.50	7.12	5.48	6.88	0.32
21.00	7.20	5.56	6.96	0.30
21.50	7.27	5.62	7.03	0.29
22.00	7.33	5.69	7.09	0.27
22.50	7.40	5.75	7.16	0.26
23.00	7.45	5.80	7.21	0.24
23.50	7.51	5.86	7.27	0.23
24.00	7.56	5.91	7.32	0.21

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment1S: Existing_1300IMP/92400 Runoff Area=92,400 sf 1.41% Impervious Runoff Depth>1.09"

Tc=12.0 min CN=86/98 Runoff=1.16 cfs 0.193 af

Total Runoff Area = 2.121 ac Runoff Volume = 0.193 af Average Runoff Depth = 1.09"

98.59% Pervious = 2.091 ac 1.41% Impervious = 0.030 ac

22027_DRAINAGE

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Runoff = 1.16 cfs @ 10.03 hrs, Volume= 0.193 af, Depth> 1.09"

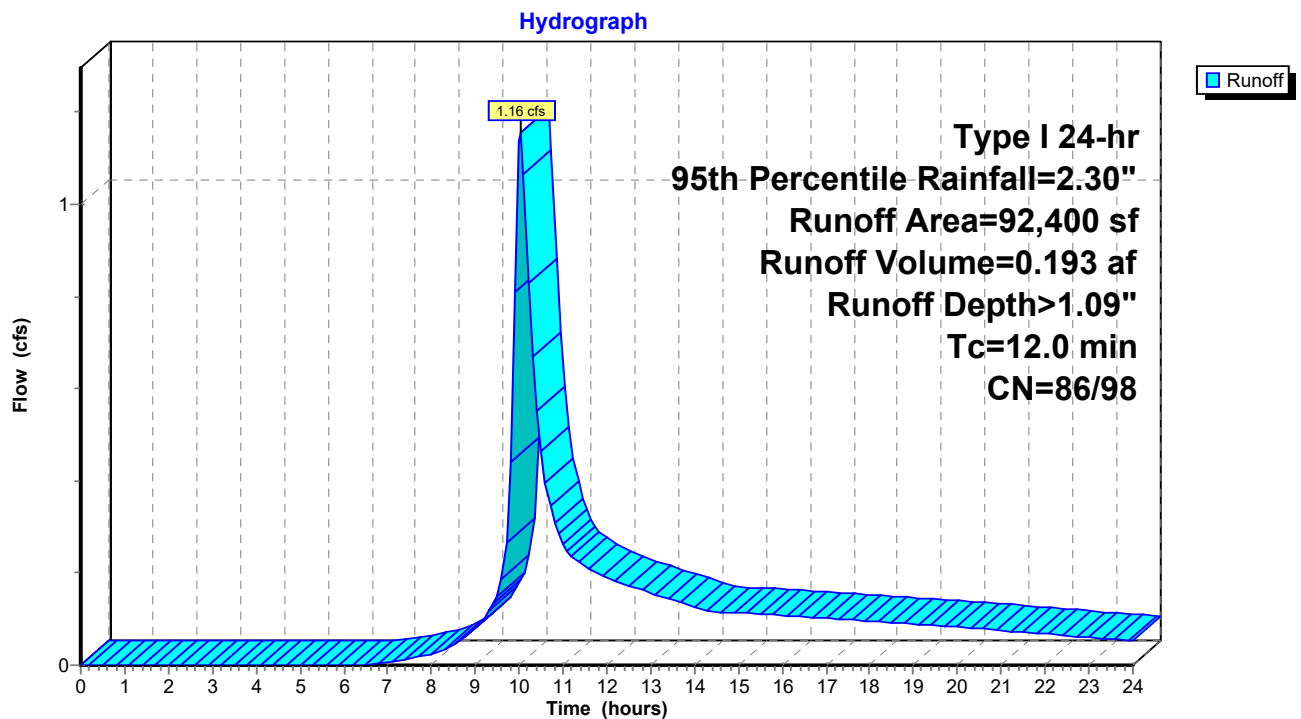
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Type I 24-hr 95th Percentile Rainfall=2.30"

	Area (sf)	CN	Description
	43,850	83	Brush, Poor, HSG D
*	1,300	98	roof
	47,250	89	<50% Grass cover, Poor, HSG D
	92,400	86	Weighted Average
	91,100	86	98.59% Pervious Area
	1,300	98	1.41% Impervious Area

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

Subcatchment 1S: Existing_1300 IMP/92400 TOT



22027_DRAINAGE

Type I 24-hr 95th Percentile Rainfall=2.30"

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Hydrograph for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00	0.00
1.00	0.04	0.00	0.00	0.00
1.50	0.06	0.00	0.00	0.00
2.00	0.08	0.00	0.01	0.00
2.50	0.10	0.00	0.01	0.00
3.00	0.12	0.00	0.02	0.00
3.50	0.15	0.00	0.04	0.00
4.00	0.17	0.00	0.05	0.00
4.50	0.20	0.00	0.07	0.00
5.00	0.23	0.00	0.09	0.00
5.50	0.26	0.00	0.11	0.00
6.00	0.29	0.00	0.13	0.00
6.50	0.32	0.00	0.16	0.00
7.00	0.36	0.00	0.19	0.01
7.50	0.40	0.00	0.23	0.01
8.00	0.45	0.01	0.27	0.02
8.50	0.50	0.02	0.32	0.04
9.00	0.58	0.04	0.40	0.08
9.50	0.70	0.07	0.50	0.15
10.00	1.18	0.30	0.97	1.14
10.50	1.34	0.39	1.12	0.46
11.00	1.43	0.45	1.21	0.26
11.50	1.51	0.50	1.29	0.21
12.00	1.57	0.54	1.35	0.19
12.50	1.63	0.58	1.41	0.17
13.00	1.68	0.62	1.46	0.16
13.50	1.73	0.65	1.51	0.14
14.00	1.77	0.68	1.55	0.13
14.50	1.81	0.71	1.58	0.12
15.00	1.84	0.73	1.62	0.11
15.50	1.88	0.76	1.66	0.11
16.00	1.91	0.78	1.69	0.11
16.50	1.95	0.81	1.72	0.11
17.00	1.98	0.83	1.75	0.10
17.50	2.01	0.86	1.78	0.10
18.00	2.04	0.88	1.81	0.10
18.50	2.07	0.90	1.84	0.09
19.00	2.09	0.92	1.87	0.09
19.50	2.12	0.94	1.89	0.09
20.00	2.14	0.96	1.92	0.08
20.50	2.17	0.98	1.94	0.08
21.00	2.19	1.00	1.96	0.08
21.50	2.21	1.01	1.98	0.07
22.00	2.23	1.03	2.00	0.07
22.50	2.25	1.04	2.02	0.06
23.00	2.27	1.06	2.04	0.06
23.50	2.28	1.07	2.06	0.06
24.00	2.30	1.08	2.07	0.05

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment1S: Existing_1300IMP/92400 Runoff Area=92,400 sf 1.41% Impervious Runoff Depth>6.70"

Tc=12.0 min CN=86/98 Runoff=7.62 cfs 1.184 af

Total Runoff Area = 2.121 ac Runoff Volume = 1.184 af Average Runoff Depth = 6.70"

98.59% Pervious = 2.091 ac 1.41% Impervious = 0.030 ac

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Runoff = 7.62 cfs @ 10.02 hrs, Volume= 1.184 af, Depth> 6.70"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

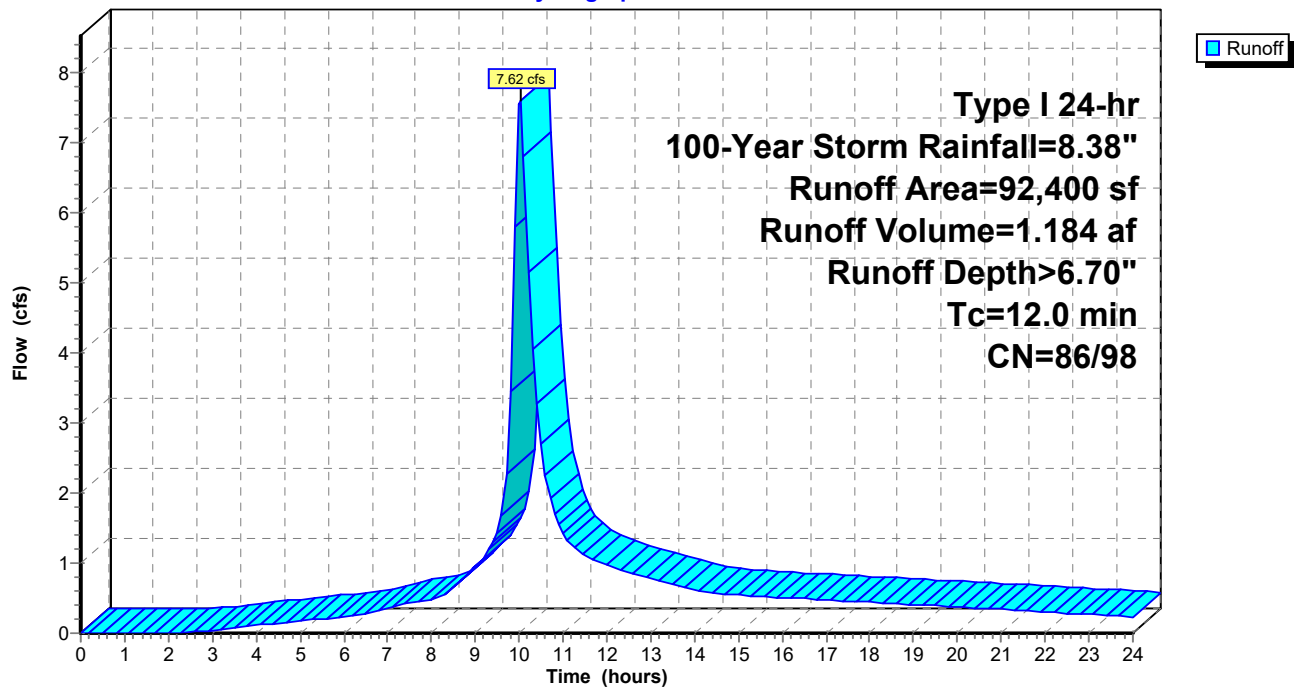
Type I 24-hr 100-Year Storm Rainfall=8.38"

	Area (sf)	CN	Description
	43,850	83	Brush, Poor, HSG D
*	1,300	98	roof
	47,250	89	<50% Grass cover, Poor, HSG D
	92,400	86	Weighted Average
	91,100	86	98.59% Pervious Area
	1,300	98	1.41% Impervious Area

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

Subcatchment 1S: Existing_1300 IMP/92400 TOT

Hydrograph



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Type I 24-hr 100-Year Storm Rainfall=8.38"

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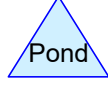
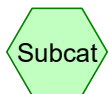
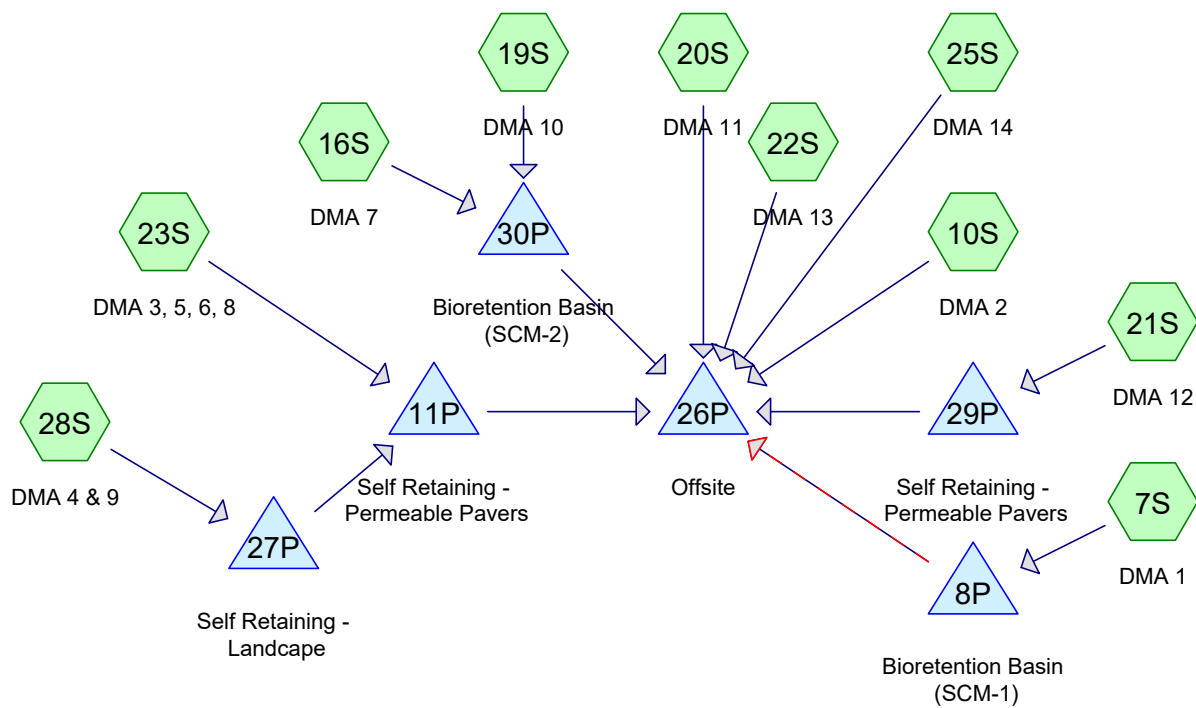
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Hydrograph for Subcatchment 1S: Existing_1300 IMP/92400 TOT

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.15	0.00	0.04	0.00
1.50	0.22	0.00	0.08	0.00
2.00	0.29	0.00	0.14	0.00
2.50	0.37	0.00	0.20	0.01
3.00	0.45	0.01	0.28	0.04
3.50	0.54	0.03	0.36	0.07
4.00	0.64	0.05	0.44	0.11
4.50	0.74	0.08	0.54	0.14
5.00	0.84	0.12	0.63	0.17
5.50	0.94	0.17	0.73	0.20
6.00	1.05	0.22	0.84	0.23
6.50	1.17	0.29	0.95	0.28
7.00	1.31	0.37	1.09	0.36
7.50	1.46	0.47	1.24	0.42
8.00	1.63	0.58	1.40	0.47
8.50	1.84	0.73	1.61	0.65
9.00	2.13	0.95	1.90	0.95
9.50	2.54	1.28	2.31	1.42
10.00	4.32	2.83	4.08	7.57
10.50	4.89	3.36	4.65	2.69
11.00	5.22	3.67	4.98	1.42
11.50	5.49	3.93	5.26	1.11
12.00	5.73	4.16	5.49	0.97
12.50	5.94	4.36	5.71	0.86
13.00	6.13	4.54	5.90	0.78
13.50	6.30	4.70	6.07	0.69
14.00	6.45	4.84	6.21	0.61
14.50	6.59	4.97	6.35	0.56
15.00	6.72	5.10	6.48	0.54
15.50	6.85	5.22	6.61	0.52
16.00	6.97	5.34	6.73	0.51
16.50	7.09	5.45	6.85	0.49
17.00	7.21	5.56	6.97	0.47
17.50	7.32	5.67	7.08	0.46
18.00	7.42	5.77	7.19	0.44
18.50	7.53	5.87	7.29	0.42
19.00	7.63	5.97	7.39	0.41
19.50	7.72	6.06	7.48	0.39
20.00	7.81	6.15	7.57	0.37
20.50	7.90	6.23	7.66	0.36
21.00	7.98	6.31	7.74	0.34
21.50	8.06	6.38	7.82	0.32
22.00	8.13	6.46	7.89	0.30
22.50	8.20	6.52	7.96	0.29
23.00	8.26	6.59	8.02	0.27
23.50	8.32	6.65	8.08	0.25
24.00	8.38	6.70	8.14	0.24

ATTACHMENT 5
POST-PROJECT HYDROLOGY CALCULATIONS



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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year Storm	Type I 24-hr		Default	24.00	1	3.20	2
2	5-Year Storm	Type I 24-hr		Default	24.00	1	4.61	2
3	10-Year Storm	Type I 24-hr		Default	24.00	1	5.55	2
4	25-Year Storm	Type I 24-hr		Default	24.00	1	6.71	2
5	50-Year Storm	Type I 24-hr		Default	24.00	1	7.56	2
6	95th Percentile	Type I 24-hr		Default	24.00	1	2.30	2
7	100-Year Storm	Type I 24-hr		Default	24.00	1	8.38	2

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.089	80	Basin (7S, 16S, 19S)
1.099	98	Impervious (7S, 16S, 19S, 20S, 21S, 22S, 23S)
0.005	98	Impervious Area (28S)
0.404	89	Pavers (7S, 21S, 23S)
0.441	80	Pervious (7S, 10S, 20S, 21S, 22S, 23S, 25S)
0.061	80	Pervious Area (28S)
2.099	91	TOTAL AREA

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Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
2.099	Other	7S, 10S, 16S, 19S, 20S, 21S, 22S, 23S, 25S, 28S
2.099		TOTAL AREA

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Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.089	0.089	Basin	7S, 16S, 19S
0.000	0.000	0.000	0.000	1.099	1.099	Impervious	7S, 16S, 19S, 20S, 21S, 22S, 23S
0.000	0.000	0.000	0.000	0.005	0.005	Impervious Area	28S
0.000	0.000	0.000	0.000	0.404	0.404	Pavers	7S, 21S, 23S
0.000	0.000	0.000	0.000	0.441	0.441	Pervious	7S, 10S, 20S, 21S, 22S, 23S, 25S
0.000	0.000	0.000	0.000	0.061	0.061	Pervious Area	28S
0.000	0.000	0.000	0.000	2.099	2.099	TOTAL AREA	

22027_DRAINAGE

Type I 24-hr 2-Year Storm Rainfall=3.20"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment7S: DMA 1	Runoff Area=30,044 sf 52.67% Impervious Runoff Depth>2.25" Tc=12.0 min CN=81/98 Runoff=0.79 cfs 0.129 af
Subcatchment10S: DMA 2	Runoff Area=4,320 sf 0.00% Impervious Runoff Depth>1.40" Tc=12.0 min CN=80/0 Runoff=0.07 cfs 0.012 af
Subcatchment16S: DMA 7	Runoff Area=1,650 sf 88.48% Impervious Runoff Depth>2.78" Tc=12.0 min CN=80/98 Runoff=0.05 cfs 0.009 af
Subcatchment19S: DMA 10	Runoff Area=1,440 sf 86.81% Impervious Runoff Depth>2.75" Tc=12.0 min CN=80/98 Runoff=0.05 cfs 0.008 af
Subcatchment20S: DMA 11	Runoff Area=1,385 sf 5.78% Impervious Runoff Depth>1.49" Tc=12.0 min CN=80/98 Runoff=0.02 cfs 0.004 af
Subcatchment21S: DMA 12	Runoff Area=4,685 sf 67.02% Impervious Runoff Depth>2.64" Tc=12.0 min CN=88/98 Runoff=0.15 cfs 0.024 af
Subcatchment22S: DMA 13	Runoff Area=1,320 sf 28.79% Impervious Runoff Depth>1.85" Tc=12.0 min CN=80/98 Runoff=0.03 cfs 0.005 af
Subcatchment23S: DMA 3, 5, 6, 8	Runoff Area=42,820 sf 60.16% Impervious Runoff Depth>2.57" Tc=12.0 min CN=88/98 Runoff=1.31 cfs 0.211 af
Subcatchment25S: DMA 14	Runoff Area=890 sf 0.00% Impervious Runoff Depth>1.40" Tc=12.0 min CN=80/0 Runoff=0.01 cfs 0.002 af
Subcatchment28S: DMA 4 & 9	Runoff Area=2,875 sf 7.30% Impervious Runoff Depth>1.51" Tc=12.0 min CN=80/98 Runoff=0.05 cfs 0.008 af
Pond 8P: Bioretention Basin (SCM-1)	Peak Elev=73.90' Storage=2,047 cf Inflow=0.79 cfs 0.129 af Discarded=0.00 cfs 0.000 af Primary=0.37 cfs 0.092 af Secondary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.092 af
Pond 11P: Self Retaining - Permeable Pavers	Peak Elev=72.52' Storage=9,173 cf Inflow=1.31 cfs 0.211 af Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond 26P: Offsite	Inflow=0.44 cfs 0.133 af Primary=0.44 cfs 0.133 af
Pond 27P: Self Retaining - Landcape	Peak Elev=71.50' Storage=361 cf Inflow=0.05 cfs 0.008 af Outflow=0.00 cfs 0.000 af
Pond 29P: Self Retaining - Permeable Pavers	Peak Elev=71.49' Storage=578 cf Inflow=0.15 cfs 0.024 af Discarded=0.00 cfs 0.000 af Primary=0.02 cfs 0.011 af Outflow=0.02 cfs 0.011 af
Pond 30P: Bioretention Basin (SCM-2)	Peak Elev=71.49' Storage=376 cf Inflow=0.10 cfs 0.016 af Outflow=0.02 cfs 0.008 af

22027_DRAINAGE

Type I 24-hr 2-Year Storm Rainfall=3.20"

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Total Runoff Area = 2.099 ac Runoff Volume = 0.411 af Average Runoff Depth = 2.35"
47.39% Pervious = 0.995 ac 52.61% Impervious = 1.104 ac

22027_DRAINAGE

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Type I 24-hr 2-Year Storm Rainfall=3.20"

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Summary for Subcatchment 7S: DMA 1

Runoff = 0.79 cfs @ 10.02 hrs, Volume= 0.129 af, Depth> 2.25"
Routed to Pond 8P : Bioretention Basin (SCM-1)

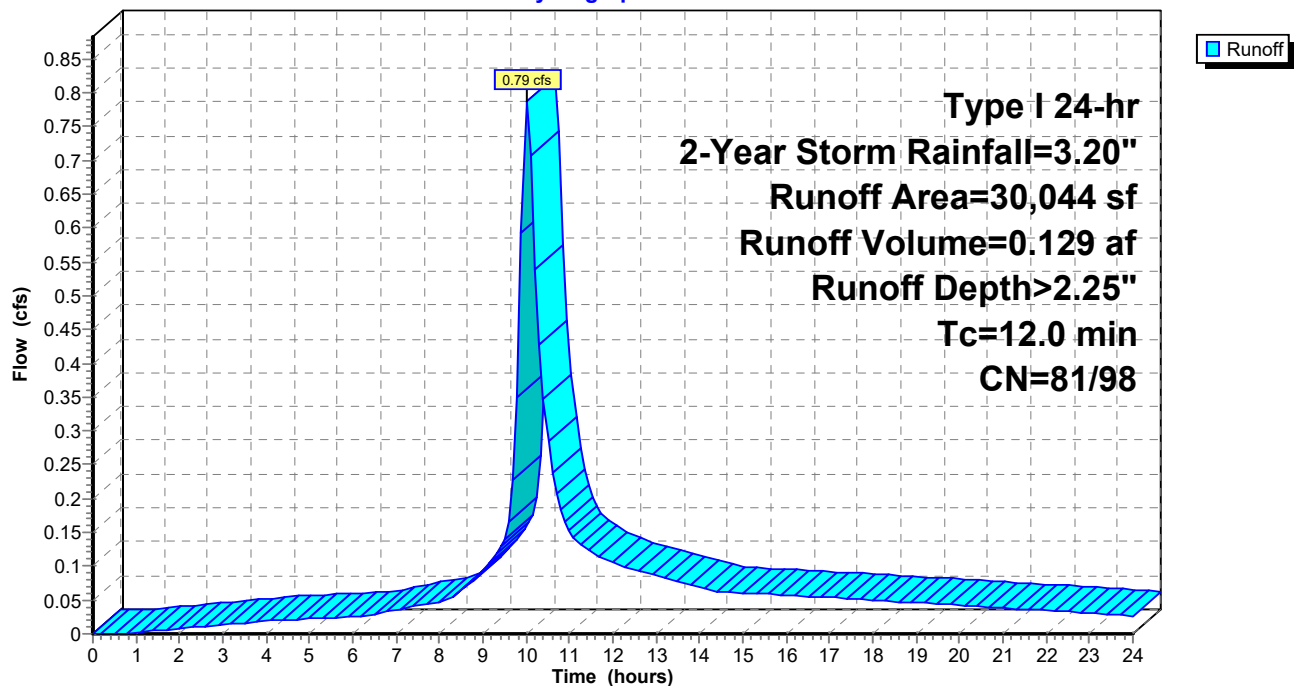
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	15,823	98	Impervious
*	9,370	80	Pervious
*	1,367	89	Pavers
*	3,484	80	Basin
	30,044	90	Weighted Average
	14,221	81	47.33% Pervious Area
	15,823	98	52.67% Impervious Area

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

Subcatchment 7S: DMA 1

Hydrograph



22027_DRAINAGE

Type I 24-hr 2-Year Storm Rainfall=3.20"

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Hydrograph for Subcatchment 7S: DMA 1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00	0.00
1.00	0.06	0.00	0.00	0.00
1.50	0.08	0.00	0.01	0.00
2.00	0.11	0.00	0.02	0.01
2.50	0.14	0.00	0.03	0.01
3.00	0.17	0.00	0.05	0.01
3.50	0.21	0.00	0.07	0.02
4.00	0.24	0.00	0.10	0.02
4.50	0.28	0.00	0.13	0.02
5.00	0.32	0.00	0.16	0.02
5.50	0.36	0.00	0.19	0.02
6.00	0.40	0.00	0.23	0.03
6.50	0.45	0.00	0.27	0.03
7.00	0.50	0.00	0.32	0.04
7.50	0.56	0.00	0.37	0.04
8.00	0.62	0.01	0.43	0.05
8.50	0.70	0.02	0.50	0.06
9.00	0.81	0.04	0.61	0.09
9.50	0.97	0.09	0.76	0.14
10.00	1.65	0.39	1.43	0.78
10.50	1.87	0.52	1.64	0.29
11.00	1.99	0.60	1.77	0.15
11.50	2.10	0.67	1.87	0.12
12.00	2.19	0.73	1.96	0.11
12.50	2.27	0.78	2.04	0.09
13.00	2.34	0.83	2.11	0.09
13.50	2.41	0.88	2.18	0.08
14.00	2.46	0.92	2.23	0.07
14.50	2.52	0.95	2.29	0.06
15.00	2.57	0.99	2.34	0.06
15.50	2.62	1.03	2.39	0.06
16.00	2.66	1.06	2.43	0.06
16.50	2.71	1.09	2.48	0.06
17.00	2.75	1.13	2.52	0.05
17.50	2.79	1.16	2.56	0.05
18.00	2.84	1.19	2.60	0.05
18.50	2.87	1.22	2.64	0.05
19.00	2.91	1.25	2.68	0.05
19.50	2.95	1.27	2.72	0.04
20.00	2.98	1.30	2.75	0.04
20.50	3.02	1.33	2.78	0.04
21.00	3.05	1.35	2.81	0.04
21.50	3.08	1.37	2.84	0.04
22.00	3.10	1.39	2.87	0.03
22.50	3.13	1.41	2.90	0.03
23.00	3.16	1.43	2.92	0.03
23.50	3.18	1.45	2.95	0.03
24.00	3.20	1.47	2.97	0.03

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Type I 24-hr 2-Year Storm Rainfall=3.20"

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Summary for Subcatchment 10S: DMA 2

Runoff = 0.07 cfs @ 10.03 hrs, Volume= 0.012 af, Depth> 1.40"
Routed to Pond 26P : Offsite

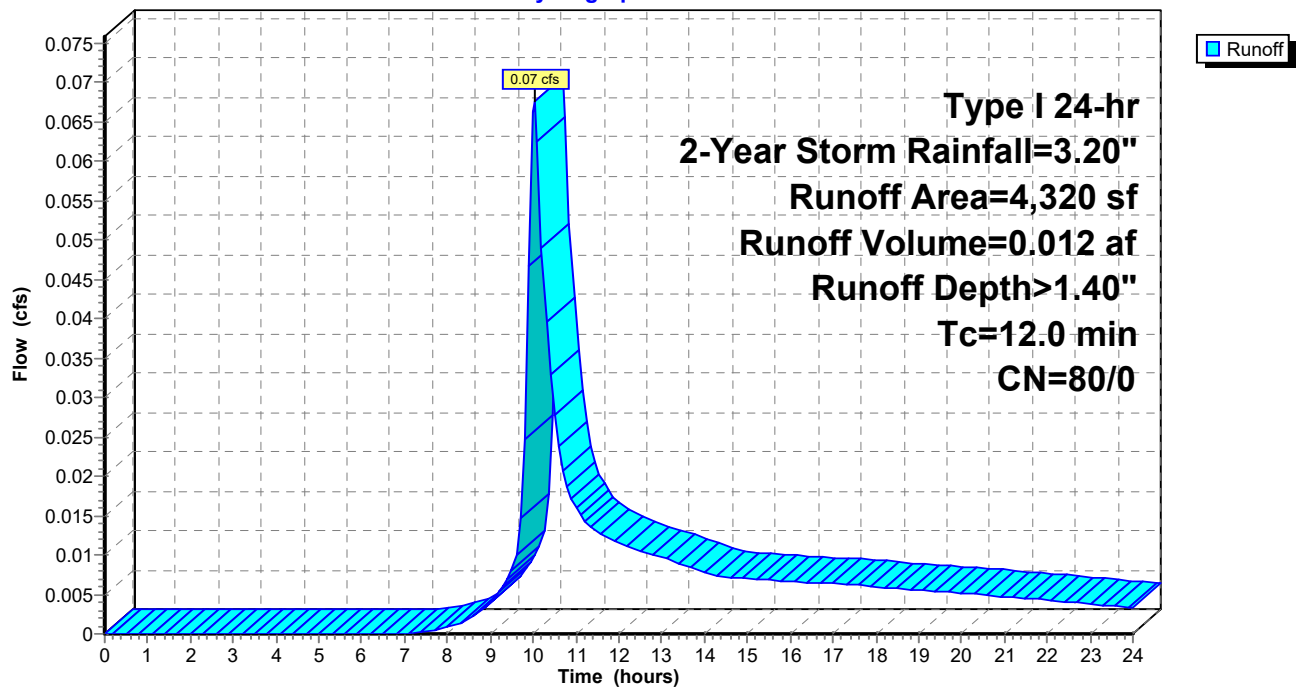
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	4,320	80	Pervious
	4,320	80	100.00% Pervious Area

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

Subcatchment 10S: DMA 2

Hydrograph



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Type I 24-hr 2-Year Storm Rainfall=3.20"

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Hydrograph for Subcatchment 10S: DMA 2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00	0.00
1.00	0.06	0.00	0.00	0.00
1.50	0.08	0.00	0.00	0.00
2.00	0.11	0.00	0.00	0.00
2.50	0.14	0.00	0.00	0.00
3.00	0.17	0.00	0.00	0.00
3.50	0.21	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
4.50	0.28	0.00	0.00	0.00
5.00	0.32	0.00	0.00	0.00
5.50	0.36	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
6.50	0.45	0.00	0.00	0.00
7.00	0.50	0.00	0.00	0.00
7.50	0.56	0.00	0.00	0.00
8.00	0.62	0.01	0.00	0.00
8.50	0.70	0.01	0.00	0.00
9.00	0.81	0.03	0.00	0.00
9.50	0.97	0.07	0.00	0.01
10.00	1.65	0.36	0.00	0.07
10.50	1.87	0.48	0.00	0.03
11.00	1.99	0.56	0.00	0.02
11.50	2.10	0.62	0.00	0.01
12.00	2.19	0.68	0.00	0.01
12.50	2.27	0.73	0.00	0.01
13.00	2.34	0.78	0.00	0.01
13.50	2.41	0.83	0.00	0.01
14.00	2.46	0.86	0.00	0.01
14.50	2.52	0.90	0.00	0.01
15.00	2.57	0.94	0.00	0.01
15.50	2.62	0.97	0.00	0.01
16.00	2.66	1.00	0.00	0.01
16.50	2.71	1.04	0.00	0.01
17.00	2.75	1.07	0.00	0.01
17.50	2.79	1.10	0.00	0.01
18.00	2.84	1.13	0.00	0.01
18.50	2.87	1.16	0.00	0.01
19.00	2.91	1.18	0.00	0.01
19.50	2.95	1.21	0.00	0.01
20.00	2.98	1.24	0.00	0.01
20.50	3.02	1.26	0.00	0.00
21.00	3.05	1.28	0.00	0.00
21.50	3.08	1.31	0.00	0.00
22.00	3.10	1.33	0.00	0.00
22.50	3.13	1.35	0.00	0.00
23.00	3.16	1.37	0.00	0.00
23.50	3.18	1.39	0.00	0.00
24.00	3.20	1.40	0.00	0.00

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Type I 24-hr 2-Year Storm Rainfall=3.20"

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Summary for Subcatchment 16S: DMA 7

Runoff = 0.05 cfs @ 10.02 hrs, Volume= 0.009 af, Depth> 2.78"
Routed to Pond 30P : Bioretention Basin (SCM-2)

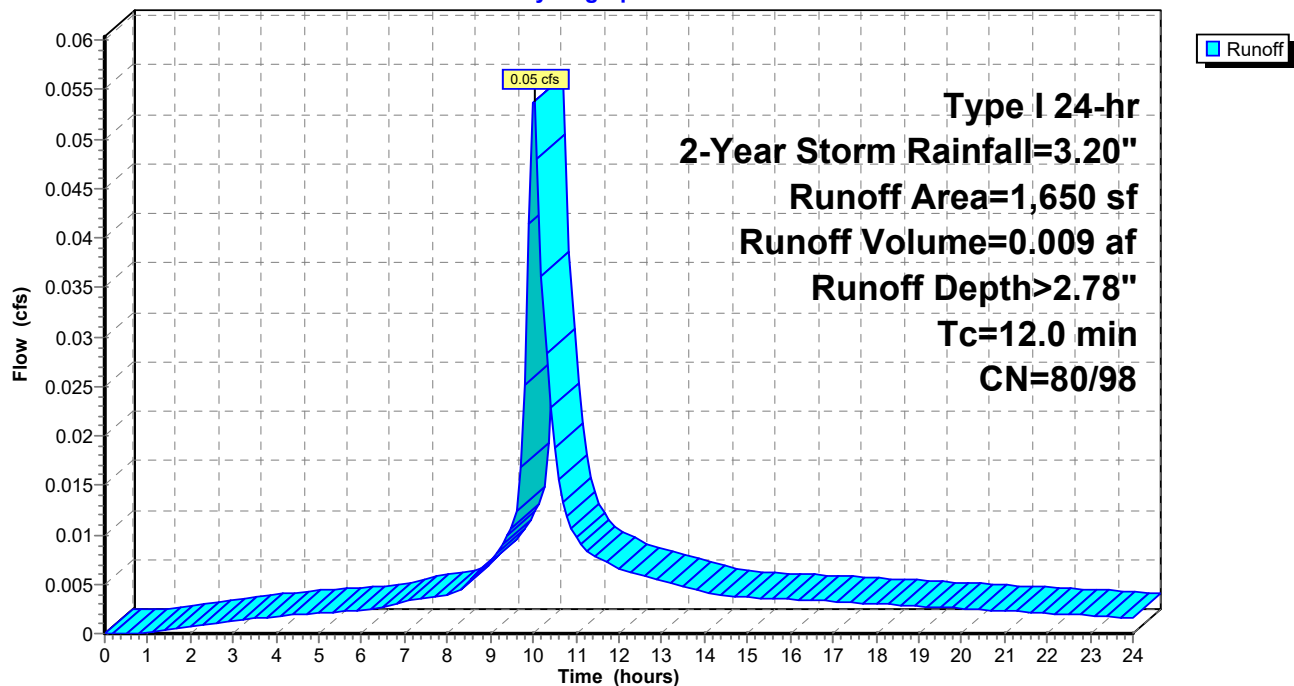
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	1,460	98	Impervious
*	0	80	Pervious
*	190	80	Basin
	1,650	96	Weighted Average
	190	80	11.52% Pervious Area
	1,460	98	88.48% Impervious Area

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

Subcatchment 16S: DMA 7

Hydrograph



22027_DRAINAGE*Type I 24-hr 2-Year Storm Rainfall=3.20"*

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Hydrograph for Subcatchment 16S: DMA 7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00	0.00
1.00	0.06	0.00	0.00	0.00
1.50	0.08	0.00	0.01	0.00
2.00	0.11	0.00	0.02	0.00
2.50	0.14	0.00	0.03	0.00
3.00	0.17	0.00	0.05	0.00
3.50	0.21	0.00	0.07	0.00
4.00	0.24	0.00	0.10	0.00
4.50	0.28	0.00	0.13	0.00
5.00	0.32	0.00	0.16	0.00
5.50	0.36	0.00	0.19	0.00
6.00	0.40	0.00	0.23	0.00
6.50	0.45	0.00	0.27	0.00
7.00	0.50	0.00	0.32	0.00
7.50	0.56	0.00	0.37	0.00
8.00	0.62	0.01	0.43	0.00
8.50	0.70	0.01	0.50	0.01
9.00	0.81	0.03	0.61	0.01
9.50	0.97	0.07	0.76	0.01
10.00	1.65	0.36	1.43	0.05
10.50	1.87	0.48	1.64	0.02
11.00	1.99	0.56	1.77	0.01
11.50	2.10	0.62	1.87	0.01
12.00	2.19	0.68	1.96	0.01
12.50	2.27	0.73	2.04	0.01
13.00	2.34	0.78	2.11	0.01
13.50	2.41	0.83	2.18	0.00
14.00	2.46	0.86	2.23	0.00
14.50	2.52	0.90	2.29	0.00
15.00	2.57	0.94	2.34	0.00
15.50	2.62	0.97	2.39	0.00
16.00	2.66	1.00	2.43	0.00
16.50	2.71	1.04	2.48	0.00
17.00	2.75	1.07	2.52	0.00
17.50	2.79	1.10	2.56	0.00
18.00	2.84	1.13	2.60	0.00
18.50	2.87	1.16	2.64	0.00
19.00	2.91	1.18	2.68	0.00
19.50	2.95	1.21	2.72	0.00
20.00	2.98	1.24	2.75	0.00
20.50	3.02	1.26	2.78	0.00
21.00	3.05	1.28	2.81	0.00
21.50	3.08	1.31	2.84	0.00
22.00	3.10	1.33	2.87	0.00
22.50	3.13	1.35	2.90	0.00
23.00	3.16	1.37	2.92	0.00
23.50	3.18	1.39	2.95	0.00
24.00	3.20	1.40	2.97	0.00

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Summary for Subcatchment 19S: DMA 10

Runoff = 0.05 cfs @ 10.02 hrs, Volume= 0.008 af, Depth> 2.75"
Routed to Pond 30P : Bioretention Basin (SCM-2)

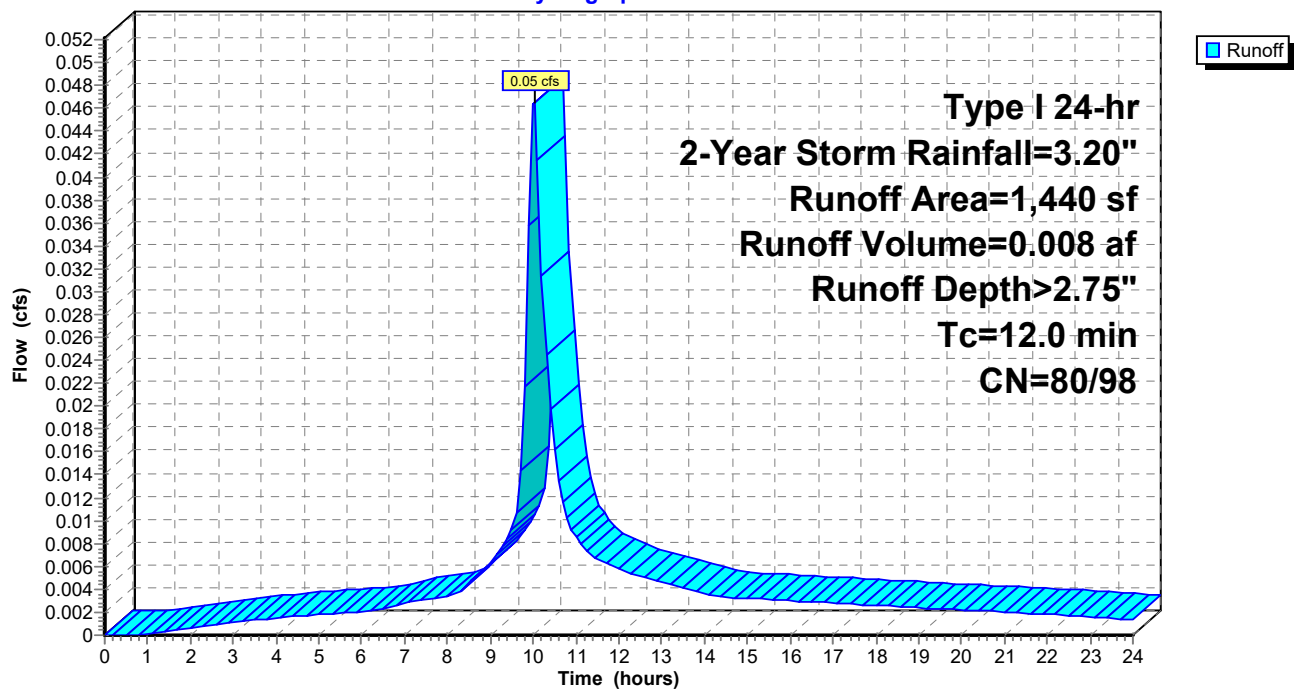
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	1,250	98	Impervious
*	190	80	Basin
	1,440	96	Weighted Average
	190	80	13.19% Pervious Area
	1,250	98	86.81% Impervious Area

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

Subcatchment 19S: DMA 10

Hydrograph



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Hydrograph for Subcatchment 19S: DMA 10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00	0.00
1.00	0.06	0.00	0.00	0.00
1.50	0.08	0.00	0.01	0.00
2.00	0.11	0.00	0.02	0.00
2.50	0.14	0.00	0.03	0.00
3.00	0.17	0.00	0.05	0.00
3.50	0.21	0.00	0.07	0.00
4.00	0.24	0.00	0.10	0.00
4.50	0.28	0.00	0.13	0.00
5.00	0.32	0.00	0.16	0.00
5.50	0.36	0.00	0.19	0.00
6.00	0.40	0.00	0.23	0.00
6.50	0.45	0.00	0.27	0.00
7.00	0.50	0.00	0.32	0.00
7.50	0.56	0.00	0.37	0.00
8.00	0.62	0.01	0.43	0.00
8.50	0.70	0.01	0.50	0.00
9.00	0.81	0.03	0.61	0.01
9.50	0.97	0.07	0.76	0.01
10.00	1.65	0.36	1.43	0.05
10.50	1.87	0.48	1.64	0.02
11.00	1.99	0.56	1.77	0.01
11.50	2.10	0.62	1.87	0.01
12.00	2.19	0.68	1.96	0.01
12.50	2.27	0.73	2.04	0.01
13.00	2.34	0.78	2.11	0.00
13.50	2.41	0.83	2.18	0.00
14.00	2.46	0.86	2.23	0.00
14.50	2.52	0.90	2.29	0.00
15.00	2.57	0.94	2.34	0.00
15.50	2.62	0.97	2.39	0.00
16.00	2.66	1.00	2.43	0.00
16.50	2.71	1.04	2.48	0.00
17.00	2.75	1.07	2.52	0.00
17.50	2.79	1.10	2.56	0.00
18.00	2.84	1.13	2.60	0.00
18.50	2.87	1.16	2.64	0.00
19.00	2.91	1.18	2.68	0.00
19.50	2.95	1.21	2.72	0.00
20.00	2.98	1.24	2.75	0.00
20.50	3.02	1.26	2.78	0.00
21.00	3.05	1.28	2.81	0.00
21.50	3.08	1.31	2.84	0.00
22.00	3.10	1.33	2.87	0.00
22.50	3.13	1.35	2.90	0.00
23.00	3.16	1.37	2.92	0.00
23.50	3.18	1.39	2.95	0.00
24.00	3.20	1.40	2.97	0.00

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Summary for Subcatchment 20S: DMA 11

Runoff = 0.02 cfs @ 10.03 hrs, Volume= 0.004 af, Depth> 1.49"
Routed to Pond 26P : Offsite

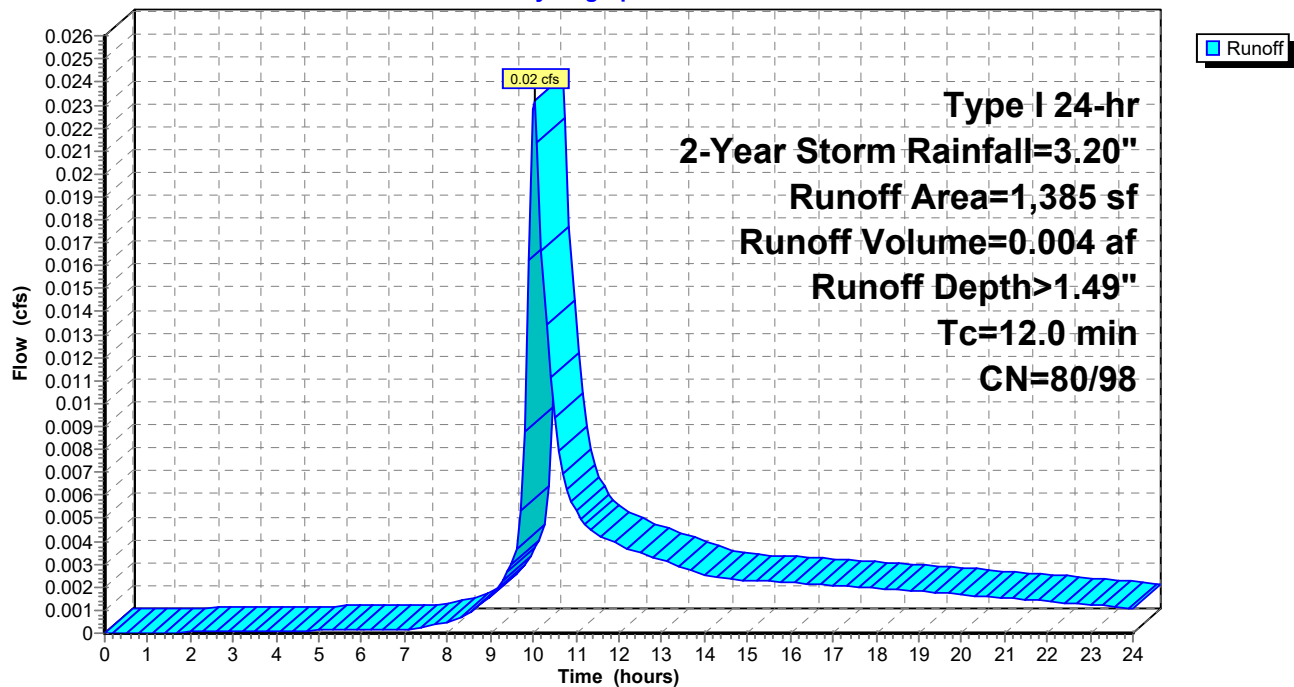
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	1,305	80	Pervious
*	80	98	Impervious
	1,385	81	Weighted Average
	1,305	80	94.22% Pervious Area
	80	98	5.78% Impervious Area

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

Subcatchment 20S: DMA 11

Hydrograph



22027_DRAINAGE*Type I 24-hr 2-Year Storm Rainfall=3.20"*

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Hydrograph for Subcatchment 20S: DMA 11

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00	0.00
1.00	0.06	0.00	0.00	0.00
1.50	0.08	0.00	0.01	0.00
2.00	0.11	0.00	0.02	0.00
2.50	0.14	0.00	0.03	0.00
3.00	0.17	0.00	0.05	0.00
3.50	0.21	0.00	0.07	0.00
4.00	0.24	0.00	0.10	0.00
4.50	0.28	0.00	0.13	0.00
5.00	0.32	0.00	0.16	0.00
5.50	0.36	0.00	0.19	0.00
6.00	0.40	0.00	0.23	0.00
6.50	0.45	0.00	0.27	0.00
7.00	0.50	0.00	0.32	0.00
7.50	0.56	0.00	0.37	0.00
8.00	0.62	0.01	0.43	0.00
8.50	0.70	0.01	0.50	0.00
9.00	0.81	0.03	0.61	0.00
9.50	0.97	0.07	0.76	0.00
10.00	1.65	0.36	1.43	0.02
10.50	1.87	0.48	1.64	0.01
11.00	1.99	0.56	1.77	0.01
11.50	2.10	0.62	1.87	0.00
12.00	2.19	0.68	1.96	0.00
12.50	2.27	0.73	2.04	0.00
13.00	2.34	0.78	2.11	0.00
13.50	2.41	0.83	2.18	0.00
14.00	2.46	0.86	2.23	0.00
14.50	2.52	0.90	2.29	0.00
15.00	2.57	0.94	2.34	0.00
15.50	2.62	0.97	2.39	0.00
16.00	2.66	1.00	2.43	0.00
16.50	2.71	1.04	2.48	0.00
17.00	2.75	1.07	2.52	0.00
17.50	2.79	1.10	2.56	0.00
18.00	2.84	1.13	2.60	0.00
18.50	2.87	1.16	2.64	0.00
19.00	2.91	1.18	2.68	0.00
19.50	2.95	1.21	2.72	0.00
20.00	2.98	1.24	2.75	0.00
20.50	3.02	1.26	2.78	0.00
21.00	3.05	1.28	2.81	0.00
21.50	3.08	1.31	2.84	0.00
22.00	3.10	1.33	2.87	0.00
22.50	3.13	1.35	2.90	0.00
23.00	3.16	1.37	2.92	0.00
23.50	3.18	1.39	2.95	0.00
24.00	3.20	1.40	2.97	0.00

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Type I 24-hr 2-Year Storm Rainfall=3.20"

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Summary for Subcatchment 21S: DMA 12

Runoff = 0.15 cfs @ 10.02 hrs, Volume= 0.024 af, Depth> 2.64"

Routed to Pond 29P : Self Retaining - Permeable Pavers

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

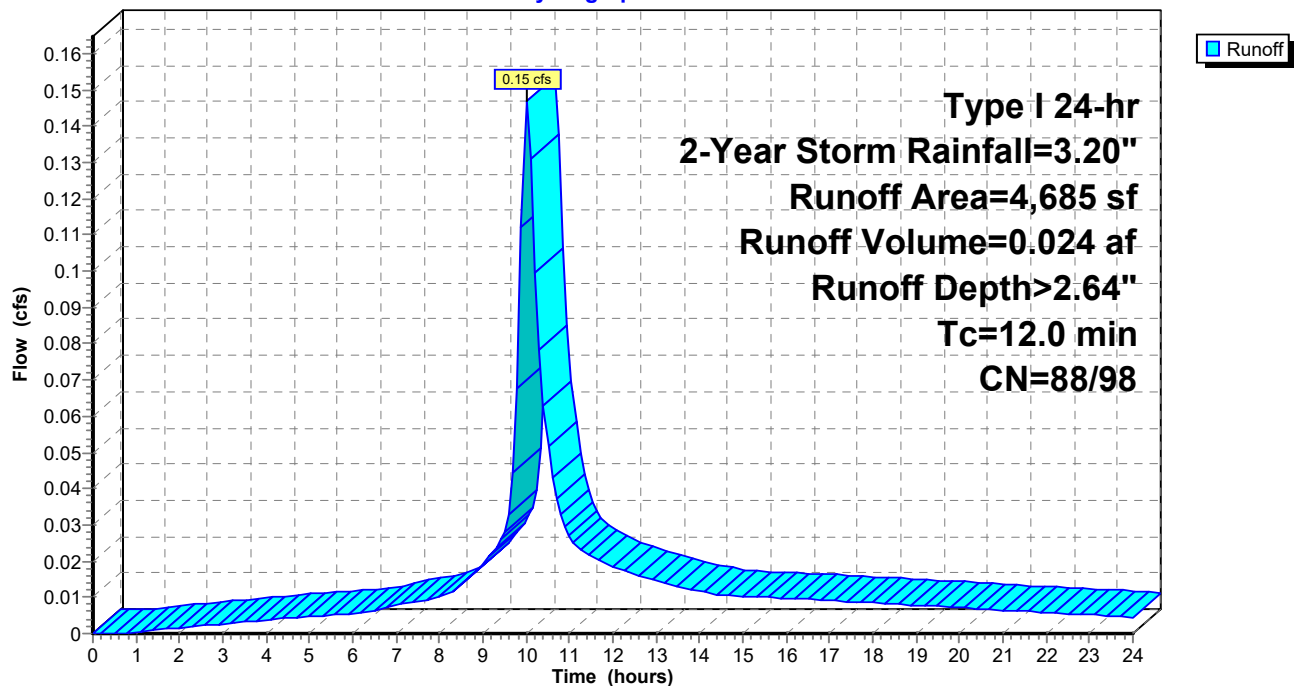
Type I 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	3,140	98	Impervious
*	220	80	Pervious
*	1,325	89	Pavers
	4,685	95	Weighted Average
	1,545	88	32.98% Pervious Area
	3,140	98	67.02% Impervious Area

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

Subcatchment 21S: DMA 12

Hydrograph



22027_DRAINAGE

Type I 24-hr 2-Year Storm Rainfall=3.20"

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Hydrograph for Subcatchment 21S: DMA 12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00	0.00
1.00	0.06	0.00	0.00	0.00
1.50	0.08	0.00	0.01	0.00
2.00	0.11	0.00	0.02	0.00
2.50	0.14	0.00	0.03	0.00
3.00	0.17	0.00	0.05	0.00
3.50	0.21	0.00	0.07	0.00
4.00	0.24	0.00	0.10	0.00
4.50	0.28	0.00	0.13	0.00
5.00	0.32	0.00	0.16	0.00
5.50	0.36	0.01	0.19	0.01
6.00	0.40	0.01	0.23	0.01
6.50	0.45	0.02	0.27	0.01
7.00	0.50	0.03	0.32	0.01
7.50	0.56	0.05	0.37	0.01
8.00	0.62	0.07	0.43	0.01
8.50	0.70	0.10	0.50	0.01
9.00	0.81	0.15	0.61	0.02
9.50	0.97	0.24	0.76	0.03
10.00	1.65	0.69	1.43	0.15
10.50	1.87	0.86	1.64	0.05
11.00	1.99	0.96	1.77	0.03
11.50	2.10	1.04	1.87	0.02
12.00	2.19	1.12	1.96	0.02
12.50	2.27	1.19	2.04	0.02
13.00	2.34	1.25	2.11	0.01
13.50	2.41	1.30	2.18	0.01
14.00	2.46	1.35	2.23	0.01
14.50	2.52	1.40	2.29	0.01
15.00	2.57	1.44	2.34	0.01
15.50	2.62	1.48	2.39	0.01
16.00	2.66	1.52	2.43	0.01
16.50	2.71	1.56	2.48	0.01
17.00	2.75	1.60	2.52	0.01
17.50	2.79	1.64	2.56	0.01
18.00	2.84	1.67	2.60	0.01
18.50	2.87	1.71	2.64	0.01
19.00	2.91	1.74	2.68	0.01
19.50	2.95	1.77	2.72	0.01
20.00	2.98	1.80	2.75	0.01
20.50	3.02	1.83	2.78	0.01
21.00	3.05	1.86	2.81	0.01
21.50	3.08	1.89	2.84	0.01
22.00	3.10	1.91	2.87	0.01
22.50	3.13	1.93	2.90	0.01
23.00	3.16	1.96	2.92	0.01
23.50	3.18	1.98	2.95	0.00
24.00	3.20	2.00	2.97	0.00

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Type I 24-hr 2-Year Storm Rainfall=3.20"

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Summary for Subcatchment 22S: DMA 13

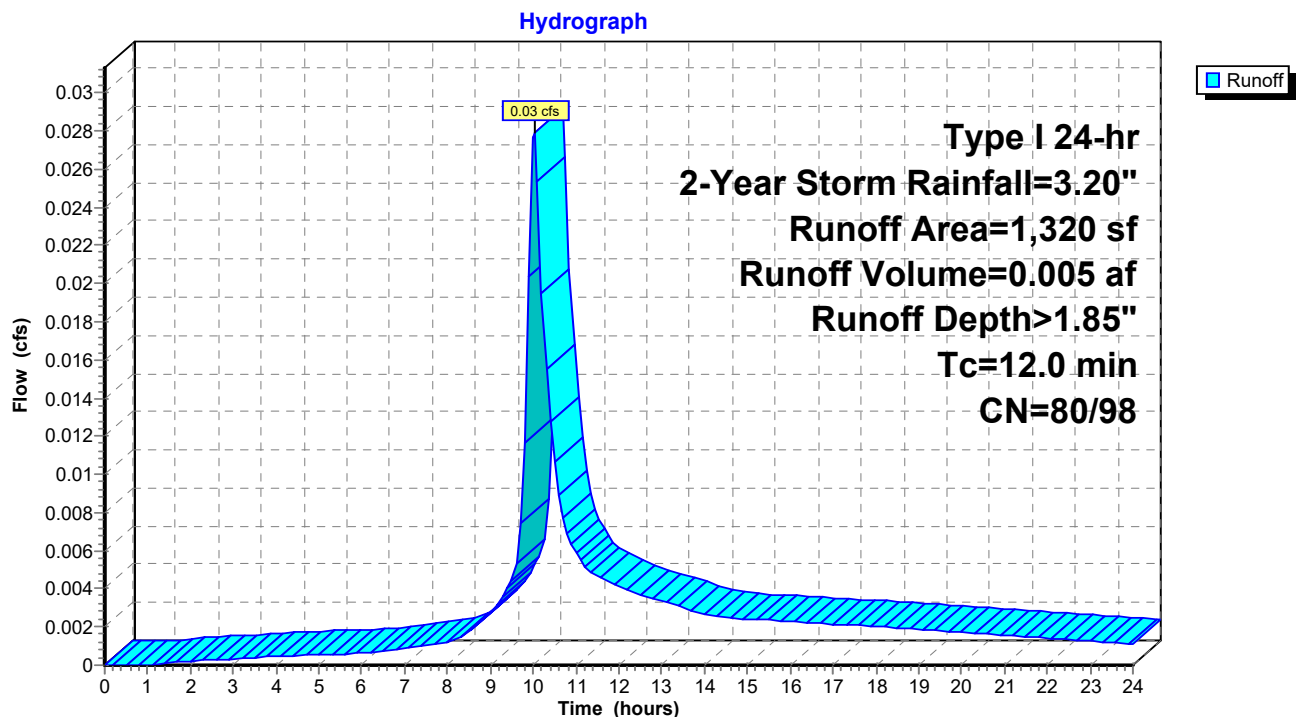
Runoff = 0.03 cfs @ 10.03 hrs, Volume= 0.005 af, Depth> 1.85"
Routed to Pond 26P : Offsite

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	380	98	Impervious
*	940	80	Pervious
	1,320	85	Weighted Average
	940	80	71.21% Pervious Area
	380	98	28.79% Impervious Area

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

Subcatchment 22S: DMA 13



22027_DRAINAGE

Type I 24-hr 2-Year Storm Rainfall=3.20"

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Hydrograph for Subcatchment 22S: DMA 13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00	0.00
1.00	0.06	0.00	0.00	0.00
1.50	0.08	0.00	0.01	0.00
2.00	0.11	0.00	0.02	0.00
2.50	0.14	0.00	0.03	0.00
3.00	0.17	0.00	0.05	0.00
3.50	0.21	0.00	0.07	0.00
4.00	0.24	0.00	0.10	0.00
4.50	0.28	0.00	0.13	0.00
5.00	0.32	0.00	0.16	0.00
5.50	0.36	0.00	0.19	0.00
6.00	0.40	0.00	0.23	0.00
6.50	0.45	0.00	0.27	0.00
7.00	0.50	0.00	0.32	0.00
7.50	0.56	0.00	0.37	0.00
8.00	0.62	0.01	0.43	0.00
8.50	0.70	0.01	0.50	0.00
9.00	0.81	0.03	0.61	0.00
9.50	0.97	0.07	0.76	0.00
10.00	1.65	0.36	1.43	0.03
10.50	1.87	0.48	1.64	0.01
11.00	1.99	0.56	1.77	0.01
11.50	2.10	0.62	1.87	0.00
12.00	2.19	0.68	1.96	0.00
12.50	2.27	0.73	2.04	0.00
13.00	2.34	0.78	2.11	0.00
13.50	2.41	0.83	2.18	0.00
14.00	2.46	0.86	2.23	0.00
14.50	2.52	0.90	2.29	0.00
15.00	2.57	0.94	2.34	0.00
15.50	2.62	0.97	2.39	0.00
16.00	2.66	1.00	2.43	0.00
16.50	2.71	1.04	2.48	0.00
17.00	2.75	1.07	2.52	0.00
17.50	2.79	1.10	2.56	0.00
18.00	2.84	1.13	2.60	0.00
18.50	2.87	1.16	2.64	0.00
19.00	2.91	1.18	2.68	0.00
19.50	2.95	1.21	2.72	0.00
20.00	2.98	1.24	2.75	0.00
20.50	3.02	1.26	2.78	0.00
21.00	3.05	1.28	2.81	0.00
21.50	3.08	1.31	2.84	0.00
22.00	3.10	1.33	2.87	0.00
22.50	3.13	1.35	2.90	0.00
23.00	3.16	1.37	2.92	0.00
23.50	3.18	1.39	2.95	0.00
24.00	3.20	1.40	2.97	0.00

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Type I 24-hr 2-Year Storm Rainfall=3.20"

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Summary for Subcatchment 23S: DMA 3, 5, 6, 8

Runoff = 1.31 cfs @ 10.02 hrs, Volume= 0.211 af, Depth> 2.57"

Routed to Pond 11P : Self Retaining - Permeable Pavers

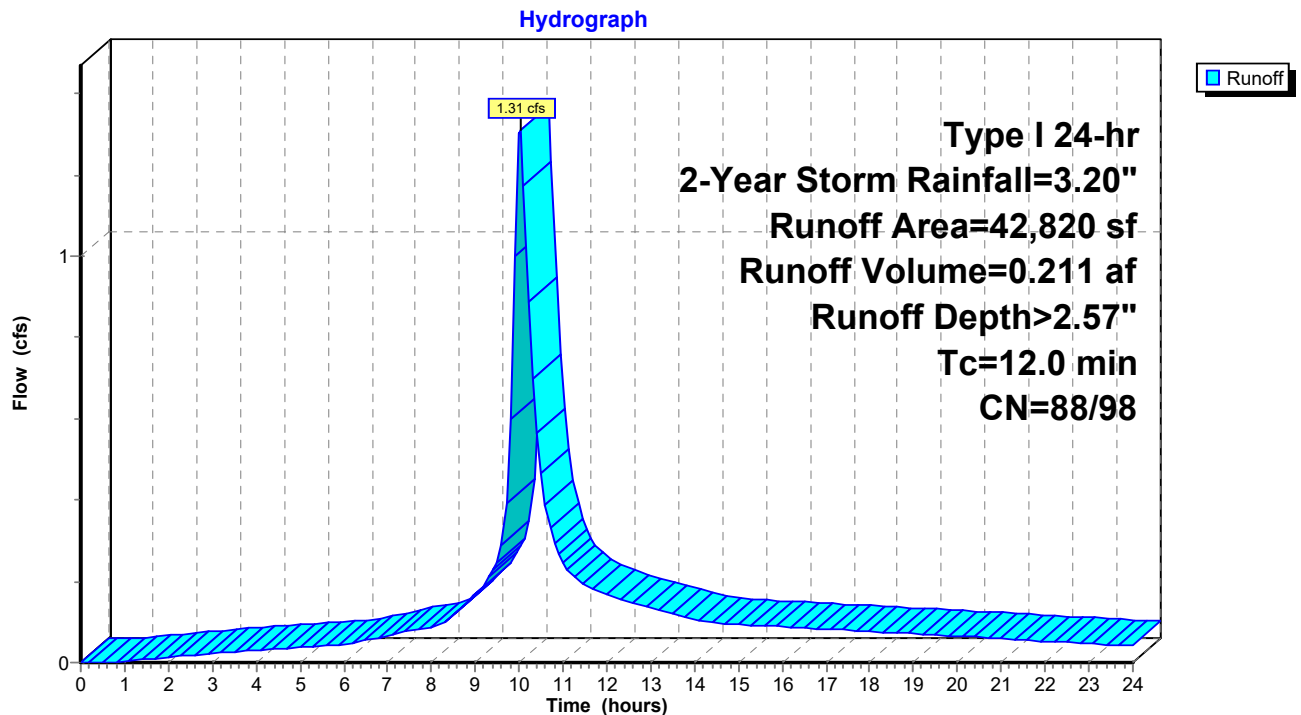
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Type I 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	25,761	98	Impervious
*	2,165	80	Pervious
*	14,894	89	Pavers
	42,820	94	Weighted Average
	17,059	88	39.84% Pervious Area
	25,761	98	60.16% Impervious Area

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

Subcatchment 23S: DMA 3, 5, 6, 8



22027_DRAINAGE*Type I 24-hr 2-Year Storm Rainfall=3.20"*

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Hydrograph for Subcatchment 23S: DMA 3, 5, 6, 8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00	0.00
1.00	0.06	0.00	0.00	0.00
1.50	0.08	0.00	0.01	0.01
2.00	0.11	0.00	0.02	0.01
2.50	0.14	0.00	0.03	0.02
3.00	0.17	0.00	0.05	0.02
3.50	0.21	0.00	0.07	0.03
4.00	0.24	0.00	0.10	0.03
4.50	0.28	0.00	0.13	0.03
5.00	0.32	0.00	0.16	0.04
5.50	0.36	0.01	0.19	0.04
6.00	0.40	0.01	0.23	0.05
6.50	0.45	0.02	0.27	0.05
7.00	0.50	0.03	0.32	0.07
7.50	0.56	0.05	0.37	0.08
8.00	0.62	0.07	0.43	0.09
8.50	0.70	0.10	0.50	0.12
9.00	0.81	0.15	0.61	0.17
9.50	0.97	0.24	0.76	0.25
10.00	1.65	0.69	1.43	1.30
10.50	1.87	0.86	1.64	0.46
11.00	1.99	0.96	1.77	0.25
11.50	2.10	1.04	1.87	0.19
12.00	2.19	1.12	1.96	0.17
12.50	2.27	1.19	2.04	0.15
13.00	2.34	1.25	2.11	0.13
13.50	2.41	1.30	2.18	0.12
14.00	2.46	1.35	2.23	0.11
14.50	2.52	1.40	2.29	0.10
15.00	2.57	1.44	2.34	0.09
15.50	2.62	1.48	2.39	0.09
16.00	2.66	1.52	2.43	0.09
16.50	2.71	1.56	2.48	0.09
17.00	2.75	1.60	2.52	0.08
17.50	2.79	1.64	2.56	0.08
18.00	2.84	1.67	2.60	0.08
18.50	2.87	1.71	2.64	0.07
19.00	2.91	1.74	2.68	0.07
19.50	2.95	1.77	2.72	0.07
20.00	2.98	1.80	2.75	0.06
20.50	3.02	1.83	2.78	0.06
21.00	3.05	1.86	2.81	0.06
21.50	3.08	1.89	2.84	0.06
22.00	3.10	1.91	2.87	0.05
22.50	3.13	1.93	2.90	0.05
23.00	3.16	1.96	2.92	0.05
23.50	3.18	1.98	2.95	0.04
24.00	3.20	2.00	2.97	0.04

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Type I 24-hr 2-Year Storm Rainfall=3.20"

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Summary for Subcatchment 25S: DMA 14

Runoff = 0.01 cfs @ 10.03 hrs, Volume= 0.002 af, Depth> 1.40"
Routed to Pond 26P : Offsite

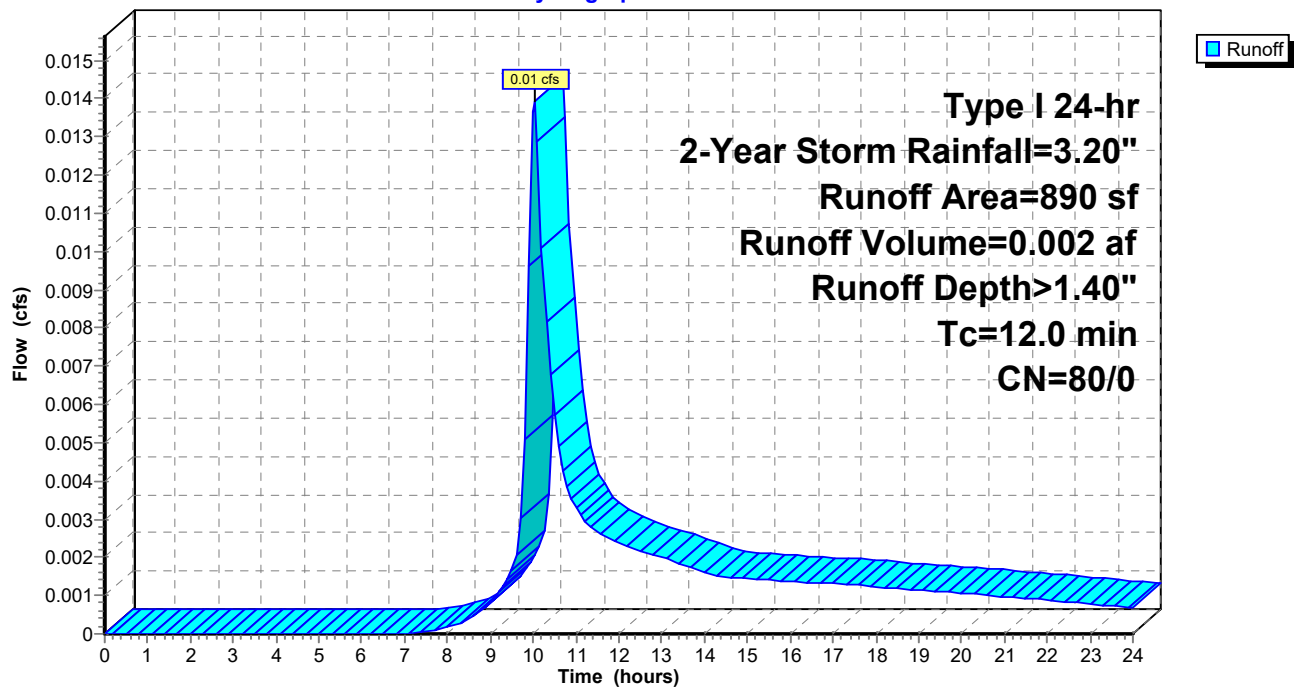
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	890	80	Pervious
	890	80	100.00% Pervious Area

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

Subcatchment 25S: DMA 14

Hydrograph



22027_DRAINAGE

Type I 24-hr 2-Year Storm Rainfall=3.20"

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Hydrograph for Subcatchment 25S: DMA 14

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00	0.00
1.00	0.06	0.00	0.00	0.00
1.50	0.08	0.00	0.00	0.00
2.00	0.11	0.00	0.00	0.00
2.50	0.14	0.00	0.00	0.00
3.00	0.17	0.00	0.00	0.00
3.50	0.21	0.00	0.00	0.00
4.00	0.24	0.00	0.00	0.00
4.50	0.28	0.00	0.00	0.00
5.00	0.32	0.00	0.00	0.00
5.50	0.36	0.00	0.00	0.00
6.00	0.40	0.00	0.00	0.00
6.50	0.45	0.00	0.00	0.00
7.00	0.50	0.00	0.00	0.00
7.50	0.56	0.00	0.00	0.00
8.00	0.62	0.01	0.00	0.00
8.50	0.70	0.01	0.00	0.00
9.00	0.81	0.03	0.00	0.00
9.50	0.97	0.07	0.00	0.00
10.00	1.65	0.36	0.00	0.01
10.50	1.87	0.48	0.00	0.01
11.00	1.99	0.56	0.00	0.00
11.50	2.10	0.62	0.00	0.00
12.00	2.19	0.68	0.00	0.00
12.50	2.27	0.73	0.00	0.00
13.00	2.34	0.78	0.00	0.00
13.50	2.41	0.83	0.00	0.00
14.00	2.46	0.86	0.00	0.00
14.50	2.52	0.90	0.00	0.00
15.00	2.57	0.94	0.00	0.00
15.50	2.62	0.97	0.00	0.00
16.00	2.66	1.00	0.00	0.00
16.50	2.71	1.04	0.00	0.00
17.00	2.75	1.07	0.00	0.00
17.50	2.79	1.10	0.00	0.00
18.00	2.84	1.13	0.00	0.00
18.50	2.87	1.16	0.00	0.00
19.00	2.91	1.18	0.00	0.00
19.50	2.95	1.21	0.00	0.00
20.00	2.98	1.24	0.00	0.00
20.50	3.02	1.26	0.00	0.00
21.00	3.05	1.28	0.00	0.00
21.50	3.08	1.31	0.00	0.00
22.00	3.10	1.33	0.00	0.00
22.50	3.13	1.35	0.00	0.00
23.00	3.16	1.37	0.00	0.00
23.50	3.18	1.39	0.00	0.00
24.00	3.20	1.40	0.00	0.00

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Summary for Subcatchment 28S: DMA 4 & 9

Runoff = 0.05 cfs @ 10.03 hrs, Volume= 0.008 af, Depth> 1.51"
Routed to Pond 27P : Self Retaining - Landscape

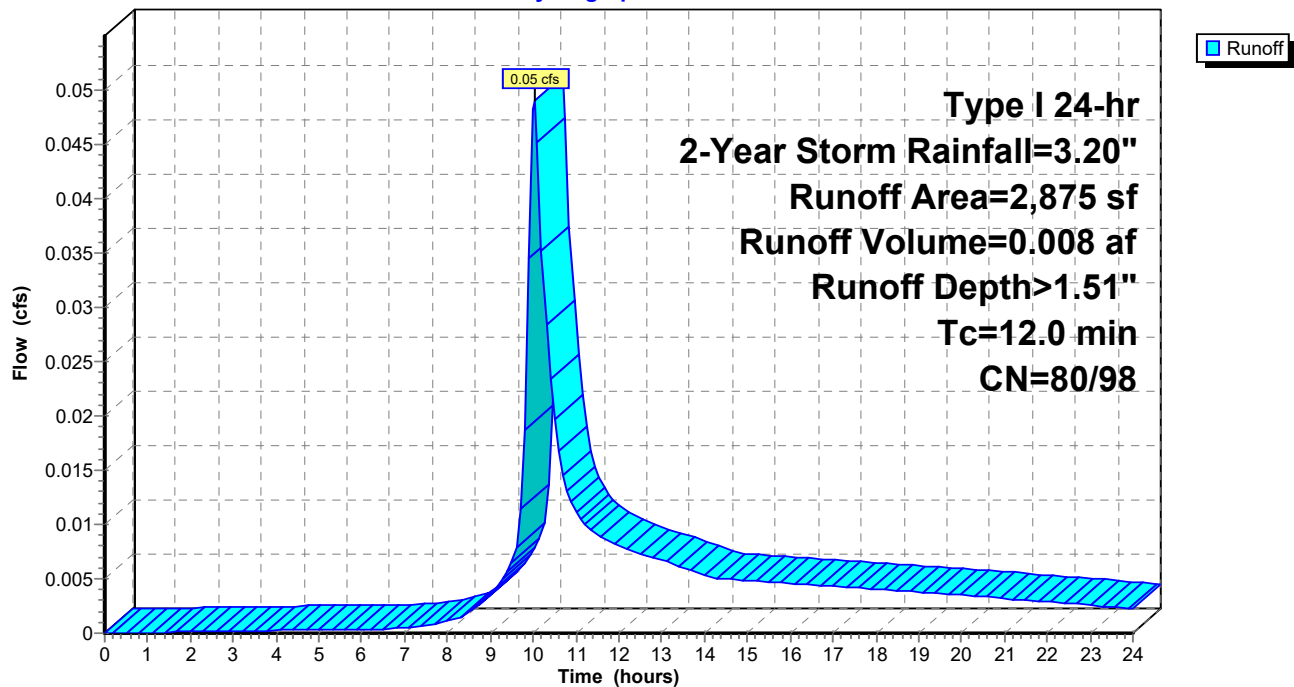
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 2-Year Storm Rainfall=3.20"

	Area (sf)	CN	Description
*	2,665	80	Pervious Area
*	210	98	Impervious Area
	2,875	81	Weighted Average
	2,665	80	92.70% Pervious Area
	210	98	7.30% Impervious Area

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

Subcatchment 28S: DMA 4 & 9

Hydrograph



22027_DRAINAGE

Type I 24-hr 2-Year Storm Rainfall=3.20"

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Hydrograph for Subcatchment 28S: DMA 4 & 9

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00	0.00
1.00	0.06	0.00	0.00	0.00
1.50	0.08	0.00	0.01	0.00
2.00	0.11	0.00	0.02	0.00
2.50	0.14	0.00	0.03	0.00
3.00	0.17	0.00	0.05	0.00
3.50	0.21	0.00	0.07	0.00
4.00	0.24	0.00	0.10	0.00
4.50	0.28	0.00	0.13	0.00
5.00	0.32	0.00	0.16	0.00
5.50	0.36	0.00	0.19	0.00
6.00	0.40	0.00	0.23	0.00
6.50	0.45	0.00	0.27	0.00
7.00	0.50	0.00	0.32	0.00
7.50	0.56	0.00	0.37	0.00
8.00	0.62	0.01	0.43	0.00
8.50	0.70	0.01	0.50	0.00
9.00	0.81	0.03	0.61	0.00
9.50	0.97	0.07	0.76	0.01
10.00	1.65	0.36	1.43	0.05
10.50	1.87	0.48	1.64	0.02
11.00	1.99	0.56	1.77	0.01
11.50	2.10	0.62	1.87	0.01
12.00	2.19	0.68	1.96	0.01
12.50	2.27	0.73	2.04	0.01
13.00	2.34	0.78	2.11	0.01
13.50	2.41	0.83	2.18	0.01
14.00	2.46	0.86	2.23	0.01
14.50	2.52	0.90	2.29	0.00
15.00	2.57	0.94	2.34	0.00
15.50	2.62	0.97	2.39	0.00
16.00	2.66	1.00	2.43	0.00
16.50	2.71	1.04	2.48	0.00
17.00	2.75	1.07	2.52	0.00
17.50	2.79	1.10	2.56	0.00
18.00	2.84	1.13	2.60	0.00
18.50	2.87	1.16	2.64	0.00
19.00	2.91	1.18	2.68	0.00
19.50	2.95	1.21	2.72	0.00
20.00	2.98	1.24	2.75	0.00
20.50	3.02	1.26	2.78	0.00
21.00	3.05	1.28	2.81	0.00
21.50	3.08	1.31	2.84	0.00
22.00	3.10	1.33	2.87	0.00
22.50	3.13	1.35	2.90	0.00
23.00	3.16	1.37	2.92	0.00
23.50	3.18	1.39	2.95	0.00
24.00	3.20	1.40	2.97	0.00

22027_DRAINAGE

Type I 24-hr 2-Year Storm Rainfall=3.20"

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Summary for Pond 8P: Bioretention Basin (SCM-1)

Inflow Area = 0.690 ac, 52.67% Impervious, Inflow Depth > 2.25" for 2-Year Storm event
 Inflow = 0.79 cfs @ 10.02 hrs, Volume= 0.129 af
 Outflow = 0.37 cfs @ 10.38 hrs, Volume= 0.092 af, Atten= 53%, Lag= 21.6 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.37 cfs @ 10.38 hrs, Volume= 0.092 af
 Routed to Pond 26P : Offsite
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2
 Peak Elev= 73.90' @ 10.38 hrs Surf.Area= 1,455 sf Storage= 2,047 cf

Plug-Flow detention time= 266.9 min calculated for 0.092 af (71% of inflow)
 Center-of-Mass det. time= 121.0 min (868.0 - 746.9)

Volume	Invert	Avail.Storage	Storage Description	
#1	68.99'	4,276 cf	Custom Stage Data (Prismatic) Listed below (Recalc) x 0.75	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.99	1,370	0.0	0	0
69.00	1,370	40.0	5	5
71.50	1,370	40.0	1,370	1,375
73.50	1,370	25.0	685	2,060
75.00	3,485	100.0	3,641	5,702

Device	Routing	Invert	Outlet Devices
#1	Device 3	73.25'	15.0" Round 15" Culvert L= 250.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.25' / 70.70' S= 0.0102 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#2	Secondary	74.99'	70.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Primary	73.50'	6.0" Vert. Orifice/Culvert C= 0.600 Limited to weir flow at low heads
#4	Device 1	70.60'	12.5" W x 3.0" H Vert. curb outlet C= 0.600 Limited to weir flow at low heads
#5	Discarded	68.99'	0.380 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=68.99' (Free Discharge)

↑ **5=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.37 cfs @ 10.38 hrs HW=73.90' (Free Discharge)

↑ **3=Orifice/Culvert** (Orifice Controls 0.37 cfs @ 2.16 fps)

↑ **1=15" Culvert** (Passes 0.37 cfs of 0.94 cfs potential flow)

↑ **4=curb outlet** (Passes 0.37 cfs of 0.80 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=68.99' (Free Discharge)

↑ **2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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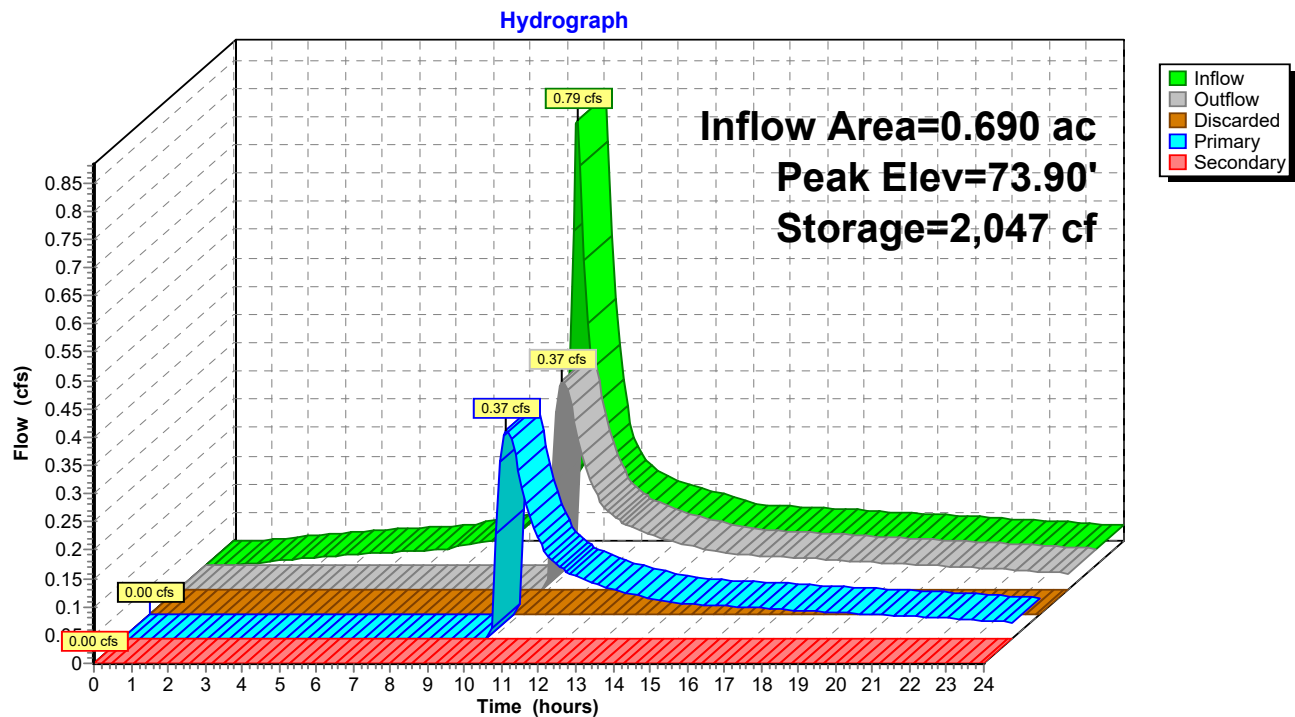
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Pond 8P: Bioretention Basin (SCM-1)



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Hydrograph for Pond 8P: Bioretention Basin (SCM-1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	68.99	0.00	0.00	0.00	0.00
0.50	0.00	0	68.99	0.00	0.00	0.00	0.00
1.00	0.00	0	68.99	0.00	0.00	0.00	0.00
1.50	0.00	5	69.00	0.00	0.00	0.00	0.00
2.00	0.01	17	69.03	0.00	0.00	0.00	0.00
2.50	0.01	34	69.07	0.00	0.00	0.00	0.00
3.00	0.01	56	69.13	0.00	0.00	0.00	0.00
3.50	0.02	83	69.19	0.00	0.00	0.00	0.00
4.00	0.02	115	69.27	0.00	0.00	0.00	0.00
4.50	0.02	152	69.36	0.00	0.00	0.00	0.00
5.00	0.02	192	69.46	0.00	0.00	0.00	0.00
5.50	0.02	234	69.56	0.00	0.00	0.00	0.00
6.00	0.03	279	69.67	0.00	0.00	0.00	0.00
6.50	0.03	328	69.79	0.00	0.00	0.00	0.00
7.00	0.04	386	69.93	0.00	0.00	0.00	0.00
7.50	0.04	456	70.10	0.00	0.00	0.00	0.00
8.00	0.05	535	70.29	0.00	0.00	0.00	0.00
8.50	0.06	630	70.52	0.00	0.00	0.00	0.00
9.00	0.09	771	70.87	0.00	0.00	0.00	0.00
9.50	0.14	977	71.37	0.00	0.00	0.00	0.00
10.00	0.78	1,623	73.57	0.02	0.00	0.02	0.00
10.50	0.29	2,031	73.89	0.35	0.00	0.35	0.00
11.00	0.15	1,887	73.79	0.22	0.00	0.22	0.00
11.50	0.12	1,812	73.73	0.15	0.00	0.15	0.00
12.00	0.11	1,780	73.71	0.12	0.00	0.12	0.00
12.50	0.09	1,761	73.69	0.10	0.00	0.10	0.00
13.00	0.09	1,748	73.68	0.09	0.00	0.09	0.00
13.50	0.08	1,736	73.67	0.08	0.00	0.08	0.00
14.00	0.07	1,723	73.66	0.07	0.00	0.07	0.00
14.50	0.06	1,712	73.65	0.07	0.00	0.07	0.00
15.00	0.06	1,706	73.64	0.06	0.00	0.06	0.00
15.50	0.06	1,702	73.64	0.06	0.00	0.06	0.00
16.00	0.06	1,699	73.64	0.06	0.00	0.06	0.00
16.50	0.06	1,696	73.64	0.06	0.00	0.06	0.00
17.00	0.05	1,694	73.63	0.05	0.00	0.05	0.00
17.50	0.05	1,691	73.63	0.05	0.00	0.05	0.00
18.00	0.05	1,689	73.63	0.05	0.00	0.05	0.00
18.50	0.05	1,686	73.63	0.05	0.00	0.05	0.00
19.00	0.05	1,683	73.63	0.05	0.00	0.05	0.00
19.50	0.04	1,680	73.62	0.05	0.00	0.05	0.00
20.00	0.04	1,678	73.62	0.04	0.00	0.04	0.00
20.50	0.04	1,675	73.62	0.04	0.00	0.04	0.00
21.00	0.04	1,672	73.62	0.04	0.00	0.04	0.00
21.50	0.04	1,668	73.61	0.04	0.00	0.04	0.00
22.00	0.03	1,664	73.61	0.04	0.00	0.04	0.00
22.50	0.03	1,660	73.61	0.04	0.00	0.04	0.00
23.00	0.03	1,656	73.60	0.03	0.00	0.03	0.00
23.50	0.03	1,652	73.60	0.03	0.00	0.03	0.00
24.00	0.03	1,648	73.59	0.03	0.00	0.03	0.00

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Summary for Pond 11P: Self Retaining - Permeable Pavers

Inflow Area = 1.049 ac, 56.84% Impervious, Inflow Depth > 2.41" for 2-Year Storm event
 Inflow = 1.31 cfs @ 10.02 hrs, Volume= 0.211 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 72.52' @ 24.00 hrs Surf.Area= 15,055 sf Storage= 9,173 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	13,851 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 34,626 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	15,055	0	0
73.30	15,055	34,626	34,626

Device	Routing	Invert	Outlet Devices
#1	Primary	72.80'	4.0" Round Culvert X 4.00 L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 72.80' / 72.54' S= 0.0052 ' S= 0.0052 ' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	71.00'	0.890 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↑ **1=Culvert** (Controls 0.00 cfs)

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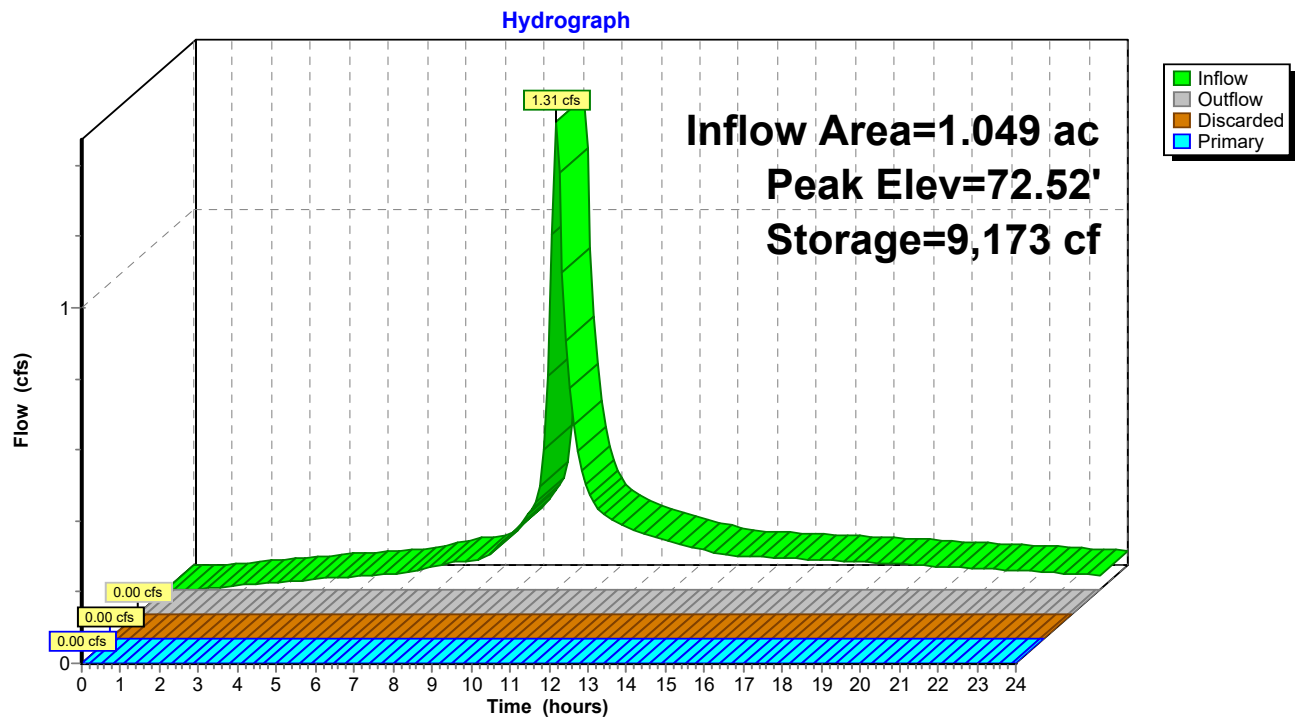
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Pond 11P: Self Retaining - Permeable Pavers



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Hydrograph for Pond 11P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	71.00	0.00	0.00	0.00
0.50	0.00	0	71.00	0.00	0.00	0.00
1.00	0.00	0	71.00	0.00	0.00	0.00
1.50	0.01	9	71.00	0.00	0.00	0.00
2.00	0.01	28	71.00	0.00	0.00	0.00
2.50	0.02	55	71.01	0.00	0.00	0.00
3.00	0.02	91	71.02	0.00	0.00	0.00
3.50	0.03	135	71.02	0.00	0.00	0.00
4.00	0.03	188	71.03	0.00	0.00	0.00
4.50	0.03	247	71.04	0.00	0.00	0.00
5.00	0.04	313	71.05	0.00	0.00	0.00
5.50	0.04	386	71.06	0.00	0.00	0.00
6.00	0.05	466	71.08	0.00	0.00	0.00
6.50	0.05	555	71.09	0.00	0.00	0.00
7.00	0.07	665	71.11	0.00	0.00	0.00
7.50	0.08	797	71.13	0.00	0.00	0.00
8.00	0.09	944	71.16	0.00	0.00	0.00
8.50	0.12	1,119	71.19	0.00	0.00	0.00
9.00	0.17	1,374	71.23	0.00	0.00	0.00
9.50	0.25	1,740	71.29	0.00	0.00	0.00
10.00	1.30	2,841	71.47	0.00	0.00	0.00
10.50	0.46	4,357	71.72	0.00	0.00	0.00
11.00	0.25	4,946	71.82	0.00	0.00	0.00
11.50	0.19	5,331	71.89	0.00	0.00	0.00
12.00	0.17	5,653	71.94	0.00	0.00	0.00
12.50	0.15	5,937	71.99	0.00	0.00	0.00
13.00	0.13	6,192	72.03	0.00	0.00	0.00
13.50	0.12	6,421	72.07	0.00	0.00	0.00
14.00	0.11	6,624	72.10	0.00	0.00	0.00
14.50	0.10	6,805	72.13	0.00	0.00	0.00
15.00	0.09	6,977	72.16	0.00	0.00	0.00
15.50	0.09	7,144	72.19	0.00	0.00	0.00
16.00	0.09	7,305	72.21	0.00	0.00	0.00
16.50	0.09	7,461	72.24	0.00	0.00	0.00
17.00	0.08	7,613	72.26	0.00	0.00	0.00
17.50	0.08	7,759	72.29	0.00	0.00	0.00
18.00	0.08	7,899	72.31	0.00	0.00	0.00
18.50	0.07	8,035	72.33	0.00	0.00	0.00
19.00	0.07	8,165	72.36	0.00	0.00	0.00
19.50	0.07	8,290	72.38	0.00	0.00	0.00
20.00	0.06	8,409	72.40	0.00	0.00	0.00
20.50	0.06	8,524	72.42	0.00	0.00	0.00
21.00	0.06	8,633	72.43	0.00	0.00	0.00
21.50	0.06	8,736	72.45	0.00	0.00	0.00
22.00	0.05	8,834	72.47	0.00	0.00	0.00
22.50	0.05	8,927	72.48	0.00	0.00	0.00
23.00	0.05	9,014	72.50	0.00	0.00	0.00
23.50	0.04	9,096	72.51	0.00	0.00	0.00
24.00	0.04	9,173	72.52	0.00	0.00	0.00

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Summary for Pond 26P: Offsite

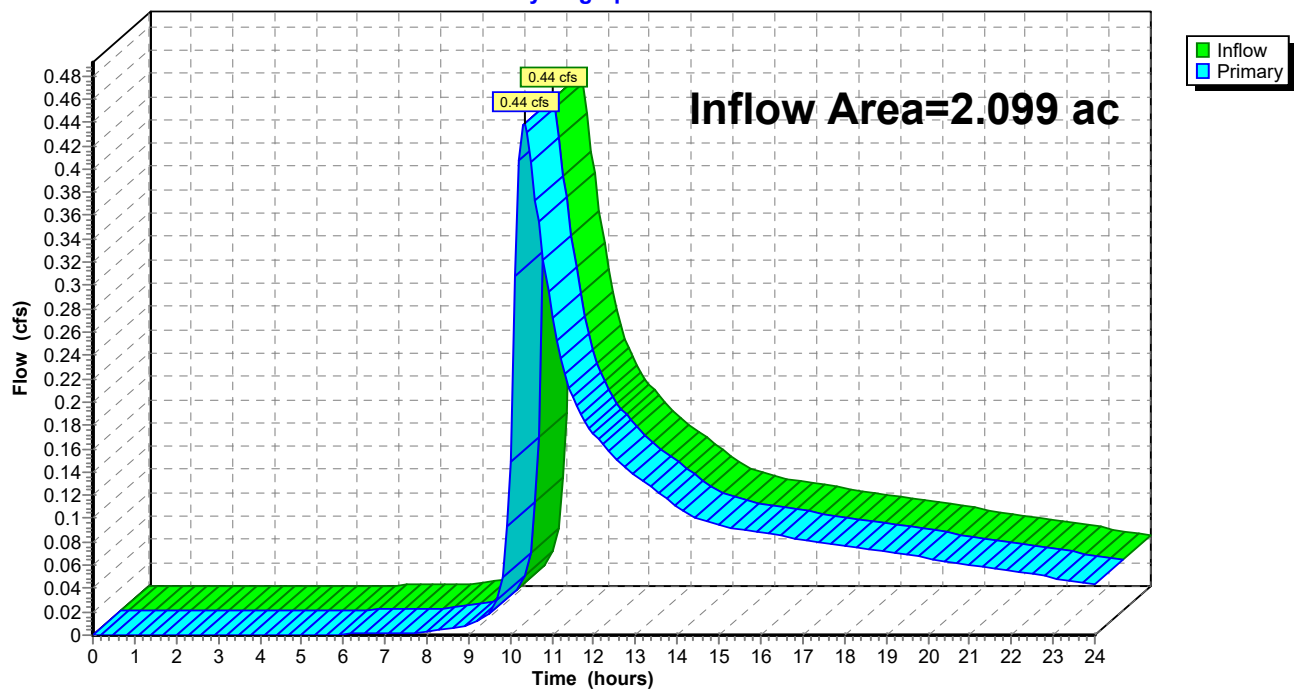
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.099 ac, 52.61% Impervious, Inflow Depth > 0.76" for 2-Year Storm event
Inflow = 0.44 cfs @ 10.33 hrs, Volume= 0.133 af
Primary = 0.44 cfs @ 10.33 hrs, Volume= 0.133 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Pond 26P: Offsite

Hydrograph



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Hydrograph for Pond 26P: Offsite

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	0.00		0.00
1.50	0.00		0.00
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.00		0.00
5.00	0.00		0.00
5.50	0.00		0.00
6.00	0.00		0.00
6.50	0.00		0.00
7.00	0.00		0.00
7.50	0.00		0.00
8.00	0.00		0.00
8.50	0.00		0.00
9.00	0.01		0.01
9.50	0.02		0.02
10.00	0.15		0.15
10.50	0.41		0.41
11.00	0.27		0.27
11.50	0.20		0.20
12.00	0.17		0.17
12.50	0.15		0.15
13.00	0.14		0.14
13.50	0.12		0.12
14.00	0.11		0.11
14.50	0.10		0.10
15.00	0.09		0.09
15.50	0.09		0.09
16.00	0.09		0.09
16.50	0.08		0.08
17.00	0.08		0.08
17.50	0.08		0.08
18.00	0.08		0.08
18.50	0.07		0.07
19.00	0.07		0.07
19.50	0.07		0.07
20.00	0.07		0.07
20.50	0.06		0.06
21.00	0.06		0.06
21.50	0.06		0.06
22.00	0.06		0.06
22.50	0.05		0.05
23.00	0.05		0.05
23.50	0.05		0.05
24.00	0.04		0.04

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Summary for Pond 27P: Self Retaining - Landcape

Inflow Area = 0.066 ac, 7.30% Impervious, Inflow Depth > 1.51" for 2-Year Storm event
Inflow = 0.05 cfs @ 10.03 hrs, Volume= 0.008 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Peak Elev= 71.50' @ 24.00 hrs Surf.Area= 2,875 sf Storage= 361 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	1,653 cf	soil (Prismatic) Listed below (Recalc) 6,612 cf Overall x 25.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	2,875	0	0
73.30	2,875	6,612	6,612

Device	Routing	Invert	Outlet Devices
#1	Discarded	71.00'	1.010 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)

↑**1=Exfiltration** (Controls 0.00 cfs)

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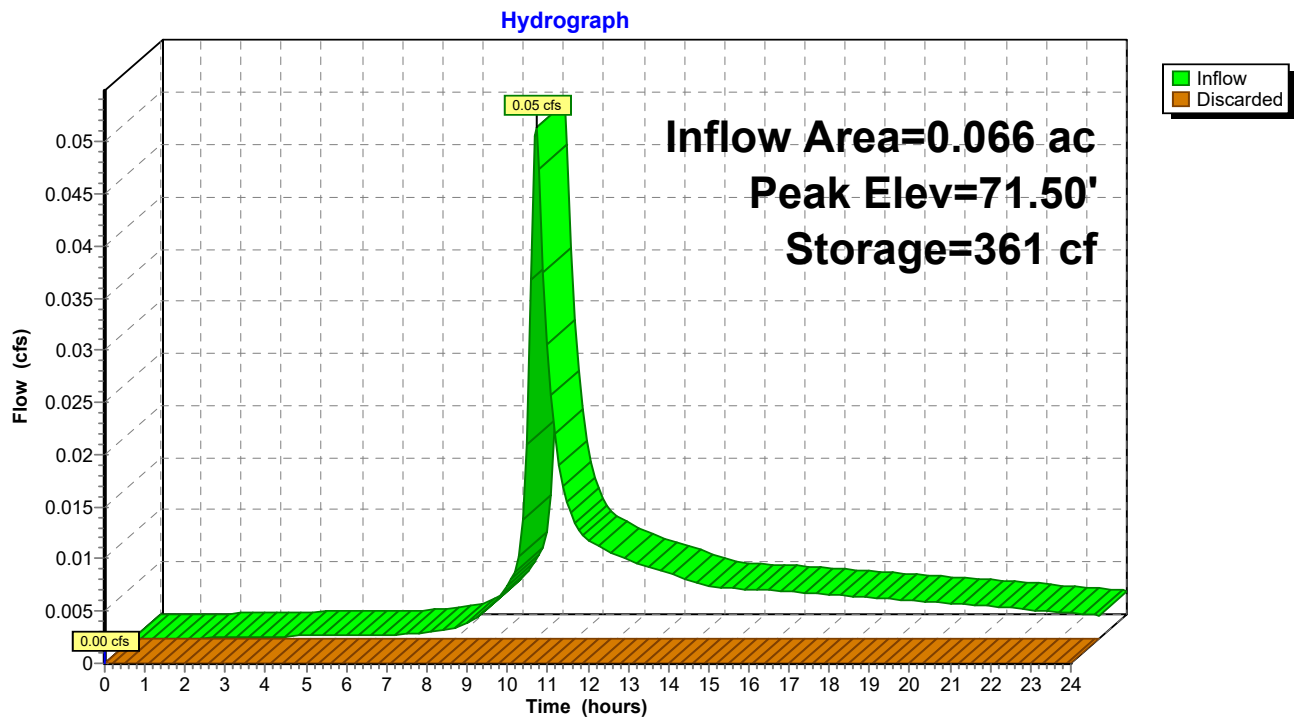
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Pond 27P: Self Retaining - Landcape



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Hydrograph for Pond 27P: Self Retaining - Landscape

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	71.00	0.00
0.50	0.00	0	71.00	0.00
1.00	0.00	0	71.00	0.00
1.50	0.00	0	71.00	0.00
2.00	0.00	0	71.00	0.00
2.50	0.00	0	71.00	0.00
3.00	0.00	1	71.00	0.00
3.50	0.00	1	71.00	0.00
4.00	0.00	2	71.00	0.00
4.50	0.00	2	71.00	0.00
5.00	0.00	3	71.00	0.00
5.50	0.00	3	71.00	0.00
6.00	0.00	4	71.01	0.00
6.50	0.00	4	71.01	0.00
7.00	0.00	5	71.01	0.00
7.50	0.00	6	71.01	0.00
8.00	0.00	8	71.01	0.00
8.50	0.00	10	71.01	0.00
9.00	0.00	15	71.02	0.00
9.50	0.01	24	71.03	0.00
10.00	0.05	60	71.08	0.00
10.50	0.02	119	71.17	0.00
11.00	0.01	145	71.20	0.00
11.50	0.01	163	71.23	0.00
12.00	0.01	178	71.25	0.00
12.50	0.01	192	71.27	0.00
13.00	0.01	205	71.28	0.00
13.50	0.01	216	71.30	0.00
14.00	0.01	226	71.31	0.00
14.50	0.00	235	71.33	0.00
15.00	0.00	244	71.34	0.00
15.50	0.00	253	71.35	0.00
16.00	0.00	261	71.36	0.00
16.50	0.00	269	71.37	0.00
17.00	0.00	277	71.39	0.00
17.50	0.00	285	71.40	0.00
18.00	0.00	292	71.41	0.00
18.50	0.00	300	71.42	0.00
19.00	0.00	307	71.43	0.00
19.50	0.00	313	71.44	0.00
20.00	0.00	320	71.44	0.00
20.50	0.00	326	71.45	0.00
21.00	0.00	332	71.46	0.00
21.50	0.00	337	71.47	0.00
22.00	0.00	343	71.48	0.00
22.50	0.00	348	71.48	0.00
23.00	0.00	353	71.49	0.00
23.50	0.00	357	71.50	0.00
24.00	0.00	361	71.50	0.00

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Summary for Pond 29P: Self Retaining - Permeable Pavers

Inflow Area = 0.108 ac, 67.02% Impervious, Inflow Depth > 2.64" for 2-Year Storm event
 Inflow = 0.15 cfs @ 10.02 hrs, Volume= 0.024 af
 Outflow = 0.02 cfs @ 11.82 hrs, Volume= 0.011 af, Atten= 87%, Lag= 108.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.02 cfs @ 11.82 hrs, Volume= 0.011 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 71.49' @ 11.82 hrs Surf.Area= 1,325 sf Storage= 578 cf

Plug-Flow detention time= 439.0 min calculated for 0.011 af (46% of inflow)
 Center-of-Mass det. time= 235.7 min (966.3 - 730.6)

Volume	Invert	Avail.Storage	Storage Description
#1	70.40'	1,060 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,650 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.40	1,325	0	0
72.40	1,325	2,650	2,650

Device	Routing	Invert	Outlet Devices
#1	Primary	71.40'	4.0" Round Culvert L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.40' / 70.60' S= 0.0160 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	70.40'	0.080 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=70.40' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.02 cfs @ 11.82 hrs HW=71.49' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 0.02 cfs @ 1.02 fps)

