PRELIMINARY HYDROLOGIC ANALYSIS

For:

COMPREHENSIVE PERMIT PLAN
RIVER STONE
HINGHAM, MA

Located:

VIKING LANE & WARD STREET
HINGHAM, MASSACHUSETTS

Submitted to:
TOWN OF HINGHAM

Prepared For:
RIVER STONE, LLC
293R WASHINGTON STREET
NORWELL, MASSACHUSETTS 02061

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Revised March 9. 2018

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Preliminary Hydrologic Analysis
Comprehensive Permit Plan
River Stone
Viking Lane and Ward Street
Hingham, MA

Project Summary

The project proponent, River Stone, LLC, proposes to develop an approximate 6.67 acre parcel of land on Viking Lane and Ward Street in Hingham, Massachusetts based on the plans entitled "Definitive Subdivision Viking Lane at Ward Street in Hingham, Massachusetts", dated March 20, 1995 recorded in Plan Book 45, Page 803. The proposed development will consist of 32 residential units comprised of 1, 2, 3 and 4-unit buildings. The development is being permitted under MGL Ch. 40B Comprehensive Permit. The proposed development will involve the construction of approximately 1,820 linear feet of bituminous roadway, bituminous parking areas, and associated infrastructure.

The project will access utility infrastructure located on Viking Lane and Ward Street, including water, electric, telephone and cable television. A wastewater collection system will be constructed to convey sewage flows to an on-site wastewater treatment plant and soil absorption system. The stormwater management system and will be designed to fully comply with all standards of the Department of Environment Protection's Stormwater Management Regulations and will utilize an existing closed drainage system on Viking Lane and existing stormwater management facility located on-site.

The project is comprised of one parcel which is shown on Assessors' Map 124, Lots 70-75 and Lot 26. The site is bounded by developed residential lots on Ward Street to the south, southwest, and northwest, Autumn Circle to the northeast and to the north. Refer to Figure 1 - USGS Locus Map for the location of the parcel.

The existing and proposed site conditions are illustrated on the project site plans entitled "Comprehensive Permit Plans known as River Stone (Assessors' Map 124, Lots 70-75 and Lot 26), Viking Lane and Ward Street, Hingham, Massachusetts," prepared by McKenzie Engineering Group, Inc. and dated October 7, 2015, with a latest revision date of March 9, 2018. This report contains stormwater peak rate of runoff calculations for the pre-development and post-development conditions and includes the sizing of the proposed drainage systems for compliance with DEP Stormwater Management Standard 2 – Peak Rate Attenuation.

Pre-Development Condition

The site is located within the Residence B Zoning District and is not located in the Aquifer Protection District and the Natural Heritage and Endangered Species. The site is located within the Zone X of the Flood Insurance Rate Map, as shown on the current FEMA Flood Insurance Rate Map Panel No. 25023CO083J with an effective date of July 17, 2012. Refer to Figure 2 – FEMA Flood Map.

The limit of bordering vegetated wetland resource areas and approximate location of the intermittent stream on the site were delineated by Environmental Consulting and Restoration, LLC in June 2015.

The parcel is currently undeveloped and is mostly wooded with some grass areas with the exception of Viking Lane and the stormwater management facility. The topography of the site ranges in elevation from approximately 54 ft. (NAVD 88) in the northeasterly portion of the site to an elevation of approximately 86 ft. along the southerly portion of the site. Portions of runoff emanating from the site flow in a southwesterly and northwesterly direction to the closed drainage system on Viking Lane, southeasterly and northeasterly to the existing stormwater management facility and existing wetlands, with a small portion flowing towards Ward Street to the south and abutting properties to the northwest. The soil types as identified by the Soil Survey, Plymouth County, MA prepared by the NRCS Soil Conservation Service (NRCS) are classified Quonset sandy loam, 8 to 15 percent slopes; Warwick fine sandy loam, 0 to 8 percent slopes; Sudbury fine sandy loan, 3 to 8 percent slopes; and Freetown muck, 0 to 1 percent slopes soils. The soils fall into the following hydrological soil groups: Quonset – HSG A, Warwick – HSG A, Sudbury – HSG B, and Freetown - HSG D. Through an on-site soil evaluation, the site soils were determined to be consistent with the NRCS soil classifications. Refer to Figure 3 - Soil Map for the NRCS delineation of soil types and Appendix C – Soil Testing Results for supporting data.

In the pre- and post- development stormwater analysis, the watershed area analyzed was approximately 7.42 acres consisting of the subject parcel to be developed and offsite tributary areas and consists of five (5) sub-catchments. Refer to Pre-Development Watershed Delineation Plan WS-1 in Appendix A for a delineation of drainage subareas for the pre-development design condition.

The SCS Technical Release 20 (TR-20) and Technical Release 55 (TR-55) method based program "HydroCAD" was employed to develop pre- and post-development peak flows. Drainage calculations were prepared for the pre-development condition for the 2, 10, 25 and 100-year, Type III storm events. Refer to Appendix A for computer results, soil characteristics, cover descriptions and times of concentrations for all subareas.

The peak rates of runoff and elevations for this condition are as follows:

Table 1 – Pre-Development Results

	Design Storm (flow in cfs)			
	2-Year Storm	10-Year Storm	25-Year Storm	100-Year Storm
Design Point	Flow (CFS)	Flow (CFS)	Flow (CFS)	Flow (CFS)
DP-1	0.56	0.90	1.17	1.69
DP-2	0.00	0.00	0.00	0.01
DP-3	1.18	3.21	4.79	7.15
DP-4	0.00	0.00	0.02	0.09
DP-5	0.03	0.29	0.73	1.71

	Design Storm (volume in ac-ft)			
	2-Year Storm	10-Year Storm	25-Year Storm	100-Year Storm
Design Point	Volume (AC-FT)	Volume (AC-FT)	Volume (AC-FT)	Volume (AC-FT)
DP-1	0.042	0.076	0.110	0.173
DP-2	0.000	0.000	0.001	0.007

DP-3	0.159	0.338	0.496	0.771
DP-4	0.000	0.002	0.007	0.018
DP-5	0.016	0.051	0.088	0.160

Post-Development Condition

The proposed development will consist of 32 residential units comprised of 1, 2, 3 and 4-unit buildings with bituminous concrete access roadways, parking areas, sidewalks and associated infrastructure. Visitor parking will be dispersed throughout the site. Viking Lane will be widened to 20 feet and access will be provided to Autumn Circle through an existing easement.

The project will access utility infrastructure located on Viking Lane and Ward Street, including water, electric, telephone and cable television. A wastewater collection system will be constructed to convey sewage flows to an on-site wastewater treatment plant and soil absorption system. The stormwater management system and will be designed to fully comply with all standards of the Department of Environment Protection's Stormwater Management Regulations and will utilize an existing closed drainage system on Viking Lane and existing stormwater management facility located on-site.

In the post-development condition, stormwater analysis watershed areas were analyzed for purposes of designing a drainage system to accommodate the 13 buildings and associated bituminous roadway infrastructure. The objective in designing the proposed drainage facilities for the project was to maintain existing drainage patterns to the extent practicable and to ensure that the post-development rates of runoff are equal or less than pre-development. Refer to Post-Development Watershed Delineation Plan WS-2 in Appendix B for a delineation of post-development drainage subareas. The watershed area and design points for the post-development design conditions correspond to those analyzed for the pre-development design condition and are shown on Plan No. WS-2.

Drainage calculations were prepared by employing the SCS TR-20 Methods for the 2, 10, 25 and 100-year, type III storm events. Refer to Appendix B for computer results. The subsurface infiltration chambers were designed to accommodate peak flows generated by all storms up to and including the 100-year storm event. Refer to site plans for the drainage system design.

Table 2 – Post-Development Results				
	Design Storm (flow in cfs)			
	2-Year Storm	10-Year Storm	25-Year Storm	100-Year Storm
Design Point	Flow (CFS)	Flow (CFS)	Flow (CFS)	Flow (CFS)
DP-1	0.25	0.49	0.69	1.03
DP-2	0.00	0.00	0.00	0.00
DP-3	1.12	2.03	2.79	6.36
DP-4	0.00	0.00	0.00	0.00
DP-5	0.03	0.14	0.25	0.47

	Design Storm (volume in ac-ft)			
	2-Year Storm	10-Year Storm	25-Year Storm	100-Year Storm
Design Point	Volume (AC-FT)	Volume (AC-FT)	Volume (AC-FT)	Volume (AC-FT)
DP-1	0.020	0.037	0.051	0.075
DP-2	0.000	0.000	0.000	0.000
DP-3	0.234	0.572	0.845	1.292
DP-4	0.000	0.002	0.004	0.009
DP-5	0.006	0.014	0.022	0.037

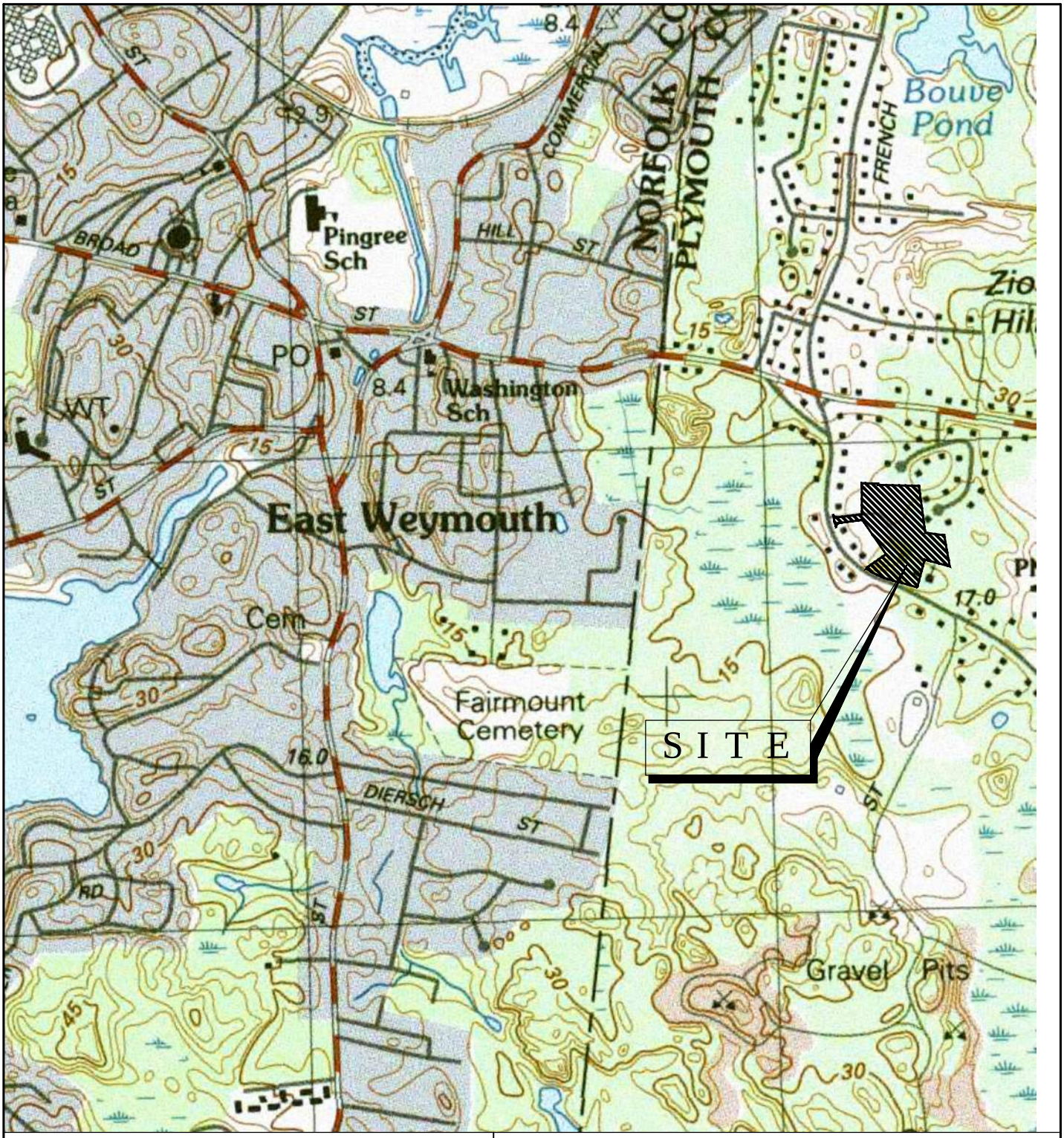

FIGURE - 1

0 1000' 2000' 2500'

U.S. GEOLOGICAL SURVEY
7.5 X 15 MINUTE SERIES

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USGS LOCUS MAP

VIKING LANE & WARD STREET
MAP 124, LOTS 70-75 & LOT 26
HINGHAM, MASSACHUSETTS

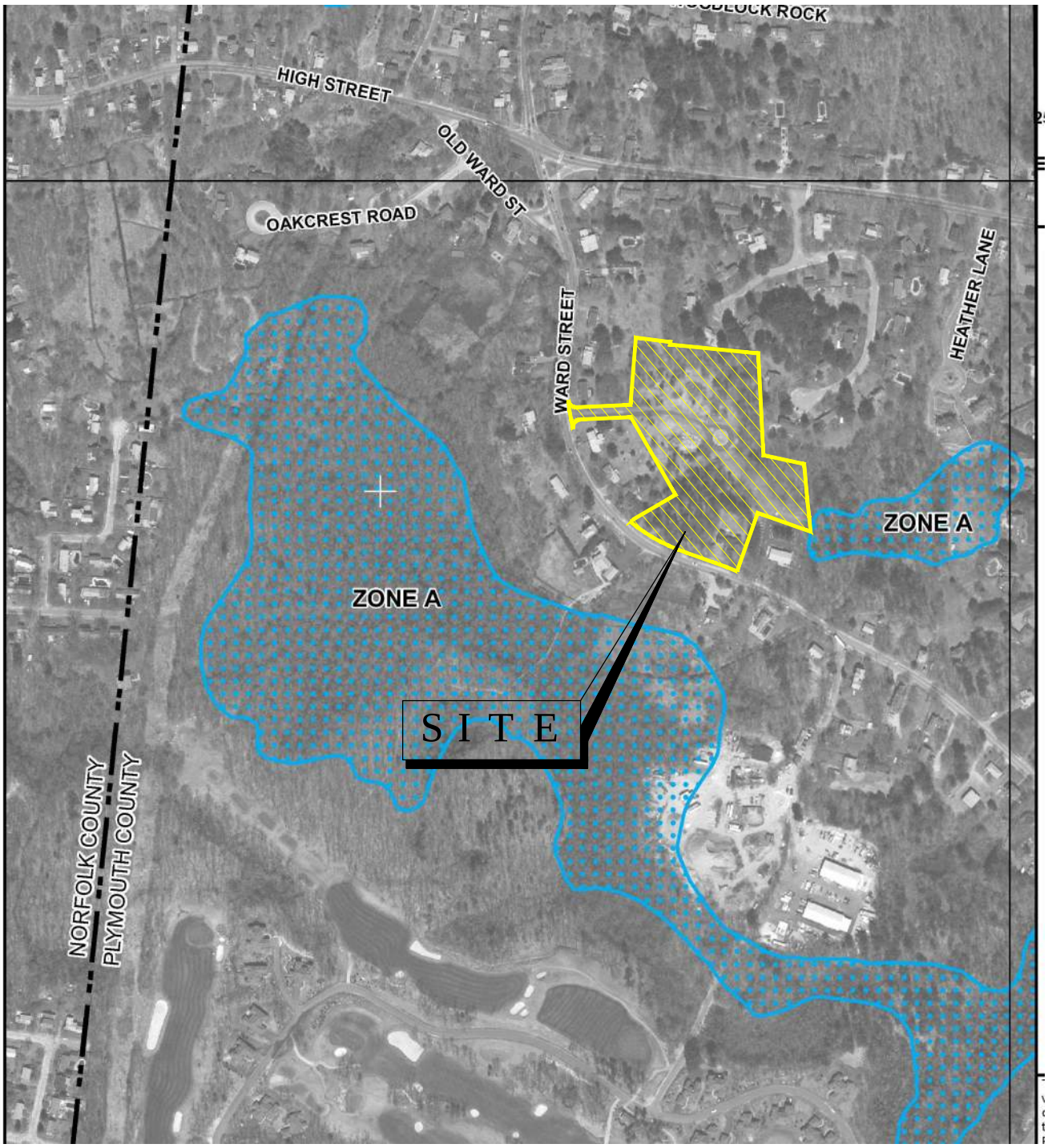

FIGURE - 2

0 500' 1000' 1500'

COMMUNITY PANEL NO: 25023CO083J
EFFECTIVE DATE: JULY 17, 2012

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FEMA FLOOD MAP

VIKING LANE & WARD STREET
MAP 124, LOTS 70-75 & LOT 26
HINGHAM, MASSACHUSETTS

SOIL KEY

SOIL CLASSIFICATION	DESCRIPTION	HYDROLOGIC SOIL GROUP
52A	FREETOWN MUCK	D
260B	SUDBURY FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES	B
262C	QUONSET SANDY LOAM, 8 TO 15 PERCENT SLOPES	A
266A	WARWICK FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES	A
266B	WARWICK FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES	A

FIGURE - 3

0 200' 400' 500'

NRCS SOIL SURVEY
PLYMOUTH COUNTY

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NRCS SOILS MAP

VIKING LANE & WARD STREET
MAP 124, LOTS 70-75 & LOT 26
HINGHAM, MASSACHUSETTS

FIGURE - 4

0 200' 400' 500'

14TH EDITION MASSACHUSETTS NATURAL HERITAGE ATLAS

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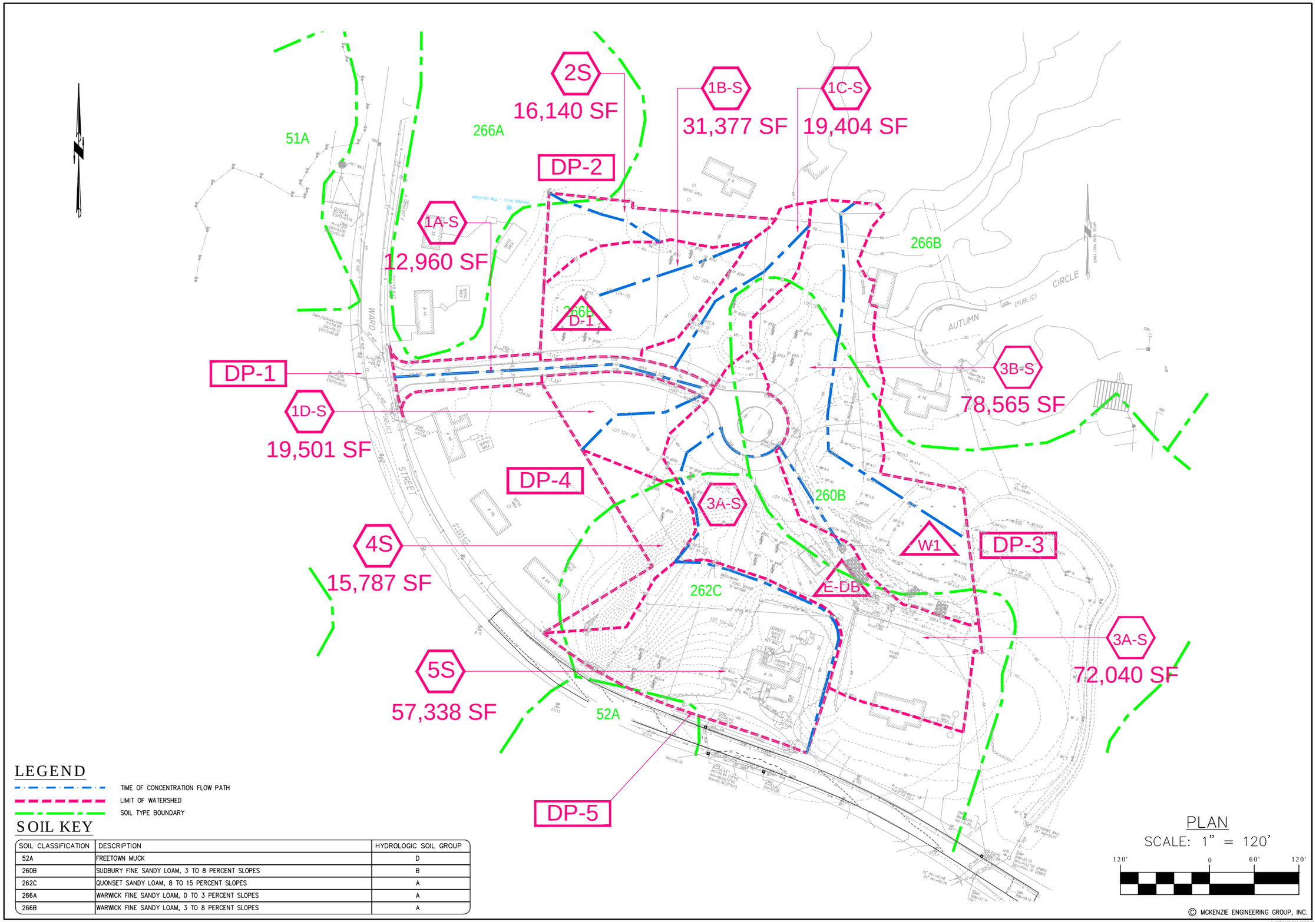
NATURAL HERITAGE & ENDANGERED SPECIES MAP

VIKING LANE & WARD STREET
MAP 124, LOTS 70-75 & LOT 26
HINGHAM, MASSACHUSETTS

A P P E N D I X A

Pre-Development Condition



LEGEND

- TIME OF CONCENTRATION FLOW PATH
- LIMIT OF WATERSHED
- SOIL TYPE BOUNDARY

SOIL KEY

SOIL CLASSIFICATION	DESCRIPTION	HYDROLOGIC SOIL GROUP
52A	FREETOWN MUCK	D
260B	SUDBURY FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES	B
262C	QUONSET SANDY LOAM, 8 TO 15 PERCENT SLOPES	A
266A	WARWICK FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES	A
266B	WARWICK FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES	A

PLAN
SCALE: 1" = 120'

120' 0 60' 120'

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REV	DATE	DESCRIPTION	BY	APP
1	3/9/18	AREA 3A-S	SBS	BCM

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COMPREHENSIVE PERMIT PLAN

KNOWN AS
RIVER STONE
(ASSESSOR'S MAP 124, LOTS 70-75 & LOTS 26)
VIKING LANE & WARD STREET
HINGHAM, MASSACHUSETTS

PROFESSIONAL ENGINEER:

ZBA PERMIT PLAN

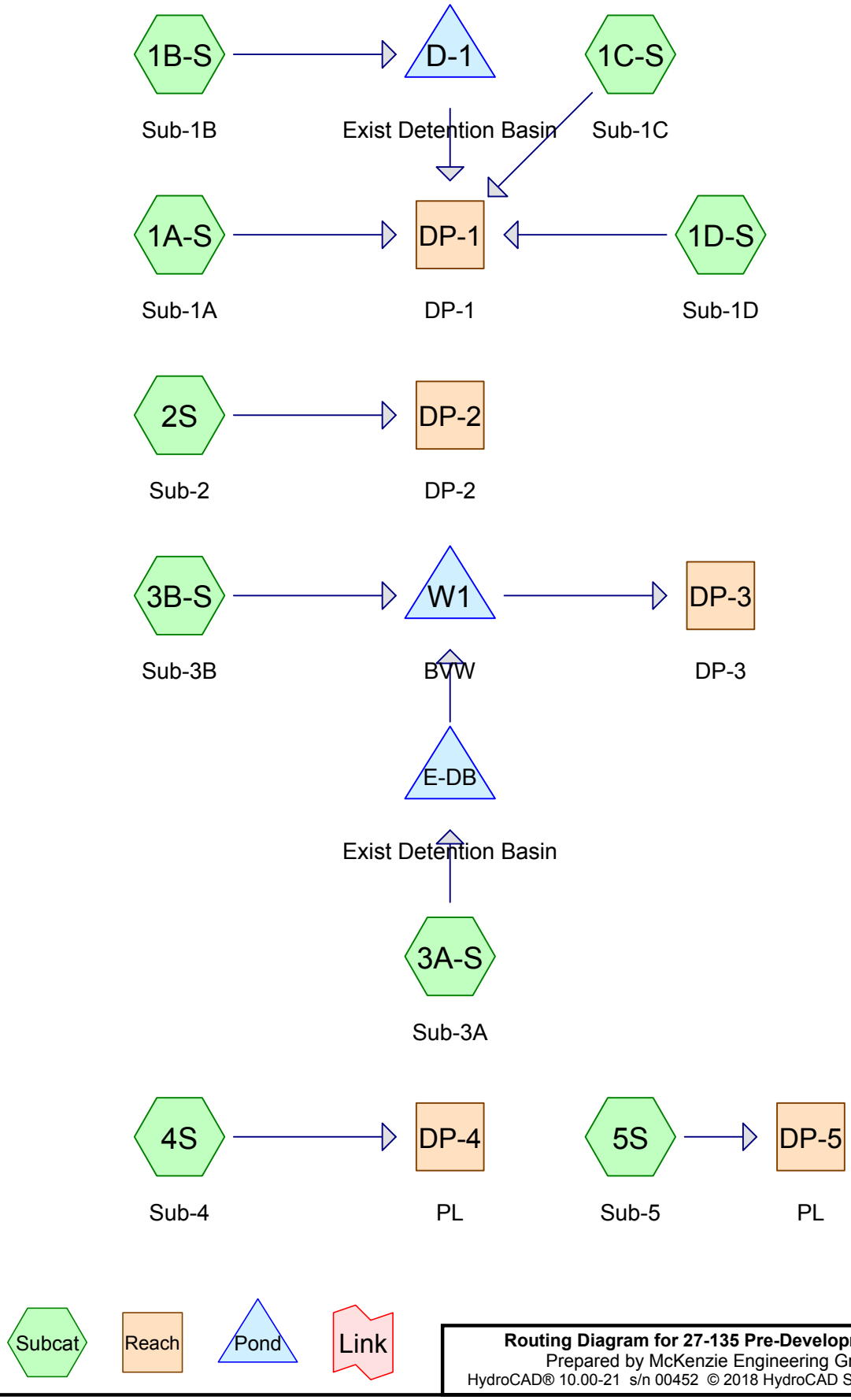
APPLICANR:
RIVER STONE, LLC
293R WASHINGTON STREET
NORWELL, MASSACHUSETTS 02061

DRAWN BY:	SBS
DESIGNED BY:	SBS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	JANUARY 8, 2018
SCALE:	1"=120'
PROJECT NO.:	27-135

DWG. TITLE:
Pre-Dev. Watershed Plan

DWG. No:
WS-1

M:\MEG\2007 PROJECTS\27-135\DWGS\CUT SHEETS\SUBMISSION #5\27-135 WS-1 (R5).DWG



Routing Diagram for 27-135 Pre-Development Final (R5)
Prepared by McKenzie Engineering Group, Inc.
HydroCAD® 10.00-21 s/n 00452 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.258	49	50-75% Grass cover, Fair, HSG A (1B-S, 1C-S, 1D-S)
0.975	39	>75% Grass cover, Good, HSG A (1A-S, 1B-S, 1C-S, 1D-S, 3A-S, 3B-S, 5S)
0.116	39	>75% Grass cover, Good, HSG A - offsite (3A-S, 3B-S)
0.338	61	>75% Grass cover, Good, HSG B (3A-S, 3B-S)
0.022	61	>75% Grass cover, Good, HSG B - offsite (3B-S)
0.009	80	>75% Grass cover, Good, HSG D (5S)
0.062	98	Existing Detention Basin, HSG A (3A-S)
0.029	98	Existing Detention Basin, HSG B (3A-S)
0.004	98	Ledge, HSG A (5S)
0.005	98	Misc, HSG A (5S)
0.012	98	Patio, HSG A (5S)
0.122	98	Paved drive, HSG A (5S)
0.007	98	Paved drive, HSG A - offsite (3B-S)
0.007	98	Paved drive, HSG D (5S)
0.369	98	Paved parking, HSG A - offsite (3A-S)
0.259	98	Paved roads w/curbs & sewers, HSG A (1A-S, 3A-S)
0.075	98	Paved roads w/curbs & sewers, HSG B (3A-S)
0.025	98	Riprap, HSG A (3A-S, 3B-S)
0.024	98	Riprap, HSG B (3A-S, 3B-S)
0.049	98	Roofs, HSG A (5S)
0.032	98	Roofs, HSG A - offsite (3A-S)
0.018	98	Rubble Pile, HSG A (1D-S)
0.363	98	Wetlands, HSG B (3B-S)
0.010	98	Wetlands, HSG B - offsite (3B-S)
1.113	36	Woods, Fair, HSG A (4S, 5S)
2.058	30	Woods, Good, HSG A (1B-S, 1C-S, 1D-S, 2S, 3A-S, 3B-S)
0.158	30	Woods, Good, HSG A - offsite (1C-S, 3A-S, 3B-S)
0.859	55	Woods, Good, HSG B (1C-S, 3A-S, 3B-S)
0.040	55	Woods, Good, HSG B - offsite (3B-S)
7.418	**51**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
5.642	HSG A	1A-S, 1B-S, 1C-S, 1D-S, 2S, 3A-S, 3B-S, 4S, 5S
1.759	HSG B	1C-S, 3A-S, 3B-S
0.000	HSG C	
0.016	HSG D	5S
0.000	Other	
7.418		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.258	0.000	0.000	0.000	0.000	0.258	50-75% Grass cover, Fair	1B-S, 1C-S, 1D-S
1.090	0.360	0.000	0.009	0.000	1.459	>75% Grass cover, Good	1A-S, 1B-S, 1C-S, 1D-S, 3A-S, 3B-S, 5S
0.062	0.029	0.000	0.000	0.000	0.092	Existing Detention Basin	3A-S
0.004	0.000	0.000	0.000	0.000	0.004	Ledge	5S
0.005	0.000	0.000	0.000	0.000	0.005	Misc	5S
0.012	0.000	0.000	0.000	0.000	0.012	Patio	5S
0.129	0.000	0.000	0.007	0.000	0.136	Paved drive	3B-S, 5S
0.369	0.000	0.000	0.000	0.000	0.369	Paved parking	3A-S
0.259	0.075	0.000	0.000	0.000	0.334	Paved roads w/curbs & sewers	1A-S, 3A-S
0.025	0.024	0.000	0.000	0.000	0.049	Riprap	3A-S, 3B-S
0.081	0.000	0.000	0.000	0.000	0.081	Roofs	3A-S, 5S
0.018	0.000	0.000	0.000	0.000	0.018	Rubble Pile	1D-S

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.373	0.000	0.000	0.000	0.373	Wetlands	3B-S
1.113	0.000	0.000	0.000	0.000	1.113	Woods, Fair	4S, 5S
2.216	0.899	0.000	0.000	0.000	3.115	Woods, Good	1B-S, 1C-S, 1D-S, 2S, 3A-S, 3B-S
5.642	**1.759**	**0.000**	**0.016**	**0.000**	**7.418**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	3A-S	0.00	0.00	157.0	0.0030	0.013	15.0	0.0	0.0
2	E-DB	58.12	58.05	25.0	0.0028	0.013	12.0	0.0	0.0

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1A-S: Sub-1A Runoff Area=12,960 sf 68.56% Impervious Runoff Depth=1.64"
Tc=6.0 min CN=79 Runoff=0.56 cfs 0.041 af

Subcatchment1B-S: Sub-1B Runoff Area=31,377 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=212' Tc=9.6 min CN=35 Runoff=0.00 cfs 0.000 af

Subcatchment1C-S: Sub-1C Runoff Area=19,404 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=269' Tc=16.6 min CN=37 Runoff=0.00 cfs 0.000 af

Subcatchment1D-S: Sub-1D Runoff Area=19,501 sf 3.95% Impervious Runoff Depth=0.02"
Flow Length=185' Tc=11.0 min CN=40 Runoff=0.00 cfs 0.001 af

Subcatchment2S: Sub-2 Runoff Area=16,140 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=164' Tc=8.6 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment3A-S: Sub-3A Runoff Area=72,040 sf 40.04% Impervious Runoff Depth=0.66"
Flow Length=534' Tc=9.4 min CN=62 Runoff=0.87 cfs 0.091 af

Subcatchment3B-S: Sub-3B Runoff Area=78,565 sf 21.55% Impervious Runoff Depth=0.53"
Flow Length=552' Tc=12.4 min CN=59 Runoff=0.60 cfs 0.080 af

Subcatchment4S: Sub-4 Runoff Area=15,787 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=36 Runoff=0.00 cfs 0.000 af

Subcatchment5S: Sub-5 Runoff Area=57,338 sf 15.20% Impervious Runoff Depth=0.14"
Flow Length=438' Tc=7.8 min CN=47 Runoff=0.03 cfs 0.016 af

Reach DP-1: DP-1 Inflow=0.56 cfs 0.042 af
Outflow=0.56 cfs 0.042 af

Reach DP-2: DP-2 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-3: DP-3 Inflow=1.13 cfs 0.158 af
Outflow=1.13 cfs 0.158 af

Reach DP-4: PL Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-5: PL Inflow=0.03 cfs 0.016 af
Outflow=0.03 cfs 0.016 af

Pond D-1: Exist Detention Basin Peak Elev=62.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond E-DB: Exist Detention Basin Peak Elev=58.82' Storage=724 cf Inflow=0.87 cfs 0.091 af
Outflow=0.60 cfs 0.078 af

Pond W1: BVW Peak Elev=55.13' Storage=35 cf Inflow=1.14 cfs 0.158 af
Outflow=1.13 cfs 0.158 af

Total Runoff Area = 7.418 ac Runoff Volume = 0.229 af Average Runoff Depth = 0.37"
80.15% Pervious = 5.945 ac 19.85% Impervious = 1.473 ac

Summary for Subcatchment 1A-S: Sub-1A

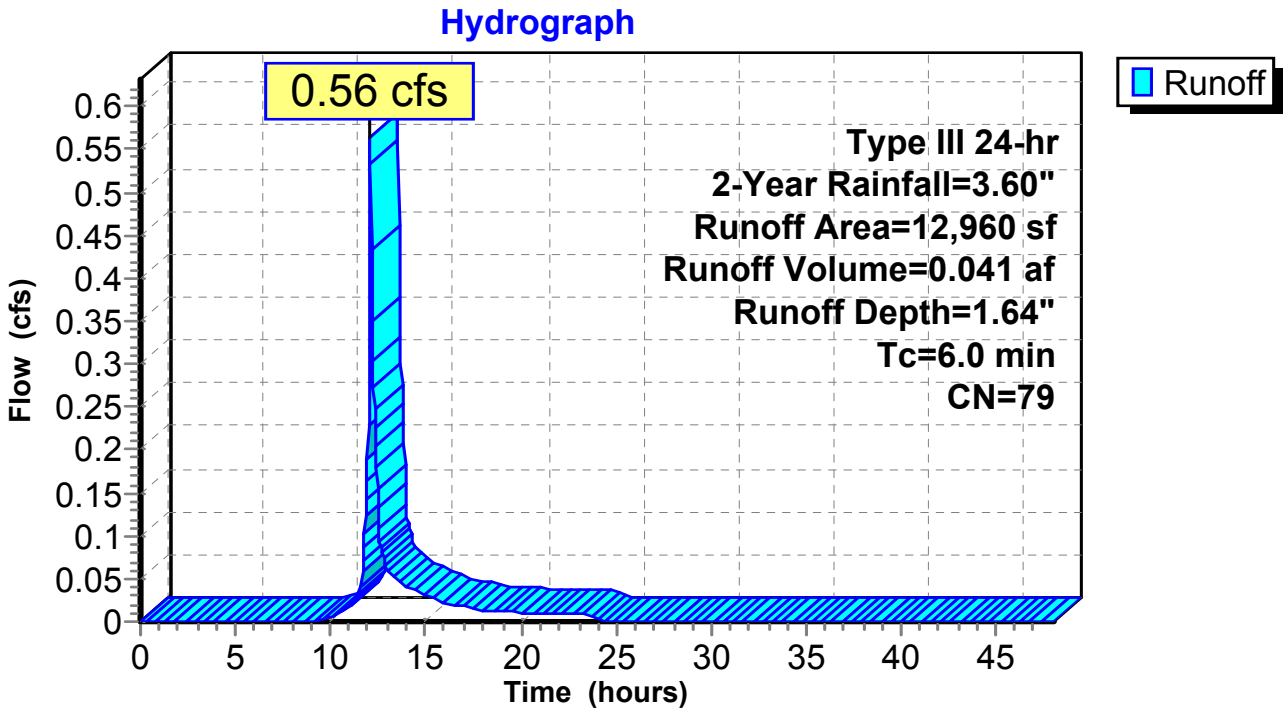
Runoff = 0.56 cfs @ 12.09 hrs, Volume= 0.041 af, Depth= 1.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
4,075	39	>75% Grass cover, Good, HSG A
8,885	98	Paved roads w/curbs & sewers, HSG A
12,960	79	Weighted Average
4,075		31.44% Pervious Area
8,885		68.56% Impervious Area

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

Subcatchment 1A-S: Sub-1A



Summary for Subcatchment 1B-S: Sub-1B

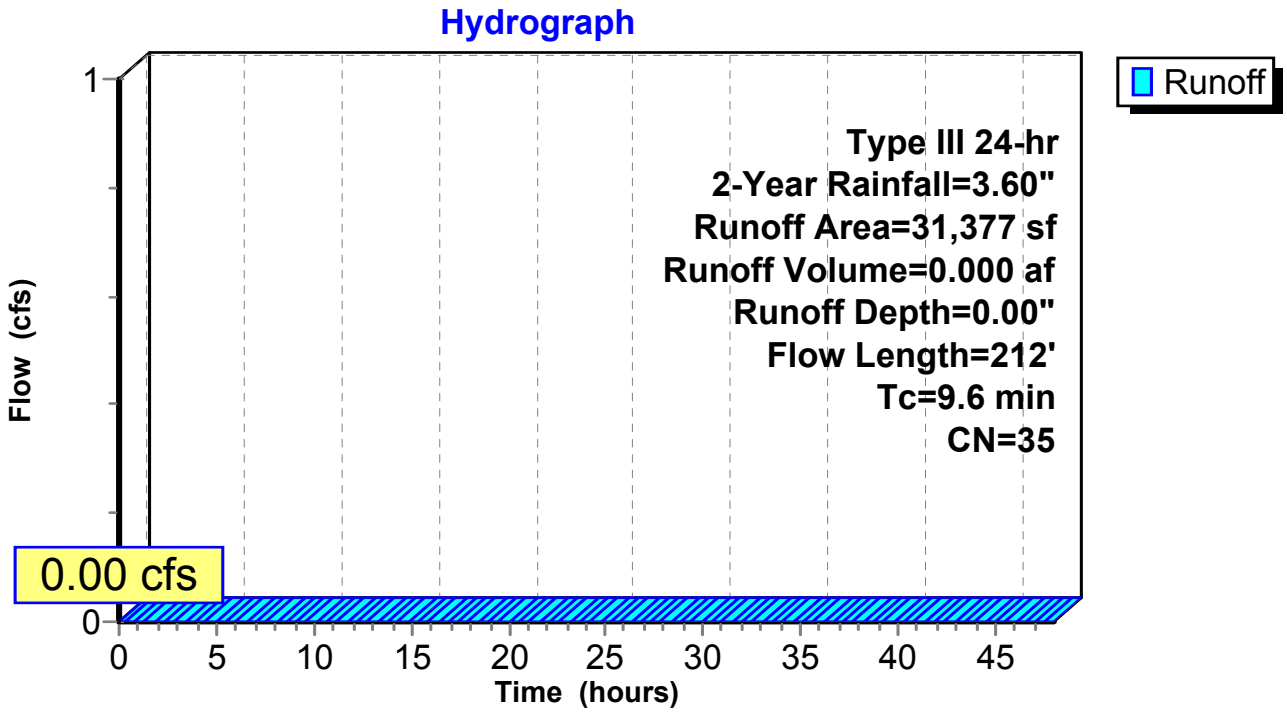
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
22,072	30	Woods, Good, HSG A
1,755	39	>75% Grass cover, Good, HSG A
7,550	49	50-75% Grass cover, Fair, HSG A
31,377	35	Weighted Average
31,377		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0500	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.60"
1.5	162	0.0120	1.76		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
9.6	212	Total			

Subcatchment 1B-S: Sub-1B



Summary for Subcatchment 1C-S: Sub-1C

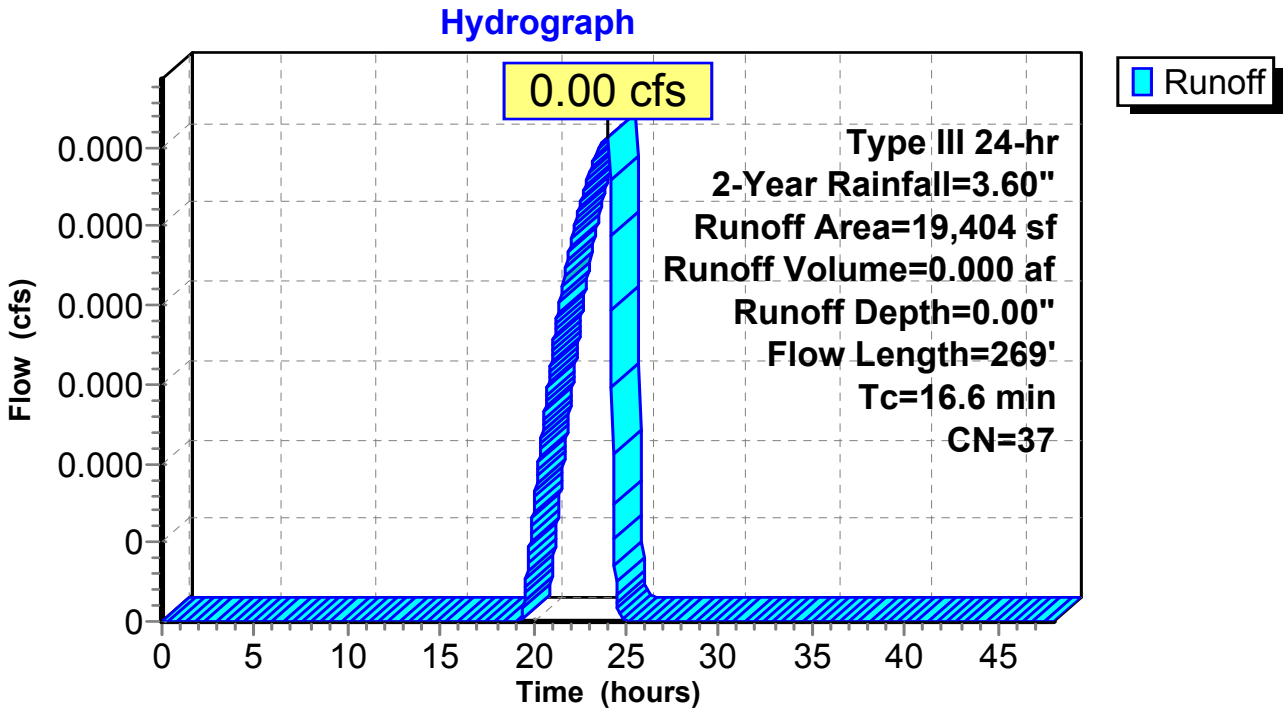
Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
	12,129	30	Woods, Good, HSG A
	1,513	39	>75% Grass cover, Good, HSG A
	3,840	55	Woods, Good, HSG B
*	899	30	Woods, Good, HSG A - offsite
	1,023	49	50-75% Grass cover, Fair, HSG A
	19,404	37	Weighted Average
	19,404		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	50	0.0120	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.60"
2.3	219	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
16.6	269	Total			

Subcatchment 1C-S: Sub-1C



Summary for Subcatchment 1D-S: Sub-1D

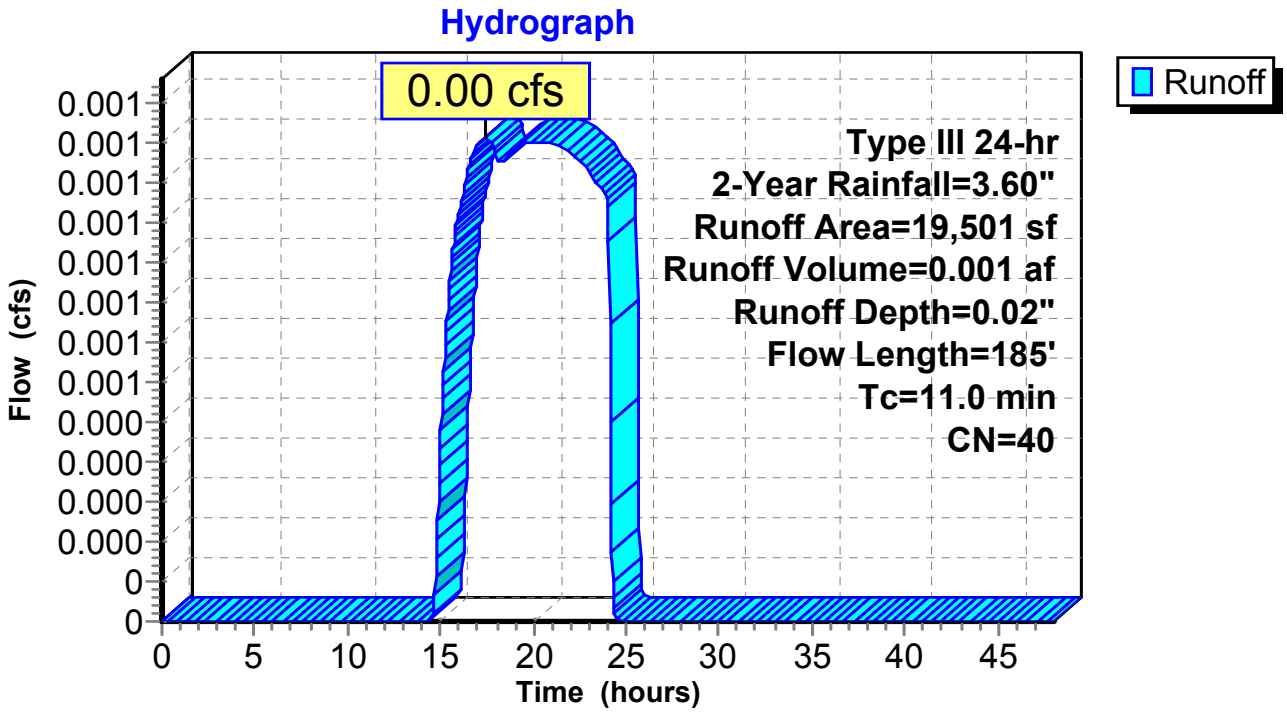
Runoff = 0.00 cfs @ 17.35 hrs, Volume= 0.001 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
	10,890	39	>75% Grass cover, Good, HSG A
	2,684	49	50-75% Grass cover, Fair, HSG A
*	770	98	Rubble Pile, HSG A
	5,157	30	Woods, Good, HSG A
	19,501	40	Weighted Average
	18,731		96.05% Pervious Area
	770		3.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	50	0.0300	0.08		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.60"
1.1	135	0.0160	2.04		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.0	185	Total			

Subcatchment 1D-S: Sub-1D



Summary for Subcatchment 2S: Sub-2

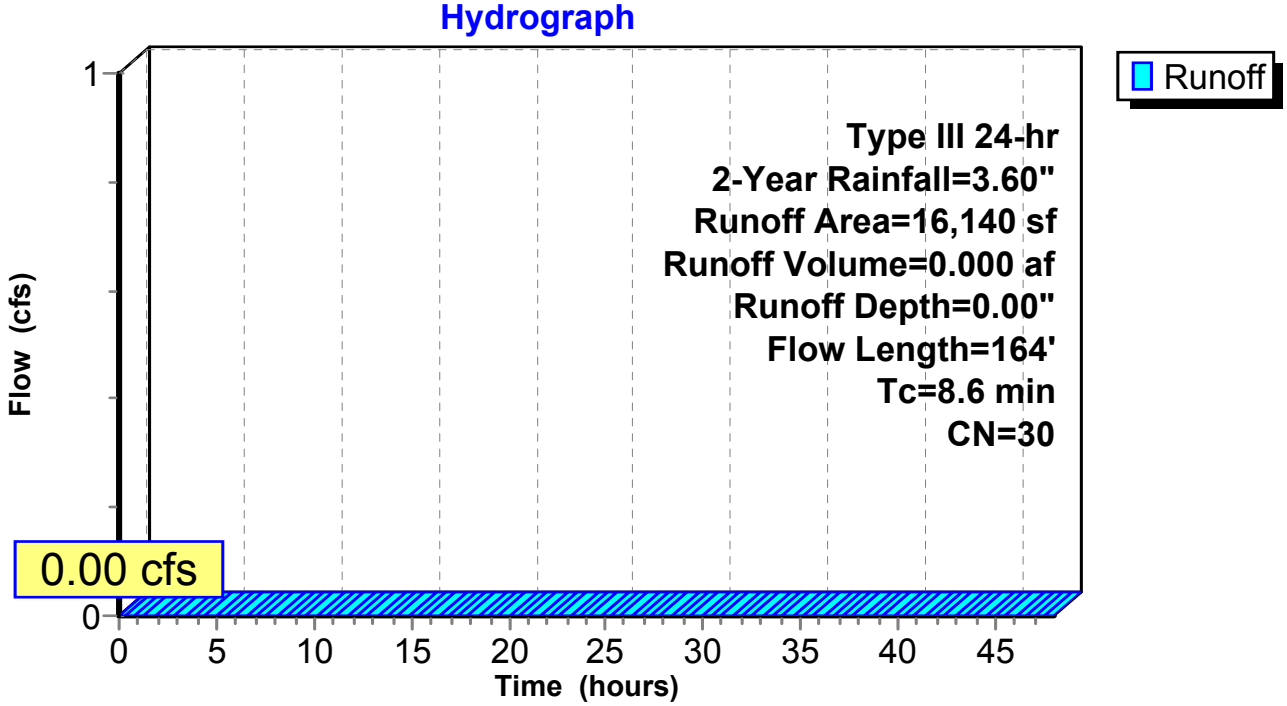
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
16,140	30	Woods, Good, HSG A
16,140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.0800	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.60"
1.9	114	0.0383	0.98		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
8.6	164	Total			

Subcatchment 2S: Sub-2



Summary for Subcatchment 3A-S: Sub-3A

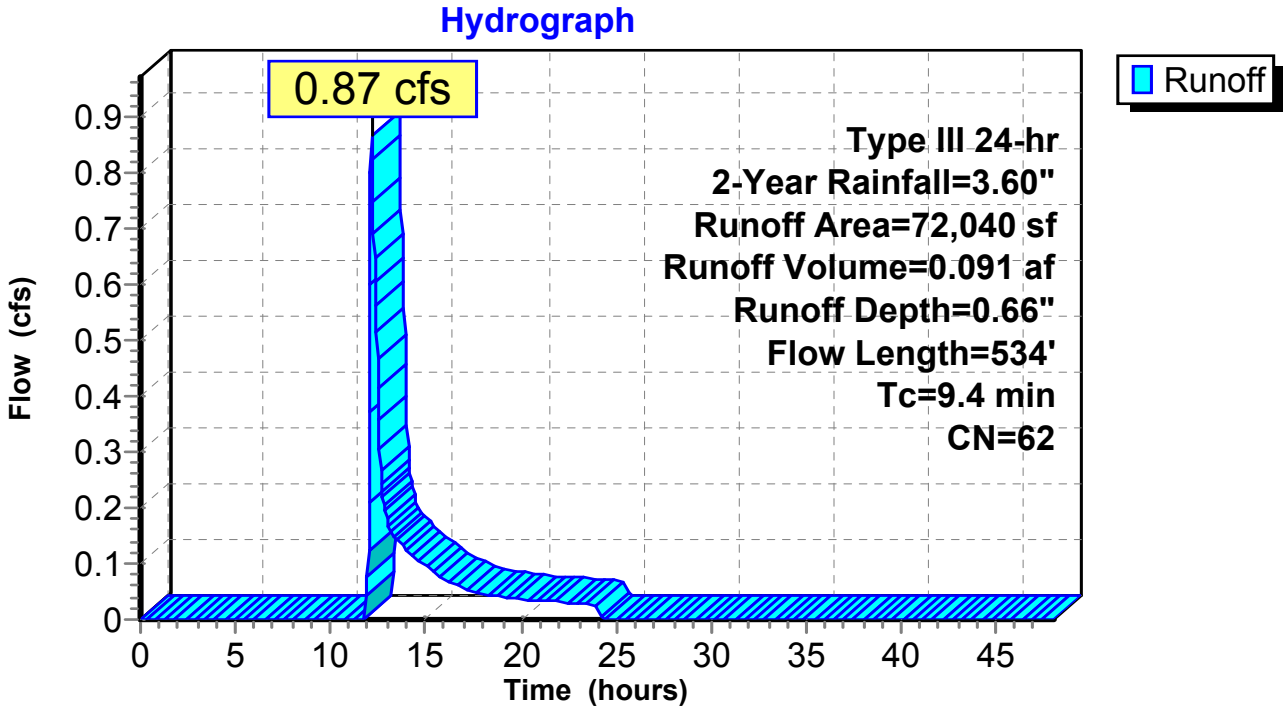
Runoff = 0.87 cfs @ 12.16 hrs, Volume= 0.091 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
*	1,384	98	Roofs, HSG A - offsite
*	16,069	98	Paved parking, HSG A - offsite
*	1,682	30	Woods, Good, HSG A - offsite
*	914	39	>75% Grass cover, Good, HSG A - offsite
	24,471	30	Woods, Good, HSG A
	6,905	39	>75% Grass cover, Good, HSG A
	2,407	98	Paved roads w/curbs & sewers, HSG A
*	2,712	98	Existing Detention Basin, HSG A
*	810	98	Riprap, HSG A
	3,247	98	Paved roads w/curbs & sewers, HSG B
	2,784	55	Woods, Good, HSG B
*	938	98	Riprap, HSG B
	6,442	61	>75% Grass cover, Good, HSG B
*	1,275	98	Existing Detention Basin, HSG B
	72,040	62	Weighted Average
	43,198		59.96% Pervious Area
	28,842		40.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.0160	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
1.8	225	0.0160	2.04		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	102	0.0090	1.93		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	157	0.0030	2.88	3.54	**Pipe Channel, RCP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
9.4	534	Total			

Subcatchment 3A-S: Sub-3A



Summary for Subcatchment 3B-S: Sub-3B

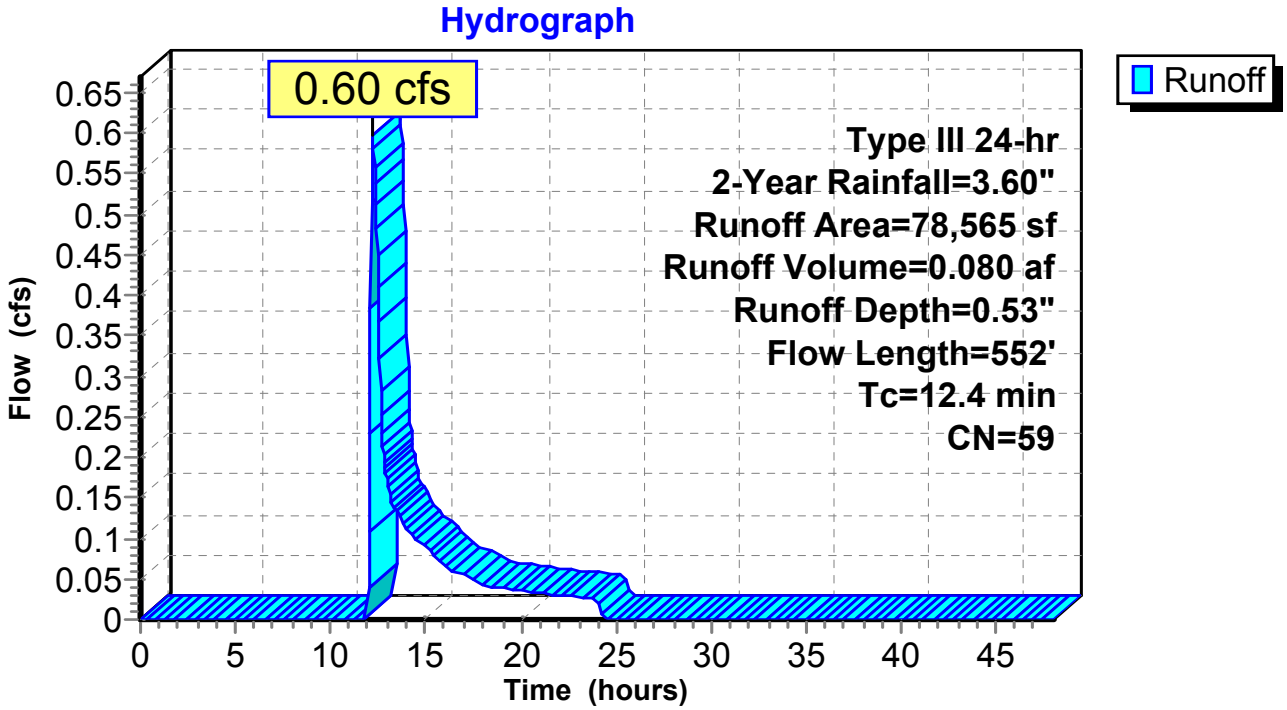
Runoff = 0.60 cfs @ 12.24 hrs, Volume= 0.080 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
*	285	98	Riprap, HSG A
*	121	98	Riprap, HSG B
	9,681	30	Woods, Good, HSG A
	30,788	55	Woods, Good, HSG B
	1,762	39	>75% Grass cover, Good, HSG A
	8,282	61	>75% Grass cover, Good, HSG B
*	15,816	98	Wetlands, HSG B
*	4,310	30	Woods, Good, HSG A - offsite
*	418	98	Wetlands, HSG B - offsite
*	4,121	39	>75% Grass cover, Good, HSG A - offsite
*	290	98	Paved drive, HSG A - offsite
*	957	61	>75% Grass cover, Good, HSG B - offsite
*	1,734	55	Woods, Good, HSG B - offsite
	78,565	59	Weighted Average
	61,635		78.45% Pervious Area
	16,930		21.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	50	0.0700	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.60"
1.5	294	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.9	208	0.0030	0.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
12.4	552	Total			

Subcatchment 3B-S: Sub-3B



Summary for Subcatchment 4S: Sub-4

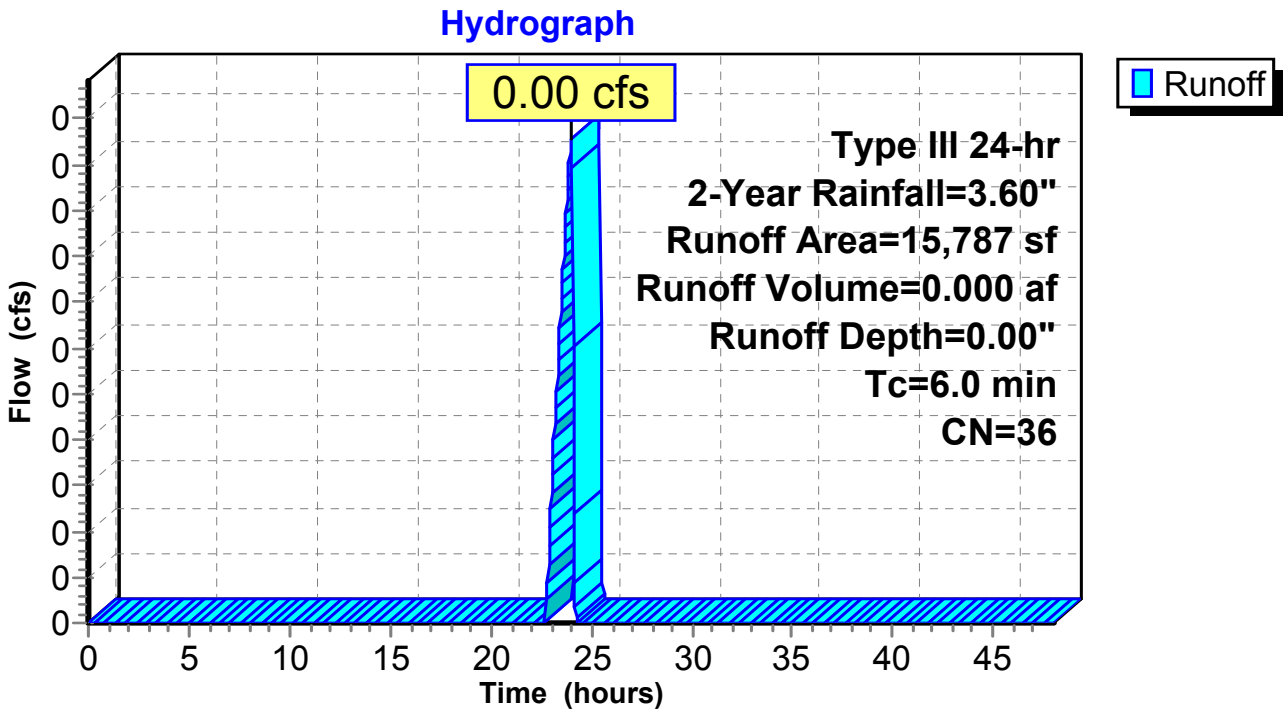
Runoff = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
15,787	36	Woods, Fair, HSG A
15,787		100.00% Pervious Area

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

Subcatchment 4S: Sub-4



Summary for Subcatchment 5S: Sub-5

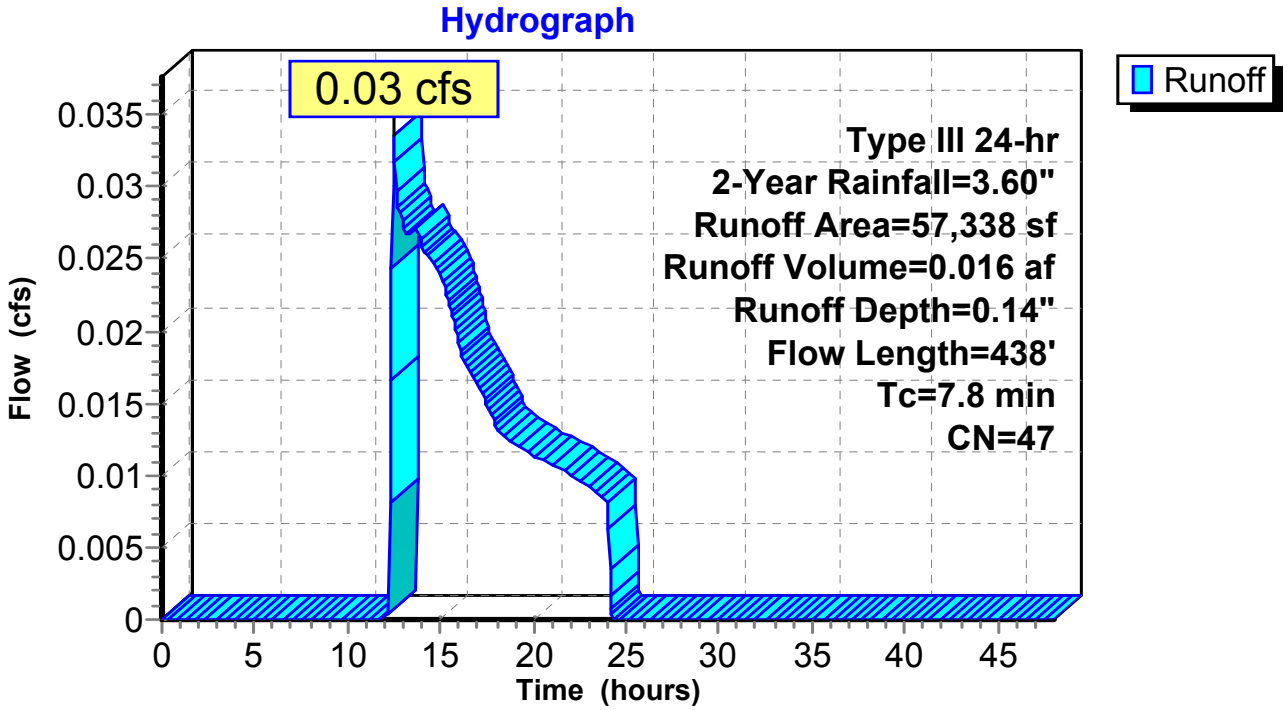
Runoff = 0.03 cfs @ 12.51 hrs, Volume= 0.016 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
	32,676	36	Woods, Fair, HSG A
	15,551	39	>75% Grass cover, Good, HSG A
	395	80	>75% Grass cover, Good, HSG D
*	293	98	Paved drive, HSG D
	2,148	98	Roofs, HSG A
*	5,322	98	Paved drive, HSG A
*	533	98	Patio, HSG A
*	235	98	Misc, HSG A
*	185	98	Ledge, HSG A
	57,338	47	Weighted Average
	48,622		84.80% Pervious Area
	8,716		15.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	39	0.1538	0.15		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.60"
1.8	11	0.1100	0.10		**Sheet Flow, B-C**
					Woods: Light underbrush n= 0.400 P2= 3.60"
0.1	22	0.1166	5.50		**Shallow Concentrated Flow, C-D**
					Unpaved Kv= 16.1 fps
0.2	54	0.0500	3.60		**Shallow Concentrated Flow, D-E**
					Unpaved Kv= 16.1 fps
0.2	52	0.0770	4.47		**Shallow Concentrated Flow, E-F**
					Unpaved Kv= 16.1 fps
1.0	175	0.0300	2.79		**Shallow Concentrated Flow, F-G**
					Unpaved Kv= 16.1 fps
0.3	85	0.1100	5.34		**Shallow Concentrated Flow, G-H**
					Unpaved Kv= 16.1 fps
7.8	438	Total			

Subcatchment 5S: Sub-5

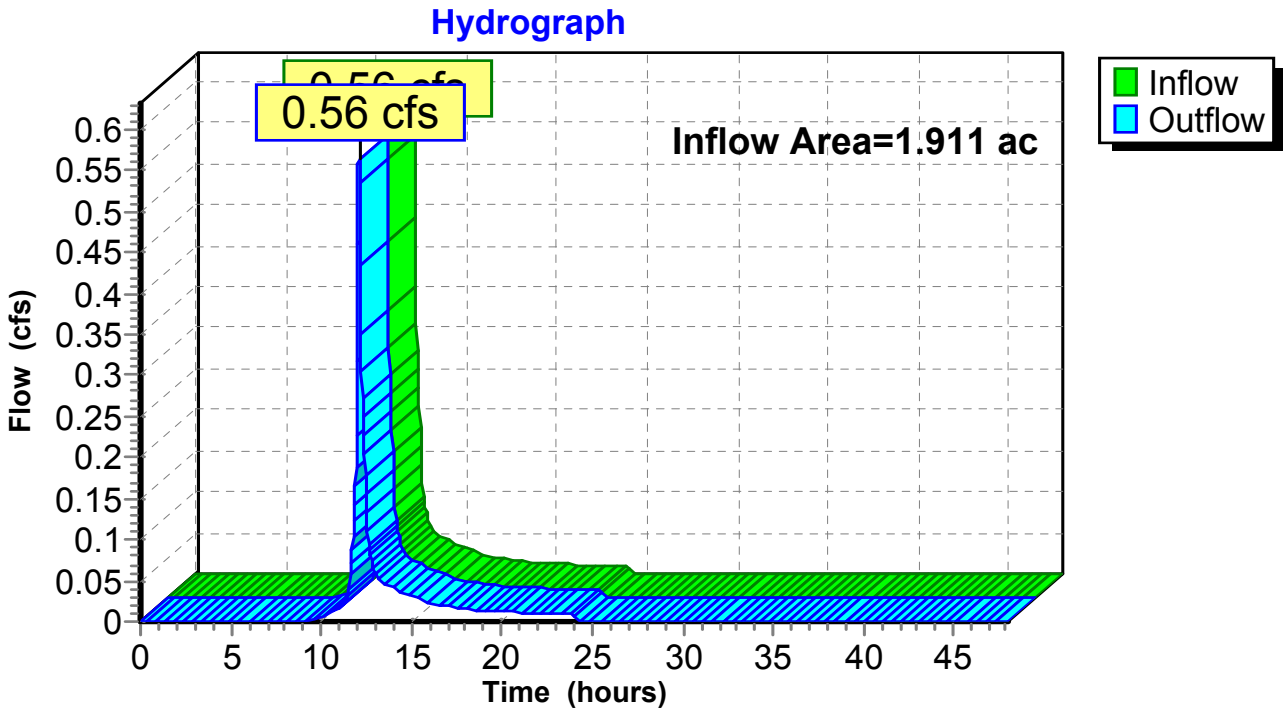


Summary for Reach DP-1: DP-1

Inflow Area = 1.911 ac, 11.60% Impervious, Inflow Depth = 0.26" for 2-Year event
Inflow = 0.56 cfs @ 12.09 hrs, Volume= 0.042 af
Outflow = 0.56 cfs @ 12.09 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-1: DP-1

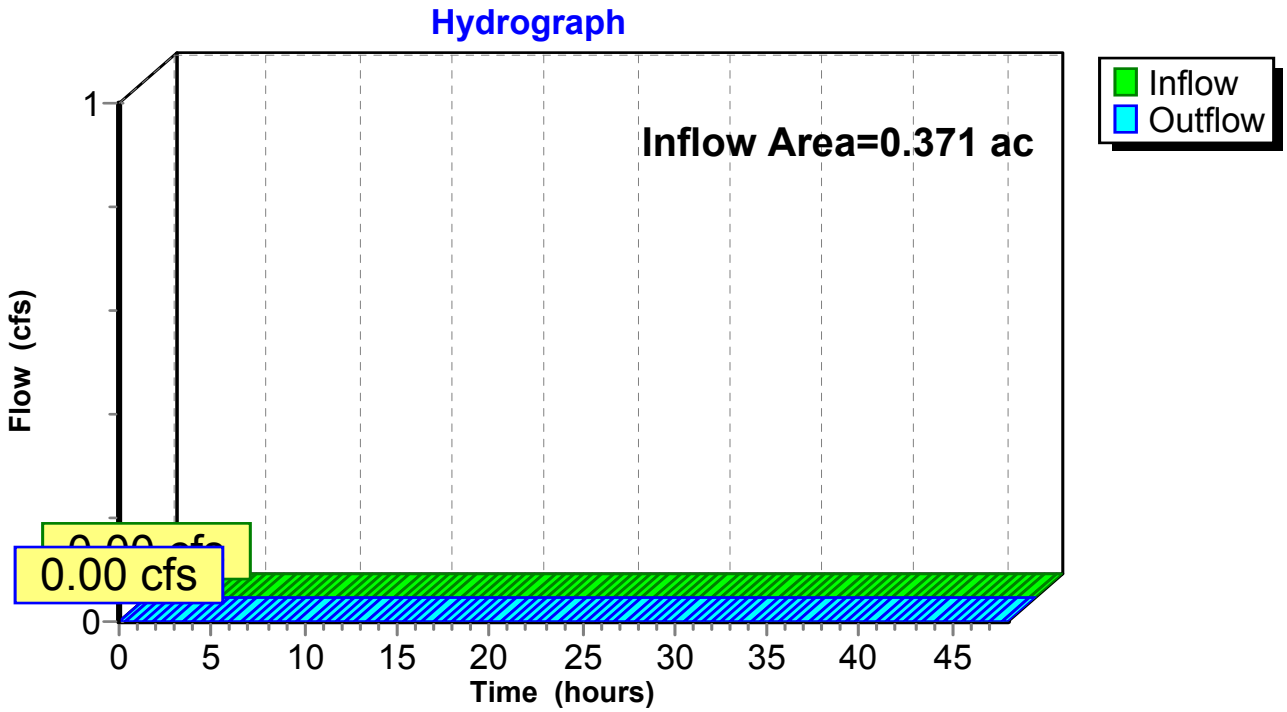


Summary for Reach DP-2: DP-2

Inflow Area = 0.371 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-2: DP-2

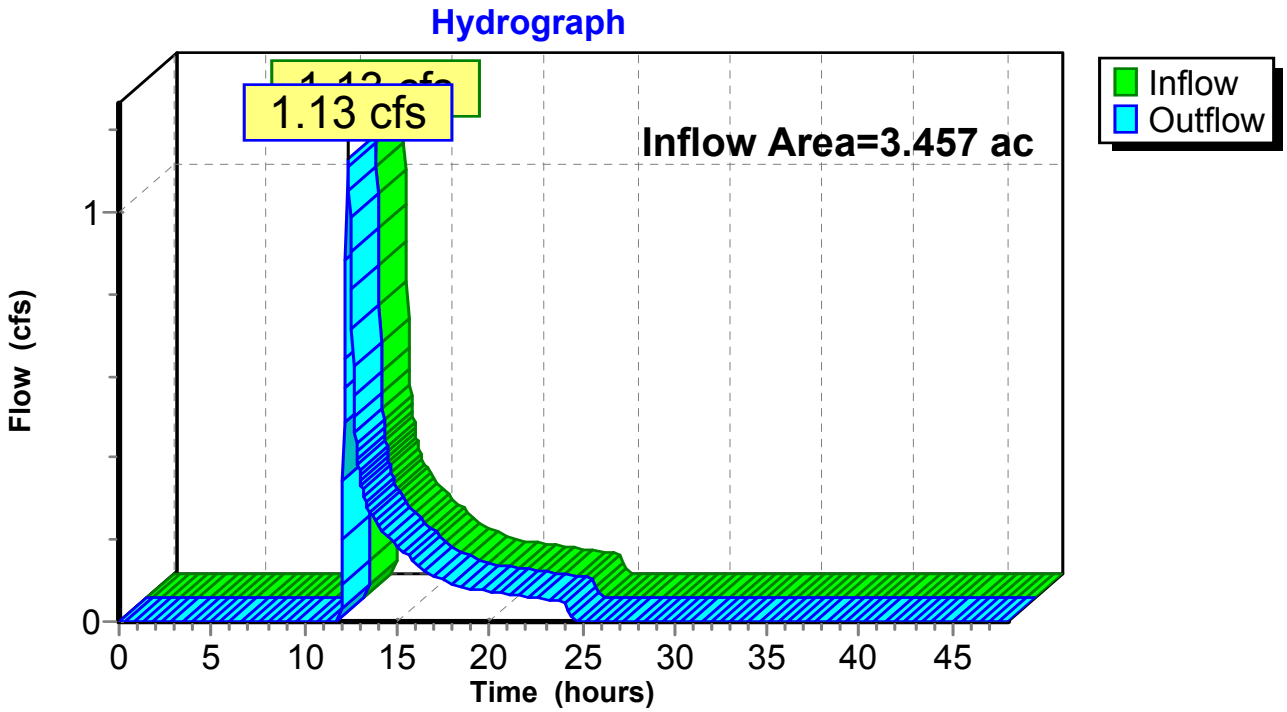


Summary for Reach DP-3: DP-3

Inflow Area = 3.457 ac, 30.39% Impervious, Inflow Depth = 0.55" for 2-Year event
Inflow = 1.13 cfs @ 12.36 hrs, Volume= 0.158 af
Outflow = 1.13 cfs @ 12.36 hrs, Volume= 0.158 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-3: DP-3

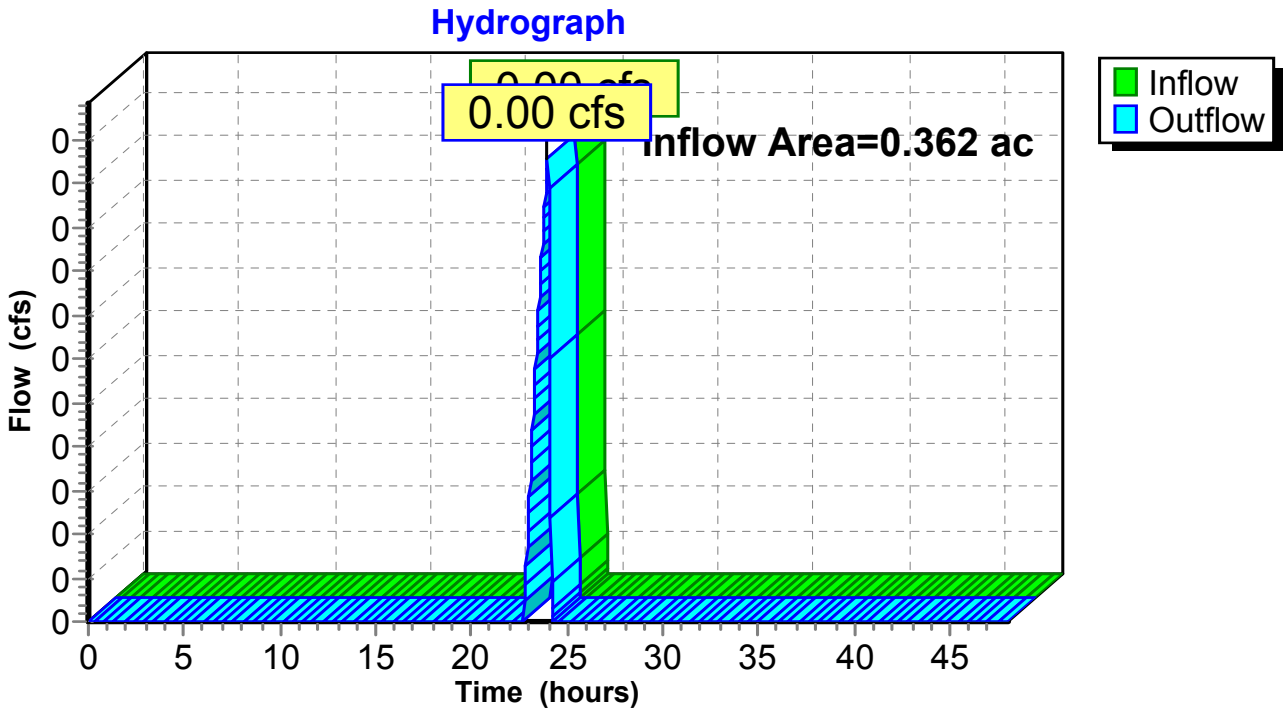


Summary for Reach DP-4: PL

Inflow Area = 0.362 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-4: PL

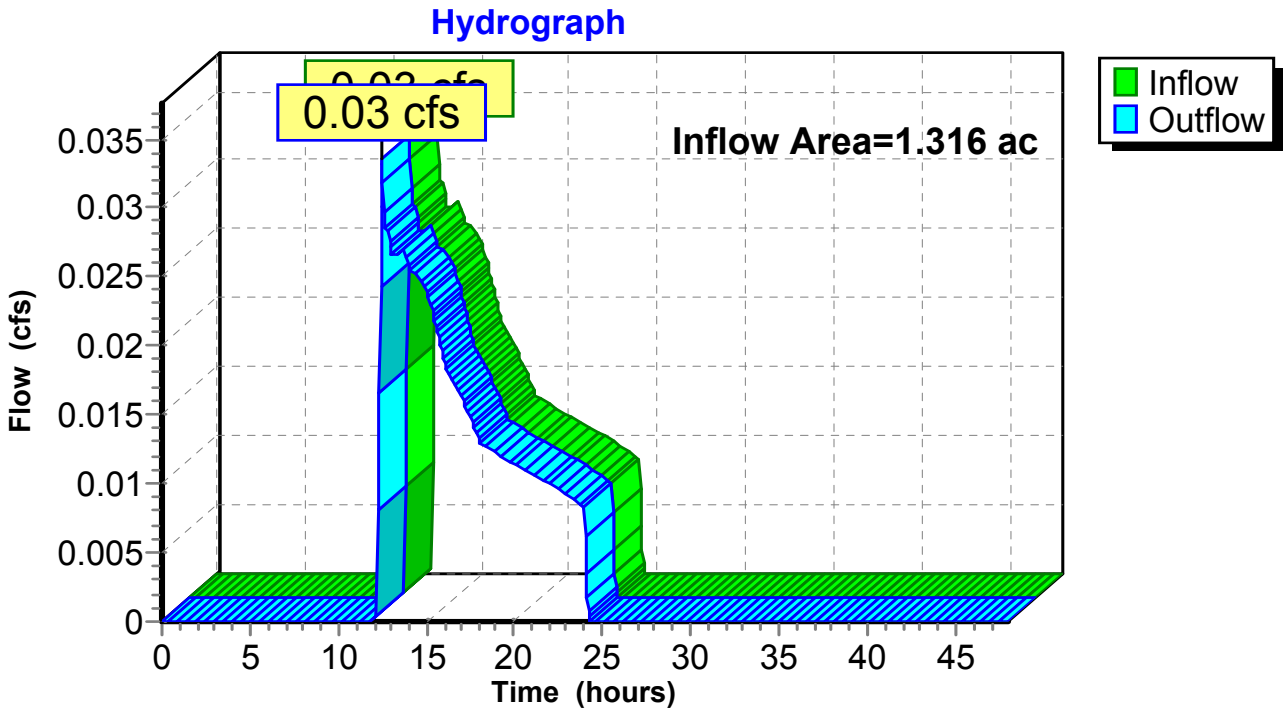


Summary for Reach DP-5: PL

Inflow Area = 1.316 ac, 15.20% Impervious, Inflow Depth = 0.14" for 2-Year event
Inflow = 0.03 cfs @ 12.51 hrs, Volume= 0.016 af
Outflow = 0.03 cfs @ 12.51 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-5: PL



Summary for Pond D-1: Exist Detention Basin

Inflow Area =	0.720 ac,	0.00% Impervious,	Inflow Depth =	0.00"	for 2-Year event
Inflow =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	
Outflow =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af,	Atten= 0%, 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	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 62.00' @ 0.00 hrs Surf.Area= 4,336 sf Storage= 0 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	62.00'	5,584 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

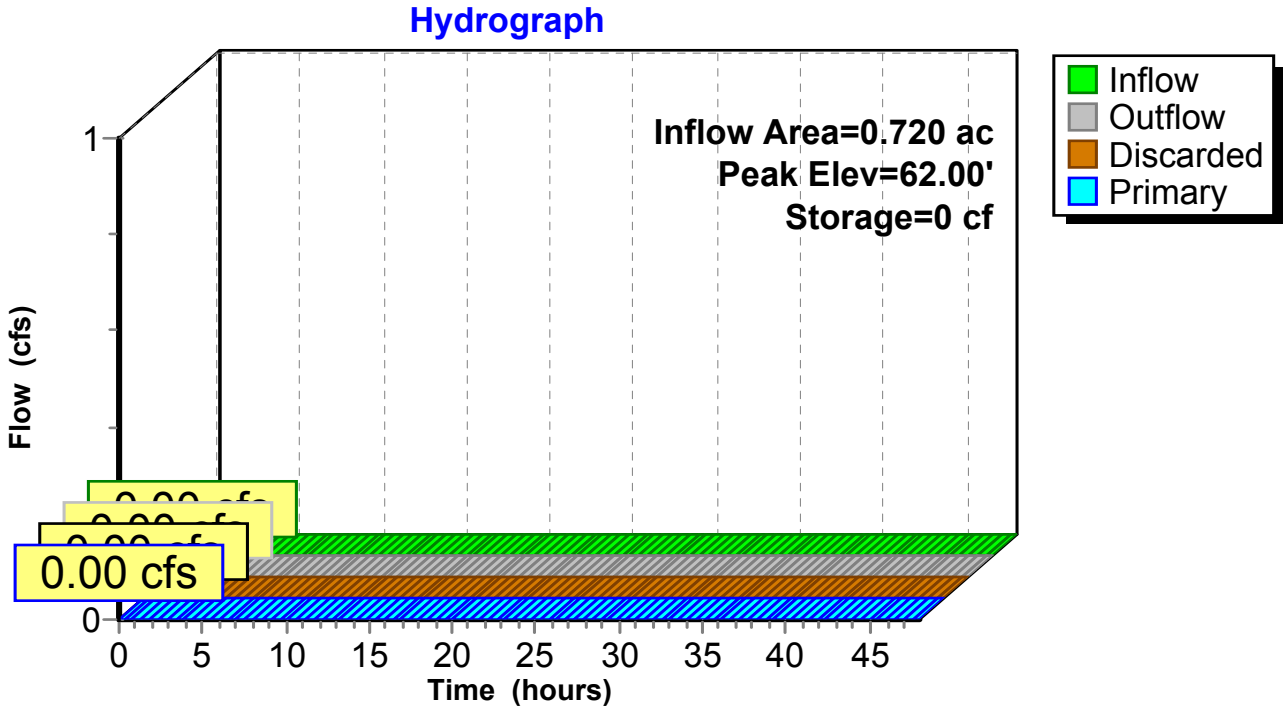
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
62.00	4,336	0	0
63.00	6,832	5,584	5,584

Device	Routing	Invert	Outlet Devices
#1	Primary	63.00'	**10.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	62.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=62.00' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=62.00' TW=0.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond D-1: Exist Detention Basin



Summary for Pond E-DB: Exist Detention Basin

Inflow Area = 1.654 ac, 40.04% Impervious, Inflow Depth = 0.66" for 2-Year event
Inflow = 0.87 cfs @ 12.16 hrs, Volume= 0.091 af
Outflow = 0.60 cfs @ 12.37 hrs, Volume= 0.078 af, Atten= 31%, Lag= 12.6 min
Primary = 0.60 cfs @ 12.37 hrs, Volume= 0.078 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 58.82' @ 12.37 hrs Surf.Area= 1,320 sf Storage= 724 cf

Plug-Flow detention time= 102.7 min calculated for 0.078 af (85% of inflow)
Center-of-Mass det. time= 36.6 min (936.3 - 899.7)

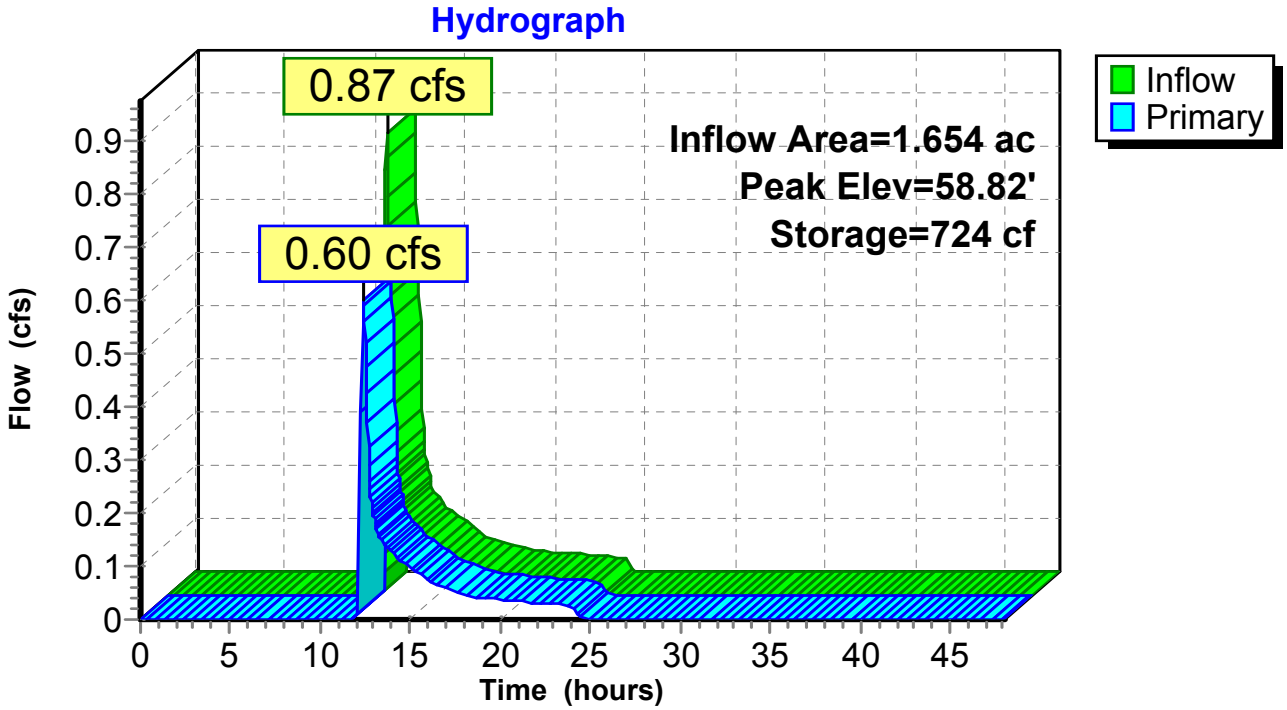
Volume	Invert	Avail.Storage	Storage Description
#1	58.00'	7,013 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.00	445	0	0
59.00	1,511	978	978
60.00	3,286	2,399	3,377
61.00	3,987	3,637	7,013

Device	Routing	Invert	Outlet Devices
#1	Primary	58.12'	**12.0" Round RCP_Round 12"** L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 58.12' / 58.05' S= 0.0028 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	58.71'	**5.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	59.41'	**2.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 2.0' Crest Height
#4	Device 1	60.66'	**7.0' long x 0.59' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 3.2' Crest Height

Primary OutFlow Max=0.59 cfs @ 12.37 hrs HW=58.82' TW=55.13' (Dynamic Tailwater)
└─**1=RCP_Round 12"** (Passes 0.59 cfs of 1.11 cfs potential flow)
  ├─**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.59 cfs @ 1.09 fps)
  ├─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond E-DB: Exist Detention Basin



Summary for Pond W1: BVW

Inflow Area = 3.457 ac, 30.39% Impervious, Inflow Depth = 0.55" for 2-Year event
Inflow = 1.14 cfs @ 12.36 hrs, Volume= 0.158 af
Outflow = 1.13 cfs @ 12.36 hrs, Volume= 0.158 af, Atten= 0%, Lag= 0.5 min
Primary = 1.13 cfs @ 12.36 hrs, Volume= 0.158 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 55.13' @ 12.36 hrs Surf.Area= 529 sf Storage= 35 cf

Plug-Flow detention time= 0.5 min calculated for 0.158 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (926.7 - 926.2)

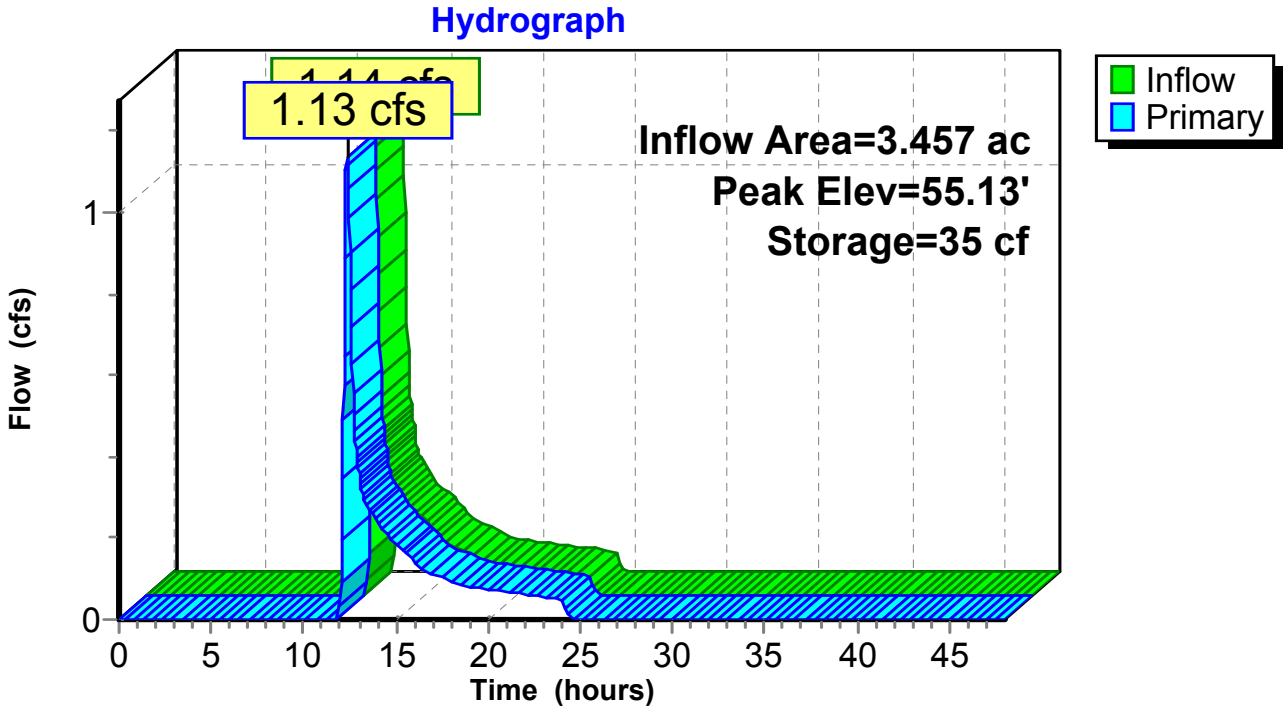
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	14,409 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
55.00	10	0	0
56.00	3,962	1,986	1,986
57.00	20,884	12,423	14,409

Device	Routing	Invert	Outlet Devices
#1	Primary	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 66.00
#2	Device 1	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 84.00

Primary OutFlow Max=1.13 cfs @ 12.36 hrs HW=55.13' TW=0.00' (Dynamic Tailwater)
└─**1=Custom Weir/Orifice** (Weir Controls 1.13 cfs @ 1.07 fps)
  └─**2=Custom Weir/Orifice** (Passes 1.13 cfs of 1.28 cfs potential flow)

Pond W1: BVW


Hydrograph
1.13 cfs
Inflow Area=3.457 ac
Peak Elev=55.13'
Storage=35 cf
Inflow
Primary
Flow (cfs)
1
0
0
5
10
15
20
25
30
35
40
45
Time (hours)

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1A-S: Sub-1A Runoff Area=12,960 sf 68.56% Impervious Runoff Depth=2.63"
Tc=6.0 min CN=79 Runoff=0.91 cfs 0.065 af

Subcatchment1B-S: Sub-1B Runoff Area=31,377 sf 0.00% Impervious Runoff Depth=0.06"
Flow Length=212' Tc=9.6 min CN=35 Runoff=0.01 cfs 0.004 af

Subcatchment1C-S: Sub-1C Runoff Area=19,404 sf 0.00% Impervious Runoff Depth=0.11"
Flow Length=269' Tc=16.6 min CN=37 Runoff=0.01 cfs 0.004 af

Subcatchment1D-S: Sub-1D Runoff Area=19,501 sf 3.95% Impervious Runoff Depth=0.19"
Flow Length=185' Tc=11.0 min CN=40 Runoff=0.01 cfs 0.007 af

Subcatchment2S: Sub-2 Runoff Area=16,140 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=164' Tc=8.6 min CN=30 Runoff=0.00 cfs 0.000 af

Subcatchment3A-S: Sub-3A Runoff Area=72,040 sf 40.04% Impervious Runoff Depth=1.32"
Flow Length=534' Tc=9.4 min CN=62 Runoff=2.04 cfs 0.181 af

Subcatchment3B-S: Sub-3B Runoff Area=78,565 sf 21.55% Impervious Runoff Depth=1.12"
Flow Length=552' Tc=12.4 min CN=59 Runoff=1.64 cfs 0.169 af

Subcatchment4S: Sub-4 Runoff Area=15,787 sf 0.00% Impervious Runoff Depth=0.08"
Tc=6.0 min CN=36 Runoff=0.00 cfs 0.002 af

Subcatchment5S: Sub-5 Runoff Area=57,338 sf 15.20% Impervious Runoff Depth=0.47"
Flow Length=438' Tc=7.8 min CN=47 Runoff=0.29 cfs 0.051 af

Reach DP-1: DP-1 Inflow=0.91 cfs 0.076 af
Outflow=0.91 cfs 0.076 af

Reach DP-2: DP-2 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-3: DP-3 Inflow=3.25 cfs 0.337 af
Outflow=3.25 cfs 0.337 af

Reach DP-4: PL Inflow=0.00 cfs 0.002 af
Outflow=0.00 cfs 0.002 af

Reach DP-5: PL Inflow=0.29 cfs 0.051 af
Outflow=0.29 cfs 0.051 af

Pond D-1: Exist Detention Basin Peak Elev=62.00' Storage=0 cf Inflow=0.01 cfs 0.004 af
Discarded=0.01 cfs 0.004 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.004 af

Pond E-DB: Exist Detention Basin Peak Elev=59.01' Storage=991 cf Inflow=2.04 cfs 0.181 af
Outflow=1.65 cfs 0.168 af

Pond W1: BVW Peak Elev=55.22' Storage=100 cf Inflow=3.27 cfs 0.337 af
Outflow=3.25 cfs 0.337 af

Total Runoff Area = 7.418 ac Runoff Volume = 0.484 af Average Runoff Depth = 0.78"
80.15% Pervious = 5.945 ac 19.85% Impervious = 1.473 ac

Summary for Subcatchment 1A-S: Sub-1A

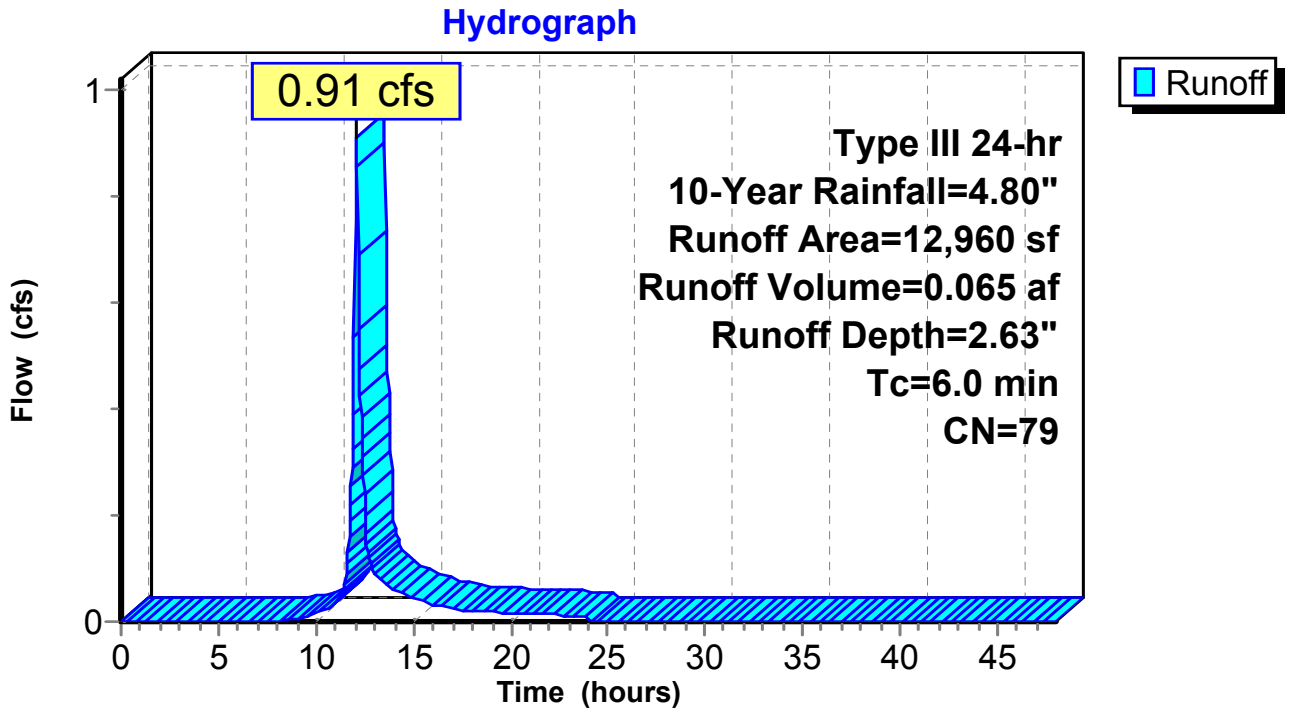
Runoff = 0.91 cfs @ 12.09 hrs, Volume= 0.065 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
4,075	39	>75% Grass cover, Good, HSG A
8,885	98	Paved roads w/curbs & sewers, HSG A
12,960	79	Weighted Average
4,075		31.44% Pervious Area
8,885		68.56% Impervious Area

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

Subcatchment 1A-S: Sub-1A



Summary for Subcatchment 1B-S: Sub-1B

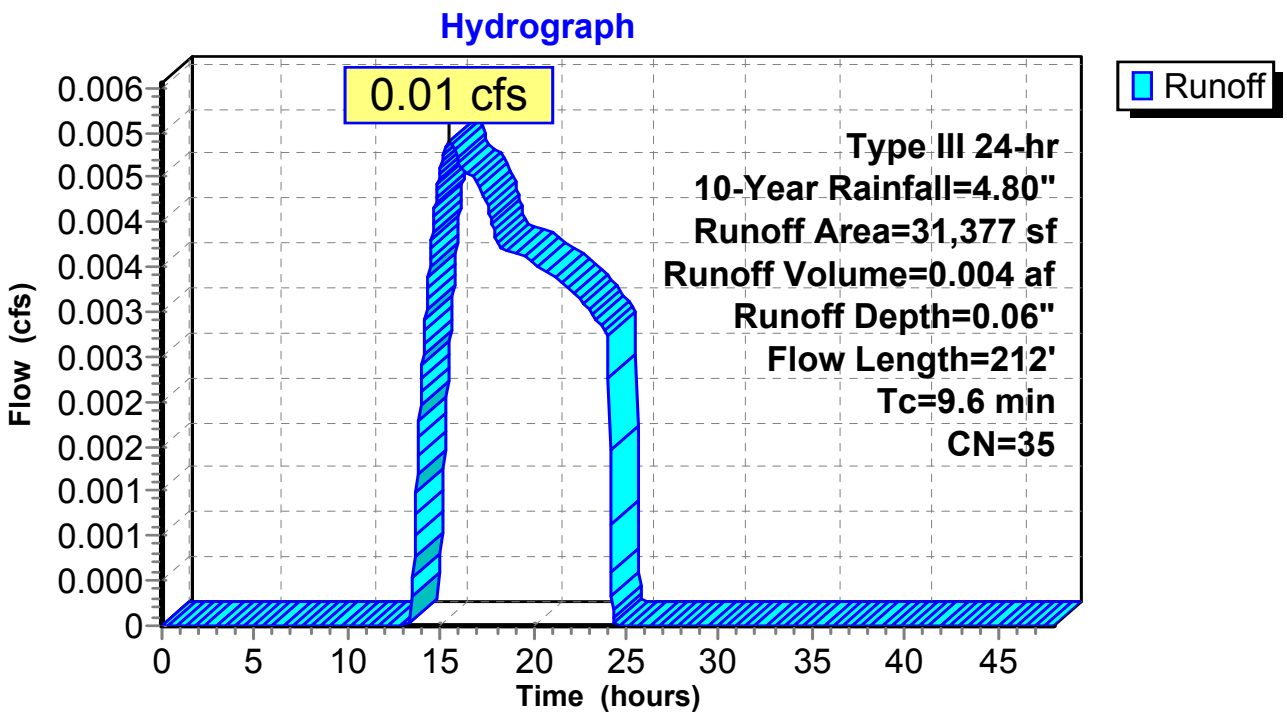
Runoff = 0.01 cfs @ 15.51 hrs, Volume= 0.004 af, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
22,072	30	Woods, Good, HSG A
1,755	39	>75% Grass cover, Good, HSG A
7,550	49	50-75% Grass cover, Fair, HSG A
31,377	35	Weighted Average
31,377		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0500	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.60"
1.5	162	0.0120	1.76		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
9.6	212	Total			

Subcatchment 1B-S: Sub-1B



Summary for Subcatchment 1C-S: Sub-1C

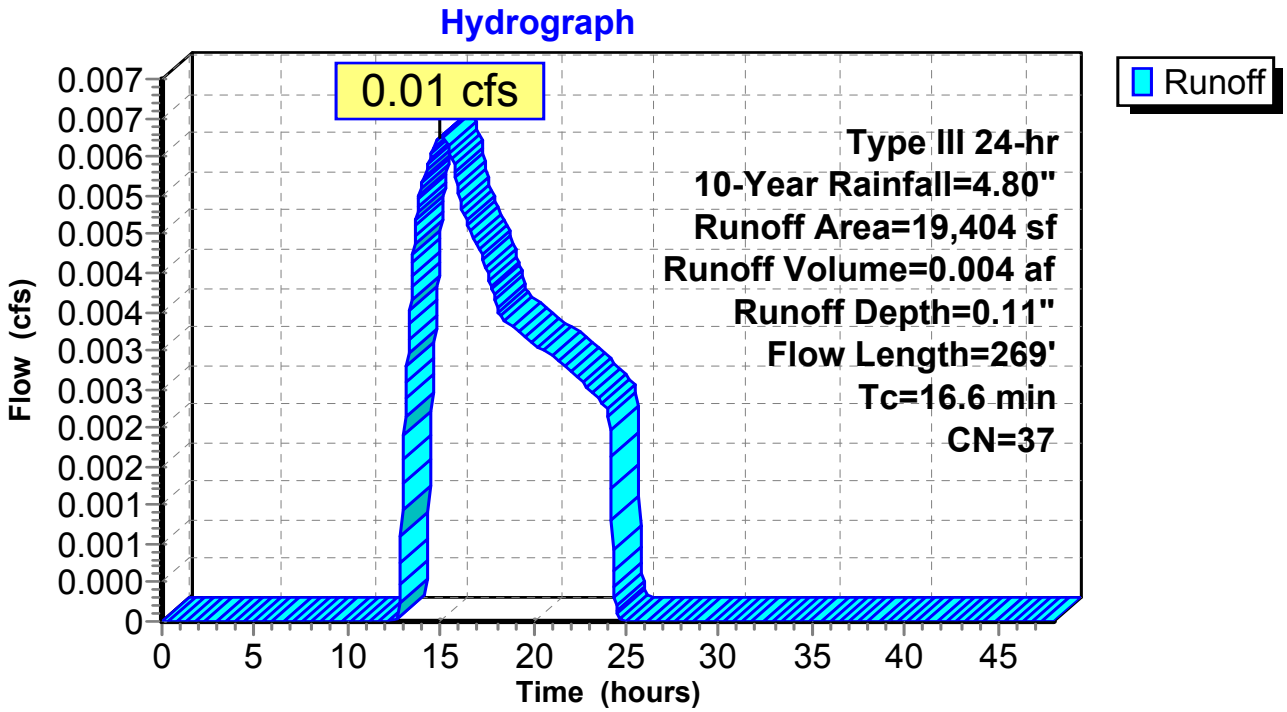
Runoff = 0.01 cfs @ 15.00 hrs, Volume= 0.004 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
	12,129	30	Woods, Good, HSG A
	1,513	39	>75% Grass cover, Good, HSG A
	3,840	55	Woods, Good, HSG B
*	899	30	Woods, Good, HSG A - offsite
	1,023	49	50-75% Grass cover, Fair, HSG A
	19,404	37	Weighted Average
	19,404		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	50	0.0120	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.60"
2.3	219	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
16.6	269	Total			

Subcatchment 1C-S: Sub-1C



Summary for Subcatchment 1D-S: Sub-1D

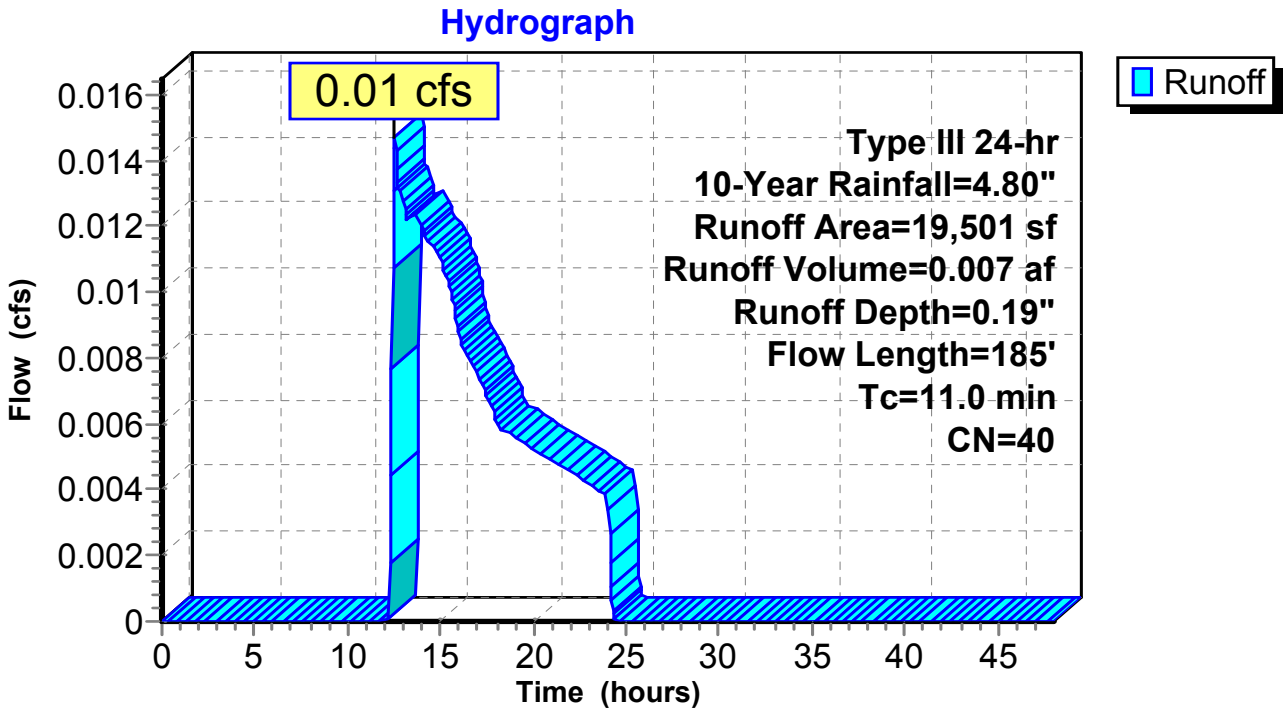
Runoff = 0.01 cfs @ 12.56 hrs, Volume= 0.007 af, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
	10,890	39	>75% Grass cover, Good, HSG A
	2,684	49	50-75% Grass cover, Fair, HSG A
*	770	98	Rubble Pile, HSG A
	5,157	30	Woods, Good, HSG A
	19,501	40	Weighted Average
	18,731		96.05% Pervious Area
	770		3.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	50	0.0300	0.08		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.60"
1.1	135	0.0160	2.04		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.0	185	Total			

Subcatchment 1D-S: Sub-1D



Summary for Subcatchment 2S: Sub-2

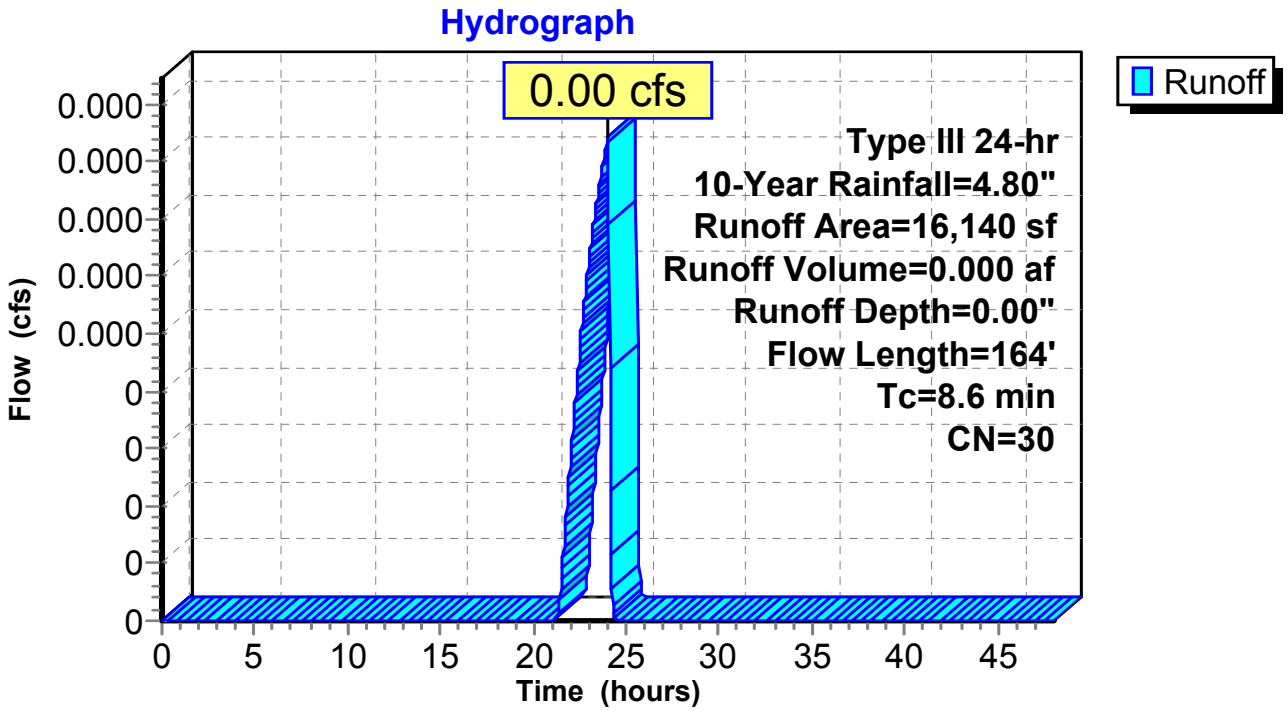
Runoff = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
16,140	30	Woods, Good, HSG A
16,140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.0800	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.60"
1.9	114	0.0383	0.98		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
8.6	164	Total			

Subcatchment 2S: Sub-2



Summary for Subcatchment 3A-S: Sub-3A

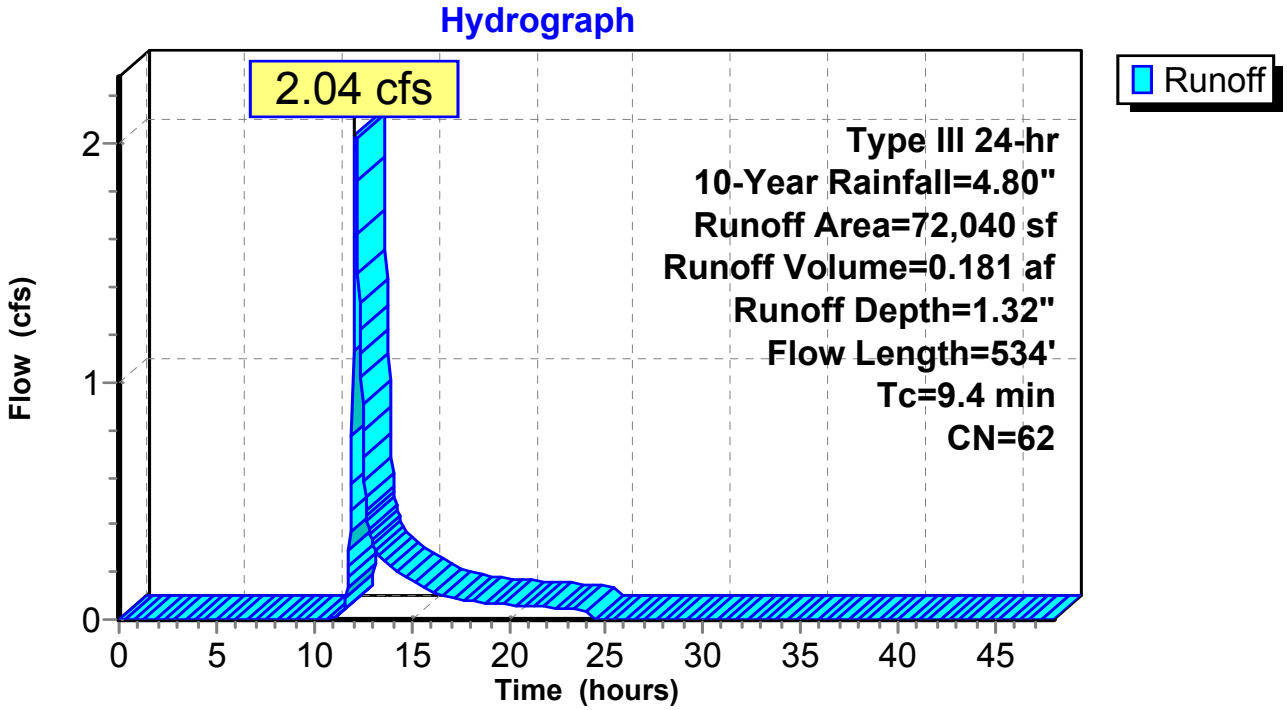
Runoff = 2.04 cfs @ 12.15 hrs, Volume= 0.181 af, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
*	1,384	98	Roofs, HSG A - offsite
*	16,069	98	Paved parking, HSG A - offsite
*	1,682	30	Woods, Good, HSG A - offsite
*	914	39	>75% Grass cover, Good, HSG A - offsite
	24,471	30	Woods, Good, HSG A
	6,905	39	>75% Grass cover, Good, HSG A
	2,407	98	Paved roads w/curbs & sewers, HSG A
*	2,712	98	Existing Detention Basin, HSG A
*	810	98	Riprap, HSG A
	3,247	98	Paved roads w/curbs & sewers, HSG B
	2,784	55	Woods, Good, HSG B
*	938	98	Riprap, HSG B
	6,442	61	>75% Grass cover, Good, HSG B
*	1,275	98	Existing Detention Basin, HSG B
	72,040	62	Weighted Average
	43,198		59.96% Pervious Area
	28,842		40.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.0160	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
1.8	225	0.0160	2.04		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	102	0.0090	1.93		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	157	0.0030	2.88	3.54	**Pipe Channel, RCP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
9.4	534	Total			

Subcatchment 3A-S: Sub-3A



Summary for Subcatchment 3B-S: Sub-3B

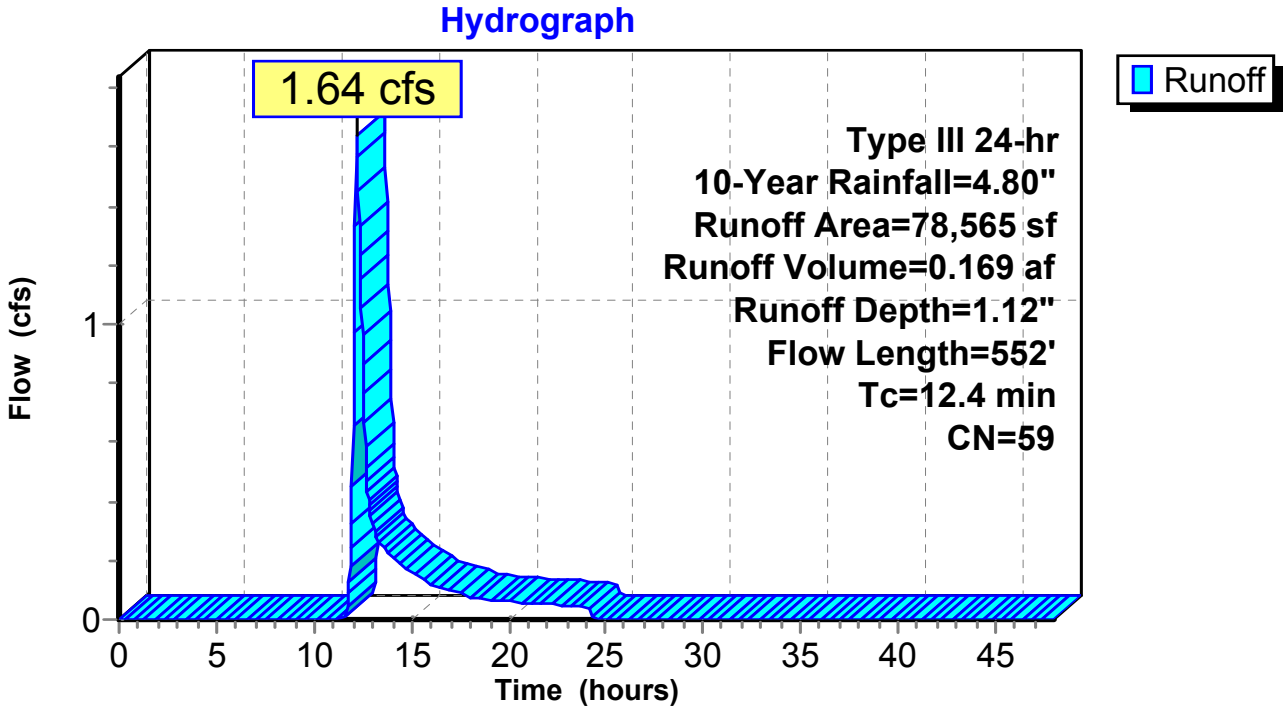
Runoff = 1.64 cfs @ 12.20 hrs, Volume= 0.169 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
*	285	98	Riprap, HSG A
*	121	98	Riprap, HSG B
	9,681	30	Woods, Good, HSG A
	30,788	55	Woods, Good, HSG B
	1,762	39	>75% Grass cover, Good, HSG A
	8,282	61	>75% Grass cover, Good, HSG B
*	15,816	98	Wetlands, HSG B
*	4,310	30	Woods, Good, HSG A - offsite
*	418	98	Wetlands, HSG B - offsite
*	4,121	39	>75% Grass cover, Good, HSG A - offsite
*	290	98	Paved drive, HSG A - offsite
*	957	61	>75% Grass cover, Good, HSG B - offsite
*	1,734	55	Woods, Good, HSG B - offsite
	78,565	59	Weighted Average
	61,635		78.45% Pervious Area
	16,930		21.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	50	0.0700	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.60"
1.5	294	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.9	208	0.0030	0.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
12.4	552	Total			

Subcatchment 3B-S: Sub-3B



Summary for Subcatchment 4S: Sub-4

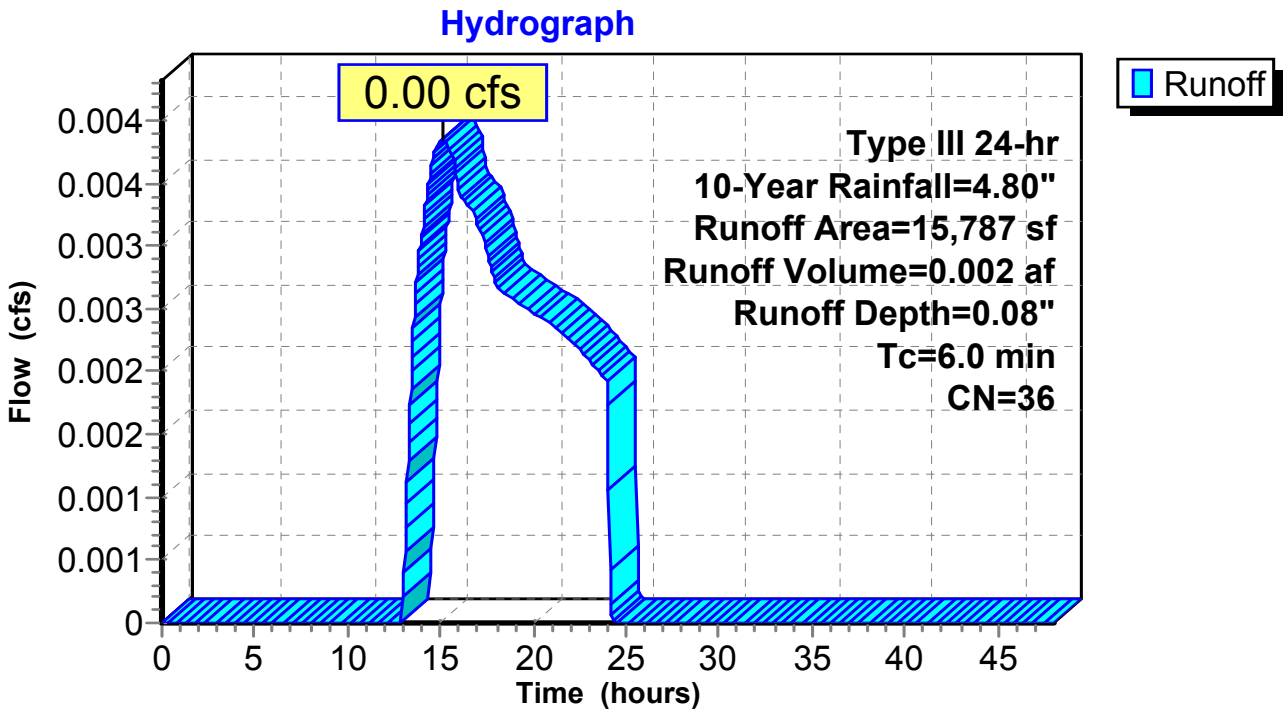
Runoff = 0.00 cfs @ 15.12 hrs, Volume= 0.002 af, Depth= 0.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
15,787	36	Woods, Fair, HSG A
15,787		100.00% Pervious Area

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

Subcatchment 4S: Sub-4



Summary for Subcatchment 5S: Sub-5

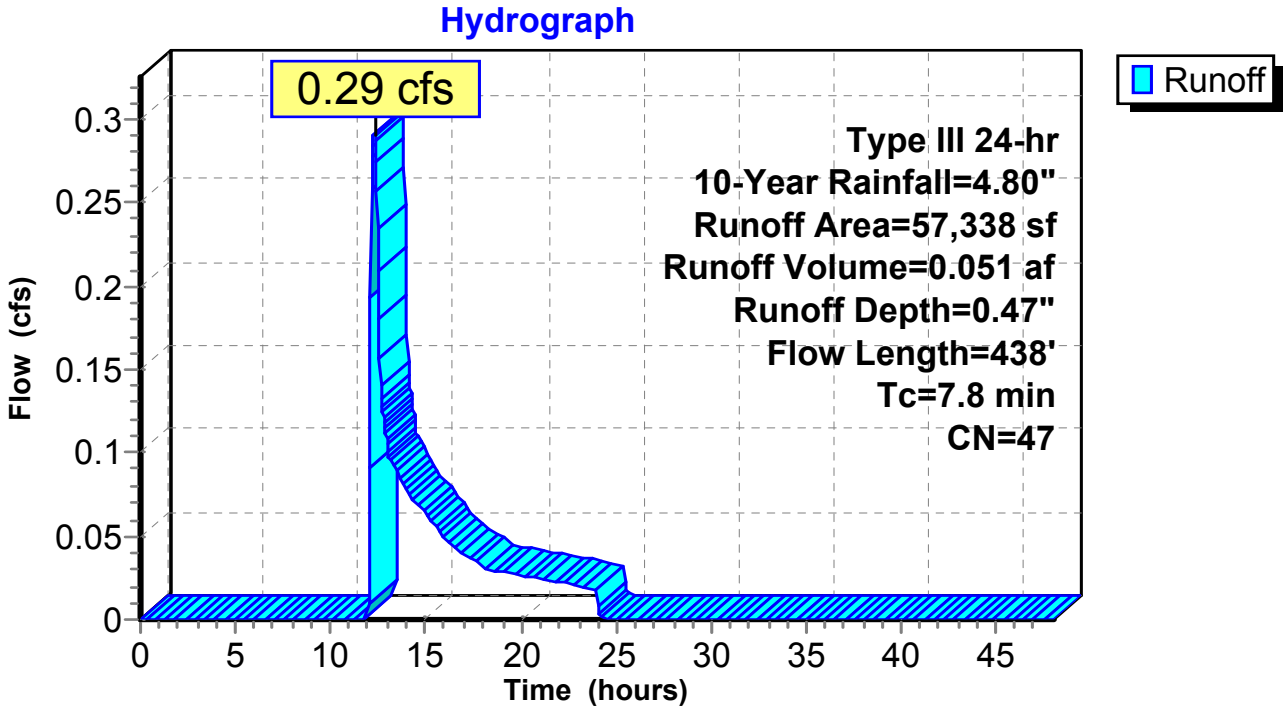
Runoff = 0.29 cfs @ 12.30 hrs, Volume= 0.051 af, Depth= 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
	32,676	36	Woods, Fair, HSG A
	15,551	39	>75% Grass cover, Good, HSG A
	395	80	>75% Grass cover, Good, HSG D
*	293	98	Paved drive, HSG D
	2,148	98	Roofs, HSG A
*	5,322	98	Paved drive, HSG A
*	533	98	Patio, HSG A
*	235	98	Misc, HSG A
*	185	98	Ledge, HSG A
	57,338	47	Weighted Average
	48,622		84.80% Pervious Area
	8,716		15.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	39	0.1538	0.15		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.60"
1.8	11	0.1100	0.10		**Sheet Flow, B-C**
					Woods: Light underbrush n= 0.400 P2= 3.60"
0.1	22	0.1166	5.50		**Shallow Concentrated Flow, C-D**
					Unpaved Kv= 16.1 fps
0.2	54	0.0500	3.60		**Shallow Concentrated Flow, D-E**
					Unpaved Kv= 16.1 fps
0.2	52	0.0770	4.47		**Shallow Concentrated Flow, E-F**
					Unpaved Kv= 16.1 fps
1.0	175	0.0300	2.79		**Shallow Concentrated Flow, F-G**
					Unpaved Kv= 16.1 fps
0.3	85	0.1100	5.34		**Shallow Concentrated Flow, G-H**
					Unpaved Kv= 16.1 fps
7.8	438	Total			