22027_DRAINAGE

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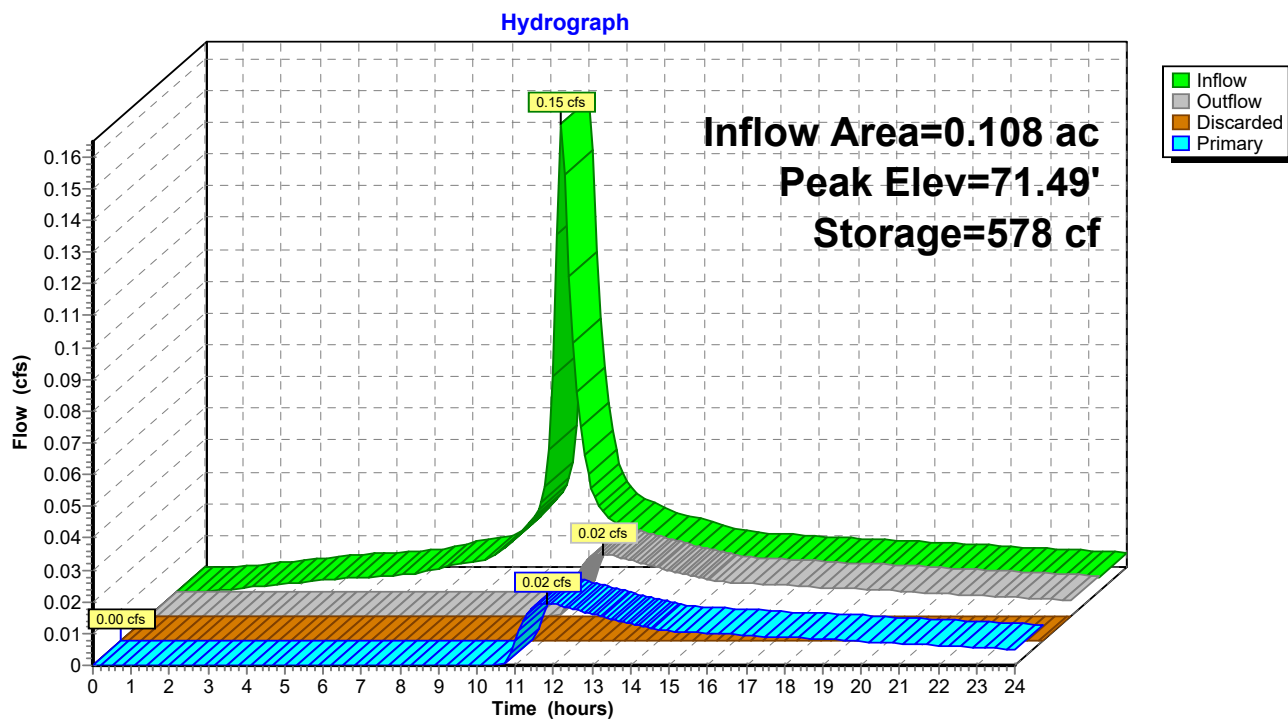
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Type I 24-hr 2-Year Storm Rainfall=3.20"

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Pond 29P: Self Retaining - Permeable Pavers



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Type I 24-hr 2-Year Storm Rainfall=3.20"

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Hydrograph for Pond 29P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	70.40	0.00	0.00	0.00
0.50	0.00	0	70.40	0.00	0.00	0.00
1.00	0.00	0	70.40	0.00	0.00	0.00
1.50	0.00	1	70.40	0.00	0.00	0.00
2.00	0.00	3	70.41	0.00	0.00	0.00
2.50	0.00	7	70.41	0.00	0.00	0.00
3.00	0.00	11	70.42	0.00	0.00	0.00
3.50	0.00	17	70.43	0.00	0.00	0.00
4.00	0.00	23	70.44	0.00	0.00	0.00
4.50	0.00	30	70.46	0.00	0.00	0.00
5.00	0.00	38	70.47	0.00	0.00	0.00
5.50	0.01	47	70.49	0.00	0.00	0.00
6.00	0.01	56	70.51	0.00	0.00	0.00
6.50	0.01	67	70.53	0.00	0.00	0.00
7.00	0.01	80	70.55	0.00	0.00	0.00
7.50	0.01	95	70.58	0.00	0.00	0.00
8.00	0.01	112	70.61	0.00	0.00	0.00
8.50	0.01	133	70.65	0.00	0.00	0.00
9.00	0.02	162	70.71	0.00	0.00	0.00
9.50	0.03	204	70.78	0.00	0.00	0.00
10.00	0.15	328	71.02	0.00	0.00	0.00
10.50	0.05	497	71.34	0.00	0.00	0.00
11.00	0.03	559	71.46	0.01	0.00	0.01
11.50	0.02	576	71.49	0.02	0.00	0.02
12.00	0.02	577	71.49	0.02	0.00	0.02
12.50	0.02	575	71.49	0.02	0.00	0.02
13.00	0.01	573	71.48	0.02	0.00	0.02
13.50	0.01	571	71.48	0.01	0.00	0.01
14.00	0.01	568	71.47	0.01	0.00	0.01
14.50	0.01	566	71.47	0.01	0.00	0.01
15.00	0.01	565	71.47	0.01	0.00	0.01
15.50	0.01	564	71.46	0.01	0.00	0.01
16.00	0.01	564	71.46	0.01	0.00	0.01
16.50	0.01	563	71.46	0.01	0.00	0.01
17.00	0.01	563	71.46	0.01	0.00	0.01
17.50	0.01	562	71.46	0.01	0.00	0.01
18.00	0.01	562	71.46	0.01	0.00	0.01
18.50	0.01	561	71.46	0.01	0.00	0.01
19.00	0.01	560	71.46	0.01	0.00	0.01
19.50	0.01	560	71.46	0.01	0.00	0.01
20.00	0.01	559	71.45	0.01	0.00	0.01
20.50	0.01	558	71.45	0.01	0.00	0.01
21.00	0.01	557	71.45	0.01	0.00	0.01
21.50	0.01	557	71.45	0.01	0.00	0.01
22.00	0.01	556	71.45	0.01	0.00	0.01
22.50	0.01	555	71.45	0.01	0.00	0.01
23.00	0.01	555	71.45	0.01	0.00	0.01
23.50	0.00	554	71.44	0.01	0.00	0.01
24.00	0.00	553	71.44	0.00	0.00	0.00

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Summary for Pond 30P: Bioretention Basin (SCM-2)

Inflow Area = 0.071 ac, 87.70% Impervious, Inflow Depth > 2.77" for 2-Year Storm event
 Inflow = 0.10 cfs @ 10.02 hrs, Volume= 0.016 af
 Outflow = 0.02 cfs @ 10.70 hrs, Volume= 0.008 af, Atten= 81%, Lag= 40.9 min
 Primary = 0.02 cfs @ 10.70 hrs, Volume= 0.008 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2

Peak Elev= 71.49' @ 10.70 hrs Surf.Area= 380 sf Storage= 376 cf

Plug-Flow detention time= 419.2 min calculated for 0.008 af (47% of inflow)

Center-of-Mass det. time= 216.1 min (934.5 - 718.5)

Volume	Invert	Avail.Storage	Storage Description
#1	70.50'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.50	380	0	0
71.50	380	380	380

Device	Routing	Invert	Outlet Devices
#1	Primary	71.49'	95.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 10.70 hrs HW=71.49' (Free Discharge)

↑1=Sharp-Crested Rectangular Weir (Weir Controls 0.00 cfs @ 0.08 fps)

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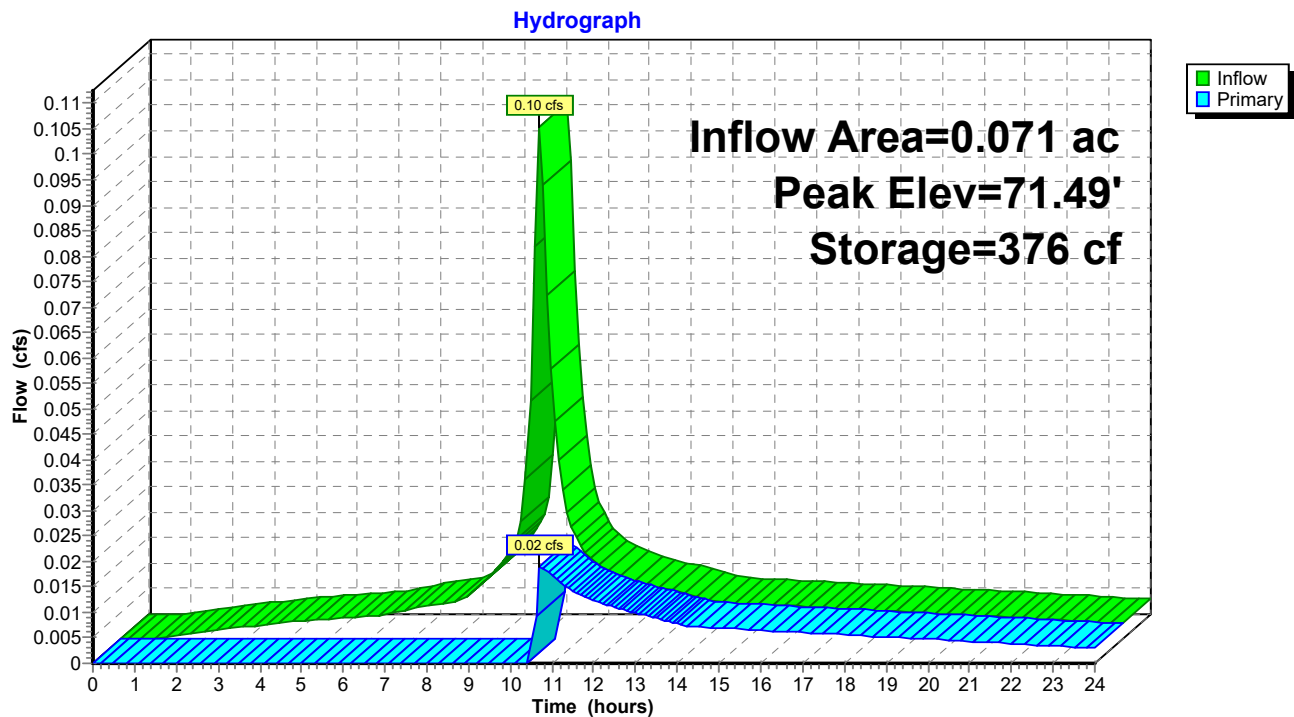
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Pond 30P: Bioretention Basin (SCM-2)



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Hydrograph for Pond 30P: Bioretention Basin (SCM-2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.50	0.00
0.50	0.00	0	70.50	0.00
1.00	0.00	0	70.50	0.00
1.50	0.00	1	70.50	0.00
2.00	0.00	3	70.51	0.00
2.50	0.00	6	70.52	0.00
3.00	0.00	10	70.53	0.00
3.50	0.00	14	70.54	0.00
4.00	0.00	20	70.55	0.00
4.50	0.00	26	70.57	0.00
5.00	0.00	33	70.59	0.00
5.50	0.00	40	70.61	0.00
6.00	0.00	48	70.63	0.00
6.50	0.01	56	70.65	0.00
7.00	0.01	66	70.67	0.00
7.50	0.01	78	70.70	0.00
8.00	0.01	90	70.74	0.00
8.50	0.01	105	70.78	0.00
9.00	0.01	126	70.83	0.00
9.50	0.02	156	70.91	0.00
10.00	0.10	242	71.14	0.00
10.50	0.03	357	71.44	0.00
11.00	0.02	376	71.49	0.02
11.50	0.01	376	71.49	0.01
12.00	0.01	376	71.49	0.01
12.50	0.01	376	71.49	0.01
13.00	0.01	376	71.49	0.01
13.50	0.01	376	71.49	0.01
14.00	0.01	376	71.49	0.01
14.50	0.01	376	71.49	0.01
15.00	0.01	376	71.49	0.01
15.50	0.01	376	71.49	0.01
16.00	0.01	376	71.49	0.01
16.50	0.01	376	71.49	0.01
17.00	0.01	376	71.49	0.01
17.50	0.01	376	71.49	0.01
18.00	0.01	376	71.49	0.01
18.50	0.01	376	71.49	0.01
19.00	0.01	376	71.49	0.01
19.50	0.00	376	71.49	0.00
20.00	0.00	376	71.49	0.00
20.50	0.00	376	71.49	0.00
21.00	0.00	376	71.49	0.00
21.50	0.00	376	71.49	0.00
22.00	0.00	376	71.49	0.00
22.50	0.00	376	71.49	0.00
23.00	0.00	376	71.49	0.00
23.50	0.00	376	71.49	0.00
24.00	0.00	376	71.49	0.00

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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment7S: DMA 1	Runoff Area=30,044 sf 52.67% Impervious Runoff Depth>3.54" Tc=12.0 min CN=81/98 Runoff=1.25 cfs 0.204 af
Subcatchment10S: DMA 2	Runoff Area=4,320 sf 0.00% Impervious Runoff Depth>2.54" Tc=12.0 min CN=80/0 Runoff=0.13 cfs 0.021 af
Subcatchment16S: DMA 7	Runoff Area=1,650 sf 88.48% Impervious Runoff Depth>4.15" Tc=12.0 min CN=80/98 Runoff=0.08 cfs 0.013 af
Subcatchment19S: DMA 10	Runoff Area=1,440 sf 86.81% Impervious Runoff Depth>4.12" Tc=12.0 min CN=80/98 Runoff=0.07 cfs 0.011 af
Subcatchment20S: DMA 11	Runoff Area=1,385 sf 5.78% Impervious Runoff Depth>2.65" Tc=12.0 min CN=80/98 Runoff=0.04 cfs 0.007 af
Subcatchment21S: DMA 12	Runoff Area=4,685 sf 67.02% Impervious Runoff Depth>4.01" Tc=12.0 min CN=88/98 Runoff=0.22 cfs 0.036 af
Subcatchment22S: DMA 13	Runoff Area=1,320 sf 28.79% Impervious Runoff Depth>3.07" Tc=12.0 min CN=80/98 Runoff=0.05 cfs 0.008 af
Subcatchment23S: DMA 3, 5, 6, 8	Runoff Area=42,820 sf 60.16% Impervious Runoff Depth>3.93" Tc=12.0 min CN=88/98 Runoff=2.00 cfs 0.322 af
Subcatchment25S: DMA 14	Runoff Area=890 sf 0.00% Impervious Runoff Depth>2.54" Tc=12.0 min CN=80/0 Runoff=0.03 cfs 0.004 af
Subcatchment28S: DMA 4 & 9	Runoff Area=2,875 sf 7.30% Impervious Runoff Depth>2.68" Tc=12.0 min CN=80/98 Runoff=0.09 cfs 0.015 af
Pond 8P: Bioretention Basin (SCM-1)	Peak Elev=74.27' Storage=2,659 cf Inflow=1.25 cfs 0.204 af Discarded=0.00 cfs 0.000 af Primary=0.68 cfs 0.165 af Secondary=0.00 cfs 0.000 af Outflow=0.68 cfs 0.165 af
Pond 11P: Self Retaining - Permeable Pavers	Peak Elev=72.92' Storage=11,579 cf Inflow=2.00 cfs 0.322 af Discarded=0.00 cfs 0.000 af Primary=0.11 cfs 0.060 af Outflow=0.11 cfs 0.060 af
Pond 26P: Offsite	Inflow=0.99 cfs 0.302 af Primary=0.99 cfs 0.302 af
Pond 27P: Self Retaining - Landcape	Peak Elev=71.89' Storage=641 cf Inflow=0.09 cfs 0.015 af Outflow=0.00 cfs 0.000 af
Pond 29P: Self Retaining - Permeable Pavers	Peak Elev=71.63' Storage=651 cf Inflow=0.22 cfs 0.036 af Discarded=0.00 cfs 0.000 af Primary=0.10 cfs 0.023 af Outflow=0.10 cfs 0.023 af
Pond 30P: Bioretention Basin (SCM-2)	Peak Elev=71.49' Storage=377 cf Inflow=0.15 cfs 0.024 af Outflow=0.07 cfs 0.014 af

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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Total Runoff Area = 2.099 ac Runoff Volume = 0.641 af Average Runoff Depth = 3.67"
47.39% Pervious = 0.995 ac 52.61% Impervious = 1.104 ac

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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Summary for Subcatchment 7S: DMA 1

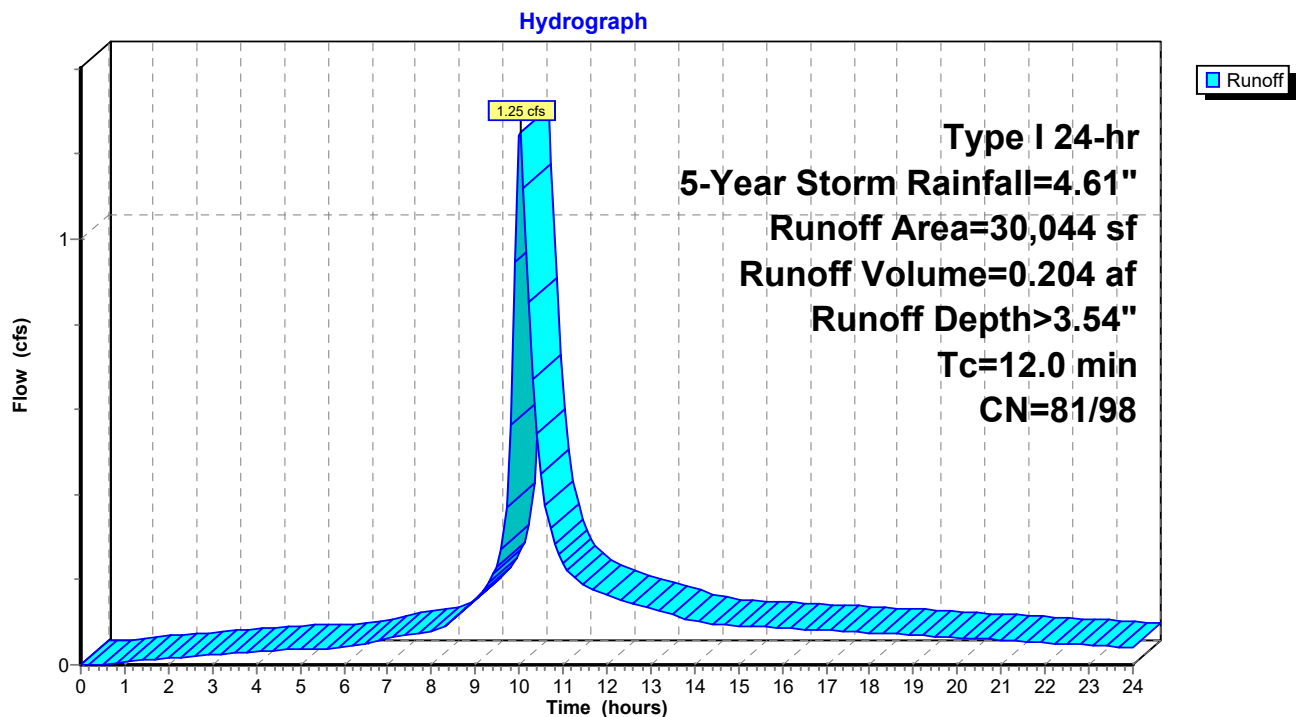
Runoff = 1.25 cfs @ 10.02 hrs, Volume= 0.204 af, Depth> 3.54"
Routed to Pond 8P : Bioretention Basin (SCM-1)

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 5-Year Storm Rainfall=4.61"

	Area (sf)	CN	Description
*	15,823	98	Impervious
*	9,370	80	Pervious
*	1,367	89	Pavers
*	3,484	80	Basin
	30,044	90	Weighted Average
	14,221	81	47.33% Pervious Area
	15,823	98	52.67% Impervious Area

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

Subcatchment 7S: DMA 1



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Hydrograph for Subcatchment 7S: DMA 1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00	0.00
1.00	0.08	0.00	0.01	0.01
1.50	0.12	0.00	0.02	0.01
2.00	0.16	0.00	0.04	0.02
2.50	0.20	0.00	0.07	0.02
3.00	0.25	0.00	0.11	0.02
3.50	0.30	0.00	0.14	0.03
4.00	0.35	0.00	0.19	0.03
4.50	0.40	0.00	0.23	0.03
5.00	0.46	0.00	0.28	0.04
5.50	0.52	0.00	0.33	0.04
6.00	0.58	0.00	0.39	0.04
6.50	0.64	0.01	0.45	0.05
7.00	0.72	0.02	0.52	0.06
7.50	0.80	0.04	0.60	0.07
8.00	0.89	0.07	0.69	0.08
8.50	1.01	0.10	0.80	0.11
9.00	1.17	0.16	0.96	0.16
9.50	1.40	0.26	1.18	0.23
10.00	2.37	0.85	2.15	1.24
10.50	2.69	1.08	2.46	0.45
11.00	2.87	1.22	2.64	0.24
11.50	3.02	1.33	2.79	0.19
12.00	3.15	1.43	2.92	0.16
12.50	3.27	1.52	3.04	0.15
13.00	3.37	1.61	3.14	0.13
13.50	3.47	1.68	3.23	0.12
14.00	3.55	1.75	3.32	0.10
14.50	3.62	1.81	3.39	0.10
15.00	3.70	1.87	3.46	0.09
15.50	3.77	1.93	3.53	0.09
16.00	3.84	1.98	3.60	0.09
16.50	3.90	2.04	3.67	0.08
17.00	3.96	2.09	3.73	0.08
17.50	4.03	2.14	3.79	0.08
18.00	4.08	2.19	3.85	0.08
18.50	4.14	2.24	3.91	0.07
19.00	4.20	2.29	3.96	0.07
19.50	4.25	2.33	4.01	0.07
20.00	4.30	2.37	4.06	0.06
20.50	4.34	2.41	4.11	0.06
21.00	4.39	2.45	4.15	0.06
21.50	4.43	2.49	4.20	0.06
22.00	4.47	2.52	4.24	0.05
22.50	4.51	2.56	4.27	0.05
23.00	4.55	2.59	4.31	0.05
23.50	4.58	2.62	4.34	0.04
24.00	4.61	2.64	4.37	0.04

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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Summary for Subcatchment 10S: DMA 2

Runoff = 0.13 cfs @ 10.03 hrs, Volume= 0.021 af, Depth> 2.54"
Routed to Pond 26P : Offsite

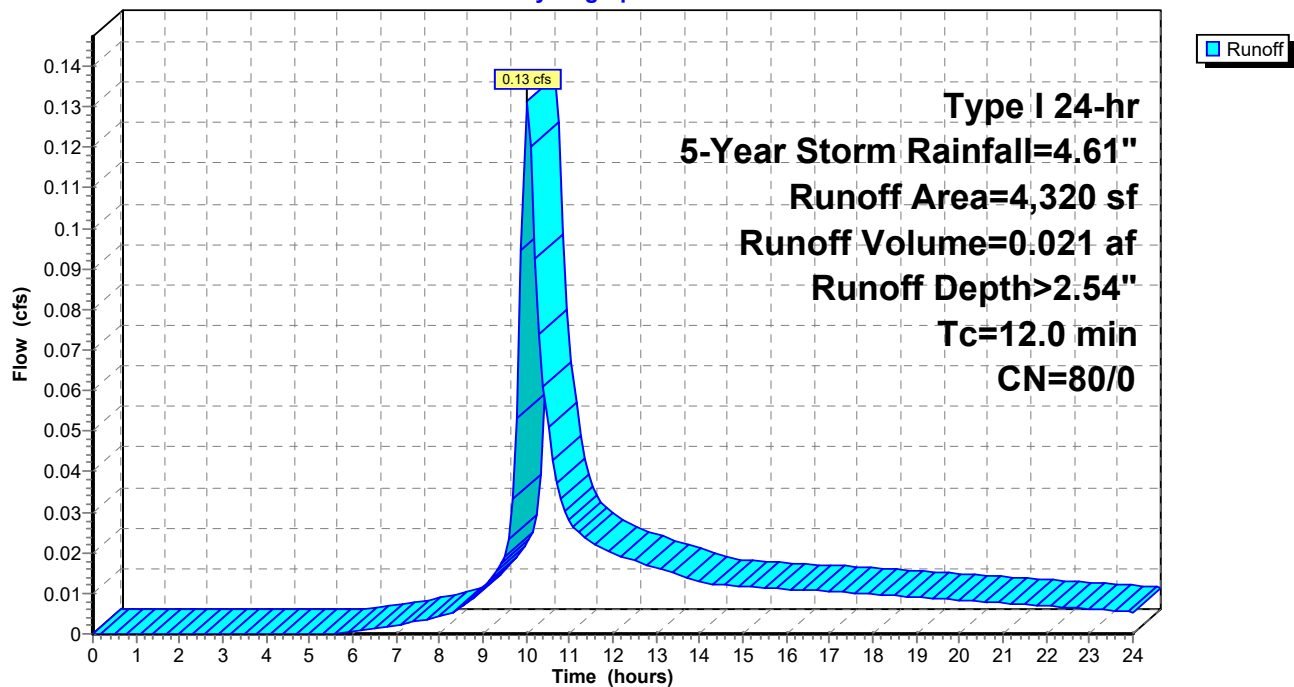
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 5-Year Storm Rainfall=4.61"

	Area (sf)	CN	Description
*	4,320	80	Pervious
	4,320	80	100.00% Pervious Area

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

Subcatchment 10S: DMA 2

Hydrograph



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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Hydrograph for Subcatchment 10S: DMA 2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00	0.00
1.00	0.08	0.00	0.00	0.00
1.50	0.12	0.00	0.00	0.00
2.00	0.16	0.00	0.00	0.00
2.50	0.20	0.00	0.00	0.00
3.00	0.25	0.00	0.00	0.00
3.50	0.30	0.00	0.00	0.00
4.00	0.35	0.00	0.00	0.00
4.50	0.40	0.00	0.00	0.00
5.00	0.46	0.00	0.00	0.00
5.50	0.52	0.00	0.00	0.00
6.00	0.58	0.00	0.00	0.00
6.50	0.64	0.01	0.00	0.00
7.00	0.72	0.02	0.00	0.00
7.50	0.80	0.03	0.00	0.00
8.00	0.89	0.05	0.00	0.00
8.50	1.01	0.09	0.00	0.01
9.00	1.17	0.14	0.00	0.01
9.50	1.40	0.24	0.00	0.02
10.00	2.37	0.80	0.00	0.13
10.50	2.69	1.02	0.00	0.05
11.00	2.87	1.15	0.00	0.03
11.50	3.02	1.27	0.00	0.02
12.00	3.15	1.37	0.00	0.02
12.50	3.27	1.46	0.00	0.02
13.00	3.37	1.54	0.00	0.02
13.50	3.47	1.61	0.00	0.01
14.00	3.55	1.68	0.00	0.01
14.50	3.62	1.74	0.00	0.01
15.00	3.70	1.79	0.00	0.01
15.50	3.77	1.85	0.00	0.01
16.00	3.84	1.91	0.00	0.01
16.50	3.90	1.96	0.00	0.01
17.00	3.96	2.01	0.00	0.01
17.50	4.03	2.06	0.00	0.01
18.00	4.08	2.11	0.00	0.01
18.50	4.14	2.16	0.00	0.01
19.00	4.20	2.20	0.00	0.01
19.50	4.25	2.25	0.00	0.01
20.00	4.30	2.29	0.00	0.01
20.50	4.34	2.33	0.00	0.01
21.00	4.39	2.37	0.00	0.01
21.50	4.43	2.40	0.00	0.01
22.00	4.47	2.44	0.00	0.01
22.50	4.51	2.47	0.00	0.01
23.00	4.55	2.50	0.00	0.01
23.50	4.58	2.53	0.00	0.01
24.00	4.61	2.56	0.00	0.01

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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Summary for Subcatchment 16S: DMA 7

Runoff = 0.08 cfs @ 10.02 hrs, Volume= 0.013 af, Depth> 4.15"
Routed to Pond 30P : Bioretention Basin (SCM-2)

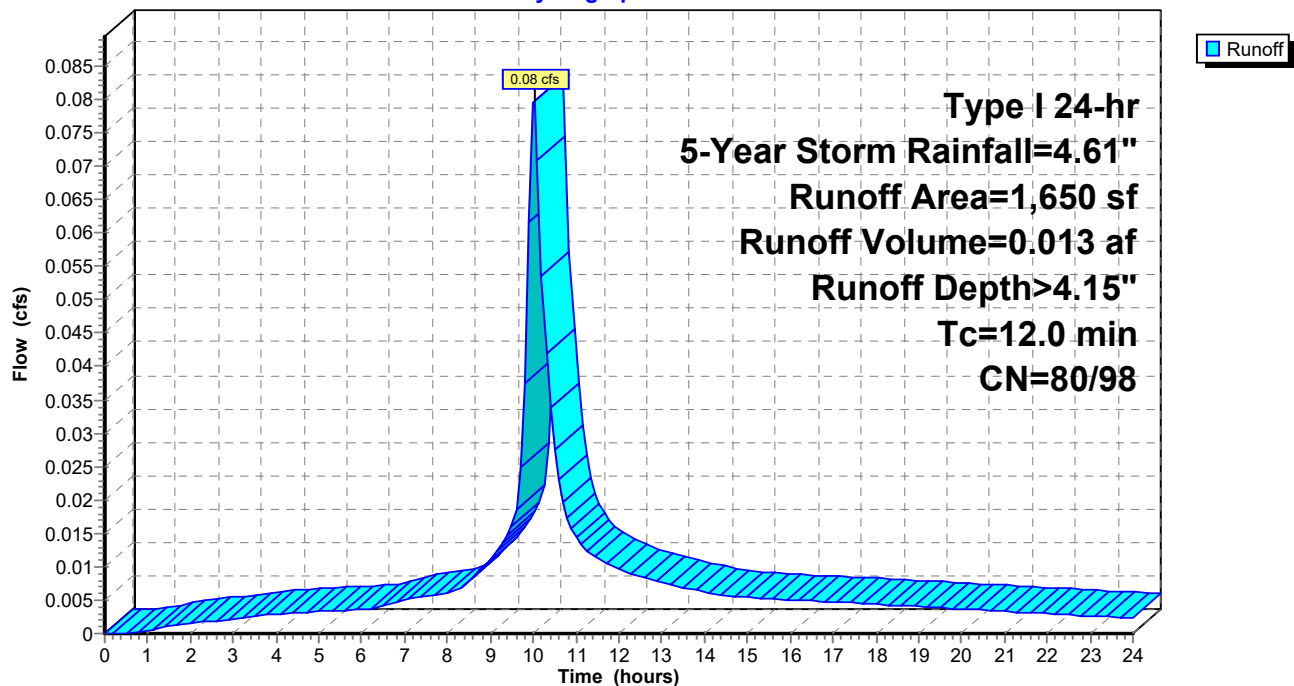
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 5-Year Storm Rainfall=4.61"

	Area (sf)	CN	Description
*	1,460	98	Impervious
*	0	80	Pervious
*	190	80	Basin
	1,650	96	Weighted Average
	190	80	11.52% Pervious Area
	1,460	98	88.48% Impervious Area

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

Subcatchment 16S: DMA 7

Hydrograph



22027_DRAINAGE*Type I 24-hr 5-Year Storm Rainfall=4.61"*

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Hydrograph for Subcatchment 16S: DMA 7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00	0.00
1.00	0.08	0.00	0.01	0.00
1.50	0.12	0.00	0.02	0.00
2.00	0.16	0.00	0.04	0.00
2.50	0.20	0.00	0.07	0.00
3.00	0.25	0.00	0.11	0.00
3.50	0.30	0.00	0.14	0.00
4.00	0.35	0.00	0.19	0.00
4.50	0.40	0.00	0.23	0.00
5.00	0.46	0.00	0.28	0.00
5.50	0.52	0.00	0.33	0.00
6.00	0.58	0.00	0.39	0.00
6.50	0.64	0.01	0.45	0.00
7.00	0.72	0.02	0.52	0.01
7.50	0.80	0.03	0.60	0.01
8.00	0.89	0.05	0.69	0.01
8.50	1.01	0.09	0.80	0.01
9.00	1.17	0.14	0.96	0.01
9.50	1.40	0.24	1.18	0.02
10.00	2.37	0.80	2.15	0.08
10.50	2.69	1.02	2.46	0.03
11.00	2.87	1.15	2.64	0.01
11.50	3.02	1.27	2.79	0.01
12.00	3.15	1.37	2.92	0.01
12.50	3.27	1.46	3.04	0.01
13.00	3.37	1.54	3.14	0.01
13.50	3.47	1.61	3.23	0.01
14.00	3.55	1.68	3.32	0.01
14.50	3.62	1.74	3.39	0.01
15.00	3.70	1.79	3.46	0.01
15.50	3.77	1.85	3.53	0.01
16.00	3.84	1.91	3.60	0.01
16.50	3.90	1.96	3.67	0.00
17.00	3.96	2.01	3.73	0.00
17.50	4.03	2.06	3.79	0.00
18.00	4.08	2.11	3.85	0.00
18.50	4.14	2.16	3.91	0.00
19.00	4.20	2.20	3.96	0.00
19.50	4.25	2.25	4.01	0.00
20.00	4.30	2.29	4.06	0.00
20.50	4.34	2.33	4.11	0.00
21.00	4.39	2.37	4.15	0.00
21.50	4.43	2.40	4.20	0.00
22.00	4.47	2.44	4.24	0.00
22.50	4.51	2.47	4.27	0.00
23.00	4.55	2.50	4.31	0.00
23.50	4.58	2.53	4.34	0.00
24.00	4.61	2.56	4.37	0.00

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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Summary for Subcatchment 19S: DMA 10

Runoff = 0.07 cfs @ 10.02 hrs, Volume= 0.011 af, Depth> 4.12"
Routed to Pond 30P : Bioretention Basin (SCM-2)

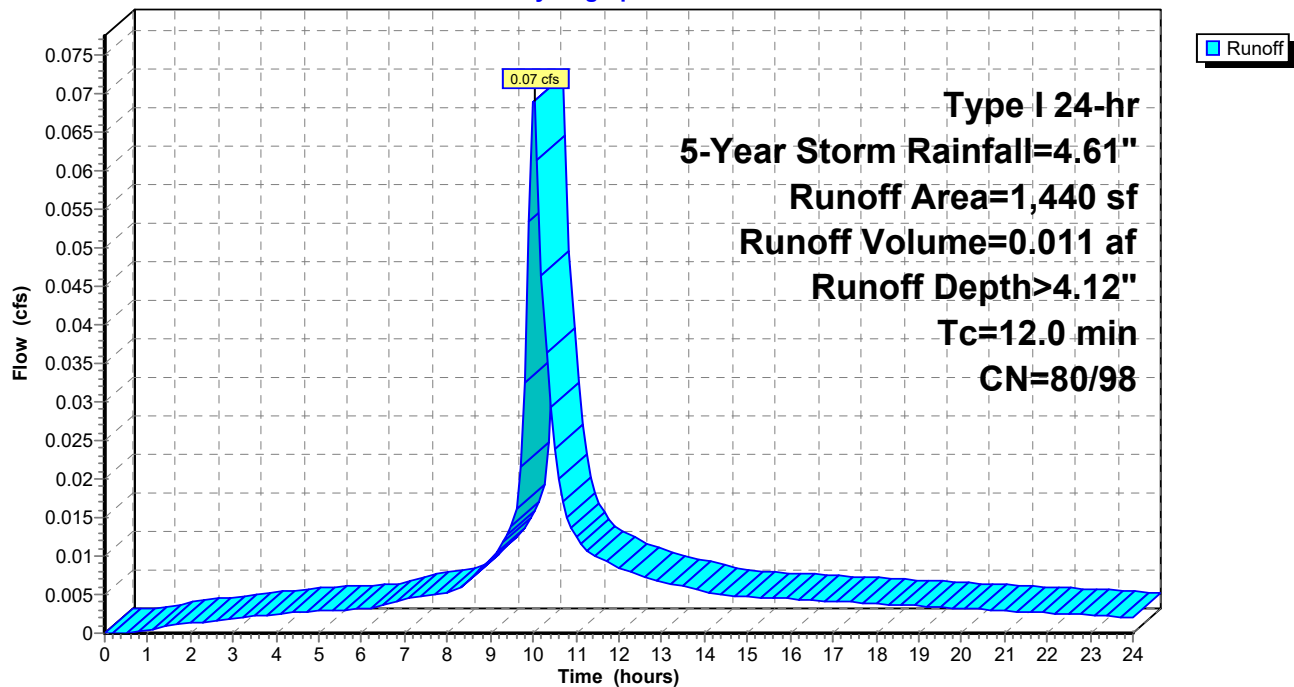
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 5-Year Storm Rainfall=4.61"

	Area (sf)	CN	Description
*	1,250	98	Impervious
*	190	80	Basin
	1,440	96	Weighted Average
	190	80	13.19% Pervious Area
	1,250	98	86.81% Impervious Area

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

Subcatchment 19S: DMA 10

Hydrograph



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Hydrograph for Subcatchment 19S: DMA 10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00	0.00
1.00	0.08	0.00	0.01	0.00
1.50	0.12	0.00	0.02	0.00
2.00	0.16	0.00	0.04	0.00
2.50	0.20	0.00	0.07	0.00
3.00	0.25	0.00	0.11	0.00
3.50	0.30	0.00	0.14	0.00
4.00	0.35	0.00	0.19	0.00
4.50	0.40	0.00	0.23	0.00
5.00	0.46	0.00	0.28	0.00
5.50	0.52	0.00	0.33	0.00
6.00	0.58	0.00	0.39	0.00
6.50	0.64	0.01	0.45	0.00
7.00	0.72	0.02	0.52	0.00
7.50	0.80	0.03	0.60	0.00
8.00	0.89	0.05	0.69	0.01
8.50	1.01	0.09	0.80	0.01
9.00	1.17	0.14	0.96	0.01
9.50	1.40	0.24	1.18	0.01
10.00	2.37	0.80	2.15	0.07
10.50	2.69	1.02	2.46	0.02
11.00	2.87	1.15	2.64	0.01
11.50	3.02	1.27	2.79	0.01
12.00	3.15	1.37	2.92	0.01
12.50	3.27	1.46	3.04	0.01
13.00	3.37	1.54	3.14	0.01
13.50	3.47	1.61	3.23	0.01
14.00	3.55	1.68	3.32	0.01
14.50	3.62	1.74	3.39	0.00
15.00	3.70	1.79	3.46	0.00
15.50	3.77	1.85	3.53	0.00
16.00	3.84	1.91	3.60	0.00
16.50	3.90	1.96	3.67	0.00
17.00	3.96	2.01	3.73	0.00
17.50	4.03	2.06	3.79	0.00
18.00	4.08	2.11	3.85	0.00
18.50	4.14	2.16	3.91	0.00
19.00	4.20	2.20	3.96	0.00
19.50	4.25	2.25	4.01	0.00
20.00	4.30	2.29	4.06	0.00
20.50	4.34	2.33	4.11	0.00
21.00	4.39	2.37	4.15	0.00
21.50	4.43	2.40	4.20	0.00
22.00	4.47	2.44	4.24	0.00
22.50	4.51	2.47	4.27	0.00
23.00	4.55	2.50	4.31	0.00
23.50	4.58	2.53	4.34	0.00
24.00	4.61	2.56	4.37	0.00

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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Summary for Subcatchment 20S: DMA 11

Runoff = 0.04 cfs @ 10.03 hrs, Volume= 0.007 af, Depth> 2.65"
Routed to Pond 26P : Offsite

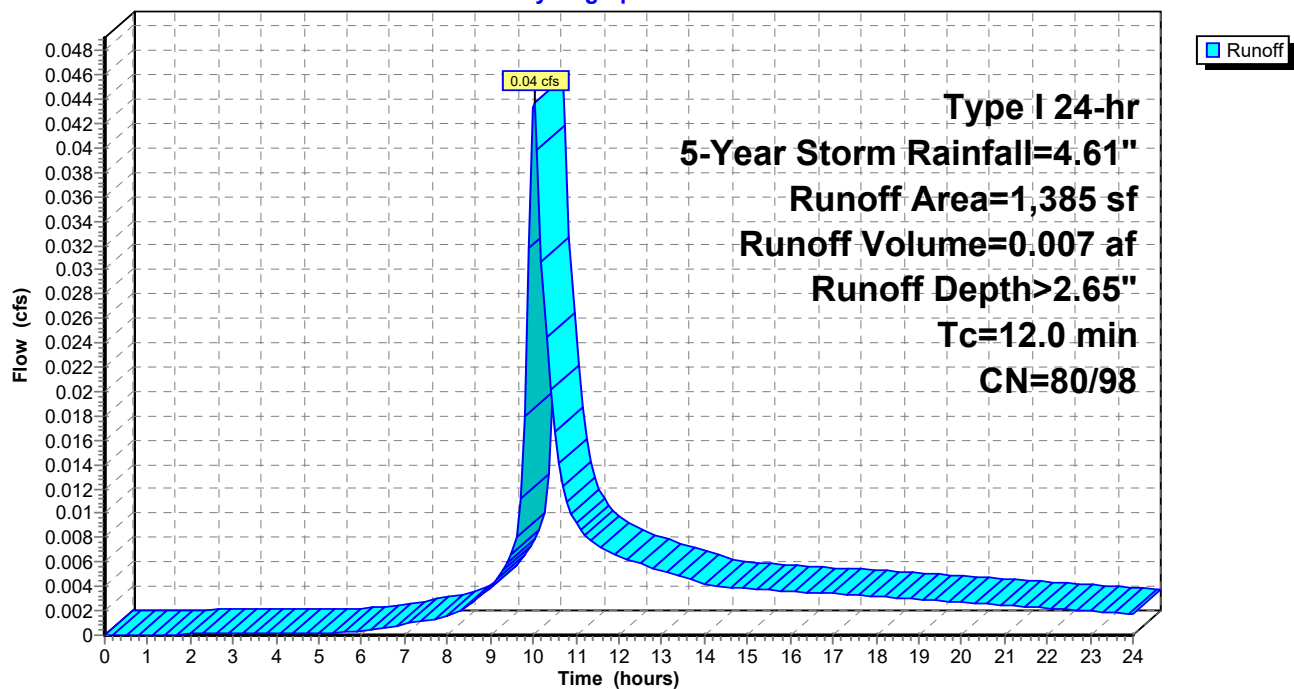
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 5-Year Storm Rainfall=4.61"

	Area (sf)	CN	Description
*	1,305	80	Pervious
*	80	98	Impervious
	1,385	81	Weighted Average
	1,305	80	94.22% Pervious Area
	80	98	5.78% Impervious Area

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

Subcatchment 20S: DMA 11

Hydrograph



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Hydrograph for Subcatchment 20S: DMA 11

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00	0.00
1.00	0.08	0.00	0.01	0.00
1.50	0.12	0.00	0.02	0.00
2.00	0.16	0.00	0.04	0.00
2.50	0.20	0.00	0.07	0.00
3.00	0.25	0.00	0.11	0.00
3.50	0.30	0.00	0.14	0.00
4.00	0.35	0.00	0.19	0.00
4.50	0.40	0.00	0.23	0.00
5.00	0.46	0.00	0.28	0.00
5.50	0.52	0.00	0.33	0.00
6.00	0.58	0.00	0.39	0.00
6.50	0.64	0.01	0.45	0.00
7.00	0.72	0.02	0.52	0.00
7.50	0.80	0.03	0.60	0.00
8.00	0.89	0.05	0.69	0.00
8.50	1.01	0.09	0.80	0.00
9.00	1.17	0.14	0.96	0.00
9.50	1.40	0.24	1.18	0.01
10.00	2.37	0.80	2.15	0.04
10.50	2.69	1.02	2.46	0.02
11.00	2.87	1.15	2.64	0.01
11.50	3.02	1.27	2.79	0.01
12.00	3.15	1.37	2.92	0.01
12.50	3.27	1.46	3.04	0.01
13.00	3.37	1.54	3.14	0.01
13.50	3.47	1.61	3.23	0.00
14.00	3.55	1.68	3.32	0.00
14.50	3.62	1.74	3.39	0.00
15.00	3.70	1.79	3.46	0.00
15.50	3.77	1.85	3.53	0.00
16.00	3.84	1.91	3.60	0.00
16.50	3.90	1.96	3.67	0.00
17.00	3.96	2.01	3.73	0.00
17.50	4.03	2.06	3.79	0.00
18.00	4.08	2.11	3.85	0.00
18.50	4.14	2.16	3.91	0.00
19.00	4.20	2.20	3.96	0.00
19.50	4.25	2.25	4.01	0.00
20.00	4.30	2.29	4.06	0.00
20.50	4.34	2.33	4.11	0.00
21.00	4.39	2.37	4.15	0.00
21.50	4.43	2.40	4.20	0.00
22.00	4.47	2.44	4.24	0.00
22.50	4.51	2.47	4.27	0.00
23.00	4.55	2.50	4.31	0.00
23.50	4.58	2.53	4.34	0.00
24.00	4.61	2.56	4.37	0.00

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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Summary for Subcatchment 21S: DMA 12

Runoff = 0.22 cfs @ 10.02 hrs, Volume= 0.036 af, Depth> 4.01"

Routed to Pond 29P : Self Retaining - Permeable Pavers

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

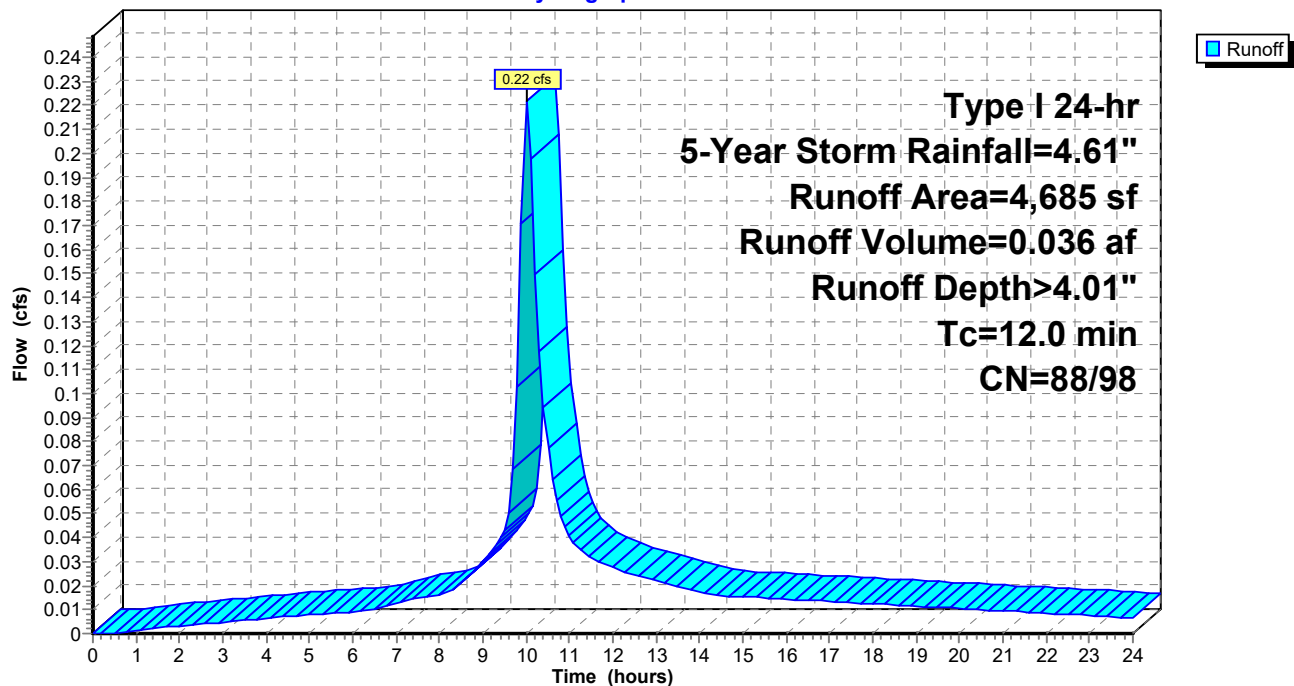
Type I 24-hr 5-Year Storm Rainfall=4.61"

	Area (sf)	CN	Description
*	3,140	98	Impervious
*	220	80	Pervious
*	1,325	89	Pavers
	4,685	95	Weighted Average
	1,545	88	32.98% Pervious Area
	3,140	98	67.02% Impervious Area

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

Subcatchment 21S: DMA 12

Hydrograph



22027_DRAINAGE

Type I 24-hr 5-Year Storm Rainfall=4.61"

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Hydrograph for Subcatchment 21S: DMA 12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00	0.00
1.00	0.08	0.00	0.01	0.00
1.50	0.12	0.00	0.02	0.00
2.00	0.16	0.00	0.04	0.00
2.50	0.20	0.00	0.07	0.00
3.00	0.25	0.00	0.11	0.00
3.50	0.30	0.00	0.14	0.01
4.00	0.35	0.00	0.19	0.01
4.50	0.40	0.01	0.23	0.01
5.00	0.46	0.02	0.28	0.01
5.50	0.52	0.04	0.33	0.01
6.00	0.58	0.06	0.39	0.01
6.50	0.64	0.08	0.45	0.01
7.00	0.72	0.11	0.52	0.01
7.50	0.80	0.15	0.60	0.01
8.00	0.89	0.19	0.69	0.02
8.50	1.01	0.26	0.80	0.02
9.00	1.17	0.36	0.96	0.03
9.50	1.40	0.51	1.18	0.04
10.00	2.37	1.27	2.15	0.22
10.50	2.69	1.54	2.46	0.08
11.00	2.87	1.70	2.64	0.04
11.50	3.02	1.84	2.79	0.03
12.00	3.15	1.96	2.92	0.03
12.50	3.27	2.06	3.04	0.02
13.00	3.37	2.15	3.14	0.02
13.50	3.47	2.24	3.23	0.02
14.00	3.55	2.31	3.32	0.02
14.50	3.62	2.38	3.39	0.02
15.00	3.70	2.45	3.46	0.02
15.50	3.77	2.51	3.53	0.01
16.00	3.84	2.58	3.60	0.01
16.50	3.90	2.64	3.67	0.01
17.00	3.96	2.70	3.73	0.01
17.50	4.03	2.75	3.79	0.01
18.00	4.08	2.81	3.85	0.01
18.50	4.14	2.86	3.91	0.01
19.00	4.20	2.91	3.96	0.01
19.50	4.25	2.96	4.01	0.01
20.00	4.30	3.01	4.06	0.01
20.50	4.34	3.05	4.11	0.01
21.00	4.39	3.09	4.15	0.01
21.50	4.43	3.13	4.20	0.01
22.00	4.47	3.17	4.24	0.01
22.50	4.51	3.21	4.27	0.01
23.00	4.55	3.24	4.31	0.01
23.50	4.58	3.27	4.34	0.01
24.00	4.61	3.30	4.37	0.01

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Summary for Subcatchment 22S: DMA 13

Runoff = 0.05 cfs @ 10.02 hrs, Volume= 0.008 af, Depth> 3.07"
Routed to Pond 26P : Offsite

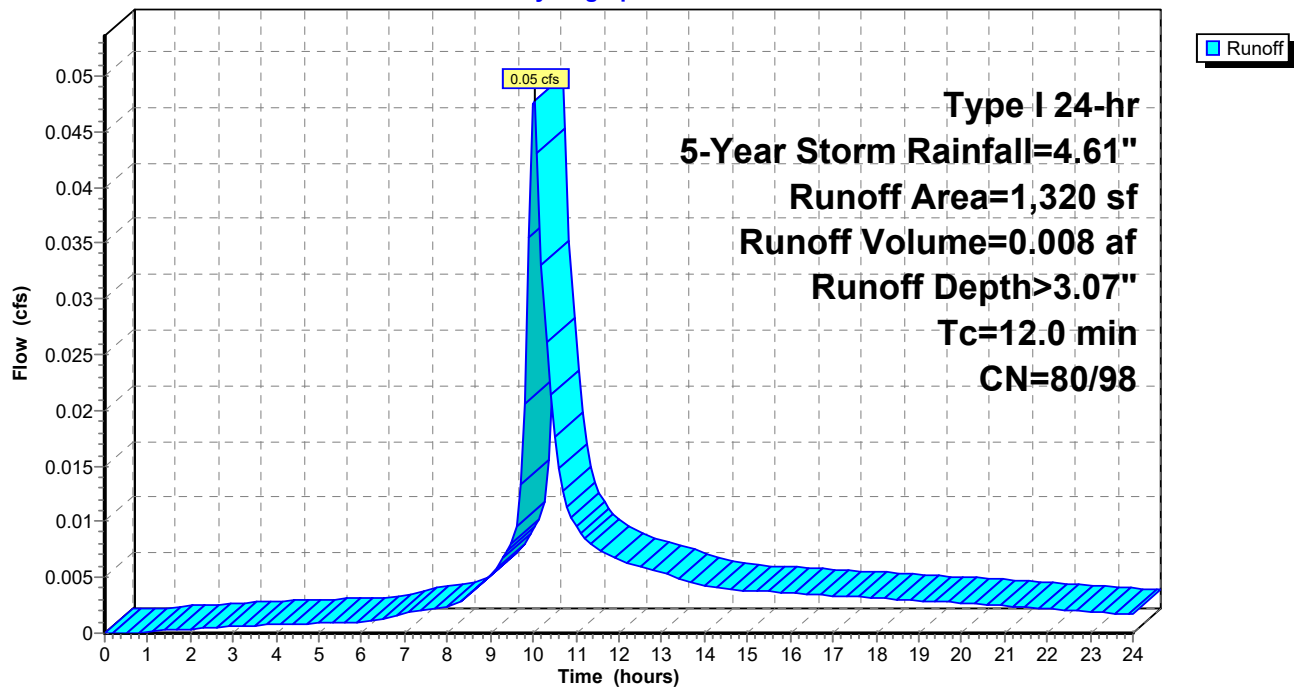
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 5-Year Storm Rainfall=4.61"

	Area (sf)	CN	Description
*	380	98	Impervious
*	940	80	Pervious
	1,320	85	Weighted Average
	940	80	71.21% Pervious Area
	380	98	28.79% Impervious Area

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

Subcatchment 22S: DMA 13

Hydrograph



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Hydrograph for Subcatchment 22S: DMA 13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00	0.00
1.00	0.08	0.00	0.01	0.00
1.50	0.12	0.00	0.02	0.00
2.00	0.16	0.00	0.04	0.00
2.50	0.20	0.00	0.07	0.00
3.00	0.25	0.00	0.11	0.00
3.50	0.30	0.00	0.14	0.00
4.00	0.35	0.00	0.19	0.00
4.50	0.40	0.00	0.23	0.00
5.00	0.46	0.00	0.28	0.00
5.50	0.52	0.00	0.33	0.00
6.00	0.58	0.00	0.39	0.00
6.50	0.64	0.01	0.45	0.00
7.00	0.72	0.02	0.52	0.00
7.50	0.80	0.03	0.60	0.00
8.00	0.89	0.05	0.69	0.00
8.50	1.01	0.09	0.80	0.00
9.00	1.17	0.14	0.96	0.01
9.50	1.40	0.24	1.18	0.01
10.00	2.37	0.80	2.15	0.05
10.50	2.69	1.02	2.46	0.02
11.00	2.87	1.15	2.64	0.01
11.50	3.02	1.27	2.79	0.01
12.00	3.15	1.37	2.92	0.01
12.50	3.27	1.46	3.04	0.01
13.00	3.37	1.54	3.14	0.01
13.50	3.47	1.61	3.23	0.00
14.00	3.55	1.68	3.32	0.00
14.50	3.62	1.74	3.39	0.00
15.00	3.70	1.79	3.46	0.00
15.50	3.77	1.85	3.53	0.00
16.00	3.84	1.91	3.60	0.00
16.50	3.90	1.96	3.67	0.00
17.00	3.96	2.01	3.73	0.00
17.50	4.03	2.06	3.79	0.00
18.00	4.08	2.11	3.85	0.00
18.50	4.14	2.16	3.91	0.00
19.00	4.20	2.20	3.96	0.00
19.50	4.25	2.25	4.01	0.00
20.00	4.30	2.29	4.06	0.00
20.50	4.34	2.33	4.11	0.00
21.00	4.39	2.37	4.15	0.00
21.50	4.43	2.40	4.20	0.00
22.00	4.47	2.44	4.24	0.00
22.50	4.51	2.47	4.27	0.00
23.00	4.55	2.50	4.31	0.00
23.50	4.58	2.53	4.34	0.00
24.00	4.61	2.56	4.37	0.00

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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Summary for Subcatchment 23S: DMA 3, 5, 6, 8

Runoff = 2.00 cfs @ 10.02 hrs, Volume= 0.322 af, Depth> 3.93"

Routed to Pond 11P : Self Retaining - Permeable Pavers

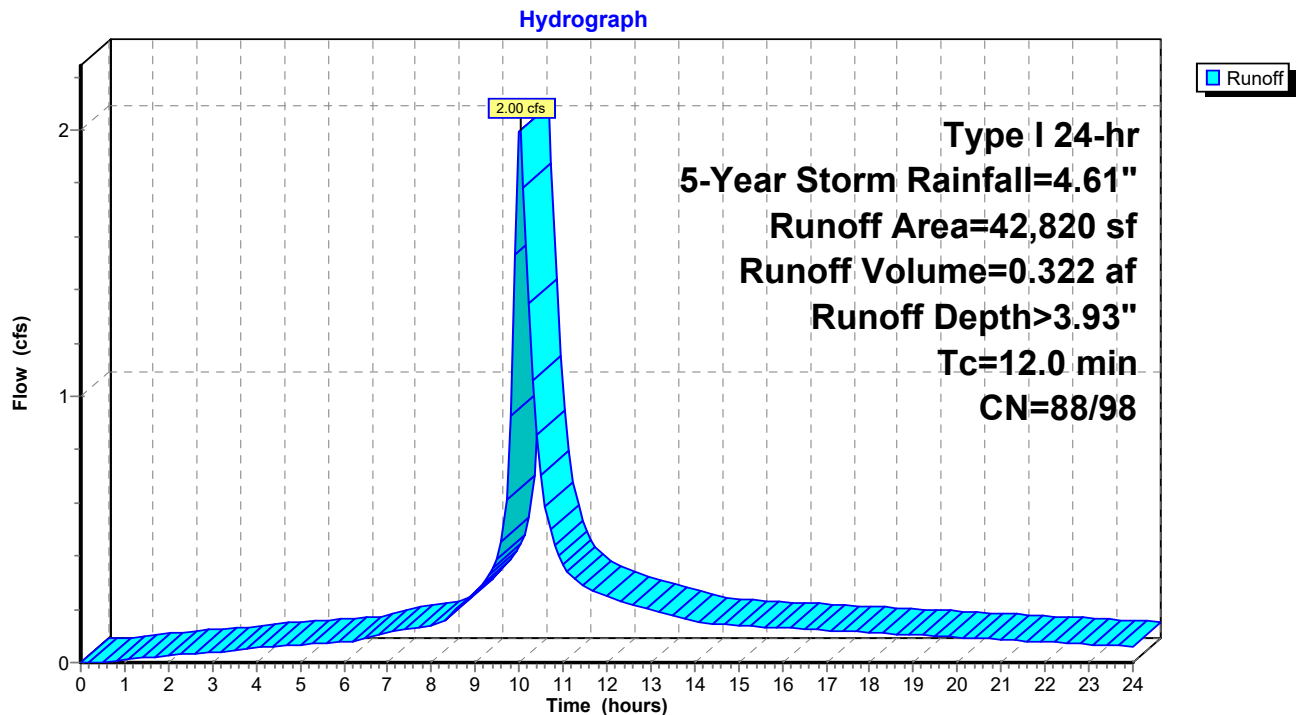
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Type I 24-hr 5-Year Storm Rainfall=4.61"

	Area (sf)	CN	Description
*	25,761	98	Impervious
*	2,165	80	Pervious
*	14,894	89	Pavers
	42,820	94	Weighted Average
	17,059	88	39.84% Pervious Area
	25,761	98	60.16% Impervious Area

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

Subcatchment 23S: DMA 3, 5, 6, 8



22027_DRAINAGE

Type I 24-hr 5-Year Storm Rainfall=4.61"

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Hydrograph for Subcatchment 23S: DMA 3, 5, 6, 8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00	0.00
1.00	0.08	0.00	0.01	0.01
1.50	0.12	0.00	0.02	0.02
2.00	0.16	0.00	0.04	0.03
2.50	0.20	0.00	0.07	0.03
3.00	0.25	0.00	0.11	0.04
3.50	0.30	0.00	0.14	0.05
4.00	0.35	0.00	0.19	0.05
4.50	0.40	0.01	0.23	0.06
5.00	0.46	0.02	0.28	0.07
5.50	0.52	0.04	0.33	0.07
6.00	0.58	0.06	0.39	0.08
6.50	0.64	0.08	0.45	0.09
7.00	0.72	0.11	0.52	0.11
7.50	0.80	0.15	0.60	0.13
8.00	0.89	0.19	0.69	0.14
8.50	1.01	0.26	0.80	0.19
9.00	1.17	0.36	0.96	0.27
9.50	1.40	0.51	1.18	0.39
10.00	2.37	1.27	2.15	1.99
10.50	2.69	1.54	2.46	0.70
11.00	2.87	1.70	2.64	0.37
11.50	3.02	1.84	2.79	0.29
12.00	3.15	1.96	2.92	0.25
12.50	3.27	2.06	3.04	0.22
13.00	3.37	2.15	3.14	0.20
13.50	3.47	2.24	3.23	0.18
14.00	3.55	2.31	3.32	0.16
14.50	3.62	2.38	3.39	0.14
15.00	3.70	2.45	3.46	0.14
15.50	3.77	2.51	3.53	0.13
16.00	3.84	2.58	3.60	0.13
16.50	3.90	2.64	3.67	0.13
17.00	3.96	2.70	3.73	0.12
17.50	4.03	2.75	3.79	0.12
18.00	4.08	2.81	3.85	0.11
18.50	4.14	2.86	3.91	0.11
19.00	4.20	2.91	3.96	0.10
19.50	4.25	2.96	4.01	0.10
20.00	4.30	3.01	4.06	0.10
20.50	4.34	3.05	4.11	0.09
21.00	4.39	3.09	4.15	0.09
21.50	4.43	3.13	4.20	0.08
22.00	4.47	3.17	4.24	0.08
22.50	4.51	3.21	4.27	0.07
23.00	4.55	3.24	4.31	0.07
23.50	4.58	3.27	4.34	0.06
24.00	4.61	3.30	4.37	0.06

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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Summary for Subcatchment 25S: DMA 14

Runoff = 0.03 cfs @ 10.03 hrs, Volume= 0.004 af, Depth> 2.54"
Routed to Pond 26P : Offsite

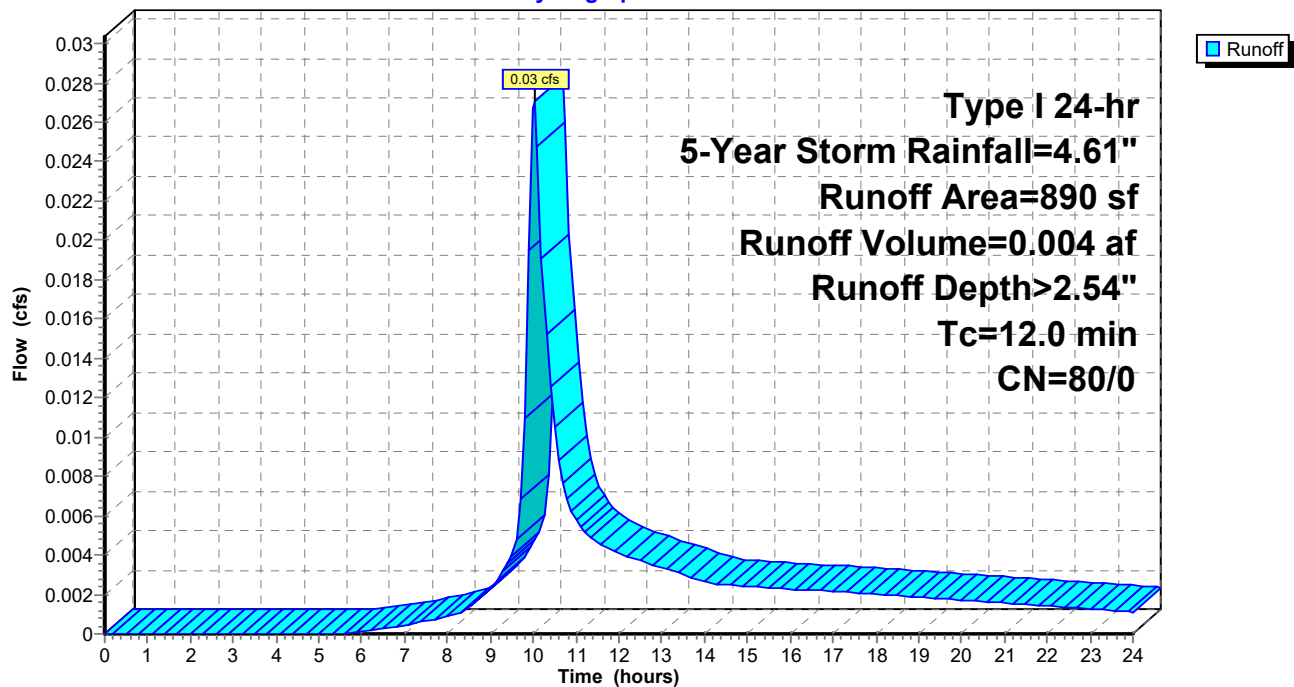
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 5-Year Storm Rainfall=4.61"

	Area (sf)	CN	Description
*	890	80	Pervious
	890	80	100.00% Pervious Area

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

Subcatchment 25S: DMA 14

Hydrograph



22027_DRAINAGE*Type I 24-hr 5-Year Storm Rainfall=4.61"*

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Hydrograph for Subcatchment 25S: DMA 14

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00	0.00
1.00	0.08	0.00	0.00	0.00
1.50	0.12	0.00	0.00	0.00
2.00	0.16	0.00	0.00	0.00
2.50	0.20	0.00	0.00	0.00
3.00	0.25	0.00	0.00	0.00
3.50	0.30	0.00	0.00	0.00
4.00	0.35	0.00	0.00	0.00
4.50	0.40	0.00	0.00	0.00
5.00	0.46	0.00	0.00	0.00
5.50	0.52	0.00	0.00	0.00
6.00	0.58	0.00	0.00	0.00
6.50	0.64	0.01	0.00	0.00
7.00	0.72	0.02	0.00	0.00
7.50	0.80	0.03	0.00	0.00
8.00	0.89	0.05	0.00	0.00
8.50	1.01	0.09	0.00	0.00
9.00	1.17	0.14	0.00	0.00
9.50	1.40	0.24	0.00	0.00
10.00	2.37	0.80	0.00	0.03
10.50	2.69	1.02	0.00	0.01
11.00	2.87	1.15	0.00	0.01
11.50	3.02	1.27	0.00	0.00
12.00	3.15	1.37	0.00	0.00
12.50	3.27	1.46	0.00	0.00
13.00	3.37	1.54	0.00	0.00
13.50	3.47	1.61	0.00	0.00
14.00	3.55	1.68	0.00	0.00
14.50	3.62	1.74	0.00	0.00
15.00	3.70	1.79	0.00	0.00
15.50	3.77	1.85	0.00	0.00
16.00	3.84	1.91	0.00	0.00
16.50	3.90	1.96	0.00	0.00
17.00	3.96	2.01	0.00	0.00
17.50	4.03	2.06	0.00	0.00
18.00	4.08	2.11	0.00	0.00
18.50	4.14	2.16	0.00	0.00
19.00	4.20	2.20	0.00	0.00
19.50	4.25	2.25	0.00	0.00
20.00	4.30	2.29	0.00	0.00
20.50	4.34	2.33	0.00	0.00
21.00	4.39	2.37	0.00	0.00
21.50	4.43	2.40	0.00	0.00
22.00	4.47	2.44	0.00	0.00
22.50	4.51	2.47	0.00	0.00
23.00	4.55	2.50	0.00	0.00
23.50	4.58	2.53	0.00	0.00
24.00	4.61	2.56	0.00	0.00

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Summary for Subcatchment 28S: DMA 4 & 9

Runoff = 0.09 cfs @ 10.03 hrs, Volume= 0.015 af, Depth> 2.68"
Routed to Pond 27P : Self Retaining - Landscape

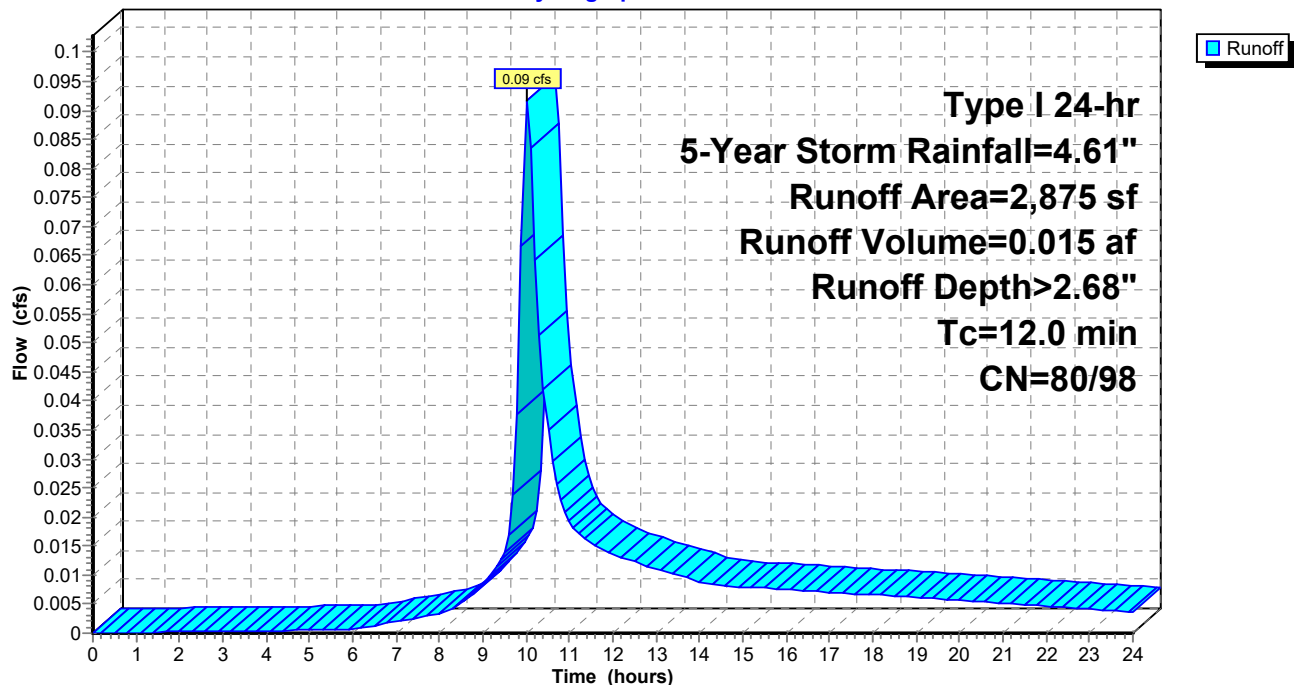
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 5-Year Storm Rainfall=4.61"

	Area (sf)	CN	Description
*	2,665	80	Pervious Area
*	210	98	Impervious Area
	2,875	81	Weighted Average
	2,665	80	92.70% Pervious Area
	210	98	7.30% Impervious Area

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

Subcatchment 28S: DMA 4 & 9

Hydrograph



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Hydrograph for Subcatchment 28S: DMA 4 & 9

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00	0.00
1.00	0.08	0.00	0.01	0.00
1.50	0.12	0.00	0.02	0.00
2.00	0.16	0.00	0.04	0.00
2.50	0.20	0.00	0.07	0.00
3.00	0.25	0.00	0.11	0.00
3.50	0.30	0.00	0.14	0.00
4.00	0.35	0.00	0.19	0.00
4.50	0.40	0.00	0.23	0.00
5.00	0.46	0.00	0.28	0.00
5.50	0.52	0.00	0.33	0.00
6.00	0.58	0.00	0.39	0.00
6.50	0.64	0.01	0.45	0.00
7.00	0.72	0.02	0.52	0.00
7.50	0.80	0.03	0.60	0.00
8.00	0.89	0.05	0.69	0.00
8.50	1.01	0.09	0.80	0.01
9.00	1.17	0.14	0.96	0.01
9.50	1.40	0.24	1.18	0.01
10.00	2.37	0.80	2.15	0.09
10.50	2.69	1.02	2.46	0.03
11.00	2.87	1.15	2.64	0.02
11.50	3.02	1.27	2.79	0.02
12.00	3.15	1.37	2.92	0.01
12.50	3.27	1.46	3.04	0.01
13.00	3.37	1.54	3.14	0.01
13.50	3.47	1.61	3.23	0.01
14.00	3.55	1.68	3.32	0.01
14.50	3.62	1.74	3.39	0.01
15.00	3.70	1.79	3.46	0.01
15.50	3.77	1.85	3.53	0.01
16.00	3.84	1.91	3.60	0.01
16.50	3.90	1.96	3.67	0.01
17.00	3.96	2.01	3.73	0.01
17.50	4.03	2.06	3.79	0.01
18.00	4.08	2.11	3.85	0.01
18.50	4.14	2.16	3.91	0.01
19.00	4.20	2.20	3.96	0.01
19.50	4.25	2.25	4.01	0.01
20.00	4.30	2.29	4.06	0.01
20.50	4.34	2.33	4.11	0.01
21.00	4.39	2.37	4.15	0.01
21.50	4.43	2.40	4.20	0.00
22.00	4.47	2.44	4.24	0.00
22.50	4.51	2.47	4.27	0.00
23.00	4.55	2.50	4.31	0.00
23.50	4.58	2.53	4.34	0.00
24.00	4.61	2.56	4.37	0.00

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Summary for Pond 8P: Bioretention Basin (SCM-1)

Inflow Area = 0.690 ac, 52.67% Impervious, Inflow Depth > 3.54" for 5-Year Storm event
 Inflow = 1.25 cfs @ 10.02 hrs, Volume= 0.204 af
 Outflow = 0.68 cfs @ 10.30 hrs, Volume= 0.165 af, Atten= 45%, Lag= 16.9 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.68 cfs @ 10.30 hrs, Volume= 0.165 af
 Routed to Pond 26P : Offsite
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2
 Peak Elev= 74.27' @ 10.30 hrs Surf.Area= 1,847 sf Storage= 2,659 cf

Plug-Flow detention time= 192.6 min calculated for 0.165 af (81% of inflow)
 Center-of-Mass det. time= 88.9 min (826.4 - 737.6)

Volume	Invert	Avail.Storage	Storage Description	
#1	68.99'	4,276 cf	Custom Stage Data (Prismatic) Listed below (Recalc) x 0.75	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.99	1,370	0.0	0	0
69.00	1,370	40.0	5	5
71.50	1,370	40.0	1,370	1,375
73.50	1,370	25.0	685	2,060
75.00	3,485	100.0	3,641	5,702

Device	Routing	Invert	Outlet Devices
#1	Device 3	73.25'	15.0" Round 15" Culvert L= 250.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.25' / 70.70' S= 0.0102 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#2	Secondary	74.99'	70.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Primary	73.50'	6.0" Vert. Orifice/Culvert C= 0.600 Limited to weir flow at low heads
#4	Device 1	70.60'	12.5" W x 3.0" H Vert. curb outlet C= 0.600 Limited to weir flow at low heads
#5	Discarded	68.99'	0.380 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=68.99' (Free Discharge)

↑ **5=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.68 cfs @ 10.30 hrs HW=74.27' (Free Discharge)

↑ **3=Orifice/Culvert** (Orifice Controls 0.68 cfs @ 3.49 fps)

↑ **1=15" Culvert** (Passes 0.68 cfs of 2.65 cfs potential flow)

↑ **4=curb outlet** (Passes 0.68 cfs of 1.10 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=68.99' (Free Discharge)

↑ **2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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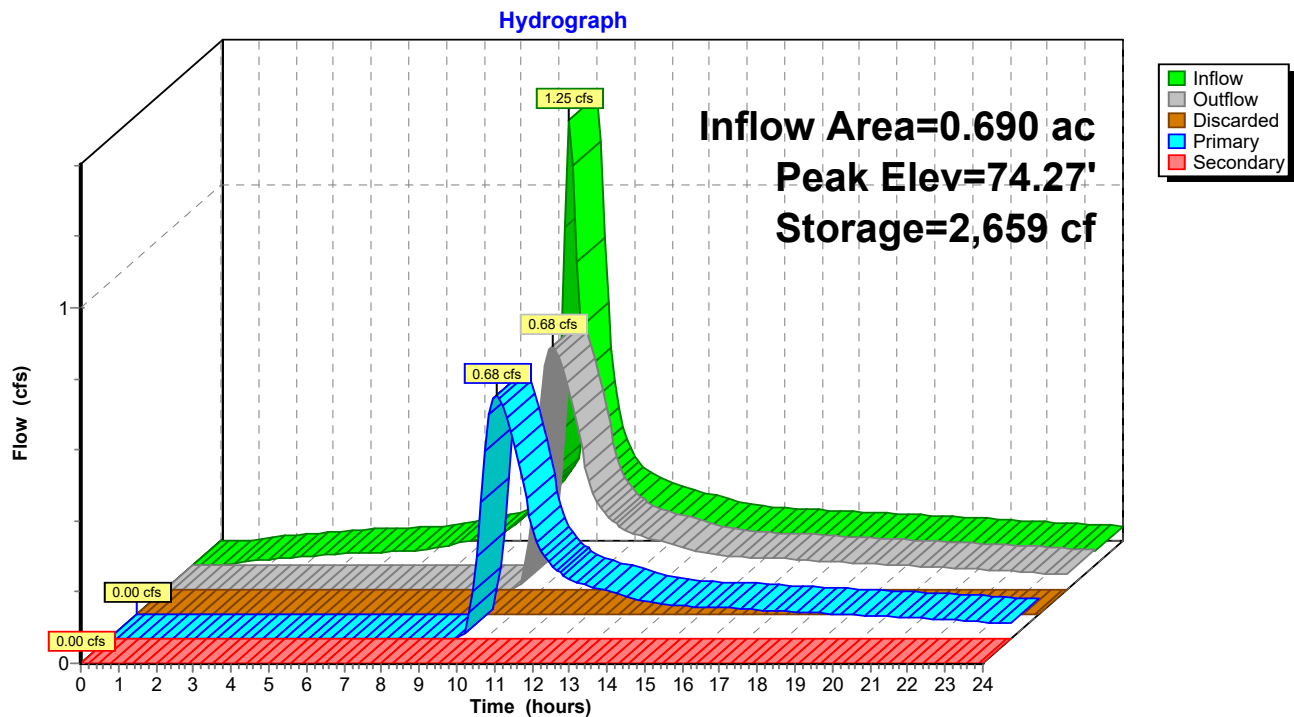
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Pond 8P: Bioretention Basin (SCM-1)



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Hydrograph for Pond 8P: Bioretention Basin (SCM-1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	68.99	0.00	0.00	0.00	0.00
0.50	0.00	0	68.99	0.00	0.00	0.00	0.00
1.00	0.01	3	69.00	0.00	0.00	0.00	0.00
1.50	0.01	19	69.04	0.00	0.00	0.00	0.00
2.00	0.02	44	69.10	0.00	0.00	0.00	0.00
2.50	0.02	77	69.18	0.00	0.00	0.00	0.00
3.00	0.02	117	69.27	0.00	0.00	0.00	0.00
3.50	0.03	164	69.39	0.00	0.00	0.00	0.00
4.00	0.03	217	69.52	0.00	0.00	0.00	0.00
4.50	0.03	277	69.66	0.00	0.00	0.00	0.00
5.00	0.04	340	69.82	0.00	0.00	0.00	0.00
5.50	0.04	407	69.98	0.00	0.00	0.00	0.00
6.00	0.04	479	70.16	0.00	0.00	0.00	0.00
6.50	0.05	560	70.35	0.00	0.00	0.00	0.00
7.00	0.06	660	70.59	0.00	0.00	0.00	0.00
7.50	0.07	780	70.89	0.00	0.00	0.00	0.00
8.00	0.08	915	71.22	0.00	0.00	0.00	0.00
8.50	0.11	1,076	71.67	0.00	0.00	0.00	0.00
9.00	0.16	1,311	72.59	0.00	0.00	0.00	0.00
9.50	0.23	1,646	73.59	0.03	0.00	0.03	0.00
10.00	1.24	2,294	74.06	0.53	0.00	0.53	0.00
10.50	0.45	2,572	74.23	0.65	0.00	0.65	0.00
11.00	0.24	2,142	73.97	0.44	0.00	0.44	0.00
11.50	0.19	1,920	73.81	0.25	0.00	0.25	0.00
12.00	0.16	1,855	73.76	0.19	0.00	0.19	0.00
12.50	0.15	1,825	73.74	0.16	0.00	0.16	0.00
13.00	0.13	1,806	73.73	0.14	0.00	0.14	0.00
13.50	0.12	1,789	73.71	0.13	0.00	0.13	0.00
14.00	0.10	1,772	73.70	0.11	0.00	0.11	0.00
14.50	0.10	1,758	73.69	0.10	0.00	0.10	0.00
15.00	0.09	1,751	73.68	0.10	0.00	0.10	0.00
15.50	0.09	1,747	73.68	0.09	0.00	0.09	0.00
16.00	0.09	1,743	73.68	0.09	0.00	0.09	0.00
16.50	0.08	1,739	73.67	0.09	0.00	0.09	0.00
17.00	0.08	1,735	73.67	0.08	0.00	0.08	0.00
17.50	0.08	1,731	73.67	0.08	0.00	0.08	0.00
18.00	0.08	1,727	73.66	0.08	0.00	0.08	0.00
18.50	0.07	1,723	73.66	0.08	0.00	0.08	0.00
19.00	0.07	1,719	73.66	0.07	0.00	0.07	0.00
19.50	0.07	1,715	73.65	0.07	0.00	0.07	0.00
20.00	0.06	1,711	73.65	0.07	0.00	0.07	0.00
20.50	0.06	1,706	73.65	0.06	0.00	0.06	0.00
21.00	0.06	1,702	73.64	0.06	0.00	0.06	0.00
21.50	0.06	1,698	73.64	0.06	0.00	0.06	0.00
22.00	0.05	1,694	73.63	0.05	0.00	0.05	0.00
22.50	0.05	1,689	73.63	0.05	0.00	0.05	0.00
23.00	0.05	1,685	73.63	0.05	0.00	0.05	0.00
23.50	0.04	1,681	73.62	0.05	0.00	0.05	0.00
24.00	0.04	1,676	73.62	0.04	0.00	0.04	0.00

22027_DRAINAGE

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Summary for Pond 11P: Self Retaining - Permeable Pavers

Inflow Area = 1.049 ac, 56.84% Impervious, Inflow Depth > 3.69" for 5-Year Storm event
 Inflow = 2.00 cfs @ 10.02 hrs, Volume= 0.322 af
 Outflow = 0.11 cfs @ 18.77 hrs, Volume= 0.060 af, Atten= 95%, Lag= 525.2 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.11 cfs @ 18.77 hrs, Volume= 0.060 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 72.92' @ 18.77 hrs Surf.Area= 15,055 sf Storage= 11,579 cf

Plug-Flow detention time= 791.9 min calculated for 0.060 af (19% of inflow)
 Center-of-Mass det. time= 473.1 min (1,198.1 - 724.9)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	13,851 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 34,626 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	15,055	0	0
73.30	15,055	34,626	34,626

Device	Routing	Invert	Outlet Devices
#1	Primary	72.80'	4.0" Round Culvert X 4.00 L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 72.80' / 72.54' S= 0.0052 ' / Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	71.00'	0.890 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.11 cfs @ 18.77 hrs HW=72.92' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 0.11 cfs @ 1.35 fps)

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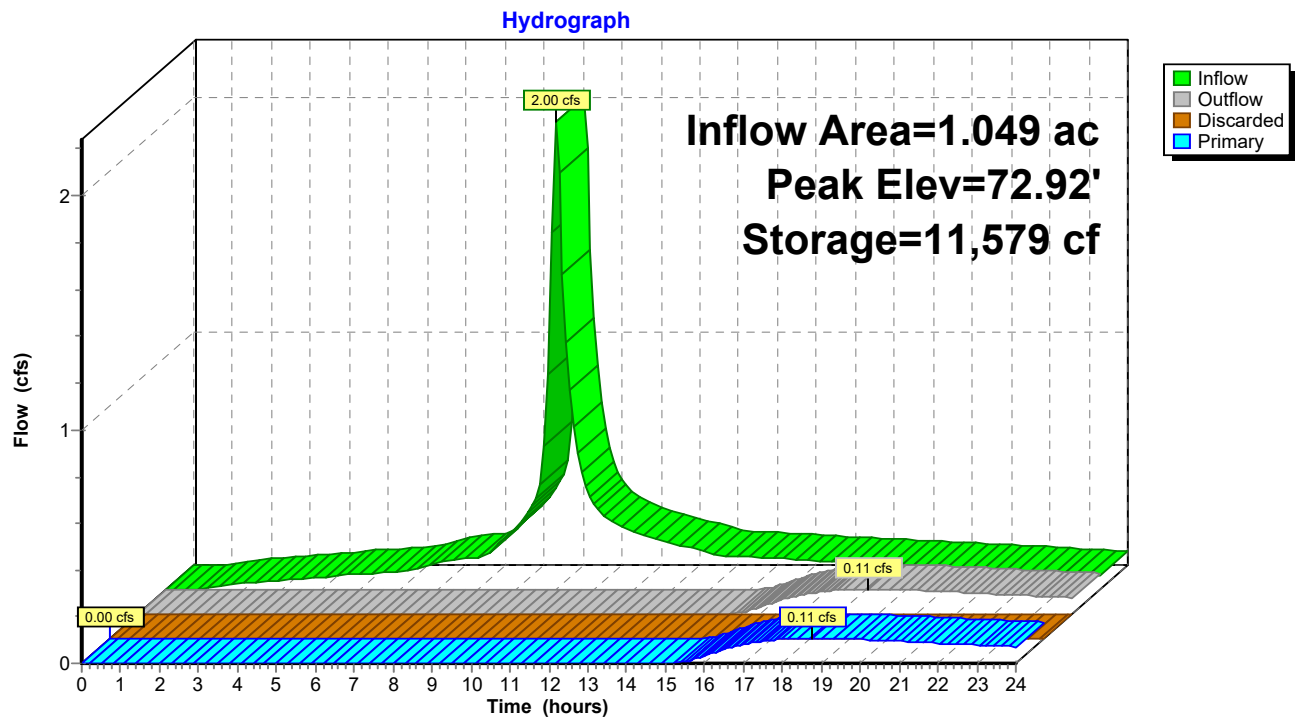
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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Pond 11P: Self Retaining - Permeable Pavers



22027_DRAINAGE

Type I 24-hr 5-Year Storm Rainfall=4.61"

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Hydrograph for Pond 11P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	71.00	0.00	0.00	0.00
0.50	0.00	0	71.00	0.00	0.00	0.00
1.00	0.01	5	71.00	0.00	0.00	0.00
1.50	0.02	31	71.01	0.00	0.00	0.00
2.00	0.03	72	71.01	0.00	0.00	0.00
2.50	0.03	125	71.02	0.00	0.00	0.00
3.00	0.04	190	71.03	0.00	0.00	0.00
3.50	0.05	267	71.04	0.00	0.00	0.00
4.00	0.05	357	71.06	0.00	0.00	0.00
4.50	0.06	462	71.08	0.00	0.00	0.00
5.00	0.07	578	71.10	0.00	0.00	0.00
5.50	0.07	704	71.12	0.00	0.00	0.00
6.00	0.08	840	71.14	0.00	0.00	0.00
6.50	0.09	990	71.16	0.00	0.00	0.00
7.00	0.11	1,173	71.19	0.00	0.00	0.00
7.50	0.13	1,391	71.23	0.00	0.00	0.00
8.00	0.14	1,631	71.27	0.00	0.00	0.00
8.50	0.19	1,912	71.32	0.00	0.00	0.00
9.00	0.27	2,318	71.38	0.00	0.00	0.00
9.50	0.39	2,894	71.48	0.00	0.00	0.00
10.00	1.99	4,589	71.76	0.00	0.00	0.00
10.50	0.70	6,888	72.14	0.00	0.00	0.00
11.00	0.37	7,773	72.29	0.00	0.00	0.00
11.50	0.29	8,347	72.39	0.00	0.00	0.00
12.00	0.25	8,828	72.47	0.00	0.00	0.00
12.50	0.22	9,250	72.54	0.00	0.00	0.00
13.00	0.20	9,629	72.60	0.00	0.00	0.00
13.50	0.18	9,968	72.66	0.00	0.00	0.00
14.00	0.16	10,269	72.71	0.00	0.00	0.00
14.50	0.14	10,537	72.75	0.00	0.00	0.00
15.00	0.14	10,791	72.79	0.00	0.00	0.00
15.50	0.13	11,034	72.83	0.01	0.00	0.01
16.00	0.13	11,239	72.87	0.03	0.00	0.03
16.50	0.13	11,388	72.89	0.06	0.00	0.06
17.00	0.12	11,483	72.91	0.08	0.00	0.08
17.50	0.12	11,539	72.92	0.10	0.00	0.10
18.00	0.11	11,567	72.92	0.10	0.00	0.10
18.50	0.11	11,578	72.92	0.11	0.00	0.11
19.00	0.10	11,578	72.92	0.11	0.00	0.11
19.50	0.10	11,572	72.92	0.10	0.00	0.10
20.00	0.10	11,563	72.92	0.10	0.00	0.10
20.50	0.09	11,550	72.92	0.10	0.00	0.10
21.00	0.09	11,536	72.92	0.09	0.00	0.09
21.50	0.08	11,522	72.91	0.09	0.00	0.09
22.00	0.08	11,506	72.91	0.09	0.00	0.09
22.50	0.07	11,490	72.91	0.08	0.00	0.08
23.00	0.07	11,474	72.91	0.08	0.00	0.08
23.50	0.06	11,456	72.90	0.07	0.00	0.07
24.00	0.06	11,438	72.90	0.07	0.00	0.07

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Type I 24-hr 5-Year Storm Rainfall=4.61"

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Summary for Pond 26P: Offsite

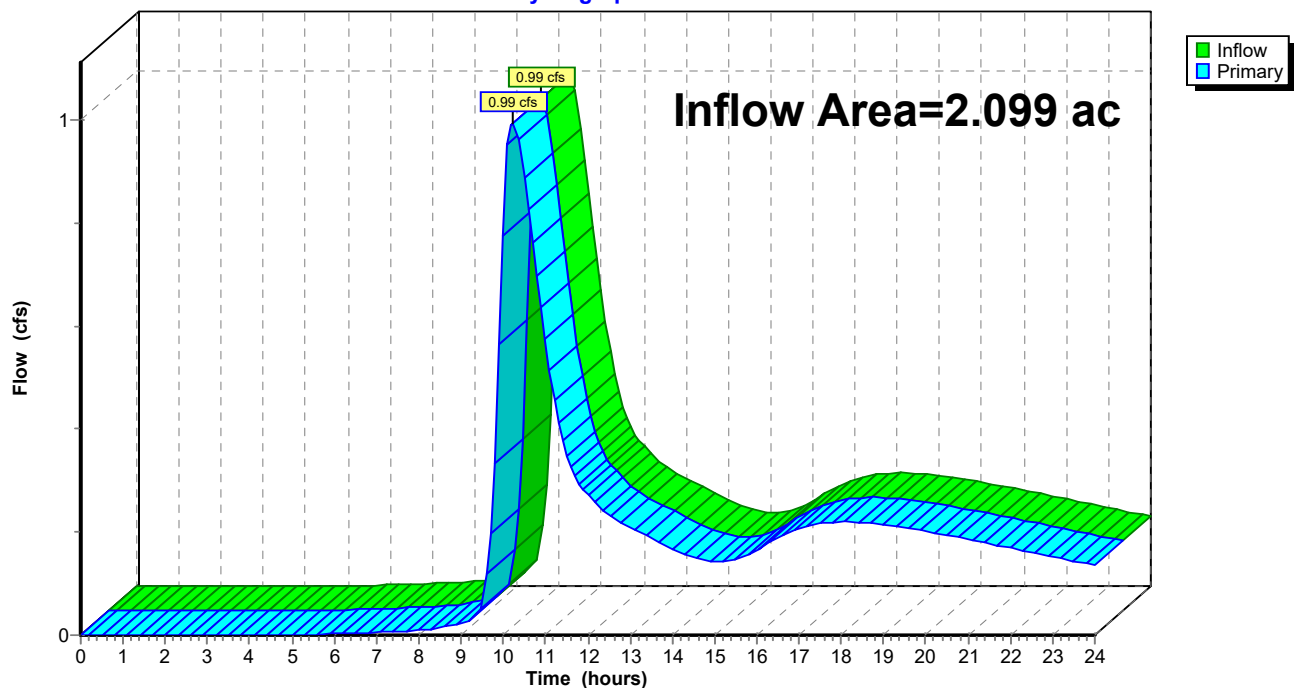
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.099 ac, 52.61% Impervious, Inflow Depth > 1.73" for 5-Year Storm event
Inflow = 0.99 cfs @ 10.23 hrs, Volume= 0.302 af
Primary = 0.99 cfs @ 10.23 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Pond 26P: Offsite

Hydrograph



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Hydrograph for Pond 26P: Offsite

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	0.00		0.00
1.50	0.00		0.00
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.00		0.00
5.00	0.00		0.00
5.50	0.00		0.00
6.00	0.00		0.00
6.50	0.00		0.00
7.00	0.01		0.01
7.50	0.01		0.01
8.00	0.01		0.01
8.50	0.01		0.01
9.00	0.02		0.02
9.50	0.07		0.07
10.00	0.78		0.78
10.50	0.89		0.89
11.00	0.58		0.58
11.50	0.35		0.35
12.00	0.27		0.27
12.50	0.23		0.23
13.00	0.21		0.21
13.50	0.19		0.19
14.00	0.17		0.17
14.50	0.15		0.15
15.00	0.14		0.14
15.50	0.15		0.15
16.00	0.16		0.16
16.50	0.19		0.19
17.00	0.21		0.21
17.50	0.22		0.22
18.00	0.22		0.22
18.50	0.22		0.22
19.00	0.21		0.21
19.50	0.21		0.21
20.00	0.20		0.20
20.50	0.19		0.19
21.00	0.19		0.19
21.50	0.18		0.18
22.00	0.17		0.17
22.50	0.16		0.16
23.00	0.15		0.15
23.50	0.14		0.14
24.00	0.13		0.13

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Summary for Pond 27P: Self Retaining - Landcape

Inflow Area = 0.066 ac, 7.30% Impervious, Inflow Depth > 2.68" for 5-Year Storm event
Inflow = 0.09 cfs @ 10.03 hrs, Volume= 0.015 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Peak Elev= 71.89' @ 24.00 hrs Surf.Area= 2,875 sf Storage= 641 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	1,653 cf	soil (Prismatic) Listed below (Recalc) 6,612 cf Overall x 25.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	2,875	0	0
73.30	2,875	6,612	6,612

Device	Routing	Invert	Outlet Devices
#1	Discarded	71.00'	1.010 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)

↑**1=Exfiltration** (Controls 0.00 cfs)

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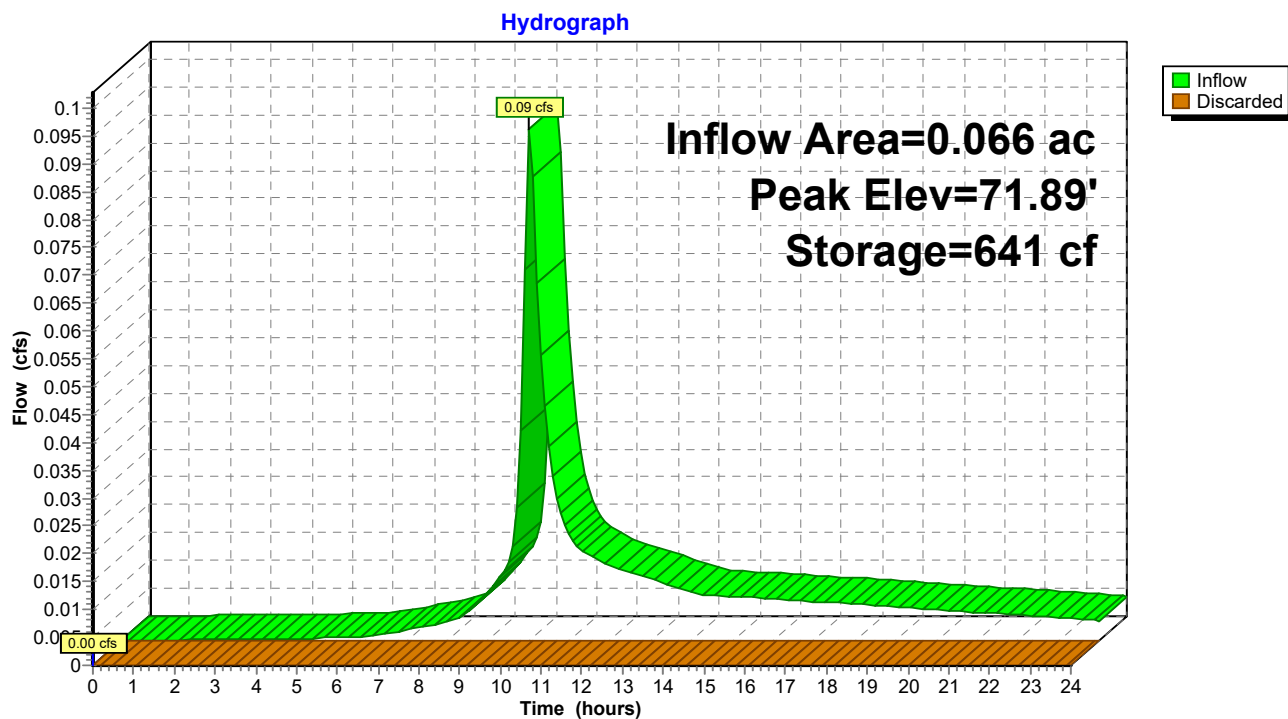
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Pond 27P: Self Retaining - Landcape



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Hydrograph for Pond 27P: Self Retaining - Landscape

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	71.00	0.00
0.50	0.00	0	71.00	0.00
1.00	0.00	0	71.00	0.00
1.50	0.00	0	71.00	0.00
2.00	0.00	1	71.00	0.00
2.50	0.00	1	71.00	0.00
3.00	0.00	2	71.00	0.00
3.50	0.00	2	71.00	0.00
4.00	0.00	3	71.00	0.00
4.50	0.00	4	71.01	0.00
5.00	0.00	5	71.01	0.00
5.50	0.00	5	71.01	0.00
6.00	0.00	7	71.01	0.00
6.50	0.00	8	71.01	0.00
7.00	0.00	11	71.02	0.00
7.50	0.00	15	71.02	0.00
8.00	0.00	21	71.03	0.00
8.50	0.01	28	71.04	0.00
9.00	0.01	40	71.06	0.00
9.50	0.01	60	71.08	0.00
10.00	0.09	131	71.18	0.00
10.50	0.03	240	71.33	0.00
11.00	0.02	286	71.40	0.00
11.50	0.02	316	71.44	0.00
12.00	0.01	342	71.48	0.00
12.50	0.01	366	71.51	0.00
13.00	0.01	386	71.54	0.00
13.50	0.01	405	71.56	0.00
14.00	0.01	422	71.59	0.00
14.50	0.01	438	71.61	0.00
15.00	0.01	452	71.63	0.00
15.50	0.01	466	71.65	0.00
16.00	0.01	480	71.67	0.00
16.50	0.01	493	71.69	0.00
17.00	0.01	506	71.70	0.00
17.50	0.01	518	71.72	0.00
18.00	0.01	530	71.74	0.00
18.50	0.01	542	71.75	0.00
19.00	0.01	553	71.77	0.00
19.50	0.01	564	71.78	0.00
20.00	0.01	574	71.80	0.00
20.50	0.01	584	71.81	0.00
21.00	0.01	594	71.83	0.00
21.50	0.00	603	71.84	0.00
22.00	0.00	611	71.85	0.00
22.50	0.00	619	71.86	0.00
23.00	0.00	627	71.87	0.00
23.50	0.00	634	71.88	0.00
24.00	0.00	641	71.89	0.00

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Summary for Pond 29P: Self Retaining - Permeable Pavers

Inflow Area = 0.108 ac, 67.02% Impervious, Inflow Depth > 4.01" for 5-Year Storm event
Inflow = 0.22 cfs @ 10.02 hrs, Volume= 0.036 af
Outflow = 0.10 cfs @ 10.37 hrs, Volume= 0.023 af, Atten= 53%, Lag= 21.1 min
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.10 cfs @ 10.37 hrs, Volume= 0.023 af
Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Peak Elev= 71.63' @ 10.37 hrs Surf.Area= 1,325 sf Storage= 651 cf

Plug-Flow detention time= 307.1 min calculated for 0.023 af (64% of inflow)
Center-of-Mass det. time= 144.2 min (864.9 - 720.8)

Volume	Invert	Avail.Storage	Storage Description
#1	70.40'	1,060 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,650 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.40	1,325	0	0
72.40	1,325	2,650	2,650

Device	Routing	Invert	Outlet Devices
#1	Primary	71.40'	4.0" Round Culvert L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.40' / 70.60' S= 0.0160 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	70.40'	0.080 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=70.40' (Free Discharge)
↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.10 cfs @ 10.37 hrs HW=71.63' (Free Discharge)
↑ **1=Culvert** (Inlet Controls 0.10 cfs @ 1.62 fps)

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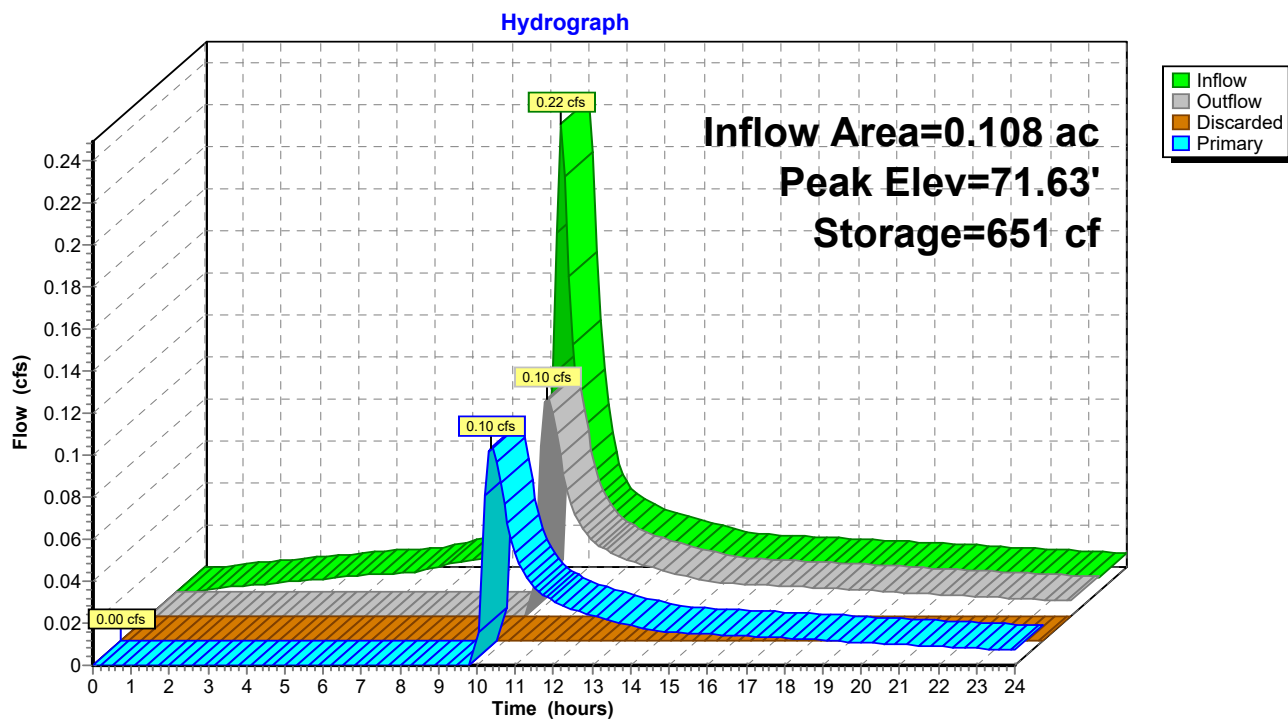
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Pond 29P: Self Retaining - Permeable Pavers



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Hydrograph for Pond 29P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	70.40	0.00	0.00	0.00
0.50	0.00	0	70.40	0.00	0.00	0.00
1.00	0.00	1	70.40	0.00	0.00	0.00
1.50	0.00	4	70.41	0.00	0.00	0.00
2.00	0.00	9	70.42	0.00	0.00	0.00
2.50	0.00	15	70.43	0.00	0.00	0.00
3.00	0.00	23	70.44	0.00	0.00	0.00
3.50	0.01	33	70.46	0.00	0.00	0.00
4.00	0.01	43	70.48	0.00	0.00	0.00
4.50	0.01	56	70.51	0.00	0.00	0.00
5.00	0.01	70	70.53	0.00	0.00	0.00
5.50	0.01	85	70.56	0.00	0.00	0.00
6.00	0.01	100	70.59	0.00	0.00	0.00
6.50	0.01	118	70.62	0.00	0.00	0.00
7.00	0.01	139	70.66	0.00	0.00	0.00
7.50	0.01	164	70.71	0.00	0.00	0.00
8.00	0.02	191	70.76	0.00	0.00	0.00
8.50	0.02	223	70.82	0.00	0.00	0.00
9.00	0.03	269	70.91	0.00	0.00	0.00
9.50	0.04	334	71.03	0.00	0.00	0.00
10.00	0.22	523	71.39	0.00	0.00	0.00
10.50	0.08	646	71.62	0.10	0.00	0.10
11.00	0.04	612	71.56	0.05	0.00	0.05
11.50	0.03	597	71.53	0.04	0.00	0.04
12.00	0.03	590	71.51	0.03	0.00	0.03
12.50	0.02	586	71.51	0.03	0.00	0.03
13.00	0.02	583	71.50	0.02	0.00	0.02
13.50	0.02	580	71.49	0.02	0.00	0.02
14.00	0.02	577	71.49	0.02	0.00	0.02
14.50	0.02	574	71.48	0.02	0.00	0.02
15.00	0.02	573	71.48	0.02	0.00	0.02
15.50	0.01	572	71.48	0.02	0.00	0.02
16.00	0.01	571	71.48	0.01	0.00	0.01
16.50	0.01	570	71.48	0.01	0.00	0.01
17.00	0.01	570	71.47	0.01	0.00	0.01
17.50	0.01	569	71.47	0.01	0.00	0.01
18.00	0.01	568	71.47	0.01	0.00	0.01
18.50	0.01	567	71.47	0.01	0.00	0.01
19.00	0.01	567	71.47	0.01	0.00	0.01
19.50	0.01	566	71.47	0.01	0.00	0.01
20.00	0.01	565	71.47	0.01	0.00	0.01
20.50	0.01	564	71.46	0.01	0.00	0.01
21.00	0.01	564	71.46	0.01	0.00	0.01
21.50	0.01	563	71.46	0.01	0.00	0.01
22.00	0.01	562	71.46	0.01	0.00	0.01
22.50	0.01	561	71.46	0.01	0.00	0.01
23.00	0.01	560	71.46	0.01	0.00	0.01
23.50	0.01	559	71.45	0.01	0.00	0.01
24.00	0.01	558	71.45	0.01	0.00	0.01