Subcatchment 5S: Sub-5

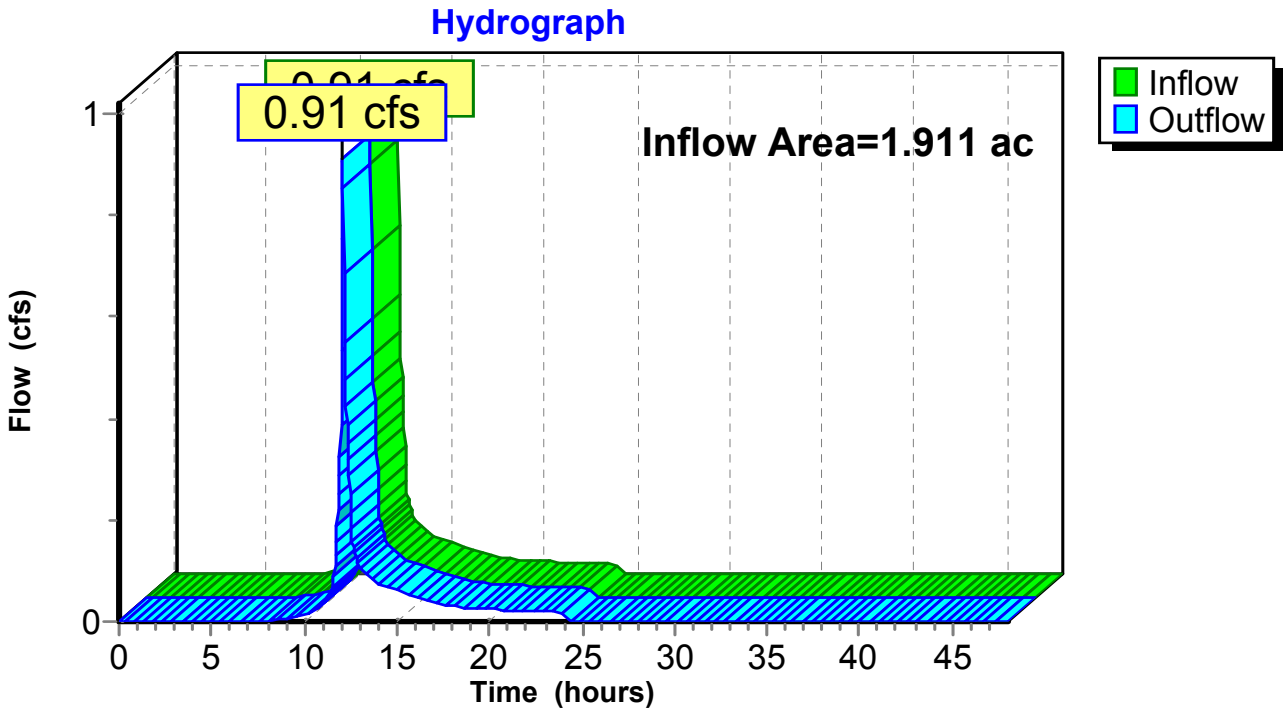


Summary for Reach DP-1: DP-1

Inflow Area = 1.911 ac, 11.60% Impervious, Inflow Depth = 0.48" for 10-Year event
Inflow = 0.91 cfs @ 12.09 hrs, Volume= 0.076 af
Outflow = 0.91 cfs @ 12.09 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-1: DP-1

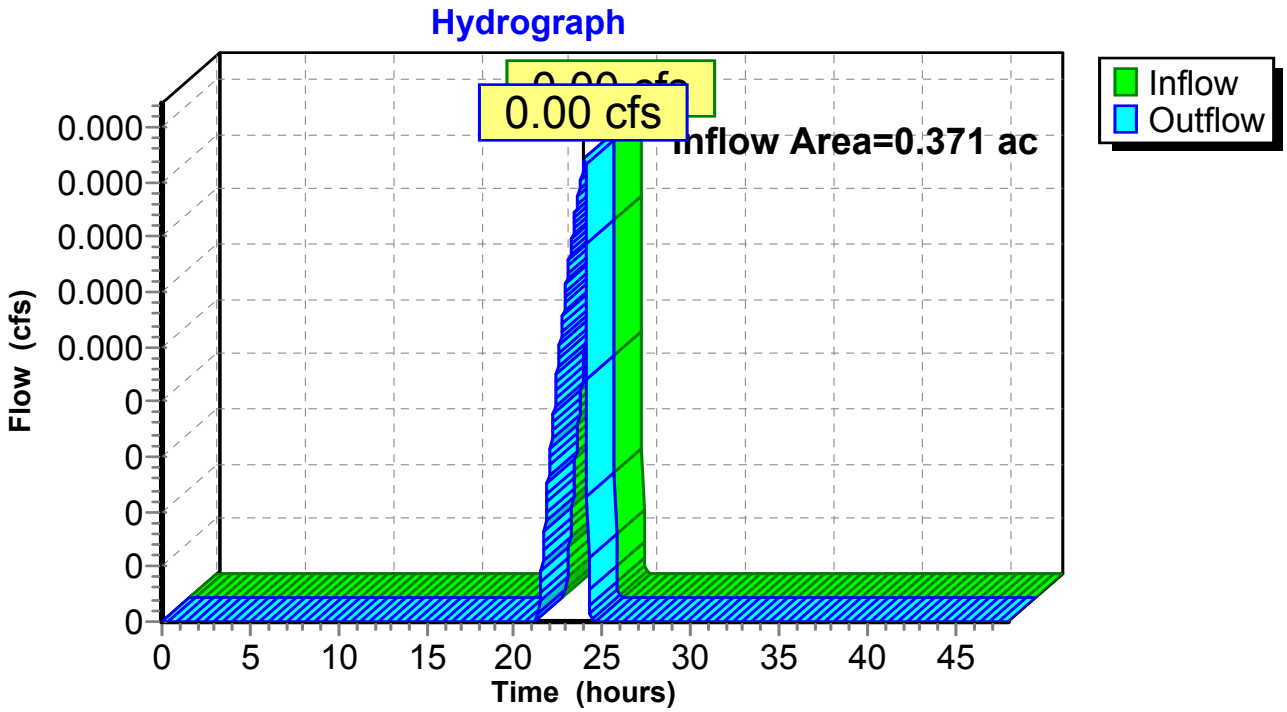


Summary for Reach DP-2: DP-2

Inflow Area = 0.371 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-Year event
Inflow = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-2: DP-2

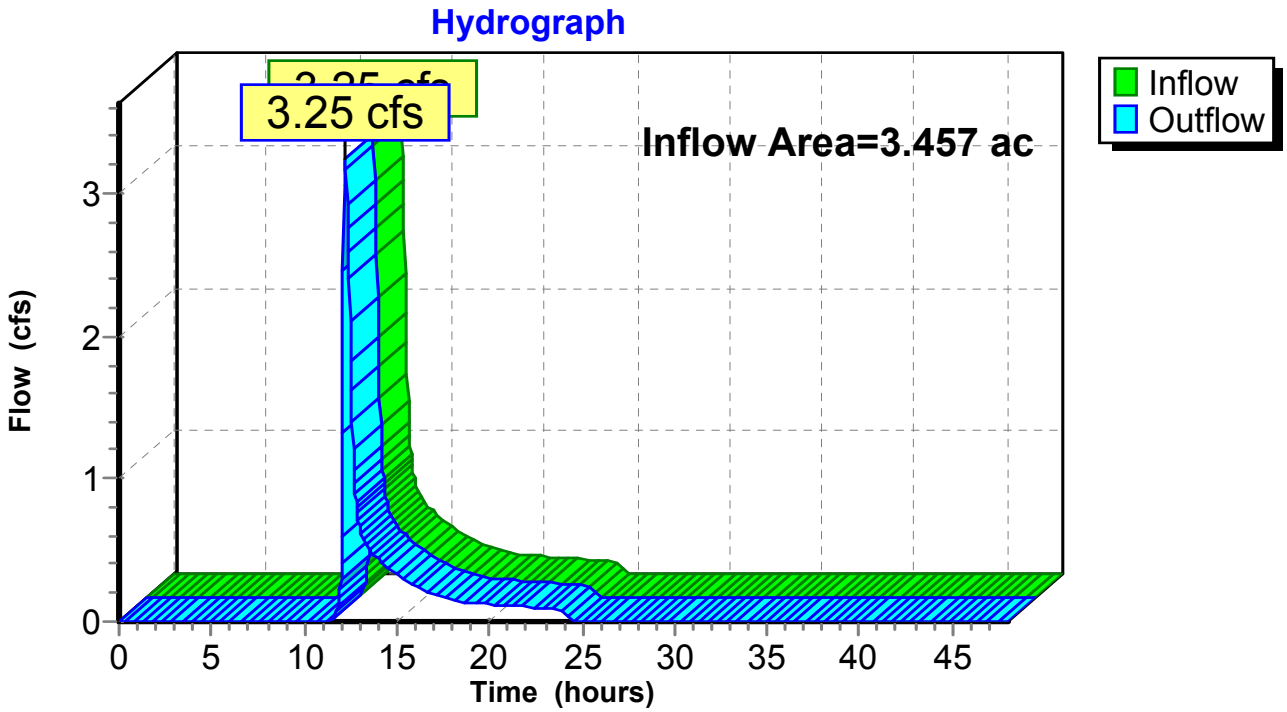


Summary for Reach DP-3: DP-3

Inflow Area = 3.457 ac, 30.39% Impervious, Inflow Depth = 1.17" for 10-Year event
Inflow = 3.25 cfs @ 12.22 hrs, Volume= 0.337 af
Outflow = 3.25 cfs @ 12.22 hrs, Volume= 0.337 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-3: DP-3

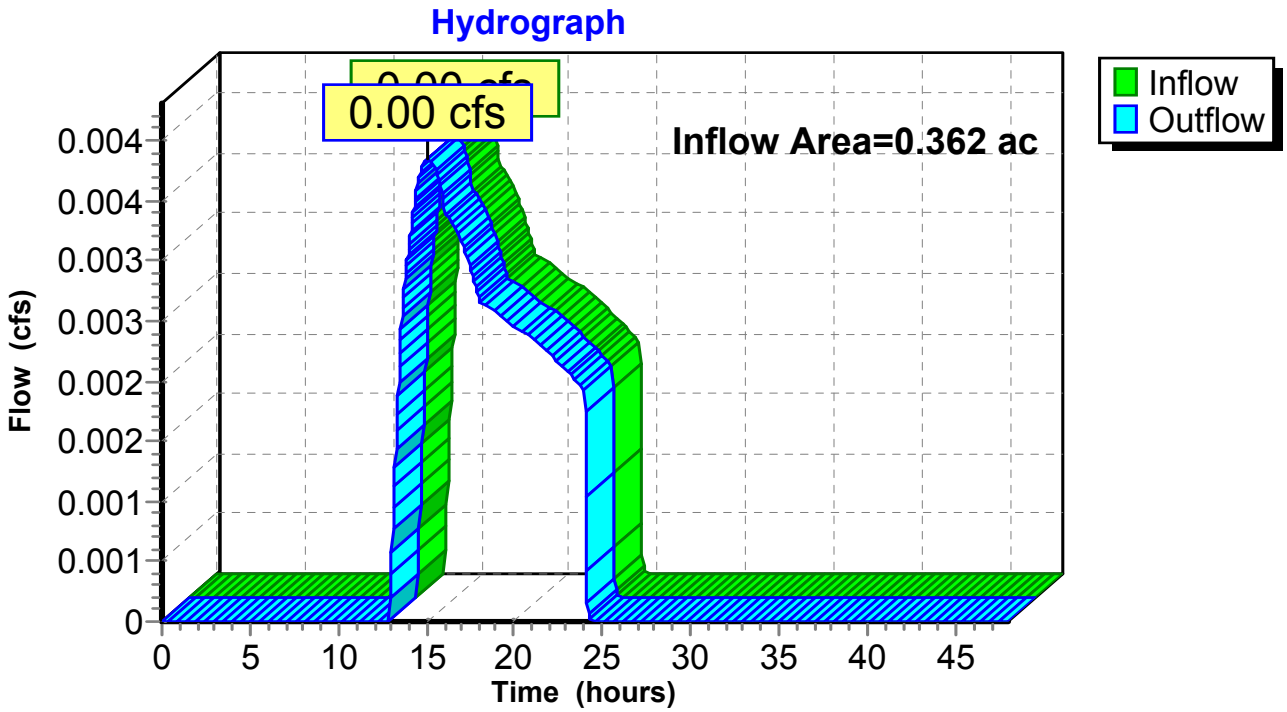


Summary for Reach DP-4: PL

Inflow Area = 0.362 ac, 0.00% Impervious, Inflow Depth = 0.08" for 10-Year event
Inflow = 0.00 cfs @ 15.12 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 15.12 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-4: PL

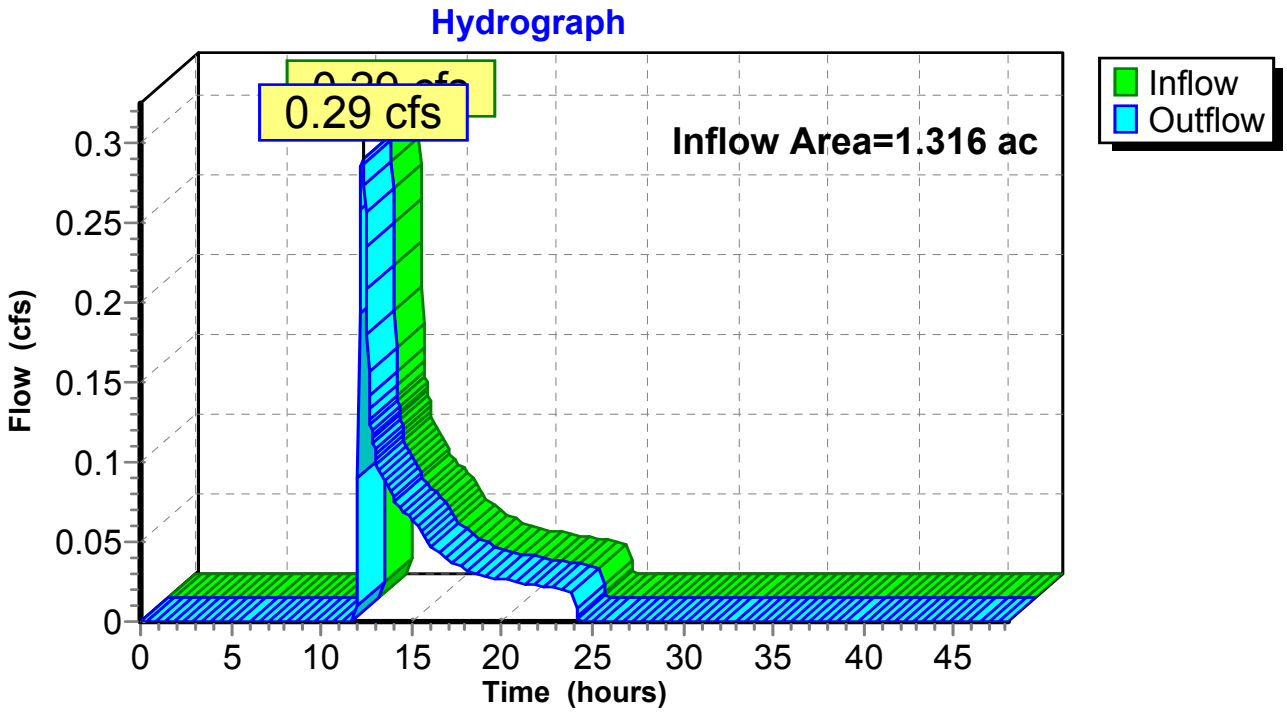


Summary for Reach DP-5: PL

Inflow Area = 1.316 ac, 15.20% Impervious, Inflow Depth = 0.47" for 10-Year event
Inflow = 0.29 cfs @ 12.30 hrs, Volume= 0.051 af
Outflow = 0.29 cfs @ 12.30 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-5: PL



Summary for Pond D-1: Exist Detention Basin

Inflow Area = 0.720 ac, 0.00% Impervious, Inflow Depth = 0.06" for 10-Year event
Inflow = 0.01 cfs @ 15.51 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 15.53 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.9 min
Discarded = 0.01 cfs @ 15.53 hrs, Volume= 0.004 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 62.00' @ 15.53 hrs Surf.Area= 4,336 sf Storage= 0 cf

Plug-Flow detention time= 0.9 min calculated for 0.004 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (1,120.0 - 1,119.1)

Volume	Invert	Avail.Storage	Storage Description
#1	62.00'	5,584 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

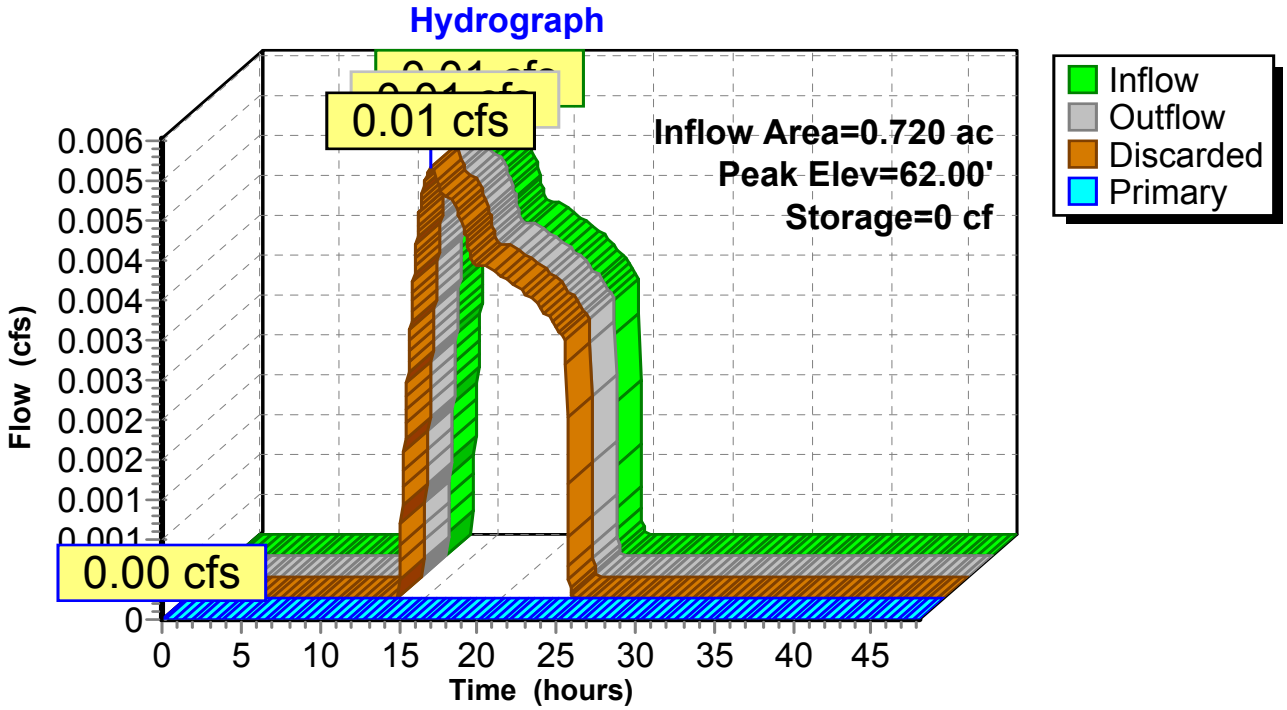
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
62.00	4,336	0	0
63.00	6,832	5,584	5,584

Device	Routing	Invert	Outlet Devices
#1	Primary	63.00'	**10.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	62.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.01 cfs @ 15.53 hrs HW=62.00' (Free Discharge)
└─**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=62.00' TW=0.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond D-1: Exist Detention Basin



Summary for Pond E-DB: Exist Detention Basin

Inflow Area = 1.654 ac, 40.04% Impervious, Inflow Depth = 1.32" for 10-Year event
Inflow = 2.04 cfs @ 12.15 hrs, Volume= 0.181 af
Outflow = 1.65 cfs @ 12.24 hrs, Volume= 0.168 af, Atten= 19%, Lag= 5.5 min
Primary = 1.65 cfs @ 12.24 hrs, Volume= 0.168 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 59.01' @ 12.24 hrs Surf.Area= 1,526 sf Storage= 991 cf

Plug-Flow detention time= 55.6 min calculated for 0.168 af (93% of inflow)
Center-of-Mass det. time= 18.3 min (893.7 - 875.4)

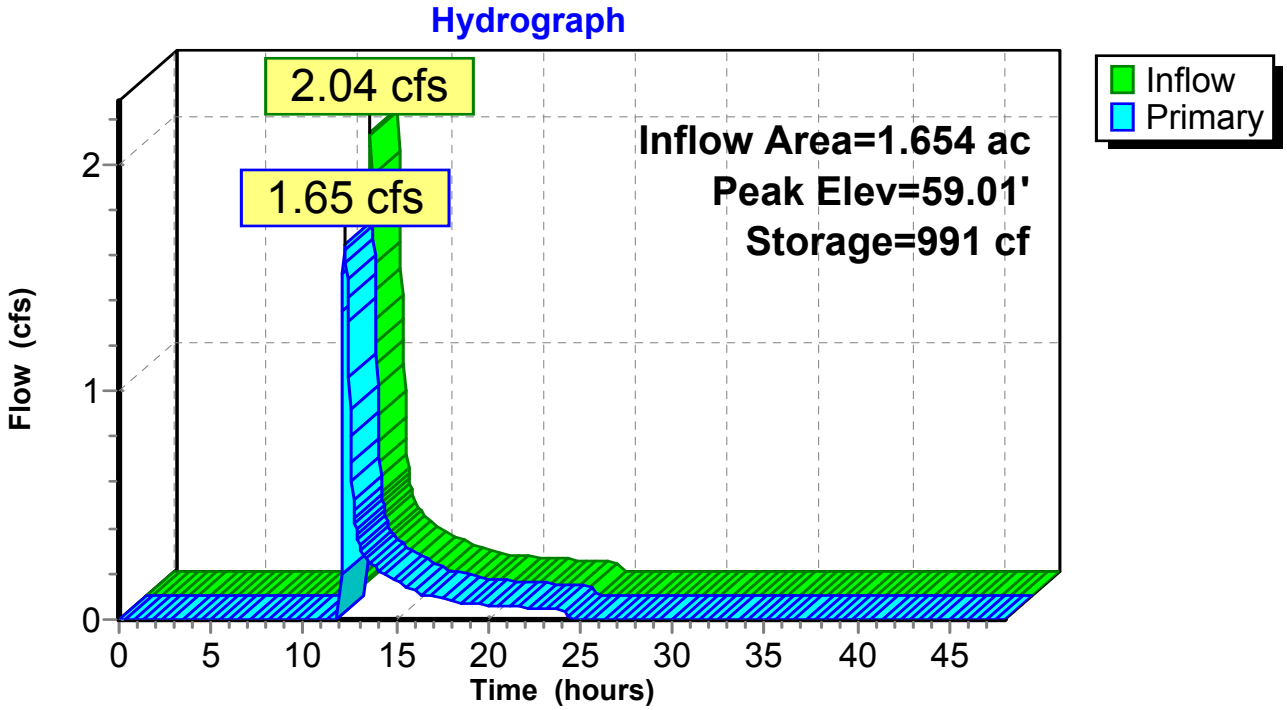
Volume	Invert	Avail.Storage	Storage Description
#1	58.00'	7,013 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.00	445	0	0
59.00	1,511	978	978
60.00	3,286	2,399	3,377
61.00	3,987	3,637	7,013

Device	Routing	Invert	Outlet Devices
#1	Primary	58.12'	**12.0" Round RCP_Round 12"** L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 58.12' / 58.05' S= 0.0028 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	58.71'	**5.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	59.41'	**2.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 2.0' Crest Height
#4	Device 1	60.66'	**7.0' long x 0.59' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 3.2' Crest Height

Primary OutFlow Max=1.65 cfs @ 12.24 hrs HW=59.01' TW=55.22' (Dynamic Tailwater)
└─**1=RCP_Round 12"** (Barrel Controls 1.65 cfs @ 2.96 fps)
  ├─**2=Sharp-Crested Rectangular Weir** (Passes 1.65 cfs of 2.63 cfs potential flow)
  ├─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond E-DB: Exist Detention Basin



Summary for Pond W1: BVW

Inflow Area = 3.457 ac, 30.39% Impervious, Inflow Depth = 1.17" for 10-Year event
Inflow = 3.27 cfs @ 12.21 hrs, Volume= 0.337 af
Outflow = 3.25 cfs @ 12.22 hrs, Volume= 0.337 af, Atten= 0%, Lag= 0.8 min
Primary = 3.25 cfs @ 12.22 hrs, Volume= 0.337 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 55.22' @ 12.22 hrs Surf.Area= 887 sf Storage= 100 cf

Plug-Flow detention time= 0.5 min calculated for 0.336 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (891.2 - 890.7)

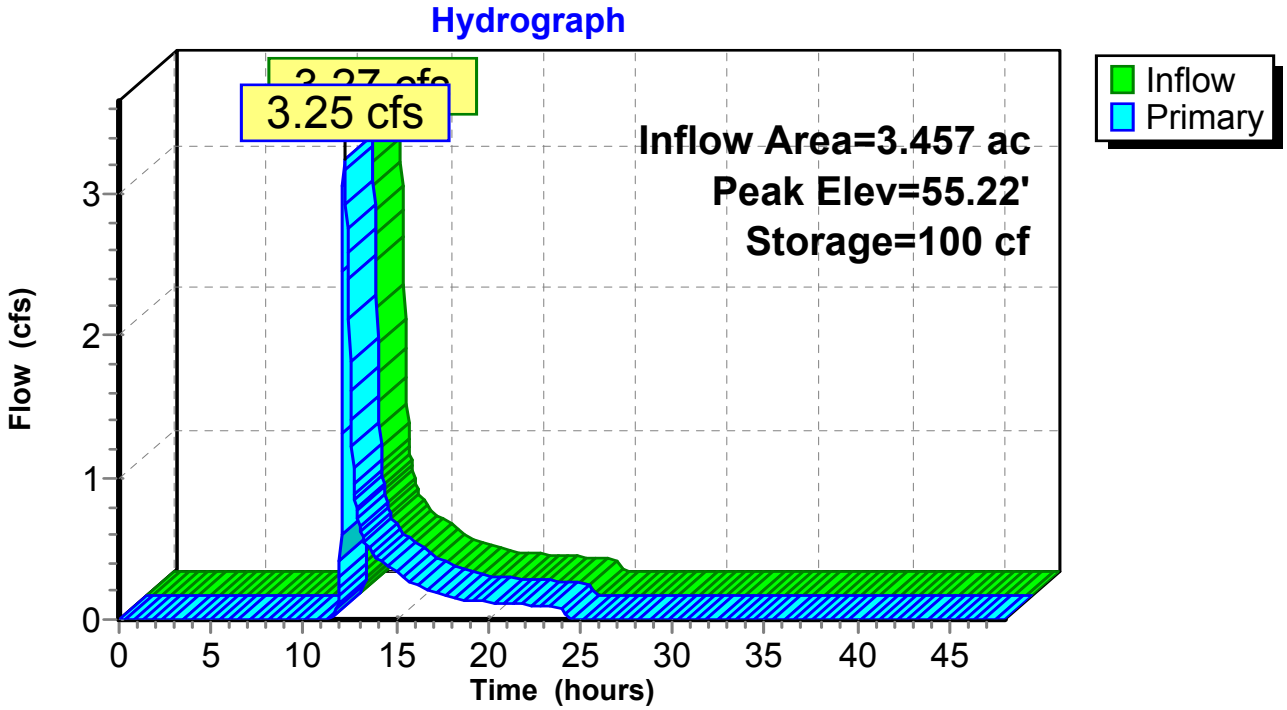
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	14,409 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
55.00	10	0	0
56.00	3,962	1,986	1,986
57.00	20,884	12,423	14,409

Device	Routing	Invert	Outlet Devices
#1	Primary	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 66.00
#2	Device 1	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 84.00

Primary OutFlow Max=3.23 cfs @ 12.22 hrs HW=55.22' TW=0.00' (Dynamic Tailwater)
└─**1=Custom Weir/Orifice** (Weir Controls 3.23 cfs @ 1.35 fps)
  └─**2=Custom Weir/Orifice** (Passes 3.23 cfs of 3.78 cfs potential flow)

Pond W1: BVW


Hydrograph
3.25 cfs
Inflow Area=3.457 ac
Peak Elev=55.22'
Storage=100 cf
Inflow
Primary
Flow (cfs)
0
1
2
3
0
5
10
15
20
25
30
35
40
45
Time (hours)

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1A-S: Sub-1A Runoff Area=12,960 sf 68.56% Impervious Runoff Depth=3.41"
Tc=6.0 min CN=79 Runoff=1.18 cfs 0.085 af

Subcatchment1B-S: Sub-1B Runoff Area=31,377 sf 0.00% Impervious Runoff Depth=0.19"
Flow Length=212' Tc=9.6 min CN=35 Runoff=0.02 cfs 0.012 af

Subcatchment1C-S: Sub-1C Runoff Area=19,404 sf 0.00% Impervious Runoff Depth=0.27"
Flow Length=269' Tc=16.6 min CN=37 Runoff=0.03 cfs 0.010 af

Subcatchment1D-S: Sub-1D Runoff Area=19,501 sf 3.95% Impervious Runoff Depth=0.41"
Flow Length=185' Tc=11.0 min CN=40 Runoff=0.07 cfs 0.015 af

Subcatchment2S: Sub-2 Runoff Area=16,140 sf 0.00% Impervious Runoff Depth=0.04"
Flow Length=164' Tc=8.6 min CN=30 Runoff=0.00 cfs 0.001 af

Subcatchment3A-S: Sub-3A Runoff Area=72,040 sf 40.04% Impervious Runoff Depth=1.89"
Flow Length=534' Tc=9.4 min CN=62 Runoff=3.05 cfs 0.260 af

Subcatchment3B-S: Sub-3B Runoff Area=78,565 sf 21.55% Impervious Runoff Depth=1.65"
Flow Length=552' Tc=12.4 min CN=59 Runoff=2.58 cfs 0.248 af

Subcatchment4S: Sub-4 Runoff Area=15,787 sf 0.00% Impervious Runoff Depth=0.23"
Tc=6.0 min CN=36 Runoff=0.02 cfs 0.007 af

Subcatchment5S: Sub-5 Runoff Area=57,338 sf 15.20% Impervious Runoff Depth=0.81"
Flow Length=438' Tc=7.8 min CN=47 Runoff=0.73 cfs 0.088 af

Reach DP-1: DP-1 Inflow=1.18 cfs 0.110 af
Outflow=1.18 cfs 0.110 af

Reach DP-2: DP-2 Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Reach DP-3: DP-3 Inflow=4.81 cfs 0.495 af
Outflow=4.81 cfs 0.495 af

Reach DP-4: PL Inflow=0.02 cfs 0.007 af
Outflow=0.02 cfs 0.007 af

Reach DP-5: PL Inflow=0.73 cfs 0.088 af
Outflow=0.73 cfs 0.088 af

Pond D-1: Exist Detention Basin Peak Elev=62.00' Storage=1 cf Inflow=0.02 cfs 0.012 af
Discarded=0.02 cfs 0.012 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.012 af

Pond E-DB: Exist Detention Basin Peak Elev=59.24' Storage=1,385 cf Inflow=3.05 cfs 0.260 af
Outflow=2.29 cfs 0.247 af

Pond W1: BVW Peak Elev=55.27' Storage=144 cf Inflow=4.81 cfs 0.495 af
Outflow=4.81 cfs 0.495 af

Total Runoff Area = 7.418 ac Runoff Volume = 0.727 af Average Runoff Depth = 1.18"
80.15% Pervious = 5.945 ac 19.85% Impervious = 1.473 ac

Summary for Subcatchment 1A-S: Sub-1A

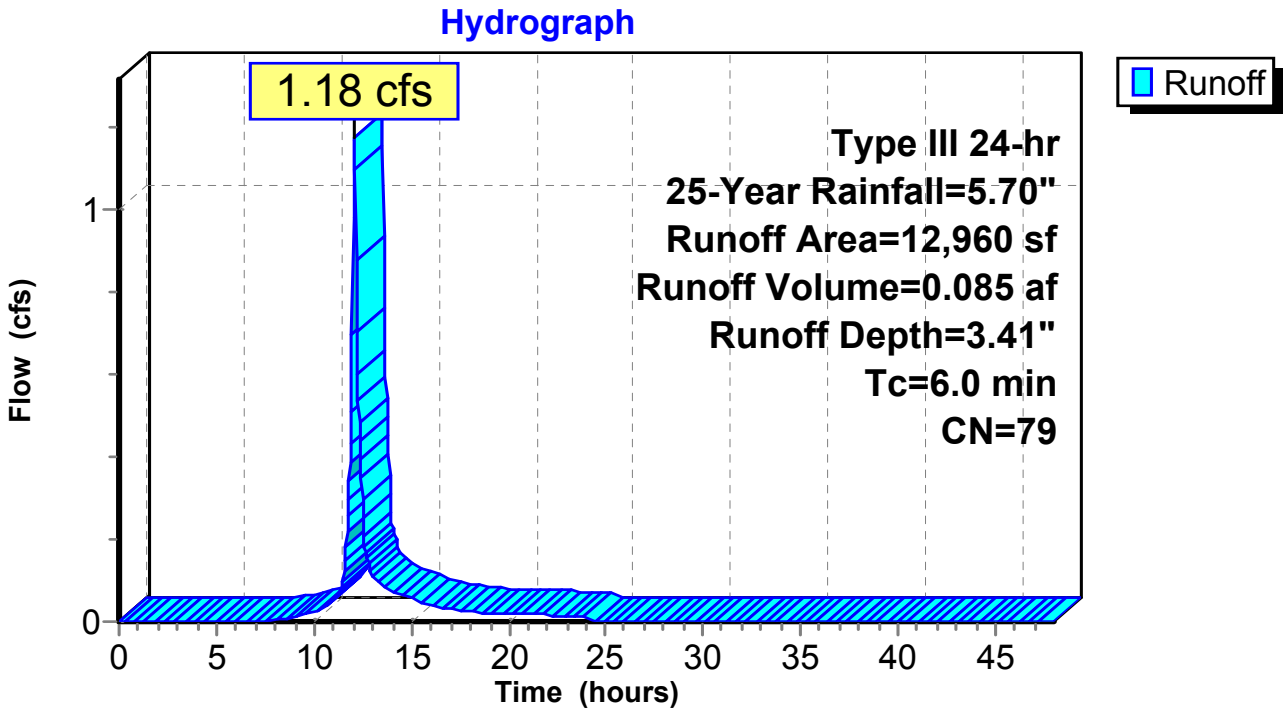
Runoff = 1.18 cfs @ 12.09 hrs, Volume= 0.085 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
4,075	39	>75% Grass cover, Good, HSG A
8,885	98	Paved roads w/curbs & sewers, HSG A
12,960	79	Weighted Average
4,075		31.44% Pervious Area
8,885		68.56% Impervious Area

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

Subcatchment 1A-S: Sub-1A



Summary for Subcatchment 1B-S: Sub-1B

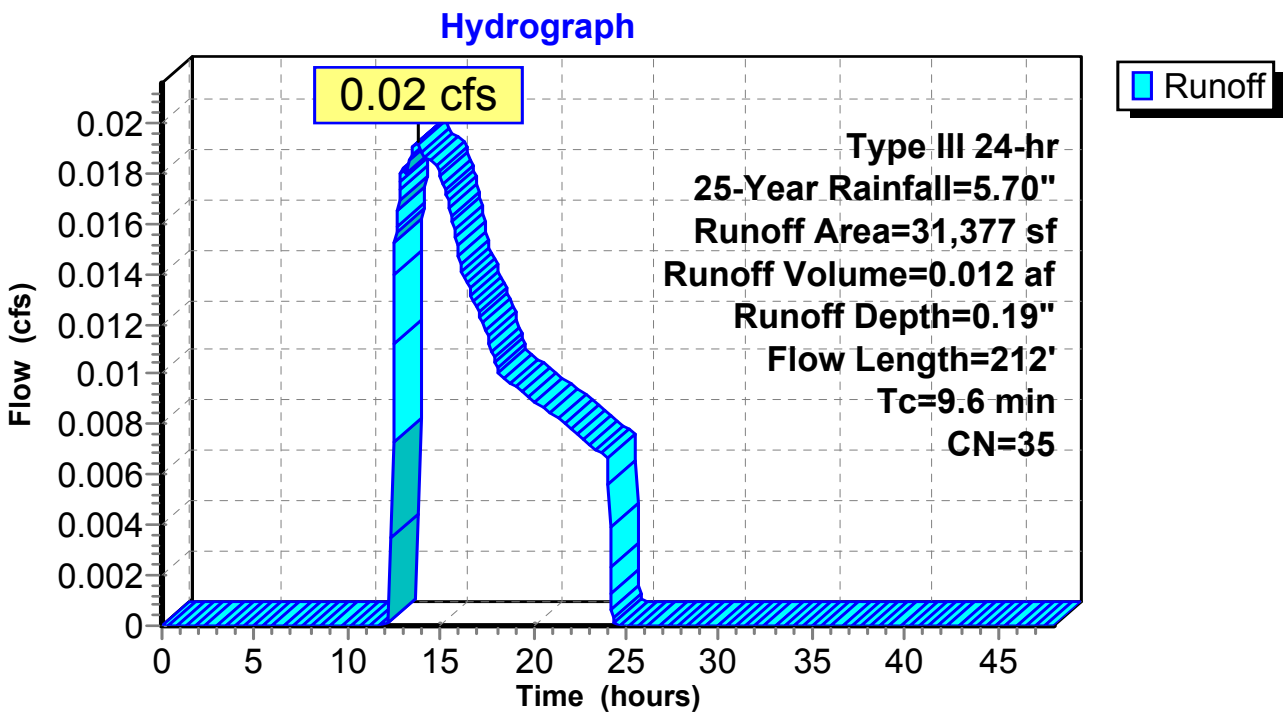
Runoff = 0.02 cfs @ 13.73 hrs, Volume= 0.012 af, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
22,072	30	Woods, Good, HSG A
1,755	39	>75% Grass cover, Good, HSG A
7,550	49	50-75% Grass cover, Fair, HSG A
31,377	35	Weighted Average
31,377		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0500	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.60"
1.5	162	0.0120	1.76		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
9.6	212	Total			

Subcatchment 1B-S: Sub-1B



Summary for Subcatchment 1C-S: Sub-1C

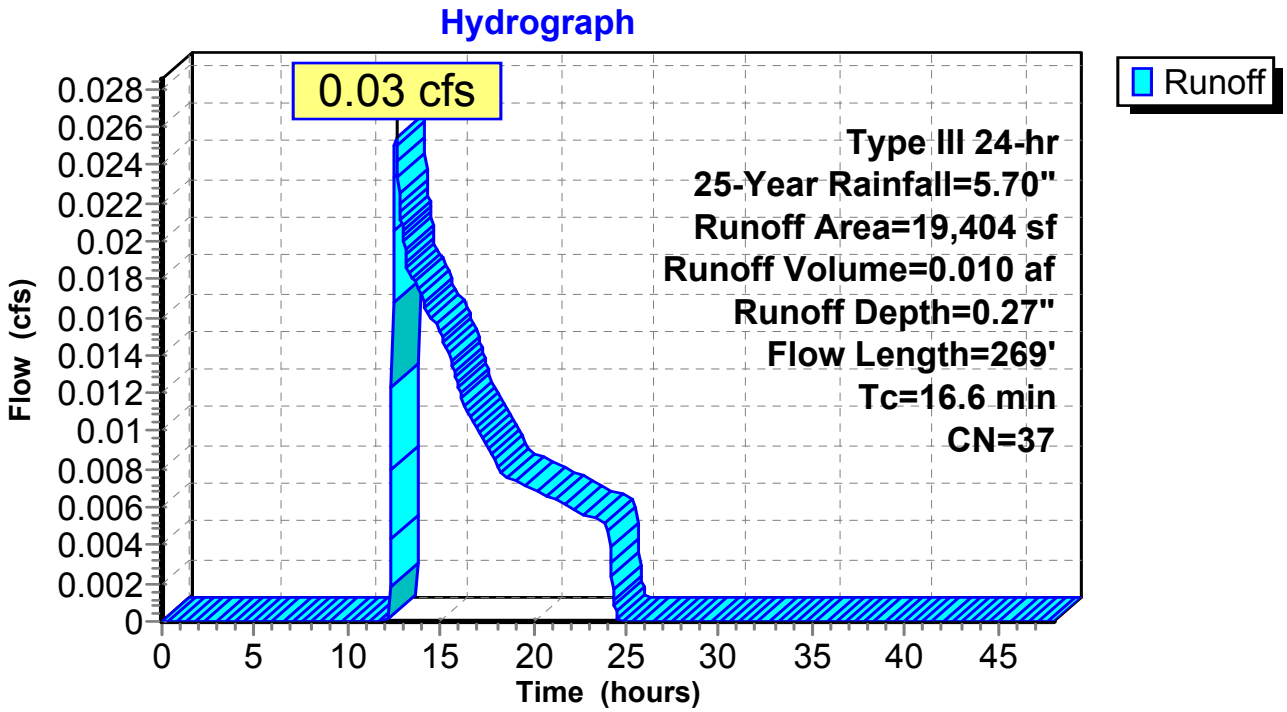
Runoff = 0.03 cfs @ 12.60 hrs, Volume= 0.010 af, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
	12,129	30	Woods, Good, HSG A
	1,513	39	>75% Grass cover, Good, HSG A
	3,840	55	Woods, Good, HSG B
*	899	30	Woods, Good, HSG A - offsite
	1,023	49	50-75% Grass cover, Fair, HSG A
	19,404	37	Weighted Average
	19,404		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	50	0.0120	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.60"
2.3	219	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
16.6	269	Total			

Subcatchment 1C-S: Sub-1C



Summary for Subcatchment 1D-S: Sub-1D

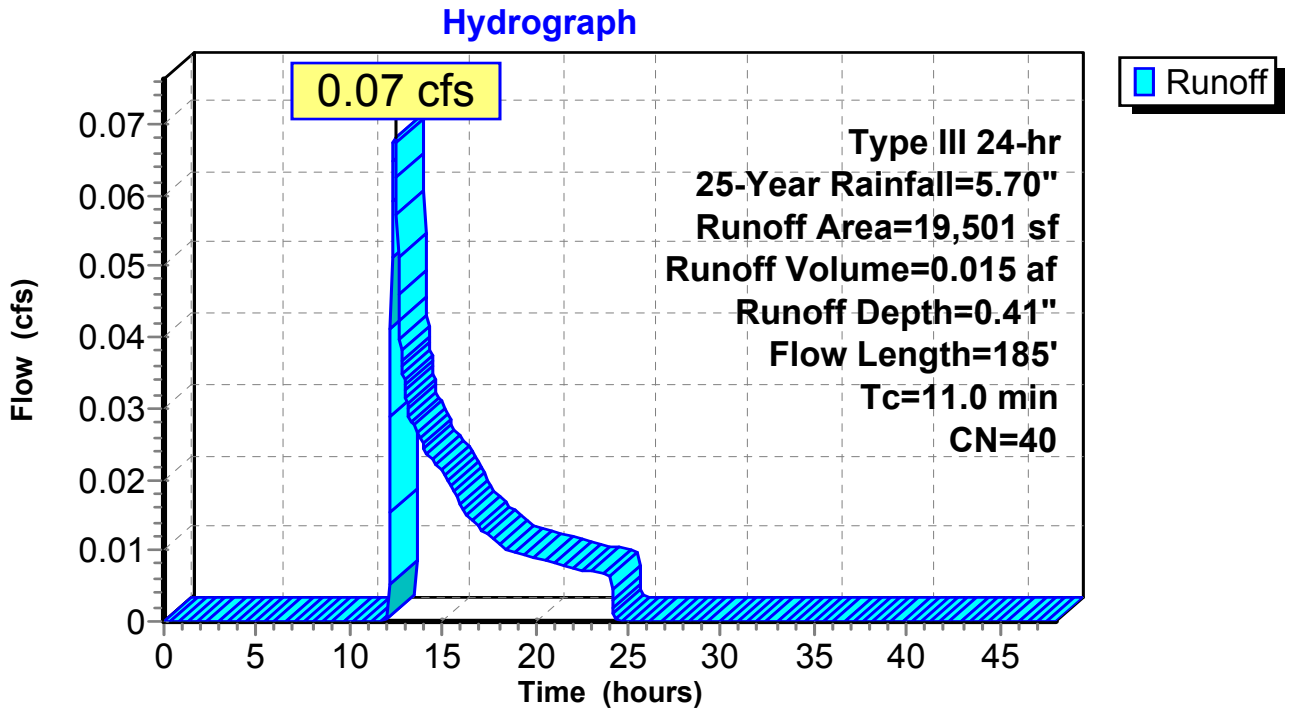
Runoff = 0.07 cfs @ 12.43 hrs, Volume= 0.015 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
	10,890	39	>75% Grass cover, Good, HSG A
	2,684	49	50-75% Grass cover, Fair, HSG A
*	770	98	Rubble Pile, HSG A
	5,157	30	Woods, Good, HSG A
	19,501	40	Weighted Average
	18,731		96.05% Pervious Area
	770		3.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	50	0.0300	0.08		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.60"
1.1	135	0.0160	2.04		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.0	185	Total			

Subcatchment 1D-S: Sub-1D



Summary for Subcatchment 2S: Sub-2

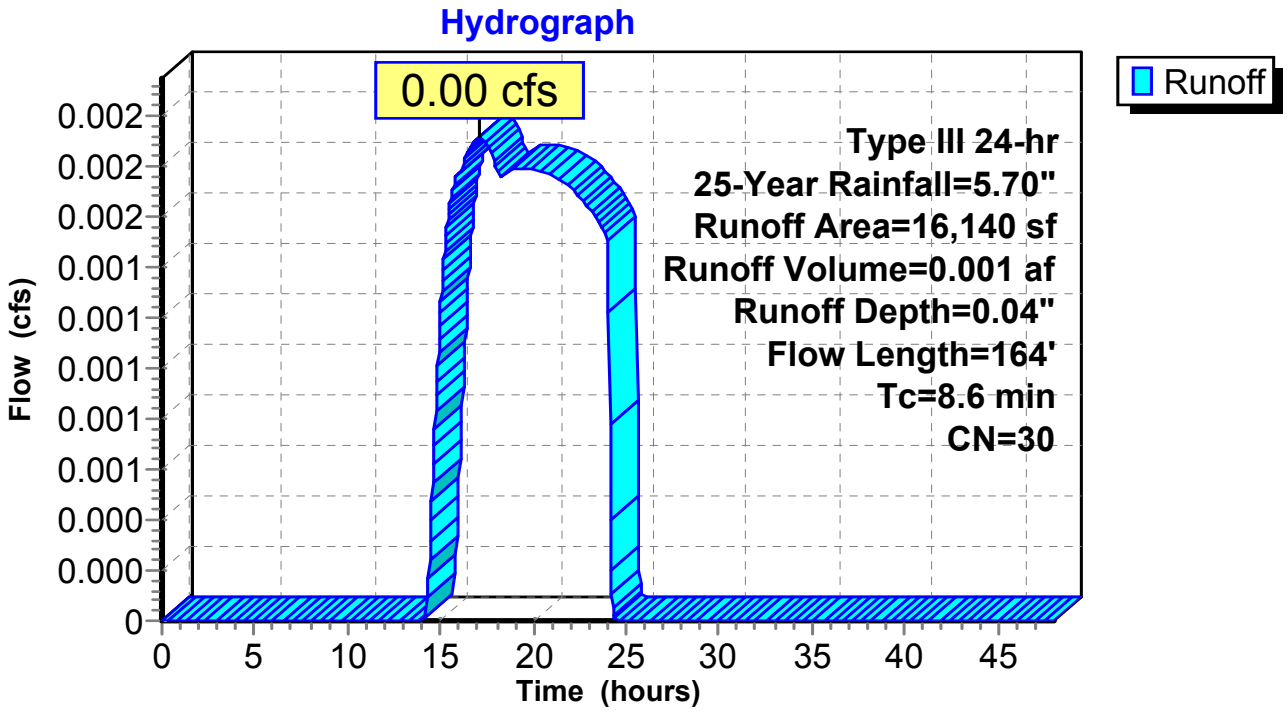
Runoff = 0.00 cfs @ 17.04 hrs, Volume= 0.001 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
16,140	30	Woods, Good, HSG A
16,140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.0800	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.60"
1.9	114	0.0383	0.98		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
8.6	164	Total			

Subcatchment 2S: Sub-2



Summary for Subcatchment 3A-S: Sub-3A

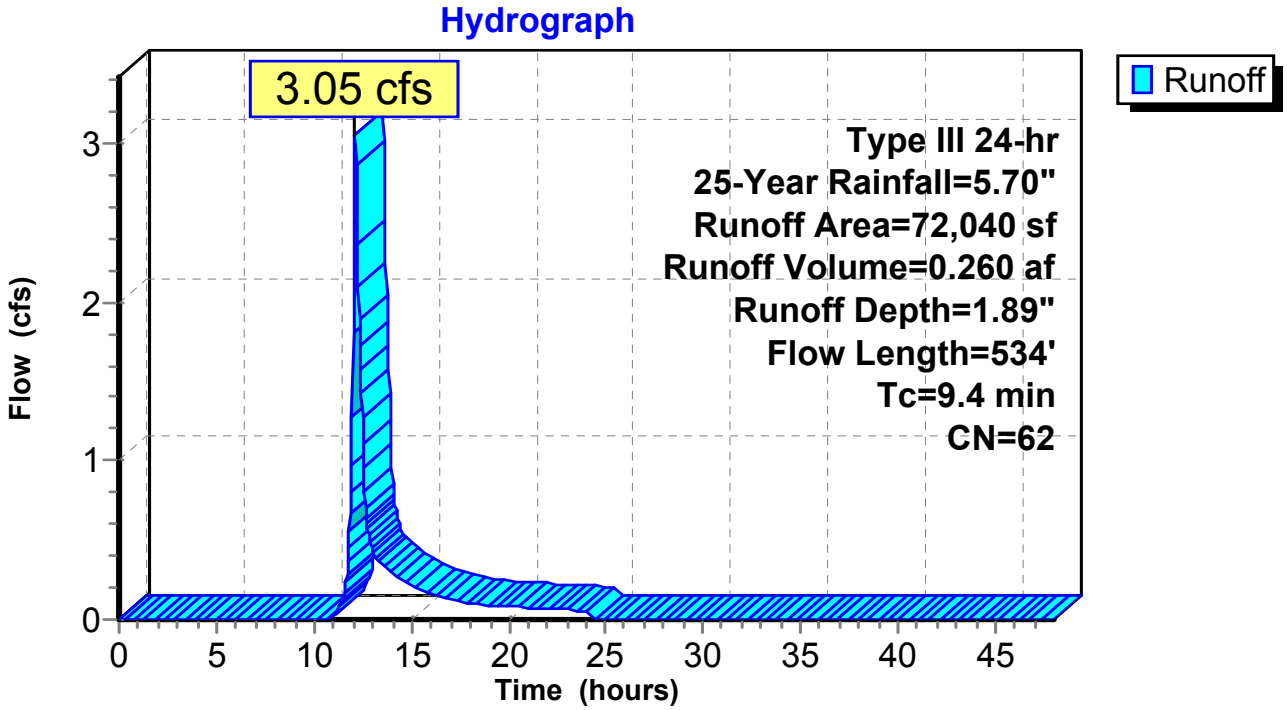
Runoff = 3.05 cfs @ 12.14 hrs, Volume= 0.260 af, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	1,384	98	Roofs, HSG A - offsite
*	16,069	98	Paved parking, HSG A - offsite
*	1,682	30	Woods, Good, HSG A - offsite
*	914	39	>75% Grass cover, Good, HSG A - offsite
	24,471	30	Woods, Good, HSG A
	6,905	39	>75% Grass cover, Good, HSG A
	2,407	98	Paved roads w/curbs & sewers, HSG A
*	2,712	98	Existing Detention Basin, HSG A
*	810	98	Riprap, HSG A
	3,247	98	Paved roads w/curbs & sewers, HSG B
	2,784	55	Woods, Good, HSG B
*	938	98	Riprap, HSG B
	6,442	61	>75% Grass cover, Good, HSG B
*	1,275	98	Existing Detention Basin, HSG B
	72,040	62	Weighted Average
	43,198		59.96% Pervious Area
	28,842		40.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.0160	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
1.8	225	0.0160	2.04		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	102	0.0090	1.93		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	157	0.0030	2.88	3.54	**Pipe Channel, RCP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
9.4	534	Total			

Subcatchment 3A-S: Sub-3A



Summary for Subcatchment 3B-S: Sub-3B

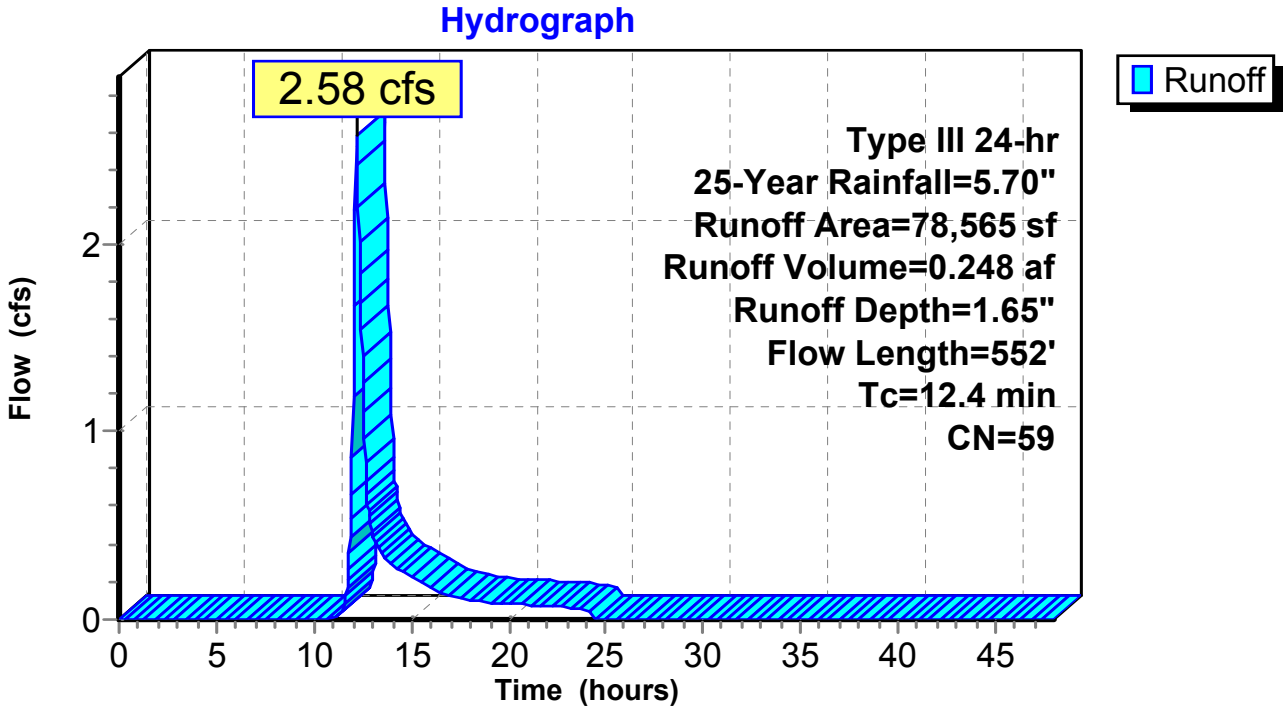
Runoff = 2.58 cfs @ 12.19 hrs, Volume= 0.248 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	285	98	Riprap, HSG A
*	121	98	Riprap, HSG B
	9,681	30	Woods, Good, HSG A
	30,788	55	Woods, Good, HSG B
	1,762	39	>75% Grass cover, Good, HSG A
	8,282	61	>75% Grass cover, Good, HSG B
*	15,816	98	Wetlands, HSG B
*	4,310	30	Woods, Good, HSG A - offsite
*	418	98	Wetlands, HSG B - offsite
*	4,121	39	>75% Grass cover, Good, HSG A - offsite
*	290	98	Paved drive, HSG A - offsite
*	957	61	>75% Grass cover, Good, HSG B - offsite
*	1,734	55	Woods, Good, HSG B - offsite
	78,565	59	Weighted Average
	61,635		78.45% Pervious Area
	16,930		21.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	50	0.0700	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.60"
1.5	294	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.9	208	0.0030	0.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
12.4	552	Total			

Subcatchment 3B-S: Sub-3B



Summary for Subcatchment 4S: Sub-4

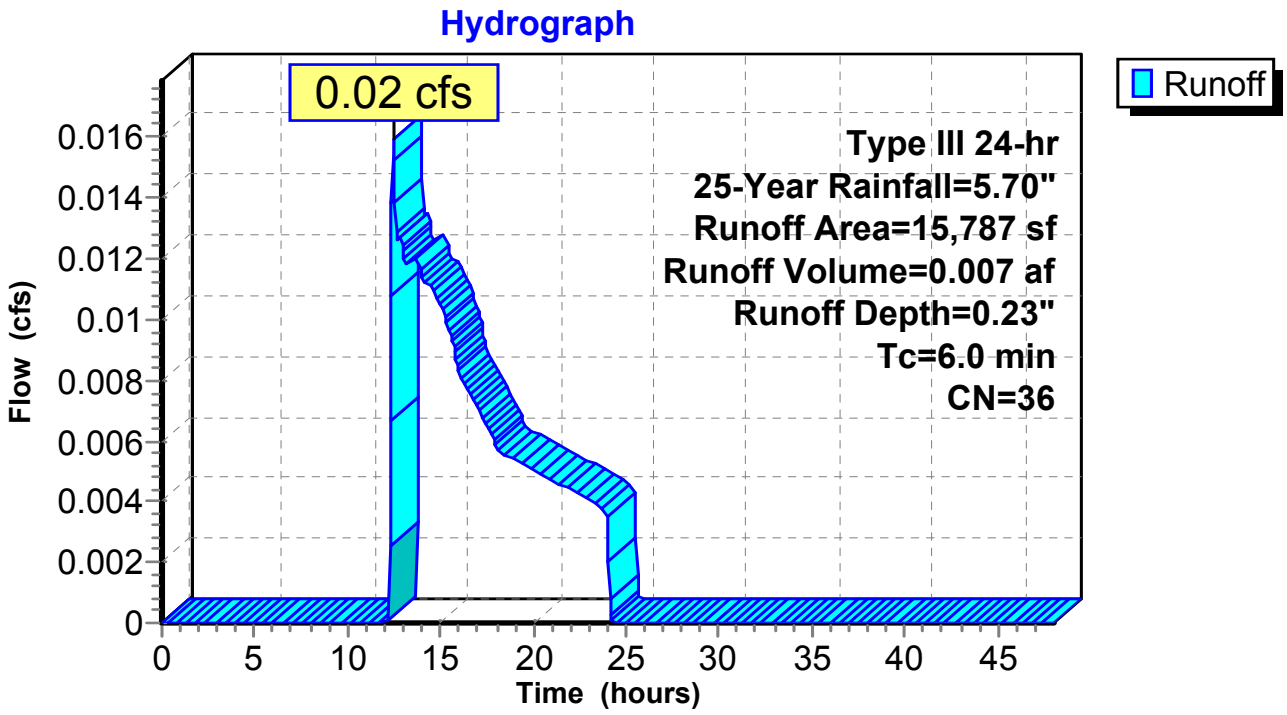
Runoff = 0.02 cfs @ 12.47 hrs, Volume= 0.007 af, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
15,787	36	Woods, Fair, HSG A
15,787		100.00% Pervious Area

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

Subcatchment 4S: Sub-4



Summary for Subcatchment 5S: Sub-5

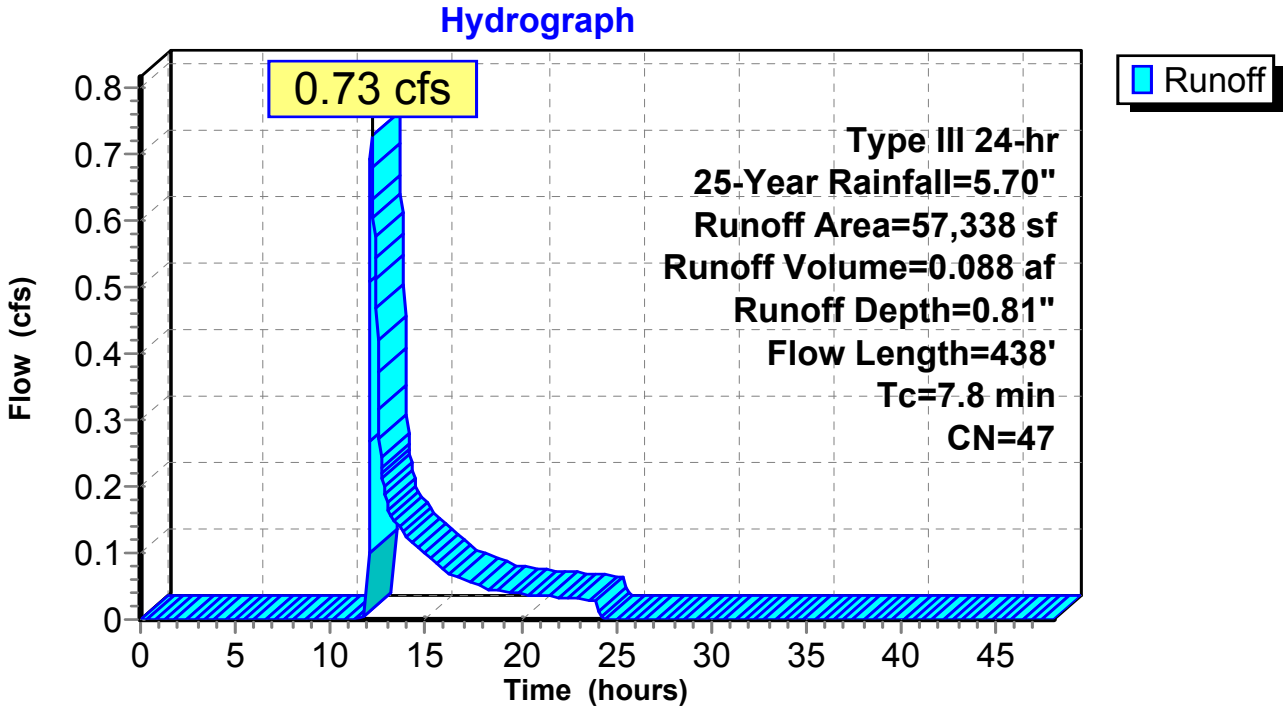
Runoff = 0.73 cfs @ 12.16 hrs, Volume= 0.088 af, Depth= 0.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
	32,676	36	Woods, Fair, HSG A
	15,551	39	>75% Grass cover, Good, HSG A
	395	80	>75% Grass cover, Good, HSG D
*	293	98	Paved drive, HSG D
	2,148	98	Roofs, HSG A
*	5,322	98	Paved drive, HSG A
*	533	98	Patio, HSG A
*	235	98	Misc, HSG A
*	185	98	Ledge, HSG A
	57,338	47	Weighted Average
	48,622		84.80% Pervious Area
	8,716		15.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	39	0.1538	0.15		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.60"
1.8	11	0.1100	0.10		**Sheet Flow, B-C**
					Woods: Light underbrush n= 0.400 P2= 3.60"
0.1	22	0.1166	5.50		**Shallow Concentrated Flow, C-D**
					Unpaved Kv= 16.1 fps
0.2	54	0.0500	3.60		**Shallow Concentrated Flow, D-E**
					Unpaved Kv= 16.1 fps
0.2	52	0.0770	4.47		**Shallow Concentrated Flow, E-F**
					Unpaved Kv= 16.1 fps
1.0	175	0.0300	2.79		**Shallow Concentrated Flow, F-G**
					Unpaved Kv= 16.1 fps
0.3	85	0.1100	5.34		**Shallow Concentrated Flow, G-H**
					Unpaved Kv= 16.1 fps
7.8	438	Total			

Subcatchment 5S: Sub-5

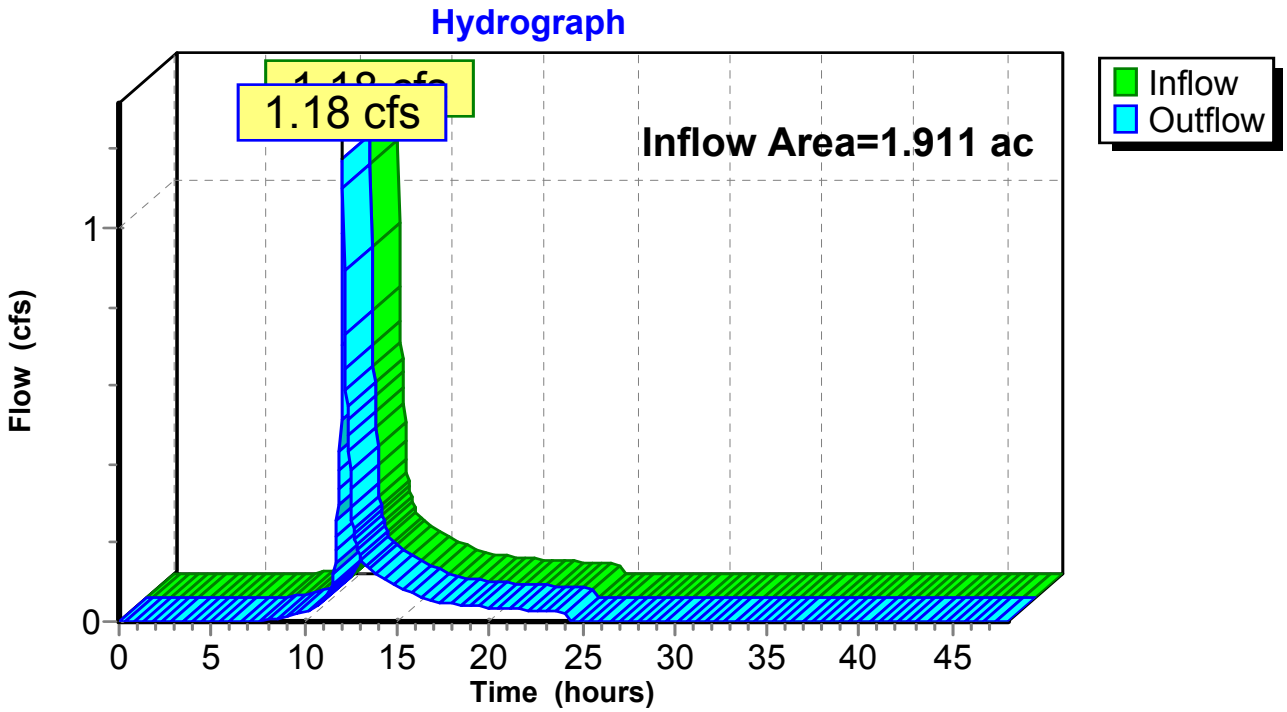


Summary for Reach DP-1: DP-1

Inflow Area = 1.911 ac, 11.60% Impervious, Inflow Depth = 0.69" for 25-Year event
Inflow = 1.18 cfs @ 12.09 hrs, Volume= 0.110 af
Outflow = 1.18 cfs @ 12.09 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-1: DP-1

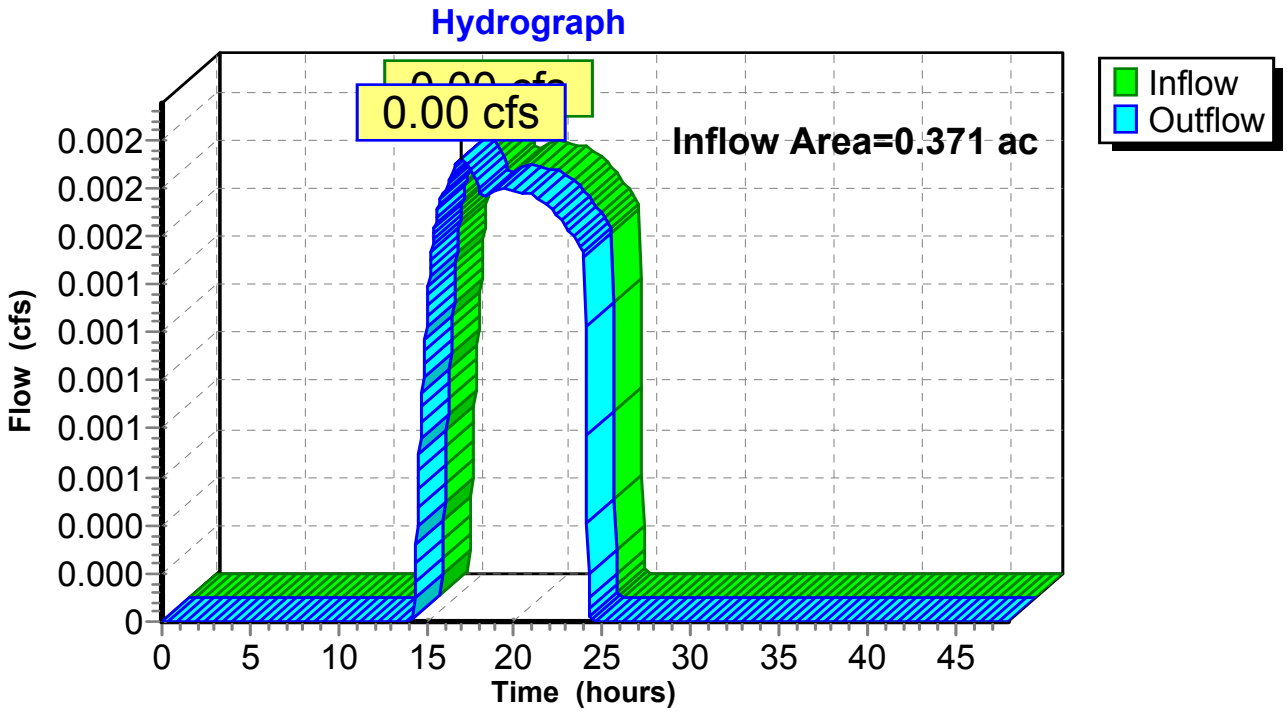


Summary for Reach DP-2: DP-2

Inflow Area = 0.371 ac, 0.00% Impervious, Inflow Depth = 0.04" for 25-Year event
Inflow = 0.00 cfs @ 17.04 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 17.04 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-2: DP-2

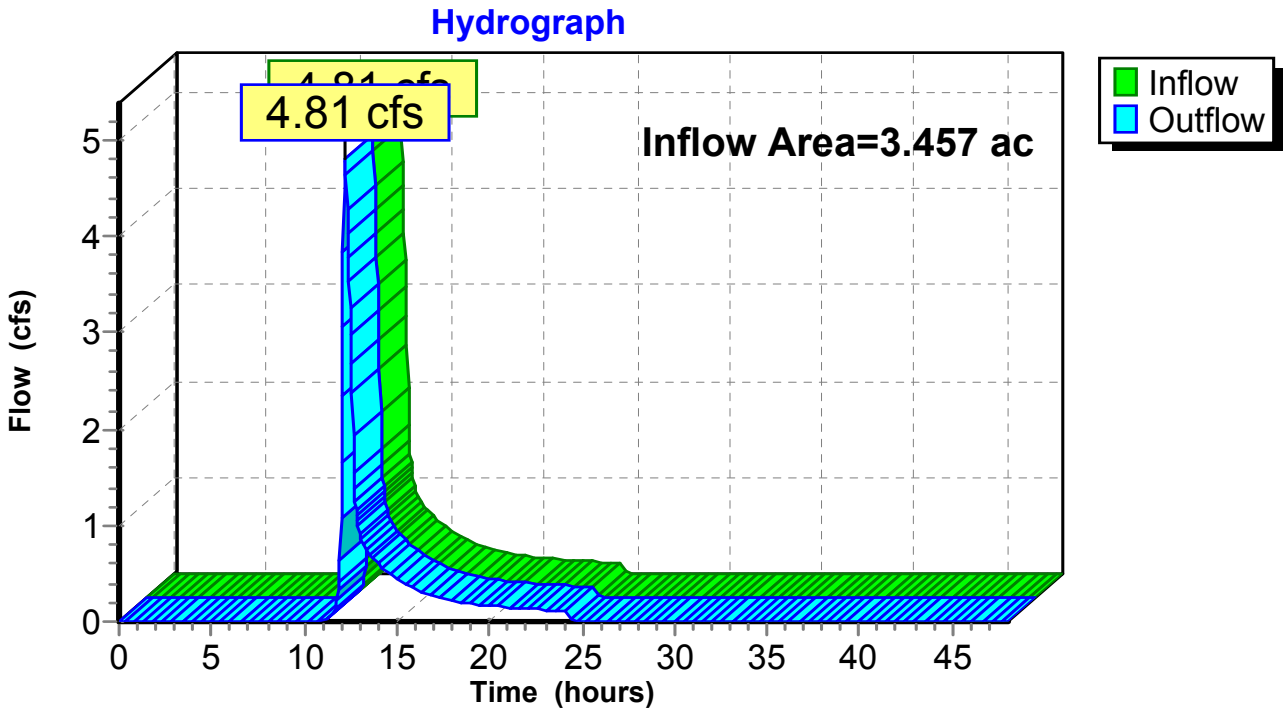


Summary for Reach DP-3: DP-3

Inflow Area = 3.457 ac, 30.39% Impervious, Inflow Depth = 1.72" for 25-Year event
Inflow = 4.81 cfs @ 12.21 hrs, Volume= 0.495 af
Outflow = 4.81 cfs @ 12.21 hrs, Volume= 0.495 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-3: DP-3

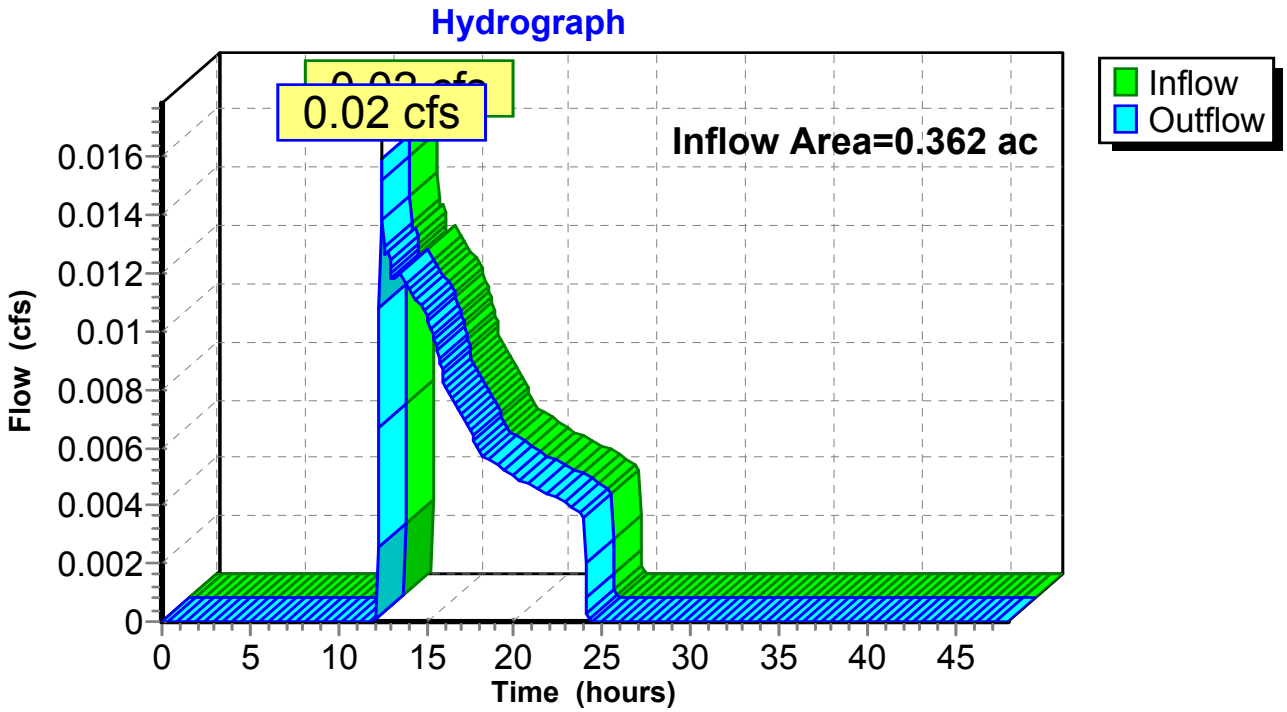


Summary for Reach DP-4: PL

Inflow Area = 0.362 ac, 0.00% Impervious, Inflow Depth = 0.23" for 25-Year event
Inflow = 0.02 cfs @ 12.47 hrs, Volume= 0.007 af
Outflow = 0.02 cfs @ 12.47 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-4: PL

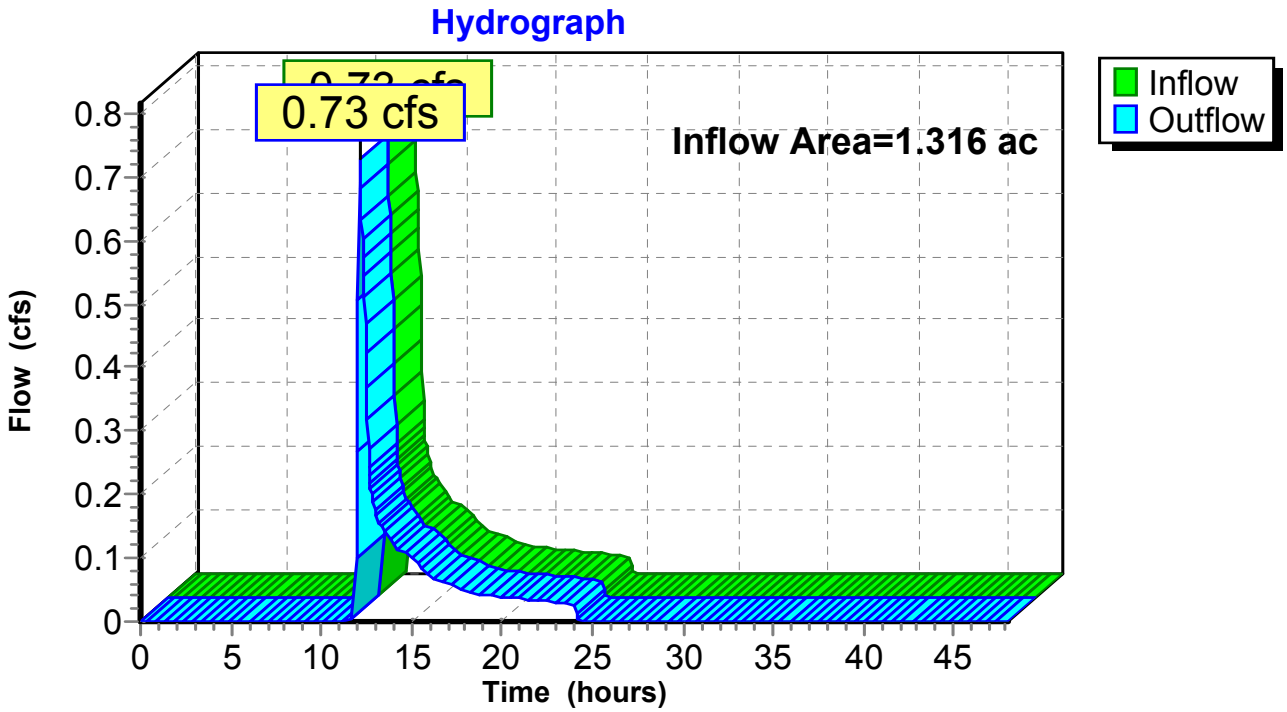


Summary for Reach DP-5: PL

Inflow Area = 1.316 ac, 15.20% Impervious, Inflow Depth = 0.81" for 25-Year event
Inflow = 0.73 cfs @ 12.16 hrs, Volume= 0.088 af
Outflow = 0.73 cfs @ 12.16 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-5: PL



Summary for Pond D-1: Exist Detention Basin

Inflow Area =	0.720 ac,	0.00% Impervious,	Inflow Depth =	0.19"	for 25-Year event
Inflow =	0.02 cfs @	13.73 hrs,	Volume=	0.012 af	
Outflow =	0.02 cfs @	13.75 hrs,	Volume=	0.012 af,	Atten= 0%, Lag= 0.9 min
Discarded =	0.02 cfs @	13.75 hrs,	Volume=	0.012 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 62.00' @ 13.75 hrs Surf.Area= 4,337 sf Storage= 1 cf

Plug-Flow detention time= 0.9 min calculated for 0.012 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (1,029.7 - 1,028.9)

Volume	Invert	Avail.Storage	Storage Description
#1	62.00'	5,584 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

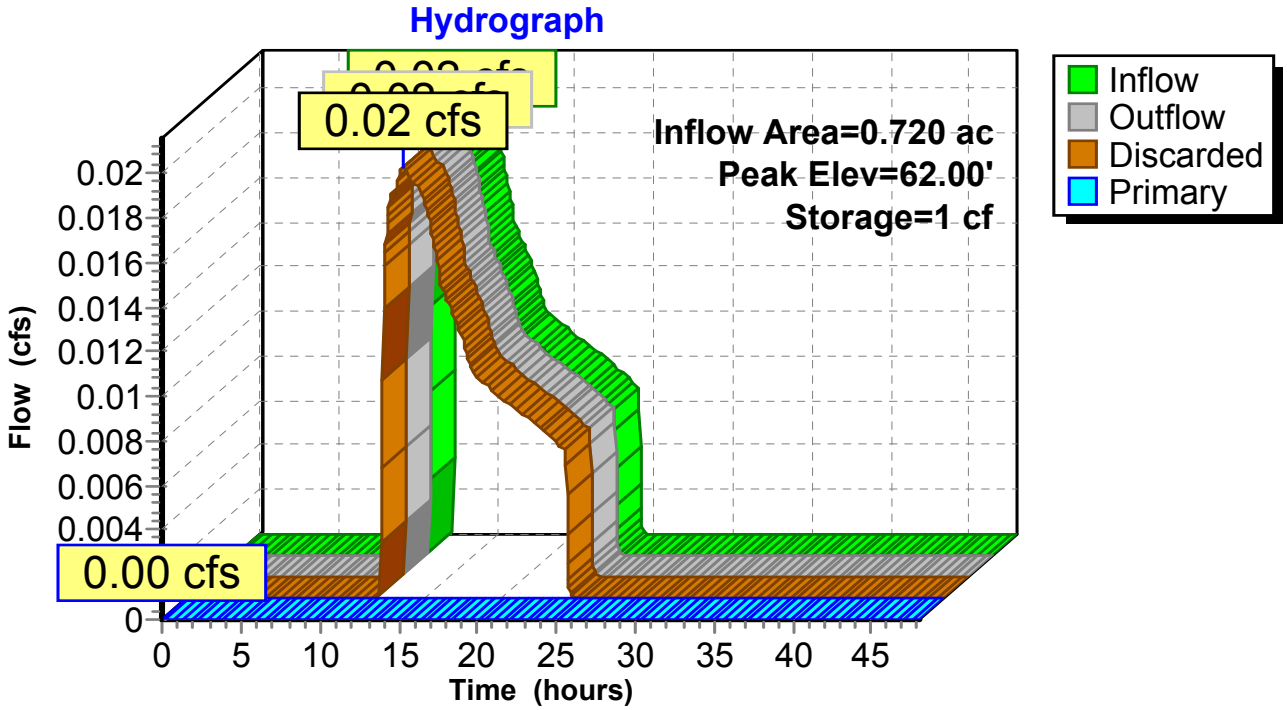
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
62.00	4,336	0	0
63.00	6,832	5,584	5,584

Device	Routing	Invert	Outlet Devices
#1	Primary	63.00'	**10.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	62.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.02 cfs @ 13.75 hrs HW=62.00' (Free Discharge)
└─**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=62.00' TW=0.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond D-1: Exist Detention Basin



Summary for Pond E-DB: Exist Detention Basin

Inflow Area = 1.654 ac, 40.04% Impervious, Inflow Depth = 1.89" for 25-Year event
Inflow = 3.05 cfs @ 12.14 hrs, Volume= 0.260 af
Outflow = 2.29 cfs @ 12.25 hrs, Volume= 0.247 af, Atten= 25%, Lag= 6.6 min
Primary = 2.29 cfs @ 12.25 hrs, Volume= 0.247 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 59.24' @ 12.25 hrs Surf.Area= 1,930 sf Storage= 1,385 cf

Plug-Flow detention time= 42.2 min calculated for 0.247 af (95% of inflow)
Center-of-Mass det. time= 14.3 min (878.2 - 863.9)

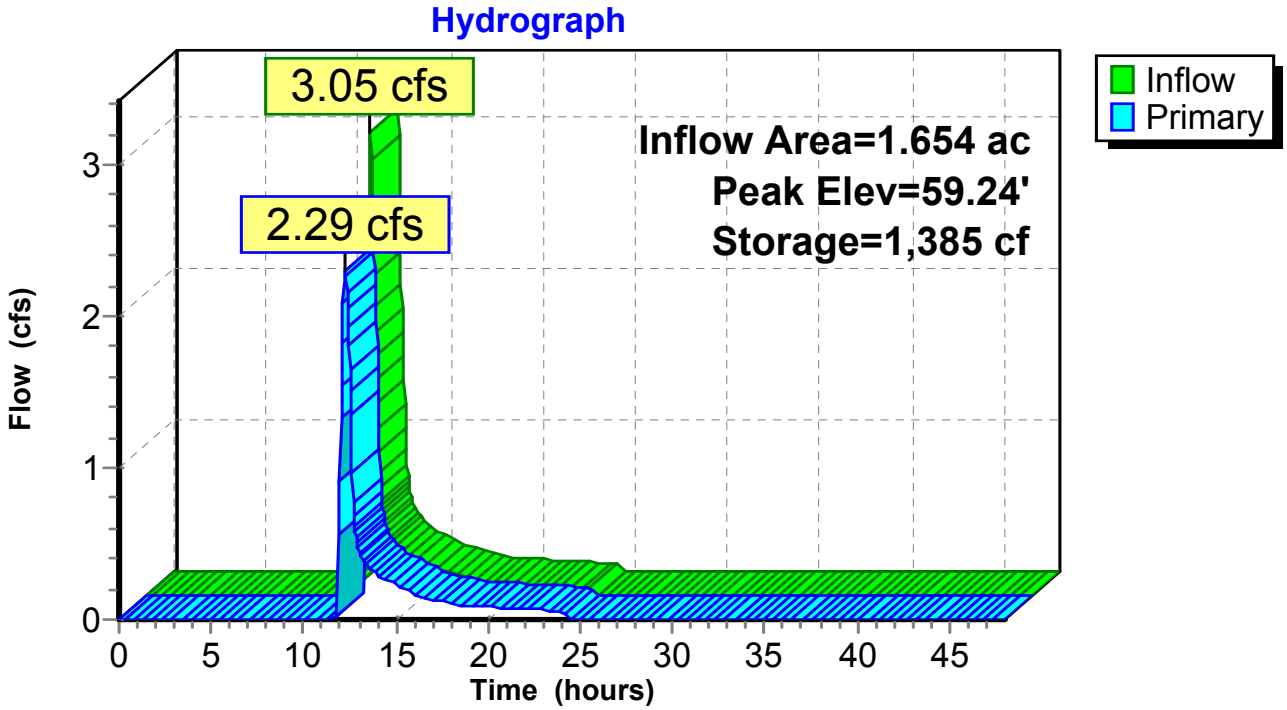
Volume	Invert	Avail.Storage	Storage Description
#1	58.00'	7,013 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.00	445	0	0
59.00	1,511	978	978
60.00	3,286	2,399	3,377
61.00	3,987	3,637	7,013

Device	Routing	Invert	Outlet Devices
#1	Primary	58.12'	**12.0" Round RCP_Round 12"** L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 58.12' / 58.05' S= 0.0028 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	58.71'	**5.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	59.41'	**2.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 2.0' Crest Height
#4	Device 1	60.66'	**7.0' long x 0.59' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 3.2' Crest Height

Primary OutFlow Max=2.29 cfs @ 12.25 hrs HW=59.23' TW=55.26' (Dynamic Tailwater)
└─**1=RCP_Round 12"** (Barrel Controls 2.29 cfs @ 3.26 fps)
  ├─**2=Sharp-Crested Rectangular Weir** (Passes 2.29 cfs of 6.06 cfs potential flow)
  ├─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond E-DB: Exist Detention Basin



Summary for Pond W1: BVW

Inflow Area = 3.457 ac, 30.39% Impervious, Inflow Depth = 1.72" for 25-Year event
Inflow = 4.81 cfs @ 12.21 hrs, Volume= 0.495 af
Outflow = 4.81 cfs @ 12.21 hrs, Volume= 0.495 af, Atten= 0%, Lag= 0.4 min
Primary = 4.81 cfs @ 12.21 hrs, Volume= 0.495 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 55.27' @ 12.21 hrs Surf.Area= 1,066 sf Storage= 144 cf

Plug-Flow detention time= 0.5 min calculated for 0.494 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (877.1 - 876.6)

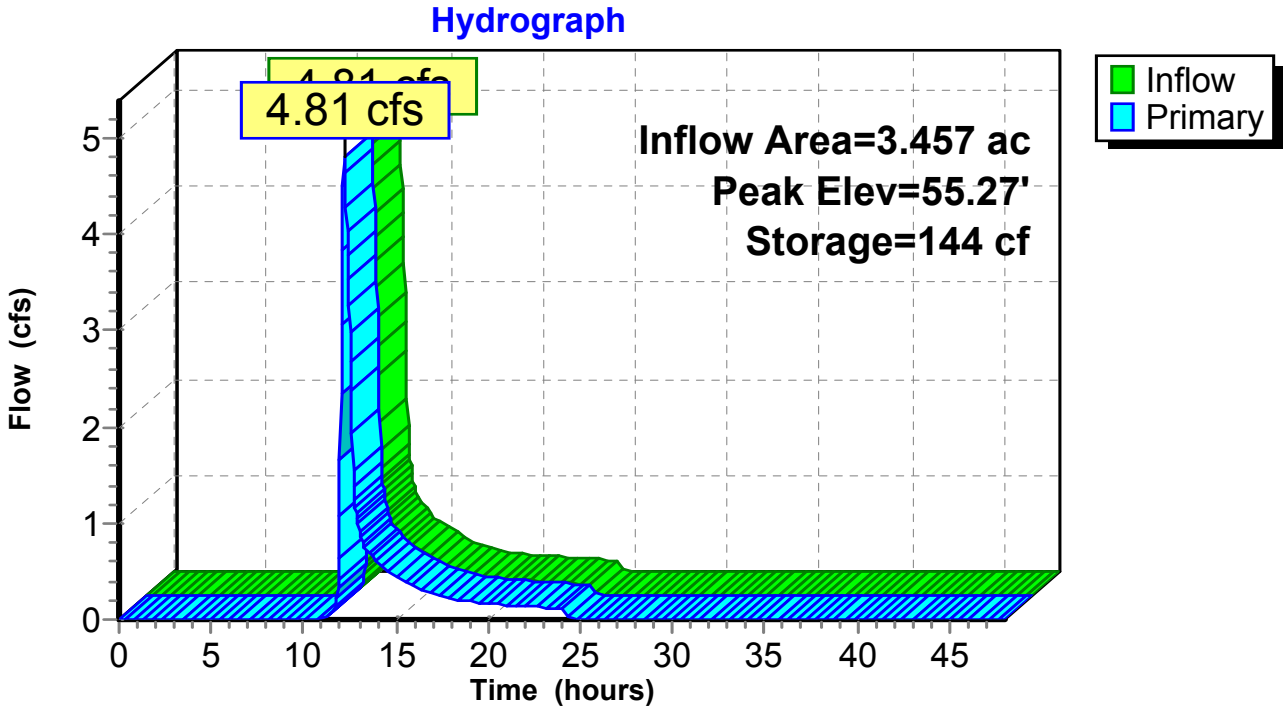
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	14,409 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
55.00	10	0	0
56.00	3,962	1,986	1,986
57.00	20,884	12,423	14,409

Device	Routing	Invert	Outlet Devices
#1	Primary	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 66.00
#2	Device 1	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 84.00

Primary OutFlow Max=4.77 cfs @ 12.21 hrs HW=55.27' TW=0.00' (Dynamic Tailwater)
└─**1=Custom Weir/Orifice** (Weir Controls 4.77 cfs @ 1.46 fps)
  └─**2=Custom Weir/Orifice** (Passes 4.77 cfs of 5.64 cfs potential flow)

Pond W1: BVW


Hydrograph
4.81 cfs
Inflow Area=3.457 ac
Peak Elev=55.27'
Storage=144 cf
Inflow
Primary
Flow (cfs)
0
1
2
3
4
5
0
5
10
15
20
25
30
35
40
45
Time (hours)

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1A-S: Sub-1A Runoff Area=12,960 sf 68.56% Impervious Runoff Depth=4.68"
Tc=6.0 min CN=79 Runoff=1.60 cfs 0.116 af

Subcatchment1B-S: Sub-1B Runoff Area=31,377 sf 0.00% Impervious Runoff Depth=0.52"
Flow Length=212' Tc=9.6 min CN=35 Runoff=0.14 cfs 0.031 af

Subcatchment1C-S: Sub-1C Runoff Area=19,404 sf 0.00% Impervious Runoff Depth=0.66"
Flow Length=269' Tc=16.6 min CN=37 Runoff=0.12 cfs 0.024 af

Subcatchment1D-S: Sub-1D Runoff Area=19,501 sf 3.95% Impervious Runoff Depth=0.88"
Flow Length=185' Tc=11.0 min CN=40 Runoff=0.22 cfs 0.033 af

Subcatchment2S: Sub-2 Runoff Area=16,140 sf 0.00% Impervious Runoff Depth=0.23"
Flow Length=164' Tc=8.6 min CN=30 Runoff=0.01 cfs 0.007 af

Subcatchment3A-S: Sub-3A Runoff Area=72,040 sf 40.04% Impervious Runoff Depth=2.87"
Flow Length=534' Tc=9.4 min CN=62 Runoff=4.83 cfs 0.396 af

Subcatchment3B-S: Sub-3B Runoff Area=78,565 sf 21.55% Impervious Runoff Depth=2.58"
Flow Length=552' Tc=12.4 min CN=59 Runoff=4.22 cfs 0.387 af

Subcatchment4S: Sub-4 Runoff Area=15,787 sf 0.00% Impervious Runoff Depth=0.59"
Tc=6.0 min CN=36 Runoff=0.09 cfs 0.018 af

Subcatchment5S: Sub-5 Runoff Area=57,338 sf 15.20% Impervious Runoff Depth=1.46"
Flow Length=438' Tc=7.8 min CN=47 Runoff=1.71 cfs 0.160 af

Reach DP-1: DP-1 Inflow=1.70 cfs 0.173 af
Outflow=1.70 cfs 0.173 af

Reach DP-2: DP-2 Inflow=0.01 cfs 0.007 af
Outflow=0.01 cfs 0.007 af

Reach DP-3: DP-3 Inflow=7.16 cfs 0.770 af
Outflow=7.16 cfs 0.770 af

Reach DP-4: PL Inflow=0.09 cfs 0.018 af
Outflow=0.09 cfs 0.018 af

Reach DP-5: PL Inflow=1.71 cfs 0.160 af
Outflow=1.71 cfs 0.160 af

Pond D-1: Exist Detention Basin Peak Elev=62.00' Storage=7 cf Inflow=0.14 cfs 0.031 af
Discarded=0.14 cfs 0.031 af Primary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.031 af

Pond E-DB: Exist Detention Basin Peak Elev=59.63' Storage=2,274 cf Inflow=4.83 cfs 0.396 af
Outflow=3.17 cfs 0.383 af

Pond W1: BVW Peak Elev=55.32' Storage=208 cf Inflow=7.19 cfs 0.770 af
Outflow=7.16 cfs 0.770 af

Total Runoff Area = 7.418 ac Runoff Volume = 1.172 af Average Runoff Depth = 1.90"
80.15% Pervious = 5.945 ac 19.85% Impervious = 1.473 ac

Summary for Subcatchment 1A-S: Sub-1A

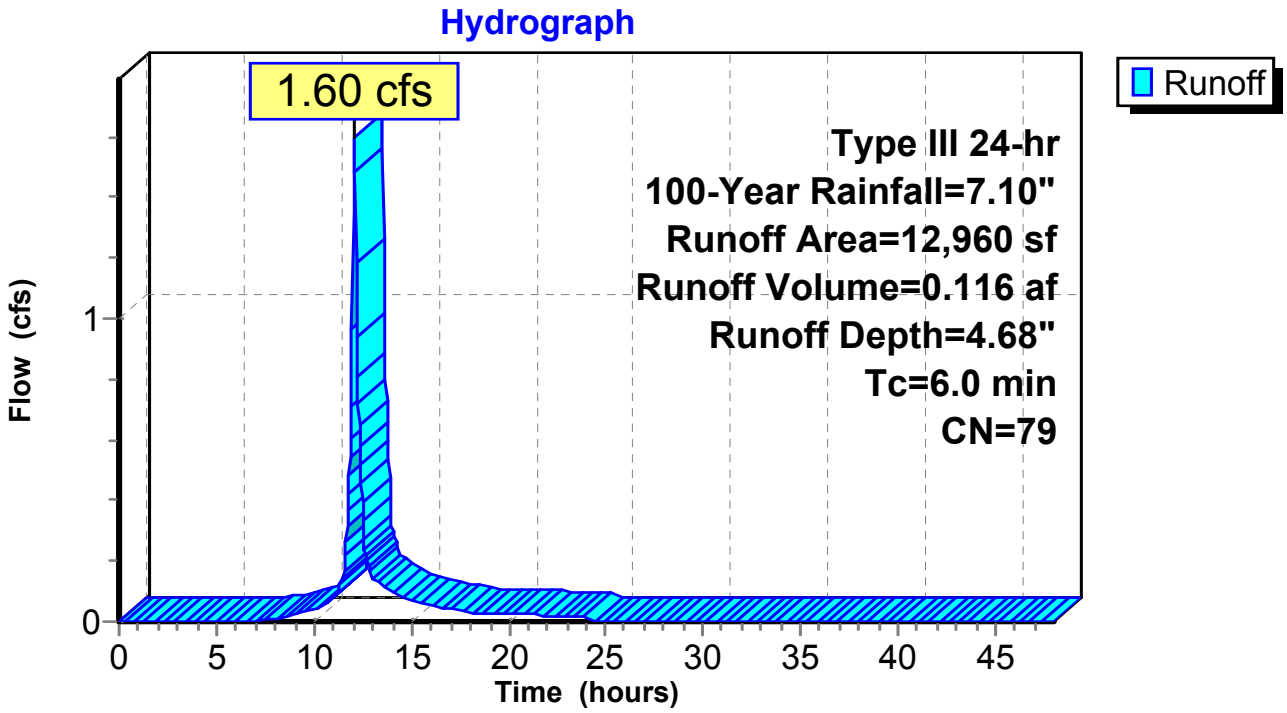
Runoff = 1.60 cfs @ 12.09 hrs, Volume= 0.116 af, Depth= 4.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
4,075	39	>75% Grass cover, Good, HSG A
8,885	98	Paved roads w/curbs & sewers, HSG A
12,960	79	Weighted Average
4,075		31.44% Pervious Area
8,885		68.56% Impervious Area

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

Subcatchment 1A-S: Sub-1A



Summary for Subcatchment 1B-S: Sub-1B

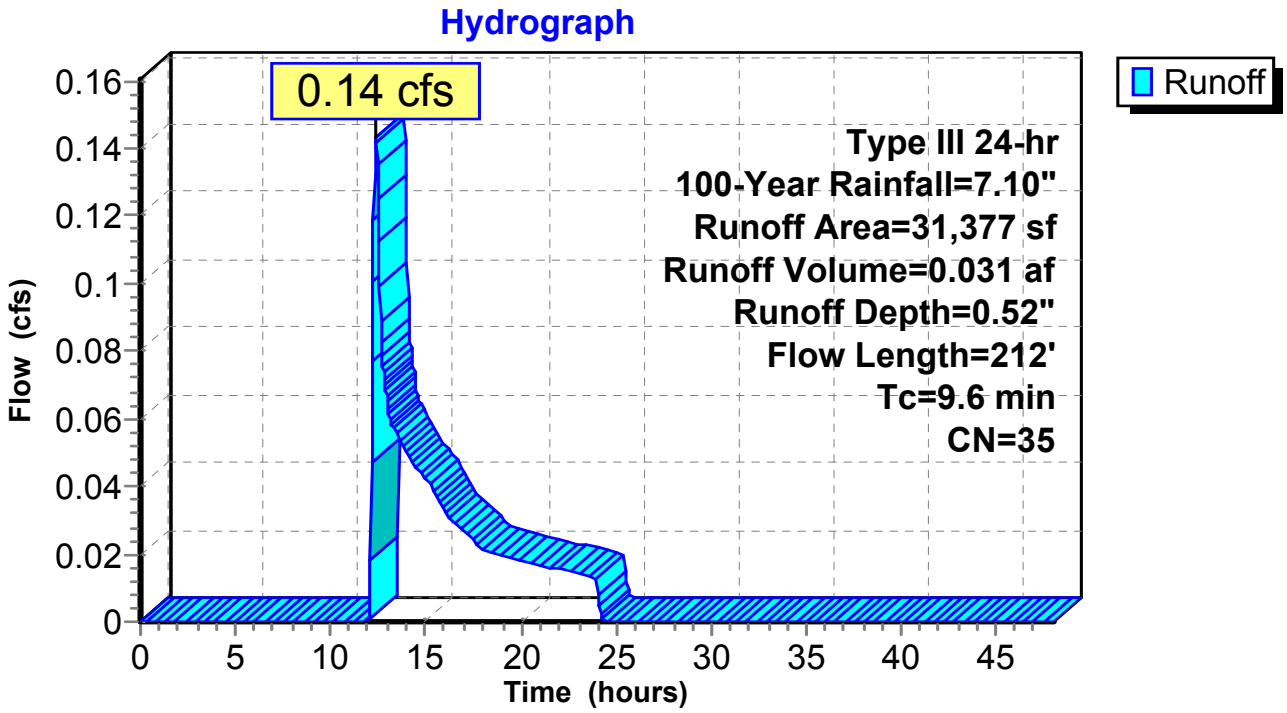
Runoff = 0.14 cfs @ 12.40 hrs, Volume= 0.031 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
22,072	30	Woods, Good, HSG A
1,755	39	>75% Grass cover, Good, HSG A
7,550	49	50-75% Grass cover, Fair, HSG A
31,377	35	Weighted Average
31,377		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0500	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.60"
1.5	162	0.0120	1.76		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
9.6	212	Total			

Subcatchment 1B-S: Sub-1B



Summary for Subcatchment 1C-S: Sub-1C

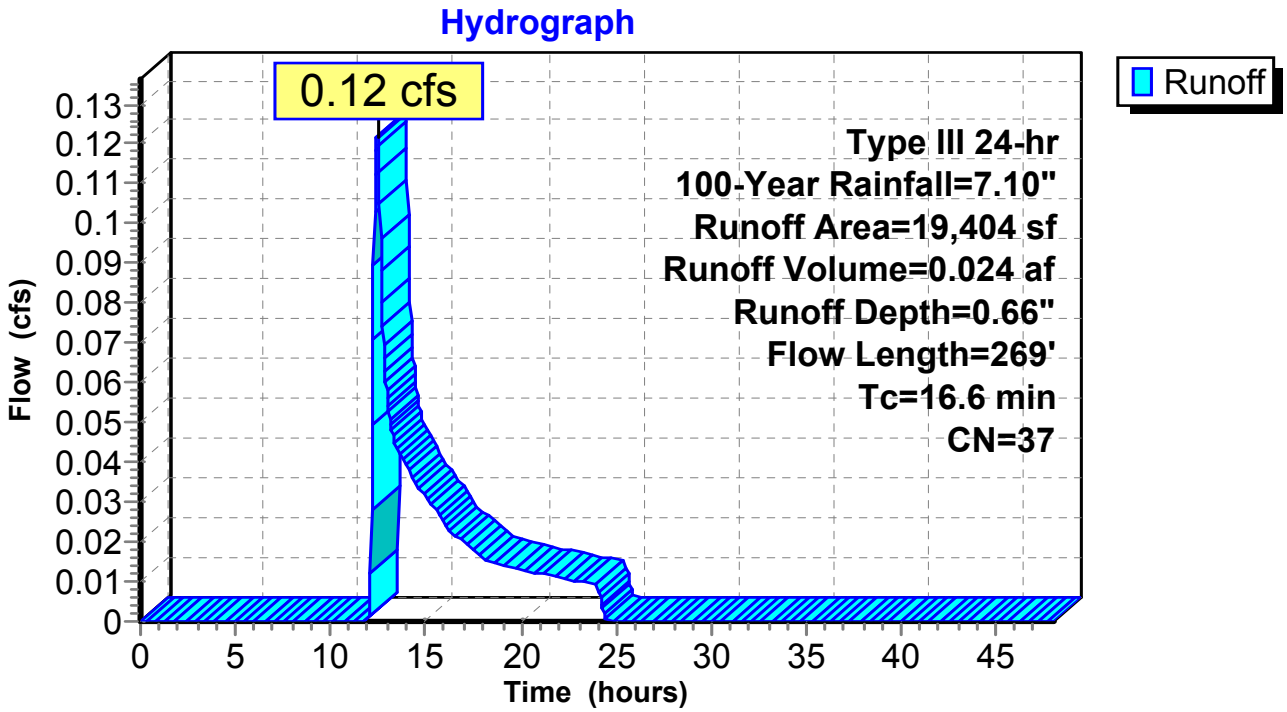
Runoff = 0.12 cfs @ 12.46 hrs, Volume= 0.024 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
	12,129	30	Woods, Good, HSG A
	1,513	39	>75% Grass cover, Good, HSG A
	3,840	55	Woods, Good, HSG B
*	899	30	Woods, Good, HSG A - offsite
	1,023	49	50-75% Grass cover, Fair, HSG A
	19,404	37	Weighted Average
	19,404		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	50	0.0120	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.60"
2.3	219	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
16.6	269	Total			

Subcatchment 1C-S: Sub-1C



Summary for Subcatchment 1D-S: Sub-1D

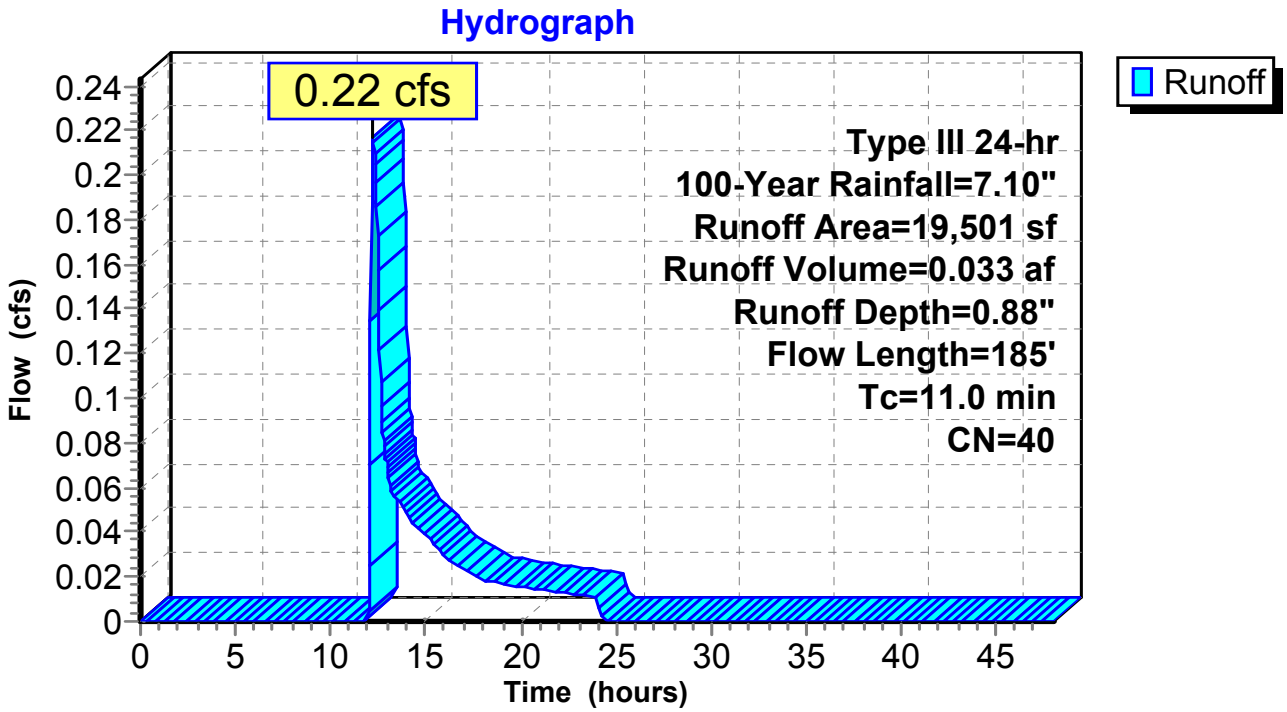
Runoff = 0.22 cfs @ 12.24 hrs, Volume= 0.033 af, Depth= 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
	10,890	39	>75% Grass cover, Good, HSG A
	2,684	49	50-75% Grass cover, Fair, HSG A
*	770	98	Rubble Pile, HSG A
	5,157	30	Woods, Good, HSG A
	19,501	40	Weighted Average
	18,731		96.05% Pervious Area
	770		3.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	50	0.0300	0.08		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.60"
1.1	135	0.0160	2.04		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
11.0	185	Total			

Subcatchment 1D-S: Sub-1D



Summary for Subcatchment 2S: Sub-2

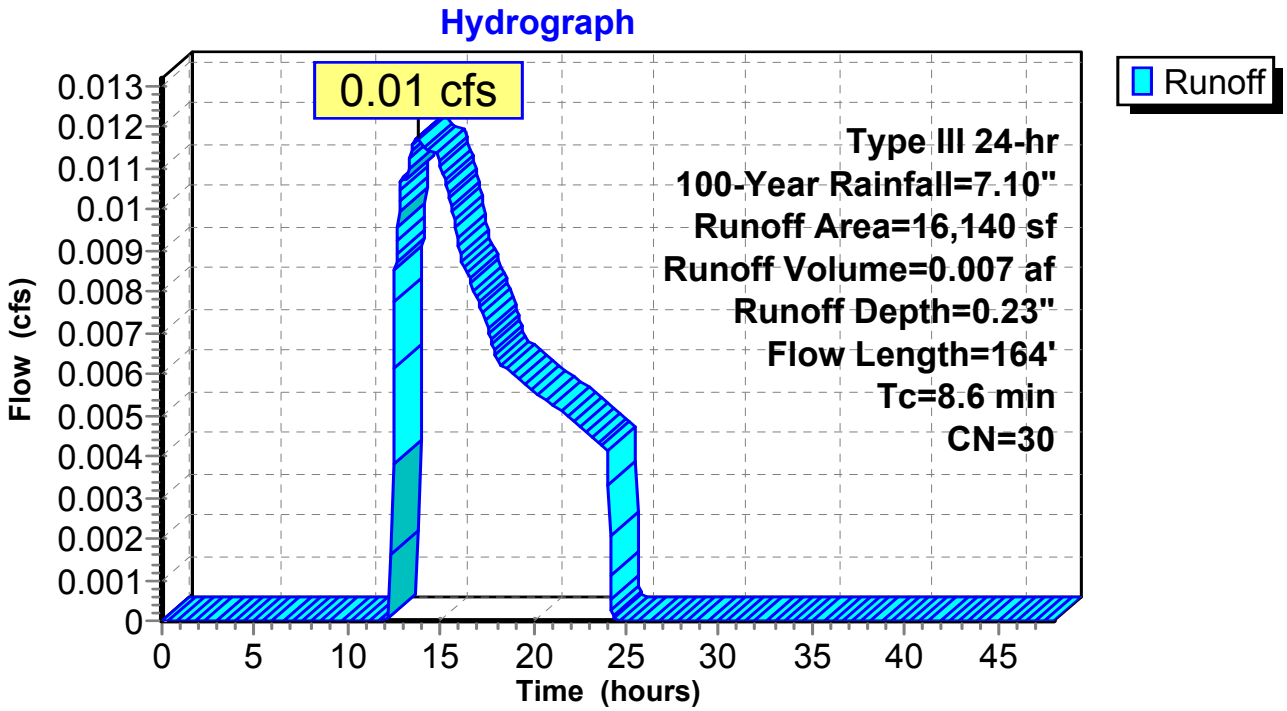
Runoff = 0.01 cfs @ 13.75 hrs, Volume= 0.007 af, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
16,140	30	Woods, Good, HSG A
16,140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.0800	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.60"
1.9	114	0.0383	0.98		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
8.6	164	Total			

Subcatchment 2S: Sub-2



Summary for Subcatchment 3A-S: Sub-3A

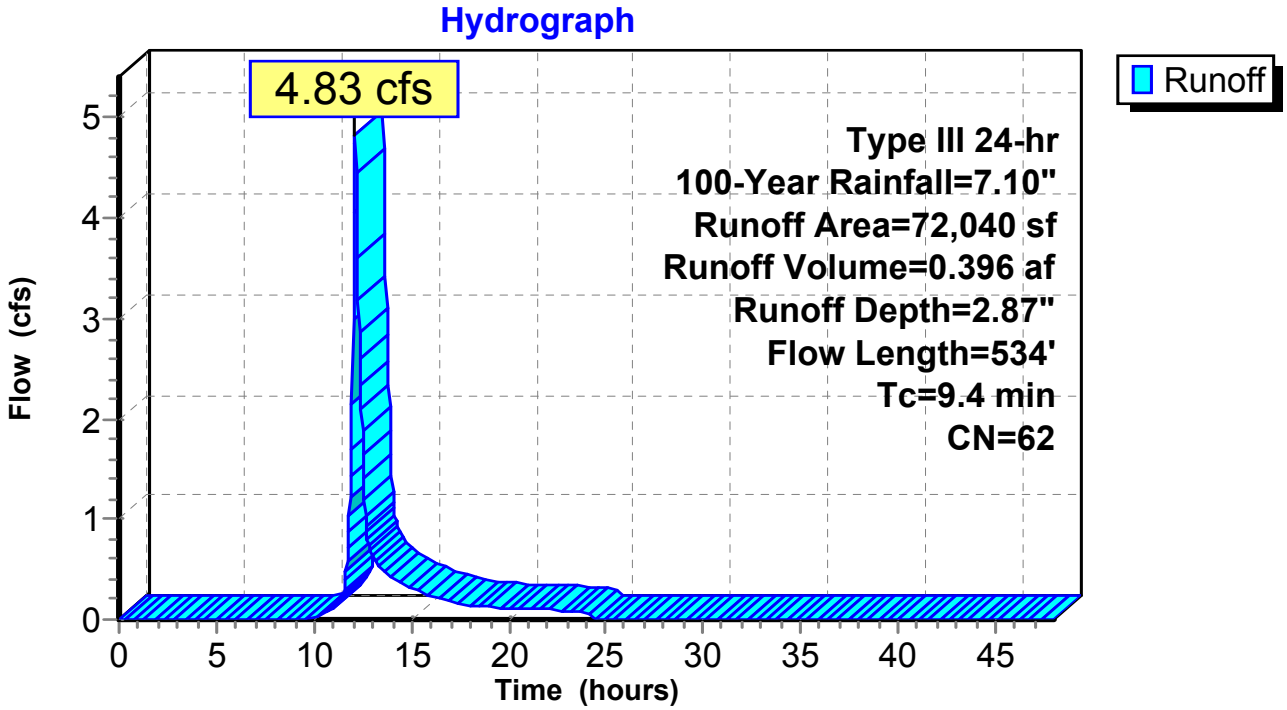
Runoff = 4.83 cfs @ 12.14 hrs, Volume= 0.396 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	1,384	98	Roofs, HSG A - offsite
*	16,069	98	Paved parking, HSG A - offsite
*	1,682	30	Woods, Good, HSG A - offsite
*	914	39	>75% Grass cover, Good, HSG A - offsite
	24,471	30	Woods, Good, HSG A
	6,905	39	>75% Grass cover, Good, HSG A
	2,407	98	Paved roads w/curbs & sewers, HSG A
*	2,712	98	Existing Detention Basin, HSG A
*	810	98	Riprap, HSG A
	3,247	98	Paved roads w/curbs & sewers, HSG B
	2,784	55	Woods, Good, HSG B
*	938	98	Riprap, HSG B
	6,442	61	>75% Grass cover, Good, HSG B
*	1,275	98	Existing Detention Basin, HSG B
	72,040	62	Weighted Average
	43,198		59.96% Pervious Area
	28,842		40.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	50	0.0160	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
1.8	225	0.0160	2.04		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	102	0.0090	1.93		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	157	0.0030	2.88	3.54	**Pipe Channel, RCP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
9.4	534	Total			

Subcatchment 3A-S: Sub-3A



Summary for Subcatchment 3B-S: Sub-3B

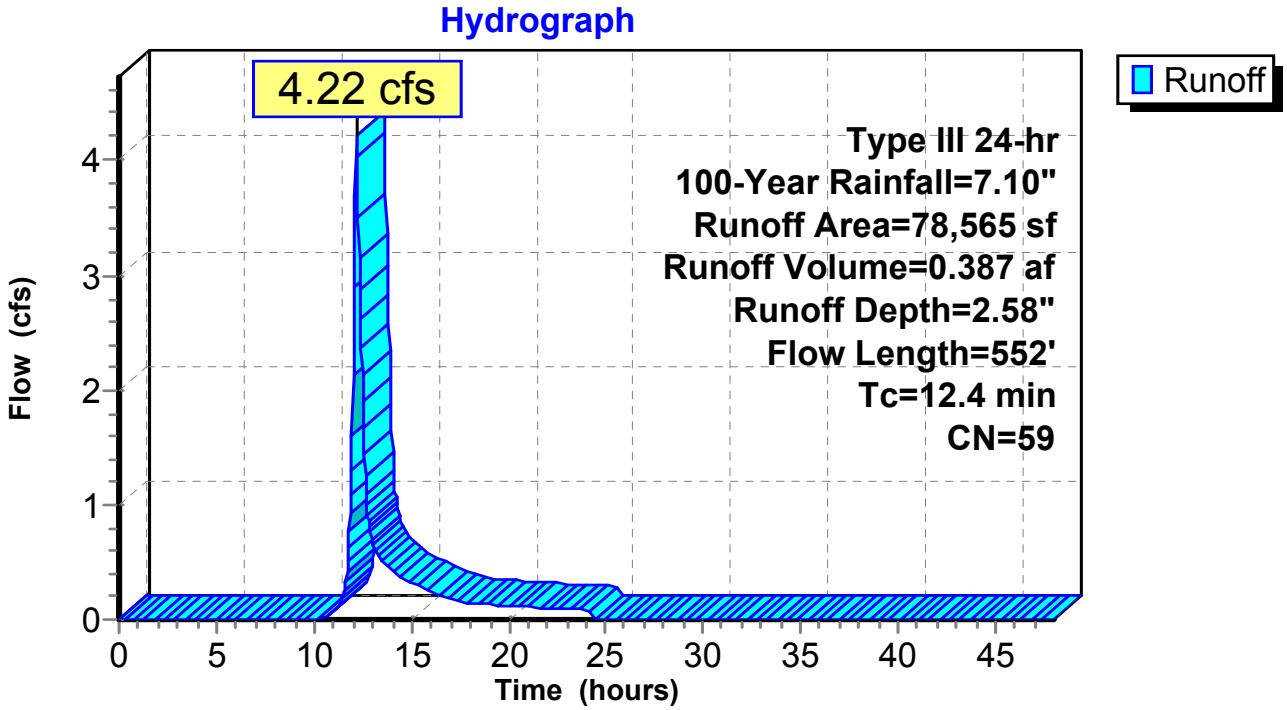
Runoff = 4.22 cfs @ 12.18 hrs, Volume= 0.387 af, Depth= 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	285	98	Riprap, HSG A
*	121	98	Riprap, HSG B
	9,681	30	Woods, Good, HSG A
	30,788	55	Woods, Good, HSG B
	1,762	39	>75% Grass cover, Good, HSG A
	8,282	61	>75% Grass cover, Good, HSG B
*	15,816	98	Wetlands, HSG B
*	4,310	30	Woods, Good, HSG A - offsite
*	418	98	Wetlands, HSG B - offsite
*	4,121	39	>75% Grass cover, Good, HSG A - offsite
*	290	98	Paved drive, HSG A - offsite
*	957	61	>75% Grass cover, Good, HSG B - offsite
*	1,734	55	Woods, Good, HSG B - offsite
	78,565	59	Weighted Average
	61,635		78.45% Pervious Area
	16,930		21.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	50	0.0700	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.60"
1.5	294	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.9	208	0.0030	0.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
12.4	552	Total			

Subcatchment 3B-S: Sub-3B



Summary for Subcatchment 4S: Sub-4

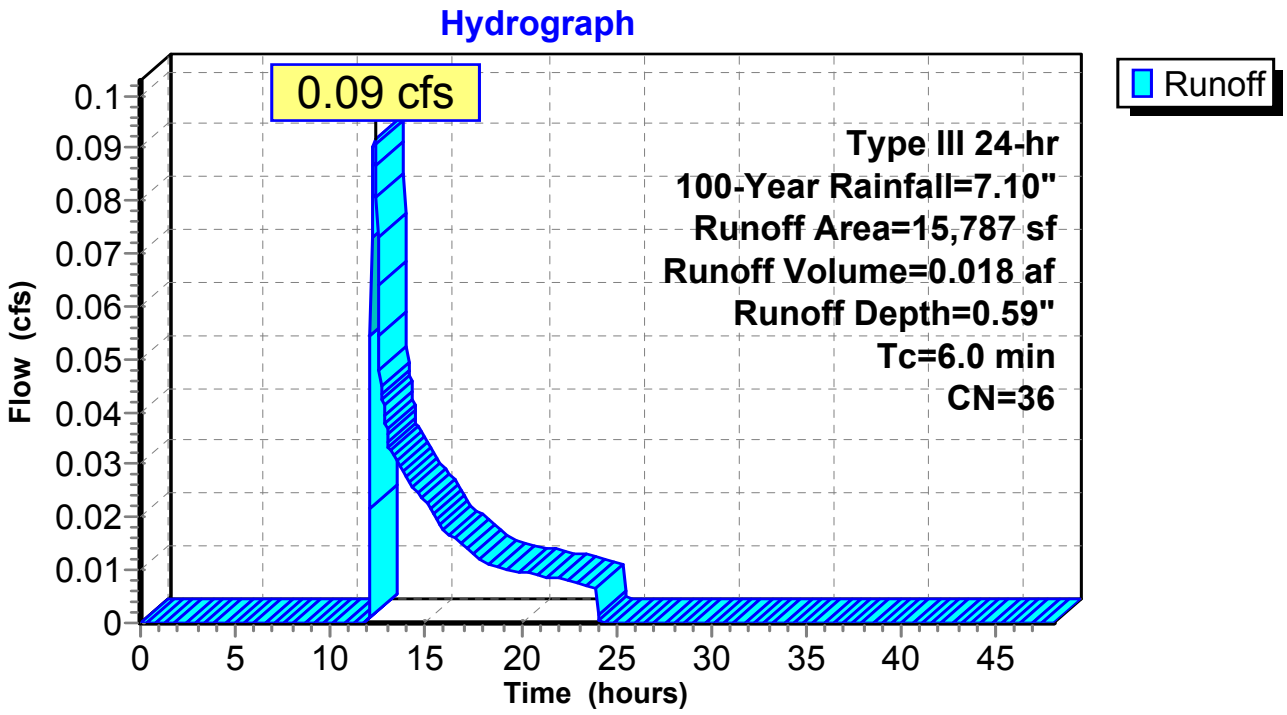
Runoff = 0.09 cfs @ 12.32 hrs, Volume= 0.018 af, Depth= 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
15,787	36	Woods, Fair, HSG A
15,787		100.00% Pervious Area

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

Subcatchment 4S: Sub-4



Summary for Subcatchment 5S: Sub-5

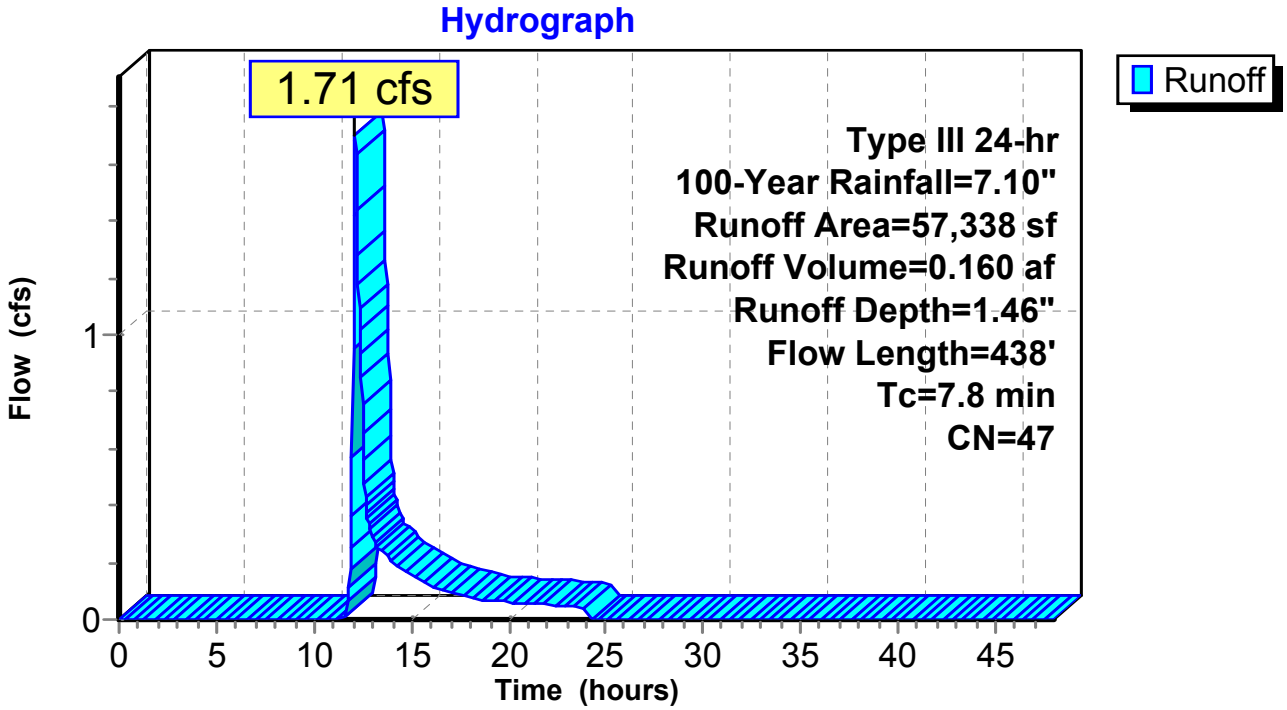
Runoff = 1.71 cfs @ 12.13 hrs, Volume= 0.160 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
	32,676	36	Woods, Fair, HSG A
	15,551	39	>75% Grass cover, Good, HSG A
	395	80	>75% Grass cover, Good, HSG D
*	293	98	Paved drive, HSG D
	2,148	98	Roofs, HSG A
*	5,322	98	Paved drive, HSG A
*	533	98	Patio, HSG A
*	235	98	Misc, HSG A
*	185	98	Ledge, HSG A
	57,338	47	Weighted Average
	48,622		84.80% Pervious Area
	8,716		15.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	39	0.1538	0.15		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.60"
1.8	11	0.1100	0.10		**Sheet Flow, B-C**
					Woods: Light underbrush n= 0.400 P2= 3.60"
0.1	22	0.1166	5.50		**Shallow Concentrated Flow, C-D**
					Unpaved Kv= 16.1 fps
0.2	54	0.0500	3.60		**Shallow Concentrated Flow, D-E**
					Unpaved Kv= 16.1 fps
0.2	52	0.0770	4.47		**Shallow Concentrated Flow, E-F**
					Unpaved Kv= 16.1 fps
1.0	175	0.0300	2.79		**Shallow Concentrated Flow, F-G**
					Unpaved Kv= 16.1 fps
0.3	85	0.1100	5.34		**Shallow Concentrated Flow, G-H**
					Unpaved Kv= 16.1 fps
7.8	438	Total			

Subcatchment 5S: Sub-5

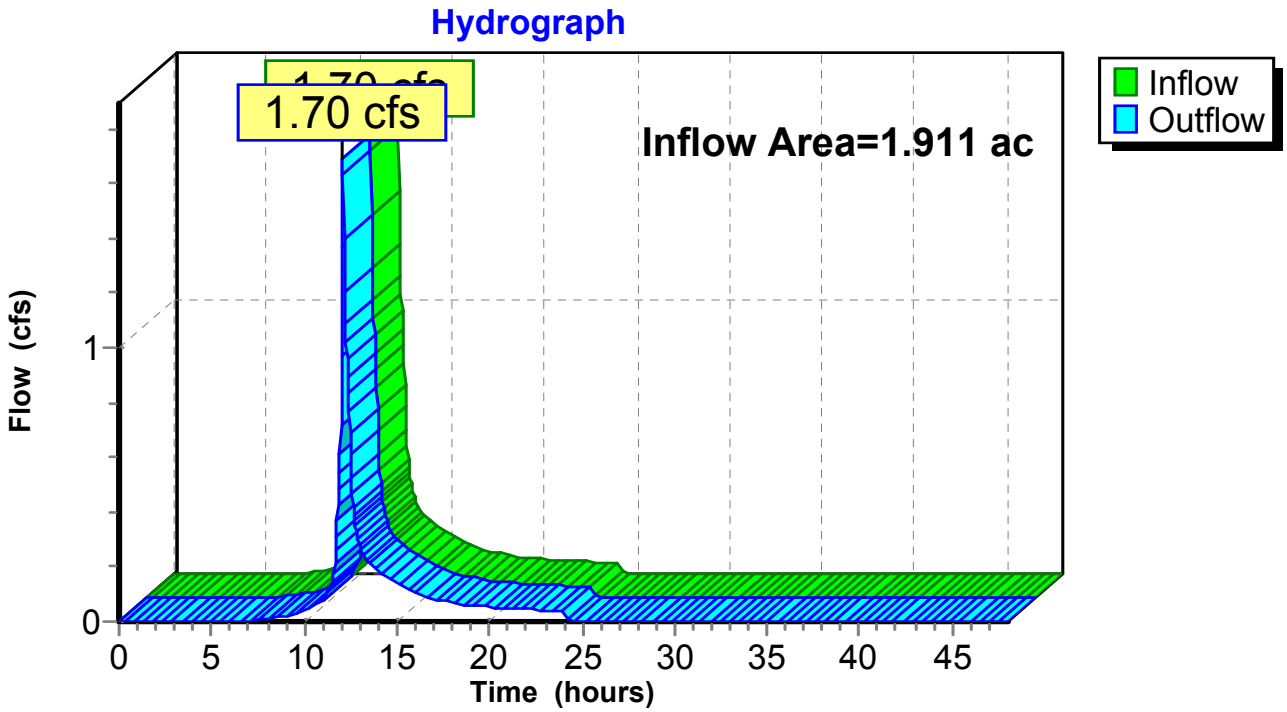


Summary for Reach DP-1: DP-1

Inflow Area = 1.911 ac, 11.60% Impervious, Inflow Depth = 1.09" for 100-Year event
Inflow = 1.70 cfs @ 12.10 hrs, Volume= 0.173 af
Outflow = 1.70 cfs @ 12.10 hrs, Volume= 0.173 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-1: DP-1

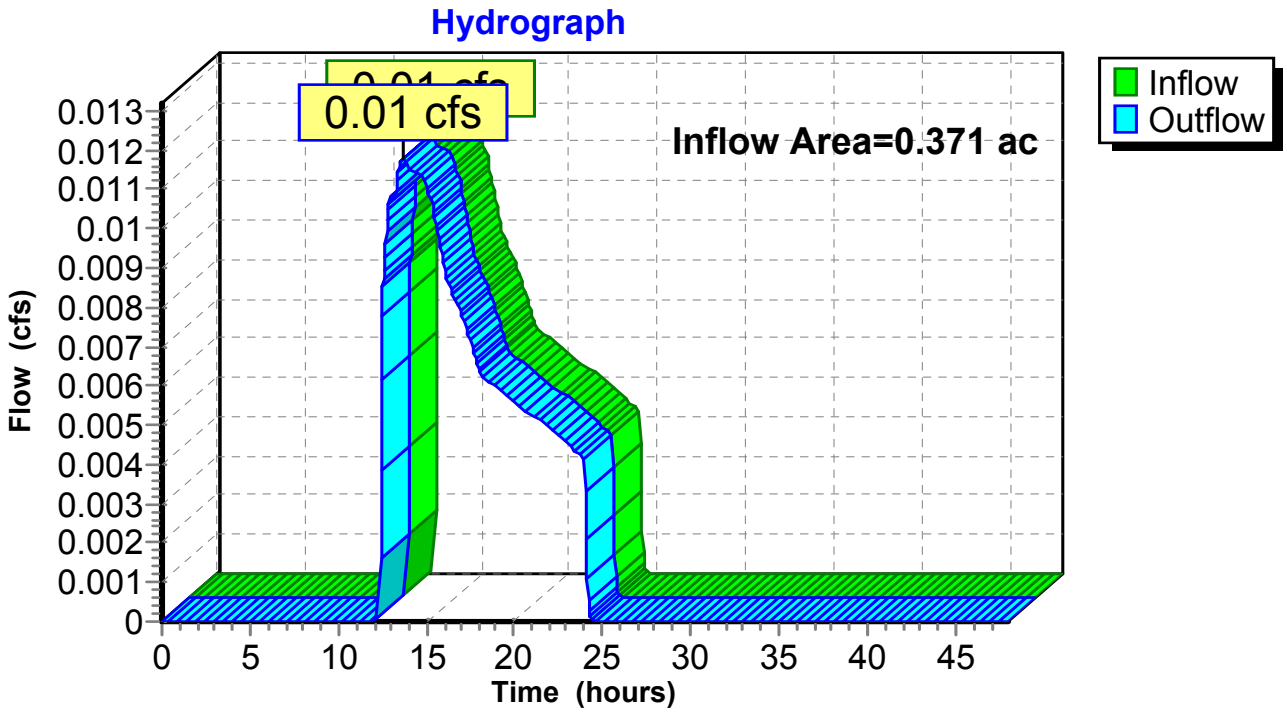


Summary for Reach DP-2: DP-2

Inflow Area = 0.371 ac, 0.00% Impervious, Inflow Depth = 0.23" for 100-Year event
Inflow = 0.01 cfs @ 13.75 hrs, Volume= 0.007 af
Outflow = 0.01 cfs @ 13.75 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-2: DP-2

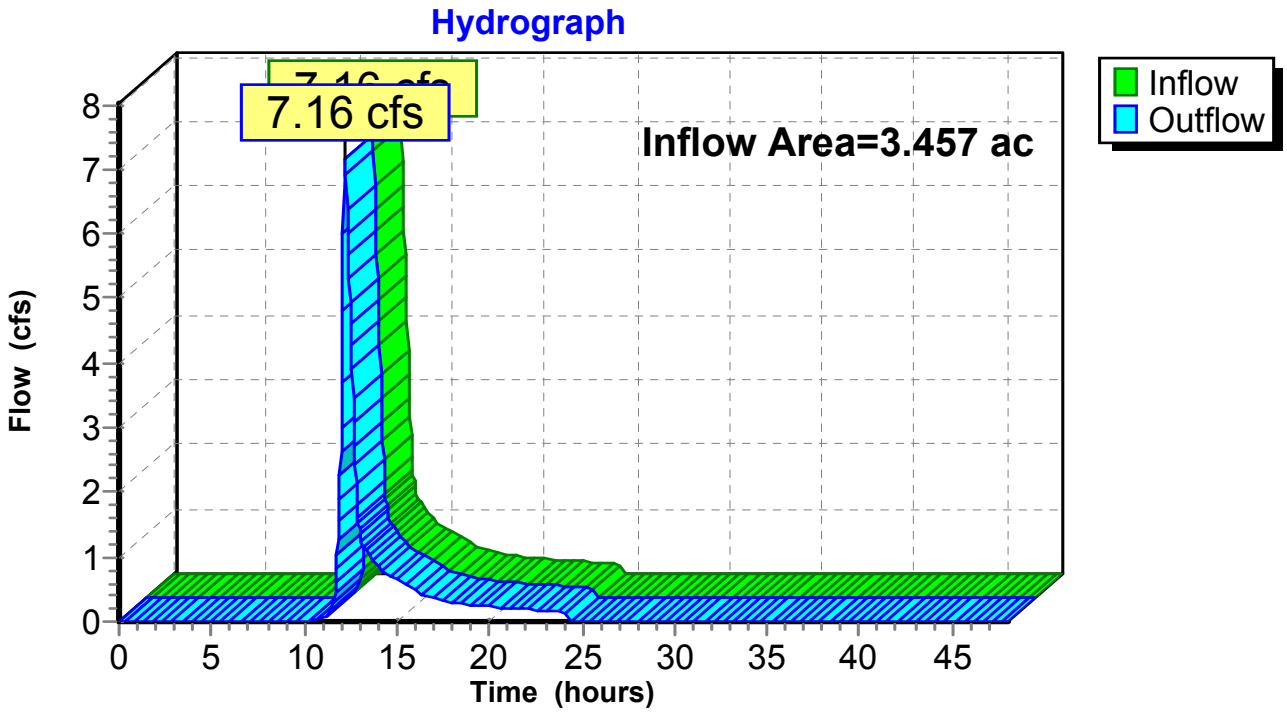


Summary for Reach DP-3: DP-3

Inflow Area = 3.457 ac, 30.39% Impervious, Inflow Depth = 2.67" for 100-Year event
Inflow = 7.16 cfs @ 12.21 hrs, Volume= 0.770 af
Outflow = 7.16 cfs @ 12.21 hrs, Volume= 0.770 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-3: DP-3

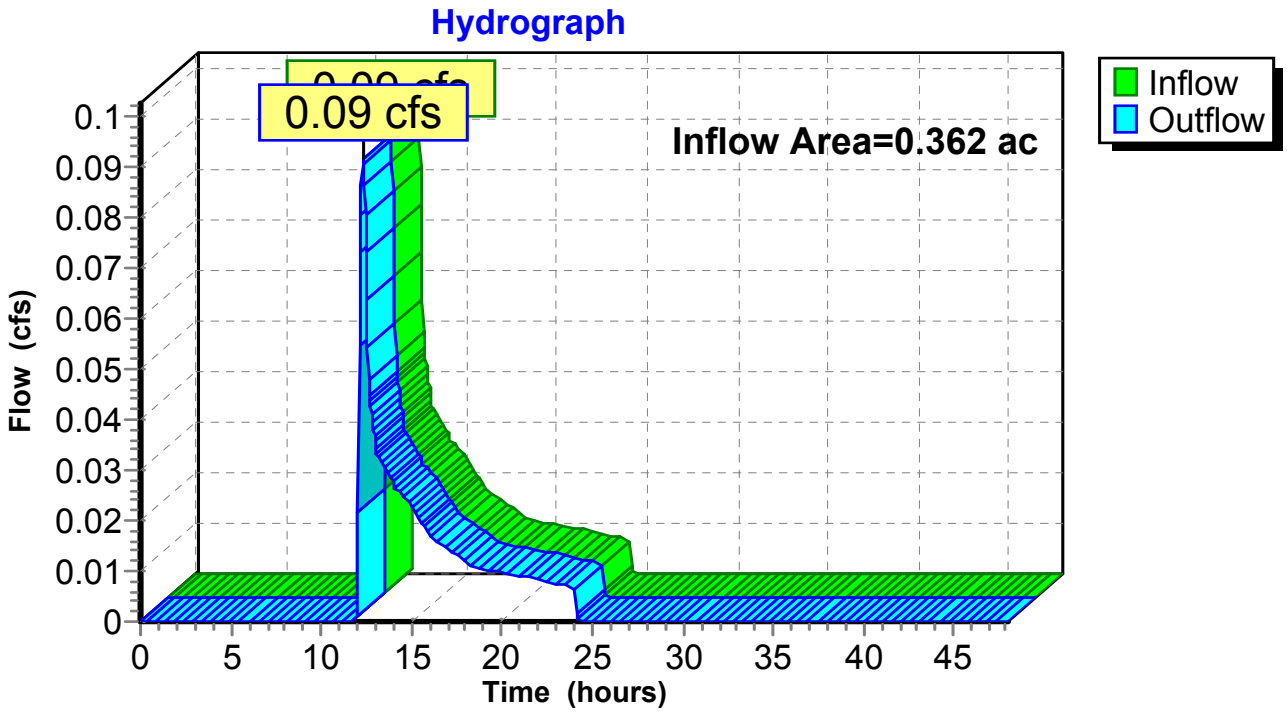


Summary for Reach DP-4: PL

Inflow Area = 0.362 ac, 0.00% Impervious, Inflow Depth = 0.59" for 100-Year event
Inflow = 0.09 cfs @ 12.32 hrs, Volume= 0.018 af
Outflow = 0.09 cfs @ 12.32 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-4: PL

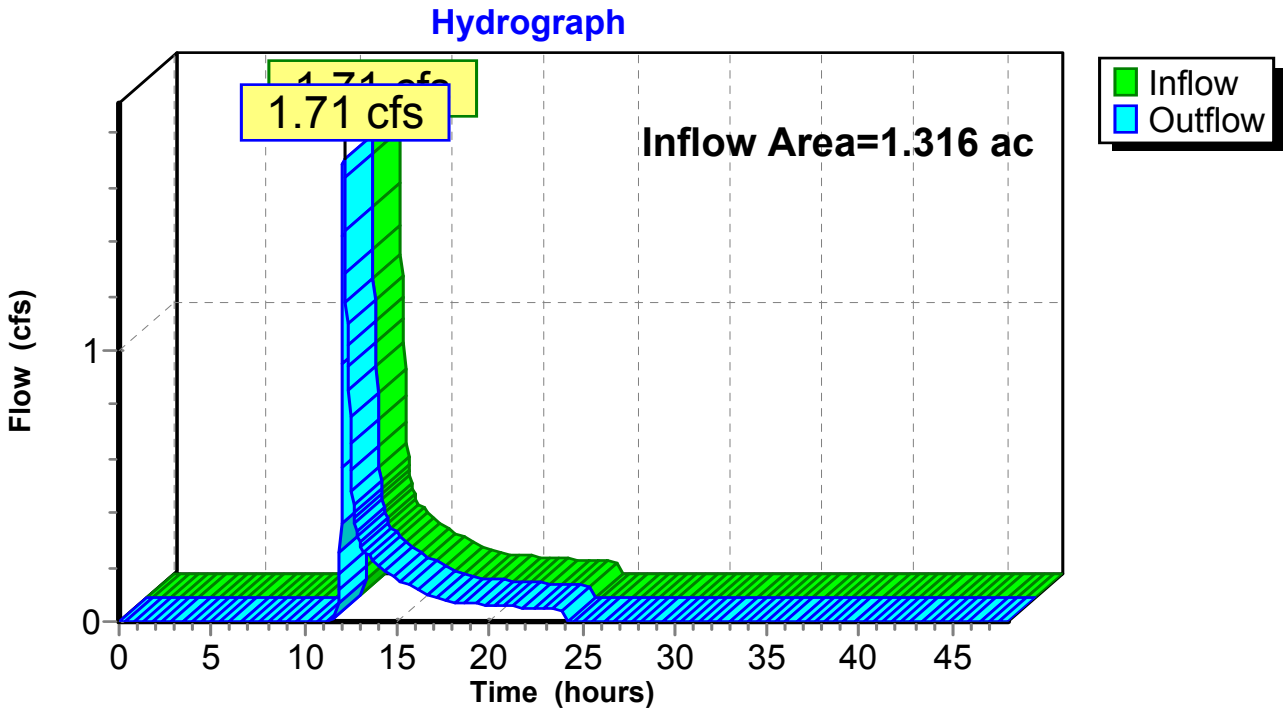


Summary for Reach DP-5: PL

Inflow Area = 1.316 ac, 15.20% Impervious, Inflow Depth = 1.46" for 100-Year event
Inflow = 1.71 cfs @ 12.13 hrs, Volume= 0.160 af
Outflow = 1.71 cfs @ 12.13 hrs, Volume= 0.160 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-5: PL



Summary for Pond D-1: Exist Detention Basin

Inflow Area =	0.720 ac,	0.00% Impervious,	Inflow Depth =	0.52"	for 100-Year event
Inflow =	0.14 cfs @	12.40 hrs,	Volume=	0.031 af	
Outflow =	0.14 cfs @	12.42 hrs,	Volume=	0.031 af,	Atten= 0%, Lag= 0.9 min
Discarded =	0.14 cfs @	12.42 hrs,	Volume=	0.031 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 62.00' @ 12.42 hrs Surf.Area= 4,340 sf Storage= 7 cf

Plug-Flow detention time= 0.9 min calculated for 0.031 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (964.5 - 963.6)

Volume	Invert	Avail.Storage	Storage Description
#1	62.00'	5,584 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

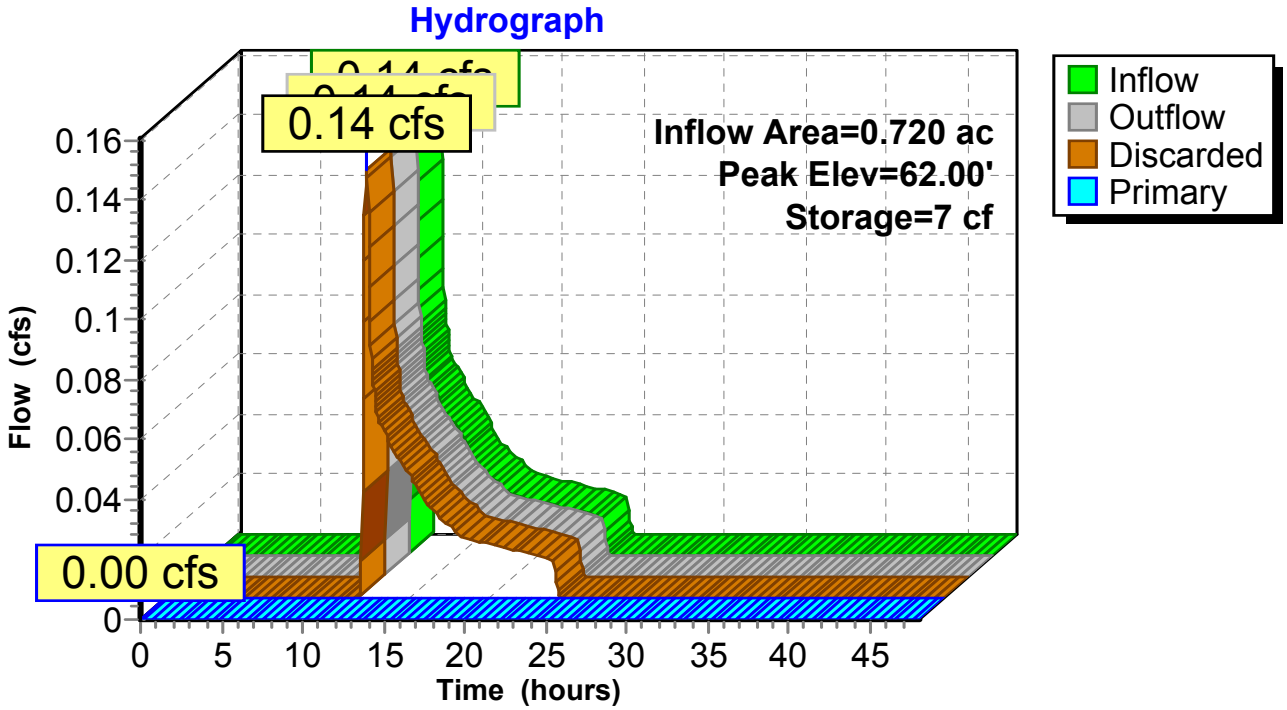
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
62.00	4,336	0	0
63.00	6,832	5,584	5,584

Device	Routing	Invert	Outlet Devices
#1	Primary	63.00'	**10.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	62.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.14 cfs @ 12.42 hrs HW=62.00' (Free Discharge)
└─**2=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=62.00' TW=0.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond D-1: Exist Detention Basin



Summary for Pond E-DB: Exist Detention Basin

Inflow Area = 1.654 ac, 40.04% Impervious, Inflow Depth = 2.87" for 100-Year event
Inflow = 4.83 cfs @ 12.14 hrs, Volume= 0.396 af
Outflow = 3.17 cfs @ 12.29 hrs, Volume= 0.383 af, Atten= 34%, Lag= 8.8 min
Primary = 3.17 cfs @ 12.29 hrs, Volume= 0.383 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 59.63' @ 12.29 hrs Surf.Area= 2,623 sf Storage= 2,274 cf

Plug-Flow detention time= 31.2 min calculated for 0.382 af (97% of inflow)
Center-of-Mass det. time= 12.5 min (863.6 - 851.2)

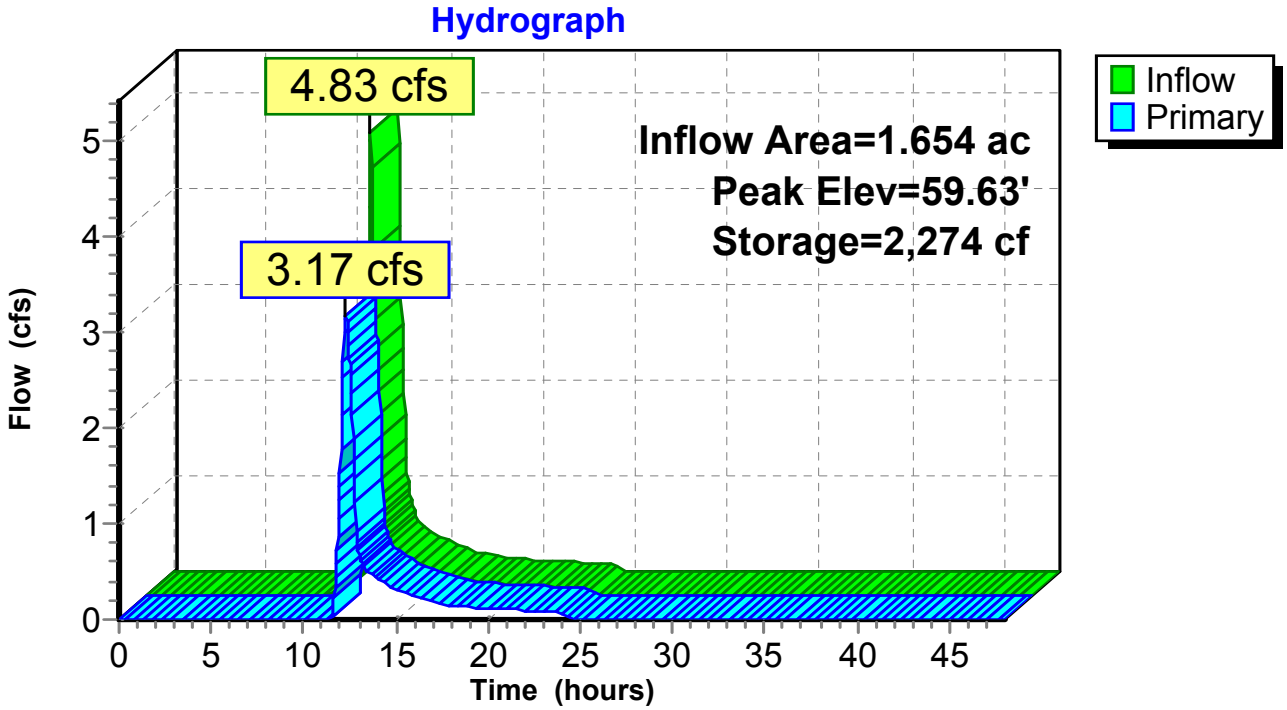
Volume	Invert	Avail.Storage	Storage Description
#1	58.00'	7,013 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.00	445	0	0
59.00	1,511	978	978
60.00	3,286	2,399	3,377
61.00	3,987	3,637	7,013

Device	Routing	Invert	Outlet Devices
#1	Primary	58.12'	**12.0" Round RCP_Round 12"** L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 58.12' / 58.05' S= 0.0028 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	58.71'	**5.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	59.41'	**2.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 2.0' Crest Height
#4	Device 1	60.66'	**7.0' long x 0.59' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 3.2' Crest Height

Primary OutFlow Max=3.16 cfs @ 12.29 hrs HW=59.63' TW=55.31' (Dynamic Tailwater)
└─**1=RCP_Round 12"** (Barrel Controls 3.16 cfs @ 4.03 fps)
  ├─**2=Sharp-Crested Rectangular Weir** (Passes < 13.80 cfs potential flow)
  ├─**3=Sharp-Crested Rectangular Weir** (Passes < 0.65 cfs potential flow)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond E-DB: Exist Detention Basin



Summary for Pond W1: BVW

Inflow Area = 3.457 ac, 30.39% Impervious, Inflow Depth = 2.67" for 100-Year event
Inflow = 7.19 cfs @ 12.21 hrs, Volume= 0.770 af
Outflow = 7.16 cfs @ 12.21 hrs, Volume= 0.770 af, Atten= 0%, Lag= 0.5 min
Primary = 7.16 cfs @ 12.21 hrs, Volume= 0.770 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 55.32' @ 12.21 hrs Surf.Area= 1,282 sf Storage= 208 cf

Plug-Flow detention time= 0.5 min calculated for 0.769 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (862.8 - 862.3)

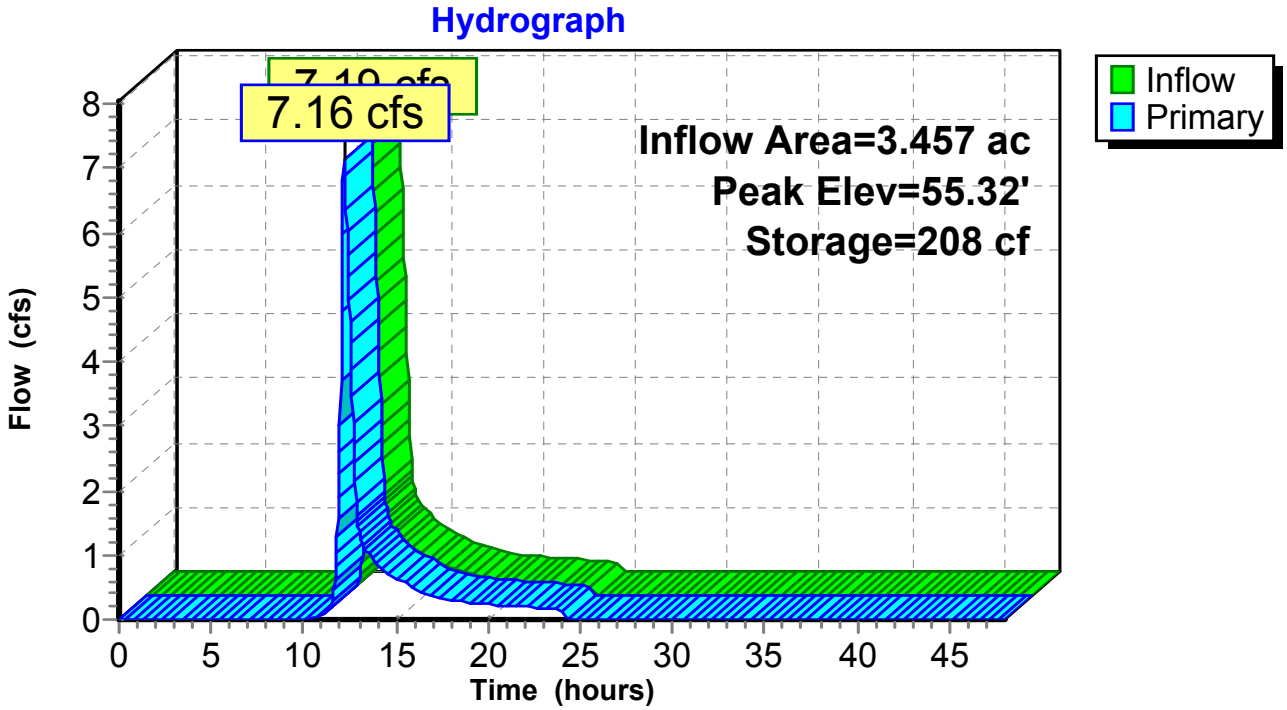
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	14,409 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
55.00	10	0	0
56.00	3,962	1,986	1,986
57.00	20,884	12,423	14,409

Device	Routing	Invert	Outlet Devices
#1	Primary	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 66.00
#2	Device 1	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 84.00

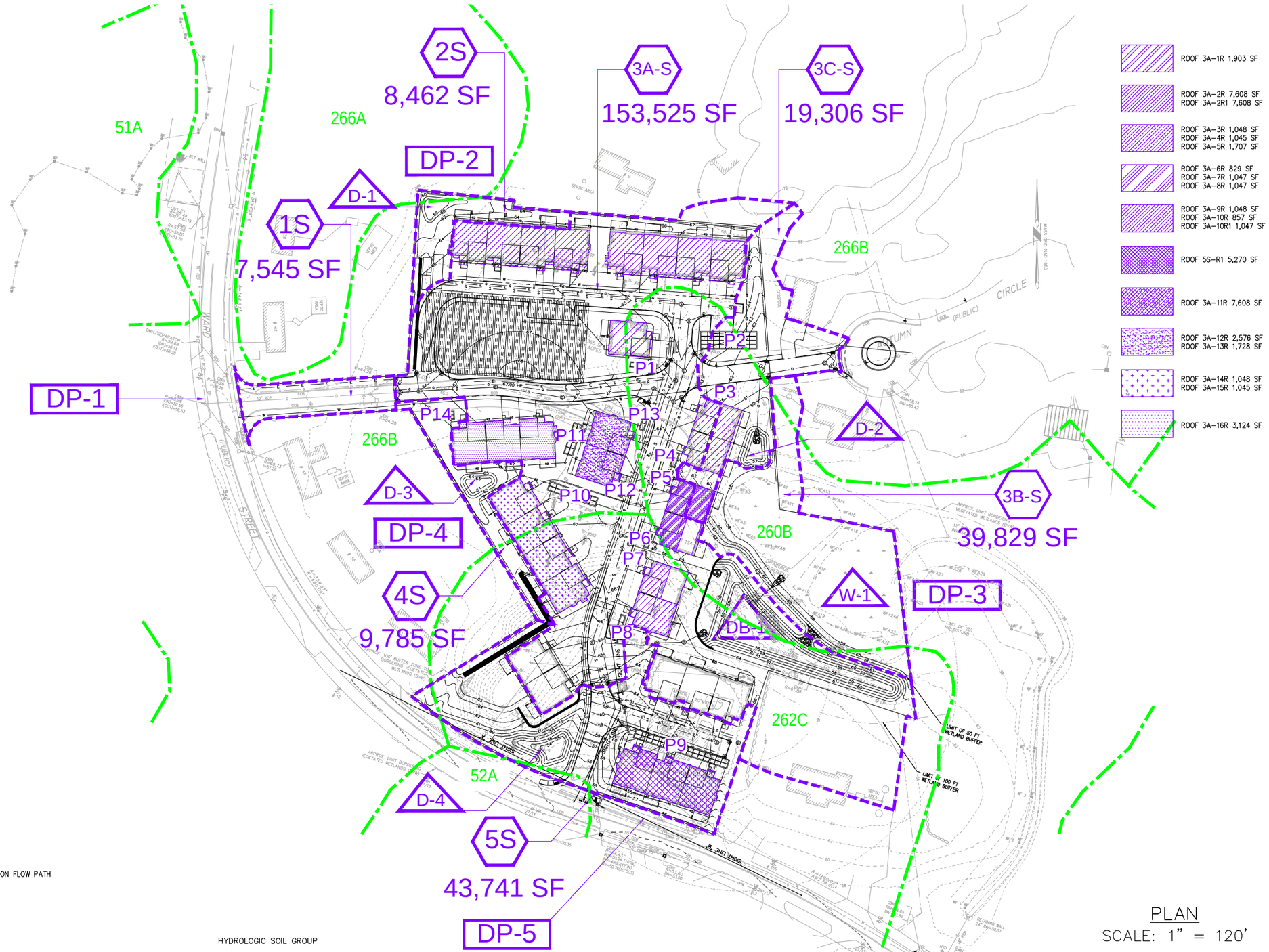
Primary OutFlow Max=7.12 cfs @ 12.21 hrs HW=55.32' TW=0.00' (Dynamic Tailwater)
└─**1=Custom Weir/Orifice** (Weir Controls 7.12 cfs @ 1.59 fps)
  └─**2=Custom Weir/Orifice** (Passes 7.12 cfs of 8.49 cfs potential flow)

Pond W1: BVW


Hydrograph
7.16 cfs
Inflow Area=3.457 ac
Peak Elev=55.32'
Storage=208 cf
Inflow
Primary
Flow (cfs)
0
1
2
3
4
5
6
7
8
0
5
10
15
20
25
30
35
40
45
Time (hours)

A P P E N D I X C

Soil Testing



LEGEND

- TIME OF CONCENTRATION FLOW PATH
- LIMIT OF WATERSHED
- SOIL TYPE BOUNDARY

SOIL KEY

SOIL CLASSIFICATION	DESCRIPTION	HYDROLOGIC SOIL GROUP
52A	FREETOWN MUCK	D
260B	SUDBURY FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES	B
262C	QUONSET SANDY LOAM, 8 TO 15 PERCENT SLOPES	A
266A	WARWICK FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES	A
266B	WARWICK FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES	A

PLAN
SCALE: 1" = 120'

120' 0 60' 120'

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REV	DATE	DESCRIPTION	BY	APP
1	2/2/18	REVIEW COMMENTS	SBS	BCM
2	3/9/18	REVIEW COMMENTS	SBS	BCM

MCKENZIE ENGINEERING GROUP
Assinippi Office Park
150 Longwater Drive, Suite 101
Norwell, MA 02061
Ph: 781-792-3900
www.mckeng.com

COMPREHENSIVE PERMIT PLAN

KNOWN AS
RIVER STONE
(ASSESSOR'S MAP 124, LOTS 70-75 & LOTS 26)
VIKING LANE & WARD STREET
HINGHAM, MASSACHUSETTS

PROFESSIONAL ENGINEER:

ZBA PERMIT PLAN

APPLICANR:
RIVER STONE, LLC
293R WASHINGTON STREET
NORWELL, MASSACHUSETTS 02061

DRAWN BY:	SBS
DESIGNED BY:	SBS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	JANUARY 8, 2018
SCALE:	1"=120'
PROJECT NO.:	27-135

DWG. TITLE:
Post-Dev. Watershed Plan

DWG. No:
WS-2

M:\MEG\2007 PROJECTS\27-135\DWGS\CUT SHEETS\SUBMISSION R5\27-135 WS-2 (R5).DWG

Routing Diagram for 27-135 Post-Development Final (R5)
Prepared by McKenzie Engineering Group, Inc.
HydroCAD® 10.00-21 s/n 00452 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.399	39	>75% Grass cover, Good, HSG A (1S, 2S, 3A-S, 3B-S, 3C-S, 4S, 4S-1, 5S, 5S-1, 5S-P)
0.081	39	>75% Grass cover, Good, HSG A - offsite (3A-S, 3B-S, 3C-S)
0.373	61	>75% Grass cover, Good, HSG B (3A-S, 3B-S, 3C-S)
0.022	61	>75% Grass cover, Good, HSG B - offsite (3B-S)
0.008	80	>75% Grass cover, Good, HSG D (5S)
0.136	98	Decks, HSG A (2S, 3A-S, 4S-1, 5S, 5S-1)
0.019	98	Decks, HSG B (3A-S, 3B-S, 3C-S)
0.175	98	Detention Basin, HSG A (3A-S)
0.095	98	Detention Basin, HSG B (3A-S)
0.046	98	Impervious, HSG A - offsite (3C-S)
0.332	98	Paved drives, HSG A (3A-S, 5S-P)
0.012	98	Paved drives, HSG A - offsite (3C-S)
0.058	98	Paved drives, HSG B (3A-S)
0.369	98	Paved parking, HSG A - offsite (3A-S)
0.602	98	Paved roads w/curbs & sewers, HSG A (3A-S, 3C-S, 5S, 5S-P)
0.013	98	Paved roads w/curbs & sewers, HSG A - offsite (3C-S)
0.239	98	Paved roads w/curbs & sewers, HSG B (3A-S, 3C-S)
0.007	98	Paved roads w/curbs & sewers, HSG D (5S)
0.098	98	Paved sidewalk, HSG A (3A-S, 3C-S)
0.002	98	Paved sidewalk, HSG A - offsite (3C-S)
0.035	98	Paved sidewalk, HSG B (3A-S, 3C-S)
0.004	98	Riprap, HSG B (3B-S)
1.151	98	Roofs, HSG A (3A-10R, 3A-10R1, 3A-11R, 3A-12R, 3A-13R, 3A-16R, 3A-1R, 3A-2R, 3A-2R1, 3A-8R, 3A-9R, 3A-S, 5S-R1)
0.032	98	Roofs, HSG A - offsite (3A-S)
0.249	98	Roofs, HSG B (3A-14R, 3A-15R, 3A-1R, 3A-3R, 3A-4R, 3A-5R, 3A-6R, 3A-7R, 3A-8R, 3A-S)
0.012	98	Sidewalk, HSG A (5S, 5S-P)
0.001	98	Sidewalk, HSG D (5S)
0.027	98	Walks, HSG A (3A-S, 5S-P)
0.004	98	Walks, HSG B (3A-S)
0.033	98	Walls, HSG A (2S, 3A-S, 4S-1, 5S-1)
0.362	98	Wetlands, HSG B (3B-S)
0.010	98	Wetlands, HSG B - offsite (3B-S)
0.033	30	Woods, Good, HSG A (3B-S)
0.158	30	Woods, Good, HSG A - offsite (3A-S, 3B-S, 3C-S)
0.249	55	Woods, Good, HSG B (3B-S)
0.040	55	Woods, Good, HSG B - offsite (3B-S)
7.487	**73**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
5.712	HSG A	1S, 2S, 3A-10R, 3A-10R1, 3A-11R, 3A-12R, 3A-13R, 3A-16R, 3A-1R, 3A-2R, 3A-2R1, 3A-8R, 3A-9R, 3A-S, 3B-S, 3C-S, 4S, 4S-1, 5S, 5S-1, 5S-P, 5S-R1
1.759	HSG B	3A-14R, 3A-15R, 3A-1R, 3A-3R, 3A-4R, 3A-5R, 3A-6R, 3A-7R, 3A-8R, 3A-S, 3B-S, 3C-S
0.000	HSG C	
0.016	HSG D	5S
0.000	Other	
7.487		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
2.480	0.395	0.000	0.008	0.000	2.883	>75% Grass cover, Good	1S, 2S, 3A-S, 3B-S, 3C-S, 4S, 4S-1, 5S, 5S-1, 5S-P
0.136	0.019	0.000	0.000	0.000	0.155	Decks	2S, 3A-S, 3B-S, 3C-S, 4S-1, 5S, 5S-1
0.175	0.095	0.000	0.000	0.000	0.270	Detention Basin	3A-S
0.046	0.000	0.000	0.000	0.000	0.046	Impervious	3C-S
0.344	0.058	0.000	0.000	0.000	0.402	Paved drives	3A-S, 3C-S, 5S-P

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.369	0.000	0.000	0.000	0.000	0.369	Paved parking	3A-S
0.615	0.239	0.000	0.007	0.000	0.862	Paved roads w/curbs & sewers	3A-S, 3C-S, 5S, 5S-P
0.100	0.035	0.000	0.000	0.000	0.135	Paved sidewalk	3A-S, 3C-S
0.000	0.004	0.000	0.000	0.000	0.004	Riprap	3B-S
1.183	0.249	0.000	0.000	0.000	1.432	Roofs	3A-10R, 3A-10R1, 3A-11R, 3A-12R, 3A-13R, 3A-14R, 3A-15R, 3A-16R, 3A-1R, 3A-2R.

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.012	0.000	0.000	0.001	0.000	0.013	Sidewalk	5S, 5S-P
0.027	0.004	0.000	0.000	0.000	0.031	Walks	3A-S, 5S-P
0.033	0.000	0.000	0.000	0.000	0.033	Walls	2S, 3A-S, 4S-1, 5S-1
0.000	0.372	0.000	0.000	0.000	0.372	Wetlands	3B-S
0.190	0.289	0.000	0.000	0.000	0.480	Woods, Good	3A-S, 3B-S, 3C-S
5.712	**1.759**	**0.000**	**0.016**	**0.000**	**7.487**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	DB-1	58.00	57.65	34.9	0.0100	0.013	12.0	0.0	0.0

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Sub-1 Runoff Area=7,545 sf 0.00% Impervious Runoff Depth=0.01"
Tc=6.0 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment2S: Sub-2 Runoff Area=8,462 sf 7.92% Impervious Runoff Depth=0.08"
Tc=6.0 min CN=44 Runoff=0.00 cfs 0.001 af

Subcatchment3A-10R: Roofs 15 B Runoff Area=857 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.006 af

Subcatchment3A-10R1: Roofs 15 F Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.007 af

Subcatchment3A-11R: Roofs 24-27 FB Runoff Area=7,608 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.61 cfs 0.049 af

Subcatchment3A-12R: Roofs 30-32 B Runoff Area=2,596 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.21 cfs 0.017 af

Subcatchment3A-13R: Roofs 28-29 B Runoff Area=1,728 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.011 af

Subcatchment3A-14R: Roofs 28-F Runoff Area=1,048 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.007 af

Subcatchment3A-15R: Roofs 29 F Runoff Area=1,045 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.007 af

Subcatchment3A-16R: Roofs 30-32 F Runoff Area=3,124 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.020 af

Subcatchment3A-1R: Roof 5 Runoff Area=1,903 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.012 af

Subcatchment3A-2R: Roofs 1-4 FB Runoff Area=7,608 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.61 cfs 0.049 af

Subcatchment3A-2R1: Roofs 6-9 FB Runoff Area=7,608 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.61 cfs 0.049 af

Subcatchment3A-3R: Roofs 10-F Runoff Area=1,048 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.007 af

Subcatchment3A-4R: Roofs 11 F Runoff Area=1,045 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.007 af

Subcatchment3A-5R: Roofs 10-11 B Runoff Area=1,707 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.011 af

Subcatchment3A-6R: Roofs 12 B Runoff Area=839 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.005 af

Subcatchment3A-7R: Roofs 12 F Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.007 af

Subcatchment3A-8R: Roofs 13 F Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.007 af

Subcatchment3A-9R: Roofs 14 F Runoff Area=1,048 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.007 af

Subcatchment3A-S: Sub-3A Runoff Area=153,525 sf 61.58% Impervious Runoff Depth=1.44"
Tc=6.0 min CN=76 Runoff=5.77 cfs 0.422 af

Subcatchment3B-S: Sub-3B Runoff Area=39,829 sf 42.08% Impervious Runoff Depth=1.13"
Tc=6.0 min CN=71 Runoff=1.13 cfs 0.086 af

Subcatchment3C-S: Sub-3C Runoff Area=19,306 sf 29.30% Impervious Runoff Depth=0.62"
Tc=6.0 min CN=61 Runoff=0.23 cfs 0.023 af

Subcatchment4S: Sub-4 Runoff Area=6,046 sf 0.00% Impervious Runoff Depth=0.01"
Tc=6.0 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment4S-1: Sub-4 Runoff Area=3,739 sf 31.27% Impervious Runoff Depth=0.45"
Tc=6.0 min CN=57 Runoff=0.03 cfs 0.003 af

Subcatchment5S: Sub -5 Runoff Area=9,637 sf 22.04% Impervious Runoff Depth=0.31"
Tc=6.0 min CN=53 Runoff=0.03 cfs 0.006 af

Subcatchment5S-1: Roofs 31-32 F Runoff Area=14,192 sf 8.55% Impervious Runoff Depth=0.08"
Tc=6.0 min CN=44 Runoff=0.00 cfs 0.002 af

Subcatchment5S-P: Pavement Runoff Area=14,192 sf 55.31% Impervious Runoff Depth=1.19"
Tc=6.0 min CN=72 Runoff=0.43 cfs 0.032 af

Subcatchment5S-R1: Roofs 19-21 FB Runoff Area=5,720 sf 100.00% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=98 Runoff=0.46 cfs 0.037 af

Reach DP-1: DMH Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-2: DP-2 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-3: DP-3 Inflow=1.12 cfs 0.234 af
Outflow=1.12 cfs 0.234 af

Reach DP-4: PL Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-5: PL Inflow=0.03 cfs 0.006 af
Outflow=0.03 cfs 0.006 af

Pond D-1: Depression Peak Elev=59.00' Storage=0 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond D-2: Depression Peak Elev=56.69' Storage=333 cf Inflow=0.43 cfs 0.039 af
Outflow=0.11 cfs 0.039 af

Pond D-3: Depression Peak Elev=63.00' Storage=1 cf Inflow=0.03 cfs 0.003 af
Outflow=0.03 cfs 0.003 af

Pond D-4: Depression Peak Elev=54.00' Storage=2 cf Inflow=0.00 cfs 0.002 af
Outflow=0.00 cfs 0.002 af

Pond DB-1: Prop Detention Basin Peak Elev=59.86' Storage=14,067 cf Inflow=5.77 cfs 0.422 af
Outflow=0.18 cfs 0.148 af

Pond P1: Infiltration Chambers Peak Elev=57.11' Storage=102 cf Inflow=0.15 cfs 0.012 af
Outflow=0.04 cfs 0.012 af

Pond P10: Infiltration Chambers Peak Elev=59.64' Storage=472 cf Inflow=0.61 cfs 0.049 af
Outflow=0.13 cfs 0.049 af

Pond P11: Infiltration Chambers Peak Elev=60.65' Storage=241 cf Inflow=0.34 cfs 0.028 af
Outflow=0.08 cfs 0.028 af

Pond P12: Infiltration Chambers Peak Elev=57.11' Storage=55 cf Inflow=0.08 cfs 0.007 af
Outflow=0.02 cfs 0.007 af

Pond P13: Infiltration Chambers Peak Elev=60.60' Storage=55 cf Inflow=0.08 cfs 0.007 af
Outflow=0.02 cfs 0.007 af

Pond P14: Infiltration Chambers Peak Elev=59.65' Storage=193 cf Inflow=0.25 cfs 0.020 af
Outflow=0.05 cfs 0.020 af

Pond P2: Infiltration Chambers Peak Elev=57.25' Storage=913 cf Inflow=1.21 cfs 0.098 af
Outflow=0.27 cfs 0.098 af

Pond P3: Infiltration Chambers Peak Elev=57.11' Storage=55 cf Inflow=0.08 cfs 0.007 af
Outflow=0.02 cfs 0.007 af

Pond P4: Infiltration Chambers Peak Elev=60.60' Storage=55 cf Inflow=0.08 cfs 0.007 af
Outflow=0.02 cfs 0.007 af

Pond P5: Infiltration Chambers Peak Elev=60.61' Storage=55 cf Inflow=0.08 cfs 0.007 af
Outflow=0.02 cfs 0.007 af

Pond P6: Infiltration Chambers Peak Elev=60.51' Storage=55 cf Inflow=0.08 cfs 0.007 af
Outflow=0.02 cfs 0.007 af

Pond P7: Infiltration Chambers Peak Elev=60.51' Storage=55 cf Inflow=0.08 cfs 0.007 af
Outflow=0.02 cfs 0.007 af

Pond P8: Infiltration Chambers Peak Elev=60.51' Storage=101 cf Inflow=0.15 cfs 0.012 af
Outflow=0.04 cfs 0.012 af

Pond P9: Infiltration Chambers Peak Elev=56.35' Storage=526 cf Inflow=0.88 cfs 0.069 af
Outflow=0.25 cfs 0.069 af

Pond W1: BVW Peak Elev=55.13' Storage=35 cf Inflow=1.13 cfs 0.234 af
Outflow=1.12 cfs 0.234 af

Total Runoff Area = 7.487 ac Runoff Volume = 0.896 af Average Runoff Depth = 1.44"
44.91% Pervious = 3.363 ac 55.09% Impervious = 4.125 ac

Summary for Subcatchment 1S: Sub-1

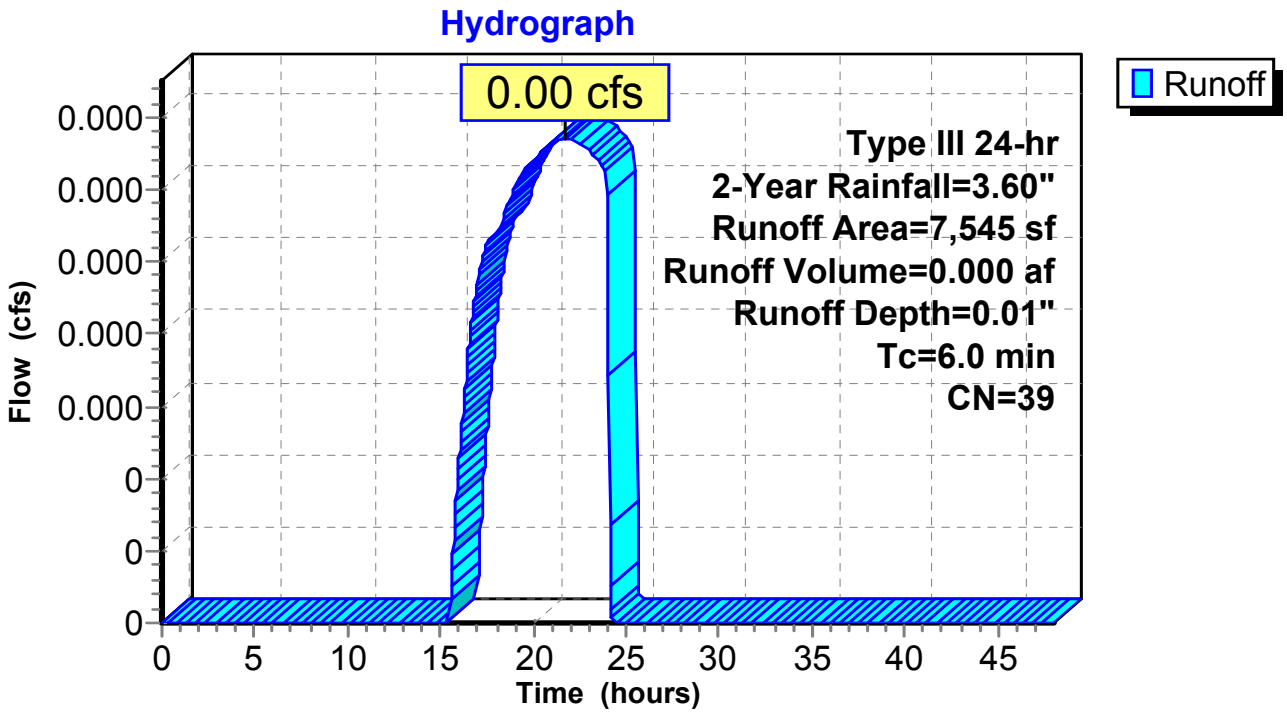
Runoff = 0.00 cfs @ 21.69 hrs, Volume= 0.000 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
7,545	39	>75% Grass cover, Good, HSG A
7,545		100.00% Pervious Area

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

Subcatchment 1S: Sub-1



Summary for Subcatchment 2S: Sub-2

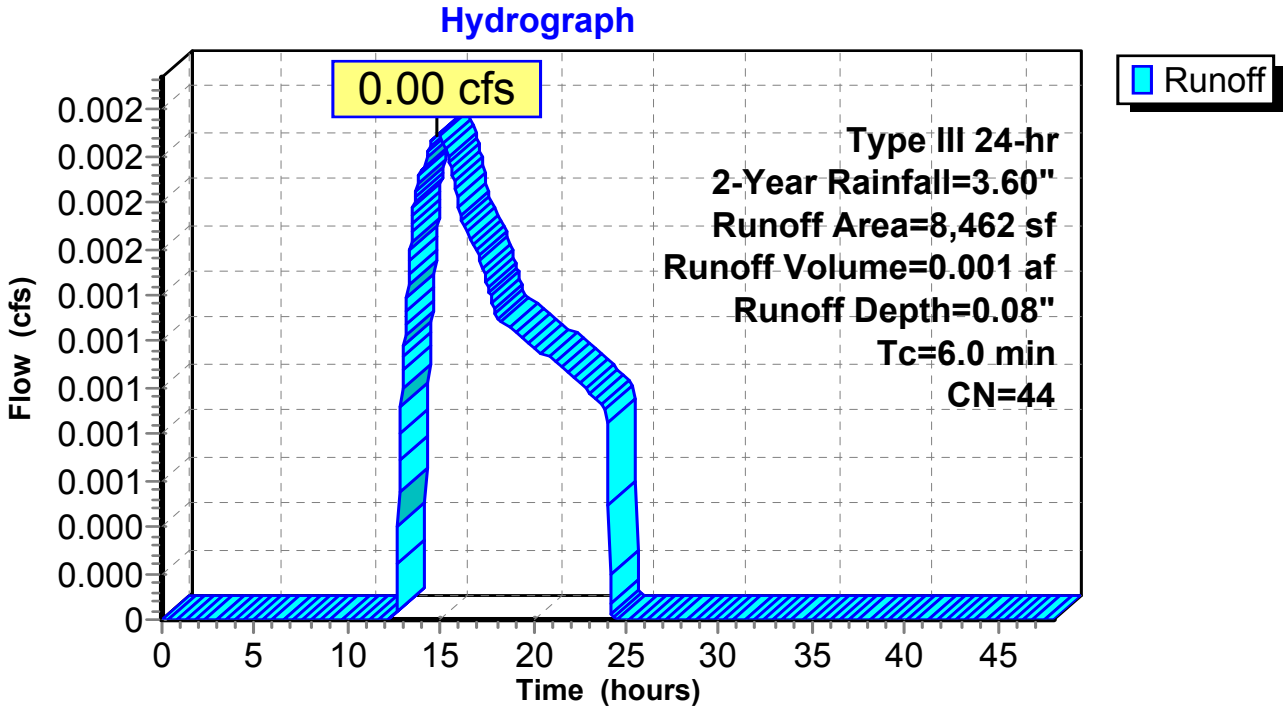
Runoff = 0.00 cfs @ 14.81 hrs, Volume= 0.001 af, Depth= 0.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
	7,792	39	>75% Grass cover, Good, HSG A
*	100	98	Walls, HSG A
*	570	98	Decks, HSG A
	8,462	44	Weighted Average
	7,792		92.08% Pervious Area
	670		7.92% Impervious Area

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

Subcatchment 2S: Sub-2



Summary for Subcatchment 3A-10R: Roofs 15 B

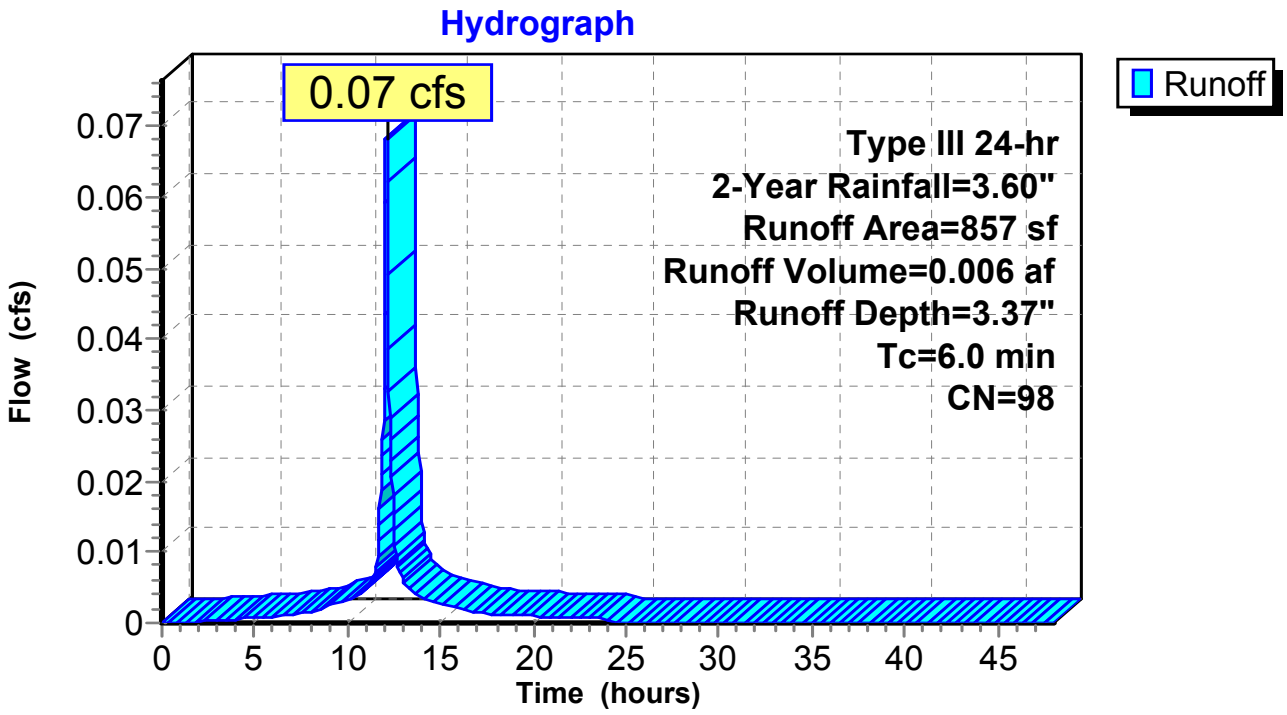
Runoff = 0.07 cfs @ 12.08 hrs, Volume= 0.006 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
857	98	Roofs, HSG A
857		100.00% Impervious Area

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

Subcatchment 3A-10R: Roofs 15 B



Summary for Subcatchment 3A-10R1: Roofs 15 F

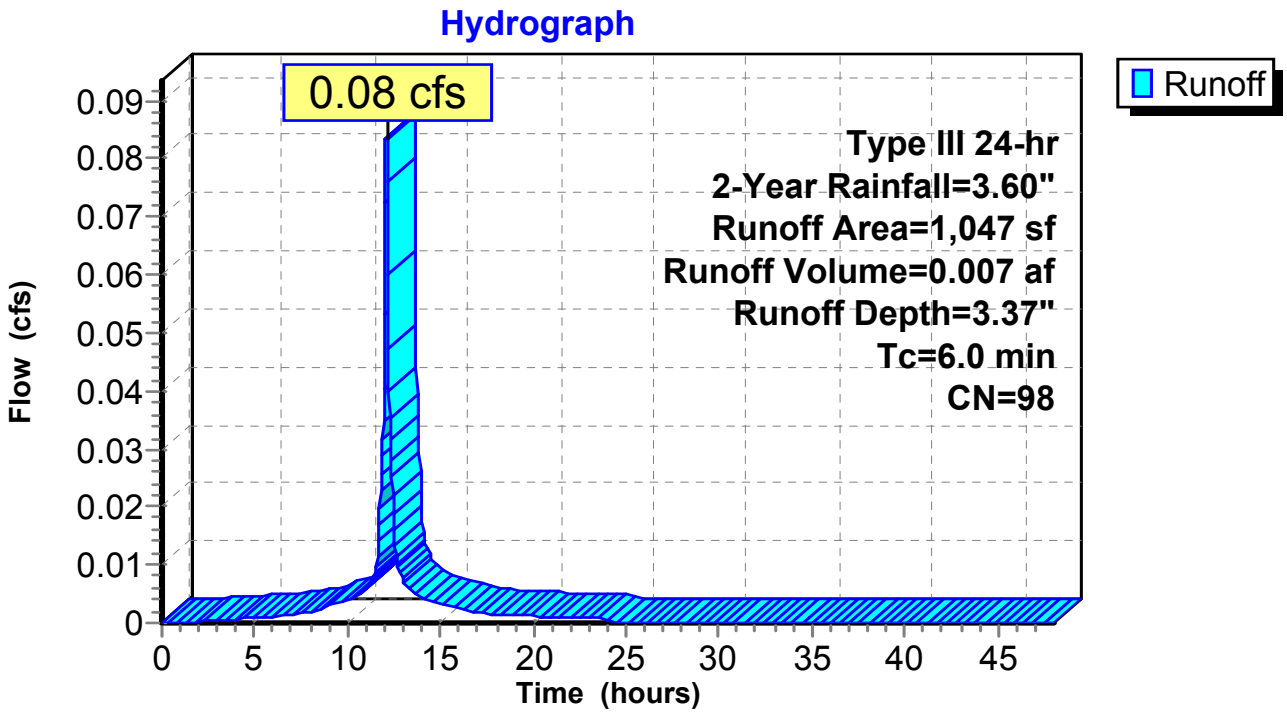
Runoff = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
1,047	98	Roofs, HSG A
1,047		100.00% Impervious Area

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

Subcatchment 3A-10R1: Roofs 15 F



Summary for Subcatchment 3A-11R: Roofs 24-27 FB

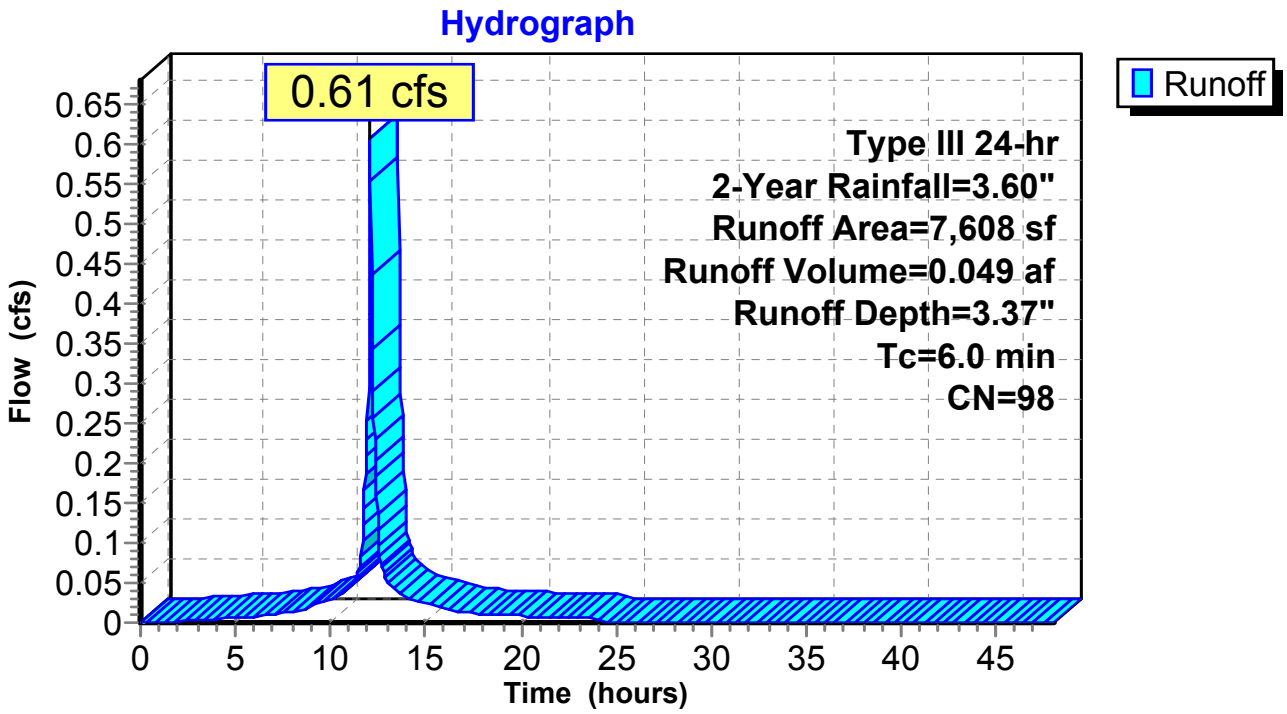
Runoff = 0.61 cfs @ 12.08 hrs, Volume= 0.049 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
4,152	98	Roofs, HSG A
3,456	98	Roofs, HSG A
7,608	98	Weighted Average
7,608		100.00% Impervious Area

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

Subcatchment 3A-11R: Roofs 24-27 FB



Summary for Subcatchment 3A-12R: Roofs 30-32 B

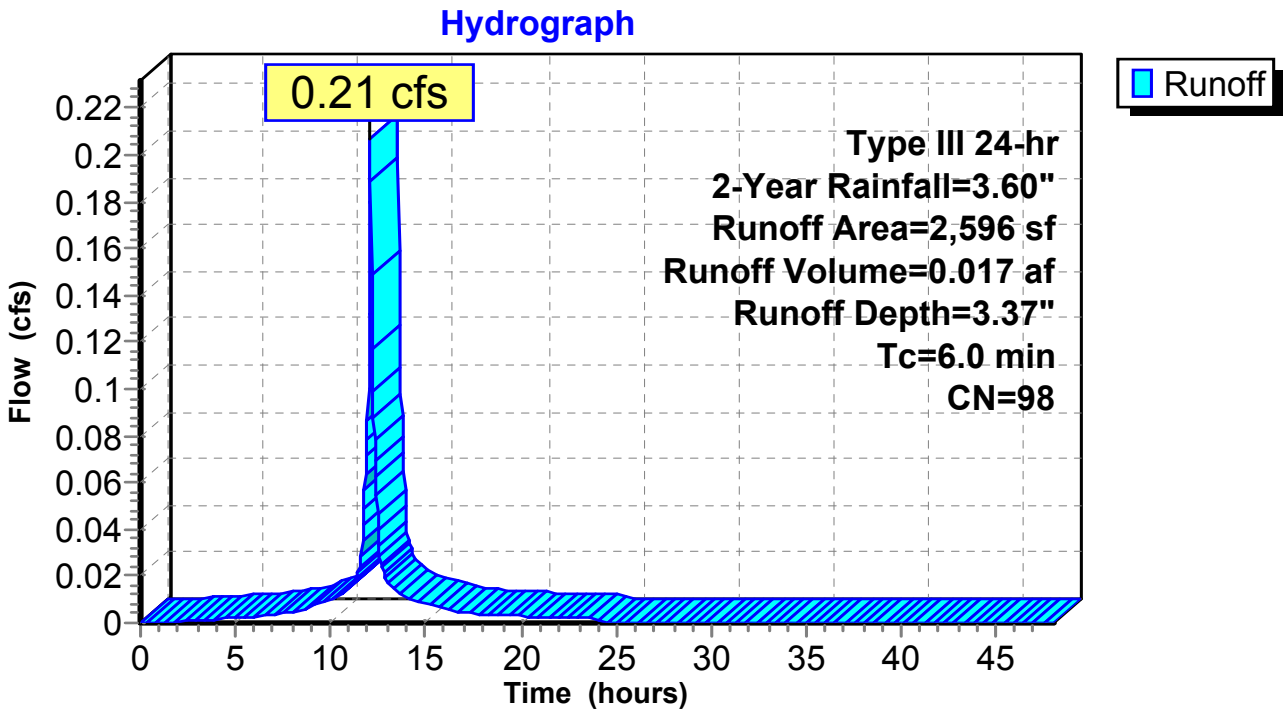
Runoff = 0.21 cfs @ 12.08 hrs, Volume= 0.017 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
2,596	98	Roofs, HSG A
2,596		100.00% Impervious Area

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

Subcatchment 3A-12R: Roofs 30-32 B



Summary for Subcatchment 3A-13R: Roofs 28-29 B

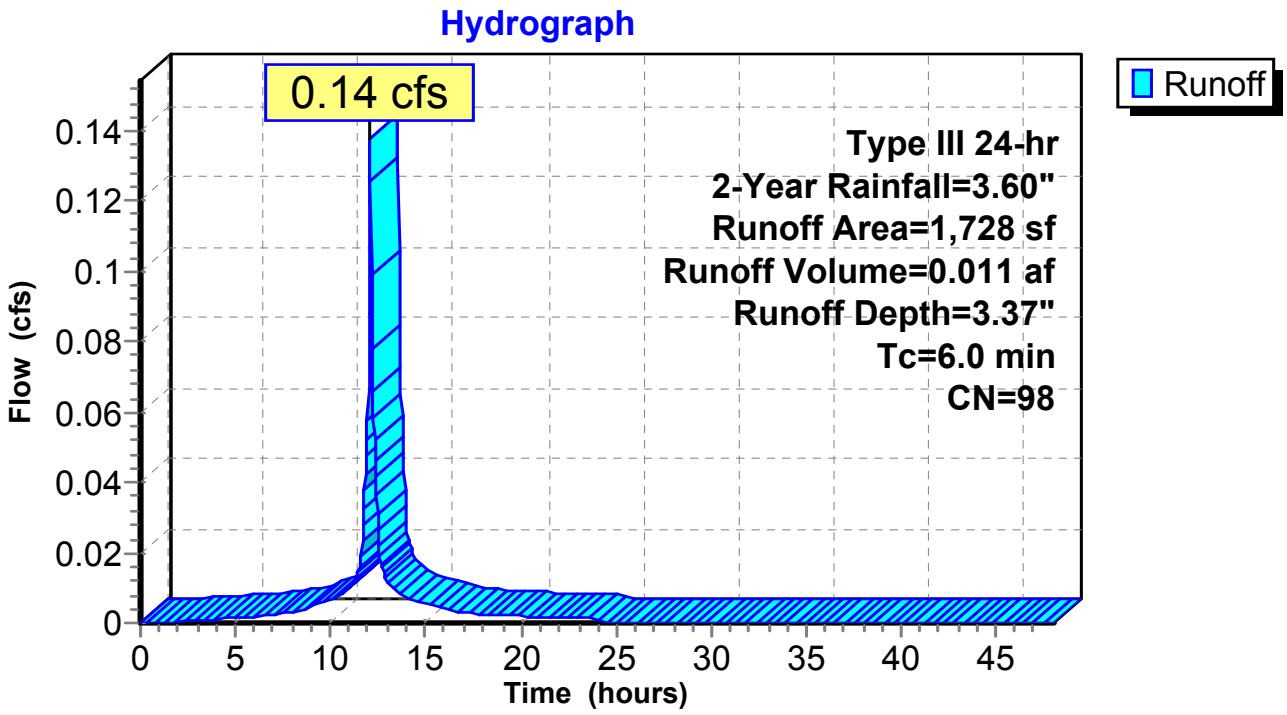
Runoff = 0.14 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
1,728	98	Roofs, HSG A
1,728		100.00% Impervious Area

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

Subcatchment 3A-13R: Roofs 28-29 B



Summary for Subcatchment 3A-14R: Roofs 28-F

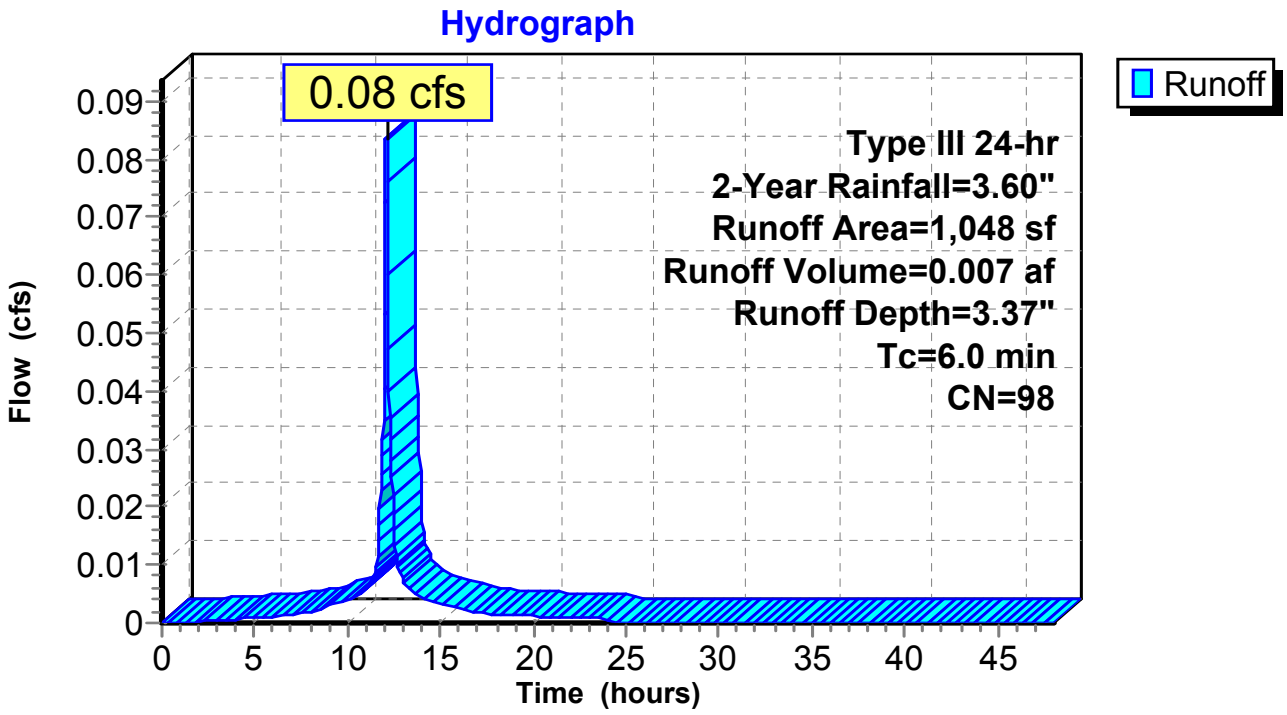
Runoff = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
*	1,048	98	Roofs, HSG B
	1,048		100.00% Impervious Area

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

Subcatchment 3A-14R: Roofs 28-F



Summary for Subcatchment 3A-15R: Roofs 29 F

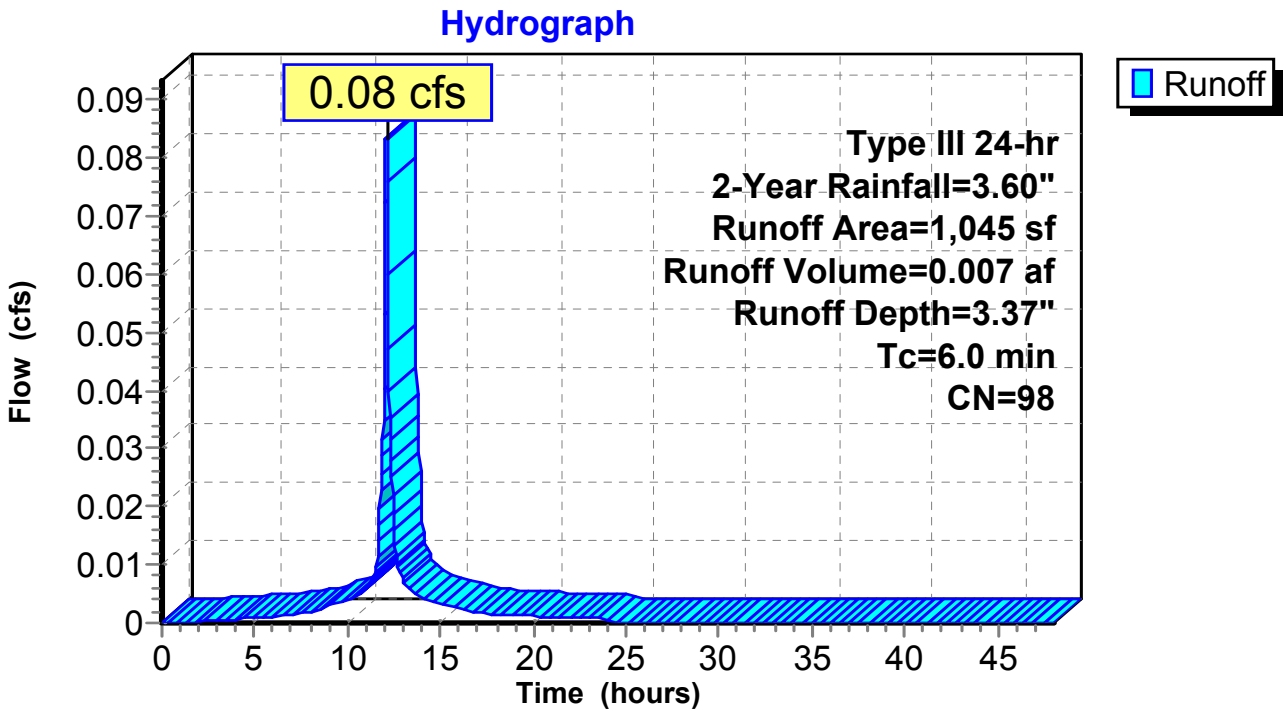
Runoff = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
*	1,045	98	Roofs, HSG B
	1,045		100.00% Impervious Area

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

Subcatchment 3A-15R: Roofs 29 F



Summary for Subcatchment 3A-16R: Roofs 30-32 F

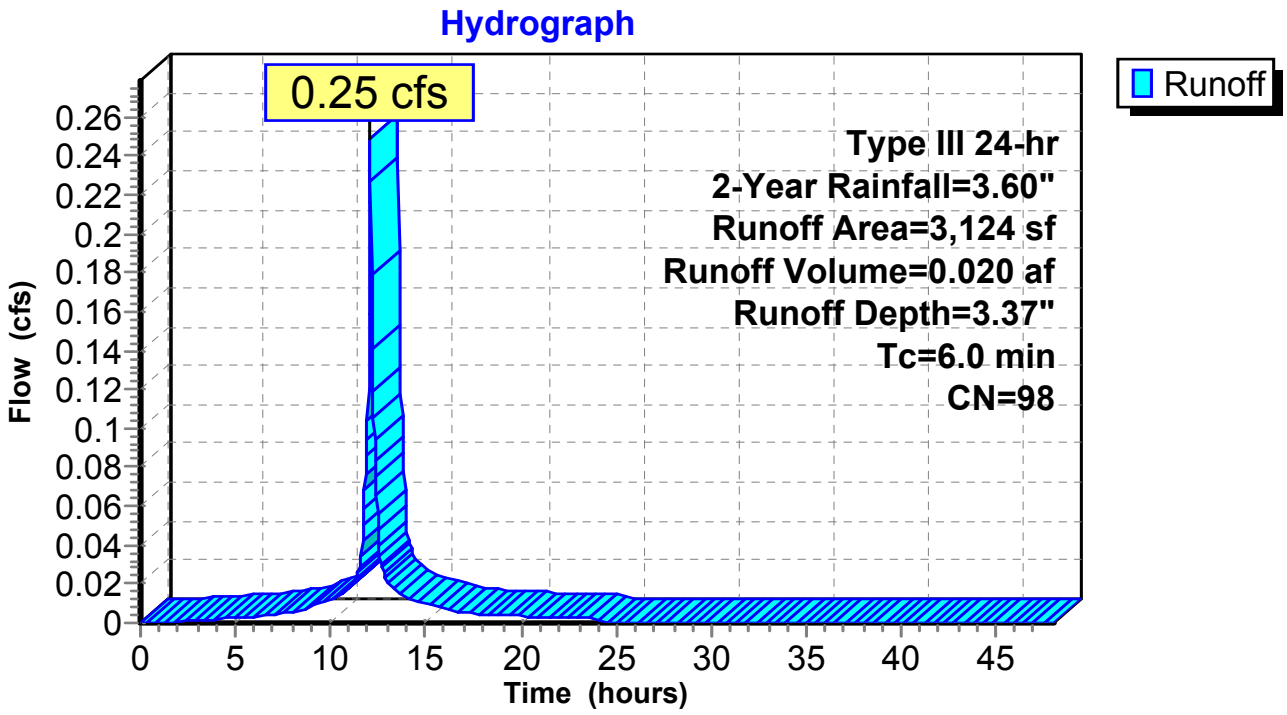
Runoff = 0.25 cfs @ 12.08 hrs, Volume= 0.020 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
3,124	98	Roofs, HSG A
3,124		100.00% Impervious Area

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

Subcatchment 3A-16R: Roofs 30-32 F



Summary for Subcatchment 3A-1R: Roof 5

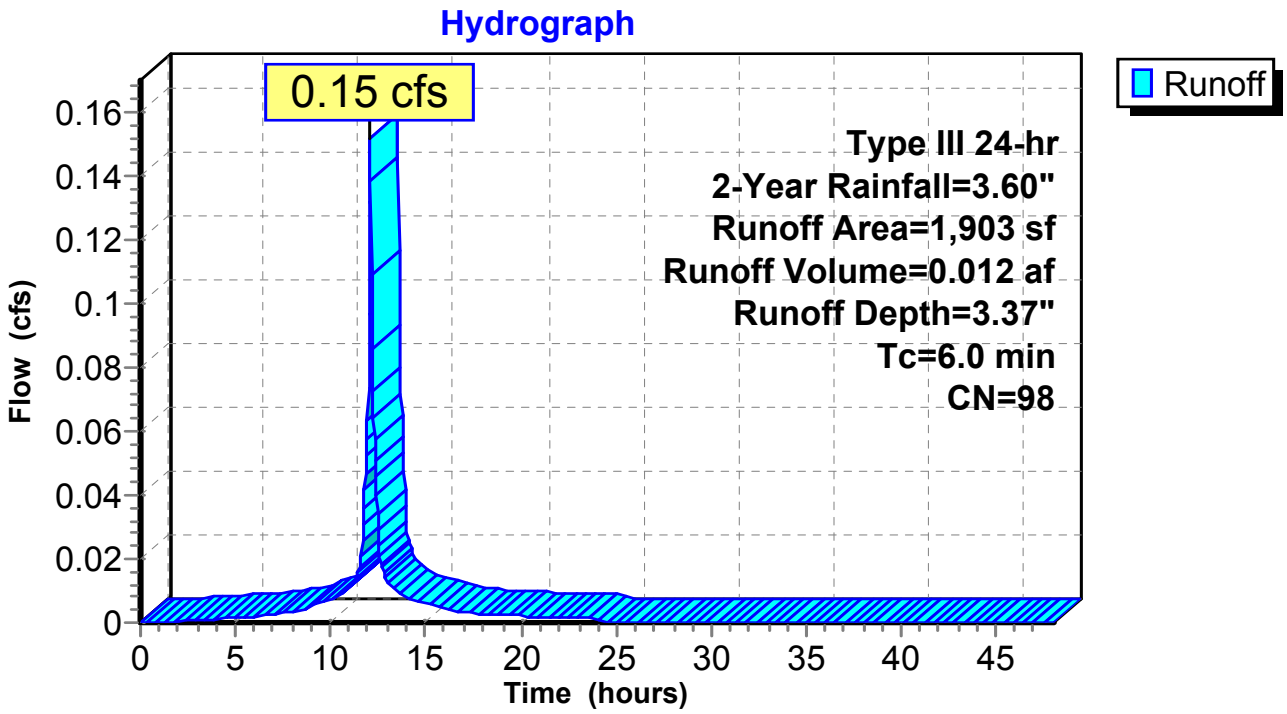
Runoff = 0.15 cfs @ 12.08 hrs, Volume= 0.012 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
	690	98	Roofs, HSG A
*	1,213	98	Roofs, HSG B
	1,903	98	Weighted Average
	1,903		100.00% Impervious Area

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

Subcatchment 3A-1R: Roof 5



Summary for Subcatchment 3A-2R: Roofs 1-4 FB

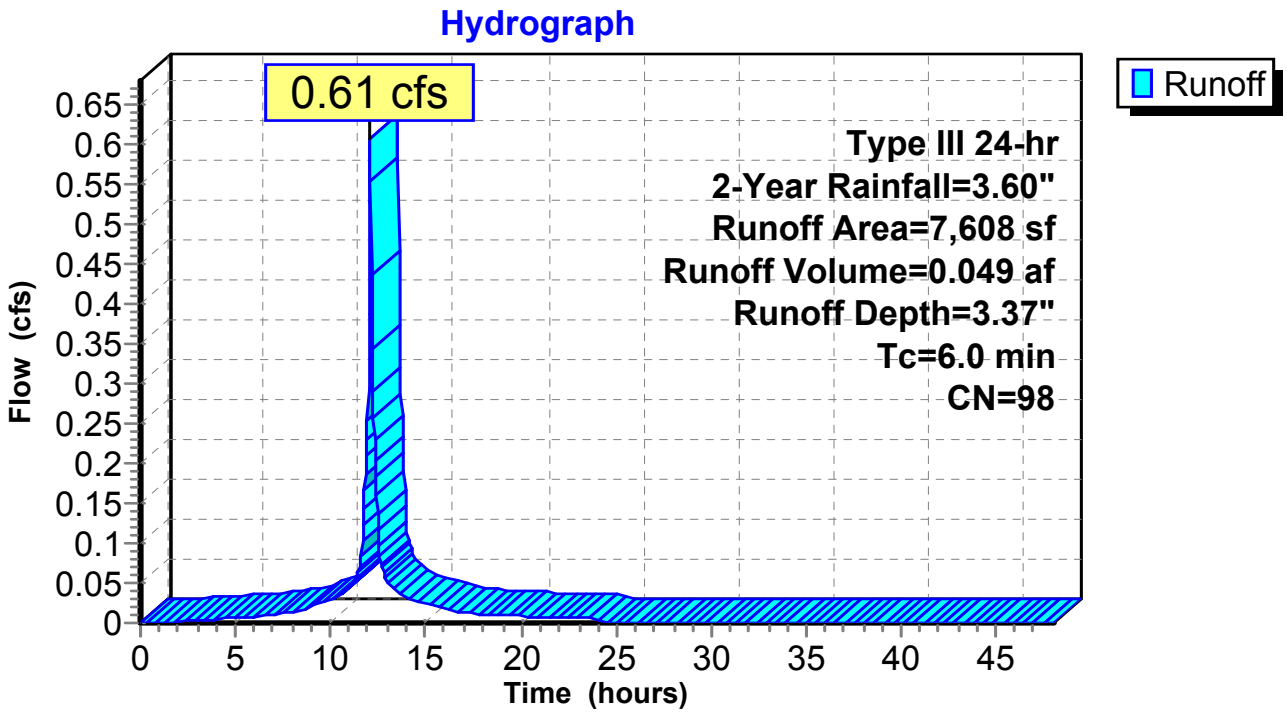
Runoff = 0.61 cfs @ 12.08 hrs, Volume= 0.049 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
7,608	98	Roofs, HSG A
7,608		100.00% Impervious Area

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

Subcatchment 3A-2R: Roofs 1-4 FB



Summary for Subcatchment 3A-2R1: Roofs 6-9 FB

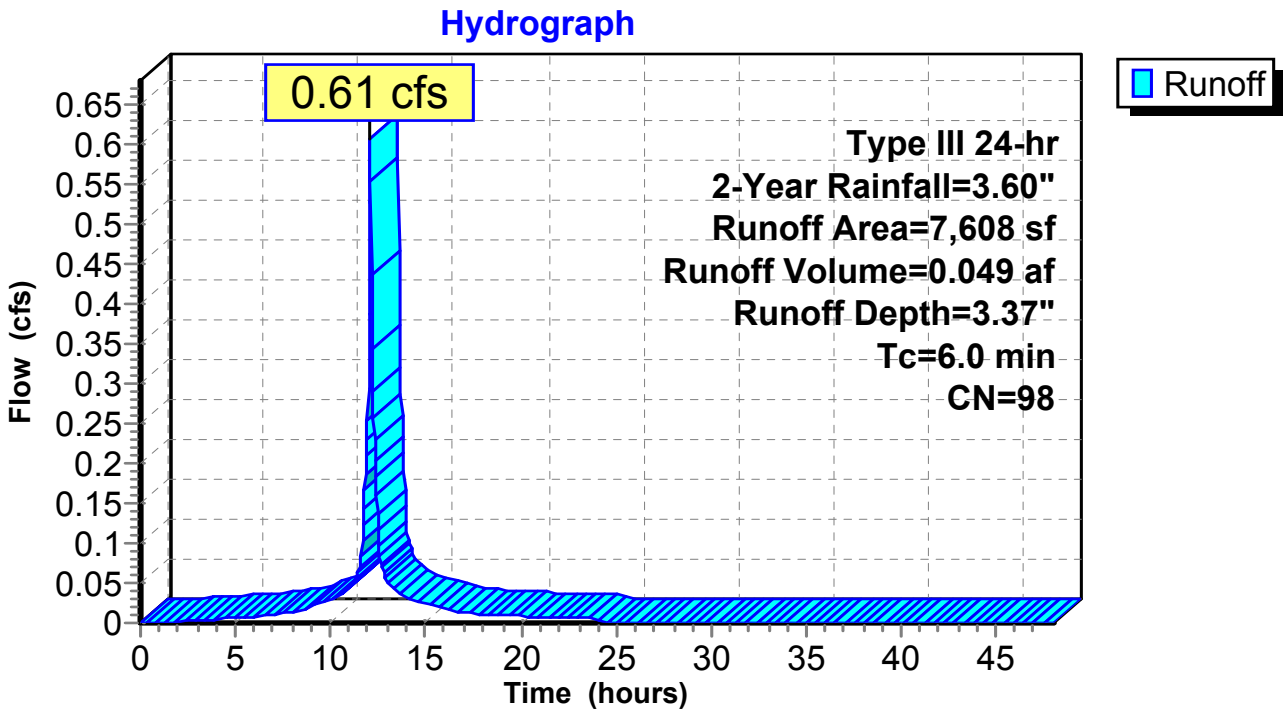
Runoff = 0.61 cfs @ 12.08 hrs, Volume= 0.049 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
7,608	98	Roofs, HSG A
7,608		100.00% Impervious Area

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

Subcatchment 3A-2R1: Roofs 6-9 FB



Summary for Subcatchment 3A-3R: Roofs 10-F

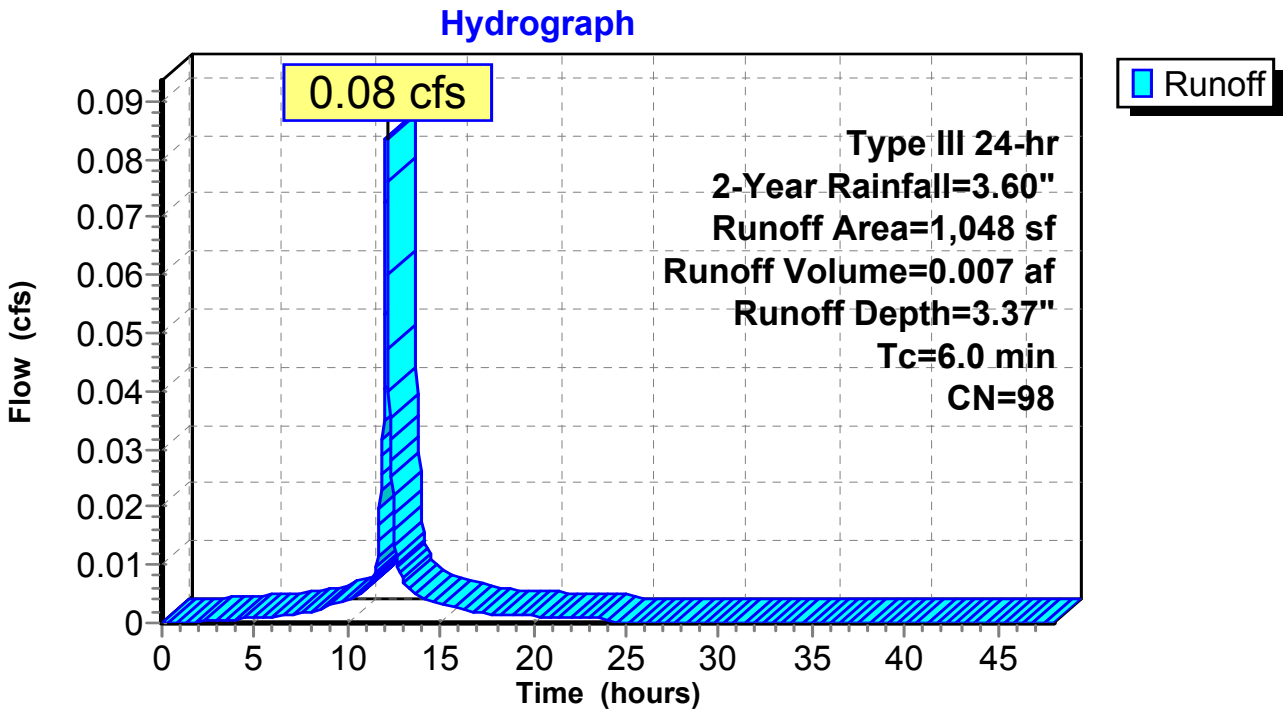
Runoff = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
*	1,048	98	Roofs, HSG B
	1,048		100.00% Impervious Area

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

Subcatchment 3A-3R: Roofs 10-F



Summary for Subcatchment 3A-4R: Roofs 11 F

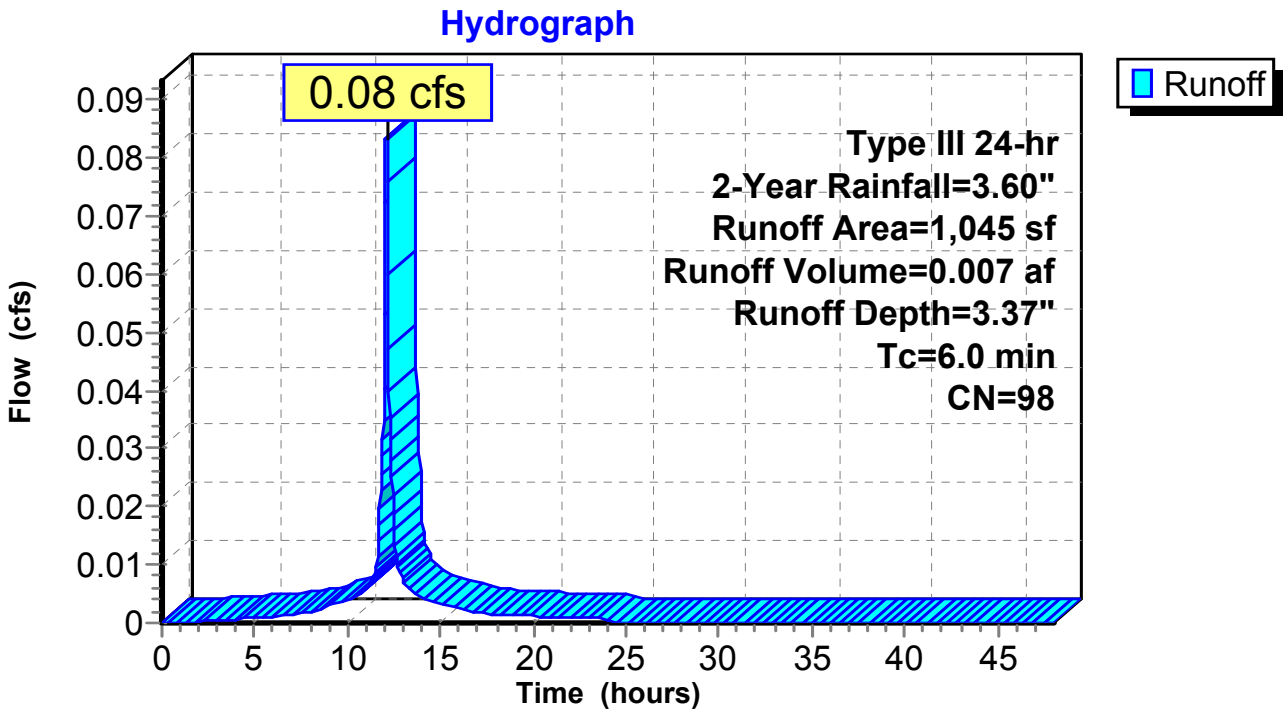
Runoff = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
*	1,045	98	Roofs, HSG B
	1,045		100.00% Impervious Area

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

Subcatchment 3A-4R: Roofs 11 F



Summary for Subcatchment 3A-5R: Roofs 10-11 B

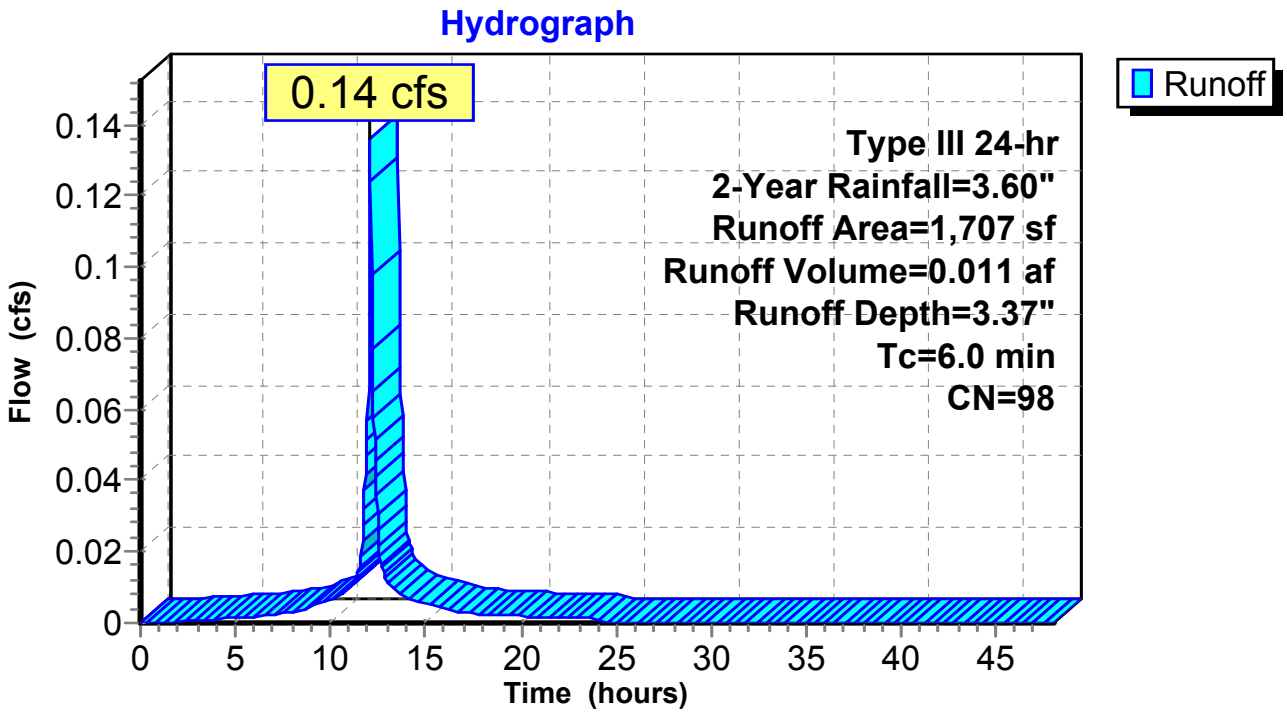
Runoff = 0.14 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
*	1,707	98	Roofs, HSG B
	1,707		100.00% Impervious Area

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

Subcatchment 3A-5R: Roofs 10-11 B



Summary for Subcatchment 3A-6R: Roofs 12 B

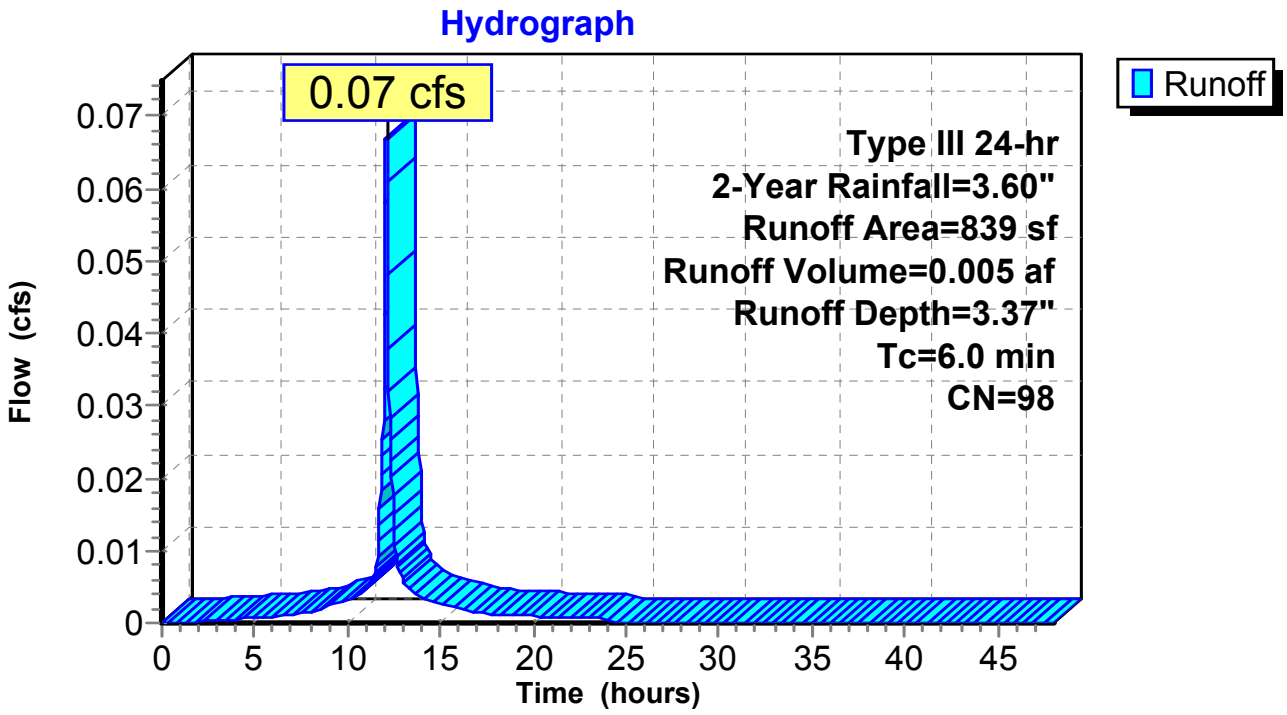
Runoff = 0.07 cfs @ 12.08 hrs, Volume= 0.005 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
*	839	98	Roofs, HSG B
	839		100.00% Impervious Area

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

Subcatchment 3A-6R: Roofs 12 B



Summary for Subcatchment 3A-7R: Roofs 12 F

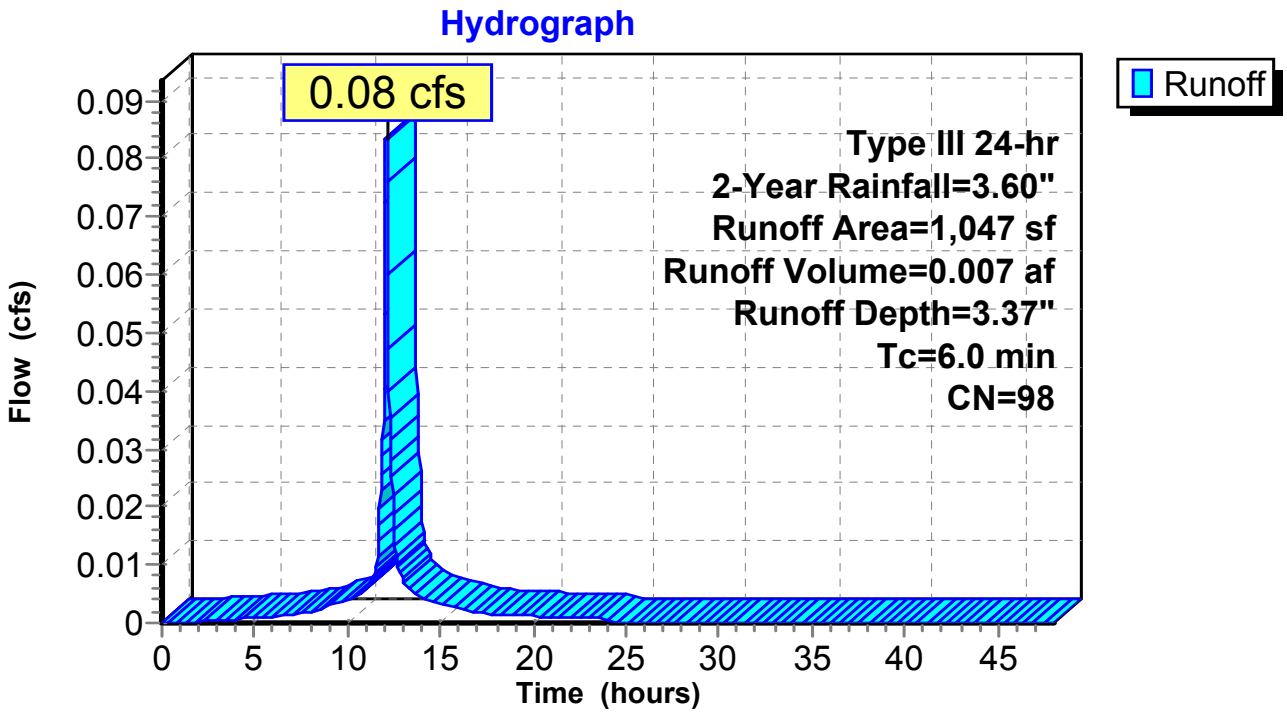
Runoff = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
*	1,047	98	Roofs, HSG B
	1,047		100.00% Impervious Area

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

Subcatchment 3A-7R: Roofs 12 F



Summary for Subcatchment 3A-8R: Roofs 13 F

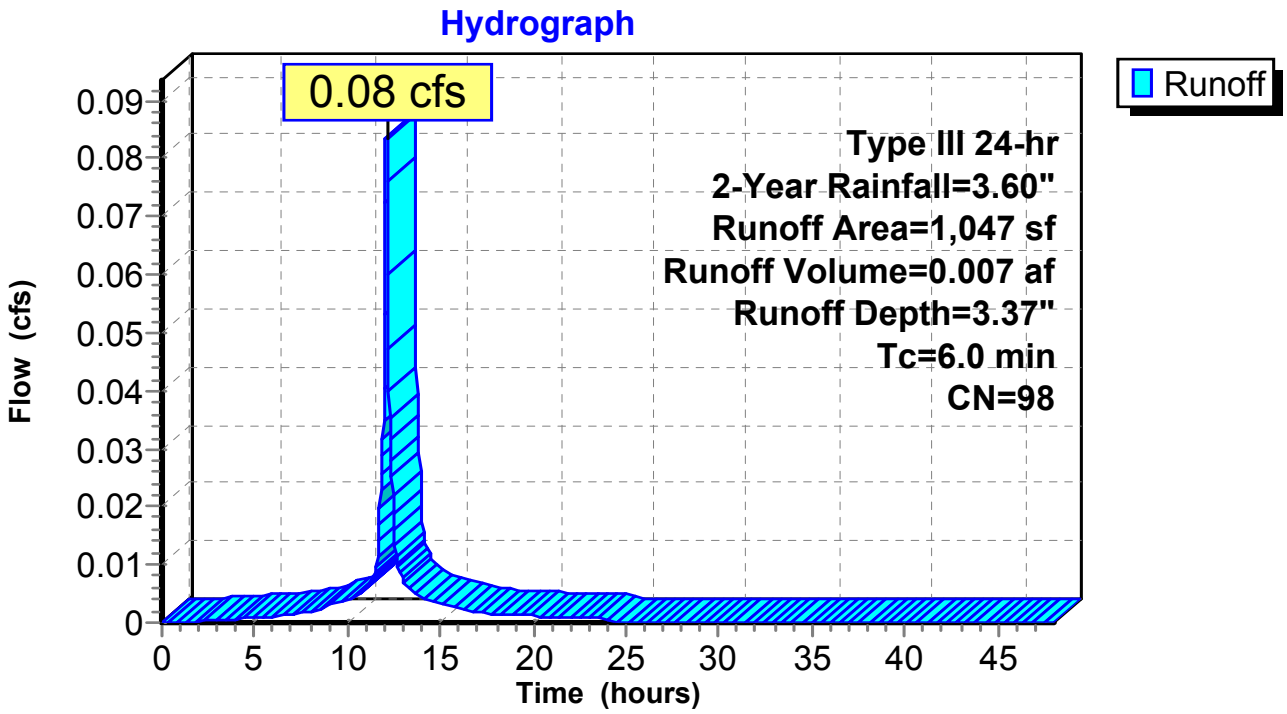
Runoff = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
	80	98	Roofs, HSG A
*	967	98	Roofs, HSG B
	1,047	98	Weighted Average
	1,047		100.00% Impervious Area

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

Subcatchment 3A-8R: Roofs 13 F



Summary for Subcatchment 3A-9R: Roofs 14 F

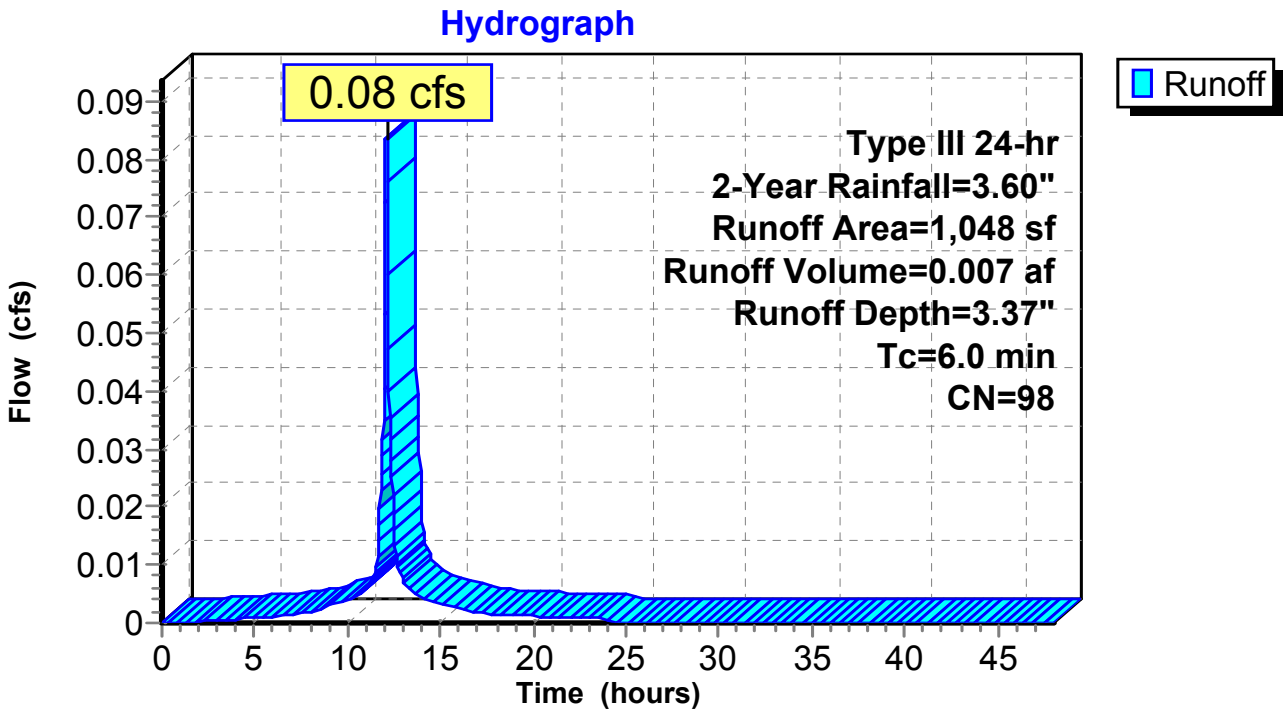
Runoff = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
1,048	98	Roofs, HSG A
1,048		100.00% Impervious Area

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

Subcatchment 3A-9R: Roofs 14 F



Summary for Subcatchment 3A-S: Sub-3A

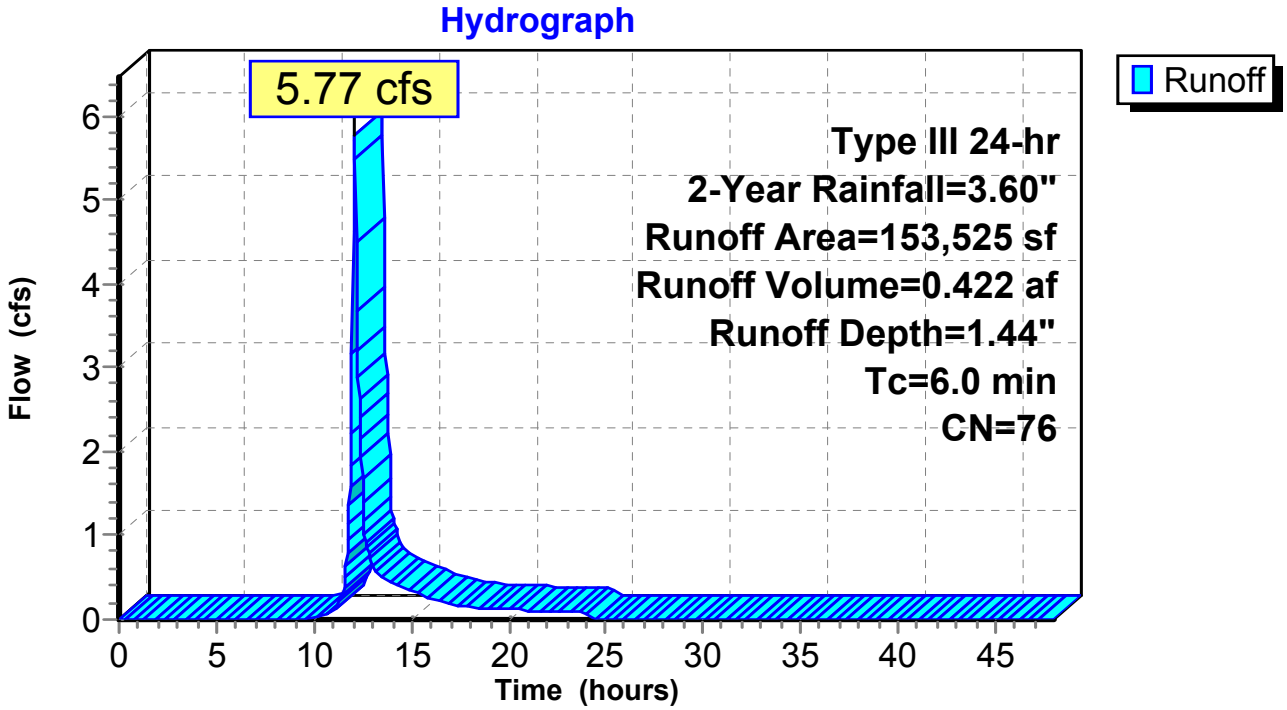
Runoff = 5.77 cfs @ 12.09 hrs, Volume= 0.422 af, Depth= 1.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
*	11,724	98	Paved drives, HSG A
*	2,526	98	Paved drives, HSG B
*	20,421	98	Paved roads w/curbs & sewers, HSG A
	8,829	98	Paved roads w/curbs & sewers, HSG B
*	4,190	98	Paved sidewalk, HSG A
*	1,229	98	Paved sidewalk, HSG B
*	924	98	Walks, HSG A
*	168	98	Walks, HSG B
*	922	98	Roofs, HSG A
*	874	98	Roofs, HSG B
	5,720	98	Roofs, HSG A
	3,790	98	Roofs, HSG A
*	3,647	98	Decks, HSG A
*	262	98	Decks, HSG B
*	7,626	98	Detention Basin, HSG A
*	4,140	98	Detention Basin, HSG B
	45,699	39	>75% Grass cover, Good, HSG A
	7,682	61	>75% Grass cover, Good, HSG B
*	103	98	Walls, HSG A
*	1,384	98	Roofs, HSG A - offsite
*	16,069	98	Paved parking, HSG A - offsite
*	914	39	>75% Grass cover, Good, HSG A - offsite
*	1,682	30	Woods, Good, HSG A - offsite
*	3,000	30	Woods, Good, HSG A - offsite
	153,525	76	Weighted Average
	58,977		38.42% Pervious Area
	94,548		61.58% Impervious Area

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

Subcatchment 3A-S: Sub-3A



Summary for Subcatchment 3B-S: Sub-3B

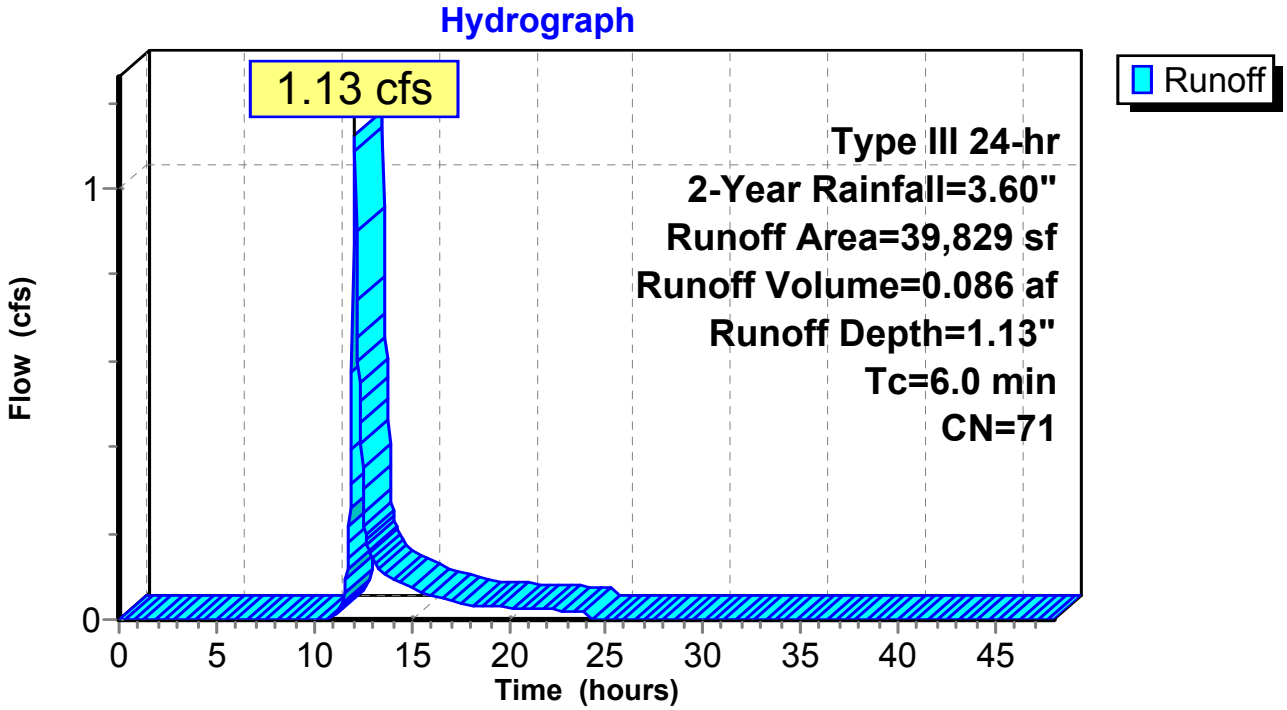
Runoff = 1.13 cfs @ 12.10 hrs, Volume= 0.086 af, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
	10,864	55	Woods, Good, HSG B
	1,423	30	Woods, Good, HSG A
*	15,781	98	Wetlands, HSG B
	3,305	39	>75% Grass cover, Good, HSG A
	3,375	61	>75% Grass cover, Good, HSG B
*	371	98	Decks, HSG B
*	418	98	Wetlands, HSG B - offsite
*	62	30	Woods, Good, HSG A - offsite
*	1,346	39	>75% Grass cover, Good, HSG A - offsite
*	959	61	>75% Grass cover, Good, HSG B - offsite
*	1,734	55	Woods, Good, HSG B - offsite
*	191	98	Riprap, HSG B
	39,829	71	Weighted Average
	23,068		57.92% Pervious Area
	16,761		42.08% Impervious Area

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

Subcatchment 3B-S: Sub-3B



Summary for Subcatchment 3C-S: Sub-3C

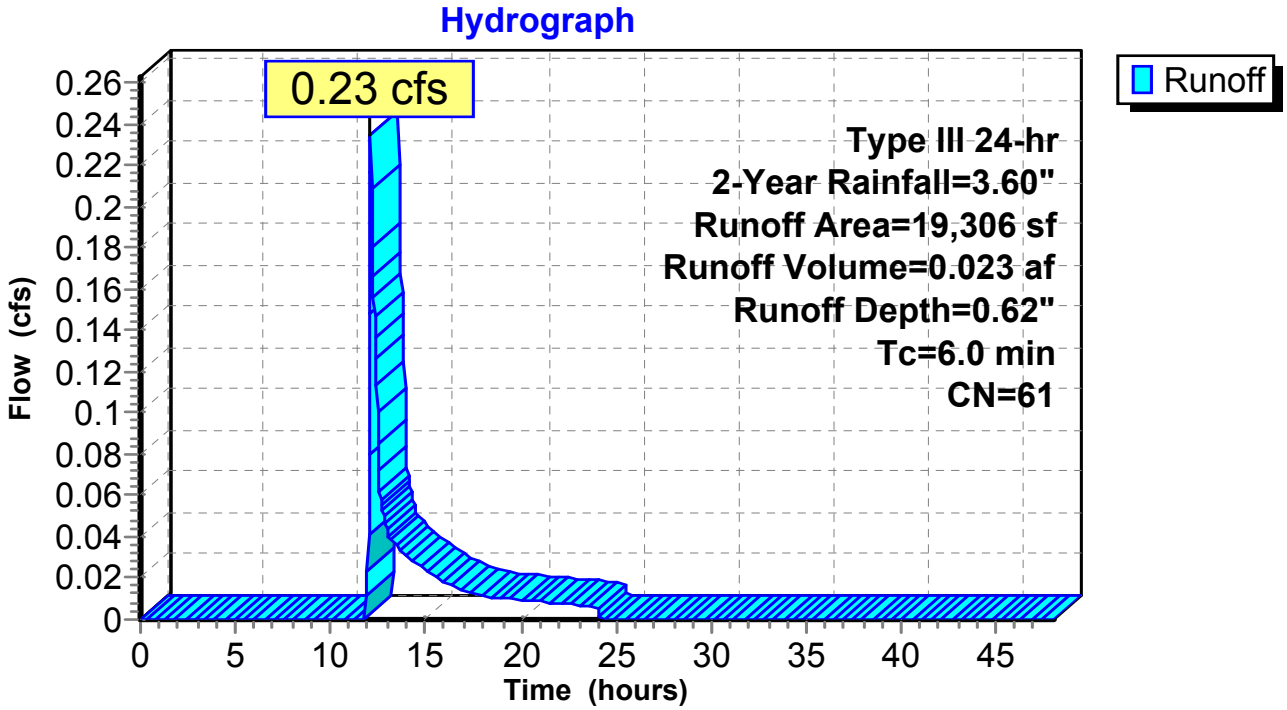
Runoff = 0.23 cfs @ 12.12 hrs, Volume= 0.023 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
*	2,131	30	Woods, Good, HSG A - offsite
*	579	98	Paved roads w/curbs & sewers, HSG A - offsite
*	528	98	Paved drives, HSG A - offsite
*	1,289	39	>75% Grass cover, Good, HSG A - offsite
	5,175	61	>75% Grass cover, Good, HSG B
	4,041	39	>75% Grass cover, Good, HSG A
*	96	98	Paved sidewalk, HSG A
*	300	98	Paved sidewalk, HSG B
*	78	98	Paved sidewalk, HSG A - offsite
*	1,603	98	Paved roads w/curbs & sewers, HSG B
*	185	98	Decks, HSG B
	266	98	Paved roads w/curbs & sewers, HSG A
*	2,022	98	Impervious, HSG A - offsite
	1,013	39	>75% Grass cover, Good, HSG A
	19,306	61	Weighted Average
	13,649		70.70% Pervious Area
	5,657		29.30% Impervious Area

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

Subcatchment 3C-S: Sub-3C



Summary for Subcatchment 4S: Sub-4

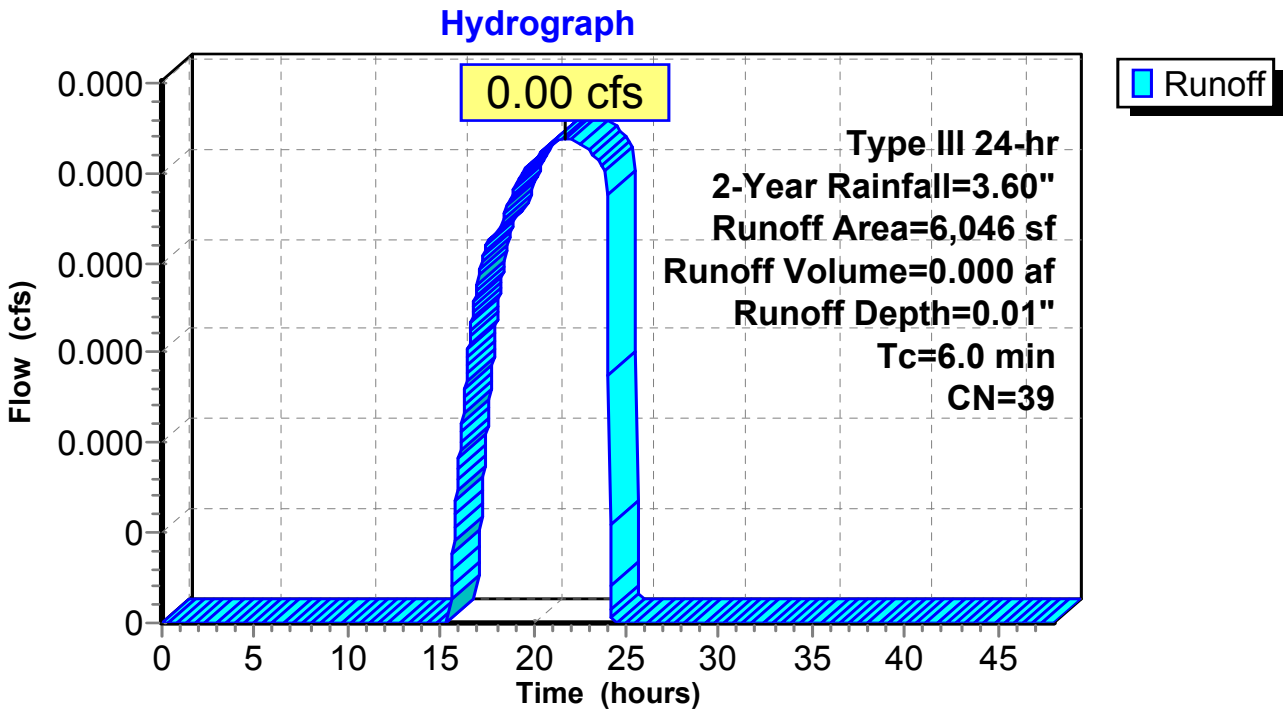
Runoff = 0.00 cfs @ 21.69 hrs, Volume= 0.000 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
6,046	39	>75% Grass cover, Good, HSG A
6,046		100.00% Pervious Area