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Summary for Pond 30P: Bioretention Basin (SCM-2)

Inflow Area = 0.071 ac, 87.70% Impervious, Inflow Depth > 4.14" for 5-Year Storm event
 Inflow = 0.15 cfs @ 10.02 hrs, Volume= 0.024 af
 Outflow = 0.07 cfs @ 10.15 hrs, Volume= 0.014 af, Atten= 53%, Lag= 7.7 min
 Primary = 0.07 cfs @ 10.15 hrs, Volume= 0.014 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2

Peak Elev= 71.49' @ 10.10 hrs Surf.Area= 380 sf Storage= 377 cf

Plug-Flow detention time= 342.4 min calculated for 0.014 af (57% of inflow)

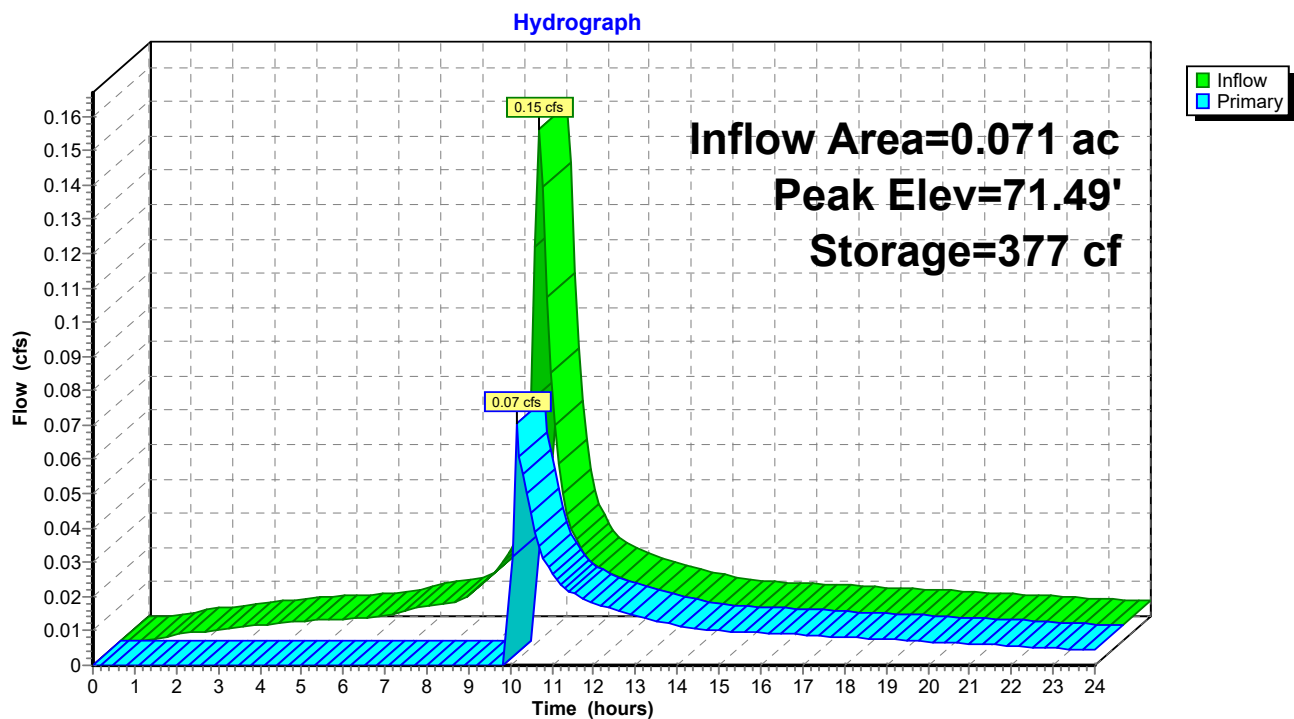
Center-of-Mass det. time= 162.4 min (872.9 - 710.5)

Volume	Invert	Avail.Storage	Storage Description
#1	70.50'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.50	380	0	0
71.50	380	380	380

Device	Routing	Invert	Outlet Devices
#1	Primary	71.49'	95.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.03 cfs @ 10.15 hrs HW=71.49' (Free Discharge)

↑1=Sharp-Crested Rectangular Weir (Weir Controls 0.03 cfs @ 0.15 fps)

Pond 30P: Bioretention Basin (SCM-2)

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Hydrograph for Pond 30P: Bioretention Basin (SCM-2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.50	0.00
0.50	0.00	0	70.50	0.00
1.00	0.00	1	70.50	0.00
1.50	0.00	3	70.51	0.00
2.00	0.00	8	70.52	0.00
2.50	0.00	13	70.53	0.00
3.00	0.00	20	70.55	0.00
3.50	0.00	28	70.57	0.00
4.00	0.01	37	70.60	0.00
4.50	0.01	47	70.62	0.00
5.00	0.01	58	70.65	0.00
5.50	0.01	70	70.68	0.00
6.00	0.01	82	70.71	0.00
6.50	0.01	94	70.75	0.00
7.00	0.01	110	70.79	0.00
7.50	0.01	128	70.84	0.00
8.00	0.01	147	70.89	0.00
8.50	0.01	170	70.95	0.00
9.00	0.02	202	71.03	0.00
9.50	0.03	246	71.15	0.00
10.00	0.15	374	71.48	0.00
10.50	0.05	377	71.49	0.04
11.00	0.03	377	71.49	0.03
11.50	0.02	376	71.49	0.02
12.00	0.02	376	71.49	0.02
12.50	0.02	376	71.49	0.02
13.00	0.01	376	71.49	0.01
13.50	0.01	376	71.49	0.01
14.00	0.01	376	71.49	0.01
14.50	0.01	376	71.49	0.01
15.00	0.01	376	71.49	0.01
15.50	0.01	376	71.49	0.01
16.00	0.01	376	71.49	0.01
16.50	0.01	376	71.49	0.01
17.00	0.01	376	71.49	0.01
17.50	0.01	376	71.49	0.01
18.00	0.01	376	71.49	0.01
18.50	0.01	376	71.49	0.01
19.00	0.01	376	71.49	0.01
19.50	0.01	376	71.49	0.01
20.00	0.01	376	71.49	0.01
20.50	0.01	376	71.49	0.01
21.00	0.01	376	71.49	0.01
21.50	0.01	376	71.49	0.01
22.00	0.01	376	71.49	0.01
22.50	0.01	376	71.49	0.01
23.00	0.01	376	71.49	0.01
23.50	0.00	376	71.49	0.00
24.00	0.00	376	71.49	0.00

22027_DRAINAGE

Type I 24-hr 10-Year Storm Rainfall=5.55"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment7S: DMA 1	Runoff Area=30,044 sf 52.67% Impervious Runoff Depth>4.43" Tc=12.0 min CN=81/98 Runoff=1.57 cfs 0.255 af
Subcatchment10S: DMA 2	Runoff Area=4,320 sf 0.00% Impervious Runoff Depth>3.36" Tc=12.0 min CN=80/0 Runoff=0.18 cfs 0.028 af
Subcatchment16S: DMA 7	Runoff Area=1,650 sf 88.48% Impervious Runoff Depth>5.07" Tc=12.0 min CN=80/98 Runoff=0.10 cfs 0.016 af
Subcatchment19S: DMA 10	Runoff Area=1,440 sf 86.81% Impervious Runoff Depth>5.04" Tc=12.0 min CN=80/98 Runoff=0.08 cfs 0.014 af
Subcatchment20S: DMA 11	Runoff Area=1,385 sf 5.78% Impervious Runoff Depth>3.48" Tc=12.0 min CN=80/98 Runoff=0.06 cfs 0.009 af
Subcatchment21S: DMA 12	Runoff Area=4,685 sf 67.02% Impervious Runoff Depth>4.93" Tc=12.0 min CN=88/98 Runoff=0.27 cfs 0.044 af
Subcatchment22S: DMA 13	Runoff Area=1,320 sf 28.79% Impervious Runoff Depth>3.92" Tc=12.0 min CN=80/98 Runoff=0.06 cfs 0.010 af
Subcatchment23S: DMA 3, 5, 6, 8	Runoff Area=42,820 sf 60.16% Impervious Runoff Depth>4.85" Tc=12.0 min CN=88/98 Runoff=2.46 cfs 0.397 af
Subcatchment25S: DMA 14	Runoff Area=890 sf 0.00% Impervious Runoff Depth>3.36" Tc=12.0 min CN=80/0 Runoff=0.04 cfs 0.006 af
Subcatchment28S: DMA 4 & 9	Runoff Area=2,875 sf 7.30% Impervious Runoff Depth>3.51" Tc=12.0 min CN=80/98 Runoff=0.12 cfs 0.019 af
Pond 8P: Bioretention Basin (SCM-1)	Peak Elev=74.47' Storage=3,046 cf Inflow=1.57 cfs 0.255 af Discarded=0.00 cfs 0.000 af Primary=0.80 cfs 0.216 af Secondary=0.00 cfs 0.000 af Outflow=0.80 cfs 0.216 af
Pond 11P: Self Retaining - Permeable Pavers	Peak Elev=72.97' Storage=11,850 cf Inflow=2.46 cfs 0.397 af Discarded=0.00 cfs 0.000 af Primary=0.19 cfs 0.134 af Outflow=0.19 cfs 0.134 af
Pond 26P: Offsite	Inflow=1.37 cfs 0.455 af Primary=1.37 cfs 0.455 af
Pond 27P: Self Retaining - Landcape	Peak Elev=72.17' Storage=839 cf Inflow=0.12 cfs 0.019 af Outflow=0.00 cfs 0.000 af
Pond 29P: Self Retaining - Permeable Pavers	Peak Elev=71.73' Storage=707 cf Inflow=0.27 cfs 0.044 af Discarded=0.00 cfs 0.000 af Primary=0.17 cfs 0.031 af Outflow=0.17 cfs 0.031 af
Pond 30P: Bioretention Basin (SCM-2)	Peak Elev=71.50' Storage=379 cf Inflow=0.18 cfs 0.030 af Outflow=0.20 cfs 0.022 af

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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Total Runoff Area = 2.099 ac Runoff Volume = 0.798 af Average Runoff Depth = 4.56"
47.39% Pervious = 0.995 ac 52.61% Impervious = 1.104 ac

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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Summary for Subcatchment 7S: DMA 1

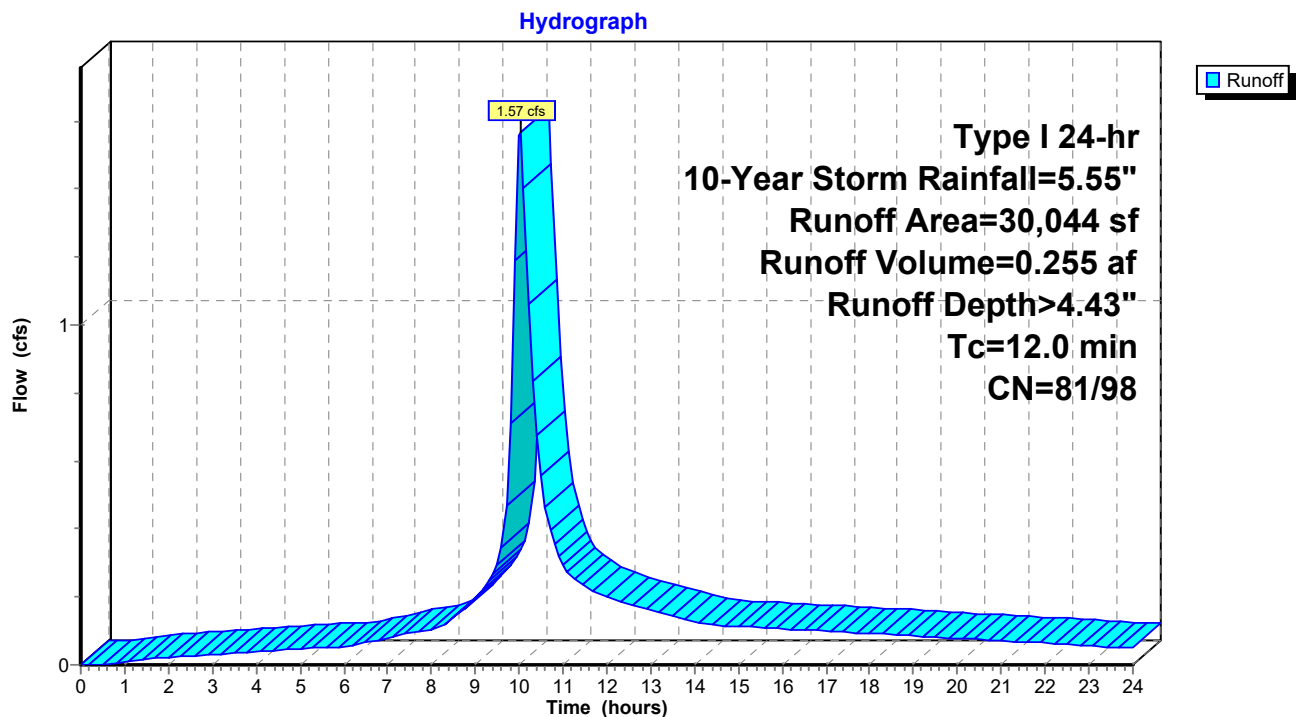
Runoff = 1.57 cfs @ 10.02 hrs, Volume= 0.255 af, Depth> 4.43"
Routed to Pond 8P : Bioretention Basin (SCM-1)

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-Year Storm Rainfall=5.55"

	Area (sf)	CN	Description
*	15,823	98	Impervious
*	9,370	80	Pervious
*	1,367	89	Pavers
*	3,484	80	Basin
	30,044	90	Weighted Average
	14,221	81	47.33% Pervious Area
	15,823	98	52.67% Impervious Area

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

Subcatchment 7S: DMA 1



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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Hydrograph for Subcatchment 7S: DMA 1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.05	0.00	0.00	0.00
1.00	0.10	0.00	0.01	0.01
1.50	0.15	0.00	0.04	0.02
2.00	0.19	0.00	0.07	0.02
2.50	0.25	0.00	0.10	0.03
3.00	0.30	0.00	0.14	0.03
3.50	0.36	0.00	0.19	0.04
4.00	0.42	0.00	0.25	0.04
4.50	0.49	0.00	0.31	0.04
5.00	0.55	0.00	0.37	0.05
5.50	0.62	0.01	0.43	0.05
6.00	0.69	0.02	0.50	0.05
6.50	0.77	0.03	0.57	0.06
7.00	0.87	0.06	0.66	0.08
7.50	0.97	0.09	0.76	0.09
8.00	1.08	0.12	0.87	0.10
8.50	1.22	0.18	1.00	0.14
9.00	1.41	0.27	1.19	0.20
9.50	1.68	0.41	1.46	0.29
10.00	2.86	1.21	2.63	1.56
10.50	3.24	1.50	3.00	0.56
11.00	3.46	1.67	3.22	0.30
11.50	3.64	1.82	3.40	0.23
12.00	3.80	1.95	3.56	0.20
12.50	3.94	2.07	3.70	0.18
13.00	4.06	2.17	3.83	0.16
13.50	4.17	2.27	3.94	0.14
14.00	4.27	2.35	4.04	0.13
14.50	4.36	2.43	4.13	0.12
15.00	4.45	2.51	4.22	0.11
15.50	4.54	2.58	4.30	0.11
16.00	4.62	2.65	4.38	0.11
16.50	4.70	2.72	4.46	0.10
17.00	4.77	2.79	4.54	0.10
17.50	4.85	2.85	4.61	0.10
18.00	4.92	2.91	4.68	0.09
18.50	4.99	2.97	4.75	0.09
19.00	5.05	3.03	4.81	0.09
19.50	5.11	3.09	4.88	0.08
20.00	5.17	3.14	4.94	0.08
20.50	5.23	3.19	4.99	0.07
21.00	5.28	3.24	5.05	0.07
21.50	5.33	3.28	5.10	0.07
22.00	5.38	3.33	5.15	0.06
22.50	5.43	3.37	5.19	0.06
23.00	5.47	3.41	5.23	0.06
23.50	5.51	3.44	5.27	0.05
24.00	5.55	3.48	5.31	0.05

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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Summary for Subcatchment 10S: DMA 2

Runoff = 0.18 cfs @ 10.03 hrs, Volume= 0.028 af, Depth> 3.36"
Routed to Pond 26P : Offsite

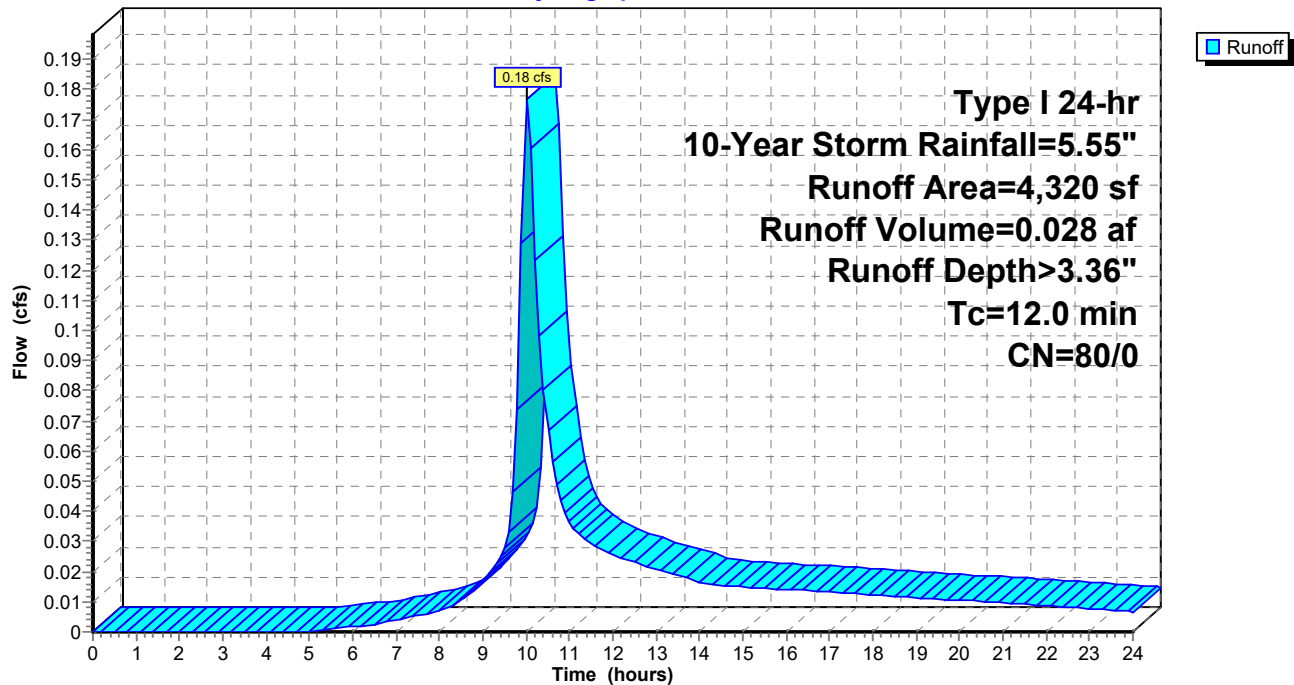
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-Year Storm Rainfall=5.55"

	Area (sf)	CN	Description
*	4,320	80	Pervious
	4,320	80	100.00% Pervious Area

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

Subcatchment 10S: DMA 2

Hydrograph



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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Hydrograph for Subcatchment 10S: DMA 2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.05	0.00	0.00	0.00
1.00	0.10	0.00	0.00	0.00
1.50	0.15	0.00	0.00	0.00
2.00	0.19	0.00	0.00	0.00
2.50	0.25	0.00	0.00	0.00
3.00	0.30	0.00	0.00	0.00
3.50	0.36	0.00	0.00	0.00
4.00	0.42	0.00	0.00	0.00
4.50	0.49	0.00	0.00	0.00
5.00	0.55	0.00	0.00	0.00
5.50	0.62	0.01	0.00	0.00
6.00	0.69	0.01	0.00	0.00
6.50	0.77	0.03	0.00	0.00
7.00	0.87	0.05	0.00	0.00
7.50	0.97	0.07	0.00	0.01
8.00	1.08	0.11	0.00	0.01
8.50	1.22	0.16	0.00	0.01
9.00	1.41	0.24	0.00	0.02
9.50	1.68	0.38	0.00	0.03
10.00	2.86	1.14	0.00	0.17
10.50	3.24	1.43	0.00	0.07
11.00	3.46	1.60	0.00	0.04
11.50	3.64	1.75	0.00	0.03
12.00	3.80	1.87	0.00	0.03
12.50	3.94	1.99	0.00	0.02
13.00	4.06	2.09	0.00	0.02
13.50	4.17	2.19	0.00	0.02
14.00	4.27	2.27	0.00	0.02
14.50	4.36	2.35	0.00	0.02
15.00	4.45	2.42	0.00	0.01
15.50	4.54	2.49	0.00	0.01
16.00	4.62	2.56	0.00	0.01
16.50	4.70	2.63	0.00	0.01
17.00	4.77	2.70	0.00	0.01
17.50	4.85	2.76	0.00	0.01
18.00	4.92	2.82	0.00	0.01
18.50	4.99	2.88	0.00	0.01
19.00	5.05	2.94	0.00	0.01
19.50	5.11	2.99	0.00	0.01
20.00	5.17	3.04	0.00	0.01
20.50	5.23	3.09	0.00	0.01
21.00	5.28	3.14	0.00	0.01
21.50	5.33	3.19	0.00	0.01
22.00	5.38	3.23	0.00	0.01
22.50	5.43	3.27	0.00	0.01
23.00	5.47	3.31	0.00	0.01
23.50	5.51	3.34	0.00	0.01
24.00	5.55	3.38	0.00	0.01

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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Summary for Subcatchment 16S: DMA 7

Runoff = 0.10 cfs @ 10.02 hrs, Volume= 0.016 af, Depth> 5.07"
Routed to Pond 30P : Bioretention Basin (SCM-2)

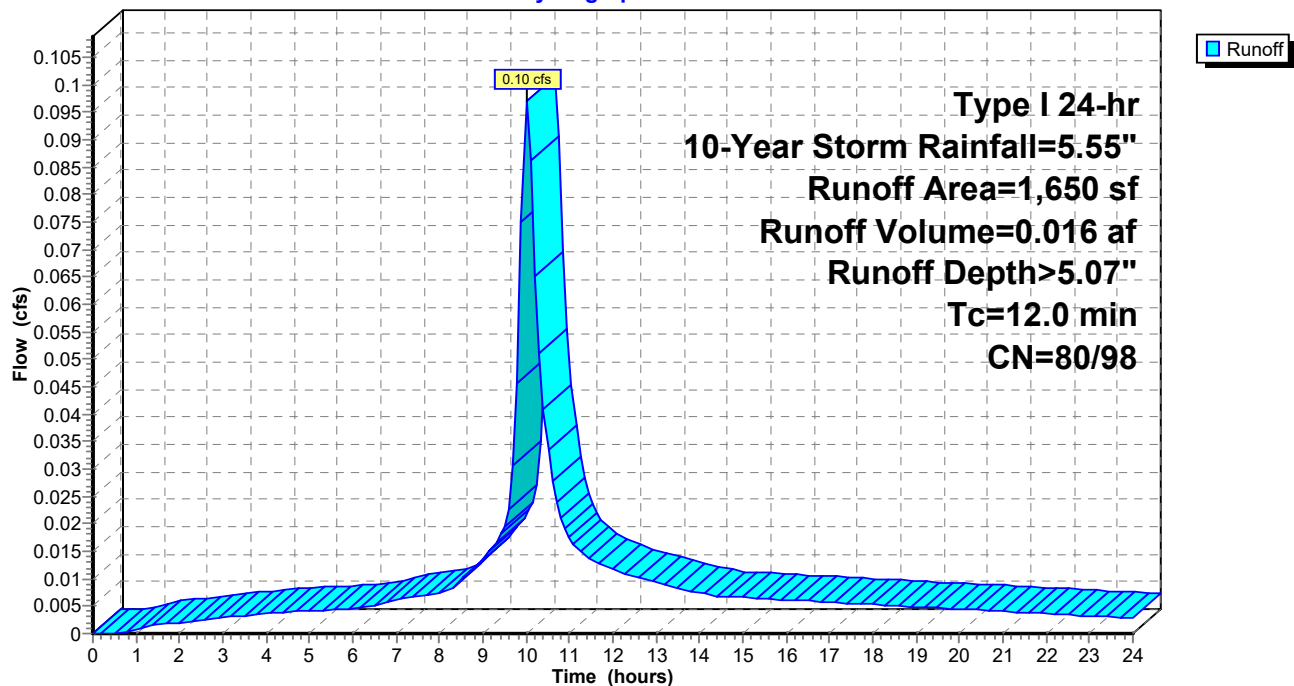
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-Year Storm Rainfall=5.55"

	Area (sf)	CN	Description
*	1,460	98	Impervious
*	0	80	Pervious
*	190	80	Basin
	1,650	96	Weighted Average
	190	80	11.52% Pervious Area
	1,460	98	88.48% Impervious Area

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

Subcatchment 16S: DMA 7

Hydrograph



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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Hydrograph for Subcatchment 16S: DMA 7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.05	0.00	0.00	0.00
1.00	0.10	0.00	0.01	0.00
1.50	0.15	0.00	0.04	0.00
2.00	0.19	0.00	0.07	0.00
2.50	0.25	0.00	0.10	0.00
3.00	0.30	0.00	0.14	0.00
3.50	0.36	0.00	0.19	0.00
4.00	0.42	0.00	0.25	0.00
4.50	0.49	0.00	0.31	0.00
5.00	0.55	0.00	0.37	0.00
5.50	0.62	0.01	0.43	0.00
6.00	0.69	0.01	0.50	0.00
6.50	0.77	0.03	0.57	0.01
7.00	0.87	0.05	0.66	0.01
7.50	0.97	0.07	0.76	0.01
8.00	1.08	0.11	0.87	0.01
8.50	1.22	0.16	1.00	0.01
9.00	1.41	0.24	1.19	0.01
9.50	1.68	0.38	1.46	0.02
10.00	2.86	1.14	2.63	0.10
10.50	3.24	1.43	3.00	0.03
11.00	3.46	1.60	3.22	0.02
11.50	3.64	1.75	3.40	0.01
12.00	3.80	1.87	3.56	0.01
12.50	3.94	1.99	3.70	0.01
13.00	4.06	2.09	3.83	0.01
13.50	4.17	2.19	3.94	0.01
14.00	4.27	2.27	4.04	0.01
14.50	4.36	2.35	4.13	0.01
15.00	4.45	2.42	4.22	0.01
15.50	4.54	2.49	4.30	0.01
16.00	4.62	2.56	4.38	0.01
16.50	4.70	2.63	4.46	0.01
17.00	4.77	2.70	4.54	0.01
17.50	4.85	2.76	4.61	0.01
18.00	4.92	2.82	4.68	0.01
18.50	4.99	2.88	4.75	0.01
19.00	5.05	2.94	4.81	0.00
19.50	5.11	2.99	4.88	0.00
20.00	5.17	3.04	4.94	0.00
20.50	5.23	3.09	4.99	0.00
21.00	5.28	3.14	5.05	0.00
21.50	5.33	3.19	5.10	0.00
22.00	5.38	3.23	5.15	0.00
22.50	5.43	3.27	5.19	0.00
23.00	5.47	3.31	5.23	0.00
23.50	5.51	3.34	5.27	0.00
24.00	5.55	3.38	5.31	0.00

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Summary for Subcatchment 19S: DMA 10

Runoff = 0.08 cfs @ 10.02 hrs, Volume= 0.014 af, Depth> 5.04"
Routed to Pond 30P : Bioretention Basin (SCM-2)

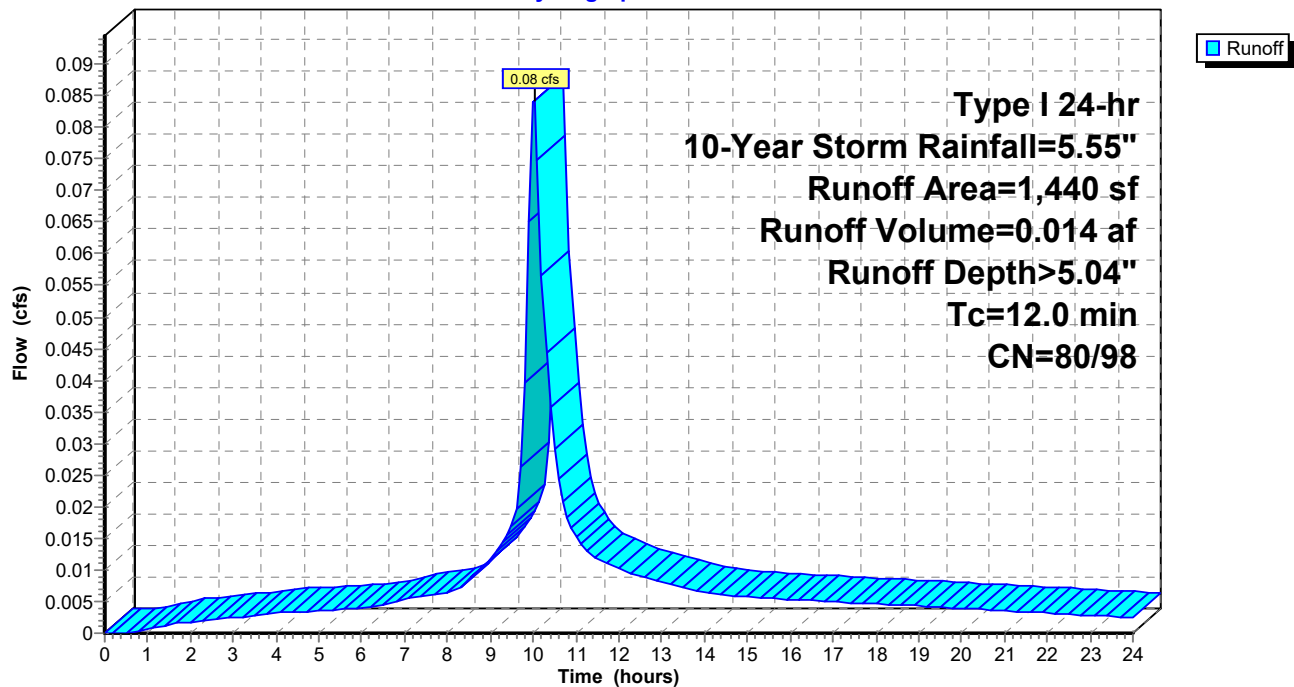
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-Year Storm Rainfall=5.55"

	Area (sf)	CN	Description
*	1,250	98	Impervious
*	190	80	Basin
	1,440	96	Weighted Average
	190	80	13.19% Pervious Area
	1,250	98	86.81% Impervious Area

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

Subcatchment 19S: DMA 10

Hydrograph



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Hydrograph for Subcatchment 19S: DMA 10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.05	0.00	0.00	0.00
1.00	0.10	0.00	0.01	0.00
1.50	0.15	0.00	0.04	0.00
2.00	0.19	0.00	0.07	0.00
2.50	0.25	0.00	0.10	0.00
3.00	0.30	0.00	0.14	0.00
3.50	0.36	0.00	0.19	0.00
4.00	0.42	0.00	0.25	0.00
4.50	0.49	0.00	0.31	0.00
5.00	0.55	0.00	0.37	0.00
5.50	0.62	0.01	0.43	0.00
6.00	0.69	0.01	0.50	0.00
6.50	0.77	0.03	0.57	0.00
7.00	0.87	0.05	0.66	0.01
7.50	0.97	0.07	0.76	0.01
8.00	1.08	0.11	0.87	0.01
8.50	1.22	0.16	1.00	0.01
9.00	1.41	0.24	1.19	0.01
9.50	1.68	0.38	1.46	0.02
10.00	2.86	1.14	2.63	0.08
10.50	3.24	1.43	3.00	0.03
11.00	3.46	1.60	3.22	0.02
11.50	3.64	1.75	3.40	0.01
12.00	3.80	1.87	3.56	0.01
12.50	3.94	1.99	3.70	0.01
13.00	4.06	2.09	3.83	0.01
13.50	4.17	2.19	3.94	0.01
14.00	4.27	2.27	4.04	0.01
14.50	4.36	2.35	4.13	0.01
15.00	4.45	2.42	4.22	0.01
15.50	4.54	2.49	4.30	0.01
16.00	4.62	2.56	4.38	0.01
16.50	4.70	2.63	4.46	0.01
17.00	4.77	2.70	4.54	0.00
17.50	4.85	2.76	4.61	0.00
18.00	4.92	2.82	4.68	0.00
18.50	4.99	2.88	4.75	0.00
19.00	5.05	2.94	4.81	0.00
19.50	5.11	2.99	4.88	0.00
20.00	5.17	3.04	4.94	0.00
20.50	5.23	3.09	4.99	0.00
21.00	5.28	3.14	5.05	0.00
21.50	5.33	3.19	5.10	0.00
22.00	5.38	3.23	5.15	0.00
22.50	5.43	3.27	5.19	0.00
23.00	5.47	3.31	5.23	0.00
23.50	5.51	3.34	5.27	0.00
24.00	5.55	3.38	5.31	0.00

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Summary for Subcatchment 20S: DMA 11

Runoff = 0.06 cfs @ 10.03 hrs, Volume= 0.009 af, Depth> 3.48"
Routed to Pond 26P : Offsite

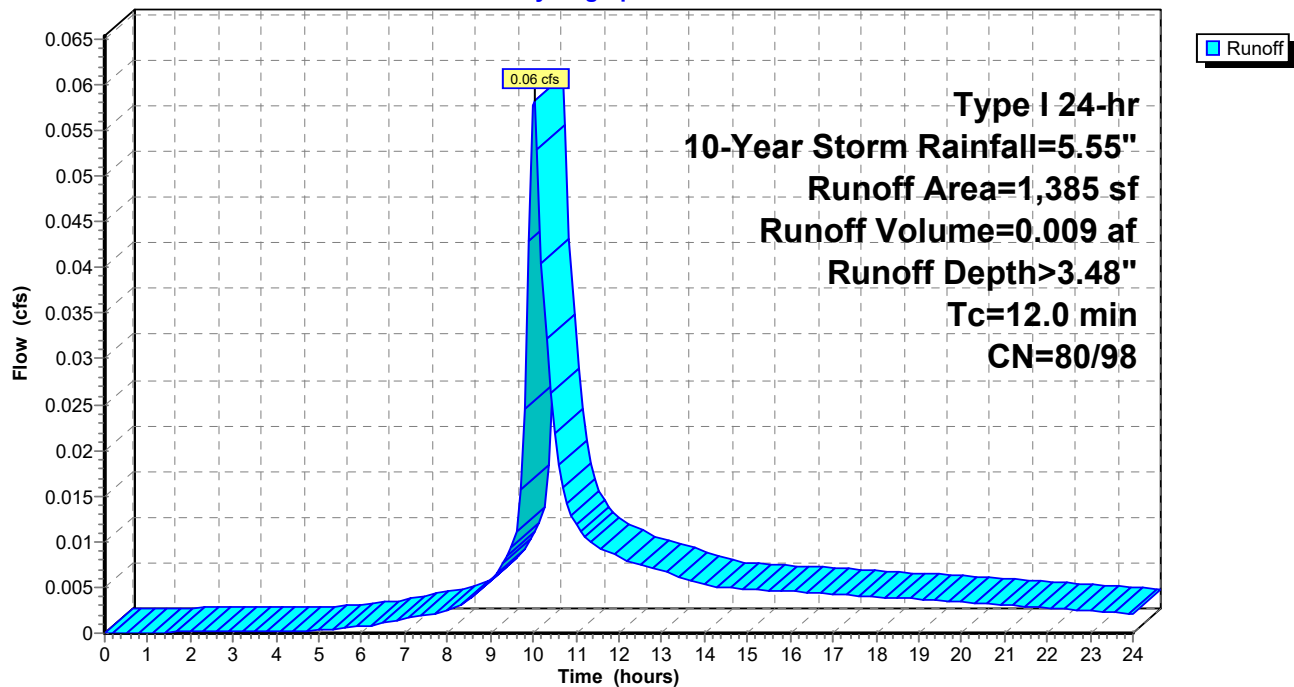
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-Year Storm Rainfall=5.55"

	Area (sf)	CN	Description
*	1,305	80	Pervious
*	80	98	Impervious
	1,385	81	Weighted Average
	1,305	80	94.22% Pervious Area
	80	98	5.78% Impervious Area

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

Subcatchment 20S: DMA 11

Hydrograph



22027_DRAINAGE

Type I 24-hr 10-Year Storm Rainfall=5.55"

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Hydrograph for Subcatchment 20S: DMA 11

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.05	0.00	0.00	0.00
1.00	0.10	0.00	0.01	0.00
1.50	0.15	0.00	0.04	0.00
2.00	0.19	0.00	0.07	0.00
2.50	0.25	0.00	0.10	0.00
3.00	0.30	0.00	0.14	0.00
3.50	0.36	0.00	0.19	0.00
4.00	0.42	0.00	0.25	0.00
4.50	0.49	0.00	0.31	0.00
5.00	0.55	0.00	0.37	0.00
5.50	0.62	0.01	0.43	0.00
6.00	0.69	0.01	0.50	0.00
6.50	0.77	0.03	0.57	0.00
7.00	0.87	0.05	0.66	0.00
7.50	0.97	0.07	0.76	0.00
8.00	1.08	0.11	0.87	0.00
8.50	1.22	0.16	1.00	0.00
9.00	1.41	0.24	1.19	0.01
9.50	1.68	0.38	1.46	0.01
10.00	2.86	1.14	2.63	0.06
10.50	3.24	1.43	3.00	0.02
11.00	3.46	1.60	3.22	0.01
11.50	3.64	1.75	3.40	0.01
12.00	3.80	1.87	3.56	0.01
12.50	3.94	1.99	3.70	0.01
13.00	4.06	2.09	3.83	0.01
13.50	4.17	2.19	3.94	0.01
14.00	4.27	2.27	4.04	0.01
14.50	4.36	2.35	4.13	0.00
15.00	4.45	2.42	4.22	0.00
15.50	4.54	2.49	4.30	0.00
16.00	4.62	2.56	4.38	0.00
16.50	4.70	2.63	4.46	0.00
17.00	4.77	2.70	4.54	0.00
17.50	4.85	2.76	4.61	0.00
18.00	4.92	2.82	4.68	0.00
18.50	4.99	2.88	4.75	0.00
19.00	5.05	2.94	4.81	0.00
19.50	5.11	2.99	4.88	0.00
20.00	5.17	3.04	4.94	0.00
20.50	5.23	3.09	4.99	0.00
21.00	5.28	3.14	5.05	0.00
21.50	5.33	3.19	5.10	0.00
22.00	5.38	3.23	5.15	0.00
22.50	5.43	3.27	5.19	0.00
23.00	5.47	3.31	5.23	0.00
23.50	5.51	3.34	5.27	0.00
24.00	5.55	3.38	5.31	0.00

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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Summary for Subcatchment 21S: DMA 12

Runoff = 0.27 cfs @ 10.02 hrs, Volume= 0.044 af, Depth> 4.93"

Routed to Pond 29P : Self Retaining - Permeable Pavers

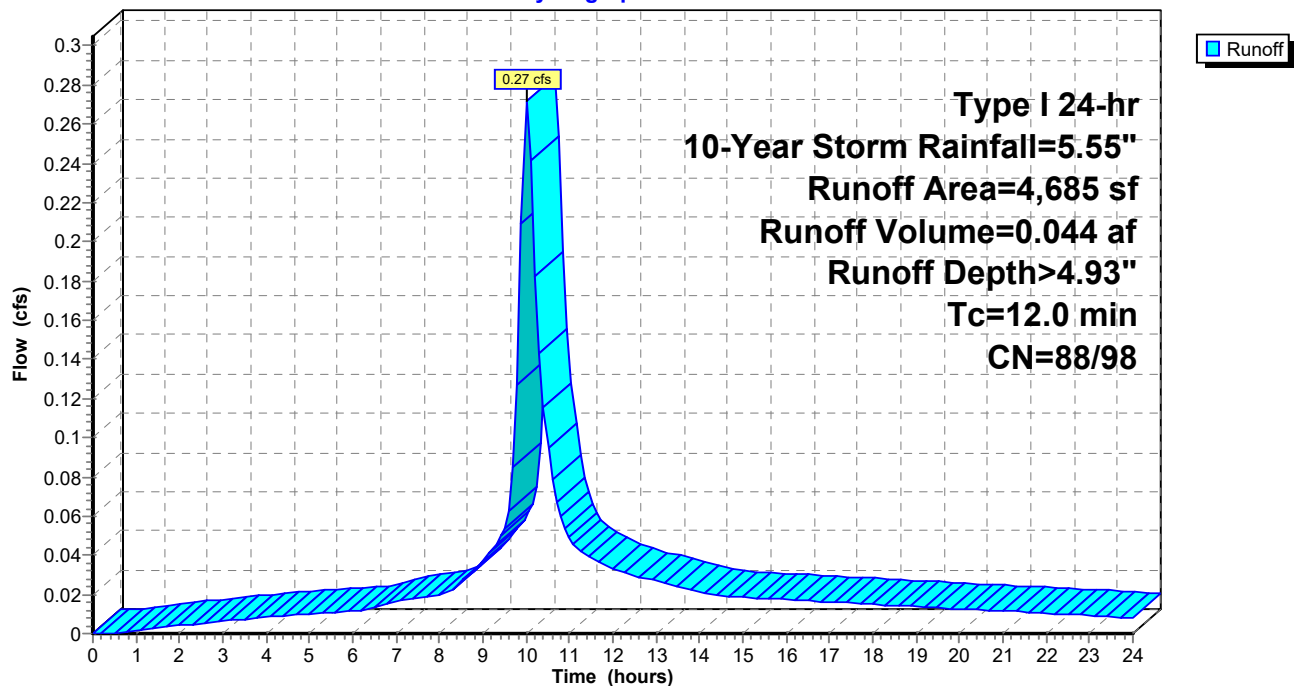
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-Year Storm Rainfall=5.55"

	Area (sf)	CN	Description
*	3,140	98	Impervious
*	220	80	Pervious
*	1,325	89	Pavers
	4,685	95	Weighted Average
	1,545	88	32.98% Pervious Area
	3,140	98	67.02% Impervious Area

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

Subcatchment 21S: DMA 12

Hydrograph



22027_DRAINAGE

Type I 24-hr 10-Year Storm Rainfall=5.55"

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Hydrograph for Subcatchment 21S: DMA 12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.05	0.00	0.00	0.00
1.00	0.10	0.00	0.01	0.00
1.50	0.15	0.00	0.04	0.00
2.00	0.19	0.00	0.07	0.00
2.50	0.25	0.00	0.10	0.01
3.00	0.30	0.00	0.14	0.01
3.50	0.36	0.01	0.19	0.01
4.00	0.42	0.01	0.25	0.01
4.50	0.49	0.03	0.31	0.01
5.00	0.55	0.05	0.37	0.01
5.50	0.62	0.07	0.43	0.01
6.00	0.69	0.10	0.50	0.01
6.50	0.77	0.13	0.57	0.01
7.00	0.87	0.18	0.66	0.02
7.50	0.97	0.24	0.76	0.02
8.00	1.08	0.30	0.87	0.02
8.50	1.22	0.39	1.00	0.03
9.00	1.41	0.52	1.19	0.04
9.50	1.68	0.72	1.46	0.05
10.00	2.86	1.69	2.63	0.27
10.50	3.24	2.03	3.00	0.09
11.00	3.46	2.23	3.22	0.05
11.50	3.64	2.39	3.40	0.04
12.00	3.80	2.54	3.56	0.03
12.50	3.94	2.67	3.70	0.03
13.00	4.06	2.79	3.83	0.03
13.50	4.17	2.89	3.94	0.02
14.00	4.27	2.98	4.04	0.02
14.50	4.36	3.07	4.13	0.02
15.00	4.45	3.15	4.22	0.02
15.50	4.54	3.23	4.30	0.02
16.00	4.62	3.31	4.38	0.02
16.50	4.70	3.38	4.46	0.02
17.00	4.77	3.45	4.54	0.02
17.50	4.85	3.52	4.61	0.02
18.00	4.92	3.59	4.68	0.02
18.50	4.99	3.65	4.75	0.01
19.00	5.05	3.72	4.81	0.01
19.50	5.11	3.78	4.88	0.01
20.00	5.17	3.83	4.94	0.01
20.50	5.23	3.89	4.99	0.01
21.00	5.28	3.94	5.05	0.01
21.50	5.33	3.99	5.10	0.01
22.00	5.38	4.03	5.15	0.01
22.50	5.43	4.08	5.19	0.01
23.00	5.47	4.12	5.23	0.01
23.50	5.51	4.16	5.27	0.01
24.00	5.55	4.19	5.31	0.01

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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Summary for Subcatchment 22S: DMA 13

Runoff = 0.06 cfs @ 10.02 hrs, Volume= 0.010 af, Depth> 3.92"
Routed to Pond 26P : Offsite

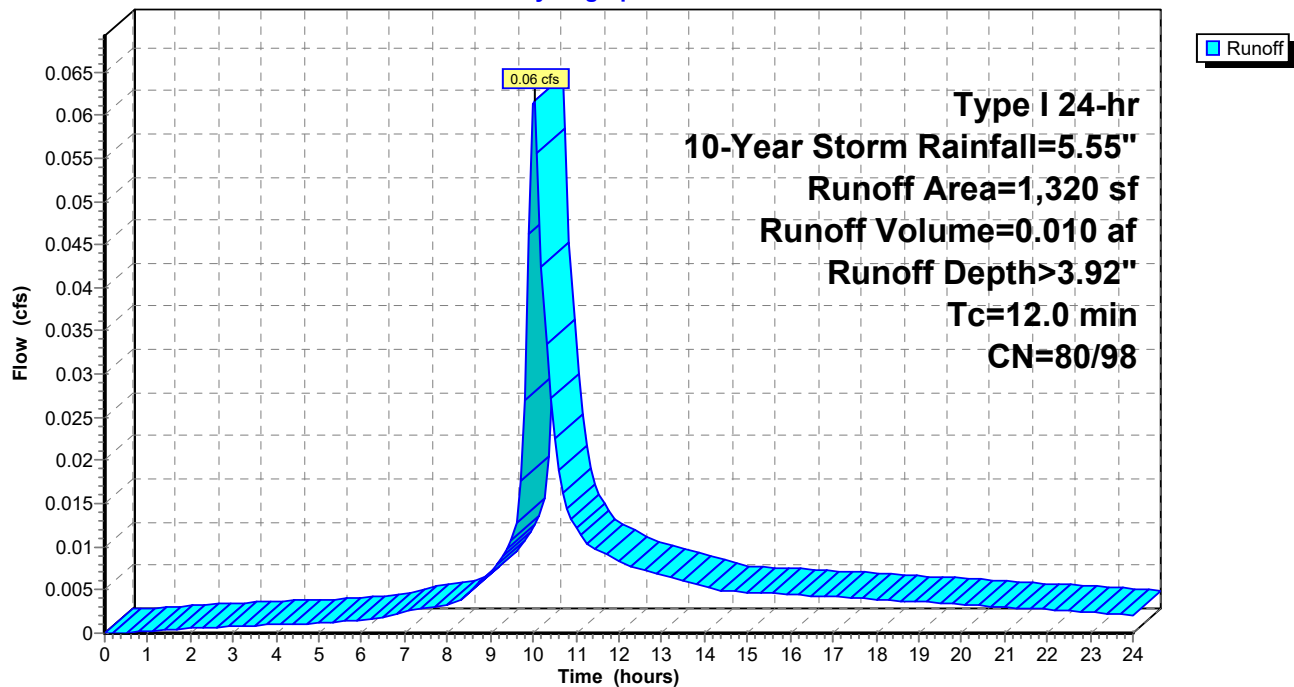
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-Year Storm Rainfall=5.55"

	Area (sf)	CN	Description
*	380	98	Impervious
*	940	80	Pervious
	1,320	85	Weighted Average
	940	80	71.21% Pervious Area
	380	98	28.79% Impervious Area

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

Subcatchment 22S: DMA 13

Hydrograph



22027_DRAINAGE

Type I 24-hr 10-Year Storm Rainfall=5.55"

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Hydrograph for Subcatchment 22S: DMA 13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.05	0.00	0.00	0.00
1.00	0.10	0.00	0.01	0.00
1.50	0.15	0.00	0.04	0.00
2.00	0.19	0.00	0.07	0.00
2.50	0.25	0.00	0.10	0.00
3.00	0.30	0.00	0.14	0.00
3.50	0.36	0.00	0.19	0.00
4.00	0.42	0.00	0.25	0.00
4.50	0.49	0.00	0.31	0.00
5.00	0.55	0.00	0.37	0.00
5.50	0.62	0.01	0.43	0.00
6.00	0.69	0.01	0.50	0.00
6.50	0.77	0.03	0.57	0.00
7.00	0.87	0.05	0.66	0.00
7.50	0.97	0.07	0.76	0.00
8.00	1.08	0.11	0.87	0.00
8.50	1.22	0.16	1.00	0.00
9.00	1.41	0.24	1.19	0.01
9.50	1.68	0.38	1.46	0.01
10.00	2.86	1.14	2.63	0.06
10.50	3.24	1.43	3.00	0.02
11.00	3.46	1.60	3.22	0.01
11.50	3.64	1.75	3.40	0.01
12.00	3.80	1.87	3.56	0.01
12.50	3.94	1.99	3.70	0.01
13.00	4.06	2.09	3.83	0.01
13.50	4.17	2.19	3.94	0.01
14.00	4.27	2.27	4.04	0.01
14.50	4.36	2.35	4.13	0.00
15.00	4.45	2.42	4.22	0.00
15.50	4.54	2.49	4.30	0.00
16.00	4.62	2.56	4.38	0.00
16.50	4.70	2.63	4.46	0.00
17.00	4.77	2.70	4.54	0.00
17.50	4.85	2.76	4.61	0.00
18.00	4.92	2.82	4.68	0.00
18.50	4.99	2.88	4.75	0.00
19.00	5.05	2.94	4.81	0.00
19.50	5.11	2.99	4.88	0.00
20.00	5.17	3.04	4.94	0.00
20.50	5.23	3.09	4.99	0.00
21.00	5.28	3.14	5.05	0.00
21.50	5.33	3.19	5.10	0.00
22.00	5.38	3.23	5.15	0.00
22.50	5.43	3.27	5.19	0.00
23.00	5.47	3.31	5.23	0.00
23.50	5.51	3.34	5.27	0.00
24.00	5.55	3.38	5.31	0.00

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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Summary for Subcatchment 23S: DMA 3, 5, 6, 8

Runoff = 2.46 cfs @ 10.02 hrs, Volume= 0.397 af, Depth> 4.85"

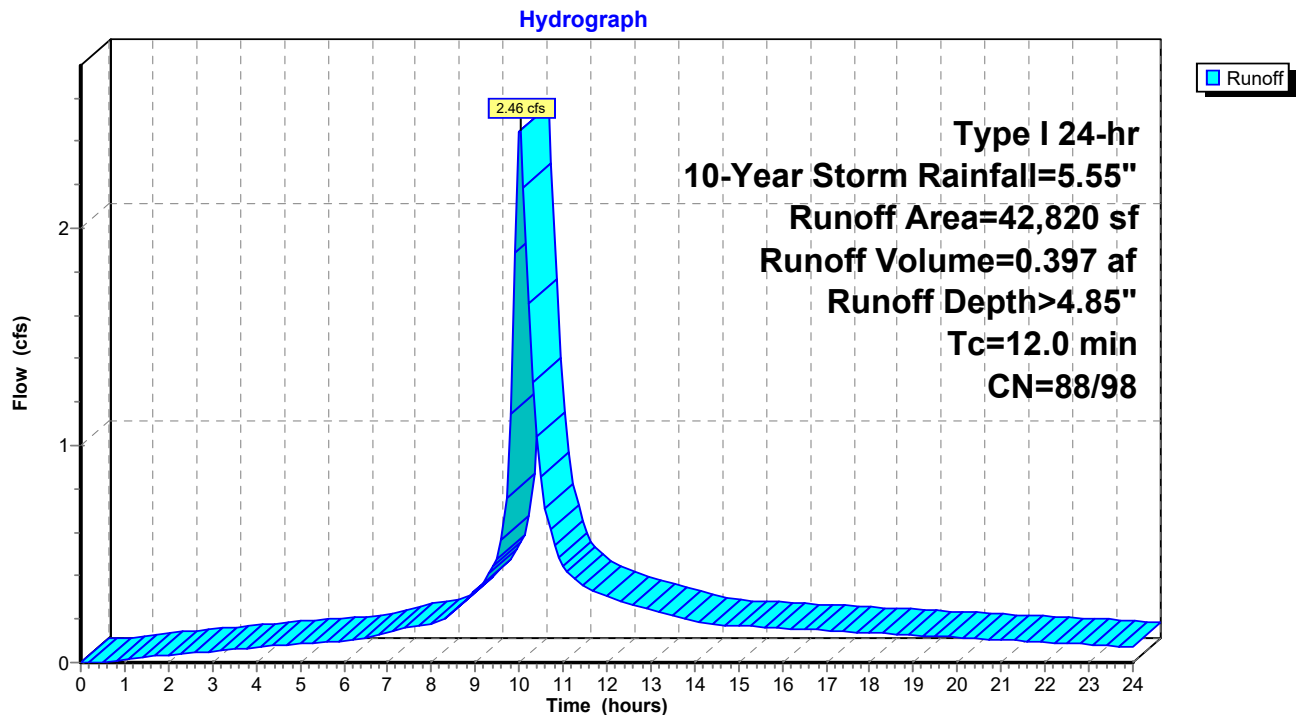
Routed to Pond 11P : Self Retaining - Permeable Pavers

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-Year Storm Rainfall=5.55"

	Area (sf)	CN	Description
*	25,761	98	Impervious
*	2,165	80	Pervious
*	14,894	89	Pavers
	42,820	94	Weighted Average
	17,059	88	39.84% Pervious Area
	25,761	98	60.16% Impervious Area

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

Subcatchment 23S: DMA 3, 5, 6, 8



22027_DRAINAGE

Type I 24-hr 10-Year Storm Rainfall=5.55"

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Hydrograph for Subcatchment 23S: DMA 3, 5, 6, 8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.05	0.00	0.00	0.00
1.00	0.10	0.00	0.01	0.01
1.50	0.15	0.00	0.04	0.03
2.00	0.19	0.00	0.07	0.04
2.50	0.25	0.00	0.10	0.04
3.00	0.30	0.00	0.14	0.05
3.50	0.36	0.01	0.19	0.06
4.00	0.42	0.01	0.25	0.07
4.50	0.49	0.03	0.31	0.08
5.00	0.55	0.05	0.37	0.09
5.50	0.62	0.07	0.43	0.09
6.00	0.69	0.10	0.50	0.10
6.50	0.77	0.13	0.57	0.12
7.00	0.87	0.18	0.66	0.14
7.50	0.97	0.24	0.76	0.16
8.00	1.08	0.30	0.87	0.17
8.50	1.22	0.39	1.00	0.23
9.00	1.41	0.52	1.19	0.33
9.50	1.68	0.72	1.46	0.48
10.00	2.86	1.69	2.63	2.45
10.50	3.24	2.03	3.00	0.86
11.00	3.46	2.23	3.22	0.45
11.50	3.64	2.39	3.40	0.35
12.00	3.80	2.54	3.56	0.30
12.50	3.94	2.67	3.70	0.27
13.00	4.06	2.79	3.83	0.24
13.50	4.17	2.89	3.94	0.22
14.00	4.27	2.98	4.04	0.19
14.50	4.36	3.07	4.13	0.17
15.00	4.45	3.15	4.22	0.17
15.50	4.54	3.23	4.30	0.16
16.00	4.62	3.31	4.38	0.16
16.50	4.70	3.38	4.46	0.15
17.00	4.77	3.45	4.54	0.15
17.50	4.85	3.52	4.61	0.14
18.00	4.92	3.59	4.68	0.14
18.50	4.99	3.65	4.75	0.13
19.00	5.05	3.72	4.81	0.13
19.50	5.11	3.78	4.88	0.12
20.00	5.17	3.83	4.94	0.12
20.50	5.23	3.89	4.99	0.11
21.00	5.28	3.94	5.05	0.11
21.50	5.33	3.99	5.10	0.10
22.00	5.38	4.03	5.15	0.09
22.50	5.43	4.08	5.19	0.09
23.00	5.47	4.12	5.23	0.08
23.50	5.51	4.16	5.27	0.08
24.00	5.55	4.19	5.31	0.07

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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Summary for Subcatchment 25S: DMA 14

Runoff = 0.04 cfs @ 10.03 hrs, Volume= 0.006 af, Depth> 3.36"
Routed to Pond 26P : Offsite

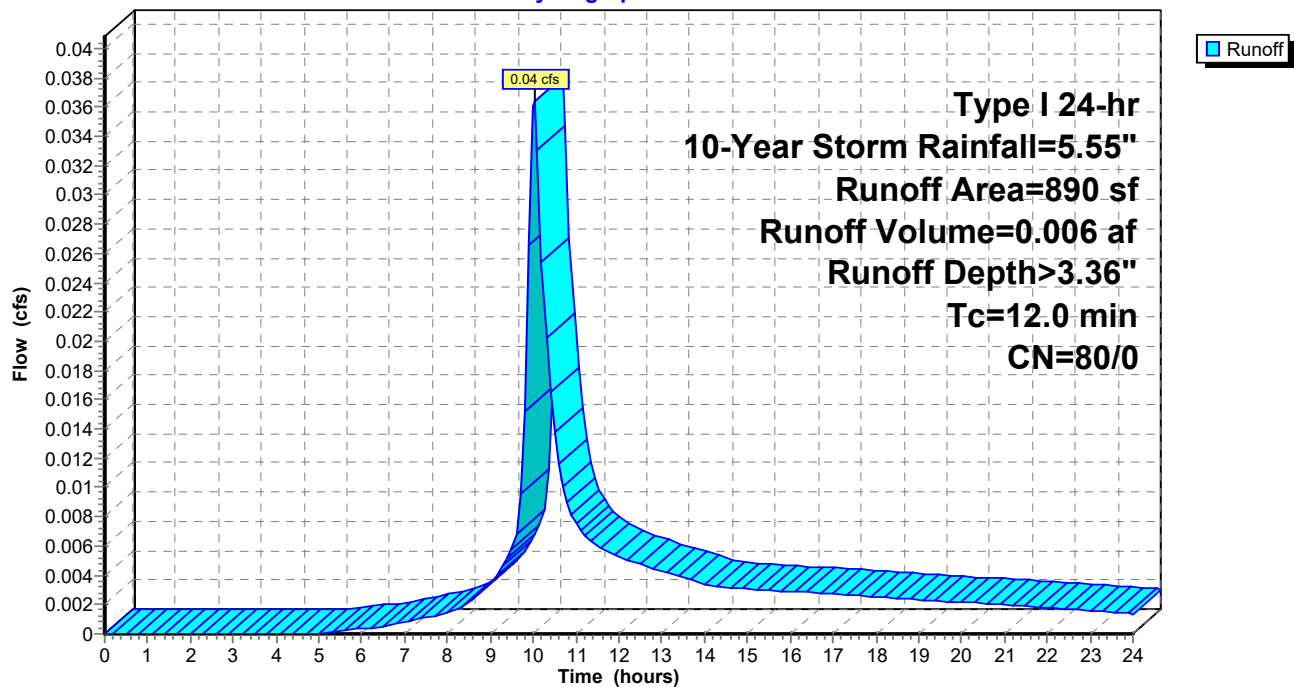
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-Year Storm Rainfall=5.55"

	Area (sf)	CN	Description
*	890	80	Pervious
	890	80	100.00% Pervious Area

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

Subcatchment 25S: DMA 14

Hydrograph



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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Hydrograph for Subcatchment 25S: DMA 14

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.05	0.00	0.00	0.00
1.00	0.10	0.00	0.00	0.00
1.50	0.15	0.00	0.00	0.00
2.00	0.19	0.00	0.00	0.00
2.50	0.25	0.00	0.00	0.00
3.00	0.30	0.00	0.00	0.00
3.50	0.36	0.00	0.00	0.00
4.00	0.42	0.00	0.00	0.00
4.50	0.49	0.00	0.00	0.00
5.00	0.55	0.00	0.00	0.00
5.50	0.62	0.01	0.00	0.00
6.00	0.69	0.01	0.00	0.00
6.50	0.77	0.03	0.00	0.00
7.00	0.87	0.05	0.00	0.00
7.50	0.97	0.07	0.00	0.00
8.00	1.08	0.11	0.00	0.00
8.50	1.22	0.16	0.00	0.00
9.00	1.41	0.24	0.00	0.00
9.50	1.68	0.38	0.00	0.01
10.00	2.86	1.14	0.00	0.04
10.50	3.24	1.43	0.00	0.01
11.00	3.46	1.60	0.00	0.01
11.50	3.64	1.75	0.00	0.01
12.00	3.80	1.87	0.00	0.01
12.50	3.94	1.99	0.00	0.00
13.00	4.06	2.09	0.00	0.00
13.50	4.17	2.19	0.00	0.00
14.00	4.27	2.27	0.00	0.00
14.50	4.36	2.35	0.00	0.00
15.00	4.45	2.42	0.00	0.00
15.50	4.54	2.49	0.00	0.00
16.00	4.62	2.56	0.00	0.00
16.50	4.70	2.63	0.00	0.00
17.00	4.77	2.70	0.00	0.00
17.50	4.85	2.76	0.00	0.00
18.00	4.92	2.82	0.00	0.00
18.50	4.99	2.88	0.00	0.00
19.00	5.05	2.94	0.00	0.00
19.50	5.11	2.99	0.00	0.00
20.00	5.17	3.04	0.00	0.00
20.50	5.23	3.09	0.00	0.00
21.00	5.28	3.14	0.00	0.00
21.50	5.33	3.19	0.00	0.00
22.00	5.38	3.23	0.00	0.00
22.50	5.43	3.27	0.00	0.00
23.00	5.47	3.31	0.00	0.00
23.50	5.51	3.34	0.00	0.00
24.00	5.55	3.38	0.00	0.00

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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Summary for Subcatchment 28S: DMA 4 & 9

Runoff = 0.12 cfs @ 10.02 hrs, Volume= 0.019 af, Depth> 3.51"
Routed to Pond 27P : Self Retaining - Landscape

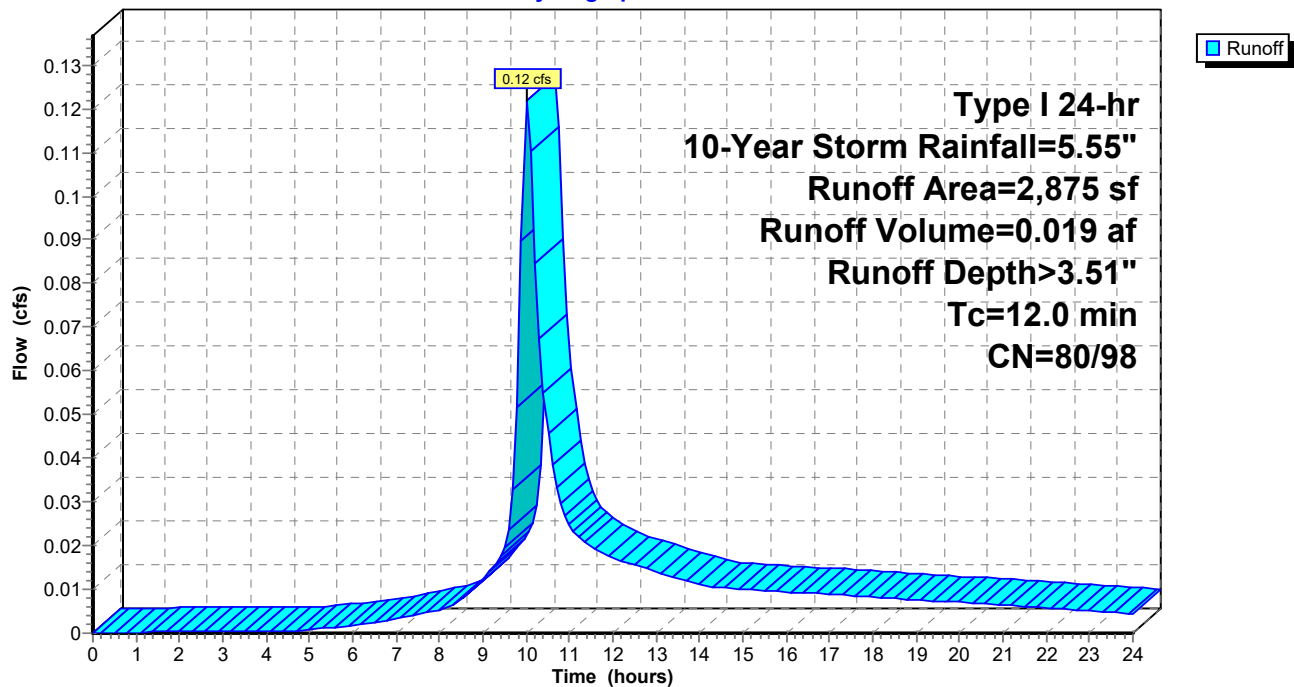
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 10-Year Storm Rainfall=5.55"

	Area (sf)	CN	Description
*	2,665	80	Pervious Area
*	210	98	Impervious Area
	2,875	81	Weighted Average
	2,665	80	92.70% Pervious Area
	210	98	7.30% Impervious Area

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

Subcatchment 28S: DMA 4 & 9

Hydrograph



22027_DRAINAGE

Type I 24-hr 10-Year Storm Rainfall=5.55"

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Hydrograph for Subcatchment 28S: DMA 4 & 9

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.05	0.00	0.00	0.00
1.00	0.10	0.00	0.01	0.00
1.50	0.15	0.00	0.04	0.00
2.00	0.19	0.00	0.07	0.00
2.50	0.25	0.00	0.10	0.00
3.00	0.30	0.00	0.14	0.00
3.50	0.36	0.00	0.19	0.00
4.00	0.42	0.00	0.25	0.00
4.50	0.49	0.00	0.31	0.00
5.00	0.55	0.00	0.37	0.00
5.50	0.62	0.01	0.43	0.00
6.00	0.69	0.01	0.50	0.00
6.50	0.77	0.03	0.57	0.00
7.00	0.87	0.05	0.66	0.00
7.50	0.97	0.07	0.76	0.00
8.00	1.08	0.11	0.87	0.01
8.50	1.22	0.16	1.00	0.01
9.00	1.41	0.24	1.19	0.01
9.50	1.68	0.38	1.46	0.02
10.00	2.86	1.14	2.63	0.12
10.50	3.24	1.43	3.00	0.05
11.00	3.46	1.60	3.22	0.02
11.50	3.64	1.75	3.40	0.02
12.00	3.80	1.87	3.56	0.02
12.50	3.94	1.99	3.70	0.02
13.00	4.06	2.09	3.83	0.01
13.50	4.17	2.19	3.94	0.01
14.00	4.27	2.27	4.04	0.01
14.50	4.36	2.35	4.13	0.01
15.00	4.45	2.42	4.22	0.01
15.50	4.54	2.49	4.30	0.01
16.00	4.62	2.56	4.38	0.01
16.50	4.70	2.63	4.46	0.01
17.00	4.77	2.70	4.54	0.01
17.50	4.85	2.76	4.61	0.01
18.00	4.92	2.82	4.68	0.01
18.50	4.99	2.88	4.75	0.01
19.00	5.05	2.94	4.81	0.01
19.50	5.11	2.99	4.88	0.01
20.00	5.17	3.04	4.94	0.01
20.50	5.23	3.09	4.99	0.01
21.00	5.28	3.14	5.05	0.01
21.50	5.33	3.19	5.10	0.01
22.00	5.38	3.23	5.15	0.01
22.50	5.43	3.27	5.19	0.01
23.00	5.47	3.31	5.23	0.01
23.50	5.51	3.34	5.27	0.00
24.00	5.55	3.38	5.31	0.00

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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Summary for Pond 8P: Bioretention Basin (SCM-1)

Inflow Area = 0.690 ac, 52.67% Impervious, Inflow Depth > 4.43" for 10-Year Storm event
 Inflow = 1.57 cfs @ 10.02 hrs, Volume= 0.255 af
 Outflow = 0.80 cfs @ 10.33 hrs, Volume= 0.216 af, Atten= 49%, Lag= 18.5 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.80 cfs @ 10.33 hrs, Volume= 0.216 af
 Routed to Pond 26P : Offsite
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2
 Peak Elev= 74.47' @ 10.33 hrs Surf.Area= 2,056 sf Storage= 3,046 cf

Plug-Flow detention time= 166.8 min calculated for 0.215 af (84% of inflow)
 Center-of-Mass det. time= 79.6 min (812.4 - 732.8)

Volume	Invert	Avail.Storage	Storage Description	
#1	68.99'	4,276 cf	Custom Stage Data (Prismatic) Listed below (Recalc) x 0.75	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.99	1,370	0.0	0	0
69.00	1,370	40.0	5	5
71.50	1,370	40.0	1,370	1,375
73.50	1,370	25.0	685	2,060
75.00	3,485	100.0	3,641	5,702

Device	Routing	Invert	Outlet Devices
#1	Device 3	73.25'	15.0" Round 15" Culvert L= 250.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.25' / 70.70' S= 0.0102 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#2	Secondary	74.99'	70.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Primary	73.50'	6.0" Vert. Orifice/Culvert C= 0.600 Limited to weir flow at low heads
#4	Device 1	70.60'	12.5" W x 3.0" H Vert. curb outlet C= 0.600 Limited to weir flow at low heads
#5	Discarded	68.99'	0.380 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=68.99' (Free Discharge)

↑ **5=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.80 cfs @ 10.33 hrs HW=74.47' (Free Discharge)

↑ **3=Orifice/Culvert** (Orifice Controls 0.80 cfs @ 4.08 fps)

↑ **1=15" Culvert** (Passes 0.80 cfs of 3.71 cfs potential flow)

↑ **4=curb outlet** (Passes 0.80 cfs of 1.23 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=68.99' (Free Discharge)

↑ **2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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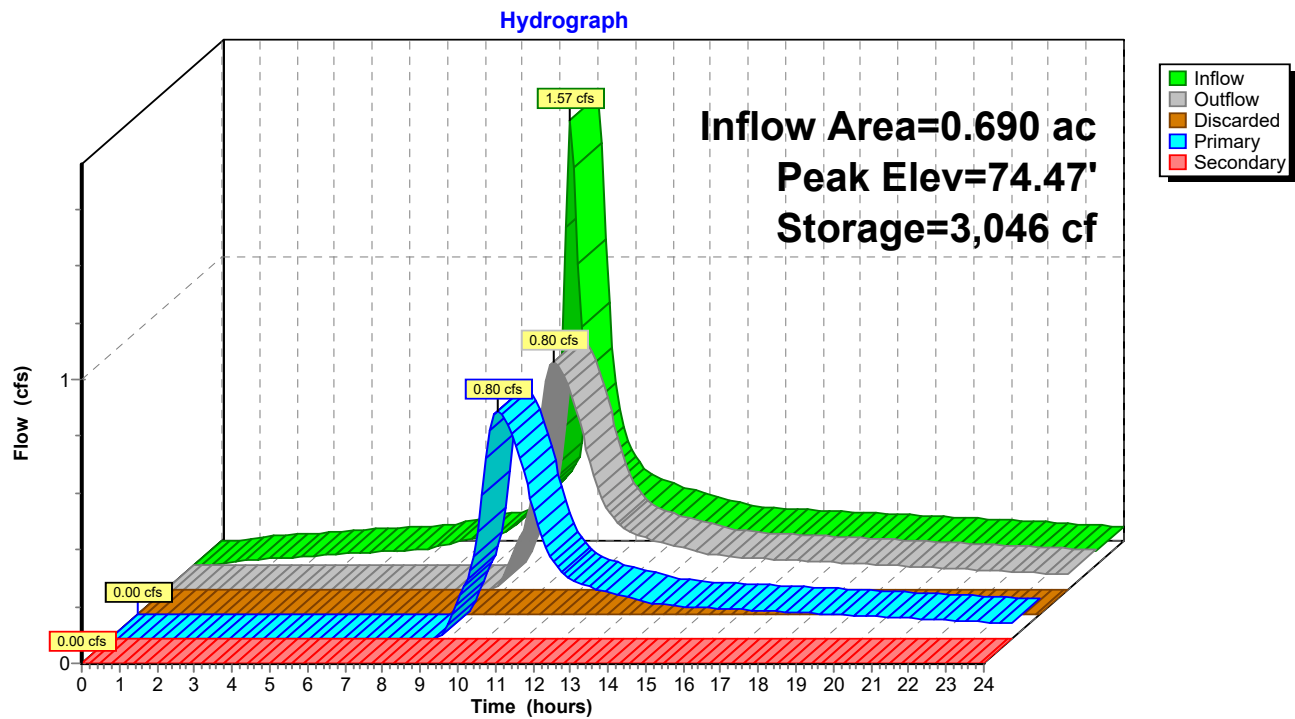
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Pond 8P: Bioretention Basin (SCM-1)



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Hydrograph for Pond 8P: Bioretention Basin (SCM-1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	68.99	0.00	0.00	0.00	0.00
0.50	0.00	0	68.99	0.00	0.00	0.00	0.00
1.00	0.01	7	69.01	0.00	0.00	0.00	0.00
1.50	0.02	31	69.07	0.00	0.00	0.00	0.00
2.00	0.02	67	69.15	0.00	0.00	0.00	0.00
2.50	0.03	110	69.26	0.00	0.00	0.00	0.00
3.00	0.03	163	69.39	0.00	0.00	0.00	0.00
3.50	0.04	223	69.53	0.00	0.00	0.00	0.00
4.00	0.04	291	69.70	0.00	0.00	0.00	0.00
4.50	0.04	366	69.88	0.00	0.00	0.00	0.00
5.00	0.05	446	70.08	0.00	0.00	0.00	0.00
5.50	0.05	534	70.29	0.00	0.00	0.00	0.00
6.00	0.05	629	70.52	0.00	0.00	0.00	0.00
6.50	0.06	736	70.78	0.00	0.00	0.00	0.00
7.00	0.08	866	71.10	0.00	0.00	0.00	0.00
7.50	0.09	1,023	71.48	0.00	0.00	0.00	0.00
8.00	0.10	1,198	72.15	0.00	0.00	0.00	0.00
8.50	0.14	1,405	72.95	0.00	0.00	0.00	0.00
9.00	0.20	1,689	73.63	0.05	0.00	0.05	0.00
9.50	0.29	1,882	73.79	0.21	0.00	0.21	0.00
10.00	1.56	2,534	74.21	0.64	0.00	0.64	0.00
10.50	0.56	2,965	74.43	0.78	0.00	0.78	0.00
11.00	0.30	2,421	74.14	0.59	0.00	0.59	0.00
11.50	0.23	2,034	73.89	0.36	0.00	0.36	0.00
12.00	0.20	1,910	73.81	0.24	0.00	0.24	0.00
12.50	0.18	1,866	73.77	0.20	0.00	0.20	0.00
13.00	0.16	1,842	73.75	0.17	0.00	0.17	0.00
13.50	0.14	1,822	73.74	0.16	0.00	0.16	0.00
14.00	0.13	1,803	73.72	0.14	0.00	0.14	0.00
14.50	0.12	1,785	73.71	0.12	0.00	0.12	0.00
15.00	0.11	1,777	73.70	0.12	0.00	0.12	0.00
15.50	0.11	1,772	73.70	0.11	0.00	0.11	0.00
16.00	0.11	1,767	73.70	0.11	0.00	0.11	0.00
16.50	0.10	1,763	73.69	0.11	0.00	0.11	0.00
17.00	0.10	1,759	73.69	0.10	0.00	0.10	0.00
17.50	0.10	1,755	73.69	0.10	0.00	0.10	0.00
18.00	0.09	1,751	73.68	0.10	0.00	0.10	0.00
18.50	0.09	1,747	73.68	0.09	0.00	0.09	0.00
19.00	0.09	1,742	73.68	0.09	0.00	0.09	0.00
19.50	0.08	1,738	73.67	0.08	0.00	0.08	0.00
20.00	0.08	1,732	73.67	0.08	0.00	0.08	0.00
20.50	0.07	1,727	73.66	0.08	0.00	0.08	0.00
21.00	0.07	1,722	73.66	0.07	0.00	0.07	0.00
21.50	0.07	1,717	73.65	0.07	0.00	0.07	0.00
22.00	0.06	1,711	73.65	0.07	0.00	0.07	0.00
22.50	0.06	1,706	73.65	0.06	0.00	0.06	0.00
23.00	0.06	1,701	73.64	0.06	0.00	0.06	0.00
23.50	0.05	1,696	73.64	0.06	0.00	0.06	0.00
24.00	0.05	1,690	73.63	0.05	0.00	0.05	0.00

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Summary for Pond 11P: Self Retaining - Permeable Pavers

Inflow Area = 1.049 ac, 56.84% Impervious, Inflow Depth > 4.55" for 10-Year Storm event
 Inflow = 2.46 cfs @ 10.02 hrs, Volume= 0.397 af
 Outflow = 0.19 cfs @ 13.99 hrs, Volume= 0.134 af, Atten= 92%, Lag= 238.4 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.19 cfs @ 13.99 hrs, Volume= 0.134 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 72.97' @ 13.99 hrs Surf.Area= 15,055 sf Storage= 11,850 cf

Plug-Flow detention time= 574.8 min calculated for 0.134 af (34% of inflow)
 Center-of-Mass det. time= 335.4 min (1,055.5 - 720.1)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	13,851 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 34,626 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	15,055	0	0
73.30	15,055	34,626	34,626

Device	Routing	Invert	Outlet Devices
#1	Primary	72.80'	4.0" Round Culvert X 4.00 L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 72.80' / 72.54' S= 0.0052 ' S= 0.0052 ' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	71.00'	0.890 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.19 cfs @ 13.99 hrs HW=72.97' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 0.19 cfs @ 1.58 fps)

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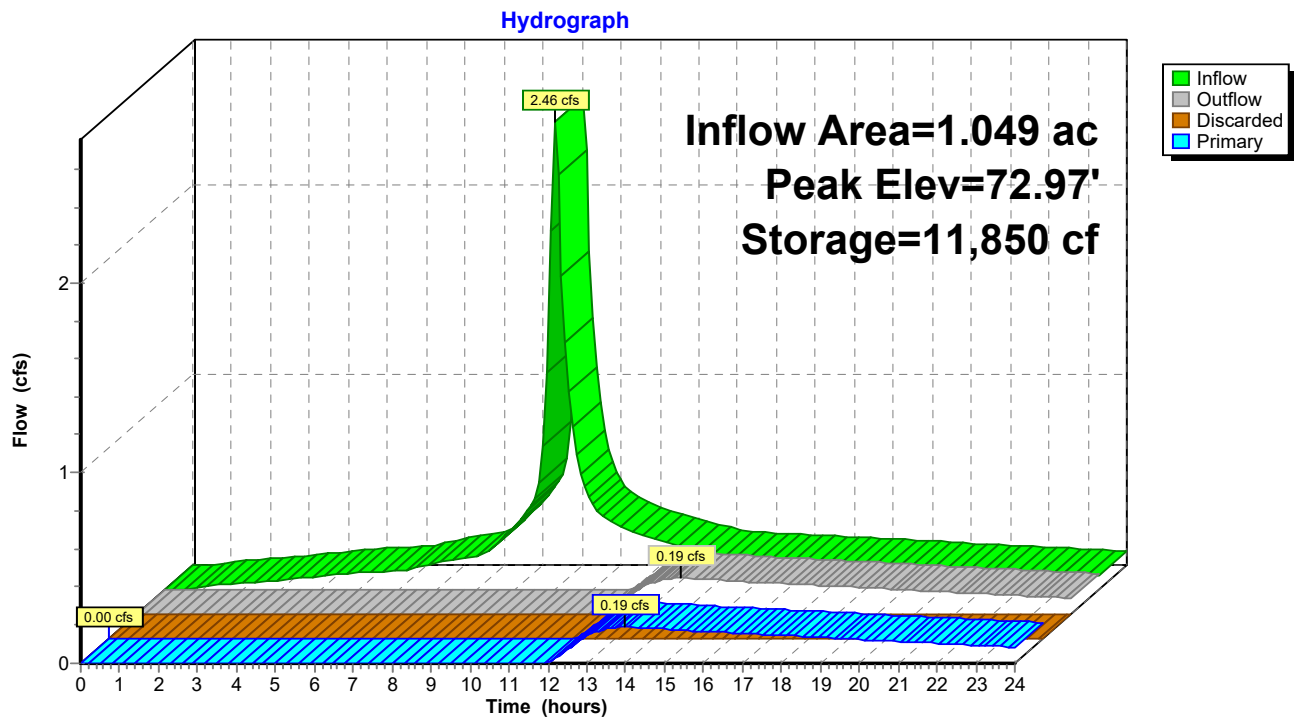
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Pond 11P: Self Retaining - Permeable Pavers



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Hydrograph for Pond 11P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	71.00	0.00	0.00	0.00
0.50	0.00	0	71.00	0.00	0.00	0.00
1.00	0.01	12	71.00	0.00	0.00	0.00
1.50	0.03	50	71.01	0.00	0.00	0.00
2.00	0.04	108	71.02	0.00	0.00	0.00
2.50	0.04	180	71.03	0.00	0.00	0.00
3.00	0.05	265	71.04	0.00	0.00	0.00
3.50	0.06	367	71.06	0.00	0.00	0.00
4.00	0.07	488	71.08	0.00	0.00	0.00
4.50	0.08	626	71.10	0.00	0.00	0.00
5.00	0.09	779	71.13	0.00	0.00	0.00
5.50	0.09	943	71.16	0.00	0.00	0.00
6.00	0.10	1,118	71.19	0.00	0.00	0.00
6.50	0.12	1,311	71.22	0.00	0.00	0.00
7.00	0.14	1,545	71.26	0.00	0.00	0.00
7.50	0.16	1,821	71.30	0.00	0.00	0.00
8.00	0.17	2,124	71.35	0.00	0.00	0.00
8.50	0.23	2,479	71.41	0.00	0.00	0.00
9.00	0.33	2,987	71.50	0.00	0.00	0.00
9.50	0.48	3,705	71.62	0.00	0.00	0.00
10.00	2.45	5,799	71.96	0.00	0.00	0.00
10.50	0.86	8,620	72.43	0.00	0.00	0.00
11.00	0.45	9,701	72.61	0.00	0.00	0.00
11.50	0.35	10,401	72.73	0.00	0.00	0.00
12.00	0.30	10,987	72.82	0.00	0.00	0.00
12.50	0.27	11,440	72.90	0.07	0.00	0.07
13.00	0.24	11,705	72.94	0.14	0.00	0.14
13.50	0.22	11,822	72.96	0.18	0.00	0.18
14.00	0.19	11,850	72.97	0.19	0.00	0.19
14.50	0.17	11,836	72.97	0.19	0.00	0.19
15.00	0.17	11,816	72.96	0.18	0.00	0.18
15.50	0.16	11,799	72.96	0.17	0.00	0.17
16.00	0.16	11,782	72.96	0.17	0.00	0.17
16.50	0.15	11,766	72.95	0.16	0.00	0.16
17.00	0.15	11,750	72.95	0.16	0.00	0.16
17.50	0.14	11,733	72.95	0.15	0.00	0.15
18.00	0.14	11,716	72.95	0.15	0.00	0.15
18.50	0.13	11,699	72.94	0.14	0.00	0.14
19.00	0.13	11,682	72.94	0.14	0.00	0.14
19.50	0.12	11,665	72.94	0.13	0.00	0.13
20.00	0.12	11,648	72.93	0.13	0.00	0.13
20.50	0.11	11,630	72.93	0.12	0.00	0.12
21.00	0.11	11,612	72.93	0.12	0.00	0.12
21.50	0.10	11,594	72.93	0.11	0.00	0.11
22.00	0.09	11,575	72.92	0.11	0.00	0.11
22.50	0.09	11,555	72.92	0.10	0.00	0.10
23.00	0.08	11,536	72.92	0.09	0.00	0.09
23.50	0.08	11,516	72.91	0.09	0.00	0.09
24.00	0.07	11,496	72.91	0.08	0.00	0.08

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Summary for Pond 26P: Offsite

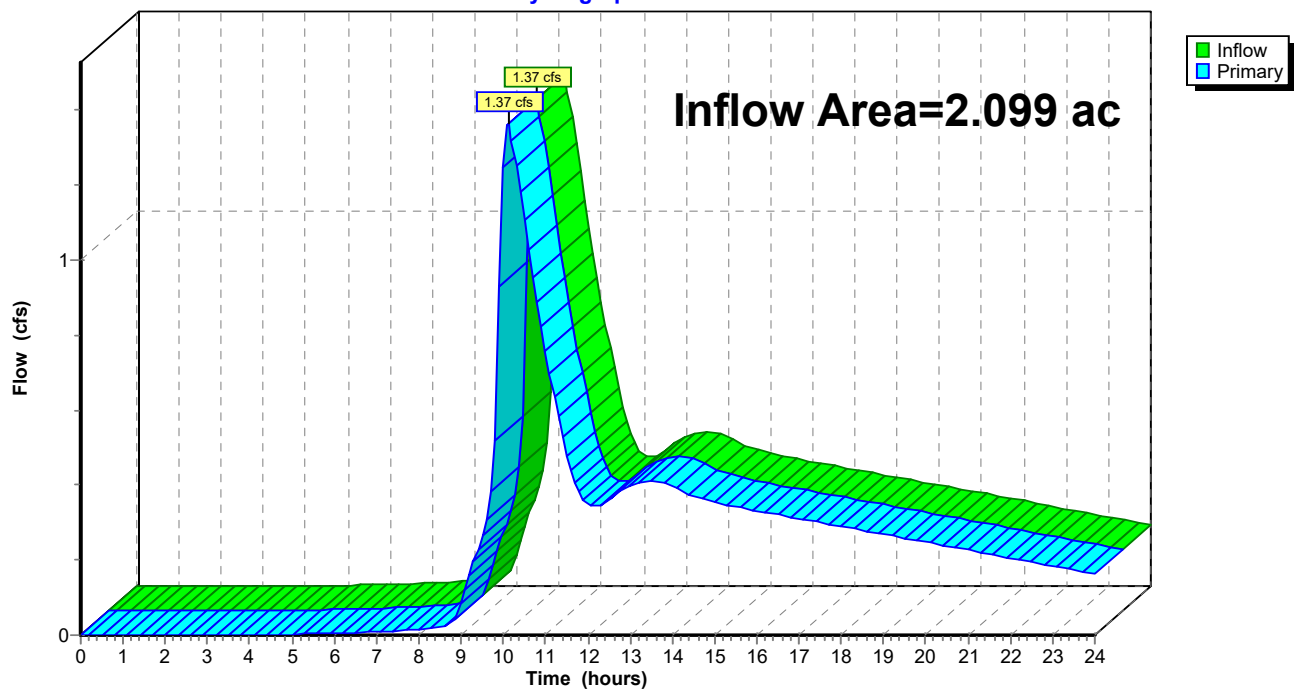
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.099 ac, 52.61% Impervious, Inflow Depth > 2.60" for 10-Year Storm event
Inflow = 1.37 cfs @ 10.12 hrs, Volume= 0.455 af
Primary = 1.37 cfs @ 10.12 hrs, Volume= 0.455 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Pond 26P: Offsite

Hydrograph



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Hydrograph for Pond 26P: Offsite

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	0.00		0.00
1.50	0.00		0.00
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.00		0.00
5.00	0.00		0.00
5.50	0.00		0.00
6.00	0.00		0.00
6.50	0.01		0.01
7.00	0.01		0.01
7.50	0.01		0.01
8.00	0.01		0.01
8.50	0.02		0.02
9.00	0.08		0.08
9.50	0.26		0.26
10.00	1.25		1.25
10.50	1.11		1.11
11.00	0.76		0.76
11.50	0.48		0.48
12.00	0.35		0.35
12.50	0.36		0.36
13.00	0.40		0.40
13.50	0.41		0.41
14.00	0.40		0.40
14.50	0.37		0.37
15.00	0.35		0.35
15.50	0.34		0.34
16.00	0.33		0.33
16.50	0.32		0.32
17.00	0.31		0.31
17.50	0.30		0.30
18.00	0.29		0.29
18.50	0.28		0.28
19.00	0.27		0.27
19.50	0.26		0.26
20.00	0.25		0.25
20.50	0.24		0.24
21.00	0.23		0.23
21.50	0.22		0.22
22.00	0.21		0.21
22.50	0.20		0.20
23.00	0.18		0.18
23.50	0.17		0.17
24.00	0.16		0.16

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Summary for Pond 27P: Self Retaining - Landcape

Inflow Area = 0.066 ac, 7.30% Impervious, Inflow Depth > 3.51" for 10-Year Storm event
 Inflow = 0.12 cfs @ 10.02 hrs, Volume= 0.019 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 72.17' @ 24.00 hrs Surf.Area= 2,875 sf Storage= 839 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	1,653 cf	soil (Prismatic) Listed below (Recalc) 6,612 cf Overall x 25.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	2,875	0	0
73.30	2,875	6,612	6,612

Device	Routing	Invert	Outlet Devices
#1	Discarded	71.00'	1.010 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↑1=Exfiltration (Controls 0.00 cfs)

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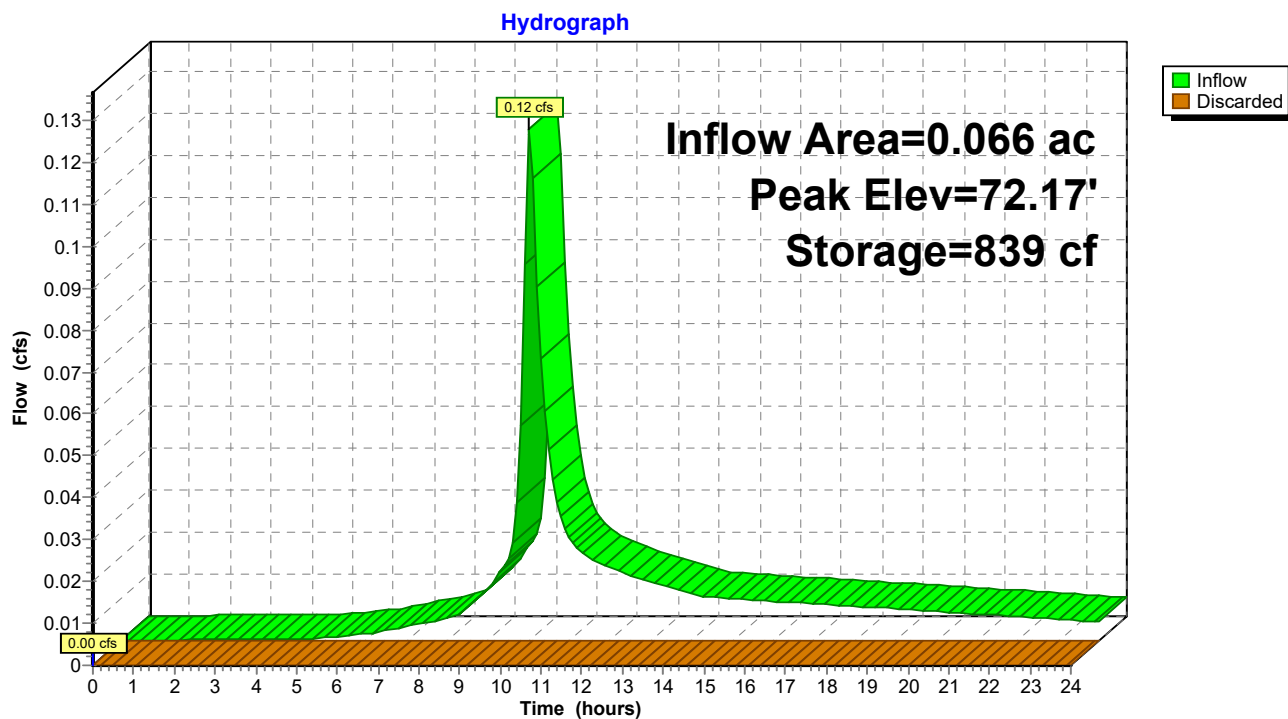
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Pond 27P: Self Retaining - Landscape



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Hydrograph for Pond 27P: Self Retaining - Landscape

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	71.00	0.00
0.50	0.00	0	71.00	0.00
1.00	0.00	0	71.00	0.00
1.50	0.00	0	71.00	0.00
2.00	0.00	1	71.00	0.00
2.50	0.00	1	71.00	0.00
3.00	0.00	2	71.00	0.00
3.50	0.00	3	71.00	0.00
4.00	0.00	4	71.01	0.00
4.50	0.00	5	71.01	0.00
5.00	0.00	6	71.01	0.00
5.50	0.00	8	71.01	0.00
6.00	0.00	10	71.01	0.00
6.50	0.00	14	71.02	0.00
7.00	0.00	19	71.03	0.00
7.50	0.00	26	71.04	0.00
8.00	0.01	34	71.05	0.00
8.50	0.01	46	71.06	0.00
9.00	0.01	63	71.09	0.00
9.50	0.02	91	71.13	0.00
10.00	0.12	188	71.26	0.00
10.50	0.05	332	71.46	0.00
11.00	0.02	391	71.54	0.00
11.50	0.02	430	71.60	0.00
12.00	0.02	463	71.64	0.00
12.50	0.02	493	71.69	0.00
13.00	0.01	519	71.72	0.00
13.50	0.01	543	71.76	0.00
14.00	0.01	565	71.79	0.00
14.50	0.01	584	71.81	0.00
15.00	0.01	602	71.84	0.00
15.50	0.01	620	71.86	0.00
16.00	0.01	637	71.89	0.00
16.50	0.01	654	71.91	0.00
17.00	0.01	670	71.93	0.00
17.50	0.01	686	71.95	0.00
18.00	0.01	701	71.98	0.00
18.50	0.01	716	72.00	0.00
19.00	0.01	730	72.02	0.00
19.50	0.01	743	72.03	0.00
20.00	0.01	756	72.05	0.00
20.50	0.01	768	72.07	0.00
21.00	0.01	780	72.09	0.00
21.50	0.01	792	72.10	0.00
22.00	0.01	802	72.12	0.00
22.50	0.01	812	72.13	0.00
23.00	0.01	822	72.14	0.00
23.50	0.00	831	72.16	0.00
24.00	0.00	839	72.17	0.00

22027_DRAINAGE

Type I 24-hr 10-Year Storm Rainfall=5.55"

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Summary for Pond 29P: Self Retaining - Permeable Pavers

Inflow Area = 0.108 ac, 67.02% Impervious, Inflow Depth > 4.93" for 10-Year Storm event
 Inflow = 0.27 cfs @ 10.02 hrs, Volume= 0.044 af
 Outflow = 0.17 cfs @ 10.24 hrs, Volume= 0.031 af, Atten= 37%, Lag= 13.3 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.17 cfs @ 10.24 hrs, Volume= 0.031 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 71.73' @ 10.24 hrs Surf.Area= 1,325 sf Storage= 707 cf

Plug-Flow detention time= 263.5 min calculated for 0.031 af (71% of inflow)
 Center-of-Mass det. time= 121.1 min (837.3 - 716.2)

Volume	Invert	Avail.Storage	Storage Description
#1	70.40'	1,060 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,650 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.40	1,325	0	0
72.40	1,325	2,650	2,650

Device	Routing	Invert	Outlet Devices
#1	Primary	71.40'	4.0" Round Culvert L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.40' / 70.60' S= 0.0160 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	70.40'	0.080 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=70.40' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.17 cfs @ 10.24 hrs HW=71.73' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 0.17 cfs @ 1.95 fps)

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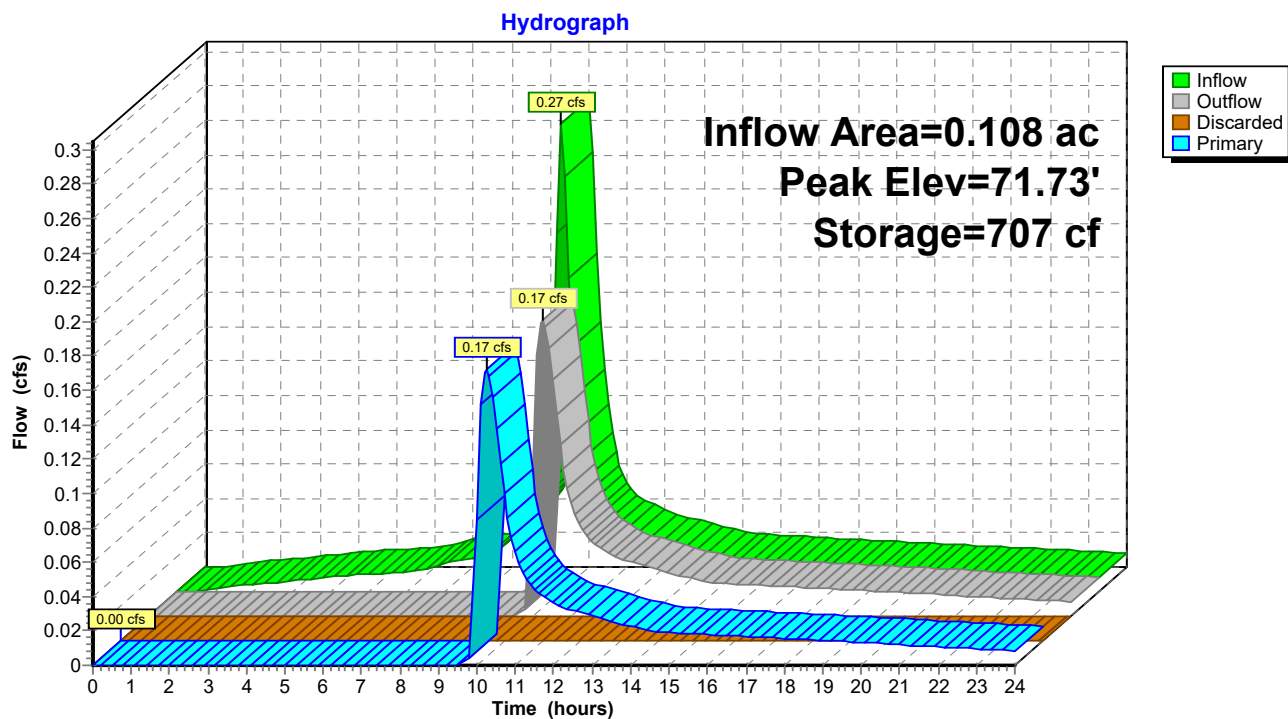
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Pond 29P: Self Retaining - Permeable Pavers



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Type I 24-hr 10-Year Storm Rainfall=5.55"

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Hydrograph for Pond 29P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	70.40	0.00	0.00	0.00
0.50	0.00	0	70.40	0.00	0.00	0.00
1.00	0.00	1	70.40	0.00	0.00	0.00
1.50	0.00	6	70.41	0.00	0.00	0.00
2.00	0.00	13	70.42	0.00	0.00	0.00
2.50	0.01	22	70.44	0.00	0.00	0.00
3.00	0.01	32	70.46	0.00	0.00	0.00
3.50	0.01	45	70.48	0.00	0.00	0.00
4.00	0.01	59	70.51	0.00	0.00	0.00
4.50	0.01	75	70.54	0.00	0.00	0.00
5.00	0.01	93	70.58	0.00	0.00	0.00
5.50	0.01	112	70.61	0.00	0.00	0.00
6.00	0.01	133	70.65	0.00	0.00	0.00
6.50	0.01	155	70.69	0.00	0.00	0.00
7.00	0.02	181	70.74	0.00	0.00	0.00
7.50	0.02	213	70.80	0.00	0.00	0.00
8.00	0.02	247	70.87	0.00	0.00	0.00
8.50	0.03	287	70.94	0.00	0.00	0.00
9.00	0.04	344	71.05	0.00	0.00	0.00
9.50	0.05	424	71.20	0.00	0.00	0.00
10.00	0.27	637	71.60	0.08	0.00	0.08
10.50	0.09	676	71.68	0.14	0.00	0.14
11.00	0.05	623	71.57	0.07	0.00	0.07
11.50	0.04	604	71.54	0.04	0.00	0.04
12.00	0.03	597	71.53	0.04	0.00	0.04
12.50	0.03	592	71.52	0.03	0.00	0.03
13.00	0.03	588	71.51	0.03	0.00	0.03
13.50	0.02	585	71.50	0.03	0.00	0.03
14.00	0.02	582	71.50	0.02	0.00	0.02
14.50	0.02	579	71.49	0.02	0.00	0.02
15.00	0.02	577	71.49	0.02	0.00	0.02
15.50	0.02	576	71.49	0.02	0.00	0.02
16.00	0.02	575	71.49	0.02	0.00	0.02
16.50	0.02	575	71.48	0.02	0.00	0.02
17.00	0.02	574	71.48	0.02	0.00	0.02
17.50	0.02	573	71.48	0.02	0.00	0.02
18.00	0.02	572	71.48	0.02	0.00	0.02
18.50	0.01	572	71.48	0.01	0.00	0.01
19.00	0.01	571	71.48	0.01	0.00	0.01
19.50	0.01	570	71.47	0.01	0.00	0.01
20.00	0.01	569	71.47	0.01	0.00	0.01
20.50	0.01	568	71.47	0.01	0.00	0.01
21.00	0.01	567	71.47	0.01	0.00	0.01
21.50	0.01	566	71.47	0.01	0.00	0.01
22.00	0.01	565	71.47	0.01	0.00	0.01
22.50	0.01	564	71.46	0.01	0.00	0.01
23.00	0.01	563	71.46	0.01	0.00	0.01
23.50	0.01	562	71.46	0.01	0.00	0.01
24.00	0.01	561	71.46	0.01	0.00	0.01

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Summary for Pond 30P: Bioretention Basin (SCM-2)

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.071 ac, 87.70% Impervious, Inflow Depth > 5.06" for 10-Year Storm event
Inflow = 0.18 cfs @ 10.02 hrs, Volume= 0.030 af
Outflow = 0.20 cfs @ 10.00 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 10.00 hrs, Volume= 0.022 af
Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2
Peak Elev= 71.50' @ 10.00 hrs Surf.Area= 380 sf Storage= 379 cf

Plug-Flow detention time= 242.5 min calculated for 0.022 af (72% of inflow)
Center-of-Mass det. time= 105.5 min (812.5 - 707.0)

Volume	Invert	Avail.Storage	Storage Description
#1	70.50'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.50	380	0	0
71.50	380	380	380

Device	Routing	Invert	Outlet Devices
#1	Primary	71.49'	95.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.16 cfs @ 10.00 hrs HW=71.50' (Free Discharge)
↑1=Sharp-Crested Rectangular Weir (Weir Controls 0.16 cfs @ 0.26 fps)

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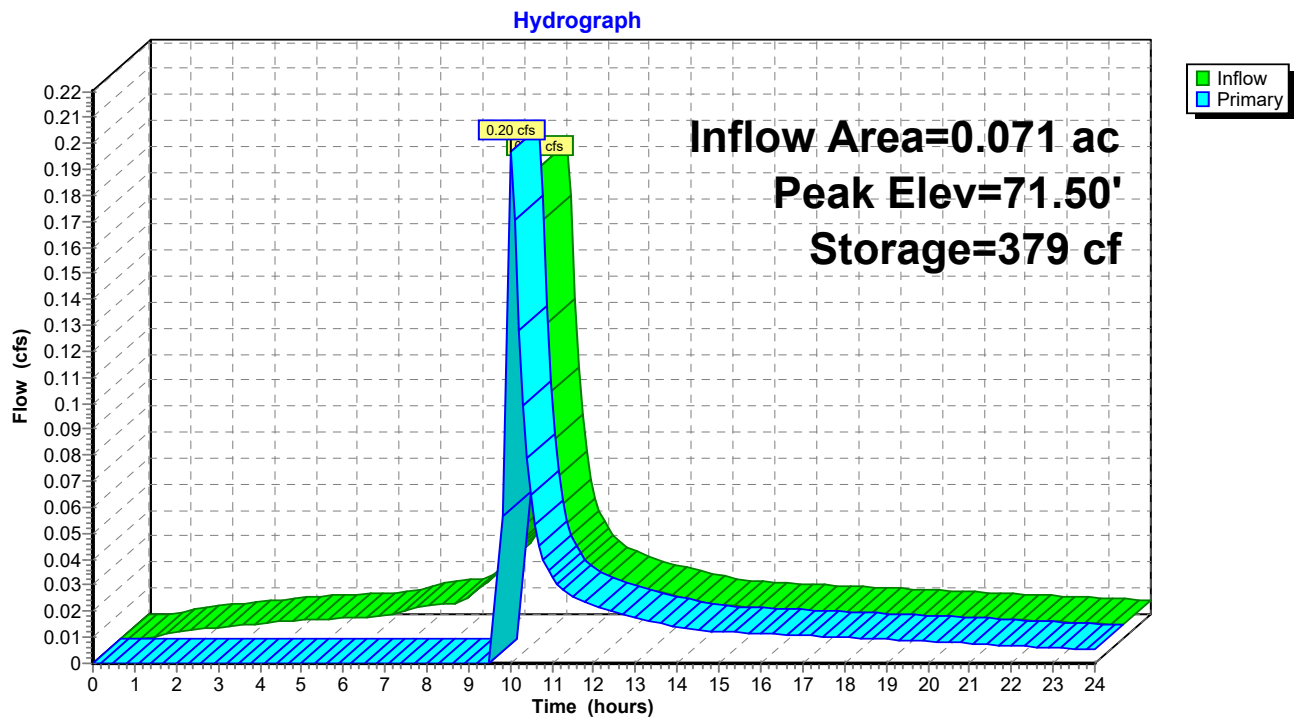
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Pond 30P: Bioretention Basin (SCM-2)