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

Subcatchment 4S: Sub-4



Summary for Subcatchment 4S-1: Sub-4

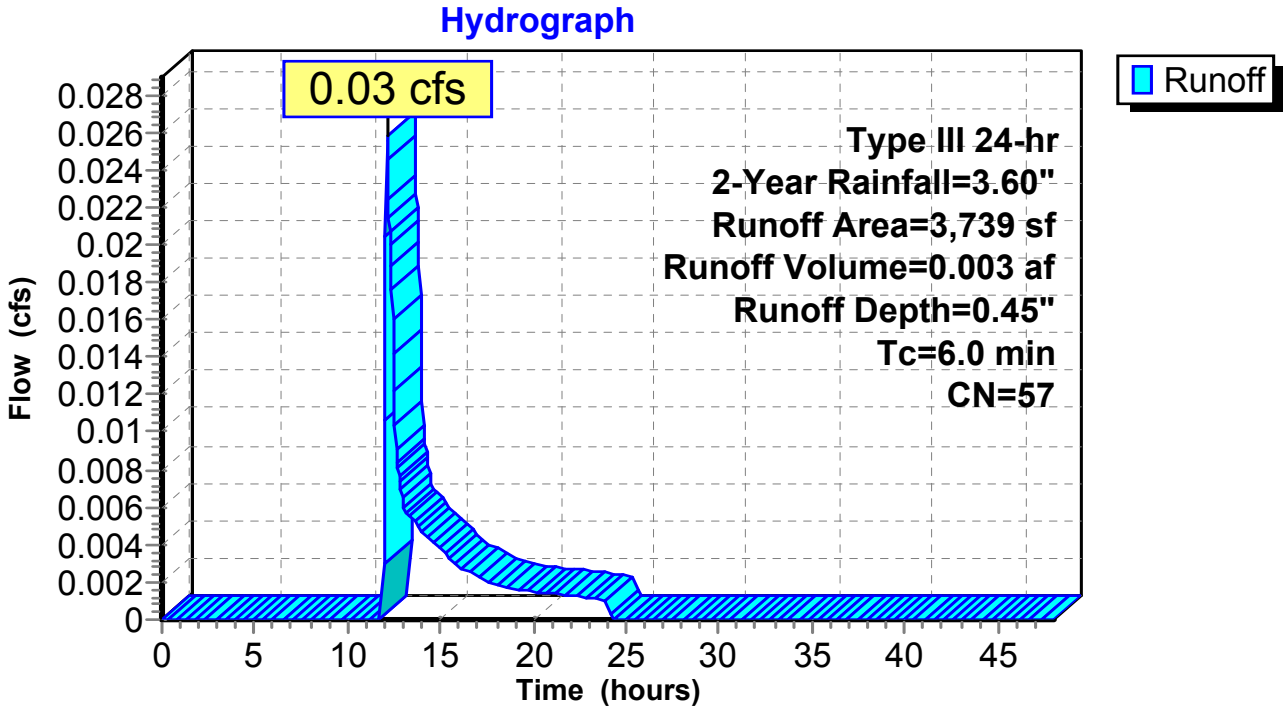
Runoff = 0.03 cfs @ 12.13 hrs, Volume= 0.003 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
	2,570	39	>75% Grass cover, Good, HSG A
*	783	98	Decks, HSG A
*	386	98	Walls, HSG A
	3,739	57	Weighted Average
	2,570		68.73% Pervious Area
	1,169		31.27% Impervious Area

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

Subcatchment 4S-1: Sub-4



Summary for Subcatchment 5S: Sub -5

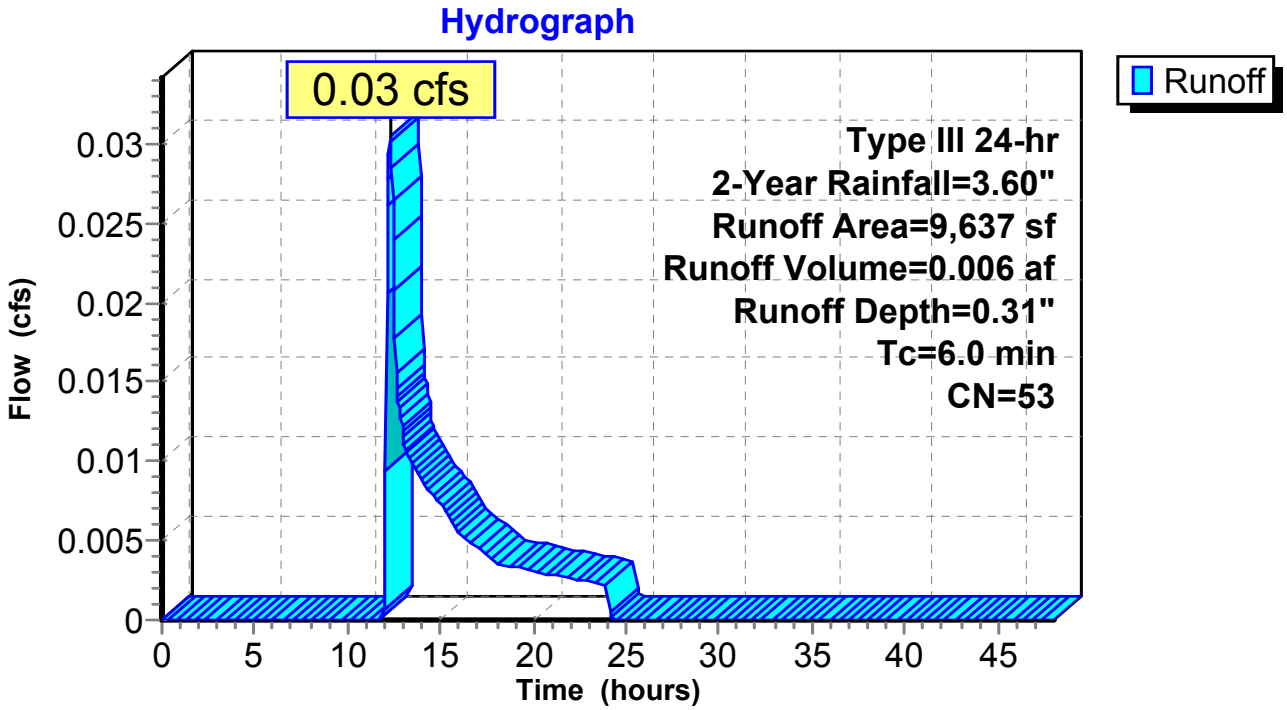
Runoff = 0.03 cfs @ 12.31 hrs, Volume= 0.006 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
	7,163	39	>75% Grass cover, Good, HSG A
	350	80	>75% Grass cover, Good, HSG D
*	557	98	Decks, HSG A
*	235	98	Sidewalk, HSG A
*	61	98	Sidewalk, HSG D
	982	98	Paved roads w/curbs & sewers, HSG A
	289	98	Paved roads w/curbs & sewers, HSG D
*	0	98	Walls, HSG A
	9,637	53	Weighted Average
	7,513		77.96% Pervious Area
	2,124		22.04% Impervious Area

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

Subcatchment 5S: Sub -5



Summary for Subcatchment 5S-1: Roofs 31-32 F

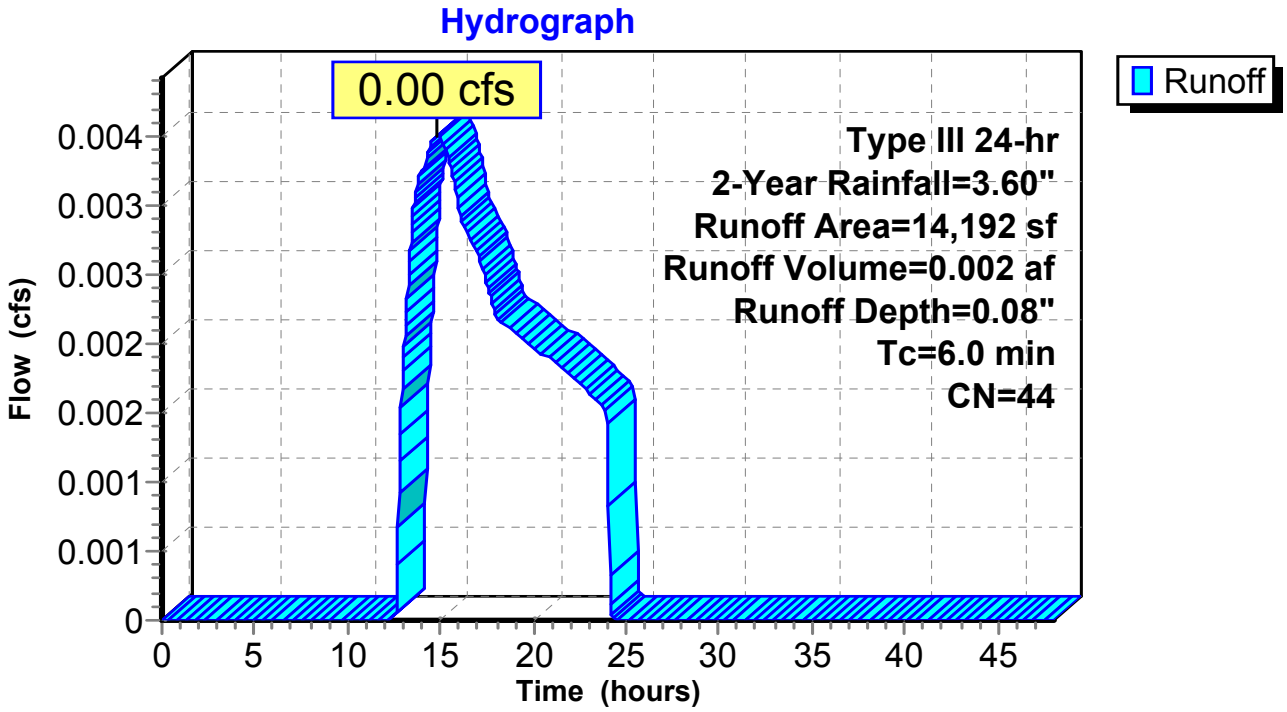
Runoff = 0.00 cfs @ 14.81 hrs, Volume= 0.002 af, Depth= 0.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
*	195	98	Walls, HSG A
*	370	98	Decks, HSG A
	6,683	39	>75% Grass cover, Good, HSG A
	5,018	39	>75% Grass cover, Good, HSG A
	1,278	39	>75% Grass cover, Good, HSG A
*	648	98	Walls, HSG A
	14,192	44	Weighted Average
	12,979		91.45% Pervious Area
	1,213		8.55% Impervious Area

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

Subcatchment 5S-1: Roofs 31-32 F



Summary for Subcatchment 5S-P: Pavement

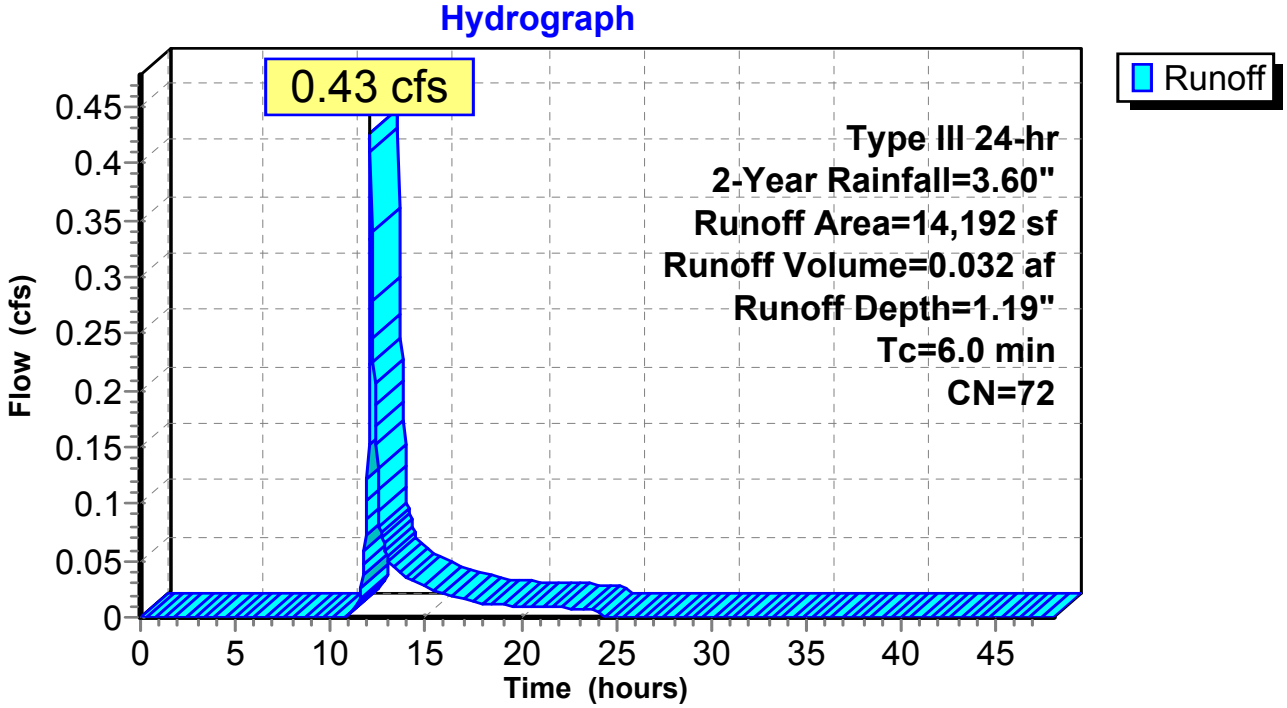
Runoff = 0.43 cfs @ 12.10 hrs, Volume= 0.032 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

	Area (sf)	CN	Description
*	2,746	98	Paved drives, HSG A
	4,561	98	Paved roads w/curbs & sewers, HSG A
	6,343	39	>75% Grass cover, Good, HSG A
*	287	98	Sidewalk, HSG A
*	255	98	Walks, HSG A
	14,192	72	Weighted Average
	6,343		44.69% Pervious Area
	7,849		55.31% Impervious Area

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

Subcatchment 5S-P: Pavement



Summary for Subcatchment 5S-R1: Roofs 19-21 FB

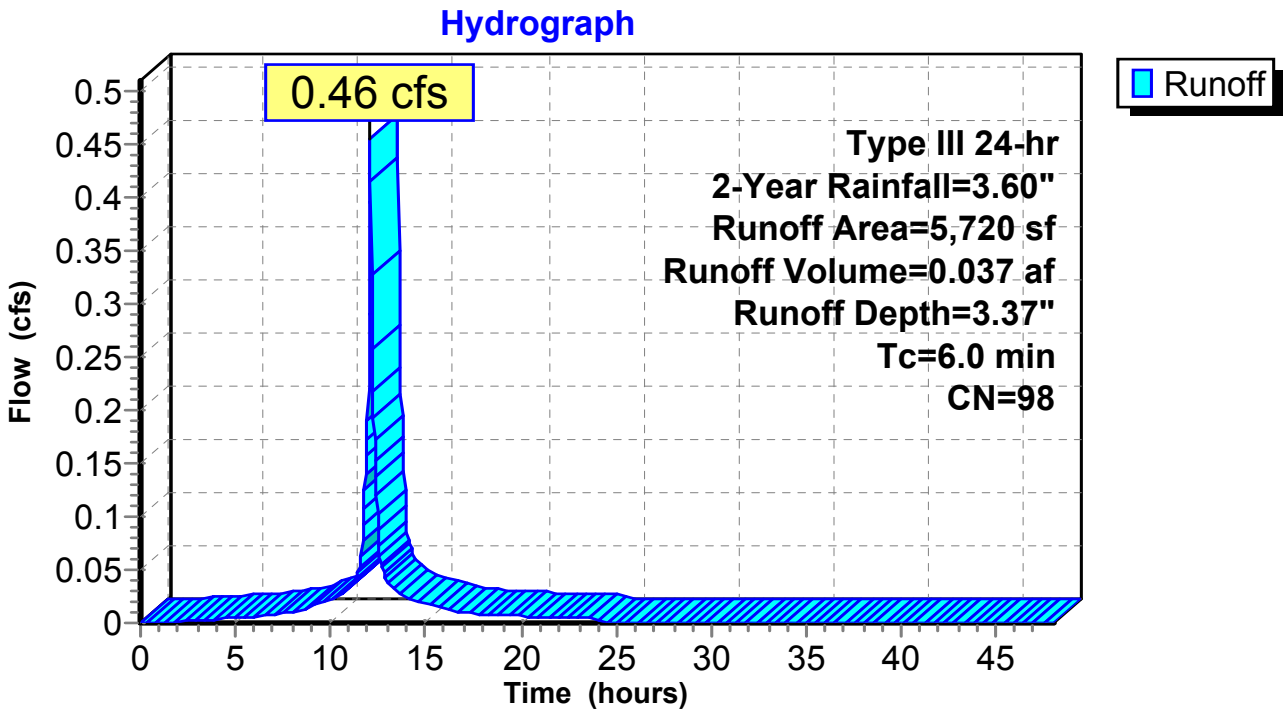
Runoff = 0.46 cfs @ 12.08 hrs, Volume= 0.037 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 2-Year Rainfall=3.60"

Area (sf)	CN	Description
5,720	98	Roofs, HSG A
5,720		100.00% Impervious Area

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

Subcatchment 5S-R1: Roofs 19-21 FB

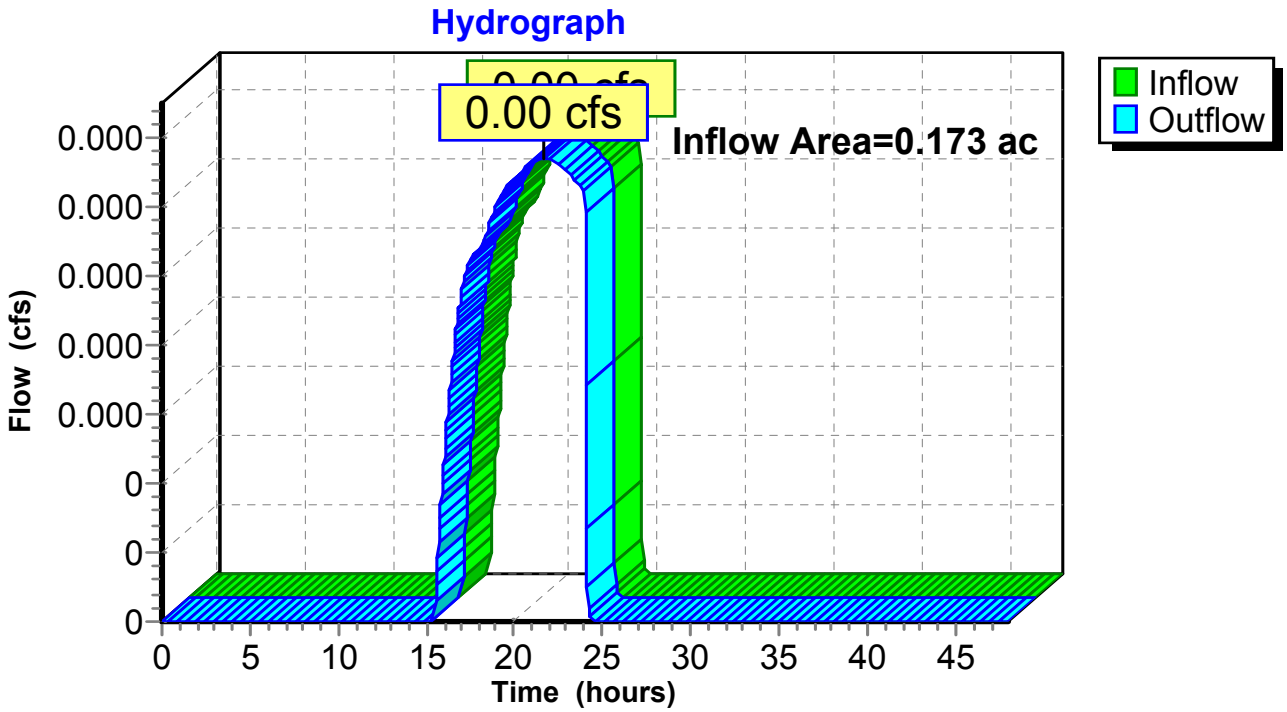


Summary for Reach DP-1: DMH

Inflow Area = 0.173 ac, 0.00% Impervious, Inflow Depth = 0.01" for 2-Year event
Inflow = 0.00 cfs @ 21.69 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 21.69 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-1: DMH

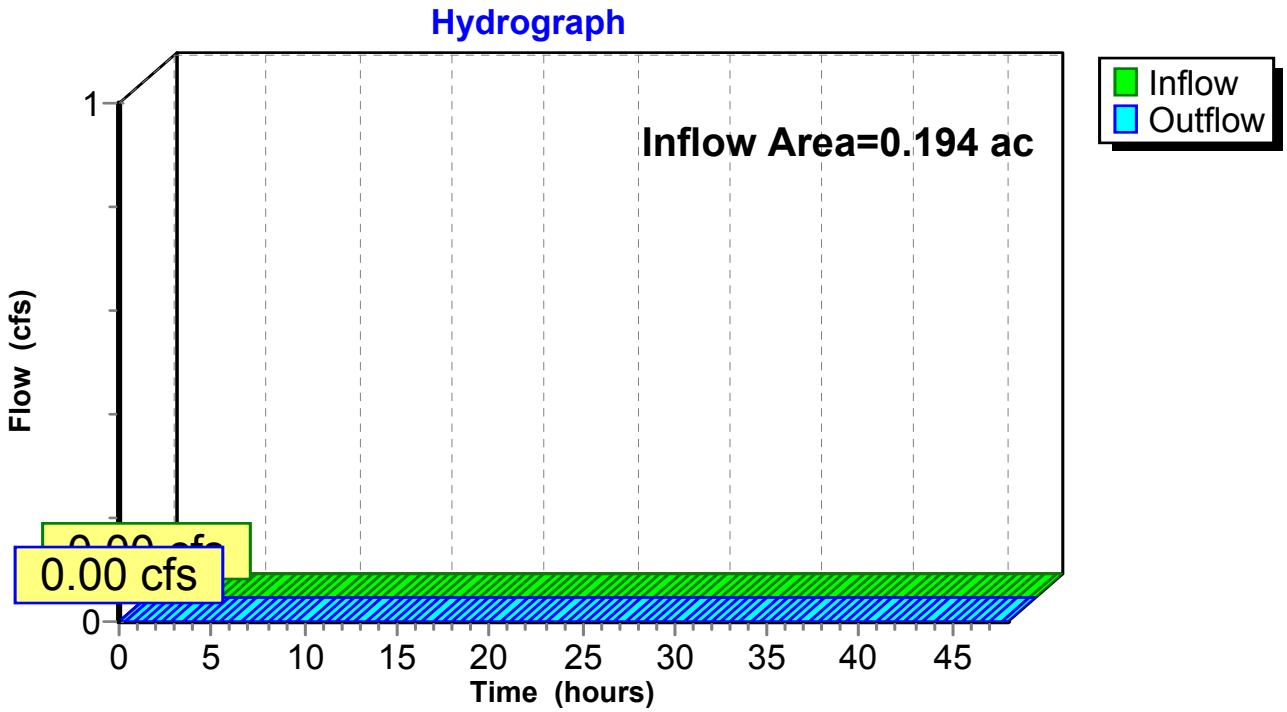


Summary for Reach DP-2: DP-2

Inflow Area = 0.194 ac, 7.92% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-2: DP-2

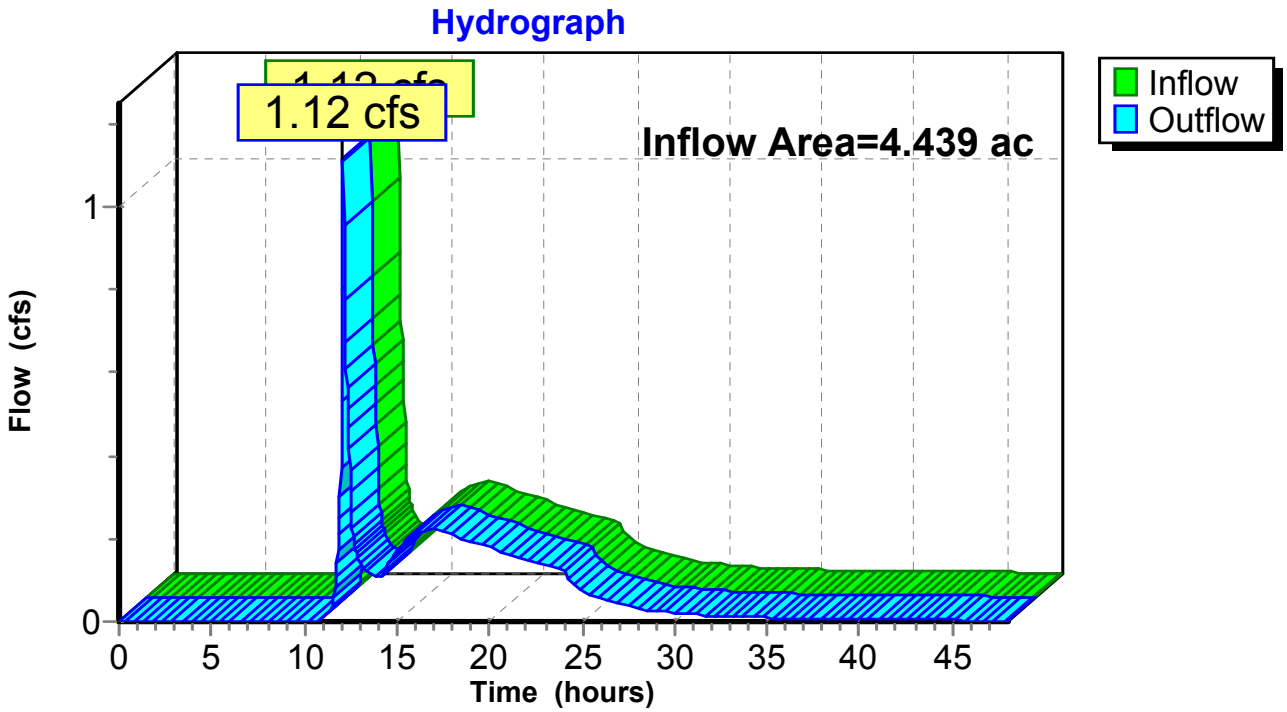


Summary for Reach DP-3: DP-3

Inflow Area = 4.439 ac, 57.57% Impervious, Inflow Depth > 0.63" for 2-Year event
Inflow = 1.12 cfs @ 12.11 hrs, Volume= 0.234 af
Outflow = 1.12 cfs @ 12.11 hrs, Volume= 0.234 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-3: DP-3

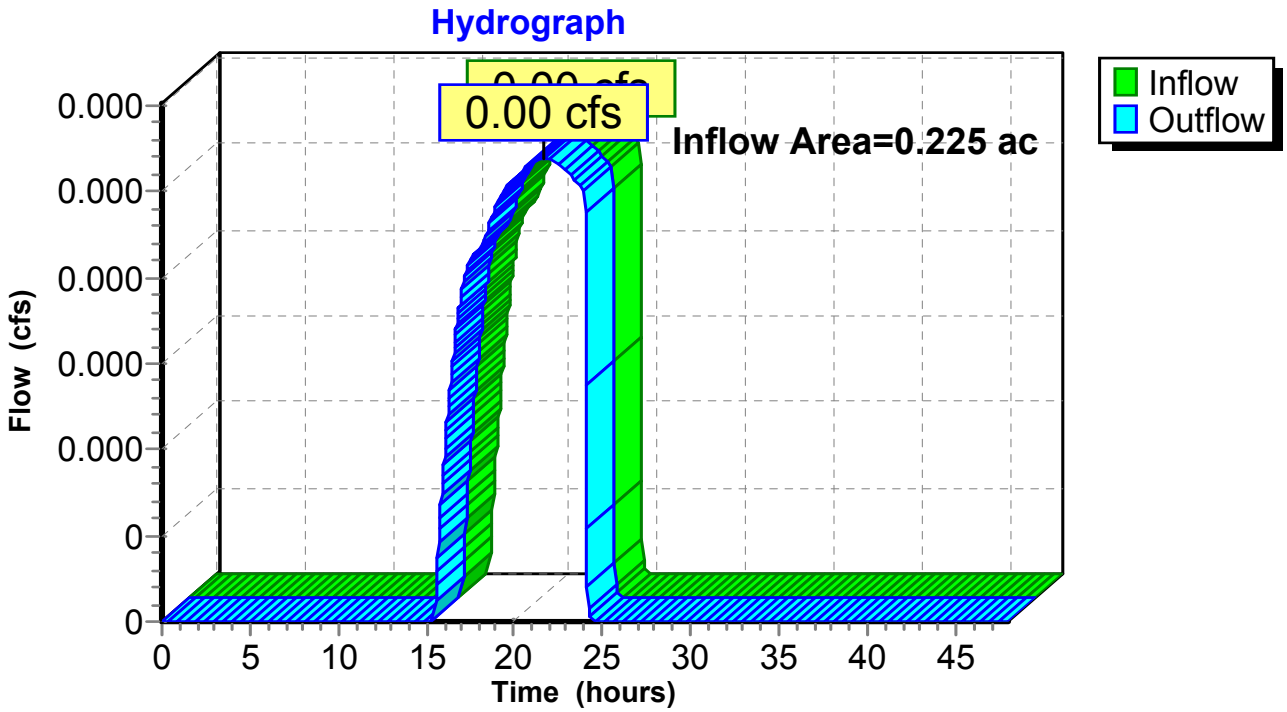


Summary for Reach DP-4: PL

Inflow Area = 0.225 ac, 11.95% Impervious, Inflow Depth = 0.01" for 2-Year event
Inflow = 0.00 cfs @ 21.69 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 21.69 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-4: PL

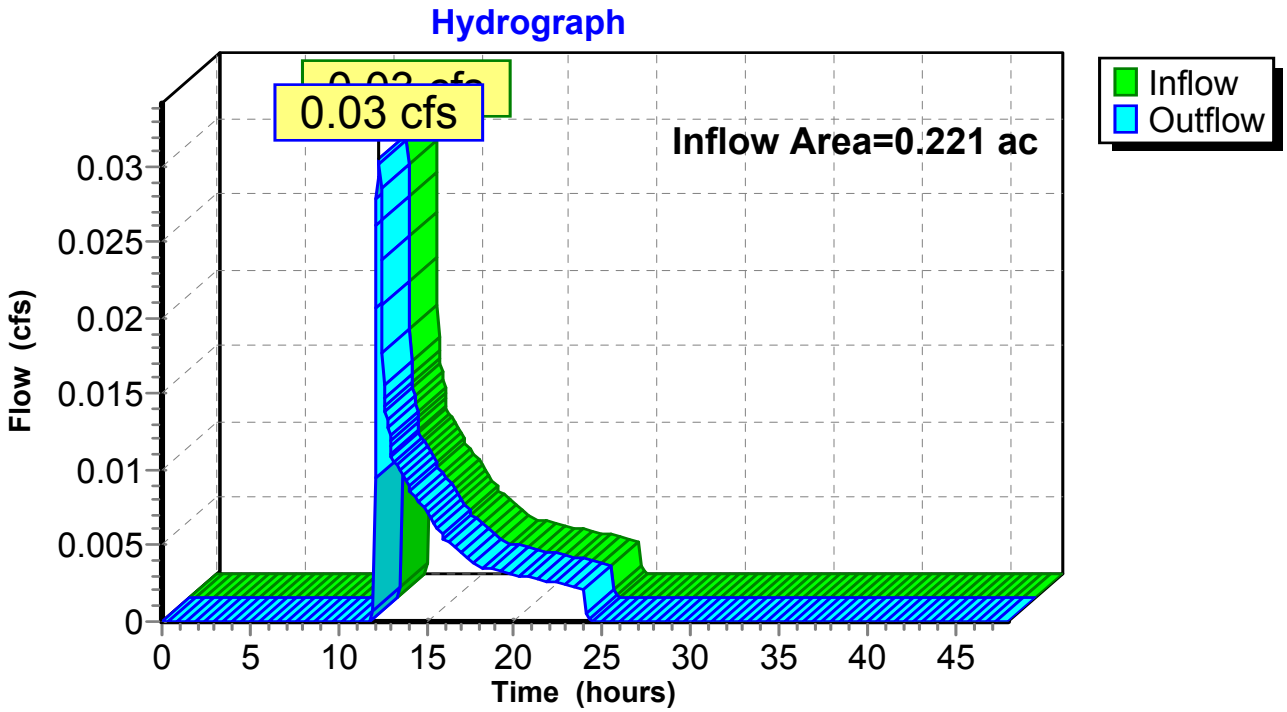


Summary for Reach DP-5: PL

Inflow Area = 0.221 ac, 22.04% Impervious, Inflow Depth = 0.31" for 2-Year event
Inflow = 0.03 cfs @ 12.31 hrs, Volume= 0.006 af
Outflow = 0.03 cfs @ 12.31 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-5: PL



Summary for Pond D-1: Depression

Inflow Area = 0.194 ac, 7.92% Impervious, Inflow Depth = 0.08" for 2-Year event
Inflow = 0.00 cfs @ 14.81 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 14.83 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.9 min
Discarded = 0.00 cfs @ 14.83 hrs, Volume= 0.001 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 59.00' @ 14.83 hrs Surf.Area= 419 sf Storage= 0 cf

Plug-Flow detention time= 0.9 min calculated for 0.001 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (1,063.1 - 1,062.2)

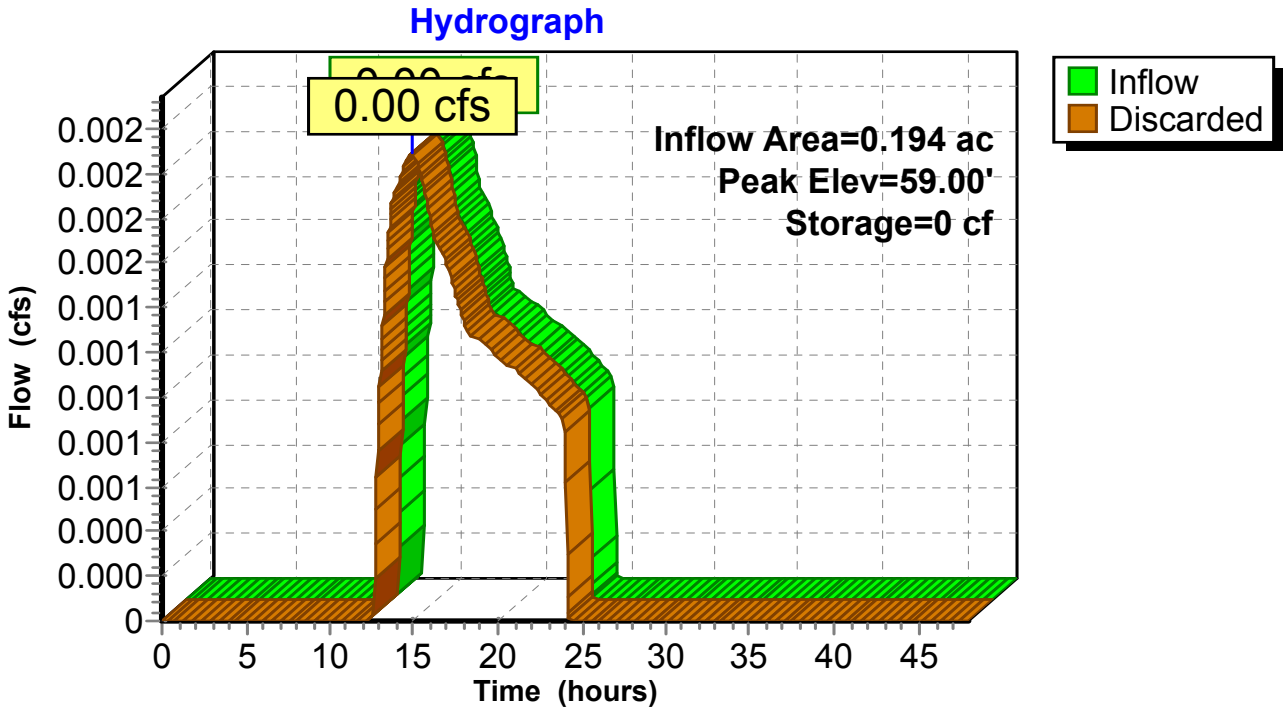
Volume	Invert	Avail.Storage	Storage Description
#1	59.00'	615 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.00	419	0	0
60.00	811	615	615

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.00 cfs @ 14.83 hrs HW=59.00' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Pond D-1: Depression



Summary for Pond D-2: Depression

Inflow Area = 0.502 ac, 37.54% Impervious, Inflow Depth = 0.94" for 2-Year event
Inflow = 0.43 cfs @ 12.10 hrs, Volume= 0.039 af
Outflow = 0.11 cfs @ 12.55 hrs, Volume= 0.039 af, Atten= 74%, Lag= 26.7 min
Discarded = 0.11 cfs @ 12.55 hrs, Volume= 0.039 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 56.69' @ 12.55 hrs Surf.Area= 583 sf Storage= 333 cf

Plug-Flow detention time= 17.6 min calculated for 0.039 af (100% of inflow)
Center-of-Mass det. time= 17.6 min (857.2 - 839.5)

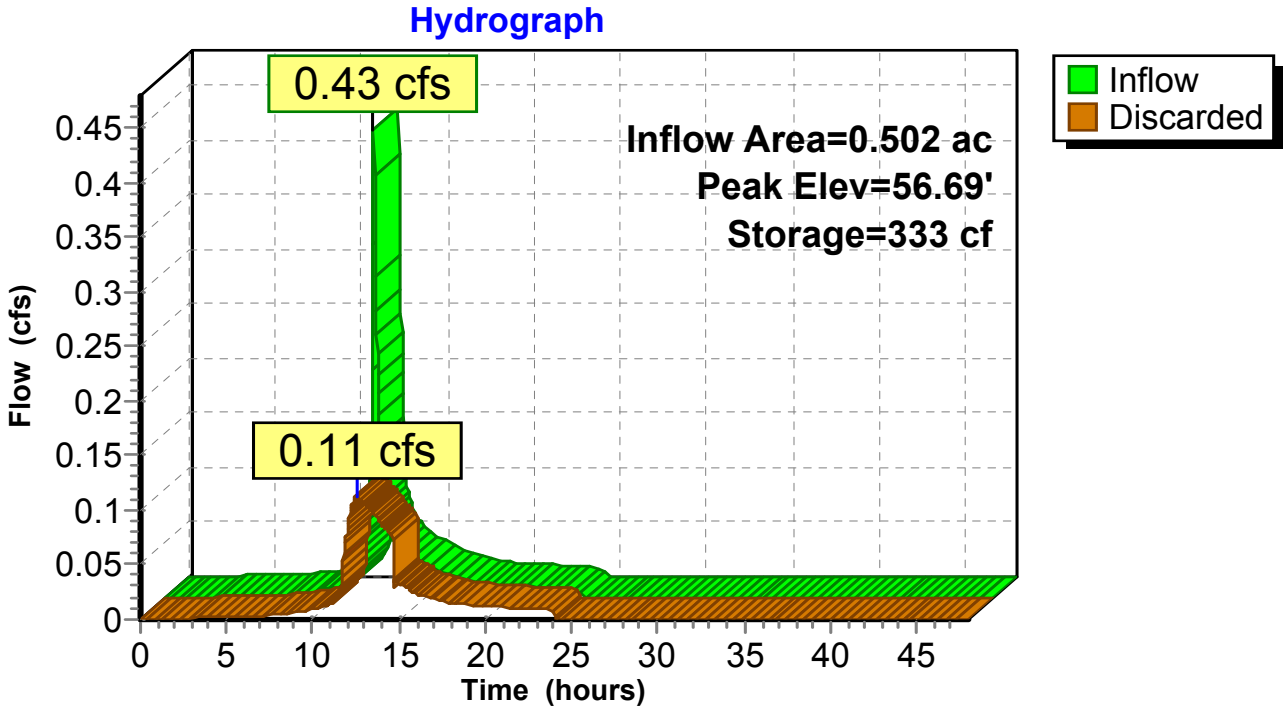
Volume	Invert	Avail.Storage	Storage Description
#1	56.00'	2,585 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.00	388	0	0
57.00	672	530	530
58.00	1,013	843	1,373
59.00	1,411	1,212	2,585

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.11 cfs @ 12.55 hrs HW=56.68' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Pond D-2: Depression



Summary for Pond D-3: Depression

Inflow Area = 0.086 ac, 31.27% Impervious, Inflow Depth = 0.45" for 2-Year event
Inflow = 0.03 cfs @ 12.13 hrs, Volume= 0.003 af
Outflow = 0.03 cfs @ 12.16 hrs, Volume= 0.003 af, Atten= 2%, Lag= 1.3 min
Discarded = 0.03 cfs @ 12.16 hrs, Volume= 0.003 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 63.00' @ 12.16 hrs Surf.Area= 758 sf Storage= 1 cf

Plug-Flow detention time= 0.9 min calculated for 0.003 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (922.1 - 921.2)

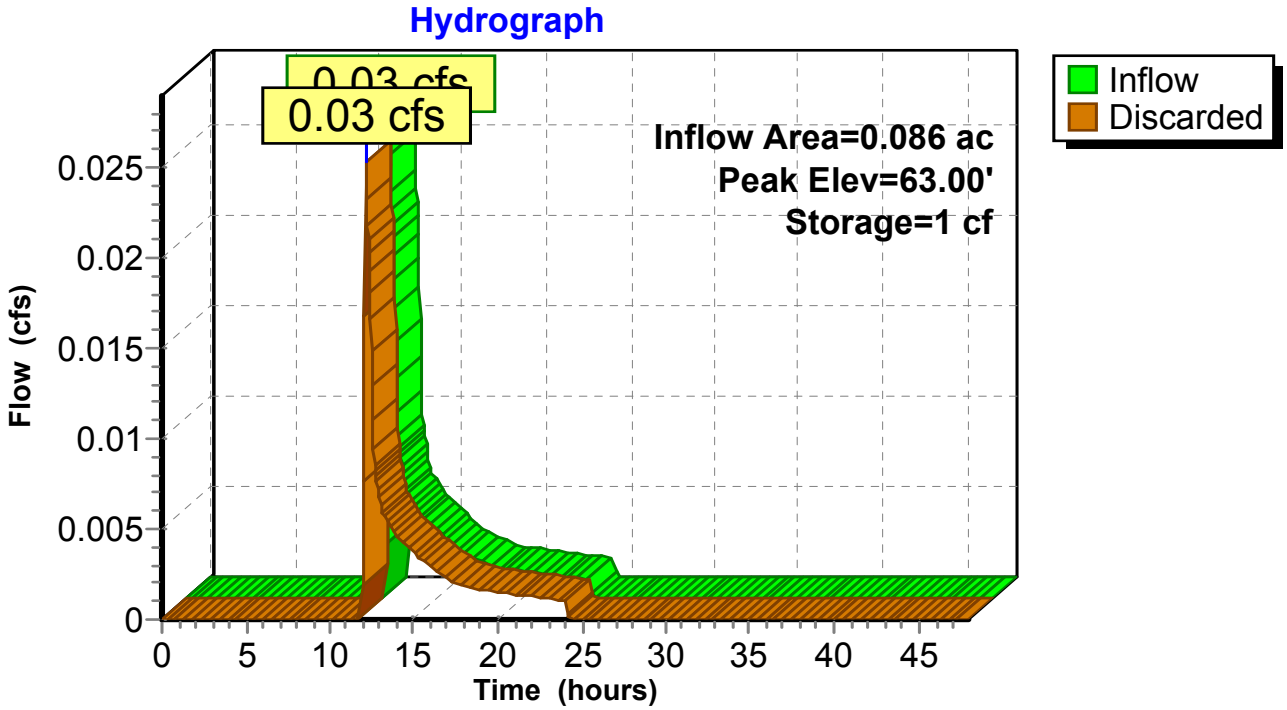
Volume	Invert	Avail.Storage	Storage Description
#1	63.00'	2,747 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
63.00	757	0	0
64.00	1,368	1,063	1,063
65.00	2,001	1,685	2,747

Device	Routing	Invert	Outlet Devices
#1	Discarded	63.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.03 cfs @ 12.16 hrs HW=63.00' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Pond D-3: Depression



Summary for Pond D-4: Depression

Inflow Area = 0.326 ac, 8.55% Impervious, Inflow Depth = 0.08" for 2-Year event
Inflow = 0.00 cfs @ 14.81 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 14.95 hrs, Volume= 0.002 af, Atten= 0%, Lag= 8.2 min
Discarded = 0.00 cfs @ 14.95 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 54.00' @ 14.95 hrs Surf.Area= 483 sf Storage= 2 cf

Plug-Flow detention time= 8.0 min calculated for 0.002 af (100% of inflow)
Center-of-Mass det. time= 8.0 min (1,070.3 - 1,062.2)

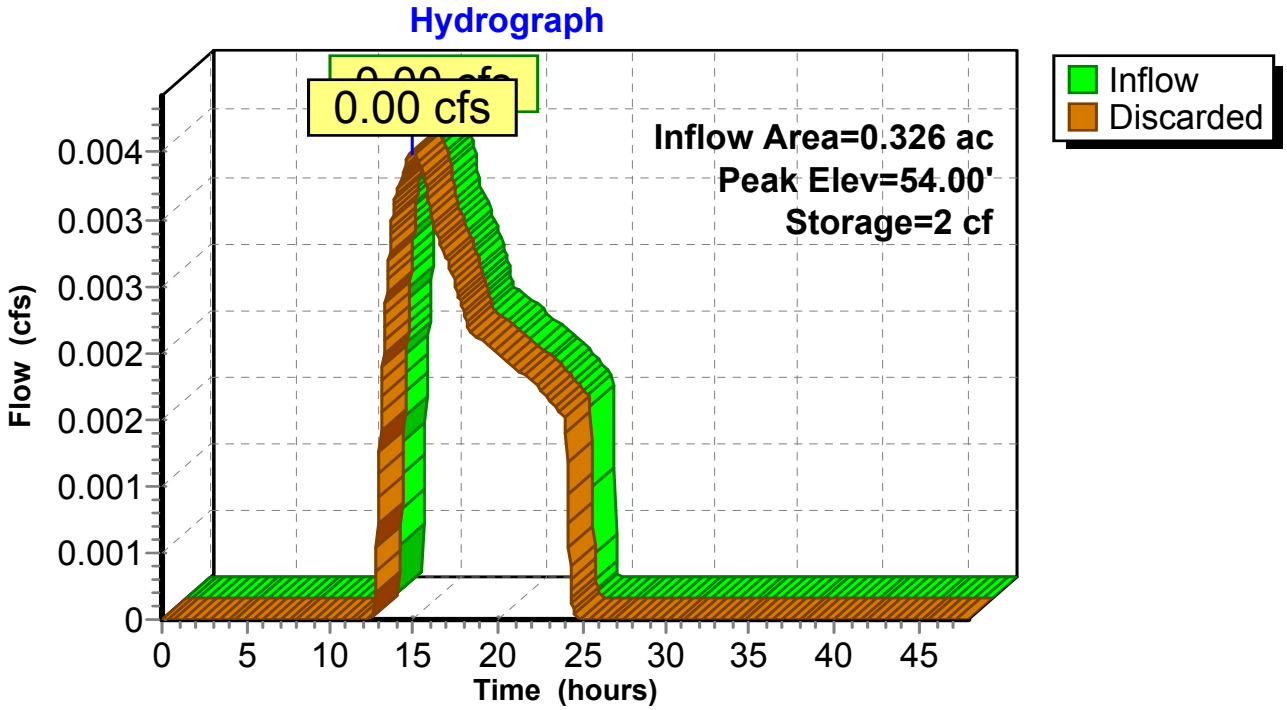
Volume	Invert	Avail.Storage	Storage Description
#1	54.00'	1,737 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
54.00	482	0	0
55.00	834	658	658
56.00	1,323	1,079	1,737

Device	Routing	Invert	Outlet Devices
#1	Discarded	54.00'	**Special & User-Defined** Head (feet) 0.00 0.01 0.02 0.50 2.00 Disch. (cfs) 0.000 0.010 0.000 0.000 0.000

Discarded OutFlow Max=0.00 cfs @ 14.95 hrs HW=54.00' (Free Discharge)
└─**1=Special & User-Defined** (Custom Controls 0.00 cfs)

Pond D-4: Depression



Summary for Pond DB-1: Prop Detention Basin

Inflow Area = 3.524 ac, 61.58% Impervious, Inflow Depth = 1.44" for 2-Year event
Inflow = 5.77 cfs @ 12.09 hrs, Volume= 0.422 af
Outflow = 0.18 cfs @ 17.29 hrs, Volume= 0.148 af, Atten= 97%, Lag= 312.0 min
Primary = 0.18 cfs @ 17.29 hrs, Volume= 0.148 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 59.86' @ 17.29 hrs Surf.Area= 9,425 sf Storage= 14,067 cf

Plug-Flow detention time= 573.6 min calculated for 0.148 af (35% of inflow)
Center-of-Mass det. time= 440.9 min (1,289.8 - 848.9)

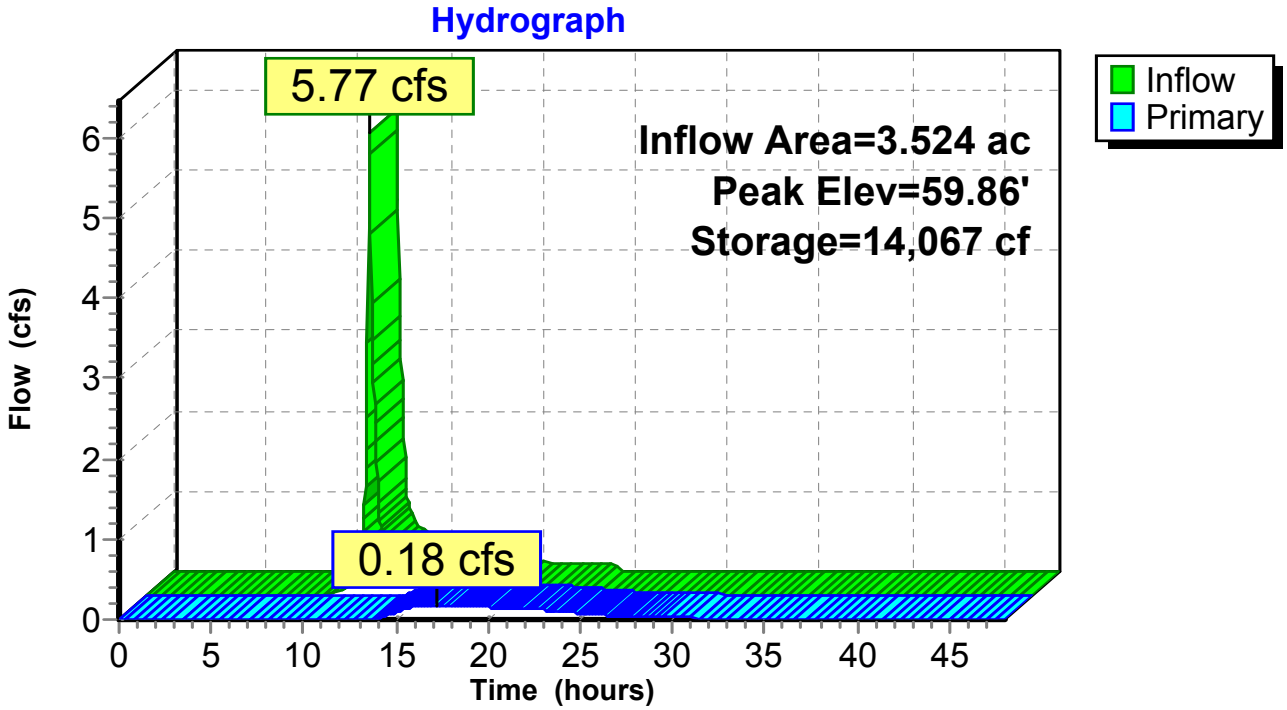
Volume	Invert	Avail.Storage	Storage Description
#1	58.00'	37,916 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.00	5,785	0	0
59.00	7,648	6,717	6,717
60.00	9,712	8,680	15,397
61.00	11,257	10,485	25,881
62.00	12,812	12,035	37,916

Device	Routing	Invert	Outlet Devices
#1	Primary	58.00'	**12.0" Round Culvert** L= 34.9' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 58.00' / 57.65' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	59.60'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	60.15'	**2.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.18 cfs @ 17.29 hrs HW=59.86' TW=55.05' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.18 cfs of 3.48 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 1.74 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB-1: Prop Detention Basin



Summary for Pond P1: Infiltration Chambers

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth = 3.37" for 2-Year event
Inflow = 0.15 cfs @ 12.08 hrs, Volume= 0.012 af
Outflow = 0.04 cfs @ 11.84 hrs, Volume= 0.012 af, Atten= 75%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.84 hrs, Volume= 0.012 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.11' @ 12.45 hrs Surf.Area= 199 sf Storage= 102 cf

Plug-Flow detention time= 12.3 min calculated for 0.012 af (100% of inflow)
Center-of-Mass det. time= 12.3 min (766.3 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	195 cf	**6.33'W x 31.50'L x 3.54'H Field A** 707 cf Overall - 220 cf Embedded = 487 cf x 40.0% Voids
#2A	56.70'	220 cf	**Cultec R-330XLHD** x 4 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		415 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.200 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.04 cfs @ 11.84 hrs HW=56.25' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Pond P1: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

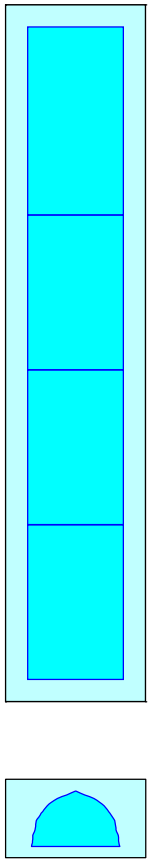
4 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 29.50' Row Length +12.0" End Stone x 2 = 31.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

4 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 219.8 cf Chamber Storage

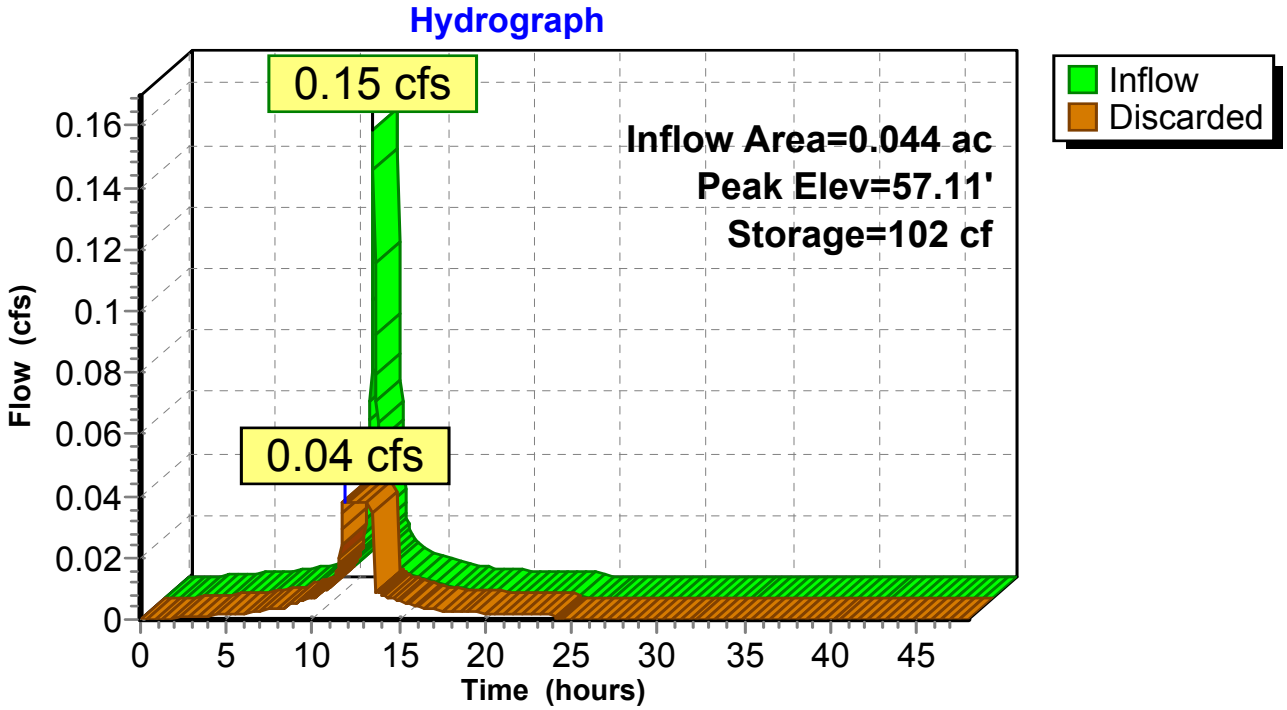
706.6 cf Field - 219.8 cf Chambers = 486.8 cf Stone x 40.0% Voids = 194.7 cf Stone Storage

Chamber Storage + Stone Storage = 414.5 cf = 0.010 af
Overall Storage Efficiency = 58.7%
Overall System Size = 31.50' x 6.33' x 3.54'

4 Chambers
26.2 cy Field
18.0 cy Stone



Pond P1: Infiltration Chambers



Summary for Pond P10: Infiltration Chambers

Inflow Area = 0.175 ac,100.00% Impervious, Inflow Depth = 3.37" for 2-Year event
Inflow = 0.61 cfs @ 12.08 hrs, Volume= 0.049 af
Outflow = 0.13 cfs @ 11.76 hrs, Volume= 0.049 af, Atten= 79%, Lag= 0.0 min
Discarded = 0.13 cfs @ 11.76 hrs, Volume= 0.049 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 59.64' @ 12.50 hrs Surf.Area= 664 sf Storage= 472 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 18.1 min (772.1 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	58.50'	599 cf	**11.17'W x 59.50'L x 3.54'H Field A** 2,353 cf Overall - 857 cf Embedded = 1,496 cf x 40.0% Voids
#2A	59.00'	857 cf	**Cultec R-330XLHD** x 16 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		1,455 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	58.50'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.13 cfs @ 11.76 hrs HW=58.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Pond P10: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

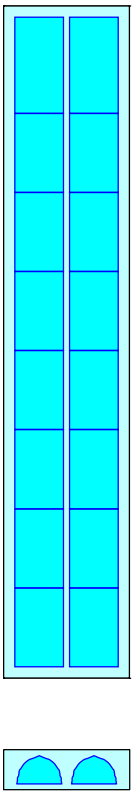
8 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 57.50' Row Length +12.0" End Stone x 2 = 59.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

16 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 856.9 cf Chamber Storage

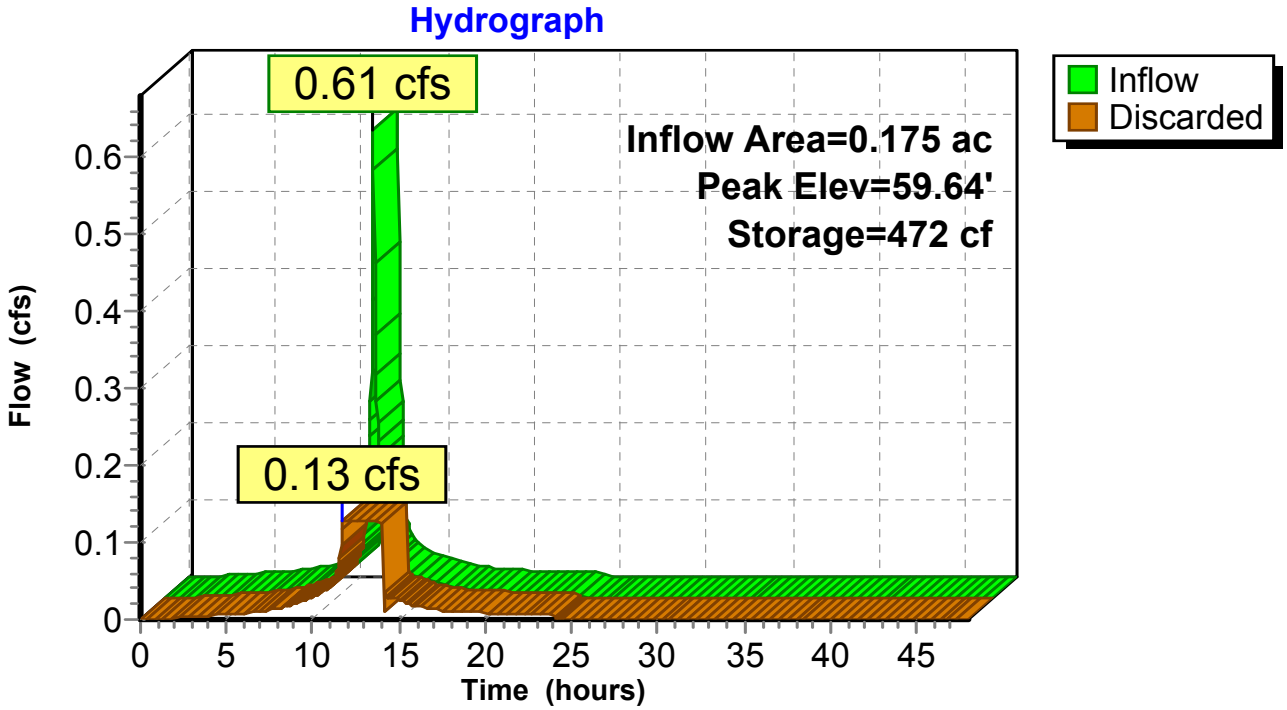
2,353.1 cf Field - 856.9 cf Chambers = 1,496.3 cf Stone x 40.0% Voids = 598.5 cf Stone Storage

Chamber Storage + Stone Storage = 1,455.4 cf = 0.033 af
Overall Storage Efficiency = 61.8%
Overall System Size = 59.50' x 11.17' x 3.54'

16 Chambers
87.2 cy Field
55.4 cy Stone



Pond P10: Infiltration Chambers



Summary for Pond P11: Infiltration Chambers

Inflow Area = 0.099 ac,100.00% Impervious, Inflow Depth = 3.37" for 2-Year event
Inflow = 0.34 cfs @ 12.08 hrs, Volume= 0.028 af
Outflow = 0.08 cfs @ 11.80 hrs, Volume= 0.028 af, Atten= 76%, Lag= 0.0 min
Discarded = 0.08 cfs @ 11.80 hrs, Volume= 0.028 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.65' @ 12.47 hrs Surf.Area= 430 sf Storage= 241 cf

Plug-Flow detention time= 13.6 min calculated for 0.028 af (100% of inflow)
Center-of-Mass det. time= 13.6 min (767.6 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	391 cf	**11.17'W x 38.50'L x 3.54'H Field A** 1,523 cf Overall - 544 cf Embedded = 979 cf x 40.0% Voids
#2A	60.20'	544 cf	**Cultec R-330XLHD** x 10 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		935 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.08 cfs @ 11.80 hrs HW=59.74' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Pond P11: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

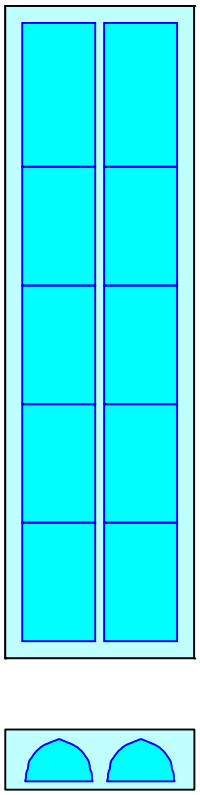
5 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 36.50' Row Length +12.0" End Stone x 2 = 38.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

10 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 543.9 cf Chamber Storage

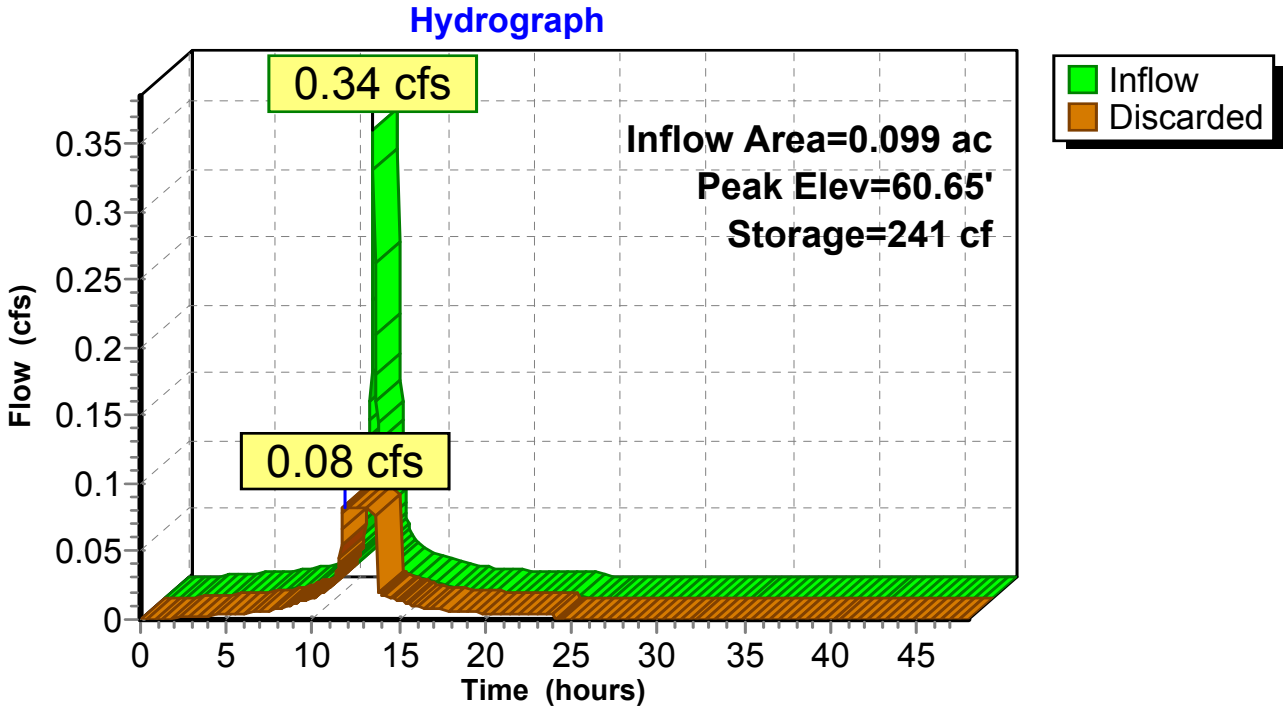
1,522.6 cf Field - 543.9 cf Chambers = 978.7 cf Stone x 40.0% Voids = 391.5 cf Stone Storage

Chamber Storage + Stone Storage = 935.4 cf = 0.021 af
Overall Storage Efficiency = 61.4%
Overall System Size = 38.50' x 11.17' x 3.54'

10 Chambers
56.4 cy Field
36.2 cy Stone



Pond P11: Infiltration Chambers



Summary for Pond P12: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 3.37" for 2-Year event
Inflow = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af
Outflow = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af, Atten= 75%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.11' @ 12.45 hrs Surf.Area= 111 sf Storage= 55 cf

Plug-Flow detention time= 11.9 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 11.8 min (765.8 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	56.70'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.84 hrs HW=56.25' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P12: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

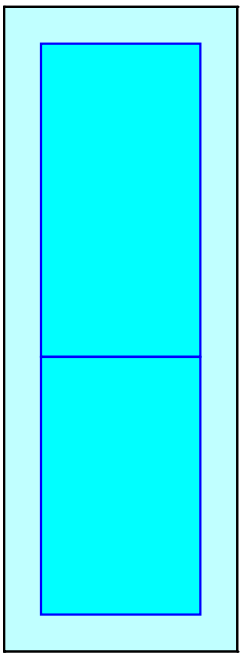
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

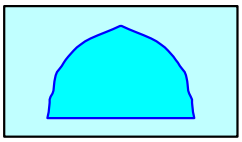
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

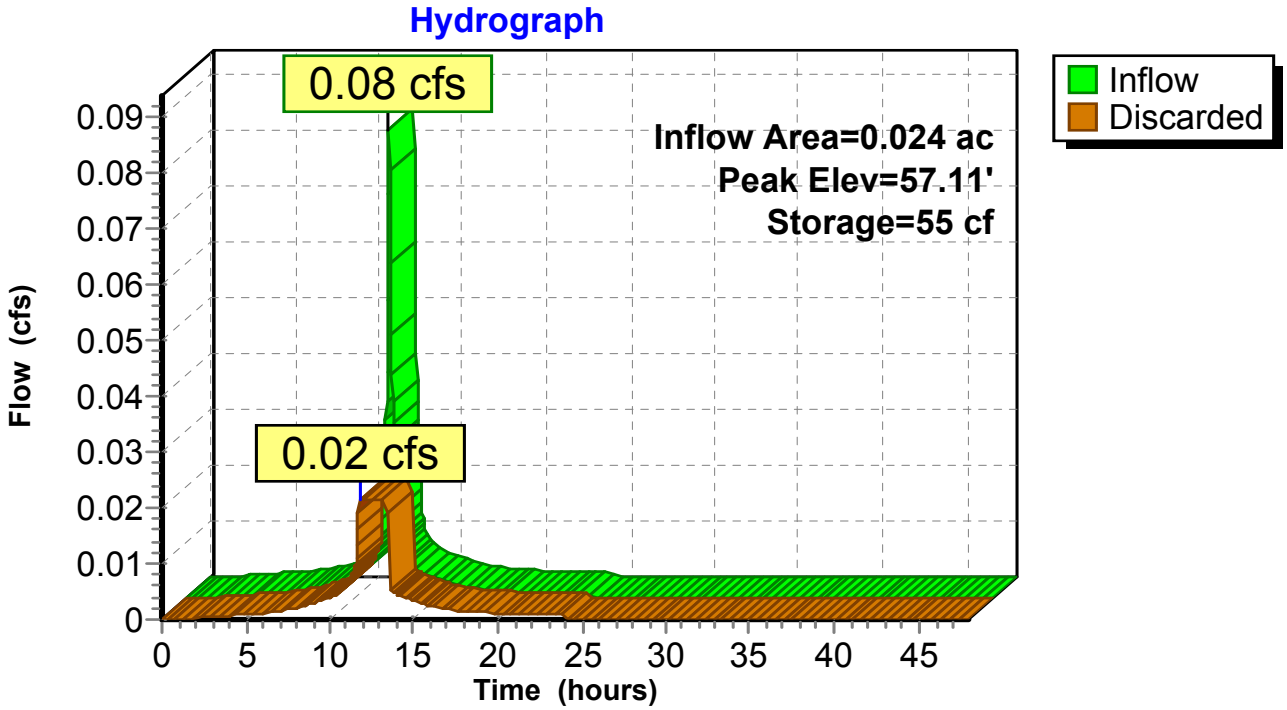
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P12: Infiltration Chambers



Summary for Pond P13: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 3.37" for 2-Year event
Inflow = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af
Outflow = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af, Atten= 75%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.60' @ 12.45 hrs Surf.Area= 111 sf Storage= 55 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 11.8 min (765.8 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.20'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.84 hrs HW=59.75' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P13: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

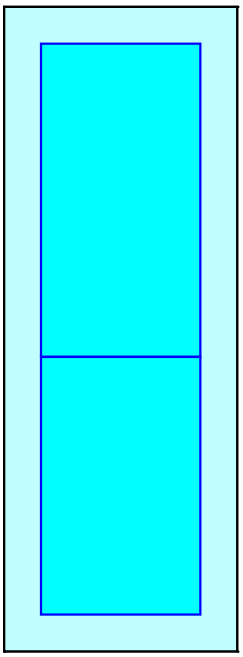
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

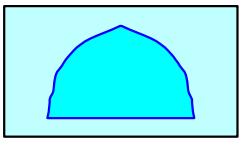
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

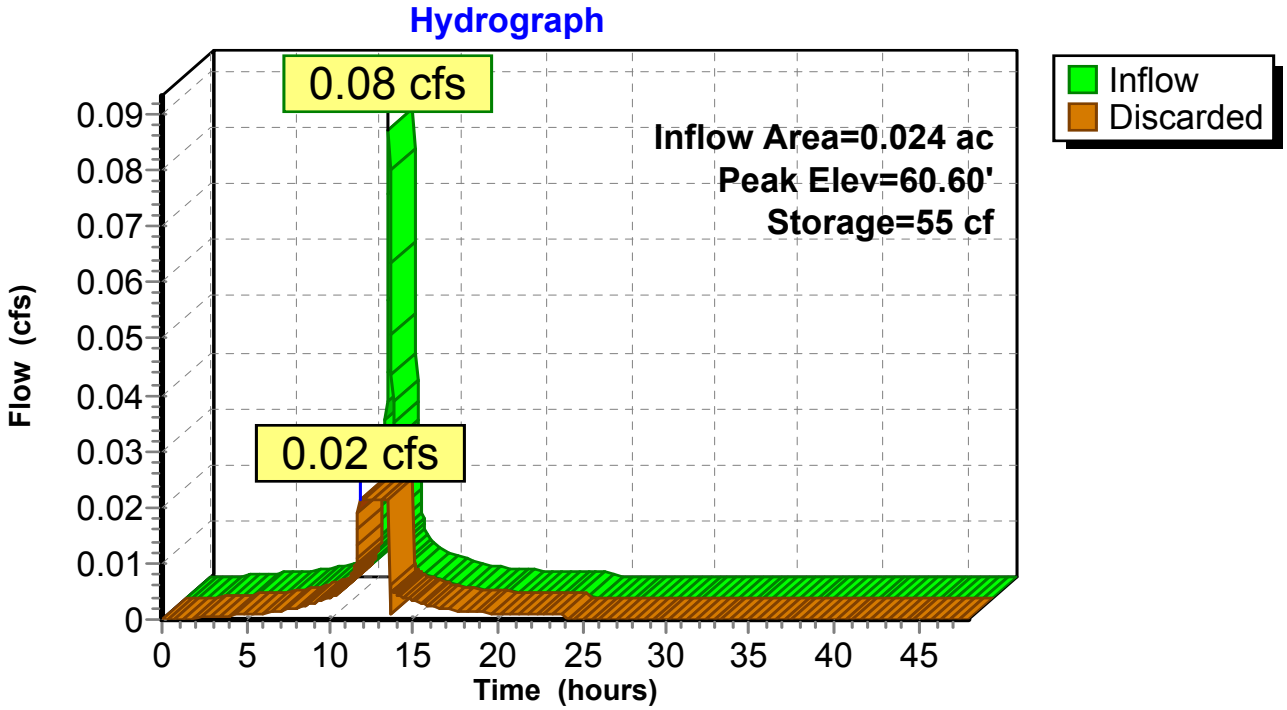
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P13: Infiltration Chambers



Summary for Pond P14: Infiltration Chambers

Inflow Area = 0.072 ac,100.00% Impervious, Inflow Depth = 3.37" for 2-Year event
Inflow = 0.25 cfs @ 12.08 hrs, Volume= 0.020 af
Outflow = 0.05 cfs @ 11.76 hrs, Volume= 0.020 af, Atten= 79%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.76 hrs, Volume= 0.020 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 59.65' @ 12.50 hrs Surf.Area= 274 sf Storage= 193 cf

Plug-Flow detention time= 18.0 min calculated for 0.020 af (100% of inflow)
Center-of-Mass det. time= 18.0 min (772.0 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	58.50'	253 cf	**11.17'W x 24.50'L x 3.54'H Field A** 969 cf Overall - 335 cf Embedded = 634 cf x 40.0% Voids
#2A	59.00'	335 cf	**Cultec R-330XLHD** x 6 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		589 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	58.50'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.05 cfs @ 11.76 hrs HW=58.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Pond P14: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

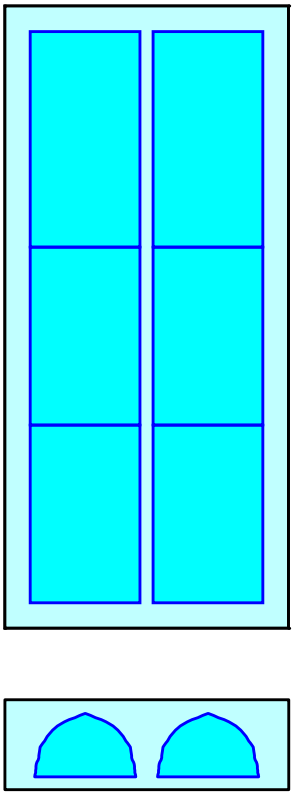
3 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 22.50' Row Length +12.0" End Stone x 2 = 24.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

6 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 335.3 cf Chamber Storage

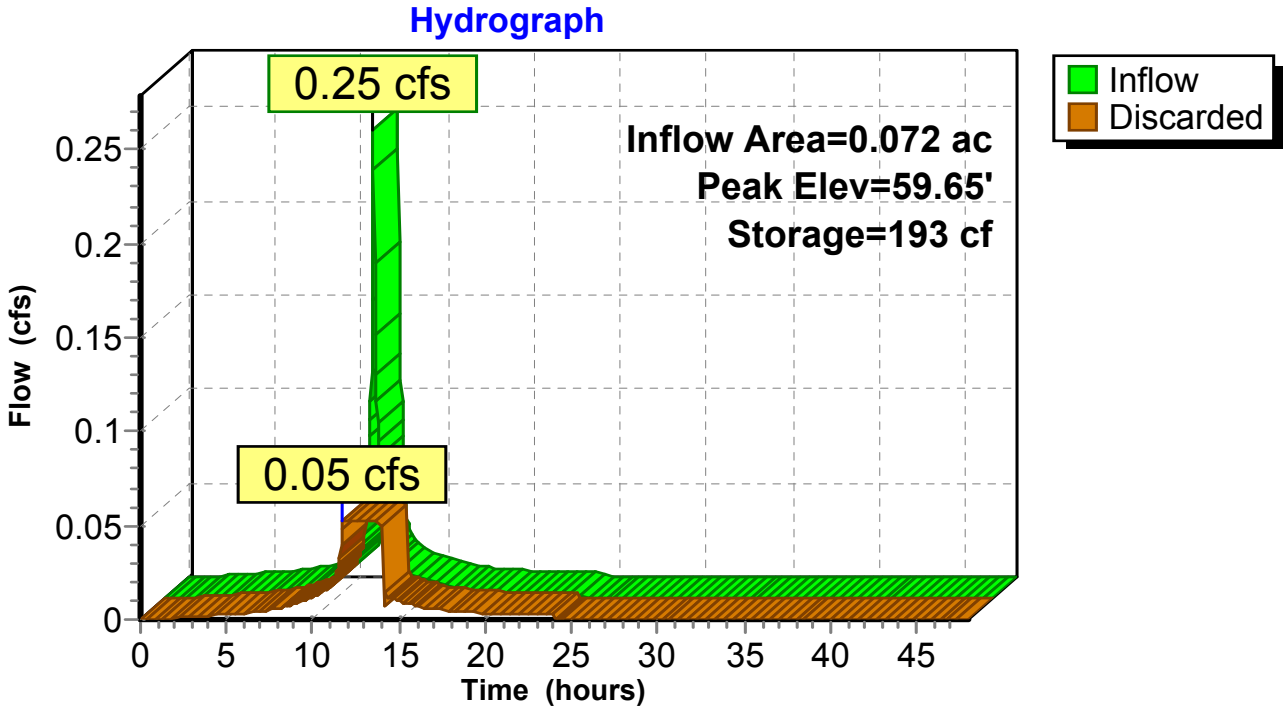
968.9 cf Field - 335.3 cf Chambers = 633.6 cf Stone x 40.0% Voids = 253.5 cf Stone Storage

Chamber Storage + Stone Storage = 588.8 cf = 0.014 af
Overall Storage Efficiency = 60.8%
Overall System Size = 24.50' x 11.17' x 3.54'

6 Chambers
35.9 cy Field
23.5 cy Stone



Pond P14: Infiltration Chambers



Summary for Pond P2: Infiltration Chambers

Inflow Area = 0.349 ac,100.00% Impervious, Inflow Depth = 3.37" for 2-Year event
Inflow = 1.21 cfs @ 12.08 hrs, Volume= 0.098 af
Outflow = 0.27 cfs @ 11.80 hrs, Volume= 0.098 af, Atten= 78%, Lag= 0.0 min
Discarded = 0.27 cfs @ 11.80 hrs, Volume= 0.098 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.25' @ 12.49 hrs Surf.Area= 1,385 sf Storage= 913 cf

Plug-Flow detention time= 16.6 min calculated for 0.098 af (100% of inflow)
Center-of-Mass det. time= 16.6 min (770.6 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	1,194 cf	**20.83'W x 66.50'L x 3.54'H Field A** 4,907 cf Overall - 1,922 cf Embedded = 2,984 cf x 40.0% Voids
#2A	56.70'	1,922 cf	**Cultec R-330XLHD** x 36 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 4 rows
		3,116 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.27 cfs @ 11.80 hrs HW=56.26' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.27 cfs)

Pond P2: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 4 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

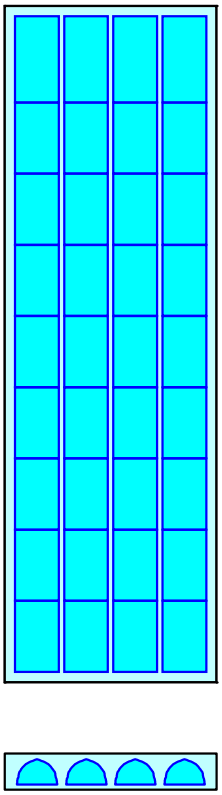
9 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 64.50' Row Length +12.0" End Stone x 2 = 66.50' Base Length
4 Rows x 52.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.83' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

36 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 4 Rows = 1,922.4 cf Chamber Storage

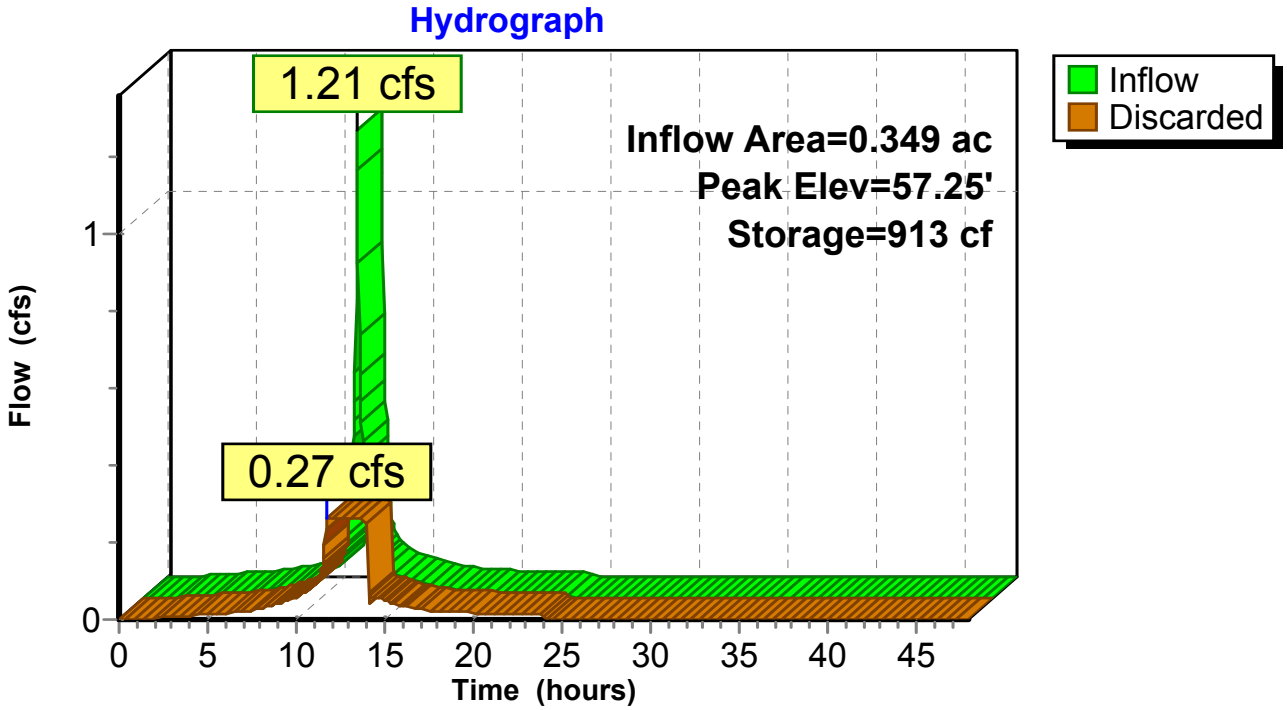
4,906.7 cf Field - 1,922.4 cf Chambers = 2,984.3 cf Stone x 40.0% Voids = 1,193.7 cf Stone Storage

Chamber Storage + Stone Storage = 3,116.1 cf = 0.072 af
Overall Storage Efficiency = 63.5%
Overall System Size = 66.50' x 20.83' x 3.54'

36 Chambers
181.7 cy Field
110.5 cy Stone



Pond P2: Infiltration Chambers



Summary for Pond P3: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 3.37" for 2-Year event
Inflow = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af
Outflow = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af, Atten= 75%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.11' @ 12.45 hrs Surf.Area= 111 sf Storage= 55 cf

Plug-Flow detention time= 11.9 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 11.8 min (765.8 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	56.70'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.84 hrs HW=56.25' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P3: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

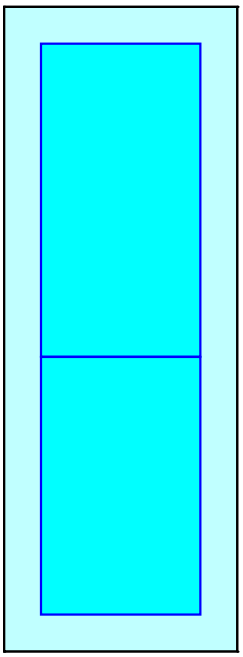
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

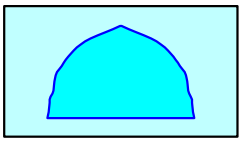
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

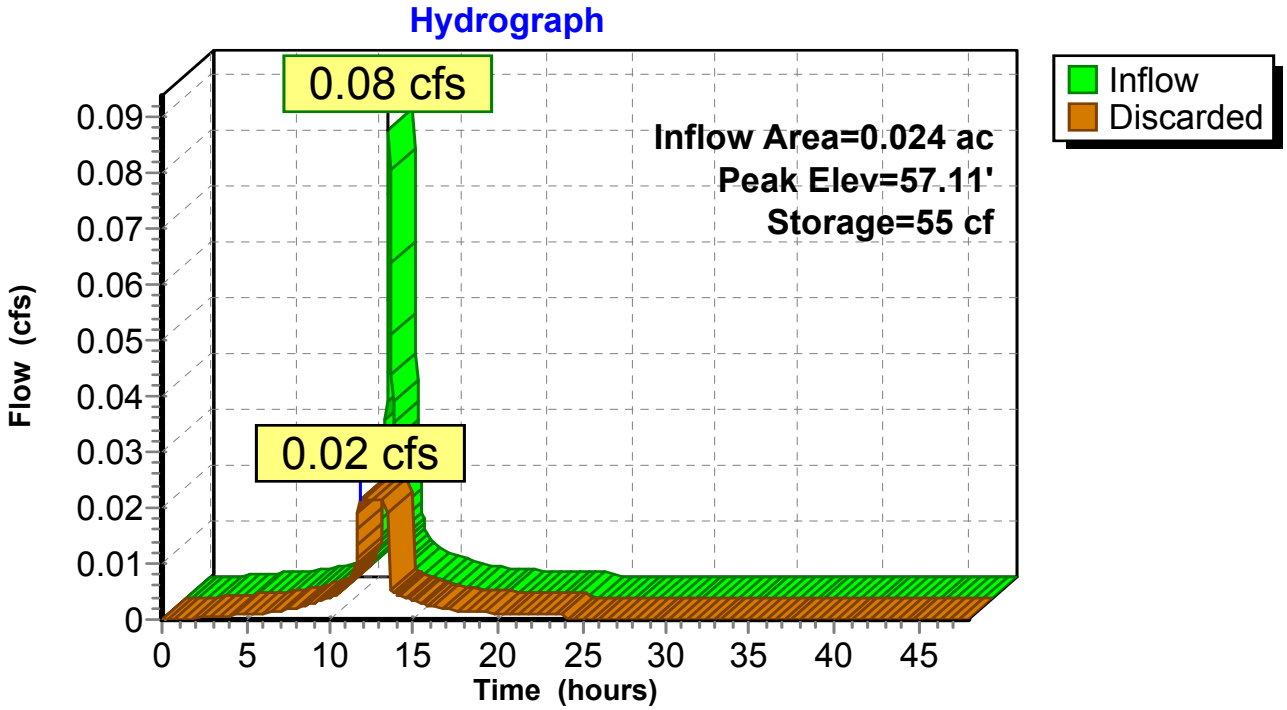
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P3: Infiltration Chambers



Summary for Pond P4: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 3.37" for 2-Year event
Inflow = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af
Outflow = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af, Atten= 75%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.60' @ 12.45 hrs Surf.Area= 111 sf Storage= 55 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 11.8 min (765.8 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.20'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.84 hrs HW=59.75' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P4: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

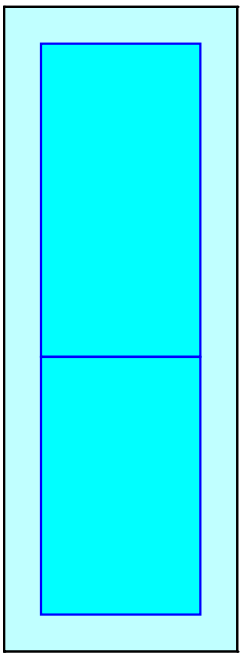
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

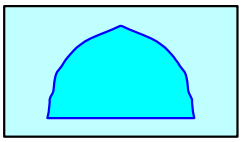
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

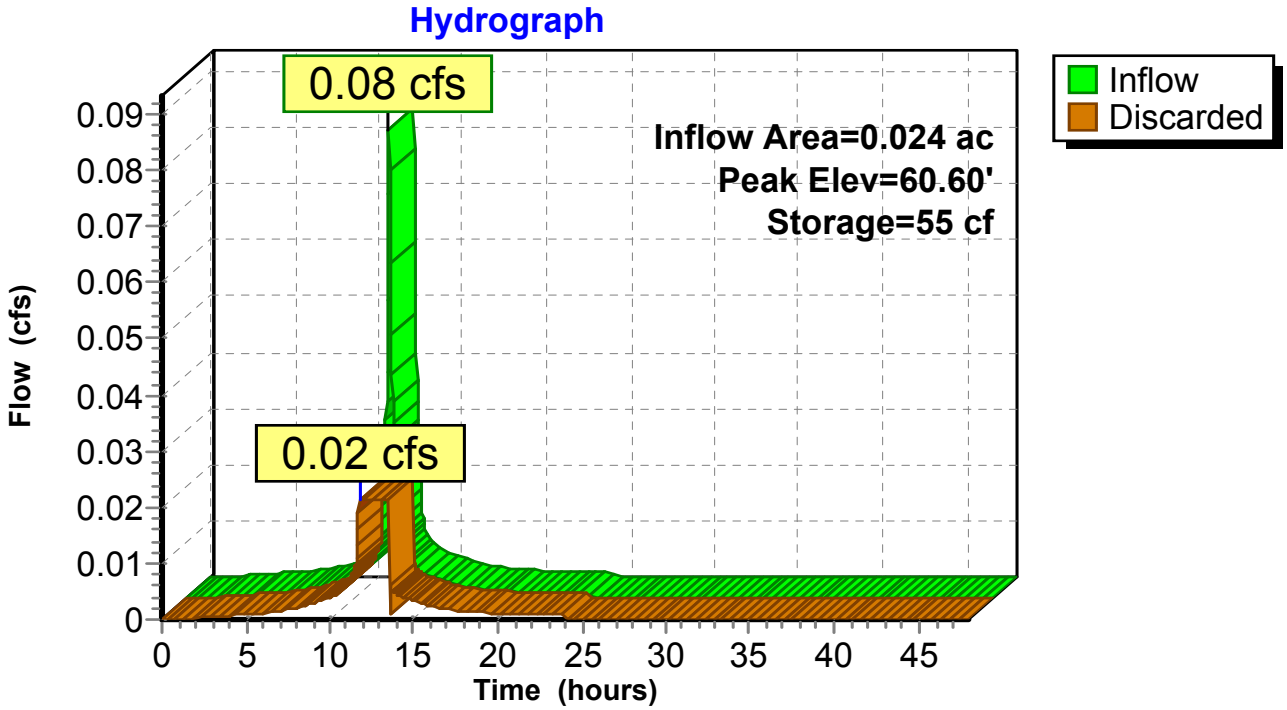
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P4: Infiltration Chambers



Summary for Pond P5: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 3.37" for 2-Year event
Inflow = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af
Outflow = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af, Atten= 75%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.61' @ 12.45 hrs Surf.Area= 111 sf Storage= 55 cf

Plug-Flow detention time= 11.8 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 11.8 min (765.8 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.20'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.84 hrs HW=59.75' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P5: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

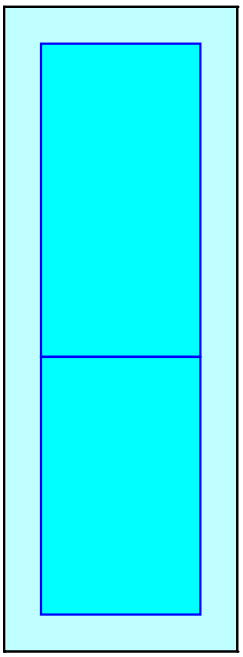
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

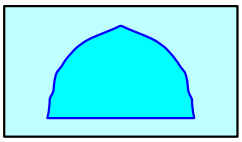
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

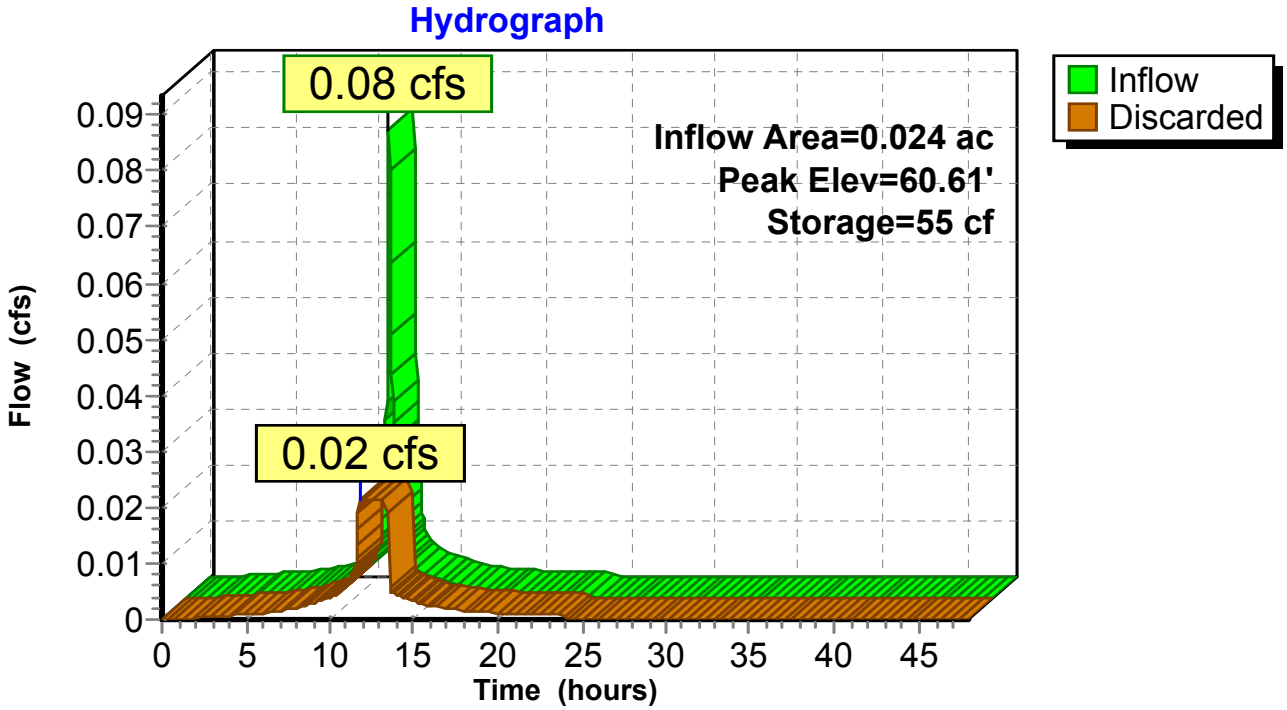
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P5: Infiltration Chambers



Summary for Pond P6: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 3.37" for 2-Year event
Inflow = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af
Outflow = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af, Atten= 75%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.51' @ 12.45 hrs Surf.Area= 111 sf Storage= 55 cf

Plug-Flow detention time= 11.8 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 11.8 min (765.8 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.60'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.10'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.84 hrs HW=59.65' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P6: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

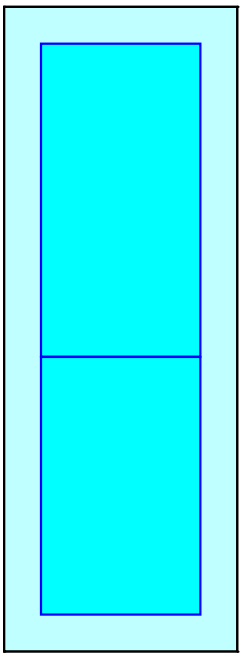
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

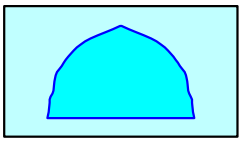
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

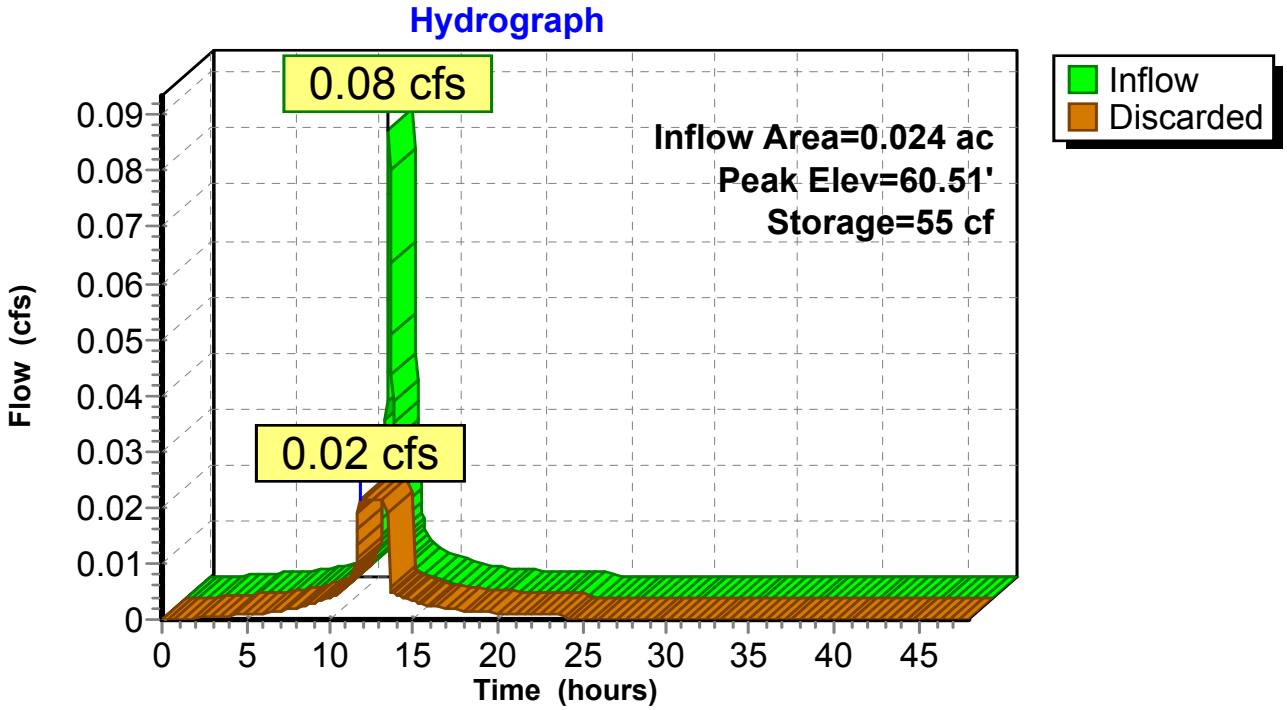
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P6: Infiltration Chambers



Summary for Pond P7: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 3.37" for 2-Year event
Inflow = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af
Outflow = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af, Atten= 75%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.84 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.51' @ 12.45 hrs Surf.Area= 111 sf Storage= 55 cf

Plug-Flow detention time= 11.9 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 11.8 min (765.8 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.60'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.10'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.84 hrs HW=59.65' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P7: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

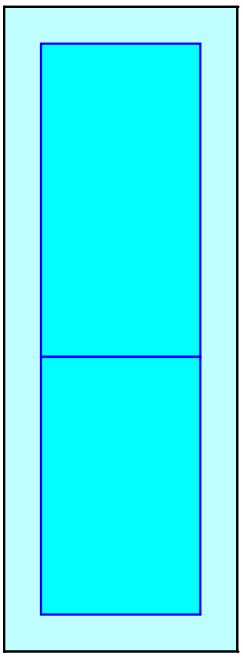
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

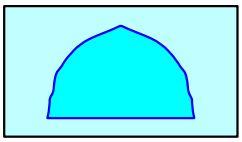
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

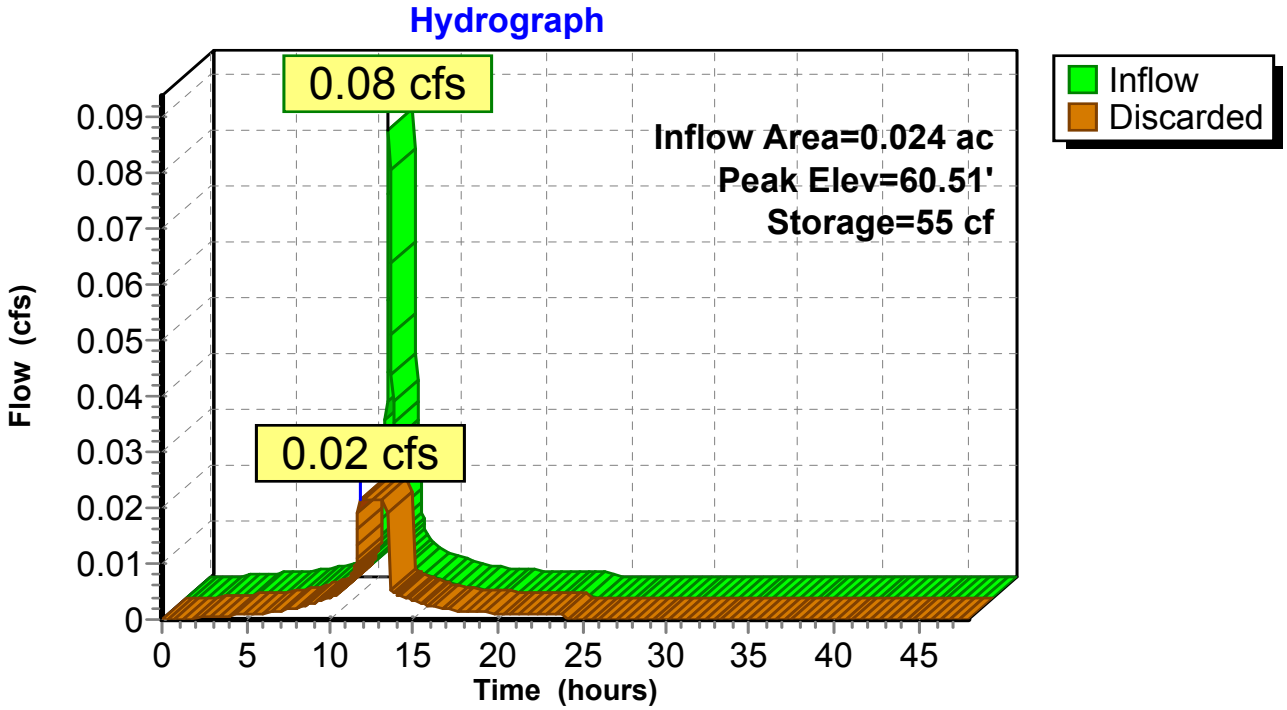
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P7: Infiltration Chambers



Summary for Pond P8: Infiltration Chambers

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth = 3.37" for 2-Year event
Inflow = 0.15 cfs @ 12.08 hrs, Volume= 0.012 af
Outflow = 0.04 cfs @ 11.84 hrs, Volume= 0.012 af, Atten= 75%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.84 hrs, Volume= 0.012 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.51' @ 12.45 hrs Surf.Area= 199 sf Storage= 101 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 12.1 min (766.1 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.60'	195 cf	**6.33'W x 31.50'L x 3.54'H Field A** 707 cf Overall - 220 cf Embedded = 487 cf x 40.0% Voids
#2A	60.10'	220 cf	**Cultec R-330XLHD** x 4 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		415 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.04 cfs @ 11.84 hrs HW=59.65' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Pond P8: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

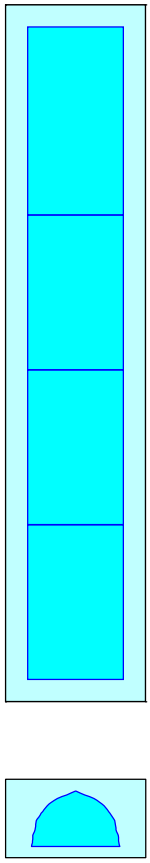
4 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 29.50' Row Length +12.0" End Stone x 2 = 31.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

4 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 219.8 cf Chamber Storage

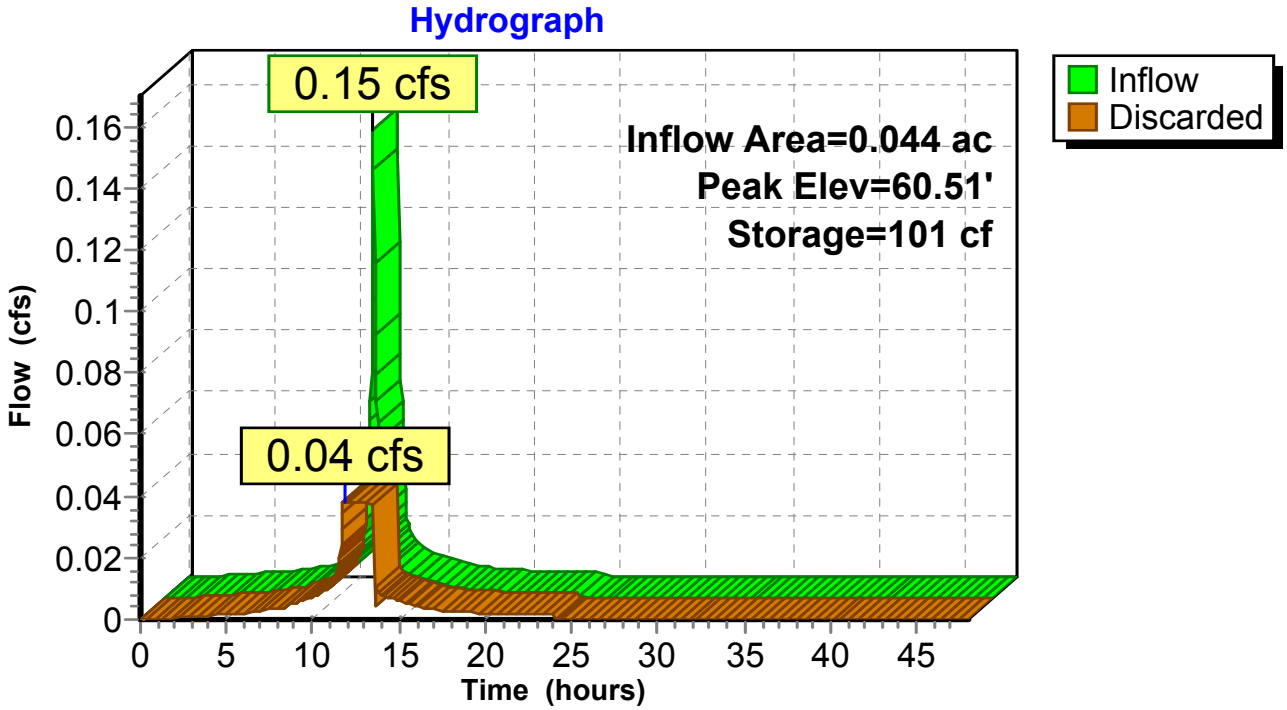
706.6 cf Field - 219.8 cf Chambers = 486.8 cf Stone x 40.0% Voids = 194.7 cf Stone Storage

Chamber Storage + Stone Storage = 414.5 cf = 0.010 af
Overall Storage Efficiency = 58.7%
Overall System Size = 31.50' x 6.33' x 3.54'

4 Chambers
26.2 cy Field
18.0 cy Stone



Pond P8: Infiltration Chambers



Summary for Pond P9: Infiltration Chambers

Inflow Area = 0.457 ac, 68.14% Impervious, Inflow Depth = 1.81" for 2-Year event
Inflow = 0.88 cfs @ 12.09 hrs, Volume= 0.069 af
Outflow = 0.25 cfs @ 11.92 hrs, Volume= 0.069 af, Atten= 72%, Lag= 0.0 min
Discarded = 0.25 cfs @ 11.92 hrs, Volume= 0.069 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 56.35' @ 12.47 hrs Surf.Area= 1,290 sf Storage= 526 cf

Plug-Flow detention time= 10.1 min calculated for 0.069 af (100% of inflow)
Center-of-Mass det. time= 10.1 min (814.1 - 803.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	55.60'	1,151 cf	**11.17'W x 115.50'L x 3.54'H Field A** 4,568 cf Overall - 1,691 cf Embedded = 2,876 cf x 40.0% Voids
#2A	56.10'	1,691 cf	**Cultec R-330XLHD** x 32 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		2,842 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	55.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.25 cfs @ 11.92 hrs HW=55.64' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.25 cfs)

Pond P9: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

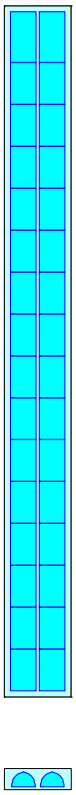
16 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 113.50' Row Length +12.0" End Stone x 2 = 115.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

32 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 1,691.4 cf Chamber Storage

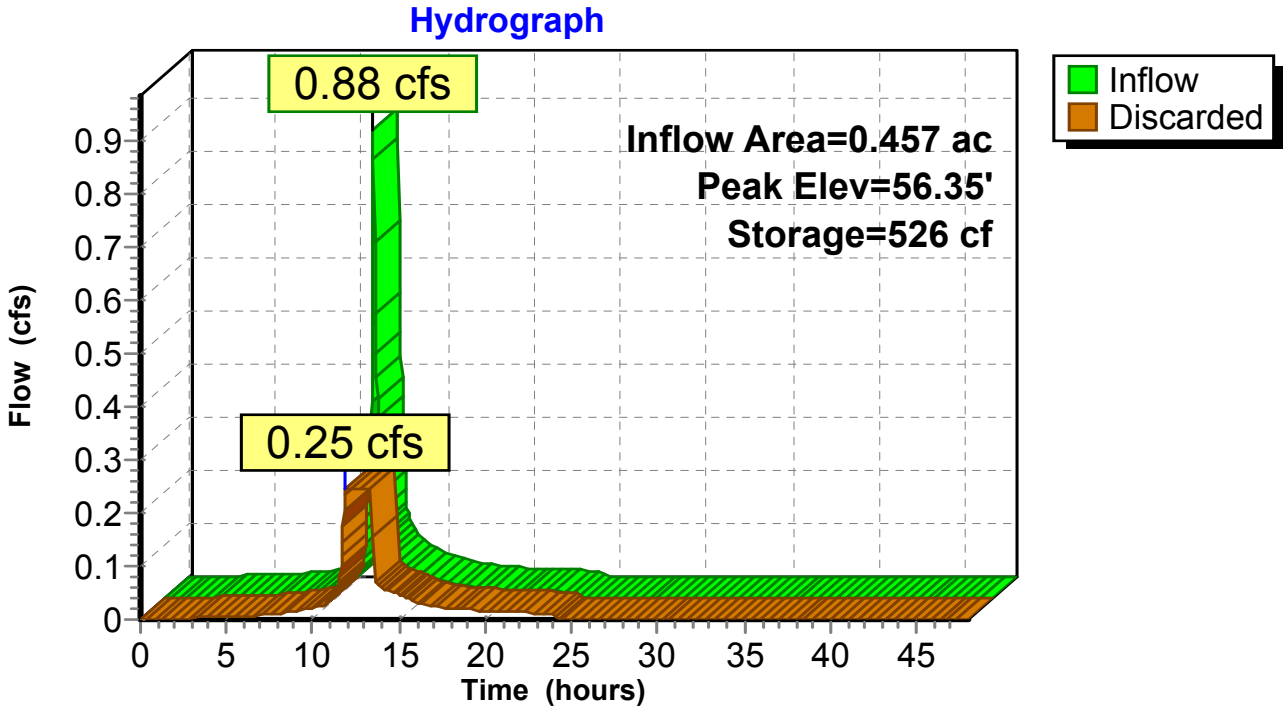
4,567.9 cf Field - 1,691.4 cf Chambers = 2,876.5 cf Stone x 40.0% Voids = 1,150.6 cf Stone Storage

Chamber Storage + Stone Storage = 2,842.0 cf = 0.065 af
Overall Storage Efficiency = 62.2%
Overall System Size = 115.50' x 11.17' x 3.54'

32 Chambers
169.2 cy Field
106.5 cy Stone



Pond P9: Infiltration Chambers



Summary for Pond W1: BVW

Inflow Area = 4.439 ac, 57.57% Impervious, Inflow Depth > 0.63" for 2-Year event
Inflow = 1.13 cfs @ 12.10 hrs, Volume= 0.234 af
Outflow = 1.12 cfs @ 12.11 hrs, Volume= 0.234 af, Atten= 1%, Lag= 0.7 min
Primary = 1.12 cfs @ 12.11 hrs, Volume= 0.234 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 55.13' @ 12.11 hrs Surf.Area= 525 sf Storage= 35 cf

Plug-Flow detention time= 0.5 min calculated for 0.234 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (1,134.2 - 1,133.7)

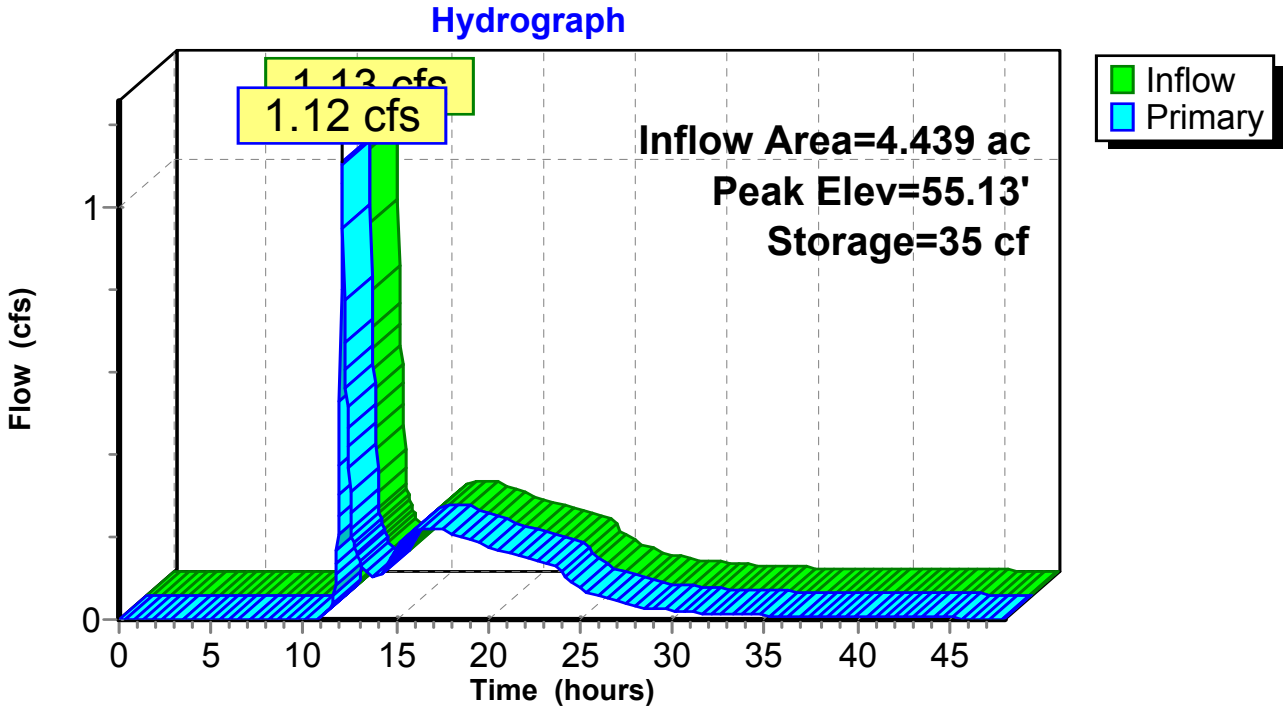
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	14,409 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
55.00	10	0	0
56.00	3,962	1,986	1,986
57.00	20,884	12,423	14,409

Device	Routing	Invert	Outlet Devices
#1	Primary	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 66.00
#2	Device 1	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 84.00

Primary OutFlow Max=1.10 cfs @ 12.11 hrs HW=55.13' TW=0.00' (Dynamic Tailwater)
└─**1=Custom Weir/Orifice** (Weir Controls 1.10 cfs @ 1.06 fps)
  └─**2=Custom Weir/Orifice** (Passes 1.10 cfs of 1.24 cfs potential flow)

Pond W1: BVW


Hydrograph
1.13 cfs
1.12 cfs
Inflow Area=4.439 ac
Peak Elev=55.13'
Storage=35 cf
Inflow
Primary
Flow (cfs)
1
0
0
5
10
15
20
25
30
35
40
45
Time (hours)

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Sub-1 Runoff Area=7,545 sf 0.00% Impervious Runoff Depth=0.16"
Tc=6.0 min CN=39 Runoff=0.00 cfs 0.002 af

Subcatchment2S: Sub-2 Runoff Area=8,462 sf 7.92% Impervious Runoff Depth=0.34"
Tc=6.0 min CN=44 Runoff=0.03 cfs 0.005 af

Subcatchment3A-10R: Roofs 15 B Runoff Area=857 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment3A-10R1: Roofs 15 F Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment3A-11R: Roofs 24-27 FB Runoff Area=7,608 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.066 af

Subcatchment3A-12R: Roofs 30-32 B Runoff Area=2,596 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.023 af

Subcatchment3A-13R: Roofs 28-29 B Runoff Area=1,728 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.18 cfs 0.015 af

Subcatchment3A-14R: Roofs 28-F Runoff Area=1,048 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment3A-15R: Roofs 29 F Runoff Area=1,045 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment3A-16R: Roofs 30-32 F Runoff Area=3,124 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment3A-1R: Roof 5 Runoff Area=1,903 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.20 cfs 0.017 af

Subcatchment3A-2R: Roofs 1-4 FB Runoff Area=7,608 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.066 af

Subcatchment3A-2R1: Roofs 6-9 FB Runoff Area=7,608 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.066 af

Subcatchment3A-3R: Roofs 10-F Runoff Area=1,048 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment3A-4R: Roofs 11 F Runoff Area=1,045 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment3A-5R: Roofs 10-11 B Runoff Area=1,707 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.18 cfs 0.015 af

Subcatchment3A-6R: Roofs 12 B Runoff Area=839 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment3A-7R: Roofs 12 F Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment3A-8R: Roofs 13 F Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment3A-9R: Roofs 14 F Runoff Area=1,048 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment3A-S: Sub-3A Runoff Area=153,525 sf 61.58% Impervious Runoff Depth=2.37"
Tc=6.0 min CN=76 Runoff=9.69 cfs 0.697 af

Subcatchment3B-S: Sub-3B Runoff Area=39,829 sf 42.08% Impervious Runoff Depth=1.97"
Tc=6.0 min CN=71 Runoff=2.05 cfs 0.150 af

Subcatchment3C-S: Sub-3C Runoff Area=19,306 sf 29.30% Impervious Runoff Depth=1.25"
Tc=6.0 min CN=61 Runoff=0.57 cfs 0.046 af

Subcatchment4S: Sub-4 Runoff Area=6,046 sf 0.00% Impervious Runoff Depth=0.16"
Tc=6.0 min CN=39 Runoff=0.00 cfs 0.002 af

Subcatchment4S-1: Sub-4 Runoff Area=3,739 sf 31.27% Impervious Runoff Depth=1.00"
Tc=6.0 min CN=57 Runoff=0.08 cfs 0.007 af

Subcatchment5S: Sub -5 Runoff Area=9,637 sf 22.04% Impervious Runoff Depth=0.77"
Tc=6.0 min CN=53 Runoff=0.14 cfs 0.014 af

Subcatchment5S-1: Roofs 31-32 F Runoff Area=14,192 sf 8.55% Impervious Runoff Depth=0.34"
Tc=6.0 min CN=44 Runoff=0.04 cfs 0.009 af

Subcatchment5S-P: Pavement Runoff Area=14,192 sf 55.31% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=72 Runoff=0.76 cfs 0.056 af

Subcatchment5S-R1: Roofs 19-21 FB Runoff Area=5,720 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=0.61 cfs 0.050 af

Reach DP-1: DMH Inflow=0.00 cfs 0.002 af
Outflow=0.00 cfs 0.002 af

Reach DP-2: DP-2 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-3: DP-3 Inflow=2.03 cfs 0.572 af
Outflow=2.03 cfs 0.572 af

Reach DP-4: PL Inflow=0.00 cfs 0.002 af
Outflow=0.00 cfs 0.002 af

Reach DP-5: PL		Inflow=0.14 cfs 0.014 af Outflow=0.14 cfs 0.014 af
Pond D-1: Depression	Peak Elev=59.00' Storage=1 cf	Inflow=0.03 cfs 0.005 af Outflow=0.03 cfs 0.005 af
Pond D-2: Depression	Peak Elev=57.40' Storage=829 cf	Inflow=0.84 cfs 0.068 af Outflow=0.15 cfs 0.068 af
Pond D-3: Depression	Peak Elev=63.01' Storage=4 cf	Inflow=0.08 cfs 0.007 af Outflow=0.08 cfs 0.007 af
Pond D-4: Depression	Peak Elev=54.67' Storage=399 cf	Inflow=0.04 cfs 0.009 af Outflow=0.01 cfs 0.000 af
Pond DB-1: Prop Detention Basin	Peak Elev=60.22' Storage=17,591 cf	Inflow=9.69 cfs 0.697 af Outflow=0.70 cfs 0.422 af
Pond P1: Infiltration Chambers	Peak Elev=57.60' Storage=172 cf	Inflow=0.20 cfs 0.017 af Outflow=0.04 cfs 0.017 af
Pond P10: Infiltration Chambers	Peak Elev=60.21' Storage=766 cf	Inflow=0.81 cfs 0.066 af Outflow=0.13 cfs 0.066 af
Pond P11: Infiltration Chambers	Peak Elev=61.14' Storage=403 cf	Inflow=0.46 cfs 0.038 af Outflow=0.08 cfs 0.038 af
Pond P12: Infiltration Chambers	Peak Elev=57.60' Storage=94 cf	Inflow=0.11 cfs 0.009 af Outflow=0.02 cfs 0.009 af
Pond P13: Infiltration Chambers	Peak Elev=61.09' Storage=93 cf	Inflow=0.11 cfs 0.009 af Outflow=0.02 cfs 0.009 af
Pond P14: Infiltration Chambers	Peak Elev=60.23' Storage=314 cf	Inflow=0.33 cfs 0.027 af Outflow=0.05 cfs 0.027 af
Pond P2: Infiltration Chambers	Peak Elev=57.77' Storage=1,496 cf	Inflow=1.62 cfs 0.133 af Outflow=0.27 cfs 0.133 af
Pond P3: Infiltration Chambers	Peak Elev=57.60' Storage=94 cf	Inflow=0.11 cfs 0.009 af Outflow=0.02 cfs 0.009 af
Pond P4: Infiltration Chambers	Peak Elev=61.09' Storage=93 cf	Inflow=0.11 cfs 0.009 af Outflow=0.02 cfs 0.009 af
Pond P5: Infiltration Chambers	Peak Elev=61.09' Storage=94 cf	Inflow=0.11 cfs 0.009 af Outflow=0.02 cfs 0.009 af
Pond P6: Infiltration Chambers	Peak Elev=60.99' Storage=94 cf	Inflow=0.11 cfs 0.009 af Outflow=0.02 cfs 0.009 af

Pond P7: Infiltration Chambers Peak Elev=61.00' Storage=94 cf Inflow=0.11 cfs 0.009 af
Outflow=0.02 cfs 0.009 af

Pond P8: Infiltration Chambers Peak Elev=60.99' Storage=171 cf Inflow=0.20 cfs 0.017 af
Outflow=0.04 cfs 0.017 af

Pond P9: Infiltration Chambers Peak Elev=56.98' Storage=1,174 cf Inflow=1.37 cfs 0.105 af
Outflow=0.25 cfs 0.105 af

Pond W1: BVW Peak Elev=55.18' Storage=63 cf Inflow=2.05 cfs 0.572 af
Outflow=2.03 cfs 0.572 af

Total Runoff Area = 7.487 ac Runoff Volume = 1.422 af Average Runoff Depth = 2.28"
44.91% Pervious = 3.363 ac 55.09% Impervious = 4.125 ac

Summary for Subcatchment 1S: Sub-1

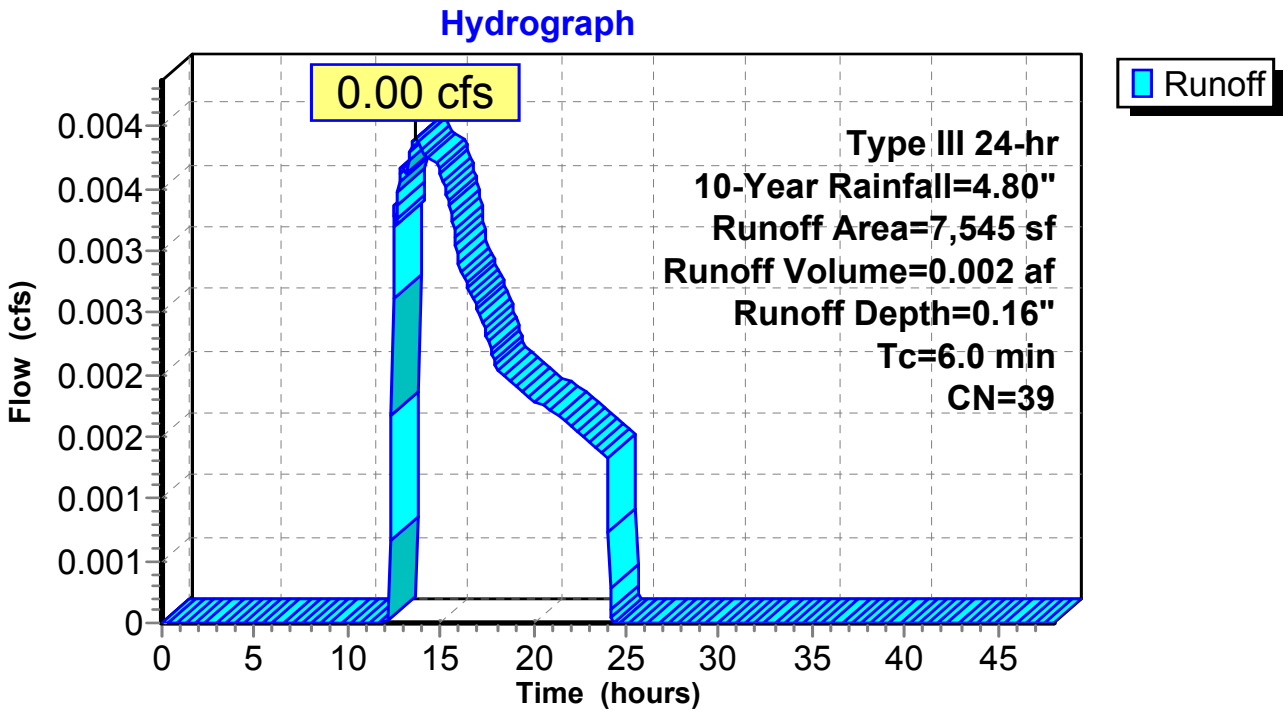
Runoff = 0.00 cfs @ 13.67 hrs, Volume= 0.002 af, Depth= 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
7,545	39	>75% Grass cover, Good, HSG A
7,545		100.00% Pervious Area