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Hydrograph for Pond 30P: Bioretention Basin (SCM-2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.50	0.00
0.50	0.00	0	70.50	0.00
1.00	0.00	1	70.50	0.00
1.50	0.00	5	70.51	0.00
2.00	0.00	11	70.53	0.00
2.50	0.00	19	70.55	0.00
3.00	0.01	28	70.57	0.00
3.50	0.01	38	70.60	0.00
4.00	0.01	50	70.63	0.00
4.50	0.01	63	70.66	0.00
5.00	0.01	76	70.70	0.00
5.50	0.01	90	70.74	0.00
6.00	0.01	105	70.78	0.00
6.50	0.01	121	70.82	0.00
7.00	0.01	140	70.87	0.00
7.50	0.01	162	70.93	0.00
8.00	0.01	186	70.99	0.00
8.50	0.02	214	71.06	0.00
9.00	0.03	253	71.17	0.00
9.50	0.04	308	71.31	0.00
10.00	0.18	379	71.50	0.20
10.50	0.06	377	71.49	0.06
11.00	0.03	377	71.49	0.03
11.50	0.03	377	71.49	0.03
12.00	0.02	376	71.49	0.02
12.50	0.02	376	71.49	0.02
13.00	0.02	376	71.49	0.02
13.50	0.02	376	71.49	0.02
14.00	0.01	376	71.49	0.01
14.50	0.01	376	71.49	0.01
15.00	0.01	376	71.49	0.01
15.50	0.01	376	71.49	0.01
16.00	0.01	376	71.49	0.01
16.50	0.01	376	71.49	0.01
17.00	0.01	376	71.49	0.01
17.50	0.01	376	71.49	0.01
18.00	0.01	376	71.49	0.01
18.50	0.01	376	71.49	0.01
19.00	0.01	376	71.49	0.01
19.50	0.01	376	71.49	0.01
20.00	0.01	376	71.49	0.01
20.50	0.01	376	71.49	0.01
21.00	0.01	376	71.49	0.01
21.50	0.01	376	71.49	0.01
22.00	0.01	376	71.49	0.01
22.50	0.01	376	71.49	0.01
23.00	0.01	376	71.49	0.01
23.50	0.01	376	71.49	0.01
24.00	0.01	376	71.49	0.01

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment7S: DMA 1	Runoff Area=30,044 sf 52.67% Impervious Runoff Depth>5.54" Tc=12.0 min CN=81/98 Runoff=1.97 cfs 0.318 af
Subcatchment10S: DMA 2	Runoff Area=4,320 sf 0.00% Impervious Runoff Depth>4.41" Tc=12.0 min CN=80/0 Runoff=0.23 cfs 0.036 af
Subcatchment16S: DMA 7	Runoff Area=1,650 sf 88.48% Impervious Runoff Depth>6.22" Tc=12.0 min CN=80/98 Runoff=0.12 cfs 0.020 af
Subcatchment19S: DMA 10	Runoff Area=1,440 sf 86.81% Impervious Runoff Depth>6.18" Tc=12.0 min CN=80/98 Runoff=0.10 cfs 0.017 af
Subcatchment20S: DMA 11	Runoff Area=1,385 sf 5.78% Impervious Runoff Depth>4.53" Tc=12.0 min CN=80/98 Runoff=0.08 cfs 0.012 af
Subcatchment21S: DMA 12	Runoff Area=4,685 sf 67.02% Impervious Runoff Depth>6.07" Tc=12.0 min CN=88/98 Runoff=0.33 cfs 0.054 af
Subcatchment22S: DMA 13	Runoff Area=1,320 sf 28.79% Impervious Runoff Depth>5.00" Tc=12.0 min CN=80/98 Runoff=0.08 cfs 0.013 af
Subcatchment23S: DMA 3, 5, 6, 8	Runoff Area=42,820 sf 60.16% Impervious Runoff Depth>5.99" Tc=12.0 min CN=88/98 Runoff=3.03 cfs 0.491 af
Subcatchment25S: DMA 14	Runoff Area=890 sf 0.00% Impervious Runoff Depth>4.41" Tc=12.0 min CN=80/0 Runoff=0.05 cfs 0.008 af
Subcatchment28S: DMA 4 & 9	Runoff Area=2,875 sf 7.30% Impervious Runoff Depth>4.56" Tc=12.0 min CN=80/98 Runoff=0.16 cfs 0.025 af
Pond 8P: Bioretention Basin (SCM-1)	Peak Elev=74.70' Storage=3,543 cf Inflow=1.97 cfs 0.318 af Discarded=0.00 cfs 0.000 af Primary=0.92 cfs 0.279 af Secondary=0.00 cfs 0.000 af Outflow=0.92 cfs 0.279 af
Pond 11P: Self Retaining - Permeable Pavers	Peak Elev=73.05' Storage=12,324 cf Inflow=3.03 cfs 0.491 af Discarded=0.00 cfs 0.000 af Primary=0.37 cfs 0.225 af Outflow=0.37 cfs 0.225 af
Pond 26P: Offsite	Inflow=1.65 cfs 0.643 af Primary=1.65 cfs 0.643 af
Pond 27P: Self Retaining - Landcape	Peak Elev=72.52' Storage=1,092 cf Inflow=0.16 cfs 0.025 af Outflow=0.00 cfs 0.000 af
Pond 29P: Self Retaining - Permeable Pavers	Peak Elev=71.86' Storage=771 cf Inflow=0.33 cfs 0.054 af Discarded=0.00 cfs 0.000 af Primary=0.23 cfs 0.041 af Outflow=0.23 cfs 0.041 af
Pond 30P: Bioretention Basin (SCM-2)	Peak Elev=71.50' Storage=379 cf Inflow=0.22 cfs 0.037 af Outflow=0.22 cfs 0.028 af

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Total Runoff Area = 2.099 ac Runoff Volume = 0.994 af Average Runoff Depth = 5.68"
47.39% Pervious = 0.995 ac 52.61% Impervious = 1.104 ac

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Subcatchment 7S: DMA 1

Runoff = 1.97 cfs @ 10.02 hrs, Volume= 0.318 af, Depth> 5.54"
Routed to Pond 8P : Bioretention Basin (SCM-1)

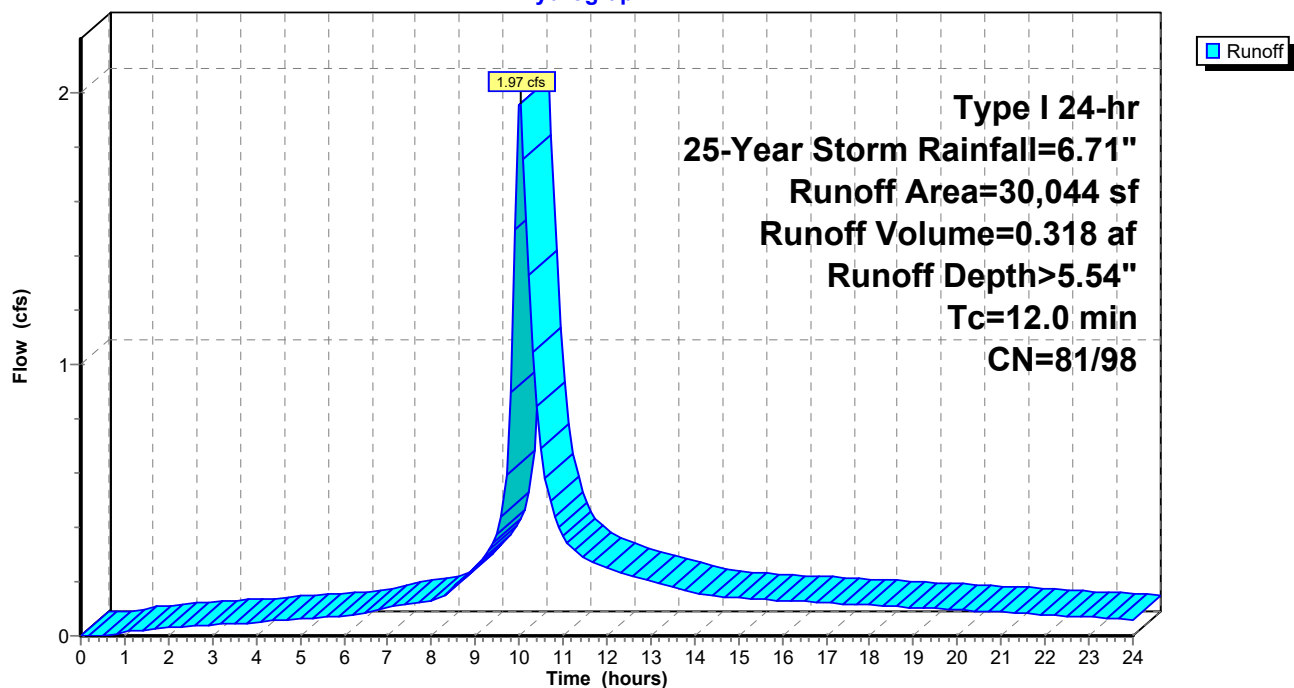
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 25-Year Storm Rainfall=6.71"

	Area (sf)	CN	Description
*	15,823	98	Impervious
*	9,370	80	Pervious
*	1,367	89	Pavers
*	3,484	80	Basin
	30,044	90	Weighted Average
	14,221	81	47.33% Pervious Area
	15,823	98	52.67% Impervious Area

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

Subcatchment 7S: DMA 1

Hydrograph



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Hydrograph for Subcatchment 7S: DMA 1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.06	0.00	0.00	0.00
1.00	0.12	0.00	0.02	0.01
1.50	0.18	0.00	0.05	0.02
2.00	0.23	0.00	0.09	0.03
2.50	0.30	0.00	0.14	0.03
3.00	0.36	0.00	0.20	0.04
3.50	0.43	0.00	0.26	0.05
4.00	0.51	0.00	0.33	0.05
4.50	0.59	0.01	0.40	0.06
5.00	0.67	0.02	0.48	0.06
5.50	0.75	0.03	0.55	0.07
6.00	0.84	0.05	0.64	0.07
6.50	0.93	0.08	0.73	0.08
7.00	1.05	0.11	0.84	0.10
7.50	1.17	0.16	0.96	0.12
8.00	1.30	0.22	1.09	0.13
8.50	1.47	0.30	1.25	0.18
9.00	1.70	0.43	1.48	0.25
9.50	2.03	0.63	1.81	0.37
10.00	3.46	1.67	3.22	1.95
10.50	3.91	2.05	3.68	0.69
11.00	4.18	2.27	3.95	0.37
11.50	4.40	2.46	4.16	0.29
12.00	4.59	2.63	4.35	0.25
12.50	4.76	2.77	4.52	0.22
13.00	4.91	2.91	4.68	0.20
13.50	5.05	3.03	4.81	0.18
14.00	5.17	3.13	4.93	0.16
14.50	5.28	3.23	5.04	0.14
15.00	5.38	3.32	5.14	0.14
15.50	5.48	3.42	5.25	0.14
16.00	5.58	3.51	5.35	0.13
16.50	5.68	3.59	5.44	0.13
17.00	5.77	3.68	5.53	0.12
17.50	5.86	3.76	5.62	0.12
18.00	5.95	3.83	5.71	0.11
18.50	6.03	3.91	5.79	0.11
19.00	6.11	3.98	5.87	0.11
19.50	6.18	4.05	5.94	0.10
20.00	6.25	4.12	6.02	0.10
20.50	6.32	4.18	6.08	0.09
21.00	6.39	4.24	6.15	0.09
21.50	6.45	4.30	6.21	0.08
22.00	6.51	4.35	6.27	0.08
22.50	6.56	4.40	6.33	0.07
23.00	6.62	4.45	6.38	0.07
23.50	6.66	4.49	6.43	0.07
24.00	6.71	4.54	6.47	0.06

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Subcatchment 10S: DMA 2

Runoff = 0.23 cfs @ 10.02 hrs, Volume= 0.036 af, Depth> 4.41"
Routed to Pond 26P : Offsite

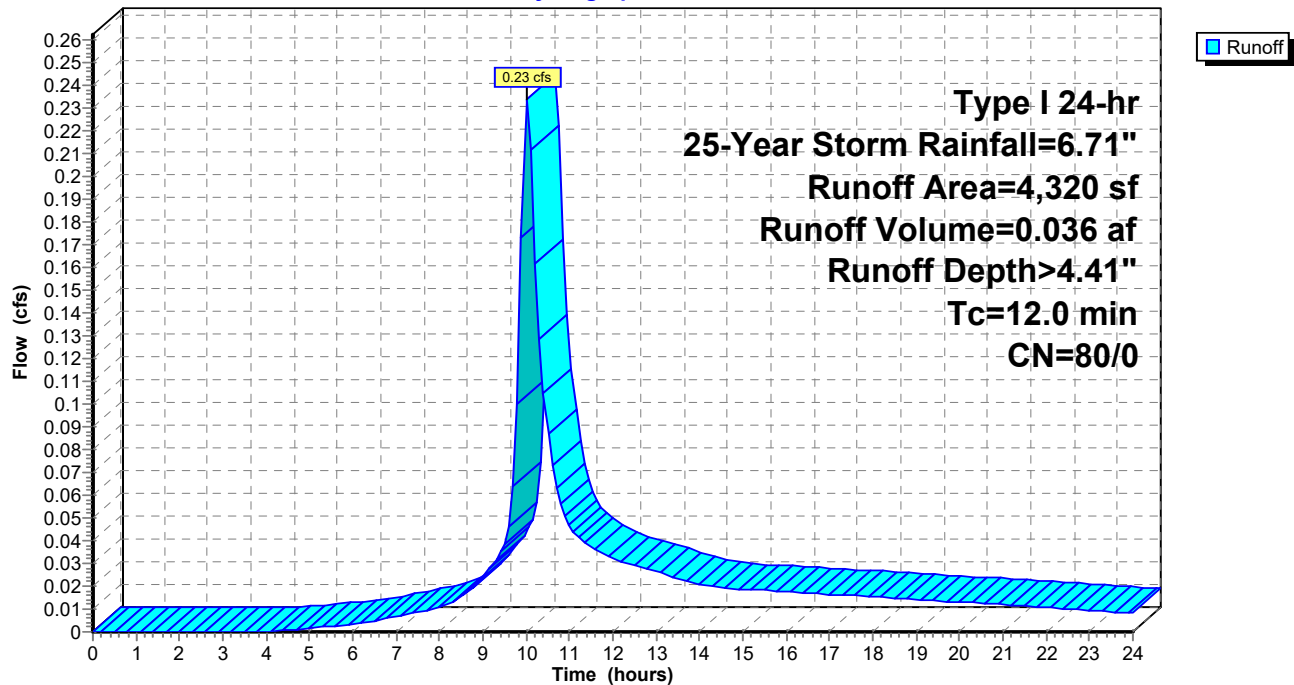
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 25-Year Storm Rainfall=6.71"

	Area (sf)	CN	Description
*	4,320	80	Pervious
	4,320	80	100.00% Pervious Area

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

Subcatchment 10S: DMA 2

Hydrograph



22027_DRAINAGE

Type I 24-hr 25-Year Storm Rainfall=6.71"

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Hydrograph for Subcatchment 10S: DMA 2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.06	0.00	0.00	0.00
1.00	0.12	0.00	0.00	0.00
1.50	0.18	0.00	0.00	0.00
2.00	0.23	0.00	0.00	0.00
2.50	0.30	0.00	0.00	0.00
3.00	0.36	0.00	0.00	0.00
3.50	0.43	0.00	0.00	0.00
4.00	0.51	0.00	0.00	0.00
4.50	0.59	0.00	0.00	0.00
5.00	0.67	0.01	0.00	0.00
5.50	0.75	0.02	0.00	0.00
6.00	0.84	0.04	0.00	0.00
6.50	0.93	0.06	0.00	0.00
7.00	1.05	0.10	0.00	0.01
7.50	1.17	0.14	0.00	0.01
8.00	1.30	0.19	0.00	0.01
8.50	1.47	0.27	0.00	0.02
9.00	1.70	0.39	0.00	0.02
9.50	2.03	0.58	0.00	0.04
10.00	3.46	1.60	0.00	0.23
10.50	3.91	1.97	0.00	0.09
11.00	4.18	2.19	0.00	0.05
11.50	4.40	2.38	0.00	0.04
12.00	4.59	2.54	0.00	0.03
12.50	4.76	2.68	0.00	0.03
13.00	4.91	2.82	0.00	0.03
13.50	5.05	2.93	0.00	0.02
14.00	5.17	3.04	0.00	0.02
14.50	5.28	3.13	0.00	0.02
15.00	5.38	3.23	0.00	0.02
15.50	5.48	3.32	0.00	0.02
16.00	5.58	3.41	0.00	0.02
16.50	5.68	3.49	0.00	0.02
17.00	5.77	3.57	0.00	0.02
17.50	5.86	3.65	0.00	0.02
18.00	5.95	3.73	0.00	0.02
18.50	6.03	3.81	0.00	0.01
19.00	6.11	3.88	0.00	0.01
19.50	6.18	3.95	0.00	0.01
20.00	6.25	4.01	0.00	0.01
20.50	6.32	4.07	0.00	0.01
21.00	6.39	4.13	0.00	0.01
21.50	6.45	4.19	0.00	0.01
22.00	6.51	4.24	0.00	0.01
22.50	6.56	4.29	0.00	0.01
23.00	6.62	4.34	0.00	0.01
23.50	6.66	4.39	0.00	0.01
24.00	6.71	4.43	0.00	0.01

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Subcatchment 16S: DMA 7

Runoff = 0.12 cfs @ 10.02 hrs, Volume= 0.020 af, Depth> 6.22"
Routed to Pond 30P : Bioretention Basin (SCM-2)

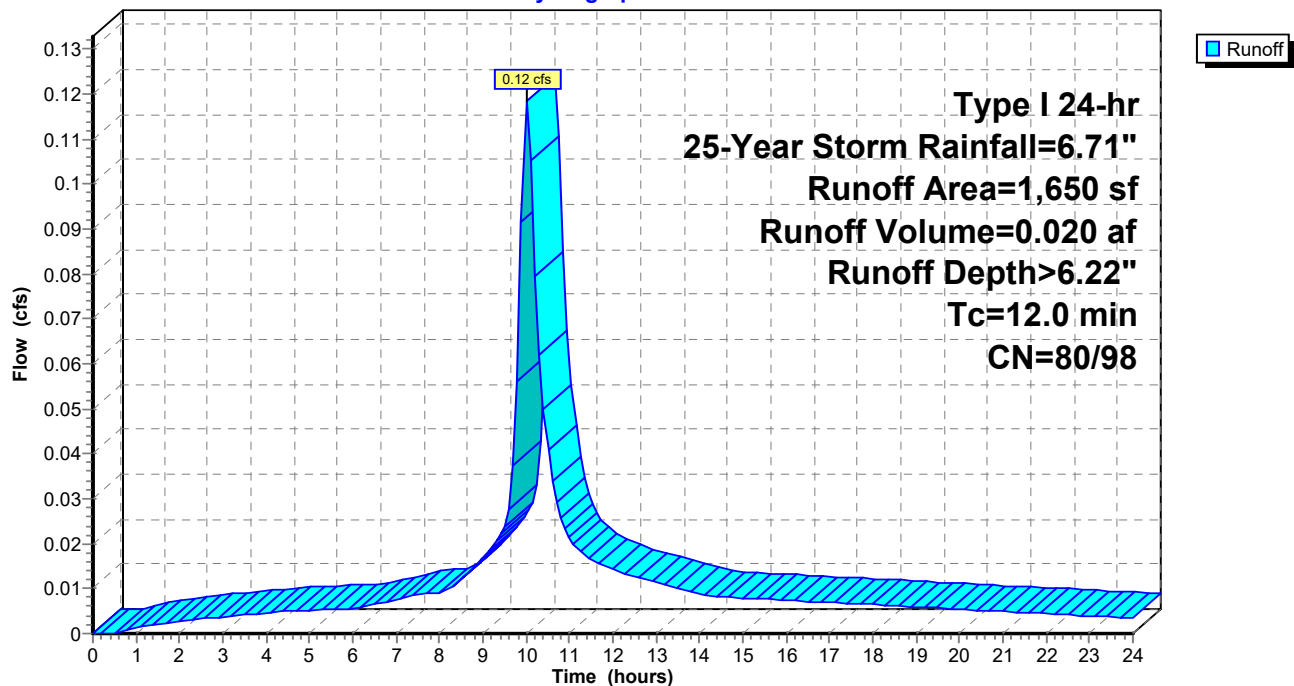
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 25-Year Storm Rainfall=6.71"

	Area (sf)	CN	Description
*	1,460	98	Impervious
*	0	80	Pervious
*	190	80	Basin
	1,650	96	Weighted Average
	190	80	11.52% Pervious Area
	1,460	98	88.48% Impervious Area

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

Subcatchment 16S: DMA 7

Hydrograph



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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Hydrograph for Subcatchment 16S: DMA 7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.06	0.00	0.00	0.00
1.00	0.12	0.00	0.02	0.00
1.50	0.18	0.00	0.05	0.00
2.00	0.23	0.00	0.09	0.00
2.50	0.30	0.00	0.14	0.00
3.00	0.36	0.00	0.20	0.00
3.50	0.43	0.00	0.26	0.00
4.00	0.51	0.00	0.33	0.00
4.50	0.59	0.00	0.40	0.00
5.00	0.67	0.01	0.48	0.01
5.50	0.75	0.02	0.55	0.01
6.00	0.84	0.04	0.64	0.01
6.50	0.93	0.06	0.73	0.01
7.00	1.05	0.10	0.84	0.01
7.50	1.17	0.14	0.96	0.01
8.00	1.30	0.19	1.09	0.01
8.50	1.47	0.27	1.25	0.01
9.00	1.70	0.39	1.48	0.02
9.50	2.03	0.58	1.81	0.02
10.00	3.46	1.60	3.22	0.12
10.50	3.91	1.97	3.68	0.04
11.00	4.18	2.19	3.95	0.02
11.50	4.40	2.38	4.16	0.02
12.00	4.59	2.54	4.35	0.01
12.50	4.76	2.68	4.52	0.01
13.00	4.91	2.82	4.68	0.01
13.50	5.05	2.93	4.81	0.01
14.00	5.17	3.04	4.93	0.01
14.50	5.28	3.13	5.04	0.01
15.00	5.38	3.23	5.14	0.01
15.50	5.48	3.32	5.25	0.01
16.00	5.58	3.41	5.35	0.01
16.50	5.68	3.49	5.44	0.01
17.00	5.77	3.57	5.53	0.01
17.50	5.86	3.65	5.62	0.01
18.00	5.95	3.73	5.71	0.01
18.50	6.03	3.81	5.79	0.01
19.00	6.11	3.88	5.87	0.01
19.50	6.18	3.95	5.94	0.01
20.00	6.25	4.01	6.02	0.01
20.50	6.32	4.07	6.08	0.01
21.00	6.39	4.13	6.15	0.00
21.50	6.45	4.19	6.21	0.00
22.00	6.51	4.24	6.27	0.00
22.50	6.56	4.29	6.33	0.00
23.00	6.62	4.34	6.38	0.00
23.50	6.66	4.39	6.43	0.00
24.00	6.71	4.43	6.47	0.00

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Subcatchment 19S: DMA 10

Runoff = 0.10 cfs @ 10.02 hrs, Volume= 0.017 af, Depth> 6.18"
Routed to Pond 30P : Bioretention Basin (SCM-2)

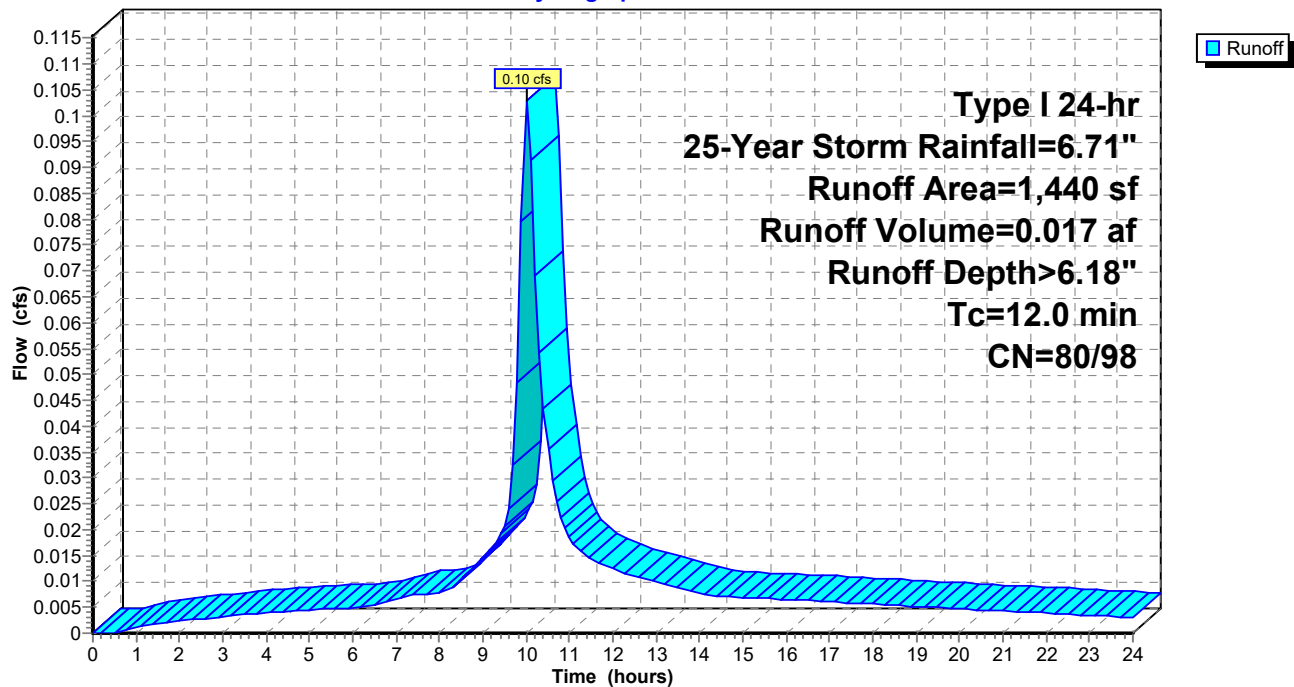
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 25-Year Storm Rainfall=6.71"

	Area (sf)	CN	Description
*	1,250	98	Impervious
*	190	80	Basin
	1,440	96	Weighted Average
	190	80	13.19% Pervious Area
	1,250	98	86.81% Impervious Area

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

Subcatchment 19S: DMA 10

Hydrograph



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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Hydrograph for Subcatchment 19S: DMA 10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.06	0.00	0.00	0.00
1.00	0.12	0.00	0.02	0.00
1.50	0.18	0.00	0.05	0.00
2.00	0.23	0.00	0.09	0.00
2.50	0.30	0.00	0.14	0.00
3.00	0.36	0.00	0.20	0.00
3.50	0.43	0.00	0.26	0.00
4.00	0.51	0.00	0.33	0.00
4.50	0.59	0.00	0.40	0.00
5.00	0.67	0.01	0.48	0.00
5.50	0.75	0.02	0.55	0.00
6.00	0.84	0.04	0.64	0.00
6.50	0.93	0.06	0.73	0.01
7.00	1.05	0.10	0.84	0.01
7.50	1.17	0.14	0.96	0.01
8.00	1.30	0.19	1.09	0.01
8.50	1.47	0.27	1.25	0.01
9.00	1.70	0.39	1.48	0.01
9.50	2.03	0.58	1.81	0.02
10.00	3.46	1.60	3.22	0.10
10.50	3.91	1.97	3.68	0.04
11.00	4.18	2.19	3.95	0.02
11.50	4.40	2.38	4.16	0.01
12.00	4.59	2.54	4.35	0.01
12.50	4.76	2.68	4.52	0.01
13.00	4.91	2.82	4.68	0.01
13.50	5.05	2.93	4.81	0.01
14.00	5.17	3.04	4.93	0.01
14.50	5.28	3.13	5.04	0.01
15.00	5.38	3.23	5.14	0.01
15.50	5.48	3.32	5.25	0.01
16.00	5.58	3.41	5.35	0.01
16.50	5.68	3.49	5.44	0.01
17.00	5.77	3.57	5.53	0.01
17.50	5.86	3.65	5.62	0.01
18.00	5.95	3.73	5.71	0.01
18.50	6.03	3.81	5.79	0.01
19.00	6.11	3.88	5.87	0.01
19.50	6.18	3.95	5.94	0.00
20.00	6.25	4.01	6.02	0.00
20.50	6.32	4.07	6.08	0.00
21.00	6.39	4.13	6.15	0.00
21.50	6.45	4.19	6.21	0.00
22.00	6.51	4.24	6.27	0.00
22.50	6.56	4.29	6.33	0.00
23.00	6.62	4.34	6.38	0.00
23.50	6.66	4.39	6.43	0.00
24.00	6.71	4.43	6.47	0.00

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Subcatchment 20S: DMA 11

Runoff = 0.08 cfs @ 10.02 hrs, Volume= 0.012 af, Depth> 4.53"
Routed to Pond 26P : Offsite

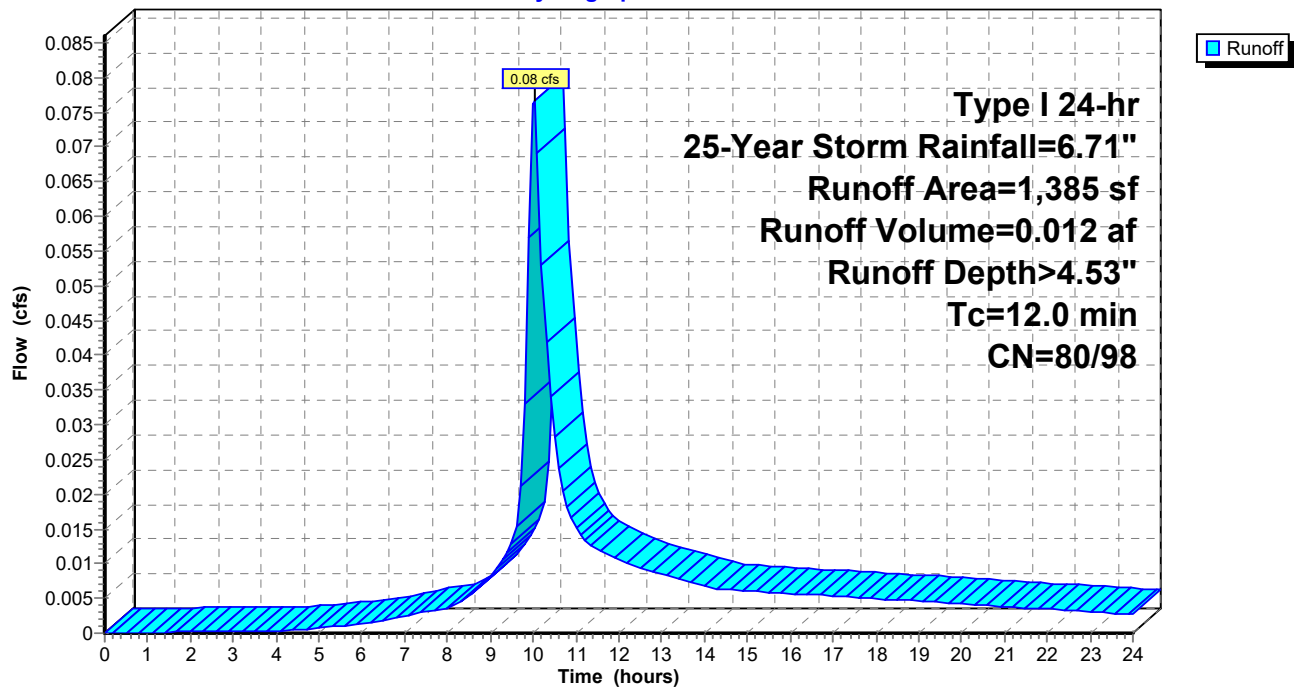
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 25-Year Storm Rainfall=6.71"

	Area (sf)	CN	Description
*	1,305	80	Pervious
*	80	98	Impervious
	1,385	81	Weighted Average
	1,305	80	94.22% Pervious Area
	80	98	5.78% Impervious Area

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

Subcatchment 20S: DMA 11

Hydrograph



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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Hydrograph for Subcatchment 20S: DMA 11

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.06	0.00	0.00	0.00
1.00	0.12	0.00	0.02	0.00
1.50	0.18	0.00	0.05	0.00
2.00	0.23	0.00	0.09	0.00
2.50	0.30	0.00	0.14	0.00
3.00	0.36	0.00	0.20	0.00
3.50	0.43	0.00	0.26	0.00
4.00	0.51	0.00	0.33	0.00
4.50	0.59	0.00	0.40	0.00
5.00	0.67	0.01	0.48	0.00
5.50	0.75	0.02	0.55	0.00
6.00	0.84	0.04	0.64	0.00
6.50	0.93	0.06	0.73	0.00
7.00	1.05	0.10	0.84	0.00
7.50	1.17	0.14	0.96	0.00
8.00	1.30	0.19	1.09	0.00
8.50	1.47	0.27	1.25	0.01
9.00	1.70	0.39	1.48	0.01
9.50	2.03	0.58	1.81	0.01
10.00	3.46	1.60	3.22	0.08
10.50	3.91	1.97	3.68	0.03
11.00	4.18	2.19	3.95	0.02
11.50	4.40	2.38	4.16	0.01
12.00	4.59	2.54	4.35	0.01
12.50	4.76	2.68	4.52	0.01
13.00	4.91	2.82	4.68	0.01
13.50	5.05	2.93	4.81	0.01
14.00	5.17	3.04	4.93	0.01
14.50	5.28	3.13	5.04	0.01
15.00	5.38	3.23	5.14	0.01
15.50	5.48	3.32	5.25	0.01
16.00	5.58	3.41	5.35	0.01
16.50	5.68	3.49	5.44	0.01
17.00	5.77	3.57	5.53	0.01
17.50	5.86	3.65	5.62	0.01
18.00	5.95	3.73	5.71	0.00
18.50	6.03	3.81	5.79	0.00
19.00	6.11	3.88	5.87	0.00
19.50	6.18	3.95	5.94	0.00
20.00	6.25	4.01	6.02	0.00
20.50	6.32	4.07	6.08	0.00
21.00	6.39	4.13	6.15	0.00
21.50	6.45	4.19	6.21	0.00
22.00	6.51	4.24	6.27	0.00
22.50	6.56	4.29	6.33	0.00
23.00	6.62	4.34	6.38	0.00
23.50	6.66	4.39	6.43	0.00
24.00	6.71	4.43	6.47	0.00

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Subcatchment 21S: DMA 12

Runoff = 0.33 cfs @ 10.02 hrs, Volume= 0.054 af, Depth> 6.07"

Routed to Pond 29P : Self Retaining - Permeable Pavers

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

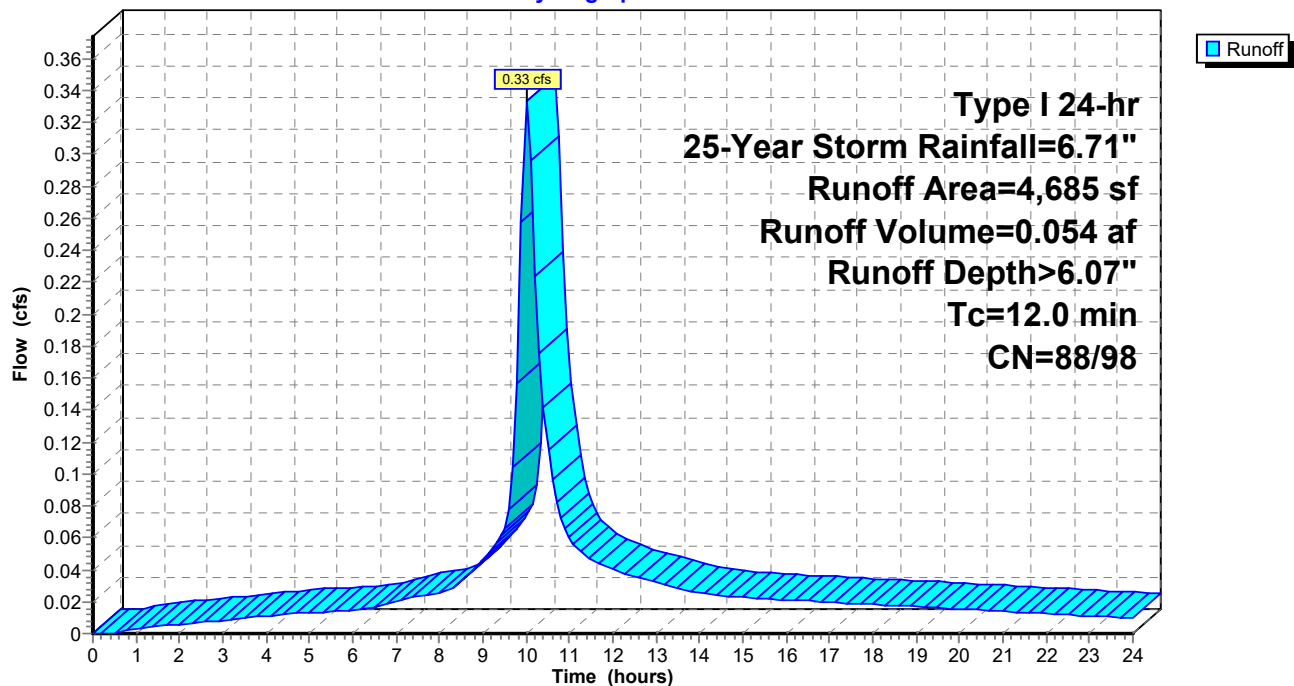
Type I 24-hr 25-Year Storm Rainfall=6.71"

	Area (sf)	CN	Description
*	3,140	98	Impervious
*	220	80	Pervious
*	1,325	89	Pavers
	4,685	95	Weighted Average
	1,545	88	32.98% Pervious Area
	3,140	98	67.02% Impervious Area

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

Subcatchment 21S: DMA 12

Hydrograph



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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Hydrograph for Subcatchment 21S: DMA 12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.06	0.00	0.00	0.00
1.00	0.12	0.00	0.02	0.00
1.50	0.18	0.00	0.05	0.00
2.00	0.23	0.00	0.09	0.01
2.50	0.30	0.00	0.14	0.01
3.00	0.36	0.01	0.20	0.01
3.50	0.43	0.02	0.26	0.01
4.00	0.51	0.04	0.33	0.01
4.50	0.59	0.06	0.40	0.01
5.00	0.67	0.09	0.48	0.01
5.50	0.75	0.13	0.55	0.01
6.00	0.84	0.17	0.64	0.01
6.50	0.93	0.22	0.73	0.02
7.00	1.05	0.28	0.84	0.02
7.50	1.17	0.36	0.96	0.02
8.00	1.30	0.44	1.09	0.02
8.50	1.47	0.56	1.25	0.03
9.00	1.70	0.73	1.48	0.05
9.50	2.03	0.99	1.81	0.07
10.00	3.46	2.23	3.22	0.33
10.50	3.91	2.65	3.68	0.12
11.00	4.18	2.90	3.95	0.06
11.50	4.40	3.10	4.16	0.05
12.00	4.59	3.28	4.35	0.04
12.50	4.76	3.44	4.52	0.04
13.00	4.91	3.59	4.68	0.03
13.50	5.05	3.71	4.81	0.03
14.00	5.17	3.83	4.93	0.03
14.50	5.28	3.93	5.04	0.02
15.00	5.38	4.03	5.14	0.02
15.50	5.48	4.13	5.25	0.02
16.00	5.58	4.22	5.35	0.02
16.50	5.68	4.32	5.44	0.02
17.00	5.77	4.41	5.53	0.02
17.50	5.86	4.49	5.62	0.02
18.00	5.95	4.57	5.71	0.02
18.50	6.03	4.65	5.79	0.02
19.00	6.11	4.73	5.87	0.02
19.50	6.18	4.80	5.94	0.02
20.00	6.25	4.87	6.02	0.02
20.50	6.32	4.94	6.08	0.01
21.00	6.39	5.00	6.15	0.01
21.50	6.45	5.06	6.21	0.01
22.00	6.51	5.12	6.27	0.01
22.50	6.56	5.17	6.33	0.01
23.00	6.62	5.22	6.38	0.01
23.50	6.66	5.27	6.43	0.01
24.00	6.71	5.31	6.47	0.01

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Summary for Subcatchment 22S: DMA 13

Runoff = 0.08 cfs @ 10.02 hrs, Volume= 0.013 af, Depth> 5.00"
Routed to Pond 26P : Offsite

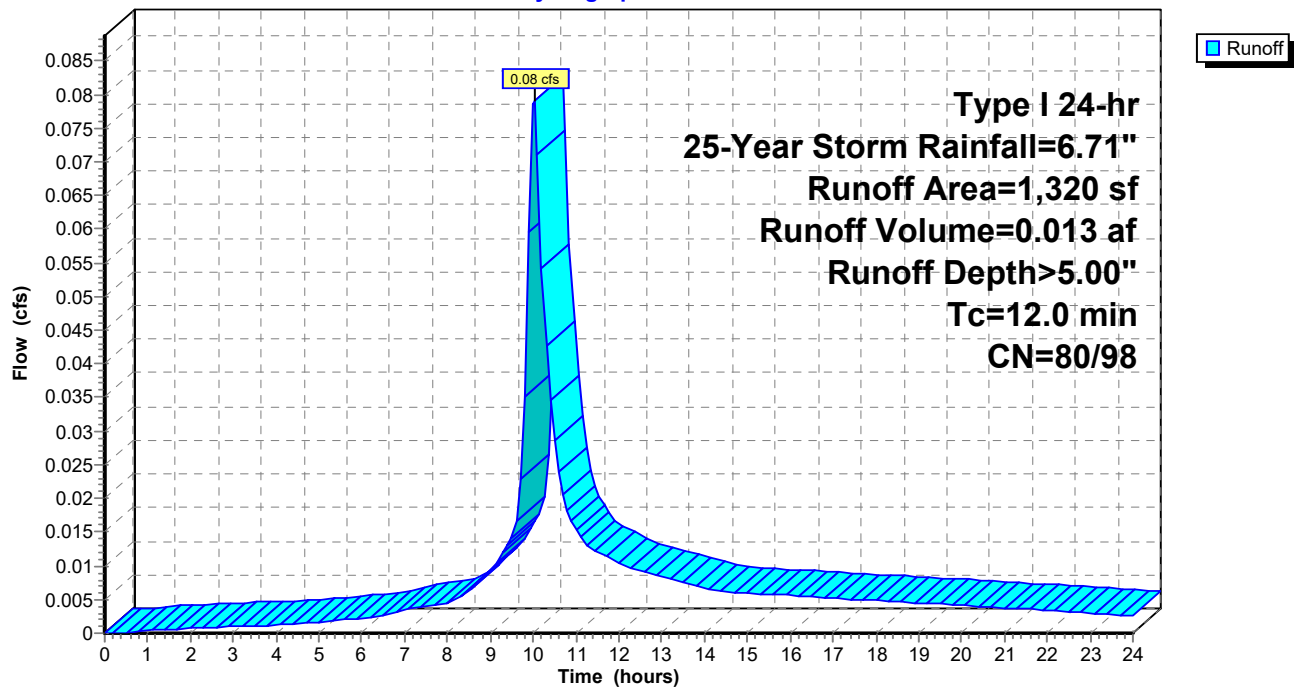
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 25-Year Storm Rainfall=6.71"

	Area (sf)	CN	Description
*	380	98	Impervious
*	940	80	Pervious
	1,320	85	Weighted Average
	940	80	71.21% Pervious Area
	380	98	28.79% Impervious Area

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

Subcatchment 22S: DMA 13

Hydrograph



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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Hydrograph for Subcatchment 22S: DMA 13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.06	0.00	0.00	0.00
1.00	0.12	0.00	0.02	0.00
1.50	0.18	0.00	0.05	0.00
2.00	0.23	0.00	0.09	0.00
2.50	0.30	0.00	0.14	0.00
3.00	0.36	0.00	0.20	0.00
3.50	0.43	0.00	0.26	0.00
4.00	0.51	0.00	0.33	0.00
4.50	0.59	0.00	0.40	0.00
5.00	0.67	0.01	0.48	0.00
5.50	0.75	0.02	0.55	0.00
6.00	0.84	0.04	0.64	0.00
6.50	0.93	0.06	0.73	0.00
7.00	1.05	0.10	0.84	0.00
7.50	1.17	0.14	0.96	0.00
8.00	1.30	0.19	1.09	0.00
8.50	1.47	0.27	1.25	0.01
9.00	1.70	0.39	1.48	0.01
9.50	2.03	0.58	1.81	0.01
10.00	3.46	1.60	3.22	0.08
10.50	3.91	1.97	3.68	0.03
11.00	4.18	2.19	3.95	0.02
11.50	4.40	2.38	4.16	0.01
12.00	4.59	2.54	4.35	0.01
12.50	4.76	2.68	4.52	0.01
13.00	4.91	2.82	4.68	0.01
13.50	5.05	2.93	4.81	0.01
14.00	5.17	3.04	4.93	0.01
14.50	5.28	3.13	5.04	0.01
15.00	5.38	3.23	5.14	0.01
15.50	5.48	3.32	5.25	0.01
16.00	5.58	3.41	5.35	0.01
16.50	5.68	3.49	5.44	0.01
17.00	5.77	3.57	5.53	0.01
17.50	5.86	3.65	5.62	0.01
18.00	5.95	3.73	5.71	0.00
18.50	6.03	3.81	5.79	0.00
19.00	6.11	3.88	5.87	0.00
19.50	6.18	3.95	5.94	0.00
20.00	6.25	4.01	6.02	0.00
20.50	6.32	4.07	6.08	0.00
21.00	6.39	4.13	6.15	0.00
21.50	6.45	4.19	6.21	0.00
22.00	6.51	4.24	6.27	0.00
22.50	6.56	4.29	6.33	0.00
23.00	6.62	4.34	6.38	0.00
23.50	6.66	4.39	6.43	0.00
24.00	6.71	4.43	6.47	0.00

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Subcatchment 23S: DMA 3, 5, 6, 8

Runoff = 3.03 cfs @ 10.02 hrs, Volume= 0.491 af, Depth> 5.99"

Routed to Pond 11P : Self Retaining - Permeable Pavers

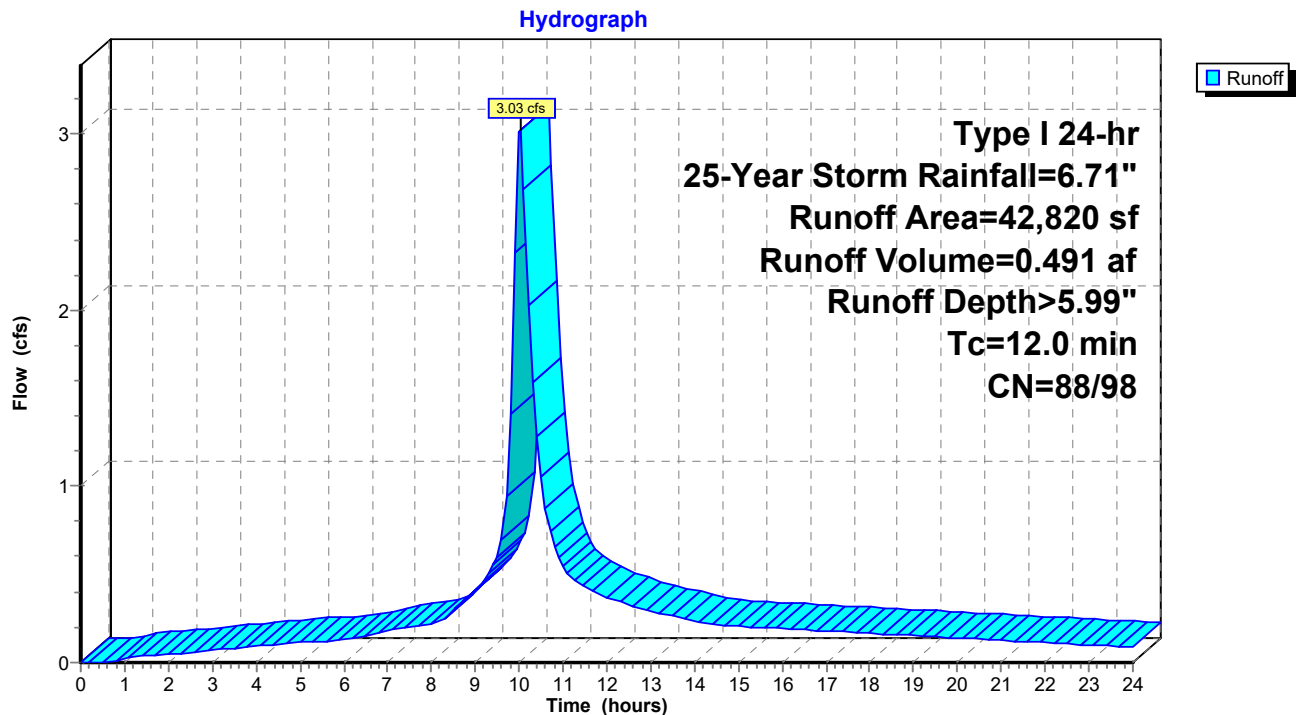
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Type I 24-hr 25-Year Storm Rainfall=6.71"

	Area (sf)	CN	Description
*	25,761	98	Impervious
*	2,165	80	Pervious
*	14,894	89	Pavers
	42,820	94	Weighted Average
	17,059	88	39.84% Pervious Area
	25,761	98	60.16% Impervious Area

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

Subcatchment 23S: DMA 3, 5, 6, 8



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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Hydrograph for Subcatchment 23S: DMA 3, 5, 6, 8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.06	0.00	0.00	0.00
1.00	0.12	0.00	0.02	0.02
1.50	0.18	0.00	0.05	0.04
2.00	0.23	0.00	0.09	0.05
2.50	0.30	0.00	0.14	0.06
3.00	0.36	0.01	0.20	0.07
3.50	0.43	0.02	0.26	0.08
4.00	0.51	0.04	0.33	0.10
4.50	0.59	0.06	0.40	0.11
5.00	0.67	0.09	0.48	0.11
5.50	0.75	0.13	0.55	0.12
6.00	0.84	0.17	0.64	0.13
6.50	0.93	0.22	0.73	0.15
7.00	1.05	0.28	0.84	0.18
7.50	1.17	0.36	0.96	0.20
8.00	1.30	0.44	1.09	0.22
8.50	1.47	0.56	1.25	0.29
9.00	1.70	0.73	1.48	0.41
9.50	2.03	0.99	1.81	0.60
10.00	3.46	2.23	3.22	3.01
10.50	3.91	2.65	3.68	1.05
11.00	4.18	2.90	3.95	0.55
11.50	4.40	3.10	4.16	0.43
12.00	4.59	3.28	4.35	0.37
12.50	4.76	3.44	4.52	0.33
13.00	4.91	3.59	4.68	0.30
13.50	5.05	3.71	4.81	0.26
14.00	5.17	3.83	4.93	0.23
14.50	5.28	3.93	5.04	0.21
15.00	5.38	4.03	5.14	0.21
15.50	5.48	4.13	5.25	0.20
16.00	5.58	4.22	5.35	0.19
16.50	5.68	4.32	5.44	0.19
17.00	5.77	4.41	5.53	0.18
17.50	5.86	4.49	5.62	0.17
18.00	5.95	4.57	5.71	0.17
18.50	6.03	4.65	5.79	0.16
19.00	6.11	4.73	5.87	0.15
19.50	6.18	4.80	5.94	0.15
20.00	6.25	4.87	6.02	0.14
20.50	6.32	4.94	6.08	0.13
21.00	6.39	5.00	6.15	0.13
21.50	6.45	5.06	6.21	0.12
22.00	6.51	5.12	6.27	0.11
22.50	6.56	5.17	6.33	0.11
23.00	6.62	5.22	6.38	0.10
23.50	6.66	5.27	6.43	0.10
24.00	6.71	5.31	6.47	0.09

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Subcatchment 25S: DMA 14

Runoff = 0.05 cfs @ 10.02 hrs, Volume= 0.008 af, Depth> 4.41"
Routed to Pond 26P : Offsite

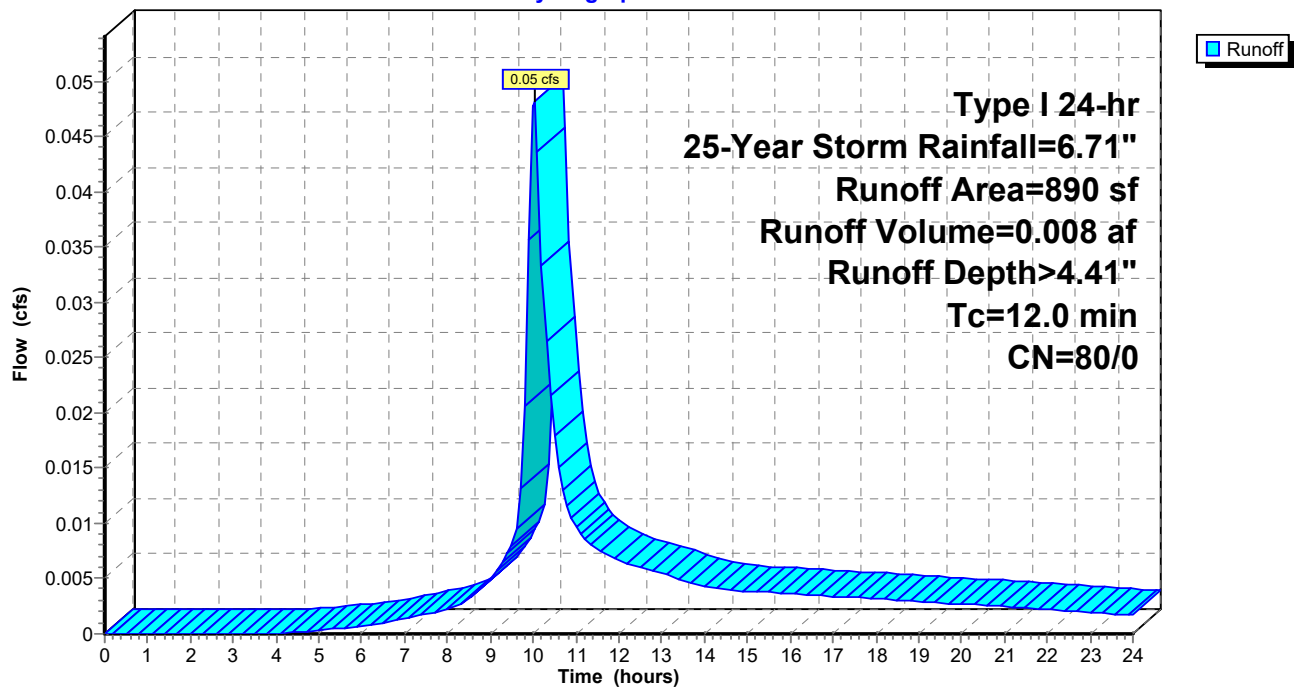
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 25-Year Storm Rainfall=6.71"

	Area (sf)	CN	Description
*	890	80	Pervious
	890	80	100.00% Pervious Area

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

Subcatchment 25S: DMA 14

Hydrograph



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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Hydrograph for Subcatchment 25S: DMA 14

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.06	0.00	0.00	0.00
1.00	0.12	0.00	0.00	0.00
1.50	0.18	0.00	0.00	0.00
2.00	0.23	0.00	0.00	0.00
2.50	0.30	0.00	0.00	0.00
3.00	0.36	0.00	0.00	0.00
3.50	0.43	0.00	0.00	0.00
4.00	0.51	0.00	0.00	0.00
4.50	0.59	0.00	0.00	0.00
5.00	0.67	0.01	0.00	0.00
5.50	0.75	0.02	0.00	0.00
6.00	0.84	0.04	0.00	0.00
6.50	0.93	0.06	0.00	0.00
7.00	1.05	0.10	0.00	0.00
7.50	1.17	0.14	0.00	0.00
8.00	1.30	0.19	0.00	0.00
8.50	1.47	0.27	0.00	0.00
9.00	1.70	0.39	0.00	0.00
9.50	2.03	0.58	0.00	0.01
10.00	3.46	1.60	0.00	0.05
10.50	3.91	1.97	0.00	0.02
11.00	4.18	2.19	0.00	0.01
11.50	4.40	2.38	0.00	0.01
12.00	4.59	2.54	0.00	0.01
12.50	4.76	2.68	0.00	0.01
13.00	4.91	2.82	0.00	0.01
13.50	5.05	2.93	0.00	0.00
14.00	5.17	3.04	0.00	0.00
14.50	5.28	3.13	0.00	0.00
15.00	5.38	3.23	0.00	0.00
15.50	5.48	3.32	0.00	0.00
16.00	5.58	3.41	0.00	0.00
16.50	5.68	3.49	0.00	0.00
17.00	5.77	3.57	0.00	0.00
17.50	5.86	3.65	0.00	0.00
18.00	5.95	3.73	0.00	0.00
18.50	6.03	3.81	0.00	0.00
19.00	6.11	3.88	0.00	0.00
19.50	6.18	3.95	0.00	0.00
20.00	6.25	4.01	0.00	0.00
20.50	6.32	4.07	0.00	0.00
21.00	6.39	4.13	0.00	0.00
21.50	6.45	4.19	0.00	0.00
22.00	6.51	4.24	0.00	0.00
22.50	6.56	4.29	0.00	0.00
23.00	6.62	4.34	0.00	0.00
23.50	6.66	4.39	0.00	0.00
24.00	6.71	4.43	0.00	0.00

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Subcatchment 28S: DMA 4 & 9

Runoff = 0.16 cfs @ 10.02 hrs, Volume= 0.025 af, Depth> 4.56"
Routed to Pond 27P : Self Retaining - Landscape

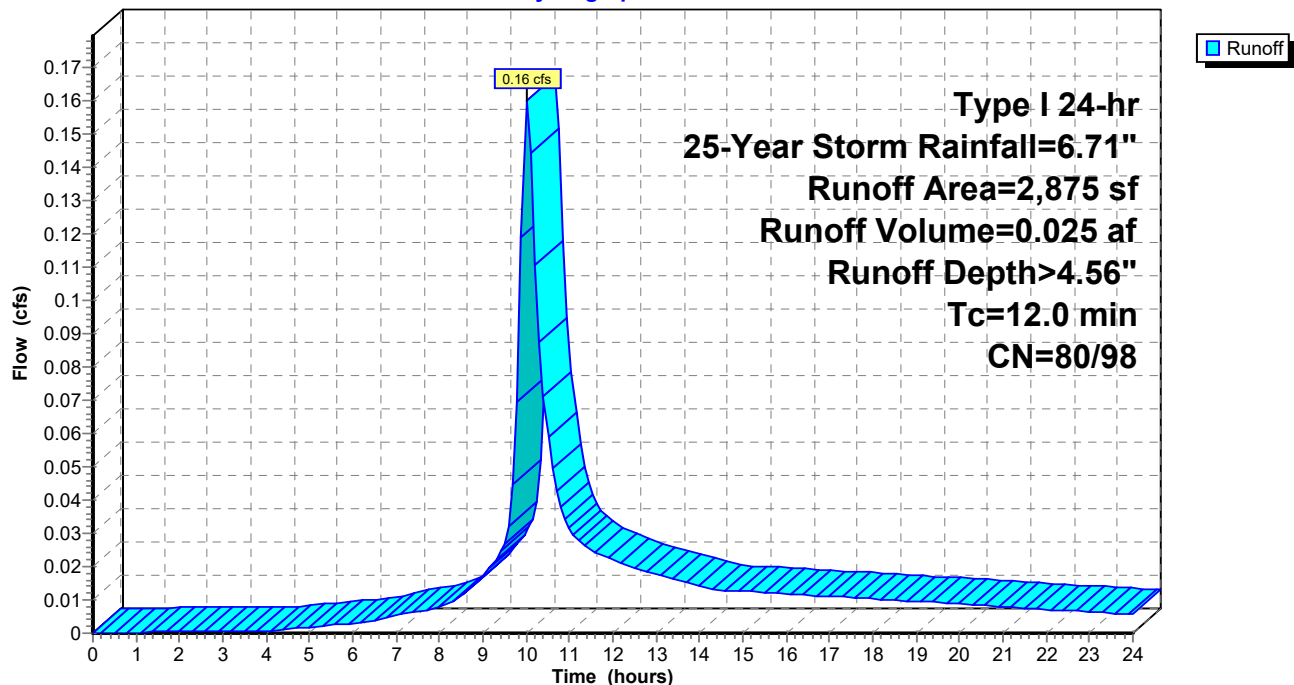
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 25-Year Storm Rainfall=6.71"

	Area (sf)	CN	Description
*	2,665	80	Pervious Area
*	210	98	Impervious Area
	2,875	81	Weighted Average
	2,665	80	92.70% Pervious Area
	210	98	7.30% Impervious Area

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

Subcatchment 28S: DMA 4 & 9

Hydrograph



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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Hydrograph for Subcatchment 28S: DMA 4 & 9

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.06	0.00	0.00	0.00
1.00	0.12	0.00	0.02	0.00
1.50	0.18	0.00	0.05	0.00
2.00	0.23	0.00	0.09	0.00
2.50	0.30	0.00	0.14	0.00
3.00	0.36	0.00	0.20	0.00
3.50	0.43	0.00	0.26	0.00
4.00	0.51	0.00	0.33	0.00
4.50	0.59	0.00	0.40	0.00
5.00	0.67	0.01	0.48	0.00
5.50	0.75	0.02	0.55	0.00
6.00	0.84	0.04	0.64	0.00
6.50	0.93	0.06	0.73	0.00
7.00	1.05	0.10	0.84	0.01
7.50	1.17	0.14	0.96	0.01
8.00	1.30	0.19	1.09	0.01
8.50	1.47	0.27	1.25	0.01
9.00	1.70	0.39	1.48	0.02
9.50	2.03	0.58	1.81	0.03
10.00	3.46	1.60	3.22	0.16
10.50	3.91	1.97	3.68	0.06
11.00	4.18	2.19	3.95	0.03
11.50	4.40	2.38	4.16	0.03
12.00	4.59	2.54	4.35	0.02
12.50	4.76	2.68	4.52	0.02
13.00	4.91	2.82	4.68	0.02
13.50	5.05	2.93	4.81	0.02
14.00	5.17	3.04	4.93	0.01
14.50	5.28	3.13	5.04	0.01
15.00	5.38	3.23	5.14	0.01
15.50	5.48	3.32	5.25	0.01
16.00	5.58	3.41	5.35	0.01
16.50	5.68	3.49	5.44	0.01
17.00	5.77	3.57	5.53	0.01
17.50	5.86	3.65	5.62	0.01
18.00	5.95	3.73	5.71	0.01
18.50	6.03	3.81	5.79	0.01
19.00	6.11	3.88	5.87	0.01
19.50	6.18	3.95	5.94	0.01
20.00	6.25	4.01	6.02	0.01
20.50	6.32	4.07	6.08	0.01
21.00	6.39	4.13	6.15	0.01
21.50	6.45	4.19	6.21	0.01
22.00	6.51	4.24	6.27	0.01
22.50	6.56	4.29	6.33	0.01
23.00	6.62	4.34	6.38	0.01
23.50	6.66	4.39	6.43	0.01
24.00	6.71	4.43	6.47	0.01

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Pond 8P: Bioretention Basin (SCM-1)

Inflow Area = 0.690 ac, 52.67% Impervious, Inflow Depth > 5.54" for 25-Year Storm event
 Inflow = 1.97 cfs @ 10.02 hrs, Volume= 0.318 af
 Outflow = 0.92 cfs @ 10.36 hrs, Volume= 0.279 af, Atten= 53%, Lag= 20.7 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.92 cfs @ 10.36 hrs, Volume= 0.279 af
 Routed to Pond 26P : Offsite
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2
 Peak Elev= 74.70' @ 10.36 hrs Surf.Area= 2,298 sf Storage= 3,543 cf

Plug-Flow detention time= 145.2 min calculated for 0.278 af (87% of inflow)
 Center-of-Mass det. time= 72.3 min (800.3 - 728.0)

Volume	Invert	Avail.Storage	Storage Description	
#1	68.99'	4,276 cf	Custom Stage Data (Prismatic) Listed below (Recalc) x 0.75	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.99	1,370	0.0	0	0
69.00	1,370	40.0	5	5
71.50	1,370	40.0	1,370	1,375
73.50	1,370	25.0	685	2,060
75.00	3,485	100.0	3,641	5,702

Device	Routing	Invert	Outlet Devices
#1	Device 3	73.25'	15.0" Round 15" Culvert L= 250.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.25' / 70.70' S= 0.0102 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#2	Secondary	74.99'	70.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Primary	73.50'	6.0" Vert. Orifice/Culvert C= 0.600 Limited to weir flow at low heads
#4	Device 1	70.60'	12.5" W x 3.0" H Vert. curb outlet C= 0.600 Limited to weir flow at low heads
#5	Discarded	68.99'	0.380 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=68.99' (Free Discharge)

↑ **5=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.92 cfs @ 10.36 hrs HW=74.70' (Free Discharge)

↑ **3=Orifice/Culvert** (Orifice Controls 0.92 cfs @ 4.69 fps)

↑ **1=15" Culvert** (Passes 0.92 cfs of 4.86 cfs potential flow)

↑ **4=curb outlet** (Passes 0.92 cfs of 1.37 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=68.99' (Free Discharge)

↑ **2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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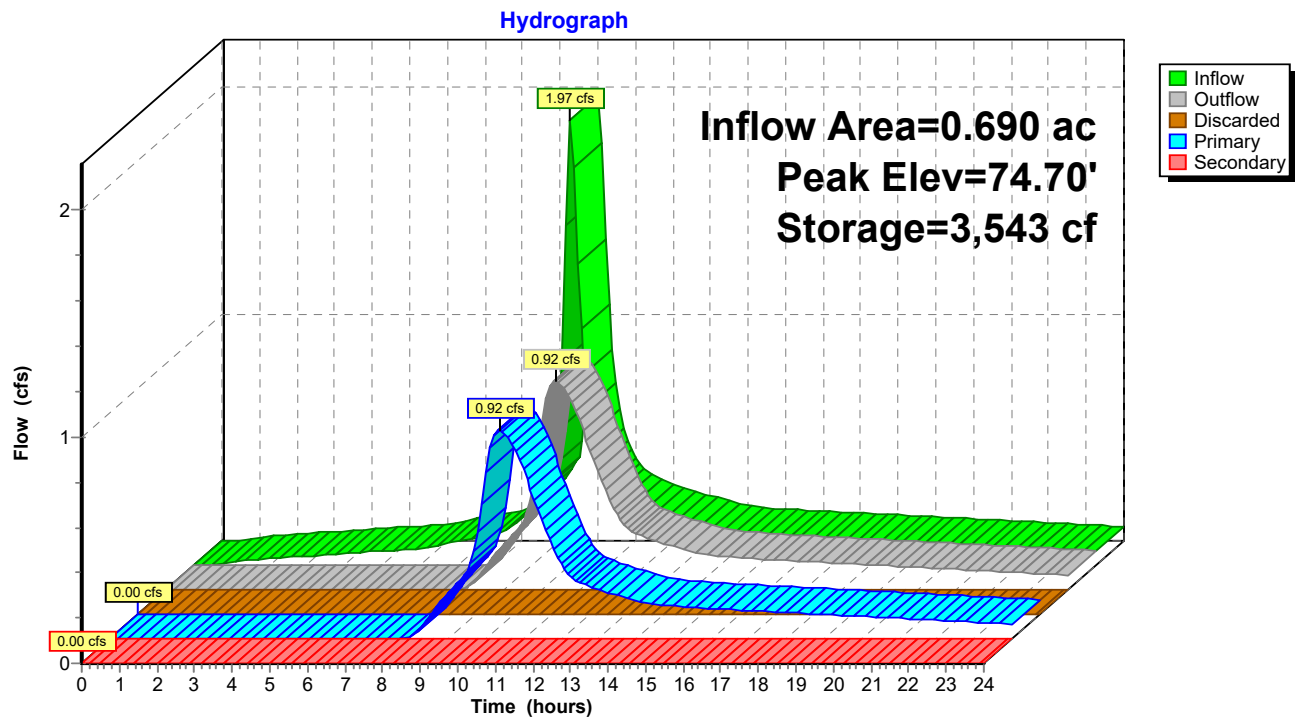
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Pond 8P: Bioretention Basin (SCM-1)



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Hydrograph for Pond 8P: Bioretention Basin (SCM-1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	68.99	0.00	0.00	0.00	0.00
0.50	0.00	0	68.99	0.00	0.00	0.00	0.00
1.00	0.01	14	69.02	0.00	0.00	0.00	0.00
1.50	0.02	49	69.11	0.00	0.00	0.00	0.00
2.00	0.03	98	69.23	0.00	0.00	0.00	0.00
2.50	0.03	156	69.37	0.00	0.00	0.00	0.00
3.00	0.04	223	69.53	0.00	0.00	0.00	0.00
3.50	0.05	300	69.72	0.00	0.00	0.00	0.00
4.00	0.05	386	69.93	0.00	0.00	0.00	0.00
4.50	0.06	483	70.16	0.00	0.00	0.00	0.00
5.00	0.06	590	70.43	0.00	0.00	0.00	0.00
5.50	0.07	706	70.71	0.00	0.00	0.00	0.00
6.00	0.07	832	71.01	0.00	0.00	0.00	0.00
6.50	0.08	972	71.35	0.00	0.00	0.00	0.00
7.00	0.10	1,142	71.93	0.00	0.00	0.00	0.00
7.50	0.12	1,346	72.72	0.00	0.00	0.00	0.00
8.00	0.13	1,571	73.52	0.00	0.00	0.00	0.00
8.50	0.18	1,755	73.69	0.10	0.00	0.10	0.00
9.00	0.25	1,870	73.78	0.20	0.00	0.20	0.00
9.50	0.37	1,977	73.85	0.30	0.00	0.30	0.00
10.00	1.95	2,807	74.35	0.73	0.00	0.73	0.00
10.50	0.69	3,486	74.68	0.91	0.00	0.91	0.00
11.00	0.37	2,854	74.38	0.75	0.00	0.75	0.00
11.50	0.29	2,280	74.06	0.52	0.00	0.52	0.00
12.00	0.25	2,005	73.88	0.33	0.00	0.33	0.00
12.50	0.22	1,921	73.81	0.25	0.00	0.25	0.00
13.00	0.20	1,886	73.79	0.22	0.00	0.22	0.00
13.50	0.18	1,861	73.77	0.19	0.00	0.19	0.00
14.00	0.16	1,837	73.75	0.17	0.00	0.17	0.00
14.50	0.14	1,818	73.74	0.15	0.00	0.15	0.00
15.00	0.14	1,809	73.73	0.14	0.00	0.14	0.00
15.50	0.14	1,802	73.72	0.14	0.00	0.14	0.00
16.00	0.13	1,797	73.72	0.13	0.00	0.13	0.00
16.50	0.13	1,792	73.72	0.13	0.00	0.13	0.00
17.00	0.12	1,787	73.71	0.13	0.00	0.13	0.00
17.50	0.12	1,782	73.71	0.12	0.00	0.12	0.00
18.00	0.11	1,777	73.70	0.12	0.00	0.12	0.00
18.50	0.11	1,771	73.70	0.11	0.00	0.11	0.00
19.00	0.11	1,766	73.70	0.11	0.00	0.11	0.00
19.50	0.10	1,761	73.69	0.10	0.00	0.10	0.00
20.00	0.10	1,756	73.69	0.10	0.00	0.10	0.00
20.50	0.09	1,751	73.68	0.09	0.00	0.09	0.00
21.00	0.09	1,745	73.68	0.09	0.00	0.09	0.00
21.50	0.08	1,740	73.67	0.09	0.00	0.09	0.00
22.00	0.08	1,733	73.67	0.08	0.00	0.08	0.00
22.50	0.07	1,727	73.66	0.08	0.00	0.08	0.00
23.00	0.07	1,721	73.66	0.07	0.00	0.07	0.00
23.50	0.07	1,714	73.65	0.07	0.00	0.07	0.00
24.00	0.06	1,708	73.65	0.06	0.00	0.06	0.00

22027_DRAINAGE

Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Pond 11P: Self Retaining - Permeable Pavers

Inflow Area = 1.049 ac, 56.84% Impervious, Inflow Depth > 5.61" for 25-Year Storm event
 Inflow = 3.03 cfs @ 10.02 hrs, Volume= 0.491 af
 Outflow = 0.37 cfs @ 12.00 hrs, Volume= 0.225 af, Atten= 88%, Lag= 119.2 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.37 cfs @ 12.00 hrs, Volume= 0.225 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 73.05' @ 12.00 hrs Surf.Area= 15,055 sf Storage= 12,324 cf

Plug-Flow detention time= 451.9 min calculated for 0.225 af (46% of inflow)
 Center-of-Mass det. time= 247.9 min (963.3 - 715.5)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	13,851 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 34,626 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	15,055	0	0
73.30	15,055	34,626	34,626

Device	Routing	Invert	Outlet Devices
#1	Primary	72.80'	4.0" Round Culvert X 4.00 L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 72.80' / 72.54' S= 0.0052 ' S= 0.0052 ' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	71.00'	0.890 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.37 cfs @ 12.00 hrs HW=73.05' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 0.37 cfs @ 1.86 fps)

22027_DRAINAGE

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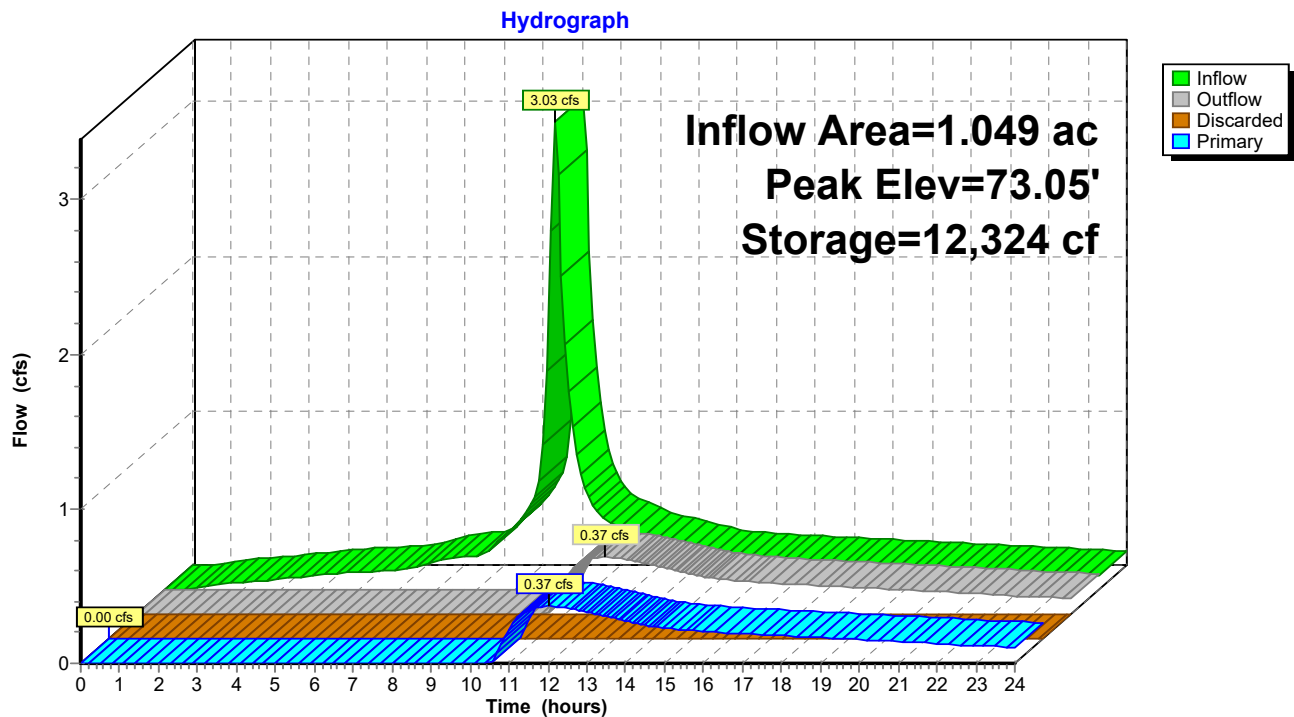
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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Pond 11P: Self Retaining - Permeable Pavers



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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Hydrograph for Pond 11P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	71.00	0.00	0.00	0.00
0.50	0.00	0	71.00	0.00	0.00	0.00
1.00	0.02	22	71.00	0.00	0.00	0.00
1.50	0.04	79	71.01	0.00	0.00	0.00
2.00	0.05	159	71.03	0.00	0.00	0.00
2.50	0.06	253	71.04	0.00	0.00	0.00
3.00	0.07	367	71.06	0.00	0.00	0.00
3.50	0.08	504	71.08	0.00	0.00	0.00
4.00	0.10	665	71.11	0.00	0.00	0.00
4.50	0.11	847	71.14	0.00	0.00	0.00
5.00	0.11	1,046	71.17	0.00	0.00	0.00
5.50	0.12	1,258	71.21	0.00	0.00	0.00
6.00	0.13	1,484	71.25	0.00	0.00	0.00
6.50	0.15	1,730	71.29	0.00	0.00	0.00
7.00	0.18	2,028	71.34	0.00	0.00	0.00
7.50	0.20	2,378	71.39	0.00	0.00	0.00
8.00	0.22	2,761	71.46	0.00	0.00	0.00
8.50	0.29	3,206	71.53	0.00	0.00	0.00
9.00	0.41	3,842	71.64	0.00	0.00	0.00
9.50	0.60	4,736	71.79	0.00	0.00	0.00
10.00	3.01	7,323	72.22	0.00	0.00	0.00
10.50	1.05	10,786	72.79	0.00	0.00	0.00
11.00	0.55	11,936	72.98	0.22	0.00	0.22
11.50	0.43	12,260	73.04	0.34	0.00	0.34
12.00	0.37	12,324	73.05	0.37	0.00	0.37
12.50	0.33	12,292	73.04	0.36	0.00	0.36
13.00	0.30	12,232	73.03	0.33	0.00	0.33
13.50	0.26	12,160	73.02	0.31	0.00	0.31
14.00	0.23	12,083	73.01	0.28	0.00	0.28
14.50	0.21	12,010	72.99	0.25	0.00	0.25
15.00	0.21	11,958	72.99	0.23	0.00	0.23
15.50	0.20	11,923	72.98	0.22	0.00	0.22
16.00	0.19	11,896	72.98	0.21	0.00	0.21
16.50	0.19	11,873	72.97	0.20	0.00	0.20
17.00	0.18	11,852	72.97	0.19	0.00	0.19
17.50	0.17	11,832	72.96	0.18	0.00	0.18
18.00	0.17	11,812	72.96	0.18	0.00	0.18
18.50	0.16	11,793	72.96	0.17	0.00	0.17
19.00	0.15	11,774	72.96	0.16	0.00	0.16
19.50	0.15	11,754	72.95	0.16	0.00	0.16
20.00	0.14	11,734	72.95	0.15	0.00	0.15
20.50	0.13	11,714	72.95	0.15	0.00	0.15
21.00	0.13	11,693	72.94	0.14	0.00	0.14
21.50	0.12	11,672	72.94	0.13	0.00	0.13
22.00	0.11	11,651	72.93	0.13	0.00	0.13
22.50	0.11	11,630	72.93	0.12	0.00	0.12
23.00	0.10	11,608	72.93	0.11	0.00	0.11
23.50	0.10	11,585	72.92	0.11	0.00	0.11
24.00	0.09	11,562	72.92	0.10	0.00	0.10

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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Pond 26P: Offsite

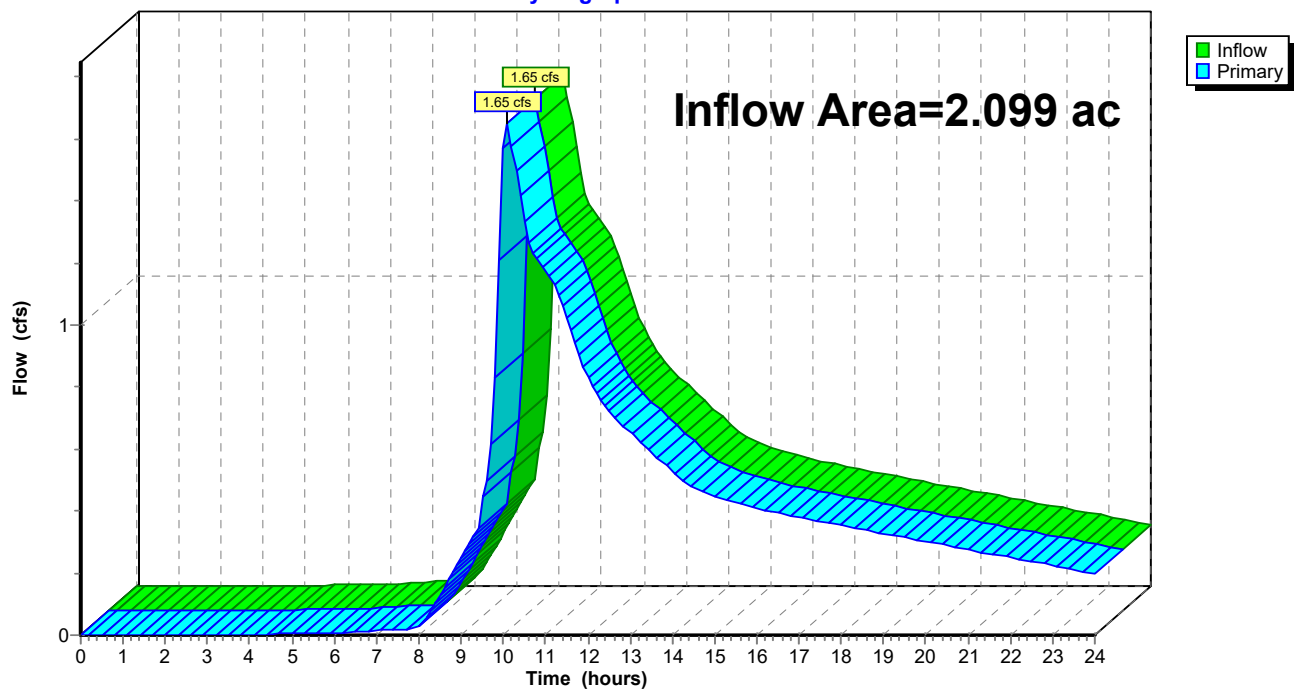
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.099 ac, 52.61% Impervious, Inflow Depth > 3.68" for 25-Year Storm event
Inflow = 1.65 cfs @ 10.10 hrs, Volume= 0.643 af
Primary = 1.65 cfs @ 10.10 hrs, Volume= 0.643 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Pond 26P: Offsite

Hydrograph



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Hydrograph for Pond 26P: Offsite

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	0.00		0.00
1.50	0.00		0.00
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.00		0.00
5.00	0.00		0.00
5.50	0.01		0.01
6.00	0.01		0.01
6.50	0.01		0.01
7.00	0.01		0.01
7.50	0.02		0.02
8.00	0.03		0.03
8.50	0.13		0.13
9.00	0.25		0.25
9.50	0.44		0.44
10.00	1.57		1.57
10.50	1.33		1.33
11.00	1.18		1.18
11.50	1.02		1.02
12.00	0.83		0.83
12.50	0.72		0.72
13.00	0.65		0.65
13.50	0.59		0.59
14.00	0.53		0.53
14.50	0.48		0.48
15.00	0.45		0.45
15.50	0.42		0.42
16.00	0.41		0.41
16.50	0.39		0.39
17.00	0.38		0.38
17.50	0.37		0.37
18.00	0.35		0.35
18.50	0.34		0.34
19.00	0.33		0.33
19.50	0.31		0.31
20.00	0.30		0.30
20.50	0.29		0.29
21.00	0.28		0.28
21.50	0.26		0.26
22.00	0.25		0.25
22.50	0.24		0.24
23.00	0.22		0.22
23.50	0.21		0.21
24.00	0.20		0.20

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Summary for Pond 27P: Self Retaining - Landcape

Inflow Area = 0.066 ac, 7.30% Impervious, Inflow Depth > 4.56" for 25-Year Storm event
 Inflow = 0.16 cfs @ 10.02 hrs, Volume= 0.025 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 72.52' @ 24.00 hrs Surf.Area= 2,875 sf Storage= 1,092 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	1,653 cf	soil (Prismatic) Listed below (Recalc) 6,612 cf Overall x 25.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	2,875	0	0
73.30	2,875	6,612	6,612

Device	Routing	Invert	Outlet Devices
#1	Discarded	71.00'	1.010 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)↑**1=Exfiltration** (Controls 0.00 cfs)

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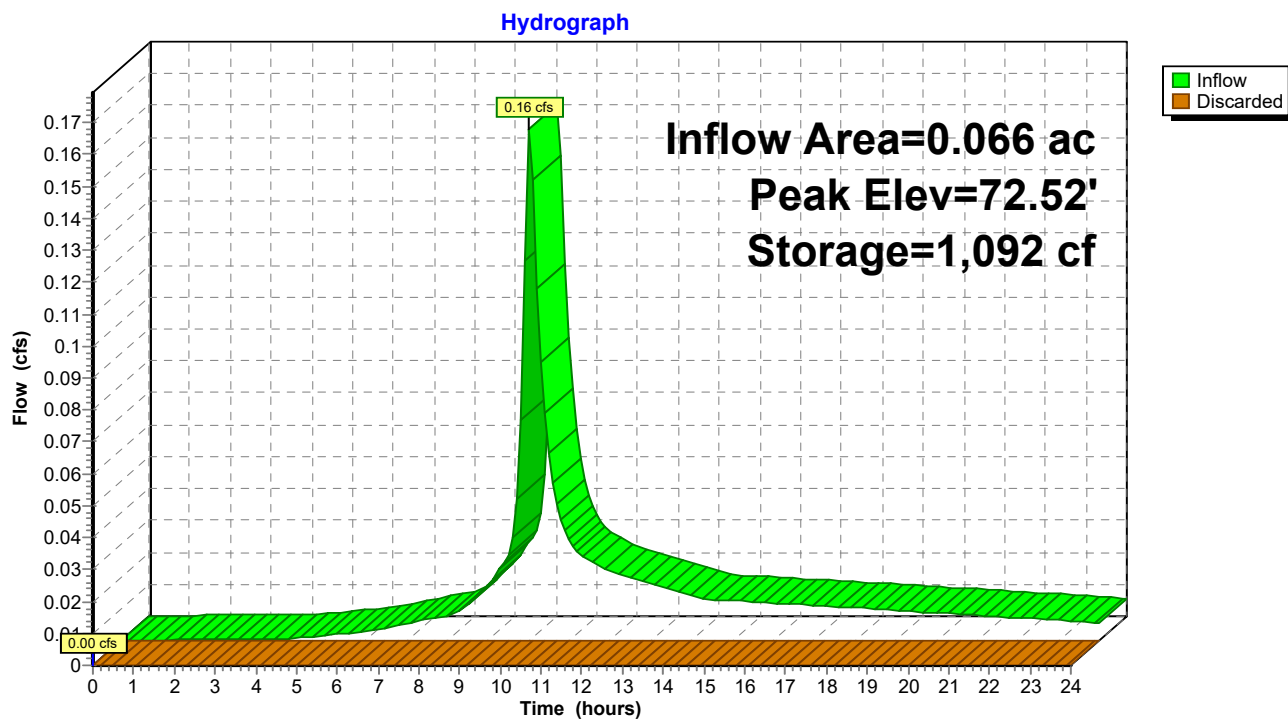
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Pond 27P: Self Retaining - Landscape



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Hydrograph for Pond 27P: Self Retaining - Landscape

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	71.00	0.00
0.50	0.00	0	71.00	0.00
1.00	0.00	0	71.00	0.00
1.50	0.00	1	71.00	0.00
2.00	0.00	1	71.00	0.00
2.50	0.00	2	71.00	0.00
3.00	0.00	3	71.00	0.00
3.50	0.00	4	71.01	0.00
4.00	0.00	5	71.01	0.00
4.50	0.00	7	71.01	0.00
5.00	0.00	9	71.01	0.00
5.50	0.00	13	71.02	0.00
6.00	0.00	17	71.02	0.00
6.50	0.00	23	71.03	0.00
7.00	0.01	32	71.04	0.00
7.50	0.01	42	71.06	0.00
8.00	0.01	55	71.08	0.00
8.50	0.01	72	71.10	0.00
9.00	0.02	97	71.13	0.00
9.50	0.03	136	71.19	0.00
10.00	0.16	265	71.37	0.00
10.50	0.06	453	71.63	0.00
11.00	0.03	528	71.73	0.00
11.50	0.03	578	71.80	0.00
12.00	0.02	620	71.86	0.00
12.50	0.02	658	71.91	0.00
13.00	0.02	691	71.96	0.00
13.50	0.02	722	72.00	0.00
14.00	0.01	749	72.04	0.00
14.50	0.01	773	72.08	0.00
15.00	0.01	796	72.11	0.00
15.50	0.01	818	72.14	0.00
16.00	0.01	840	72.17	0.00
16.50	0.01	861	72.20	0.00
17.00	0.01	881	72.23	0.00
17.50	0.01	900	72.25	0.00
18.00	0.01	919	72.28	0.00
18.50	0.01	938	72.30	0.00
19.00	0.01	955	72.33	0.00
19.50	0.01	972	72.35	0.00
20.00	0.01	988	72.37	0.00
20.50	0.01	1,004	72.40	0.00
21.00	0.01	1,018	72.42	0.00
21.50	0.01	1,032	72.44	0.00
22.00	0.01	1,046	72.45	0.00
22.50	0.01	1,058	72.47	0.00
23.00	0.01	1,070	72.49	0.00
23.50	0.01	1,081	72.50	0.00
24.00	0.01	1,092	72.52	0.00

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Summary for Pond 29P: Self Retaining - Permeable Pavers

Inflow Area = 0.108 ac, 67.02% Impervious, Inflow Depth > 6.07" for 25-Year Storm event
 Inflow = 0.33 cfs @ 10.02 hrs, Volume= 0.054 af
 Outflow = 0.23 cfs @ 10.21 hrs, Volume= 0.041 af, Atten= 32%, Lag= 11.8 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.23 cfs @ 10.21 hrs, Volume= 0.041 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 71.86' @ 10.21 hrs Surf.Area= 1,325 sf Storage= 771 cf

Plug-Flow detention time= 229.7 min calculated for 0.041 af (76% of inflow)
 Center-of-Mass det. time= 105.4 min (817.3 - 711.9)

Volume	Invert	Avail.Storage	Storage Description
#1	70.40'	1,060 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,650 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.40	1,325	0	0
72.40	1,325	2,650	2,650

Device	Routing	Invert	Outlet Devices
#1	Primary	71.40'	4.0" Round Culvert L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.40' / 70.60' S= 0.0160 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	70.40'	0.080 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=70.40' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.22 cfs @ 10.21 hrs HW=71.85' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 0.22 cfs @ 2.57 fps)

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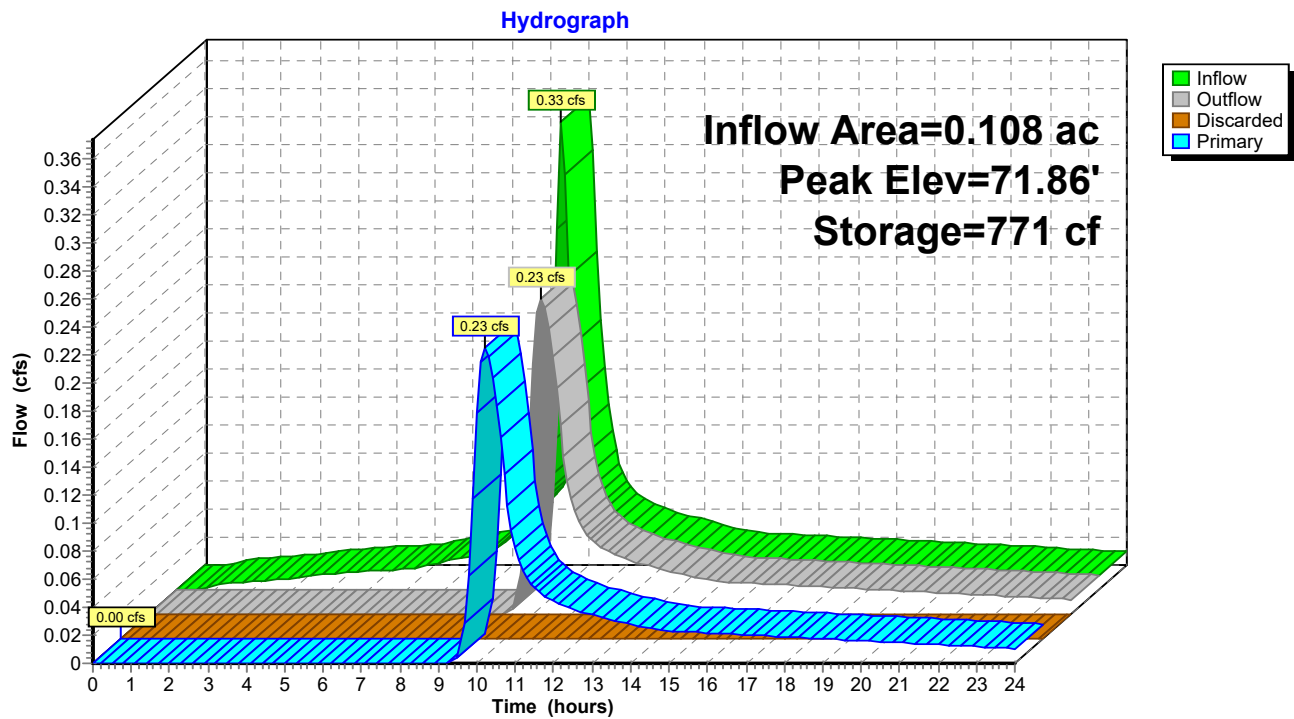
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Pond 29P: Self Retaining - Permeable Pavers



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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Hydrograph for Pond 29P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	70.40	0.00	0.00	0.00
0.50	0.00	0	70.40	0.00	0.00	0.00
1.00	0.00	3	70.41	0.00	0.00	0.00
1.50	0.00	10	70.42	0.00	0.00	0.00
2.00	0.01	19	70.44	0.00	0.00	0.00
2.50	0.01	31	70.46	0.00	0.00	0.00
3.00	0.01	45	70.48	0.00	0.00	0.00
3.50	0.01	61	70.52	0.00	0.00	0.00
4.00	0.01	80	70.55	0.00	0.00	0.00
4.50	0.01	101	70.59	0.00	0.00	0.00
5.00	0.01	124	70.63	0.00	0.00	0.00
5.50	0.01	149	70.68	0.00	0.00	0.00
6.00	0.01	174	70.73	0.00	0.00	0.00
6.50	0.02	202	70.78	0.00	0.00	0.00
7.00	0.02	236	70.85	0.00	0.00	0.00
7.50	0.02	276	70.92	0.00	0.00	0.00
8.00	0.02	319	71.00	0.00	0.00	0.00
8.50	0.03	369	71.10	0.00	0.00	0.00
9.00	0.05	440	71.23	0.00	0.00	0.00
9.50	0.07	539	71.42	0.00	0.00	0.00
10.00	0.33	714	71.75	0.18	0.00	0.18
10.50	0.12	720	71.76	0.18	0.00	0.18
11.00	0.06	636	71.60	0.08	0.00	0.08
11.50	0.05	612	71.56	0.05	0.00	0.05
12.00	0.04	604	71.54	0.04	0.00	0.04
12.50	0.04	599	71.53	0.04	0.00	0.04
13.00	0.03	595	71.52	0.03	0.00	0.03
13.50	0.03	591	71.52	0.03	0.00	0.03
14.00	0.03	587	71.51	0.03	0.00	0.03
14.50	0.02	584	71.50	0.02	0.00	0.02
15.00	0.02	582	71.50	0.02	0.00	0.02
15.50	0.02	581	71.50	0.02	0.00	0.02
16.00	0.02	580	71.50	0.02	0.00	0.02
16.50	0.02	579	71.49	0.02	0.00	0.02
17.00	0.02	579	71.49	0.02	0.00	0.02
17.50	0.02	578	71.49	0.02	0.00	0.02
18.00	0.02	577	71.49	0.02	0.00	0.02
18.50	0.02	576	71.49	0.02	0.00	0.02
19.00	0.02	575	71.48	0.02	0.00	0.02
19.50	0.02	574	71.48	0.02	0.00	0.02
20.00	0.02	573	71.48	0.02	0.00	0.02
20.50	0.01	572	71.48	0.02	0.00	0.02
21.00	0.01	571	71.48	0.01	0.00	0.01
21.50	0.01	570	71.48	0.01	0.00	0.01
22.00	0.01	569	71.47	0.01	0.00	0.01
22.50	0.01	568	71.47	0.01	0.00	0.01
23.00	0.01	566	71.47	0.01	0.00	0.01
23.50	0.01	565	71.47	0.01	0.00	0.01
24.00	0.01	564	71.46	0.01	0.00	0.01

22027_DRAINAGE

Type I 24-hr 25-Year Storm Rainfall=6.71"

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Summary for Pond 30P: Bioretention Basin (SCM-2)

Inflow Area = 0.071 ac, 87.70% Impervious, Inflow Depth > 6.20" for 25-Year Storm event
 Inflow = 0.22 cfs @ 10.02 hrs, Volume= 0.037 af
 Outflow = 0.22 cfs @ 10.02 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.22 cfs @ 10.02 hrs, Volume= 0.028 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2

Peak Elev= 71.50' @ 10.02 hrs Surf.Area= 380 sf Storage= 379 cf

Plug-Flow detention time= 213.0 min calculated for 0.028 af (78% of inflow)

Center-of-Mass det. time= 91.8 min (795.6 - 703.7)

Volume	Invert	Avail.Storage	Storage Description
#1	70.50'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.50	380	0	0
71.50	380	380	380

Device	Routing	Invert	Outlet Devices
#1	Primary	71.49'	95.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.18 cfs @ 10.02 hrs HW=71.50' (Free Discharge)

↑1=Sharp-Crested Rectangular Weir (Weir Controls 0.18 cfs @ 0.27 fps)

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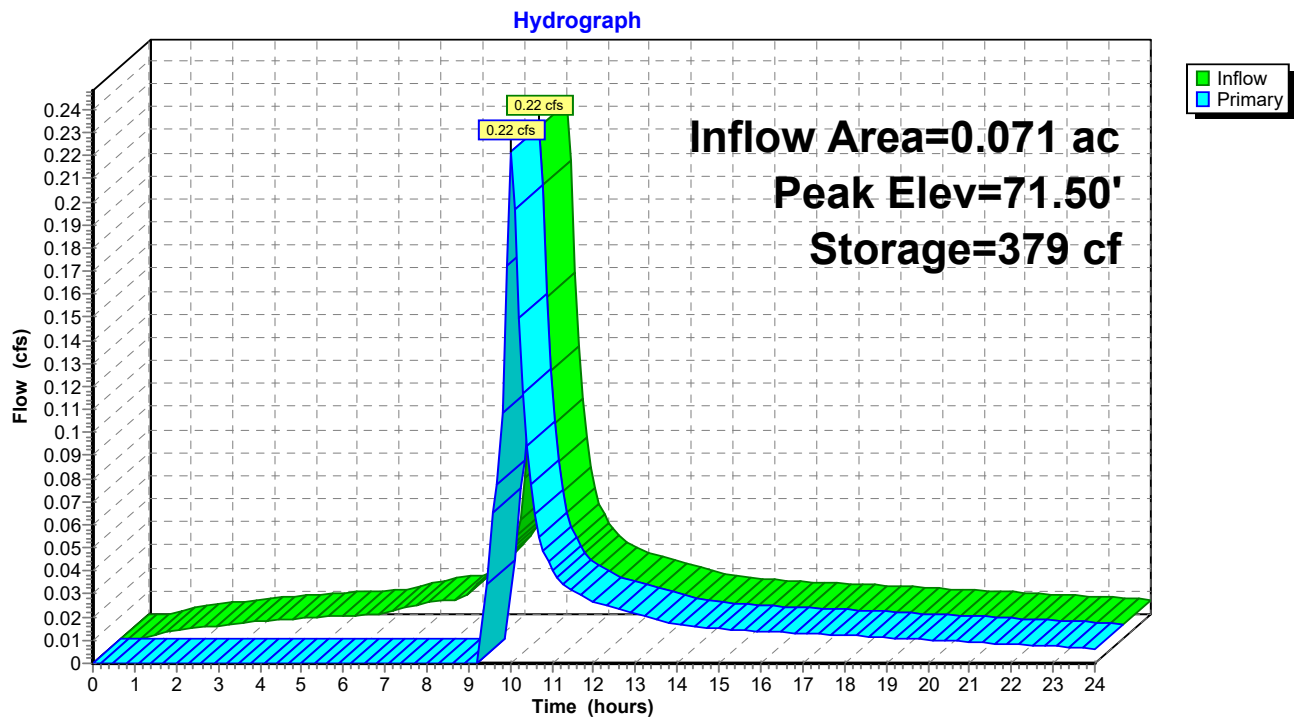
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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Pond 30P: Bioretention Basin (SCM-2)



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Type I 24-hr 25-Year Storm Rainfall=6.71"

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Hydrograph for Pond 30P: Bioretention Basin (SCM-2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.50	0.00
0.50	0.00	0	70.50	0.00
1.00	0.00	2	70.51	0.00
1.50	0.00	8	70.52	0.00
2.00	0.01	17	70.54	0.00
2.50	0.01	27	70.57	0.00
3.00	0.01	38	70.60	0.00
3.50	0.01	51	70.64	0.00
4.00	0.01	66	70.67	0.00
4.50	0.01	82	70.72	0.00
5.00	0.01	99	70.76	0.00
5.50	0.01	117	70.81	0.00
6.00	0.01	135	70.86	0.00
6.50	0.01	155	70.91	0.00
7.00	0.01	179	70.97	0.00
7.50	0.02	206	71.04	0.00
8.00	0.02	236	71.12	0.00
8.50	0.02	270	71.21	0.00
9.00	0.03	318	71.34	0.00
9.50	0.04	377	71.49	0.07
10.00	0.22	379	71.50	0.22
10.50	0.08	377	71.49	0.08
11.00	0.04	377	71.49	0.04
11.50	0.03	377	71.49	0.03
12.00	0.03	377	71.49	0.03
12.50	0.02	376	71.49	0.02
13.00	0.02	376	71.49	0.02
13.50	0.02	376	71.49	0.02
14.00	0.02	376	71.49	0.02
14.50	0.02	376	71.49	0.02
15.00	0.01	376	71.49	0.01
15.50	0.01	376	71.49	0.01
16.00	0.01	376	71.49	0.01
16.50	0.01	376	71.49	0.01
17.00	0.01	376	71.49	0.01
17.50	0.01	376	71.49	0.01
18.00	0.01	376	71.49	0.01
18.50	0.01	376	71.49	0.01
19.00	0.01	376	71.49	0.01
19.50	0.01	376	71.49	0.01
20.00	0.01	376	71.49	0.01
20.50	0.01	376	71.49	0.01
21.00	0.01	376	71.49	0.01
21.50	0.01	376	71.49	0.01
22.00	0.01	376	71.49	0.01
22.50	0.01	376	71.49	0.01
23.00	0.01	376	71.49	0.01
23.50	0.01	376	71.49	0.01
24.00	0.01	376	71.49	0.01

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment7S: DMA 1	Runoff Area=30,044 sf 52.67% Impervious Runoff Depth>6.36" Tc=12.0 min CN=81/98 Runoff=2.26 cfs 0.365 af
Subcatchment10S: DMA 2	Runoff Area=4,320 sf 0.00% Impervious Runoff Depth>5.19" Tc=12.0 min CN=80/0 Runoff=0.28 cfs 0.043 af
Subcatchment16S: DMA 7	Runoff Area=1,650 sf 88.48% Impervious Runoff Depth>7.06" Tc=12.0 min CN=80/98 Runoff=0.13 cfs 0.022 af
Subcatchment19S: DMA 10	Runoff Area=1,440 sf 86.81% Impervious Runoff Depth>7.02" Tc=12.0 min CN=80/98 Runoff=0.12 cfs 0.019 af
Subcatchment20S: DMA 11	Runoff Area=1,385 sf 5.78% Impervious Runoff Depth>5.32" Tc=12.0 min CN=80/98 Runoff=0.09 cfs 0.014 af
Subcatchment21S: DMA 12	Runoff Area=4,685 sf 67.02% Impervious Runoff Depth>6.91" Tc=12.0 min CN=88/98 Runoff=0.38 cfs 0.062 af
Subcatchment22S: DMA 13	Runoff Area=1,320 sf 28.79% Impervious Runoff Depth>5.80" Tc=12.0 min CN=80/98 Runoff=0.09 cfs 0.015 af
Subcatchment23S: DMA 3, 5, 6, 8	Runoff Area=42,820 sf 60.16% Impervious Runoff Depth>6.83" Tc=12.0 min CN=88/98 Runoff=3.44 cfs 0.559 af
Subcatchment25S: DMA 14	Runoff Area=890 sf 0.00% Impervious Runoff Depth>5.19" Tc=12.0 min CN=80/0 Runoff=0.06 cfs 0.009 af
Subcatchment28S: DMA 4 & 9	Runoff Area=2,875 sf 7.30% Impervious Runoff Depth>5.35" Tc=12.0 min CN=80/98 Runoff=0.19 cfs 0.029 af
Pond 8P: Bioretention Basin (SCM-1)	Peak Elev=74.87' Storage=3,938 cf Inflow=2.26 cfs 0.365 af Discarded=0.00 cfs 0.000 af Primary=1.00 cfs 0.326 af Secondary=0.00 cfs 0.000 af Outflow=1.00 cfs 0.326 af
Pond 11P: Self Retaining - Permeable Pavers	Peak Elev=73.13' Storage=12,851 cf Inflow=3.44 cfs 0.559 af Discarded=0.00 cfs 0.000 af Primary=0.58 cfs 0.293 af Outflow=0.58 cfs 0.293 af
Pond 26P: Offsite	Inflow=1.84 cfs 0.781 af Primary=1.84 cfs 0.781 af
Pond 27P: Self Retaining - Landcape	Peak Elev=72.78' Storage=1,280 cf Inflow=0.19 cfs 0.029 af Outflow=0.00 cfs 0.000 af
Pond 29P: Self Retaining - Permeable Pavers	Peak Elev=71.93' Storage=810 cf Inflow=0.38 cfs 0.062 af Discarded=0.00 cfs 0.000 af Primary=0.25 cfs 0.049 af Outflow=0.25 cfs 0.049 af
Pond 30P: Bioretention Basin (SCM-2)	Peak Elev=71.50' Storage=379 cf Inflow=0.25 cfs 0.042 af Outflow=0.25 cfs 0.033 af

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Total Runoff Area = 2.099 ac Runoff Volume = 1.138 af Average Runoff Depth = 6.51"
47.39% Pervious = 0.995 ac 52.61% Impervious = 1.104 ac

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Subcatchment 7S: DMA 1

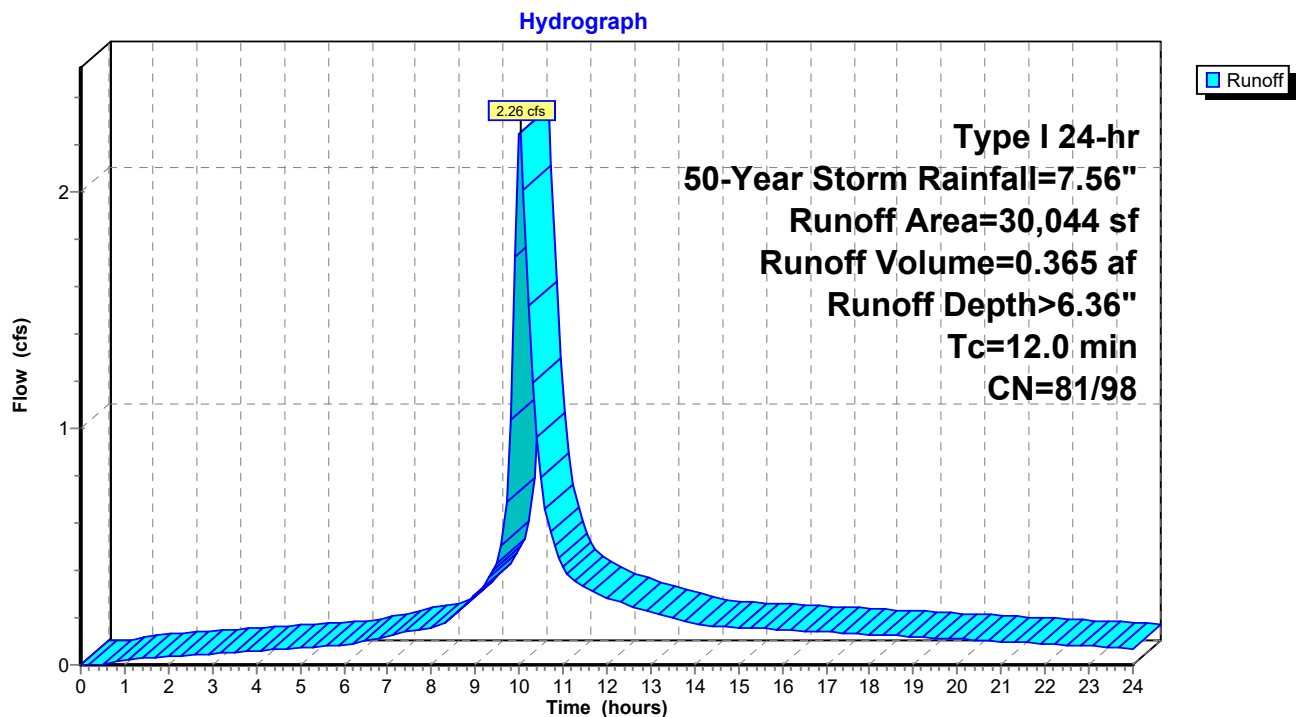
Runoff = 2.26 cfs @ 10.02 hrs, Volume= 0.365 af, Depth> 6.36"
Routed to Pond 8P : Bioretention Basin (SCM-1)

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 50-Year Storm Rainfall=7.56"

	Area (sf)	CN	Description
*	15,823	98	Impervious
*	9,370	80	Pervious
*	1,367	89	Pavers
*	3,484	80	Basin
	30,044	90	Weighted Average
	14,221	81	47.33% Pervious Area
	15,823	98	52.67% Impervious Area

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

Subcatchment 7S: DMA 1



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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Subcatchment 7S: DMA 1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.13	0.00	0.03	0.02
1.50	0.20	0.00	0.07	0.03
2.00	0.26	0.00	0.12	0.04
2.50	0.33	0.00	0.17	0.04
3.00	0.41	0.00	0.24	0.05
3.50	0.49	0.00	0.31	0.05
4.00	0.57	0.00	0.39	0.06
4.50	0.66	0.01	0.47	0.07
5.00	0.76	0.03	0.56	0.07
5.50	0.85	0.05	0.65	0.08
6.00	0.95	0.08	0.74	0.09
6.50	1.05	0.12	0.84	0.10
7.00	1.18	0.17	0.97	0.12
7.50	1.32	0.23	1.10	0.14
8.00	1.47	0.30	1.25	0.15
8.50	1.66	0.40	1.43	0.21
9.00	1.92	0.55	1.70	0.29
9.50	2.29	0.80	2.06	0.43
10.00	3.89	2.03	3.66	2.24
10.50	4.41	2.47	4.17	0.79
11.00	4.71	2.73	4.47	0.42
11.50	4.96	2.95	4.72	0.33
12.00	5.17	3.14	4.93	0.28
12.50	5.36	3.31	5.12	0.25
13.00	5.53	3.46	5.30	0.23
13.50	5.69	3.60	5.45	0.20
14.00	5.82	3.72	5.58	0.18
14.50	5.94	3.83	5.71	0.16
15.00	6.06	3.94	5.82	0.16
15.50	6.18	4.05	5.94	0.15
16.00	6.29	4.15	6.05	0.15
16.50	6.40	4.25	6.16	0.14
17.00	6.50	4.34	6.26	0.14
17.50	6.60	4.44	6.36	0.13
18.00	6.70	4.53	6.46	0.13
18.50	6.79	4.61	6.55	0.12
19.00	6.88	4.69	6.64	0.12
19.50	6.96	4.77	6.73	0.11
20.00	7.05	4.85	6.81	0.11
20.50	7.12	4.92	6.88	0.10
21.00	7.20	4.99	6.96	0.10
21.50	7.27	5.05	7.03	0.09
22.00	7.33	5.12	7.09	0.09
22.50	7.40	5.17	7.16	0.08
23.00	7.45	5.23	7.21	0.08
23.50	7.51	5.28	7.27	0.07
24.00	7.56	5.33	7.32	0.07

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Subcatchment 10S: DMA 2

Runoff = 0.28 cfs @ 10.02 hrs, Volume= 0.043 af, Depth> 5.19"
Routed to Pond 26P : Offsite

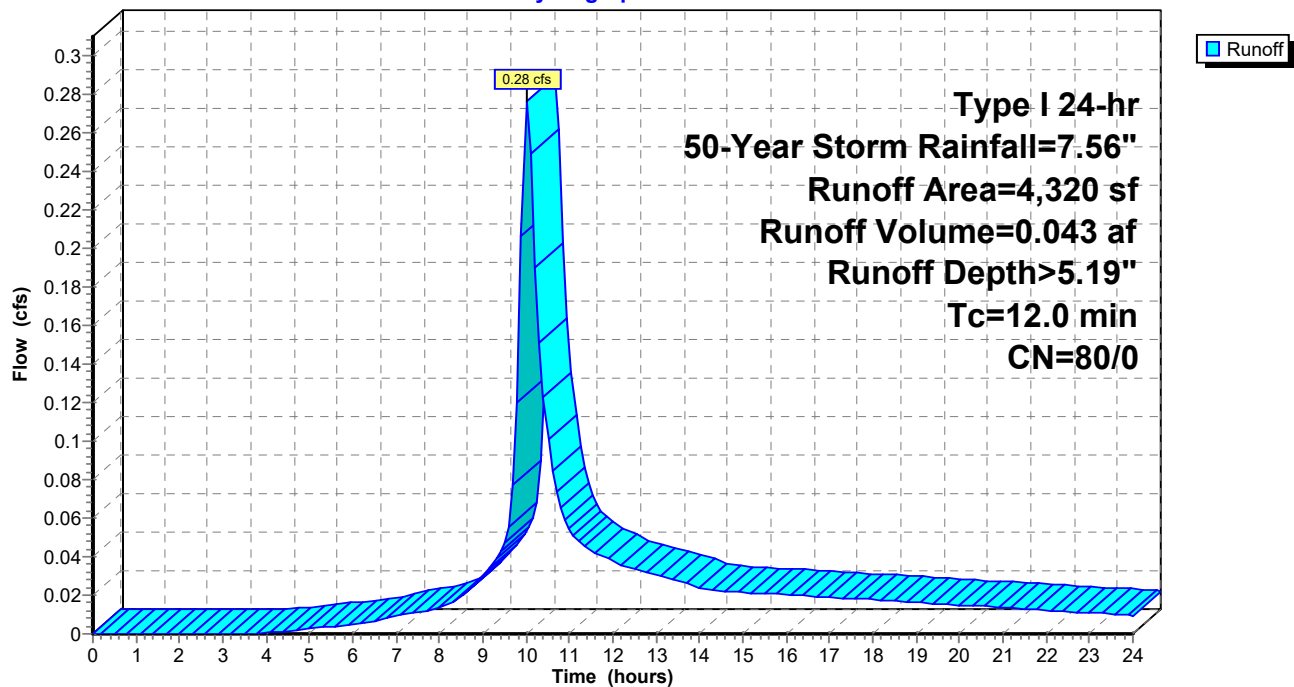
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 50-Year Storm Rainfall=7.56"

	Area (sf)	CN	Description
*	4,320	80	Pervious
	4,320	80	100.00% Pervious Area

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

Subcatchment 10S: DMA 2

Hydrograph



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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Subcatchment 10S: DMA 2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.13	0.00	0.00	0.00
1.50	0.20	0.00	0.00	0.00
2.00	0.26	0.00	0.00	0.00
2.50	0.33	0.00	0.00	0.00
3.00	0.41	0.00	0.00	0.00
3.50	0.49	0.00	0.00	0.00
4.00	0.57	0.00	0.00	0.00
4.50	0.66	0.01	0.00	0.00
5.00	0.76	0.02	0.00	0.00
5.50	0.85	0.04	0.00	0.00
6.00	0.95	0.07	0.00	0.00
6.50	1.05	0.10	0.00	0.01
7.00	1.18	0.15	0.00	0.01
7.50	1.32	0.20	0.00	0.01
8.00	1.47	0.27	0.00	0.01
8.50	1.66	0.37	0.00	0.02
9.00	1.92	0.51	0.00	0.03
9.50	2.29	0.75	0.00	0.05
10.00	3.89	1.95	0.00	0.27
10.50	4.41	2.38	0.00	0.10
11.00	4.71	2.64	0.00	0.05
11.50	4.96	2.85	0.00	0.04
12.00	5.17	3.04	0.00	0.04
12.50	5.36	3.21	0.00	0.03
13.00	5.53	3.36	0.00	0.03
13.50	5.69	3.50	0.00	0.03
14.00	5.82	3.62	0.00	0.02
14.50	5.94	3.73	0.00	0.02
15.00	6.06	3.84	0.00	0.02
15.50	6.18	3.94	0.00	0.02
16.00	6.29	4.04	0.00	0.02
16.50	6.40	4.14	0.00	0.02
17.00	6.50	4.24	0.00	0.02
17.50	6.60	4.33	0.00	0.02
18.00	6.70	4.42	0.00	0.02
18.50	6.79	4.50	0.00	0.02
19.00	6.88	4.58	0.00	0.02
19.50	6.96	4.66	0.00	0.02
20.00	7.05	4.74	0.00	0.02
20.50	7.12	4.81	0.00	0.01
21.00	7.20	4.88	0.00	0.01
21.50	7.27	4.94	0.00	0.01
22.00	7.33	5.00	0.00	0.01
22.50	7.40	5.06	0.00	0.01
23.00	7.45	5.12	0.00	0.01
23.50	7.51	5.17	0.00	0.01
24.00	7.56	5.21	0.00	0.01

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Subcatchment 16S: DMA 7

Runoff = 0.13 cfs @ 10.02 hrs, Volume= 0.022 af, Depth> 7.06"
Routed to Pond 30P : Bioretention Basin (SCM-2)

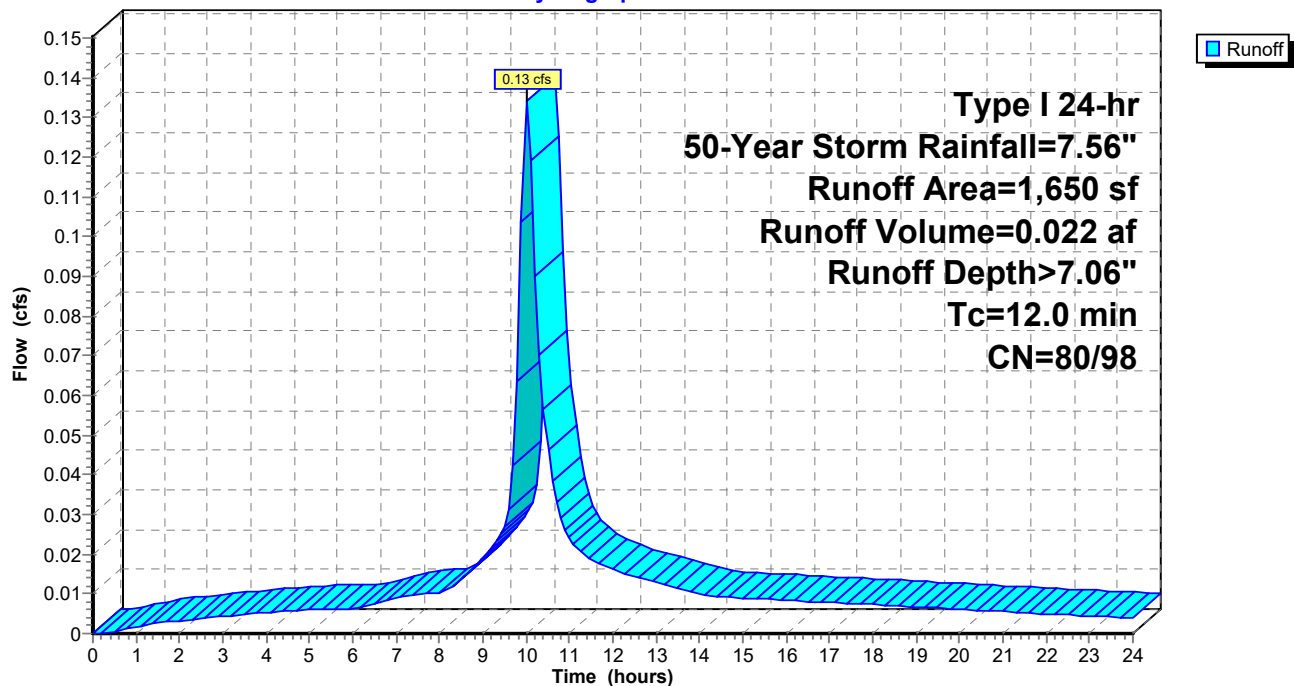
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 50-Year Storm Rainfall=7.56"

	Area (sf)	CN	Description
*	1,460	98	Impervious
*	0	80	Pervious
*	190	80	Basin
	1,650	96	Weighted Average
	190	80	11.52% Pervious Area
	1,460	98	88.48% Impervious Area

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

Subcatchment 16S: DMA 7

Hydrograph



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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Subcatchment 16S: DMA 7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.13	0.00	0.03	0.00
1.50	0.20	0.00	0.07	0.00
2.00	0.26	0.00	0.12	0.00
2.50	0.33	0.00	0.17	0.00
3.00	0.41	0.00	0.24	0.00
3.50	0.49	0.00	0.31	0.00
4.00	0.57	0.00	0.39	0.01
4.50	0.66	0.01	0.47	0.01
5.00	0.76	0.02	0.56	0.01
5.50	0.85	0.04	0.65	0.01
6.00	0.95	0.07	0.74	0.01
6.50	1.05	0.10	0.84	0.01
7.00	1.18	0.15	0.97	0.01
7.50	1.32	0.20	1.10	0.01
8.00	1.47	0.27	1.25	0.01
8.50	1.66	0.37	1.43	0.01
9.00	1.92	0.51	1.70	0.02
9.50	2.29	0.75	2.06	0.03
10.00	3.89	1.95	3.66	0.13
10.50	4.41	2.38	4.17	0.05
11.00	4.71	2.64	4.47	0.02
11.50	4.96	2.85	4.72	0.02
12.00	5.17	3.04	4.93	0.02
12.50	5.36	3.21	5.12	0.01
13.00	5.53	3.36	5.30	0.01
13.50	5.69	3.50	5.45	0.01
14.00	5.82	3.62	5.58	0.01
14.50	5.94	3.73	5.71	0.01
15.00	6.06	3.84	5.82	0.01
15.50	6.18	3.94	5.94	0.01
16.00	6.29	4.04	6.05	0.01
16.50	6.40	4.14	6.16	0.01
17.00	6.50	4.24	6.26	0.01
17.50	6.60	4.33	6.36	0.01
18.00	6.70	4.42	6.46	0.01
18.50	6.79	4.50	6.55	0.01
19.00	6.88	4.58	6.64	0.01
19.50	6.96	4.66	6.73	0.01
20.00	7.05	4.74	6.81	0.01
20.50	7.12	4.81	6.88	0.01
21.00	7.20	4.88	6.96	0.01
21.50	7.27	4.94	7.03	0.01
22.00	7.33	5.00	7.09	0.01
22.50	7.40	5.06	7.16	0.00
23.00	7.45	5.12	7.21	0.00
23.50	7.51	5.17	7.27	0.00
24.00	7.56	5.21	7.32	0.00

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Subcatchment 19S: DMA 10

Runoff = 0.12 cfs @ 10.02 hrs, Volume= 0.019 af, Depth> 7.02"
Routed to Pond 30P : Bioretention Basin (SCM-2)

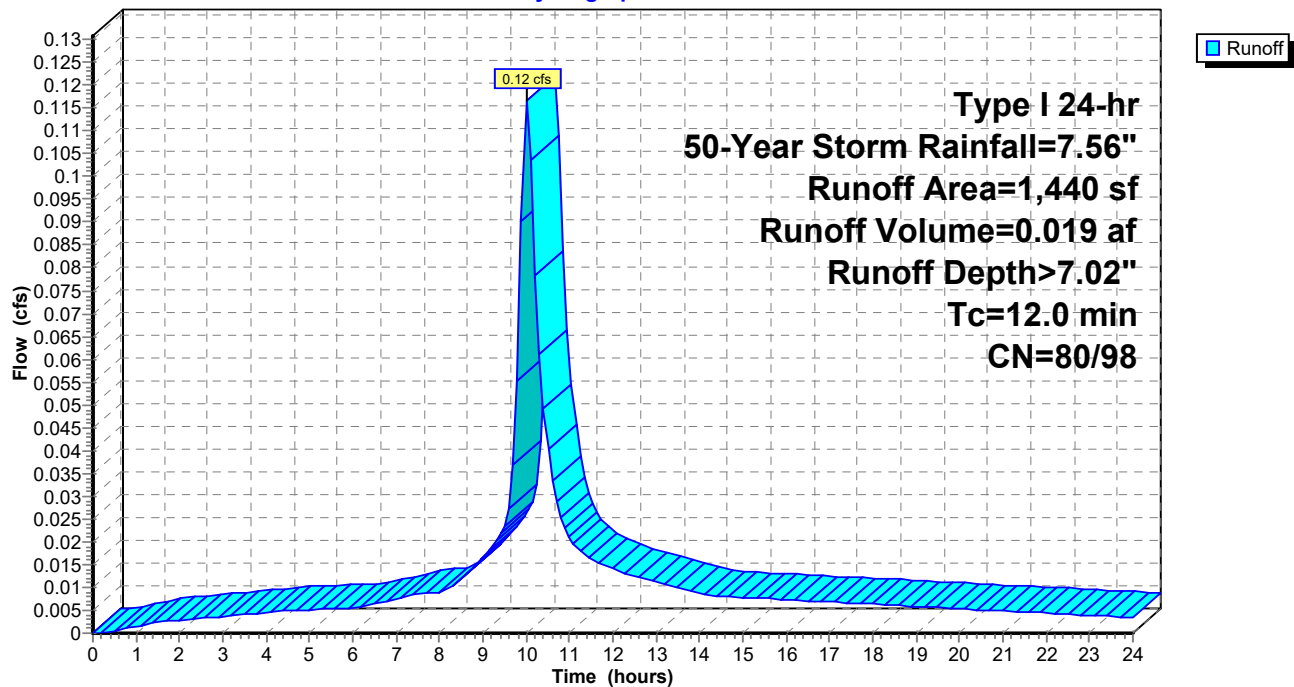
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 50-Year Storm Rainfall=7.56"

	Area (sf)	CN	Description
*	1,250	98	Impervious
*	190	80	Basin
	1,440	96	Weighted Average
	190	80	13.19% Pervious Area
	1,250	98	86.81% Impervious Area

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

Subcatchment 19S: DMA 10

Hydrograph



22027_DRAINAGE

Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Subcatchment 19S: DMA 10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.13	0.00	0.03	0.00
1.50	0.20	0.00	0.07	0.00
2.00	0.26	0.00	0.12	0.00
2.50	0.33	0.00	0.17	0.00
3.00	0.41	0.00	0.24	0.00
3.50	0.49	0.00	0.31	0.00
4.00	0.57	0.00	0.39	0.00
4.50	0.66	0.01	0.47	0.00
5.00	0.76	0.02	0.56	0.01
5.50	0.85	0.04	0.65	0.01
6.00	0.95	0.07	0.74	0.01
6.50	1.05	0.10	0.84	0.01
7.00	1.18	0.15	0.97	0.01
7.50	1.32	0.20	1.10	0.01
8.00	1.47	0.27	1.25	0.01
8.50	1.66	0.37	1.43	0.01
9.00	1.92	0.51	1.70	0.02
9.50	2.29	0.75	2.06	0.02
10.00	3.89	1.95	3.66	0.12
10.50	4.41	2.38	4.17	0.04
11.00	4.71	2.64	4.47	0.02
11.50	4.96	2.85	4.72	0.02
12.00	5.17	3.04	4.93	0.01
12.50	5.36	3.21	5.12	0.01
13.00	5.53	3.36	5.30	0.01
13.50	5.69	3.50	5.45	0.01
14.00	5.82	3.62	5.58	0.01
14.50	5.94	3.73	5.71	0.01
15.00	6.06	3.84	5.82	0.01
15.50	6.18	3.94	5.94	0.01
16.00	6.29	4.04	6.05	0.01
16.50	6.40	4.14	6.16	0.01
17.00	6.50	4.24	6.26	0.01
17.50	6.60	4.33	6.36	0.01
18.00	6.70	4.42	6.46	0.01
18.50	6.79	4.50	6.55	0.01
19.00	6.88	4.58	6.64	0.01
19.50	6.96	4.66	6.73	0.01
20.00	7.05	4.74	6.81	0.01
20.50	7.12	4.81	6.88	0.01
21.00	7.20	4.88	6.96	0.00
21.50	7.27	4.94	7.03	0.00
22.00	7.33	5.00	7.09	0.00
22.50	7.40	5.06	7.16	0.00
23.00	7.45	5.12	7.21	0.00
23.50	7.51	5.17	7.27	0.00
24.00	7.56	5.21	7.32	0.00

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Subcatchment 20S: DMA 11

Runoff = 0.09 cfs @ 10.02 hrs, Volume= 0.014 af, Depth> 5.32"
Routed to Pond 26P : Offsite

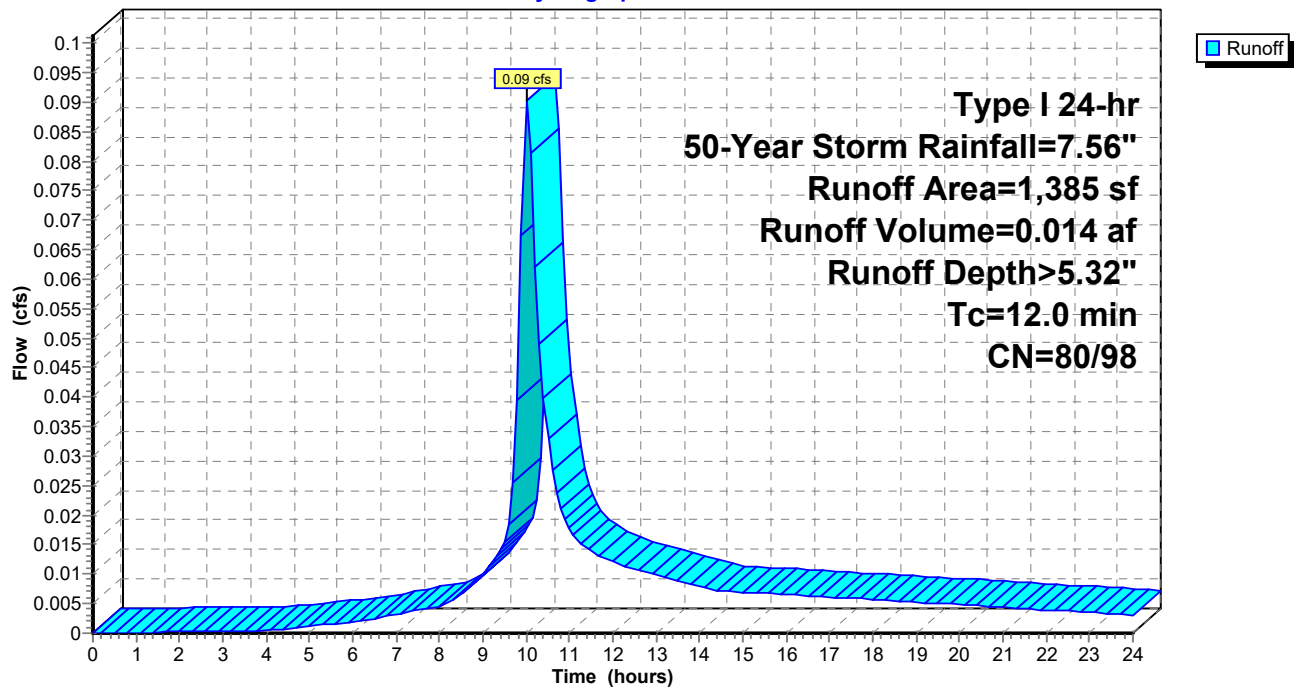
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 50-Year Storm Rainfall=7.56"

	Area (sf)	CN	Description
*	1,305	80	Pervious
*	80	98	Impervious
	1,385	81	Weighted Average
	1,305	80	94.22% Pervious Area
	80	98	5.78% Impervious Area

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

Subcatchment 20S: DMA 11

Hydrograph



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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Subcatchment 20S: DMA 11

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.13	0.00	0.03	0.00
1.50	0.20	0.00	0.07	0.00
2.00	0.26	0.00	0.12	0.00
2.50	0.33	0.00	0.17	0.00
3.00	0.41	0.00	0.24	0.00
3.50	0.49	0.00	0.31	0.00
4.00	0.57	0.00	0.39	0.00
4.50	0.66	0.01	0.47	0.00
5.00	0.76	0.02	0.56	0.00
5.50	0.85	0.04	0.65	0.00
6.00	0.95	0.07	0.74	0.00
6.50	1.05	0.10	0.84	0.00
7.00	1.18	0.15	0.97	0.00
7.50	1.32	0.20	1.10	0.00
8.00	1.47	0.27	1.25	0.00
8.50	1.66	0.37	1.43	0.01
9.00	1.92	0.51	1.70	0.01
9.50	2.29	0.75	2.06	0.02
10.00	3.89	1.95	3.66	0.09
10.50	4.41	2.38	4.17	0.03
11.00	4.71	2.64	4.47	0.02
11.50	4.96	2.85	4.72	0.01
12.00	5.17	3.04	4.93	0.01
12.50	5.36	3.21	5.12	0.01
13.00	5.53	3.36	5.30	0.01
13.50	5.69	3.50	5.45	0.01
14.00	5.82	3.62	5.58	0.01
14.50	5.94	3.73	5.71	0.01
15.00	6.06	3.84	5.82	0.01
15.50	6.18	3.94	5.94	0.01
16.00	6.29	4.04	6.05	0.01
16.50	6.40	4.14	6.16	0.01
17.00	6.50	4.24	6.26	0.01
17.50	6.60	4.33	6.36	0.01
18.00	6.70	4.42	6.46	0.01
18.50	6.79	4.50	6.55	0.01
19.00	6.88	4.58	6.64	0.01
19.50	6.96	4.66	6.73	0.01
20.00	7.05	4.74	6.81	0.00
20.50	7.12	4.81	6.88	0.00
21.00	7.20	4.88	6.96	0.00
21.50	7.27	4.94	7.03	0.00
22.00	7.33	5.00	7.09	0.00
22.50	7.40	5.06	7.16	0.00
23.00	7.45	5.12	7.21	0.00
23.50	7.51	5.17	7.27	0.00
24.00	7.56	5.21	7.32	0.00

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Subcatchment 21S: DMA 12

Runoff = 0.38 cfs @ 10.02 hrs, Volume= 0.062 af, Depth> 6.91"

Routed to Pond 29P : Self Retaining - Permeable Pavers

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

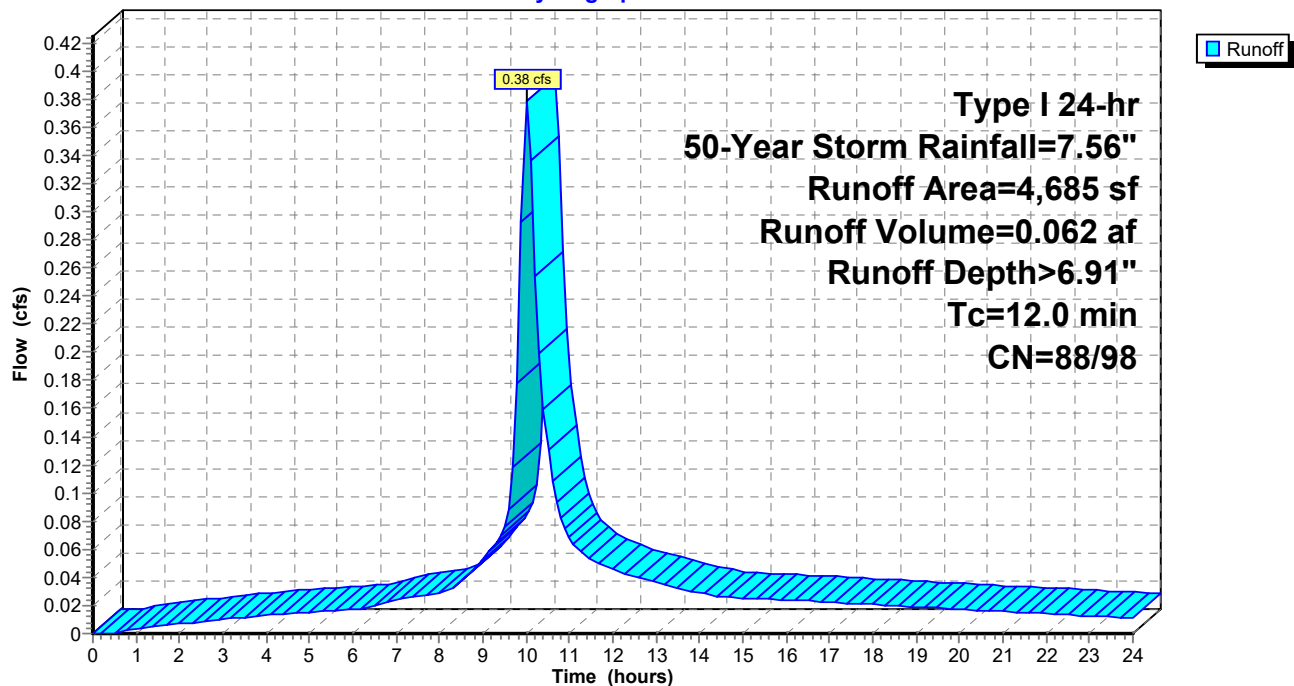
Type I 24-hr 50-Year Storm Rainfall=7.56"

	Area (sf)	CN	Description
*	3,140	98	Impervious
*	220	80	Pervious
*	1,325	89	Pavers
	4,685	95	Weighted Average
	1,545	88	32.98% Pervious Area
	3,140	98	67.02% Impervious Area

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

Subcatchment 21S: DMA 12

Hydrograph



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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Subcatchment 21S: DMA 12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.13	0.00	0.03	0.00
1.50	0.20	0.00	0.07	0.01
2.00	0.26	0.00	0.12	0.01
2.50	0.33	0.00	0.17	0.01
3.00	0.41	0.01	0.24	0.01
3.50	0.49	0.03	0.31	0.01
4.00	0.57	0.05	0.39	0.01
4.50	0.66	0.09	0.47	0.01
5.00	0.76	0.13	0.56	0.02
5.50	0.85	0.17	0.65	0.02
6.00	0.95	0.22	0.74	0.02
6.50	1.05	0.28	0.84	0.02
7.00	1.18	0.36	0.97	0.02
7.50	1.32	0.45	1.10	0.03
8.00	1.47	0.56	1.25	0.03
8.50	1.66	0.70	1.43	0.04
9.00	1.92	0.90	1.70	0.05
9.50	2.29	1.20	2.06	0.08
10.00	3.89	2.63	3.66	0.38
10.50	4.41	3.11	4.17	0.13
11.00	4.71	3.39	4.47	0.07
11.50	4.96	3.63	4.72	0.05
12.00	5.17	3.83	4.93	0.05
12.50	5.36	4.01	5.12	0.04
13.00	5.53	4.18	5.30	0.04
13.50	5.69	4.32	5.45	0.03
14.00	5.82	4.45	5.58	0.03
14.50	5.94	4.57	5.71	0.03
15.00	6.06	4.69	5.82	0.03
15.50	6.18	4.80	5.94	0.02
16.00	6.29	4.91	6.05	0.02
16.50	6.40	5.01	6.16	0.02
17.00	6.50	5.11	6.26	0.02
17.50	6.60	5.21	6.36	0.02
18.00	6.70	5.30	6.46	0.02
18.50	6.79	5.39	6.55	0.02
19.00	6.88	5.48	6.64	0.02
19.50	6.96	5.56	6.73	0.02
20.00	7.05	5.64	6.81	0.02
20.50	7.12	5.71	6.88	0.02
21.00	7.20	5.79	6.96	0.02
21.50	7.27	5.85	7.03	0.02
22.00	7.33	5.92	7.09	0.01
22.50	7.40	5.98	7.16	0.01
23.00	7.45	6.04	7.21	0.01
23.50	7.51	6.09	7.27	0.01
24.00	7.56	6.14	7.32	0.01

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Subcatchment 22S: DMA 13

Runoff = 0.09 cfs @ 10.02 hrs, Volume= 0.015 af, Depth> 5.80"
Routed to Pond 26P : Offsite

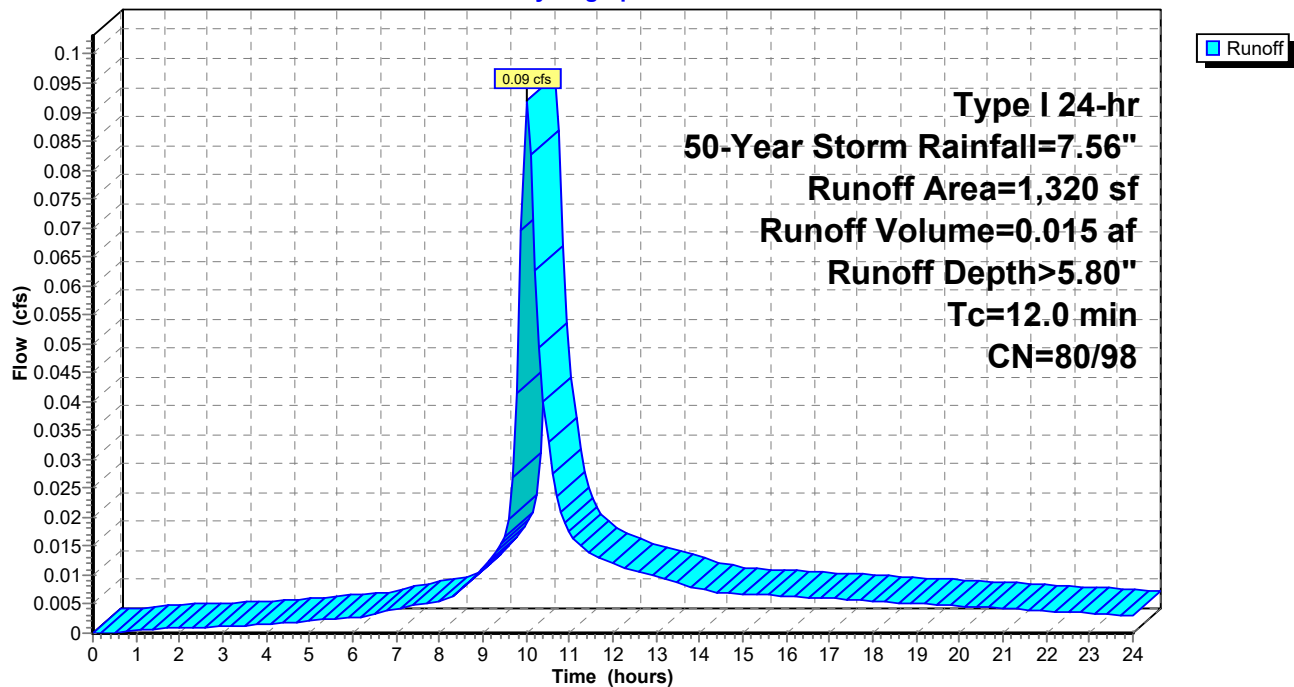
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 50-Year Storm Rainfall=7.56"

	Area (sf)	CN	Description
*	380	98	Impervious
*	940	80	Pervious
	1,320	85	Weighted Average
	940	80	71.21% Pervious Area
	380	98	28.79% Impervious Area

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

Subcatchment 22S: DMA 13

Hydrograph



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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Subcatchment 22S: DMA 13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.13	0.00	0.03	0.00
1.50	0.20	0.00	0.07	0.00
2.00	0.26	0.00	0.12	0.00
2.50	0.33	0.00	0.17	0.00
3.00	0.41	0.00	0.24	0.00
3.50	0.49	0.00	0.31	0.00
4.00	0.57	0.00	0.39	0.00
4.50	0.66	0.01	0.47	0.00
5.00	0.76	0.02	0.56	0.00
5.50	0.85	0.04	0.65	0.00
6.00	0.95	0.07	0.74	0.00
6.50	1.05	0.10	0.84	0.00
7.00	1.18	0.15	0.97	0.00
7.50	1.32	0.20	1.10	0.00
8.00	1.47	0.27	1.25	0.01
8.50	1.66	0.37	1.43	0.01
9.00	1.92	0.51	1.70	0.01
9.50	2.29	0.75	2.06	0.02
10.00	3.89	1.95	3.66	0.09
10.50	4.41	2.38	4.17	0.03
11.00	4.71	2.64	4.47	0.02
11.50	4.96	2.85	4.72	0.01
12.00	5.17	3.04	4.93	0.01
12.50	5.36	3.21	5.12	0.01
13.00	5.53	3.36	5.30	0.01
13.50	5.69	3.50	5.45	0.01
14.00	5.82	3.62	5.58	0.01
14.50	5.94	3.73	5.71	0.01
15.00	6.06	3.84	5.82	0.01
15.50	6.18	3.94	5.94	0.01
16.00	6.29	4.04	6.05	0.01
16.50	6.40	4.14	6.16	0.01
17.00	6.50	4.24	6.26	0.01
17.50	6.60	4.33	6.36	0.01
18.00	6.70	4.42	6.46	0.01
18.50	6.79	4.50	6.55	0.01
19.00	6.88	4.58	6.64	0.01
19.50	6.96	4.66	6.73	0.00
20.00	7.05	4.74	6.81	0.00
20.50	7.12	4.81	6.88	0.00
21.00	7.20	4.88	6.96	0.00
21.50	7.27	4.94	7.03	0.00
22.00	7.33	5.00	7.09	0.00
22.50	7.40	5.06	7.16	0.00
23.00	7.45	5.12	7.21	0.00
23.50	7.51	5.17	7.27	0.00
24.00	7.56	5.21	7.32	0.00

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Subcatchment 23S: DMA 3, 5, 6, 8

Runoff = 3.44 cfs @ 10.02 hrs, Volume= 0.559 af, Depth> 6.83"

Routed to Pond 11P : Self Retaining - Permeable Pavers

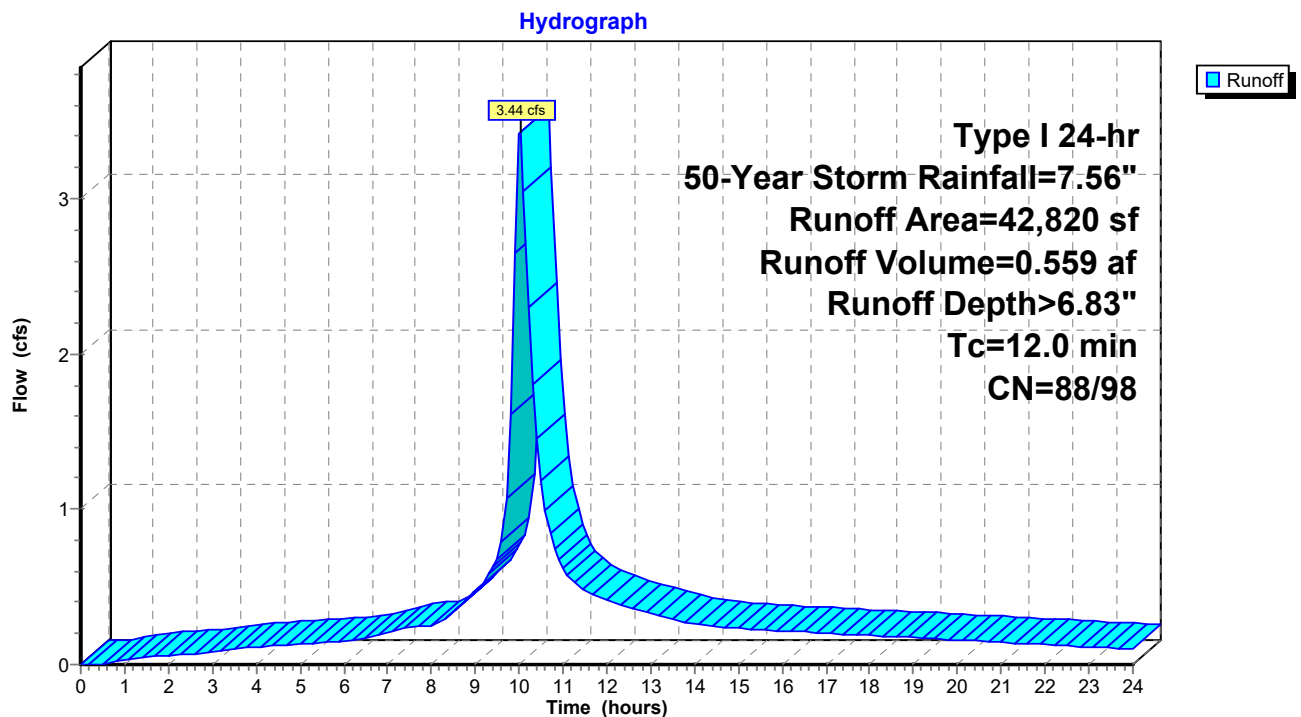
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Type I 24-hr 50-Year Storm Rainfall=7.56"

	Area (sf)	CN	Description
*	25,761	98	Impervious
*	2,165	80	Pervious
*	14,894	89	Pavers
	42,820	94	Weighted Average
	17,059	88	39.84% Pervious Area
	25,761	98	60.16% Impervious Area

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

Subcatchment 23S: DMA 3, 5, 6, 8



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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Subcatchment 23S: DMA 3, 5, 6, 8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.13	0.00	0.03	0.03
1.50	0.20	0.00	0.07	0.05
2.00	0.26	0.00	0.12	0.06
2.50	0.33	0.00	0.17	0.07
3.00	0.41	0.01	0.24	0.08
3.50	0.49	0.03	0.31	0.10
4.00	0.57	0.05	0.39	0.11
4.50	0.66	0.09	0.47	0.12
5.00	0.76	0.13	0.56	0.13
5.50	0.85	0.17	0.65	0.14
6.00	0.95	0.22	0.74	0.15
6.50	1.05	0.28	0.84	0.17
7.00	1.18	0.36	0.97	0.21
7.50	1.32	0.45	1.10	0.24
8.00	1.47	0.56	1.25	0.25
8.50	1.66	0.70	1.43	0.34
9.00	1.92	0.90	1.70	0.47
9.50	2.29	1.20	2.06	0.68
10.00	3.89	2.63	3.66	3.42
10.50	4.41	3.11	4.17	1.19
11.00	4.71	3.39	4.47	0.62
11.50	4.96	3.63	4.72	0.48
12.00	5.17	3.83	4.93	0.42
12.50	5.36	4.01	5.12	0.37
13.00	5.53	4.18	5.30	0.33
13.50	5.69	4.32	5.45	0.30
14.00	5.82	4.45	5.58	0.26
14.50	5.94	4.57	5.71	0.24
15.00	6.06	4.69	5.82	0.23
15.50	6.18	4.80	5.94	0.23
16.00	6.29	4.91	6.05	0.22
16.50	6.40	5.01	6.16	0.21
17.00	6.50	5.11	6.26	0.20
17.50	6.60	5.21	6.36	0.20
18.00	6.70	5.30	6.46	0.19
18.50	6.79	5.39	6.55	0.18
19.00	6.88	5.48	6.64	0.17
19.50	6.96	5.56	6.73	0.17
20.00	7.05	5.64	6.81	0.16
20.50	7.12	5.71	6.88	0.15
21.00	7.20	5.79	6.96	0.14
21.50	7.27	5.85	7.03	0.14
22.00	7.33	5.92	7.09	0.13
22.50	7.40	5.98	7.16	0.12
23.00	7.45	6.04	7.21	0.11
23.50	7.51	6.09	7.27	0.11
24.00	7.56	6.14	7.32	0.10

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Subcatchment 25S: DMA 14

Runoff = 0.06 cfs @ 10.02 hrs, Volume= 0.009 af, Depth> 5.19"
Routed to Pond 26P : Offsite

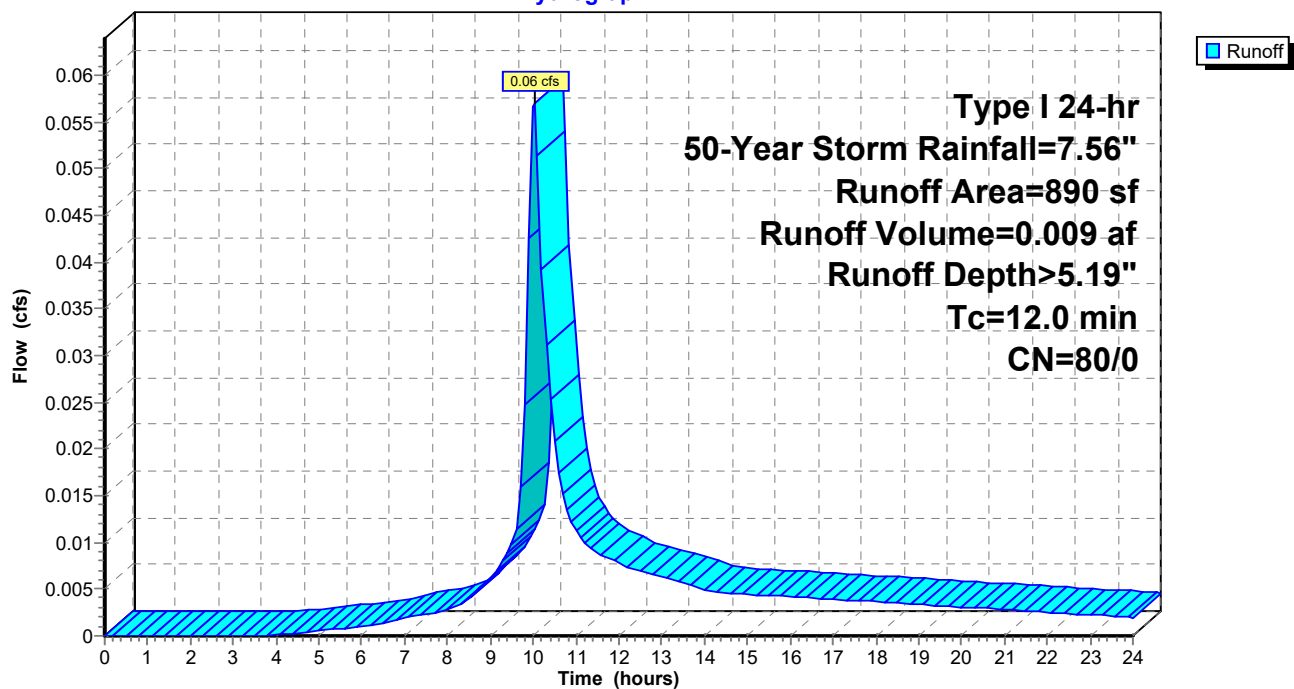
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 50-Year Storm Rainfall=7.56"

	Area (sf)	CN	Description
*	890	80	Pervious
	890	80	100.00% Pervious Area

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

Subcatchment 25S: DMA 14

Hydrograph



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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Subcatchment 25S: DMA 14

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.13	0.00	0.00	0.00
1.50	0.20	0.00	0.00	0.00
2.00	0.26	0.00	0.00	0.00
2.50	0.33	0.00	0.00	0.00
3.00	0.41	0.00	0.00	0.00
3.50	0.49	0.00	0.00	0.00
4.00	0.57	0.00	0.00	0.00
4.50	0.66	0.01	0.00	0.00
5.00	0.76	0.02	0.00	0.00
5.50	0.85	0.04	0.00	0.00
6.00	0.95	0.07	0.00	0.00
6.50	1.05	0.10	0.00	0.00
7.00	1.18	0.15	0.00	0.00
7.50	1.32	0.20	0.00	0.00
8.00	1.47	0.27	0.00	0.00
8.50	1.66	0.37	0.00	0.00
9.00	1.92	0.51	0.00	0.01
9.50	2.29	0.75	0.00	0.01
10.00	3.89	1.95	0.00	0.06
10.50	4.41	2.38	0.00	0.02
11.00	4.71	2.64	0.00	0.01
11.50	4.96	2.85	0.00	0.01
12.00	5.17	3.04	0.00	0.01
12.50	5.36	3.21	0.00	0.01
13.00	5.53	3.36	0.00	0.01
13.50	5.69	3.50	0.00	0.01
14.00	5.82	3.62	0.00	0.00
14.50	5.94	3.73	0.00	0.00
15.00	6.06	3.84	0.00	0.00
15.50	6.18	3.94	0.00	0.00
16.00	6.29	4.04	0.00	0.00
16.50	6.40	4.14	0.00	0.00
17.00	6.50	4.24	0.00	0.00
17.50	6.60	4.33	0.00	0.00
18.00	6.70	4.42	0.00	0.00
18.50	6.79	4.50	0.00	0.00
19.00	6.88	4.58	0.00	0.00
19.50	6.96	4.66	0.00	0.00
20.00	7.05	4.74	0.00	0.00
20.50	7.12	4.81	0.00	0.00
21.00	7.20	4.88	0.00	0.00
21.50	7.27	4.94	0.00	0.00
22.00	7.33	5.00	0.00	0.00
22.50	7.40	5.06	0.00	0.00
23.00	7.45	5.12	0.00	0.00
23.50	7.51	5.17	0.00	0.00
24.00	7.56	5.21	0.00	0.00

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Subcatchment 28S: DMA 4 & 9

Runoff = 0.19 cfs @ 10.02 hrs, Volume= 0.029 af, Depth> 5.35"
Routed to Pond 27P : Self Retaining - Landscape

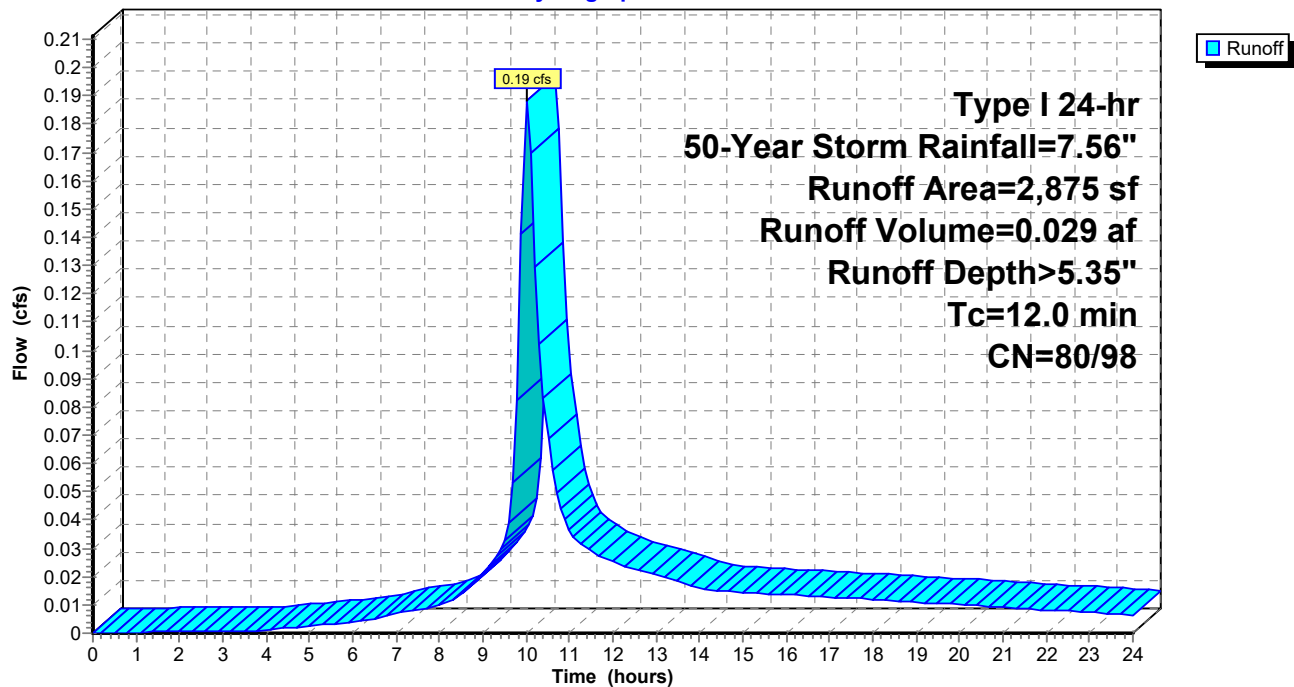
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 50-Year Storm Rainfall=7.56"

	Area (sf)	CN	Description
*	2,665	80	Pervious Area
*	210	98	Impervious Area
	2,875	81	Weighted Average
	2,665	80	92.70% Pervious Area
	210	98	7.30% Impervious Area

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

Subcatchment 28S: DMA 4 & 9

Hydrograph



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Hydrograph for Subcatchment 28S: DMA 4 & 9

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.13	0.00	0.03	0.00
1.50	0.20	0.00	0.07	0.00
2.00	0.26	0.00	0.12	0.00
2.50	0.33	0.00	0.17	0.00
3.00	0.41	0.00	0.24	0.00
3.50	0.49	0.00	0.31	0.00
4.00	0.57	0.00	0.39	0.00
4.50	0.66	0.01	0.47	0.00
5.00	0.76	0.02	0.56	0.00
5.50	0.85	0.04	0.65	0.00
6.00	0.95	0.07	0.74	0.00
6.50	1.05	0.10	0.84	0.01
7.00	1.18	0.15	0.97	0.01
7.50	1.32	0.20	1.10	0.01
8.00	1.47	0.27	1.25	0.01
8.50	1.66	0.37	1.43	0.01
9.00	1.92	0.51	1.70	0.02
9.50	2.29	0.75	2.06	0.03
10.00	3.89	1.95	3.66	0.19
10.50	4.41	2.38	4.17	0.07
11.00	4.71	2.64	4.47	0.04
11.50	4.96	2.85	4.72	0.03
12.00	5.17	3.04	4.93	0.03
12.50	5.36	3.21	5.12	0.02
13.00	5.53	3.36	5.30	0.02
13.50	5.69	3.50	5.45	0.02
14.00	5.82	3.62	5.58	0.02
14.50	5.94	3.73	5.71	0.01
15.00	6.06	3.84	5.82	0.01
15.50	6.18	3.94	5.94	0.01
16.00	6.29	4.04	6.05	0.01
16.50	6.40	4.14	6.16	0.01
17.00	6.50	4.24	6.26	0.01
17.50	6.60	4.33	6.36	0.01
18.00	6.70	4.42	6.46	0.01
18.50	6.79	4.50	6.55	0.01
19.00	6.88	4.58	6.64	0.01
19.50	6.96	4.66	6.73	0.01
20.00	7.05	4.74	6.81	0.01
20.50	7.12	4.81	6.88	0.01
21.00	7.20	4.88	6.96	0.01
21.50	7.27	4.94	7.03	0.01
22.00	7.33	5.00	7.09	0.01
22.50	7.40	5.06	7.16	0.01
23.00	7.45	5.12	7.21	0.01
23.50	7.51	5.17	7.27	0.01
24.00	7.56	5.21	7.32	0.01

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Summary for Pond 8P: Bioretention Basin (SCM-1)

Inflow Area = 0.690 ac, 52.67% Impervious, Inflow Depth > 6.36" for 50-Year Storm event
 Inflow = 2.26 cfs @ 10.02 hrs, Volume= 0.365 af
 Outflow = 1.00 cfs @ 10.39 hrs, Volume= 0.326 af, Atten= 56%, Lag= 22.4 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 1.00 cfs @ 10.39 hrs, Volume= 0.326 af
 Routed to Pond 26P : Offsite
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2
 Peak Elev= 74.87' @ 10.39 hrs Surf.Area= 2,473 sf Storage= 3,938 cf

Plug-Flow detention time= 134.5 min calculated for 0.326 af (89% of inflow)
 Center-of-Mass det. time= 68.5 min (793.6 - 725.1)

Volume	Invert	Avail.Storage	Storage Description	
#1	68.99'	4,276 cf	Custom Stage Data (Prismatic) Listed below (Recalc) x 0.75	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.99	1,370	0.0	0	0
69.00	1,370	40.0	5	5
71.50	1,370	40.0	1,370	1,375
73.50	1,370	25.0	685	2,060
75.00	3,485	100.0	3,641	5,702

Device	Routing	Invert	Outlet Devices
#1	Device 3	73.25'	15.0" Round 15" Culvert L= 250.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.25' / 70.70' S= 0.0102 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#2	Secondary	74.99'	70.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Primary	73.50'	6.0" Vert. Orifice/Culvert C= 0.600 Limited to weir flow at low heads
#4	Device 1	70.60'	12.5" W x 3.0" H Vert. curb outlet C= 0.600 Limited to weir flow at low heads
#5	Discarded	68.99'	0.380 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=68.99' (Free Discharge)

↑ **5=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.00 cfs @ 10.39 hrs HW=74.87' (Free Discharge)

↑ **3=Orifice/Culvert** (Orifice Controls 1.00 cfs @ 5.09 fps)

↑ **1=15" Culvert** (Passes 1.00 cfs of 5.39 cfs potential flow)

↑ **4=curb outlet** (Passes 1.00 cfs of 1.47 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=68.99' (Free Discharge)

↑ **2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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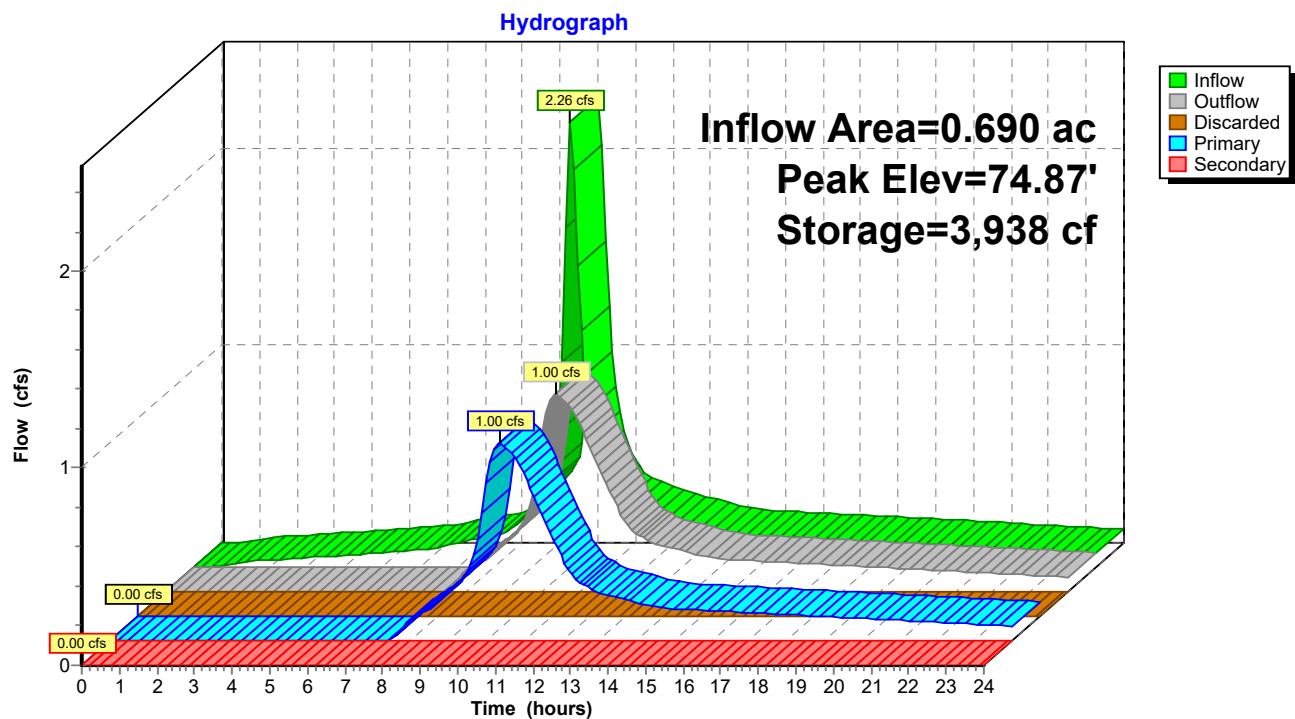
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Pond 8P: Bioretention Basin (SCM-1)



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Hydrograph for Pond 8P: Bioretention Basin (SCM-1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	68.99	0.00	0.00	0.00	0.00
0.50	0.00	1	68.99	0.00	0.00	0.00	0.00
1.00	0.02	19	69.04	0.00	0.00	0.00	0.00
1.50	0.03	63	69.14	0.00	0.00	0.00	0.00
2.00	0.04	122	69.29	0.00	0.00	0.00	0.00
2.50	0.04	191	69.45	0.00	0.00	0.00	0.00
3.00	0.05	269	69.65	0.00	0.00	0.00	0.00
3.50	0.05	359	69.86	0.00	0.00	0.00	0.00
4.00	0.06	460	70.11	0.00	0.00	0.00	0.00
4.50	0.07	575	70.39	0.00	0.00	0.00	0.00
5.00	0.07	703	70.70	0.00	0.00	0.00	0.00
5.50	0.08	842	71.04	0.00	0.00	0.00	0.00
6.00	0.09	991	71.40	0.00	0.00	0.00	0.00
6.50	0.10	1,155	71.98	0.00	0.00	0.00	0.00
7.00	0.12	1,356	72.76	0.00	0.00	0.00	0.00
7.50	0.14	1,594	73.55	0.01	0.00	0.01	0.00
8.00	0.15	1,758	73.69	0.10	0.00	0.10	0.00
8.50	0.21	1,831	73.75	0.16	0.00	0.16	0.00
9.00	0.29	1,916	73.81	0.24	0.00	0.24	0.00
9.50	0.43	2,030	73.89	0.35	0.00	0.35	0.00
10.00	2.24	3,015	74.46	0.80	0.00	0.80	0.00
10.50	0.79	3,896	74.85	0.99	0.00	0.99	0.00
11.00	0.42	3,225	74.56	0.85	0.00	0.85	0.00
11.50	0.33	2,534	74.21	0.64	0.00	0.64	0.00
12.00	0.28	2,125	73.96	0.43	0.00	0.43	0.00
12.50	0.25	1,970	73.85	0.30	0.00	0.30	0.00
13.00	0.23	1,919	73.81	0.25	0.00	0.25	0.00
13.50	0.20	1,889	73.79	0.22	0.00	0.22	0.00
14.00	0.18	1,862	73.77	0.19	0.00	0.19	0.00
14.50	0.16	1,841	73.75	0.17	0.00	0.17	0.00
15.00	0.16	1,830	73.75	0.16	0.00	0.16	0.00
15.50	0.15	1,824	73.74	0.16	0.00	0.16	0.00
16.00	0.15	1,818	73.74	0.15	0.00	0.15	0.00
16.50	0.14	1,813	73.73	0.15	0.00	0.15	0.00
17.00	0.14	1,807	73.73	0.14	0.00	0.14	0.00
17.50	0.13	1,801	73.72	0.14	0.00	0.14	0.00
18.00	0.13	1,795	73.72	0.13	0.00	0.13	0.00
18.50	0.12	1,789	73.71	0.13	0.00	0.13	0.00
19.00	0.12	1,784	73.71	0.12	0.00	0.12	0.00
19.50	0.11	1,778	73.70	0.12	0.00	0.12	0.00
20.00	0.11	1,772	73.70	0.11	0.00	0.11	0.00
20.50	0.10	1,766	73.69	0.11	0.00	0.11	0.00
21.00	0.10	1,760	73.69	0.10	0.00	0.10	0.00
21.50	0.09	1,754	73.69	0.10	0.00	0.10	0.00
22.00	0.09	1,748	73.68	0.09	0.00	0.09	0.00
22.50	0.08	1,742	73.68	0.09	0.00	0.09	0.00
23.00	0.08	1,735	73.67	0.08	0.00	0.08	0.00
23.50	0.07	1,727	73.66	0.08	0.00	0.08	0.00
24.00	0.07	1,720	73.66	0.07	0.00	0.07	0.00

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Pond 11P: Self Retaining - Permeable Pavers

Inflow Area = 1.049 ac, 56.84% Impervious, Inflow Depth > 6.40" for 50-Year Storm event
 Inflow = 3.44 cfs @ 10.02 hrs, Volume= 0.559 af
 Outflow = 0.58 cfs @ 11.11 hrs, Volume= 0.293 af, Atten= 83%, Lag= 65.7 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.58 cfs @ 11.11 hrs, Volume= 0.293 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 73.13' @ 11.11 hrs Surf.Area= 15,055 sf Storage= 12,851 cf

Plug-Flow detention time= 401.3 min calculated for 0.292 af (52% of inflow)
 Center-of-Mass det. time= 211.7 min (924.4 - 712.7)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	13,851 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 34,626 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	15,055	0	0
73.30	15,055	34,626	34,626

Device	Routing	Invert	Outlet Devices
#1	Primary	72.80'	4.0" Round Culvert X 4.00 L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 72.80' / 72.54' S= 0.0052 ' / Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	71.00'	0.890 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.58 cfs @ 11.11 hrs HW=73.13' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 0.58 cfs @ 2.05 fps)

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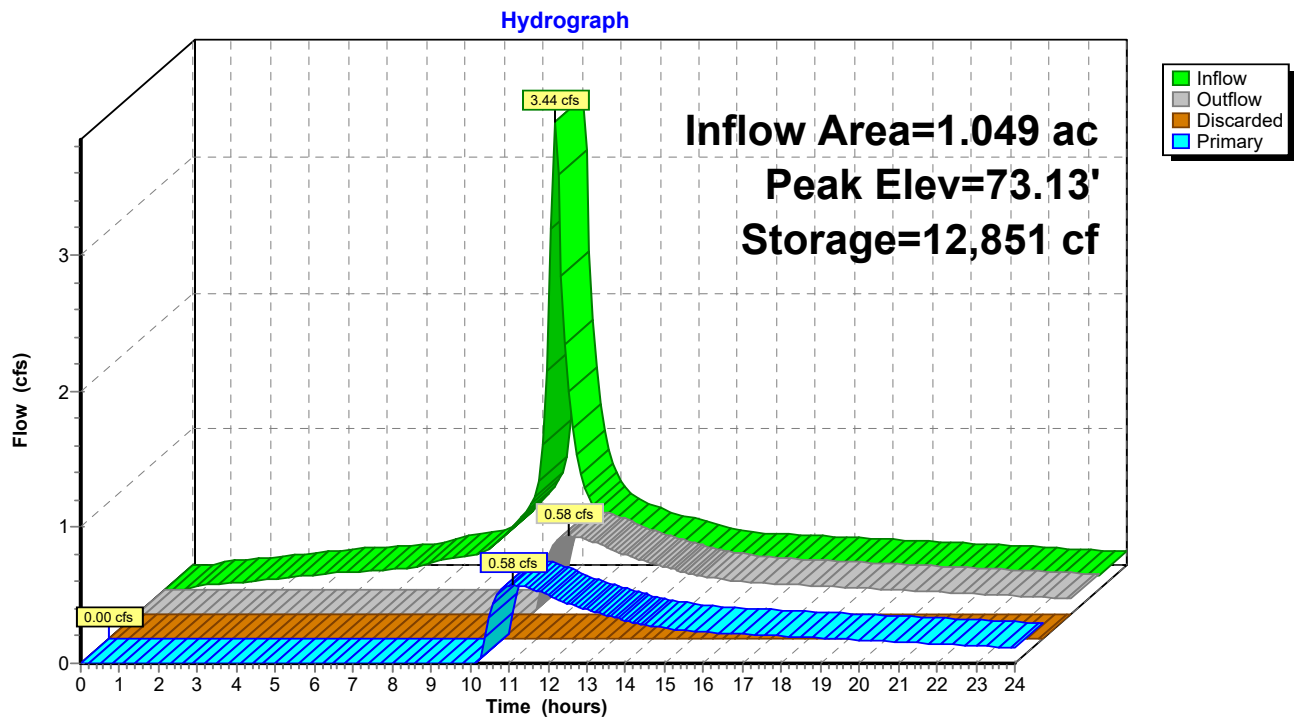
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Pond 11P: Self Retaining - Permeable Pavers



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Hydrograph for Pond 11P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	71.00	0.00	0.00	0.00
0.50	0.00	1	71.00	0.00	0.00	0.00
1.00	0.03	32	71.01	0.00	0.00	0.00
1.50	0.05	103	71.02	0.00	0.00	0.00
2.00	0.06	199	71.03	0.00	0.00	0.00
2.50	0.07	312	71.05	0.00	0.00	0.00
3.00	0.08	449	71.07	0.00	0.00	0.00
3.50	0.10	613	71.10	0.00	0.00	0.00
4.00	0.11	804	71.13	0.00	0.00	0.00
4.50	0.12	1,019	71.17	0.00	0.00	0.00
5.00	0.13	1,252	71.21	0.00	0.00	0.00
5.50	0.14	1,501	71.25	0.00	0.00	0.00
6.00	0.15	1,764	71.29	0.00	0.00	0.00
6.50	0.17	2,051	71.34	0.00	0.00	0.00
7.00	0.21	2,395	71.40	0.00	0.00	0.00
7.50	0.24	2,801	71.47	0.00	0.00	0.00
8.00	0.25	3,241	71.54	0.00	0.00	0.00
8.50	0.34	3,754	71.62	0.00	0.00	0.00
9.00	0.47	4,484	71.74	0.00	0.00	0.00
9.50	0.68	5,507	71.91	0.00	0.00	0.00
10.00	3.42	8,454	72.40	0.00	0.00	0.00
10.50	1.19	12,241	73.03	0.34	0.00	0.34
11.00	0.62	12,842	73.13	0.57	0.00	0.57
11.50	0.48	12,788	73.12	0.55	0.00	0.55
12.00	0.42	12,649	73.10	0.50	0.00	0.50
12.50	0.37	12,508	73.08	0.44	0.00	0.44
13.00	0.33	12,389	73.06	0.40	0.00	0.40
13.50	0.30	12,284	73.04	0.35	0.00	0.35
14.00	0.26	12,186	73.02	0.32	0.00	0.32
14.50	0.24	12,099	73.01	0.28	0.00	0.28
15.00	0.23	12,040	73.00	0.26	0.00	0.26
15.50	0.23	12,000	72.99	0.24	0.00	0.24
16.00	0.22	11,969	72.99	0.23	0.00	0.23
16.50	0.21	11,944	72.98	0.22	0.00	0.22
17.00	0.20	11,922	72.98	0.22	0.00	0.22
17.50	0.20	11,900	72.98	0.21	0.00	0.21
18.00	0.19	11,879	72.97	0.20	0.00	0.20
18.50	0.18	11,857	72.97	0.19	0.00	0.19
19.00	0.17	11,836	72.97	0.19	0.00	0.19
19.50	0.17	11,815	72.96	0.18	0.00	0.18
20.00	0.16	11,793	72.96	0.17	0.00	0.17
20.50	0.15	11,772	72.95	0.16	0.00	0.16
21.00	0.14	11,749	72.95	0.16	0.00	0.16
21.50	0.14	11,727	72.95	0.15	0.00	0.15
22.00	0.13	11,703	72.94	0.14	0.00	0.14
22.50	0.12	11,680	72.94	0.14	0.00	0.14
23.00	0.11	11,656	72.94	0.13	0.00	0.13
23.50	0.11	11,632	72.93	0.12	0.00	0.12
24.00	0.10	11,608	72.93	0.11	0.00	0.11

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Summary for Pond 26P: Offsite

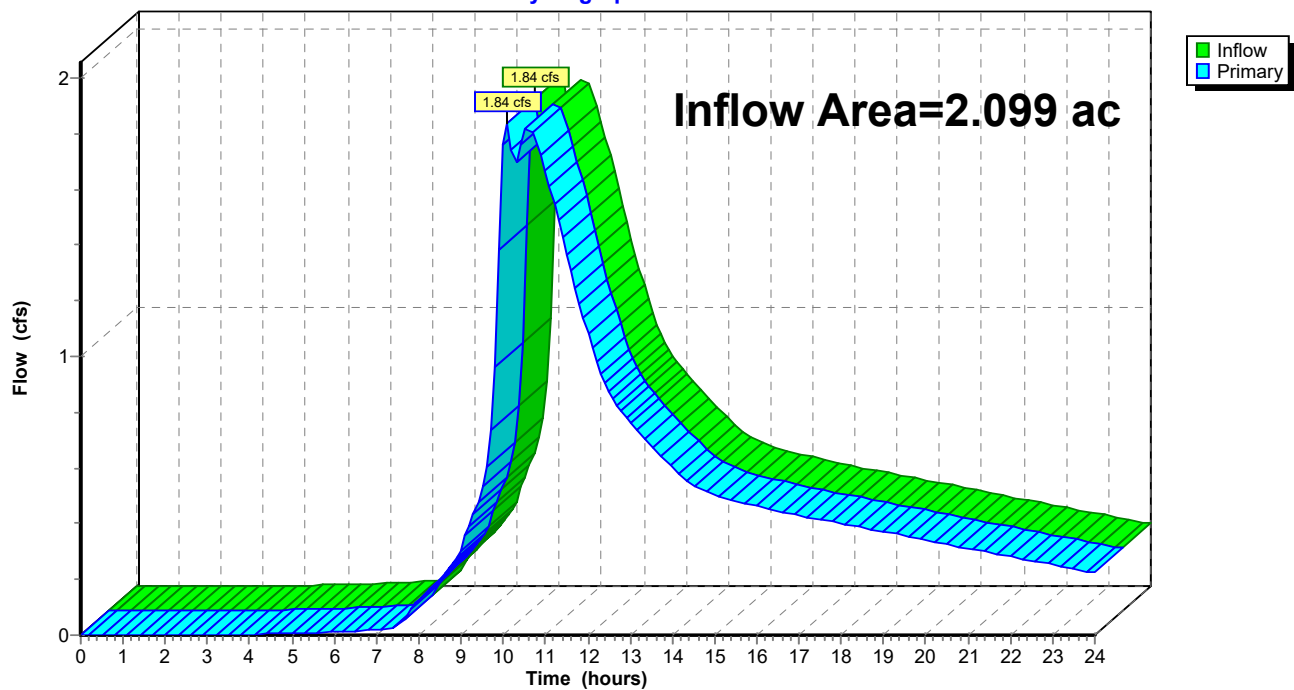
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.099 ac, 52.61% Impervious, Inflow Depth > 4.47" for 50-Year Storm event
Inflow = 1.84 cfs @ 10.09 hrs, Volume= 0.781 af
Primary = 1.84 cfs @ 10.09 hrs, Volume= 0.781 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Pond 26P: Offsite

Hydrograph



22027_DRAINAGE

Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Pond 26P: Offsite

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	0.00		0.00
1.50	0.00		0.00
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.00		0.00
5.00	0.01		0.01
5.50	0.01		0.01
6.00	0.01		0.01
6.50	0.01		0.01
7.00	0.02		0.02
7.50	0.03		0.03
8.00	0.13		0.13
8.50	0.20		0.20
9.00	0.30		0.30
9.50	0.53		0.53
10.00	1.76		1.76
10.50	1.82		1.82
11.00	1.67		1.67
11.50	1.37		1.37
12.00	1.08		1.08
12.50	0.87		0.87
13.00	0.76		0.76
13.50	0.68		0.68
14.00	0.60		0.60
14.50	0.54		0.54
15.00	0.50		0.50
15.50	0.48		0.48
16.00	0.46		0.46
16.50	0.45		0.45
17.00	0.43		0.43
17.50	0.42		0.42
18.00	0.40		0.40
18.50	0.39		0.39
19.00	0.37		0.37
19.50	0.36		0.36
20.00	0.34		0.34
20.50	0.33		0.33
21.00	0.31		0.31
21.50	0.30		0.30
22.00	0.28		0.28
22.50	0.27		0.27
23.00	0.25		0.25
23.50	0.24		0.24
24.00	0.22		0.22

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Pond 27P: Self Retaining - Landcape

Inflow Area = 0.066 ac, 7.30% Impervious, Inflow Depth > 5.35" for 50-Year Storm event
 Inflow = 0.19 cfs @ 10.02 hrs, Volume= 0.029 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 72.78' @ 24.00 hrs Surf.Area= 2,875 sf Storage= 1,280 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	1,653 cf	soil (Prismatic) Listed below (Recalc) 6,612 cf Overall x 25.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	2,875	0	0
73.30	2,875	6,612	6,612

Device	Routing	Invert	Outlet Devices
#1	Discarded	71.00'	1.010 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)↑**1=Exfiltration** (Controls 0.00 cfs)

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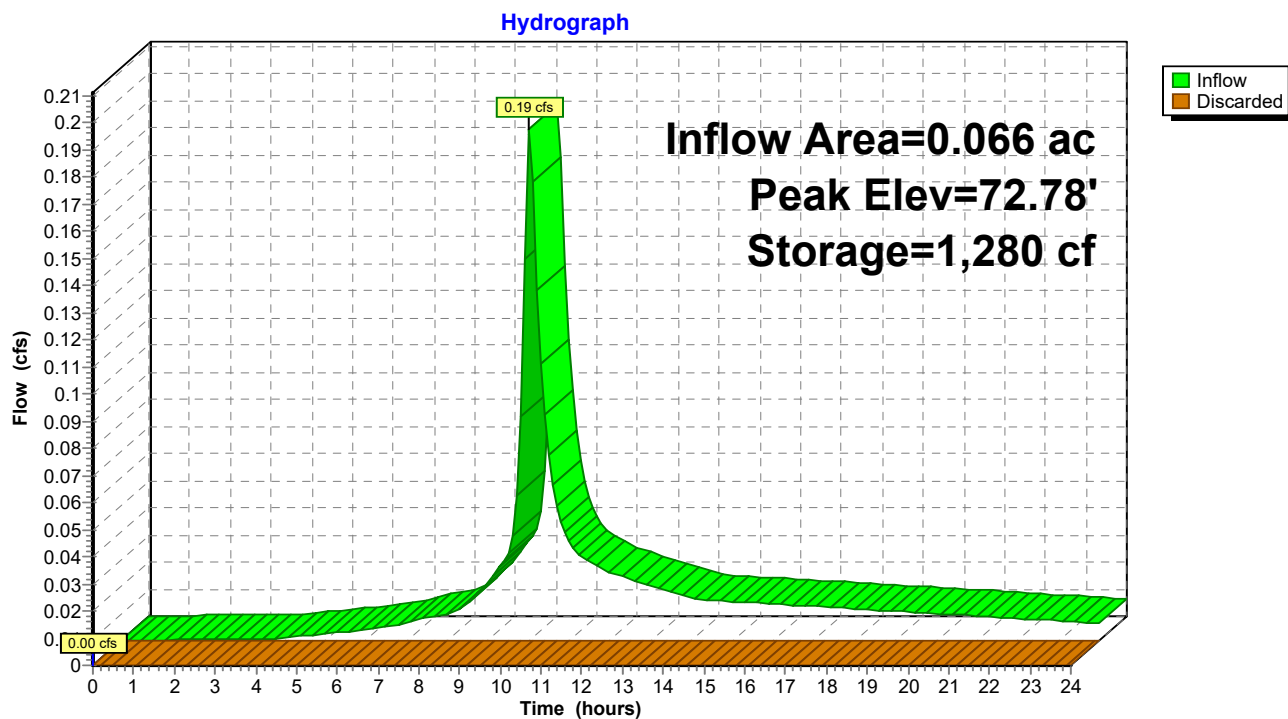
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Pond 27P: Self Retaining - Landscape



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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Pond 27P: Self Retaining - Landscape

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	71.00	0.00
0.50	0.00	0	71.00	0.00
1.00	0.00	0	71.00	0.00
1.50	0.00	1	71.00	0.00
2.00	0.00	2	71.00	0.00
2.50	0.00	3	71.00	0.00
3.00	0.00	4	71.00	0.00
3.50	0.00	5	71.01	0.00
4.00	0.00	6	71.01	0.00
4.50	0.00	9	71.01	0.00
5.00	0.00	13	71.02	0.00
5.50	0.00	18	71.02	0.00
6.00	0.00	24	71.03	0.00
6.50	0.01	32	71.04	0.00
7.00	0.01	43	71.06	0.00
7.50	0.01	57	71.08	0.00
8.00	0.01	73	71.10	0.00
8.50	0.01	93	71.13	0.00
9.00	0.02	124	71.17	0.00
9.50	0.03	172	71.24	0.00
10.00	0.19	325	71.45	0.00
10.50	0.07	545	71.76	0.00
11.00	0.04	633	71.88	0.00
11.50	0.03	691	71.96	0.00
12.00	0.03	739	72.03	0.00
12.50	0.02	783	72.09	0.00
13.00	0.02	821	72.14	0.00
13.50	0.02	856	72.19	0.00
14.00	0.02	887	72.23	0.00
14.50	0.01	915	72.27	0.00
15.00	0.01	941	72.31	0.00
15.50	0.01	967	72.35	0.00
16.00	0.01	992	72.38	0.00
16.50	0.01	1,016	72.41	0.00
17.00	0.01	1,039	72.45	0.00
17.50	0.01	1,062	72.48	0.00
18.00	0.01	1,083	72.51	0.00
18.50	0.01	1,104	72.54	0.00
19.00	0.01	1,124	72.56	0.00
19.50	0.01	1,144	72.59	0.00
20.00	0.01	1,162	72.62	0.00
20.50	0.01	1,180	72.64	0.00
21.00	0.01	1,197	72.66	0.00
21.50	0.01	1,213	72.69	0.00
22.00	0.01	1,228	72.71	0.00
22.50	0.01	1,242	72.73	0.00
23.00	0.01	1,256	72.75	0.00
23.50	0.01	1,268	72.76	0.00
24.00	0.01	1,280	72.78	0.00

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Pond 29P: Self Retaining - Permeable Pavers

Inflow Area = 0.108 ac, 67.02% Impervious, Inflow Depth > 6.91" for 50-Year Storm event
 Inflow = 0.38 cfs @ 10.02 hrs, Volume= 0.062 af
 Outflow = 0.25 cfs @ 10.22 hrs, Volume= 0.049 af, Atten= 33%, Lag= 12.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.25 cfs @ 10.22 hrs, Volume= 0.049 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 71.93' @ 10.22 hrs Surf.Area= 1,325 sf Storage= 810 cf

Plug-Flow detention time= 212.5 min calculated for 0.049 af (79% of inflow)
 Center-of-Mass det. time= 97.6 min (807.0 - 709.4)

Volume	Invert	Avail.Storage	Storage Description
#1	70.40'	1,060 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,650 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.40	1,325	0	0
72.40	1,325	2,650	2,650

Device	Routing	Invert	Outlet Devices
#1	Primary	71.40'	4.0" Round Culvert L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.40' / 70.60' S= 0.0160 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	70.40'	0.080 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=70.40' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.25 cfs @ 10.22 hrs HW=71.93' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 0.25 cfs @ 2.88 fps)

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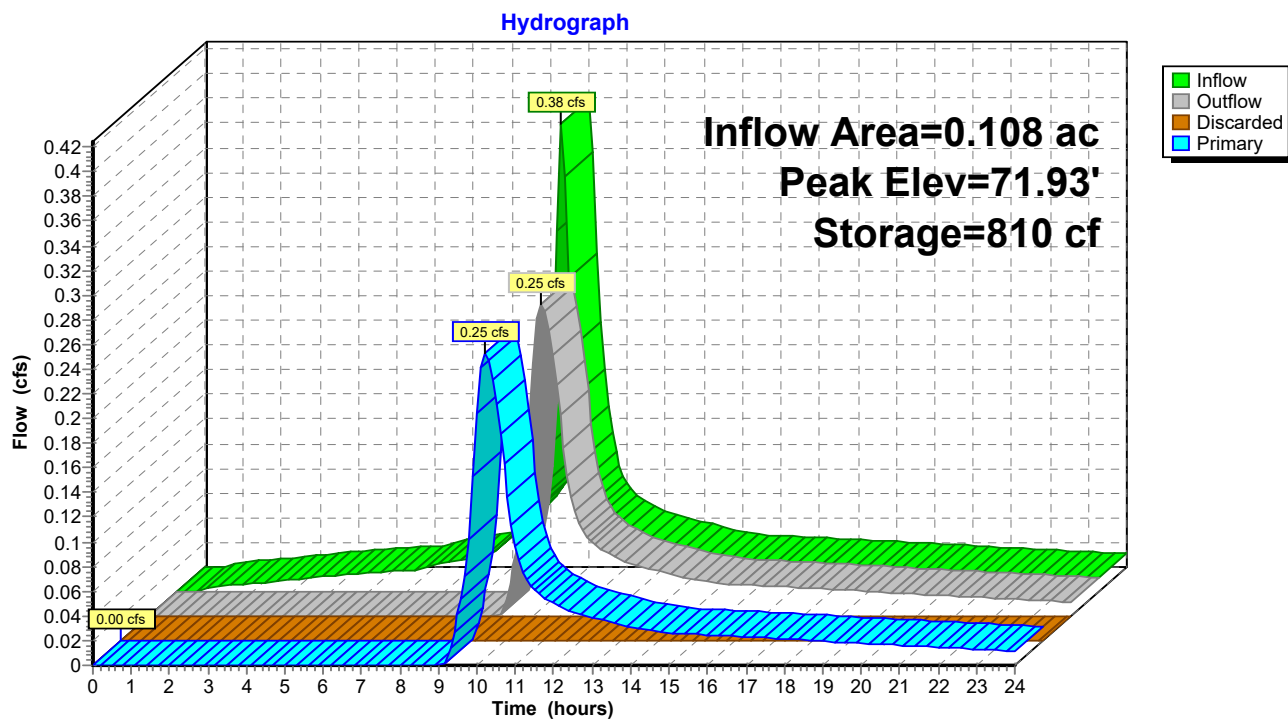
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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Pond 29P: Self Retaining - Permeable Pavers



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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Pond 29P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	70.40	0.00	0.00	0.00
0.50	0.00	0	70.40	0.00	0.00	0.00
1.00	0.00	4	70.41	0.00	0.00	0.00
1.50	0.01	13	70.42	0.00	0.00	0.00
2.00	0.01	24	70.45	0.00	0.00	0.00
2.50	0.01	38	70.47	0.00	0.00	0.00
3.00	0.01	54	70.50	0.00	0.00	0.00
3.50	0.01	74	70.54	0.00	0.00	0.00
4.00	0.01	96	70.58	0.00	0.00	0.00
4.50	0.01	121	70.63	0.00	0.00	0.00
5.00	0.02	148	70.68	0.00	0.00	0.00
5.50	0.02	176	70.73	0.00	0.00	0.00
6.00	0.02	206	70.79	0.00	0.00	0.00
6.50	0.02	239	70.85	0.00	0.00	0.00
7.00	0.02	278	70.92	0.00	0.00	0.00
7.50	0.03	323	71.01	0.00	0.00	0.00
8.00	0.03	373	71.10	0.00	0.00	0.00
8.50	0.04	430	71.21	0.00	0.00	0.00
9.00	0.05	511	71.36	0.00	0.00	0.00
9.50	0.08	601	71.53	0.04	0.00	0.04
10.00	0.38	744	71.80	0.20	0.00	0.20
10.50	0.13	752	71.82	0.21	0.00	0.21
11.00	0.07	646	71.62	0.10	0.00	0.10
11.50	0.05	618	71.57	0.06	0.00	0.06
12.00	0.05	609	71.55	0.05	0.00	0.05
12.50	0.04	603	71.54	0.04	0.00	0.04
13.00	0.04	599	71.53	0.04	0.00	0.04
13.50	0.03	595	71.52	0.03	0.00	0.03
14.00	0.03	591	71.52	0.03	0.00	0.03
14.50	0.03	588	71.51	0.03	0.00	0.03
15.00	0.03	586	71.51	0.03	0.00	0.03
15.50	0.02	585	71.50	0.03	0.00	0.03
16.00	0.02	584	71.50	0.02	0.00	0.02
16.50	0.02	583	71.50	0.02	0.00	0.02
17.00	0.02	582	71.50	0.02	0.00	0.02
17.50	0.02	581	71.50	0.02	0.00	0.02
18.00	0.02	580	71.49	0.02	0.00	0.02
18.50	0.02	579	71.49	0.02	0.00	0.02
19.00	0.02	578	71.49	0.02	0.00	0.02
19.50	0.02	577	71.49	0.02	0.00	0.02
20.00	0.02	576	71.49	0.02	0.00	0.02
20.50	0.02	575	71.48	0.02	0.00	0.02
21.00	0.02	574	71.48	0.02	0.00	0.02
21.50	0.02	573	71.48	0.02	0.00	0.02
22.00	0.01	571	71.48	0.01	0.00	0.01
22.50	0.01	570	71.48	0.01	0.00	0.01
23.00	0.01	569	71.47	0.01	0.00	0.01
23.50	0.01	568	71.47	0.01	0.00	0.01
24.00	0.01	566	71.47	0.01	0.00	0.01

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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Summary for Pond 30P: Bioretention Basin (SCM-2)

Inflow Area = 0.071 ac, 87.70% Impervious, Inflow Depth > 7.04" for 50-Year Storm event
 Inflow = 0.25 cfs @ 10.02 hrs, Volume= 0.042 af
 Outflow = 0.25 cfs @ 10.02 hrs, Volume= 0.033 af, Atten= 1%, Lag= 0.1 min
 Primary = 0.25 cfs @ 10.02 hrs, Volume= 0.033 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2

Peak Elev= 71.50' @ 10.02 hrs Surf.Area= 380 sf Storage= 379 cf

Plug-Flow detention time= 200.6 min calculated for 0.033 af (79% of inflow)

Center-of-Mass det. time= 87.3 min (789.1 - 701.8)

Volume	Invert	Avail.Storage	Storage Description
#1	70.50'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.50	380	0	0
71.50	380	380	380

Device	Routing	Invert	Outlet Devices
#1	Primary	71.49'	95.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.22 cfs @ 10.02 hrs HW=71.50' (Free Discharge)

↑1=Sharp-Crested Rectangular Weir (Weir Controls 0.22 cfs @ 0.29 fps)

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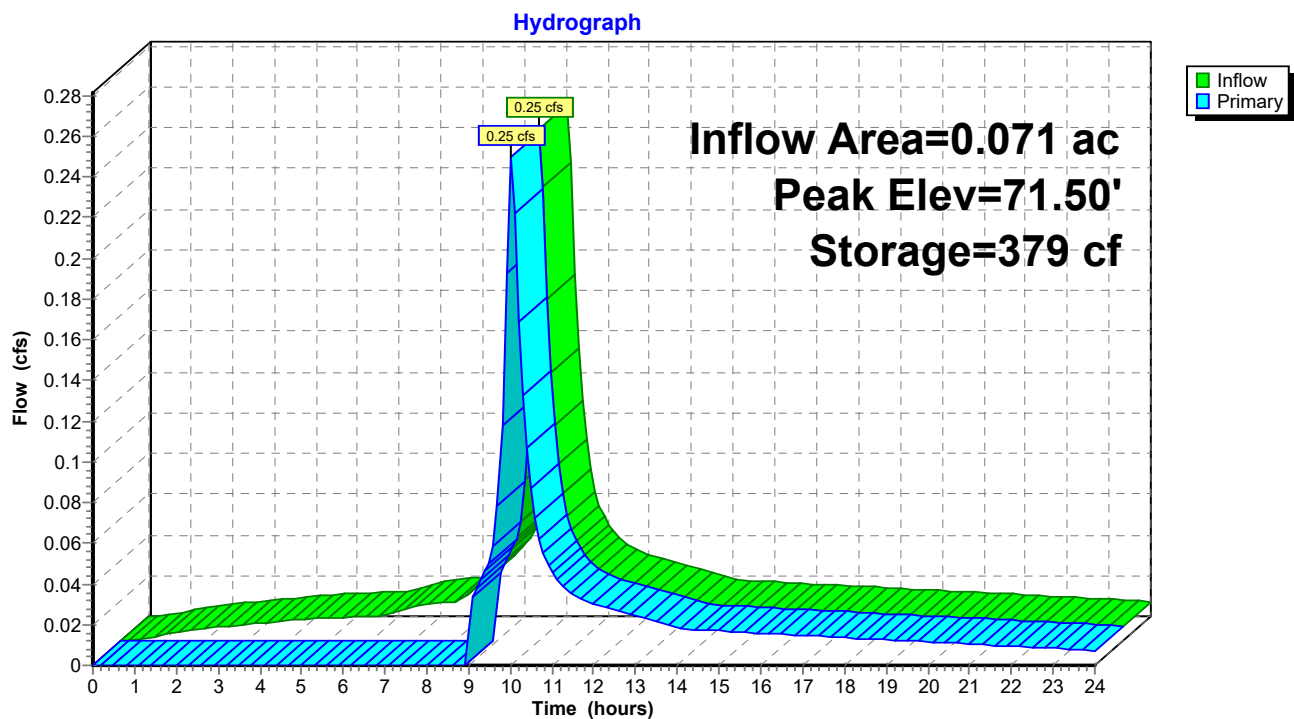
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Pond 30P: Bioretention Basin (SCM-2)



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Type I 24-hr 50-Year Storm Rainfall=7.56"

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Hydrograph for Pond 30P: Bioretention Basin (SCM-2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.50	0.00
0.50	0.00	0	70.50	0.00
1.00	0.00	3	70.51	0.00
1.50	0.01	11	70.53	0.00
2.00	0.01	21	70.56	0.00
2.50	0.01	33	70.59	0.00
3.00	0.01	46	70.62	0.00
3.50	0.01	61	70.66	0.00
4.00	0.01	78	70.71	0.00
4.50	0.01	97	70.75	0.00
5.00	0.01	116	70.81	0.00
5.50	0.01	137	70.86	0.00
6.00	0.01	158	70.92	0.00
6.50	0.01	181	70.98	0.00
7.00	0.02	208	71.05	0.00
7.50	0.02	239	71.13	0.00
8.00	0.02	273	71.22	0.00
8.50	0.03	312	71.32	0.00
9.00	0.04	367	71.46	0.00
9.50	0.05	377	71.49	0.05
10.00	0.25	379	71.50	0.25
10.50	0.09	377	71.49	0.09
11.00	0.05	377	71.49	0.05
11.50	0.04	377	71.49	0.04
12.00	0.03	377	71.49	0.03
12.50	0.03	377	71.49	0.03
13.00	0.02	376	71.49	0.02
13.50	0.02	376	71.49	0.02
14.00	0.02	376	71.49	0.02
14.50	0.02	376	71.49	0.02
15.00	0.02	376	71.49	0.02
15.50	0.02	376	71.49	0.02
16.00	0.02	376	71.49	0.02
16.50	0.02	376	71.49	0.02
17.00	0.01	376	71.49	0.01
17.50	0.01	376	71.49	0.01
18.00	0.01	376	71.49	0.01
18.50	0.01	376	71.49	0.01
19.00	0.01	376	71.49	0.01
19.50	0.01	376	71.49	0.01
20.00	0.01	376	71.49	0.01
20.50	0.01	376	71.49	0.01
21.00	0.01	376	71.49	0.01
21.50	0.01	376	71.49	0.01
22.00	0.01	376	71.49	0.01
22.50	0.01	376	71.49	0.01
23.00	0.01	376	71.49	0.01
23.50	0.01	376	71.49	0.01
24.00	0.01	376	71.49	0.01

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points
 Runoff by SBUH method, Split Pervious/Imperv.
 Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment7S: DMA 1	Runoff Area=30,044 sf 52.67% Impervious Runoff Depth>1.47" Tc=12.0 min CN=81/98 Runoff=0.51 cfs 0.084 af
Subcatchment10S: DMA 2	Runoff Area=4,320 sf 0.00% Impervious Runoff Depth>0.75" Tc=12.0 min CN=80/0 Runoff=0.03 cfs 0.006 af
Subcatchment16S: DMA 7	Runoff Area=1,650 sf 88.48% Impervious Runoff Depth>1.91" Tc=12.0 min CN=80/98 Runoff=0.04 cfs 0.006 af
Subcatchment19S: DMA 10	Runoff Area=1,440 sf 86.81% Impervious Runoff Depth>1.89" Tc=12.0 min CN=80/98 Runoff=0.03 cfs 0.005 af
Subcatchment20S: DMA 11	Runoff Area=1,385 sf 5.78% Impervious Runoff Depth>0.83" Tc=12.0 min CN=80/98 Runoff=0.01 cfs 0.002 af
Subcatchment21S: DMA 12	Runoff Area=4,685 sf 67.02% Impervious Runoff Depth>1.78" Tc=12.0 min CN=88/98 Runoff=0.10 cfs 0.016 af
Subcatchment22S: DMA 13	Runoff Area=1,320 sf 28.79% Impervious Runoff Depth>1.13" Tc=12.0 min CN=80/98 Runoff=0.02 cfs 0.003 af
Subcatchment23S: DMA 3, 5, 6, 8	Runoff Area=42,820 sf 60.16% Impervious Runoff Depth>1.72" Tc=12.0 min CN=88/98 Runoff=0.88 cfs 0.141 af
Subcatchment25S: DMA 14	Runoff Area=890 sf 0.00% Impervious Runoff Depth>0.75" Tc=12.0 min CN=80/0 Runoff=0.01 cfs 0.001 af
Subcatchment28S: DMA 4 & 9	Runoff Area=2,875 sf 7.30% Impervious Runoff Depth>0.85" Tc=12.0 min CN=80/98 Runoff=0.02 cfs 0.005 af
Pond 8P: Bioretention Basin (SCM-1)	Peak Elev=73.68' Storage=1,744 cf Inflow=0.51 cfs 0.084 af Discarded=0.00 cfs 0.000 af Primary=0.09 cfs 0.047 af Secondary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.047 af
Pond 11P: Self Retaining - Permeable Pavers	Peak Elev=72.02' Storage=6,145 cf Inflow=0.88 cfs 0.141 af Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond 26P: Offsite	Inflow=0.10 cfs 0.065 af Primary=0.10 cfs 0.065 af
Pond 27P: Self Retaining - Landcape	Peak Elev=71.28' Storage=202 cf Inflow=0.02 cfs 0.005 af Outflow=0.00 cfs 0.000 af
Pond 29P: Self Retaining - Permeable Pavers	Peak Elev=71.45' Storage=556 cf Inflow=0.10 cfs 0.016 af Discarded=0.00 cfs 0.000 af Primary=0.01 cfs 0.003 af Outflow=0.01 cfs 0.003 af
Pond 30P: Bioretention Basin (SCM-2)	Peak Elev=71.49' Storage=376 cf Inflow=0.07 cfs 0.011 af Outflow=0.00 cfs 0.003 af

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Total Runoff Area = 2.099 ac Runoff Volume = 0.270 af Average Runoff Depth = 1.54"
47.39% Pervious = 0.995 ac 52.61% Impervious = 1.104 ac

22027_DRAINAGE

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Subcatchment 7S: DMA 1

Runoff = 0.51 cfs @ 10.02 hrs, Volume= 0.084 af, Depth> 1.47"
Routed to Pond 8P : Bioretention Basin (SCM-1)

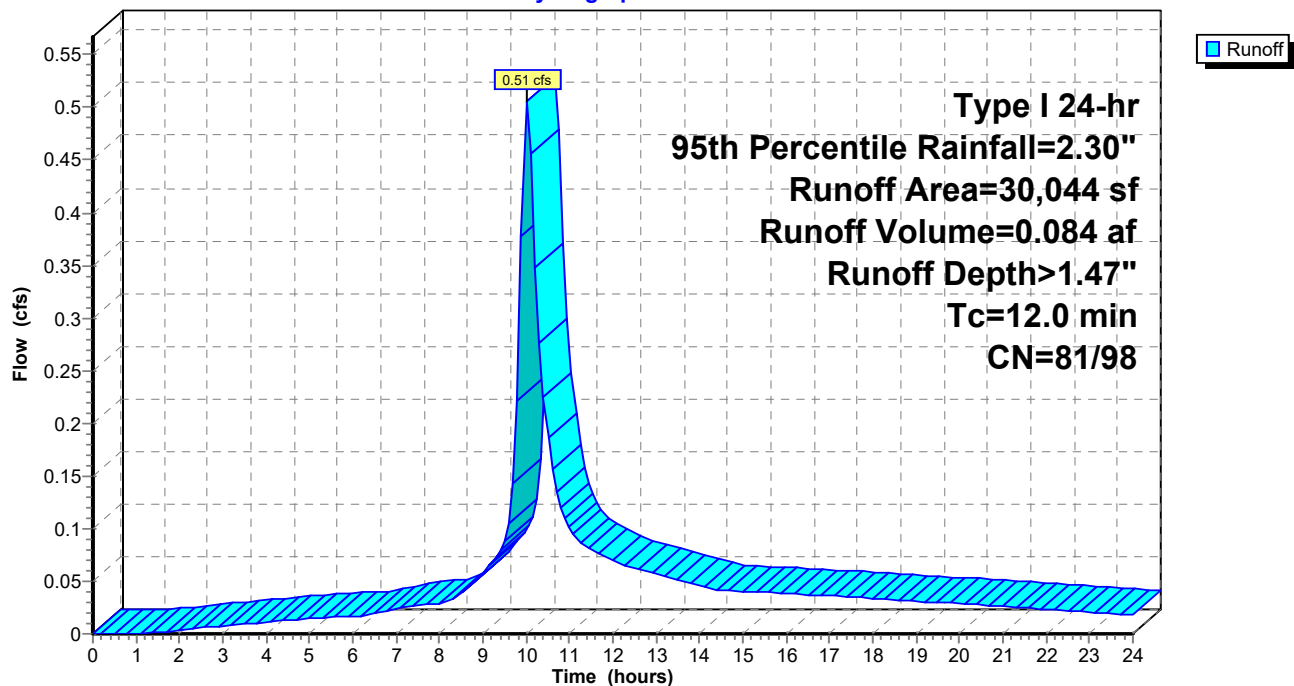
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 95th Percentile Rainfall=2.30"

	Area (sf)	CN	Description
*	15,823	98	Impervious
*	9,370	80	Pervious
*	1,367	89	Pavers
*	3,484	80	Basin
	30,044	90	Weighted Average
	14,221	81	47.33% Pervious Area
	15,823	98	52.67% Impervious Area

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

Subcatchment 7S: DMA 1

Hydrograph



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Type I 24-hr 95th Percentile Rainfall=2.30"

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Hydrograph for Subcatchment 7S: DMA 1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00	0.00
1.00	0.04	0.00	0.00	0.00
1.50	0.06	0.00	0.00	0.00
2.00	0.08	0.00	0.01	0.00
2.50	0.10	0.00	0.01	0.01
3.00	0.12	0.00	0.02	0.01
3.50	0.15	0.00	0.04	0.01
4.00	0.17	0.00	0.05	0.01
4.50	0.20	0.00	0.07	0.01
5.00	0.23	0.00	0.09	0.01
5.50	0.26	0.00	0.11	0.02
6.00	0.29	0.00	0.13	0.02
6.50	0.32	0.00	0.16	0.02
7.00	0.36	0.00	0.19	0.02
7.50	0.40	0.00	0.23	0.03
8.00	0.45	0.00	0.27	0.03
8.50	0.50	0.00	0.32	0.04
9.00	0.58	0.01	0.40	0.06
9.50	0.70	0.02	0.50	0.09
10.00	1.18	0.17	0.97	0.50
10.50	1.34	0.24	1.12	0.19
11.00	1.43	0.28	1.21	0.10
11.50	1.51	0.32	1.29	0.08
12.00	1.57	0.35	1.35	0.07
12.50	1.63	0.39	1.41	0.06
13.00	1.68	0.41	1.46	0.06
13.50	1.73	0.44	1.51	0.05
14.00	1.77	0.46	1.55	0.05
14.50	1.81	0.49	1.58	0.04
15.00	1.84	0.51	1.62	0.04
15.50	1.88	0.53	1.66	0.04
16.00	1.91	0.55	1.69	0.04
16.50	1.95	0.57	1.72	0.04
17.00	1.98	0.59	1.75	0.04
17.50	2.01	0.61	1.78	0.03
18.00	2.04	0.63	1.81	0.03
18.50	2.07	0.65	1.84	0.03
19.00	2.09	0.66	1.87	0.03
19.50	2.12	0.68	1.89	0.03
20.00	2.14	0.70	1.92	0.03
20.50	2.17	0.71	1.94	0.03
21.00	2.19	0.73	1.96	0.03
21.50	2.21	0.74	1.98	0.02
22.00	2.23	0.76	2.00	0.02
22.50	2.25	0.77	2.02	0.02
23.00	2.27	0.78	2.04	0.02
23.50	2.28	0.79	2.06	0.02
24.00	2.30	0.80	2.07	0.02

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Subcatchment 10S: DMA 2

Runoff = 0.03 cfs @ 10.04 hrs, Volume= 0.006 af, Depth> 0.75"
Routed to Pond 26P : Offsite