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

Subcatchment 1S: Sub-1



Summary for Subcatchment 2S: Sub-2

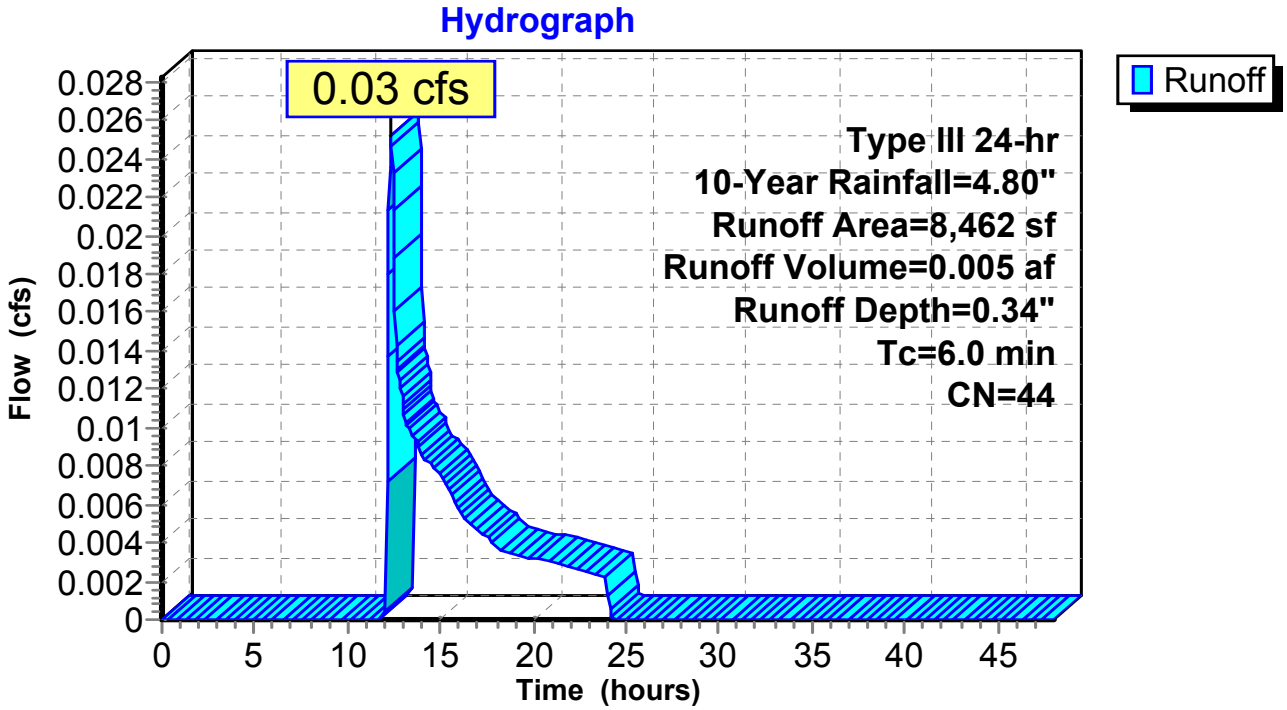
Runoff = 0.03 cfs @ 12.35 hrs, Volume= 0.005 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
	7,792	39	>75% Grass cover, Good, HSG A
*	100	98	Walls, HSG A
*	570	98	Decks, HSG A
	8,462	44	Weighted Average
	7,792		92.08% Pervious Area
	670		7.92% Impervious Area

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

Subcatchment 2S: Sub-2



Summary for Subcatchment 3A-10R: Roofs 15 B

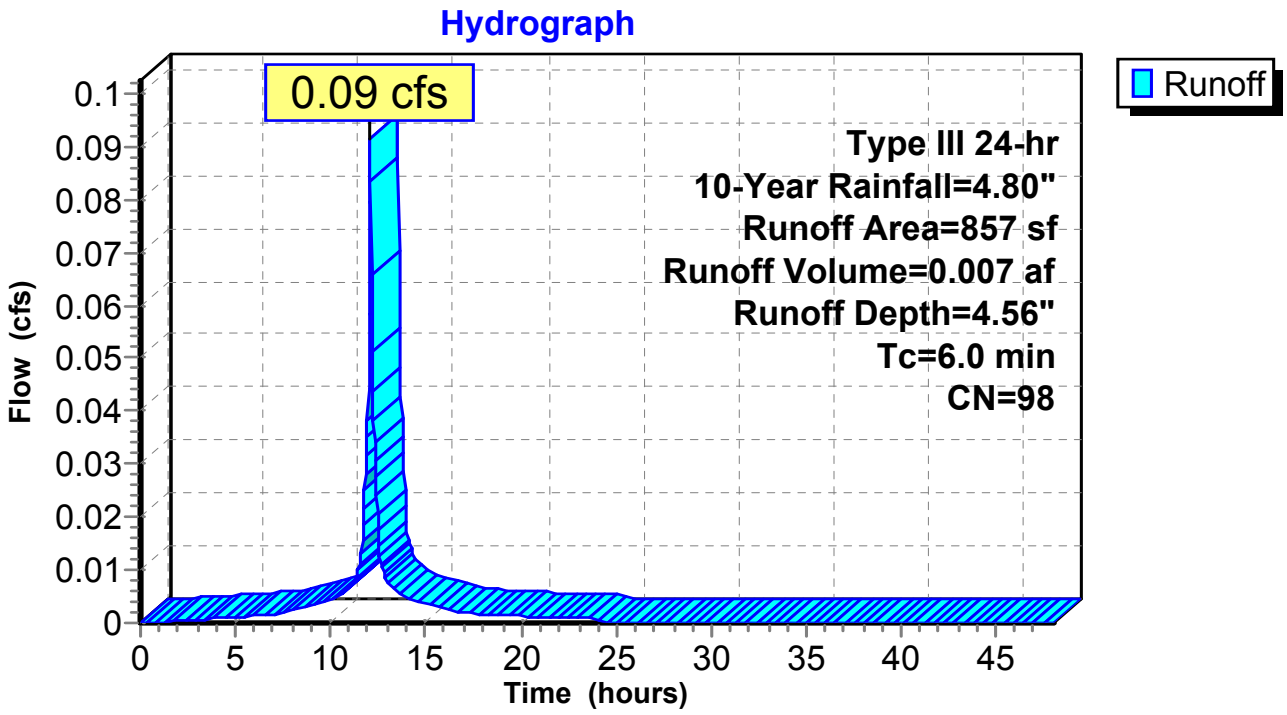
Runoff = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
857	98	Roofs, HSG A
857		100.00% Impervious Area

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

Subcatchment 3A-10R: Roofs 15 B



Summary for Subcatchment 3A-10R1: Roofs 15 F

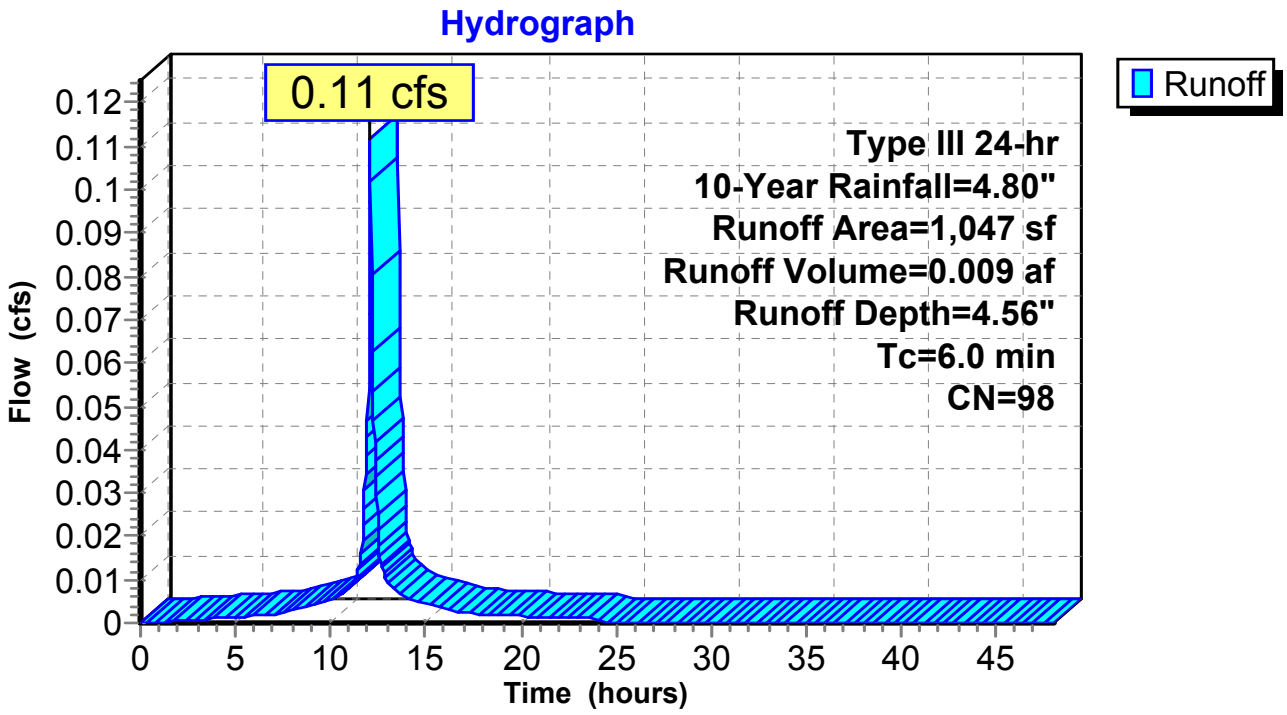
Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
1,047	98	Roofs, HSG A
1,047		100.00% Impervious Area

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

Subcatchment 3A-10R1: Roofs 15 F



Summary for Subcatchment 3A-11R: Roofs 24-27 FB

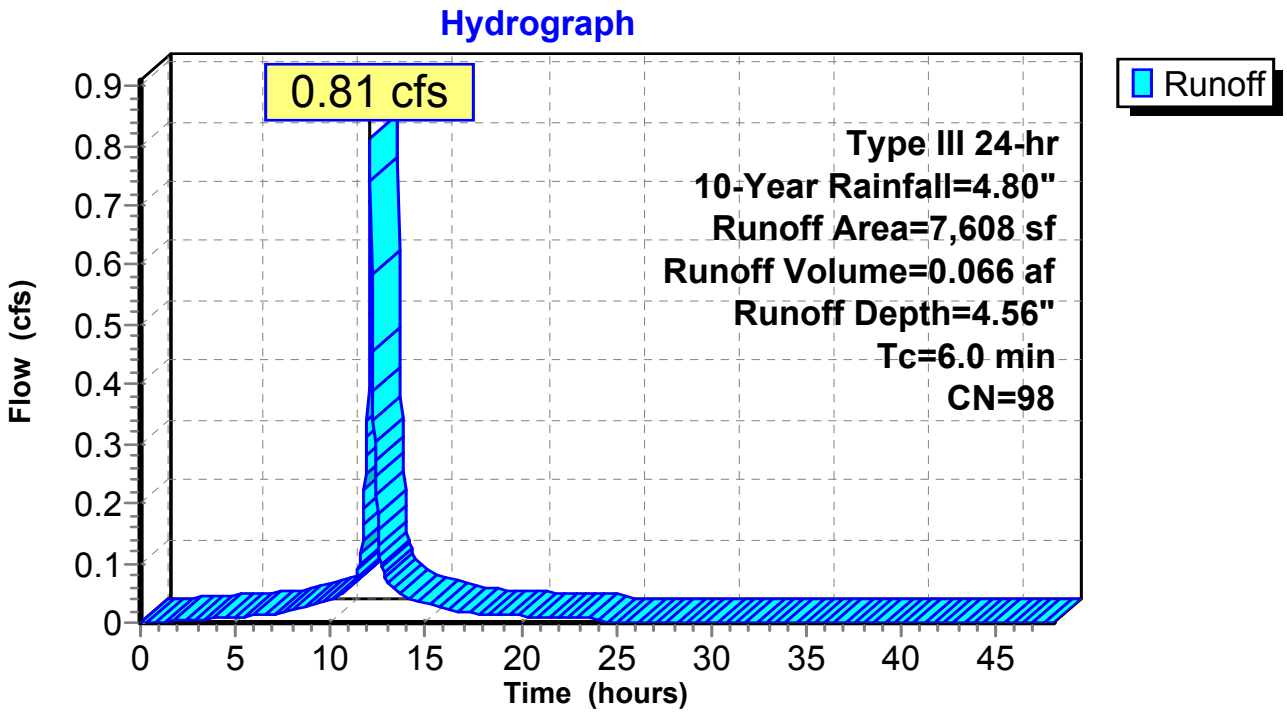
Runoff = 0.81 cfs @ 12.08 hrs, Volume= 0.066 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
4,152	98	Roofs, HSG A
3,456	98	Roofs, HSG A
7,608	98	Weighted Average
7,608		100.00% Impervious Area

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

Subcatchment 3A-11R: Roofs 24-27 FB



Summary for Subcatchment 3A-12R: Roofs 30-32 B

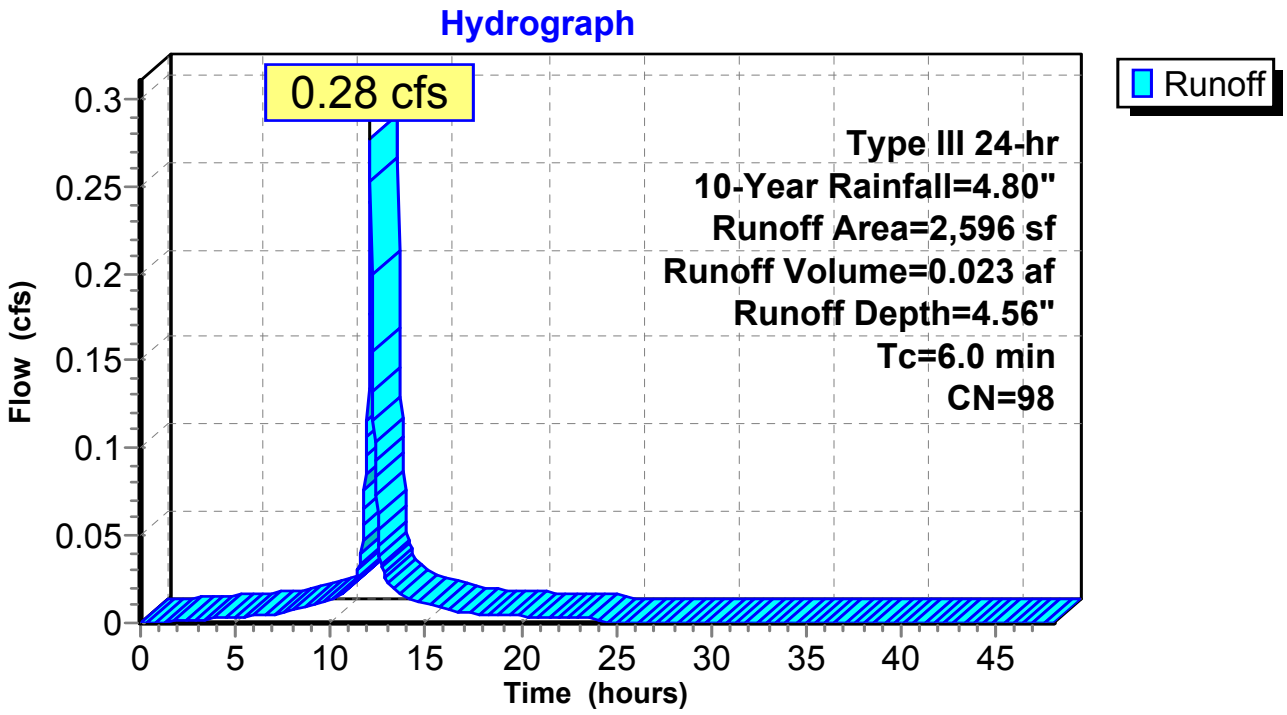
Runoff = 0.28 cfs @ 12.08 hrs, Volume= 0.023 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
2,596	98	Roofs, HSG A
2,596		100.00% Impervious Area

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

Subcatchment 3A-12R: Roofs 30-32 B



Summary for Subcatchment 3A-13R: Roofs 28-29 B

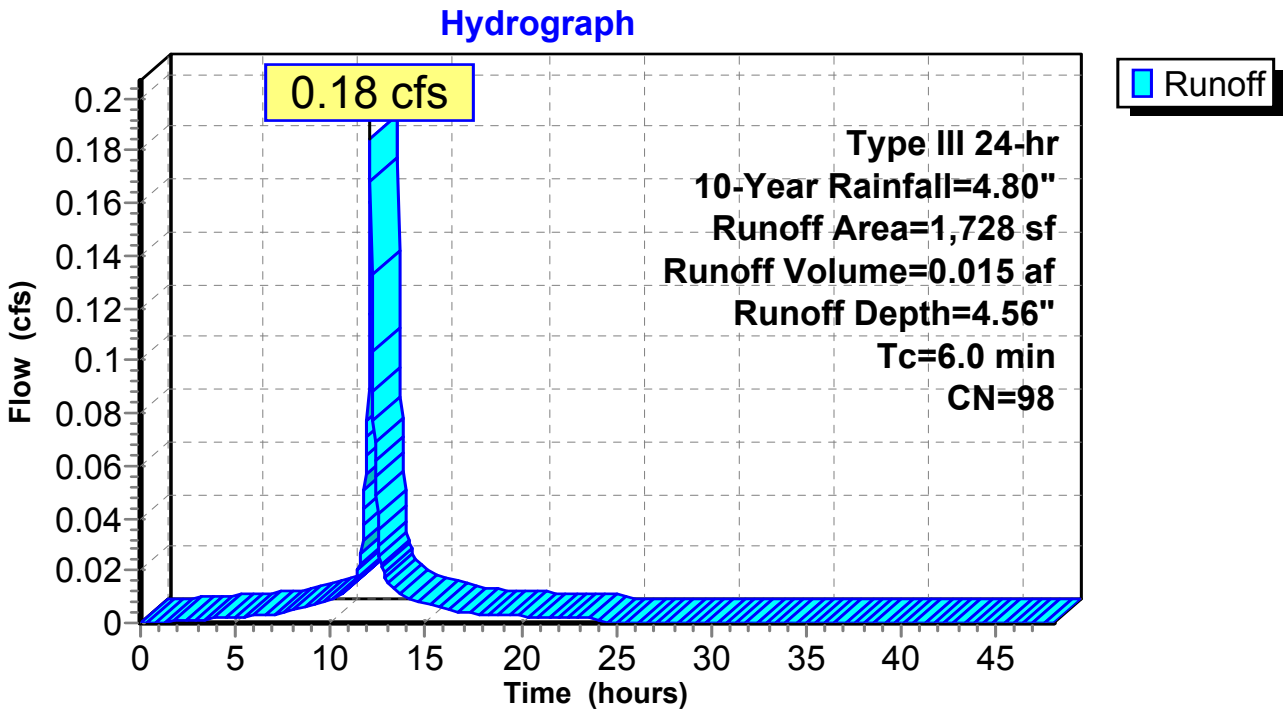
Runoff = 0.18 cfs @ 12.08 hrs, Volume= 0.015 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
1,728	98	Roofs, HSG A
1,728		100.00% Impervious Area

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

Subcatchment 3A-13R: Roofs 28-29 B



Summary for Subcatchment 3A-14R: Roofs 28-F

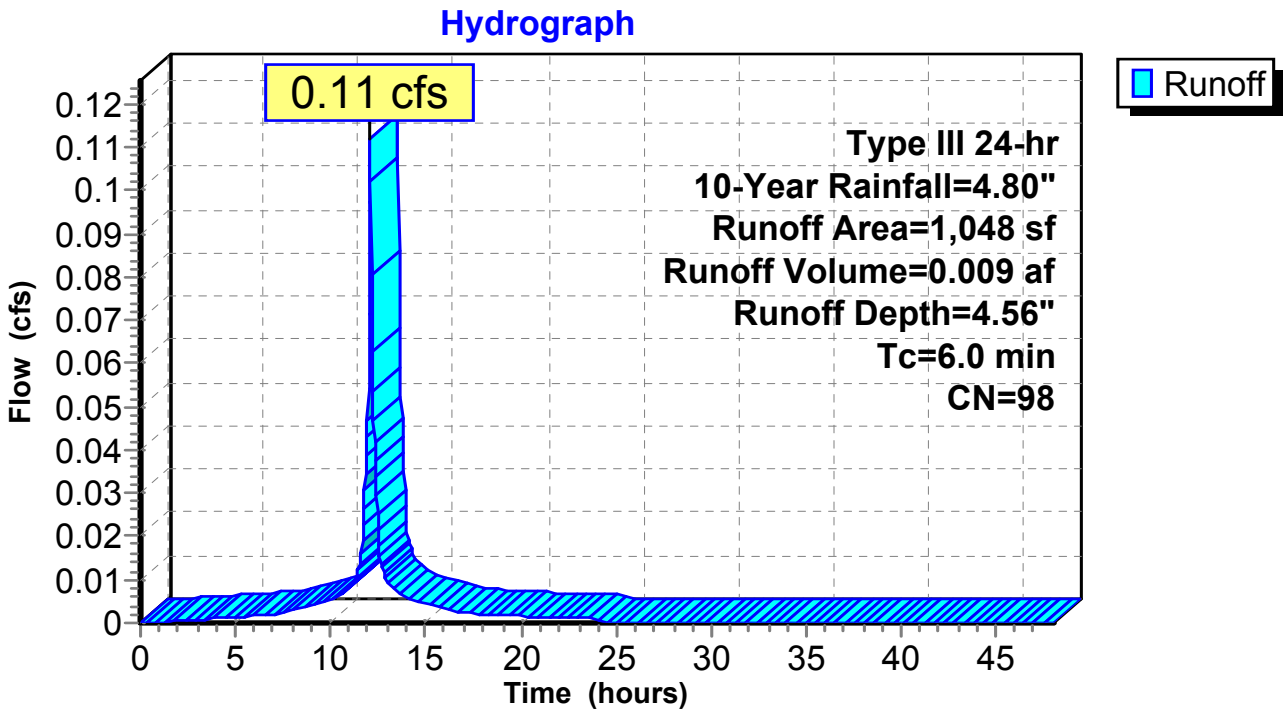
Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
*	1,048	98	Roofs, HSG B
	1,048		100.00% Impervious Area

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

Subcatchment 3A-14R: Roofs 28-F



Summary for Subcatchment 3A-15R: Roofs 29 F

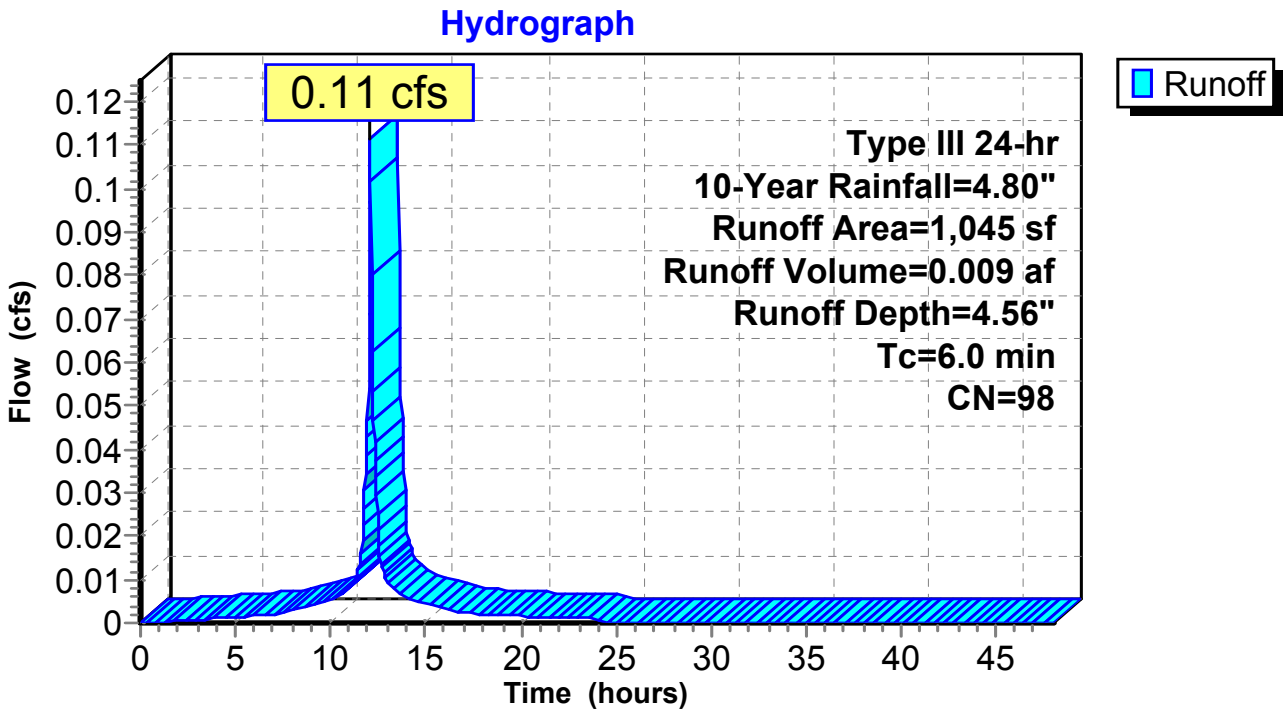
Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
*	1,045	98	Roofs, HSG B
	1,045		100.00% Impervious Area

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

Subcatchment 3A-15R: Roofs 29 F



Summary for Subcatchment 3A-16R: Roofs 30-32 F

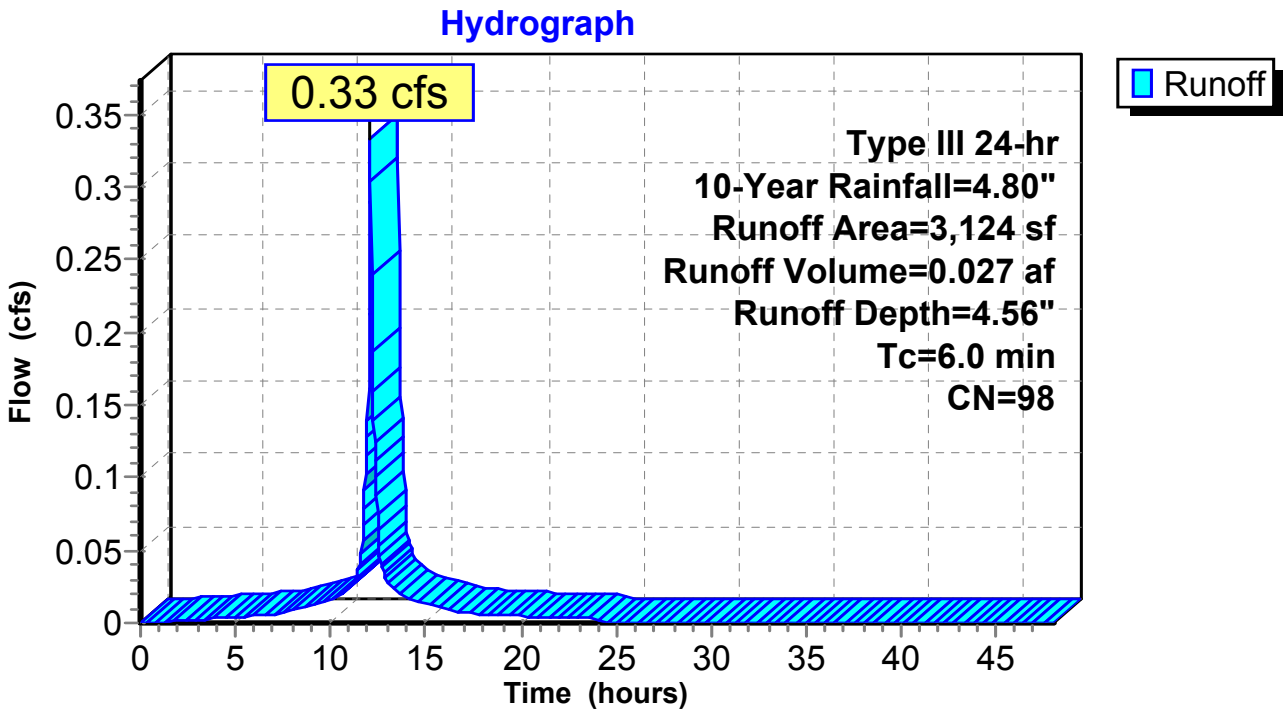
Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.027 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
3,124	98	Roofs, HSG A
3,124		100.00% Impervious Area

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

Subcatchment 3A-16R: Roofs 30-32 F



Summary for Subcatchment 3A-1R: Roof 5

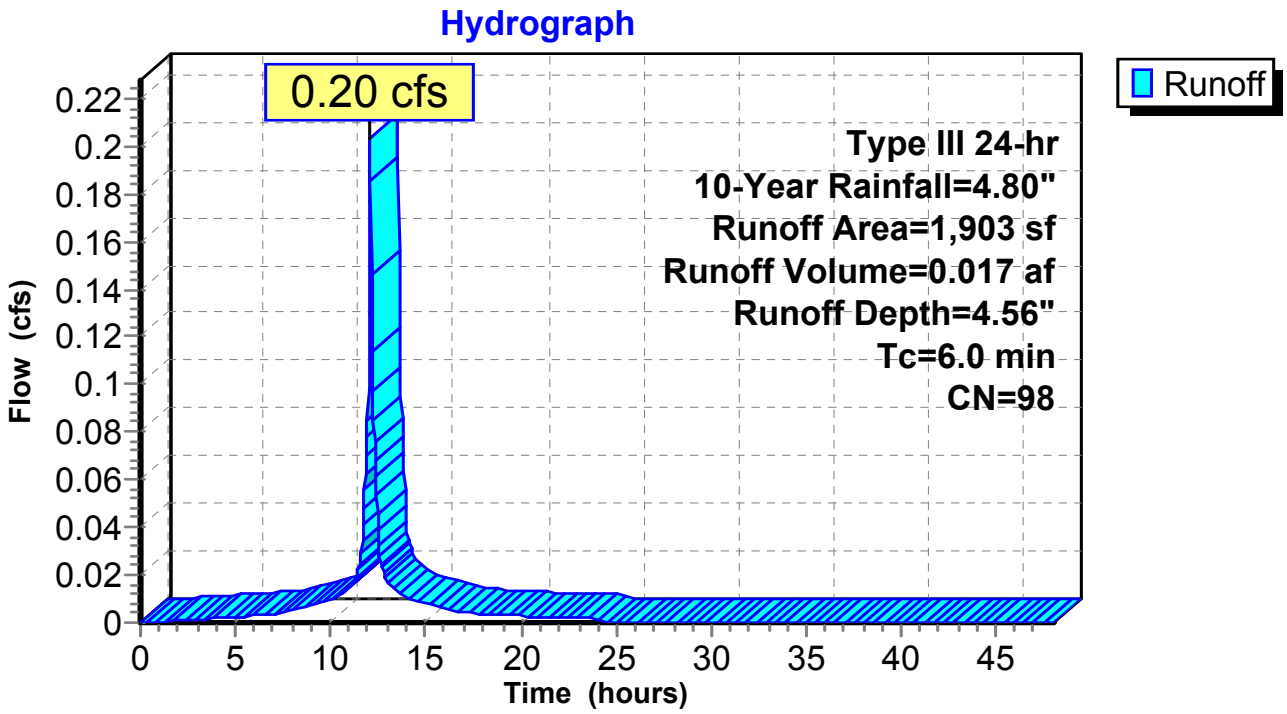
Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.017 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
	690	98	Roofs, HSG A
*	1,213	98	Roofs, HSG B
	1,903	98	Weighted Average
	1,903		100.00% Impervious Area

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

Subcatchment 3A-1R: Roof 5



Summary for Subcatchment 3A-2R: Roofs 1-4 FB

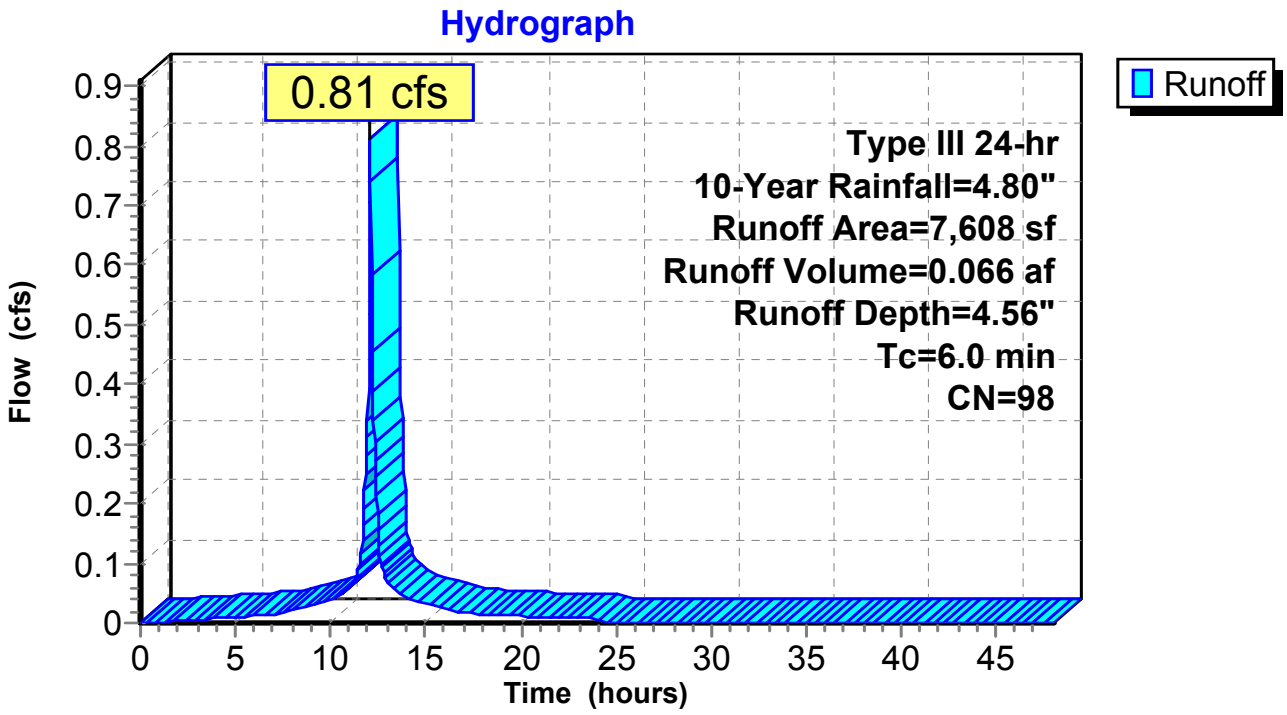
Runoff = 0.81 cfs @ 12.08 hrs, Volume= 0.066 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
7,608	98	Roofs, HSG A
7,608		100.00% Impervious Area

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

Subcatchment 3A-2R: Roofs 1-4 FB



Summary for Subcatchment 3A-2R1: Roofs 6-9 FB

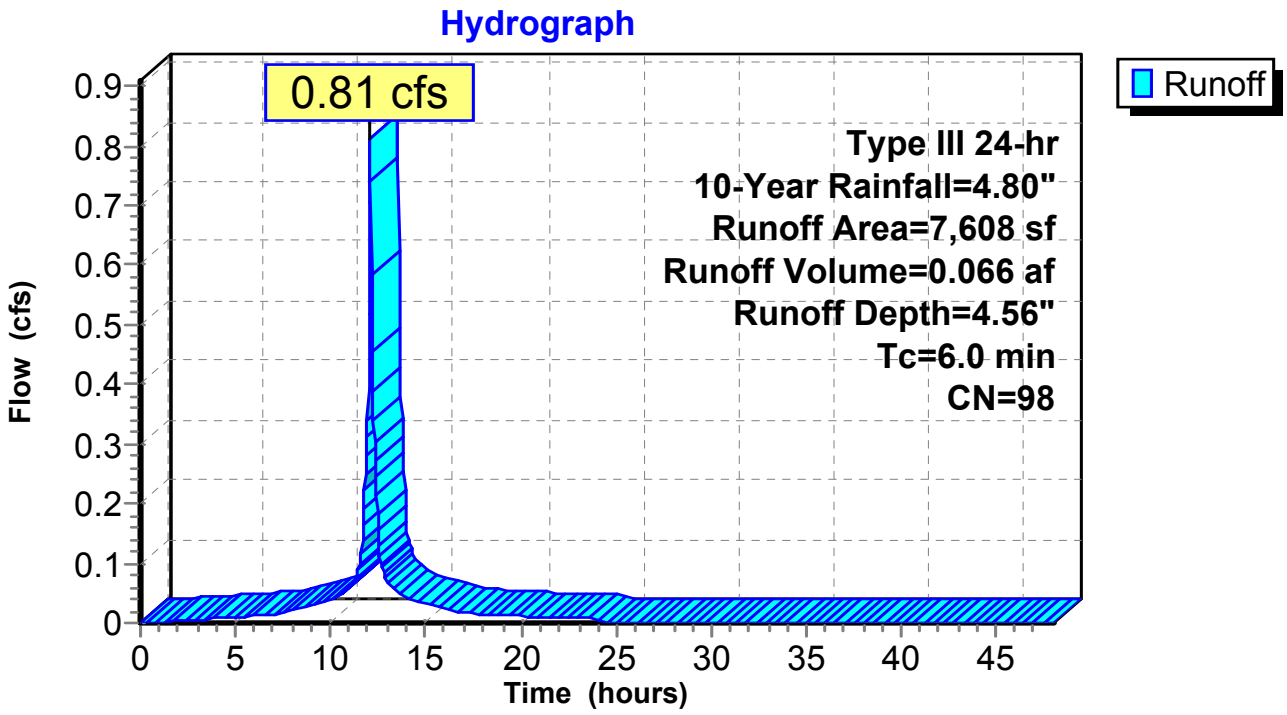
Runoff = 0.81 cfs @ 12.08 hrs, Volume= 0.066 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
7,608	98	Roofs, HSG A
7,608		100.00% Impervious Area

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

Subcatchment 3A-2R1: Roofs 6-9 FB



Summary for Subcatchment 3A-3R: Roofs 10-F

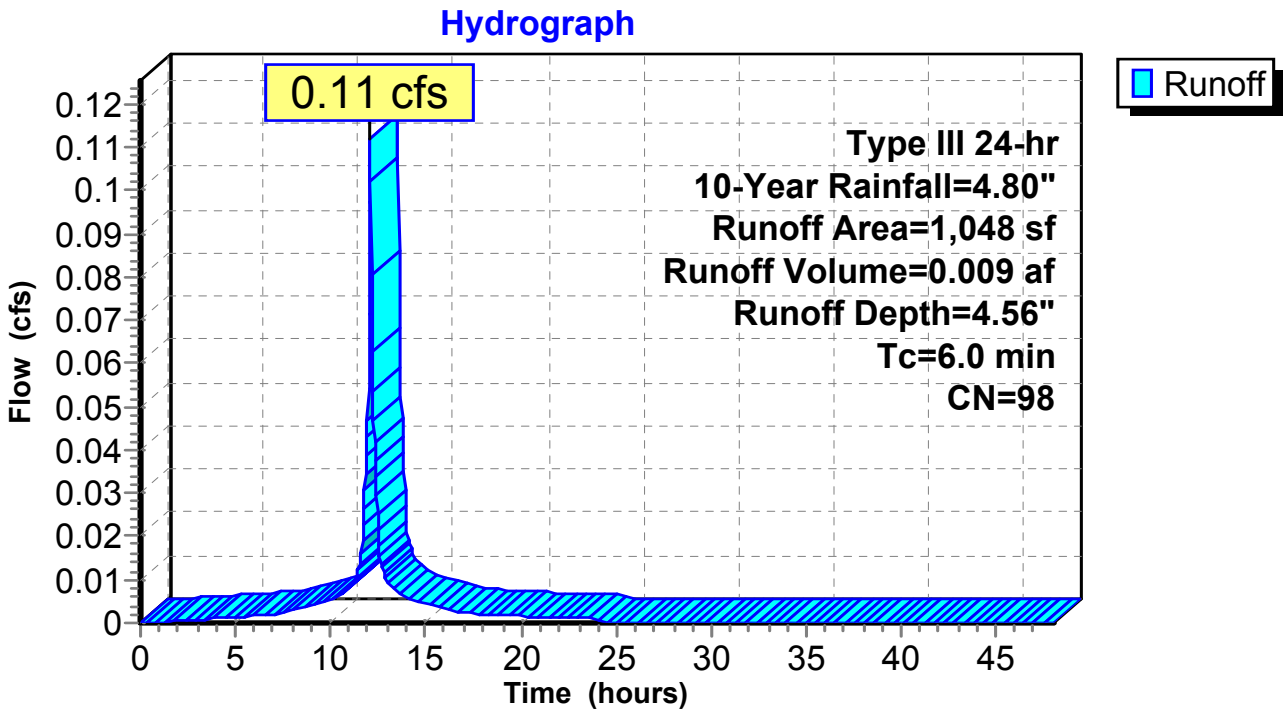
Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
*	1,048	98	Roofs, HSG B
	1,048		100.00% Impervious Area

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

Subcatchment 3A-3R: Roofs 10-F



Summary for Subcatchment 3A-4R: Roofs 11 F

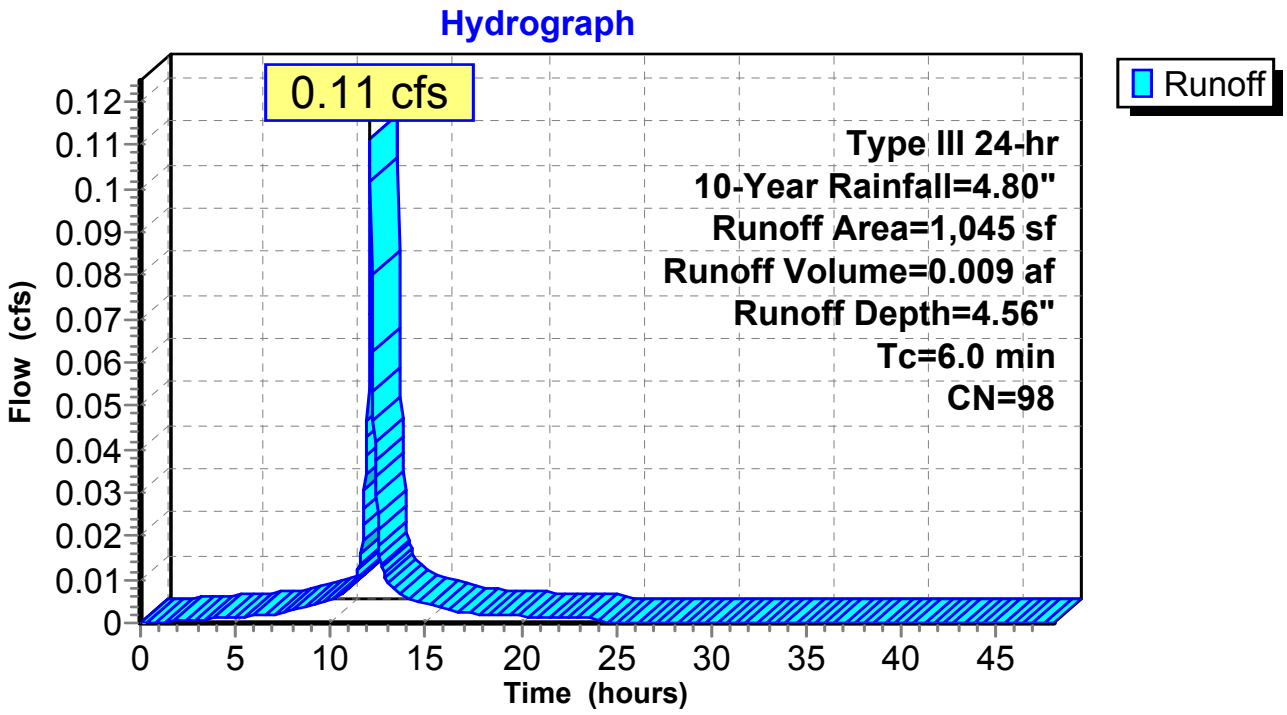
Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
*	1,045	98	Roofs, HSG B
	1,045		100.00% Impervious Area

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

Subcatchment 3A-4R: Roofs 11 F



Summary for Subcatchment 3A-5R: Roofs 10-11 B

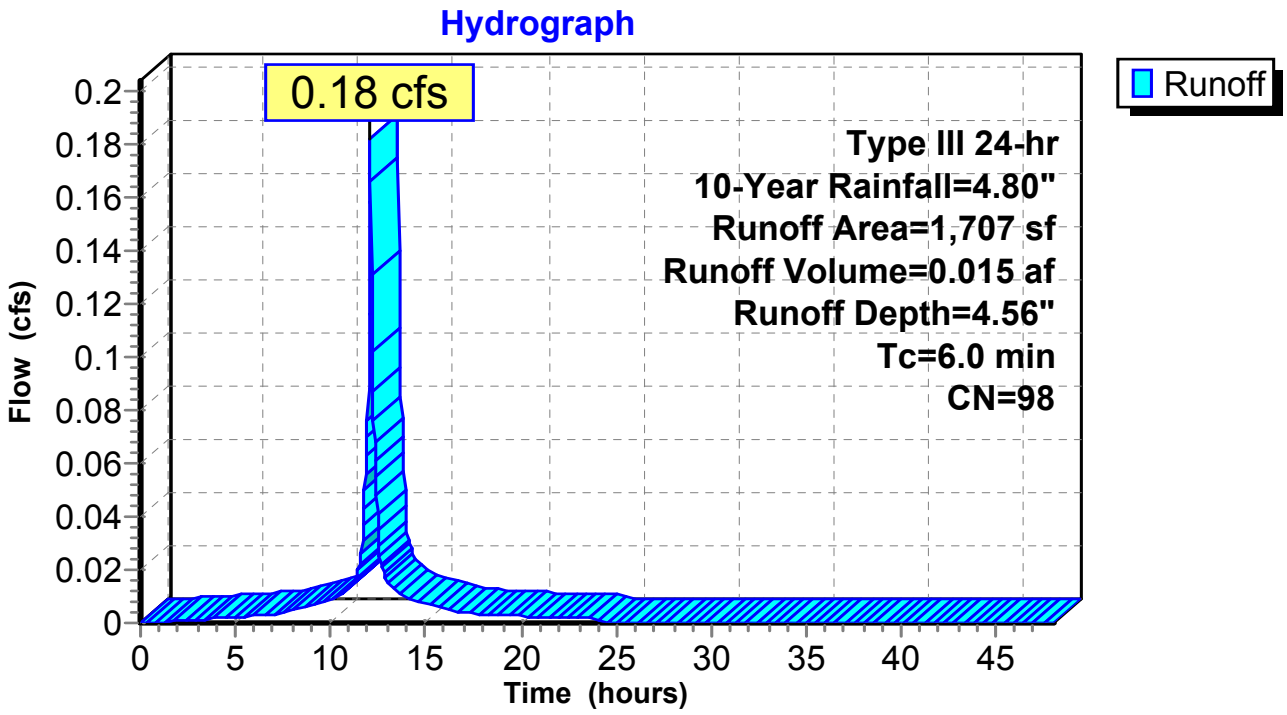
Runoff = 0.18 cfs @ 12.08 hrs, Volume= 0.015 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
*	1,707	98	Roofs, HSG B
	1,707		100.00% Impervious Area

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

Subcatchment 3A-5R: Roofs 10-11 B



Summary for Subcatchment 3A-6R: Roofs 12 B

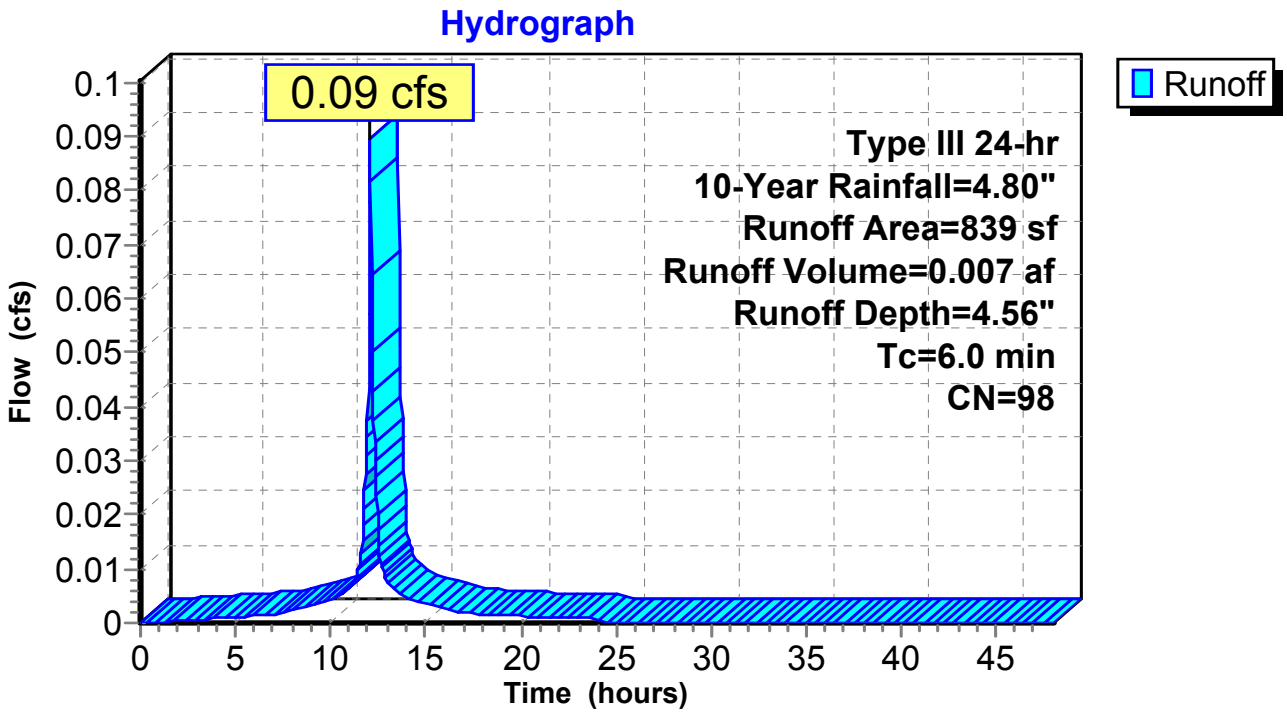
Runoff = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
*	839	98	Roofs, HSG B
	839		100.00% Impervious Area

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

Subcatchment 3A-6R: Roofs 12 B



Summary for Subcatchment 3A-7R: Roofs 12 F

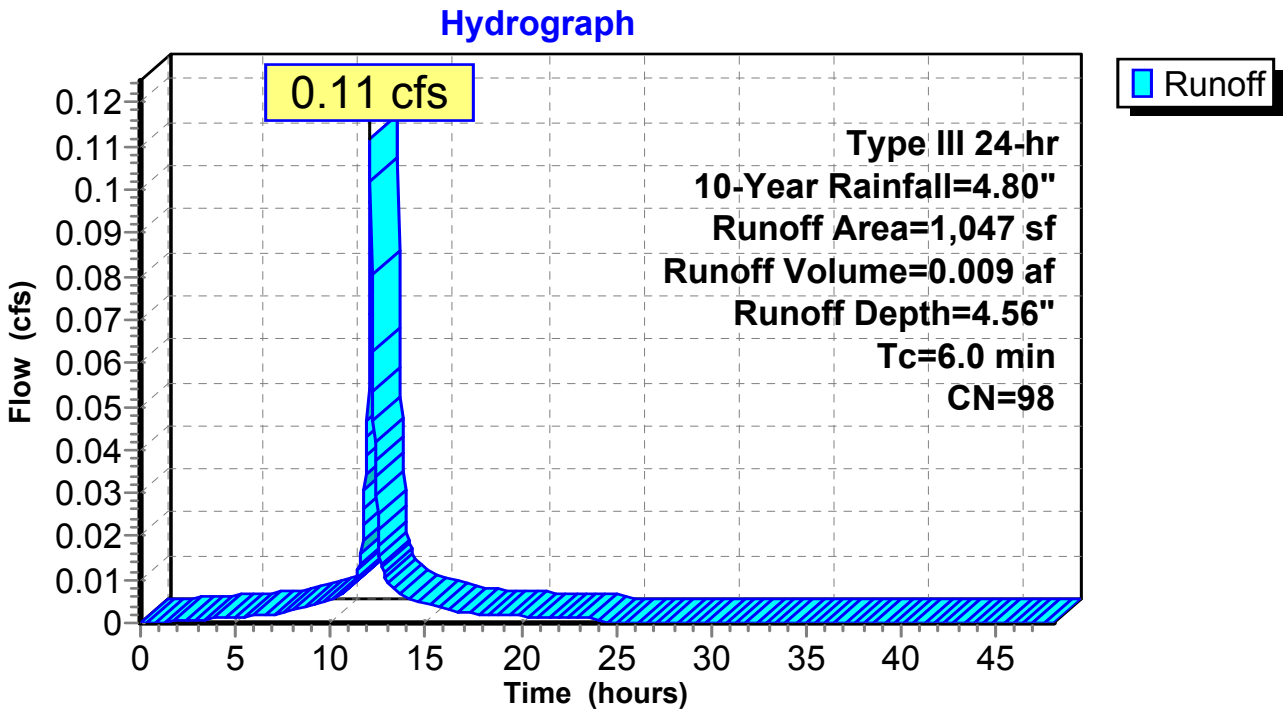
Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
*	1,047	98	Roofs, HSG B
	1,047		100.00% Impervious Area

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

Subcatchment 3A-7R: Roofs 12 F



Summary for Subcatchment 3A-8R: Roofs 13 F

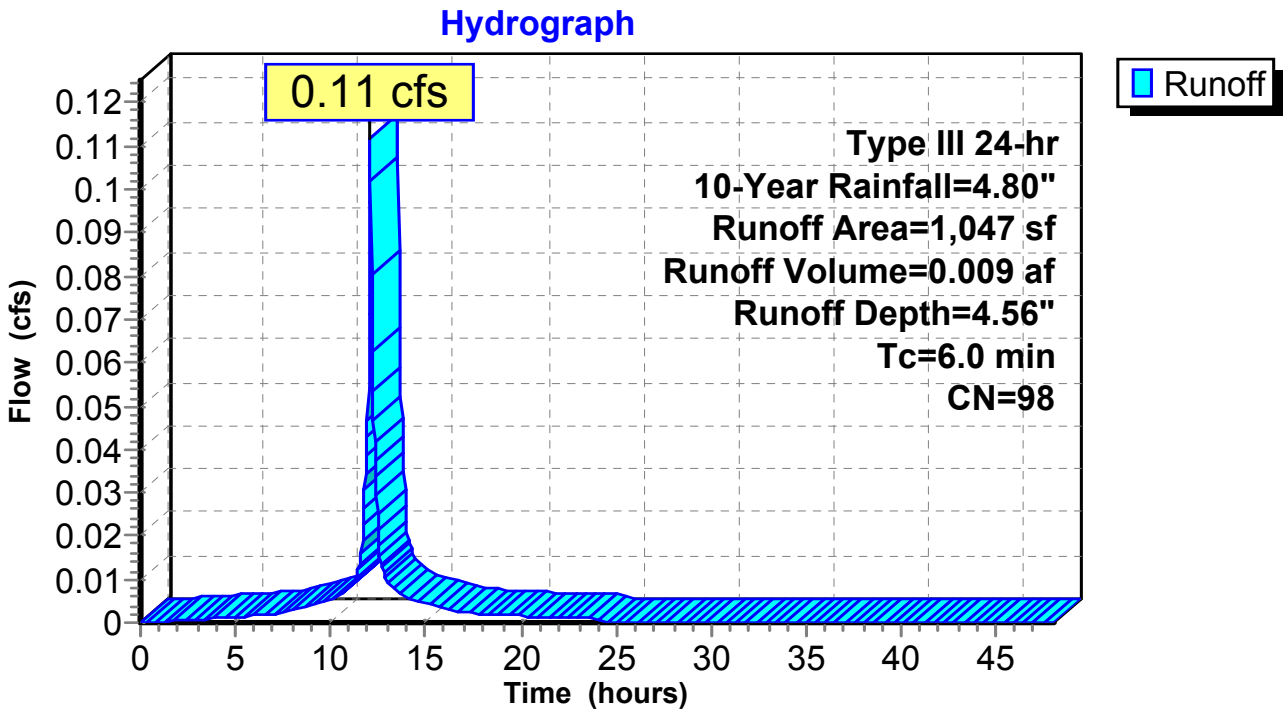
Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
	80	98	Roofs, HSG A
*	967	98	Roofs, HSG B
	1,047	98	Weighted Average
	1,047		100.00% Impervious Area

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

Subcatchment 3A-8R: Roofs 13 F



Summary for Subcatchment 3A-9R: Roofs 14 F

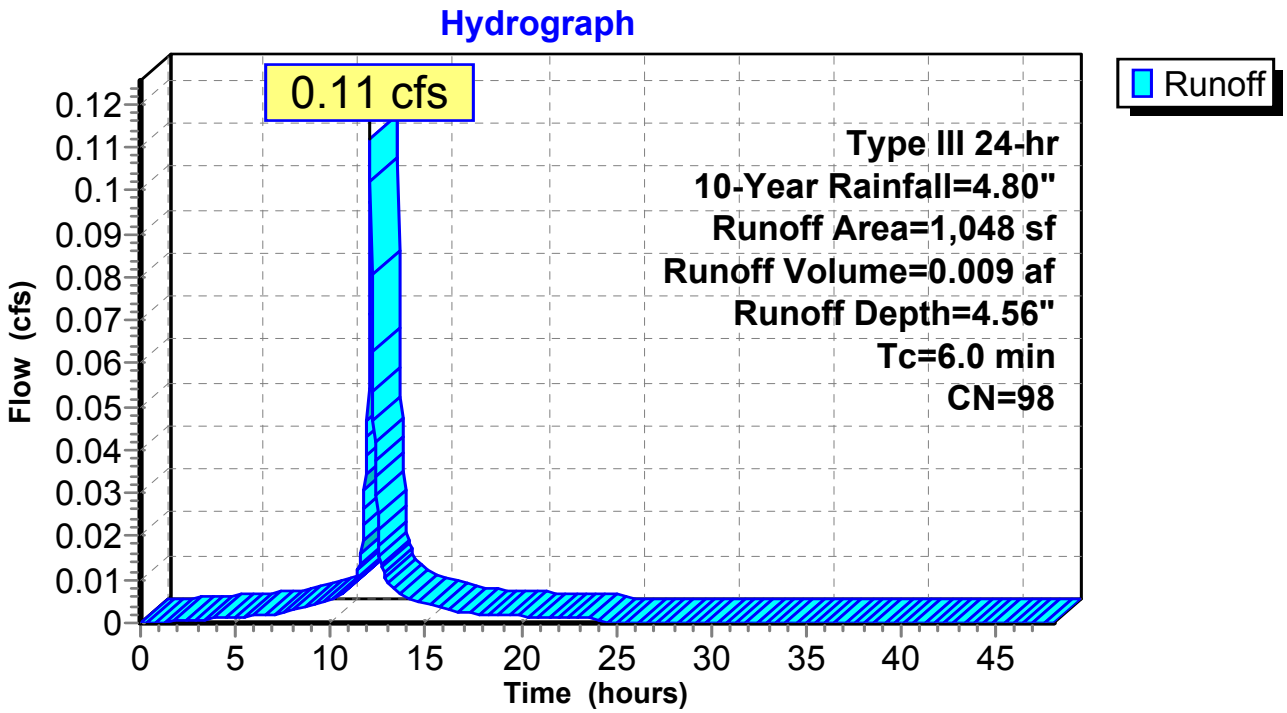
Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
1,048	98	Roofs, HSG A
1,048		100.00% Impervious Area

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

Subcatchment 3A-9R: Roofs 14 F



Summary for Subcatchment 3A-S: Sub-3A

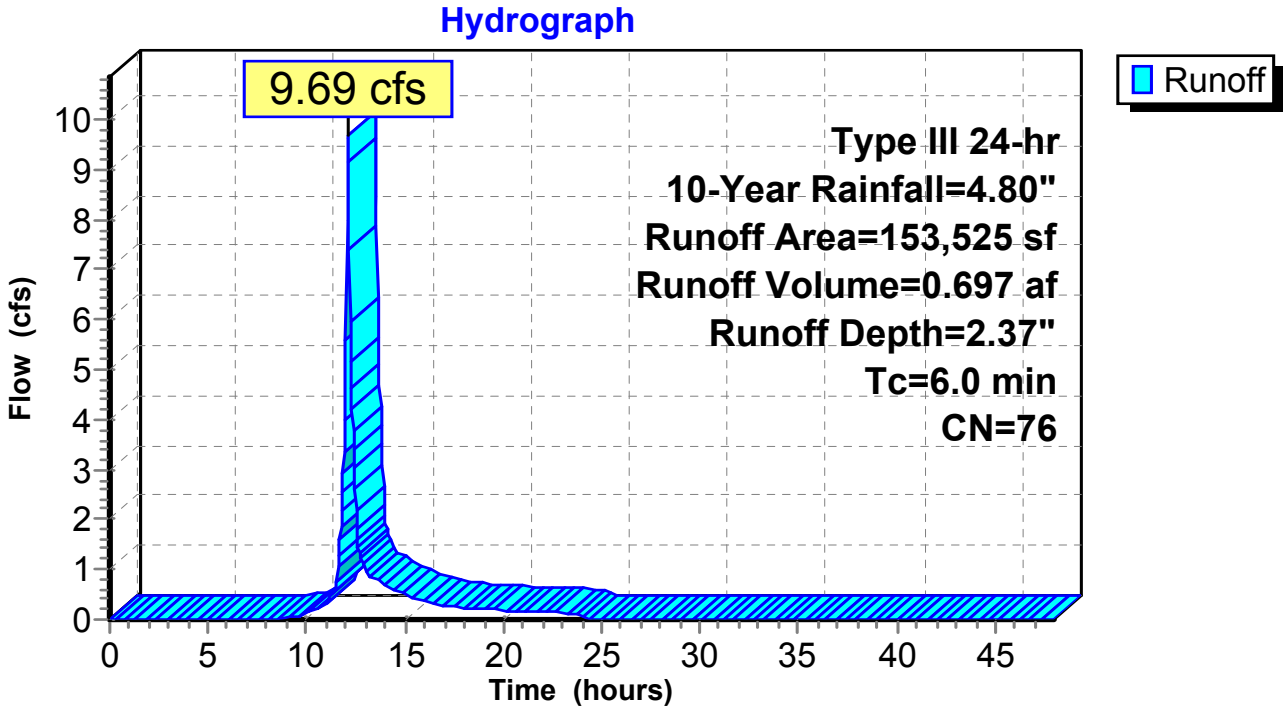
Runoff = 9.69 cfs @ 12.09 hrs, Volume= 0.697 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
*	11,724	98	Paved drives, HSG A
*	2,526	98	Paved drives, HSG B
*	20,421	98	Paved roads w/curbs & sewers, HSG A
	8,829	98	Paved roads w/curbs & sewers, HSG B
*	4,190	98	Paved sidewalk, HSG A
*	1,229	98	Paved sidewalk, HSG B
*	924	98	Walks, HSG A
*	168	98	Walks, HSG B
*	922	98	Roofs, HSG A
*	874	98	Roofs, HSG B
	5,720	98	Roofs, HSG A
	3,790	98	Roofs, HSG A
*	3,647	98	Decks, HSG A
*	262	98	Decks, HSG B
*	7,626	98	Detention Basin, HSG A
*	4,140	98	Detention Basin, HSG B
	45,699	39	>75% Grass cover, Good, HSG A
	7,682	61	>75% Grass cover, Good, HSG B
*	103	98	Walls, HSG A
*	1,384	98	Roofs, HSG A - offsite
*	16,069	98	Paved parking, HSG A - offsite
*	914	39	>75% Grass cover, Good, HSG A - offsite
*	1,682	30	Woods, Good, HSG A - offsite
*	3,000	30	Woods, Good, HSG A - offsite
	153,525	76	Weighted Average
	58,977		38.42% Pervious Area
	94,548		61.58% Impervious Area

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

Subcatchment 3A-S: Sub-3A



Summary for Subcatchment 3B-S: Sub-3B

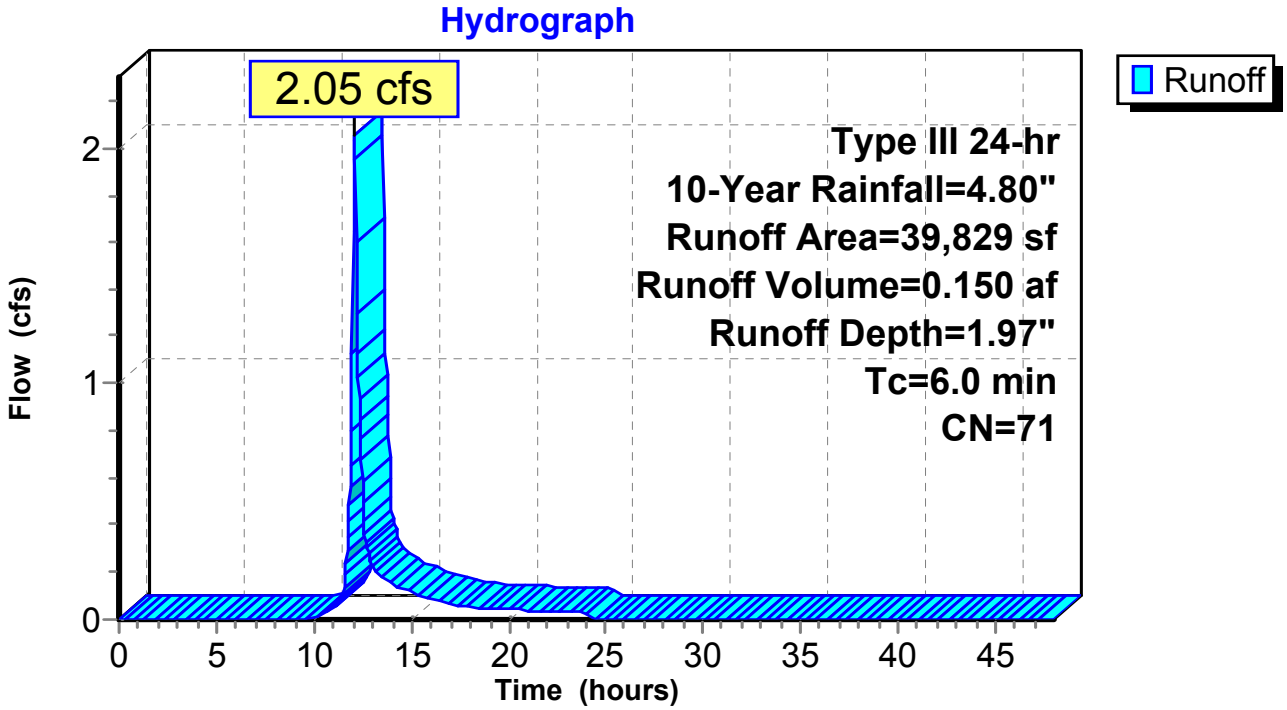
Runoff = 2.05 cfs @ 12.09 hrs, Volume= 0.150 af, Depth= 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
	10,864	55	Woods, Good, HSG B
	1,423	30	Woods, Good, HSG A
*	15,781	98	Wetlands, HSG B
	3,305	39	>75% Grass cover, Good, HSG A
	3,375	61	>75% Grass cover, Good, HSG B
*	371	98	Decks, HSG B
*	418	98	Wetlands, HSG B - offsite
*	62	30	Woods, Good, HSG A - offsite
*	1,346	39	>75% Grass cover, Good, HSG A - offsite
*	959	61	>75% Grass cover, Good, HSG B - offsite
*	1,734	55	Woods, Good, HSG B - offsite
*	191	98	Riprap, HSG B
	39,829	71	Weighted Average
	23,068		57.92% Pervious Area
	16,761		42.08% Impervious Area

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

Subcatchment 3B-S: Sub-3B



Summary for Subcatchment 3C-S: Sub-3C

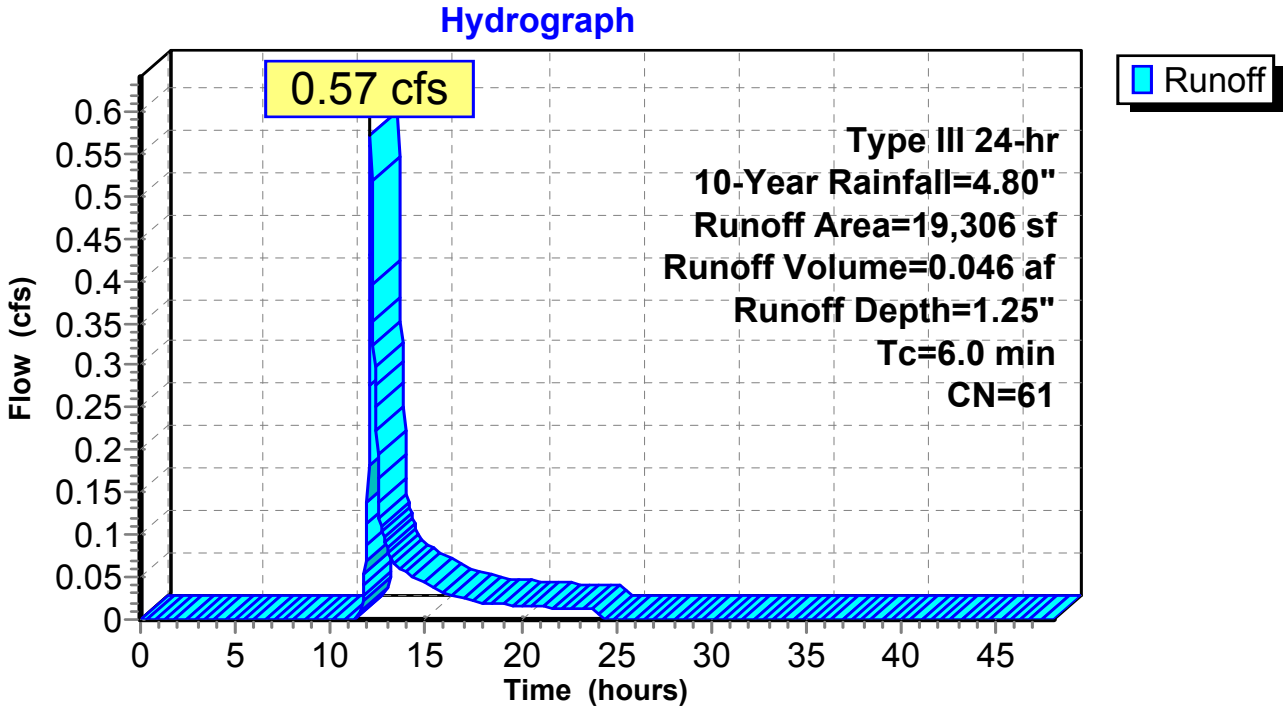
Runoff = 0.57 cfs @ 12.10 hrs, Volume= 0.046 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
*	2,131	30	Woods, Good, HSG A - offsite
*	579	98	Paved roads w/curbs & sewers, HSG A - offsite
*	528	98	Paved drives, HSG A - offsite
*	1,289	39	>75% Grass cover, Good, HSG A - offsite
	5,175	61	>75% Grass cover, Good, HSG B
	4,041	39	>75% Grass cover, Good, HSG A
*	96	98	Paved sidewalk, HSG A
*	300	98	Paved sidewalk, HSG B
*	78	98	Paved sidewalk, HSG A - offsite
*	1,603	98	Paved roads w/curbs & sewers, HSG B
*	185	98	Decks, HSG B
	266	98	Paved roads w/curbs & sewers, HSG A
*	2,022	98	Impervious, HSG A - offsite
	1,013	39	>75% Grass cover, Good, HSG A
	19,306	61	Weighted Average
	13,649		70.70% Pervious Area
	5,657		29.30% Impervious Area

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

Subcatchment 3C-S: Sub-3C



Summary for Subcatchment 4S: Sub-4

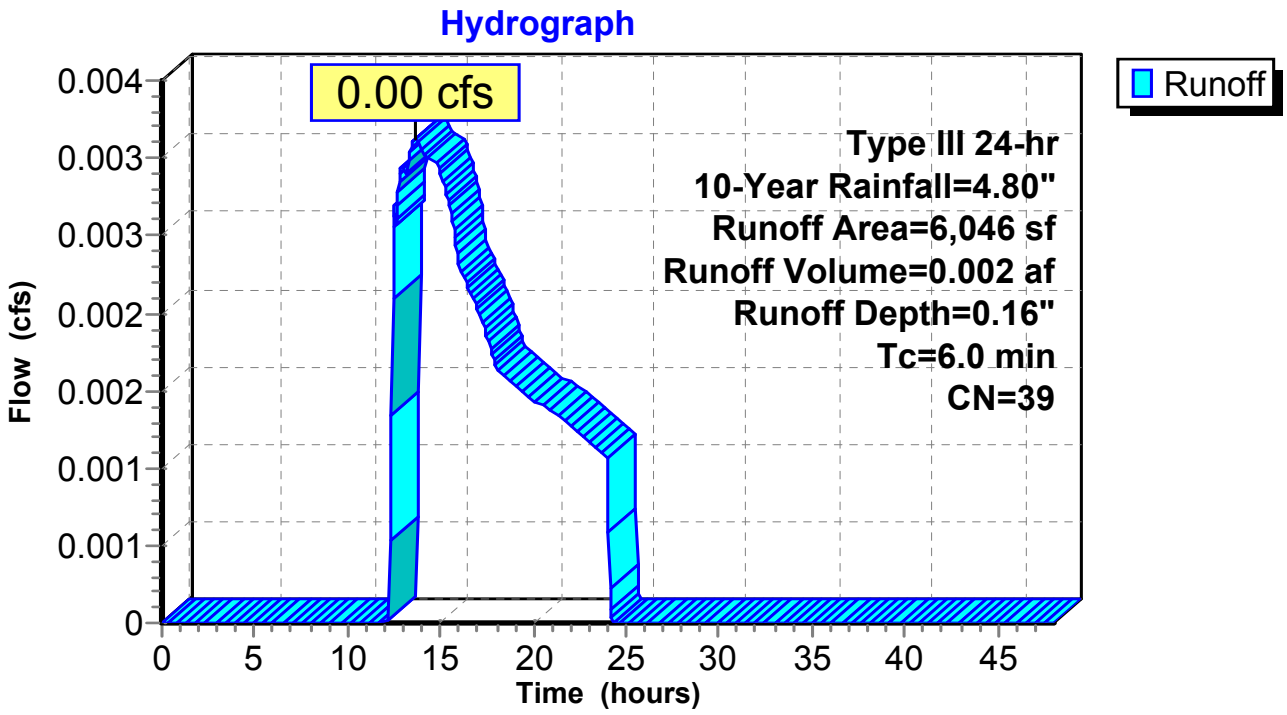
Runoff = 0.00 cfs @ 13.67 hrs, Volume= 0.002 af, Depth= 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
6,046	39	>75% Grass cover, Good, HSG A
6,046		100.00% Pervious Area

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

Subcatchment 4S: Sub-4



Summary for Subcatchment 4S-1: Sub-4

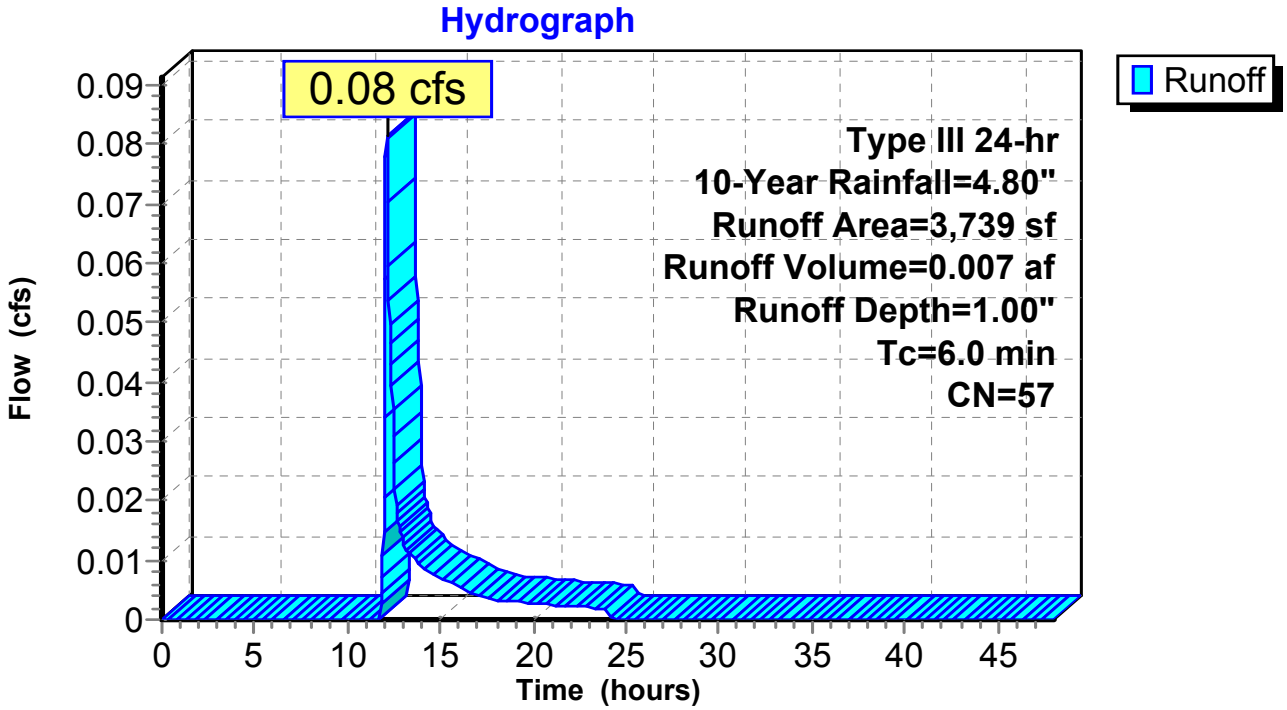
Runoff = 0.08 cfs @ 12.11 hrs, Volume= 0.007 af, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
	2,570	39	>75% Grass cover, Good, HSG A
*	783	98	Decks, HSG A
*	386	98	Walls, HSG A
	3,739	57	Weighted Average
	2,570		68.73% Pervious Area
	1,169		31.27% Impervious Area

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

Subcatchment 4S-1: Sub-4



Summary for Subcatchment 5S: Sub -5

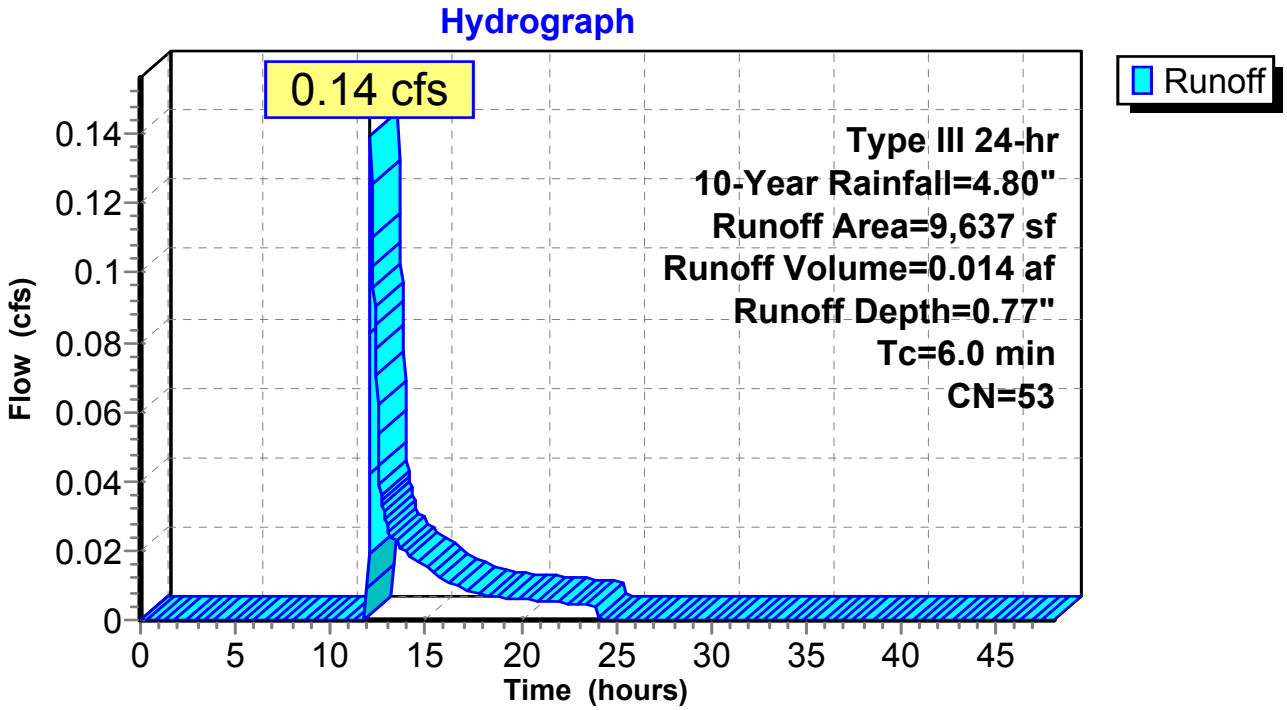
Runoff = 0.14 cfs @ 12.12 hrs, Volume= 0.014 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
	7,163	39	>75% Grass cover, Good, HSG A
	350	80	>75% Grass cover, Good, HSG D
*	557	98	Decks, HSG A
*	235	98	Sidewalk, HSG A
*	61	98	Sidewalk, HSG D
	982	98	Paved roads w/curbs & sewers, HSG A
	289	98	Paved roads w/curbs & sewers, HSG D
*	0	98	Walls, HSG A
	9,637	53	Weighted Average
	7,513		77.96% Pervious Area
	2,124		22.04% Impervious Area

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

Subcatchment 5S: Sub -5



Summary for Subcatchment 5S-1: Roofs 31-32 F

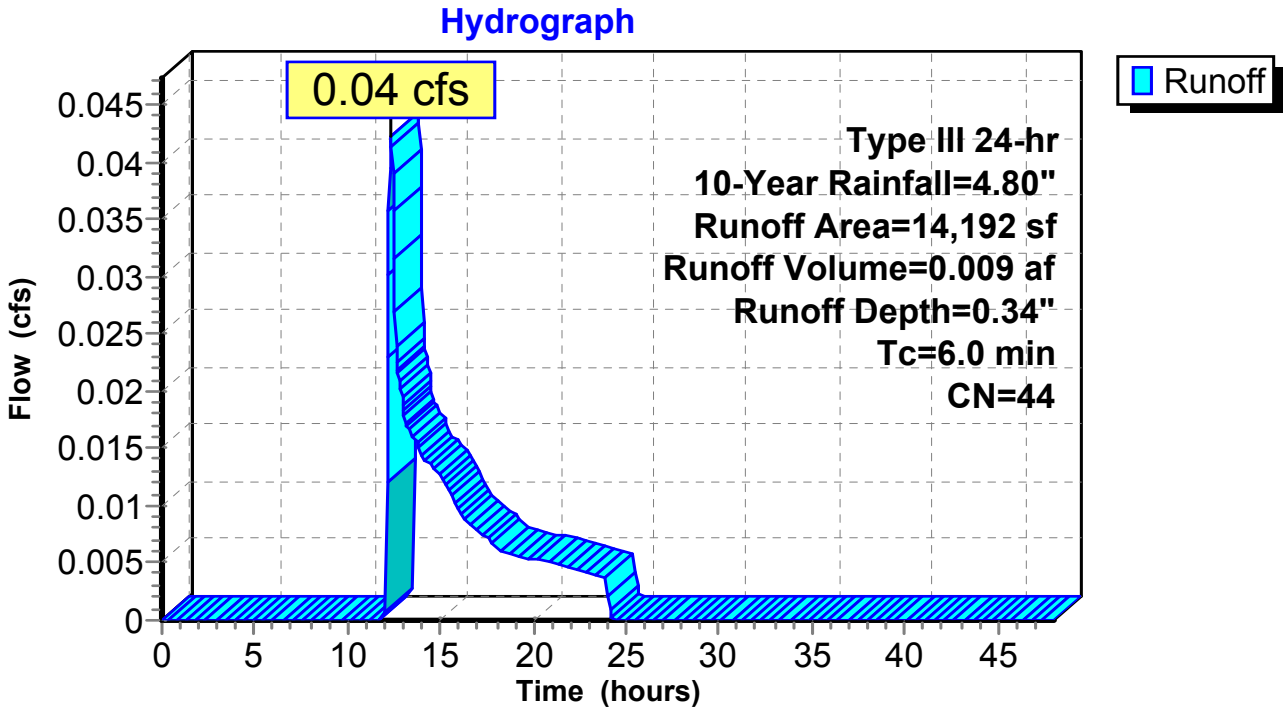
Runoff = 0.04 cfs @ 12.35 hrs, Volume= 0.009 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
*	195	98	Walls, HSG A
*	370	98	Decks, HSG A
	6,683	39	>75% Grass cover, Good, HSG A
	5,018	39	>75% Grass cover, Good, HSG A
	1,278	39	>75% Grass cover, Good, HSG A
*	648	98	Walls, HSG A
	14,192	44	Weighted Average
	12,979		91.45% Pervious Area
	1,213		8.55% Impervious Area

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

Subcatchment 5S-1: Roofs 31-32 F



Summary for Subcatchment 5S-P: Pavement

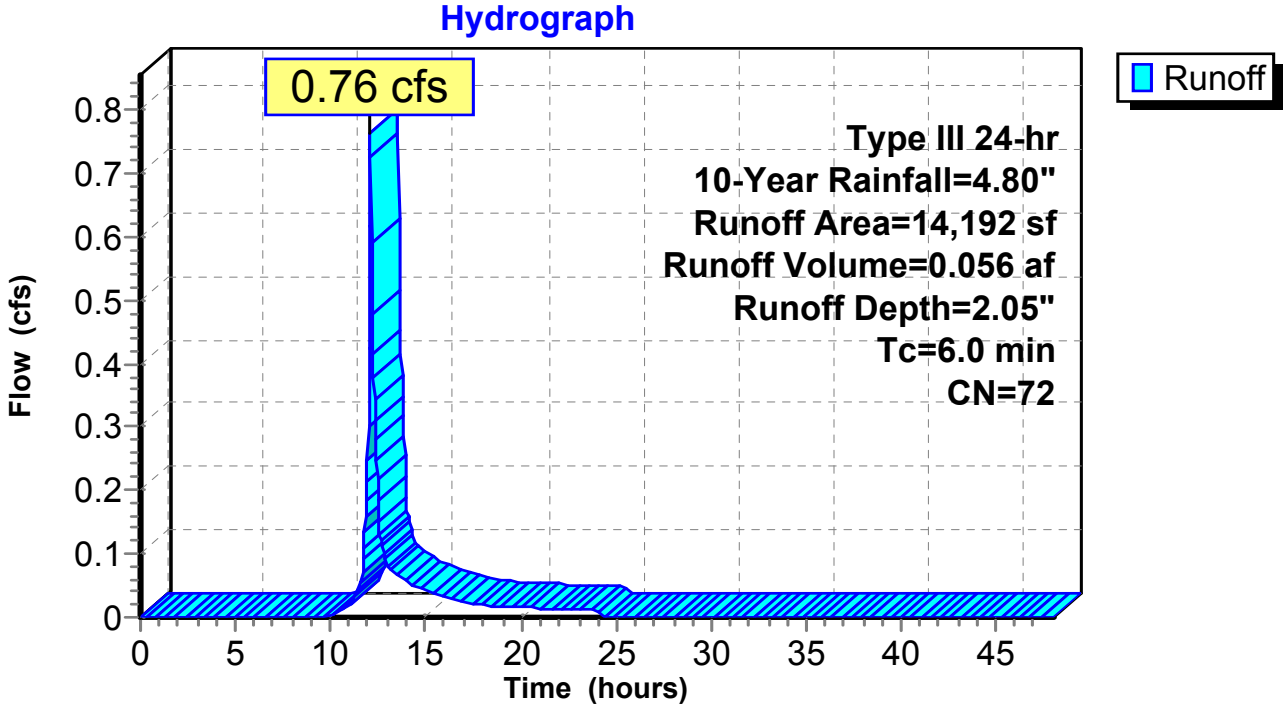
Runoff = 0.76 cfs @ 12.09 hrs, Volume= 0.056 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

	Area (sf)	CN	Description
*	2,746	98	Paved drives, HSG A
	4,561	98	Paved roads w/curbs & sewers, HSG A
	6,343	39	>75% Grass cover, Good, HSG A
*	287	98	Sidewalk, HSG A
*	255	98	Walks, HSG A
	14,192	72	Weighted Average
	6,343		44.69% Pervious Area
	7,849		55.31% Impervious Area

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

Subcatchment 5S-P: Pavement



Summary for Subcatchment 5S-R1: Roofs 19-21 FB

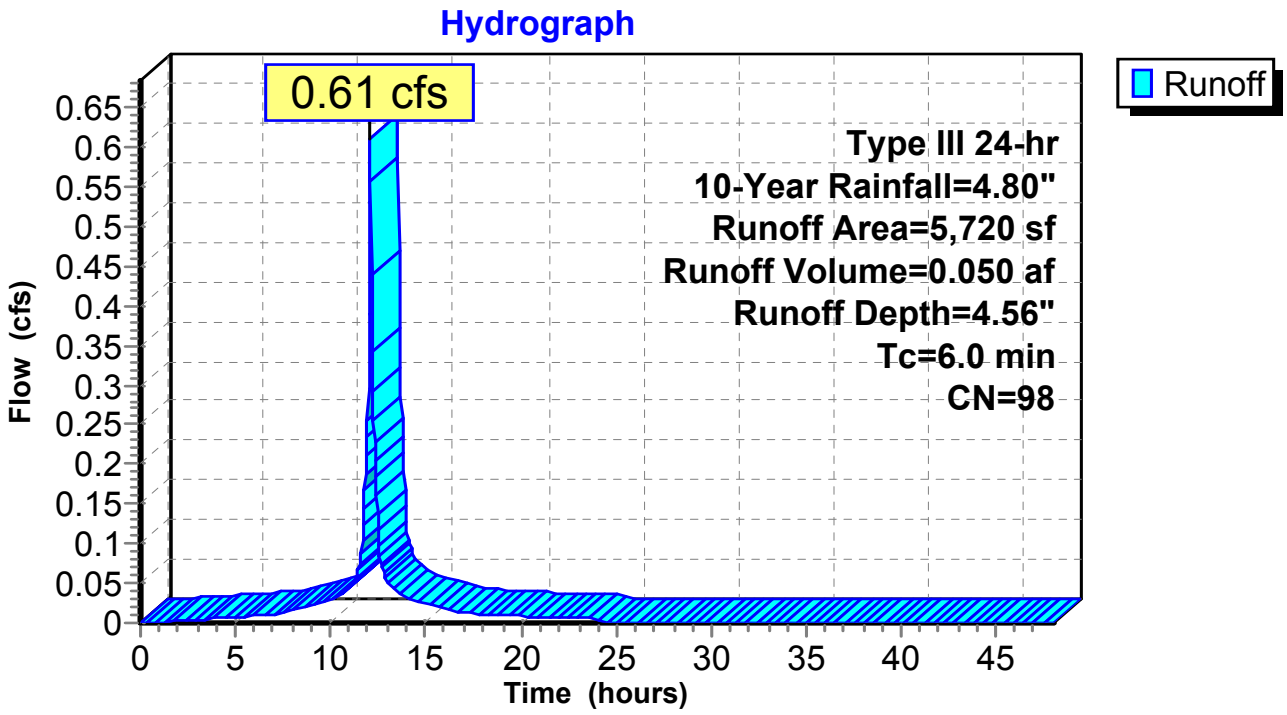
Runoff = 0.61 cfs @ 12.08 hrs, Volume= 0.050 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
5,720	98	Roofs, HSG A
5,720		100.00% Impervious Area

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

Subcatchment 5S-R1: Roofs 19-21 FB

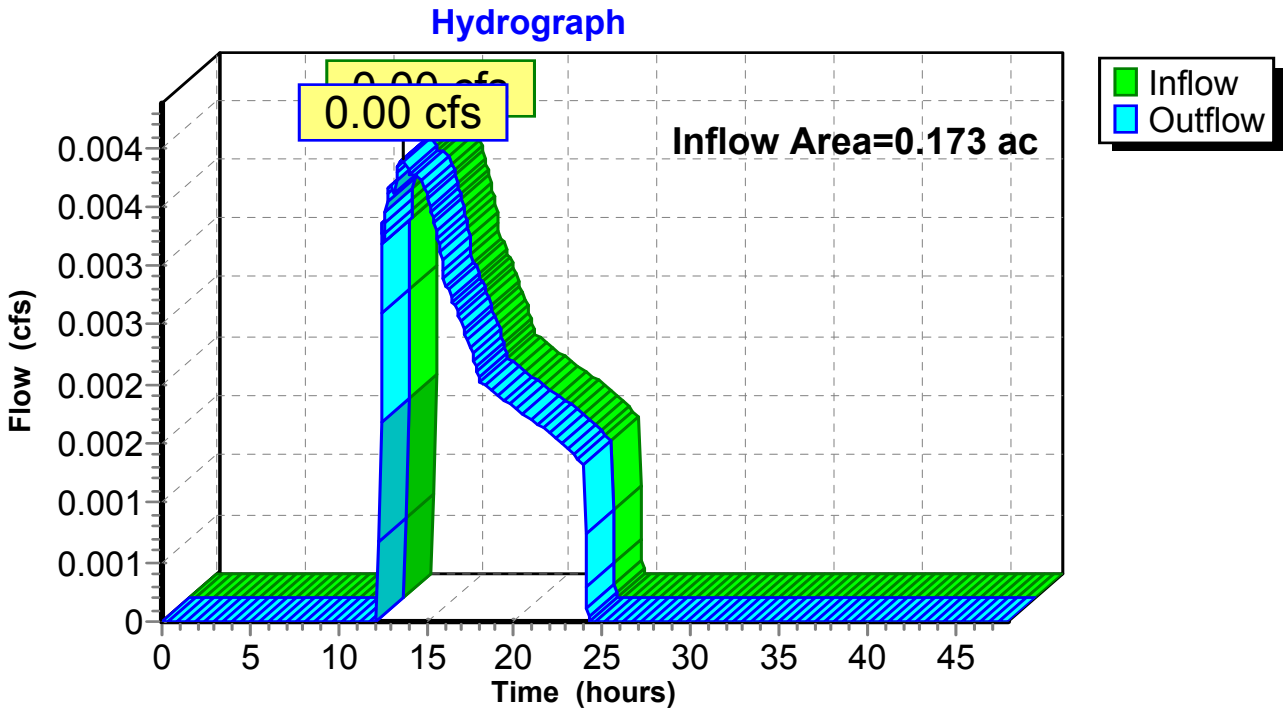


Summary for Reach DP-1: DMH

Inflow Area = 0.173 ac, 0.00% Impervious, Inflow Depth = 0.16" for 10-Year event
Inflow = 0.00 cfs @ 13.67 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 13.67 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-1: DMH

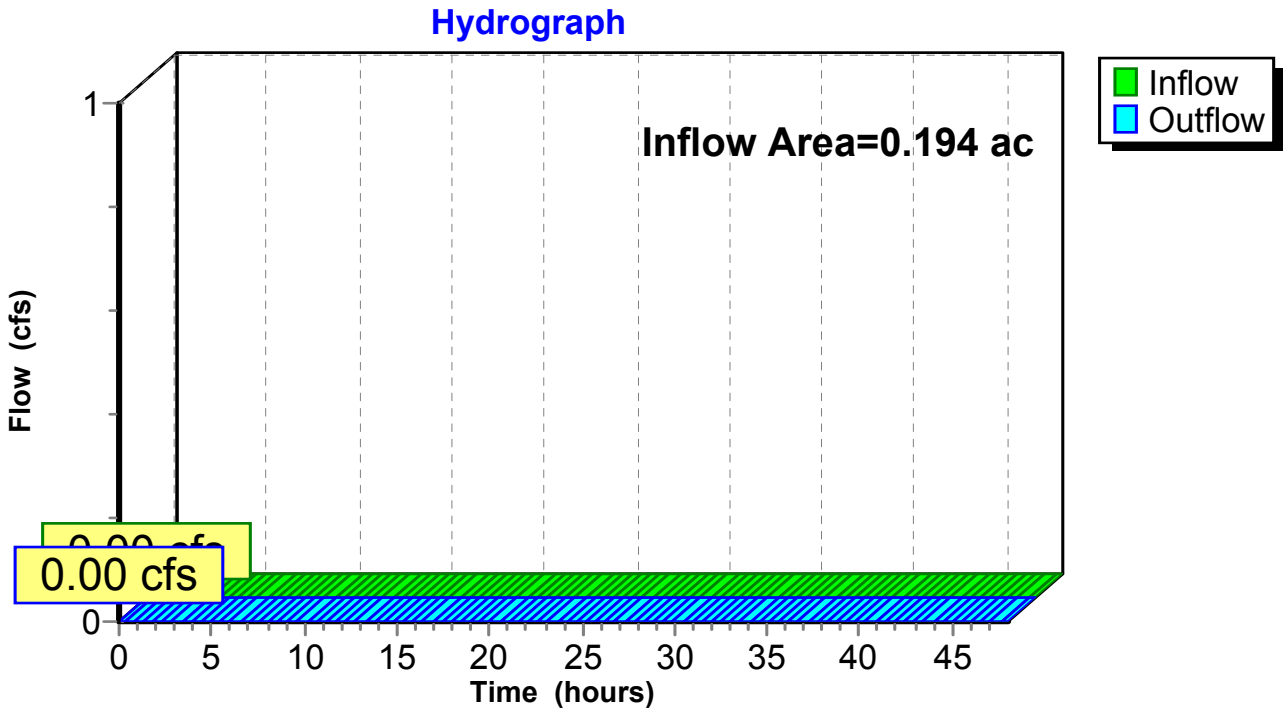


Summary for Reach DP-2: DP-2

Inflow Area = 0.194 ac, 7.92% Impervious, Inflow Depth = 0.00" for 10-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-2: DP-2

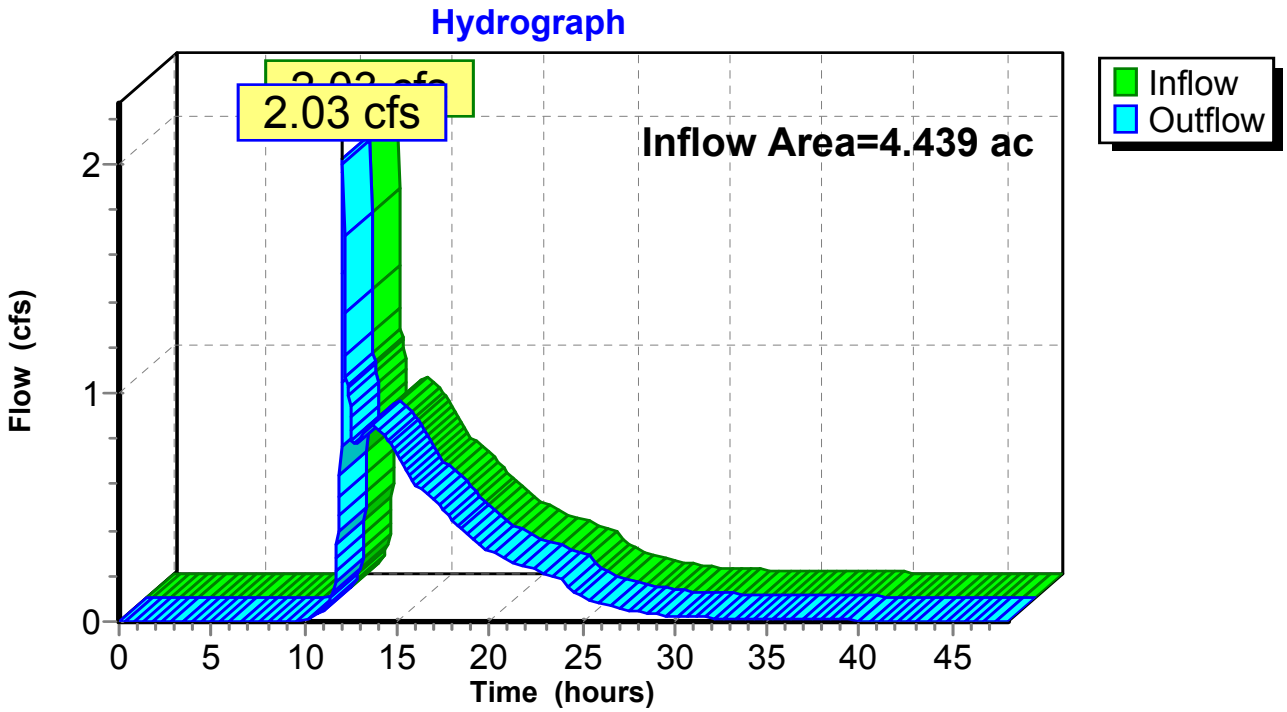


Summary for Reach DP-3: DP-3

Inflow Area = 4.439 ac, 57.57% Impervious, Inflow Depth > 1.55" for 10-Year event
Inflow = 2.03 cfs @ 12.10 hrs, Volume= 0.572 af
Outflow = 2.03 cfs @ 12.10 hrs, Volume= 0.572 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-3: DP-3

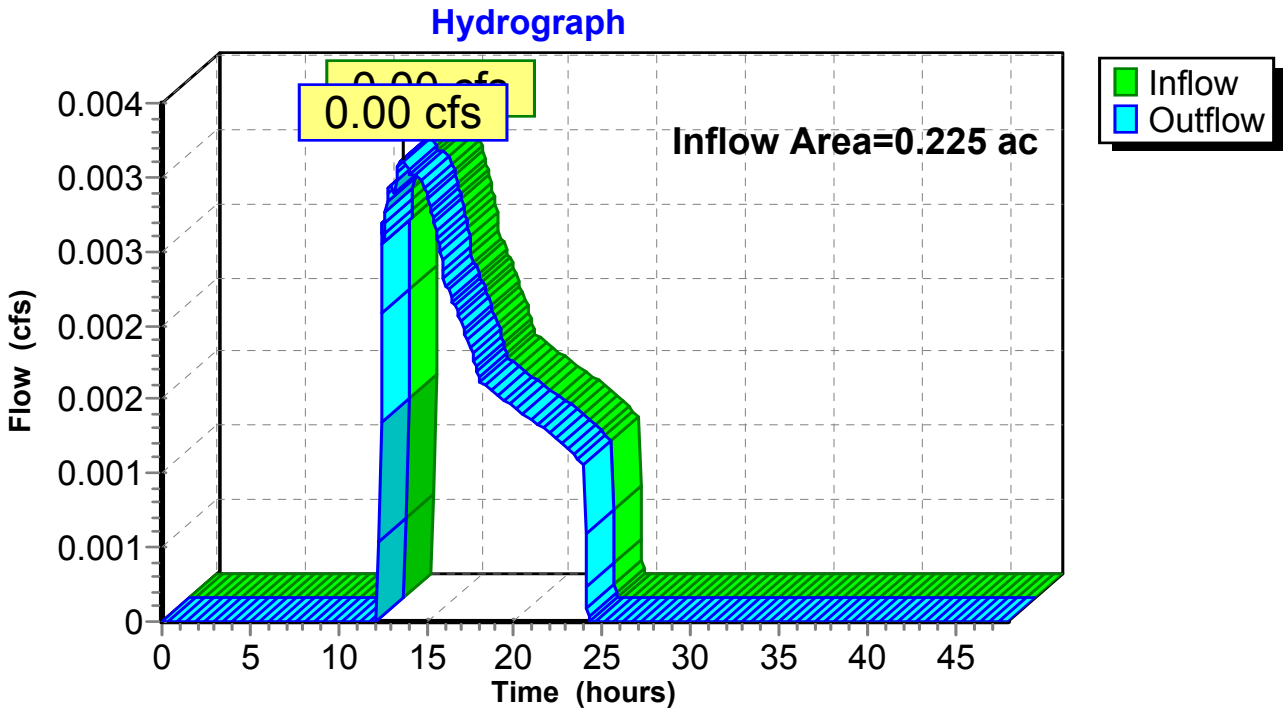


Summary for Reach DP-4: PL

Inflow Area = 0.225 ac, 11.95% Impervious, Inflow Depth = 0.10" for 10-Year event
Inflow = 0.00 cfs @ 13.67 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 13.67 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-4: PL

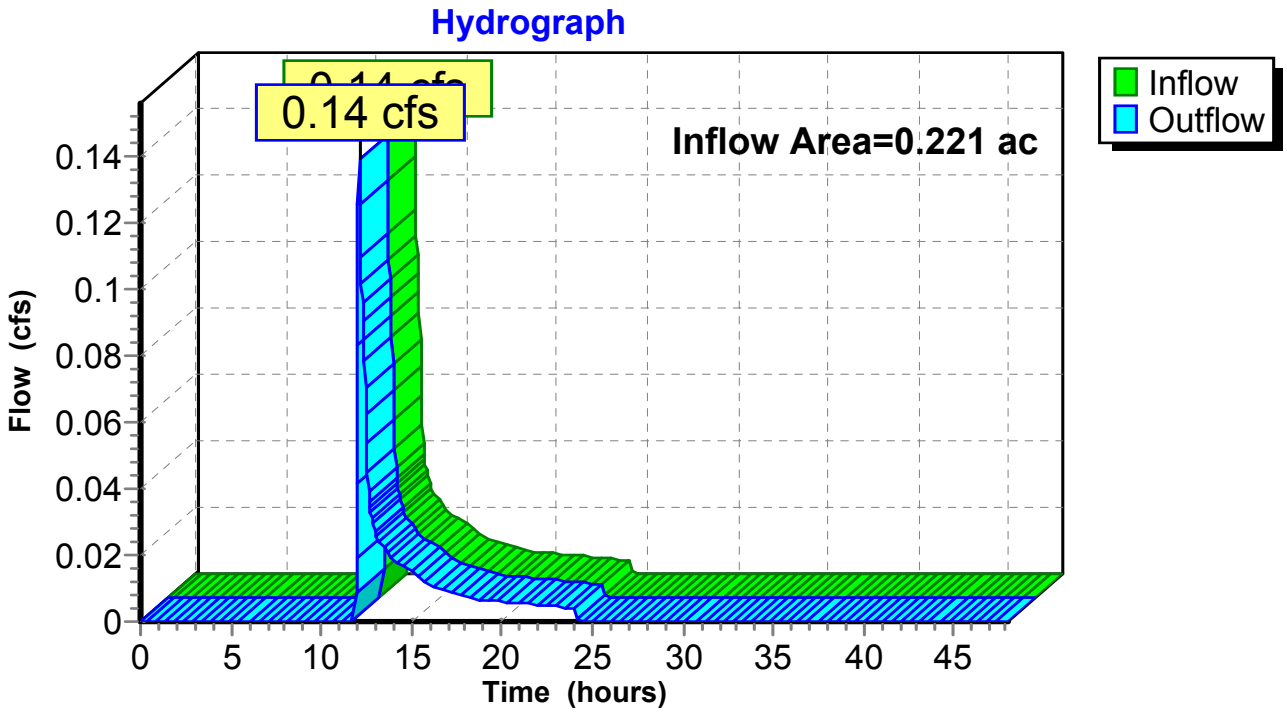


Summary for Reach DP-5: PL

Inflow Area = 0.221 ac, 22.04% Impervious, Inflow Depth = 0.77" for 10-Year event
Inflow = 0.14 cfs @ 12.12 hrs, Volume= 0.014 af
Outflow = 0.14 cfs @ 12.12 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-5: PL



Summary for Pond D-1: Depression

Inflow Area = 0.194 ac, 7.92% Impervious, Inflow Depth = 0.34" for 10-Year event
Inflow = 0.03 cfs @ 12.35 hrs, Volume= 0.005 af
Outflow = 0.03 cfs @ 12.37 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.9 min
Discarded = 0.03 cfs @ 12.37 hrs, Volume= 0.005 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 59.00' @ 12.37 hrs Surf.Area= 420 sf Storage= 1 cf

Plug-Flow detention time= 0.9 min calculated for 0.005 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (964.2 - 963.4)

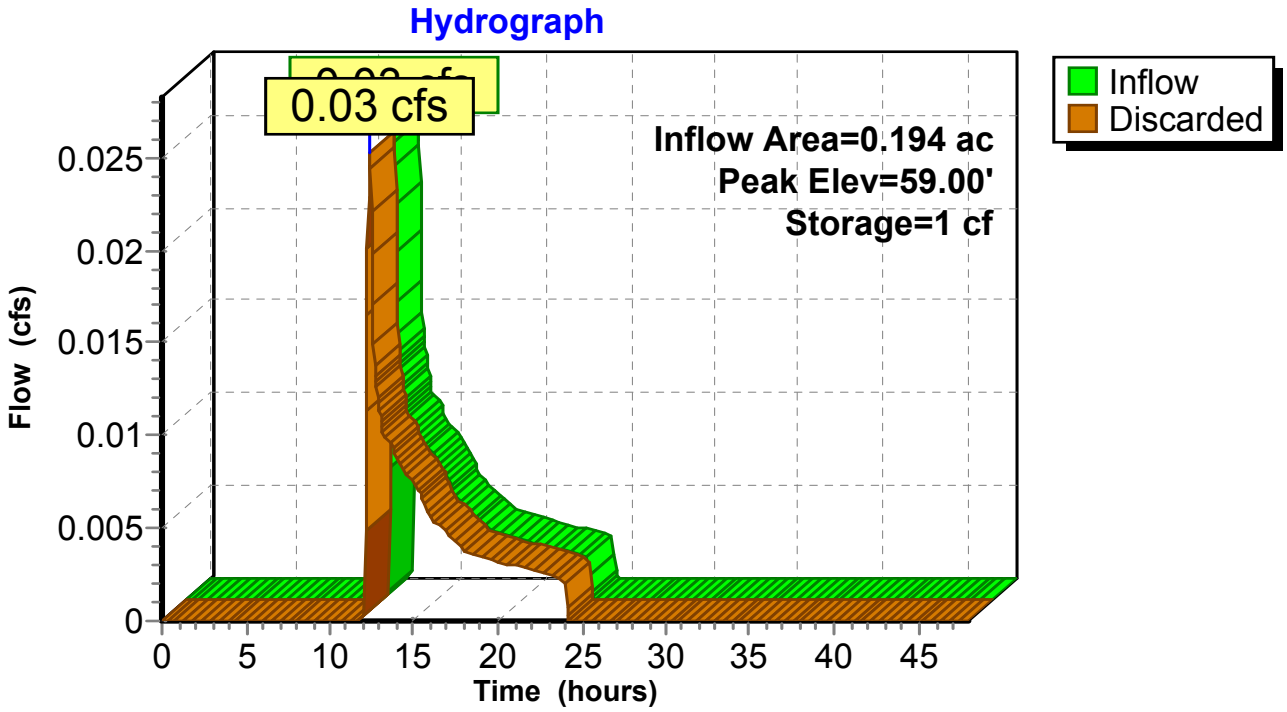
Volume	Invert	Avail.Storage	Storage Description
#1	59.00'	615 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.00	419	0	0
60.00	811	615	615

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.03 cfs @ 12.37 hrs HW=59.00' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Pond D-1: Depression



Summary for Pond D-2: Depression

Inflow Area = 0.502 ac, 37.54% Impervious, Inflow Depth = 1.64" for 10-Year event
Inflow = 0.84 cfs @ 12.10 hrs, Volume= 0.068 af
Outflow = 0.15 cfs @ 12.61 hrs, Volume= 0.068 af, Atten= 82%, Lag= 30.9 min
Discarded = 0.15 cfs @ 12.61 hrs, Volume= 0.068 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.40' @ 12.61 hrs Surf.Area= 810 sf Storage= 829 cf

Plug-Flow detention time= 43.6 min calculated for 0.068 af (100% of inflow)
Center-of-Mass det. time= 43.6 min (877.8 - 834.2)

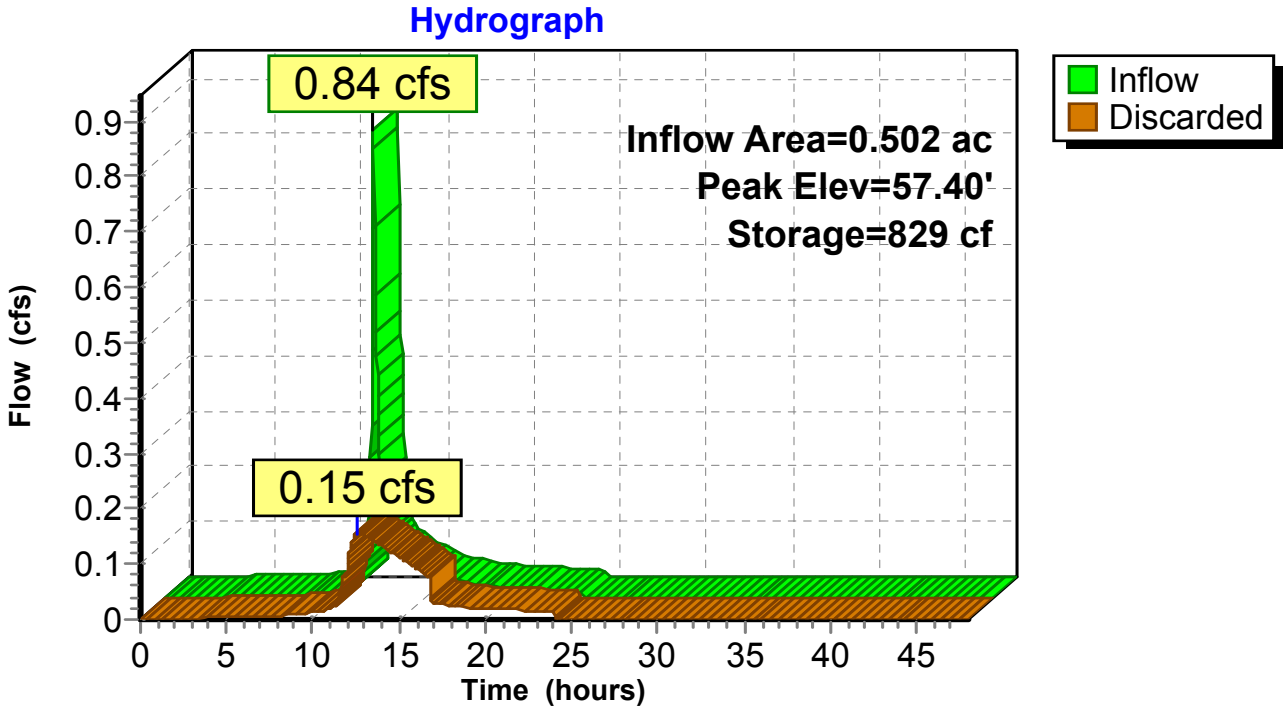
Volume	Invert	Avail.Storage	Storage Description
#1	56.00'	2,585 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.00	388	0	0
57.00	672	530	530
58.00	1,013	843	1,373
59.00	1,411	1,212	2,585

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.15 cfs @ 12.61 hrs HW=57.40' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.15 cfs)

Pond D-2: Depression



Summary for Pond D-3: Depression

Inflow Area = 0.086 ac, 31.27% Impervious, Inflow Depth = 1.00" for 10-Year event
Inflow = 0.08 cfs @ 12.11 hrs, Volume= 0.007 af
Outflow = 0.08 cfs @ 12.12 hrs, Volume= 0.007 af, Atten= 1%, Lag= 1.0 min
Discarded = 0.08 cfs @ 12.12 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 63.01' @ 12.12 hrs Surf.Area= 760 sf Storage= 4 cf

Plug-Flow detention time= 0.9 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (889.8 - 888.9)

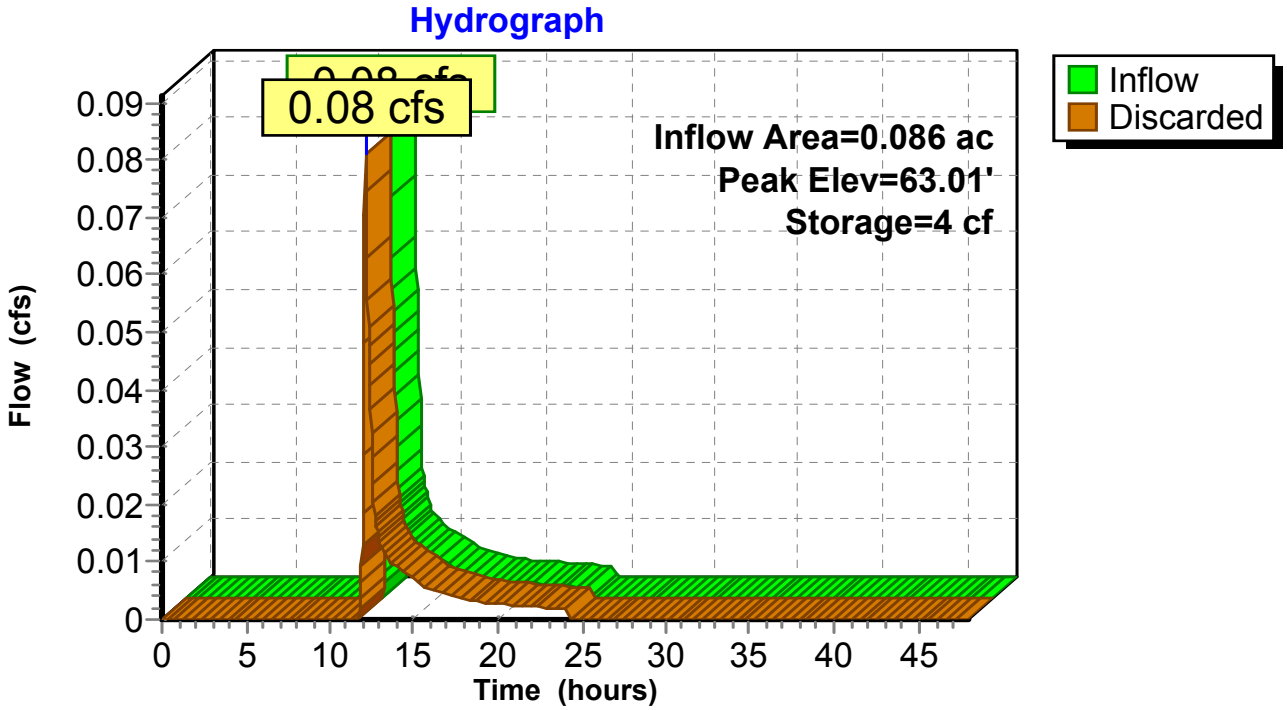
Volume	Invert	Avail.Storage	Storage Description
#1	63.00'	2,747 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
63.00	757	0	0
64.00	1,368	1,063	1,063
65.00	2,001	1,685	2,747

Device	Routing	Invert	Outlet Devices
#1	Discarded	63.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.08 cfs @ 12.12 hrs HW=63.01' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Pond D-3: Depression



Summary for Pond D-4: Depression

Inflow Area = 0.326 ac, 8.55% Impervious, Inflow Depth = 0.34" for 10-Year event
Inflow = 0.04 cfs @ 12.35 hrs, Volume= 0.009 af
Outflow = 0.01 cfs @ 12.19 hrs, Volume= 0.000 af, Atten= 80%, Lag= 0.0 min
Discarded = 0.01 cfs @ 12.19 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 54.67' @ 24.36 hrs Surf.Area= 716 sf Storage= 399 cf

Plug-Flow detention time= 3.4 min calculated for 0.000 af (1% of inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

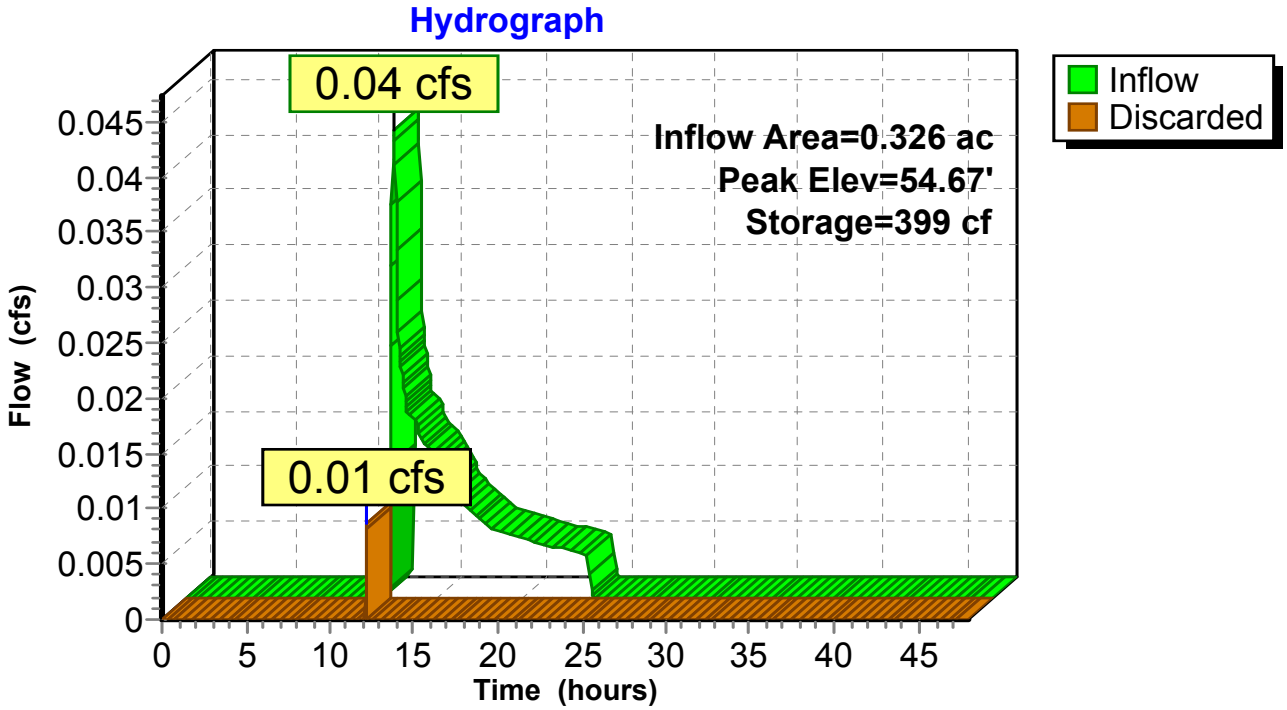
Volume	Invert	Avail.Storage	Storage Description
#1	54.00'	1,737 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
54.00	482	0	0
55.00	834	658	658
56.00	1,323	1,079	1,737

Device	Routing	Invert	Outlet Devices
#1	Discarded	54.00'	**Special & User-Defined** Head (feet) 0.00 0.01 0.02 0.50 2.00 Disch. (cfs) 0.000 0.010 0.000 0.000 0.000

Discarded OutFlow Max=0.01 cfs @ 12.19 hrs HW=54.01' (Free Discharge)
└─**1=Special & User-Defined** (Custom Controls 0.01 cfs)

Pond D-4: Depression



Summary for Pond DB-1: Prop Detention Basin

Inflow Area = 3.524 ac, 61.58% Impervious, Inflow Depth = 2.37" for 10-Year event
Inflow = 9.69 cfs @ 12.09 hrs, Volume= 0.697 af
Outflow = 0.70 cfs @ 13.86 hrs, Volume= 0.422 af, Atten= 93%, Lag= 106.0 min
Primary = 0.70 cfs @ 13.86 hrs, Volume= 0.422 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.22' @ 13.86 hrs Surf.Area= 10,055 sf Storage= 17,591 cf

Plug-Flow detention time= 363.4 min calculated for 0.422 af (61% of inflow)
Center-of-Mass det. time= 253.3 min (1,087.5 - 834.2)

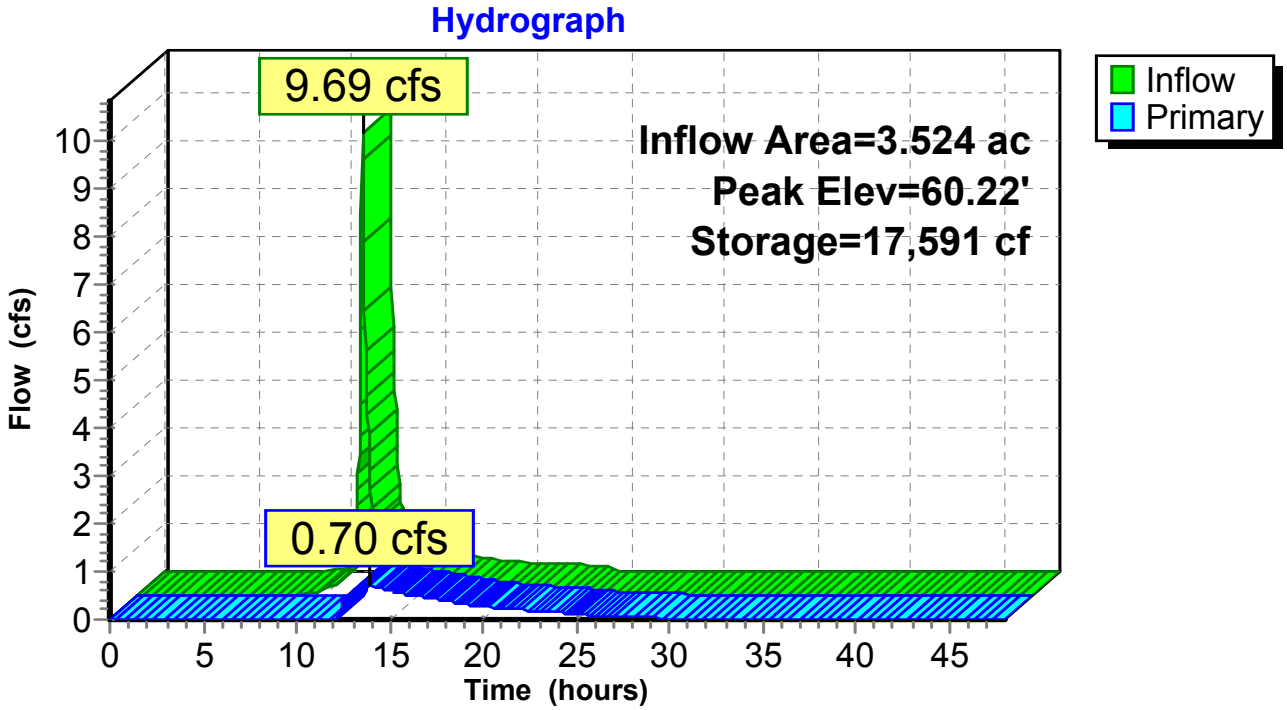
Volume	Invert	Avail.Storage	Storage Description
#1	58.00'	37,916 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.00	5,785	0	0
59.00	7,648	6,717	6,717
60.00	9,712	8,680	15,397
61.00	11,257	10,485	25,881
62.00	12,812	12,035	37,916

Device	Routing	Invert	Outlet Devices
#1	Primary	58.00'	**12.0" Round Culvert** L= 34.9' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 58.00' / 57.65' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	59.60'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	60.15'	**2.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.70 cfs @ 13.86 hrs HW=60.22' TW=55.11' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.70 cfs of 3.92 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.58 cfs @ 2.94 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.13 cfs @ 0.88 fps)

Pond DB-1: Prop Detention Basin



Summary for Pond P1: Infiltration Chambers

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
Inflow = 0.20 cfs @ 12.08 hrs, Volume= 0.017 af
Outflow = 0.04 cfs @ 11.76 hrs, Volume= 0.017 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.76 hrs, Volume= 0.017 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.60' @ 12.52 hrs Surf.Area= 199 sf Storage= 172 cf