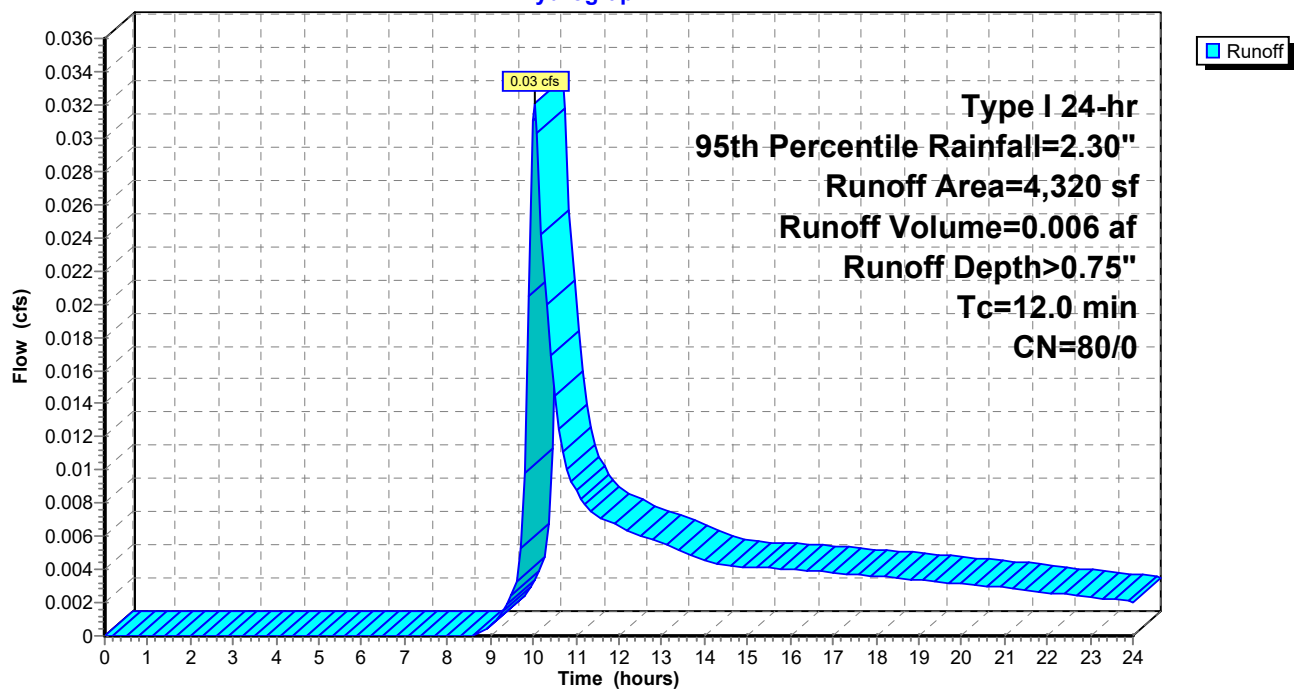
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 95th Percentile Rainfall=2.30"

	Area (sf)	CN	Description
*	4,320	80	Pervious
	4,320	80	100.00% Pervious Area

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

Subcatchment 10S: DMA 2

Hydrograph



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Type I 24-hr 95th Percentile Rainfall=2.30"

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Hydrograph for Subcatchment 10S: DMA 2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00	0.00
1.00	0.04	0.00	0.00	0.00
1.50	0.06	0.00	0.00	0.00
2.00	0.08	0.00	0.00	0.00
2.50	0.10	0.00	0.00	0.00
3.00	0.12	0.00	0.00	0.00
3.50	0.15	0.00	0.00	0.00
4.00	0.17	0.00	0.00	0.00
4.50	0.20	0.00	0.00	0.00
5.00	0.23	0.00	0.00	0.00
5.50	0.26	0.00	0.00	0.00
6.00	0.29	0.00	0.00	0.00
6.50	0.32	0.00	0.00	0.00
7.00	0.36	0.00	0.00	0.00
7.50	0.40	0.00	0.00	0.00
8.00	0.45	0.00	0.00	0.00
8.50	0.50	0.00	0.00	0.00
9.00	0.58	0.00	0.00	0.00
9.50	0.70	0.01	0.00	0.00
10.00	1.18	0.15	0.00	0.03
10.50	1.34	0.21	0.00	0.01
11.00	1.43	0.25	0.00	0.01
11.50	1.51	0.29	0.00	0.01
12.00	1.57	0.32	0.00	0.01
12.50	1.63	0.35	0.00	0.01
13.00	1.68	0.38	0.00	0.01
13.50	1.73	0.41	0.00	0.01
14.00	1.77	0.43	0.00	0.00
14.50	1.81	0.45	0.00	0.00
15.00	1.84	0.47	0.00	0.00
15.50	1.88	0.49	0.00	0.00
16.00	1.91	0.51	0.00	0.00
16.50	1.95	0.53	0.00	0.00
17.00	1.98	0.55	0.00	0.00
17.50	2.01	0.57	0.00	0.00
18.00	2.04	0.59	0.00	0.00
18.50	2.07	0.60	0.00	0.00
19.00	2.09	0.62	0.00	0.00
19.50	2.12	0.64	0.00	0.00
20.00	2.14	0.65	0.00	0.00
20.50	2.17	0.67	0.00	0.00
21.00	2.19	0.68	0.00	0.00
21.50	2.21	0.70	0.00	0.00
22.00	2.23	0.71	0.00	0.00
22.50	2.25	0.72	0.00	0.00
23.00	2.27	0.73	0.00	0.00
23.50	2.28	0.74	0.00	0.00
24.00	2.30	0.75	0.00	0.00

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Subcatchment 16S: DMA 7

Runoff = 0.04 cfs @ 10.02 hrs, Volume= 0.006 af, Depth> 1.91"
Routed to Pond 30P : Bioretention Basin (SCM-2)

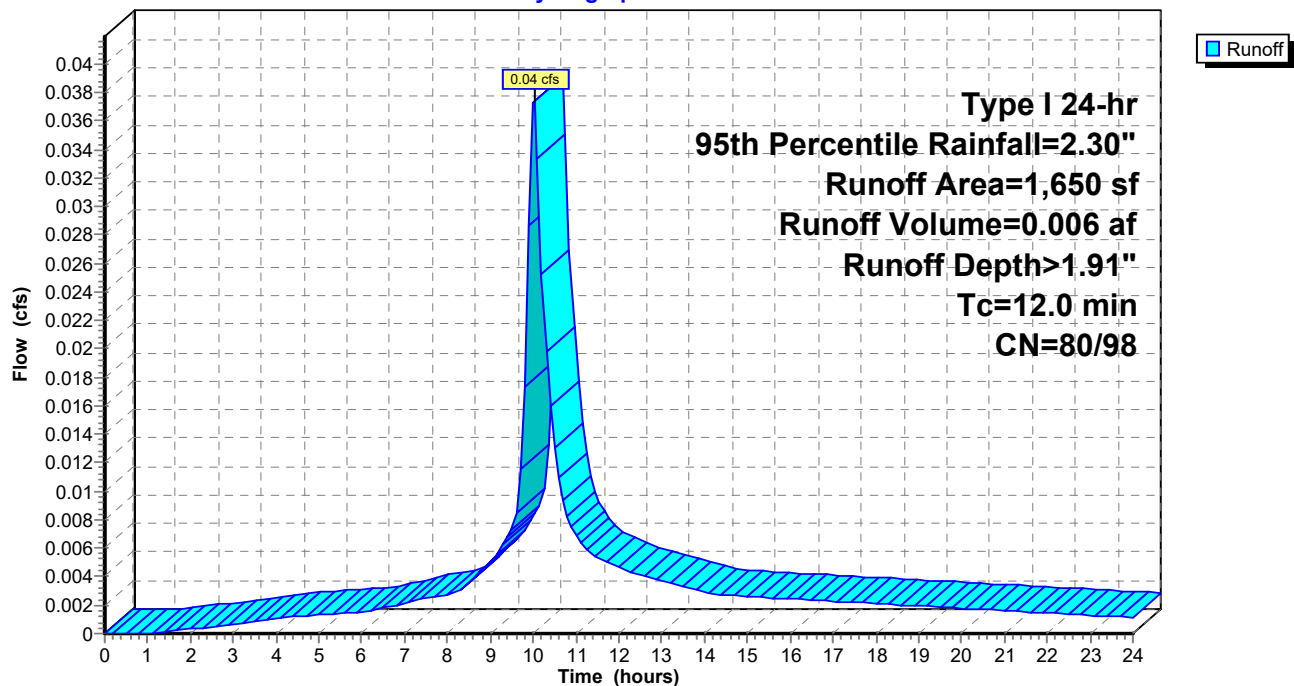
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 95th Percentile Rainfall=2.30"

	Area (sf)	CN	Description
*	1,460	98	Impervious
*	0	80	Pervious
*	190	80	Basin
	1,650	96	Weighted Average
	190	80	11.52% Pervious Area
	1,460	98	88.48% Impervious Area

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

Subcatchment 16S: DMA 7

Hydrograph



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Hydrograph for Subcatchment 16S: DMA 7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00	0.00
1.00	0.04	0.00	0.00	0.00
1.50	0.06	0.00	0.00	0.00
2.00	0.08	0.00	0.01	0.00
2.50	0.10	0.00	0.01	0.00
3.00	0.12	0.00	0.02	0.00
3.50	0.15	0.00	0.04	0.00
4.00	0.17	0.00	0.05	0.00
4.50	0.20	0.00	0.07	0.00
5.00	0.23	0.00	0.09	0.00
5.50	0.26	0.00	0.11	0.00
6.00	0.29	0.00	0.13	0.00
6.50	0.32	0.00	0.16	0.00
7.00	0.36	0.00	0.19	0.00
7.50	0.40	0.00	0.23	0.00
8.00	0.45	0.00	0.27	0.00
8.50	0.50	0.00	0.32	0.00
9.00	0.58	0.00	0.40	0.01
9.50	0.70	0.01	0.50	0.01
10.00	1.18	0.15	0.97	0.04
10.50	1.34	0.21	1.12	0.01
11.00	1.43	0.25	1.21	0.01
11.50	1.51	0.29	1.29	0.01
12.00	1.57	0.32	1.35	0.00
12.50	1.63	0.35	1.41	0.00
13.00	1.68	0.38	1.46	0.00
13.50	1.73	0.41	1.51	0.00
14.00	1.77	0.43	1.55	0.00
14.50	1.81	0.45	1.58	0.00
15.00	1.84	0.47	1.62	0.00
15.50	1.88	0.49	1.66	0.00
16.00	1.91	0.51	1.69	0.00
16.50	1.95	0.53	1.72	0.00
17.00	1.98	0.55	1.75	0.00
17.50	2.01	0.57	1.78	0.00
18.00	2.04	0.59	1.81	0.00
18.50	2.07	0.60	1.84	0.00
19.00	2.09	0.62	1.87	0.00
19.50	2.12	0.64	1.89	0.00
20.00	2.14	0.65	1.92	0.00
20.50	2.17	0.67	1.94	0.00
21.00	2.19	0.68	1.96	0.00
21.50	2.21	0.70	1.98	0.00
22.00	2.23	0.71	2.00	0.00
22.50	2.25	0.72	2.02	0.00
23.00	2.27	0.73	2.04	0.00
23.50	2.28	0.74	2.06	0.00
24.00	2.30	0.75	2.07	0.00

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Summary for Subcatchment 19S: DMA 10

Runoff = 0.03 cfs @ 10.02 hrs, Volume= 0.005 af, Depth> 1.89"
Routed to Pond 30P : Bioretention Basin (SCM-2)

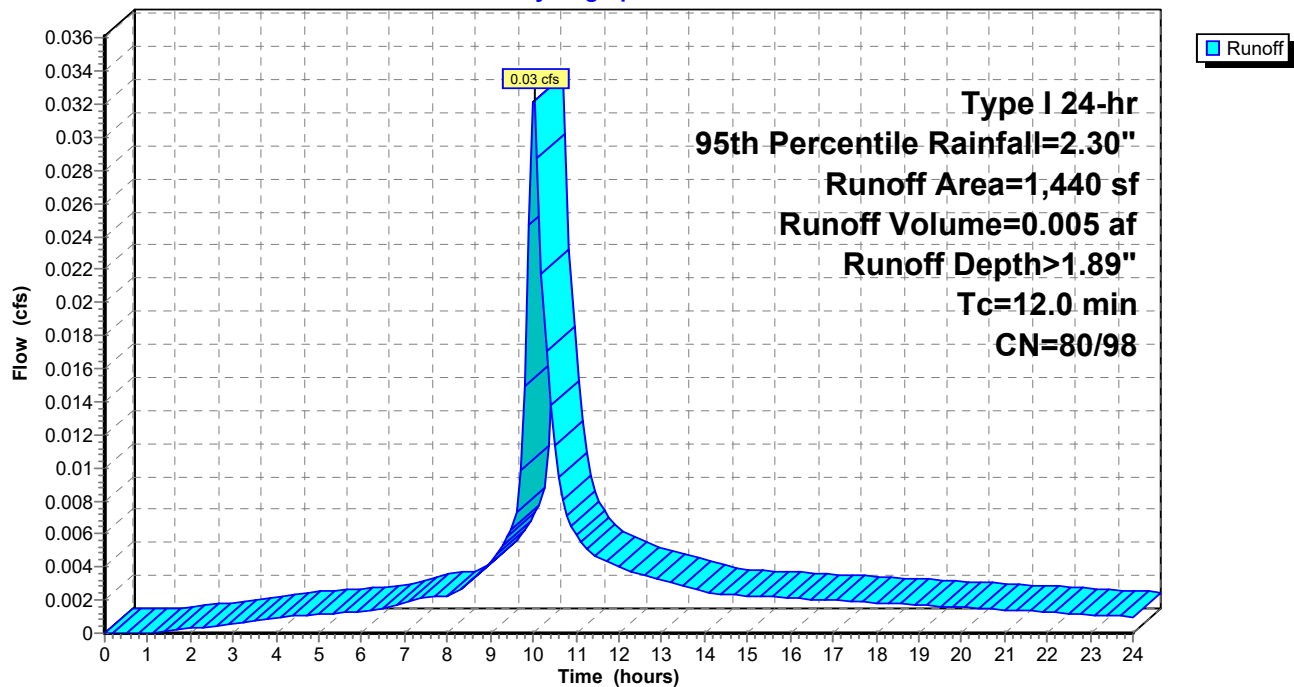
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 95th Percentile Rainfall=2.30"

	Area (sf)	CN	Description
*	1,250	98	Impervious
*	190	80	Basin
	1,440	96	Weighted Average
	190	80	13.19% Pervious Area
	1,250	98	86.81% Impervious Area

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

Subcatchment 19S: DMA 10

Hydrograph



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Hydrograph for Subcatchment 19S: DMA 10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00	0.00
1.00	0.04	0.00	0.00	0.00
1.50	0.06	0.00	0.00	0.00
2.00	0.08	0.00	0.01	0.00
2.50	0.10	0.00	0.01	0.00
3.00	0.12	0.00	0.02	0.00
3.50	0.15	0.00	0.04	0.00
4.00	0.17	0.00	0.05	0.00
4.50	0.20	0.00	0.07	0.00
5.00	0.23	0.00	0.09	0.00
5.50	0.26	0.00	0.11	0.00
6.00	0.29	0.00	0.13	0.00
6.50	0.32	0.00	0.16	0.00
7.00	0.36	0.00	0.19	0.00
7.50	0.40	0.00	0.23	0.00
8.00	0.45	0.00	0.27	0.00
8.50	0.50	0.00	0.32	0.00
9.00	0.58	0.00	0.40	0.00
9.50	0.70	0.01	0.50	0.01
10.00	1.18	0.15	0.97	0.03
10.50	1.34	0.21	1.12	0.01
11.00	1.43	0.25	1.21	0.01
11.50	1.51	0.29	1.29	0.00
12.00	1.57	0.32	1.35	0.00
12.50	1.63	0.35	1.41	0.00
13.00	1.68	0.38	1.46	0.00
13.50	1.73	0.41	1.51	0.00
14.00	1.77	0.43	1.55	0.00
14.50	1.81	0.45	1.58	0.00
15.00	1.84	0.47	1.62	0.00
15.50	1.88	0.49	1.66	0.00
16.00	1.91	0.51	1.69	0.00
16.50	1.95	0.53	1.72	0.00
17.00	1.98	0.55	1.75	0.00
17.50	2.01	0.57	1.78	0.00
18.00	2.04	0.59	1.81	0.00
18.50	2.07	0.60	1.84	0.00
19.00	2.09	0.62	1.87	0.00
19.50	2.12	0.64	1.89	0.00
20.00	2.14	0.65	1.92	0.00
20.50	2.17	0.67	1.94	0.00
21.00	2.19	0.68	1.96	0.00
21.50	2.21	0.70	1.98	0.00
22.00	2.23	0.71	2.00	0.00
22.50	2.25	0.72	2.02	0.00
23.00	2.27	0.73	2.04	0.00
23.50	2.28	0.74	2.06	0.00
24.00	2.30	0.75	2.07	0.00

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Subcatchment 20S: DMA 11

Runoff = 0.01 cfs @ 10.04 hrs, Volume= 0.002 af, Depth> 0.83"
Routed to Pond 26P : Offsite

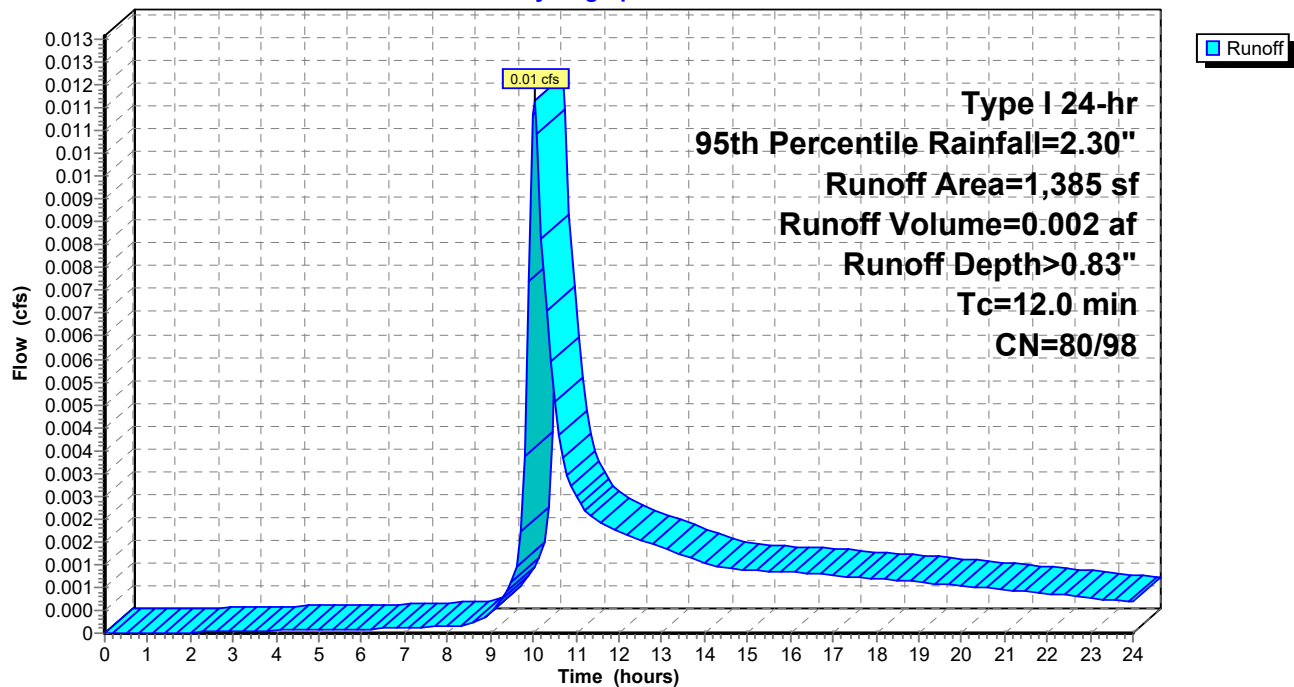
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 95th Percentile Rainfall=2.30"

	Area (sf)	CN	Description
*	1,305	80	Pervious
*	80	98	Impervious
	1,385	81	Weighted Average
	1,305	80	94.22% Pervious Area
	80	98	5.78% Impervious Area

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

Subcatchment 20S: DMA 11

Hydrograph



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Hydrograph for Subcatchment 20S: DMA 11

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00	0.00
1.00	0.04	0.00	0.00	0.00
1.50	0.06	0.00	0.00	0.00
2.00	0.08	0.00	0.01	0.00
2.50	0.10	0.00	0.01	0.00
3.00	0.12	0.00	0.02	0.00
3.50	0.15	0.00	0.04	0.00
4.00	0.17	0.00	0.05	0.00
4.50	0.20	0.00	0.07	0.00
5.00	0.23	0.00	0.09	0.00
5.50	0.26	0.00	0.11	0.00
6.00	0.29	0.00	0.13	0.00
6.50	0.32	0.00	0.16	0.00
7.00	0.36	0.00	0.19	0.00
7.50	0.40	0.00	0.23	0.00
8.00	0.45	0.00	0.27	0.00
8.50	0.50	0.00	0.32	0.00
9.00	0.58	0.00	0.40	0.00
9.50	0.70	0.01	0.50	0.00
10.00	1.18	0.15	0.97	0.01
10.50	1.34	0.21	1.12	0.01
11.00	1.43	0.25	1.21	0.00
11.50	1.51	0.29	1.29	0.00
12.00	1.57	0.32	1.35	0.00
12.50	1.63	0.35	1.41	0.00
13.00	1.68	0.38	1.46	0.00
13.50	1.73	0.41	1.51	0.00
14.00	1.77	0.43	1.55	0.00
14.50	1.81	0.45	1.58	0.00
15.00	1.84	0.47	1.62	0.00
15.50	1.88	0.49	1.66	0.00
16.00	1.91	0.51	1.69	0.00
16.50	1.95	0.53	1.72	0.00
17.00	1.98	0.55	1.75	0.00
17.50	2.01	0.57	1.78	0.00
18.00	2.04	0.59	1.81	0.00
18.50	2.07	0.60	1.84	0.00
19.00	2.09	0.62	1.87	0.00
19.50	2.12	0.64	1.89	0.00
20.00	2.14	0.65	1.92	0.00
20.50	2.17	0.67	1.94	0.00
21.00	2.19	0.68	1.96	0.00
21.50	2.21	0.70	1.98	0.00
22.00	2.23	0.71	2.00	0.00
22.50	2.25	0.72	2.02	0.00
23.00	2.27	0.73	2.04	0.00
23.50	2.28	0.74	2.06	0.00
24.00	2.30	0.75	2.07	0.00

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Subcatchment 21S: DMA 12

Runoff = 0.10 cfs @ 10.02 hrs, Volume= 0.016 af, Depth> 1.78"

Routed to Pond 29P : Self Retaining - Permeable Pavers

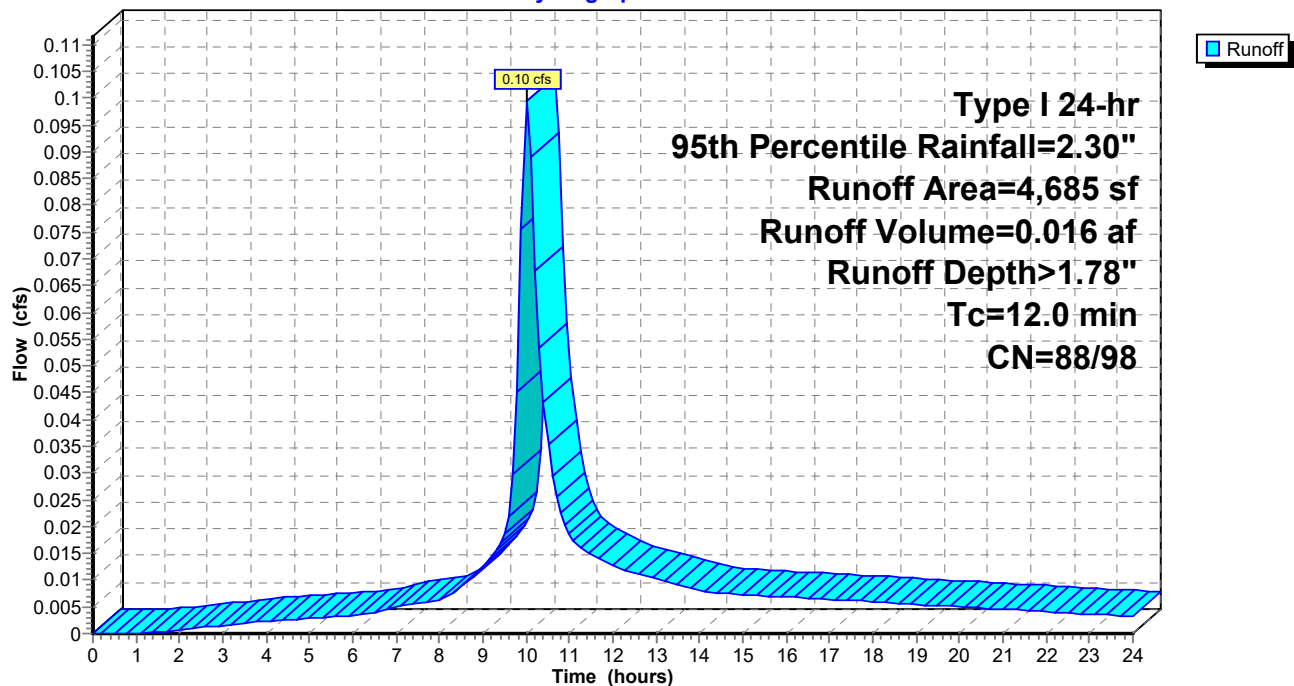
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 95th Percentile Rainfall=2.30"

	Area (sf)	CN	Description
*	3,140	98	Impervious
*	220	80	Pervious
*	1,325	89	Pavers
	4,685	95	Weighted Average
	1,545	88	32.98% Pervious Area
	3,140	98	67.02% Impervious Area

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

Subcatchment 21S: DMA 12

Hydrograph



22027_DRAINAGE

Type I 24-hr 95th Percentile Rainfall=2.30"

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Hydrograph for Subcatchment 21S: DMA 12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00	0.00
1.00	0.04	0.00	0.00	0.00
1.50	0.06	0.00	0.00	0.00
2.00	0.08	0.00	0.01	0.00
2.50	0.10	0.00	0.01	0.00
3.00	0.12	0.00	0.02	0.00
3.50	0.15	0.00	0.04	0.00
4.00	0.17	0.00	0.05	0.00
4.50	0.20	0.00	0.07	0.00
5.00	0.23	0.00	0.09	0.00
5.50	0.26	0.00	0.11	0.00
6.00	0.29	0.00	0.13	0.00
6.50	0.32	0.00	0.16	0.00
7.00	0.36	0.01	0.19	0.00
7.50	0.40	0.01	0.23	0.01
8.00	0.45	0.02	0.27	0.01
8.50	0.50	0.03	0.32	0.01
9.00	0.58	0.06	0.40	0.01
9.50	0.70	0.10	0.50	0.02
10.00	1.18	0.37	0.97	0.10
10.50	1.34	0.47	1.12	0.04
11.00	1.43	0.53	1.21	0.02
11.50	1.51	0.59	1.29	0.01
12.00	1.57	0.63	1.35	0.01
12.50	1.63	0.68	1.41	0.01
13.00	1.68	0.72	1.46	0.01
13.50	1.73	0.75	1.51	0.01
14.00	1.77	0.78	1.55	0.01
14.50	1.81	0.81	1.58	0.01
15.00	1.84	0.84	1.62	0.01
15.50	1.88	0.87	1.66	0.01
16.00	1.91	0.90	1.69	0.01
16.50	1.95	0.92	1.72	0.01
17.00	1.98	0.95	1.75	0.01
17.50	2.01	0.97	1.78	0.01
18.00	2.04	1.00	1.81	0.01
18.50	2.07	1.02	1.84	0.01
19.00	2.09	1.04	1.87	0.01
19.50	2.12	1.06	1.89	0.01
20.00	2.14	1.08	1.92	0.01
20.50	2.17	1.10	1.94	0.00
21.00	2.19	1.12	1.96	0.00
21.50	2.21	1.14	1.98	0.00
22.00	2.23	1.15	2.00	0.00
22.50	2.25	1.17	2.02	0.00
23.00	2.27	1.19	2.04	0.00
23.50	2.28	1.20	2.06	0.00
24.00	2.30	1.21	2.07	0.00

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Subcatchment 22S: DMA 13

Runoff = 0.02 cfs @ 10.03 hrs, Volume= 0.003 af, Depth> 1.13"
Routed to Pond 26P : Offsite

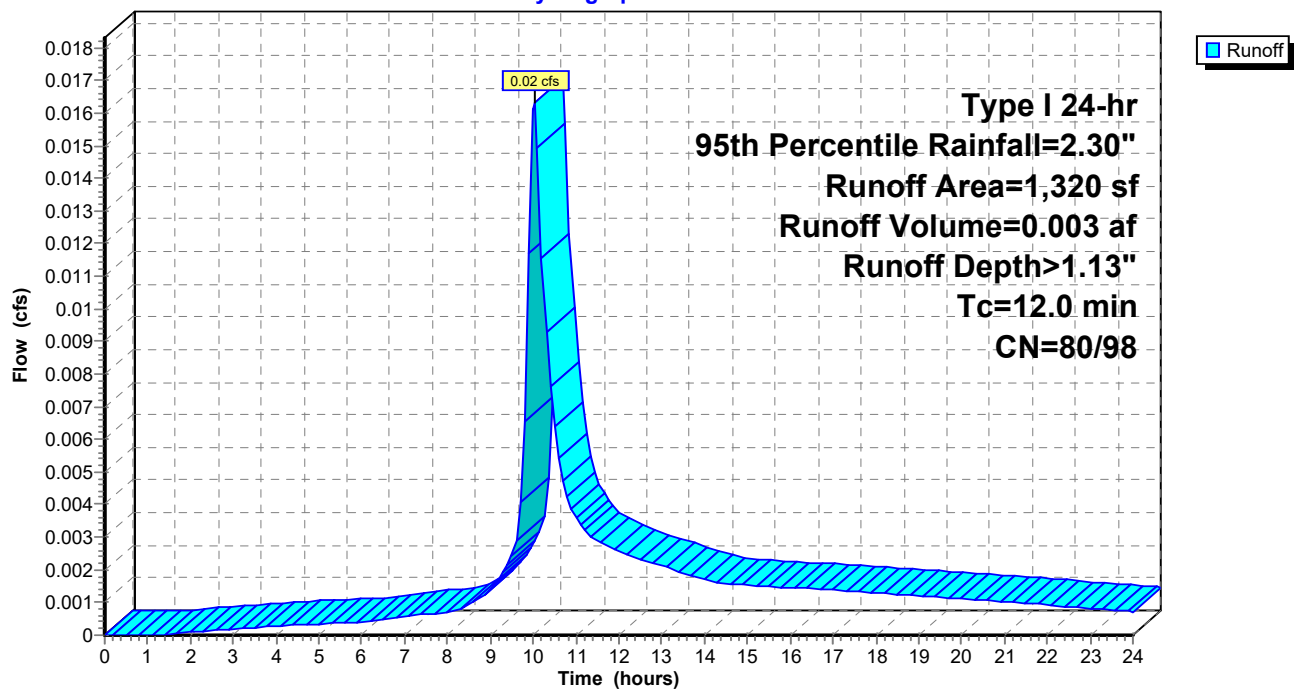
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 95th Percentile Rainfall=2.30"

	Area (sf)	CN	Description
*	380	98	Impervious
*	940	80	Pervious
	1,320	85	Weighted Average
	940	80	71.21% Pervious Area
	380	98	28.79% Impervious Area

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

Subcatchment 22S: DMA 13

Hydrograph



22027_DRAINAGE

Type I 24-hr 95th Percentile Rainfall=2.30"

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Hydrograph for Subcatchment 22S: DMA 13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00	0.00
1.00	0.04	0.00	0.00	0.00
1.50	0.06	0.00	0.00	0.00
2.00	0.08	0.00	0.01	0.00
2.50	0.10	0.00	0.01	0.00
3.00	0.12	0.00	0.02	0.00
3.50	0.15	0.00	0.04	0.00
4.00	0.17	0.00	0.05	0.00
4.50	0.20	0.00	0.07	0.00
5.00	0.23	0.00	0.09	0.00
5.50	0.26	0.00	0.11	0.00
6.00	0.29	0.00	0.13	0.00
6.50	0.32	0.00	0.16	0.00
7.00	0.36	0.00	0.19	0.00
7.50	0.40	0.00	0.23	0.00
8.00	0.45	0.00	0.27	0.00
8.50	0.50	0.00	0.32	0.00
9.00	0.58	0.00	0.40	0.00
9.50	0.70	0.01	0.50	0.00
10.00	1.18	0.15	0.97	0.02
10.50	1.34	0.21	1.12	0.01
11.00	1.43	0.25	1.21	0.00
11.50	1.51	0.29	1.29	0.00
12.00	1.57	0.32	1.35	0.00
12.50	1.63	0.35	1.41	0.00
13.00	1.68	0.38	1.46	0.00
13.50	1.73	0.41	1.51	0.00
14.00	1.77	0.43	1.55	0.00
14.50	1.81	0.45	1.58	0.00
15.00	1.84	0.47	1.62	0.00
15.50	1.88	0.49	1.66	0.00
16.00	1.91	0.51	1.69	0.00
16.50	1.95	0.53	1.72	0.00
17.00	1.98	0.55	1.75	0.00
17.50	2.01	0.57	1.78	0.00
18.00	2.04	0.59	1.81	0.00
18.50	2.07	0.60	1.84	0.00
19.00	2.09	0.62	1.87	0.00
19.50	2.12	0.64	1.89	0.00
20.00	2.14	0.65	1.92	0.00
20.50	2.17	0.67	1.94	0.00
21.00	2.19	0.68	1.96	0.00
21.50	2.21	0.70	1.98	0.00
22.00	2.23	0.71	2.00	0.00
22.50	2.25	0.72	2.02	0.00
23.00	2.27	0.73	2.04	0.00
23.50	2.28	0.74	2.06	0.00
24.00	2.30	0.75	2.07	0.00

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Subcatchment 23S: DMA 3, 5, 6, 8

Runoff = 0.88 cfs @ 10.02 hrs, Volume= 0.141 af, Depth> 1.72"

Routed to Pond 11P : Self Retaining - Permeable Pavers

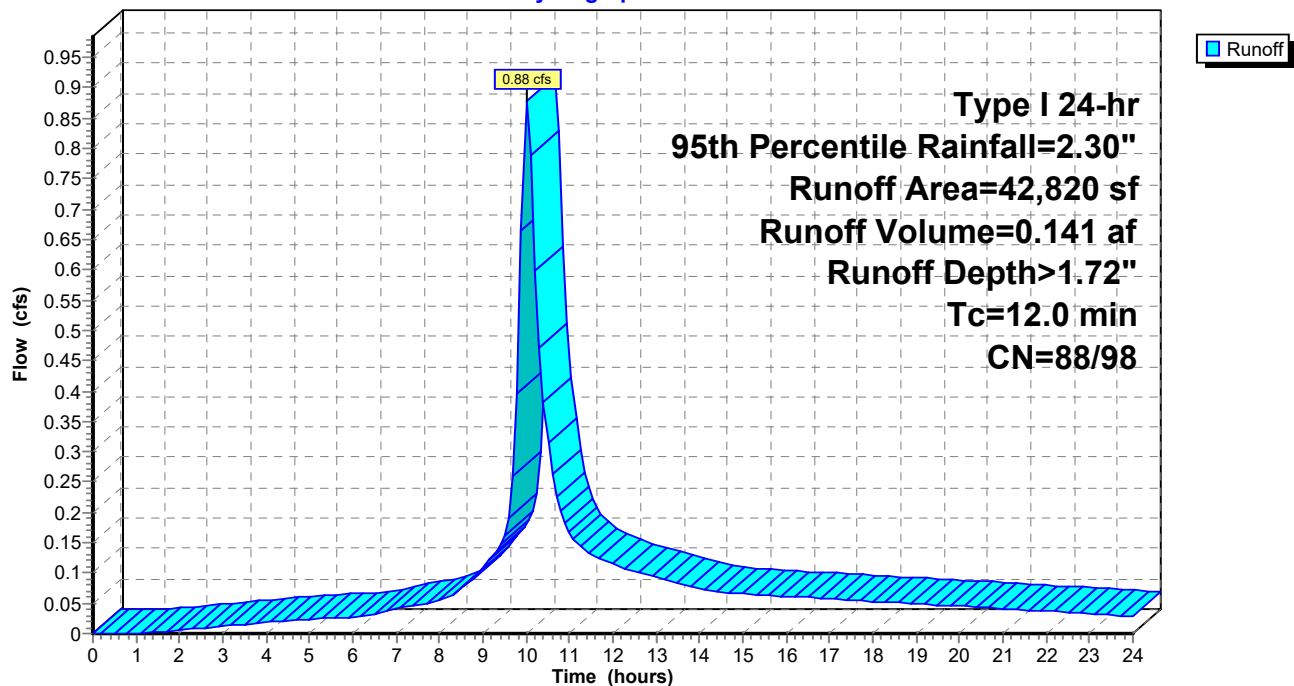
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 95th Percentile Rainfall=2.30"

	Area (sf)	CN	Description
*	25,761	98	Impervious
*	2,165	80	Pervious
*	14,894	89	Pavers
	42,820	94	Weighted Average
	17,059	88	39.84% Pervious Area
	25,761	98	60.16% Impervious Area

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

Subcatchment 23S: DMA 3, 5, 6, 8

Hydrograph



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Type I 24-hr 95th Percentile Rainfall=2.30"

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Hydrograph for Subcatchment 23S: DMA 3, 5, 6, 8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00	0.00
1.00	0.04	0.00	0.00	0.00
1.50	0.06	0.00	0.00	0.00
2.00	0.08	0.00	0.01	0.01
2.50	0.10	0.00	0.01	0.01
3.00	0.12	0.00	0.02	0.01
3.50	0.15	0.00	0.04	0.02
4.00	0.17	0.00	0.05	0.02
4.50	0.20	0.00	0.07	0.02
5.00	0.23	0.00	0.09	0.02
5.50	0.26	0.00	0.11	0.03
6.00	0.29	0.00	0.13	0.03
6.50	0.32	0.00	0.16	0.03
7.00	0.36	0.01	0.19	0.04
7.50	0.40	0.01	0.23	0.05
8.00	0.45	0.02	0.27	0.05
8.50	0.50	0.03	0.32	0.07
9.00	0.58	0.06	0.40	0.11
9.50	0.70	0.10	0.50	0.16
10.00	1.18	0.37	0.97	0.87
10.50	1.34	0.47	1.12	0.32
11.00	1.43	0.53	1.21	0.17
11.50	1.51	0.59	1.29	0.13
12.00	1.57	0.63	1.35	0.12
12.50	1.63	0.68	1.41	0.10
13.00	1.68	0.72	1.46	0.09
13.50	1.73	0.75	1.51	0.08
14.00	1.77	0.78	1.55	0.07
14.50	1.81	0.81	1.58	0.07
15.00	1.84	0.84	1.62	0.07
15.50	1.88	0.87	1.66	0.06
16.00	1.91	0.90	1.69	0.06
16.50	1.95	0.92	1.72	0.06
17.00	1.98	0.95	1.75	0.06
17.50	2.01	0.97	1.78	0.06
18.00	2.04	1.00	1.81	0.05
18.50	2.07	1.02	1.84	0.05
19.00	2.09	1.04	1.87	0.05
19.50	2.12	1.06	1.89	0.05
20.00	2.14	1.08	1.92	0.05
20.50	2.17	1.10	1.94	0.04
21.00	2.19	1.12	1.96	0.04
21.50	2.21	1.14	1.98	0.04
22.00	2.23	1.15	2.00	0.04
22.50	2.25	1.17	2.02	0.03
23.00	2.27	1.19	2.04	0.03
23.50	2.28	1.20	2.06	0.03
24.00	2.30	1.21	2.07	0.03

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Subcatchment 25S: DMA 14

Runoff = 0.01 cfs @ 10.04 hrs, Volume= 0.001 af, Depth> 0.75"
Routed to Pond 26P : Offsite

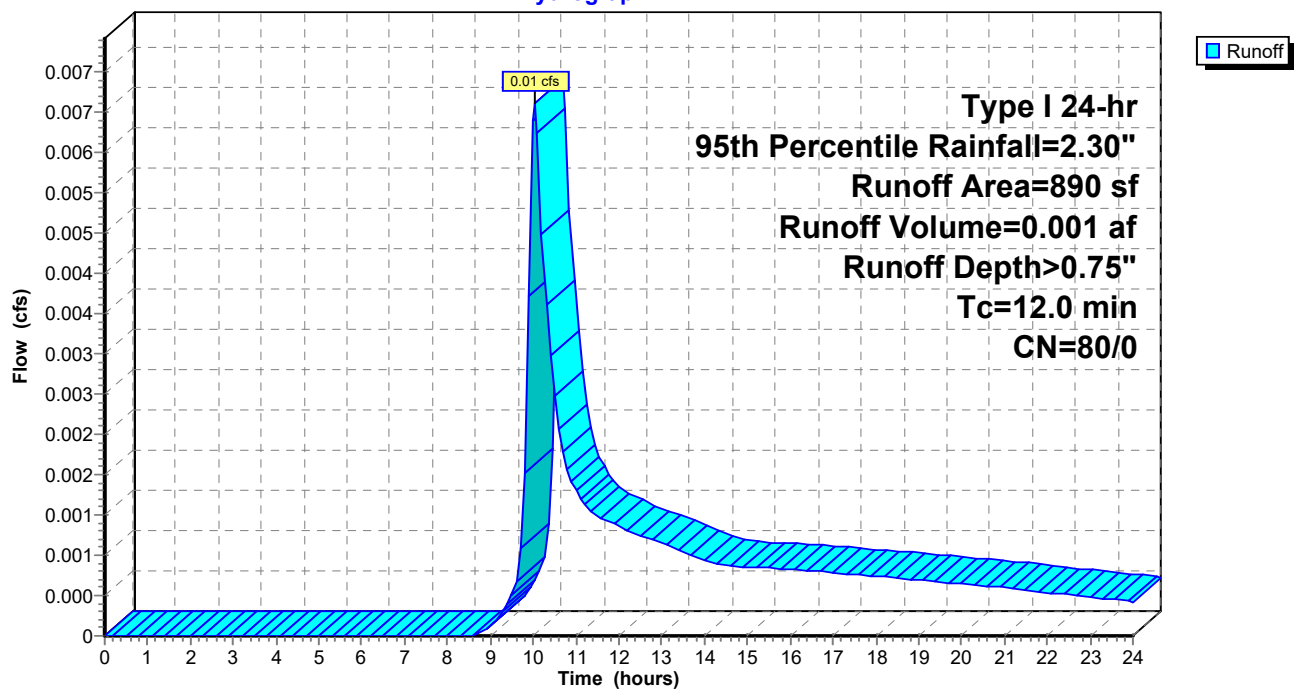
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 95th Percentile Rainfall=2.30"

	Area (sf)	CN	Description
*	890	80	Pervious
	890	80	100.00% Pervious Area

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

Subcatchment 25S: DMA 14

Hydrograph



22027_DRAINAGE

Type I 24-hr 95th Percentile Rainfall=2.30"

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Hydrograph for Subcatchment 25S: DMA 14

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00	0.00
1.00	0.04	0.00	0.00	0.00
1.50	0.06	0.00	0.00	0.00
2.00	0.08	0.00	0.00	0.00
2.50	0.10	0.00	0.00	0.00
3.00	0.12	0.00	0.00	0.00
3.50	0.15	0.00	0.00	0.00
4.00	0.17	0.00	0.00	0.00
4.50	0.20	0.00	0.00	0.00
5.00	0.23	0.00	0.00	0.00
5.50	0.26	0.00	0.00	0.00
6.00	0.29	0.00	0.00	0.00
6.50	0.32	0.00	0.00	0.00
7.00	0.36	0.00	0.00	0.00
7.50	0.40	0.00	0.00	0.00
8.00	0.45	0.00	0.00	0.00
8.50	0.50	0.00	0.00	0.00
9.00	0.58	0.00	0.00	0.00
9.50	0.70	0.01	0.00	0.00
10.00	1.18	0.15	0.00	0.01
10.50	1.34	0.21	0.00	0.00
11.00	1.43	0.25	0.00	0.00
11.50	1.51	0.29	0.00	0.00
12.00	1.57	0.32	0.00	0.00
12.50	1.63	0.35	0.00	0.00
13.00	1.68	0.38	0.00	0.00
13.50	1.73	0.41	0.00	0.00
14.00	1.77	0.43	0.00	0.00
14.50	1.81	0.45	0.00	0.00
15.00	1.84	0.47	0.00	0.00
15.50	1.88	0.49	0.00	0.00
16.00	1.91	0.51	0.00	0.00
16.50	1.95	0.53	0.00	0.00
17.00	1.98	0.55	0.00	0.00
17.50	2.01	0.57	0.00	0.00
18.00	2.04	0.59	0.00	0.00
18.50	2.07	0.60	0.00	0.00
19.00	2.09	0.62	0.00	0.00
19.50	2.12	0.64	0.00	0.00
20.00	2.14	0.65	0.00	0.00
20.50	2.17	0.67	0.00	0.00
21.00	2.19	0.68	0.00	0.00
21.50	2.21	0.70	0.00	0.00
22.00	2.23	0.71	0.00	0.00
22.50	2.25	0.72	0.00	0.00
23.00	2.27	0.73	0.00	0.00
23.50	2.28	0.74	0.00	0.00
24.00	2.30	0.75	0.00	0.00

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Subcatchment 28S: DMA 4 & 9

Runoff = 0.02 cfs @ 10.04 hrs, Volume= 0.005 af, Depth> 0.85"
Routed to Pond 27P : Self Retaining - Landscape

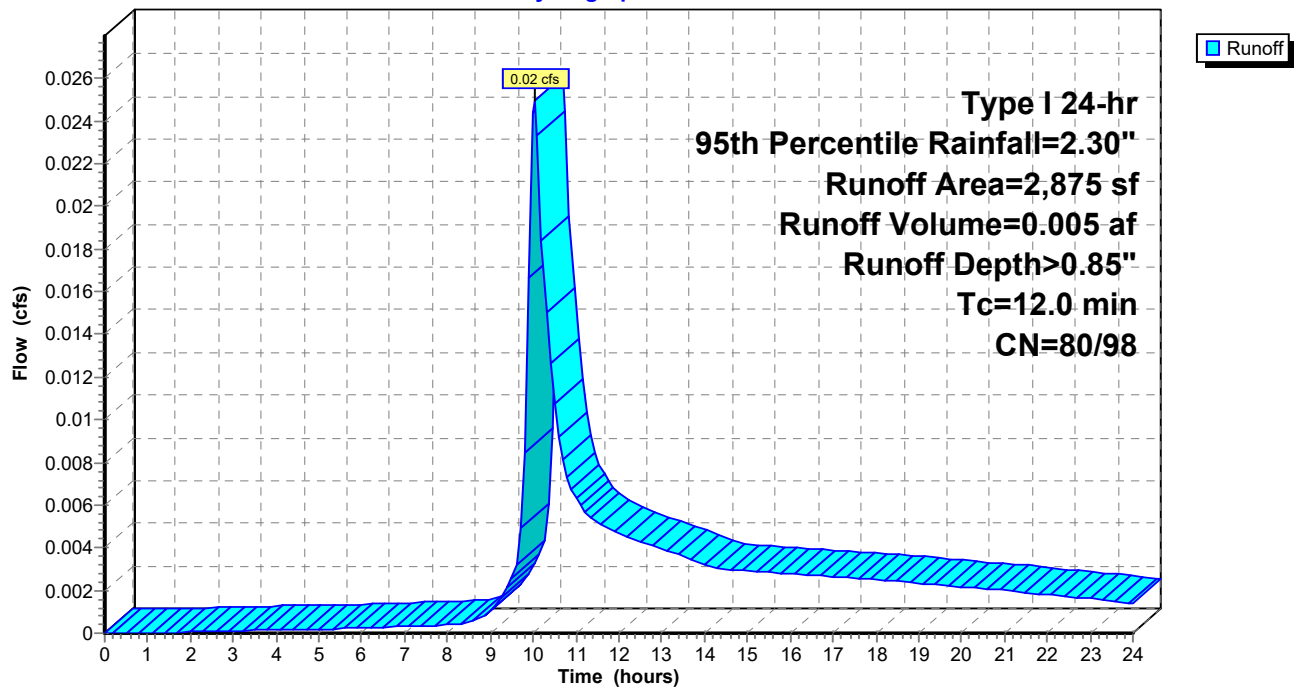
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 95th Percentile Rainfall=2.30"

	Area (sf)	CN	Description
*	2,665	80	Pervious Area
*	210	98	Impervious Area
	2,875	81	Weighted Average
	2,665	80	92.70% Pervious Area
	210	98	7.30% Impervious Area

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

Subcatchment 28S: DMA 4 & 9

Hydrograph



22027_DRAINAGE

Type I 24-hr 95th Percentile Rainfall=2.30"

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Hydrograph for Subcatchment 28S: DMA 4 & 9

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00	0.00
1.00	0.04	0.00	0.00	0.00
1.50	0.06	0.00	0.00	0.00
2.00	0.08	0.00	0.01	0.00
2.50	0.10	0.00	0.01	0.00
3.00	0.12	0.00	0.02	0.00
3.50	0.15	0.00	0.04	0.00
4.00	0.17	0.00	0.05	0.00
4.50	0.20	0.00	0.07	0.00
5.00	0.23	0.00	0.09	0.00
5.50	0.26	0.00	0.11	0.00
6.00	0.29	0.00	0.13	0.00
6.50	0.32	0.00	0.16	0.00
7.00	0.36	0.00	0.19	0.00
7.50	0.40	0.00	0.23	0.00
8.00	0.45	0.00	0.27	0.00
8.50	0.50	0.00	0.32	0.00
9.00	0.58	0.00	0.40	0.00
9.50	0.70	0.01	0.50	0.00
10.00	1.18	0.15	0.97	0.02
10.50	1.34	0.21	1.12	0.01
11.00	1.43	0.25	1.21	0.01
11.50	1.51	0.29	1.29	0.01
12.00	1.57	0.32	1.35	0.00
12.50	1.63	0.35	1.41	0.00
13.00	1.68	0.38	1.46	0.00
13.50	1.73	0.41	1.51	0.00
14.00	1.77	0.43	1.55	0.00
14.50	1.81	0.45	1.58	0.00
15.00	1.84	0.47	1.62	0.00
15.50	1.88	0.49	1.66	0.00
16.00	1.91	0.51	1.69	0.00
16.50	1.95	0.53	1.72	0.00
17.00	1.98	0.55	1.75	0.00
17.50	2.01	0.57	1.78	0.00
18.00	2.04	0.59	1.81	0.00
18.50	2.07	0.60	1.84	0.00
19.00	2.09	0.62	1.87	0.00
19.50	2.12	0.64	1.89	0.00
20.00	2.14	0.65	1.92	0.00
20.50	2.17	0.67	1.94	0.00
21.00	2.19	0.68	1.96	0.00
21.50	2.21	0.70	1.98	0.00
22.00	2.23	0.71	2.00	0.00
22.50	2.25	0.72	2.02	0.00
23.00	2.27	0.73	2.04	0.00
23.50	2.28	0.74	2.06	0.00
24.00	2.30	0.75	2.07	0.00

22027_DRAINAGE

Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Pond 8P: Bioretention Basin (SCM-1)

Inflow Area = 0.690 ac, 52.67% Impervious, Inflow Depth > 1.47" for 95th Percentile event
 Inflow = 0.51 cfs @ 10.02 hrs, Volume= 0.084 af
 Outflow = 0.09 cfs @ 11.21 hrs, Volume= 0.047 af, Atten= 82%, Lag= 71.2 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.09 cfs @ 11.21 hrs, Volume= 0.047 af
 Routed to Pond 26P : Offsite
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2
 Peak Elev= 73.68' @ 11.21 hrs Surf.Area= 1,215 sf Storage= 1,744 cf

Plug-Flow detention time= 377.8 min calculated for 0.047 af (55% of inflow)
 Center-of-Mass det. time= 189.1 min (944.4 - 755.3)

Volume	Invert	Avail.Storage	Storage Description
#1	68.99'	4,276 cf	Custom Stage Data (Prismatic) Listed below (Recalc) x 0.75

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.99	1,370	0.0	0	0
69.00	1,370	40.0	5	5
71.50	1,370	40.0	1,370	1,375
73.50	1,370	25.0	685	2,060
75.00	3,485	100.0	3,641	5,702

Device	Routing	Invert	Outlet Devices
#1	Device 3	73.25'	15.0" Round 15" Culvert L= 250.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.25' / 70.70' S= 0.0102 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#2	Secondary	74.99'	70.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Primary	73.50'	6.0" Vert. Orifice/Culvert C= 0.600 Limited to weir flow at low heads
#4	Device 1	70.60'	12.5" W x 3.0" H Vert. curb outlet C= 0.600 Limited to weir flow at low heads
#5	Discarded	68.99'	0.380 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=68.99' (Free Discharge)

↑ **5=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.09 cfs @ 11.21 hrs HW=73.68' (Free Discharge)

↑ **3=Orifice/Culvert** (Orifice Controls 0.09 cfs @ 1.43 fps)

↑ **1=15" Culvert** (Passes 0.09 cfs of 0.29 cfs potential flow)

↑ **4=curb outlet** (Passes 0.09 cfs of 0.53 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=68.99' (Free Discharge)

↑ **2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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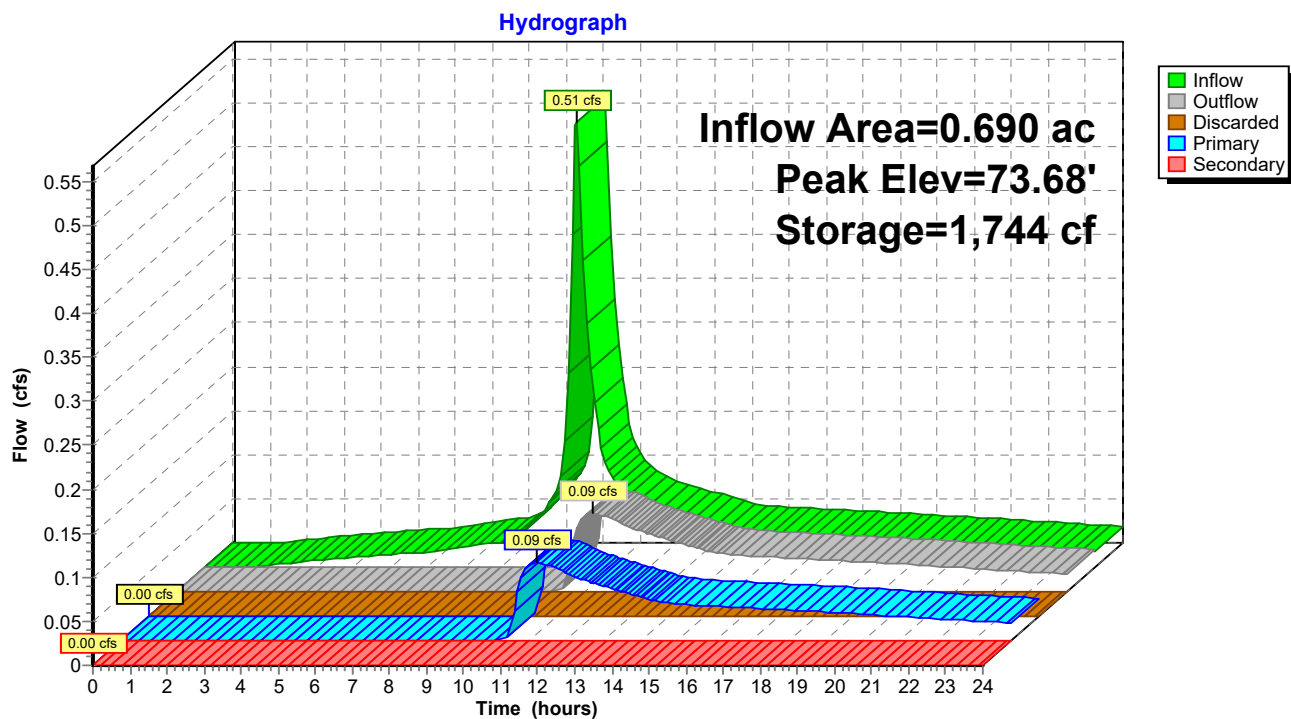
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Type I 24-hr 95th Percentile Rainfall=2.30"

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Pond 8P: Bioretention Basin (SCM-1)



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Type I 24-hr 95th Percentile Rainfall=2.30"

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Hydrograph for Pond 8P: Bioretention Basin (SCM-1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	68.99	0.00	0.00	0.00	0.00
0.50	0.00	0	68.99	0.00	0.00	0.00	0.00
1.00	0.00	0	68.99	0.00	0.00	0.00	0.00
1.50	0.00	1	68.99	0.00	0.00	0.00	0.00
2.00	0.00	5	69.00	0.00	0.00	0.00	0.00
2.50	0.01	13	69.02	0.00	0.00	0.00	0.00
3.00	0.01	25	69.05	0.00	0.00	0.00	0.00
3.50	0.01	40	69.09	0.00	0.00	0.00	0.00
4.00	0.01	59	69.13	0.00	0.00	0.00	0.00
4.50	0.01	82	69.19	0.00	0.00	0.00	0.00
5.00	0.01	107	69.25	0.00	0.00	0.00	0.00
5.50	0.02	134	69.32	0.00	0.00	0.00	0.00
6.00	0.02	163	69.39	0.00	0.00	0.00	0.00
6.50	0.02	195	69.46	0.00	0.00	0.00	0.00
7.00	0.02	234	69.56	0.00	0.00	0.00	0.00
7.50	0.03	280	69.67	0.00	0.00	0.00	0.00
8.00	0.03	330	69.79	0.00	0.00	0.00	0.00
8.50	0.04	388	69.93	0.00	0.00	0.00	0.00
9.00	0.06	474	70.14	0.00	0.00	0.00	0.00
9.50	0.09	602	70.45	0.00	0.00	0.00	0.00
10.00	0.50	1,012	71.45	0.00	0.00	0.00	0.00
10.50	0.19	1,605	73.56	0.01	0.00	0.01	0.00
11.00	0.10	1,739	73.67	0.09	0.00	0.09	0.00
11.50	0.08	1,739	73.67	0.09	0.00	0.09	0.00
12.00	0.07	1,727	73.66	0.08	0.00	0.08	0.00
12.50	0.06	1,714	73.65	0.07	0.00	0.07	0.00
13.00	0.06	1,704	73.64	0.06	0.00	0.06	0.00
13.50	0.05	1,695	73.64	0.06	0.00	0.06	0.00
14.00	0.05	1,687	73.63	0.05	0.00	0.05	0.00
14.50	0.04	1,679	73.62	0.04	0.00	0.04	0.00
15.00	0.04	1,675	73.62	0.04	0.00	0.04	0.00
15.50	0.04	1,673	73.62	0.04	0.00	0.04	0.00
16.00	0.04	1,670	73.61	0.04	0.00	0.04	0.00
16.50	0.04	1,668	73.61	0.04	0.00	0.04	0.00
17.00	0.04	1,665	73.61	0.04	0.00	0.04	0.00
17.50	0.03	1,663	73.61	0.04	0.00	0.04	0.00
18.00	0.03	1,660	73.61	0.04	0.00	0.04	0.00
18.50	0.03	1,658	73.60	0.03	0.00	0.03	0.00
19.00	0.03	1,655	73.60	0.03	0.00	0.03	0.00
19.50	0.03	1,652	73.60	0.03	0.00	0.03	0.00
20.00	0.03	1,650	73.60	0.03	0.00	0.03	0.00
20.50	0.03	1,647	73.59	0.03	0.00	0.03	0.00
21.00	0.03	1,644	73.59	0.03	0.00	0.03	0.00
21.50	0.02	1,641	73.59	0.03	0.00	0.03	0.00
22.00	0.02	1,639	73.59	0.03	0.00	0.03	0.00
22.50	0.02	1,636	73.58	0.02	0.00	0.02	0.00
23.00	0.02	1,633	73.58	0.02	0.00	0.02	0.00
23.50	0.02	1,630	73.58	0.02	0.00	0.02	0.00
24.00	0.02	1,627	73.58	0.02	0.00	0.02	0.00

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Pond 11P: Self Retaining - Permeable Pavers

Inflow Area = 1.049 ac, 56.84% Impervious, Inflow Depth > 1.62" for 95th Percentile event
 Inflow = 0.88 cfs @ 10.02 hrs, Volume= 0.141 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 72.02' @ 24.00 hrs Surf.Area= 15,055 sf Storage= 6,145 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	13,851 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 34,626 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	15,055	0	0
73.30	15,055	34,626	34,626

Device	Routing	Invert	Outlet Devices
#1	Primary	72.80'	4.0" Round Culvert X 4.00 L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 72.80' / 72.54' S= 0.0052 ' S= 0.0052 ' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	71.00'	0.890 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↑ **1=Culvert** (Controls 0.00 cfs)

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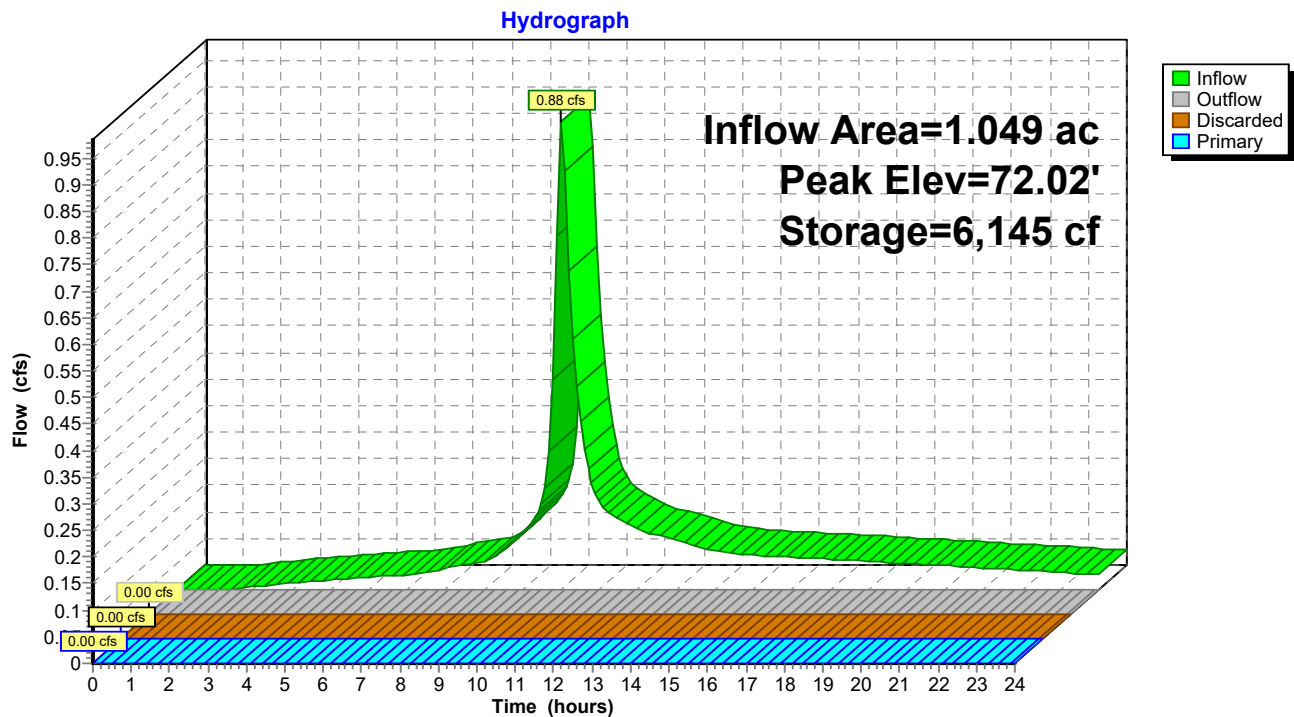
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Type I 24-hr 95th Percentile Rainfall=2.30"

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Pond 11P: Self Retaining - Permeable Pavers



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Type I 24-hr 95th Percentile Rainfall=2.30"

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Hydrograph for Pond 11P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	71.00	0.00	0.00	0.00
0.50	0.00	0	71.00	0.00	0.00	0.00
1.00	0.00	0	71.00	0.00	0.00	0.00
1.50	0.00	1	71.00	0.00	0.00	0.00
2.00	0.01	9	71.00	0.00	0.00	0.00
2.50	0.01	22	71.00	0.00	0.00	0.00
3.00	0.01	41	71.01	0.00	0.00	0.00
3.50	0.02	66	71.01	0.00	0.00	0.00
4.00	0.02	97	71.02	0.00	0.00	0.00
4.50	0.02	133	71.02	0.00	0.00	0.00
5.00	0.02	174	71.03	0.00	0.00	0.00
5.50	0.03	218	71.04	0.00	0.00	0.00
6.00	0.03	265	71.04	0.00	0.00	0.00
6.50	0.03	319	71.05	0.00	0.00	0.00
7.00	0.04	385	71.06	0.00	0.00	0.00
7.50	0.05	467	71.08	0.00	0.00	0.00
8.00	0.05	558	71.09	0.00	0.00	0.00
8.50	0.07	669	71.11	0.00	0.00	0.00
9.00	0.11	831	71.14	0.00	0.00	0.00
9.50	0.16	1,068	71.18	0.00	0.00	0.00
10.00	0.87	1,797	71.30	0.00	0.00	0.00
10.50	0.32	2,817	71.47	0.00	0.00	0.00
11.00	0.17	3,218	71.53	0.00	0.00	0.00
11.50	0.13	3,481	71.58	0.00	0.00	0.00
12.00	0.12	3,703	71.61	0.00	0.00	0.00
12.50	0.10	3,898	71.65	0.00	0.00	0.00
13.00	0.09	4,074	71.68	0.00	0.00	0.00
13.50	0.08	4,232	71.70	0.00	0.00	0.00
14.00	0.07	4,373	71.73	0.00	0.00	0.00
14.50	0.07	4,498	71.75	0.00	0.00	0.00
15.00	0.07	4,617	71.77	0.00	0.00	0.00
15.50	0.06	4,732	71.79	0.00	0.00	0.00
16.00	0.06	4,844	71.80	0.00	0.00	0.00
16.50	0.06	4,953	71.82	0.00	0.00	0.00
17.00	0.06	5,058	71.84	0.00	0.00	0.00
17.50	0.06	5,159	71.86	0.00	0.00	0.00
18.00	0.05	5,257	71.87	0.00	0.00	0.00
18.50	0.05	5,351	71.89	0.00	0.00	0.00
19.00	0.05	5,442	71.90	0.00	0.00	0.00
19.50	0.05	5,529	71.92	0.00	0.00	0.00
20.00	0.05	5,613	71.93	0.00	0.00	0.00
20.50	0.04	5,692	71.95	0.00	0.00	0.00
21.00	0.04	5,768	71.96	0.00	0.00	0.00
21.50	0.04	5,840	71.97	0.00	0.00	0.00
22.00	0.04	5,909	71.98	0.00	0.00	0.00
22.50	0.03	5,974	71.99	0.00	0.00	0.00
23.00	0.03	6,035	72.00	0.00	0.00	0.00
23.50	0.03	6,092	72.01	0.00	0.00	0.00
24.00	0.03	6,145	72.02	0.00	0.00	0.00

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Pond 26P: Offsite

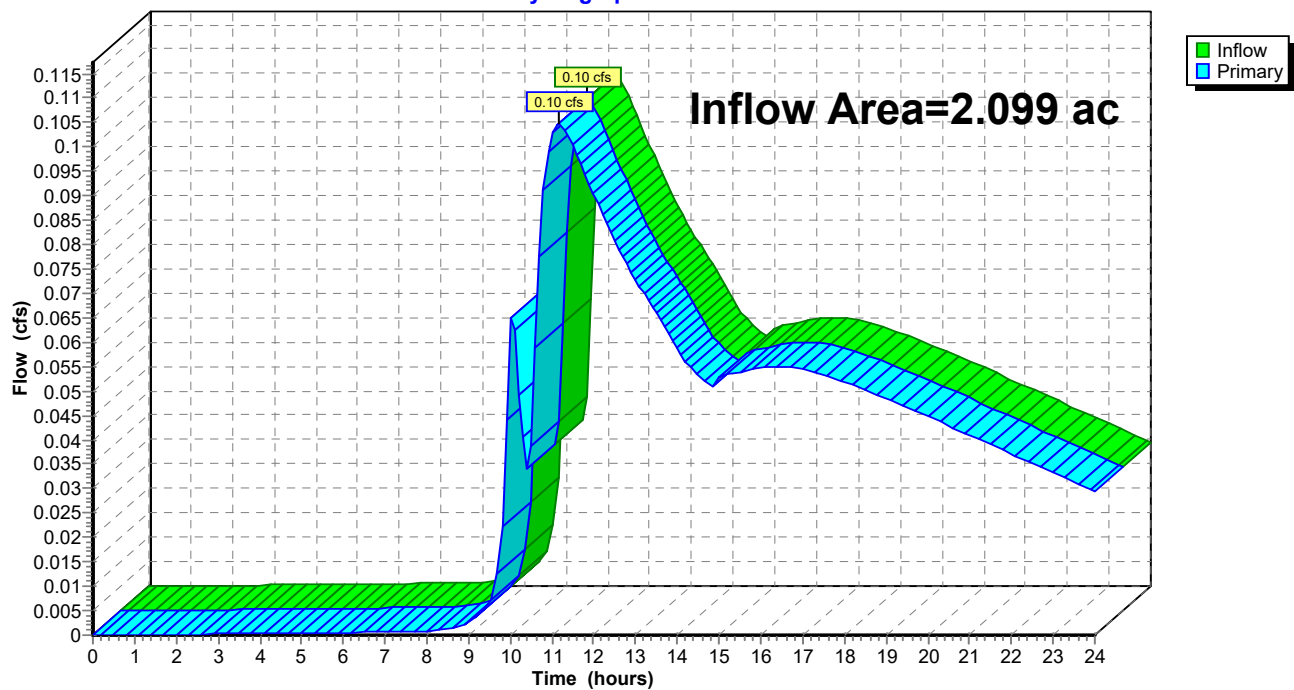
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.099 ac, 52.61% Impervious, Inflow Depth > 0.37" for 95th Percentile event
Inflow = 0.10 cfs @ 11.15 hrs, Volume= 0.065 af
Primary = 0.10 cfs @ 11.15 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Pond 26P: Offsite

Hydrograph



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Type I 24-hr 95th Percentile Rainfall=2.30"

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Hydrograph for Pond 26P: Offsite

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	0.00		0.00
1.50	0.00		0.00
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.00		0.00
5.00	0.00		0.00
5.50	0.00		0.00
6.00	0.00		0.00
6.50	0.00		0.00
7.00	0.00		0.00
7.50	0.00		0.00
8.00	0.00		0.00
8.50	0.00		0.00
9.00	0.00		0.00
9.50	0.01		0.01
10.00	0.06		0.06
10.50	0.04		0.04
11.00	0.10		0.10
11.50	0.10		0.10
12.00	0.09		0.09
12.50	0.08		0.08
13.00	0.07		0.07
13.50	0.07		0.07
14.00	0.06		0.06
14.50	0.05		0.05
15.00	0.05		0.05
15.50	0.05		0.05
16.00	0.05		0.05
16.50	0.06		0.06
17.00	0.05		0.05
17.50	0.05		0.05
18.00	0.05		0.05
18.50	0.05		0.05
19.00	0.05		0.05
19.50	0.05		0.05
20.00	0.04		0.04
20.50	0.04		0.04
21.00	0.04		0.04
21.50	0.04		0.04
22.00	0.04		0.04
22.50	0.04		0.04
23.00	0.03		0.03
23.50	0.03		0.03
24.00	0.03		0.03

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Summary for Pond 27P: Self Retaining - Landcape

Inflow Area = 0.066 ac, 7.30% Impervious, Inflow Depth > 0.85" for 95th Percentile event
 Inflow = 0.02 cfs @ 10.04 hrs, Volume= 0.005 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 71.28' @ 24.00 hrs Surf.Area= 2,875 sf Storage= 202 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	1,653 cf	soil (Prismatic) Listed below (Recalc) 6,612 cf Overall x 25.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	2,875	0	0
73.30	2,875	6,612	6,612

Device	Routing	Invert	Outlet Devices
#1	Discarded	71.00'	1.010 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)↑**1=Exfiltration** (Controls 0.00 cfs)

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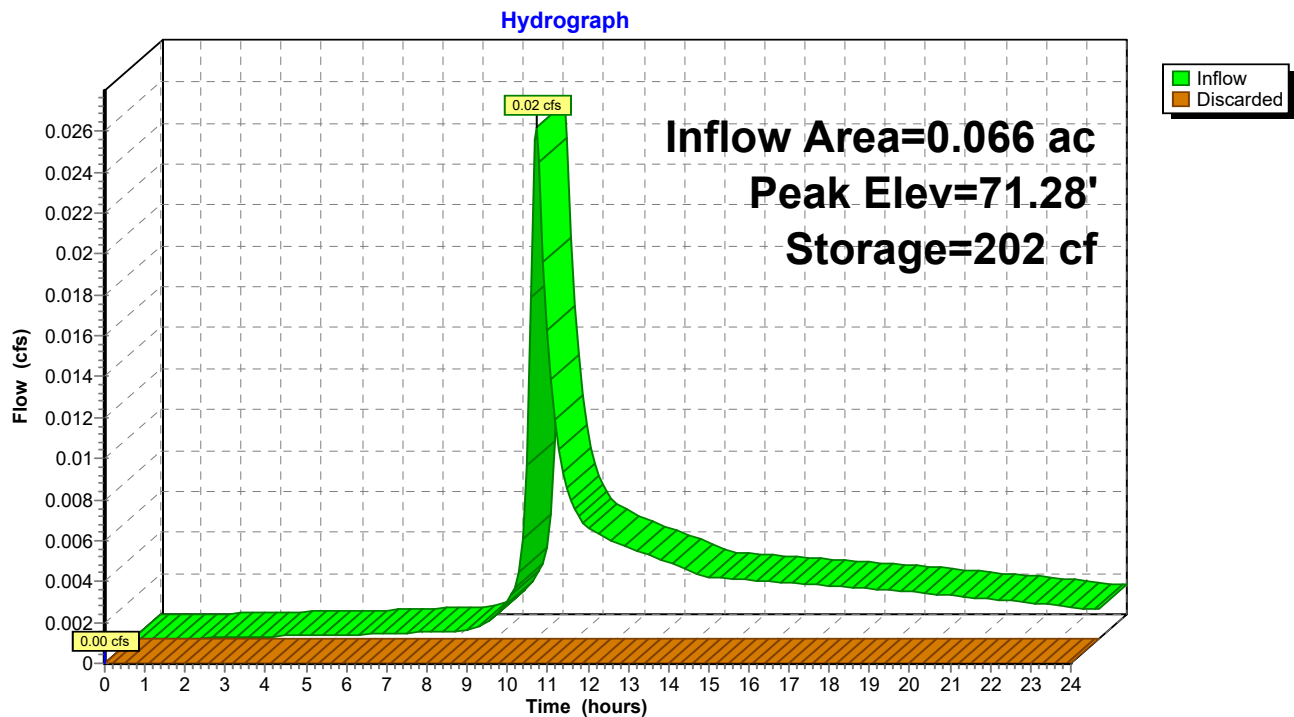
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Pond 27P: Self Retaining - Landcape



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Hydrograph for Pond 27P: Self Retaining - Landscape

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	71.00	0.00
0.50	0.00	0	71.00	0.00
1.00	0.00	0	71.00	0.00
1.50	0.00	0	71.00	0.00
2.00	0.00	0	71.00	0.00
2.50	0.00	0	71.00	0.00
3.00	0.00	0	71.00	0.00
3.50	0.00	1	71.00	0.00
4.00	0.00	1	71.00	0.00
4.50	0.00	1	71.00	0.00
5.00	0.00	1	71.00	0.00
5.50	0.00	2	71.00	0.00
6.00	0.00	2	71.00	0.00
6.50	0.00	3	71.00	0.00
7.00	0.00	3	71.00	0.00
7.50	0.00	4	71.01	0.00
8.00	0.00	4	71.01	0.00
8.50	0.00	5	71.01	0.00
9.00	0.00	6	71.01	0.00
9.50	0.00	10	71.01	0.00
10.00	0.02	26	71.04	0.00
10.50	0.01	58	71.08	0.00
11.00	0.01	72	71.10	0.00
11.50	0.01	82	71.11	0.00
12.00	0.00	91	71.13	0.00
12.50	0.00	99	71.14	0.00
13.00	0.00	107	71.15	0.00
13.50	0.00	113	71.16	0.00
14.00	0.00	119	71.17	0.00
14.50	0.00	125	71.17	0.00
15.00	0.00	130	71.18	0.00
15.50	0.00	135	71.19	0.00
16.00	0.00	140	71.20	0.00
16.50	0.00	145	71.20	0.00
17.00	0.00	150	71.21	0.00
17.50	0.00	155	71.22	0.00
18.00	0.00	160	71.22	0.00
18.50	0.00	164	71.23	0.00
19.00	0.00	168	71.23	0.00
19.50	0.00	172	71.24	0.00
20.00	0.00	176	71.25	0.00
20.50	0.00	180	71.25	0.00
21.00	0.00	184	71.26	0.00
21.50	0.00	187	71.26	0.00
22.00	0.00	191	71.27	0.00
22.50	0.00	194	71.27	0.00
23.00	0.00	197	71.27	0.00
23.50	0.00	200	71.28	0.00
24.00	0.00	202	71.28	0.00

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Type I 24-hr 95th Percentile Rainfall=2.30"

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Summary for Pond 29P: Self Retaining - Permeable Pavers

Inflow Area = 0.108 ac, 67.02% Impervious, Inflow Depth > 1.78" for 95th Percentile event
 Inflow = 0.10 cfs @ 10.02 hrs, Volume= 0.016 af
 Outflow = 0.01 cfs @ 17.77 hrs, Volume= 0.003 af, Atten= 94%, Lag= 464.9 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.01 cfs @ 17.77 hrs, Volume= 0.003 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 71.45' @ 17.77 hrs Surf.Area= 1,325 sf Storage= 556 cf

Plug-Flow detention time= 725.8 min calculated for 0.003 af (21% of inflow)
 Center-of-Mass det. time= 440.4 min (1,180.9 - 740.5)

Volume	Invert	Avail.Storage	Storage Description
#1	70.40'	1,060 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,650 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.40	1,325	0	0
72.40	1,325	2,650	2,650

Device	Routing	Invert	Outlet Devices
#1	Primary	71.40'	4.0" Round Culvert L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.40' / 70.60' S= 0.0160 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	70.40'	0.080 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=70.40' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.01 cfs @ 17.77 hrs HW=71.45' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 0.01 cfs @ 0.75 fps)

22027_DRAINAGE

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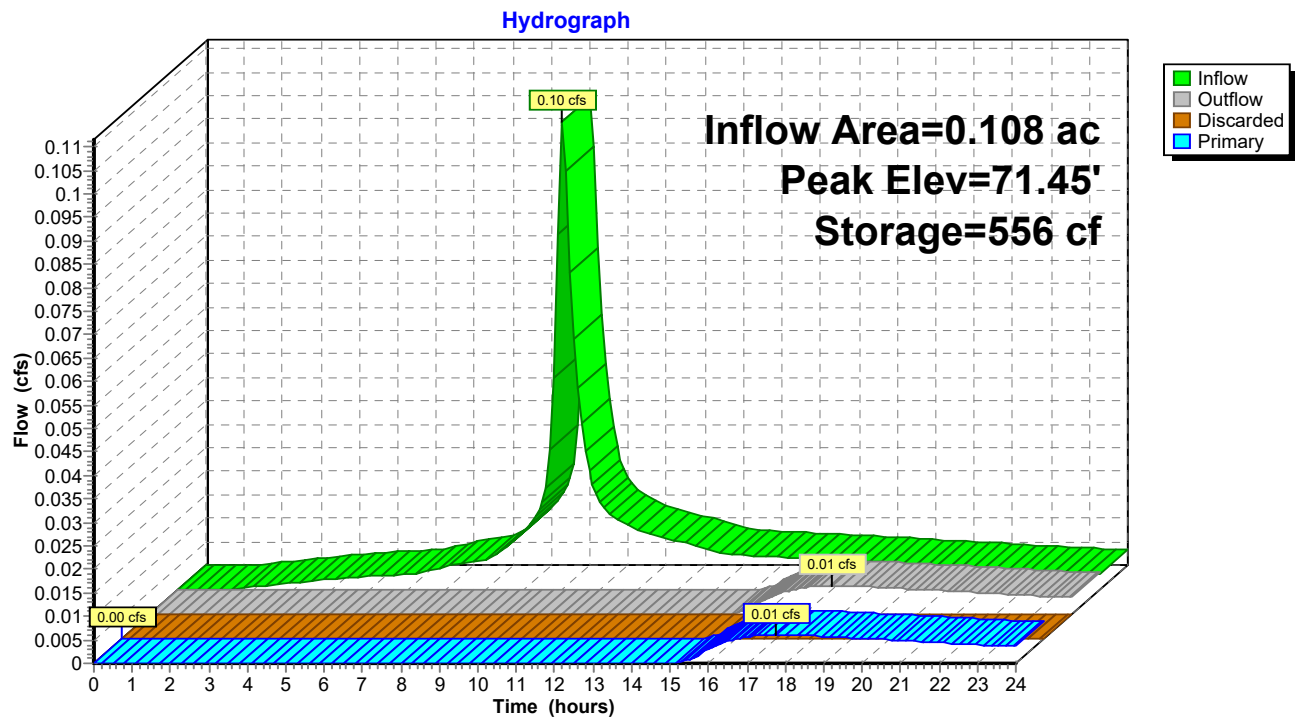
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Type I 24-hr 95th Percentile Rainfall=2.30"

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Pond 29P: Self Retaining - Permeable Pavers



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Type I 24-hr 95th Percentile Rainfall=2.30"

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Hydrograph for Pond 29P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	70.40	0.00	0.00	0.00
0.50	0.00	0	70.40	0.00	0.00	0.00
1.00	0.00	0	70.40	0.00	0.00	0.00
1.50	0.00	0	70.40	0.00	0.00	0.00
2.00	0.00	1	70.40	0.00	0.00	0.00
2.50	0.00	3	70.40	0.00	0.00	0.00
3.00	0.00	5	70.41	0.00	0.00	0.00
3.50	0.00	8	70.42	0.00	0.00	0.00
4.00	0.00	12	70.42	0.00	0.00	0.00
4.50	0.00	16	70.43	0.00	0.00	0.00
5.00	0.00	21	70.44	0.00	0.00	0.00
5.50	0.00	27	70.45	0.00	0.00	0.00
6.00	0.00	32	70.46	0.00	0.00	0.00
6.50	0.00	39	70.47	0.00	0.00	0.00
7.00	0.00	47	70.49	0.00	0.00	0.00
7.50	0.01	57	70.51	0.00	0.00	0.00
8.00	0.01	67	70.53	0.00	0.00	0.00
8.50	0.01	80	70.55	0.00	0.00	0.00
9.00	0.01	99	70.59	0.00	0.00	0.00
9.50	0.02	127	70.64	0.00	0.00	0.00
10.00	0.10	210	70.80	0.00	0.00	0.00
10.50	0.04	325	71.01	0.00	0.00	0.00
11.00	0.02	370	71.10	0.00	0.00	0.00
11.50	0.01	399	71.15	0.00	0.00	0.00
12.00	0.01	424	71.20	0.00	0.00	0.00
12.50	0.01	446	71.24	0.00	0.00	0.00
13.00	0.01	466	71.28	0.00	0.00	0.00
13.50	0.01	483	71.31	0.00	0.00	0.00
14.00	0.01	499	71.34	0.00	0.00	0.00
14.50	0.01	513	71.37	0.00	0.00	0.00
15.00	0.01	526	71.39	0.00	0.00	0.00
15.50	0.01	538	71.42	0.00	0.00	0.00
16.00	0.01	547	71.43	0.00	0.00	0.00
16.50	0.01	553	71.44	0.00	0.00	0.00
17.00	0.01	555	71.45	0.01	0.00	0.01
17.50	0.01	555	71.45	0.01	0.00	0.01
18.00	0.01	555	71.45	0.01	0.00	0.01
18.50	0.01	555	71.45	0.01	0.00	0.01
19.00	0.01	555	71.45	0.01	0.00	0.01
19.50	0.01	554	71.45	0.01	0.00	0.01
20.00	0.01	554	71.45	0.01	0.00	0.01
20.50	0.00	553	71.44	0.01	0.00	0.01
21.00	0.00	553	71.44	0.00	0.00	0.00
21.50	0.00	552	71.44	0.00	0.00	0.00
22.00	0.00	552	71.44	0.00	0.00	0.00
22.50	0.00	551	71.44	0.00	0.00	0.00
23.00	0.00	551	71.44	0.00	0.00	0.00
23.50	0.00	550	71.44	0.00	0.00	0.00
24.00	0.00	550	71.44	0.00	0.00	0.00

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Summary for Pond 30P: Bioretention Basin (SCM-2)

Inflow Area = 0.071 ac, 87.70% Impervious, Inflow Depth > 1.90" for 95th Percentile event
 Inflow = 0.07 cfs @ 10.02 hrs, Volume= 0.011 af
 Outflow = 0.00 cfs @ 15.68 hrs, Volume= 0.003 af, Atten= 93%, Lag= 339.8 min
 Primary = 0.00 cfs @ 15.68 hrs, Volume= 0.003 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2

Peak Elev= 71.49' @ 15.68 hrs Surf.Area= 380 sf Storage= 376 cf

Plug-Flow detention time= 693.1 min calculated for 0.003 af (23% of inflow)

Center-of-Mass det. time= 410.7 min (1,137.6 - 726.9)

Volume	Invert	Avail.Storage	Storage Description
#1	70.50'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.50	380	0	0
71.50	380	380	380

Device	Routing	Invert	Outlet Devices
#1	Primary	71.49'	95.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 15.68 hrs HW=71.49' (Free Discharge)

↑1=Sharp-Crested Rectangular Weir (Weir Controls 0.00 cfs @ 0.04 fps)

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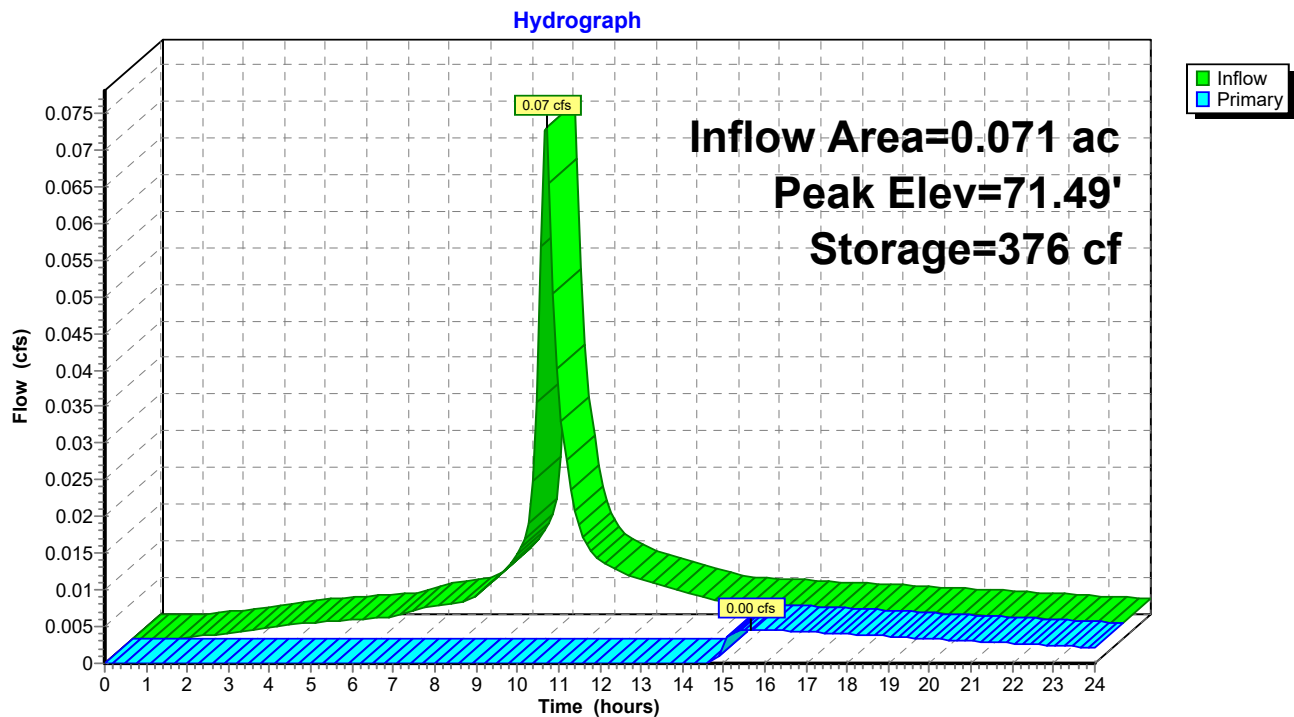
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Pond 30P: Bioretention Basin (SCM-2)



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Type I 24-hr 95th Percentile Rainfall=2.30"

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Hydrograph for Pond 30P: Bioretention Basin (SCM-2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.50	0.00
0.50	0.00	0	70.50	0.00
1.00	0.00	0	70.50	0.00
1.50	0.00	0	70.50	0.00
2.00	0.00	1	70.50	0.00
2.50	0.00	2	70.51	0.00
3.00	0.00	4	70.51	0.00
3.50	0.00	7	70.52	0.00
4.00	0.00	10	70.53	0.00
4.50	0.00	14	70.54	0.00
5.00	0.00	18	70.55	0.00
5.50	0.00	23	70.56	0.00
6.00	0.00	28	70.57	0.00
6.50	0.00	33	70.59	0.00
7.00	0.00	40	70.61	0.00
7.50	0.00	48	70.63	0.00
8.00	0.00	56	70.65	0.00
8.50	0.01	66	70.67	0.00
9.00	0.01	81	70.71	0.00
9.50	0.01	101	70.77	0.00
10.00	0.07	160	70.92	0.00
10.50	0.02	240	71.13	0.00
11.00	0.01	271	71.21	0.00
11.50	0.01	291	71.27	0.00
12.00	0.01	308	71.31	0.00
12.50	0.01	323	71.35	0.00
13.00	0.01	336	71.38	0.00
13.50	0.01	348	71.41	0.00
14.00	0.01	358	71.44	0.00
14.50	0.01	368	71.47	0.00
15.00	0.00	376	71.49	0.00
15.50	0.00	376	71.49	0.00
16.00	0.00	376	71.49	0.00
16.50	0.00	376	71.49	0.00
17.00	0.00	376	71.49	0.00
17.50	0.00	376	71.49	0.00
18.00	0.00	376	71.49	0.00
18.50	0.00	376	71.49	0.00
19.00	0.00	376	71.49	0.00
19.50	0.00	376	71.49	0.00
20.00	0.00	376	71.49	0.00
20.50	0.00	376	71.49	0.00
21.00	0.00	376	71.49	0.00
21.50	0.00	376	71.49	0.00
22.00	0.00	376	71.49	0.00
22.50	0.00	376	71.49	0.00
23.00	0.00	376	71.49	0.00
23.50	0.00	376	71.49	0.00
24.00	0.00	376	71.49	0.00

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Time span=0.00-24.00 hrs, dt=0.10 hrs, 241 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment7S: DMA 1	Runoff Area=30,044 sf 52.67% Impervious Runoff Depth>7.15" Tc=12.0 min CN=81/98 Runoff=2.54 cfs 0.411 af
Subcatchment10S: DMA 2	Runoff Area=4,320 sf 0.00% Impervious Runoff Depth>5.96" Tc=12.0 min CN=80/0 Runoff=0.32 cfs 0.049 af
Subcatchment16S: DMA 7	Runoff Area=1,650 sf 88.48% Impervious Runoff Depth>7.87" Tc=12.0 min CN=80/98 Runoff=0.15 cfs 0.025 af
Subcatchment19S: DMA 10	Runoff Area=1,440 sf 86.81% Impervious Runoff Depth>7.83" Tc=12.0 min CN=80/98 Runoff=0.13 cfs 0.022 af
Subcatchment20S: DMA 11	Runoff Area=1,385 sf 5.78% Impervious Runoff Depth>6.09" Tc=12.0 min CN=80/98 Runoff=0.10 cfs 0.016 af
Subcatchment21S: DMA 12	Runoff Area=4,685 sf 67.02% Impervious Runoff Depth>7.72" Tc=12.0 min CN=88/98 Runoff=0.42 cfs 0.069 af
Subcatchment22S: DMA 13	Runoff Area=1,320 sf 28.79% Impervious Runoff Depth>6.58" Tc=12.0 min CN=80/98 Runoff=0.10 cfs 0.017 af
Subcatchment23S: DMA 3, 5, 6, 8	Runoff Area=42,820 sf 60.16% Impervious Runoff Depth>7.64" Tc=12.0 min CN=88/98 Runoff=3.84 cfs 0.626 af
Subcatchment25S: DMA 14	Runoff Area=890 sf 0.00% Impervious Runoff Depth>5.96" Tc=12.0 min CN=80/0 Runoff=0.07 cfs 0.010 af
Subcatchment28S: DMA 4 & 9	Runoff Area=2,875 sf 7.30% Impervious Runoff Depth>6.12" Tc=12.0 min CN=80/98 Runoff=0.22 cfs 0.034 af
Pond 8P: Bioretention Basin (SCM-1)	Peak Elev=75.00' Storage=4,276 cf Inflow=2.54 cfs 0.411 af Discarded=0.00 cfs 0.000 af Primary=1.06 cfs 0.369 af Secondary=0.19 cfs 0.002 af Outflow=1.24 cfs 0.372 af
Pond 11P: Self Retaining - Permeable Pavers	Peak Elev=73.28' Storage=13,746 cf Inflow=3.84 cfs 0.626 af Discarded=0.00 cfs 0.000 af Primary=0.71 cfs 0.358 af Outflow=0.71 cfs 0.358 af
Pond 26P: Offsite	Inflow=2.49 cfs 0.916 af Primary=2.49 cfs 0.916 af
Pond 27P: Self Retaining - Landscape	Peak Elev=73.04' Storage=1,465 cf Inflow=0.22 cfs 0.034 af Outflow=0.00 cfs 0.000 af
Pond 29P: Self Retaining - Permeable Pavers	Peak Elev=72.00' Storage=847 cf Inflow=0.42 cfs 0.069 af Discarded=0.00 cfs 0.000 af Primary=0.28 cfs 0.056 af Outflow=0.28 cfs 0.056 af
Pond 30P: Bioretention Basin (SCM-2)	Peak Elev=71.50' Storage=380 cf Inflow=0.28 cfs 0.046 af Outflow=0.28 cfs 0.038 af

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Total Runoff Area = 2.099 ac Runoff Volume = 1.278 af Average Runoff Depth = 7.31"
47.39% Pervious = 0.995 ac 52.61% Impervious = 1.104 ac

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Subcatchment 7S: DMA 1

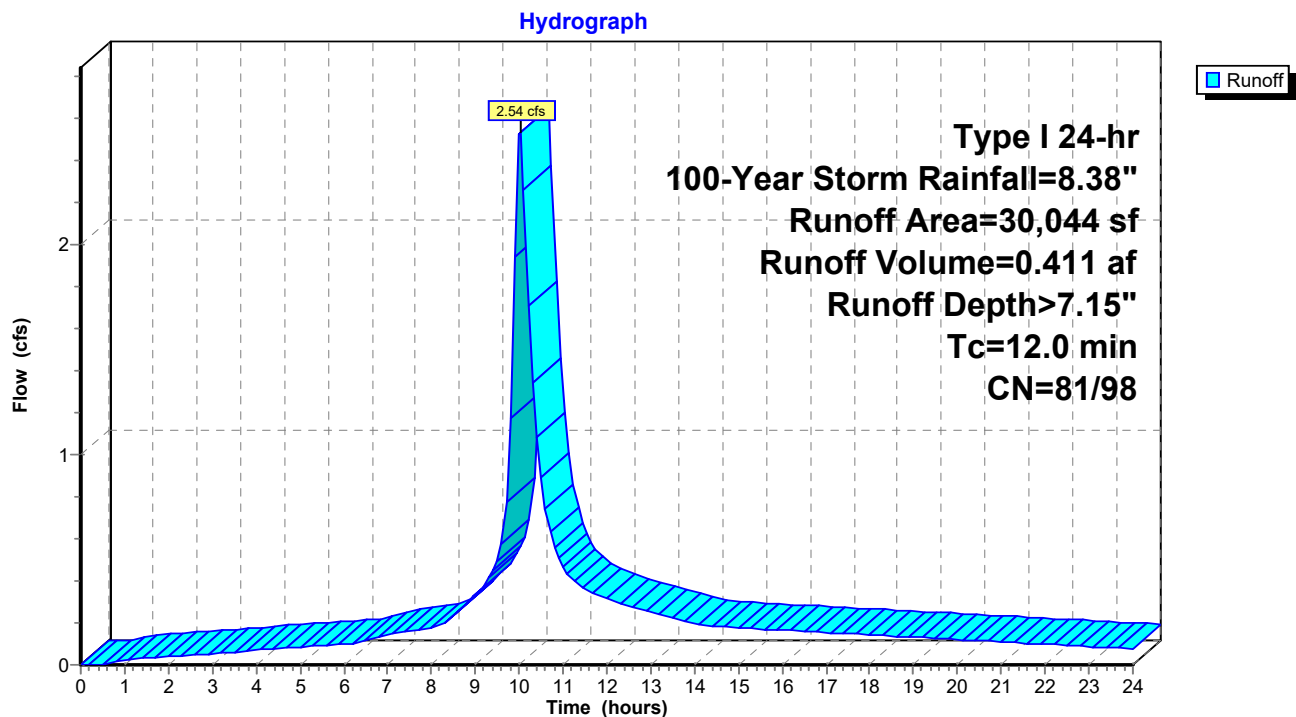
Runoff = 2.54 cfs @ 10.02 hrs, Volume= 0.411 af, Depth> 7.15"
Routed to Pond 8P : Bioretention Basin (SCM-1)

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 100-Year Storm Rainfall=8.38"

	Area (sf)	CN	Description
*	15,823	98	Impervious
*	9,370	80	Pervious
*	1,367	89	Pavers
*	3,484	80	Basin
	30,044	90	Weighted Average
	14,221	81	47.33% Pervious Area
	15,823	98	52.67% Impervious Area

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

Subcatchment 7S: DMA 1



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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Hydrograph for Subcatchment 7S: DMA 1

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.15	0.00	0.04	0.02
1.50	0.22	0.00	0.08	0.03
2.00	0.29	0.00	0.14	0.04
2.50	0.37	0.00	0.20	0.05
3.00	0.45	0.00	0.28	0.05
3.50	0.54	0.00	0.36	0.06
4.00	0.64	0.01	0.44	0.07
4.50	0.74	0.03	0.54	0.08
5.00	0.84	0.05	0.63	0.09
5.50	0.94	0.08	0.73	0.09
6.00	1.05	0.11	0.84	0.10
6.50	1.17	0.16	0.95	0.12
7.00	1.31	0.22	1.09	0.14
7.50	1.46	0.30	1.24	0.16
8.00	1.63	0.38	1.40	0.17
8.50	1.84	0.50	1.61	0.24
9.00	2.13	0.69	1.90	0.33
9.50	2.54	0.97	2.31	0.49
10.00	4.32	2.39	4.08	2.52
10.50	4.89	2.88	4.65	0.89
11.00	5.22	3.18	4.98	0.47
11.50	5.49	3.42	5.26	0.36
12.00	5.73	3.64	5.49	0.32
12.50	5.94	3.83	5.71	0.28
13.00	6.13	4.01	5.90	0.25
13.50	6.30	4.16	6.07	0.23
14.00	6.45	4.30	6.21	0.20
14.50	6.59	4.42	6.35	0.18
15.00	6.72	4.55	6.48	0.18
15.50	6.85	4.66	6.61	0.17
16.00	6.97	4.78	6.73	0.17
16.50	7.09	4.89	6.85	0.16
17.00	7.21	5.00	6.97	0.16
17.50	7.32	5.10	7.08	0.15
18.00	7.42	5.20	7.19	0.14
18.50	7.53	5.30	7.29	0.14
19.00	7.63	5.39	7.39	0.13
19.50	7.72	5.48	7.48	0.13
20.00	7.81	5.56	7.57	0.12
20.50	7.90	5.64	7.66	0.12
21.00	7.98	5.72	7.74	0.11
21.50	8.06	5.79	7.82	0.10
22.00	8.13	5.86	7.89	0.10
22.50	8.20	5.93	7.96	0.09
23.00	8.26	5.99	8.02	0.09
23.50	8.32	6.05	8.08	0.08
24.00	8.38	6.10	8.14	0.08

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Subcatchment 10S: DMA 2

Runoff = 0.32 cfs @ 10.02 hrs, Volume= 0.049 af, Depth> 5.96"
Routed to Pond 26P : Offsite

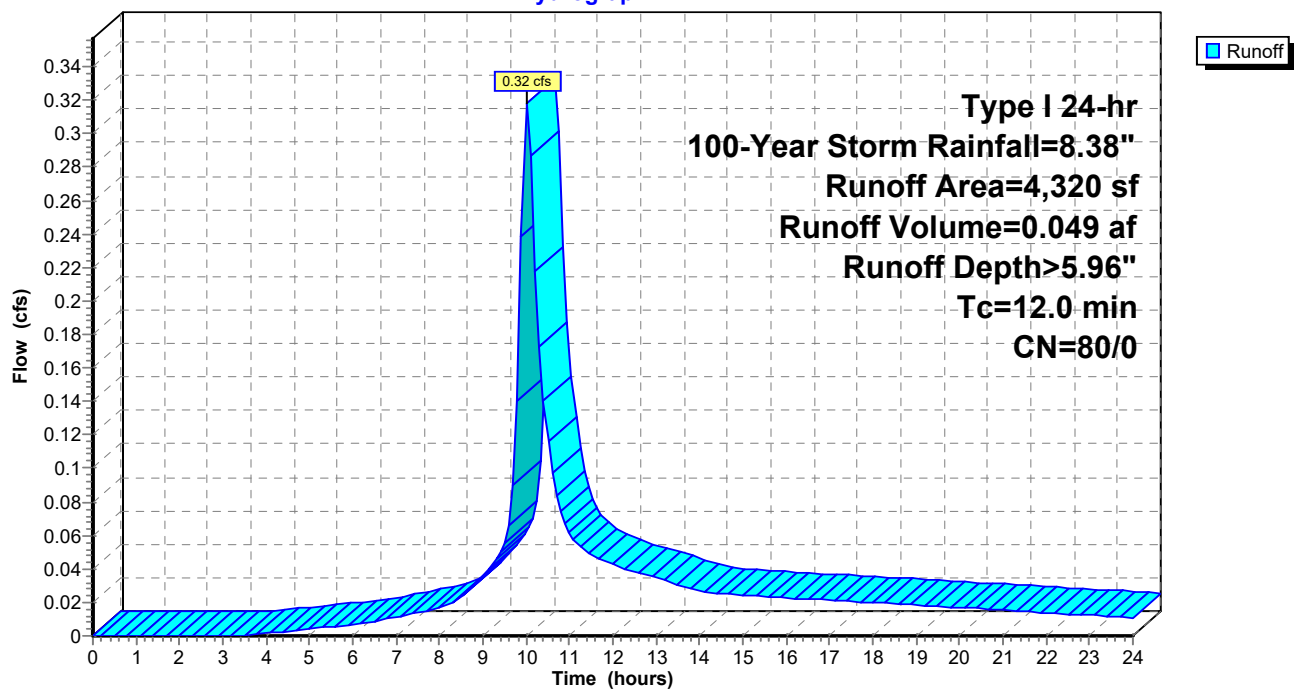
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 100-Year Storm Rainfall=8.38"

	Area (sf)	CN	Description
*	4,320	80	Pervious
	4,320	80	100.00% Pervious Area

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

Subcatchment 10S: DMA 2

Hydrograph



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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Hydrograph for Subcatchment 10S: DMA 2

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.15	0.00	0.00	0.00
1.50	0.22	0.00	0.00	0.00
2.00	0.29	0.00	0.00	0.00
2.50	0.37	0.00	0.00	0.00
3.00	0.45	0.00	0.00	0.00
3.50	0.54	0.00	0.00	0.00
4.00	0.64	0.01	0.00	0.00
4.50	0.74	0.02	0.00	0.00
5.00	0.84	0.04	0.00	0.00
5.50	0.94	0.07	0.00	0.01
6.00	1.05	0.10	0.00	0.01
6.50	1.17	0.14	0.00	0.01
7.00	1.31	0.20	0.00	0.01
7.50	1.46	0.27	0.00	0.01
8.00	1.63	0.35	0.00	0.02
8.50	1.84	0.46	0.00	0.02
9.00	2.13	0.64	0.00	0.04
9.50	2.54	0.92	0.00	0.06
10.00	4.32	2.31	0.00	0.32
10.50	4.89	2.79	0.00	0.12
11.00	5.22	3.09	0.00	0.06
11.50	5.49	3.33	0.00	0.05
12.00	5.73	3.54	0.00	0.04
12.50	5.94	3.73	0.00	0.04
13.00	6.13	3.90	0.00	0.03
13.50	6.30	4.06	0.00	0.03
14.00	6.45	4.19	0.00	0.03
14.50	6.59	4.32	0.00	0.03
15.00	6.72	4.44	0.00	0.02
15.50	6.85	4.55	0.00	0.02
16.00	6.97	4.67	0.00	0.02
16.50	7.09	4.78	0.00	0.02
17.00	7.21	4.89	0.00	0.02
17.50	7.32	4.99	0.00	0.02
18.00	7.42	5.09	0.00	0.02
18.50	7.53	5.18	0.00	0.02
19.00	7.63	5.28	0.00	0.02
19.50	7.72	5.36	0.00	0.02
20.00	7.81	5.45	0.00	0.02
20.50	7.90	5.53	0.00	0.02
21.00	7.98	5.60	0.00	0.02
21.50	8.06	5.68	0.00	0.01
22.00	8.13	5.75	0.00	0.01
22.50	8.20	5.81	0.00	0.01
23.00	8.26	5.87	0.00	0.01
23.50	8.32	5.93	0.00	0.01
24.00	8.38	5.98	0.00	0.01

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Subcatchment 16S: DMA 7

Runoff = 0.15 cfs @ 10.02 hrs, Volume= 0.025 af, Depth> 7.87"
Routed to Pond 30P : Bioretention Basin (SCM-2)