Plug-Flow detention time= 23.0 min calculated for 0.017 af (100% of inflow)
Center-of-Mass det. time= 23.0 min (771.7 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	195 cf	**6.33'W x 31.50'L x 3.54'H Field A** 707 cf Overall - 220 cf Embedded = 487 cf x 40.0% Voids
#2A	56.70'	220 cf	**Cultec R-330XLHD** x 4 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		415 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.200 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.04 cfs @ 11.76 hrs HW=56.26' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Pond P1: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

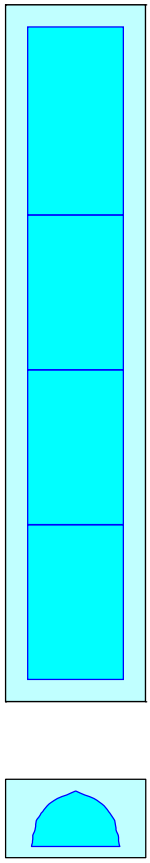
4 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 29.50' Row Length +12.0" End Stone x 2 = 31.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

4 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 219.8 cf Chamber Storage

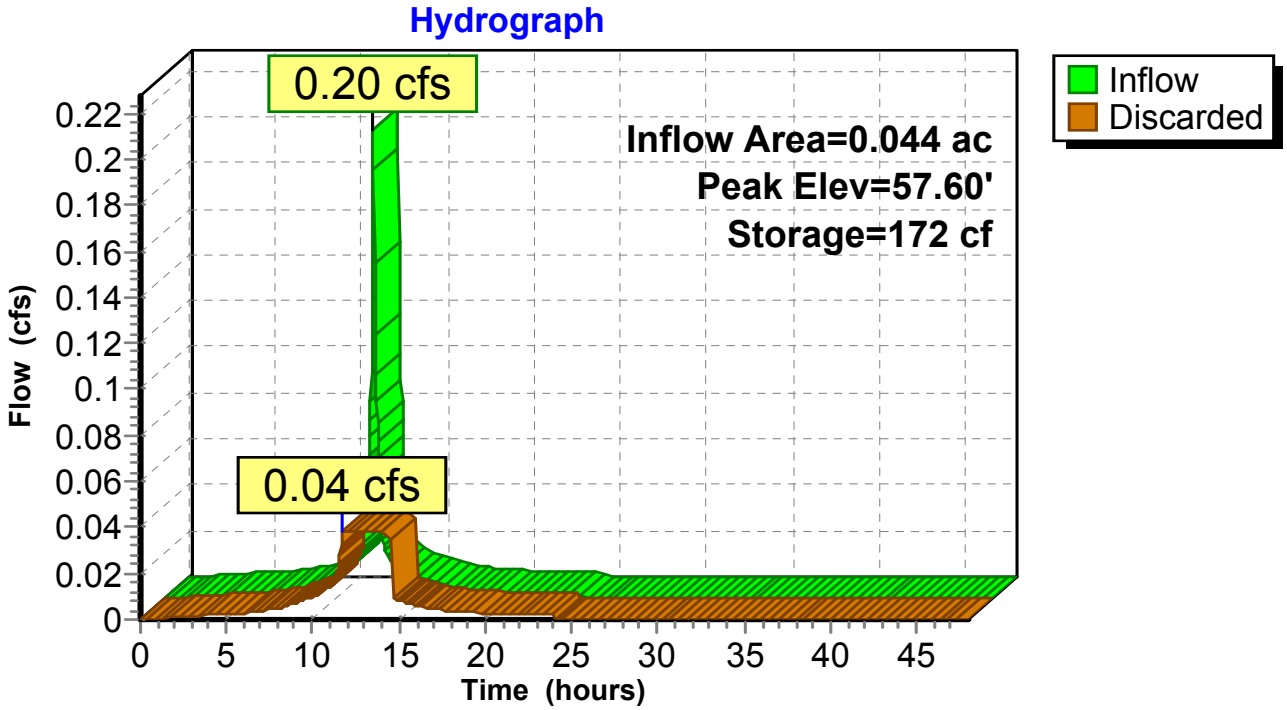
706.6 cf Field - 219.8 cf Chambers = 486.8 cf Stone x 40.0% Voids = 194.7 cf Stone Storage

Chamber Storage + Stone Storage = 414.5 cf = 0.010 af
Overall Storage Efficiency = 58.7%
Overall System Size = 31.50' x 6.33' x 3.54'

4 Chambers
26.2 cy Field
18.0 cy Stone



Pond P1: Infiltration Chambers



Summary for Pond P10: Infiltration Chambers

Inflow Area = 0.175 ac,100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
Inflow = 0.81 cfs @ 12.08 hrs, Volume= 0.066 af
Outflow = 0.13 cfs @ 11.72 hrs, Volume= 0.066 af, Atten= 84%, Lag= 0.0 min
Discarded = 0.13 cfs @ 11.72 hrs, Volume= 0.066 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.21' @ 12.56 hrs Surf.Area= 664 sf Storage= 766 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 32.7 min (781.4 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	58.50'	599 cf	**11.17'W x 59.50'L x 3.54'H Field A** 2,353 cf Overall - 857 cf Embedded = 1,496 cf x 40.0% Voids
#2A	59.00'	857 cf	**Cultec R-330XLHD** x 16 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		1,455 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	58.50'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.13 cfs @ 11.72 hrs HW=58.56' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Pond P10: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

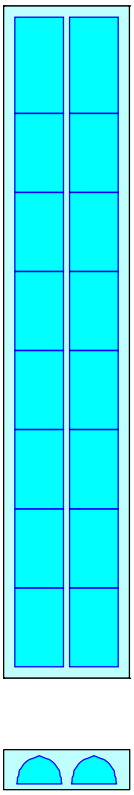
8 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 57.50' Row Length +12.0" End Stone x 2 = 59.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

16 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 856.9 cf Chamber Storage

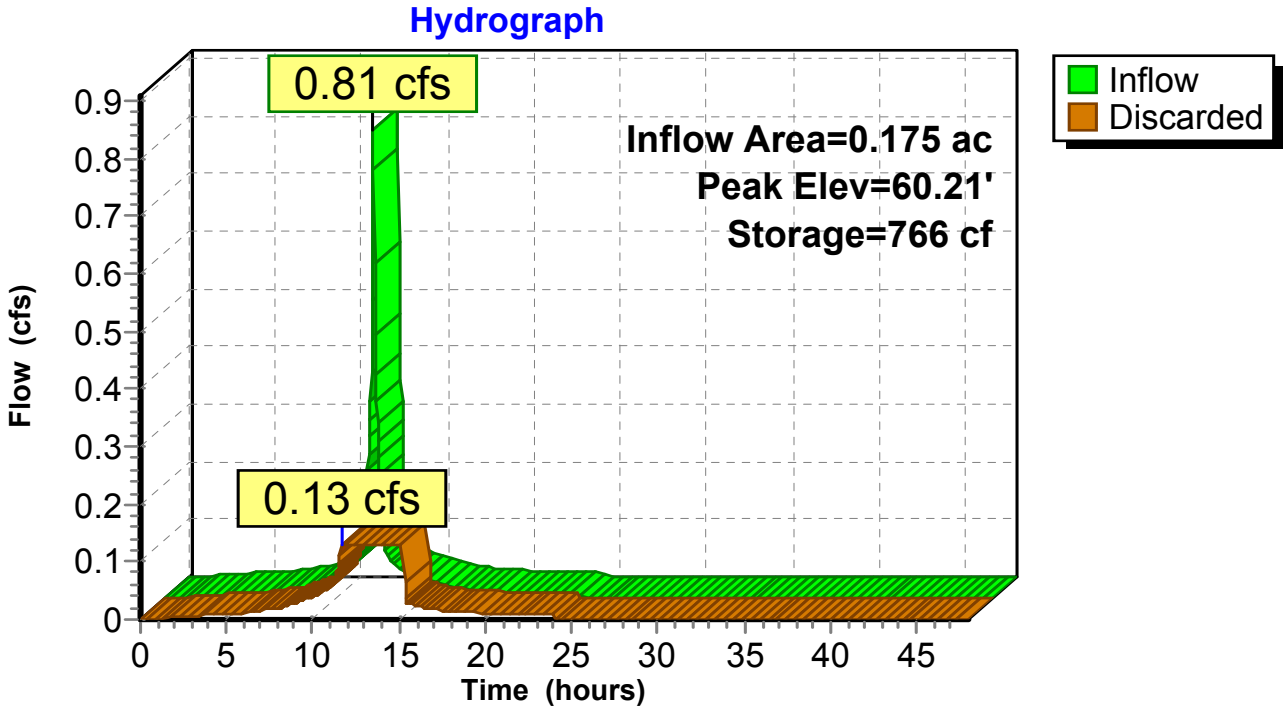
2,353.1 cf Field - 856.9 cf Chambers = 1,496.3 cf Stone x 40.0% Voids = 598.5 cf Stone Storage

Chamber Storage + Stone Storage = 1,455.4 cf = 0.033 af
Overall Storage Efficiency = 61.8%
Overall System Size = 59.50' x 11.17' x 3.54'

16 Chambers
87.2 cy Field
55.4 cy Stone



Pond P10: Infiltration Chambers



Summary for Pond P11: Infiltration Chambers

Inflow Area = 0.099 ac,100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
Inflow = 0.46 cfs @ 12.08 hrs, Volume= 0.038 af
Outflow = 0.08 cfs @ 11.72 hrs, Volume= 0.038 af, Atten= 82%, Lag= 0.0 min
Discarded = 0.08 cfs @ 11.72 hrs, Volume= 0.038 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.14' @ 12.53 hrs Surf.Area= 430 sf Storage= 403 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 25.2 min (773.9 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	391 cf	**11.17'W x 38.50'L x 3.54'H Field A** 1,523 cf Overall - 544 cf Embedded = 979 cf x 40.0% Voids
#2A	60.20'	544 cf	**Cultec R-330XLHD** x 10 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		935 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.08 cfs @ 11.72 hrs HW=59.74' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Pond P11: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

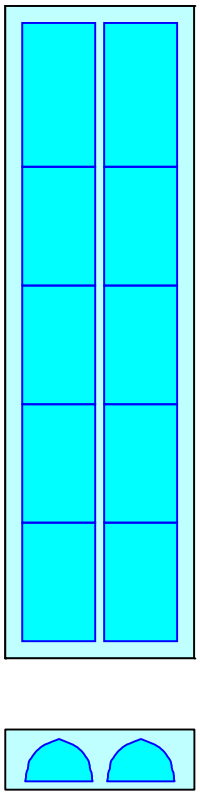
5 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 36.50' Row Length +12.0" End Stone x 2 = 38.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

10 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 543.9 cf Chamber Storage

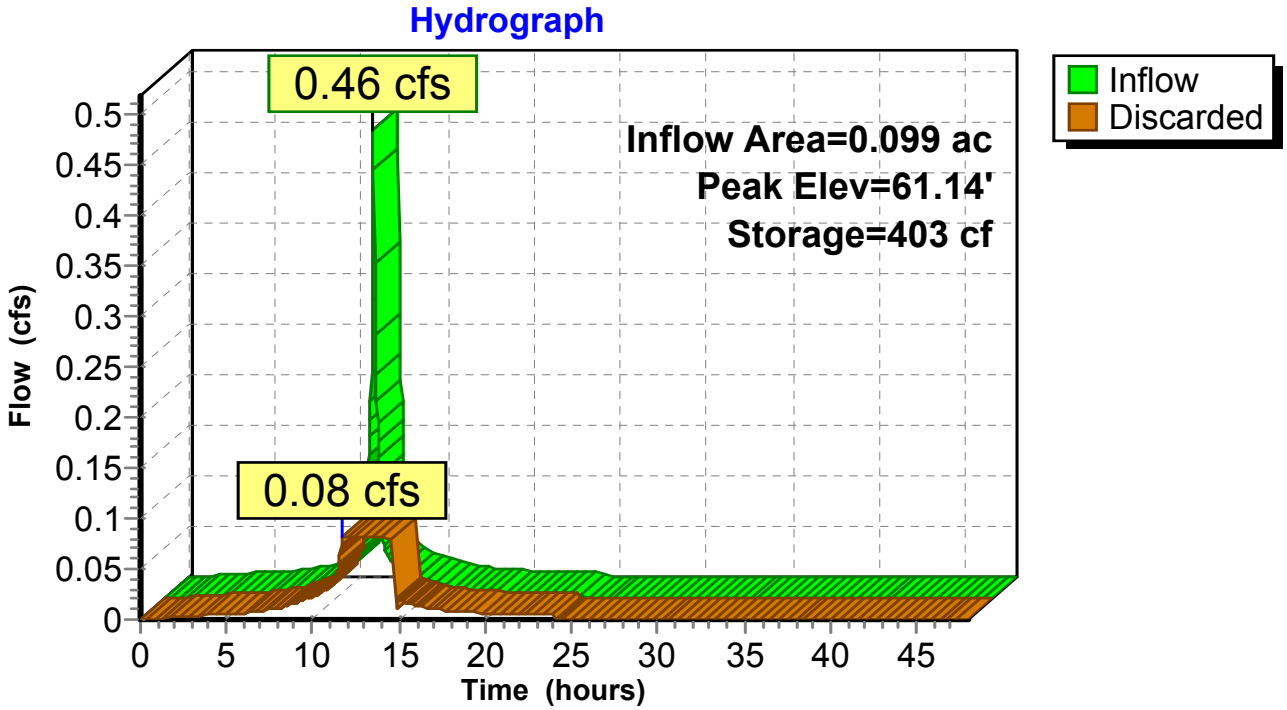
1,522.6 cf Field - 543.9 cf Chambers = 978.7 cf Stone x 40.0% Voids = 391.5 cf Stone Storage

Chamber Storage + Stone Storage = 935.4 cf = 0.021 af
Overall Storage Efficiency = 61.4%
Overall System Size = 38.50' x 11.17' x 3.54'

10 Chambers
56.4 cy Field
36.2 cy Stone



Pond P11: Infiltration Chambers



Summary for Pond P12: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
Inflow = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af
Outflow = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.60' @ 12.52 hrs Surf.Area= 111 sf Storage= 94 cf

Plug-Flow detention time= 22.2 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 22.2 min (770.9 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	56.70'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.76 hrs HW=56.26' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P12: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

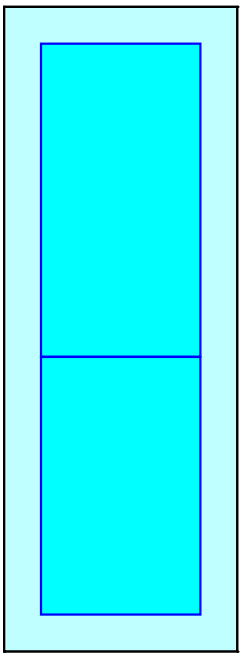
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

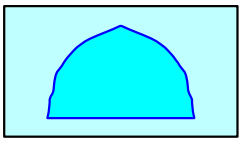
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

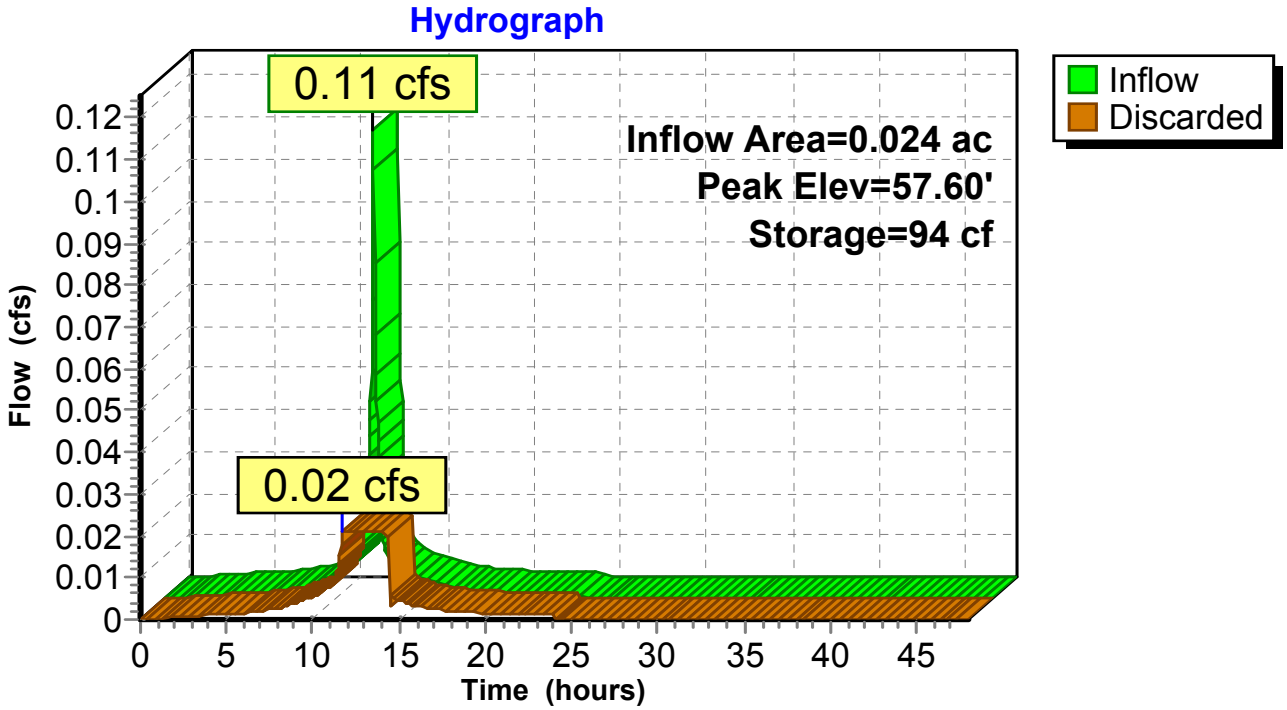
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P12: Infiltration Chambers



Summary for Pond P13: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
Inflow = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af
Outflow = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.09' @ 12.52 hrs Surf.Area= 111 sf Storage= 93 cf

Plug-Flow detention time= 22.1 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 22.1 min (770.8 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.20'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.76 hrs HW=59.76' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P13: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

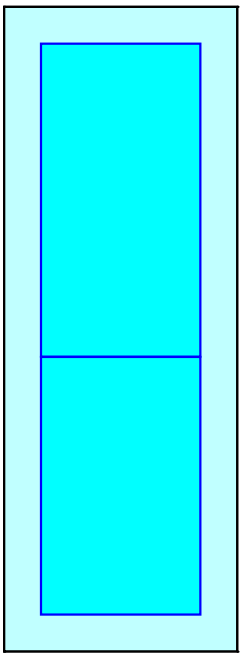
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

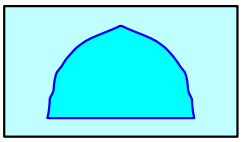
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

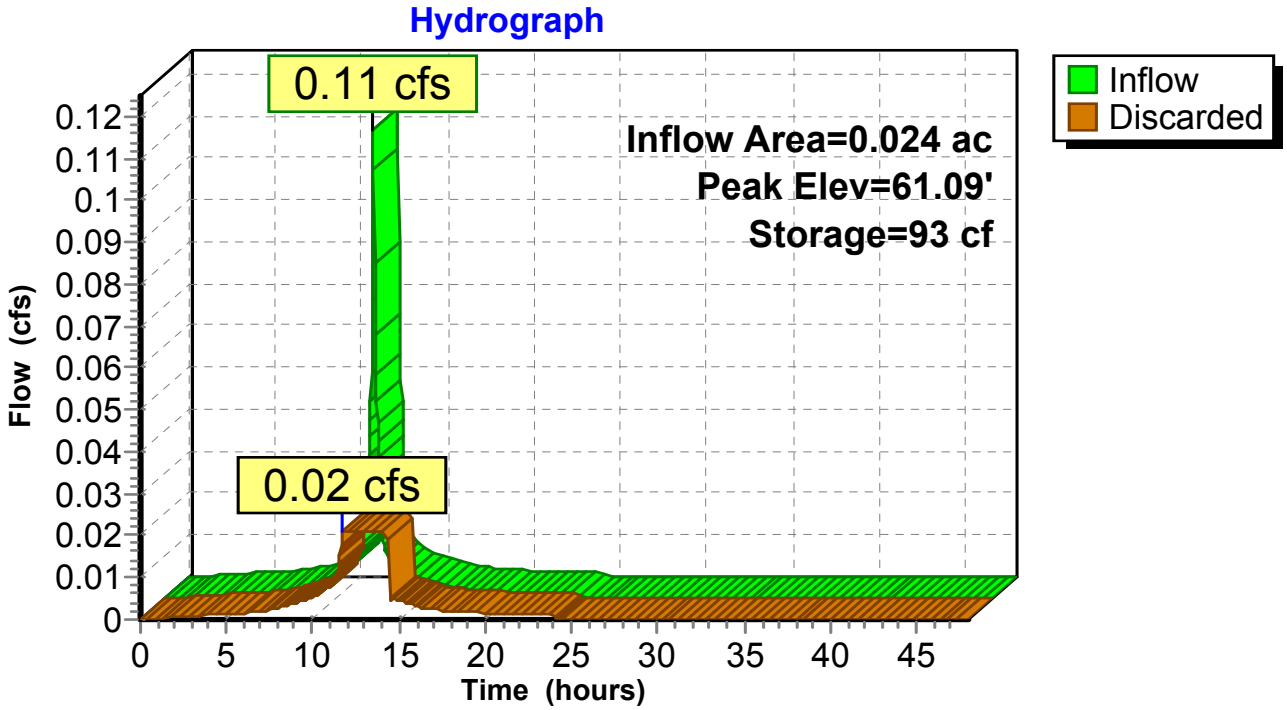
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P13: Infiltration Chambers



Summary for Pond P14: Infiltration Chambers

Inflow Area = 0.072 ac,100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
Inflow = 0.33 cfs @ 12.08 hrs, Volume= 0.027 af
Outflow = 0.05 cfs @ 11.72 hrs, Volume= 0.027 af, Atten= 84%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.72 hrs, Volume= 0.027 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.23' @ 12.56 hrs Surf.Area= 274 sf Storage= 314 cf

Plug-Flow detention time= 32.6 min calculated for 0.027 af (100% of inflow)
Center-of-Mass det. time= 32.6 min (781.3 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	58.50'	253 cf	**11.17'W x 24.50'L x 3.54'H Field A** 969 cf Overall - 335 cf Embedded = 634 cf x 40.0% Voids
#2A	59.00'	335 cf	**Cultec R-330XLHD** x 6 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		589 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	58.50'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.05 cfs @ 11.72 hrs HW=58.56' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Pond P14: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

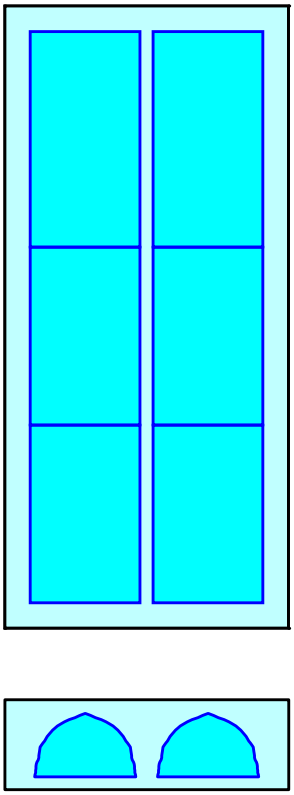
3 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 22.50' Row Length +12.0" End Stone x 2 = 24.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

6 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 335.3 cf Chamber Storage

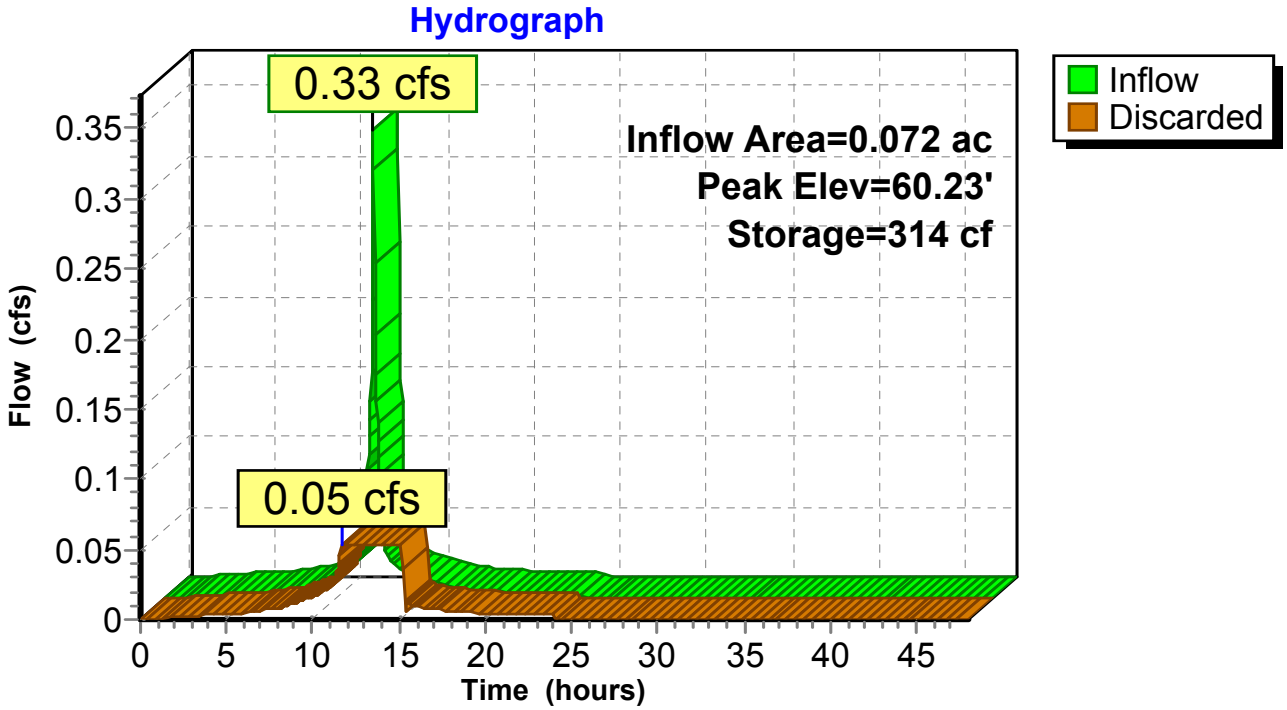
968.9 cf Field - 335.3 cf Chambers = 633.6 cf Stone x 40.0% Voids = 253.5 cf Stone Storage

Chamber Storage + Stone Storage = 588.8 cf = 0.014 af
Overall Storage Efficiency = 60.8%
Overall System Size = 24.50' x 11.17' x 3.54'

6 Chambers
35.9 cy Field
23.5 cy Stone



Pond P14: Infiltration Chambers



Summary for Pond P2: Infiltration Chambers

Inflow Area = 0.349 ac,100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
Inflow = 1.62 cfs @ 12.08 hrs, Volume= 0.133 af
Outflow = 0.27 cfs @ 11.72 hrs, Volume= 0.133 af, Atten= 84%, Lag= 0.0 min
Discarded = 0.27 cfs @ 11.72 hrs, Volume= 0.133 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.77' @ 12.55 hrs Surf.Area= 1,385 sf Storage= 1,496 cf

Plug-Flow detention time= 30.2 min calculated for 0.133 af (100% of inflow)
Center-of-Mass det. time= 30.1 min (778.8 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	1,194 cf	**20.83'W x 66.50'L x 3.54'H Field A** 4,907 cf Overall - 1,922 cf Embedded = 2,984 cf x 40.0% Voids
#2A	56.70'	1,922 cf	**Cultec R-330XLHD** x 36 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 4 rows
		3,116 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.27 cfs @ 11.72 hrs HW=56.25' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.27 cfs)

Pond P2: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 4 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

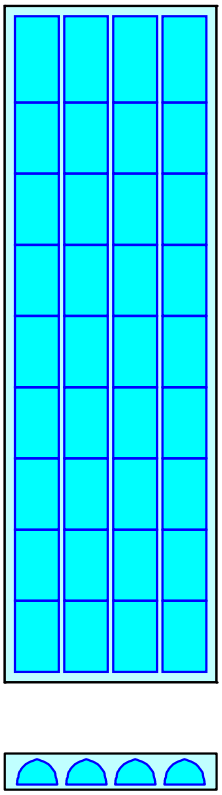
9 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 64.50' Row Length +12.0" End Stone x 2 = 66.50' Base Length
4 Rows x 52.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.83' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

36 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 4 Rows = 1,922.4 cf Chamber Storage

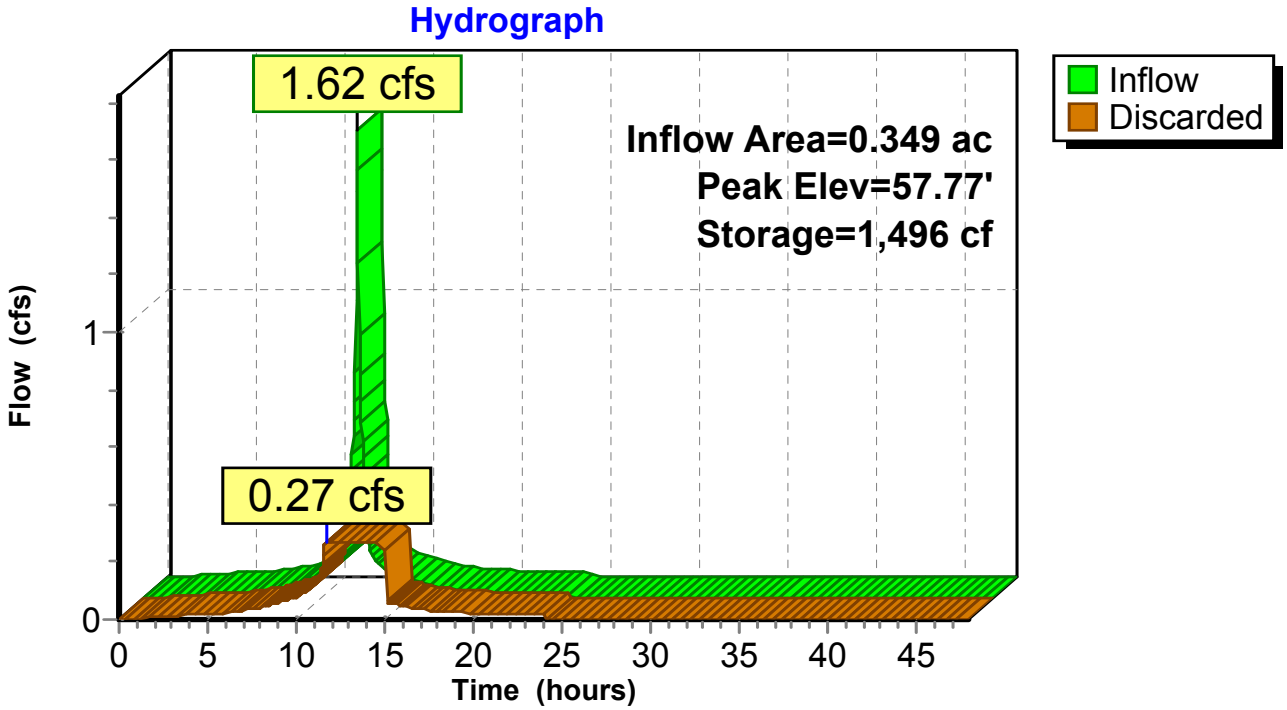
4,906.7 cf Field - 1,922.4 cf Chambers = 2,984.3 cf Stone x 40.0% Voids = 1,193.7 cf Stone Storage

Chamber Storage + Stone Storage = 3,116.1 cf = 0.072 af
Overall Storage Efficiency = 63.5%
Overall System Size = 66.50' x 20.83' x 3.54'

36 Chambers
181.7 cy Field
110.5 cy Stone



Pond P2: Infiltration Chambers



Summary for Pond P3: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
Inflow = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af
Outflow = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.60' @ 12.52 hrs Surf.Area= 111 sf Storage= 94 cf

Plug-Flow detention time= 22.2 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 22.2 min (770.9 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	56.70'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.76 hrs HW=56.26' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P3: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

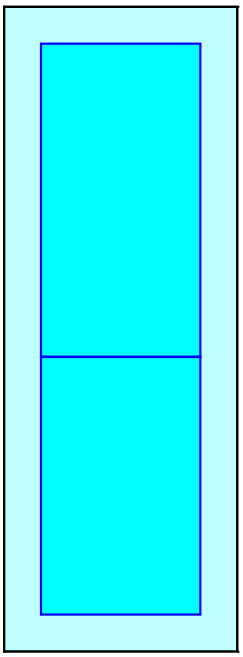
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

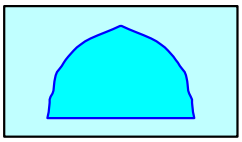
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

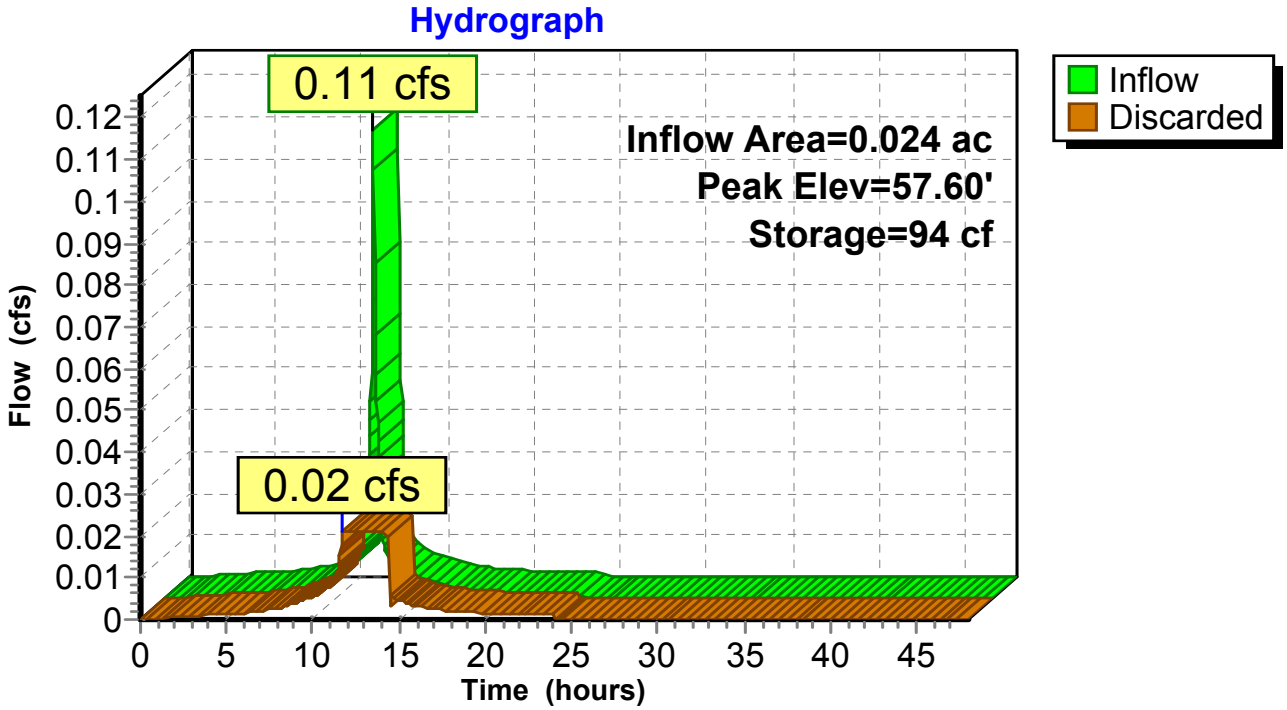
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P3: Infiltration Chambers



Summary for Pond P4: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
Inflow = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af
Outflow = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.09' @ 12.52 hrs Surf.Area= 111 sf Storage= 93 cf

Plug-Flow detention time= 22.1 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 22.1 min (770.8 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.20'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.76 hrs HW=59.76' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P4: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

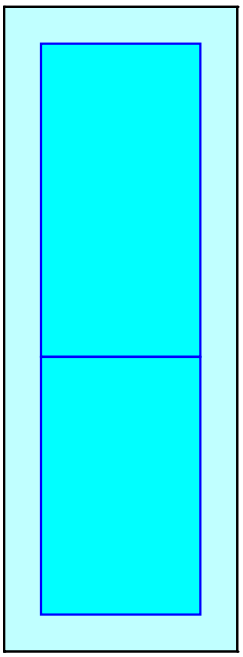
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

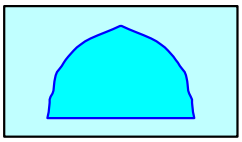
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

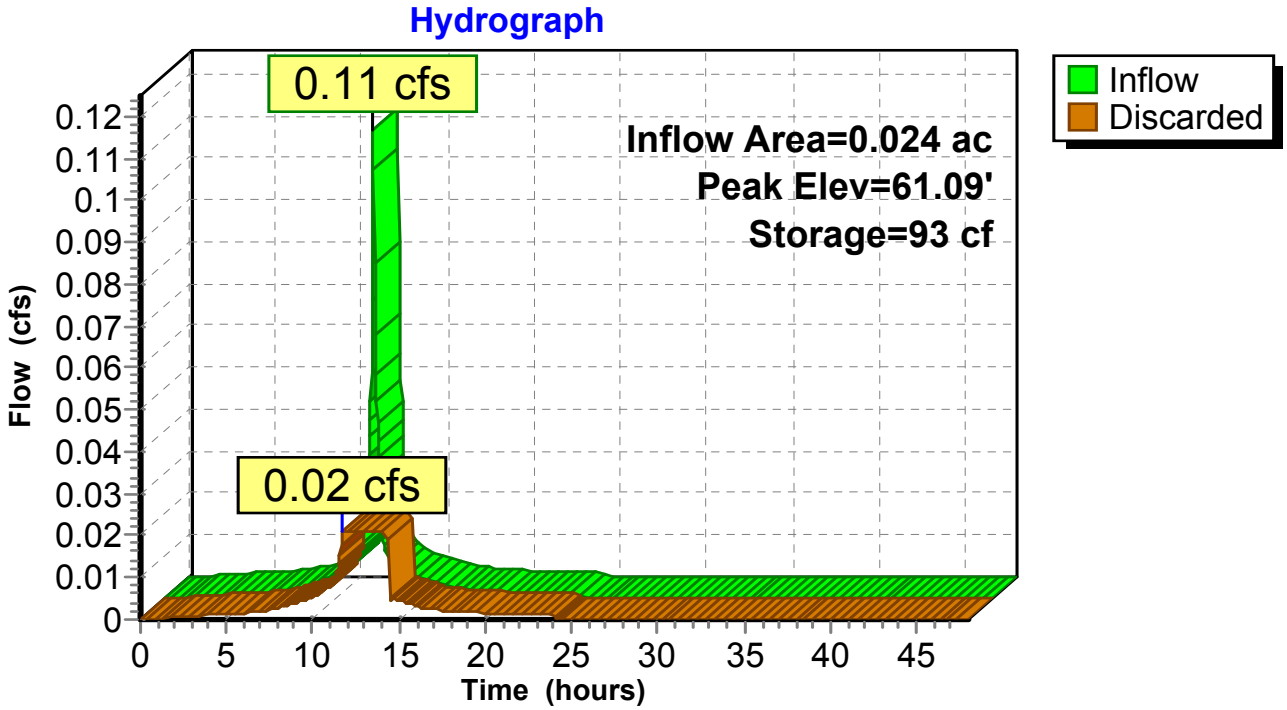
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P4: Infiltration Chambers



Summary for Pond P5: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
Inflow = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af
Outflow = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.09' @ 12.52 hrs Surf.Area= 111 sf Storage= 94 cf

Plug-Flow detention time= 22.2 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 22.1 min (770.8 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.20'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.76 hrs HW=59.76' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P5: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

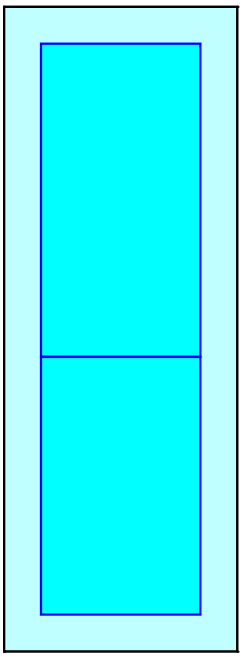
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

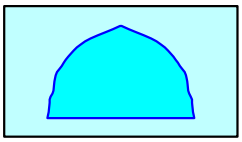
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

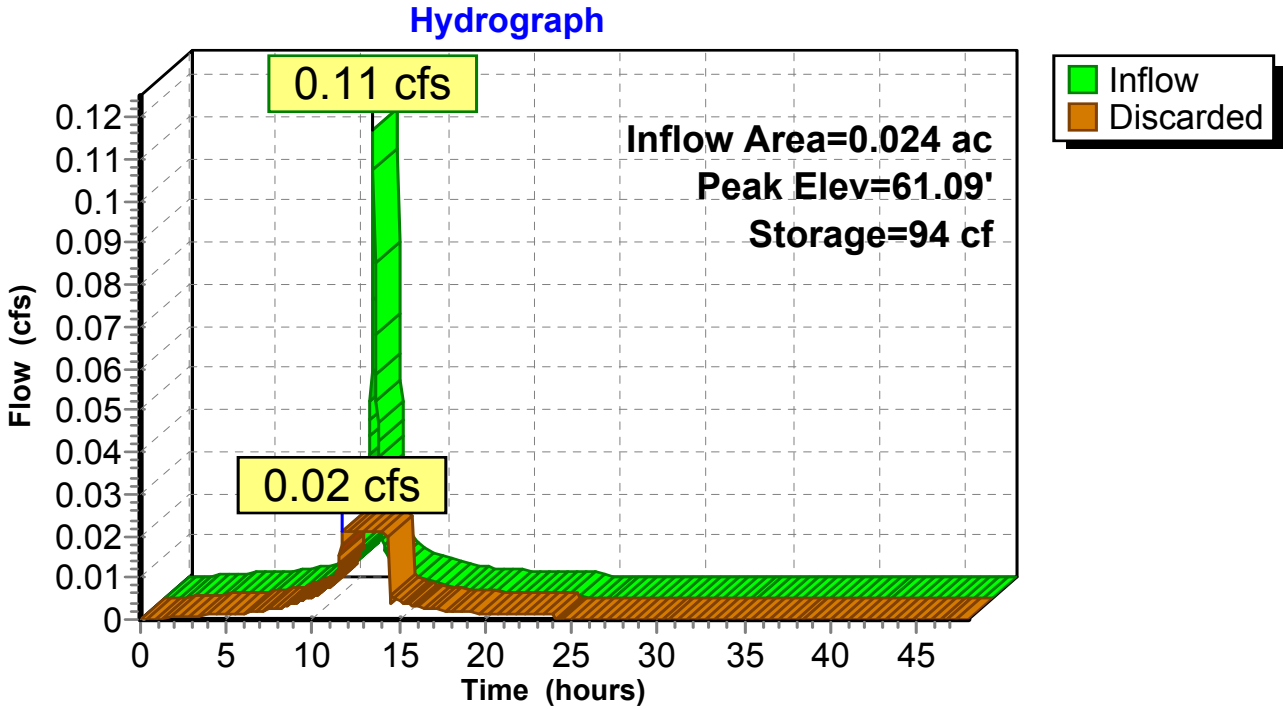
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P5: Infiltration Chambers



Summary for Pond P6: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
Inflow = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af
Outflow = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.99' @ 12.52 hrs Surf.Area= 111 sf Storage= 94 cf

Plug-Flow detention time= 22.2 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 22.1 min (770.8 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.60'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.10'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.76 hrs HW=59.66' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P6: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

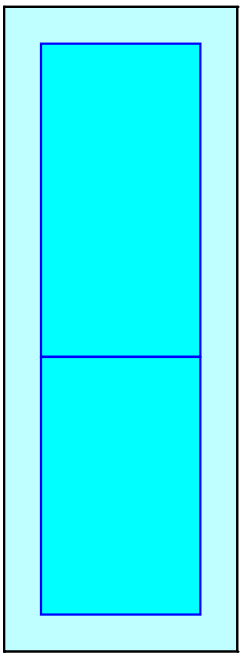
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

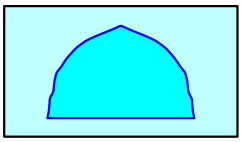
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

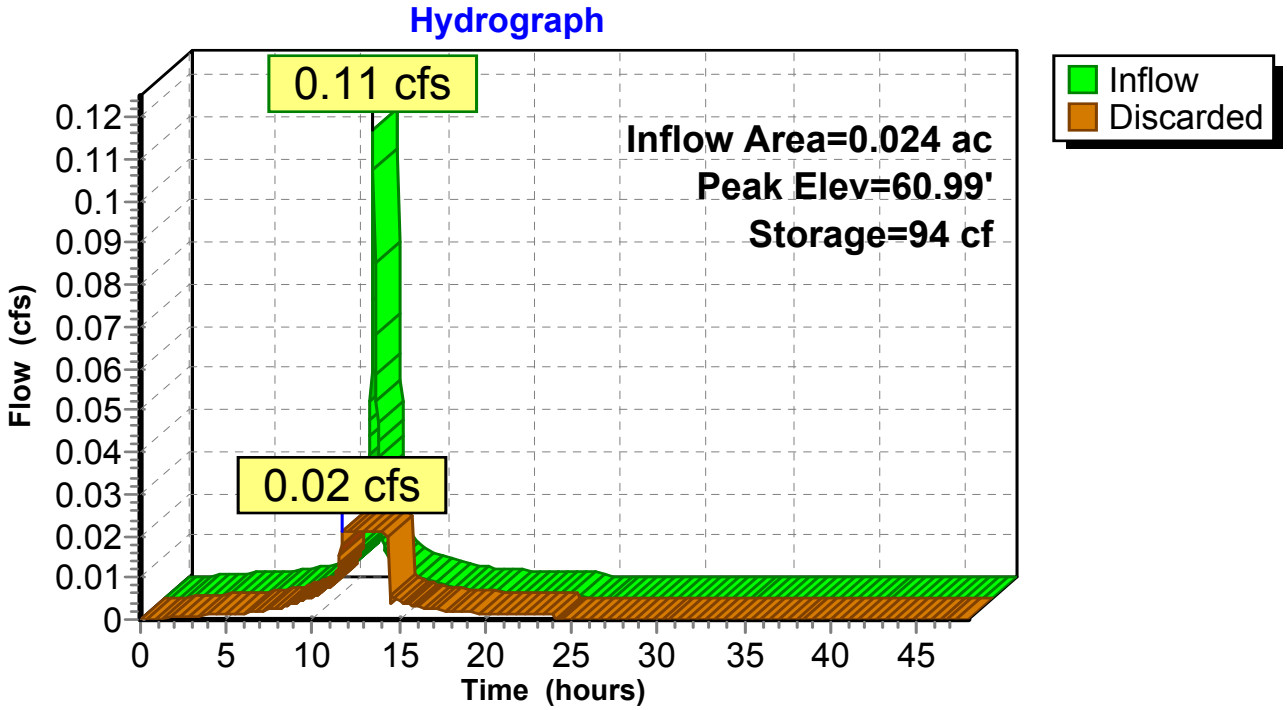
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P6: Infiltration Chambers



Summary for Pond P7: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
Inflow = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af
Outflow = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.76 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.00' @ 12.52 hrs Surf.Area= 111 sf Storage= 94 cf

Plug-Flow detention time= 22.2 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 22.2 min (770.9 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.60'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.10'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.76 hrs HW=59.66' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P7: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

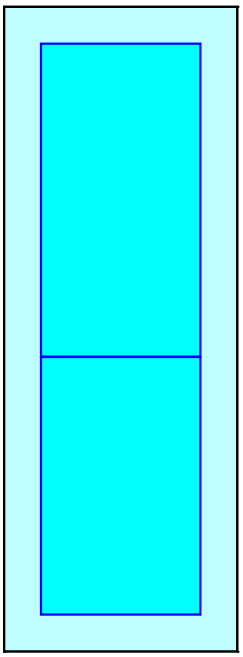
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

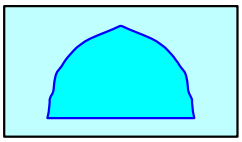
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

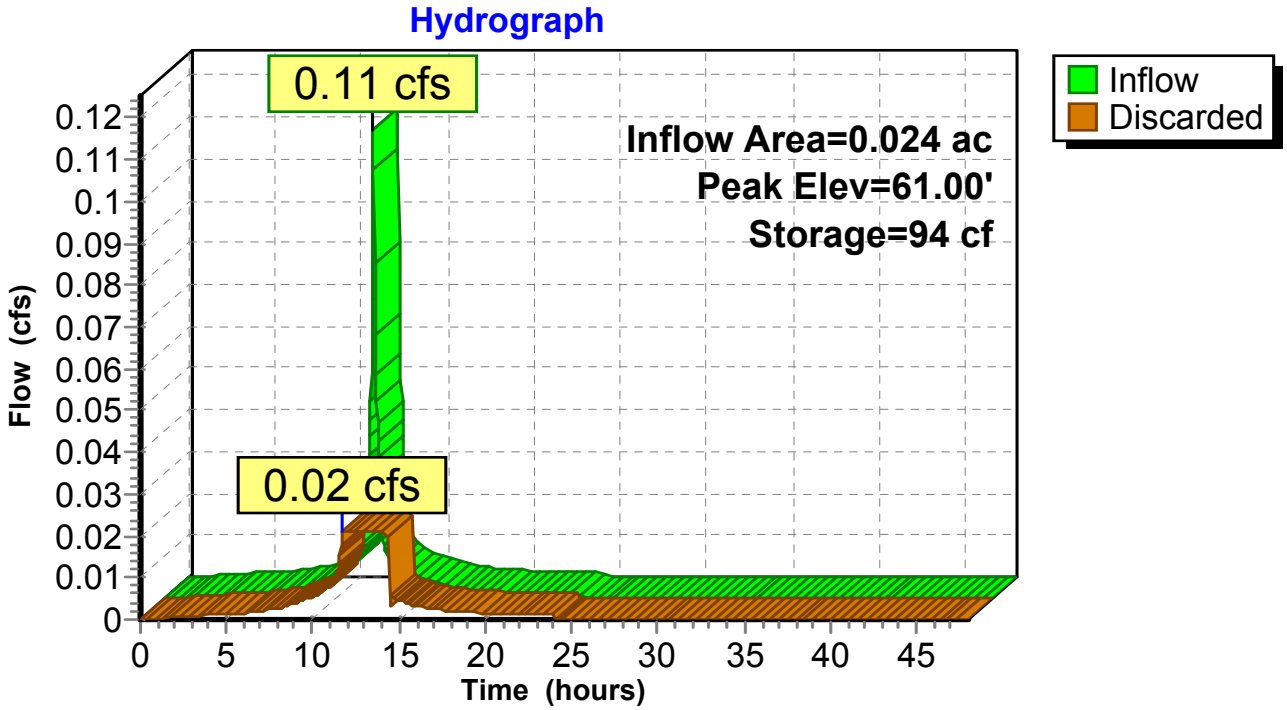
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P7: Infiltration Chambers



Summary for Pond P8: Infiltration Chambers

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth = 4.56" for 10-Year event
Inflow = 0.20 cfs @ 12.08 hrs, Volume= 0.017 af
Outflow = 0.04 cfs @ 11.76 hrs, Volume= 0.017 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.76 hrs, Volume= 0.017 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.99' @ 12.52 hrs Surf.Area= 199 sf Storage= 171 cf

Plug-Flow detention time= 22.6 min calculated for 0.017 af (100% of inflow)
Center-of-Mass det. time= 22.6 min (771.3 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.60'	195 cf	**6.33'W x 31.50'L x 3.54'H Field A** 707 cf Overall - 220 cf Embedded = 487 cf x 40.0% Voids
#2A	60.10'	220 cf	**Cultec R-330XLHD** x 4 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		415 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.04 cfs @ 11.76 hrs HW=59.66' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Pond P8: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

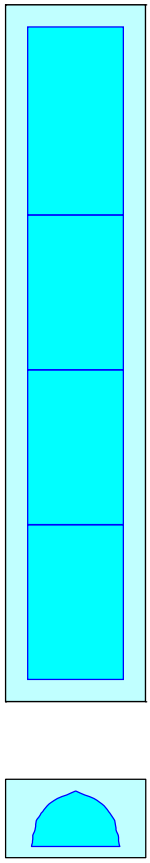
4 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 29.50' Row Length +12.0" End Stone x 2 = 31.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

4 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 219.8 cf Chamber Storage

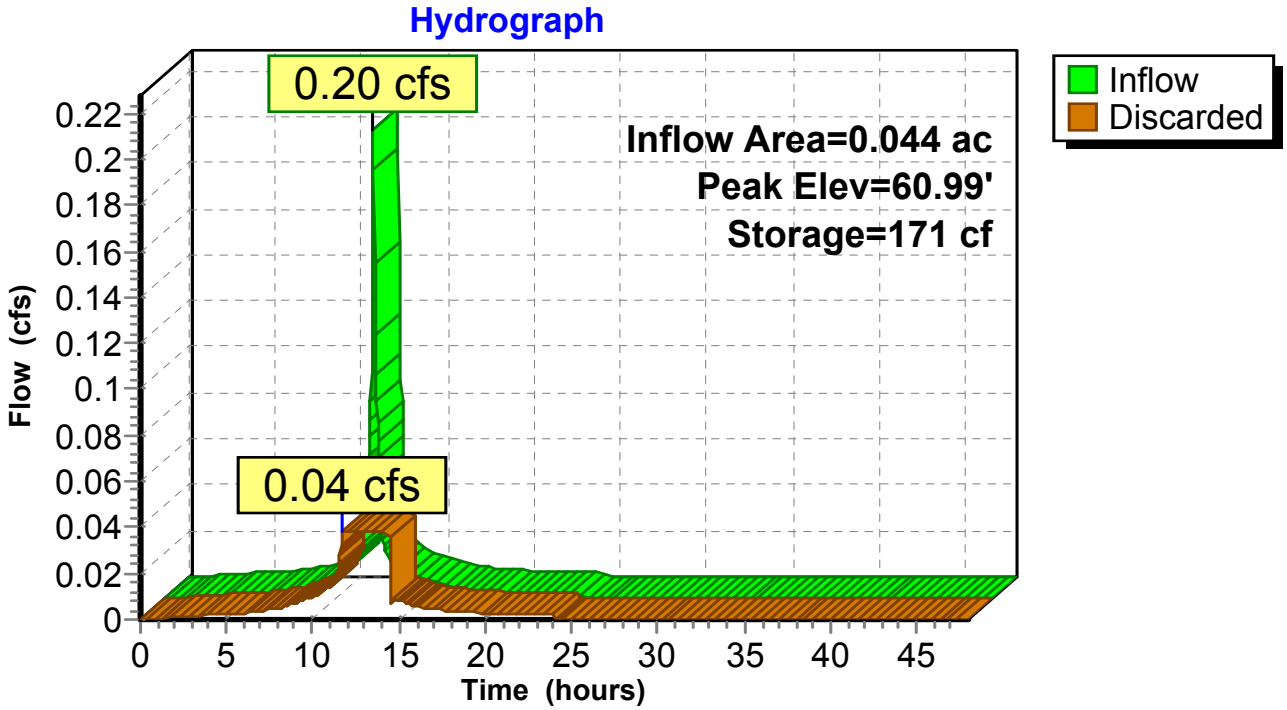
706.6 cf Field - 219.8 cf Chambers = 486.8 cf Stone x 40.0% Voids = 194.7 cf Stone Storage

Chamber Storage + Stone Storage = 414.5 cf = 0.010 af
Overall Storage Efficiency = 58.7%
Overall System Size = 31.50' x 6.33' x 3.54'

4 Chambers
26.2 cy Field
18.0 cy Stone



Pond P8: Infiltration Chambers



Summary for Pond P9: Infiltration Chambers

Inflow Area = 0.457 ac, 68.14% Impervious, Inflow Depth = 2.77" for 10-Year event
Inflow = 1.37 cfs @ 12.09 hrs, Volume= 0.105 af
Outflow = 0.25 cfs @ 11.80 hrs, Volume= 0.105 af, Atten= 82%, Lag= 0.0 min
Discarded = 0.25 cfs @ 11.80 hrs, Volume= 0.105 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 56.98' @ 12.56 hrs Surf.Area= 1,290 sf Storage= 1,174 cf

Plug-Flow detention time= 27.6 min calculated for 0.105 af (100% of inflow)
Center-of-Mass det. time= 27.6 min (826.8 - 799.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	55.60'	1,151 cf	**11.17'W x 115.50'L x 3.54'H Field A** 4,568 cf Overall - 1,691 cf Embedded = 2,876 cf x 40.0% Voids
#2A	56.10'	1,691 cf	**Cultec R-330XLHD** x 32 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		2,842 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	55.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.25 cfs @ 11.80 hrs HW=55.65' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.25 cfs)

Pond P9: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

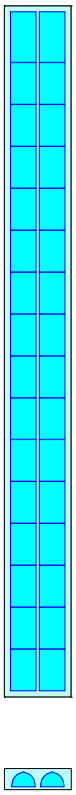
16 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 113.50' Row Length +12.0" End Stone x 2 = 115.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

32 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 1,691.4 cf Chamber Storage

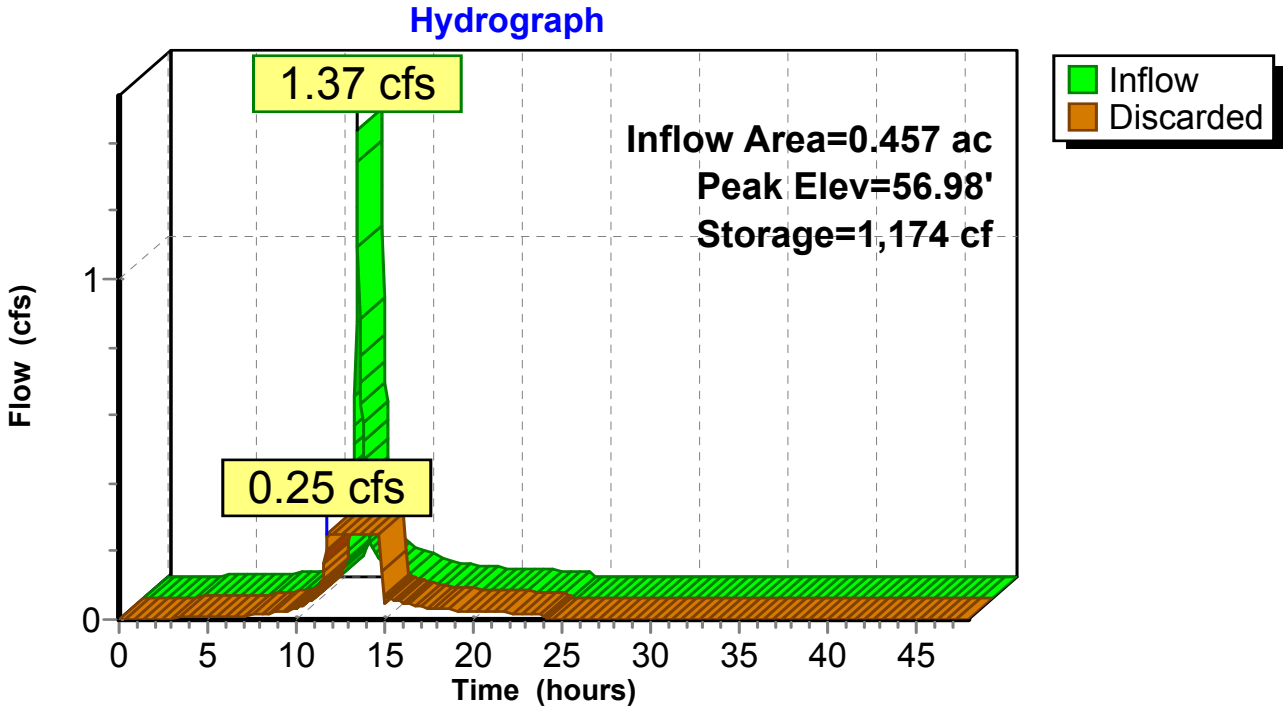
4,567.9 cf Field - 1,691.4 cf Chambers = 2,876.5 cf Stone x 40.0% Voids = 1,150.6 cf Stone Storage

Chamber Storage + Stone Storage = 2,842.0 cf = 0.065 af
Overall Storage Efficiency = 62.2%
Overall System Size = 115.50' x 11.17' x 3.54'

32 Chambers
169.2 cy Field
106.5 cy Stone



Pond P9: Infiltration Chambers



Summary for Pond W1: BVW

Inflow Area = 4.439 ac, 57.57% Impervious, Inflow Depth > 1.55" for 10-Year event
Inflow = 2.05 cfs @ 12.09 hrs, Volume= 0.572 af
Outflow = 2.03 cfs @ 12.10 hrs, Volume= 0.572 af, Atten= 1%, Lag= 0.6 min
Primary = 2.03 cfs @ 12.10 hrs, Volume= 0.572 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 55.18' @ 12.10 hrs Surf.Area= 707 sf Storage= 63 cf

Plug-Flow detention time= 0.5 min calculated for 0.572 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (1,025.1 - 1,024.6)

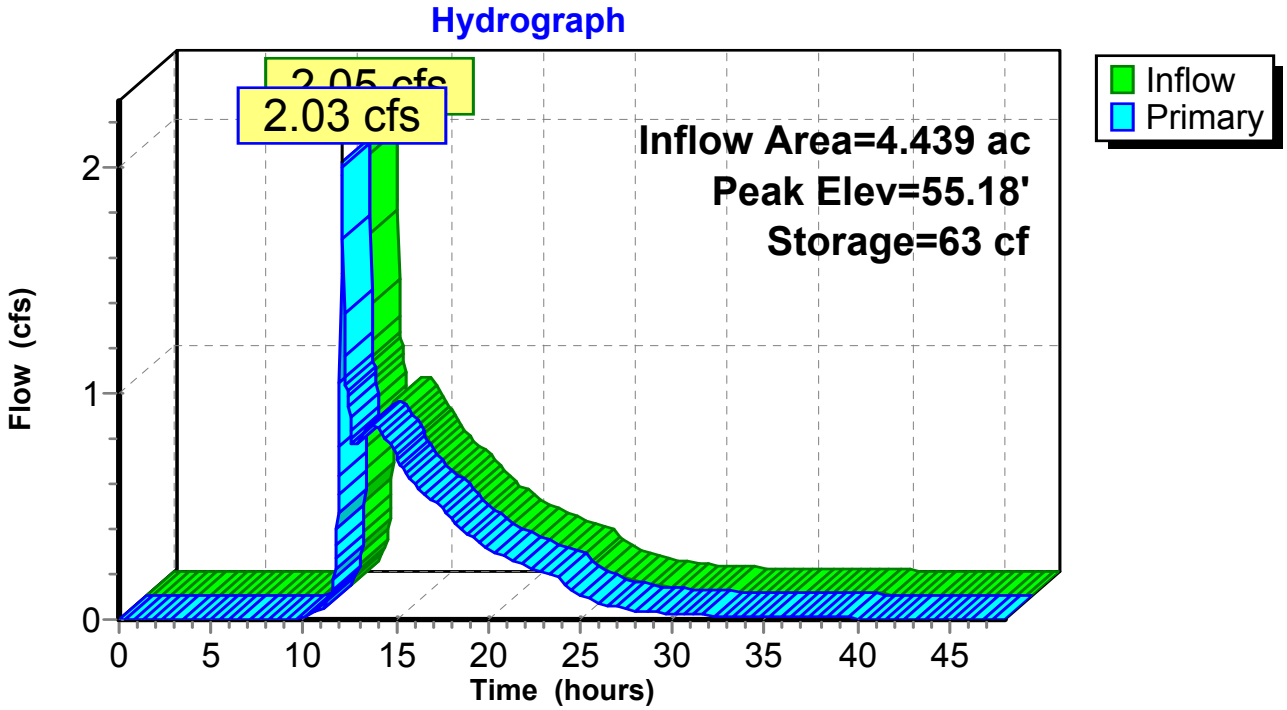
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	14,409 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
55.00	10	0	0
56.00	3,962	1,986	1,986
57.00	20,884	12,423	14,409

Device	Routing	Invert	Outlet Devices
#1	Primary	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 66.00
#2	Device 1	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 84.00

Primary OutFlow Max=1.99 cfs @ 12.10 hrs HW=55.17' TW=0.00' (Dynamic Tailwater)
└─**1=Custom Weir/Orifice** (Weir Controls 1.99 cfs @ 1.21 fps)
  └─**2=Custom Weir/Orifice** (Passes 1.99 cfs of 2.29 cfs potential flow)

Pond W1: BVW


Hydrograph
2.05 cfs
2.03 cfs
Inflow Area=4.439 ac
Peak Elev=55.18'
Storage=63 cf
Inflow
Primary
Flow (cfs)
0
1
2
0
5
10
15
20
25
30
35
40
45
Time (hours)

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Sub-1 Runoff Area=7,545 sf 0.00% Impervious Runoff Depth=0.36"
Tc=6.0 min CN=39 Runoff=0.02 cfs 0.005 af

Subcatchment2S: Sub-2 Runoff Area=8,462 sf 7.92% Impervious Runoff Depth=0.63"
Tc=6.0 min CN=44 Runoff=0.07 cfs 0.010 af

Subcatchment3A-10R: Roofs 15 B Runoff Area=857 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment3A-10R1: Roofs 15 F Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment3A-11R: Roofs 24-27 FB Runoff Area=7,608 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.97 cfs 0.080 af

Subcatchment3A-12R: Roofs 30-32 B Runoff Area=2,596 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment3A-13R: Roofs 28-29 B Runoff Area=1,728 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment3A-14R: Roofs 28-F Runoff Area=1,048 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment3A-15R: Roofs 29 F Runoff Area=1,045 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment3A-16R: Roofs 30-32 F Runoff Area=3,124 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.40 cfs 0.033 af

Subcatchment3A-1R: Roof 5 Runoff Area=1,903 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.020 af

Subcatchment3A-2R: Roofs 1-4 FB Runoff Area=7,608 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.97 cfs 0.080 af

Subcatchment3A-2R1: Roofs 6-9 FB Runoff Area=7,608 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.97 cfs 0.080 af

Subcatchment3A-3R: Roofs 10-F Runoff Area=1,048 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment3A-4R: Roofs 11 F Runoff Area=1,045 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment3A-5R: Roofs 10-11 B Runoff Area=1,707 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment3A-6R: Roofs 12 B Runoff Area=839 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment3A-7R: Roofs 12 F Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment3A-8R: Roofs 13 F Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment3A-9R: Roofs 14 F Runoff Area=1,048 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment3A-S: Sub-3A Runoff Area=153,525 sf 61.58% Impervious Runoff Depth=3.12"
Tc=6.0 min CN=76 Runoff=12.79 cfs 0.917 af

Subcatchment3B-S: Sub-3B Runoff Area=39,829 sf 42.08% Impervious Runoff Depth=2.66"
Tc=6.0 min CN=71 Runoff=2.81 cfs 0.203 af

Subcatchment3C-S: Sub-3C Runoff Area=19,306 sf 29.30% Impervious Runoff Depth=1.81"
Tc=6.0 min CN=61 Runoff=0.88 cfs 0.067 af

Subcatchment4S: Sub-4 Runoff Area=6,046 sf 0.00% Impervious Runoff Depth=0.36"
Tc=6.0 min CN=39 Runoff=0.02 cfs 0.004 af

Subcatchment4S-1: Sub-4 Runoff Area=3,739 sf 31.27% Impervious Runoff Depth=1.50"
Tc=6.0 min CN=57 Runoff=0.13 cfs 0.011 af

Subcatchment5S: Sub -5 Runoff Area=9,637 sf 22.04% Impervious Runoff Depth=1.20"
Tc=6.0 min CN=53 Runoff=0.25 cfs 0.022 af

Subcatchment5S-1: Roofs 31-32 F Runoff Area=14,192 sf 8.55% Impervious Runoff Depth=0.63"
Tc=6.0 min CN=44 Runoff=0.11 cfs 0.017 af

Subcatchment5S-P: Pavement Runoff Area=14,192 sf 55.31% Impervious Runoff Depth=2.75"
Tc=6.0 min CN=72 Runoff=1.04 cfs 0.075 af

Subcatchment5S-R1: Roofs 19-21 FB Runoff Area=5,720 sf 100.00% Impervious Runoff Depth=5.46"
Tc=6.0 min CN=98 Runoff=0.73 cfs 0.060 af

Reach DP-1: DMH Inflow=0.02 cfs 0.005 af
Outflow=0.02 cfs 0.005 af

Reach DP-2: DP-2 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-3: DP-3 Inflow=2.79 cfs 0.845 af
Outflow=2.79 cfs 0.845 af

Reach DP-4: PL Inflow=0.02 cfs 0.004 af
Outflow=0.02 cfs 0.004 af

Reach DP-5: PL		Inflow=0.25 cfs 0.022 af Outflow=0.25 cfs 0.022 af
Pond D-1: Depression	Peak Elev=59.01' Storage=4 cf	Inflow=0.07 cfs 0.010 af Outflow=0.07 cfs 0.010 af
Pond D-2: Depression	Peak Elev=57.91' Storage=1,282 cf	Inflow=1.20 cfs 0.093 af Outflow=0.19 cfs 0.093 af
Pond D-3: Depression	Peak Elev=63.01' Storage=7 cf	Inflow=0.13 cfs 0.011 af Outflow=0.13 cfs 0.011 af
Pond D-4: Depression	Peak Elev=55.10' Storage=740 cf	Inflow=0.11 cfs 0.017 af Outflow=0.00 cfs 0.000 af
Pond DB-1: Prop Detention Basin	Peak Elev=60.48' Storage=20,275 cf	Inflow=12.79 cfs 0.917 af Outflow=1.97 cfs 0.643 af
Pond P1: Infiltration Chambers	Peak Elev=57.99' Storage=228 cf	Inflow=0.24 cfs 0.020 af Outflow=0.04 cfs 0.020 af
Pond P10: Infiltration Chambers	Peak Elev=60.68' Storage=996 cf	Inflow=0.97 cfs 0.080 af Outflow=0.13 cfs 0.080 af
Pond P11: Infiltration Chambers	Peak Elev=61.53' Storage=531 cf	Inflow=0.55 cfs 0.045 af Outflow=0.08 cfs 0.045 af
Pond P12: Infiltration Chambers	Peak Elev=57.99' Storage=124 cf	Inflow=0.13 cfs 0.011 af Outflow=0.02 cfs 0.011 af
Pond P13: Infiltration Chambers	Peak Elev=61.48' Storage=124 cf	Inflow=0.13 cfs 0.011 af Outflow=0.02 cfs 0.011 af
Pond P14: Infiltration Chambers	Peak Elev=60.72' Storage=408 cf	Inflow=0.40 cfs 0.033 af Outflow=0.05 cfs 0.033 af
Pond P2: Infiltration Chambers	Peak Elev=58.19' Storage=1,952 cf	Inflow=1.93 cfs 0.159 af Outflow=0.27 cfs 0.159 af
Pond P3: Infiltration Chambers	Peak Elev=57.99' Storage=124 cf	Inflow=0.13 cfs 0.011 af Outflow=0.02 cfs 0.011 af
Pond P4: Infiltration Chambers	Peak Elev=61.48' Storage=124 cf	Inflow=0.13 cfs 0.011 af Outflow=0.02 cfs 0.011 af
Pond P5: Infiltration Chambers	Peak Elev=61.49' Storage=124 cf	Inflow=0.13 cfs 0.011 af Outflow=0.02 cfs 0.011 af
Pond P6: Infiltration Chambers	Peak Elev=61.39' Storage=124 cf	Inflow=0.13 cfs 0.011 af Outflow=0.02 cfs 0.011 af

Pond P7: Infiltration Chambers Peak Elev=61.39' Storage=124 cf Inflow=0.13 cfs 0.011 af
Outflow=0.02 cfs 0.011 af

Pond P8: Infiltration Chambers Peak Elev=61.38' Storage=227 cf Inflow=0.24 cfs 0.020 af
Outflow=0.04 cfs 0.020 af

Pond P9: Infiltration Chambers Peak Elev=57.55' Storage=1,734 cf Inflow=1.76 cfs 0.134 af
Outflow=0.25 cfs 0.134 af

Pond W1: BVW Peak Elev=55.21' Storage=86 cf Inflow=2.82 cfs 0.845 af
Outflow=2.79 cfs 0.845 af

Total Runoff Area = 7.487 ac Runoff Volume = 1.850 af Average Runoff Depth = 2.96"
44.91% Pervious = 3.363 ac 55.09% Impervious = 4.125 ac

Summary for Subcatchment 1S: Sub-1

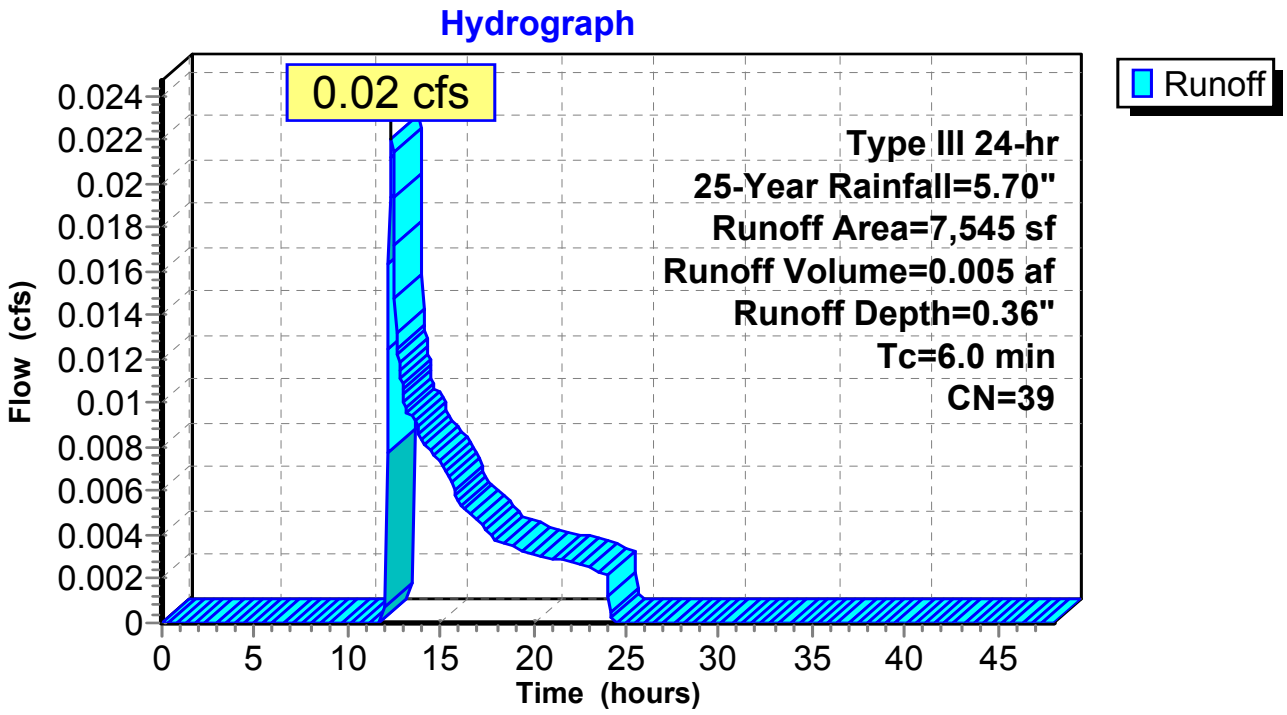
Runoff = 0.02 cfs @ 12.38 hrs, Volume= 0.005 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
7,545	39	>75% Grass cover, Good, HSG A
7,545		100.00% Pervious Area

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

Subcatchment 1S: Sub-1



Summary for Subcatchment 2S: Sub-2

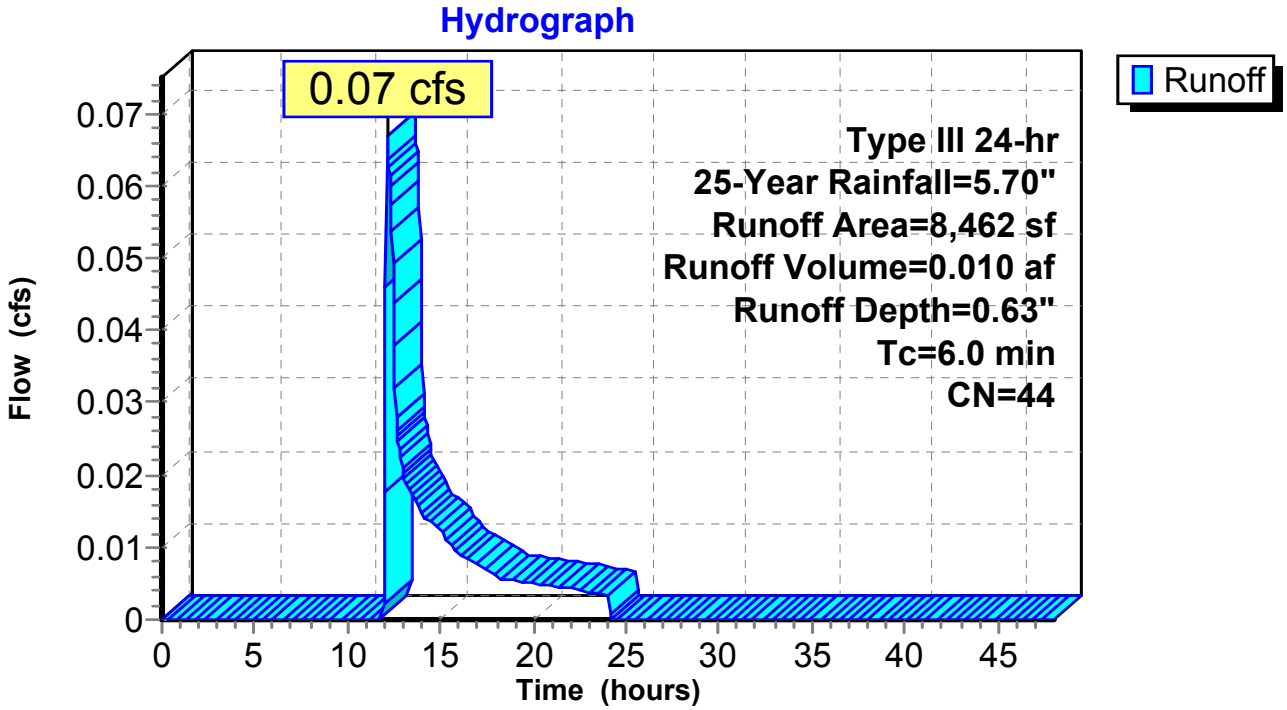
Runoff = 0.07 cfs @ 12.15 hrs, Volume= 0.010 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
	7,792	39	>75% Grass cover, Good, HSG A
*	100	98	Walls, HSG A
*	570	98	Decks, HSG A
	8,462	44	Weighted Average
	7,792		92.08% Pervious Area
	670		7.92% Impervious Area

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

Subcatchment 2S: Sub-2



Summary for Subcatchment 3A-10R: Roofs 15 B

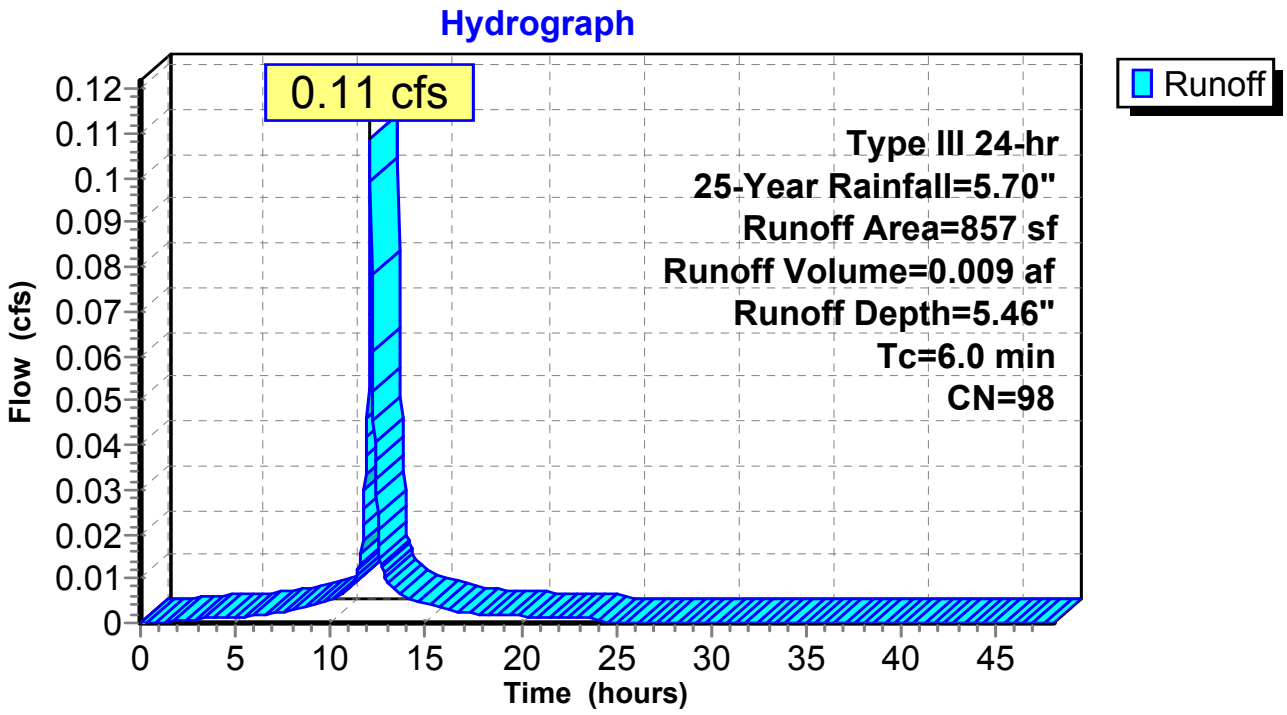
Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
857	98	Roofs, HSG A
857		100.00% Impervious Area

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

Subcatchment 3A-10R: Roofs 15 B



Summary for Subcatchment 3A-10R1: Roofs 15 F

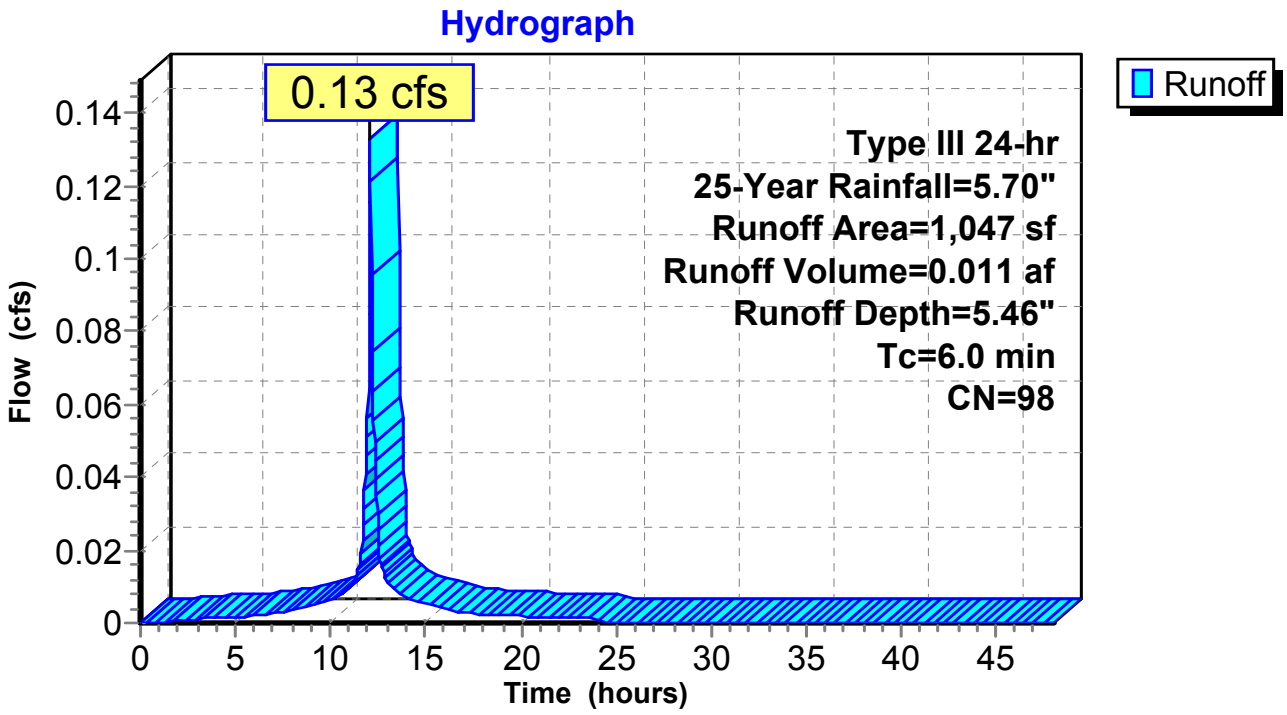
Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
1,047	98	Roofs, HSG A
1,047		100.00% Impervious Area

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

Subcatchment 3A-10R1: Roofs 15 F



Summary for Subcatchment 3A-11R: Roofs 24-27 FB

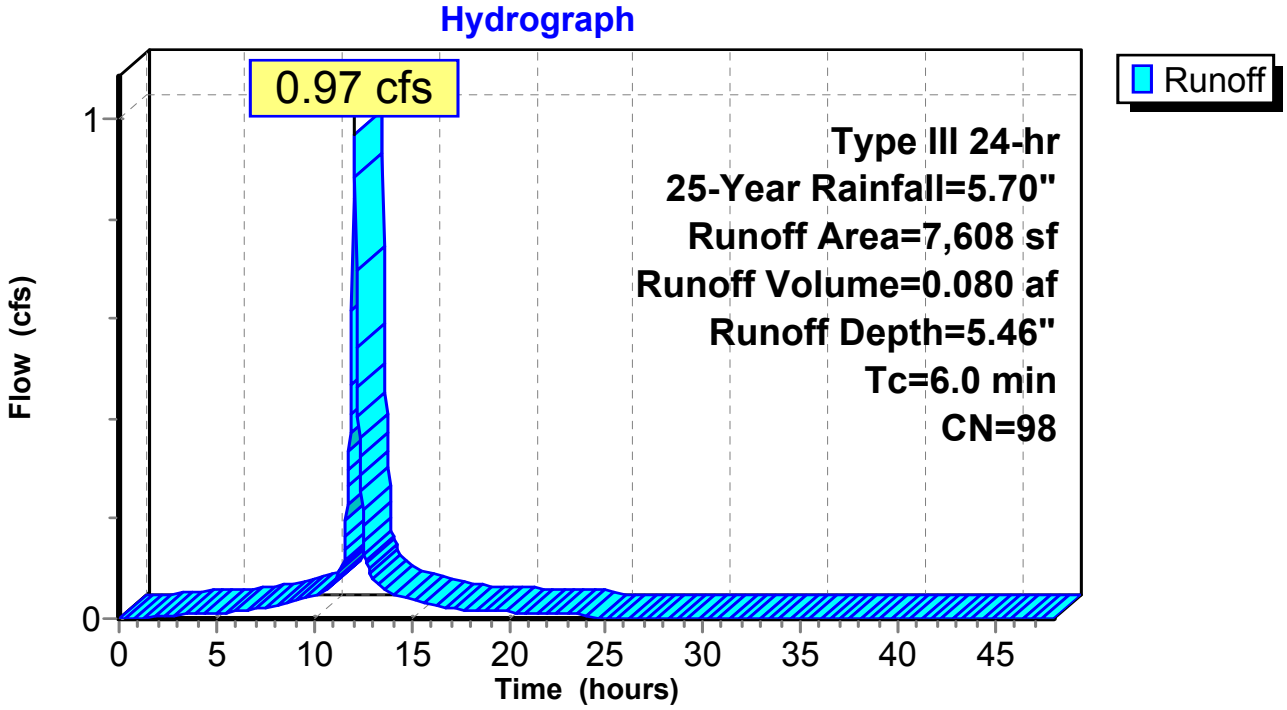
Runoff = 0.97 cfs @ 12.08 hrs, Volume= 0.080 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
4,152	98	Roofs, HSG A
3,456	98	Roofs, HSG A
7,608	98	Weighted Average
7,608		100.00% Impervious Area

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

Subcatchment 3A-11R: Roofs 24-27 FB



Summary for Subcatchment 3A-12R: Roofs 30-32 B

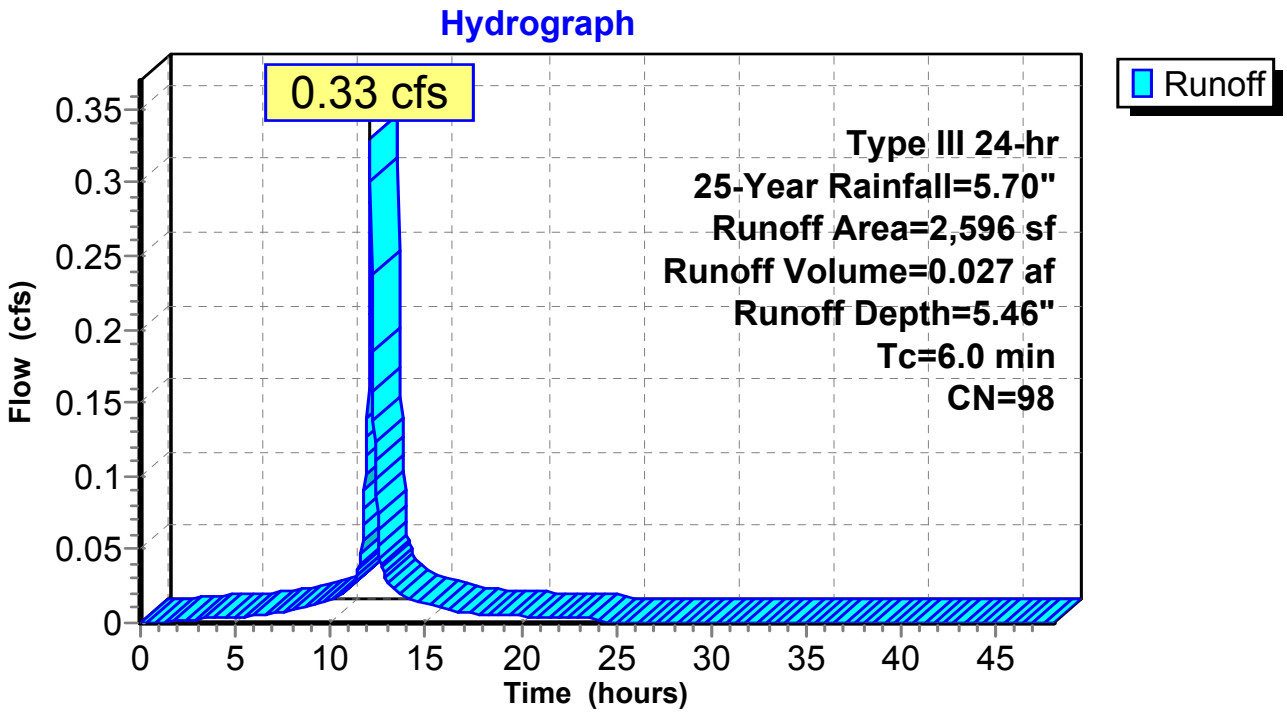
Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.027 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
2,596	98	Roofs, HSG A
2,596		100.00% Impervious Area

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

Subcatchment 3A-12R: Roofs 30-32 B



Summary for Subcatchment 3A-13R: Roofs 28-29 B

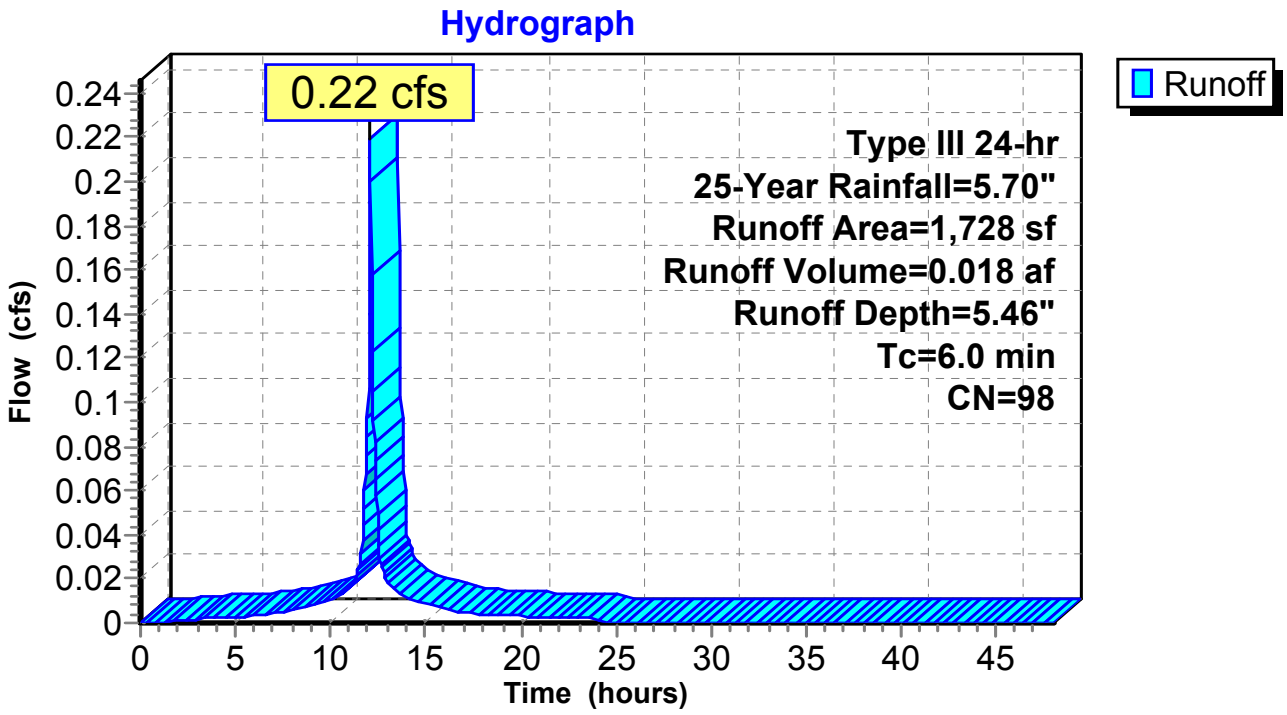
Runoff = 0.22 cfs @ 12.08 hrs, Volume= 0.018 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
1,728	98	Roofs, HSG A
1,728		100.00% Impervious Area

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

Subcatchment 3A-13R: Roofs 28-29 B



Summary for Subcatchment 3A-14R: Roofs 28-F

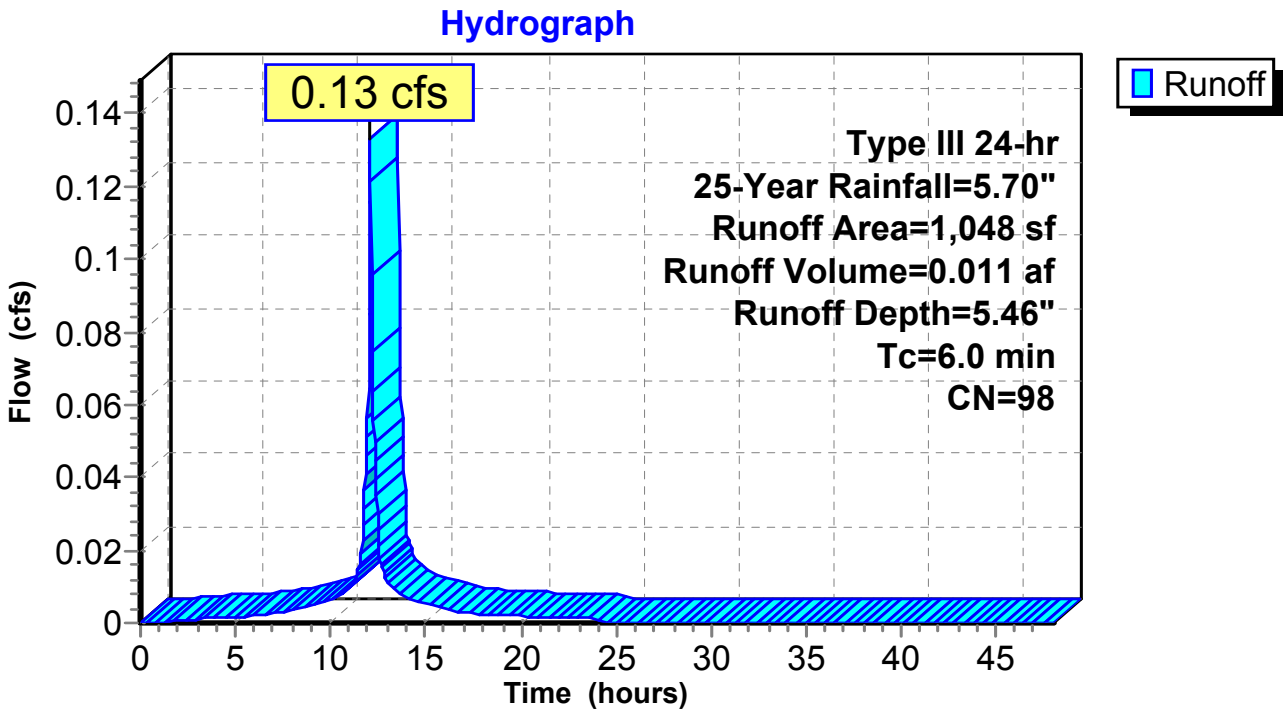
Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	1,048	98	Roofs, HSG B
	1,048		100.00% Impervious Area

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

Subcatchment 3A-14R: Roofs 28-F



Summary for Subcatchment 3A-15R: Roofs 29 F

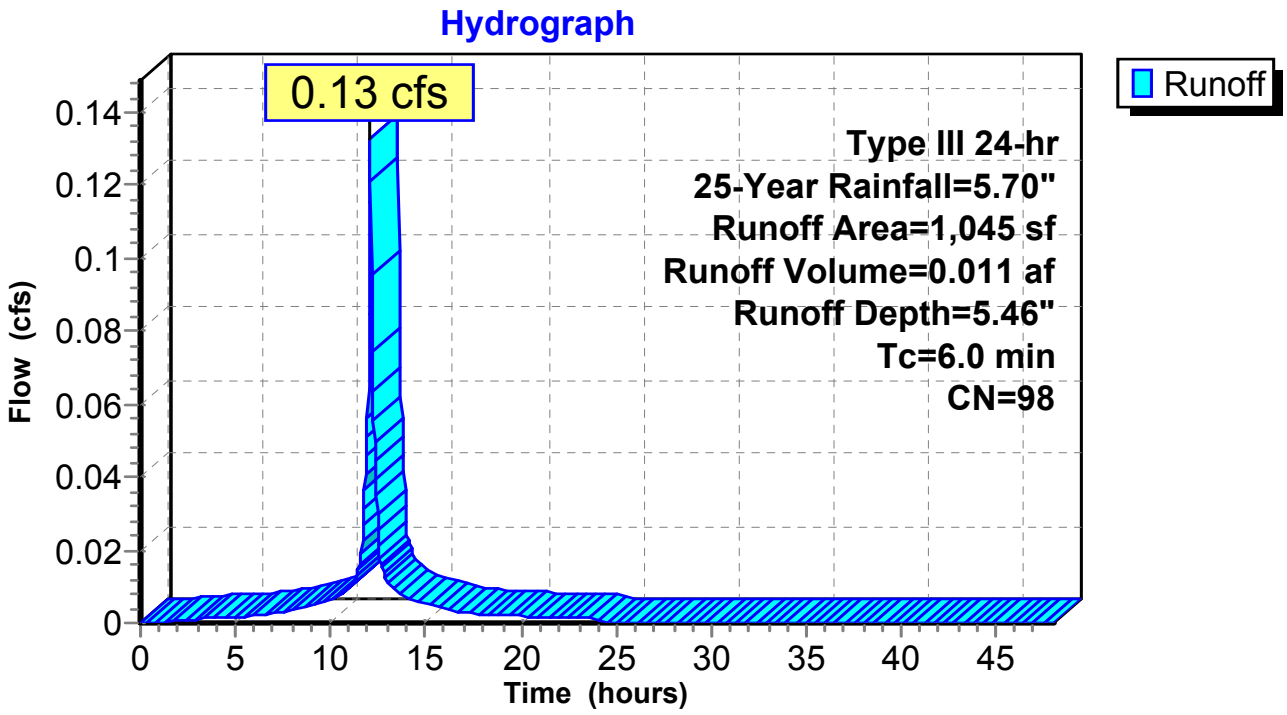
Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	1,045	98	Roofs, HSG B
	1,045		100.00% Impervious Area

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

Subcatchment 3A-15R: Roofs 29 F



Summary for Subcatchment 3A-16R: Roofs 30-32 F

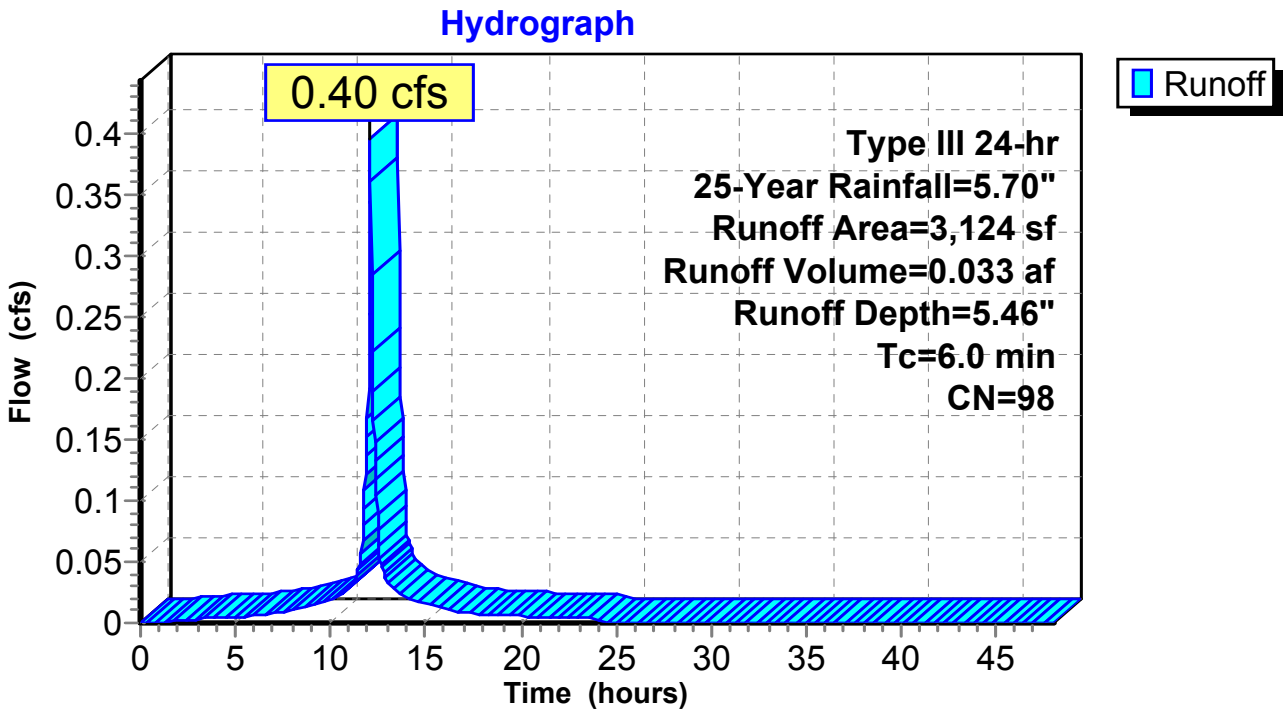
Runoff = 0.40 cfs @ 12.08 hrs, Volume= 0.033 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
3,124	98	Roofs, HSG A
3,124		100.00% Impervious Area

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

Subcatchment 3A-16R: Roofs 30-32 F



Summary for Subcatchment 3A-1R: Roof 5

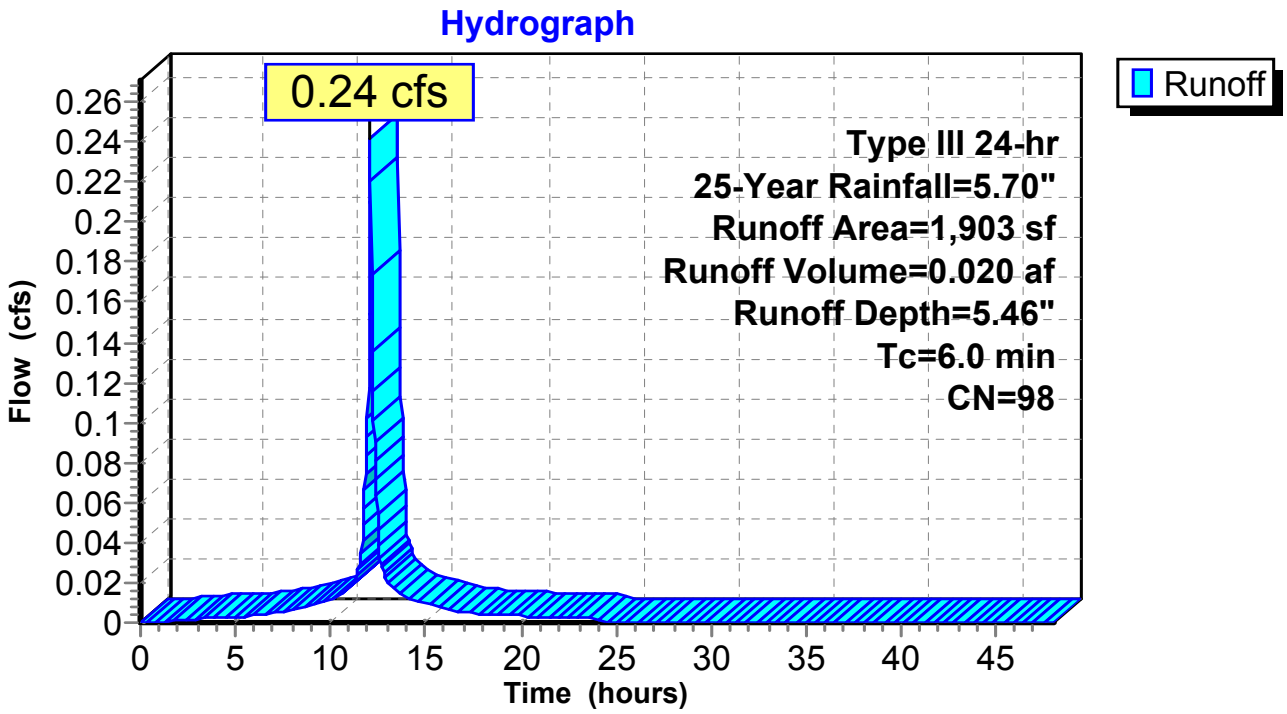
Runoff = 0.24 cfs @ 12.08 hrs, Volume= 0.020 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
	690	98	Roofs, HSG A
*	1,213	98	Roofs, HSG B
	1,903	98	Weighted Average
	1,903		100.00% Impervious Area

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

Subcatchment 3A-1R: Roof 5



Summary for Subcatchment 3A-2R: Roofs 1-4 FB

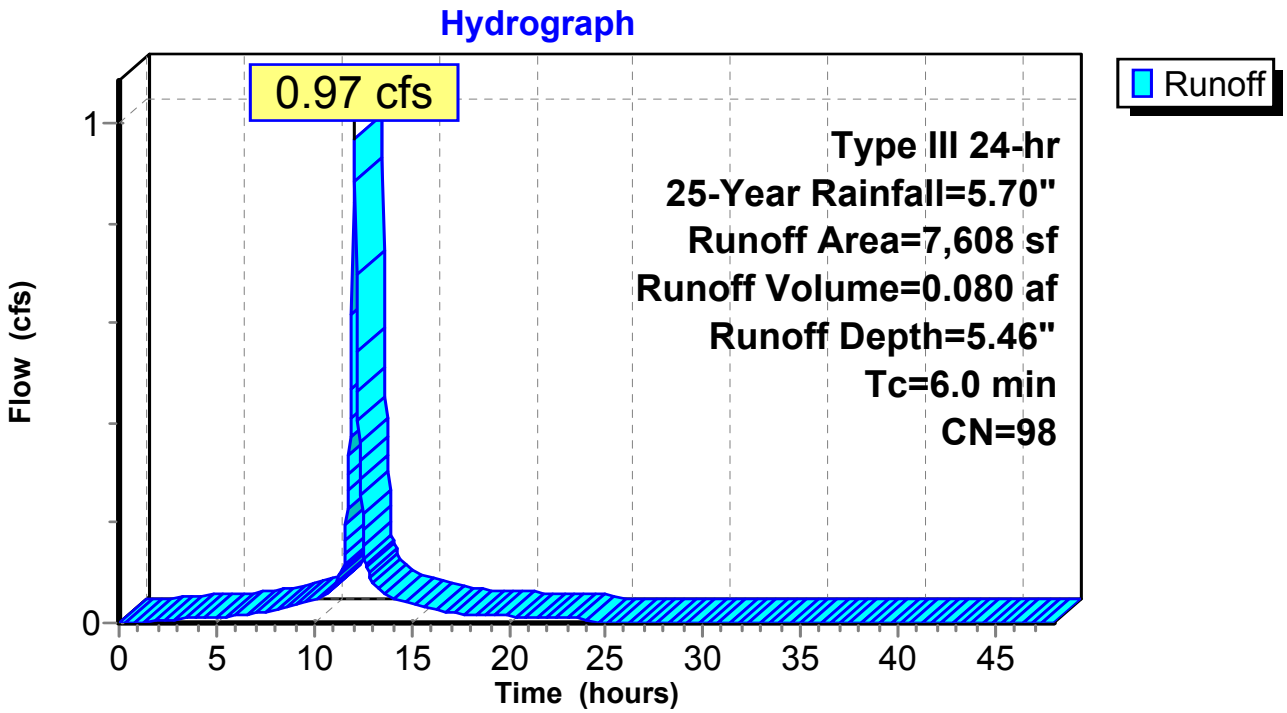
Runoff = 0.97 cfs @ 12.08 hrs, Volume= 0.080 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
7,608	98	Roofs, HSG A
7,608		100.00% Impervious Area

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

Subcatchment 3A-2R: Roofs 1-4 FB



Summary for Subcatchment 3A-2R1: Roofs 6-9 FB

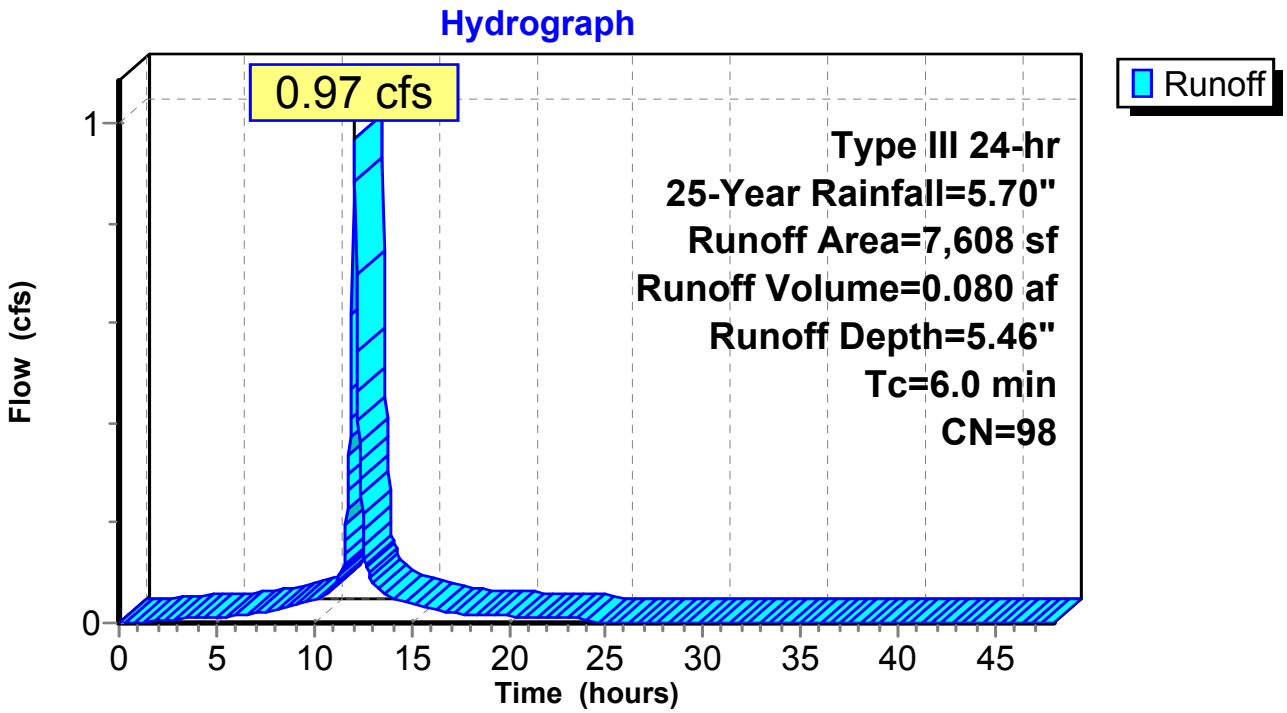
Runoff = 0.97 cfs @ 12.08 hrs, Volume= 0.080 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
7,608	98	Roofs, HSG A
7,608		100.00% Impervious Area

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

Subcatchment 3A-2R1: Roofs 6-9 FB



Summary for Subcatchment 3A-3R: Roofs 10-F

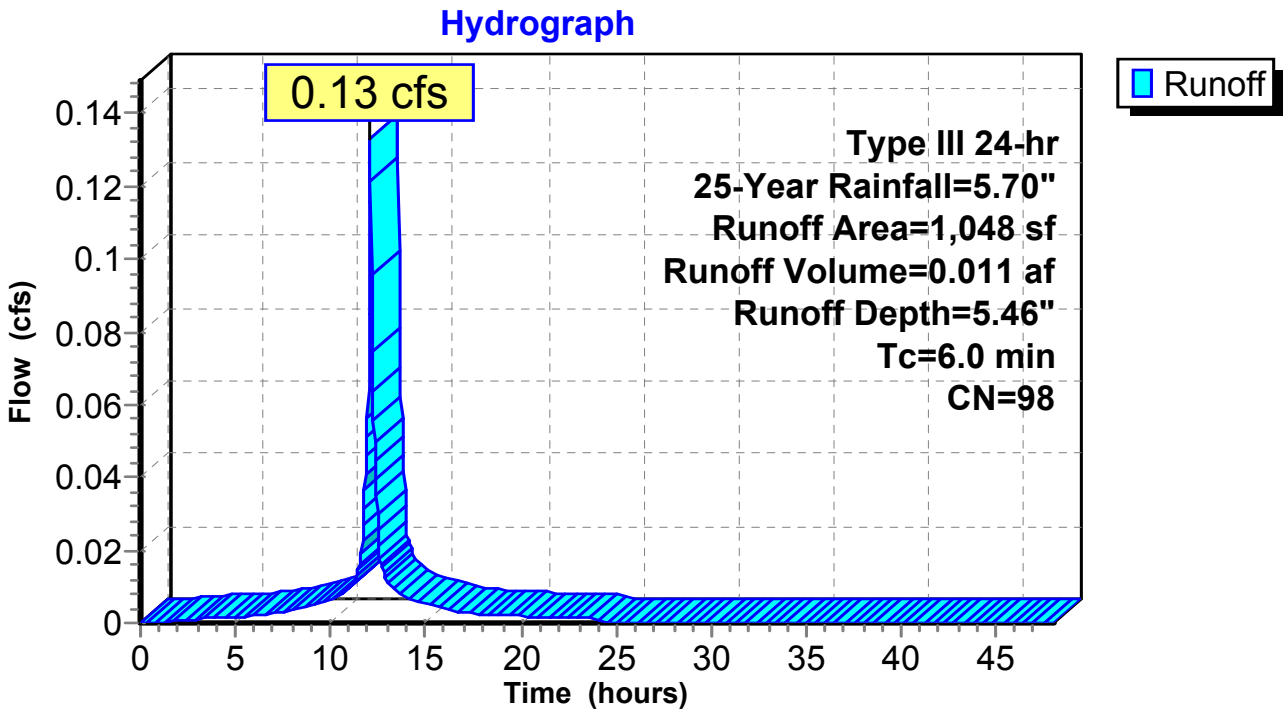
Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	1,048	98	Roofs, HSG B
	1,048		100.00% Impervious Area

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

Subcatchment 3A-3R: Roofs 10-F



Summary for Subcatchment 3A-4R: Roofs 11 F

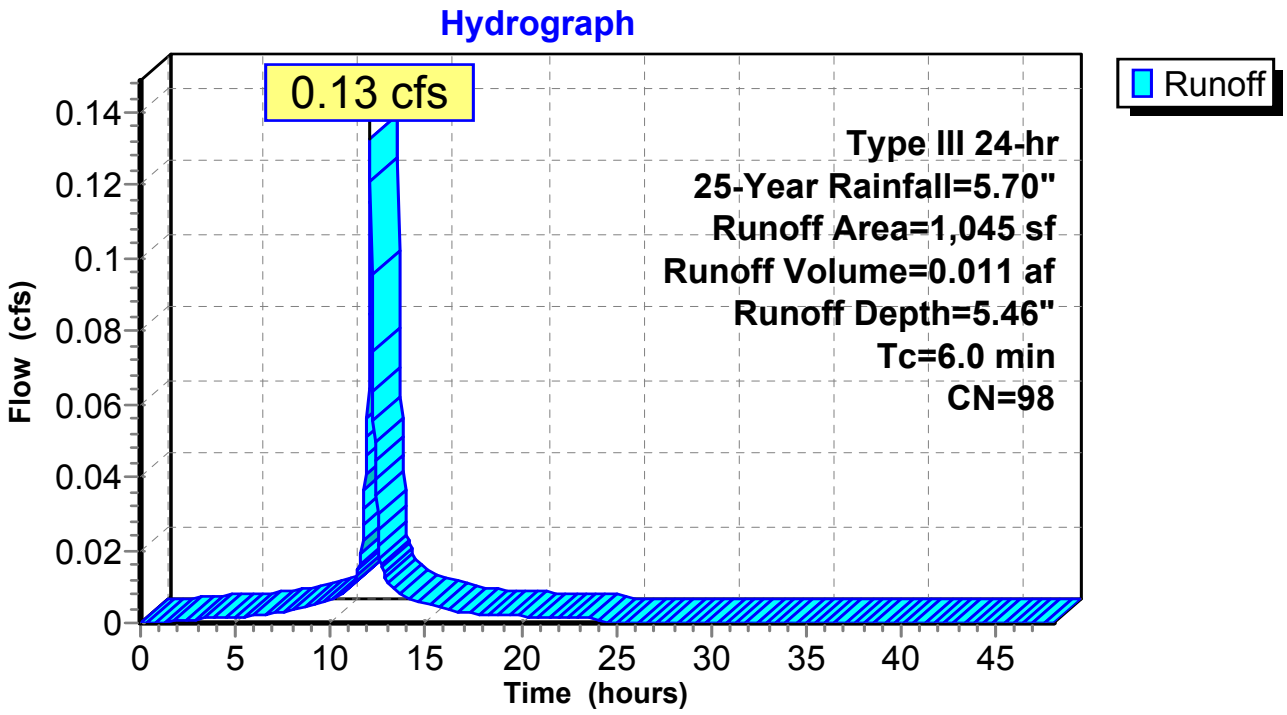
Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	1,045	98	Roofs, HSG B
	1,045		100.00% Impervious Area

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

Subcatchment 3A-4R: Roofs 11 F



Summary for Subcatchment 3A-5R: Roofs 10-11 B

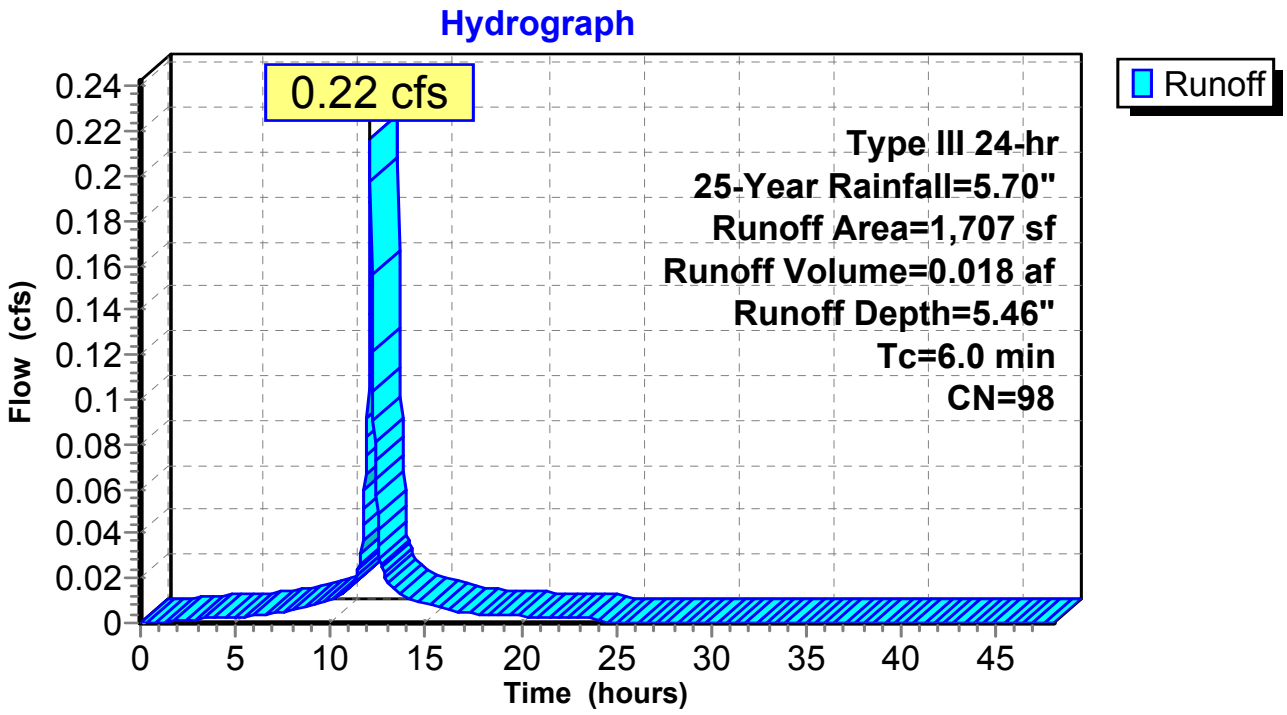
Runoff = 0.22 cfs @ 12.08 hrs, Volume= 0.018 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	1,707	98	Roofs, HSG B
	1,707		100.00% Impervious Area

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

Subcatchment 3A-5R: Roofs 10-11 B



Summary for Subcatchment 3A-6R: Roofs 12 B

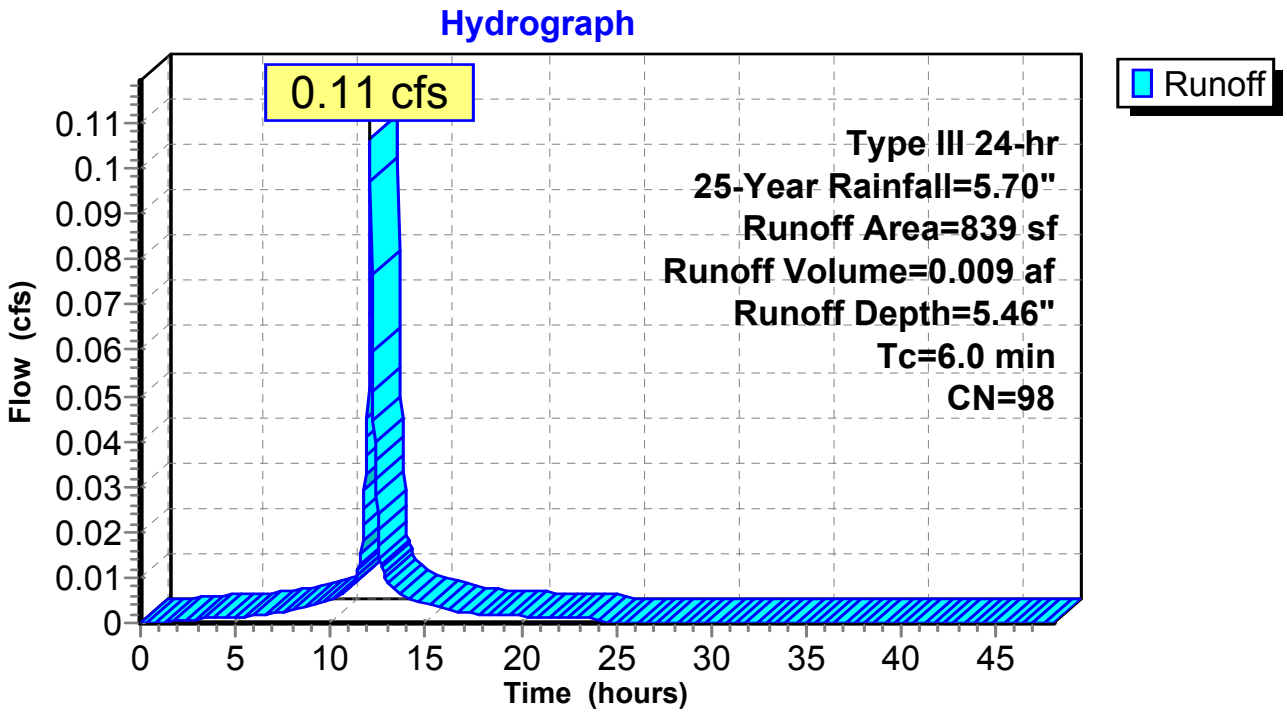
Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	839	98	Roofs, HSG B
	839		100.00% Impervious Area

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

Subcatchment 3A-6R: Roofs 12 B



Summary for Subcatchment 3A-7R: Roofs 12 F

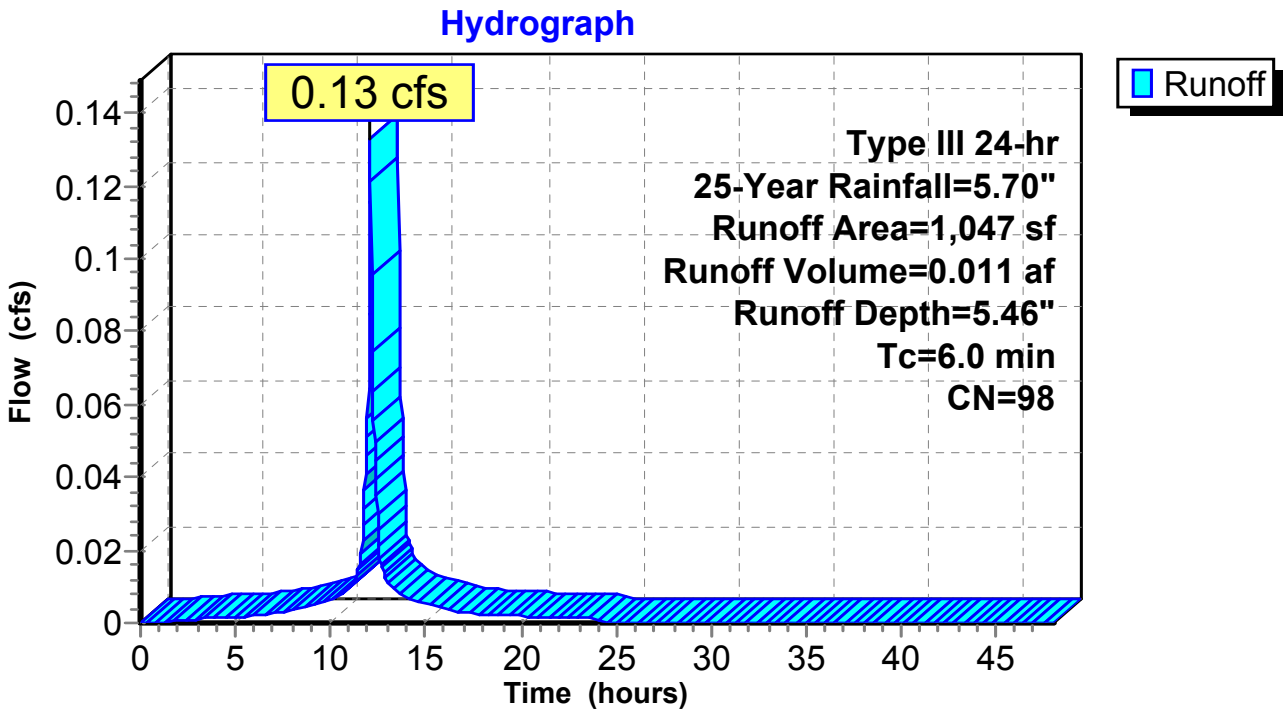
Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	1,047	98	Roofs, HSG B
	1,047		100.00% Impervious Area