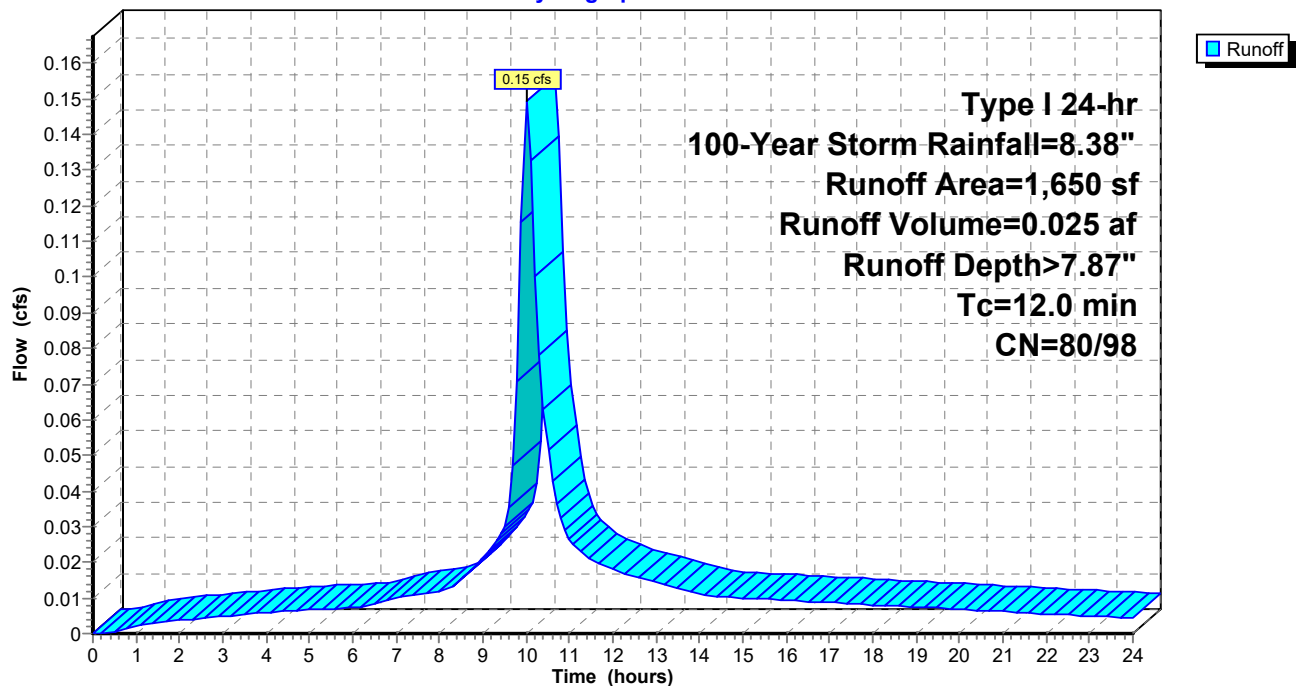
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 100-Year Storm Rainfall=8.38"

	Area (sf)	CN	Description
*	1,460	98	Impervious
*	0	80	Pervious
*	190	80	Basin
	1,650	96	Weighted Average
	190	80	11.52% Pervious Area
	1,460	98	88.48% Impervious Area

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

Subcatchment 16S: DMA 7

Hydrograph



22027_DRAINAGE

Type I 24-hr 100-Year Storm Rainfall=8.38"

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Hydrograph for Subcatchment 16S: DMA 7

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.15	0.00	0.04	0.00
1.50	0.22	0.00	0.08	0.00
2.00	0.29	0.00	0.14	0.00
2.50	0.37	0.00	0.20	0.00
3.00	0.45	0.00	0.28	0.00
3.50	0.54	0.00	0.36	0.01
4.00	0.64	0.01	0.44	0.01
4.50	0.74	0.02	0.54	0.01
5.00	0.84	0.04	0.63	0.01
5.50	0.94	0.07	0.73	0.01
6.00	1.05	0.10	0.84	0.01
6.50	1.17	0.14	0.95	0.01
7.00	1.31	0.20	1.09	0.01
7.50	1.46	0.27	1.24	0.01
8.00	1.63	0.35	1.40	0.01
8.50	1.84	0.46	1.61	0.02
9.00	2.13	0.64	1.90	0.02
9.50	2.54	0.92	2.31	0.03
10.00	4.32	2.31	4.08	0.15
10.50	4.89	2.79	4.65	0.05
11.00	5.22	3.09	4.98	0.03
11.50	5.49	3.33	5.26	0.02
12.00	5.73	3.54	5.49	0.02
12.50	5.94	3.73	5.71	0.02
13.00	6.13	3.90	5.90	0.01
13.50	6.30	4.06	6.07	0.01
14.00	6.45	4.19	6.21	0.01
14.50	6.59	4.32	6.35	0.01
15.00	6.72	4.44	6.48	0.01
15.50	6.85	4.55	6.61	0.01
16.00	6.97	4.67	6.73	0.01
16.50	7.09	4.78	6.85	0.01
17.00	7.21	4.89	6.97	0.01
17.50	7.32	4.99	7.08	0.01
18.00	7.42	5.09	7.19	0.01
18.50	7.53	5.18	7.29	0.01
19.00	7.63	5.28	7.39	0.01
19.50	7.72	5.36	7.48	0.01
20.00	7.81	5.45	7.57	0.01
20.50	7.90	5.53	7.66	0.01
21.00	7.98	5.60	7.74	0.01
21.50	8.06	5.68	7.82	0.01
22.00	8.13	5.75	7.89	0.01
22.50	8.20	5.81	7.96	0.01
23.00	8.26	5.87	8.02	0.00
23.50	8.32	5.93	8.08	0.00
24.00	8.38	5.98	8.14	0.00

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Subcatchment 19S: DMA 10

Runoff = 0.13 cfs @ 10.02 hrs, Volume= 0.022 af, Depth> 7.83"
Routed to Pond 30P : Bioretention Basin (SCM-2)

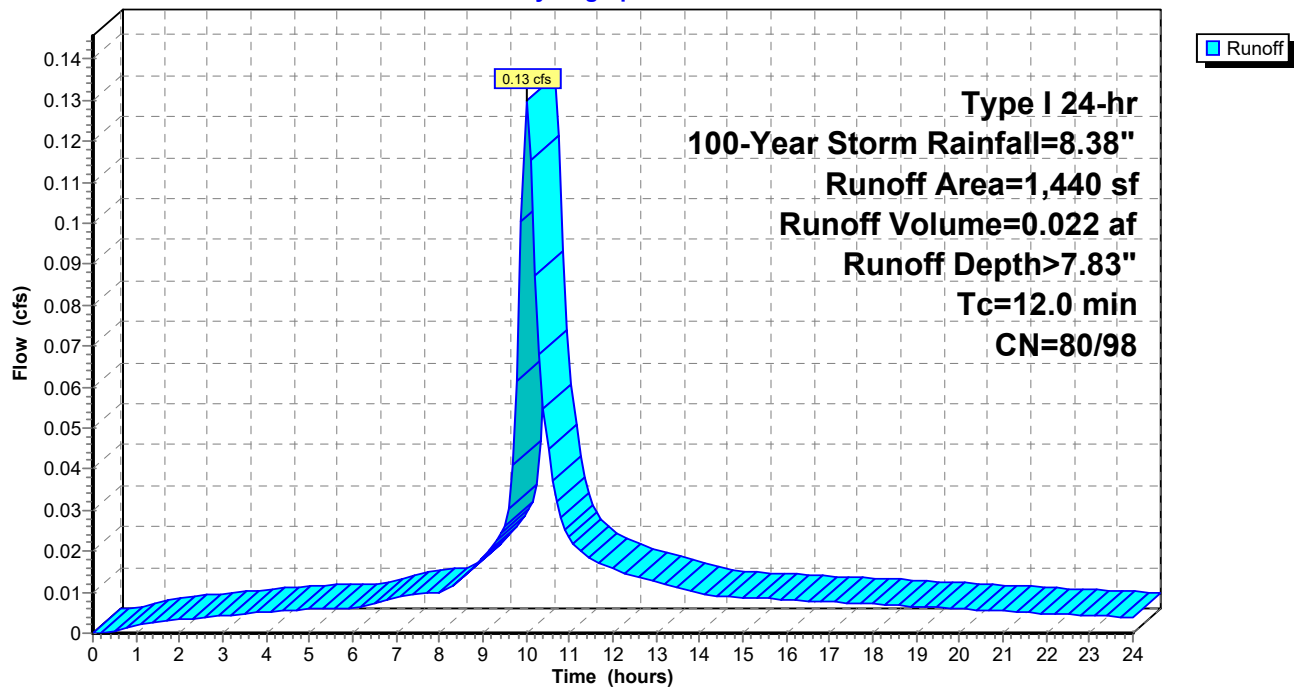
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 100-Year Storm Rainfall=8.38"

	Area (sf)	CN	Description
*	1,250	98	Impervious
*	190	80	Basin
	1,440	96	Weighted Average
	190	80	13.19% Pervious Area
	1,250	98	86.81% Impervious Area

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

Subcatchment 19S: DMA 10

Hydrograph



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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Hydrograph for Subcatchment 19S: DMA 10

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.15	0.00	0.04	0.00
1.50	0.22	0.00	0.08	0.00
2.00	0.29	0.00	0.14	0.00
2.50	0.37	0.00	0.20	0.00
3.00	0.45	0.00	0.28	0.00
3.50	0.54	0.00	0.36	0.00
4.00	0.64	0.01	0.44	0.01
4.50	0.74	0.02	0.54	0.01
5.00	0.84	0.04	0.63	0.01
5.50	0.94	0.07	0.73	0.01
6.00	1.05	0.10	0.84	0.01
6.50	1.17	0.14	0.95	0.01
7.00	1.31	0.20	1.09	0.01
7.50	1.46	0.27	1.24	0.01
8.00	1.63	0.35	1.40	0.01
8.50	1.84	0.46	1.61	0.01
9.00	2.13	0.64	1.90	0.02
9.50	2.54	0.92	2.31	0.03
10.00	4.32	2.31	4.08	0.13
10.50	4.89	2.79	4.65	0.04
11.00	5.22	3.09	4.98	0.02
11.50	5.49	3.33	5.26	0.02
12.00	5.73	3.54	5.49	0.02
12.50	5.94	3.73	5.71	0.01
13.00	6.13	3.90	5.90	0.01
13.50	6.30	4.06	6.07	0.01
14.00	6.45	4.19	6.21	0.01
14.50	6.59	4.32	6.35	0.01
15.00	6.72	4.44	6.48	0.01
15.50	6.85	4.55	6.61	0.01
16.00	6.97	4.67	6.73	0.01
16.50	7.09	4.78	6.85	0.01
17.00	7.21	4.89	6.97	0.01
17.50	7.32	4.99	7.08	0.01
18.00	7.42	5.09	7.19	0.01
18.50	7.53	5.18	7.29	0.01
19.00	7.63	5.28	7.39	0.01
19.50	7.72	5.36	7.48	0.01
20.00	7.81	5.45	7.57	0.01
20.50	7.90	5.53	7.66	0.01
21.00	7.98	5.60	7.74	0.01
21.50	8.06	5.68	7.82	0.01
22.00	8.13	5.75	7.89	0.00
22.50	8.20	5.81	7.96	0.00
23.00	8.26	5.87	8.02	0.00
23.50	8.32	5.93	8.08	0.00
24.00	8.38	5.98	8.14	0.00

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Subcatchment 20S: DMA 11

Runoff = 0.10 cfs @ 10.02 hrs, Volume= 0.016 af, Depth> 6.09"
Routed to Pond 26P : Offsite

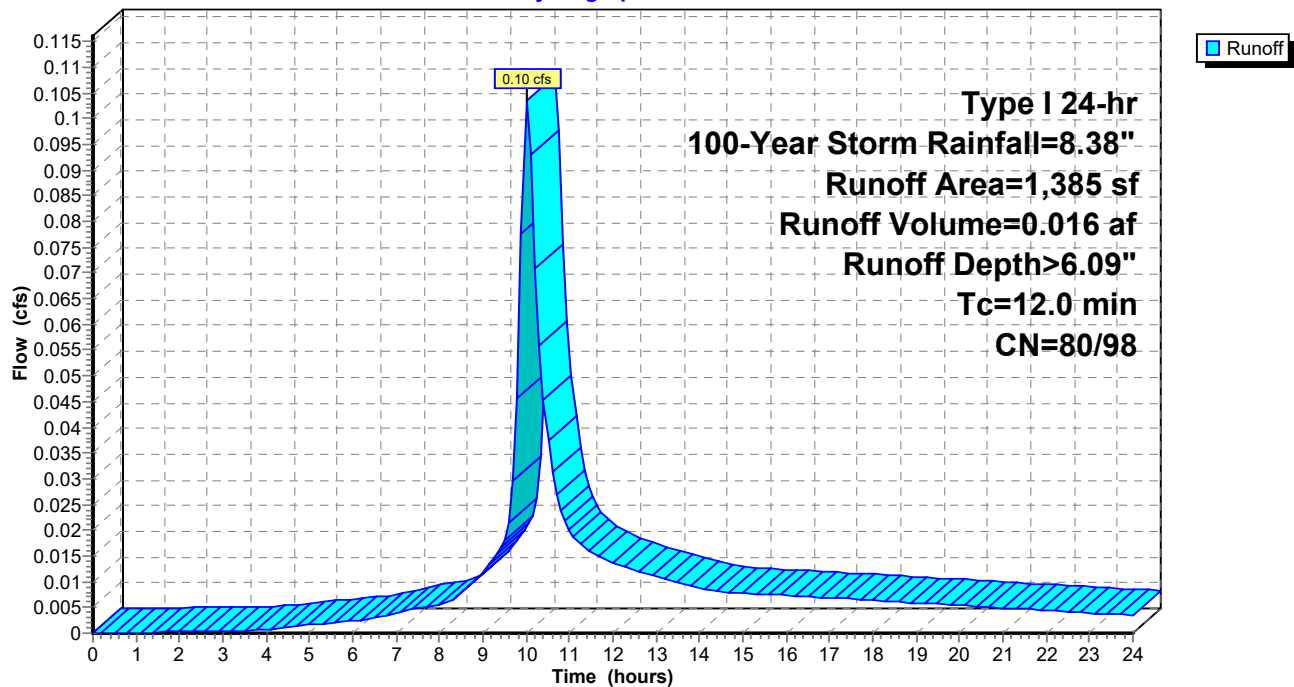
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 100-Year Storm Rainfall=8.38"

	Area (sf)	CN	Description
*	1,305	80	Pervious
*	80	98	Impervious
	1,385	81	Weighted Average
	1,305	80	94.22% Pervious Area
	80	98	5.78% Impervious Area

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

Subcatchment 20S: DMA 11

Hydrograph



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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Hydrograph for Subcatchment 20S: DMA 11

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.15	0.00	0.04	0.00
1.50	0.22	0.00	0.08	0.00
2.00	0.29	0.00	0.14	0.00
2.50	0.37	0.00	0.20	0.00
3.00	0.45	0.00	0.28	0.00
3.50	0.54	0.00	0.36	0.00
4.00	0.64	0.01	0.44	0.00
4.50	0.74	0.02	0.54	0.00
5.00	0.84	0.04	0.63	0.00
5.50	0.94	0.07	0.73	0.00
6.00	1.05	0.10	0.84	0.00
6.50	1.17	0.14	0.95	0.00
7.00	1.31	0.20	1.09	0.00
7.50	1.46	0.27	1.24	0.00
8.00	1.63	0.35	1.40	0.01
8.50	1.84	0.46	1.61	0.01
9.00	2.13	0.64	1.90	0.01
9.50	2.54	0.92	2.31	0.02
10.00	4.32	2.31	4.08	0.10
10.50	4.89	2.79	4.65	0.04
11.00	5.22	3.09	4.98	0.02
11.50	5.49	3.33	5.26	0.02
12.00	5.73	3.54	5.49	0.01
12.50	5.94	3.73	5.71	0.01
13.00	6.13	3.90	5.90	0.01
13.50	6.30	4.06	6.07	0.01
14.00	6.45	4.19	6.21	0.01
14.50	6.59	4.32	6.35	0.01
15.00	6.72	4.44	6.48	0.01
15.50	6.85	4.55	6.61	0.01
16.00	6.97	4.67	6.73	0.01
16.50	7.09	4.78	6.85	0.01
17.00	7.21	4.89	6.97	0.01
17.50	7.32	4.99	7.08	0.01
18.00	7.42	5.09	7.19	0.01
18.50	7.53	5.18	7.29	0.01
19.00	7.63	5.28	7.39	0.01
19.50	7.72	5.36	7.48	0.01
20.00	7.81	5.45	7.57	0.01
20.50	7.90	5.53	7.66	0.01
21.00	7.98	5.60	7.74	0.00
21.50	8.06	5.68	7.82	0.00
22.00	8.13	5.75	7.89	0.00
22.50	8.20	5.81	7.96	0.00
23.00	8.26	5.87	8.02	0.00
23.50	8.32	5.93	8.08	0.00
24.00	8.38	5.98	8.14	0.00

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Subcatchment 21S: DMA 12

Runoff = 0.42 cfs @ 10.02 hrs, Volume= 0.069 af, Depth> 7.72"

Routed to Pond 29P : Self Retaining - Permeable Pavers

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

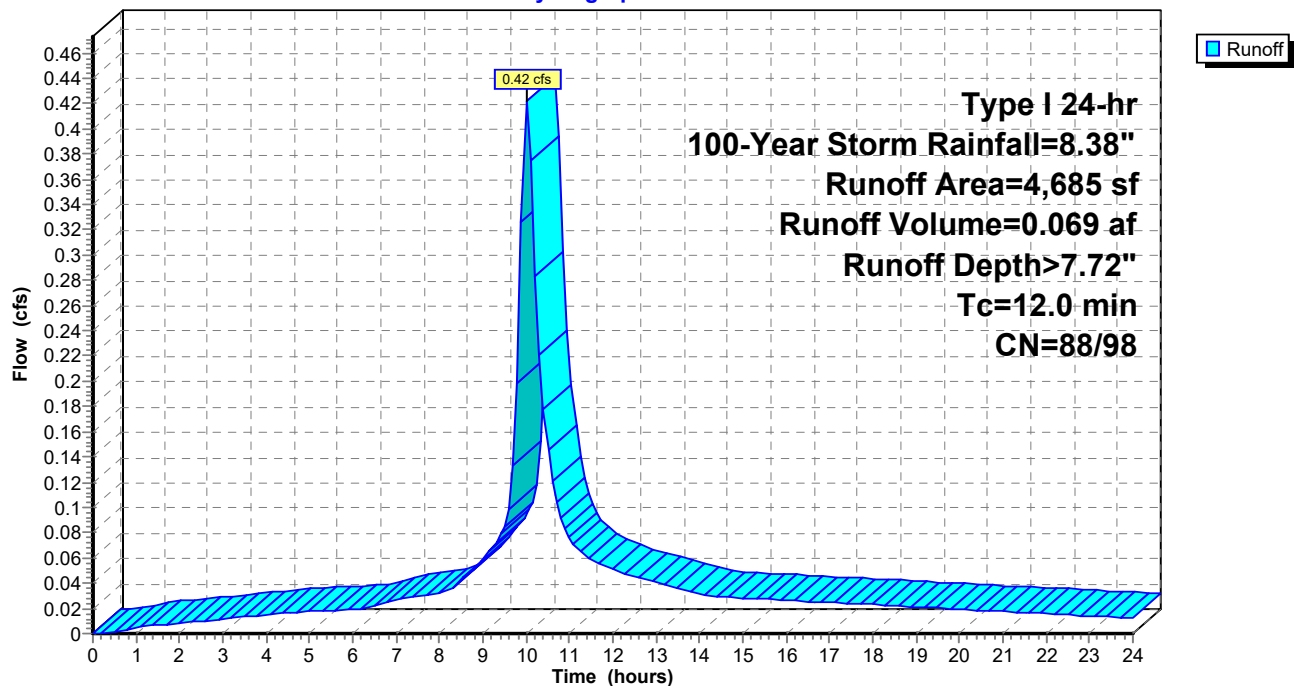
Type I 24-hr 100-Year Storm Rainfall=8.38"

	Area (sf)	CN	Description
*	3,140	98	Impervious
*	220	80	Pervious
*	1,325	89	Pavers
	4,685	95	Weighted Average
	1,545	88	32.98% Pervious Area
	3,140	98	67.02% Impervious Area

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

Subcatchment 21S: DMA 12

Hydrograph



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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Hydrograph for Subcatchment 21S: DMA 12

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.15	0.00	0.04	0.00
1.50	0.22	0.00	0.08	0.01
2.00	0.29	0.00	0.14	0.01
2.50	0.37	0.01	0.20	0.01
3.00	0.45	0.02	0.28	0.01
3.50	0.54	0.04	0.36	0.01
4.00	0.64	0.08	0.44	0.02
4.50	0.74	0.12	0.54	0.02
5.00	0.84	0.17	0.63	0.02
5.50	0.94	0.22	0.73	0.02
6.00	1.05	0.28	0.84	0.02
6.50	1.17	0.35	0.95	0.02
7.00	1.31	0.45	1.09	0.03
7.50	1.46	0.55	1.24	0.03
8.00	1.63	0.67	1.40	0.03
8.50	1.84	0.83	1.61	0.04
9.00	2.13	1.07	1.90	0.06
9.50	2.54	1.42	2.31	0.08
10.00	4.32	3.02	4.08	0.42
10.50	4.89	3.56	4.65	0.15
11.00	5.22	3.88	4.98	0.08
11.50	5.49	4.14	5.26	0.06
12.00	5.73	4.37	5.49	0.05
12.50	5.94	4.57	5.71	0.05
13.00	6.13	4.76	5.90	0.04
13.50	6.30	4.92	6.07	0.04
14.00	6.45	5.06	6.21	0.03
14.50	6.59	5.19	6.35	0.03
15.00	6.72	5.32	6.48	0.03
15.50	6.85	5.45	6.61	0.03
16.00	6.97	5.57	6.73	0.03
16.50	7.09	5.68	6.85	0.03
17.00	7.21	5.79	6.97	0.02
17.50	7.32	5.90	7.08	0.02
18.00	7.42	6.01	7.19	0.02
18.50	7.53	6.11	7.29	0.02
19.00	7.63	6.20	7.39	0.02
19.50	7.72	6.29	7.48	0.02
20.00	7.81	6.38	7.57	0.02
20.50	7.90	6.47	7.66	0.02
21.00	7.98	6.55	7.74	0.02
21.50	8.06	6.62	7.82	0.02
22.00	8.13	6.69	7.89	0.02
22.50	8.20	6.76	7.96	0.01
23.00	8.26	6.83	8.02	0.01
23.50	8.32	6.88	8.08	0.01
24.00	8.38	6.94	8.14	0.01

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Subcatchment 22S: DMA 13

Runoff = 0.10 cfs @ 10.02 hrs, Volume= 0.017 af, Depth> 6.58"
Routed to Pond 26P : Offsite

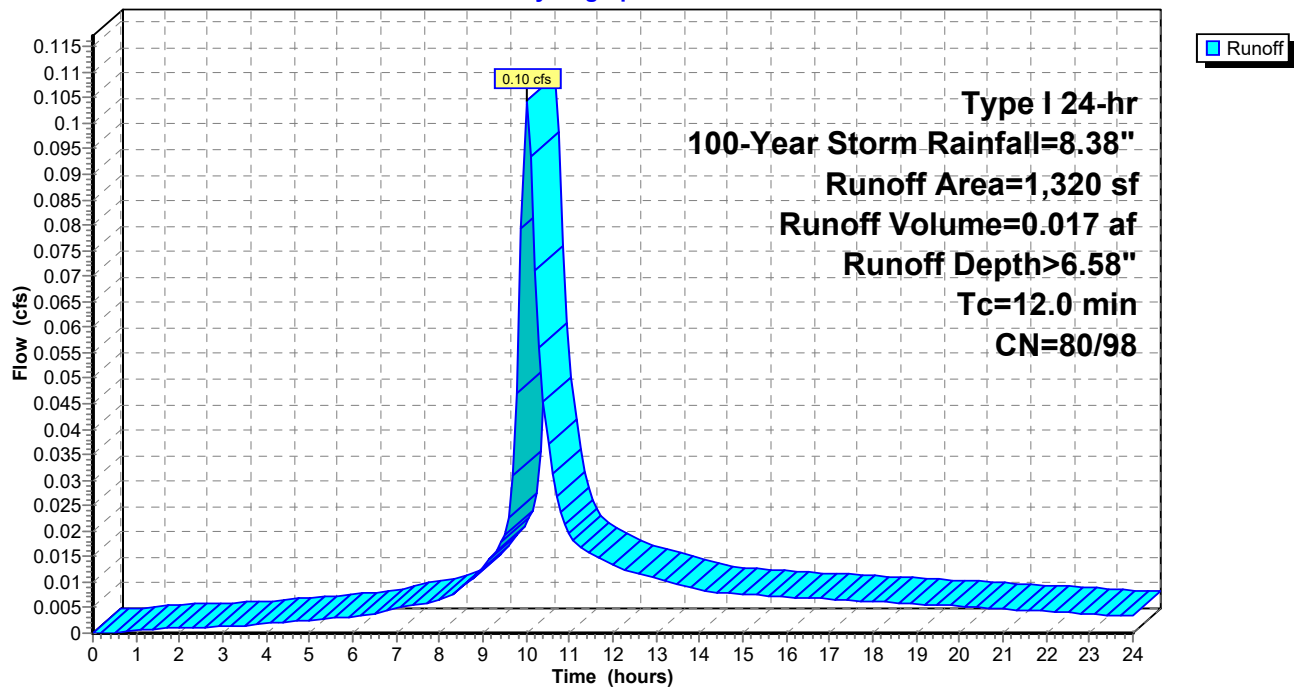
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 100-Year Storm Rainfall=8.38"

	Area (sf)	CN	Description
*	380	98	Impervious
*	940	80	Pervious
	1,320	85	Weighted Average
	940	80	71.21% Pervious Area
	380	98	28.79% Impervious Area

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

Subcatchment 22S: DMA 13

Hydrograph



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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Hydrograph for Subcatchment 22S: DMA 13

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.15	0.00	0.04	0.00
1.50	0.22	0.00	0.08	0.00
2.00	0.29	0.00	0.14	0.00
2.50	0.37	0.00	0.20	0.00
3.00	0.45	0.00	0.28	0.00
3.50	0.54	0.00	0.36	0.00
4.00	0.64	0.01	0.44	0.00
4.50	0.74	0.02	0.54	0.00
5.00	0.84	0.04	0.63	0.00
5.50	0.94	0.07	0.73	0.00
6.00	1.05	0.10	0.84	0.00
6.50	1.17	0.14	0.95	0.00
7.00	1.31	0.20	1.09	0.00
7.50	1.46	0.27	1.24	0.01
8.00	1.63	0.35	1.40	0.01
8.50	1.84	0.46	1.61	0.01
9.00	2.13	0.64	1.90	0.01
9.50	2.54	0.92	2.31	0.02
10.00	4.32	2.31	4.08	0.10
10.50	4.89	2.79	4.65	0.04
11.00	5.22	3.09	4.98	0.02
11.50	5.49	3.33	5.26	0.02
12.00	5.73	3.54	5.49	0.01
12.50	5.94	3.73	5.71	0.01
13.00	6.13	3.90	5.90	0.01
13.50	6.30	4.06	6.07	0.01
14.00	6.45	4.19	6.21	0.01
14.50	6.59	4.32	6.35	0.01
15.00	6.72	4.44	6.48	0.01
15.50	6.85	4.55	6.61	0.01
16.00	6.97	4.67	6.73	0.01
16.50	7.09	4.78	6.85	0.01
17.00	7.21	4.89	6.97	0.01
17.50	7.32	4.99	7.08	0.01
18.00	7.42	5.09	7.19	0.01
18.50	7.53	5.18	7.29	0.01
19.00	7.63	5.28	7.39	0.01
19.50	7.72	5.36	7.48	0.01
20.00	7.81	5.45	7.57	0.01
20.50	7.90	5.53	7.66	0.01
21.00	7.98	5.60	7.74	0.00
21.50	8.06	5.68	7.82	0.00
22.00	8.13	5.75	7.89	0.00
22.50	8.20	5.81	7.96	0.00
23.00	8.26	5.87	8.02	0.00
23.50	8.32	5.93	8.08	0.00
24.00	8.38	5.98	8.14	0.00

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Subcatchment 23S: DMA 3, 5, 6, 8

Runoff = 3.84 cfs @ 10.02 hrs, Volume= 0.626 af, Depth> 7.64"

Routed to Pond 11P : Self Retaining - Permeable Pavers

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

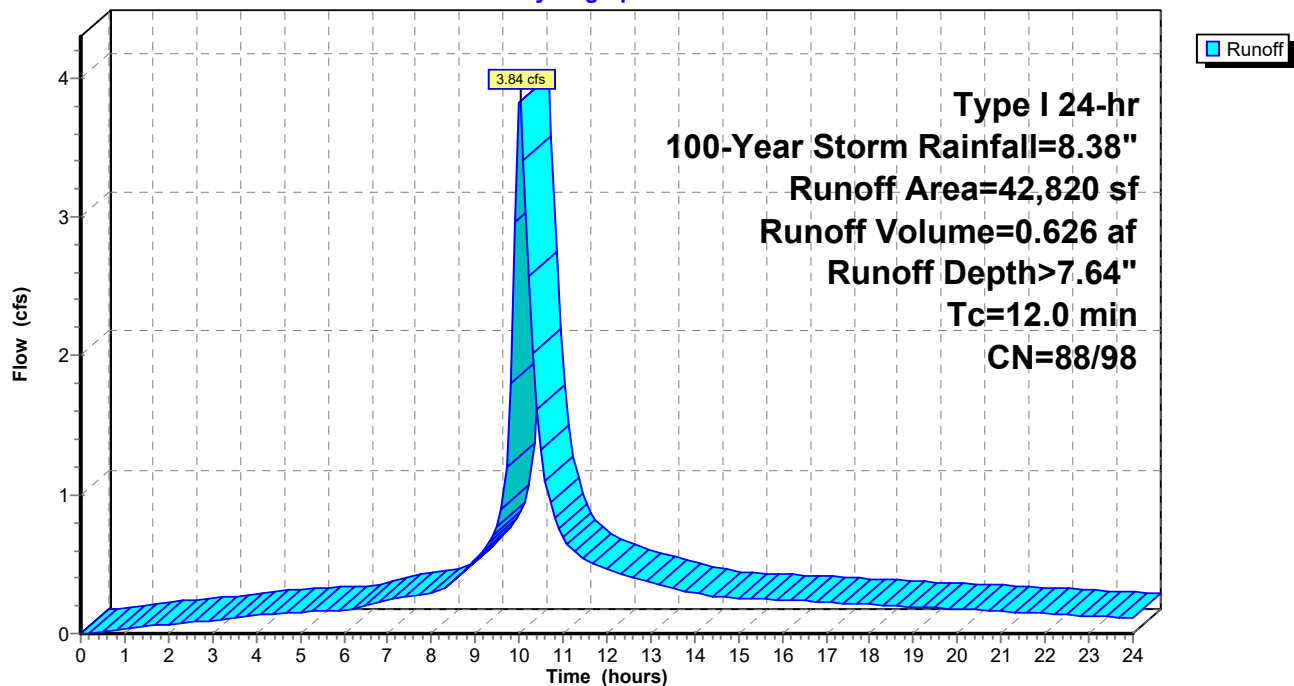
Type I 24-hr 100-Year Storm Rainfall=8.38"

	Area (sf)	CN	Description
*	25,761	98	Impervious
*	2,165	80	Pervious
*	14,894	89	Pavers
	42,820	94	Weighted Average
	17,059	88	39.84% Pervious Area
	25,761	98	60.16% Impervious Area

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

Subcatchment 23S: DMA 3, 5, 6, 8

Hydrograph



22027_DRAINAGE

Type I 24-hr 100-Year Storm Rainfall=8.38"

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Hydrograph for Subcatchment 23S: DMA 3, 5, 6, 8

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.01
1.00	0.15	0.00	0.04	0.04
1.50	0.22	0.00	0.08	0.06
2.00	0.29	0.00	0.14	0.07
2.50	0.37	0.01	0.20	0.08
3.00	0.45	0.02	0.28	0.10
3.50	0.54	0.04	0.36	0.11
4.00	0.64	0.08	0.44	0.13
4.50	0.74	0.12	0.54	0.14
5.00	0.84	0.17	0.63	0.15
5.50	0.94	0.22	0.73	0.16
6.00	1.05	0.28	0.84	0.17
6.50	1.17	0.35	0.95	0.20
7.00	1.31	0.45	1.09	0.24
7.50	1.46	0.55	1.24	0.27
8.00	1.63	0.67	1.40	0.28
8.50	1.84	0.83	1.61	0.38
9.00	2.13	1.07	1.90	0.53
9.50	2.54	1.42	2.31	0.77
10.00	4.32	3.02	4.08	3.82
10.50	4.89	3.56	4.65	1.33
11.00	5.22	3.88	4.98	0.69
11.50	5.49	4.14	5.26	0.54
12.00	5.73	4.37	5.49	0.47
12.50	5.94	4.57	5.71	0.41
13.00	6.13	4.76	5.90	0.37
13.50	6.30	4.92	6.07	0.33
14.00	6.45	5.06	6.21	0.29
14.50	6.59	5.19	6.35	0.27
15.00	6.72	5.32	6.48	0.26
15.50	6.85	5.45	6.61	0.25
16.00	6.97	5.57	6.73	0.24
16.50	7.09	5.68	6.85	0.23
17.00	7.21	5.79	6.97	0.23
17.50	7.32	5.90	7.08	0.22
18.00	7.42	6.01	7.19	0.21
18.50	7.53	6.11	7.29	0.20
19.00	7.63	6.20	7.39	0.19
19.50	7.72	6.29	7.48	0.19
20.00	7.81	6.38	7.57	0.18
20.50	7.90	6.47	7.66	0.17
21.00	7.98	6.55	7.74	0.16
21.50	8.06	6.62	7.82	0.15
22.00	8.13	6.69	7.89	0.14
22.50	8.20	6.76	7.96	0.14
23.00	8.26	6.83	8.02	0.13
23.50	8.32	6.88	8.08	0.12
24.00	8.38	6.94	8.14	0.11

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Subcatchment 25S: DMA 14

Runoff = 0.07 cfs @ 10.02 hrs, Volume= 0.010 af, Depth> 5.96"
Routed to Pond 26P : Offsite

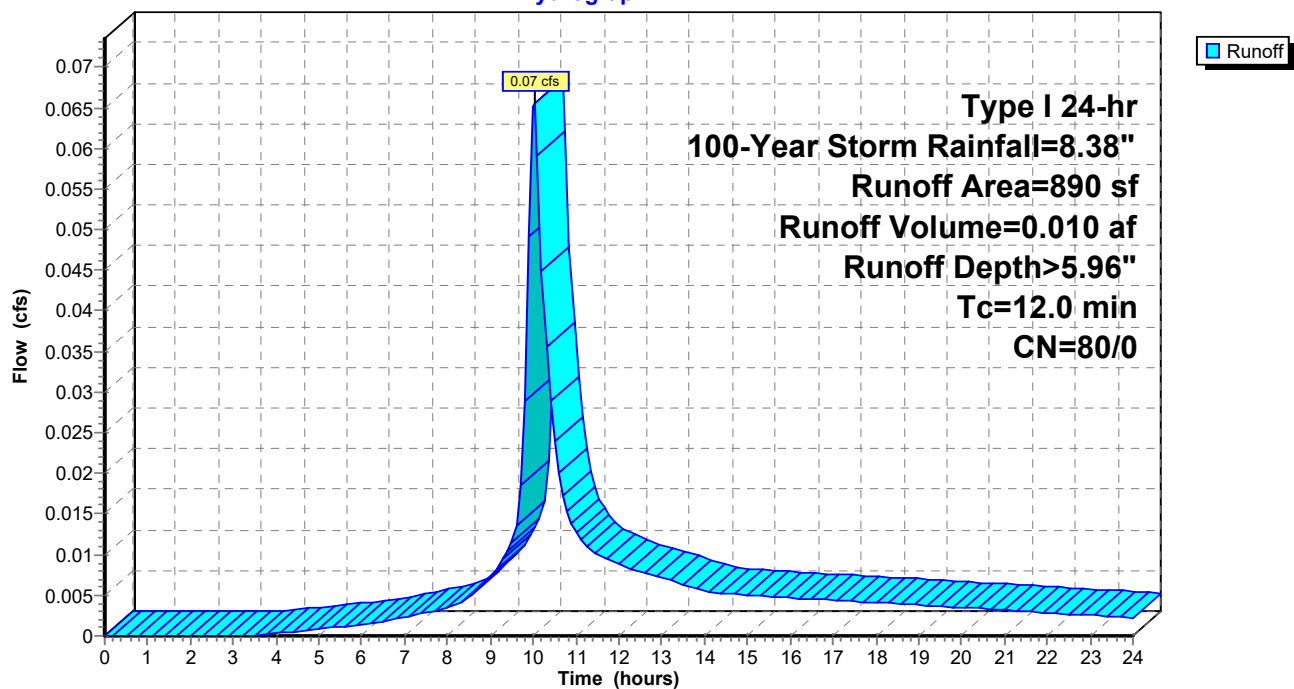
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 100-Year Storm Rainfall=8.38"

	Area (sf)	CN	Description
*	890	80	Pervious
	890	80	100.00% Pervious Area

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

Subcatchment 25S: DMA 14

Hydrograph



22027_DRAINAGE

Type I 24-hr 100-Year Storm Rainfall=8.38"

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Hydrograph for Subcatchment 25S: DMA 14

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.15	0.00	0.00	0.00
1.50	0.22	0.00	0.00	0.00
2.00	0.29	0.00	0.00	0.00
2.50	0.37	0.00	0.00	0.00
3.00	0.45	0.00	0.00	0.00
3.50	0.54	0.00	0.00	0.00
4.00	0.64	0.01	0.00	0.00
4.50	0.74	0.02	0.00	0.00
5.00	0.84	0.04	0.00	0.00
5.50	0.94	0.07	0.00	0.00
6.00	1.05	0.10	0.00	0.00
6.50	1.17	0.14	0.00	0.00
7.00	1.31	0.20	0.00	0.00
7.50	1.46	0.27	0.00	0.00
8.00	1.63	0.35	0.00	0.00
8.50	1.84	0.46	0.00	0.00
9.00	2.13	0.64	0.00	0.01
9.50	2.54	0.92	0.00	0.01
10.00	4.32	2.31	0.00	0.07
10.50	4.89	2.79	0.00	0.02
11.00	5.22	3.09	0.00	0.01
11.50	5.49	3.33	0.00	0.01
12.00	5.73	3.54	0.00	0.01
12.50	5.94	3.73	0.00	0.01
13.00	6.13	3.90	0.00	0.01
13.50	6.30	4.06	0.00	0.01
14.00	6.45	4.19	0.00	0.01
14.50	6.59	4.32	0.00	0.01
15.00	6.72	4.44	0.00	0.00
15.50	6.85	4.55	0.00	0.00
16.00	6.97	4.67	0.00	0.00
16.50	7.09	4.78	0.00	0.00
17.00	7.21	4.89	0.00	0.00
17.50	7.32	4.99	0.00	0.00
18.00	7.42	5.09	0.00	0.00
18.50	7.53	5.18	0.00	0.00
19.00	7.63	5.28	0.00	0.00
19.50	7.72	5.36	0.00	0.00
20.00	7.81	5.45	0.00	0.00
20.50	7.90	5.53	0.00	0.00
21.00	7.98	5.60	0.00	0.00
21.50	8.06	5.68	0.00	0.00
22.00	8.13	5.75	0.00	0.00
22.50	8.20	5.81	0.00	0.00
23.00	8.26	5.87	0.00	0.00
23.50	8.32	5.93	0.00	0.00
24.00	8.38	5.98	0.00	0.00

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Subcatchment 28S: DMA 4 & 9

Runoff = 0.22 cfs @ 10.02 hrs, Volume= 0.034 af, Depth> 6.12"
Routed to Pond 27P : Self Retaining - Landscape

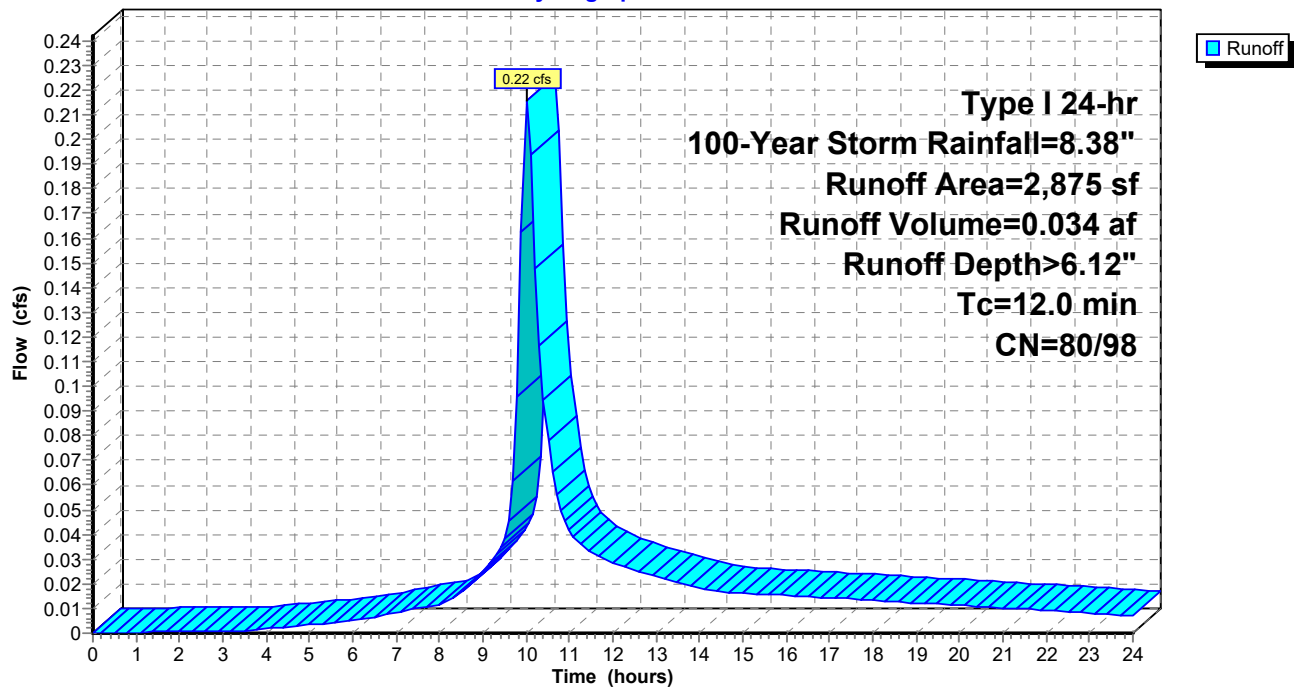
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
Type I 24-hr 100-Year Storm Rainfall=8.38"

	Area (sf)	CN	Description
*	2,665	80	Pervious Area
*	210	98	Impervious Area
	2,875	81	Weighted Average
	2,665	80	92.70% Pervious Area
	210	98	7.30% Impervious Area

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

Subcatchment 28S: DMA 4 & 9

Hydrograph



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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Hydrograph for Subcatchment 28S: DMA 4 & 9

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.00
0.50	0.07	0.00	0.00	0.00
1.00	0.15	0.00	0.04	0.00
1.50	0.22	0.00	0.08	0.00
2.00	0.29	0.00	0.14	0.00
2.50	0.37	0.00	0.20	0.00
3.00	0.45	0.00	0.28	0.00
3.50	0.54	0.00	0.36	0.00
4.00	0.64	0.01	0.44	0.00
4.50	0.74	0.02	0.54	0.00
5.00	0.84	0.04	0.63	0.00
5.50	0.94	0.07	0.73	0.00
6.00	1.05	0.10	0.84	0.00
6.50	1.17	0.14	0.95	0.01
7.00	1.31	0.20	1.09	0.01
7.50	1.46	0.27	1.24	0.01
8.00	1.63	0.35	1.40	0.01
8.50	1.84	0.46	1.61	0.02
9.00	2.13	0.64	1.90	0.02
9.50	2.54	0.92	2.31	0.04
10.00	4.32	2.31	4.08	0.21
10.50	4.89	2.79	4.65	0.08
11.00	5.22	3.09	4.98	0.04
11.50	5.49	3.33	5.26	0.03
12.00	5.73	3.54	5.49	0.03
12.50	5.94	3.73	5.71	0.03
13.00	6.13	3.90	5.90	0.02
13.50	6.30	4.06	6.07	0.02
14.00	6.45	4.19	6.21	0.02
14.50	6.59	4.32	6.35	0.02
15.00	6.72	4.44	6.48	0.02
15.50	6.85	4.55	6.61	0.02
16.00	6.97	4.67	6.73	0.02
16.50	7.09	4.78	6.85	0.01
17.00	7.21	4.89	6.97	0.01
17.50	7.32	4.99	7.08	0.01
18.00	7.42	5.09	7.19	0.01
18.50	7.53	5.18	7.29	0.01
19.00	7.63	5.28	7.39	0.01
19.50	7.72	5.36	7.48	0.01
20.00	7.81	5.45	7.57	0.01
20.50	7.90	5.53	7.66	0.01
21.00	7.98	5.60	7.74	0.01
21.50	8.06	5.68	7.82	0.01
22.00	8.13	5.75	7.89	0.01
22.50	8.20	5.81	7.96	0.01
23.00	8.26	5.87	8.02	0.01
23.50	8.32	5.93	8.08	0.01
24.00	8.38	5.98	8.14	0.01

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Pond 8P: Bioretention Basin (SCM-1)

Inflow Area = 0.690 ac, 52.67% Impervious, Inflow Depth > 7.15" for 100-Year Storm event
 Inflow = 2.54 cfs @ 10.02 hrs, Volume= 0.411 af
 Outflow = 1.24 cfs @ 10.32 hrs, Volume= 0.372 af, Atten= 51%, Lag= 18.3 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 1.06 cfs @ 10.35 hrs, Volume= 0.369 af
 Routed to Pond 26P : Offsite
 Secondary = 0.19 cfs @ 10.32 hrs, Volume= 0.002 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2
 Peak Elev= 75.00' @ 10.35 hrs Surf.Area= 2,614 sf Storage= 4,276 cf

Plug-Flow detention time= 124.9 min calculated for 0.372 af (90% of inflow)
 Center-of-Mass det. time= 65.3 min (787.9 - 722.6)

Volume	Invert	Avail.Storage	Storage Description	
#1	68.99'	4,276 cf	Custom Stage Data (Prismatic) Listed below (Recalc) x 0.75	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
68.99	1,370	0.0	0	0
69.00	1,370	40.0	5	5
71.50	1,370	40.0	1,370	1,375
73.50	1,370	25.0	685	2,060
75.00	3,485	100.0	3,641	5,702

Device	Routing	Invert	Outlet Devices
#1	Device 3	73.25'	15.0" Round 15" Culvert L= 250.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.25' / 70.70' S= 0.0102 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf
#2	Secondary	74.99'	70.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Primary	73.50'	6.0" Vert. Orifice/Culvert C= 0.600 Limited to weir flow at low heads
#4	Device 1	70.60'	12.5" W x 3.0" H Vert. curb outlet C= 0.600 Limited to weir flow at low heads
#5	Discarded	68.99'	0.380 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=68.99' (Free Discharge)

↑ **5=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.06 cfs @ 10.35 hrs HW=75.00' (Free Discharge)

↑ **3=Orifice/Culvert** (Orifice Controls 1.06 cfs @ 5.38 fps)

↑ **1=15" Culvert** (Passes 1.06 cfs of 5.41 cfs potential flow)

↑ **4=curb outlet** (Passes 1.06 cfs of 1.53 cfs potential flow)

Secondary OutFlow Max=0.14 cfs @ 10.32 hrs HW=75.00' (Free Discharge)

↑ **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.14 cfs @ 0.28 fps)

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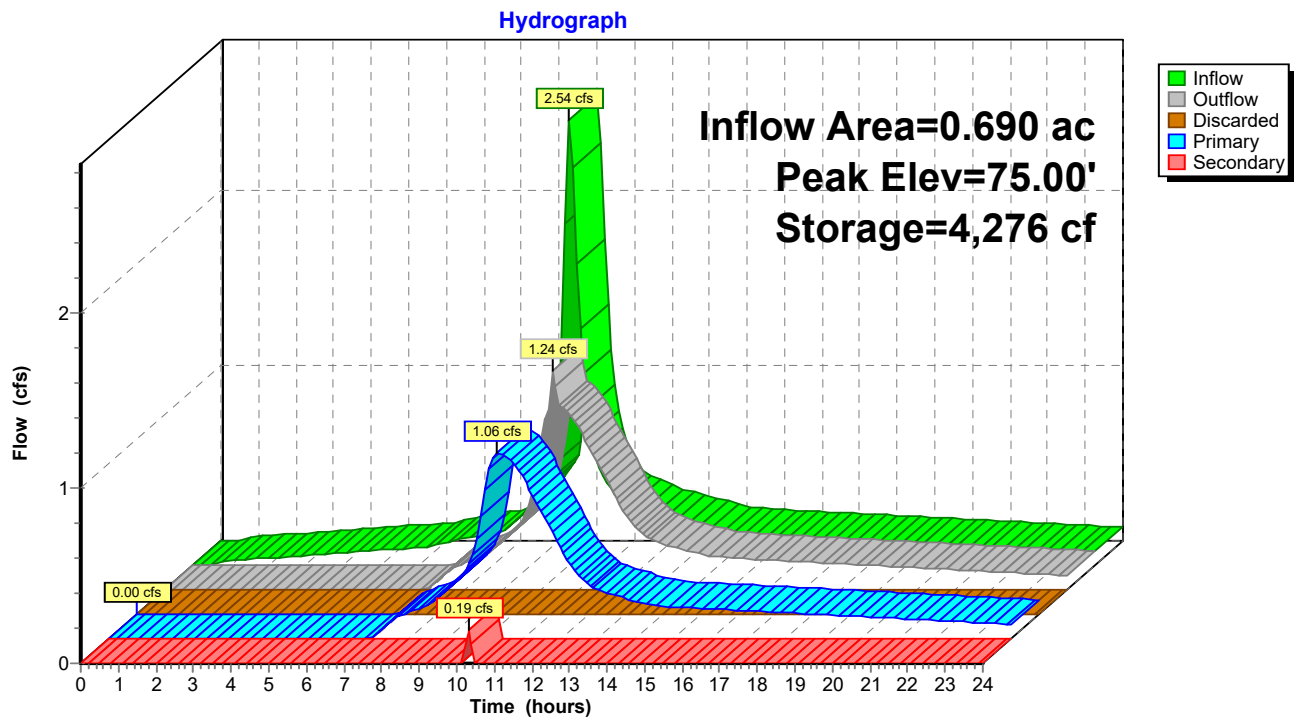
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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Pond 8P: Bioretention Basin (SCM-1)



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Hydrograph for Pond 8P: Bioretention Basin (SCM-1)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	68.99	0.00	0.00	0.00	0.00
0.50	0.00	1	68.99	0.00	0.00	0.00	0.00
1.00	0.02	26	69.05	0.00	0.00	0.00	0.00
1.50	0.03	78	69.18	0.00	0.00	0.00	0.00
2.00	0.04	147	69.35	0.00	0.00	0.00	0.00
2.50	0.05	226	69.54	0.00	0.00	0.00	0.00
3.00	0.05	315	69.76	0.00	0.00	0.00	0.00
3.50	0.06	417	70.00	0.00	0.00	0.00	0.00
4.00	0.07	535	70.29	0.00	0.00	0.00	0.00
4.50	0.08	669	70.62	0.00	0.00	0.00	0.00
5.00	0.09	818	70.98	0.00	0.00	0.00	0.00
5.50	0.09	978	71.37	0.00	0.00	0.00	0.00
6.00	0.10	1,150	71.96	0.00	0.00	0.00	0.00
6.50	0.12	1,340	72.70	0.00	0.00	0.00	0.00
7.00	0.14	1,570	73.52	0.00	0.00	0.00	0.00
7.50	0.16	1,757	73.69	0.10	0.00	0.10	0.00
8.00	0.17	1,821	73.74	0.15	0.00	0.15	0.00
8.50	0.24	1,866	73.77	0.20	0.00	0.20	0.00
9.00	0.33	1,954	73.84	0.28	0.00	0.28	0.00
9.50	0.49	2,080	73.93	0.40	0.00	0.40	0.00
10.00	2.52	3,225	74.56	0.85	0.00	0.85	0.00
10.50	0.89	4,229	74.98	1.05	0.00	1.05	0.00
11.00	0.47	3,559	74.71	0.93	0.00	0.93	0.00
11.50	0.36	2,794	74.35	0.73	0.00	0.73	0.00
12.00	0.32	2,281	74.06	0.52	0.00	0.52	0.00
12.50	0.28	2,035	73.90	0.36	0.00	0.36	0.00
13.00	0.25	1,954	73.84	0.28	0.00	0.28	0.00
13.50	0.23	1,917	73.81	0.24	0.00	0.24	0.00
14.00	0.20	1,886	73.79	0.22	0.00	0.22	0.00
14.50	0.18	1,862	73.77	0.19	0.00	0.19	0.00
15.00	0.18	1,850	73.76	0.18	0.00	0.18	0.00
15.50	0.17	1,843	73.76	0.18	0.00	0.18	0.00
16.00	0.17	1,837	73.75	0.17	0.00	0.17	0.00
16.50	0.16	1,831	73.75	0.16	0.00	0.16	0.00
17.00	0.16	1,825	73.74	0.16	0.00	0.16	0.00
17.50	0.15	1,820	73.74	0.15	0.00	0.15	0.00
18.00	0.14	1,813	73.73	0.15	0.00	0.15	0.00
18.50	0.14	1,807	73.73	0.14	0.00	0.14	0.00
19.00	0.13	1,800	73.72	0.14	0.00	0.14	0.00
19.50	0.13	1,794	73.72	0.13	0.00	0.13	0.00
20.00	0.12	1,787	73.71	0.13	0.00	0.13	0.00
20.50	0.12	1,780	73.71	0.12	0.00	0.12	0.00
21.00	0.11	1,774	73.70	0.11	0.00	0.11	0.00
21.50	0.10	1,767	73.70	0.11	0.00	0.11	0.00
22.00	0.10	1,760	73.69	0.10	0.00	0.10	0.00
22.50	0.09	1,754	73.68	0.10	0.00	0.10	0.00
23.00	0.09	1,747	73.68	0.09	0.00	0.09	0.00
23.50	0.08	1,740	73.67	0.09	0.00	0.09	0.00
24.00	0.08	1,732	73.67	0.08	0.00	0.08	0.00

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Pond 11P: Self Retaining - Permeable Pavers

Inflow Area = 1.049 ac, 56.84% Impervious, Inflow Depth > 7.16" for 100-Year Storm event
 Inflow = 3.84 cfs @ 10.02 hrs, Volume= 0.626 af
 Outflow = 0.71 cfs @ 10.97 hrs, Volume= 0.358 af, Atten= 81%, Lag= 57.3 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.71 cfs @ 10.97 hrs, Volume= 0.358 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 73.28' @ 10.97 hrs Surf.Area= 15,055 sf Storage= 13,746 cf

Plug-Flow detention time= 371.8 min calculated for 0.358 af (57% of inflow)
 Center-of-Mass det. time= 191.2 min (901.7 - 710.5)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	13,851 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 34,626 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	15,055	0	0
73.30	15,055	34,626	34,626

Device	Routing	Invert	Outlet Devices
#1	Primary	72.80'	4.0" Round Culvert X 4.00 L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 72.80' / 72.54' S= 0.0052 ' S= 0.0052 ' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	71.00'	0.890 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.71 cfs @ 10.97 hrs HW=73.28' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 0.71 cfs @ 2.03 fps)

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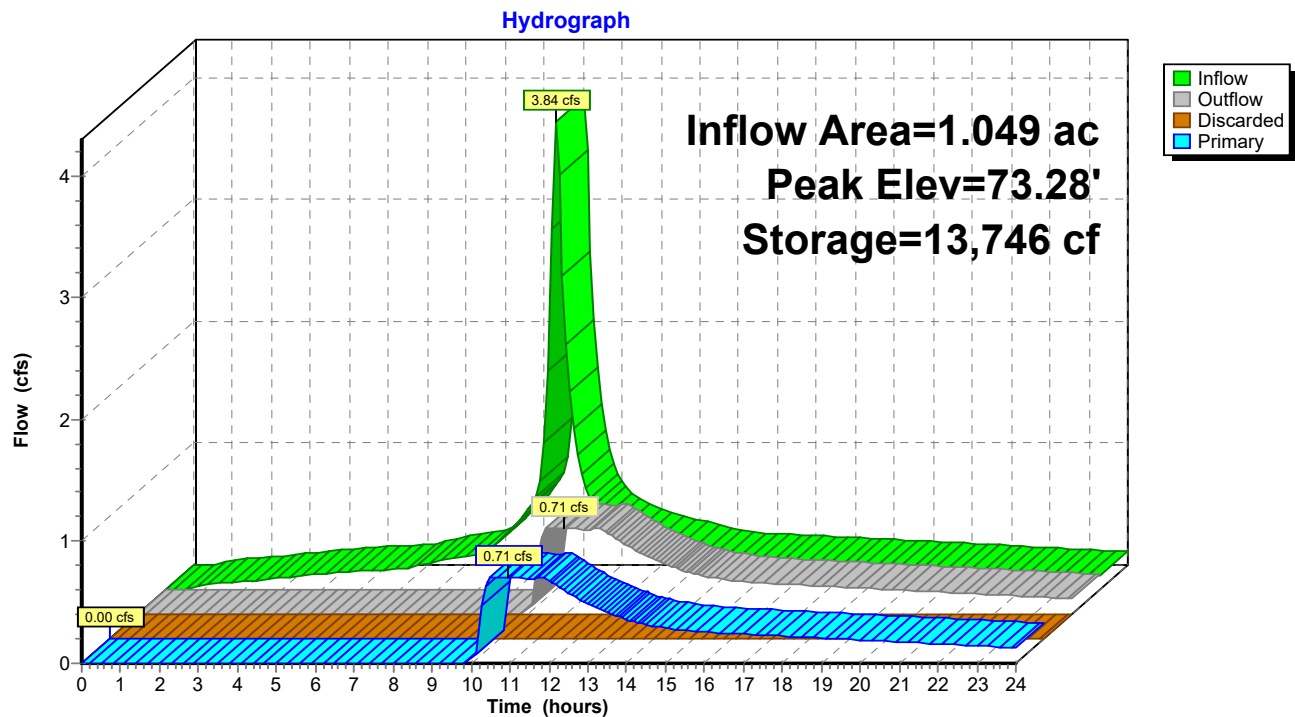
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Pond 11P: Self Retaining - Permeable Pavers



22027_DRAINAGE

Type I 24-hr 100-Year Storm Rainfall=8.38"

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Hydrograph for Pond 11P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	71.00	0.00	0.00	0.00
0.50	0.01	2	71.00	0.00	0.00	0.00
1.00	0.04	42	71.01	0.00	0.00	0.00
1.50	0.06	128	71.02	0.00	0.00	0.00
2.00	0.07	239	71.04	0.00	0.00	0.00
2.50	0.08	371	71.06	0.00	0.00	0.00
3.00	0.10	532	71.09	0.00	0.00	0.00
3.50	0.11	723	71.12	0.00	0.00	0.00
4.00	0.13	944	71.16	0.00	0.00	0.00
4.50	0.14	1,191	71.20	0.00	0.00	0.00
5.00	0.15	1,458	71.24	0.00	0.00	0.00
5.50	0.16	1,742	71.29	0.00	0.00	0.00
6.00	0.17	2,042	71.34	0.00	0.00	0.00
6.50	0.20	2,368	71.39	0.00	0.00	0.00
7.00	0.24	2,758	71.46	0.00	0.00	0.00
7.50	0.27	3,217	71.53	0.00	0.00	0.00
8.00	0.28	3,714	71.62	0.00	0.00	0.00
8.50	0.38	4,292	71.71	0.00	0.00	0.00
9.00	0.53	5,113	71.85	0.00	0.00	0.00
9.50	0.77	6,261	72.04	0.00	0.00	0.00
10.00	3.82	9,555	72.59	0.00	0.00	0.00
10.50	1.33	13,338	73.21	0.70	0.00	0.70
11.00	0.69	13,745	73.28	0.71	0.00	0.71
11.50	0.54	13,563	73.25	0.69	0.00	0.69
12.00	0.47	13,211	73.19	0.68	0.00	0.68
12.50	0.41	12,862	73.14	0.58	0.00	0.58
13.00	0.37	12,614	73.09	0.49	0.00	0.49
13.50	0.33	12,438	73.07	0.42	0.00	0.42
14.00	0.29	12,300	73.04	0.36	0.00	0.36
14.50	0.27	12,191	73.02	0.32	0.00	0.32
15.00	0.26	12,120	73.01	0.29	0.00	0.29
15.50	0.25	12,073	73.00	0.27	0.00	0.27
16.00	0.24	12,040	73.00	0.26	0.00	0.26
16.50	0.23	12,012	72.99	0.25	0.00	0.25
17.00	0.23	11,987	72.99	0.24	0.00	0.24
17.50	0.22	11,963	72.99	0.23	0.00	0.23
18.00	0.21	11,940	72.98	0.22	0.00	0.22
18.50	0.20	11,917	72.98	0.21	0.00	0.21
19.00	0.19	11,895	72.98	0.21	0.00	0.21
19.50	0.19	11,872	72.97	0.20	0.00	0.20
20.00	0.18	11,848	72.97	0.19	0.00	0.19
20.50	0.17	11,824	72.96	0.18	0.00	0.18
21.00	0.16	11,800	72.96	0.17	0.00	0.17
21.50	0.15	11,777	72.96	0.17	0.00	0.17
22.00	0.14	11,752	72.95	0.16	0.00	0.16
22.50	0.14	11,727	72.95	0.15	0.00	0.15
23.00	0.13	11,701	72.94	0.14	0.00	0.14
23.50	0.12	11,675	72.94	0.13	0.00	0.13
24.00	0.11	11,649	72.93	0.13	0.00	0.13

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Type I 24-hr 100-Year Storm Rainfall=8.38"

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Summary for Pond 26P: Offsite

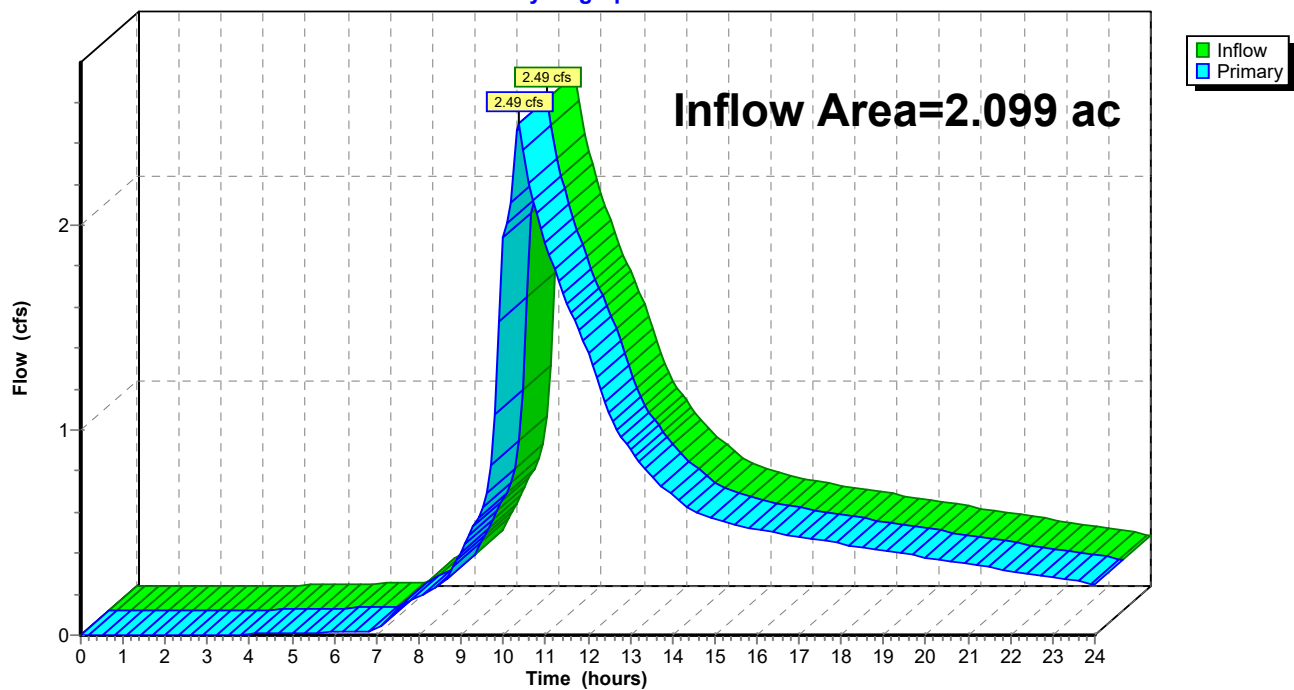
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.099 ac, 52.61% Impervious, Inflow Depth > 5.24" for 100-Year Storm event
Inflow = 2.49 cfs @ 10.35 hrs, Volume= 0.916 af
Primary = 2.49 cfs @ 10.35 hrs, Volume= 0.916 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Pond 26P: Offsite

Hydrograph



22027_DRAINAGE*Type I 24-hr 100-Year Storm Rainfall=8.38"*

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Hydrograph for Pond 26P: Offsite

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	0.00		0.00
1.50	0.00		0.00
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.01		0.01
5.00	0.01		0.01
5.50	0.01		0.01
6.00	0.01		0.01
6.50	0.02		0.02
7.00	0.03		0.03
7.50	0.13		0.13
8.00	0.19		0.19
8.50	0.24		0.24
9.00	0.40		0.40
9.50	0.62		0.62
10.00	1.94		1.94
10.50	2.30		2.30
11.00	1.91		1.91
11.50	1.61		1.61
12.00	1.37		1.37
12.50	1.08		1.08
13.00	0.90		0.90
13.50	0.78		0.78
14.00	0.68		0.68
14.50	0.61		0.61
15.00	0.56		0.56
15.50	0.54		0.54
16.00	0.51		0.51
16.50	0.50		0.50
17.00	0.48		0.48
17.50	0.46		0.46
18.00	0.44		0.44
18.50	0.43		0.43
19.00	0.41		0.41
19.50	0.40		0.40
20.00	0.38		0.38
20.50	0.36		0.36
21.00	0.35		0.35
21.50	0.33		0.33
22.00	0.31		0.31
22.50	0.30		0.30
23.00	0.28		0.28
23.50	0.26		0.26
24.00	0.25		0.25

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Summary for Pond 27P: Self Retaining - Landcape

Inflow Area = 0.066 ac, 7.30% Impervious, Inflow Depth > 6.12" for 100-Year Storm event
 Inflow = 0.22 cfs @ 10.02 hrs, Volume= 0.034 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 73.04' @ 24.00 hrs Surf.Area= 2,875 sf Storage= 1,465 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	71.00'	1,653 cf	soil (Prismatic) Listed below (Recalc) 6,612 cf Overall x 25.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.00	2,875	0	0
73.30	2,875	6,612	6,612

Device	Routing	Invert	Outlet Devices
#1	Discarded	71.00'	1.010 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=71.00' (Free Discharge)↑**1=Exfiltration** (Controls 0.00 cfs)

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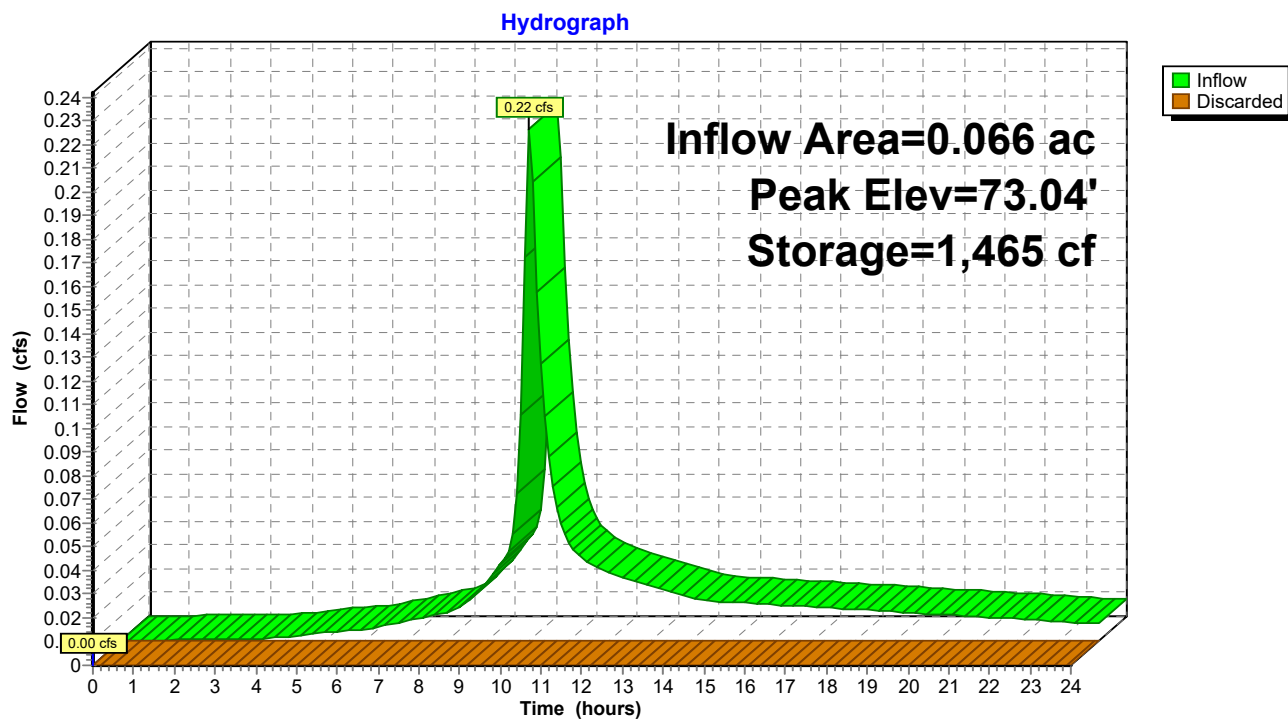
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Pond 27P: Self Retaining - Landscape



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Hydrograph for Pond 27P: Self Retaining - Landscape

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	71.00	0.00
0.50	0.00	0	71.00	0.00
1.00	0.00	0	71.00	0.00
1.50	0.00	1	71.00	0.00
2.00	0.00	2	71.00	0.00
2.50	0.00	3	71.00	0.00
3.00	0.00	4	71.01	0.00
3.50	0.00	6	71.01	0.00
4.00	0.00	8	71.01	0.00
4.50	0.00	12	71.02	0.00
5.00	0.00	17	71.02	0.00
5.50	0.00	24	71.03	0.00
6.00	0.00	32	71.04	0.00
6.50	0.01	42	71.06	0.00
7.00	0.01	55	71.08	0.00
7.50	0.01	72	71.10	0.00
8.00	0.01	92	71.13	0.00
8.50	0.02	116	71.16	0.00
9.00	0.02	153	71.21	0.00
9.50	0.04	208	71.29	0.00
10.00	0.21	385	71.54	0.00
10.50	0.08	637	71.89	0.00
11.00	0.04	736	72.02	0.00
11.50	0.03	802	72.12	0.00
12.00	0.03	857	72.19	0.00
12.50	0.03	905	72.26	0.00
13.00	0.02	949	72.32	0.00
13.50	0.02	989	72.38	0.00
14.00	0.02	1,024	72.42	0.00
14.50	0.02	1,055	72.47	0.00
15.00	0.02	1,084	72.51	0.00
15.50	0.02	1,113	72.55	0.00
16.00	0.02	1,141	72.59	0.00
16.50	0.01	1,168	72.63	0.00
17.00	0.01	1,194	72.66	0.00
17.50	0.01	1,219	72.70	0.00
18.00	0.01	1,244	72.73	0.00
18.50	0.01	1,267	72.76	0.00
19.00	0.01	1,290	72.79	0.00
19.50	0.01	1,311	72.82	0.00
20.00	0.01	1,332	72.85	0.00
20.50	0.01	1,352	72.88	0.00
21.00	0.01	1,371	72.91	0.00
21.50	0.01	1,389	72.93	0.00
22.00	0.01	1,406	72.96	0.00
22.50	0.01	1,422	72.98	0.00
23.00	0.01	1,437	73.00	0.00
23.50	0.01	1,451	73.02	0.00
24.00	0.01	1,465	73.04	0.00

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Summary for Pond 29P: Self Retaining - Permeable Pavers

Inflow Area = 0.108 ac, 67.02% Impervious, Inflow Depth > 7.72" for 100-Year Storm event
 Inflow = 0.42 cfs @ 10.02 hrs, Volume= 0.069 af
 Outflow = 0.28 cfs @ 10.22 hrs, Volume= 0.056 af, Atten= 35%, Lag= 12.4 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.28 cfs @ 10.22 hrs, Volume= 0.056 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs
 Peak Elev= 72.00' @ 10.22 hrs Surf.Area= 1,325 sf Storage= 847 cf

Plug-Flow detention time= 197.7 min calculated for 0.056 af (81% of inflow)
 Center-of-Mass det. time= 91.6 min (799.0 - 707.3)

Volume	Invert	Avail.Storage	Storage Description
#1	70.40'	1,060 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,650 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.40	1,325	0	0
72.40	1,325	2,650	2,650

Device	Routing	Invert	Outlet Devices
#1	Primary	71.40'	4.0" Round Culvert L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.40' / 70.60' S= 0.0160 ' S= 0.0160 ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Discarded	70.40'	0.080 in/hr Exfiltration X 0.00 over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=70.40' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.27 cfs @ 10.22 hrs HW=71.99' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 0.27 cfs @ 3.14 fps)

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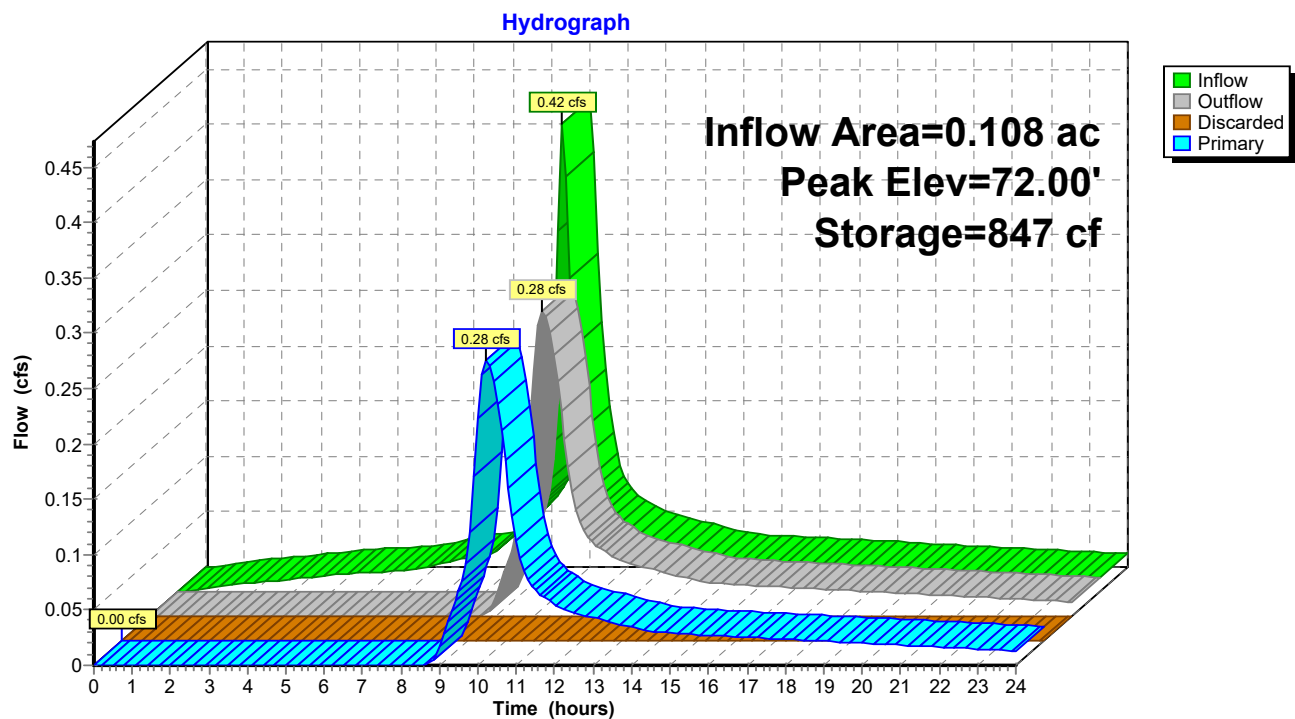
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Hydrograph for Pond 29P: Self Retaining - Permeable Pavers

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	70.40	0.00	0.00	0.00
0.50	0.00	0	70.40	0.00	0.00	0.00
1.00	0.00	5	70.41	0.00	0.00	0.00
1.50	0.01	16	70.43	0.00	0.00	0.00
2.00	0.01	29	70.46	0.00	0.00	0.00
2.50	0.01	45	70.49	0.00	0.00	0.00
3.00	0.01	64	70.52	0.00	0.00	0.00
3.50	0.01	87	70.56	0.00	0.00	0.00
4.00	0.02	112	70.61	0.00	0.00	0.00
4.50	0.02	141	70.67	0.00	0.00	0.00
5.00	0.02	171	70.72	0.00	0.00	0.00
5.50	0.02	204	70.78	0.00	0.00	0.00
6.00	0.02	238	70.85	0.00	0.00	0.00
6.50	0.02	275	70.92	0.00	0.00	0.00
7.00	0.03	318	71.00	0.00	0.00	0.00
7.50	0.03	370	71.10	0.00	0.00	0.00
8.00	0.03	425	71.20	0.00	0.00	0.00
8.50	0.04	490	71.32	0.00	0.00	0.00
9.00	0.06	575	71.48	0.02	0.00	0.02
9.50	0.08	623	71.58	0.07	0.00	0.07
10.00	0.42	769	71.85	0.22	0.00	0.22
10.50	0.15	785	71.88	0.24	0.00	0.24
11.00	0.08	657	71.64	0.11	0.00	0.11
11.50	0.06	624	71.58	0.07	0.00	0.07
12.00	0.05	614	71.56	0.06	0.00	0.06
12.50	0.05	608	71.55	0.05	0.00	0.05
13.00	0.04	603	71.54	0.04	0.00	0.04
13.50	0.04	599	71.53	0.04	0.00	0.04
14.00	0.03	595	71.52	0.03	0.00	0.03
14.50	0.03	591	71.51	0.03	0.00	0.03
15.00	0.03	589	71.51	0.03	0.00	0.03
15.50	0.03	588	71.51	0.03	0.00	0.03
16.00	0.03	587	71.51	0.03	0.00	0.03
16.50	0.03	586	71.51	0.03	0.00	0.03
17.00	0.02	585	71.50	0.03	0.00	0.03
17.50	0.02	584	71.50	0.02	0.00	0.02
18.00	0.02	583	71.50	0.02	0.00	0.02
18.50	0.02	582	71.50	0.02	0.00	0.02
19.00	0.02	581	71.50	0.02	0.00	0.02
19.50	0.02	579	71.49	0.02	0.00	0.02
20.00	0.02	578	71.49	0.02	0.00	0.02
20.50	0.02	577	71.49	0.02	0.00	0.02
21.00	0.02	576	71.49	0.02	0.00	0.02
21.50	0.02	575	71.48	0.02	0.00	0.02
22.00	0.02	574	71.48	0.02	0.00	0.02
22.50	0.01	572	71.48	0.02	0.00	0.02
23.00	0.01	571	71.48	0.01	0.00	0.01
23.50	0.01	570	71.48	0.01	0.00	0.01
24.00	0.01	568	71.47	0.01	0.00	0.01

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Summary for Pond 30P: Bioretention Basin (SCM-2)

Inflow Area = 0.071 ac, 87.70% Impervious, Inflow Depth > 7.85" for 100-Year Storm event
 Inflow = 0.28 cfs @ 10.02 hrs, Volume= 0.046 af
 Outflow = 0.28 cfs @ 10.02 hrs, Volume= 0.038 af, Atten= 1%, Lag= 0.1 min
 Primary = 0.28 cfs @ 10.02 hrs, Volume= 0.038 af
 Routed to Pond 26P : Offsite

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs / 2

Peak Elev= 71.50' @ 10.02 hrs Surf.Area= 380 sf Storage= 380 cf

Plug-Flow detention time= 188.6 min calculated for 0.037 af (81% of inflow)

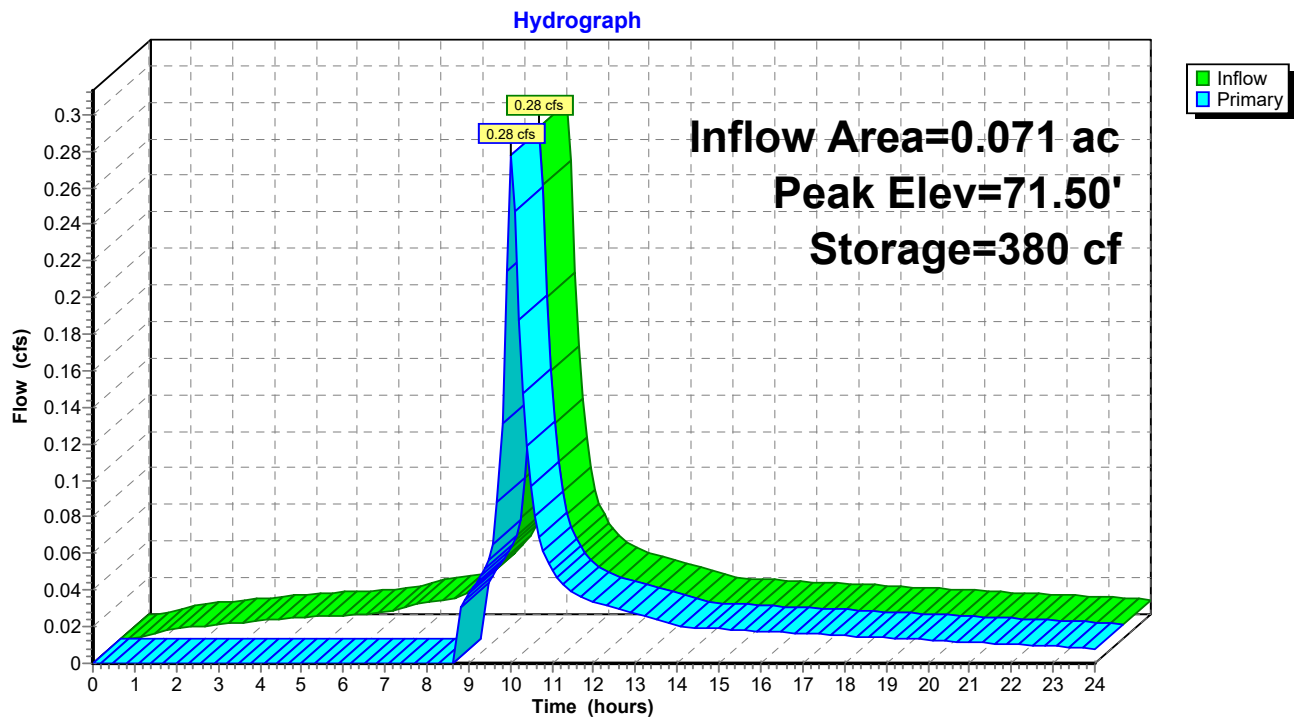
Center-of-Mass det. time= 82.4 min (782.7 - 700.2)

Volume	Invert	Avail.Storage	Storage Description
#1	70.50'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
70.50	380	0	0
71.50	380	380	380

Device	Routing	Invert	Outlet Devices
#1	Primary	71.49'	95.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.25 cfs @ 10.02 hrs HW=71.50' (Free Discharge)

↑1=Sharp-Crested Rectangular Weir (Weir Controls 0.25 cfs @ 0.31 fps)

Pond 30P: Bioretention Basin (SCM-2)

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Hydrograph for Pond 30P: Bioretention Basin (SCM-2)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	70.50	0.00
0.50	0.00	0	70.50	0.00
1.00	0.00	4	70.51	0.00
1.50	0.01	13	70.54	0.00
2.00	0.01	25	70.57	0.00
2.50	0.01	39	70.60	0.00
3.00	0.01	54	70.64	0.00
3.50	0.01	71	70.69	0.00
4.00	0.01	90	70.74	0.00
4.50	0.01	111	70.79	0.00
5.00	0.01	133	70.85	0.00
5.50	0.01	156	70.91	0.00
6.00	0.01	180	70.97	0.00
6.50	0.02	206	71.04	0.00
7.00	0.02	236	71.12	0.00
7.50	0.02	271	71.21	0.00
8.00	0.02	309	71.31	0.00
8.50	0.03	352	71.43	0.00
9.00	0.04	377	71.49	0.04
9.50	0.06	377	71.49	0.06
10.00	0.28	380	71.50	0.28
10.50	0.10	377	71.49	0.10
11.00	0.05	377	71.49	0.05
11.50	0.04	377	71.49	0.04
12.00	0.03	377	71.49	0.03
12.50	0.03	377	71.49	0.03
13.00	0.03	377	71.49	0.03
13.50	0.02	376	71.49	0.02
14.00	0.02	376	71.49	0.02
14.50	0.02	376	71.49	0.02
15.00	0.02	376	71.49	0.02
15.50	0.02	376	71.49	0.02
16.00	0.02	376	71.49	0.02
16.50	0.02	376	71.49	0.02
17.00	0.02	376	71.49	0.02
17.50	0.02	376	71.49	0.02
18.00	0.02	376	71.49	0.02
18.50	0.01	376	71.49	0.01
19.00	0.01	376	71.49	0.01
19.50	0.01	376	71.49	0.01
20.00	0.01	376	71.49	0.01
20.50	0.01	376	71.49	0.01
21.00	0.01	376	71.49	0.01
21.50	0.01	376	71.49	0.01
22.00	0.01	376	71.49	0.01
22.50	0.01	376	71.49	0.01
23.00	0.01	376	71.49	0.01
23.50	0.01	376	71.49	0.01
24.00	0.01	376	71.49	0.01

APPENDIX A
**ENGINEERING GEOLOGY AND GEOTECHNICAL
ENGINEERING REPORT**

**ENGINEERING GEOLOGY AND
GEOTECHNICAL ENGINEERING REPORT**

ANTHEM CHAPEL MAIN SANCTUARY
6595 COVINGTON WAY
GOLETA, CALIFORNIA

PROJECT NO.: 306481-001
MARCH 8, 2024
(REVISED JUNE 13, 2024)

PREPARED FOR

Anthem Chapel
6595 Covington Way
Goleta, California 93117

BY

**EARTH SYSTEMS PACIFIC
115 WEST CANON PERDIDO STREET
SANTA BARBARA, CALIFORNIA 93101**



EARTH SYSTEMS

115 West Canon Perdido Street | Santa Barbara, CA 93101 | (805) 642-6727 | www.earthsystems.com

March 8, 2024
(Revised June 13, 2024)

Project No.: 306481-001
Report No.: 24-3-18

Anthem Chapel
Attention: Pastor Nate Wagner and Pastor Lars Linton
6595 Covington Way
Goleta, California 93117

Project: Anthem Chapel Main Sanctuary
6595 Covington Way
Goleta, California
Subject: Engineering Geology and Geotechnical Engineering Report

As authorized, Earth Systems Pacific (Earth Systems) has prepared this Engineering Geology and Geotechnical Engineering Report for proposed construction of a new sanctuary and parking lot at the Anthem Chapel, which is located at 6595 Covington Way in Goleta, California. The accompanying Engineering Geology and Geotechnical Engineering Report presents the results of our subsurface exploration and laboratory testing programs, and our conclusions and recommendations pertaining to geotechnical aspects of project design. We appreciate the opportunity to be of service to you on this project. Please call if you have any questions, or if we can be of further service.

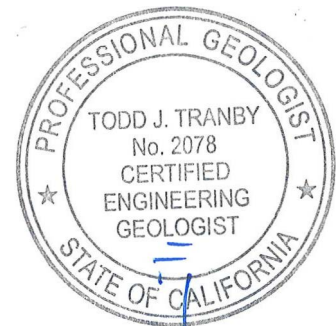
Respectfully submitted,

EARTH SYSTEMS PACIFIC



Meng Wei Lu
Geotechnical Engineer

6-13-2024



Todd J. Tranby
Engineering Geologist

6-13-2024

Copies: 1 - Client (email)
1 - Project File

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INTRODUCTION

Project Description

This report presents results of an Engineering Geology and Geotechnical Engineering study performed for a main sanctuary and a parking lot at the Anthem Chapel in Goleta, California (see the Vicinity Map in Appendix A). The main sanctuary will be a two-story, approximately 16,000 square-foot building. The new parking lot is anticipated to be paved with asphalt concrete and permeable pavers. The main sanctuary will be located on North Los Carneros Road just south of Covington Way. The parking lot will be on the southwest side of the proposed main sanctuary building.

Some grading involving minor cuts and fills of a few feet or less is anticipated to create a level pad for the main sanctuary. Similar minor grading is anticipated for the parking lot. The construction type for the main sanctuary was unknown when this report was prepared. However, it is expected that the building will be supported by conventional shallow continuous and isolated pad footings. Structural loads are not expected to exceed 25 kips at columns and 3 kips per lineal foot at walls. Retaining walls are not indicated on the project plans but retaining wall recommendations are provided in this report.

Purpose and Scope of Work

The purpose of the geologic/geotechnical study that led to this report was to analyze the soil conditions in the area of the proposed main sanctuary and parking lot and to provide geologic/geotechnical recommendations for design and construction. The soil conditions include surface and subsurface soil types, expansion potential, soil strength, settlement potential, bearing capacity, and the presence or absence of subsurface water. The scope of work included:

- Performing a reconnaissance of the areas adjacent to the proposed main sanctuary.
- Drilling, sampling, and logging nine hollow-stem-auger borings, six in or immediately adjacent to the main sanctuary area, and three near or in the proposed parking lot near Covington Way, to study soil and groundwater conditions.
- Nine additional infiltration borings were drilled. The infiltration results are being reported separately.
- Laboratory testing soil samples obtained during the subsurface exploration to determine their physical and engineering properties.

- Consulting with owner representatives and design professionals.
- Analyzing the geotechnical data obtained.
- Preparing this report.

Contained in this report are:

- Descriptions and results of field and laboratory tests that were performed.
- Conclusions and recommendations pertaining to site grading, structural design, paving.

Site Setting

The proposed construction area is located at the southeast corner of North Los Carneros Road and Covington Way in Goleta, California. The property is bounded by North Los Carneros Road on the southwest, by Covington Way on the northwest, by a Goleta Valley Historical Society site and Los Carneros Lake Park to the northeast, and by Santa Barbara County Fire Station 14 to the southeast.

The proposed main sanctuary will be located southwest of existing church and chapel buildings, northeast of a fire station, and will front onto North Los Carneros Road. The proposed parking lot will wrap around the proposed main sanctuary on its southeast, northeast, and northwest sides. There will also be a new parking lot with access from Covington Way (hereafter referred to as the Covington Way parking lot) constructed northwest of the proposed main sanctuary.

The area on which the proposed main sanctuary will be constructed is flat and slopes southward at a small gradient. The area of the proposed main sanctuary and most of the proposed parking lot is a combination of bare earth and annual grasses. Some trees are located along the northwest edge of the main sanctuary site, and a lone tree is located in the proposed Covington Way parking lot. The remainder of the site is vegetated with annual grasses.

The approximate geographic coordinates of the proposed main sanctuary are 34.4437° North Latitude and 119.8536° West Longitude.

REGIONAL GEOLOGY

The site lies on a piedmont within the Santa Barbara coast plain at the foot of the Santa Ynez Mountains in the western portion of the Transverse Ranges geologic province. Numerous east-

west trending folds and reverse faults indicative of active north-south transpressional tectonics characterize the region. The ongoing regional compression produces the east-west trending faults that deform early Pleistocene- to Tertiary-aged marine and non-marine sedimentary bedrock units. These sedimentary bedrock units appear to underlie the site at a depth of about 23.5 feet based on our borings.

Both T.W. Dibblee, Jr. (Geologic Map of the Goleta Quadrangle, 1987) and the United States Geological Survey (USGS) (Geologic Map of the Santa Barbara Coastal Plain, 2009) show the east-west trending Glenn Annie fault to be the fault closest to the project site. Dibblee maps this fault about 2,200 feet northeast of the proposed main sanctuary (see Regional Geologic Map 1 in Appendix A) and USGS maps this fault about 2,000 feet northeast of the proposed main sanctuary (see Regional Geologic Map 2 in Appendix A).

Dibblee maps the proposed main sanctuary area as underlain by Pleistocene age older alluvium consisting of silts, sands, and gravel, whereas the USGS maps the proposed main sanctuary as underlain by Holocene and upper Pleistocene age alluvium and colluvium that is 10 meters or less thick also consisting of silts, sands and gravel. Our field study encountered interbedded clays, clayey sands, and silty sands. At a depth of 23.5 feet (about 7 meters), the soils appear to be weathered Rincon Formation, which became hard at a depth of about 35 feet.

SEISMICITY AND SEISMIC DESIGN

The site is located in an active seismic region where large numbers of earthquakes are recorded each year. Historically, major earthquakes felt in the vicinity of the subject site have originated from faults inside and/or outside the area. These include the December 21, 1812 “Santa Barbara Region” earthquake, which was presumably centered in the Santa Barbara Channel, the 1857 Fort Tejon earthquake, the 1872 Owens Valley earthquake, and the 1952 Arvin-Tehachapi earthquake.

It is assumed that the 2022 CBC and ASCE 7-16 guidelines will apply for the seismic design parameters. The 2022 CBC includes several seismic design parameters that are influenced by the geographic site location with respect to active and potentially active faults, and with respect to subsurface soil or rock conditions. One of these factors is risk category. According to CBC Table 1604.5, because the primary occupancy of the proposed main sanctuary is public assemble greater than 300 persons, the proposed structure’s risk category is “III”. The “general

procedure” (i.e., probabilistic) seismic design parameters presented below were retrieved from the U.S. Seismic Design Maps web services using the SEAOC/OSHPD website which presents the data in a report format. The data were retrieved for ASCE 7-16 design code, site coordinates 34.4437° North Latitude and 119.8536° West Longitude, Soil Site Class D, and Occupancy (Risk) Category III. A listing of the 2022 CBC and ASCE 7-16 Seismic Parameters is presented below and again in Appendix D.

Summary of Seismic Parameters – 2022 CBC “General Procedure”	
Site Class (ASCE 7-16)	D
Occupancy (Risk) Category	III
Seismic Design Category	Null*
Maximum Considered Earthquake (MCE) Ground Motion	
Spectral Response Acceleration, Short Period – S_s	2.263 g
Spectral Response Acceleration at 1 sec. – S_1	0.800 g
Site Coefficient – F_a	1.0
Site Coefficient – F_v	Null*
Site-Modified Spectral Response Acceleration, Short Period – S_{MS}	2.263 g
Site-Modified Spectral Response Acceleration at 1 sec. – S_{M1}	Null*
Design Earthquake Ground Motion	
Short Period Spectral Response – S_{DS}	1.509 g
One Second Spectral Response – S_{D1}	Null*
Site Modified Peak Ground Acceleration - PGA_M	1.095 g
Values appropriate for a 2% probability of exceedance in 50 years	

*See Section 11.4.8, ASCE 7-16

The Fault Parameters table in Appendix D lists the significant "active" and "potentially active" faults within an approximate 43-mile radius of the proposed construction location. The distance between the proposed main sanctuary and the nearest portion of each fault is shown as well as the respective estimated maximum earthquake magnitudes.

SOIL AND GROUNDWATER CONDITIONS

Evaluation of the subsurface indicates that much of the proposed main sanctuary area is underlain by alluvium composed of lean sand clays, clayey sands, and silty sands within the depth of influence of anticipated shallow foundations. The clayey soils vary from medium stiff to very stiff, and the sandy soils vary from medium dense to dense. The density and stiffness of the soils increase with depth. At a depth of about 23.5 feet a very stiff fat clay was encountered, and below a depth of 40 feet was hard sandy clay. These two latter units are thought to be weathered and unweathered Rincon Formation bedrock.

Testing indicates that anticipated bearing soils at the main sanctuary lie in the "Medium" expansion range based on a measured expansion index of 68. In addition, two consolidation samples swelled about 2% to 3% when water was added under a pressure of 1,000 psf. Soil swelling under this pressure is a further indication that the soils are expansive.

Groundwater was encountered at a depth of about 20 feet in Borings B-1. Groundwater was not encountered in the other eight borings, but all of them were less than 20 feet deep. It should be noted that fluctuations in groundwater levels may occur because of variations in rainfall, regional climate, and other factors.

A sample of near-surface soil was tested for pH, resistivity, soluble sulfates, and soluble chlorides. The test results provided in Appendix B should be distributed to the design team for their interpretations pertaining to the corrosivity or reactivity of various construction materials (such as concrete and piping) with the soils. It should be noted that the sulfate contents (35 mg/Kg) is in the "S0" exposure class (i.e., "Negligible" severity range) of Table 19.3.1.1 of ACI 318-14. Therefore, special concrete designs will not be necessary for the measured sulfate content according to Table 19.3.2.1 of ACI 318-14.

Based on criteria established by the County of Los Angeles (2013), the measured resistivities of the near-surface soil samples (12,700 ohms-cm indicates that near-surface soils are "Mildly" corrosive to ferrous metal (i.e., cast iron, etc.) pipes. It should be noted that Earth Systems does not practice soil corrosion engineering.

HYDROCOLLAPSE POTENTIAL

Hydrocollapse is a phenomenon in which naturally occurring soil deposits, or non-engineered fill soils, collapse when wetted. Natural soils that are susceptible to this phenomenon are typically aeolian, debris flow, alluvial, or colluvial deposits with high apparent strength when dry. Loosely compacted fills can also be susceptible to this phenomenon. The dry strength is attributed to salts, clays, silts, and in some cases capillary tension, "bonding" larger soil grains together. So long as these soils remain dry, their strength and resistance to compression are retained. However, when wetted, the salt, clay, or silt bonding agent is weakened or dissolved, or capillary tension reduced, eventually leading to collapse. Soils susceptible to this phenomenon are found throughout the southwestern United States.

Two consolidation tests were performed in which the samples were flooded with water under a pressure of 1,000 psf. Both samples swelled when the water was added, one over 3% and the other over 2%. This is the opposite of collapse. For both samples, the pressure at flooding exceeded its in-situ overburden pressure. Considering these test results, the relatively high densities of the recovered soil samples, and high sampler driving resistance, it appears that the potential for hydrocollapse at the proposed main sanctuary is low.

LIQUEFACTION POTENTIAL

Earthquake-induced cyclic loading can be the cause of several significant phenomena, including liquefaction in fine sands and silty sands. Liquefaction results in a loss of soil strength and can cause structures to settle and, in extreme cases, to experience bearing failure.

We have analyzed liquefaction potential in accordance with the guidelines presented by the California Geologic Survey (2008) in Guidelines for Evaluating and Mitigation Seismic Hazards in California. We used the data from Boring B-1 and the results of laboratory data to perform liquefaction potential analysis. Although groundwater was encountered at a depth of about 20 feet, for the analysis, the groundwater depth was conservatively set at a depth of 13.5 feet. The results of the analysis are presented in Appendix E and show that the liquefaction potential at the site is low. No liquefaction is predicted.

SEISMIC-INDUCED SETTLEMENT OF DRY SANDS

Dry (unsaturated) soils tend to settle and densify when subjected to earthquake shaking. The amount of settlement is a function of relative density, cyclic shear strain magnitude, and the number of strain cycles. A procedure to evaluate this type of settlement was developed by Seed and Silver (1972) and later modified by Pyke, et al. (1975). Tokimatsu and Seed (1987) presented a simplified procedure that has been reduced to a series of equations by Pradel (1998).

The potential for seismic induced settlement of dry sands was evaluated in the same spreadsheet that was used to analysis liquefaction. The analysis, presented in Appendix E, predicts 0.1-inch of seismic-induced settlement of dry sands. This amount of seismic settlement can be ignored, and it can be concluded that the potential for seismic-induced settlement at the project site is low.

FAULT RUPTURE HAZARD

A fault is a break in the earth's crust upon which movement has occurred in the recent geologic past and at which future movement is expected. A summary of nearby active faults is presented in Appendix D under Table 1 Fault Parameters.

The proposed main sanctuary area does not lie within a State of California designated active fault hazard zone. The activity of faults is classified by the State of California based on the Alquist-Priolo Earthquake Fault Zoning Act (California Division of Mines and Geology 1972, Revised 1999). An active fault has had surface rupture with Holocene time (the past 11,000 years). A potentially active fault shows evidence of surface displacement during Quaternary time (last 1.6 million years). An inactive fault has no evidence of movement within the Quaternary time.

As previously discussed in the Regional Geology section of this report, the Glen Annie Fault is the closest fault to the proposed main sanctuary and both Dibblee (1987) and the USGS (2009) map this fault 2,000 feet or more from the project. Hence, the potential for fault rupture in the area of the proposed main sanctuary is low.

LANDSLIDES

Landsliding is a process where a distinct mass of rock or soil moves downslope because of gravity. No landslides are mapped in the area of the main sanctuary by Dibblee or USGS (see Regional Geologic Maps in Appendix A). In addition, the site is flat and there are no nearby sloping areas. Because there are no identified landslides either at or trending toward the proposed main sanctuary and there are no sloping areas near the proposed main sanctuary, the hazard associated with this phenomenon is considered low.

ROCKFALL

Loose boulder-sized rocks and/or weathering bedrock outcrops located upslope from construction can lead to a rockfall hazard. Because the area of the proposed main sanctuary is distal from slopes with rockfall potential, the potential for rockfall should be considered low.

FLOODING

According to a FEMA 100-Year and 500-Year Flood Risk Map available online at the Santa Barbara County Emergency Preparedness, Response, and Recovery web page (Santa Barbara County, 2024), the proposed main sanctuary is neither in a 100- nor a 500-year flood hazard zone.

CONCLUSIONS AND RECOMMENDATIONS

Based on the data provided in this report, it is Earth Systems' opinion that the area of the proposed main sanctuary is suitable for the planned improvements from engineering geology and geotechnical engineering perspectives provided that the recommendations provided in this report are properly implemented into the project.

Conventional spread foundations (continuous and isolated), and concrete utility pads can be used to support the proposed main sanctuary. The expansiveness of the soils will require that foundation and slab-on-grade designs exceed typical minimums.

Because some of the soils are medium stiff and medium dense, and because a cut-fill line may be created from leveling the building pad, overexcavation and recompaction in the main sanctuary area is recommended.

Specific conclusions and recommendations addressing these geologic/geotechnical considerations, as well as general recommendations regarding the geotechnical aspects of design and construction, are presented in the following sections. Because the current plans appear to be conceptual, final project plans should be reviewed by Earth Systems when they are available, and current recommendations may need to be modified based on the final project plans.

A. Grading

1. Pre-Grading Considerations

- a. Preliminary plans do not show any grading details. However, considering the size of the project and the average ground gradient in the project area, it seems grading will be limited to cuts and fills of a few feet. It is anticipated that grading will be used to re-shape the ground surface and improve drainage patterns. Final plans and specifications should be provided to Earth Systems prior to grading and should include the grading plans, foundation plans, and foundation details.
- b. Shrinkage of soils (uncertified fills) affected by compaction is estimated to be about 5 percent based on an anticipated average compaction of 92 percent.
- c. Earth Systems should be retained to provide engineering geology and geotechnical engineering services during site development and grading, and foundation construction phases of the work to observe compliance with the design concepts, specifications and recommendations. This will allow for timely design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.
- d. Plans and specifications should be provided to Earth Systems prior to grading. Plans should include the grading plans, foundation plans, and foundation details. Earth Systems will review these plans only for conformity with geotechnical parameters, not including drainage. It is the responsibility of the Client and other Engineers to review and approve designs and plans for conformity with all engineering and design requirements necessary for the proper function and performance of the structure.
- e. Compaction tests should be made per ASTM D 6938 to determine the relative compaction of the fills in accordance with the following minimum guidelines: two

tests for each 1-foot to 2-foot vertical lift in every isolated area graded; one test for each 500 cubic yards of material placed; and two tests at finished subgrade elevation in every area of remedial grading.

2. Rough Grading/Areas of Development

- a. Grading at a minimum should conform to the 2022 California Building Code and local grading ordinances.
- b. The existing ground surface should be initially prepared for grading by removing and vegetation, trees, large roots, debris, other organic material and non-complying fill from construction areas. Organics and debris should be stockpiled away from areas to be graded, and ultimately removed from the proposed construction location to prevent their inclusion in fills. Voids created by removal of such material should be properly backfilled and compacted. No compacted fill should be placed unless the underlying soil has been observed by the Geotechnical Engineer.
- c. The main sanctuary building area should be overexcavated to a depth of 2-foot below the bottom of foundations, 3.5 feet below existing grade, or until disturbed or loose soil is removed. The overexcavation should extend to a distance of 5 feet beyond the outside perimeters of the building's foundations. The exposed surfaces should be scarified to a depth of 6 inches, brought to 3% above the optimum moisture content determined by ASTM D 1557, and compacted to a minimum of 90% of the maximum dry density determined by ASTM D 1557 before placing fill.
- d. If any retaining and garden walls are proposed, their foundation areas should be overexcavated the same as recommended for building areas, except the lateral extent of the grading can be limited to 2 feet beyond the wall foundation edges.
- e. Areas to receive hardscapes (paving, concrete sidewalks, concrete patios) or fill should be overexcavated through any disturbed soil, but not less than a depth of 1 foot, scarified to a depth of 6 inches, conditioned to above the optimum moisture content for compaction, and recompact.
- f. Voids created by dislodging cobbles (and boulders if encountered) during excavation should be backfilled and recompact and the dislodged cobbles and boulders larger than 6 inches in diameter should be removed from the subgrade.
- g. On-site soils, including the removed existing fill, may be used for fill once they are cleaned of all organic material, rocks, debris, and irreducible material larger than 6 inches.

- h. Fill and backfill placed at 3% above the optimum moisture for compaction, in layers with a loose thickness not greater than 6 inches, should be compacted to a minimum of 90 percent of the maximum dry density obtainable by the ASTM D 1557 test method unless otherwise recommended or specified by the Geotechnical Engineer or his/her representative. Random compaction tests by Earth Systems can assist the Grading Contractor in evaluating whether the Grading Contractor is meeting compaction requirements. However, compaction tests pertain only to a specific location and do not guarantee that all fill has been compacted to the prescribed percentage of maximum density. It is the ultimate responsibility of the Grading Contractor to achieve uniform compaction in accordance with the requirements of this report and the grading ordinance.
- i. Import soils used (if any) to raise site grade should be equal to, or better than, on-site soils in strength, expansion, and compressibility characteristics. Import soil can be evaluated, but will not be prequalified by the Geotechnical Engineer. Final comments on the characteristics of the import will be given after the material is at the proposed construction location.

3. Utility Trenches

- a. Utility trench backfill should be governed by the provisions of this report relating to minimum compaction standards. In general, on-site service lines may be backfilled with engineered fill compacted to 90 percent of the maximum density. Backfill of offsite service lines will be subject to the specifications of the jurisdictional agency or this report, whichever are greater.
- b. Utility trenches running parallel to footings should be located at least 5 feet outside the footing line, and above a 1-horizontal to 1-vertical projection downward from the outside edge of the bottom of the footing. If the utility line is located below the 1:1 projection, the trench will need to be backfilled with slurry to a level above the 1:1 projection.
- c. Compacted fills should be utilized for backfill. Clean sand backfill should be avoided under structures because it provides a conduit for water to migrate under foundations.
- d. Backfill operations should be observed and tested by the Geotechnical Engineer to monitor compliance with these recommendations.
- e. Although not anticipated, if any caving sand is encountered, shoring and/or sloping of trenches will be required.

- f. Rocks greater than 6 inches in diameter should not be placed in trench zones (from 12 inches below pavement subgrade or ground surface to 12 inches above top of pipe or box); rocks greater than 2.5 inches in diameter should not be placed in pipe zones (from 12 inches above top of pipe or box to 6 inches below bottom of pipe or box exterior).
- g. Jetting should not be utilized for compaction in utility trenches.
- h. If any utilities are to be located in public rights-of-way, construction will need to comply with the requirements of the public agency.

B. Structural Design

1. Spread Foundations

- a. Spread foundations for the proposed building, walls, and retaining walls, should bear into compacted fill as recommended previously in this report. At a minimum spread foundations should be designed for the “Medium” expansion range or the recommendations of this report when they exceed expansive soil minimum foundation design criteria. Foundation excavations should be cleaned of all loosened soils, rocks, and debris.
- b. Spread foundations should be a minimum of 21 inches deep below lowest adjacent grade.
- c. Footings that are a minimum of 12 inches wide and embedded 21 inches deep and bearing into dense compacted fill may be designed based on an allowable bearing value of 1,500 psf. This value includes a safety factor of 3. This allowable bearing value is net (weight of footing and soil surcharge may be neglected) and is applicable for dead plus reasonable live loads. Increasing the bearing capacity for increased depth or width is not recommended.
- d. A one-third increase in the allowable bearing values is permitted for use with the alternative load combinations given in Section 1806.1 of the 2022 CBC.
- e. Continuous spread foundations should be reinforced with a minimum of two No. 4 bars top and two No. 4 bars bottom.
- f. Lateral loads may be resisted by soil friction foundation bottoms and by passive resistance of the soils acting on foundation stem walls. Lateral capacity assumes that any required backfill adjacent to foundations and grade beams is properly compacted.
- g. A member of Earth Systems should check footing excavations prior to placing reinforcing to confirm bearing conditions.

- h. Because the soils at the main sanctuary site have a measured expansion index in the "Medium" expansion range, soil pre-saturation before placing concrete is required. Soils should be premoistened to 3% above the optimum moisture for compaction to a depth of 27 inches. Testing of premoistening is required.

2. Slabs-on-Grade

- a. Concrete slabs-on-grade should be supported by compacted fill as recommended elsewhere in this report. The reinforcing and thickness recommendations provided below are for non-structural slabs-on-grade. The design of structural slabs is the responsibility of the Structural Engineer.
- b. The information that follows regarding design criteria for slabs-on-grade is generally the same as that given in the Minimum Foundation Design table for the "Medium" expansion range. Actual slab designs should be provided by the project Structural Engineer, but the reinforcement and slab thicknesses recommended should not be less than the criteria set forth in the attached table for the appropriate expansion range, or as recommended below, whichever is more stringent.
- c. A minimum slab-on-grade thickness of 4 inches is recommended and floor slabs should be underlain by a minimum of 4 inches of sand.
- d. Reinforcement data given herein for slabs are generally the same as those given in the Minimum Foundation Design table in Appendix D for soils in the "Medium" expansion range. However, Earth Systems recommends minimum slab reinforcement of No. 4 reinforcing bars spaced 18 inches on center each way. In addition, No. 4 bars acting as dowels should also extend out of the perimeter footings, and should be bent so that they extend a minimum of 3 feet into adjacent slabs.
- e. Where dampness of floor slabs is to be minimized, or where slab surfaces are to receive moisture sensitive floor coverings, the slabs should be constructed with both a capillary break material and a vapor retarder. The vapor retarder should be selected by the project architect but should not be less than 10-mils thick. Construction should be in accordance with the architect's recommendations.
- f. Slabs should be cast using concrete with a maximum slump of 4 inches or less. Excessive water content is the major cause of concrete cracking. To reduce concrete shrinkage, a water reducing agent or plasticizer may be utilized in the concrete to increase slump while maintaining an appropriate water/cement ratio. Hot reinforcing steel should be cooled prior to concrete placement to help prevent

concrete shrinkage at the bar location. Control joints should be provided at appropriate intervals to control the location of shrinkage cracks.

- g. Exterior concrete slabs-on-grade (walkways, patios, etc.) should be supported by firm recompacteds fills as recommended elsewhere in this report and designed relatively independent of footing stems (i.e., free floating) so foundation adjustment will be less likely to cause cracking. Because exterior slabs-on-grade are exposed to weather, vapor retarders to reduce moisture transmission from the subgrade soils to the slab are thought to be unnecessary.
- h. Soils underlying slabs that are in the "Medium" expansion range will require pre-moistening to 3% above the optimum moisture for compaction to a depth of 27 inches below lowest adjacent grade. Pre-moistening should be confirmed by testing.

3. Retaining Walls

- a. On-site soils should not be used for wall backfill because of their expansiveness. Instead, retaining walls should be backfilled with non-expansive import soil (soil in the "Very Low" expansion range within the active wedge behind retaining walls. The active wedge can be defined as the zone behind a retaining wall between the back of the wall and a plane rising at a 45-degree angle from the base of the wall.
- b. Conventional cantilever retaining walls backfilled with compacted imported soils in the "Very Low" expansive range may be designed for active pressures developed from 35 pcf of equivalent fluid weight for well-drained, level backfill.
- c. Restrained retaining walls backfilled with compacted imported non-expansive soils may be designed for active pressures developed from 55 pcf of equivalent fluid weight for well-drained, level backfill.
- d. The pressures listed above assumed that backfill soils will be compacted to 90 percent of the maximum dry density as determined by the ASTM D 1557 Test Method.
- e. Retaining walls that retain more than 6 feet of soil will need to be designed for a seismic loading force that is applied in addition to the static forces when seismic shaking occurs. Seismic increments of earth pressure can be determined using 35 and 49 pcf of additional equivalent fluid weight need to be considered for cantilever and restrained retaining walls, respectively. These equivalent fluid weights have been determined by a procedure presented by Al Atik and Sitar (2010). The seismic increment of pressure can be assumed to be distributed so that the

centroid of pressure acts at $0.33H$ above the base of a retaining wall, where H is the wall height in feet. Because this seismic force is transient, and in accordance with CBC Section 1807.2.3, a minimum safety factor of 1.1 may be used for sliding and overturning when seismic loads are included.

- f. The lateral earth pressure resisted by the retaining walls or similar structures should also be increased to allow for other applicable surcharge loads. The surcharges considered should include forces generated by structures or temporary loads that would influence the wall design.
- g. A system of backfill drainage should be incorporated into retaining wall designs. Backfill comprising the drainage system immediately behind retaining structures should be free-draining granular material with a filter fabric between it and the rest of the backfill soils. As an alternative, the backs of walls could be lined with geodrain systems. The backdrains should extend from the bottoms of the walls to about 12 to 18 inches from finished backfill grade. Waterproofing may aid in reducing the potential for efflorescence on the faces of retaining walls.
- h. Compaction on the uphill sides of walls within a horizontal distance equal to one wall height should be performed by hand-operated or other lightweight compaction equipment. This is intended to reduce potential "locked-in" lateral pressures caused by compaction with heavy grading equipment.
- i. Water should not be allowed to pond near the tops of retaining walls. To accomplish this, final backfill site grades should be such that all water is diverted away from retaining walls.

4. Frictional and Lateral Coefficients

- a. Resistance to lateral loading may be provided by soil friction acting on the base of foundations. A coefficient of friction of 0.40 may be applied to dead load forces. This value does not include a safety factor.
- b. Passive resistance acting on the sides of foundation stems equal to 260 pcf of equivalent fluid weight may be included for resistance to lateral load. This value does not include a safety factor.
- c. A minimum safety factor of 1.5 should be used when designing for sliding or overturning.
- d. Passive resistance may be combined with frictional resistance provided that a one-third reduction in the coefficient of friction is used.

5. Settlement Considerations

- a. Maximum settlements of about half of an inch (0.5") are anticipated for spread foundations, when supported by dense compacted fill as recommended
- b. Differential settlement between adjacent load bearing members could be about one-half the maximum settlement.
- c. Seismic-induced settlement from earthquake shaking is estimated to be negligible.
- d. The Project Structural Engineer will need to design the foundation system to accommodate the potential settlement values.

6. Preliminary Asphalt Pavement Sections

- a. Two samples of the anticipated subgrade soil were tested to determine their R-values. The tests yielded R-values of 45 and 32. We recommend that pavement designs be based on the lower and more conservative of the two values, R = 32.
- b. The intent of this report is to provide preliminary paving sections for planning and rough grading purposes. When grading is performed, the parking lot subgrades appear to be different the samples tested, subgrades should be sampled and tested to determine final design R-values, from which final paving designs and their approximate limits can be developed.
- c. Preliminary asphalt pavement sections for a 20-year design-life using untreated subgrade soils are presented below based on R-value of 32, current Caltrans design procedures, and traffic indices (TIs) ranging from 4.0 to 5.0 for parking stalls and drives.

TRAFFIC INDEX	ASPHALT CONCRETE (Inches)	AGGREGATE BASE (Inches)
4.0	3.0	4.0
4.5	3.0	5.0
5.0	3.0	5.5

- d. TIs can represent the accumulative effect of a wide range of traffic types, from automotive traffic to 5-axle truck traffic. Descriptively, a TI of 4.0 represents automotive traffic only, a TI of 5.0 represents lightly traveled areas with occasional delivery and trash trucks.
- e. The preliminary paving sections provided above have been designed for the type of traffic indicated. If the pavement is placed before project construction is complete,

construction loads, which could increase the traffic index values assumed above, should be considered.

- f. The subgrade soils in the upper 12 inches below the finished subgrade elevation should be properly moisture conditioned to above optimum moisture and compacted to achieve a minimum relative compaction of 90% of the ASTM D1557 maximum dry density. We do not recommend compacting the subgrade to 95% of maximum density because this will increase the expansion potential of the pavement subgrade. The subgrade soils should be in a stable, non-pumping condition at the time the aggregate base material is placed and compacted.
- g. The aggregate base materials can be Processed Miscellaneous Base (with Class 2 gradation) per the “Greenbook” or Caltrans Class 2 Aggregate Base.
- h. Adequate drainage (both surface and subsurface) should be provided such that the subgrade soils and aggregate base materials are not allowed to become continuously wet.

ADDITIONAL SERVICES

This report assumes that an adequate program of monitoring and testing will be performed by Earth Systems during construction to check compliance with the recommendations given in this report. The recommended tests and observations include, but are not necessarily limited to the following:

- Review of the structural and grading plans during the design phase of the project.
- Observation and testing during site preparation, grading, placing of engineered fill, and foundation construction.
- Consultation as required during construction.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The analyses and recommendations submitted in this report are based in part upon the data obtained from the on-site borings. The nature and extent of variations between and beyond the points of exploration may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

The scope of services did not include any environmental assessment or investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater or air, on, below, or around this site. Any statements in this report or on the soil boring logs regarding odors noted, unusual or suspicious items or conditions observed, are strictly for the information of the client.

Findings of this report are valid as of this date; however, changes in conditions of a property can occur with passage of time whether they are because of natural processes or works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur whether they result from legislation or broadening of knowledge. Accordingly, findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of 1 year.

In the event that any changes in the nature, design, or location of the proposed main sanctuary and associated improvements are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed, and conclusions of this report modified or verified in writing.

This report is issued with the understanding that it is the responsibility of the Owner, or of his representative to ensure that the information and recommendations contained herein are called to the attention of the Architect and Engineers for the project and incorporated into the plan and that the necessary steps are taken to see that the Contractor and Subcontractors carry out such recommendations in the field.

As the Geotechnical Engineers for this project, Earth Systems has striven to provide services in accordance with generally accepted geotechnical engineering practices in this community at this time. No warranty or guarantee is expressed or implied. This report was prepared for the exclusive use of the Client for the purposes stated in this document for the referenced project only. No third party may use or rely on this report without express written authorization from Earth Systems for such use or reliance.

It is recommended that Earth Systems be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications. If Earth Systems is not

accorded the privilege of making this recommended review, it can assume no responsibility for misinterpretation of the recommendations contained herein.

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March 8, 2024
(Revised June 13, 2024)

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Project No.: 306481-001
Report No.: 24-3-18

United States Geological Survey (USGS), 2009, Geological Map of the Santa Barbara Coastal Plain Area, Santa Barbara County, California.

APPENDIX A

Vicinity Map

Regional Geologic Map 1

Regional Geologic Map 2

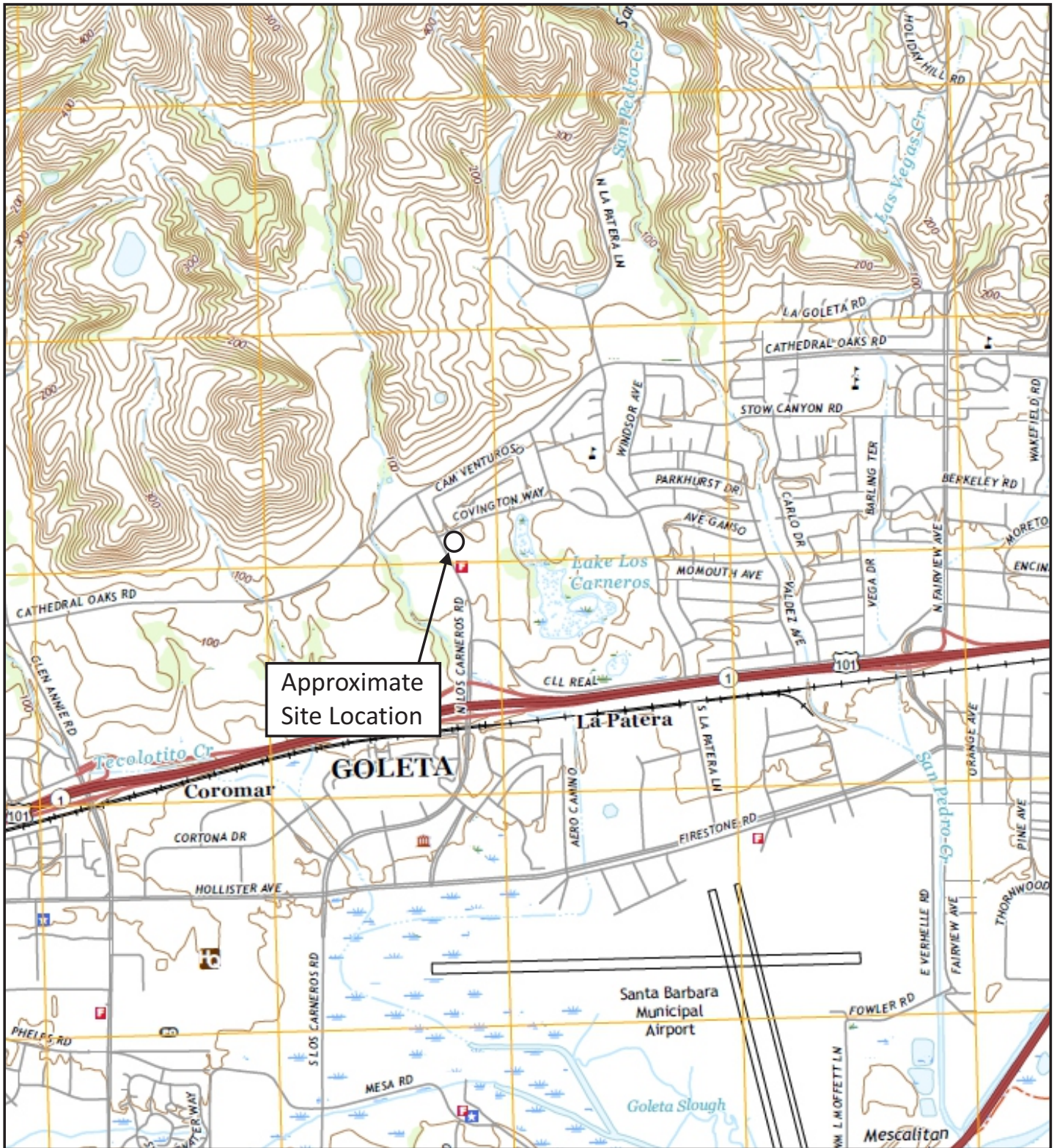
Field Study

Site Plan

Logs of Borings

Boring Log Symbols

Unified Soil Classification System



*Taken from USGS Topo Map, Goleta Quadrangle, California, 2022.

Approximate Scale: 1" = 2,000'

0 2,000' 4,000'



VICINITY MAP

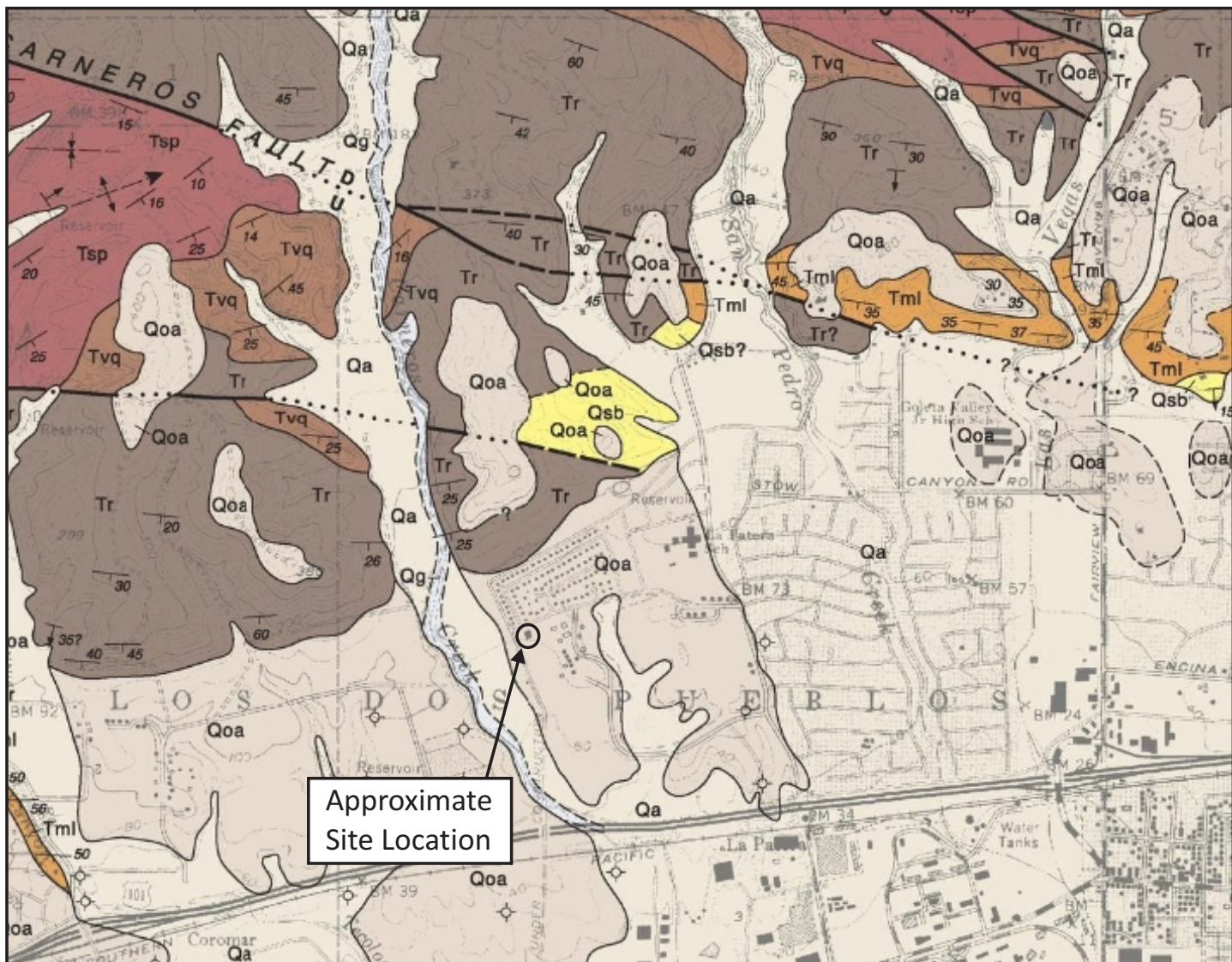
6595 Covington Way
Goleta Area of Santa Barbara County, California



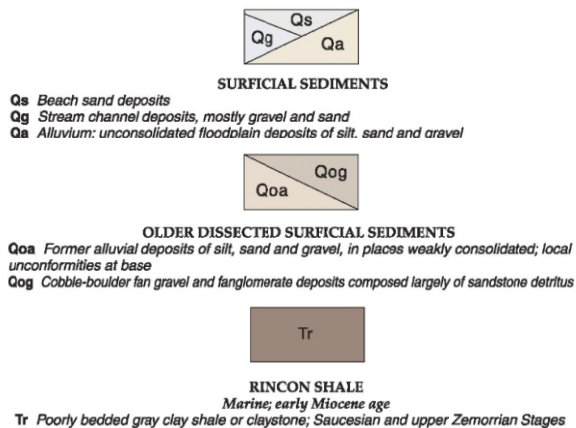
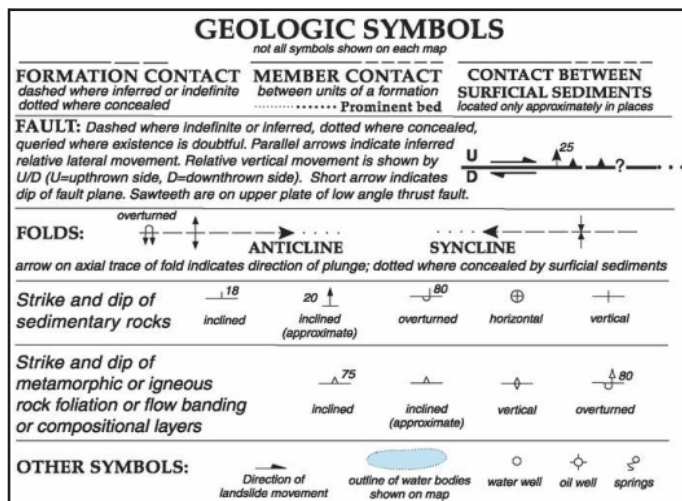
Earth Systems

January 2024

306481-001



*Taken from Dibblee, Jr., Geologic Map of The Goleta Quadrangle, Santa Barbara County, California, 1987, DF-07.



Approximate Scale: 1" = 2,000'

0 2,000' 4,000'



REGIONAL GEOLOGIC MAP 1

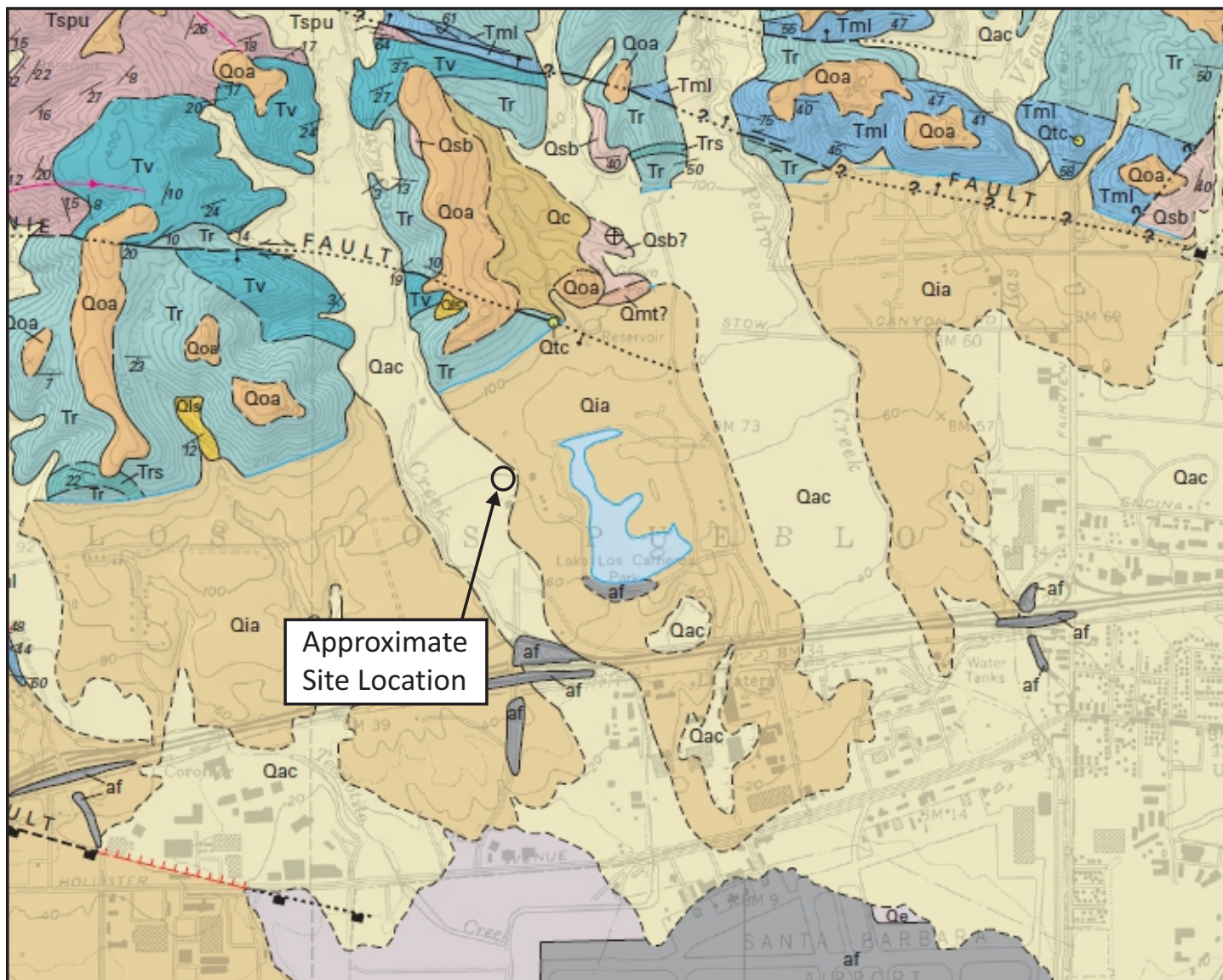
6595 Covington Way
Goleta Area of Santa Barbara County, California



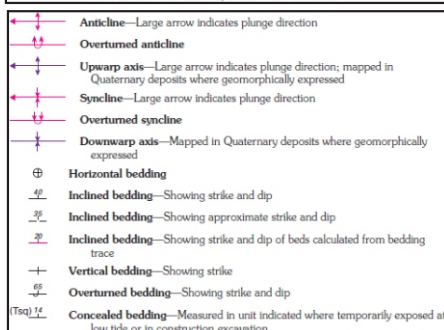
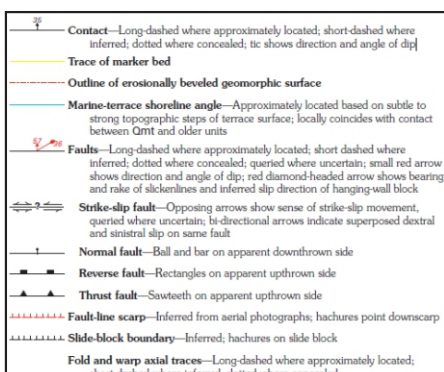
Earth Systems

January 2024

306481-001



*Taken from Geologic Map of the Santa Barbara Coastal Plain Area, Santa Barbara County, California, 2009.



Qac

Alluvium and colluvium (Holocene and upper Pleistocene)—Poorly consolidated silt, sand, and gravel deposits of modern drainages and piedmont alluvial fans and floodplains. Exposed thickness generally less than 10 m

Qia

Intermediate alluvial deposits (upper Pleistocene)—Weakly consolidated, stratified silt, sand, and gravel that form low, rounded, moderately dissected terraces and piedmont alluvial fans that rest at higher elevations than the modern coastal piedmont surface underlain by unit Qac. Thickness probably locally exceeds 20 m

Tr

Rincon Shale (lower Miocene)—Marine, primarily massive and thick-bedded, light-brown-weathering mudstone, with subordinate dolomite, siliceous shale, sandstone, and tuff. Mudstone is bioturbated and massive, pervasively hackly fractured, and locally contains abundant microfossils. Single or multiple white-weathering tuff layers limited to upper 10 m of Rincon section. Thickness ranges from about 400 m to 460 m



Approximate Scale: 1" = 2,000'

0 2,000' 4,000'

REGIONAL GEOLOGIC MAP 2

6595 Covington Way
Goleta Area of Santa Barbara County, California



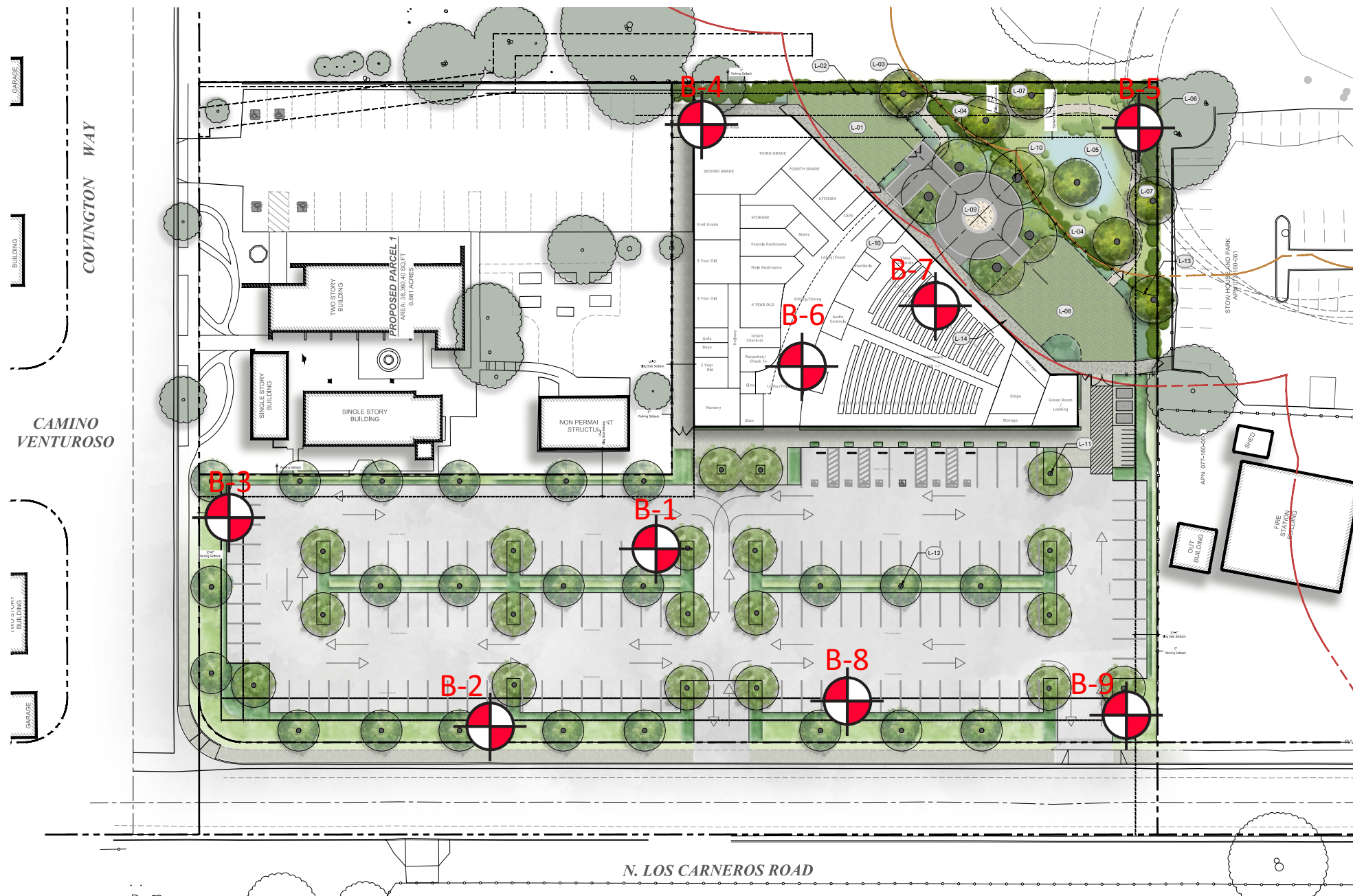
Earth Systems

January 2024

306481-001

FIELD STUDY

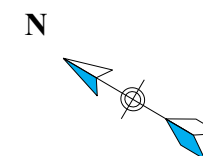
- A. Nine borings were drilled to depths of approximately 16.5 to 51.5 feet below the existing ground surface to observe the soil profile and to obtain samples for laboratory analyses. The borings were drilled on December 28, 2023, using 8-inch diameter hollow-stem continuous flight auger powered by SIMCO 2600 truck mounted drilling rig. The approximate locations of the borings were determined in the field by pacing and sighting, and are shown on the Site Plan in this Appendix.
- B. Samples were obtained within the borings with a Modified California (M.C.) ring sampler (ASTM D 3550 with a shoe similar to ASTM D 1586) and a standard penetration split-spoon (SPT) sampler. The M.C. sampler has a 3-inch outside diameter, and a 2.42-inch inside diameter when used with brass ring liners (as it was during this study). The SPT sampler has a 2-inch outside diameter, and a 1.67-inch inside diameter when used without a liner (as it was during this study). The samples were obtained from the borings drilled by driving the sampler with a 140-pound hammer dropping 30 inches in accordance with ASTM D 1586. The hammer was operated with an automatic trip mechanism.
- C. Bulk samples were collected from the cuttings of the soils encountered in borings B-1 and B-2 between the depths of 0 and 5 feet.
- D. The final logs of the borings represent interpretations of the contents of the field logs obtained during the subsurface study and the results of laboratory testing performed on the samples. The final logs are included in this Appendix.



 : Approximate boring locations.

Approximate Scale: 1" = 60'

0 60' 120'



SITE PLAN

Anthem Chapel
6595 Covington Way
Goleta Area of Santa Barbara County, California



June 2024

306481-001

Logs of Borings
Boring Log Symbols
Unified Soil Classification System

BORING NO: B-1								DRILLING DATE: December 28, 2023	
PROJECT NAME: Anthem Chapel								DRILL RIG: SIMCO	
PROJECT NUMBER: 306481-001								DRILLING METHOD: Hollow-Stem Auger	
BORING LOCATION: Per Plan								LOGGED BY: A. Luna/S. Jensen	
Vertical Depth	Sample Type			PENETRATION RESISTANCE (BLOWS/6"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
	Bulk	SPT	Mod. Calif.						
0									
				4/9/16		CL	106.2	20.2	ALLUVIUM: Dark Brown fine Sandy Lean Clay, very stiff, damp
5				15/25/37		SM	111.0	12.0	ALLUVIUM: Light Orange Brown Silty fine Sand, trace Clay, dense, damp
				16/26/32		SC	119.6	10.6	ALLUVIUM: Orange Brown Clayey fine Sand, dense, damp
10				14/24/31		SM	112.2	8.3	ALLUVIUM: Orange Brown Silty fine Sand, dense, damp
15				8/12/12		SM		6.9	ALLUVIUM: Light Orange Brown Silty fine to medium Sand, medium dense, damp
20				6/14/21		SM	▼	20.6	ALLUVIUM: Brown Silty fine Sand, dense, wet
25				6/9/11		CH		32.4	RINCON FORMATION: Weathered gray Fat Clay, iron oxide staining, very stiff, wet
30				6/11/14					
35				25/50-6"		CH		25.8	same as above

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

BORING NO: B-2									DRILLING DATE: December 28, 2023 DRILL RIG: SIMCO DRILLING METHOD: Hollow-Stem Auger LOGGED BY: A. Luna/S. Jensen	
PROJECT NAME: Anthem Chapel										
PROJECT NUMBER: 306481-001										
BORING LOCATION: Per Plan										
Vertical Depth	Sample Type			PENETRATION RESISTANCE (BLOWS/6"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS	
	Bulk	SPT	Mod. Calif.							
0				9/19/24		SM	111.8	6.6	ALLUVIUM: Brown Silty fine Sand, little to some Clay, medium dense, damp	
5				10/17/22		CL	111.9	18.1		
				13/25/33			112.6	15.5		
10				13/24/42			108.4	19.3		
15				14/25/27		SM	108.0	7.2	ALLUVIUM: Brown Silty fine Sand, trace to little Clay, dense, damp	
20										
25									Total Depth: 16.5 feet No Groundwater Encountered	
30										
35										

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

BORING NO: B-3

PROJECT NAME: Anthem Chapel

PROJECT NUMBER: 306481-001

BORING LOCATION: Per Plan

DRILLING DATE: December 28, 2023

DRILL RIG: SIMCO

DRILLING METHOD: Hollow-Stem Auger

LOGGED BY: A. Luna/S. Jensen

Vertical Depth	Sample Type			PENETRATION RESISTANCE (BLOWS/6"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
	Bulk	SPT	Mod. Calif.						
0									
5				4/5/7 6/10/13		CL			ALLUVIUM: Gray Silty Lean Clay, stiff to very stiff, damp to moist
10				7/9/10 5/8/9		SC			
15				11/13/12		SM			ALLUVIUM: Brown Silty fine Sand, medium dense, damp
16.5				5/6/7		CL			ALLUVIUM: Brown fine Sandy Clay, stiff, damp
20									Total Depth: 16.5 feet No Groundwater Encountered
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

BORING NO: B-4 PROJECT NAME: Anthem Chapel PROJECT NUMBER: 306481-001 BORING LOCATION: Per Plan								DRILLING DATE: December 28, 2023 DRILL RIG: SIMCO DRILLING METHOD: Hollow-Stem Auger LOGGED BY: A. Luna/S. Jensen	
Vertical Depth	Sample Type			PENETRATION RESISTANCE (BLOWS/6"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
	Bulk	SPT	Mod. Calif.						
0									
5				7/8/14 10/12/14		CL			ALLUVIUM: Brown fine Sandy Lean Clay, very stiff, damp
10				10/11/11		SC			
15				10/13/15		SM			ALLUVIUM: Light Brown Silty fine Sand, medium dense, dry to damp
20									Total Depth: 15.0 feet No Groundwater Encountered
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

BORING NO: B-5					DRILLING DATE: December 28, 2023				
PROJECT NAME: Anthem Chapel					DRILL RIG: SIMCO				
PROJECT NUMBER: 306481-001					DRILLING METHOD: Hollow-Stem Auger				
BORING LOCATION: Per Plan					LOGGED BY: A. Luna/S. Jensen				
Vertical Depth	Sample Type			PENETRATION RESISTANCE (BLOWS/6"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
	Bulk	SPT	Mod. Calif.						
0									
5				16/17/18		SC			ALLUVIUM: Gray Brown Clayey fine Sand, some Silt, loose to medium dense, moist to very moist
10				8/10/13		CL			ALLUVIUM: Brown fine Sandy Lean Clay, damp, hard
15				7/8/8		SC			ALLUVIUM: Brown Clayey fine Sand, medium dense, damp
20						SM			ALLUVIUM: Brown Silty fine Sand, trace Clay, medium dense, damp
25									Total Depth: 15.0 feet No Groundwater Encountered
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

BORING NO: B-6	DRILLING DATE: December 28, 2023
PROJECT NAME: Anthem Chapel	DRILL RIG: SIMCO
PROJECT NUMBER: 306481-001	DRILLING METHOD: Hollow-Stem Auger
BORING LOCATION: Per Plan	LOGGED BY: A. Luna/S. Jensen

Vertical Depth	Sample Type			PENETRATION RESISTANCE (BLOWS/6"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
	Bulk	SPT	Mod. Calif.						
0									
5				17/16/8		SM			ALLUVIUM: Brown Silty fine Sand, some Clay, medium dense, damp
10				7/10/14		CL			ALLUVIUM: Brown fine Sandy Lean Clay, very stiff, damp
15				7/9/13		SM			ALLUVIUM: Brown to Orange Brown Silty fine Sand, little to some Clay, medium dense, damp
20				7/12/17					Total Depth: 15.0 feet No Groundwater Encountered
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

BORING NO: B-7 PROJECT NAME: Anthem Chapel PROJECT NUMBER: 306481-001 BORING LOCATION: Per Plan								DRILLING DATE: December 28, 2023 DRILL RIG: SIMCO DRILLING METHOD: Hollow-Stem Auger LOGGED BY: A. Luna/S. Jensen	
Vertical Depth	Sample Type			PENETRATION RESISTANCE (BLOWS/6"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
	Bulk	SPT	Mod. Calif.						
0									ALLUVIUM: Brown fine Sandy Lean Clay, stiff, damp same as above
5				3/4/5		CL			
10				5/7/9		CL			
15				5/4/8		SC			ALLUVIUM: Brown Clayey fine Sand, medium dense, damp
20									Total Depth: 15.0 feet No Groundwater Encountered
25									
30									
35									
40									
45									
50									
55									
60									
65									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

BORING NO: B-8	DRILLING DATE: December 28, 2023
PROJECT NAME: Anthem Chapel	DRILL RIG: SIMCO
PROJECT NUMBER: 306481-001	DRILLING METHOD: Hollow-Stem Auger
BORING LOCATION: Per Plan	LOGGED BY: A. Luna/S. Jensen

Vertical Depth	Sample Type			PENETRATION RESISTANCE (BLOWS/6"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
	Bulk	SPT	Mod. Calif.						
0									
5				8/13/14		SC			ALLUVIUM: Brown Clayey fine Sand, medium dense, damp
10				5/9/12		SM			ALLUVIUM: Brown Silty fine Sand, some Clay, damp
15				5/11/13					
20									Total Depth: 16.5 feet No Groundwater Encountered
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

BORING NO: B-9	DRILLING DATE: December 28, 2023
PROJECT NAME: Anthem Chapel	DRILL RIG: SIMCO
PROJECT NUMBER: 306481-001	DRILLING METHOD: Hollow-Stem Auger
BORING LOCATION: Per Plan	LOGGED BY: A. Luna/S. Jensen

Vertical Depth	Sample Type			PENETRATION RESISTANCE (BLOWS/6"	SYMBOL	USCS CLASS	UNIT DRY WT. (pcf)	MOISTURE CONTENT (%)	DESCRIPTION OF UNITS
	Bulk	SPT	Mod. Calif.						
0									
5				16/19/20		SM			ALLUVIUM: Brown Silty fine Sand, medium dense, damp
10				9/11/16		SC			ALLUVIUM: Brown Clayey fine Sand, medium dense, damp
15				9/10/15		SM			ALLUVIUM: Brown Silty fine Sand, medium dense, damp
20									Total Depth: 16.5 feet No Groundwater Encountered
25									
30									
35									

Note: The stratification lines shown represent the approximate boundaries between soil and/or rock types and the transitions may be gradual.

BORING LOG SYMBOLS



Modified California Split Barrel Sampler



Modified California Split Barrel Sampler - No Recovery



Standard Penetration Test (SPT) Sampler



Standard Penetration Test (SPT) Sampler - No Recovery



Perched Water Level



Water Level First Encountered



Water Level After Drilling



Pocket Penetrometer (tsf)



Vane Shear (ksf)

- 1. The location of borings were approximately determined by pacing and/or siting from visible features. Elevations of borings are approximately determined by interpolating between plan contours. The location and elevation of the borings should be considered.
- 2. The stratification lines represent the approximate boundary between soil types and the transition may be gradual.
- 3. Water level readings have been made in the drill holes at times and under conditions stated on the boring logs. This data has been reviewed and interpretations made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, tides, temperature, and other factors at the time measurements were made.

BORING LOG SYMBOLS



Earth Systems

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT <u>LESS</u> THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT <u>GREATER</u> THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
			HIGHLY ORGANIC SOILS		

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

UNIFIED SOIL CLASSIFICATION SYSTEM



Earth Systems

APPENDIX B

Laboratory Testing
Tabulated Laboratory Test Results
Individual Laboratory Test Results

LABORATORY TESTING

- A. Samples were reviewed along with field logs to determine which would be analyzed further. Those chosen for laboratory analyses were considered representative of soils that would be exposed and/or used during grading, and those deemed to be within the influence of proposed structures. Test results are presented in graphic and tabular form in this Appendix.
- B. In-situ moisture content and dry unit weight for the ring samples were determined in general accordance with ASTM D 2937.
- C. A maximum density tests was performed to estimate the moisture-density relationship of a typical soil material. The test was performed in accordance with ASTM D 1557.
- D. The relative strength characteristics of soils were determined from the results of a direct shear test on a remolded sample. The test specimens were placed in contact with water at least 24 hours before testing, and then sheared under normal loads ranging from 1 to 3 ksf in general accordance with ASTM D 3080.
- E. An expansion index test was performed on a bulk soil sample in accordance with ASTM D 4829. The sample was surcharged under 144 pounds per square foot at moisture content of near 50 percent saturation. The sample was then submerged in water for 24 hours, and the amount of expansion was recorded with a dial indicator.
- F. The gradation characteristics of various soils encountered were evaluated by hydrometer in accordance with ASTM D 7928 and sieve analysis procedures. The samples were soaked in water until individual soil particles were separated, then washed on the No. 200 mesh sieve, oven dried, weighed to calculate the percent passing the No. 200 sieve, and mechanically sieved. Additionally, hydrometer analyses were performed to assess the distribution of the particles that passed the No. 200 screen. The hydrometer portions of the tests were run using sodium hexametaphosphate as a dispersing agent.
- G. Settlement characteristics were developed from the results of one-dimensional consolidation/hydrocollapse tests performed in general accordance with ASTM D 2435. The samples were incrementally loaded to their approximate overburden pressure and then flooded with water. After monitoring for collapse, the samples were incrementally loaded up to 8 ksf. The samples were allowed to consolidate under each load increment. Rebound was measured under reverse alternate loading. Compression was measured by dial gauges accurate to 0.0001 inch. Results of the consolidation tests are presented in this Appendix in the form of percent consolidation versus log of pressure curves.

- H. A portion of bulk samples was sent to another laboratory for analyses of soil pH, resistivity, chloride contents, and sulfate contents. Soluble chloride and sulfate contents were determined on a dry weight basis. Resistivity testing was performed in accordance with California Test Method 424, wherein the ratio of soil to water was 1:3.
- I. The Atterberg limits (liquid and plastic limits) and plasticity index were determined on one sample according to the ASTM D 4318 test method.
- J. Two resistance ("R") Value tests were performed in accordance with California Test Method 301 on bulk samples gathered between the depths of 0' and 5' of borings B-1 and B-2. Each of three test specimens from each sample at different moisture contents were tested, and the R-value at 300 psi exudation pressure was determined from the plotted results.

TABULATED LABORATORY TEST RESULTS

REMOLDED SAMPLES

BORING AND DEPTH	B-1 @ 0'-5'	B-2 @ 0'-5'
USCS	CL	--
MAXIMUM DRY DENSITY (pcf)	117.0	--
OPTIMUM MOISTURE (%)	13.0	--
PEAK FRICTION ANGLE	22°	--
PEAK COHESION (psf)	350	--
ULTIMATE FRICTION ANGLE	22°	--
ULTIMATE COHESION (psf)	320	--
EXPANSION INDEX	68	--
pH	6.6	--
RESISTIVITY (ohms-cm)	12,700	--
SOLUBLE CHLORIDES (mg/Kg)	13	--
SOLUBLE SULFATES (mg/Kg)	35	--
GRAIN SIZE DISTRIBUTION (%)		
GRAVEL	0.6	--
SAND	42.3	--
SILT	23.3	--
CLAY (2µm to 5µm)	7.4	--
CLAY (≤2µm)	26.4	--
R-Value	32	45

GRAIN SIZE ANALYSES

BORING AND DEPTH	B-1 @ 15'	B-1 @ 25'
USCS	SM	CH
GRAVEL	4.4	0.0
SAND	79.8	9.5
SILT	5.9	28.0
CLAY (2µm to 5µm)	3.0	9.8
CLAY (≤2µm)	6.9	52.7
Liquid Limit	--	78
Plastic Limit	--	25
Plasticity Index	--	53

Individual Laboratory Test Results

MAXIMUM DENSITY / OPTIMUM MOISTURE

ASTM D 1557-12 (Modified)

Job Name: Anthem Chapel

Sample ID: B 1 @ 0-5'

Procedure Used: A

Prep. Method: Moist

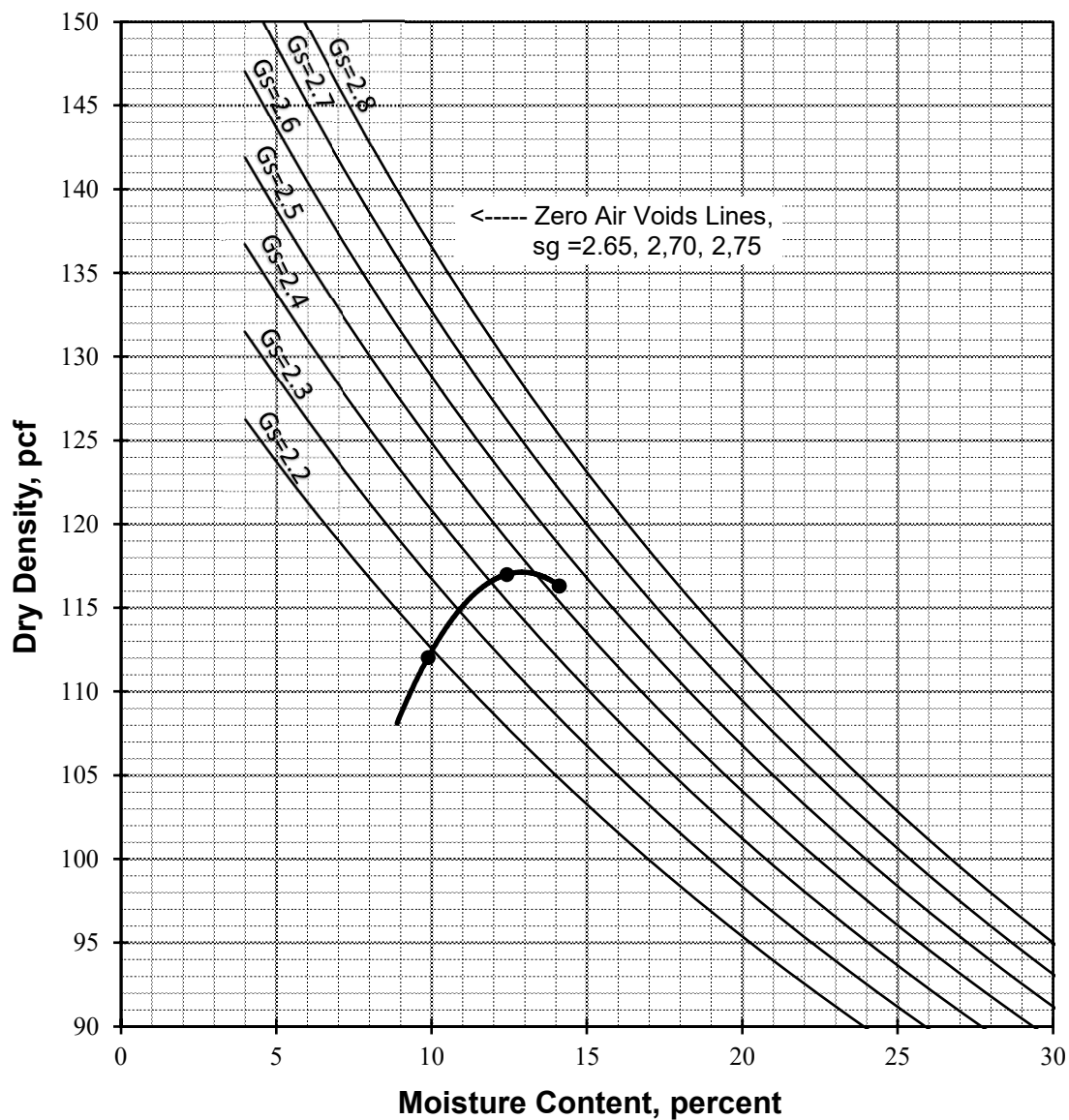
Date: 1/25/2024

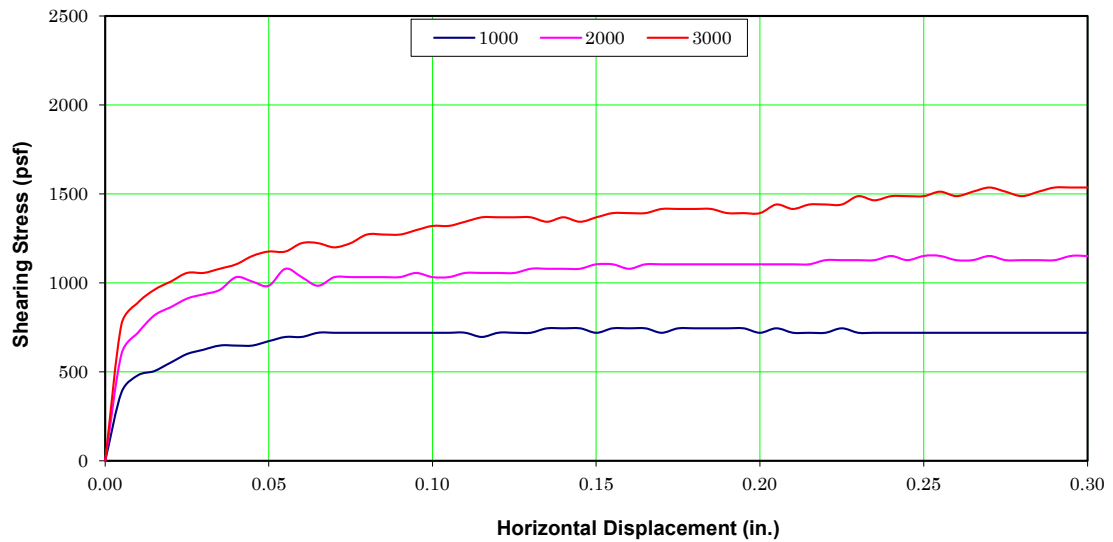
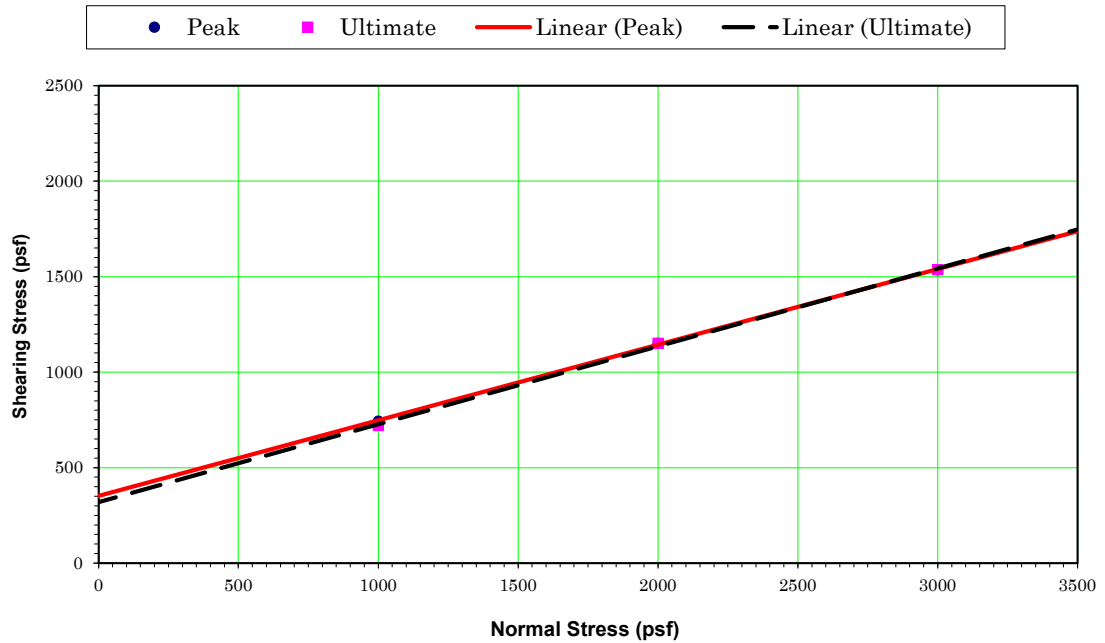
Rammer Type: Automatic

Description: Dark Brown Sandy Lean Clay

Maximum Density: 117 pcf
Optimum Moisture: 13%

Sieve Size	% Retained
3/4"	0.0
3/8"	0.0
#4	0.6





DIRECT SHEAR DATA*

Sample Location: B 1 @ 0-5'
 Sample Description: Dark Brown Sandy Lean Clay
 Dry Density (pcf): 104.8
 Initial % Moisture: 12.9
 Average Degree of Saturation: 100.0
 Shear Rate (in/min): 0.005 in/min

Note: Sample specimens were initially saturated before testing by partially immersing the specimens in water for about 24 hours while the specimens were restrained from swelling. Initial saturation was not performed in the direct shear machine, and is not prescribed by ASTM D 3080.

Normal stress (psf)	1000	2000	3000
Peak stress (psf)	744	1152	1536
Ultimate stress (psf)	720	1152	1536

	Peak	Ultimate
ϕ Angle of Friction (degrees):	22	22
c Cohesive Strength (psf):	350	320
Test Type: Peak & Ultimate		

* Test Method: ASTM D-3080

DIRECT SHEAR TEST

Anthem Chapel



Earth Systems

3/7/2024

306481-001

File No.: 306481-001

EXPANSION INDEX

ASTM D-4829, UBC 18-2

Job Name: Anthem Chapel
Sample ID: B 1 @ 0-5'
Soil Description: CL

Initial Moisture, %: 12.2
Initial Compacted Dry Density, pcf: 101.7
Initial Saturation, %: 50
Final Moisture, %: 28.2
Volumetric Swell, %: 6.8

Expansion Index: 68 Medium

EI	UBC Classification
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
130+	Very High

CERTIFICATE OF ANALYSIS

Client: Earth Systems Pacific
CAS LAB NO: 240148-01
Sample ID: B100-5' Anthem Chapel
Analyst: Gloria

Date Sampled: 01/23/24
Date Received: 01/25/24
Sample Matrix: Soil

WET CHEMISTRY SUMMARY

COMPOUND	RESULTS	UNITS	DF	PQL	METHOD	ANALYZED
pH (Corrosivity)**	6.6	S.U.	1	---	9045	01/29/24
Resistivity*	12700	Ohms-cm	1	---	SM 120.1M	01/29/24
Chloride	13	mg/Kg	1	0.3	300.0M	01/29/24
Sulfate	35	mg/Kg	1	0.9	300.0M	01/29/24

*Sample was extracted using a 1:3 ratio of soil and DI water.

**Sample was extracted using 1:1 ratio of soil and DI water.

DF: Dilution Factor

PQL: Practical Quantitation Limit

BQL: Below Quantitation Limit

mg/Kg: Milligrams/Kilograms (ppm)

MECHANICAL ANALYSIS

CTM 203-08

Job Name: Anthem Chapel

Job No.: 306481-001

Sample ID: **B 1 @ 0-5'**Soil Description: **CL**

Hydrometer ID: 504229

Hydroscopic Moisture

Air Dry Wt, g: 100.0

Oven Dry Wt, g: 100.0

% Moisture: 0.0

Air Dry Sample Wt., g: 547.5

Corrected Wt., g: 547.5

Sieve Analysis for + #10 Material

Sieve Size	Wt Ret	% Ret	% Passing
1/2 inch	0.0	0.00	100.00
3/8 inch	0.0	0.00	100.00
#4	3.5	0.64	99.36
#8	28.8	5.26	94.74
#10	30.2	5.52	94.48

Air Dry Hydro Sample Wt., g: 64.9

Corrected Wt., g: 64.9

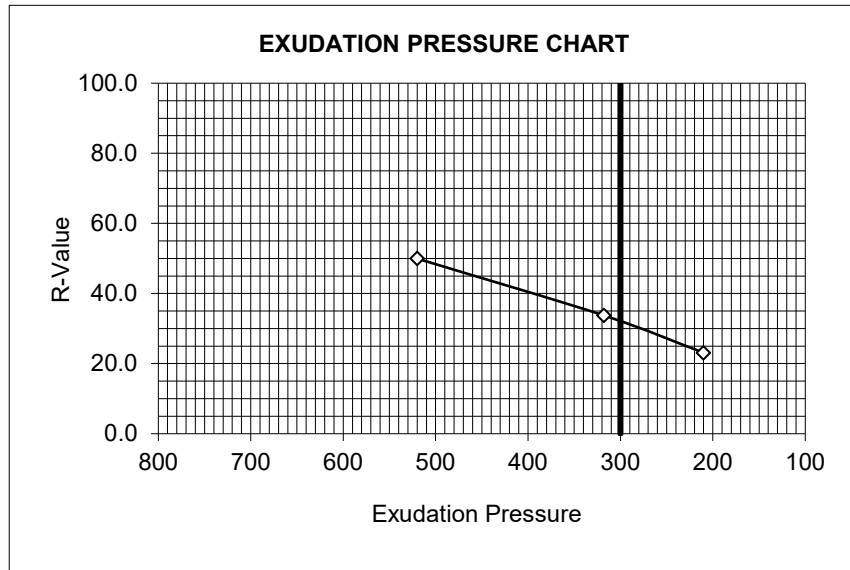
Calculation Factor 0.6869

Hydrometer Analysis for < #10 Material

Start time: 7:52:00 AM

Short Hydro	Time of Reading	Hydro Reading	Temp. at Reading, °C	Correction Factor	Corrected Hydro Reading
20 sec	7:52:20 AM	45	16	5.8	39.2
1 hour	8:52:00 AM	29	16	5.8	23.2
6 hour	1:52:00 PM	23	21	4.9	18.1

% Gravel:	0.6
% Sand(2mm - 74µm):	42.3
% Silt(74µm- 5µm):	23.3
% Clay(5µm - 2µm):	7.4
% Clay(≤2µm):	26.4

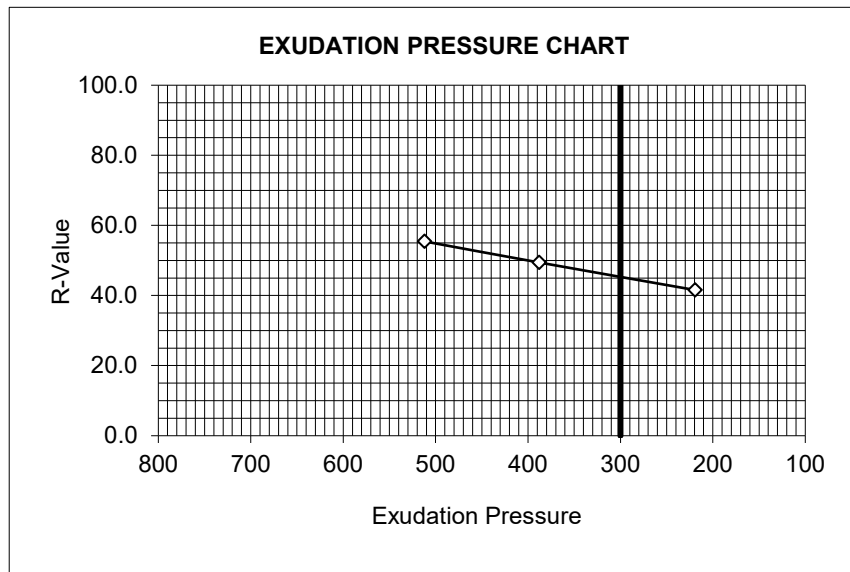


JOB NAME: Anthem Chapel
SAMPLE I. D.: B-1 @ 0-5
SOIL DESCRIPTION: Clayey Silt (ML)

SPECIMEN NUMBER	D	E	F
EXUDATION PRESSURE	520	318	210
RESISTANCE VALUE	50.0	33.8	23.1
EXPANSION DIAL(0.0001")	0	0	0
EXPANSION PRESSURE (PSF)	0.0	0.0	0.0
% MOISTURE AT TEST	10.9	11.7	12.3
DRY DENSITY AT TEST	125.8	124.5	123.6

R-VALUE @ 300 PSI EXUDATION **32**

**Based on Traffic Index = 8.00 & Gravel Factor = 1.34*



JOB NAME: Anthem Chapel

SAMPLE I. D.: B2 @ 0-5

SOIL DESCRIPTION: Clayey Silt

SPECIMEN NUMBER	D	E	F
EXUDATION PRESSURE	512	388	219
RESISTANCE VALUE	55.4	49.4	41.6
EXPANSION DIAL(0.0001")	0	0	0
EXPANSION PRESSURE (PSF)	0.0	0.0	0.0
% MOISTURE AT TEST	10.9	11.4	11.8
DRY DENSITY AT TEST	124.5	123.2	123.6

R-VALUE @ 300 PSI EXUDATION **45**

**Based on Traffic Index = 8.00 & Gravel Factor = 1.34*

MECHANICAL ANALYSIS

CTM 203-08

Job Name: Anthem Chapel

Job No.: 306481-001

Sample ID: **B 1 @ 15'**Soil Description: **SM**

Hydrometer ID: 504229

Hydroscopic Moisture

Air Dry Wt, g: 100.0

Oven Dry Wt, g: 100.0

% Moisture: 0.0

Air Dry Sample Wt., g: 533.3

Corrected Wt., g: 533.3

Sieve Analysis for + #10 Material

Sieve Size	Wt Ret	% Ret	% Passing
1/2 inch	4.4	0.83	99.17
3/8 inch	9.3	1.74	98.26
#4	23.2	4.35	95.65
#8	48.3	9.06	90.94
#10	51.6	9.68	90.32

Air Dry Hydro Sample Wt., g: 92.7

Corrected Wt., g: 92.7

Calculation Factor 1.0264

Hydrometer Analysis for < #10 Material

Start time: 7:44:00 AM

Short Hydro	Time of Reading	Hydro Reading	Temp. at Reading, °C	Correction Factor	Corrected Hydro Reading
20 sec	7:44:20 AM	22	16	5.8	16.2
1 hour	8:44:00 AM	16	16	5.8	10.2
6 hour	1:44:00 PM	12	21	4.9	7.1

% Gravel:	4.4
% Sand(2mm - 74µm):	79.8
% Silt(74µm- 5µm):	5.9
% Clay(5µm - 2µm):	3.0
% Clay(≤2µm):	6.9

MECHANICAL ANALYSIS

CTM 203-08

Job Name: Anthem Chapel

Job No.: 306481-001

Sample ID: **B 1 @ 25'**Soil Description: **CH**

Hydrometer ID: 504229

Hydroscopic Moisture

Air Dry Wt, g: 100.0

Oven Dry Wt, g: 100.0

% Moisture: 0.0

Air Dry Sample Wt., g: 513.8

Corrected Wt., g: 513.8

Sieve Analysis for + #10 Material

Sieve Size	Wt Ret	% Ret	% Passing
1/2 inch	0.0	0.00	100.00
3/8 inch	0.0	0.00	100.00
#4	0.0	0.00	100.00
#8	0.0	0.00	100.00
#10	0.0	0.00	100.00

Air Dry Hydro Sample Wt., g: 64.3

Corrected Wt., g: 64.3

Calculation Factor 0.6430

Hydrometer Analysis for < #10 Material

Start time: 6:35:00 AM

Short Hydro	Time of Reading	Hydro Reading	Temp. at Reading, °C	Correction Factor	Corrected Hydro Reading
20 sec	6:35:20 AM	64	16	5.8	58.2
1 hour	7:35:00 AM	46	16	5.8	40.2
6 hour	12:35:00 PM	39	20	5.1	33.9

% Gravel:	0.0
% Sand(2mm - 74µm):	9.5
% Silt(74µm- 5µm):	28.0
% Clay(5µm - 2µm):	9.8
% Clay(≤2µm):	52.7

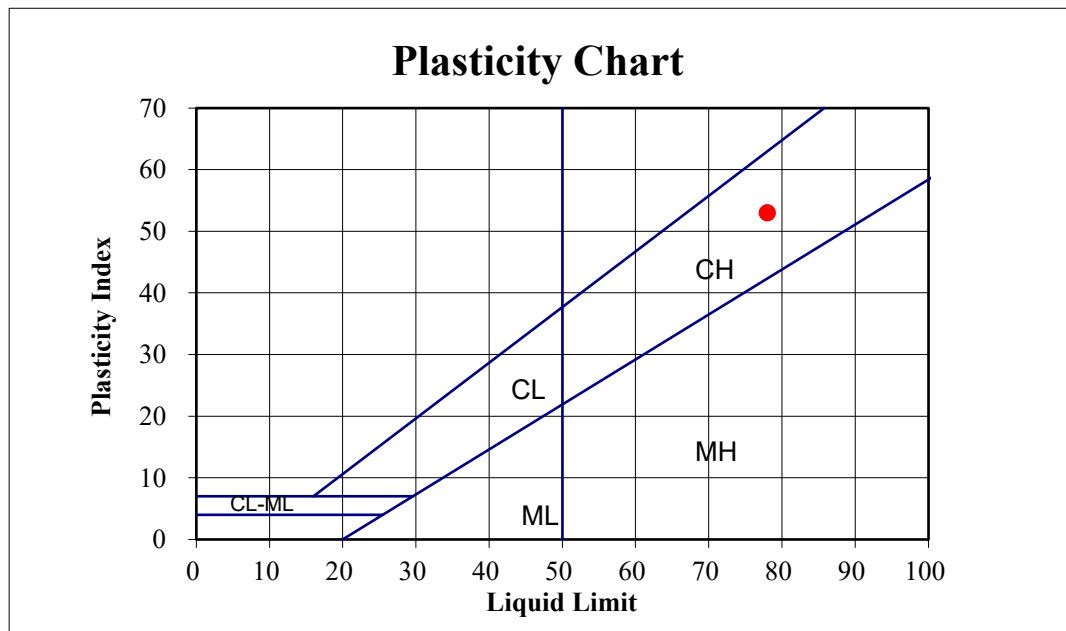
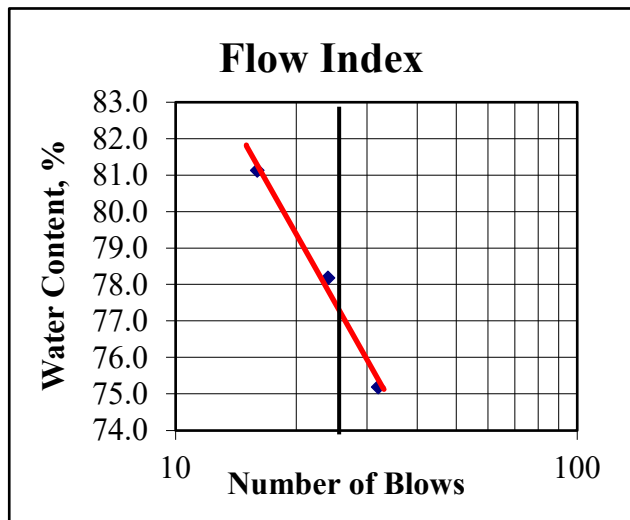
PLASTICITY INDEX

ASTM D-4318

Job Name: Anthem Chapel
Sample ID: B 1 @ 25'
Soil Description: CH

DATA SUMMARY**TEST RESULTS**

Number of Blows:	16	24	32	LIQUID LIMIT	78
Water Content, %	81.1	78.2	75.2	PLASTIC LIMIT	25
Plastic Limit:	25.1	25.2		PLASTICITY INDEX	53



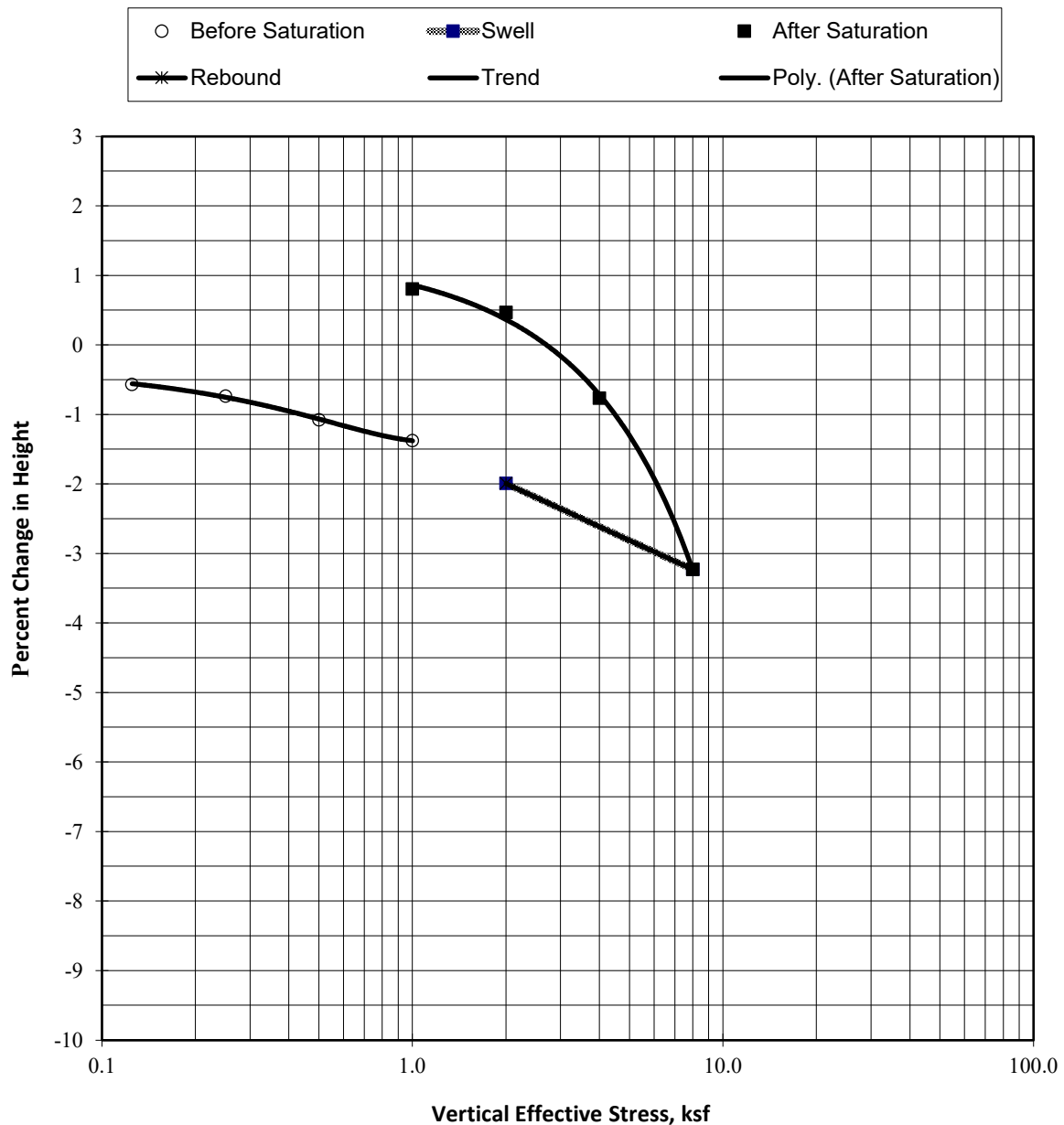
CONSOLIDATION TEST

ASTM D 2435-90

Anthem Chapel
B 1 @ 2.5'
CL
Ring Sample

Initial Dry Density: 106.3 pcf
Initial Moisture, %: 20.2%
Specific Gravity: 2.67 (assume)
Initial Void Ratio: 0.569

% Change in Height vs Normal Pressure Diagram



CONSOLIDATION TEST

ASTM D 2435-90

Anthem Chapel

B 1 @ 2.5'

CL

Ring Sample

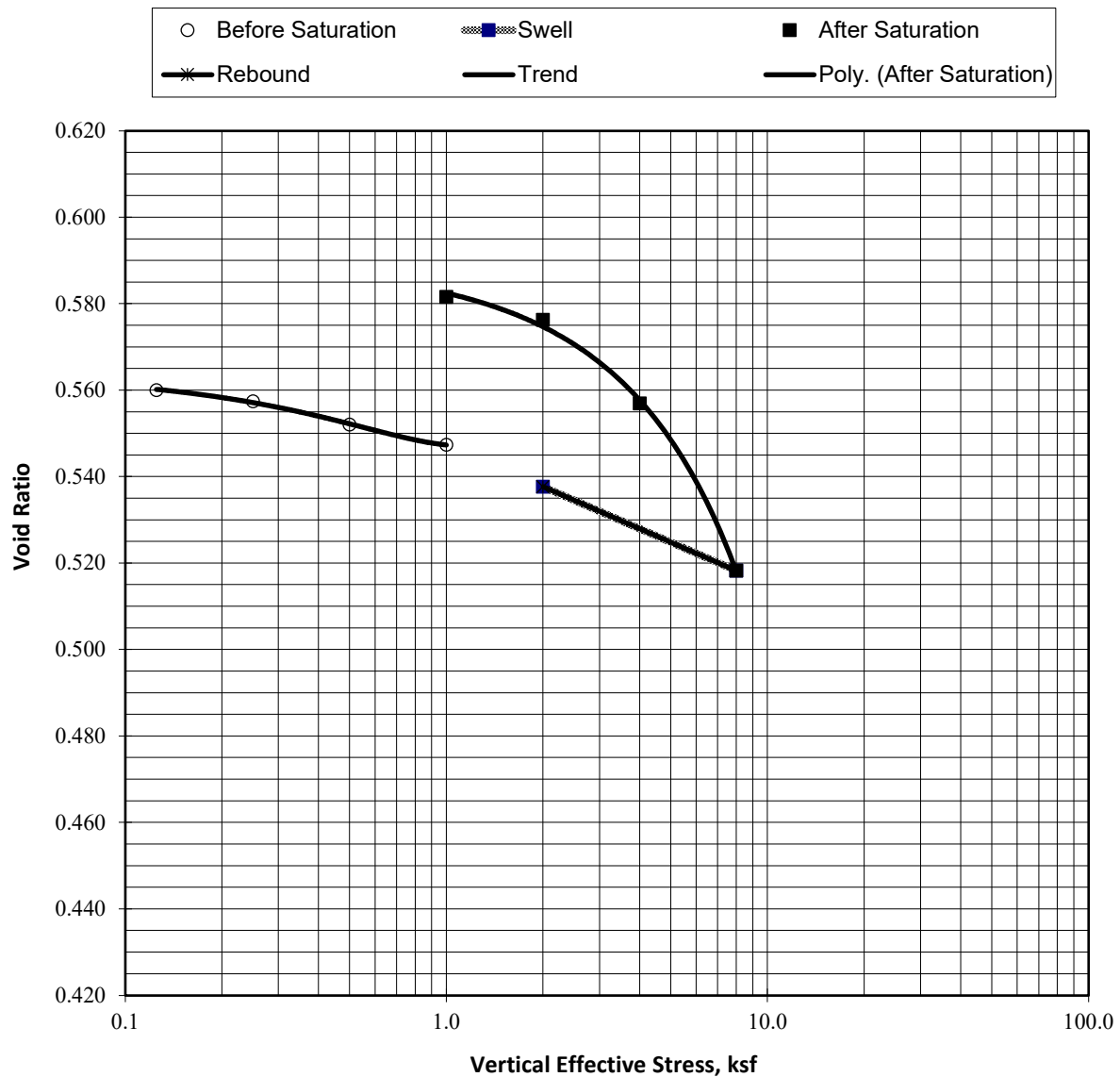
Initial Dry Density: 106.3

Initial Moisture, %: 20.2

Specific Gravity: 2.67 (assume

Initial Void Ratio: 0.569

Void Ratio vs Normal Pressure Diagram



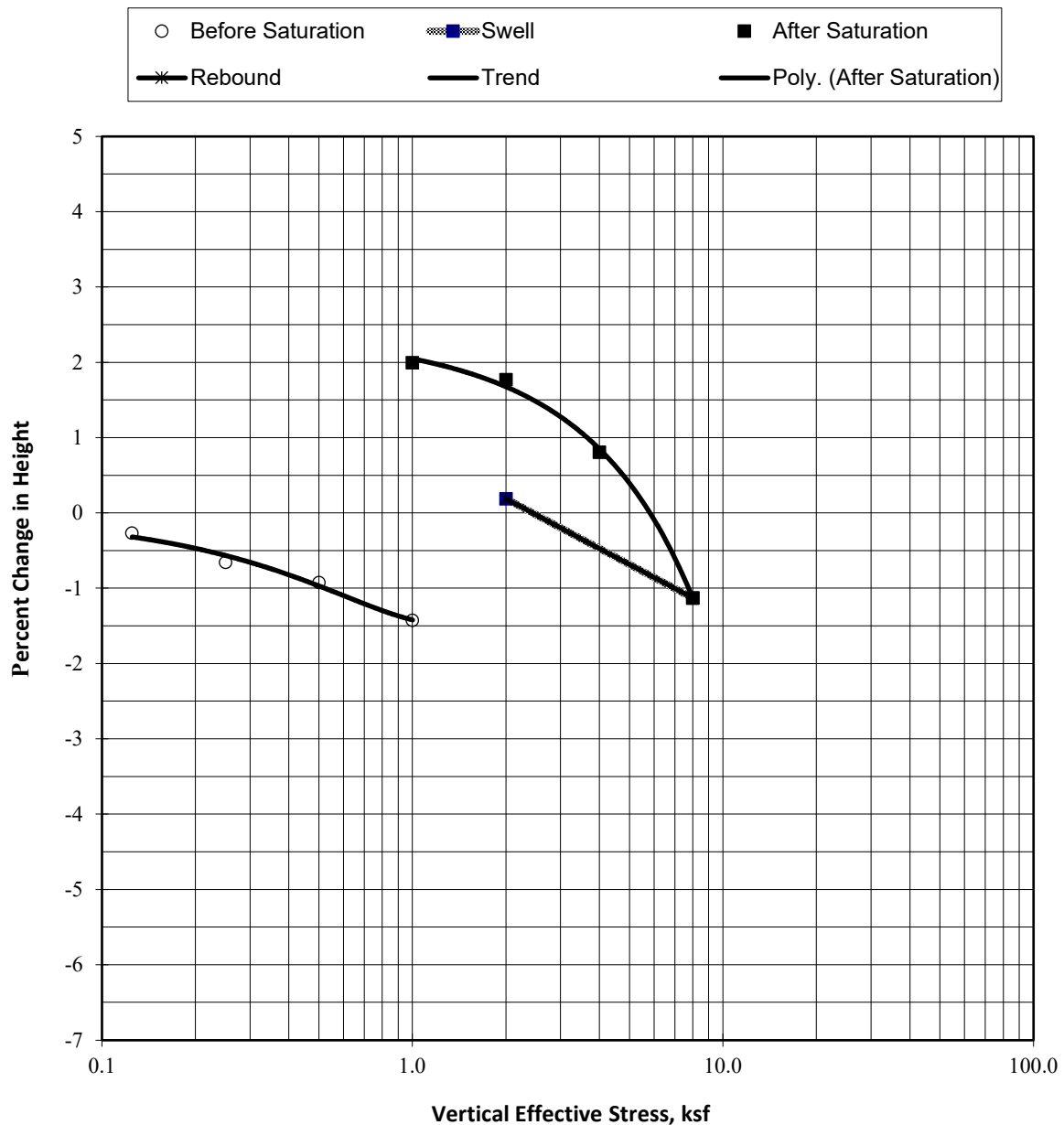
CONSOLIDATION TEST

ASTM D 2435-90

Anthem Chapel
B 2 @ 5'
CL
Ring Sample

Initial Dry Density: 112.0 pcf
Initial Moisture, %: 18.0%
Specific Gravity: 2.67 (assume)
Initial Void Ratio: 0.488

% Change in Height vs Normal Pressure Diagram



CONSOLIDATION TEST

ASTM D 2435-90

Anthem Chapel

B 2 @ 5'

CL

Ring Sample

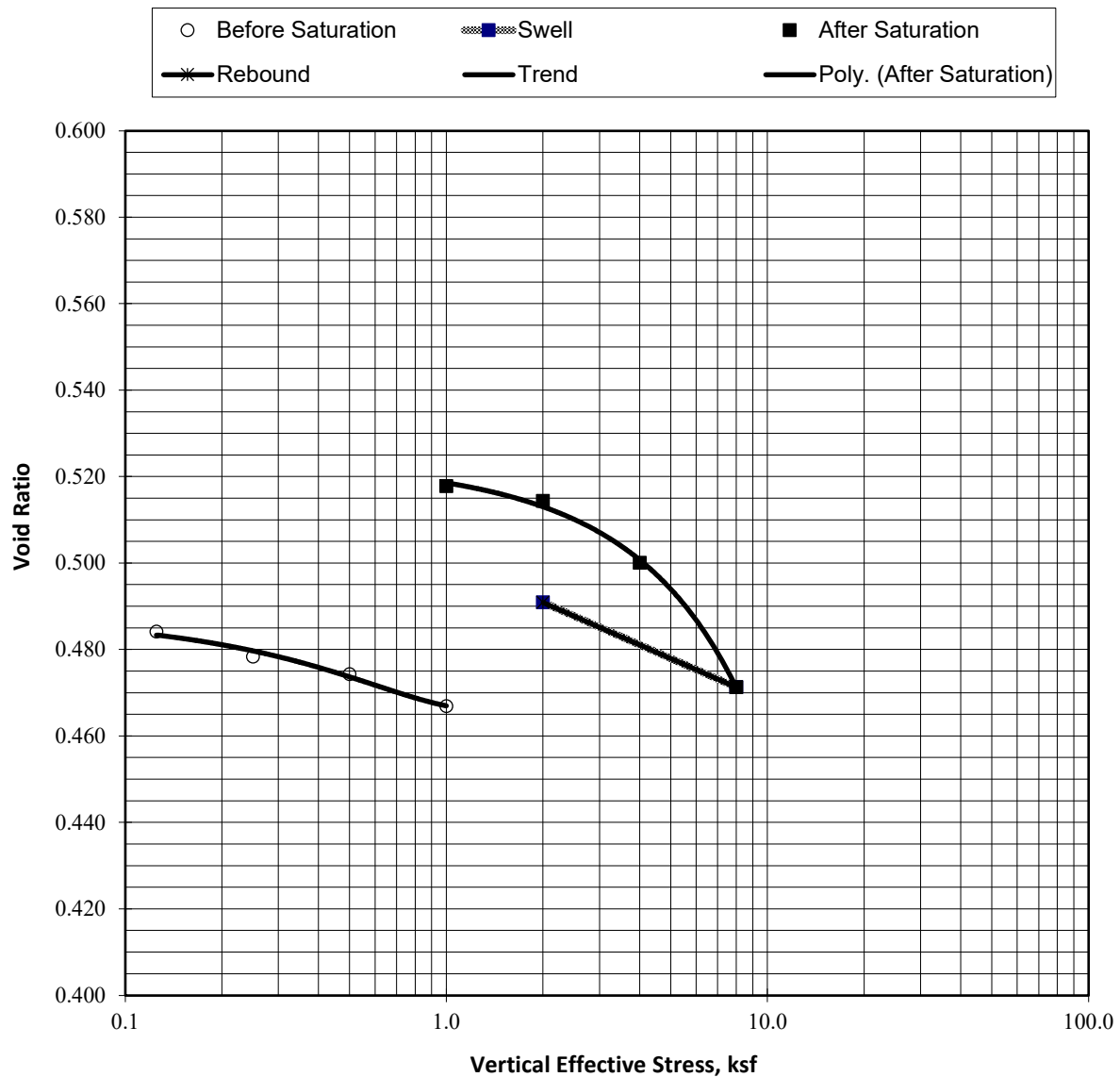
Initial Dry Density: 112.0

Initial Moisture, %: 18.0

Specific Gravity: 2.67 (assume

Initial Void Ratio: 0.488

Void Ratio vs Normal Pressure Diagram



APPENDIX C

Minimum Foundation Design

MINIMUM FOUNDATION DESIGN

FOUNDATIONS FOR STUD BEARING WALLS – MINIMUM REQUIREMENTS

EXPANSION INDEX (E. I.)	FOUNDATIONS FOR SLAB AND RAISED FLOOR SYSTEM						REINFORCEMENT FOR FOUNDATIONS	CONCRETE SLAB		PREMOISTENING CONTROLS FOR SOILS UNDER FOOTINGS, PEIRS AND SLABS	PIERS UNDER RAISED FLOORS
	NUMBER OF STORIES	STEM THICKNESS	FOOTING WIDTH	FOOTING THICKNESS	ALL PERIMETER FOOTINGS	INTERIOR FOOTINGS FOR SLAB AND RAISED FLOORS		3-1/2" MINIMUM THICKNESS (4" WHEN OVER 51, E. I.)			
					DEPTH BELOW NATURAL SURFACE OF GROUND & FINISH GRADE			REINFORCEMENT	TOTAL THICKNESS OF SAND		
0-20 VERY LOW (NON-EXPANSIVE)	1 2 3	6 8 10	12 15 18	6 7 8	12 18 24	12 18 24	1 - #4 @ TOP AND BOTTOM	#3 @ 24" O.C. EACH WAY	2"	MOISTENING OF GROUND PRIOR TO PLACING CONCRETE IS RECOMMENDED	PIERS ALLOWED FOR SINGLE FLOOR LOADS ONLY
21-50 LOW	1 2 3	6 8 10	12 15 18	6 7 8	15 18 24	12 18 24	1 - #4 @ TOP AND BOTTOM	#3 @ 24" O.C. EACH WAY	4"	3% OVER OPTIMUM MOISTURE CONTENT TO A DEPTH OF 18" BELOW LOWEST ADJACENT GRADE TESTING REQ'D	PIERS ALLOWED FO SINGLE FLOOR LOADS ONLY
51-90 MEDIUM	1 2 3	6 8 10	12 15 18	6 8 8	21 21 24	12 18 24	1 - #4 @ TOP AND BOTTOM	#3 @ 24" O.C. EACH WAY	4"	3% OVER OPTIMUM MOISTURE CONTENT TO A DEPTH OF 18" BELOW LOWEST ADJACENT GRADE TESTING REQ'D	PIERS NOT ALLOWED
							#3 BARS @ 24" O.C. 12" INTO FOOTING AND BENT 3' INTO SLAB				
91-130 HIGH	1 2 3	6 8 10	12 15 18	8 8 8	27 27 27	12 18 24	2 - #4 @ TOP AND BOTTOM	#3 @ 24" O.C. EACH WAY	4"	3% OVER OPTIMUM MOISTURE CONTENT TO A DEPTH OF 24" BELOW LOWEST ADJACENT GRADE TESTING REQ'D	PIERS NOT ALLOWED
							#3 BARS @ 24" O.C. 12" INTO FOOTING AND BENT 3' INTO SLAB				
ABOVE 130 VERY HIGH	REQUIRES SPECIAL DESIGN BY A STATE LICENSED SOILS PROFESSIONAL										

APPENDIX D

SEAOC-OSHPD ASCE 7-16 and 2022 CBC Seismic Design Parameters Fault Parameters

USGS web services were down for some period of time and as a result this tool wasn't operational, resulting in *timeout* error.
USGS web services are now operational so this tool should work as expected.



Anthem Chapel

Latitude, Longitude: 34.4437, -119.8536



Date	3/5/2024, 11:18:06 AM
Design Code Reference Document	ASCE7-16
Risk Category	III
Site Class	D - Stiff Soil

Type	Value	Description
S_S	2.263	MCE_R ground motion. (for 0.2 second period)
S_1	0.8	MCE_R ground motion. (for 1.0s period)
S_{MS}	2.263	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.509	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.995	MCE_G peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	1.095	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
S_{sRT}	2.263	Probabilistic risk-targeted ground motion. (0.2 second)
S_{sUH}	2.589	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
S_{sD}	3.166	Factored deterministic acceleration value. (0.2 second)
S_{1RT}	0.8	Probabilistic risk-targeted ground motion. (1.0 second)
S_{1UH}	0.914	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S_{1D}	1.011	Factored deterministic acceleration value. (1.0 second)
PGA_d	1.27	Factored deterministic acceleration value. (Peak Ground Acceleration)
PGA_{UH}	0.995	Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration
C_{RS}	0.874	Mapped value of the risk coefficient at short periods
C_{R1}	0.875	Mapped value of the risk coefficient at a period of 1 s
C_v	1.5	Vertical coefficient

Table E-1
Fault Parameters

Fault Section Name	Distance		Upper	Lower	Avg	Avg	Avg	Trace	Fault	Mean	Mean	Slip
			Seis.	Seis.	Dip	Dip	Rake	Length		Return		
	(miles)	(km)	Depth	Depth	Angle	Direction	(deg.)	(km)	Type	Mag	Interval	Rate
			(km)	(km)	(deg.)	(deg.)	(deg.)				(years)	(mm/yr)
Mission Ridge-Arroyo Parida-Santa Ana FM3.1, 3	1.1	1.8	0.0	7.6	70	176	90	69	B	6.8		0.4
Red Mountain FM3.1, 3.2	4.2	6.8	0.0	14.1	56	2	90	101	B	7.4		2
North Channel FM3.2	5.9	9.5	1.1	4.5	26	10	90	51	B	6.7		1
Pitas Point (Upper) FM3.2	7.3	11.7	1.4	10.0	42	15	90	35	B	6.8		1
Santa Ynez (West) FM3.1, 3.2	7.5	12.0	0.0	9.2	70	182	0	80	B	6.9		2
Santa Ynez River FM3.1, 3.2	7.8	12.6	0.0	12.0	70	na	na	73	B'	7.1		
Los Alamos extension FM3.1, 3.2	7.8	12.6	0.0	12.0	30	na	na	22	B'	6.8		
San Luis Range (So Margin) FM3.2	8.2	13.2	0.0	12.0	45	37	90	115	B	7.1		0.2
Oak Ridge (Offshore), west extension FM3.2	9.1	14.7	0.0	3.1	67	195	na	28	B'	6.1		
Pitas Point (Lower, West), FM 3.1	11.3	18.1	1.5	8.8	13	3	90	35	B	7.2		2.5
Channel Islands Western Deep Ramp FM3.1, 3.2	11.6	18.7	4.8	12.5	21	204	90	62	B'	7.3		
Santa Ynez (East) FM3.1, 3.2	13.0	20.9	0.0	13.3	70	172	0	68	B	7.2		2
Oak Ridge (Offshore) FM3.2	16.6	26.7	0.0	7.9	32	180	90	38	B	6.9		3
Ventura-Pitas Point FM3.1, 3.2	18.0	28.9	1.0	15.0	64	353	60	59	B	6.9		1
Los Alamos 2011 CFM FM3.1, 3.2	19.1	30.7	0.0	12.0	30	na	na	27	B'	6.9		
Pitas Point (Lower)-Montalvo, FM3.1	19.3	31.0	0.4	12.7	16	359	90	30	B	7.3		2.5
Lions Head 2011 CFM FM3.1, 3.2	20.0	32.3	0.0	12.0	75	29	90	65	B	6.7		0.02
Big Pine (West) FM3.1, 3.2	20.4	32.8	0.0	11.0	50	2	na	18	B'	6.5		
East Huasna 2011 CFM FM3.1, 3.2	25.3	40.6	0.0	15.0	90	na	na	74	B'	7.2		
San Luis Range 2011 CFM, FM3.1	26.4	42.5	0.0	12.0	52	na	na	79	B'	7.2		
Santa Cruz Island FM3.1, 3.2	26.9	43.3	0.0	13.3	90	188	30	69	B	7.1		1
Pine Mtn FM3.1, 3.2	28.7	46.1	0.0	16.3	45	5	na	62	B'	7.3		
Ozena FM3.1, 3.2	29.7	47.8	0.0	13.9	33	na	na	41	B'	7.2		
Santa Rosa Island FM3.1, 3.2	30.0	48.3	0.0	8.7	90	1	30	58	B	6.8		1
South Cuyama FM3.1, 3.2	31.7	51.0	0.0	13.9	33	210	na	83	B'	7.5		
Big Pine (Central) FM3.1, 3.2	32.2	51.9	0.0	6.6	76	167	na	23	B'	6.3		
Sisar FM3.1, 3.2	32.3	52.0	0.0	17.4	29	168	na	20	B'	7.0		
Channel Islands Thrust FM3.1, 3.2	32.4	52.2	5.0	12.3	20	354	90	59	B	7.3		1.5
Casmalia 2011 CFM	35.3	56.8	0.0	12.0	75	na	na	48	B'	6.9		
Morales (West) FM3.1, 3.2	37.4	60.2	0.0	8.6	32	49	na	28	B'	6.8		
Santa Cruz Catalina Ridge Alt2 FM3.2	37.9	61.1	0.0	11.0	90	38	na	137	B'	7.3		
Santa Cruz Catalina Ridge alt 1, FM3.1	37.9	61.1	0.0	11.0	90	na	na	114	B'	7.2		
Morales (East) FM3.1, 3.2	38.5	62.0	0.0	8.6	32	14	na	18	B'	6.6		
Oak Ridge (Onshore) FM3.1, 3.2	38.7	62.3	1.0	19.4	65	159	90	50	B	7.2		4
San Cayetano FM3.1, 3.2	39.5	63.6	0.0	16.0	42	3	90	42	B	7.2		6
Malibu Coast (Extension), alt 1, FM3.1	40.6	65.3	0.0	7.8	74	4	30	35	B'	6.5		
Malibu Coast (Extension), alt 2 FM3.2	40.6	65.3	0.0	16.6	74	4	30	35	B'	6.9		
Big Pine (East) FM3.1, 3.2	41.0	66.0	0.0	14.3	73	338	na	23	B'	6.6		
Oceanic-West Huasna FM3.1, 3.2	42.0	67.6	0.0	7.0	58	49	na	122	B'	7.1		
San Andreas (Big Bend) FM3.1, 3.2	42.9	69.0	0.0	15.1	90	198	180	50	A	6.8	89	3.5

Reference: USGS OFR 2013-1165 (CGS SP 228)

Based on Site Coordinates of 34.4437 Latitude, -119.8536 Longitude

Mean Magnitude for Type A Faults based on 0.1 weight for unsegmented section, 0.9 weight for segmented model (weighted by probability of each scenario with section listed as given on Table 3 of Appendix G in OFR 2008-1437). Mean magnitude is average of Ellsworths-B and Hanks & Bakun moment area relationship.

APPENDIX E

Liquefaction and Seismic-Induced Dry Sand Settlement Analyses

LIQUEFY-v2dot45.XLS - A SPREADSHEET FOR EMPIRICAL ANALYSIS OF LIQUEFACTION POTENTIAL AND INDUCED GROUND SUBSIDENCE

Corryright & Developed 2007 by Shelton L. Stringer, PE, GE, PG , EG - Earth Systems Southwest

(Modified by R. Beard to use 2/3's PGAm for Seismic Induced Settlement of Dry Sands)

Project: Anthem Chapel

Job No: 306481-001

Date: 2/28/2024

Boring: B1

Methods:

Journal of Geotechnical and Enviromental Engineering (JGEE), October 2001, Vol 127, No. 10, ASCE

Settlement Analysis from Tokimatsu and Seed (1987), JGEE,Vol 113, No.8, ASCE

Modified by Pradel, JGEE, Vol 124, No. 4, ASCE

EARTHQUAKE INFORMATION:

Magnitude: 77.5

PGA, g: 1.090.92

MSF: 1.19

GWT: 20.0 feet

Calc GWT: 13.5 feet

Remediate to: 0.0 feet

SPT N VALUE CORRECTIONS:

Energy Correction to N60 (C_E): 1.33 Automatic Hammer

Drive Rod Corr. (C_R): 1 Default

Rod Length above ground (feet): 3.0

Borehole Dia. Corr. (C_B): 1.00

Sampler Liner Correction for SPT?: 1.0 Yes

Cal Mod/ SPT Ratio: 0.63

Total (ft)

Liquefied

Thickness

0.0

Total (in.)

Induced

Subsidence

0.1

upper 50 ft

SETTLEMENT (SUBSIDENCE) OF DRY SANDS

Nc = 10.8

Base	Cal	Liquef.	Total	Fines	Depth	Rod	Tot.Stress	Eff.Stress	Rel.	Trigger	Equiv.	M = 7.5	M =7.5	Liquefac.	Post	Volumetric	Induced	p	G _{max}	Shear	Strain	Strain	Dry Sand			
Depth	Mod	SPT	Suscept.	Unit Wt.	Content	of SPT	at SPT	at SPT	rd	C _N	C _R	C _S	N ₁₍₆₀₎	Dens.	FC Adj.	Sand	Kσ	Available	Induced	Safety	FC Adj.	Strain	Subsidence	Subsidence		
(feet)	N	N	(0 or 1)	(pcf)	(%)	(feet)	po (tsf)	1p'o (tsf)						Dr (%)	ΔN ₁₍₆₀₎	N _{1(60)CS}		CRR	CSR*	Factor	ΔN ₁₍₆₀₎	N _{1(60)CS}	(%)	(in.)	(in.)	
4.5	15	9		125	5	3.5	6.5	0.219	0.219	0.99	1.00	0.75	9.4				1.00	Infin.	0.592	Non-Liq.		9.4	0.00	0.00	0.147	
7.0	62	39	1	125	5	6.0	9.0	0.375	0.375	0.99	1.68	0.75	65.4	97	0.0	65.4	1.00	Infin.	0.589	Non-Liq.	0.0	65.4	0.02	0.01	0.251	
9.5	58	37	1	125	5	8.5	11.5	0.531	0.531	0.98	1.41	0.75	51.4	86	0.0	51.4	1.00	Infin.	0.586	Non-Liq.	0.0	51.4	0.04	0.01	0.356	
13.5	55	35	1	125	5	11.0	14.0	0.688	0.688	0.98	1.24	0.78	44.8	80	0.0	44.8	1.00	Infin.	0.582	Non-Liq.	0.0	44.8	0.07	0.03	0.461	
18.5	24	1	1	125	5	16.0	19.0	1.000	1.000	0.97	1.03	0.88	1.30	37.6	73	0.0	37.6	1.00	Infin.	0.625	Non-Liq.	0.0	37.6	0.00	0.00	0.670
23.5	35	1	1	125	5	21.0	24.0	1.313	1.281	0.95	0.91	0.94	1.30	52.0	86	0.0	52.0	0.99	Infin.	0.698	Non-Liq.	0.0	52.0	0.00	0.00	0.879
27.5	20			125	5	26.0	29.0	1.625	1.438	0.94	1.00	0.99	1.30	34.3			0.97	Infin.	0.759	Non-Liq.		34.3	0.00	0.00	1.089	
32.5	25			125	5	31.0	34.0	1.938	1.594	0.92	1.00	1.00	1.30	43.2			0.95	Infin.	0.803	Non-Liq.		43.2	0.00	0.00	1.298	
37.5	50			125	5	36.0	39.0	2.250	1.751	0.88	1.00	1.00	1.30	86.5			0.93	Infin.	0.826	Non-Liq.		86.5	0.00	0.00	1.508	
42.5	89	1	1	125	5	41.0	44.0	2.563	1.907	0.84	0.74	1.00	1.30	114.6	100	0.0	114.6	0.83	Infin.	0.913	Non-Liq.	0.0	114.6	0.00	0.00	1.717
47.5	84	1	1	125	5	46.0	49.0	2.875	2.064	0.79	0.72	1.00	1.30	104.0	100	0.0	104.0	0.80	Infin.	0.916	Non-Liq.	0.0	104.0	0.00	0.00	1.926
51.5	70	1	1	125	5	51.0	54.0	3.188	2.220	0.74	0.69	1.00	1.30	83.5	100	0.0	83.5	0.77	Infin.	0.905	Non-Liq.	0.0	83.5	0.00	0.00	2.136

NCEER (1997) Curve of Liquefaction Resistance

Post-Liquefaction Volumetric Strain Ref: Tokimatsu & Seed (1987)

$$N_{1(60)} = C_N * C_E * C_B * C_R * C_S * N$$
$$C_R = 0.75 \text{ for Rod lengths } < 3\text{m}, 1.0 \text{ for } > 10\text{m}$$
$$= \min(1, \max(0.75, 1.4666 - 2.556 / (z(\text{ft})^{0.5})))$$
$$C_N = (1 \text{ atm} / p'o)^{0.5}, \text{ max } 1.7$$
$$C_S = \max(1.1, \min(1.3, 1 + N_{1(60)} / 100)) \text{ for SPT without liners}$$
$$MSF = 10^{2.24 / M^{2.56}}$$
$$z = \text{Depth (m)}$$
$$pa = 1 \text{ atm} = 101 \text{ KPa} = 1.058 \text{ tsf}$$

$$rd = (1 - 0.4113 * z^{0.5} + 0.04052 * z + 0.001753 * z^{1.5}) / (1 - 0.4177 * z^{0.5} + 0.05729 * z - 0.006205 * z^{1.5} + 0.00121 * z^2)$$
$$\Delta N_{1(60)} = \min(10, \text{IF}(FC < 35, \exp(1.76 - (190 / FC^2)), 5) + \text{IF}(FC \leq 5, 1, \text{IF}(FC < 35, 0.99 + (FC^{1.5} / 1000), 1.2)) * N_{1(60)} - N_{1(60)})$$
$$N_{1(60)CS} = N_{1(60)CS} + \Delta N_{1(60)}$$
$$K\sigma = \min \text{ of } 1.0 \text{ or } (p'o / 1.058)^{(\text{IF}(Dr > 0.7, 0.6, \text{IF}(Dr < 0.5, 0.8, 0.7)) - 1)}$$
$$Dr = (N_{1(60)} / 70)^{0.5}$$
$$CSR_{req} = 0.65 * PGA * (po / p'o) * rd$$
$$CSR^* = CSR_{req} / MSF / K\sigma$$
$$CRR_{7.5} = (0.048 - 0.004721 * N + 0.0006136 * N^2 - 0.00001673 * N^3) / (1 - 0.1248 * N + 0.009578 * N^2 - 0.0003285 * N^3 + 0.000003714 * N^4)$$
$$N = N_{1(60)CS}$$
$$SF = CRR_{7.5, 1 \text{ atm}} / CSR^*$$

$$p = 0.67 * po$$
$$Nc = (MAG - 4)^{2.17}$$
$$\tau_{av} = 0.65 * PGA * po * rd$$
$$G_{max} = 447 * N_{1(60)CS}^{(1/3)} * p^{0.5}$$
$$a = 0.0389 * (p / 1) + 0.124$$
$$b = 6400 * (p / 1)^{(-0.6)}$$
$$\gamma = [1 + a * \text{EXP}(b * \tau_{av} / G_{max})] / [(1 + a) * \tau_{av} / G_{max}]$$
$$E_{15} = \gamma * (N_{1(60)CS} / 20)^{-1.2}$$
$$E_{nc} = (Nc / 15)^{0.43} * E_{15}$$
$$S = 2 * H * E_{nc}$$