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

Subcatchment 3A-7R: Roofs 12 F



Summary for Subcatchment 3A-8R: Roofs 13 F

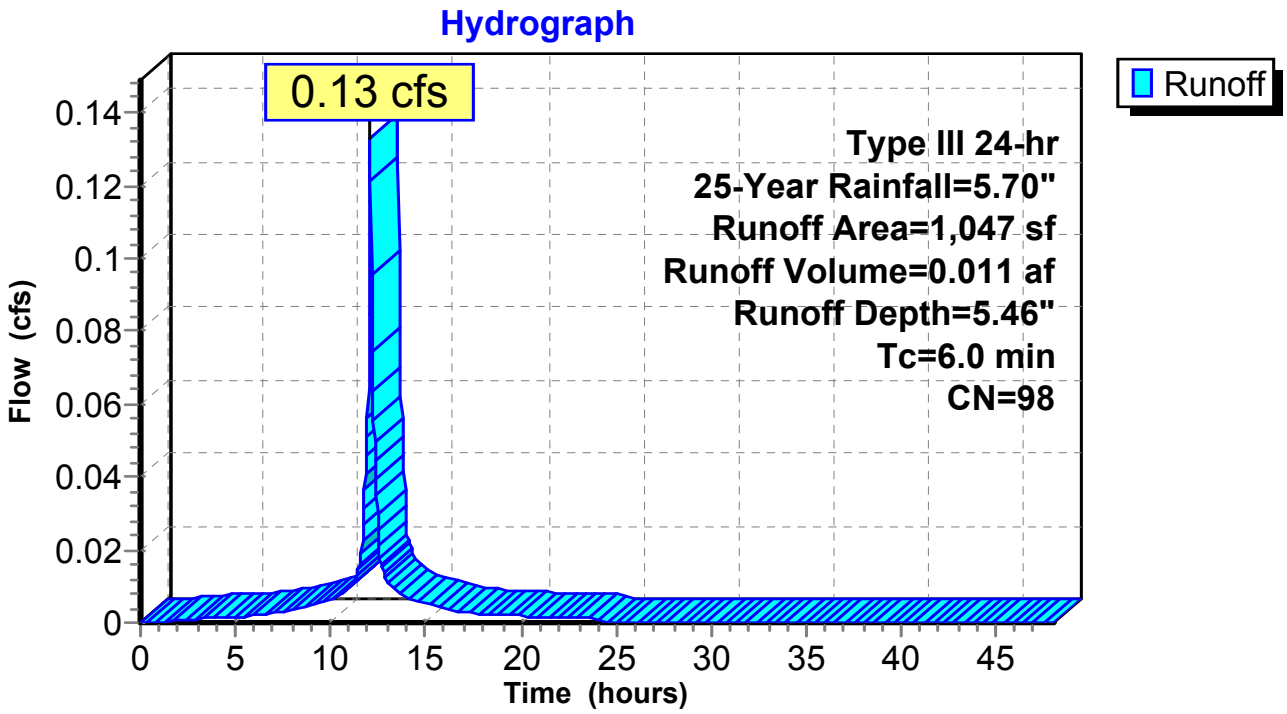
Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
	80	98	Roofs, HSG A
*	967	98	Roofs, HSG B
	1,047	98	Weighted Average
	1,047		100.00% Impervious Area

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

Subcatchment 3A-8R: Roofs 13 F



Summary for Subcatchment 3A-9R: Roofs 14 F

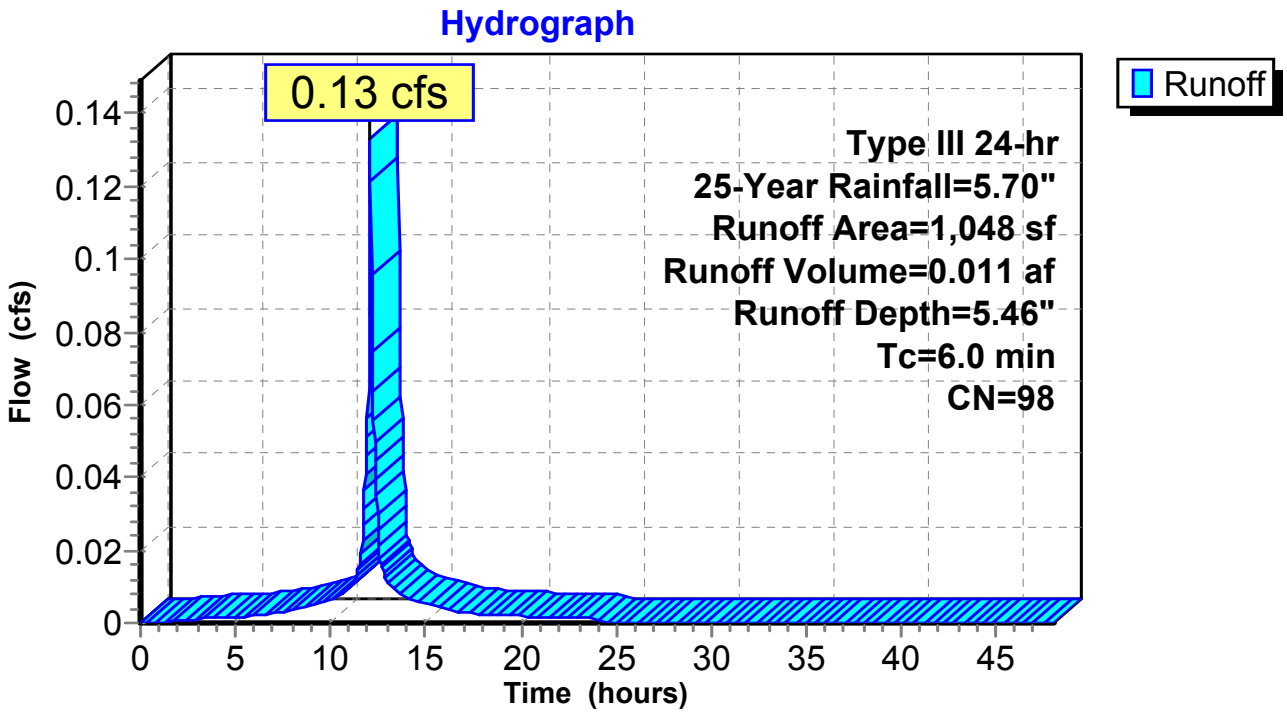
Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
1,048	98	Roofs, HSG A
1,048		100.00% Impervious Area

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

Subcatchment 3A-9R: Roofs 14 F



Summary for Subcatchment 3A-S: Sub-3A

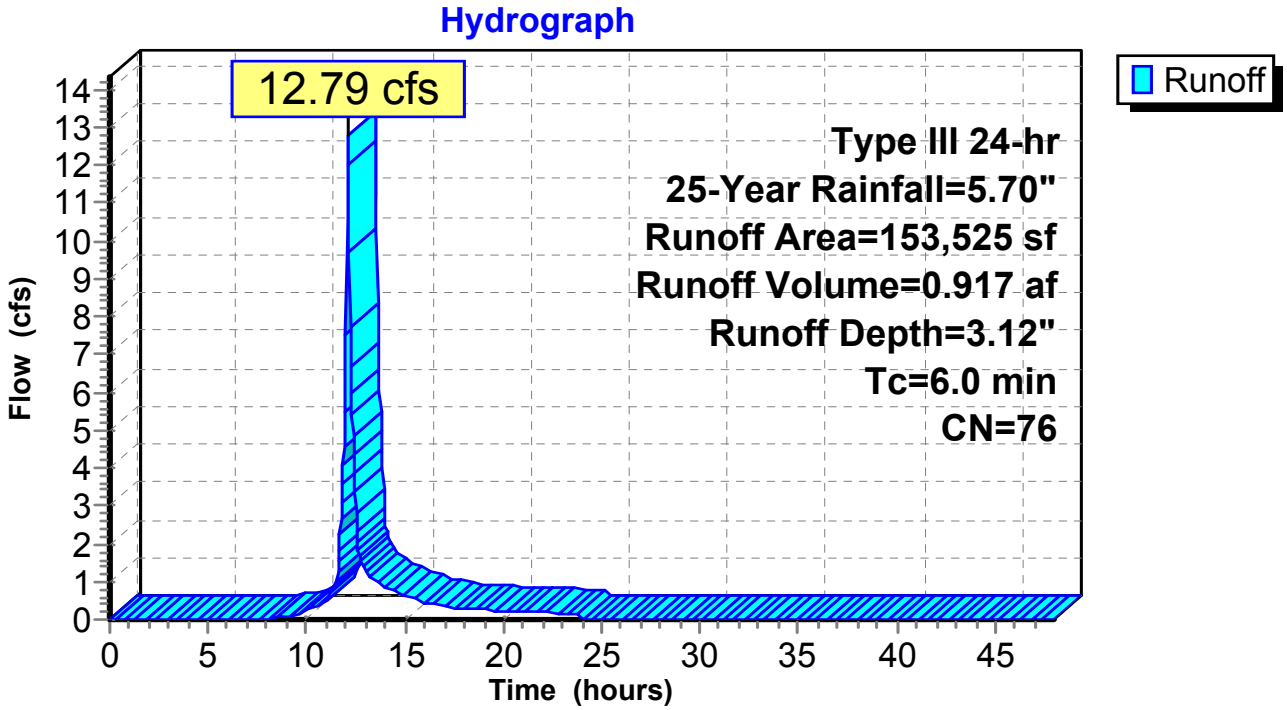
Runoff = 12.79 cfs @ 12.09 hrs, Volume= 0.917 af, Depth= 3.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	11,724	98	Paved drives, HSG A
*	2,526	98	Paved drives, HSG B
*	20,421	98	Paved roads w/curbs & sewers, HSG A
	8,829	98	Paved roads w/curbs & sewers, HSG B
*	4,190	98	Paved sidewalk, HSG A
*	1,229	98	Paved sidewalk, HSG B
*	924	98	Walks, HSG A
*	168	98	Walks, HSG B
*	922	98	Roofs, HSG A
*	874	98	Roofs, HSG B
	5,720	98	Roofs, HSG A
	3,790	98	Roofs, HSG A
*	3,647	98	Decks, HSG A
*	262	98	Decks, HSG B
*	7,626	98	Detention Basin, HSG A
*	4,140	98	Detention Basin, HSG B
	45,699	39	>75% Grass cover, Good, HSG A
	7,682	61	>75% Grass cover, Good, HSG B
*	103	98	Walls, HSG A
*	1,384	98	Roofs, HSG A - offsite
*	16,069	98	Paved parking, HSG A - offsite
*	914	39	>75% Grass cover, Good, HSG A - offsite
*	1,682	30	Woods, Good, HSG A - offsite
*	3,000	30	Woods, Good, HSG A - offsite
	153,525	76	Weighted Average
	58,977		38.42% Pervious Area
	94,548		61.58% Impervious Area

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

Subcatchment 3A-S: Sub-3A



Summary for Subcatchment 3B-S: Sub-3B

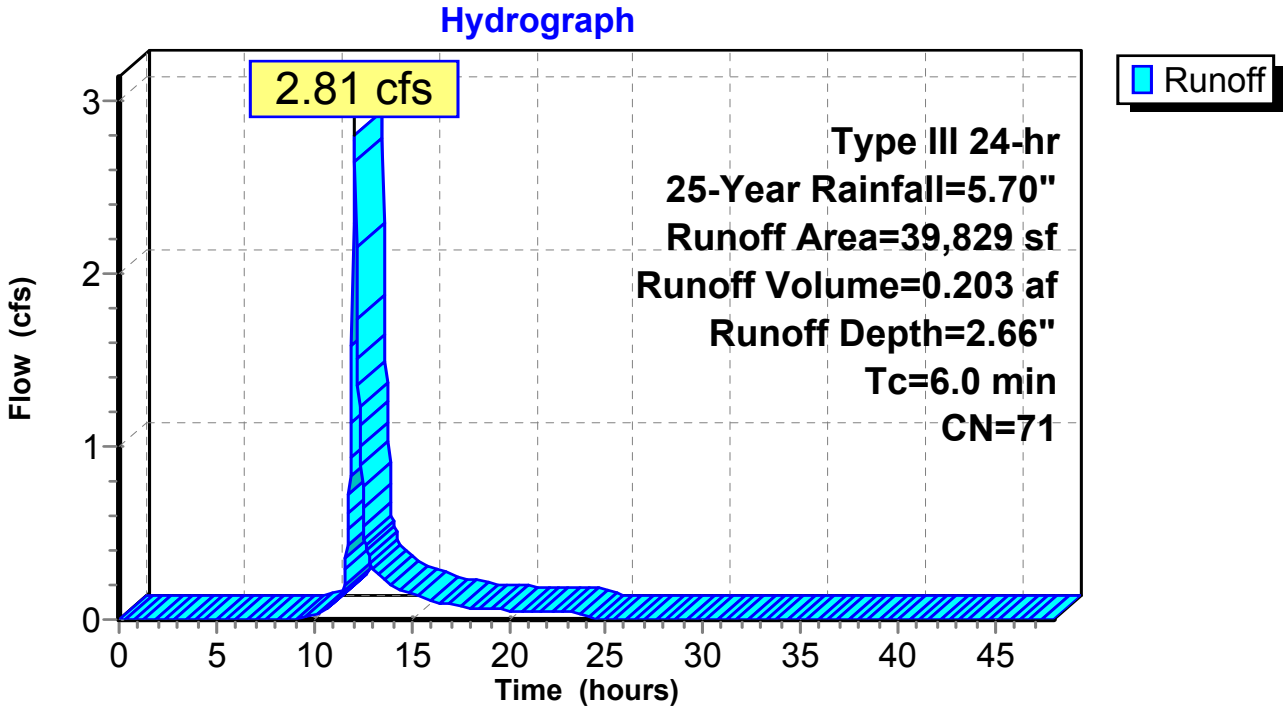
Runoff = 2.81 cfs @ 12.09 hrs, Volume= 0.203 af, Depth= 2.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
	10,864	55	Woods, Good, HSG B
	1,423	30	Woods, Good, HSG A
*	15,781	98	Wetlands, HSG B
	3,305	39	>75% Grass cover, Good, HSG A
	3,375	61	>75% Grass cover, Good, HSG B
*	371	98	Decks, HSG B
*	418	98	Wetlands, HSG B - offsite
*	62	30	Woods, Good, HSG A - offsite
*	1,346	39	>75% Grass cover, Good, HSG A - offsite
*	959	61	>75% Grass cover, Good, HSG B - offsite
*	1,734	55	Woods, Good, HSG B - offsite
*	191	98	Riprap, HSG B
	39,829	71	Weighted Average
	23,068		57.92% Pervious Area
	16,761		42.08% Impervious Area

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

Subcatchment 3B-S: Sub-3B



Summary for Subcatchment 3C-S: Sub-3C

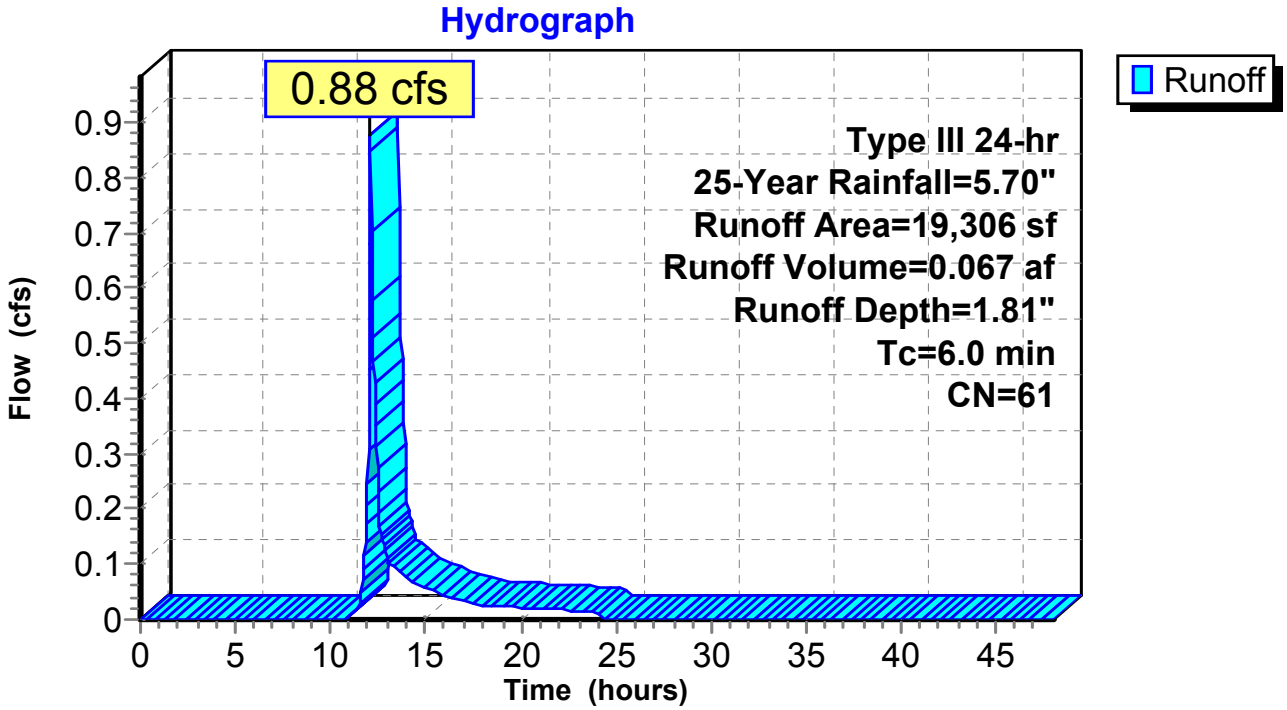
Runoff = 0.88 cfs @ 12.10 hrs, Volume= 0.067 af, Depth= 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	2,131	30	Woods, Good, HSG A - offsite
*	579	98	Paved roads w/curbs & sewers, HSG A - offsite
*	528	98	Paved drives, HSG A - offsite
*	1,289	39	>75% Grass cover, Good, HSG A - offsite
	5,175	61	>75% Grass cover, Good, HSG B
	4,041	39	>75% Grass cover, Good, HSG A
*	96	98	Paved sidewalk, HSG A
*	300	98	Paved sidewalk, HSG B
*	78	98	Paved sidewalk, HSG A - offsite
*	1,603	98	Paved roads w/curbs & sewers, HSG B
*	185	98	Decks, HSG B
	266	98	Paved roads w/curbs & sewers, HSG A
*	2,022	98	Impervious, HSG A - offsite
	1,013	39	>75% Grass cover, Good, HSG A
	19,306	61	Weighted Average
	13,649		70.70% Pervious Area
	5,657		29.30% Impervious Area

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

Subcatchment 3C-S: Sub-3C



Summary for Subcatchment 4S: Sub-4

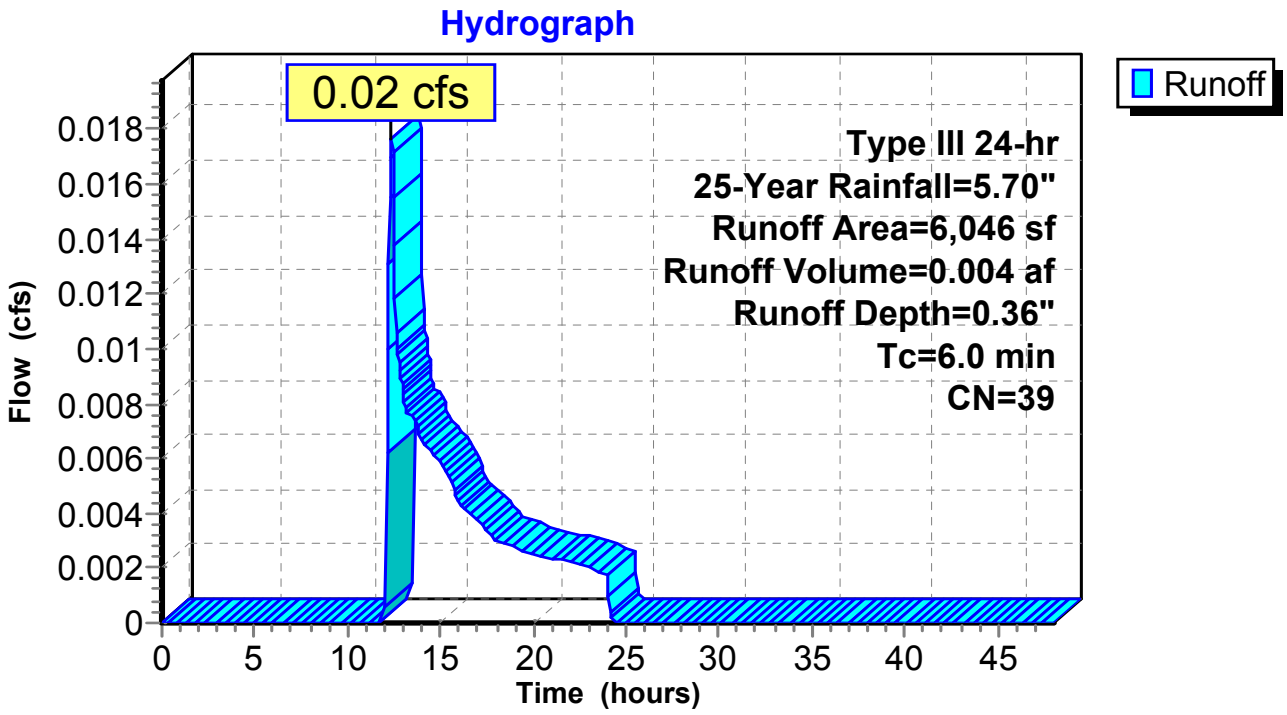
Runoff = 0.02 cfs @ 12.38 hrs, Volume= 0.004 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
6,046	39	>75% Grass cover, Good, HSG A
6,046		100.00% Pervious Area

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

Subcatchment 4S: Sub-4



Summary for Subcatchment 4S-1: Sub-4

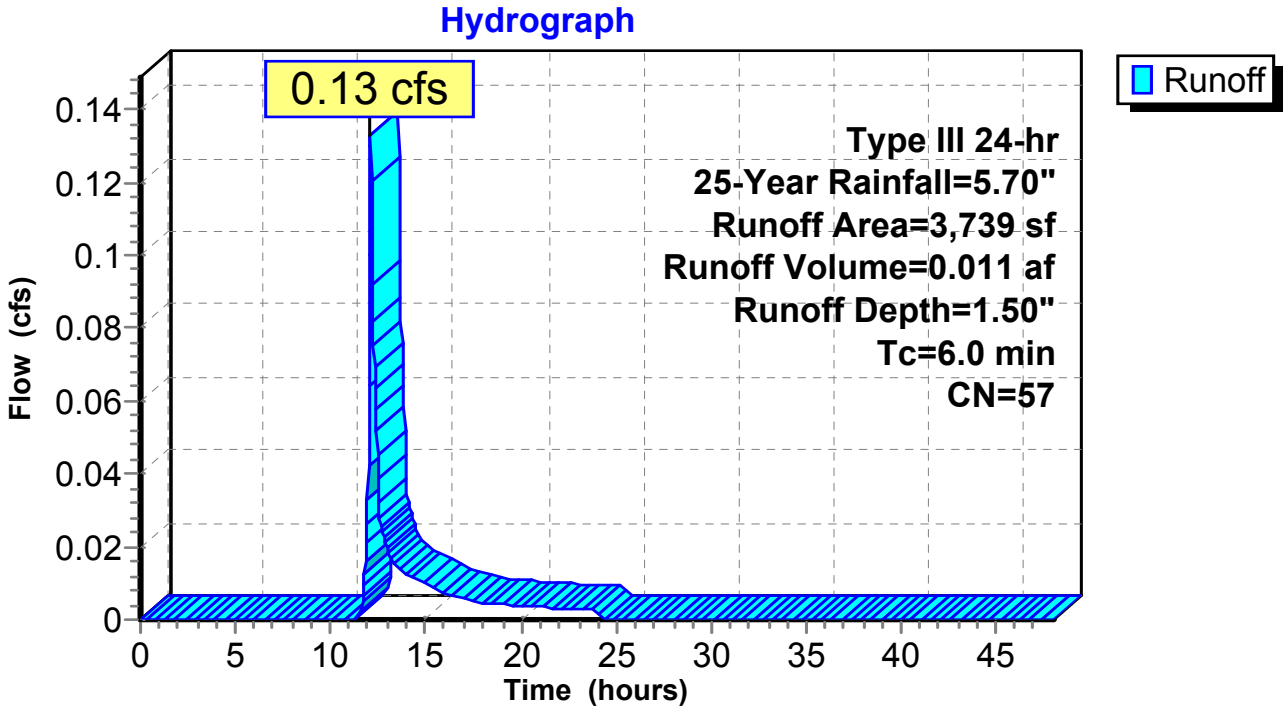
Runoff = 0.13 cfs @ 12.10 hrs, Volume= 0.011 af, Depth= 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
	2,570	39	>75% Grass cover, Good, HSG A
*	783	98	Decks, HSG A
*	386	98	Walls, HSG A
	3,739	57	Weighted Average
	2,570		68.73% Pervious Area
	1,169		31.27% Impervious Area

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

Subcatchment 4S-1: Sub-4



Summary for Subcatchment 5S: Sub -5

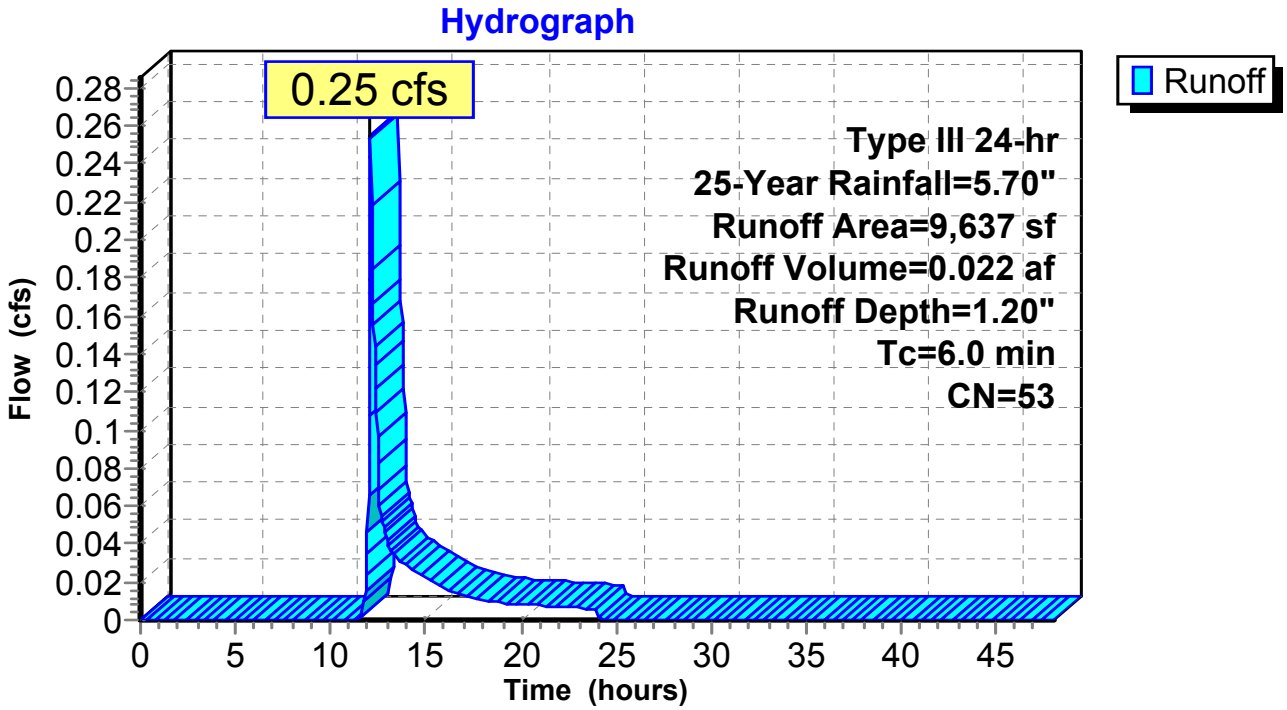
Runoff = 0.25 cfs @ 12.11 hrs, Volume= 0.022 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
	7,163	39	>75% Grass cover, Good, HSG A
	350	80	>75% Grass cover, Good, HSG D
*	557	98	Decks, HSG A
*	235	98	Sidewalk, HSG A
*	61	98	Sidewalk, HSG D
	982	98	Paved roads w/curbs & sewers, HSG A
	289	98	Paved roads w/curbs & sewers, HSG D
*	0	98	Walls, HSG A
	9,637	53	Weighted Average
	7,513		77.96% Pervious Area
	2,124		22.04% Impervious Area

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

Subcatchment 5S: Sub -5



Summary for Subcatchment 5S-1: Roofs 31-32 F

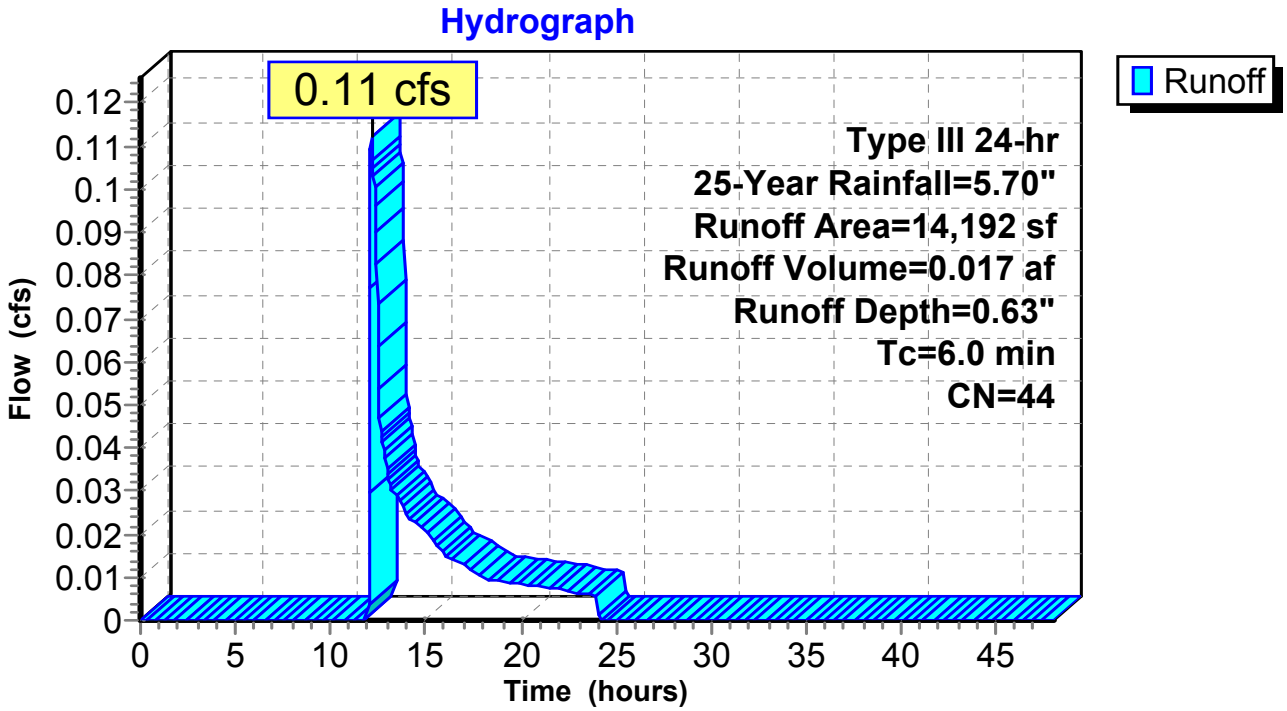
Runoff = 0.11 cfs @ 12.15 hrs, Volume= 0.017 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	195	98	Walls, HSG A
*	370	98	Decks, HSG A
	6,683	39	>75% Grass cover, Good, HSG A
	5,018	39	>75% Grass cover, Good, HSG A
	1,278	39	>75% Grass cover, Good, HSG A
*	648	98	Walls, HSG A
	14,192	44	Weighted Average
	12,979		91.45% Pervious Area
	1,213		8.55% Impervious Area

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

Subcatchment 5S-1: Roofs 31-32 F



Summary for Subcatchment 5S-P: Pavement

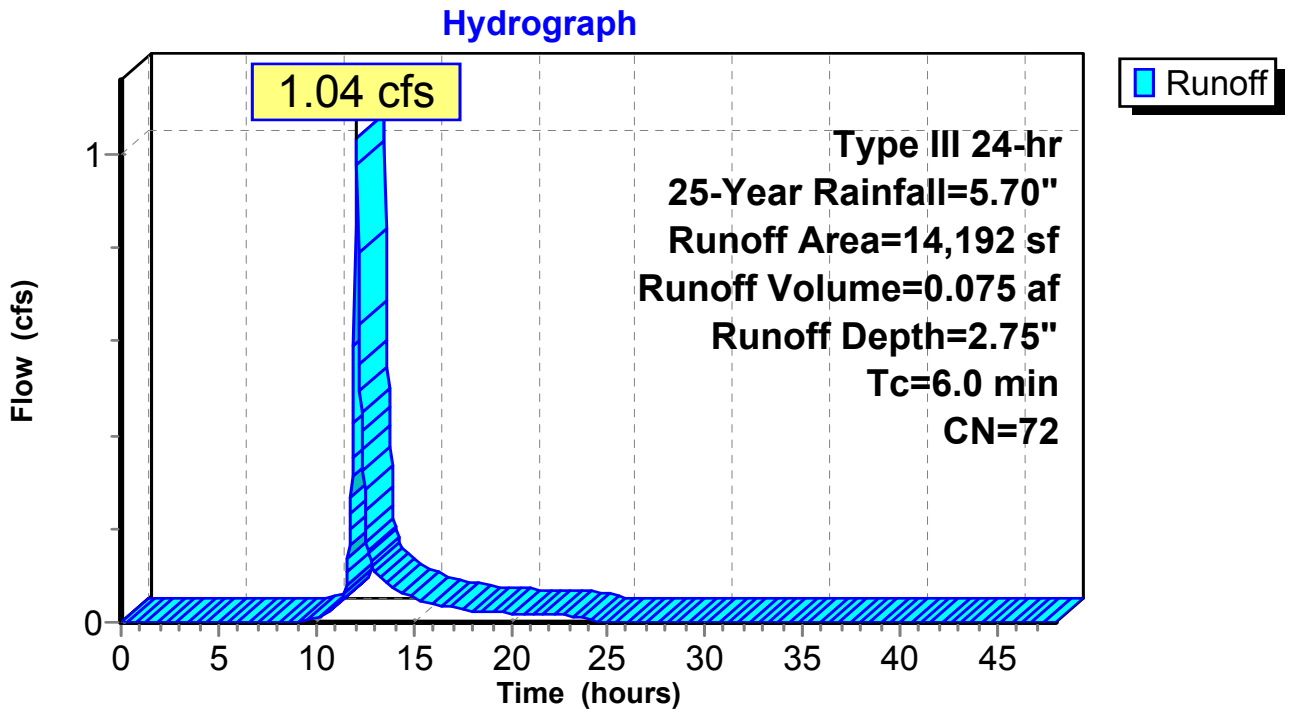
Runoff = 1.04 cfs @ 12.09 hrs, Volume= 0.075 af, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	2,746	98	Paved drives, HSG A
	4,561	98	Paved roads w/curbs & sewers, HSG A
	6,343	39	>75% Grass cover, Good, HSG A
*	287	98	Sidewalk, HSG A
*	255	98	Walks, HSG A
	14,192	72	Weighted Average
	6,343		44.69% Pervious Area
	7,849		55.31% Impervious Area

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

Subcatchment 5S-P: Pavement



Summary for Subcatchment 5S-R1: Roofs 19-21 FB

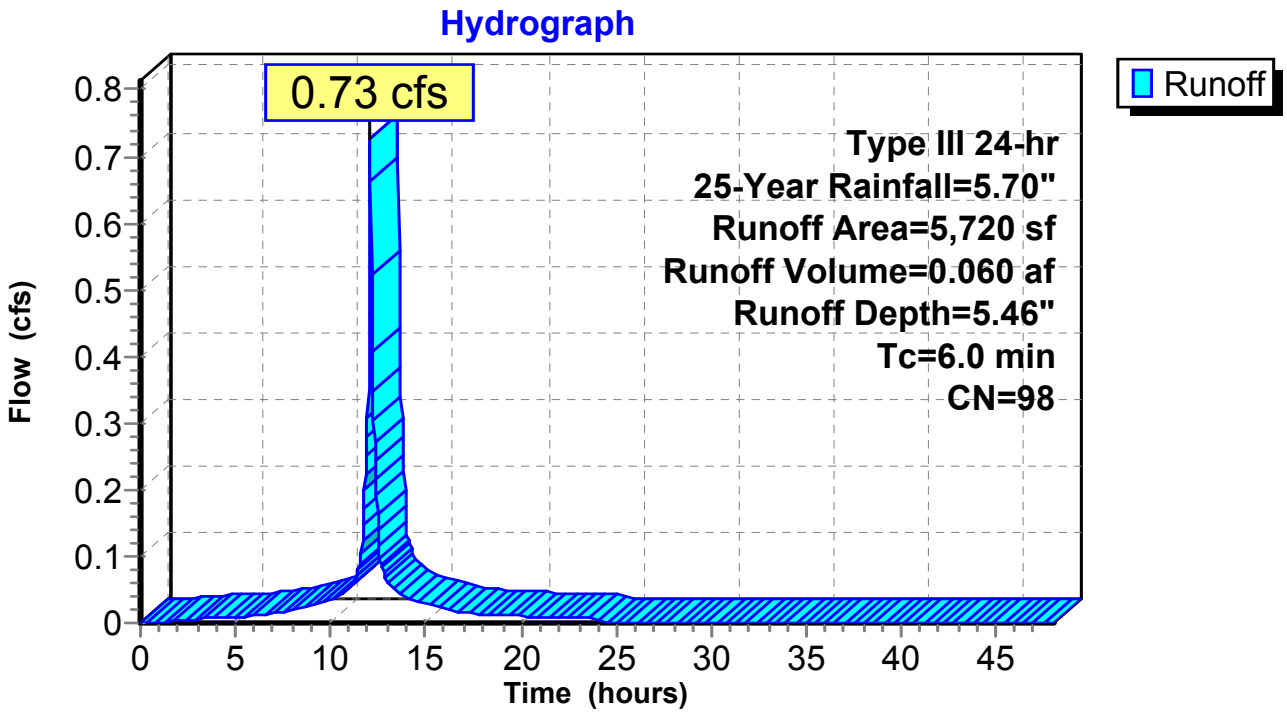
Runoff = 0.73 cfs @ 12.08 hrs, Volume= 0.060 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (sf)	CN	Description
5,720	98	Roofs, HSG A
5,720		100.00% Impervious Area

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

Subcatchment 5S-R1: Roofs 19-21 FB

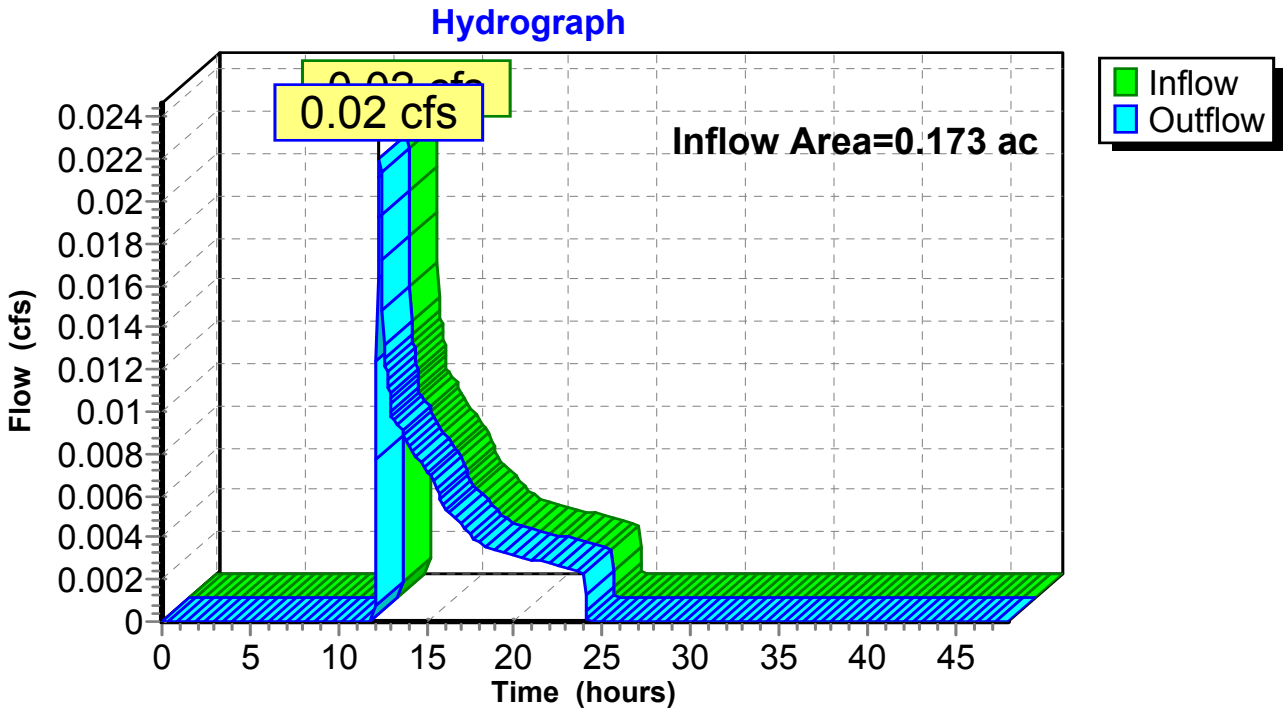


Summary for Reach DP-1: DMH

Inflow Area = 0.173 ac, 0.00% Impervious, Inflow Depth = 0.36" for 25-Year event
Inflow = 0.02 cfs @ 12.38 hrs, Volume= 0.005 af
Outflow = 0.02 cfs @ 12.38 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-1: DMH

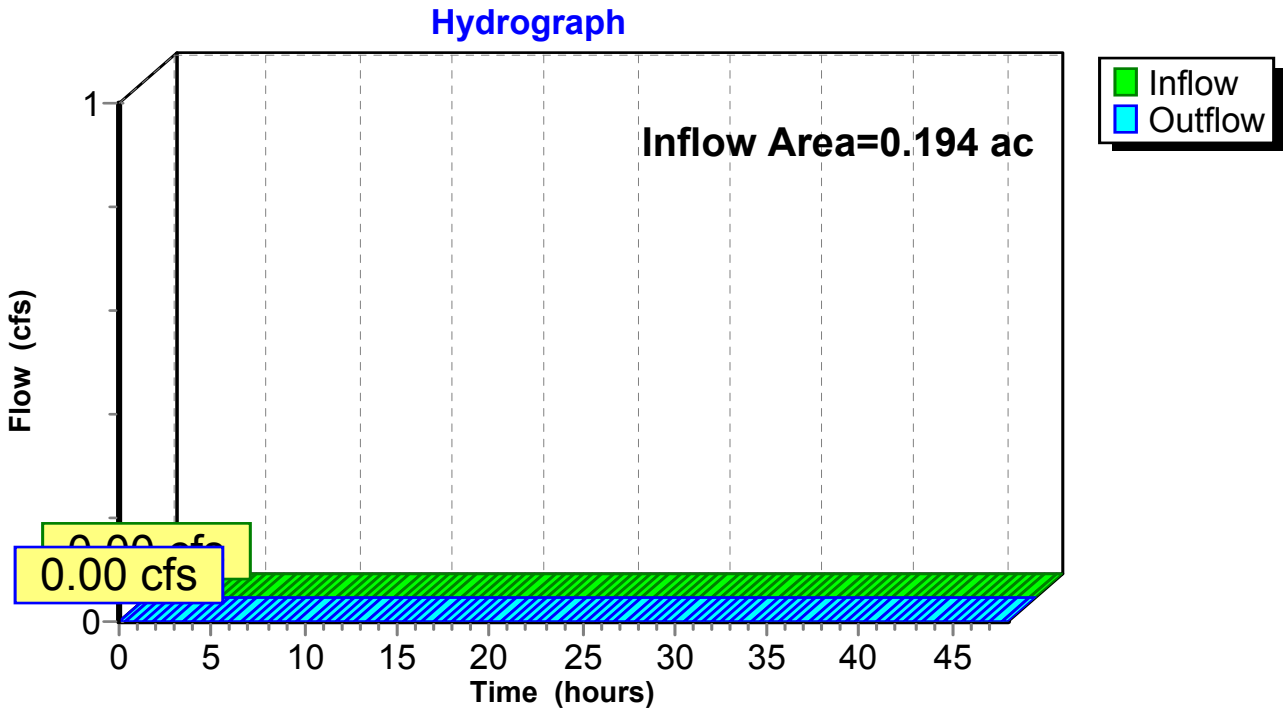


Summary for Reach DP-2: DP-2

Inflow Area = 0.194 ac, 7.92% Impervious, Inflow Depth = 0.00" for 25-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-2: DP-2

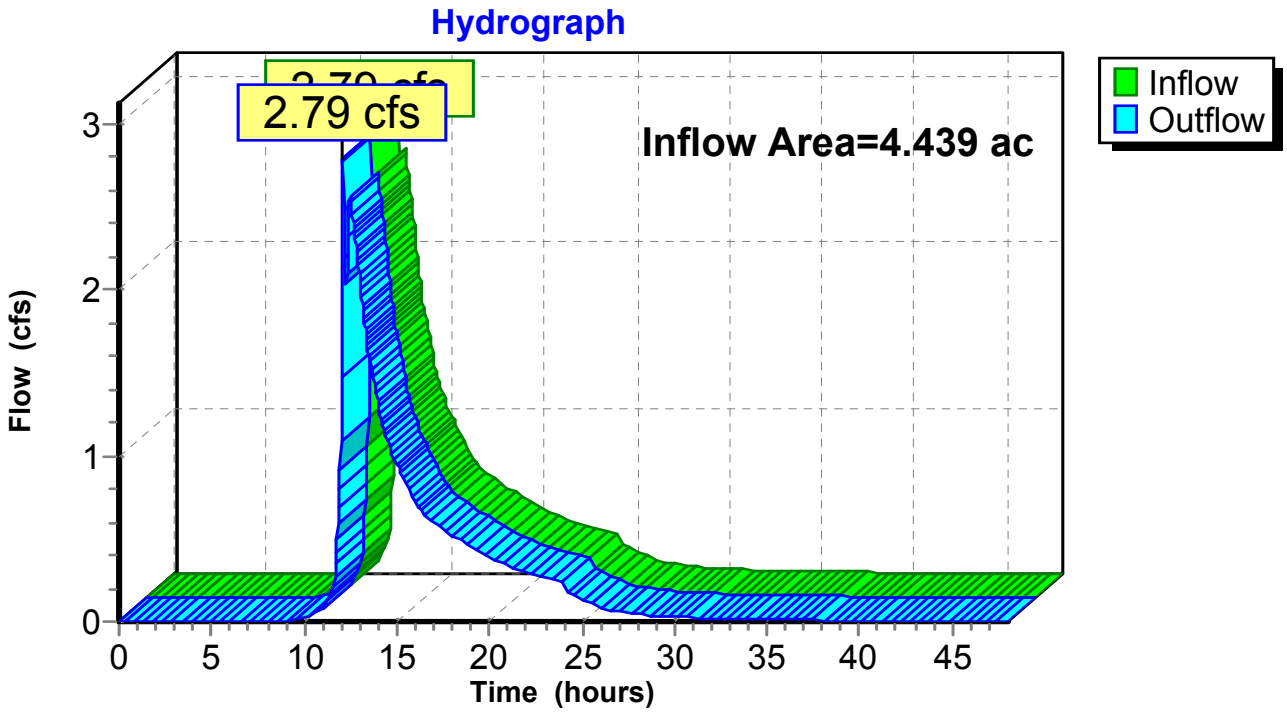


Summary for Reach DP-3: DP-3

Inflow Area = 4.439 ac, 57.57% Impervious, Inflow Depth > 2.29" for 25-Year event
Inflow = 2.79 cfs @ 12.11 hrs, Volume= 0.845 af
Outflow = 2.79 cfs @ 12.11 hrs, Volume= 0.845 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-3: DP-3

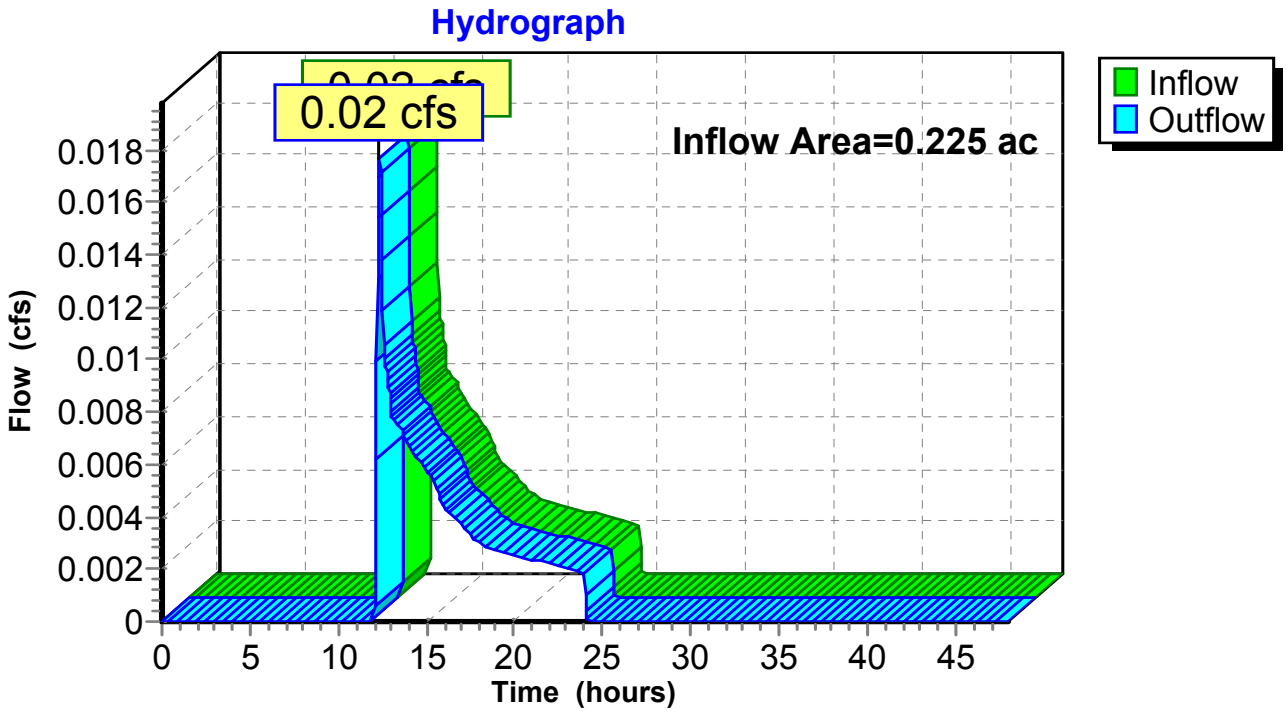


Summary for Reach DP-4: PL

Inflow Area = 0.225 ac, 11.95% Impervious, Inflow Depth = 0.22" for 25-Year event
Inflow = 0.02 cfs @ 12.38 hrs, Volume= 0.004 af
Outflow = 0.02 cfs @ 12.38 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-4: PL

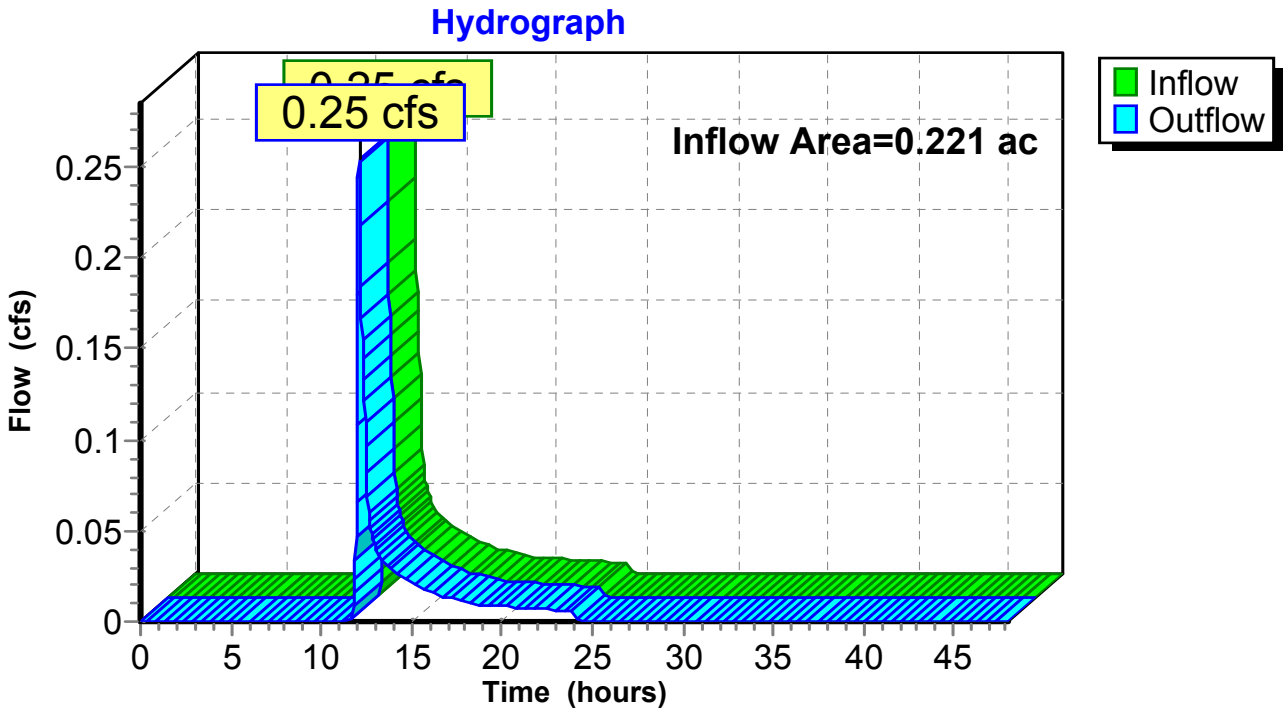


Summary for Reach DP-5: PL

Inflow Area = 0.221 ac, 22.04% Impervious, Inflow Depth = 1.20" for 25-Year event
Inflow = 0.25 cfs @ 12.11 hrs, Volume= 0.022 af
Outflow = 0.25 cfs @ 12.11 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-5: PL



Summary for Pond D-1: Depression

Inflow Area = 0.194 ac, 7.92% Impervious, Inflow Depth = 0.63" for 25-Year event
Inflow = 0.07 cfs @ 12.15 hrs, Volume= 0.010 af
Outflow = 0.07 cfs @ 12.17 hrs, Volume= 0.010 af, Atten= 0%, Lag= 1.0 min
Discarded = 0.07 cfs @ 12.17 hrs, Volume= 0.010 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 59.01' @ 12.17 hrs Surf.Area= 422 sf Storage= 4 cf

Plug-Flow detention time= 0.9 min calculated for 0.010 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (931.5 - 930.7)

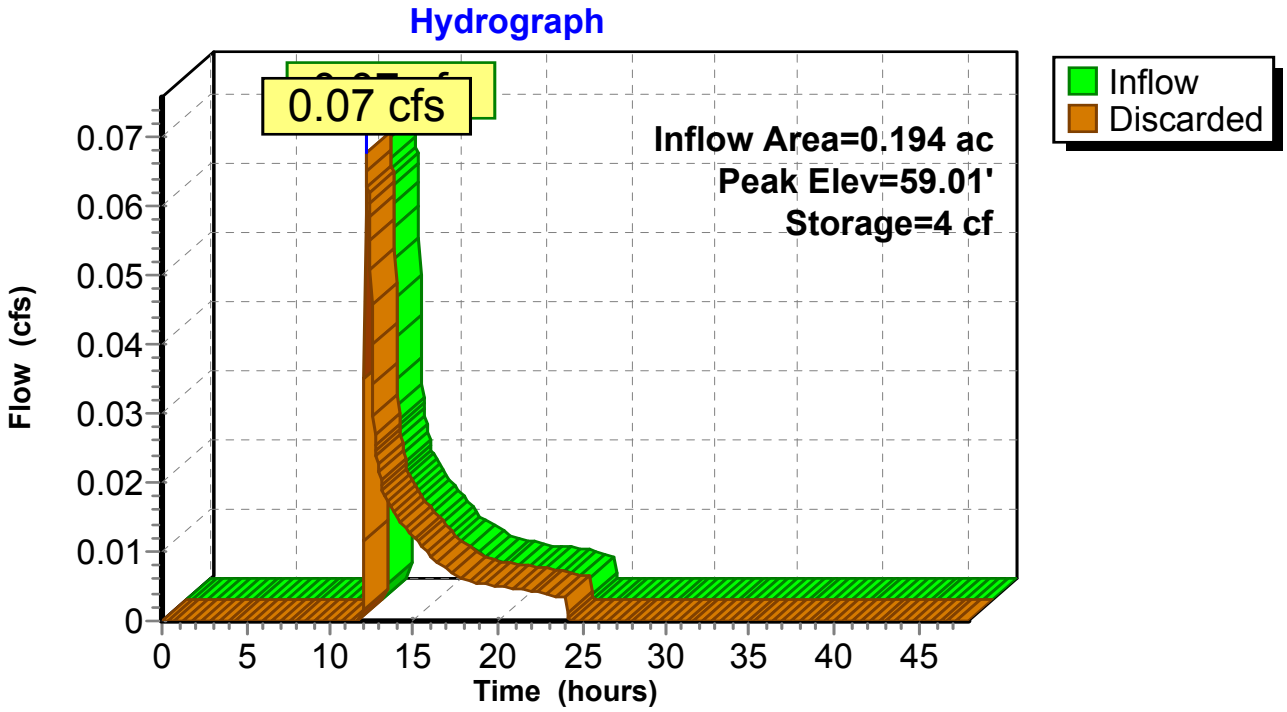
Volume	Invert	Avail.Storage	Storage Description
#1	59.00'	615 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.00	419	0	0
60.00	811	615	615

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.07 cfs @ 12.17 hrs HW=59.01' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Pond D-1: Depression



Summary for Pond D-2: Depression

Inflow Area = 0.502 ac, 37.54% Impervious, Inflow Depth = 2.23" for 25-Year event
Inflow = 1.20 cfs @ 12.09 hrs, Volume= 0.093 af
Outflow = 0.19 cfs @ 12.67 hrs, Volume= 0.093 af, Atten= 84%, Lag= 34.5 min
Discarded = 0.19 cfs @ 12.67 hrs, Volume= 0.093 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.91' @ 12.67 hrs Surf.Area= 982 sf Storage= 1,282 cf

Plug-Flow detention time= 61.9 min calculated for 0.093 af (100% of inflow)
Center-of-Mass det. time= 61.9 min (891.8 - 829.9)

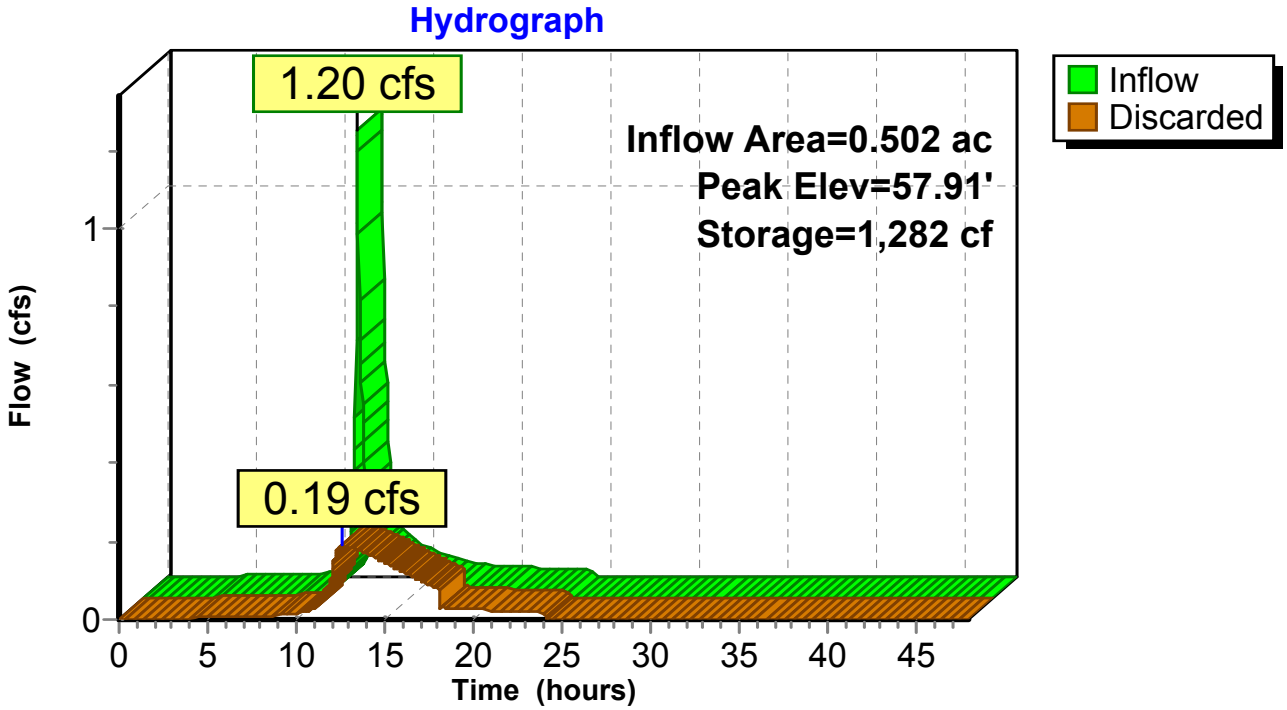
Volume	Invert	Avail.Storage	Storage Description
#1	56.00'	2,585 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.00	388	0	0
57.00	672	530	530
58.00	1,013	843	1,373
59.00	1,411	1,212	2,585

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.19 cfs @ 12.67 hrs HW=57.91' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.19 cfs)

Pond D-2: Depression



Summary for Pond D-3: Depression

Inflow Area = 0.086 ac, 31.27% Impervious, Inflow Depth = 1.50" for 25-Year event
Inflow = 0.13 cfs @ 12.10 hrs, Volume= 0.011 af
Outflow = 0.13 cfs @ 12.12 hrs, Volume= 0.011 af, Atten= 1%, Lag= 1.1 min
Discarded = 0.13 cfs @ 12.12 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 63.01' @ 12.12 hrs Surf.Area= 763 sf Storage= 7 cf

Plug-Flow detention time= 0.9 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (875.7 - 874.8)

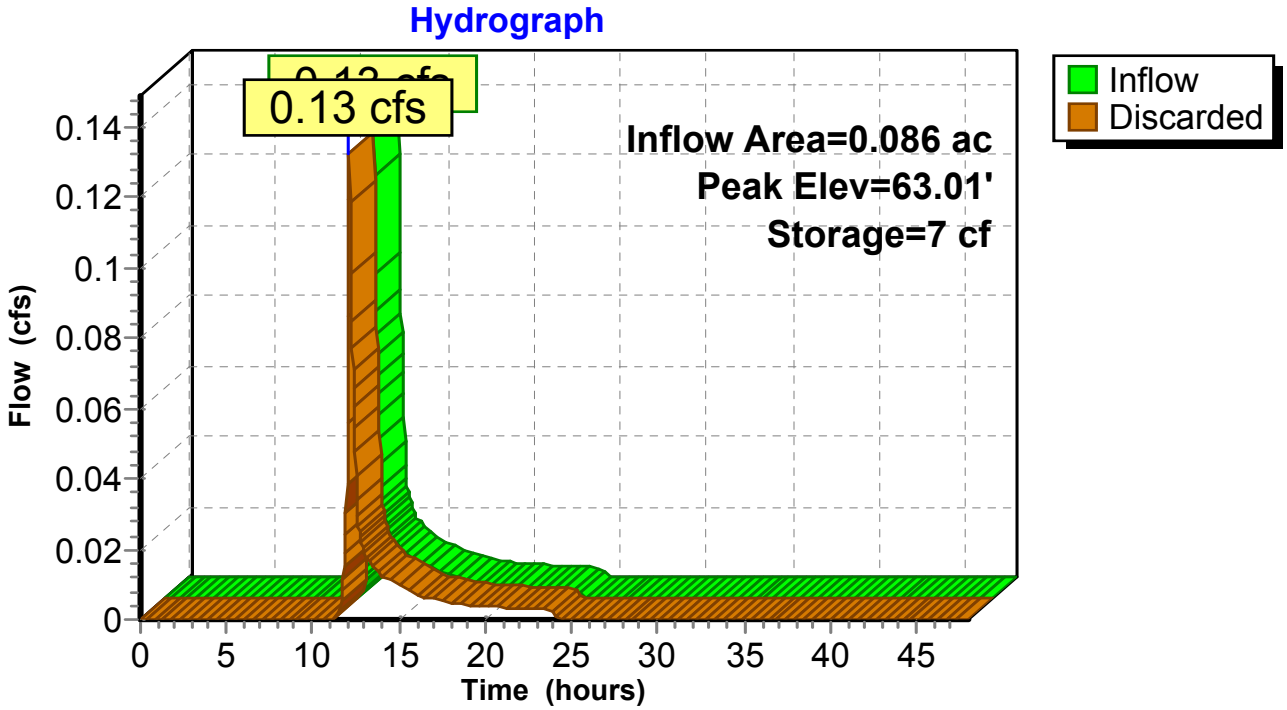
Volume	Invert	Avail.Storage	Storage Description
#1	63.00'	2,747 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
63.00	757	0	0
64.00	1,368	1,063	1,063
65.00	2,001	1,685	2,747

Device	Routing	Invert	Outlet Devices
#1	Discarded	63.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.13 cfs @ 12.12 hrs HW=63.01' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Pond D-3: Depression



Summary for Pond D-4: Depression

Inflow Area = 0.326 ac, 8.55% Impervious, Inflow Depth = 0.63" for 25-Year event
Inflow = 0.11 cfs @ 12.15 hrs, Volume= 0.017 af
Outflow = 0.00 cfs @ 12.04 hrs, Volume= 0.000 af, Atten= 96%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.04 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 55.10' @ 24.36 hrs Surf.Area= 881 sf Storage= 740 cf

Plug-Flow detention time= 1.9 min calculated for 0.000 af (0% of inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

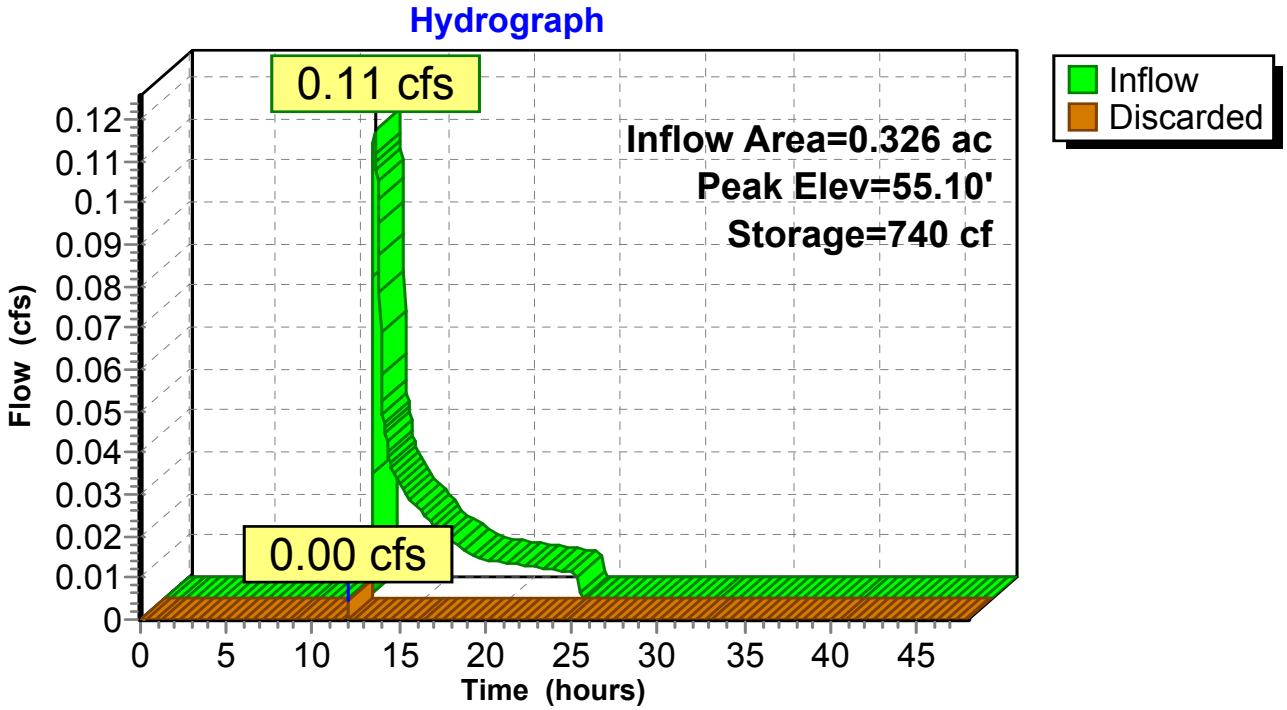
Volume	Invert	Avail.Storage	Storage Description
#1	54.00'	1,737 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
54.00	482	0	0
55.00	834	658	658
56.00	1,323	1,079	1,737

Device	Routing	Invert	Outlet Devices
#1	Discarded	54.00'	**Special & User-Defined** Head (feet) 0.00 0.01 0.02 0.50 2.00 Disch. (cfs) 0.000 0.010 0.000 0.000 0.000

Discarded OutFlow Max=0.00 cfs @ 12.04 hrs HW=54.00' (Free Discharge)
└─**1=Special & User-Defined** (Custom Controls 0.00 cfs)

Pond D-4: Depression



Summary for Pond DB-1: Prop Detention Basin

Inflow Area = 3.524 ac, 61.58% Impervious, Inflow Depth = 3.12" for 25-Year event
Inflow = 12.79 cfs @ 12.09 hrs, Volume= 0.917 af
Outflow = 1.97 cfs @ 12.61 hrs, Volume= 0.643 af, Atten= 85%, Lag= 31.4 min
Primary = 1.97 cfs @ 12.61 hrs, Volume= 0.643 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.48' @ 12.61 hrs Surf.Area= 10,459 sf Storage= 20,275 cf

Plug-Flow detention time= 288.3 min calculated for 0.643 af (70% of inflow)
Center-of-Mass det. time= 192.0 min (1,018.3 - 826.3)

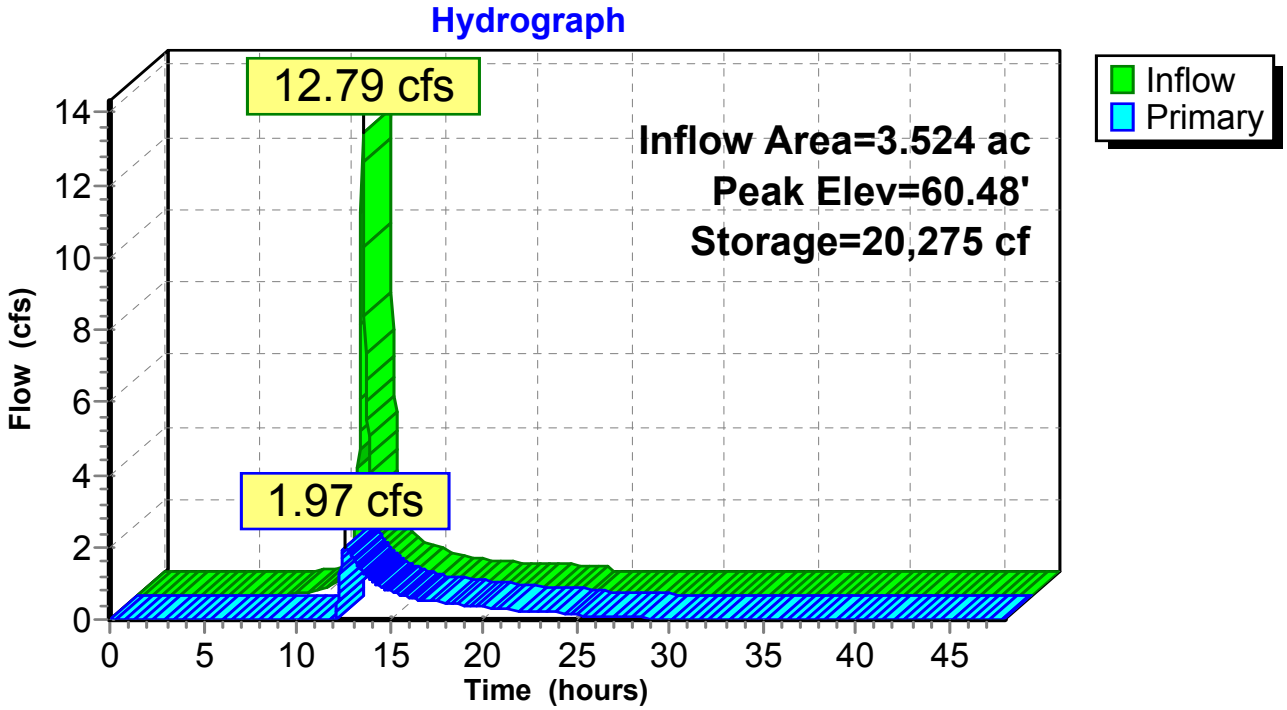
Volume	Invert	Avail.Storage	Storage Description
#1	58.00'	37,916 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.00	5,785	0	0
59.00	7,648	6,717	6,717
60.00	9,712	8,680	15,397
61.00	11,257	10,485	25,881
62.00	12,812	12,035	37,916

Device	Routing	Invert	Outlet Devices
#1	Primary	58.00'	**12.0" Round Culvert** L= 34.9' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 58.00' / 57.65' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	59.60'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	60.15'	**2.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.97 cfs @ 12.61 hrs HW=60.48' TW=55.19' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.97 cfs of 4.20 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.75 cfs @ 3.83 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Weir Controls 1.22 cfs @ 1.89 fps)

Pond DB-1: Prop Detention Basin



Summary for Pond P1: Infiltration Chambers

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth = 5.46" for 25-Year event
Inflow = 0.24 cfs @ 12.08 hrs, Volume= 0.020 af
Outflow = 0.04 cfs @ 11.72 hrs, Volume= 0.020 af, Atten= 84%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.72 hrs, Volume= 0.020 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.99' @ 12.56 hrs Surf.Area= 199 sf Storage= 228 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 32.5 min (778.5 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	195 cf	**6.33'W x 31.50'L x 3.54'H Field A** 707 cf Overall - 220 cf Embedded = 487 cf x 40.0% Voids
#2A	56.70'	220 cf	**Cultec R-330XLHD** x 4 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		415 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.200 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.04 cfs @ 11.72 hrs HW=56.26' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Pond P1: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

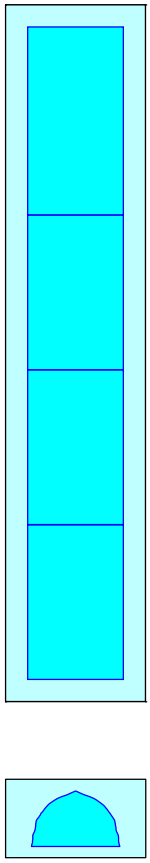
4 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 29.50' Row Length +12.0" End Stone x 2 = 31.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

4 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 219.8 cf Chamber Storage

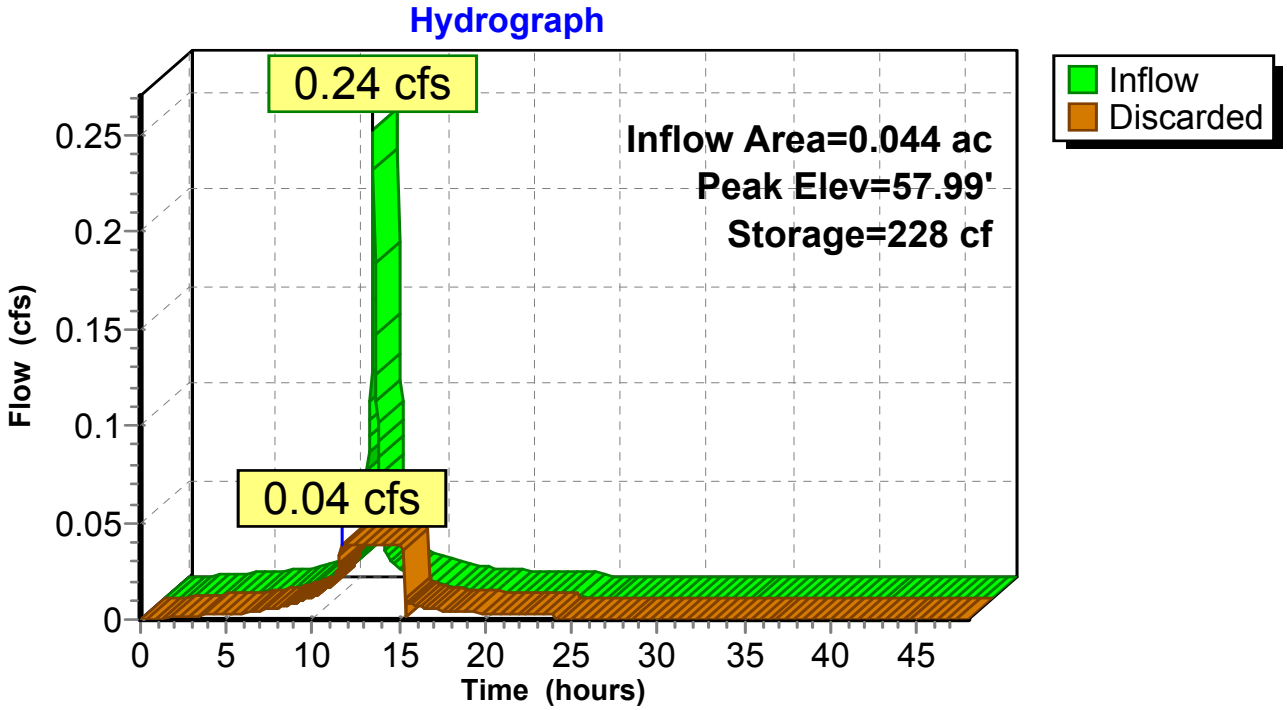
706.6 cf Field - 219.8 cf Chambers = 486.8 cf Stone x 40.0% Voids = 194.7 cf Stone Storage

Chamber Storage + Stone Storage = 414.5 cf = 0.010 af
Overall Storage Efficiency = 58.7%
Overall System Size = 31.50' x 6.33' x 3.54'

4 Chambers
26.2 cy Field
18.0 cy Stone



Pond P1: Infiltration Chambers



Summary for Pond P10: Infiltration Chambers

Inflow Area = 0.175 ac,100.00% Impervious, Inflow Depth = 5.46" for 25-Year event
Inflow = 0.97 cfs @ 12.08 hrs, Volume= 0.080 af
Outflow = 0.13 cfs @ 11.68 hrs, Volume= 0.080 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.13 cfs @ 11.68 hrs, Volume= 0.080 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.68' @ 12.61 hrs Surf.Area= 664 sf Storage= 996 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 45.6 min (791.5 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	58.50'	599 cf	**11.17'W x 59.50'L x 3.54'H Field A** 2,353 cf Overall - 857 cf Embedded = 1,496 cf x 40.0% Voids
#2A	59.00'	857 cf	**Cultec R-330XLHD** x 16 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		1,455 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	58.50'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.13 cfs @ 11.68 hrs HW=58.56' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Pond P10: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

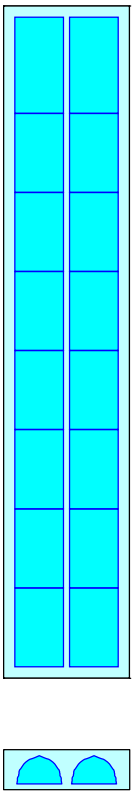
8 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 57.50' Row Length +12.0" End Stone x 2 = 59.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

16 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 856.9 cf Chamber Storage

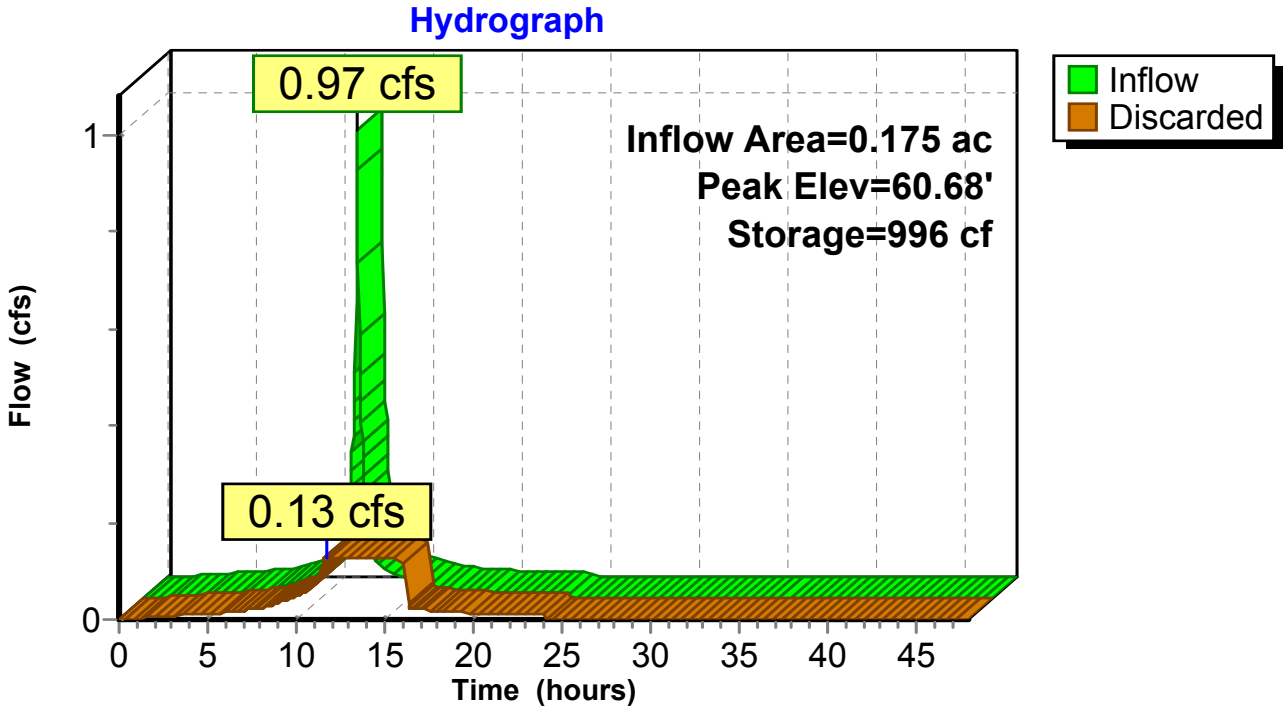
2,353.1 cf Field - 856.9 cf Chambers = 1,496.3 cf Stone x 40.0% Voids = 598.5 cf Stone Storage

Chamber Storage + Stone Storage = 1,455.4 cf = 0.033 af
Overall Storage Efficiency = 61.8%
Overall System Size = 59.50' x 11.17' x 3.54'

16 Chambers
87.2 cy Field
55.4 cy Stone



Pond P10: Infiltration Chambers



Summary for Pond P11: Infiltration Chambers

Inflow Area = 0.099 ac,100.00% Impervious, Inflow Depth = 5.46" for 25-Year event
Inflow = 0.55 cfs @ 12.08 hrs, Volume= 0.045 af
Outflow = 0.08 cfs @ 11.68 hrs, Volume= 0.045 af, Atten= 85%, Lag= 0.0 min
Discarded = 0.08 cfs @ 11.68 hrs, Volume= 0.045 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.53' @ 12.57 hrs Surf.Area= 430 sf Storage= 531 cf

Plug-Flow detention time= 35.5 min calculated for 0.045 af (100% of inflow)
Center-of-Mass det. time= 35.5 min (781.4 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	391 cf	**11.17'W x 38.50'L x 3.54'H Field A** 1,523 cf Overall - 544 cf Embedded = 979 cf x 40.0% Voids
#2A	60.20'	544 cf	**Cultec R-330XLHD** x 10 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		935 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.08 cfs @ 11.68 hrs HW=59.74' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Pond P11: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

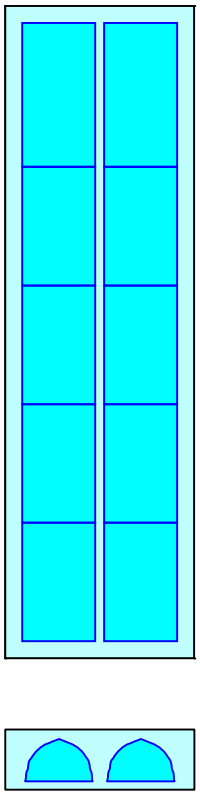
5 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 36.50' Row Length +12.0" End Stone x 2 = 38.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

10 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 543.9 cf Chamber Storage

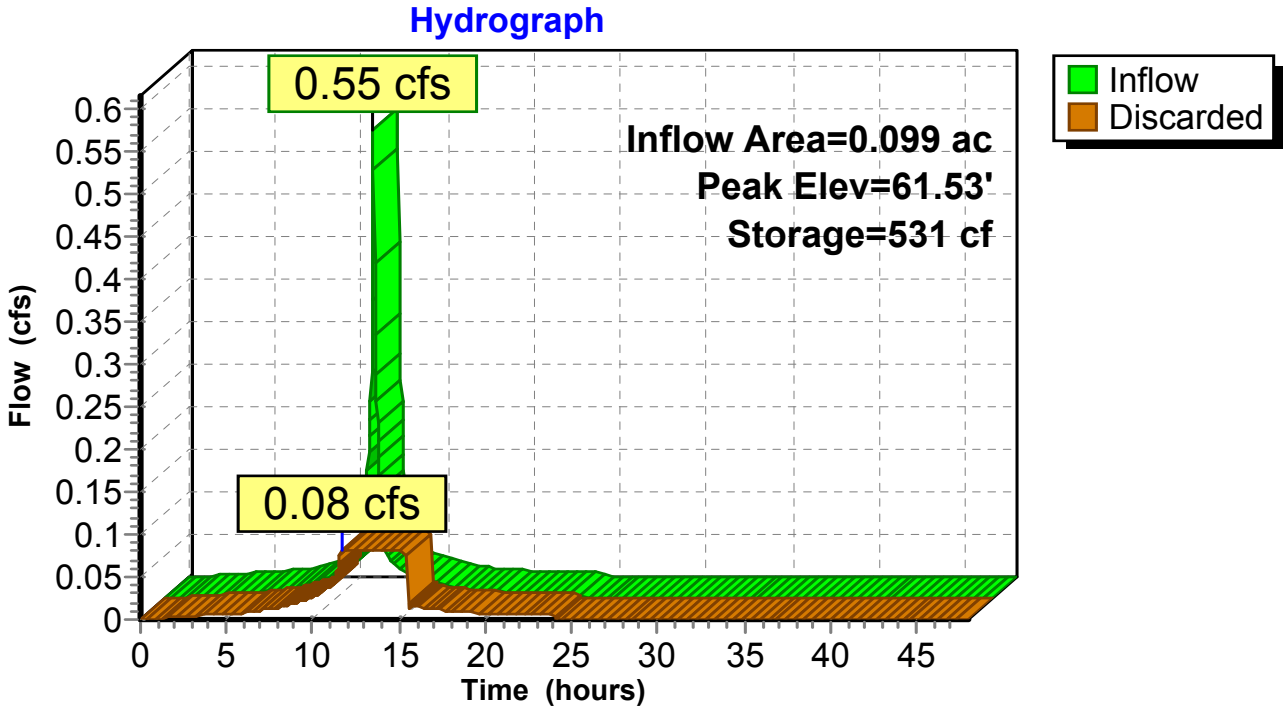
1,522.6 cf Field - 543.9 cf Chambers = 978.7 cf Stone x 40.0% Voids = 391.5 cf Stone Storage

Chamber Storage + Stone Storage = 935.4 cf = 0.021 af
Overall Storage Efficiency = 61.4%
Overall System Size = 38.50' x 11.17' x 3.54'

10 Chambers
56.4 cy Field
36.2 cy Stone



Pond P11: Infiltration Chambers



Summary for Pond P12: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 5.46" for 25-Year event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af, Atten= 84%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.99' @ 12.56 hrs Surf.Area= 111 sf Storage= 124 cf

Plug-Flow detention time= 31.4 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 31.4 min (777.3 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	56.70'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.72 hrs HW=56.26' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P12: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

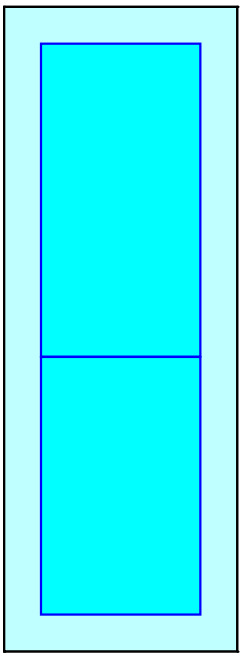
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

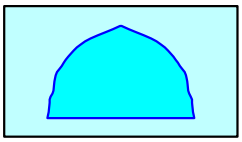
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

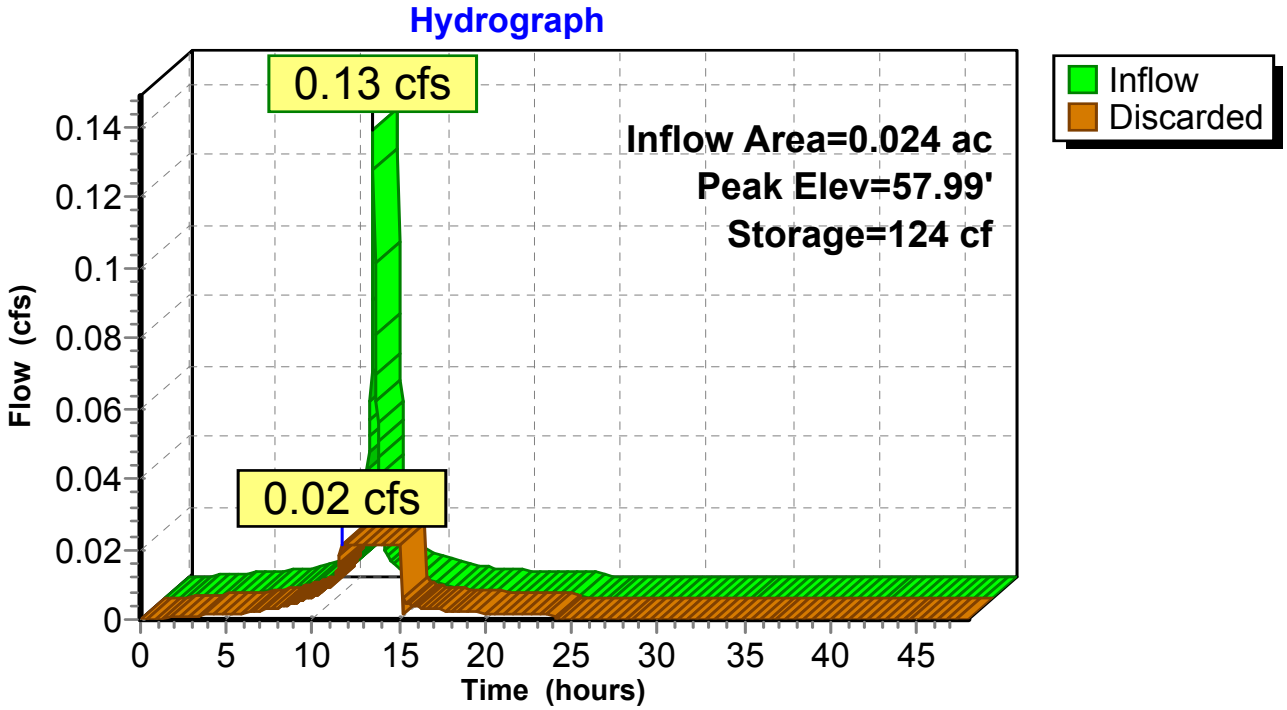
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P12: Infiltration Chambers



Summary for Pond P13: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 5.46" for 25-Year event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af, Atten= 84%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.48' @ 12.56 hrs Surf.Area= 111 sf Storage= 124 cf

Plug-Flow detention time= 31.3 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 31.2 min (777.2 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.20'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.72 hrs HW=59.76' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P13: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

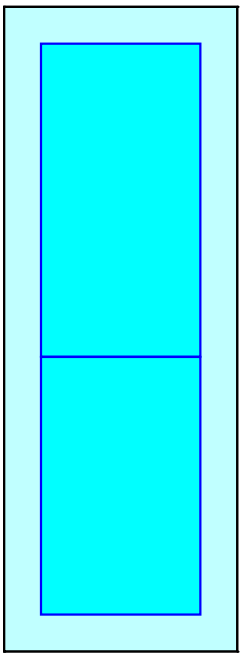
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

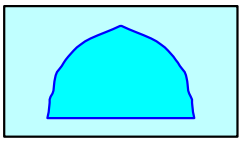
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

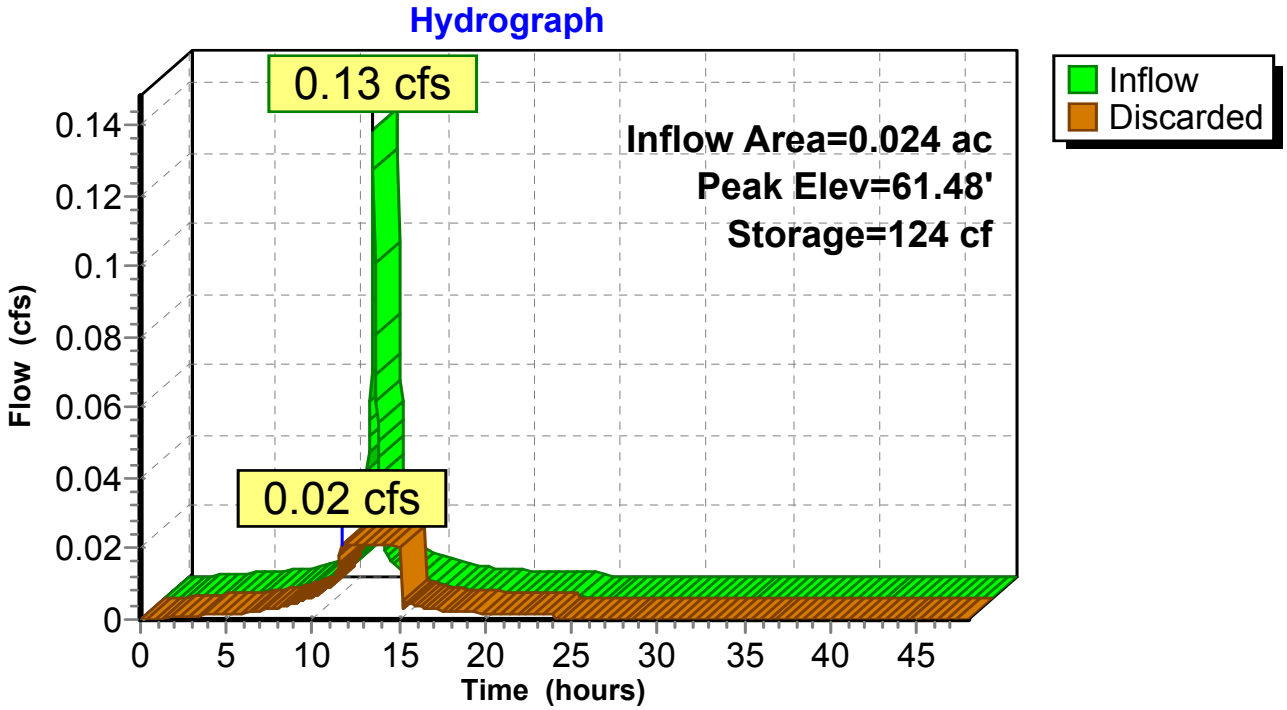
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P13: Infiltration Chambers



Summary for Pond P14: Infiltration Chambers

Inflow Area = 0.072 ac,100.00% Impervious, Inflow Depth = 5.46" for 25-Year event
Inflow = 0.40 cfs @ 12.08 hrs, Volume= 0.033 af
Outflow = 0.05 cfs @ 11.68 hrs, Volume= 0.033 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.68 hrs, Volume= 0.033 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.72' @ 12.61 hrs Surf.Area= 274 sf Storage= 408 cf

Plug-Flow detention time= 45.4 min calculated for 0.033 af (100% of inflow)
Center-of-Mass det. time= 45.3 min (791.2 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	58.50'	253 cf	**11.17'W x 24.50'L x 3.54'H Field A** 969 cf Overall - 335 cf Embedded = 634 cf x 40.0% Voids
#2A	59.00'	335 cf	**Cultec R-330XLHD** x 6 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		589 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	58.50'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.05 cfs @ 11.68 hrs HW=58.56' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Pond P14: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

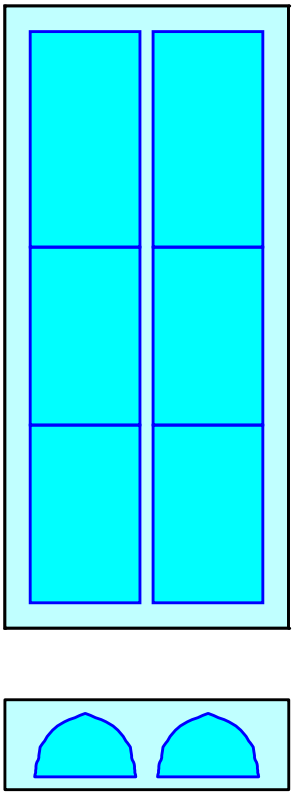
3 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 22.50' Row Length +12.0" End Stone x 2 = 24.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

6 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 335.3 cf Chamber Storage

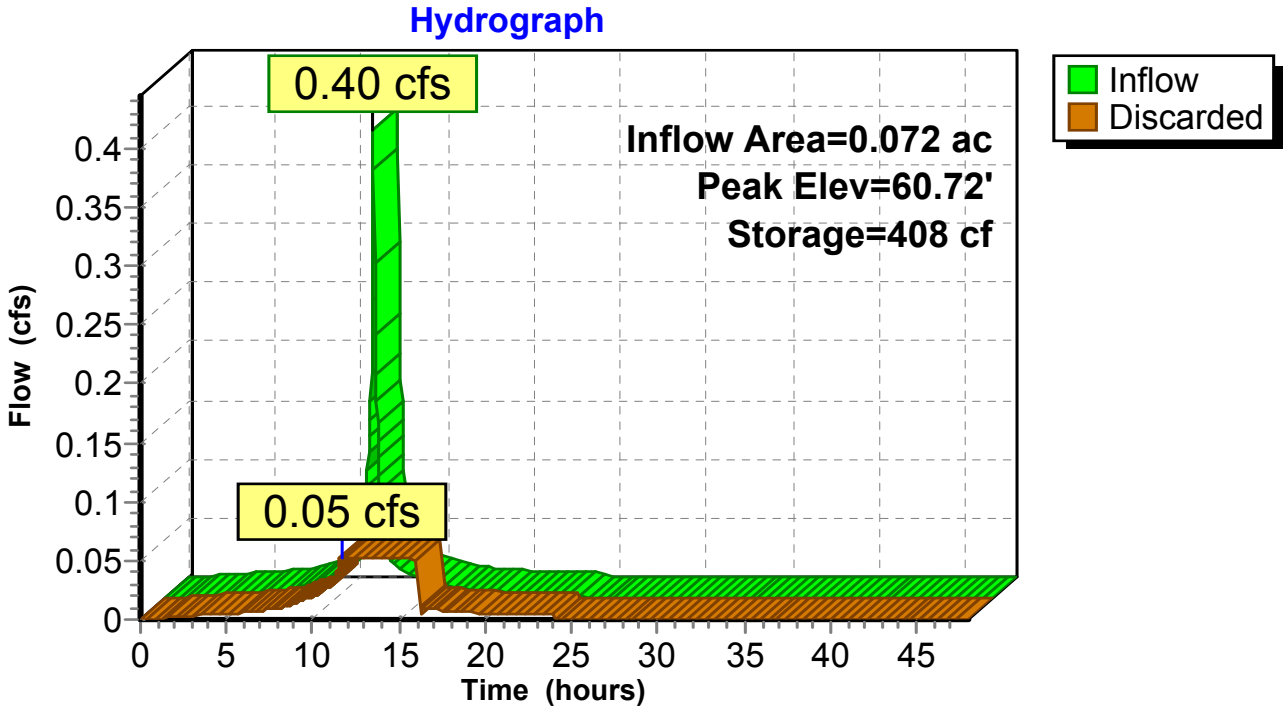
968.9 cf Field - 335.3 cf Chambers = 633.6 cf Stone x 40.0% Voids = 253.5 cf Stone Storage

Chamber Storage + Stone Storage = 588.8 cf = 0.014 af
Overall Storage Efficiency = 60.8%
Overall System Size = 24.50' x 11.17' x 3.54'

6 Chambers
35.9 cy Field
23.5 cy Stone



Pond P14: Infiltration Chambers



Summary for Pond P2: Infiltration Chambers

Inflow Area = 0.349 ac,100.00% Impervious, Inflow Depth = 5.46" for 25-Year event
Inflow = 1.93 cfs @ 12.08 hrs, Volume= 0.159 af
Outflow = 0.27 cfs @ 11.68 hrs, Volume= 0.159 af, Atten= 86%, Lag= 0.0 min
Discarded = 0.27 cfs @ 11.68 hrs, Volume= 0.159 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 58.19' @ 12.60 hrs Surf.Area= 1,385 sf Storage= 1,952 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 42.1 min (788.0 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	1,194 cf	**20.83'W x 66.50'L x 3.54'H Field A** 4,907 cf Overall - 1,922 cf Embedded = 2,984 cf x 40.0% Voids
#2A	56.70'	1,922 cf	**Cultec R-330XLHD** x 36 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 4 rows
		3,116 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.27 cfs @ 11.68 hrs HW=56.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.27 cfs)

Pond P2: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 4 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

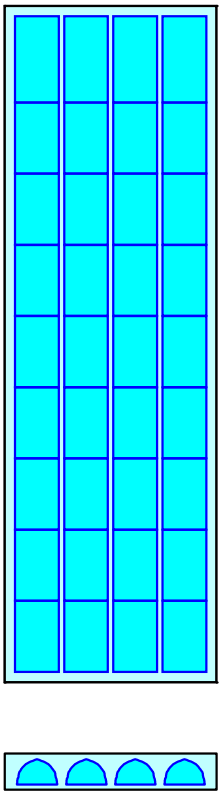
9 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 64.50' Row Length +12.0" End Stone x 2 = 66.50' Base Length
4 Rows x 52.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.83' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

36 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 4 Rows = 1,922.4 cf Chamber Storage

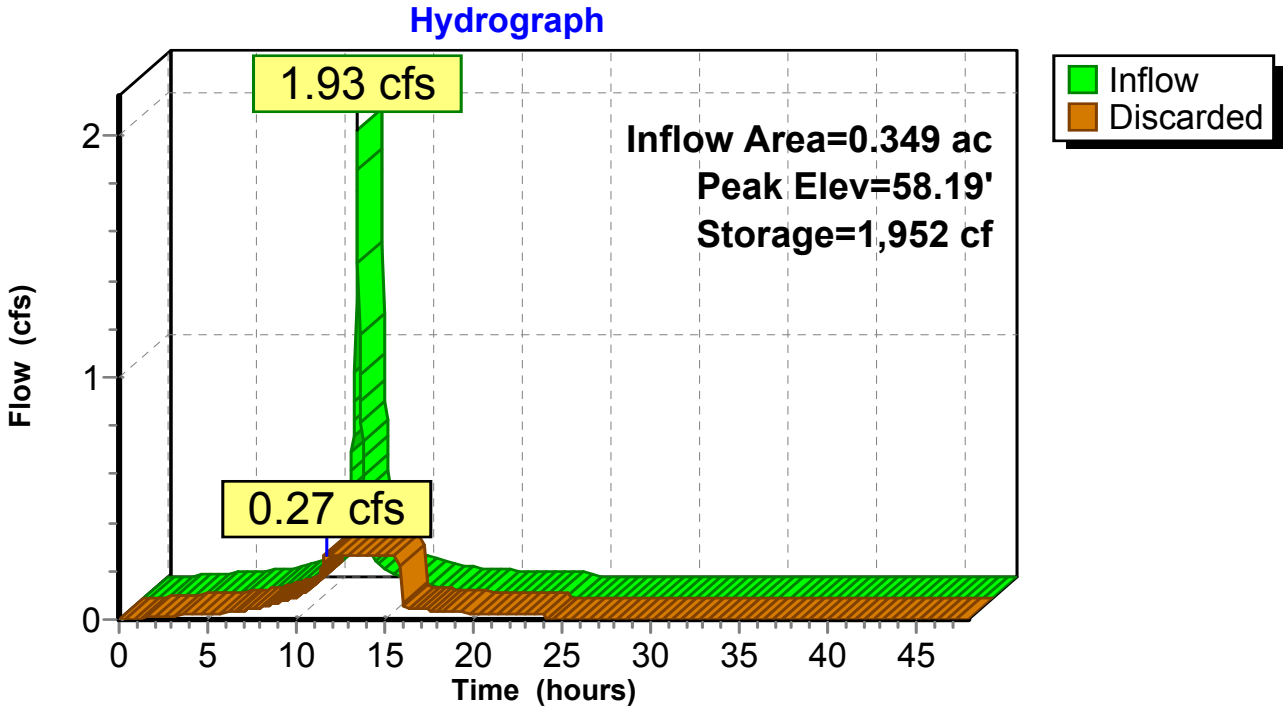
4,906.7 cf Field - 1,922.4 cf Chambers = 2,984.3 cf Stone x 40.0% Voids = 1,193.7 cf Stone Storage

Chamber Storage + Stone Storage = 3,116.1 cf = 0.072 af
Overall Storage Efficiency = 63.5%
Overall System Size = 66.50' x 20.83' x 3.54'

36 Chambers
181.7 cy Field
110.5 cy Stone



Pond P2: Infiltration Chambers



Summary for Pond P3: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 5.46" for 25-Year event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af, Atten= 84%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.99' @ 12.56 hrs Surf.Area= 111 sf Storage= 124 cf

Plug-Flow detention time= 31.4 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 31.4 min (777.3 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	56.70'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.72 hrs HW=56.26' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P3: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

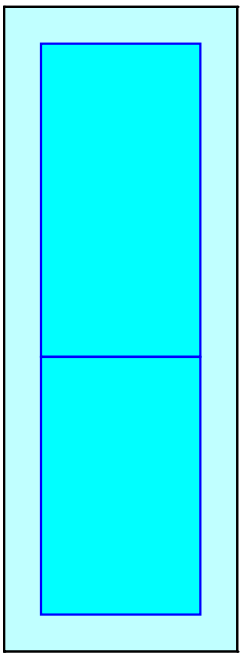
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

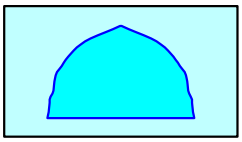
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

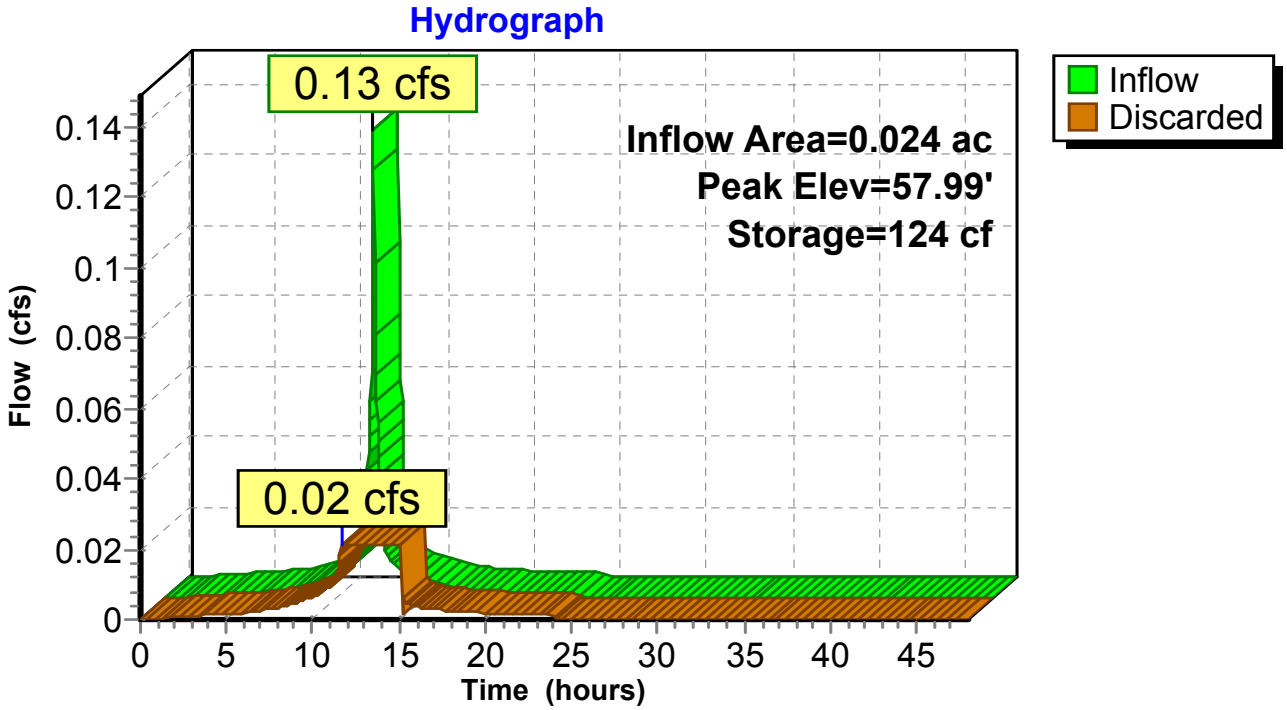
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P3: Infiltration Chambers



Summary for Pond P4: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 5.46" for 25-Year event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af, Atten= 84%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.48' @ 12.56 hrs Surf.Area= 111 sf Storage= 124 cf

Plug-Flow detention time= 31.3 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 31.2 min (777.2 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.20'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.72 hrs HW=59.76' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P4: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

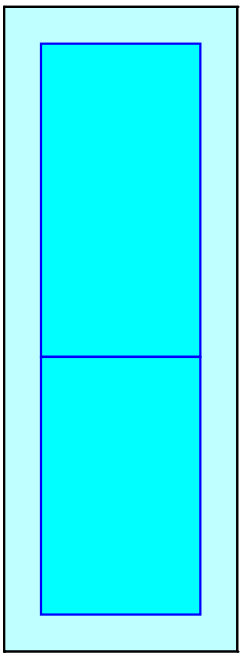
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

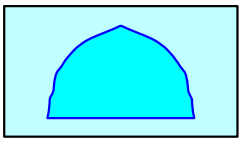
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

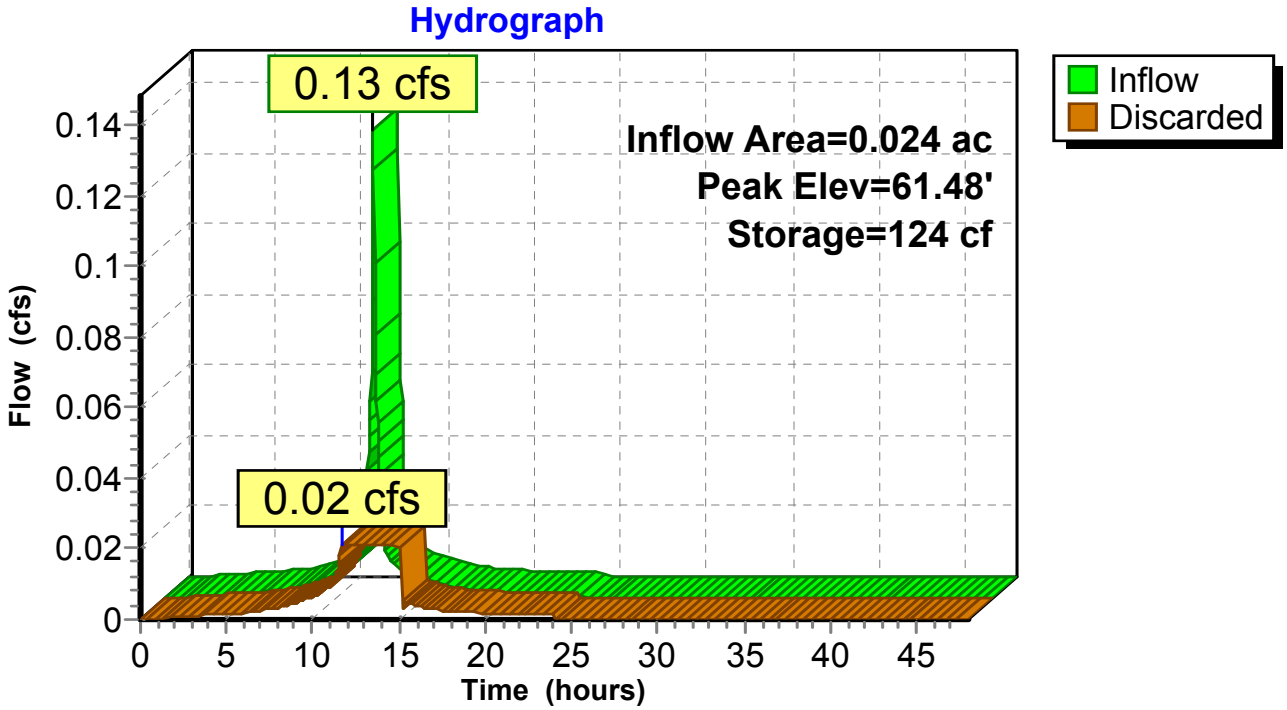
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P4: Infiltration Chambers



Summary for Pond P5: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 5.46" for 25-Year event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af, Atten= 84%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.49' @ 12.56 hrs Surf.Area= 111 sf Storage= 124 cf

Plug-Flow detention time= 31.4 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 31.4 min (777.3 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.20'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.72 hrs HW=59.76' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P5: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

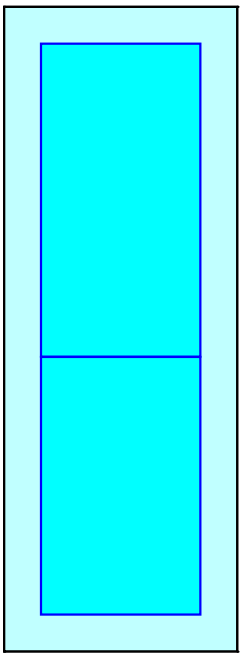
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

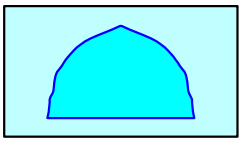
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

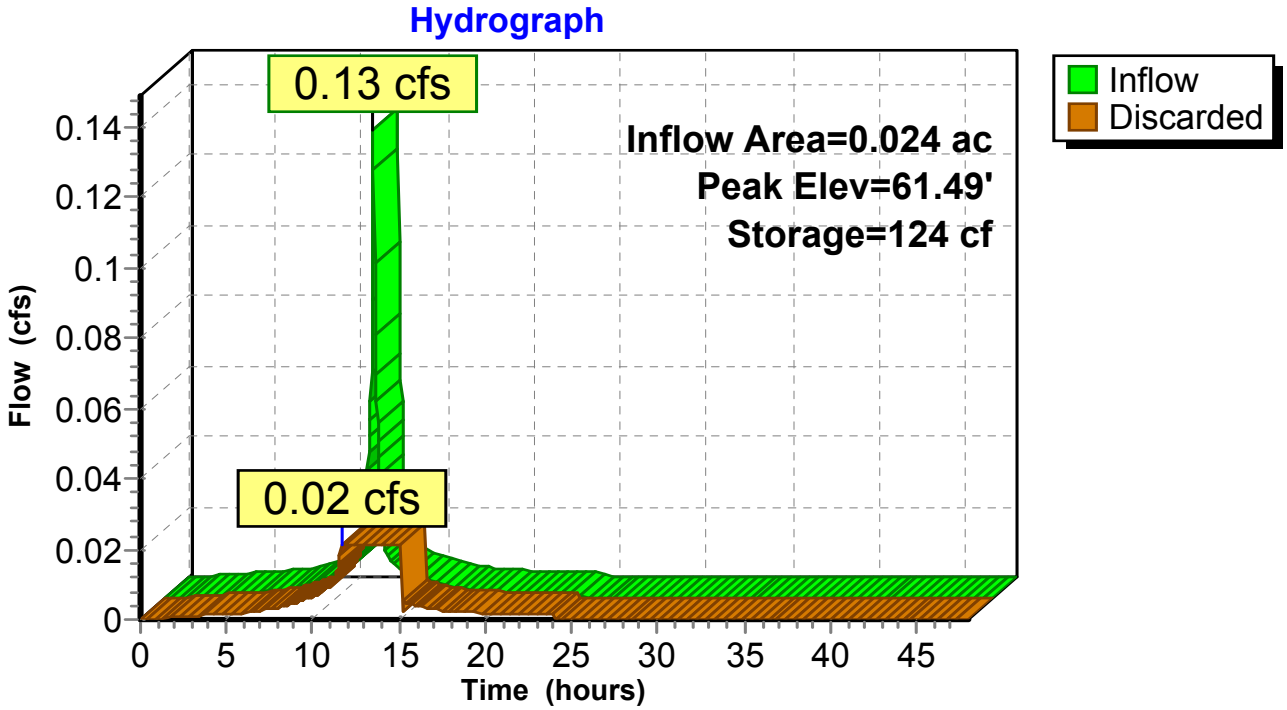
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P5: Infiltration Chambers



Summary for Pond P6: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 5.46" for 25-Year event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af, Atten= 84%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.39' @ 12.56 hrs Surf.Area= 111 sf Storage= 124 cf

Plug-Flow detention time= 31.4 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 31.4 min (777.3 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.60'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.10'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.72 hrs HW=59.66' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P6: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

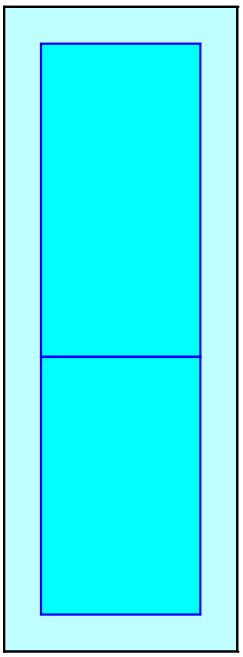
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

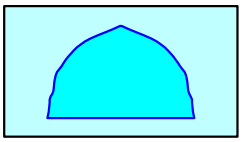
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

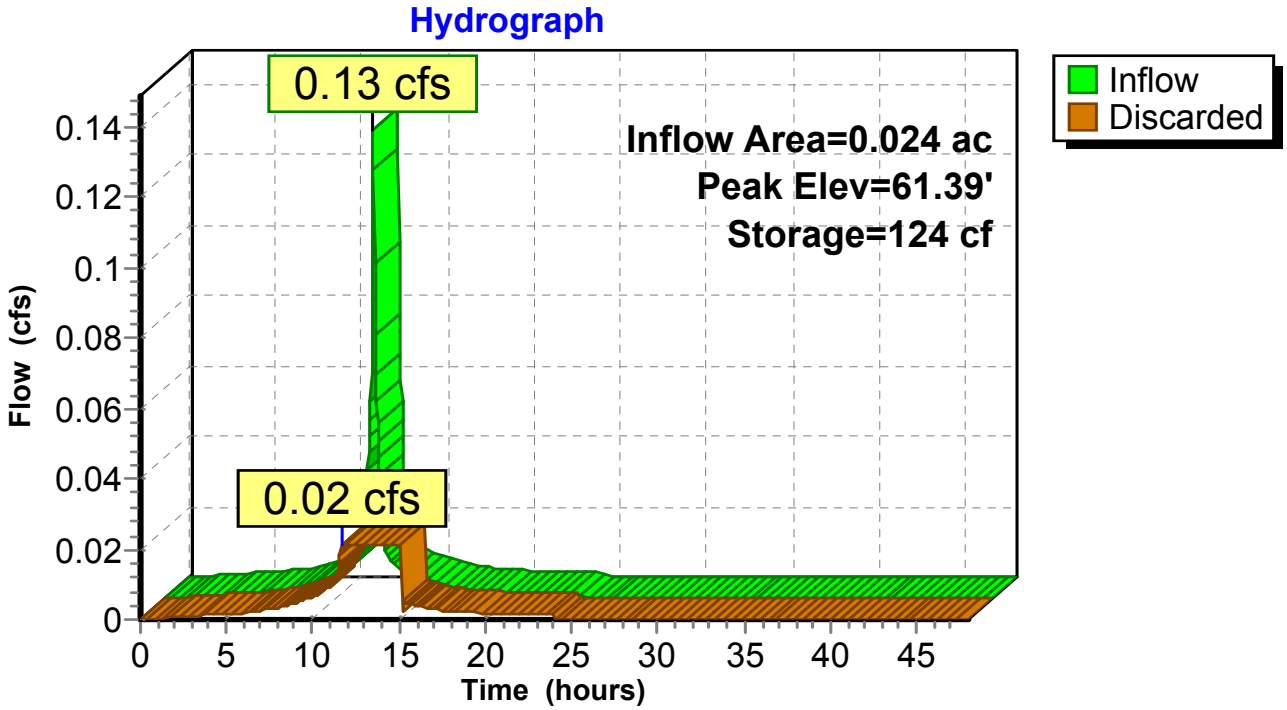
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P6: Infiltration Chambers



Summary for Pond P7: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 5.46" for 25-Year event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af, Atten= 84%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.72 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.39' @ 12.56 hrs Surf.Area= 111 sf Storage= 124 cf

Plug-Flow detention time= 31.4 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 31.4 min (777.3 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.60'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.10'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.72 hrs HW=59.66' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P7: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

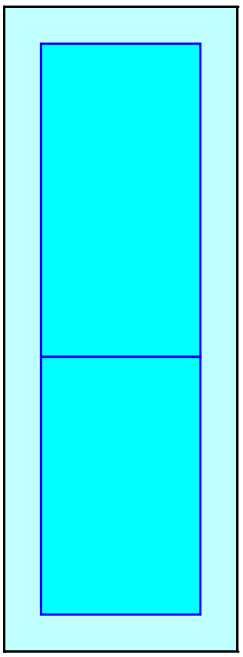
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

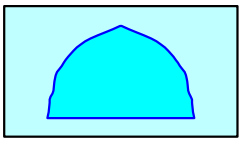
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

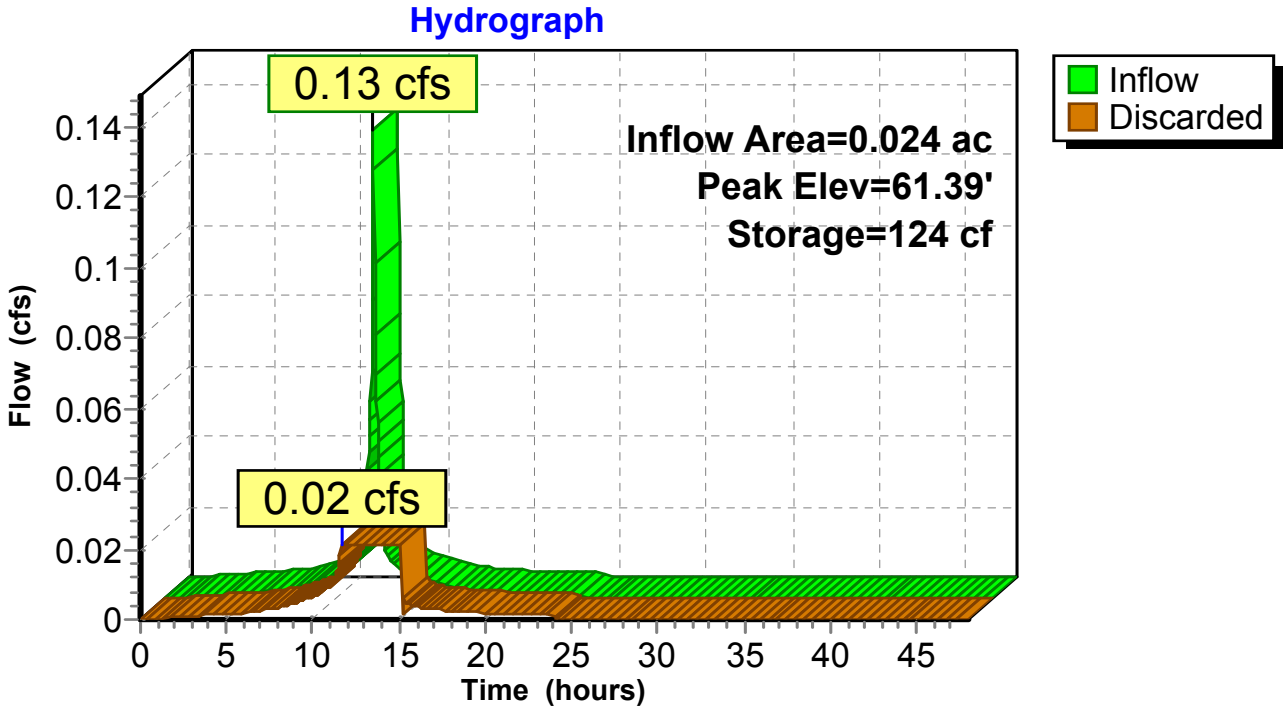
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P7: Infiltration Chambers



Summary for Pond P8: Infiltration Chambers

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth = 5.46" for 25-Year event
Inflow = 0.24 cfs @ 12.08 hrs, Volume= 0.020 af
Outflow = 0.04 cfs @ 11.72 hrs, Volume= 0.020 af, Atten= 84%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.72 hrs, Volume= 0.020 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.38' @ 12.56 hrs Surf.Area= 199 sf Storage= 227 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 32.0 min (777.9 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.60'	195 cf	**6.33'W x 31.50'L x 3.54'H Field A** 707 cf Overall - 220 cf Embedded = 487 cf x 40.0% Voids
#2A	60.10'	220 cf	**Cultec R-330XLHD** x 4 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		415 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.04 cfs @ 11.72 hrs HW=59.66' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Pond P8: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

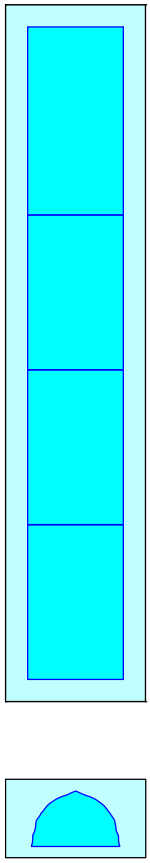
4 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 29.50' Row Length +12.0" End Stone x 2 = 31.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

4 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 219.8 cf Chamber Storage

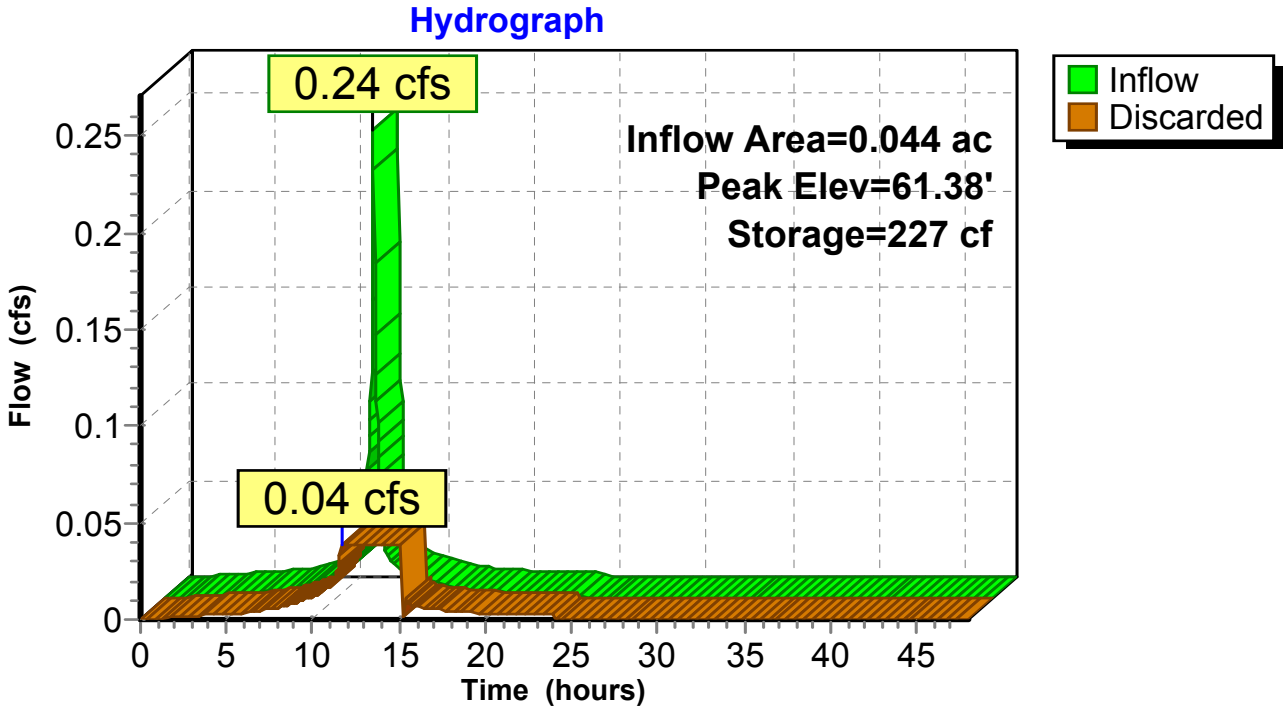
706.6 cf Field - 219.8 cf Chambers = 486.8 cf Stone x 40.0% Voids = 194.7 cf Stone Storage

Chamber Storage + Stone Storage = 414.5 cf = 0.010 af
Overall Storage Efficiency = 58.7%
Overall System Size = 31.50' x 6.33' x 3.54'

4 Chambers
26.2 cy Field
18.0 cy Stone



Pond P8: Infiltration Chambers



Summary for Pond P9: Infiltration Chambers

Inflow Area = 0.457 ac, 68.14% Impervious, Inflow Depth = 3.53" for 25-Year event
Inflow = 1.76 cfs @ 12.09 hrs, Volume= 0.134 af
Outflow = 0.25 cfs @ 11.72 hrs, Volume= 0.134 af, Atten= 86%, Lag= 0.0 min
Discarded = 0.25 cfs @ 11.72 hrs, Volume= 0.134 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 57.55' @ 12.64 hrs Surf.Area= 1,290 sf Storage= 1,734 cf

Plug-Flow detention time= 46.0 min calculated for 0.134 af (100% of inflow)
Center-of-Mass det. time= 45.9 min (841.9 - 795.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	55.60'	1,151 cf	**11.17'W x 115.50'L x 3.54'H Field A** 4,568 cf Overall - 1,691 cf Embedded = 2,876 cf x 40.0% Voids
#2A	56.10'	1,691 cf	**Cultec R-330XLHD** x 32 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		2,842 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	55.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.25 cfs @ 11.72 hrs HW=55.64' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.25 cfs)

Pond P9: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

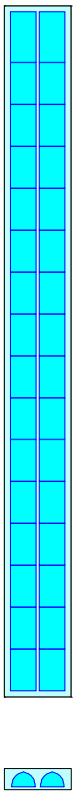
16 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 113.50' Row Length +12.0" End Stone x 2 = 115.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

32 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 1,691.4 cf Chamber Storage

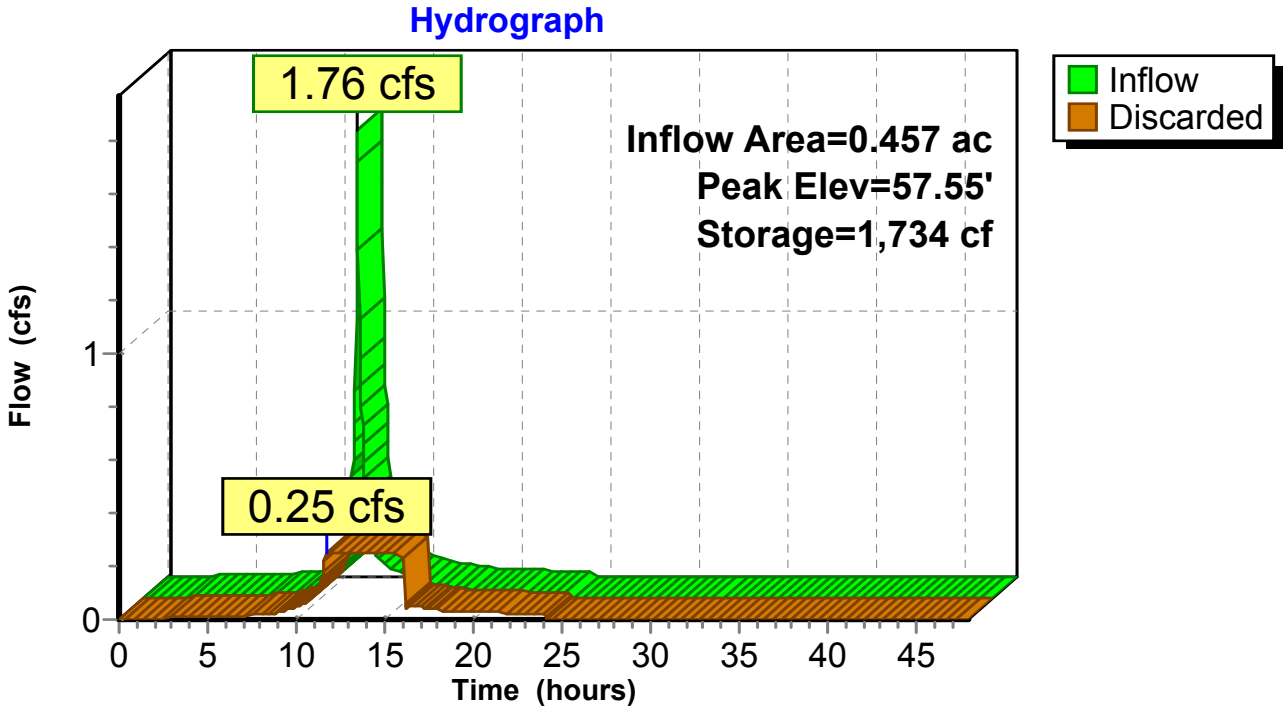
4,567.9 cf Field - 1,691.4 cf Chambers = 2,876.5 cf Stone x 40.0% Voids = 1,150.6 cf Stone Storage

Chamber Storage + Stone Storage = 2,842.0 cf = 0.065 af
Overall Storage Efficiency = 62.2%
Overall System Size = 115.50' x 11.17' x 3.54'

32 Chambers
169.2 cy Field
106.5 cy Stone



Pond P9: Infiltration Chambers



Summary for Pond W1: BVW

Inflow Area = 4.439 ac, 57.57% Impervious, Inflow Depth > 2.29" for 25-Year event
Inflow = 2.82 cfs @ 12.10 hrs, Volume= 0.845 af
Outflow = 2.79 cfs @ 12.11 hrs, Volume= 0.845 af, Atten= 1%, Lag= 0.7 min
Primary = 2.79 cfs @ 12.11 hrs, Volume= 0.845 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 55.21' @ 12.11 hrs Surf.Area= 824 sf Storage= 86 cf

Plug-Flow detention time= 0.5 min calculated for 0.845 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (975.7 - 975.2)

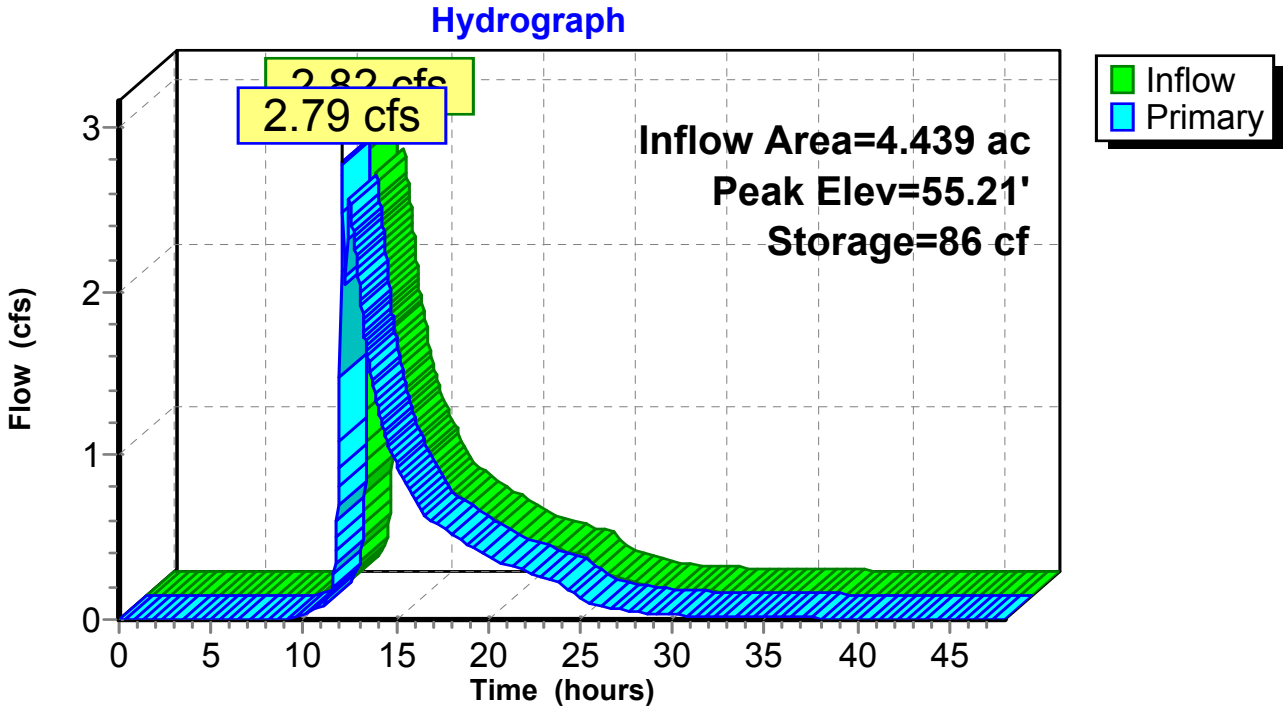
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	14,409 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
55.00	10	0	0
56.00	3,962	1,986	1,986
57.00	20,884	12,423	14,409

Device	Routing	Invert	Outlet Devices
#1	Primary	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 66.00
#2	Device 1	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 84.00

Primary OutFlow Max=2.75 cfs @ 12.11 hrs HW=55.20' TW=0.00' (Dynamic Tailwater)
└─**1=Custom Weir/Orifice** (Weir Controls 2.75 cfs @ 1.30 fps)
  └─**2=Custom Weir/Orifice** (Passes 2.75 cfs of 3.20 cfs potential flow)

Pond W1: BVW


Hydrograph
2.82 cfs
2.79 cfs
Inflow Area=4.439 ac
Peak Elev=55.21'
Storage=86 cf
Inflow
Primary
Flow (cfs)
0
1
2
3
0
5
10
15
20
25
30
35
40
45
Time (hours)

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Sub-1 Runoff Area=7,545 sf 0.00% Impervious Runoff Depth=0.80"
Tc=6.0 min CN=39 Runoff=0.08 cfs 0.012 af

Subcatchment2S: Sub-2 Runoff Area=8,462 sf 7.92% Impervious Runoff Depth=1.20"
Tc=6.0 min CN=44 Runoff=0.20 cfs 0.019 af

Subcatchment3A-10R: Roofs 15 B Runoff Area=857 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.011 af

Subcatchment3A-10R1: Roofs 15 F Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment3A-11R: Roofs 24-27 FB Runoff Area=7,608 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.100 af

Subcatchment3A-12R: Roofs 30-32 B Runoff Area=2,596 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.41 cfs 0.034 af

Subcatchment3A-13R: Roofs 28-29 B Runoff Area=1,728 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.27 cfs 0.023 af

Subcatchment3A-14R: Roofs 28-F Runoff Area=1,048 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment3A-15R: Roofs 29 F Runoff Area=1,045 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment3A-16R: Roofs 30-32 F Runoff Area=3,124 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.50 cfs 0.041 af

Subcatchment3A-1R: Roof 5 Runoff Area=1,903 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.30 cfs 0.025 af

Subcatchment3A-2R: Roofs 1-4 FB Runoff Area=7,608 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.100 af

Subcatchment3A-2R1: Roofs 6-9 FB Runoff Area=7,608 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.100 af

Subcatchment3A-3R: Roofs 10-F Runoff Area=1,048 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment3A-4R: Roofs 11 F Runoff Area=1,045 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment3A-5R: Roofs 10-11 B Runoff Area=1,707 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.27 cfs 0.022 af

Subcatchment3A-6R: Roofs 12 B Runoff Area=839 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment3A-7R: Roofs 12 F Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment3A-8R: Roofs 13 F Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment3A-9R: Roofs 14 F Runoff Area=1,048 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment3A-S: Sub-3A Runoff Area=153,525 sf 61.58% Impervious Runoff Depth=4.35"
Tc=6.0 min CN=76 Runoff=17.76 cfs 1.277 af

Subcatchment3B-S: Sub-3B Runoff Area=39,829 sf 42.08% Impervious Runoff Depth=3.81"
Tc=6.0 min CN=71 Runoff=4.05 cfs 0.290 af

Subcatchment3C-S: Sub-3C Runoff Area=19,306 sf 29.30% Impervious Runoff Depth=2.77"
Tc=6.0 min CN=61 Runoff=1.40 cfs 0.102 af

Subcatchment4S: Sub-4 Runoff Area=6,046 sf 0.00% Impervious Runoff Depth=0.80"
Tc=6.0 min CN=39 Runoff=0.06 cfs 0.009 af

Subcatchment4S-1: Sub-4 Runoff Area=3,739 sf 31.27% Impervious Runoff Depth=2.38"
Tc=6.0 min CN=57 Runoff=0.23 cfs 0.017 af

Subcatchment5S: Sub -5 Runoff Area=9,637 sf 22.04% Impervious Runoff Depth=2.00"
Tc=6.0 min CN=53 Runoff=0.47 cfs 0.037 af

Subcatchment5S-1: Roofs 31-32 F Runoff Area=14,192 sf 8.55% Impervious Runoff Depth=1.20"
Tc=6.0 min CN=44 Runoff=0.33 cfs 0.033 af

Subcatchment5S-P: Pavement Runoff Area=14,192 sf 55.31% Impervious Runoff Depth=3.91"
Tc=6.0 min CN=72 Runoff=1.48 cfs 0.106 af

Subcatchment5S-R1: Roofs 19-21 FB Runoff Area=5,720 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.91 cfs 0.075 af

Reach DP-1: DMH Inflow=0.08 cfs 0.012 af
Outflow=0.08 cfs 0.012 af

Reach DP-2: DP-2 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP-3: DP-3 Inflow=6.36 cfs 1.292 af
Outflow=6.36 cfs 1.292 af

Reach DP-4: PL Inflow=0.06 cfs 0.009 af
Outflow=0.06 cfs 0.009 af

Reach DP-5: PL		Inflow=0.47 cfs 0.037 af Outflow=0.47 cfs 0.037 af
Pond D-1: Depression	Peak Elev=59.19' Storage=85 cf	Inflow=0.20 cfs 0.019 af Outflow=0.09 cfs 0.019 af
Pond D-2: Depression	Peak Elev=58.64' Storage=2,100 cf	Inflow=1.80 cfs 0.136 af Outflow=0.24 cfs 0.136 af
Pond D-3: Depression	Peak Elev=63.05' Storage=36 cf	Inflow=0.23 cfs 0.017 af Outflow=0.15 cfs 0.017 af
Pond D-4: Depression	Peak Elev=55.75' Storage=1,418 cf	Inflow=0.33 cfs 0.033 af Outflow=0.01 cfs 0.000 af
Pond DB-1: Prop Detention Basin	Peak Elev=60.95' Storage=25,314 cf	Inflow=17.76 cfs 1.277 af Outflow=4.67 cfs 1.002 af
Pond P1: Infiltration Chambers	Peak Elev=58.67' Storage=318 cf	Inflow=0.30 cfs 0.025 af Outflow=0.04 cfs 0.025 af
Pond P10: Infiltration Chambers	Peak Elev=61.73' Storage=1,372 cf	Inflow=1.21 cfs 0.100 af Outflow=0.13 cfs 0.100 af
Pond P11: Infiltration Chambers	Peak Elev=62.22' Storage=736 cf	Inflow=0.69 cfs 0.057 af Outflow=0.08 cfs 0.057 af
Pond P12: Infiltration Chambers	Peak Elev=58.68' Storage=174 cf	Inflow=0.17 cfs 0.014 af Outflow=0.02 cfs 0.014 af
Pond P13: Infiltration Chambers	Peak Elev=62.17' Storage=173 cf	Inflow=0.17 cfs 0.014 af Outflow=0.02 cfs 0.014 af
Pond P14: Infiltration Chambers	Peak Elev=61.80' Storage=563 cf	Inflow=0.50 cfs 0.041 af Outflow=0.05 cfs 0.041 af
Pond P2: Infiltration Chambers	Peak Elev=59.01' Storage=2,694 cf	Inflow=2.41 cfs 0.200 af Outflow=0.27 cfs 0.200 af
Pond P3: Infiltration Chambers	Peak Elev=58.68' Storage=174 cf	Inflow=0.17 cfs 0.014 af Outflow=0.02 cfs 0.014 af
Pond P4: Infiltration Chambers	Peak Elev=62.17' Storage=173 cf	Inflow=0.17 cfs 0.014 af Outflow=0.02 cfs 0.014 af
Pond P5: Infiltration Chambers	Peak Elev=62.18' Storage=173 cf	Inflow=0.17 cfs 0.014 af Outflow=0.02 cfs 0.014 af
Pond P6: Infiltration Chambers	Peak Elev=62.08' Storage=173 cf	Inflow=0.17 cfs 0.014 af Outflow=0.02 cfs 0.014 af

Pond P7: Infiltration Chambers Peak Elev=62.08' Storage=174 cf Inflow=0.17 cfs 0.014 af
Outflow=0.02 cfs 0.014 af

Pond P8: Infiltration Chambers Peak Elev=62.07' Storage=317 cf Inflow=0.30 cfs 0.025 af
Outflow=0.04 cfs 0.025 af

Pond P9: Infiltration Chambers Peak Elev=58.88' Storage=2,706 cf Inflow=2.39 cfs 0.181 af
Outflow=0.25 cfs 0.181 af

Pond W1: BVW Peak Elev=55.30' Storage=186 cf Inflow=6.37 cfs 1.292 af
Outflow=6.36 cfs 1.292 af

Total Runoff Area = 7.487 ac Runoff Volume = 2.554 af Average Runoff Depth = 4.09"
44.91% Pervious = 3.363 ac 55.09% Impervious = 4.125 ac

Summary for Subcatchment 1S: Sub-1

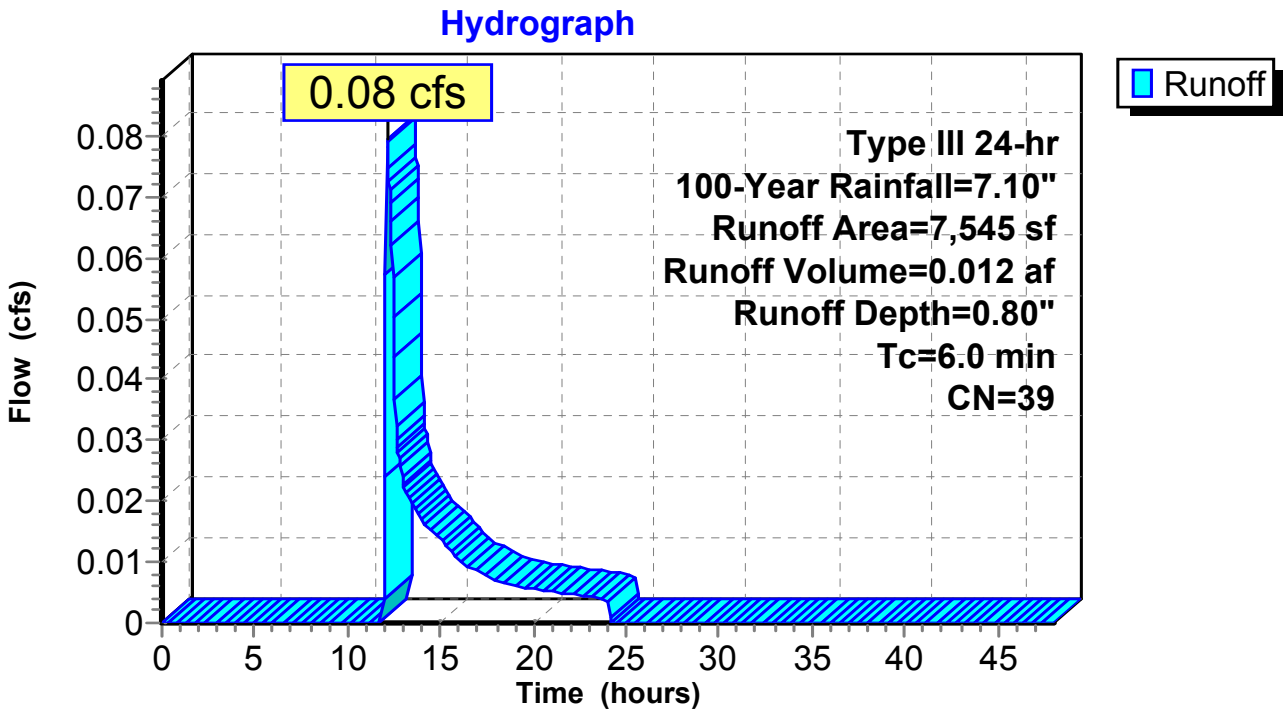
Runoff = 0.08 cfs @ 12.15 hrs, Volume= 0.012 af, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
7,545	39	>75% Grass cover, Good, HSG A
7,545		100.00% Pervious Area

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

Subcatchment 1S: Sub-1



Summary for Subcatchment 2S: Sub-2

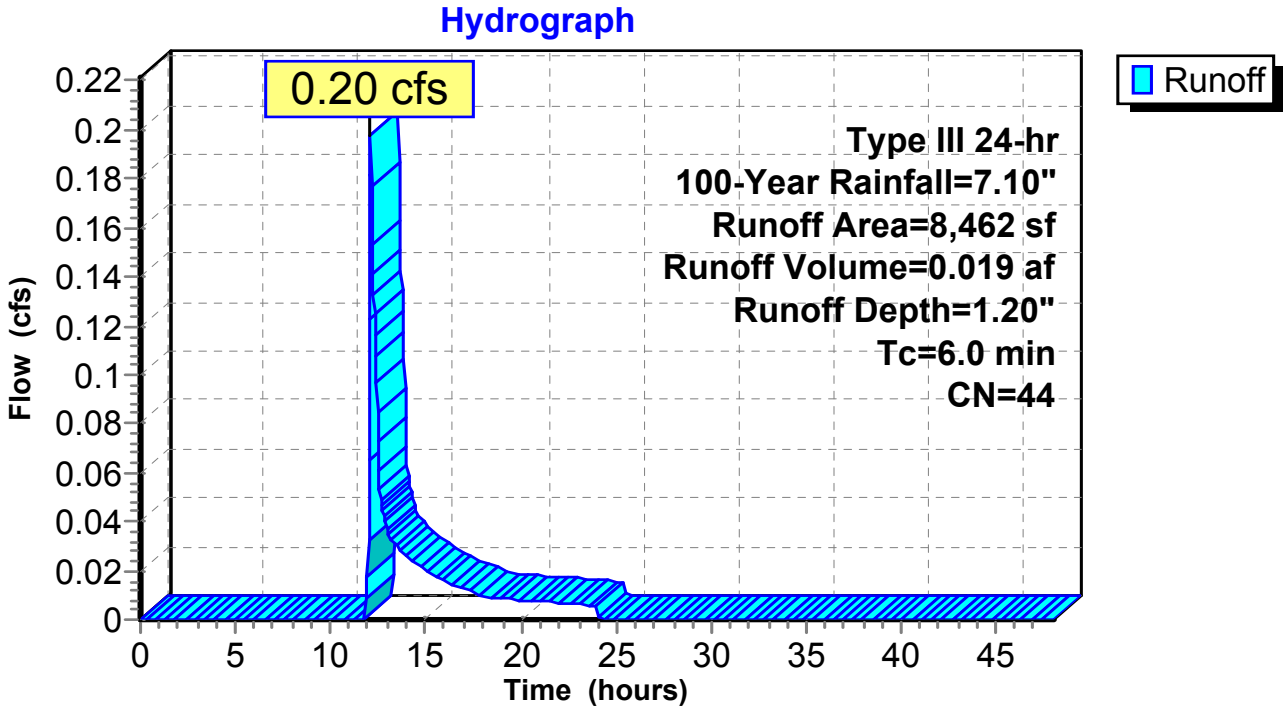
Runoff = 0.20 cfs @ 12.12 hrs, Volume= 0.019 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
	7,792	39	>75% Grass cover, Good, HSG A
*	100	98	Walls, HSG A
*	570	98	Decks, HSG A
	8,462	44	Weighted Average
	7,792		92.08% Pervious Area
	670		7.92% Impervious Area

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

Subcatchment 2S: Sub-2



Summary for Subcatchment 3A-10R: Roofs 15 B

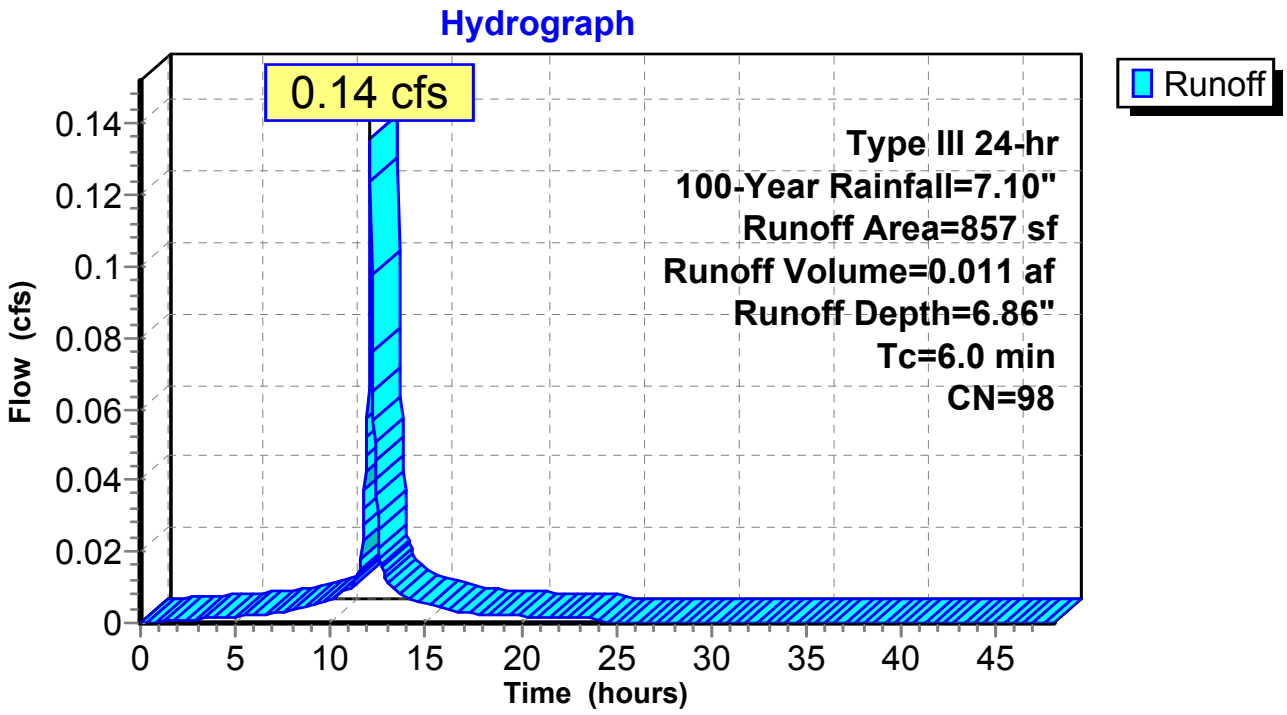
Runoff = 0.14 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
857	98	Roofs, HSG A
857		100.00% Impervious Area

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

Subcatchment 3A-10R: Roofs 15 B



Summary for Subcatchment 3A-10R1: Roofs 15 F

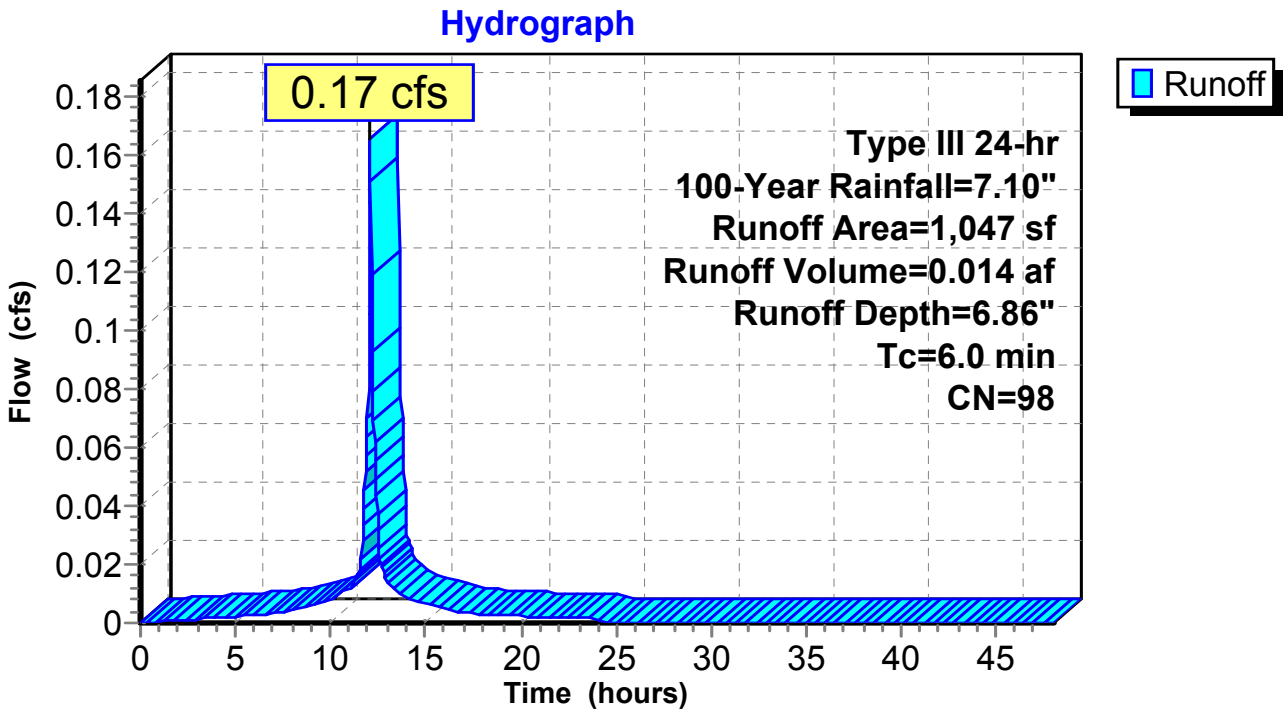
Runoff = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
1,047	98	Roofs, HSG A
1,047		100.00% Impervious Area

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

Subcatchment 3A-10R1: Roofs 15 F



Summary for Subcatchment 3A-11R: Roofs 24-27 FB

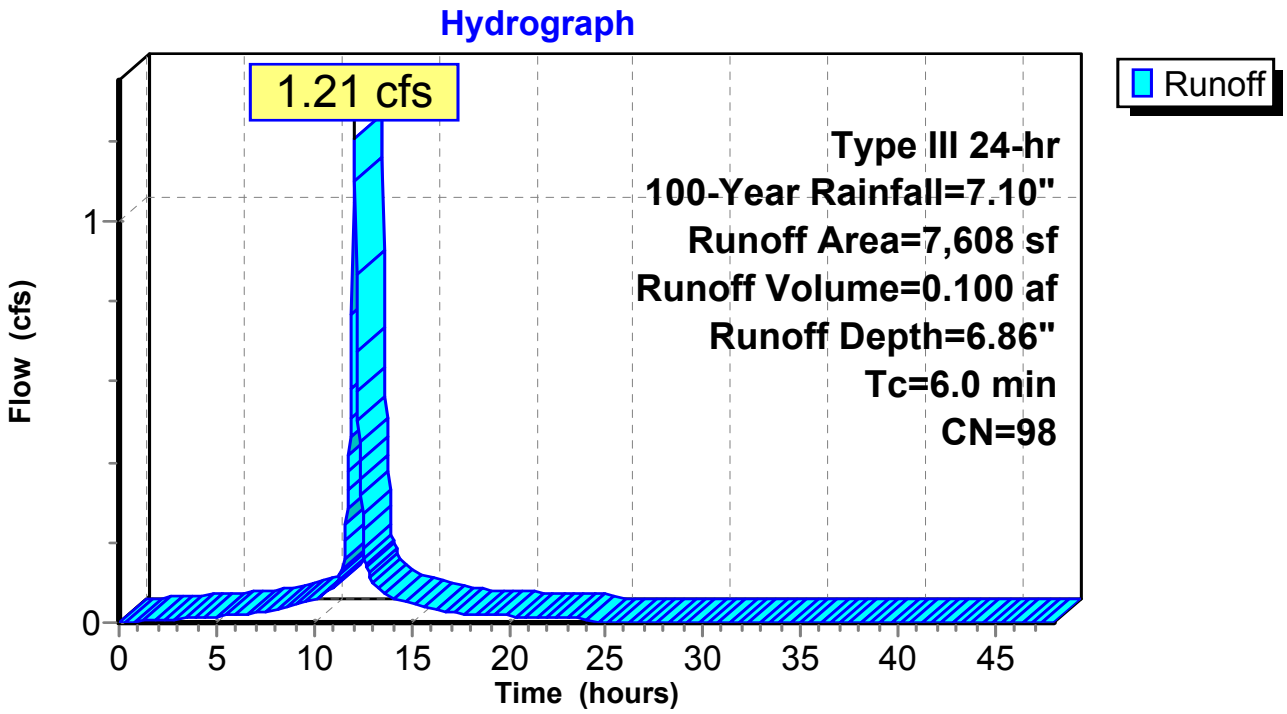
Runoff = 1.21 cfs @ 12.08 hrs, Volume= 0.100 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
4,152	98	Roofs, HSG A
3,456	98	Roofs, HSG A
7,608	98	Weighted Average
7,608		100.00% Impervious Area

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

Subcatchment 3A-11R: Roofs 24-27 FB



Summary for Subcatchment 3A-12R: Roofs 30-32 B

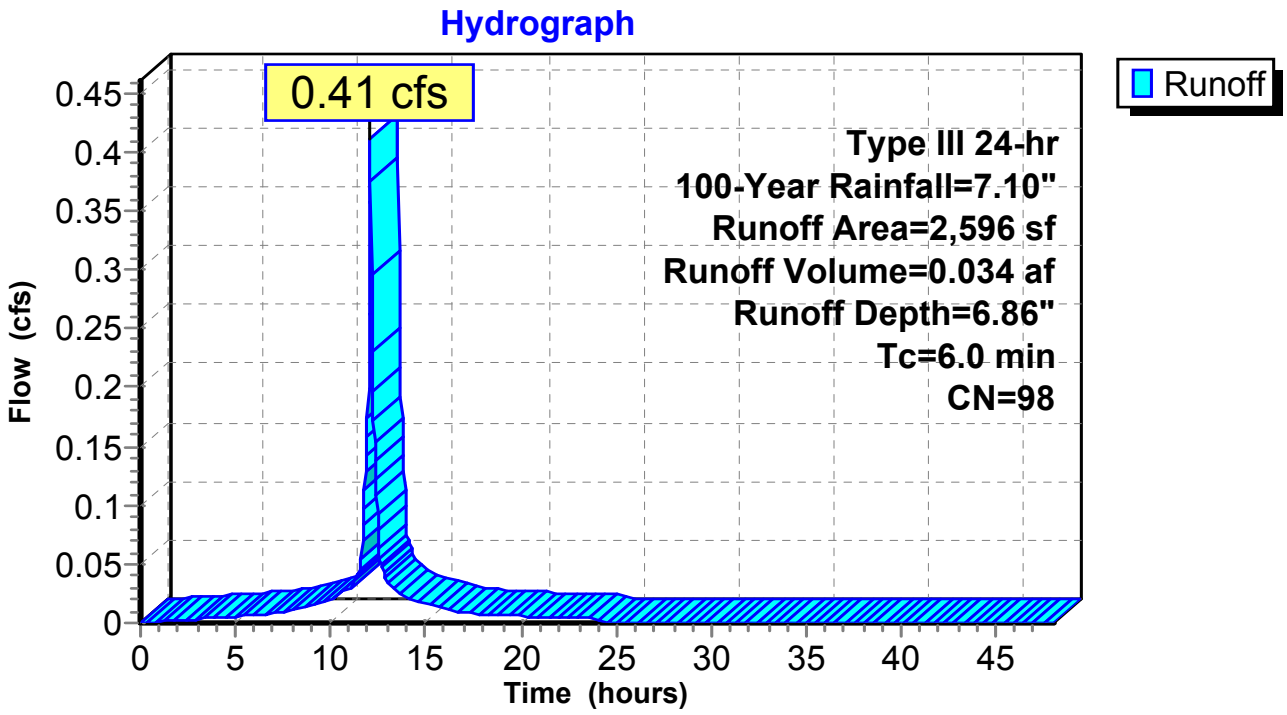
Runoff = 0.41 cfs @ 12.08 hrs, Volume= 0.034 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
2,596	98	Roofs, HSG A
2,596		100.00% Impervious Area

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

Subcatchment 3A-12R: Roofs 30-32 B



Summary for Subcatchment 3A-13R: Roofs 28-29 B

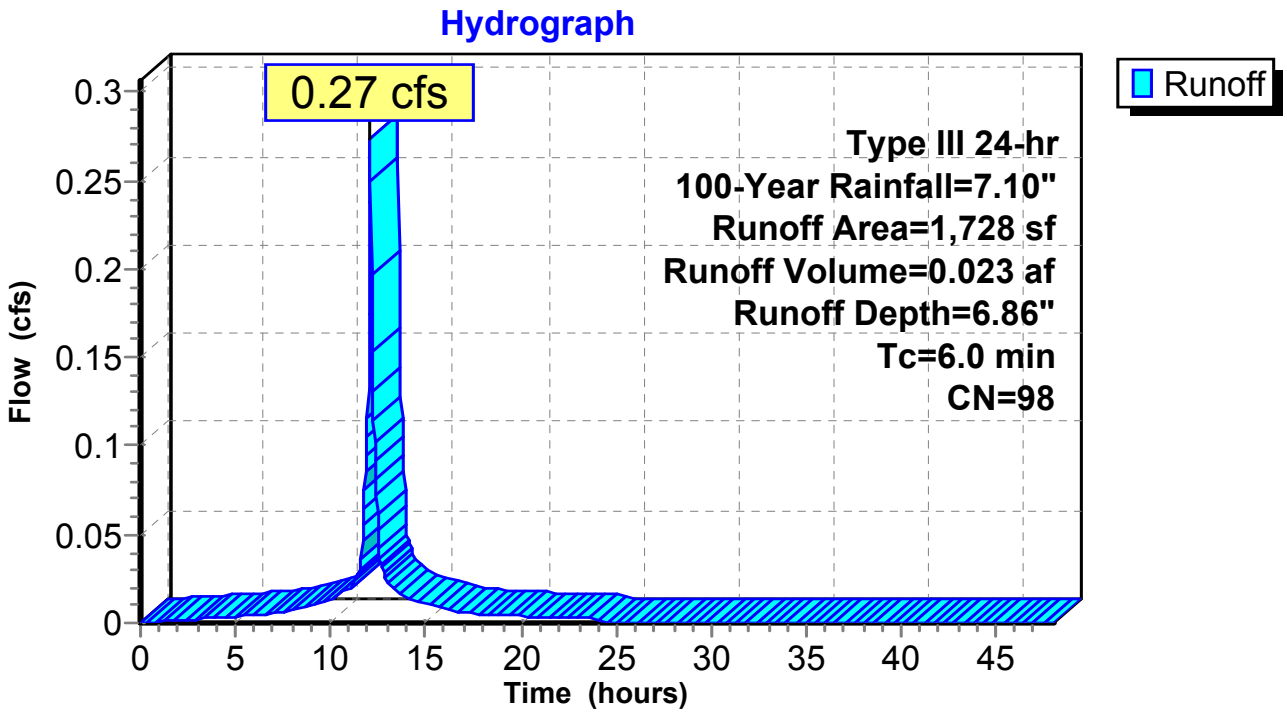
Runoff = 0.27 cfs @ 12.08 hrs, Volume= 0.023 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
1,728	98	Roofs, HSG A
1,728		100.00% Impervious Area

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

Subcatchment 3A-13R: Roofs 28-29 B



Summary for Subcatchment 3A-14R: Roofs 28-F

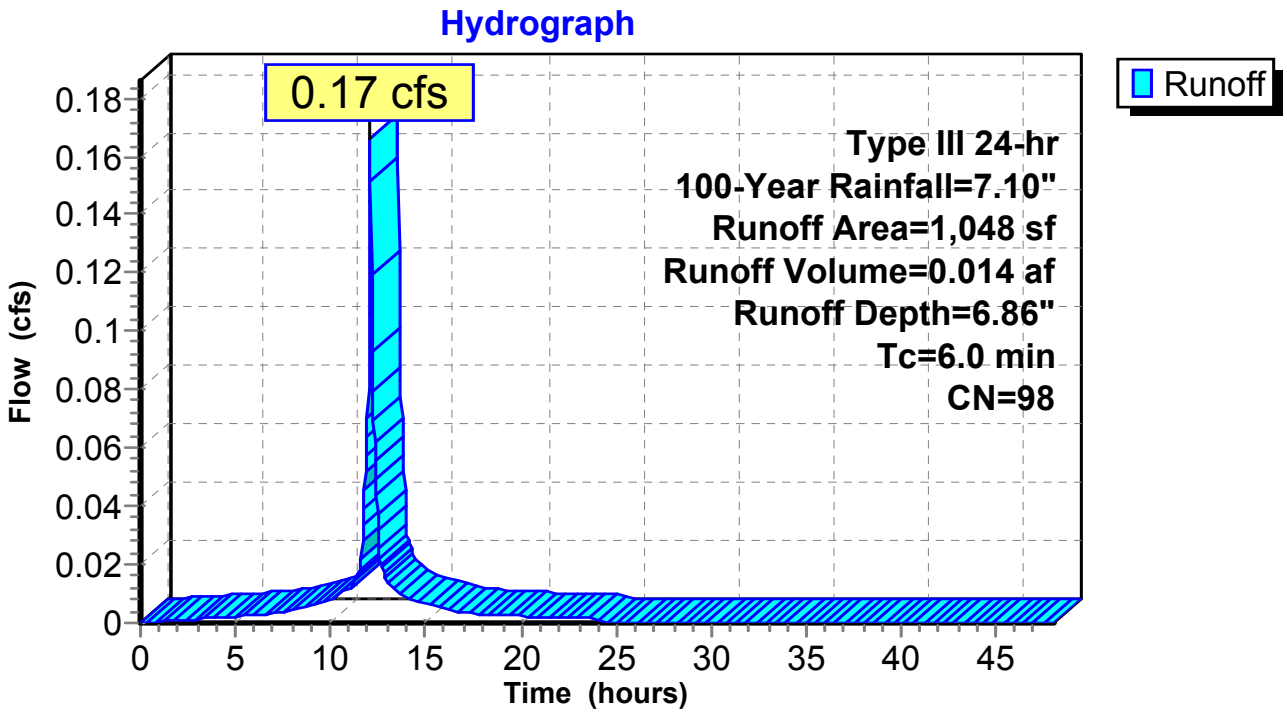
Runoff = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	1,048	98	Roofs, HSG B
	1,048		100.00% Impervious Area

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

Subcatchment 3A-14R: Roofs 28-F



Summary for Subcatchment 3A-15R: Roofs 29 F

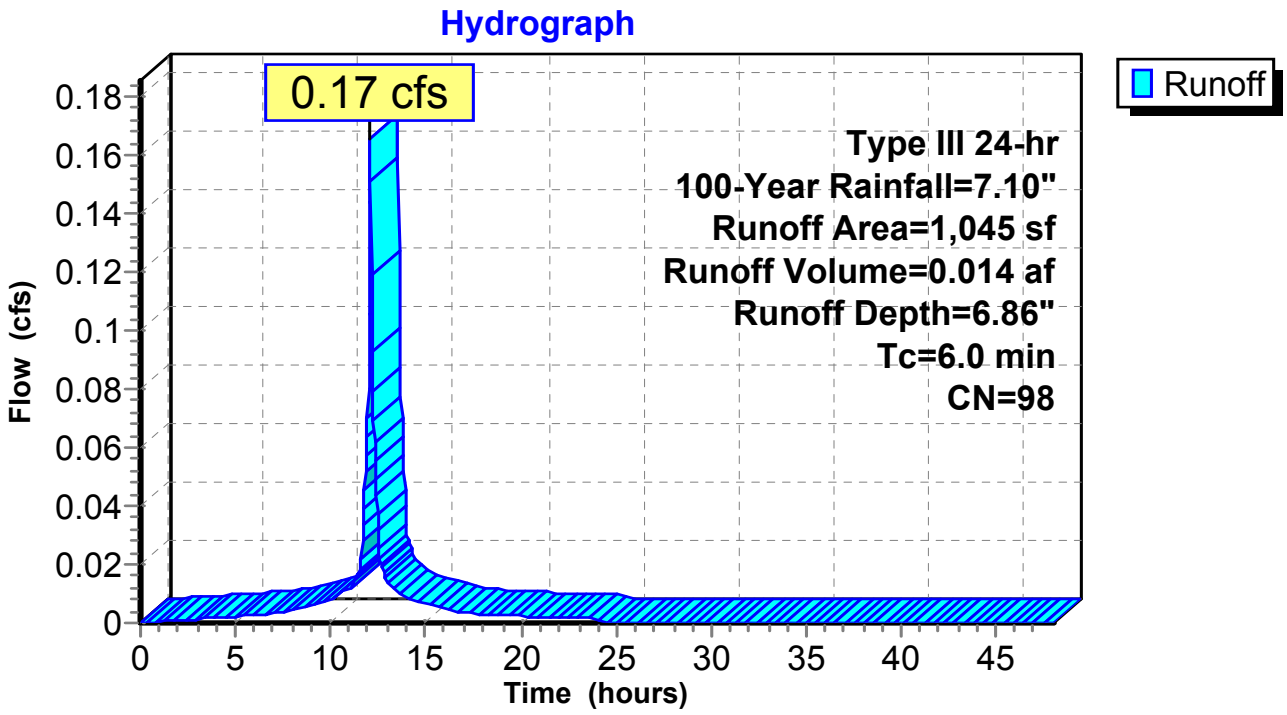
Runoff = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	1,045	98	Roofs, HSG B
	1,045		100.00% Impervious Area

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

Subcatchment 3A-15R: Roofs 29 F



Summary for Subcatchment 3A-16R: Roofs 30-32 F

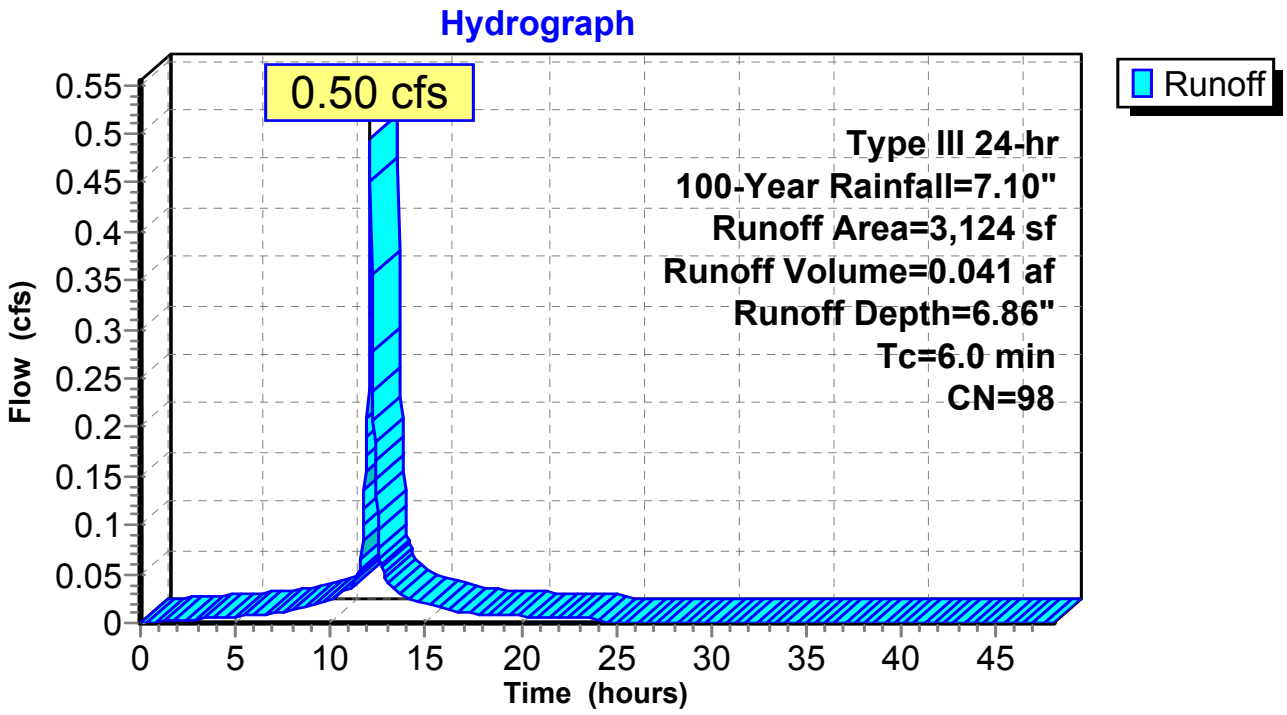
Runoff = 0.50 cfs @ 12.08 hrs, Volume= 0.041 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
3,124	98	Roofs, HSG A
3,124		100.00% Impervious Area

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

Subcatchment 3A-16R: Roofs 30-32 F



Summary for Subcatchment 3A-1R: Roof 5

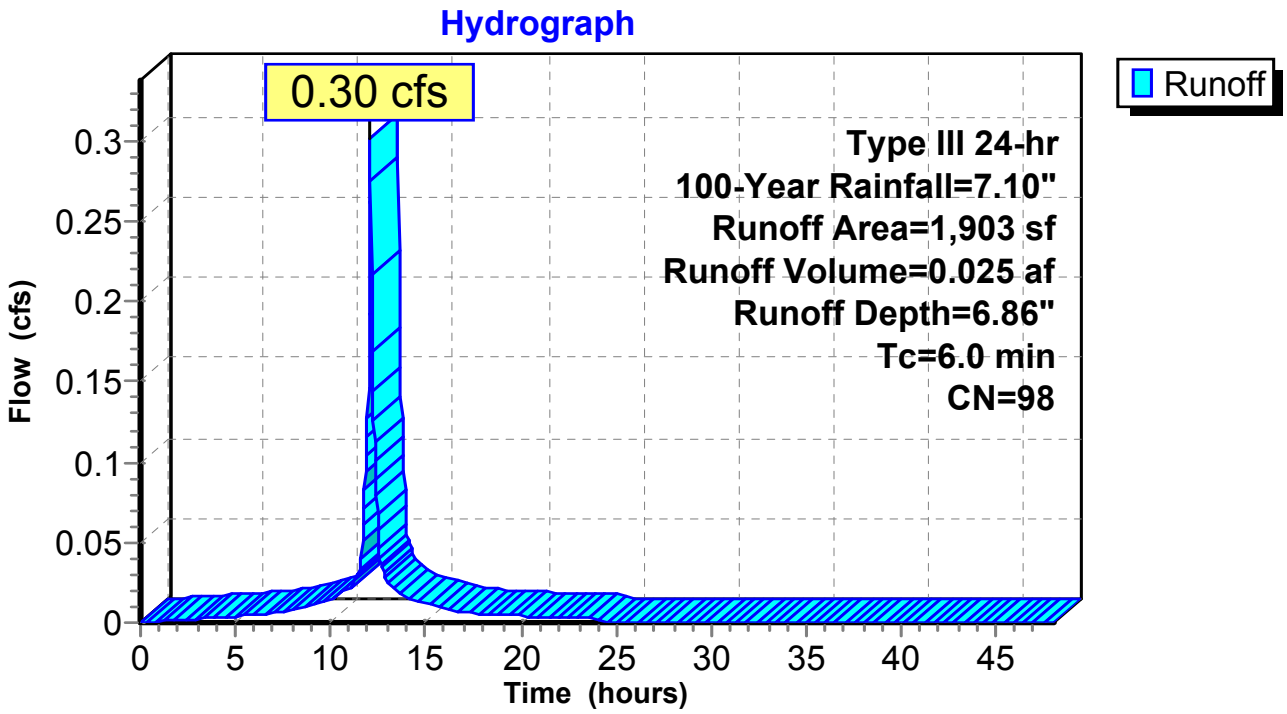
Runoff = 0.30 cfs @ 12.08 hrs, Volume= 0.025 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
	690	98	Roofs, HSG A
*	1,213	98	Roofs, HSG B
	1,903	98	Weighted Average
	1,903		100.00% Impervious Area

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

Subcatchment 3A-1R: Roof 5



Summary for Subcatchment 3A-2R: Roofs 1-4 FB

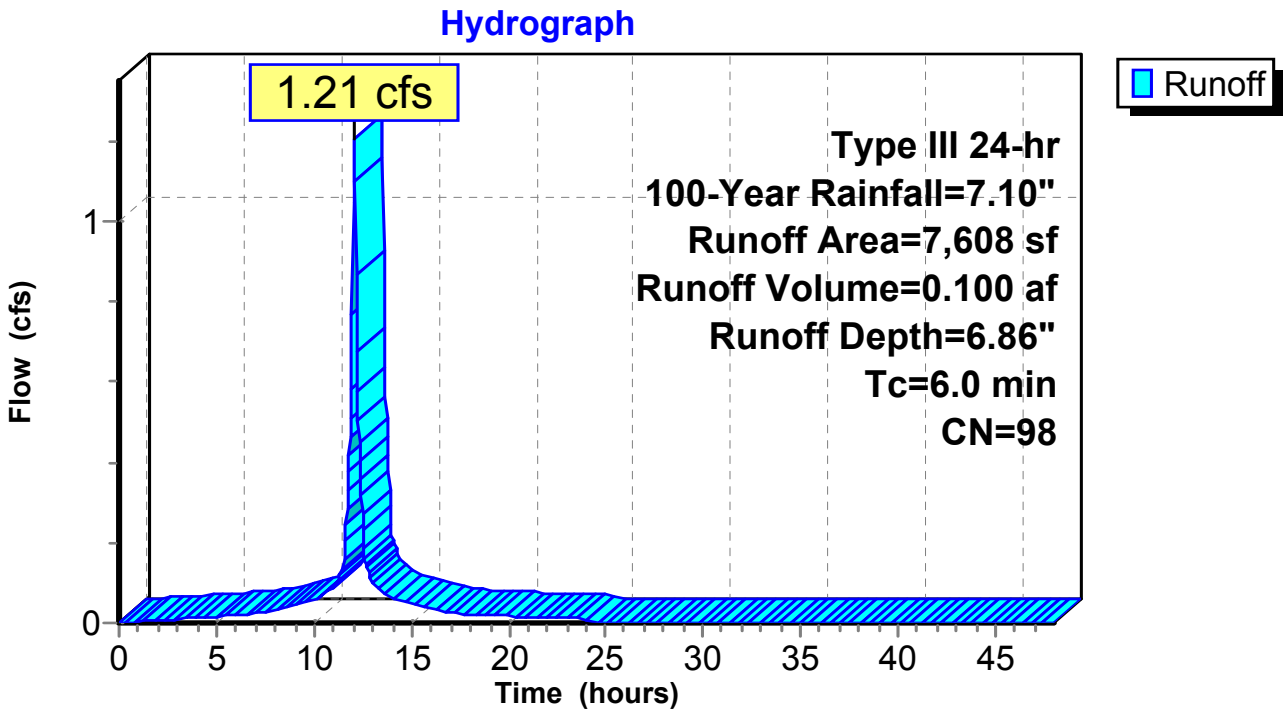
Runoff = 1.21 cfs @ 12.08 hrs, Volume= 0.100 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
7,608	98	Roofs, HSG A
7,608		100.00% Impervious Area

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

Subcatchment 3A-2R: Roofs 1-4 FB



Summary for Subcatchment 3A-2R1: Roofs 6-9 FB

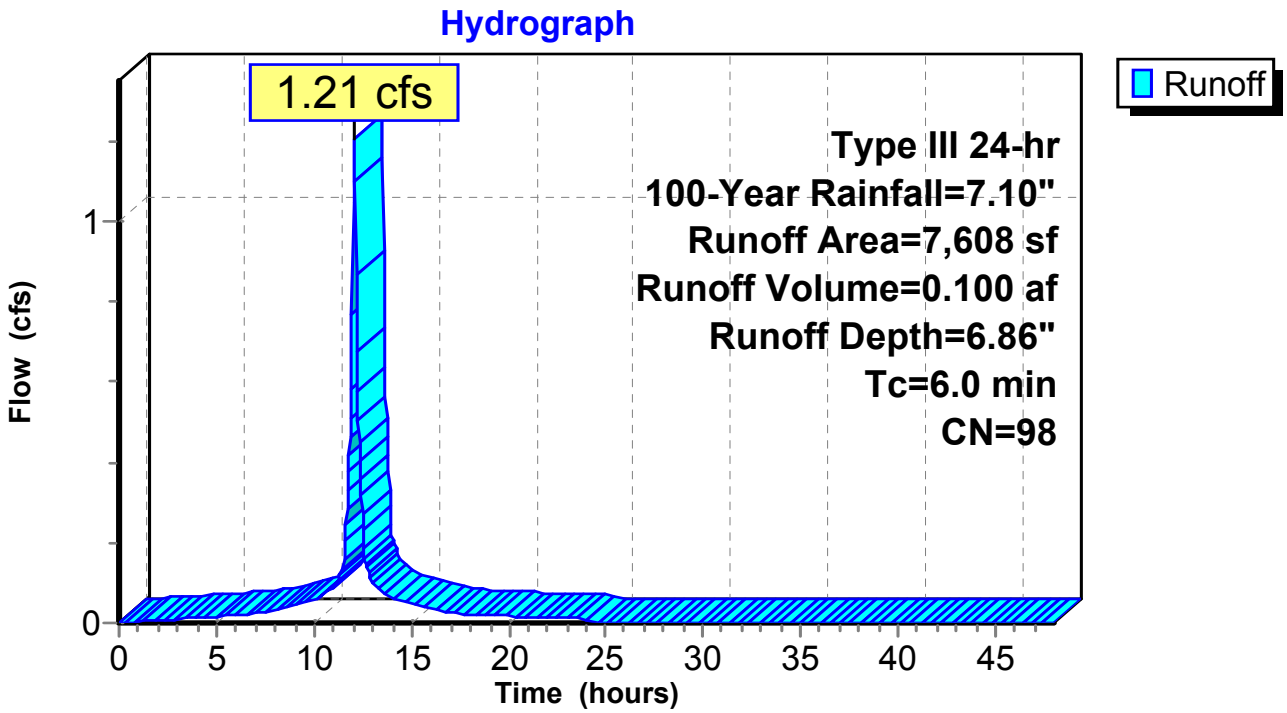
Runoff = 1.21 cfs @ 12.08 hrs, Volume= 0.100 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
7,608	98	Roofs, HSG A
7,608		100.00% Impervious Area

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

Subcatchment 3A-2R1: Roofs 6-9 FB



Summary for Subcatchment 3A-3R: Roofs 10-F

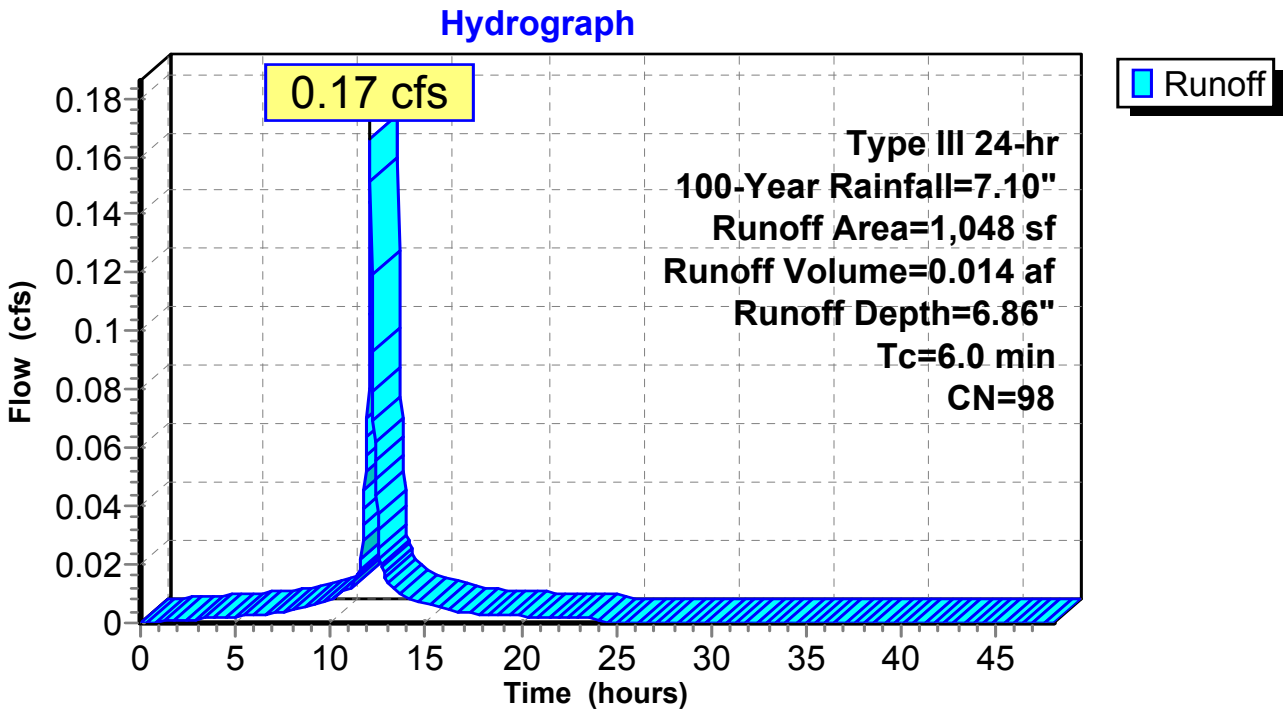
Runoff = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	1,048	98	Roofs, HSG B
	1,048		100.00% Impervious Area

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

Subcatchment 3A-3R: Roofs 10-F



Summary for Subcatchment 3A-4R: Roofs 11 F

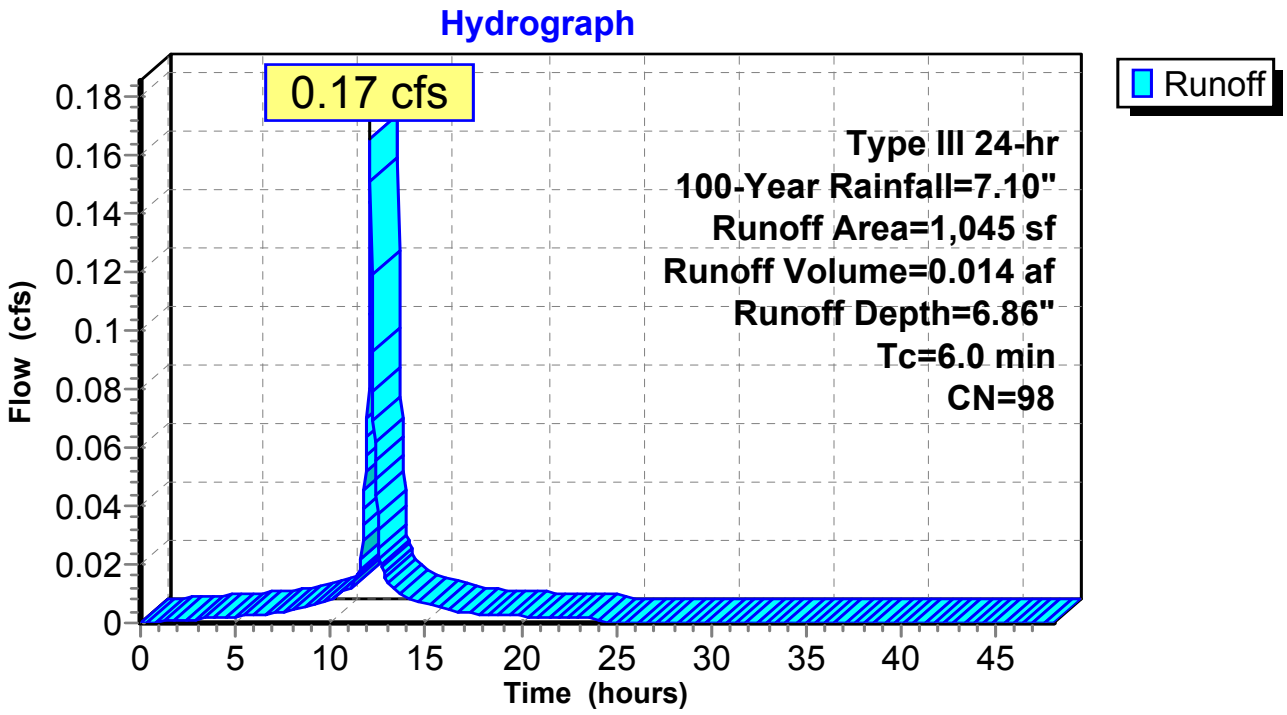
Runoff = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	1,045	98	Roofs, HSG B
	1,045		100.00% Impervious Area

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

Subcatchment 3A-4R: Roofs 11 F



Summary for Subcatchment 3A-5R: Roofs 10-11 B

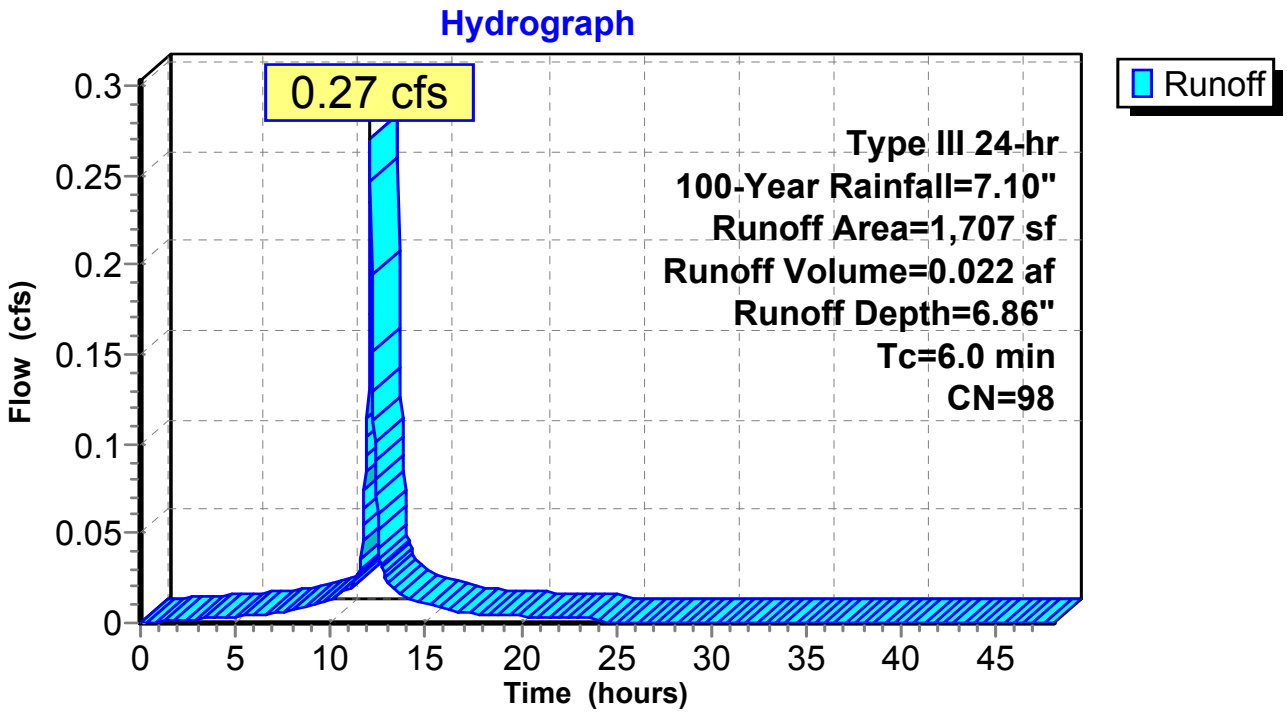
Runoff = 0.27 cfs @ 12.08 hrs, Volume= 0.022 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	1,707	98	Roofs, HSG B
	1,707		100.00% Impervious Area

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

Subcatchment 3A-5R: Roofs 10-11 B



Summary for Subcatchment 3A-6R: Roofs 12 B

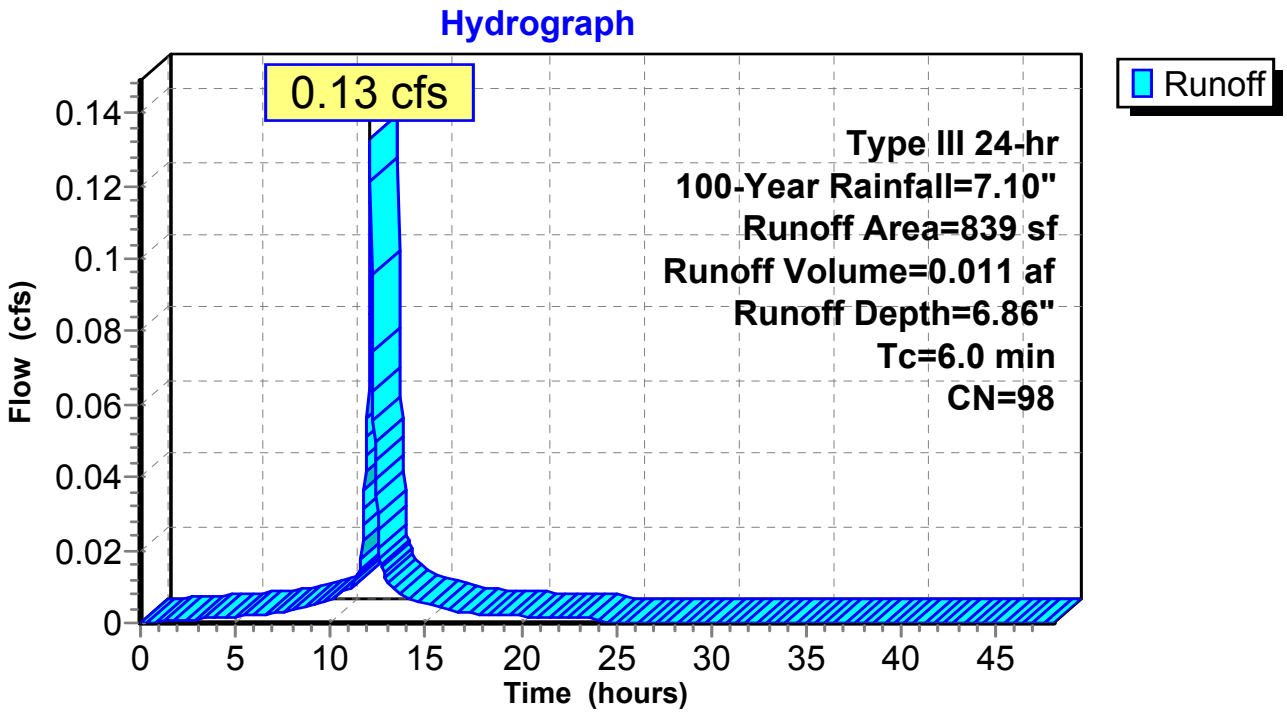
Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	839	98	Roofs, HSG B
	839		100.00% Impervious Area

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

Subcatchment 3A-6R: Roofs 12 B



Summary for Subcatchment 3A-7R: Roofs 12 F

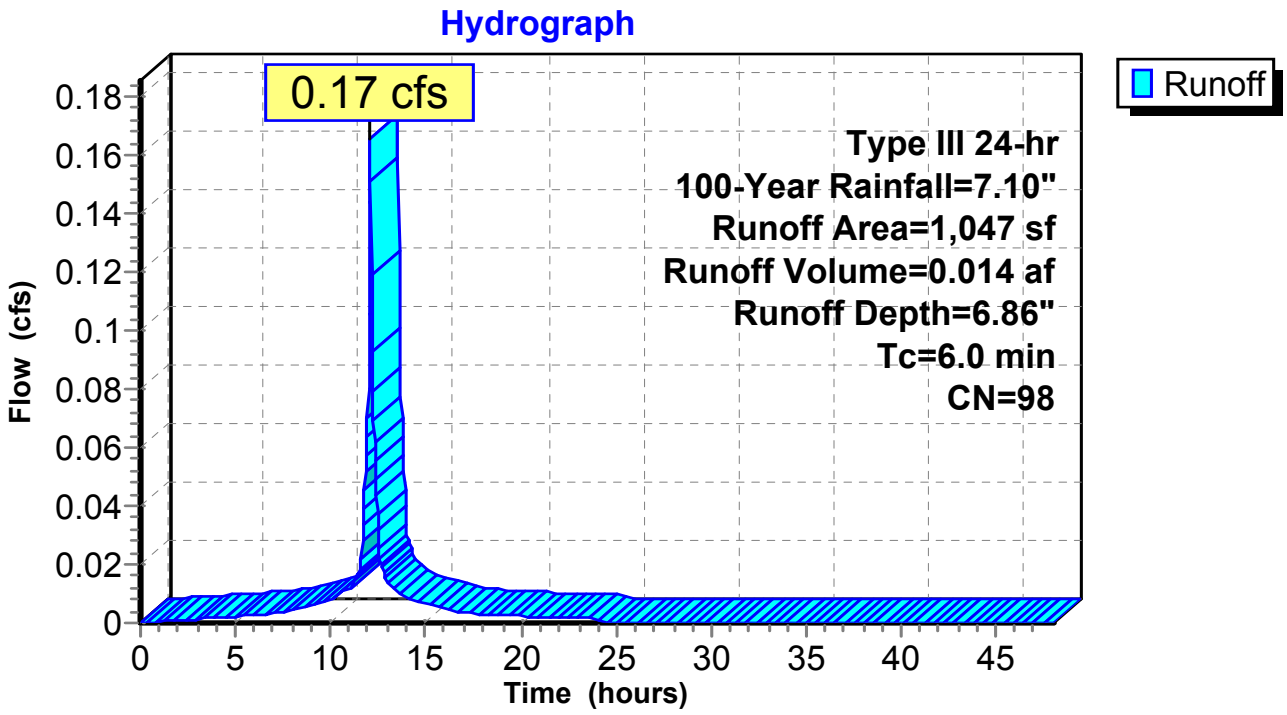
Runoff = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	1,047	98	Roofs, HSG B
	1,047		100.00% Impervious Area

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

Subcatchment 3A-7R: Roofs 12 F



Summary for Subcatchment 3A-8R: Roofs 13 F

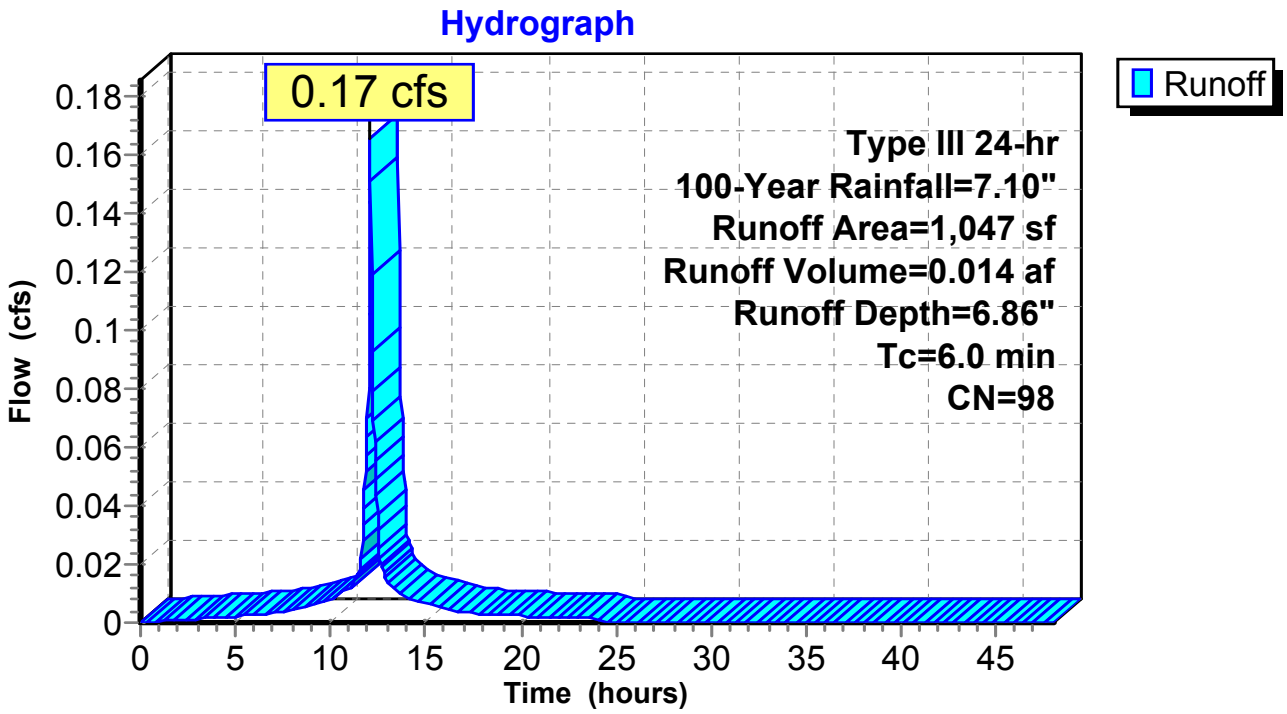
Runoff = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
	80	98	Roofs, HSG A
*	967	98	Roofs, HSG B
	1,047	98	Weighted Average
	1,047		100.00% Impervious Area

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

Subcatchment 3A-8R: Roofs 13 F



Summary for Subcatchment 3A-9R: Roofs 14 F

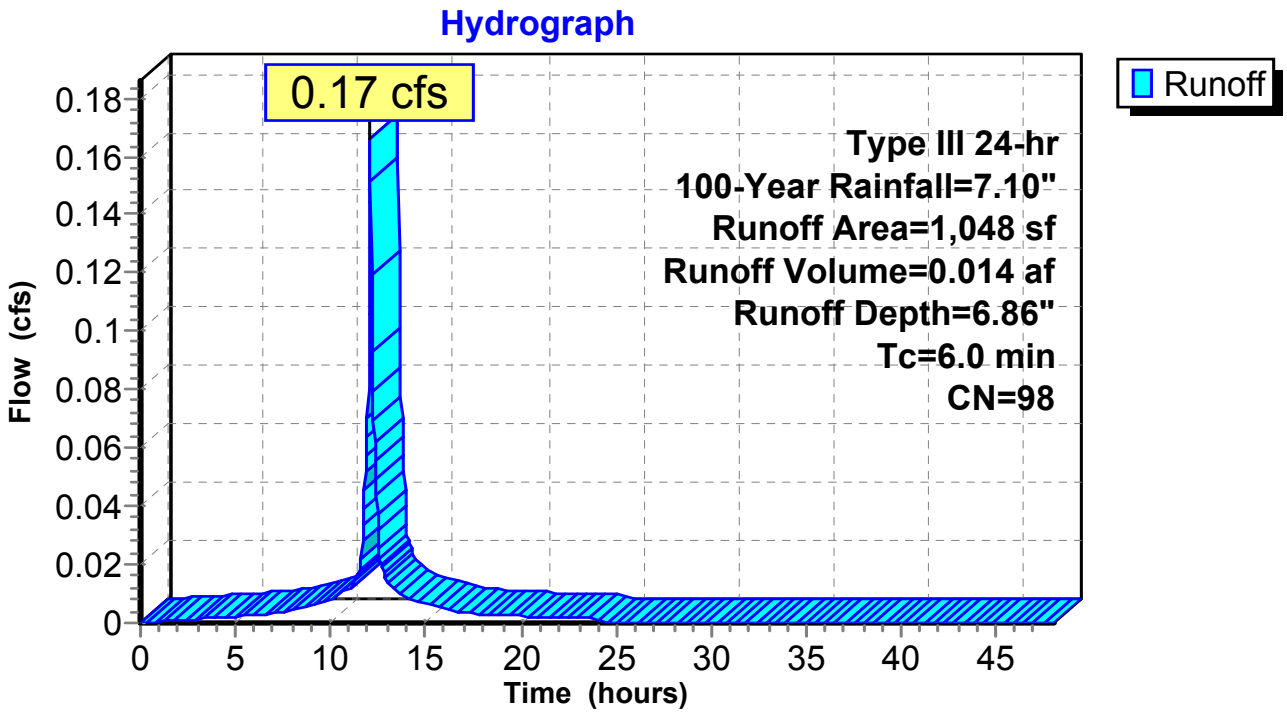
Runoff = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
1,048	98	Roofs, HSG A
1,048		100.00% Impervious Area

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

Subcatchment 3A-9R: Roofs 14 F



Summary for Subcatchment 3A-S: Sub-3A

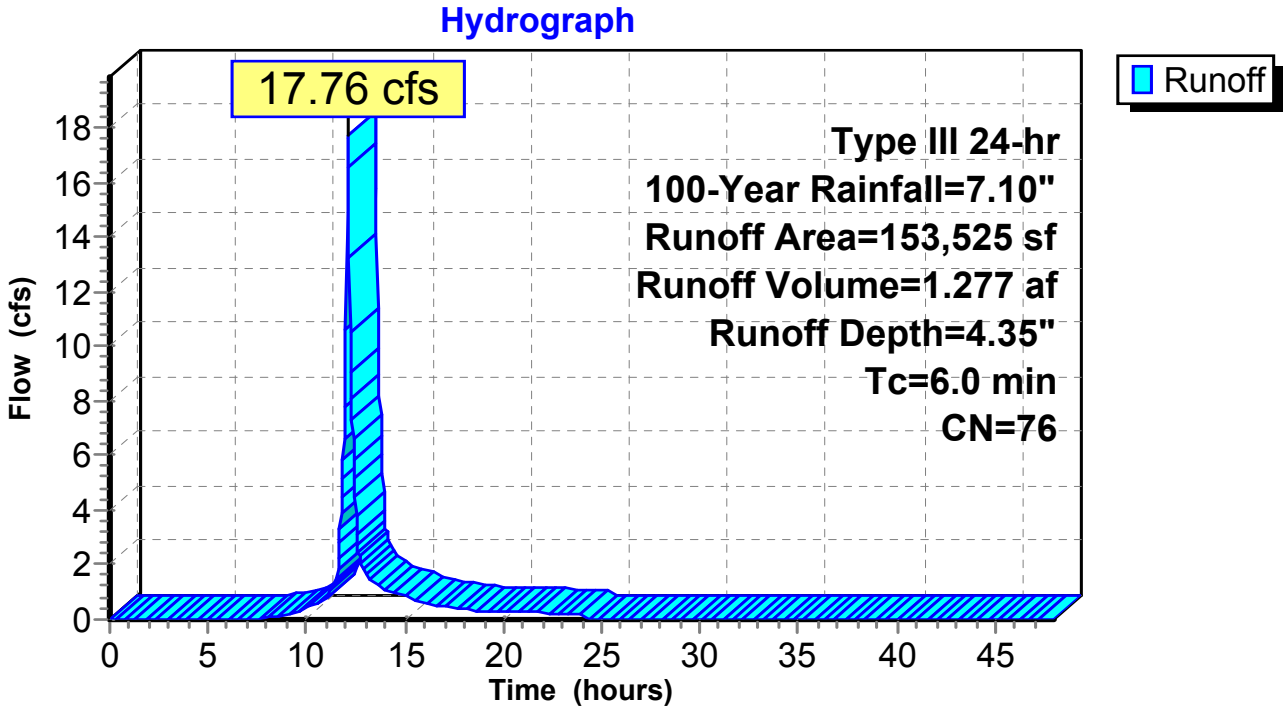
Runoff = 17.76 cfs @ 12.09 hrs, Volume= 1.277 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	11,724	98	Paved drives, HSG A
*	2,526	98	Paved drives, HSG B
*	20,421	98	Paved roads w/curbs & sewers, HSG A
	8,829	98	Paved roads w/curbs & sewers, HSG B
*	4,190	98	Paved sidewalk, HSG A
*	1,229	98	Paved sidewalk, HSG B
*	924	98	Walks, HSG A
*	168	98	Walks, HSG B
*	922	98	Roofs, HSG A
*	874	98	Roofs, HSG B
	5,720	98	Roofs, HSG A
	3,790	98	Roofs, HSG A
*	3,647	98	Decks, HSG A
*	262	98	Decks, HSG B
*	7,626	98	Detention Basin, HSG A
*	4,140	98	Detention Basin, HSG B
	45,699	39	>75% Grass cover, Good, HSG A
	7,682	61	>75% Grass cover, Good, HSG B
*	103	98	Walls, HSG A
*	1,384	98	Roofs, HSG A - offsite
*	16,069	98	Paved parking, HSG A - offsite
*	914	39	>75% Grass cover, Good, HSG A - offsite
*	1,682	30	Woods, Good, HSG A - offsite
*	3,000	30	Woods, Good, HSG A - offsite
	153,525	76	Weighted Average
	58,977		38.42% Pervious Area
	94,548		61.58% Impervious Area

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

Subcatchment 3A-S: Sub-3A



Summary for Subcatchment 3B-S: Sub-3B

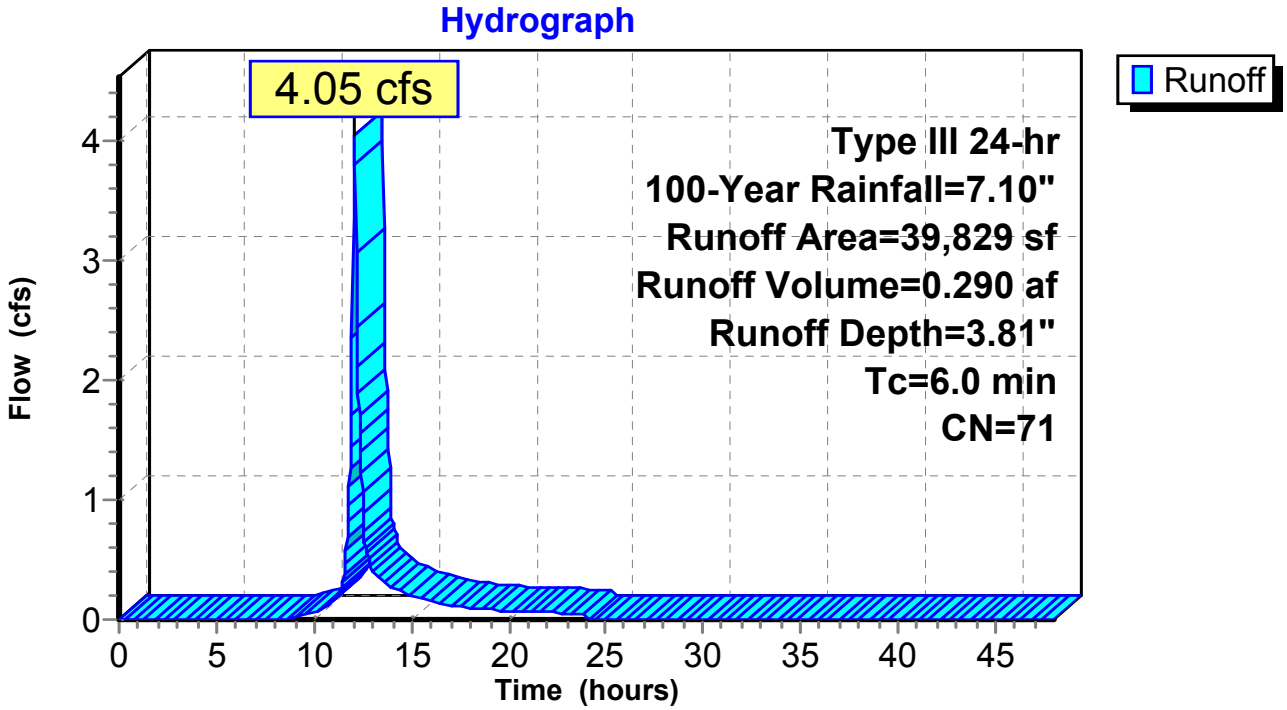
Runoff = 4.05 cfs @ 12.09 hrs, Volume= 0.290 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
	10,864	55	Woods, Good, HSG B
	1,423	30	Woods, Good, HSG A
*	15,781	98	Wetlands, HSG B
	3,305	39	>75% Grass cover, Good, HSG A
	3,375	61	>75% Grass cover, Good, HSG B
*	371	98	Decks, HSG B
*	418	98	Wetlands, HSG B - offsite
*	62	30	Woods, Good, HSG A - offsite
*	1,346	39	>75% Grass cover, Good, HSG A - offsite
*	959	61	>75% Grass cover, Good, HSG B - offsite
*	1,734	55	Woods, Good, HSG B - offsite
*	191	98	Riprap, HSG B
	39,829	71	Weighted Average
	23,068		57.92% Pervious Area
	16,761		42.08% Impervious Area

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

Subcatchment 3B-S: Sub-3B



Summary for Subcatchment 3C-S: Sub-3C

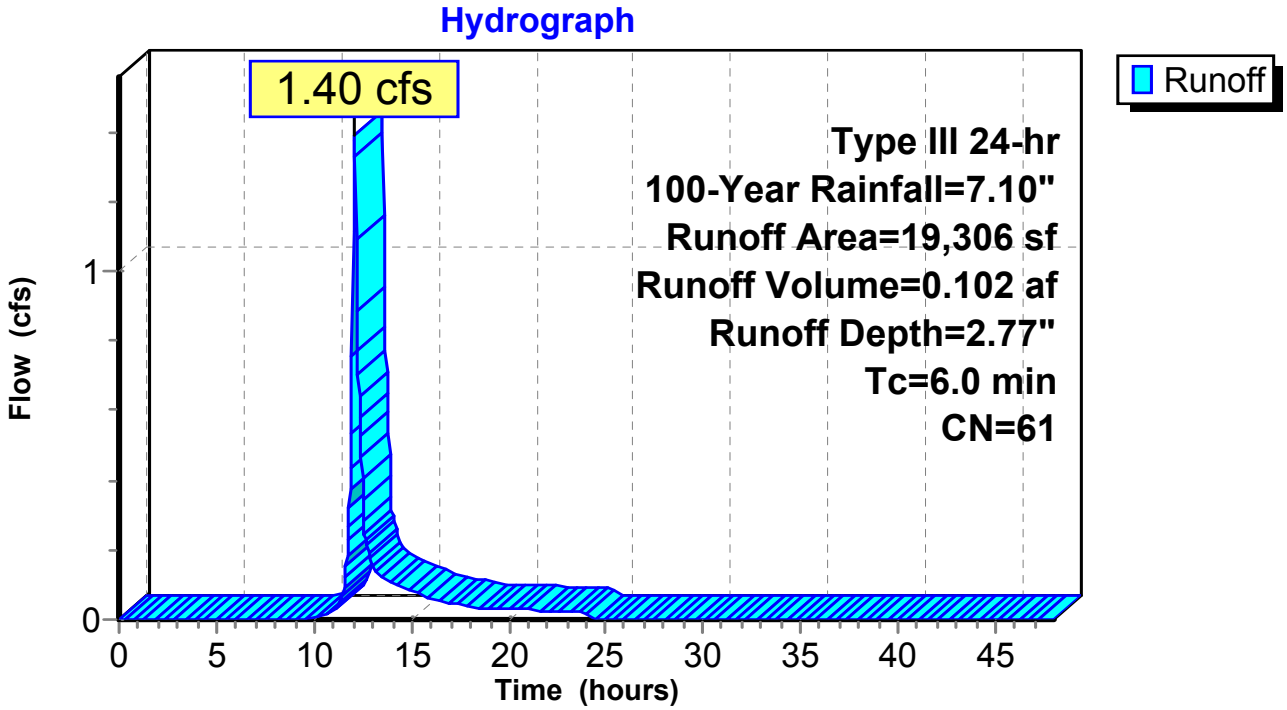
Runoff = 1.40 cfs @ 12.09 hrs, Volume= 0.102 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	2,131	30	Woods, Good, HSG A - offsite
*	579	98	Paved roads w/curbs & sewers, HSG A - offsite
*	528	98	Paved drives, HSG A - offsite
*	1,289	39	>75% Grass cover, Good, HSG A - offsite
	5,175	61	>75% Grass cover, Good, HSG B
	4,041	39	>75% Grass cover, Good, HSG A
*	96	98	Paved sidewalk, HSG A
*	300	98	Paved sidewalk, HSG B
*	78	98	Paved sidewalk, HSG A - offsite
*	1,603	98	Paved roads w/curbs & sewers, HSG B
*	185	98	Decks, HSG B
	266	98	Paved roads w/curbs & sewers, HSG A
*	2,022	98	Impervious, HSG A - offsite
	1,013	39	>75% Grass cover, Good, HSG A
	19,306	61	Weighted Average
	13,649		70.70% Pervious Area
	5,657		29.30% Impervious Area

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

Subcatchment 3C-S: Sub-3C



Summary for Subcatchment 4S: Sub-4

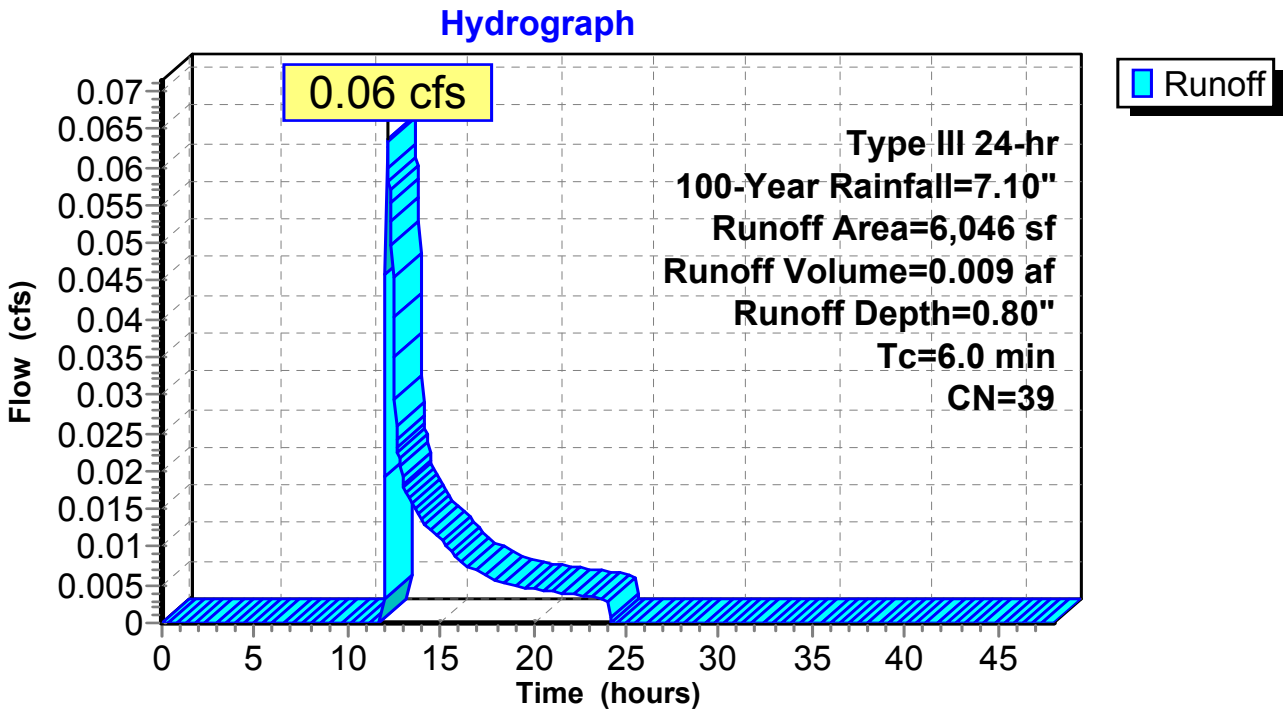
Runoff = 0.06 cfs @ 12.15 hrs, Volume= 0.009 af, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
6,046	39	>75% Grass cover, Good, HSG A
6,046		100.00% Pervious Area

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

Subcatchment 4S: Sub-4



Summary for Subcatchment 4S-1: Sub-4

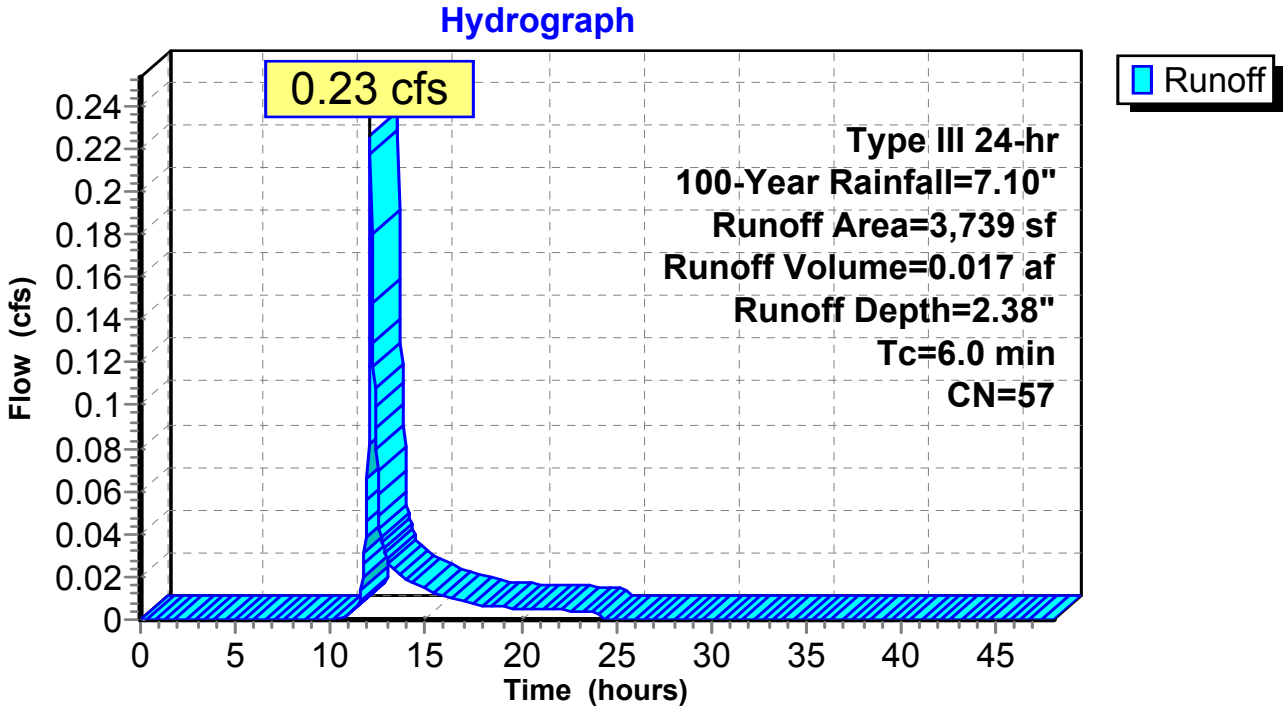
Runoff = 0.23 cfs @ 12.10 hrs, Volume= 0.017 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
	2,570	39	>75% Grass cover, Good, HSG A
*	783	98	Decks, HSG A
*	386	98	Walls, HSG A
	3,739	57	Weighted Average
	2,570		68.73% Pervious Area
	1,169		31.27% Impervious Area

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

Subcatchment 4S-1: Sub-4



Summary for Subcatchment 5S: Sub -5

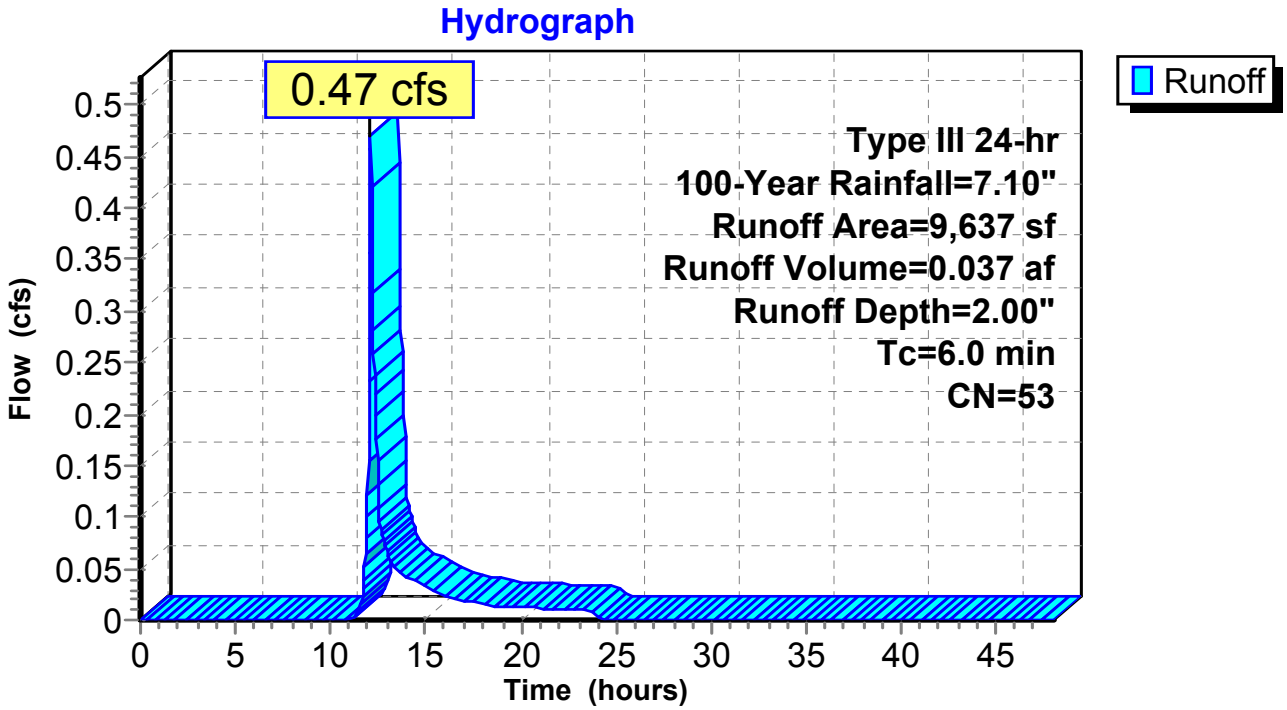
Runoff = 0.47 cfs @ 12.10 hrs, Volume= 0.037 af, Depth= 2.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
	7,163	39	>75% Grass cover, Good, HSG A
	350	80	>75% Grass cover, Good, HSG D
*	557	98	Decks, HSG A
*	235	98	Sidewalk, HSG A
*	61	98	Sidewalk, HSG D
	982	98	Paved roads w/curbs & sewers, HSG A
	289	98	Paved roads w/curbs & sewers, HSG D
*	0	98	Walls, HSG A
	9,637	53	Weighted Average
	7,513		77.96% Pervious Area
	2,124		22.04% Impervious Area

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

Subcatchment 5S: Sub -5



Summary for Subcatchment 5S-1: Roofs 31-32 F

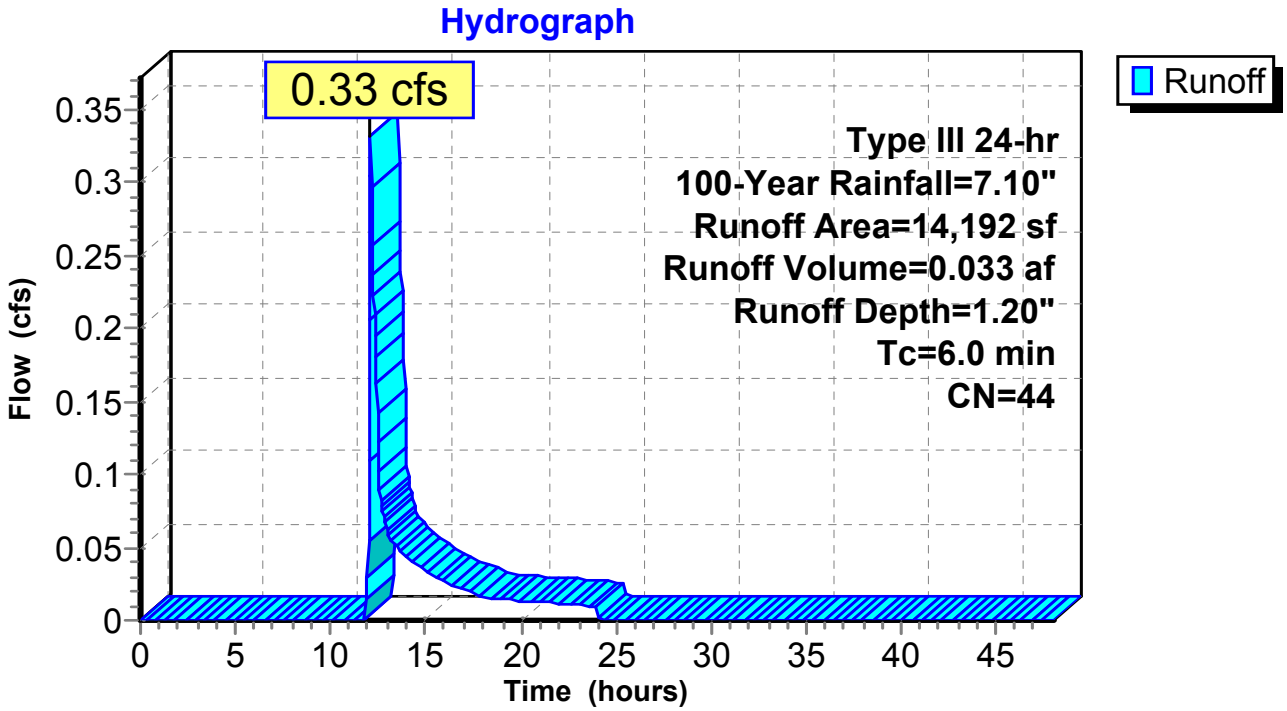
Runoff = 0.33 cfs @ 12.12 hrs, Volume= 0.033 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	195	98	Walls, HSG A
*	370	98	Decks, HSG A
	6,683	39	>75% Grass cover, Good, HSG A
	5,018	39	>75% Grass cover, Good, HSG A
	1,278	39	>75% Grass cover, Good, HSG A
*	648	98	Walls, HSG A
	14,192	44	Weighted Average
	12,979		91.45% Pervious Area
	1,213		8.55% Impervious Area

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

Subcatchment 5S-1: Roofs 31-32 F



Summary for Subcatchment 5S-P: Pavement

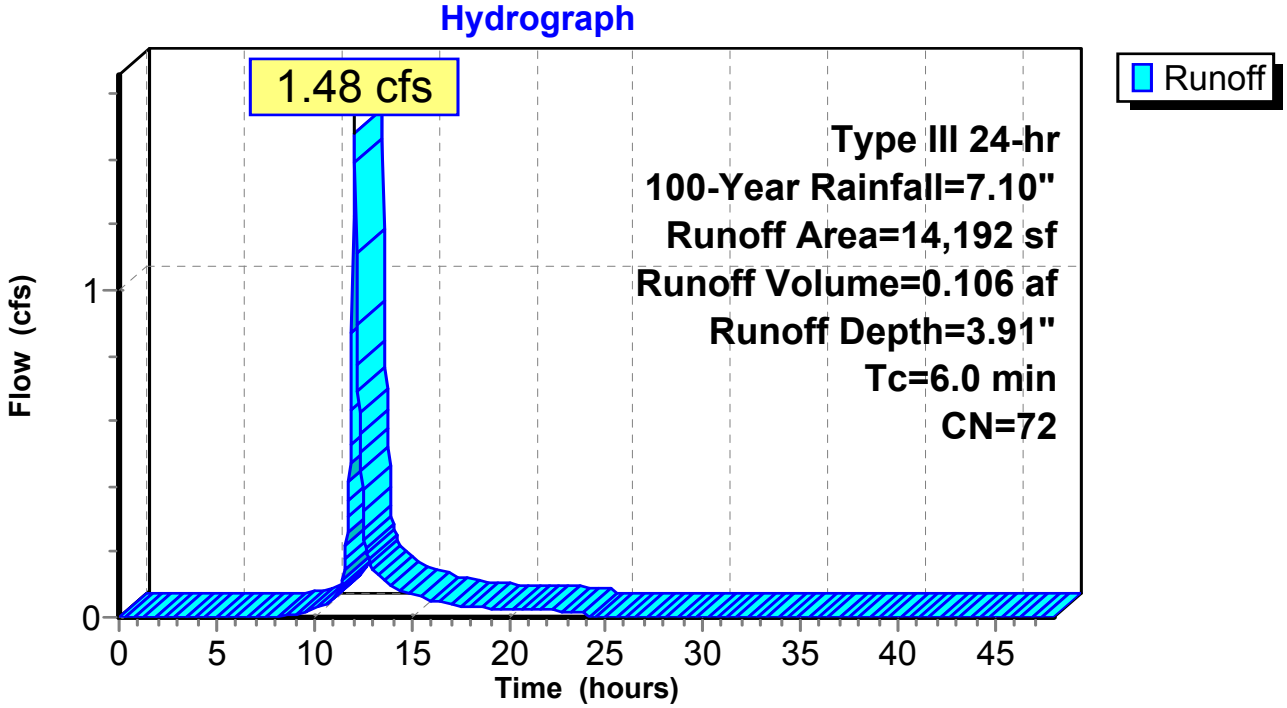
Runoff = 1.48 cfs @ 12.09 hrs, Volume= 0.106 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (sf)	CN	Description
*	2,746	98	Paved drives, HSG A
	4,561	98	Paved roads w/curbs & sewers, HSG A
	6,343	39	>75% Grass cover, Good, HSG A
*	287	98	Sidewalk, HSG A
*	255	98	Walks, HSG A
	14,192	72	Weighted Average
	6,343		44.69% Pervious Area
	7,849		55.31% Impervious Area

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

Subcatchment 5S-P: Pavement



Summary for Subcatchment 5S-R1: Roofs 19-21 FB

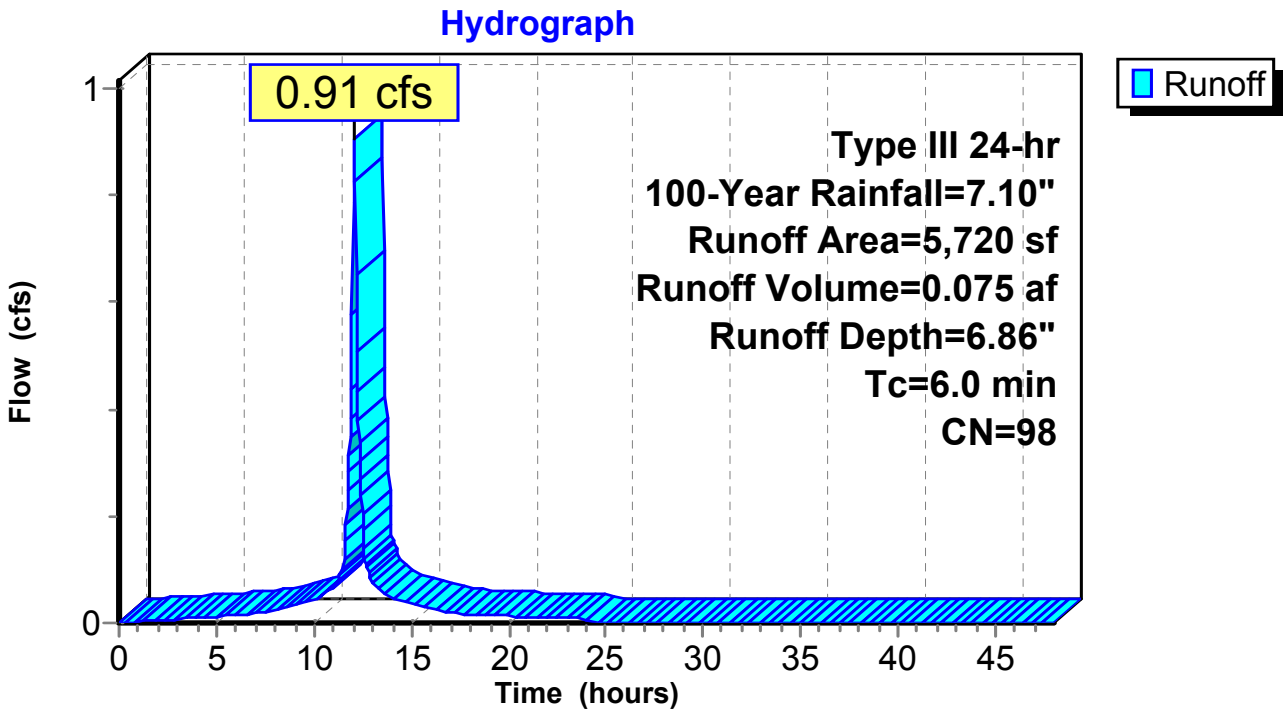
Runoff = 0.91 cfs @ 12.08 hrs, Volume= 0.075 af, Depth= 6.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (sf)	CN	Description
5,720	98	Roofs, HSG A
5,720		100.00% Impervious Area

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

Subcatchment 5S-R1: Roofs 19-21 FB

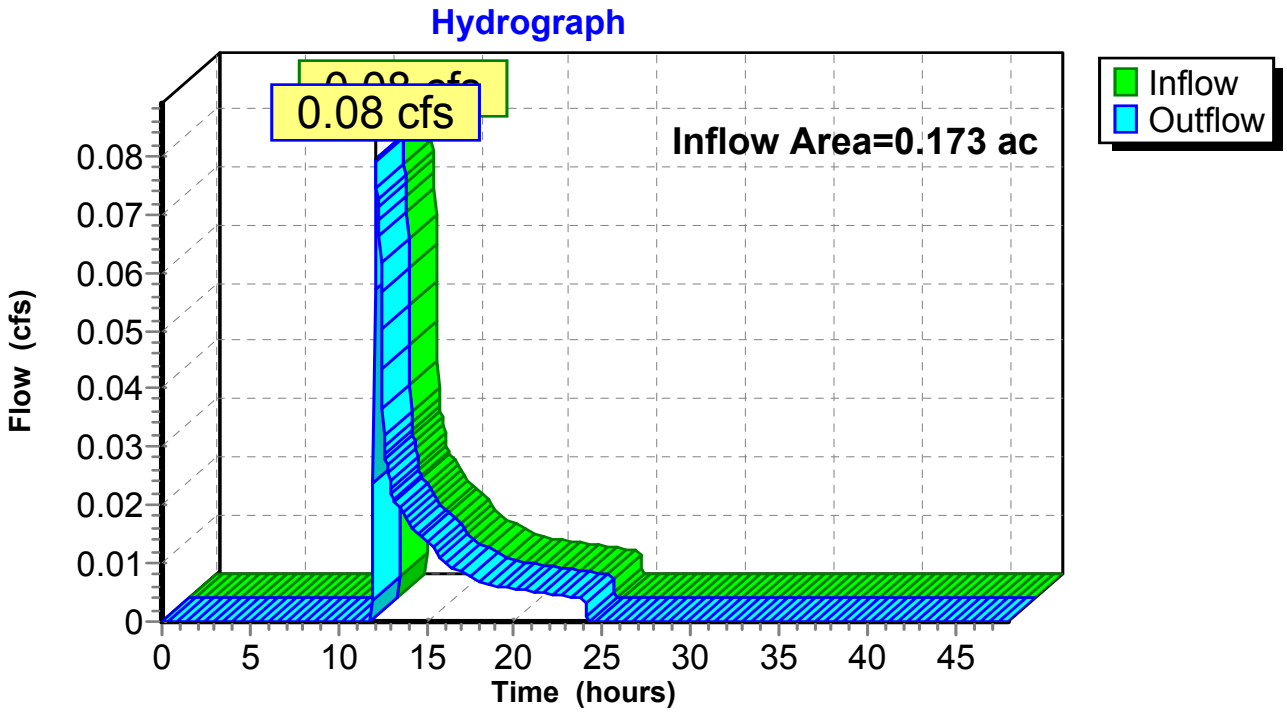


Summary for Reach DP-1: DMH

Inflow Area = 0.173 ac, 0.00% Impervious, Inflow Depth = 0.80" for 100-Year event
Inflow = 0.08 cfs @ 12.15 hrs, Volume= 0.012 af
Outflow = 0.08 cfs @ 12.15 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-1: DMH

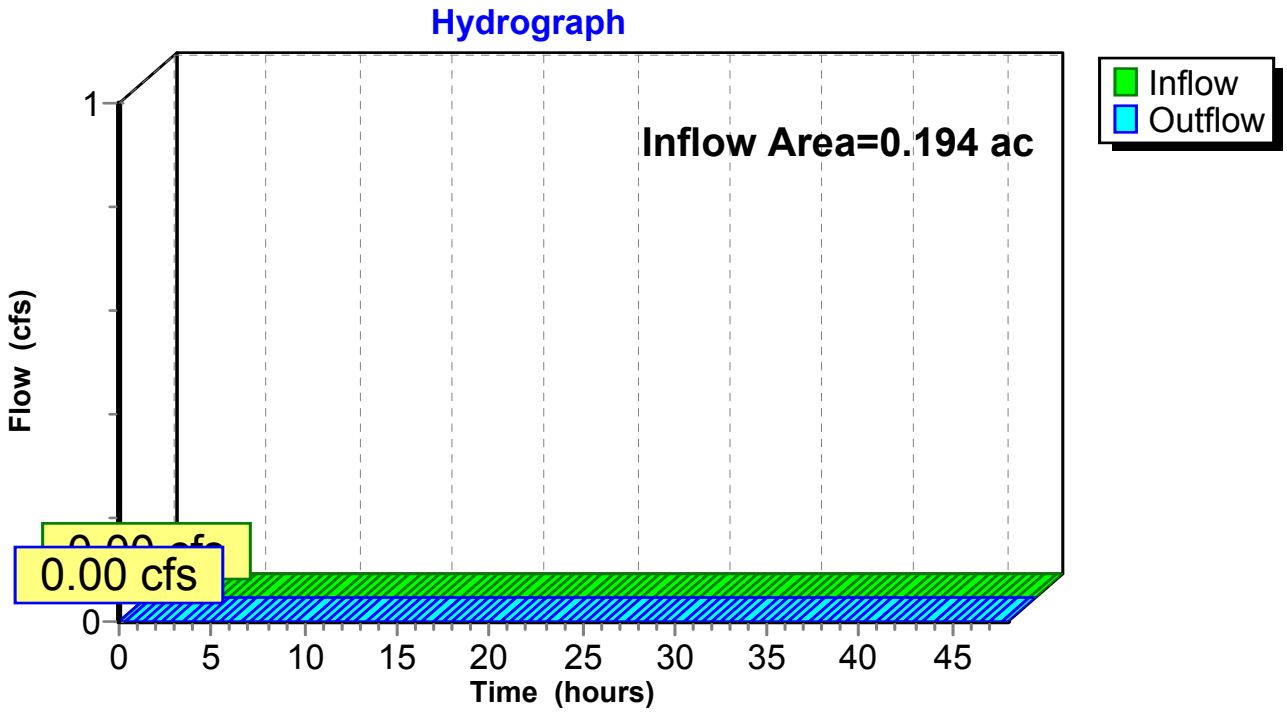


Summary for Reach DP-2: DP-2

Inflow Area = 0.194 ac, 7.92% Impervious, Inflow Depth = 0.00" for 100-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-2: DP-2

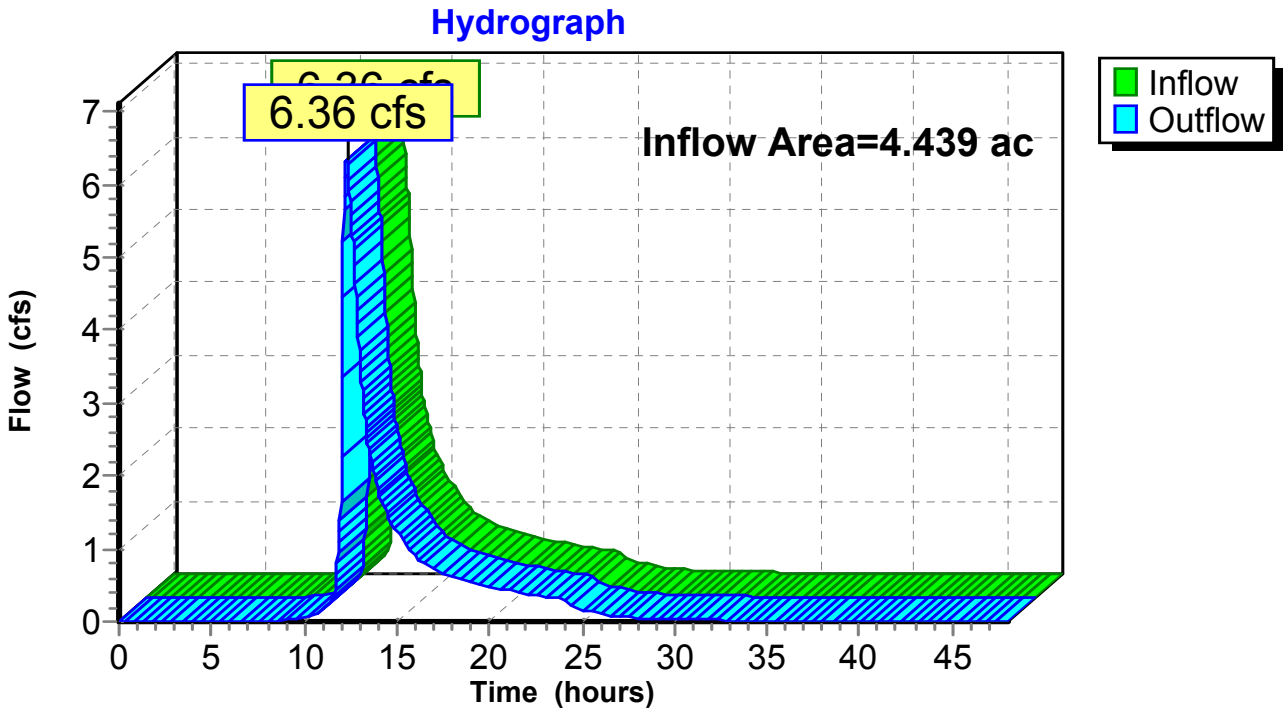


Summary for Reach DP-3: DP-3

Inflow Area = 4.439 ac, 57.57% Impervious, Inflow Depth > 3.49" for 100-Year event
Inflow = 6.36 cfs @ 12.31 hrs, Volume= 1.292 af
Outflow = 6.36 cfs @ 12.31 hrs, Volume= 1.292 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-3: DP-3

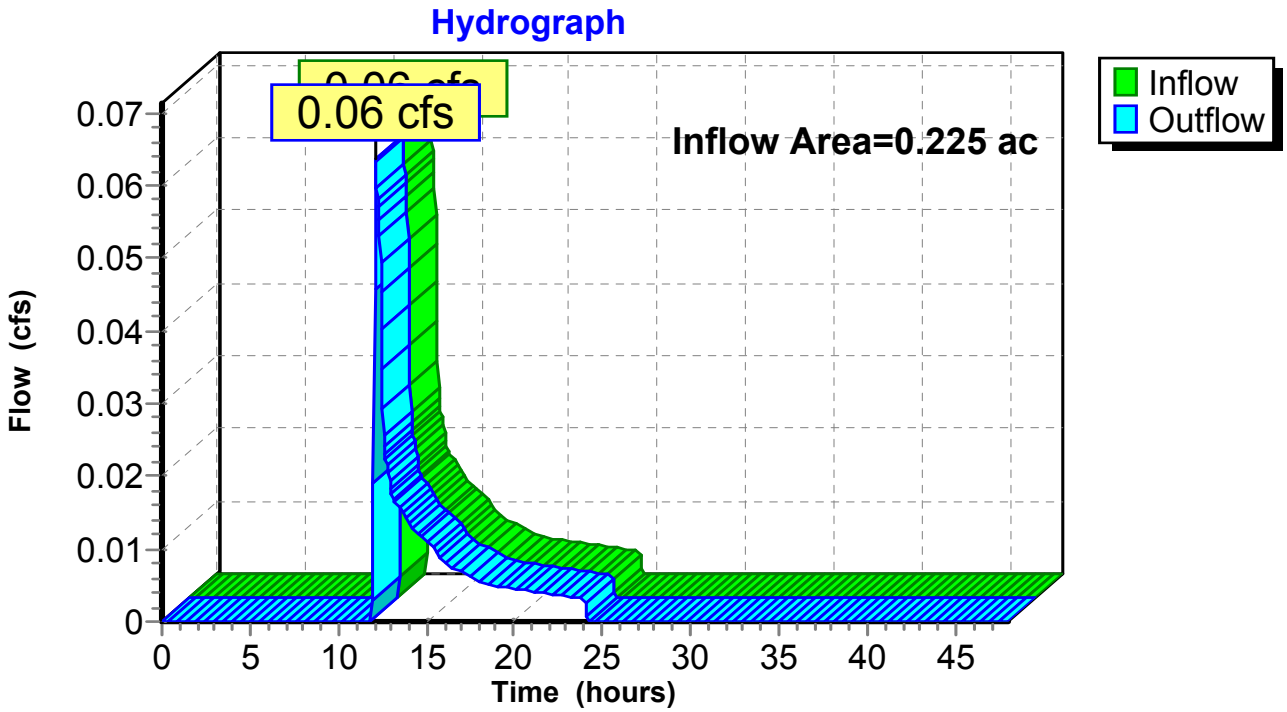


Summary for Reach DP-4: PL

Inflow Area = 0.225 ac, 11.95% Impervious, Inflow Depth = 0.50" for 100-Year event
Inflow = 0.06 cfs @ 12.15 hrs, Volume= 0.009 af
Outflow = 0.06 cfs @ 12.15 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-4: PL

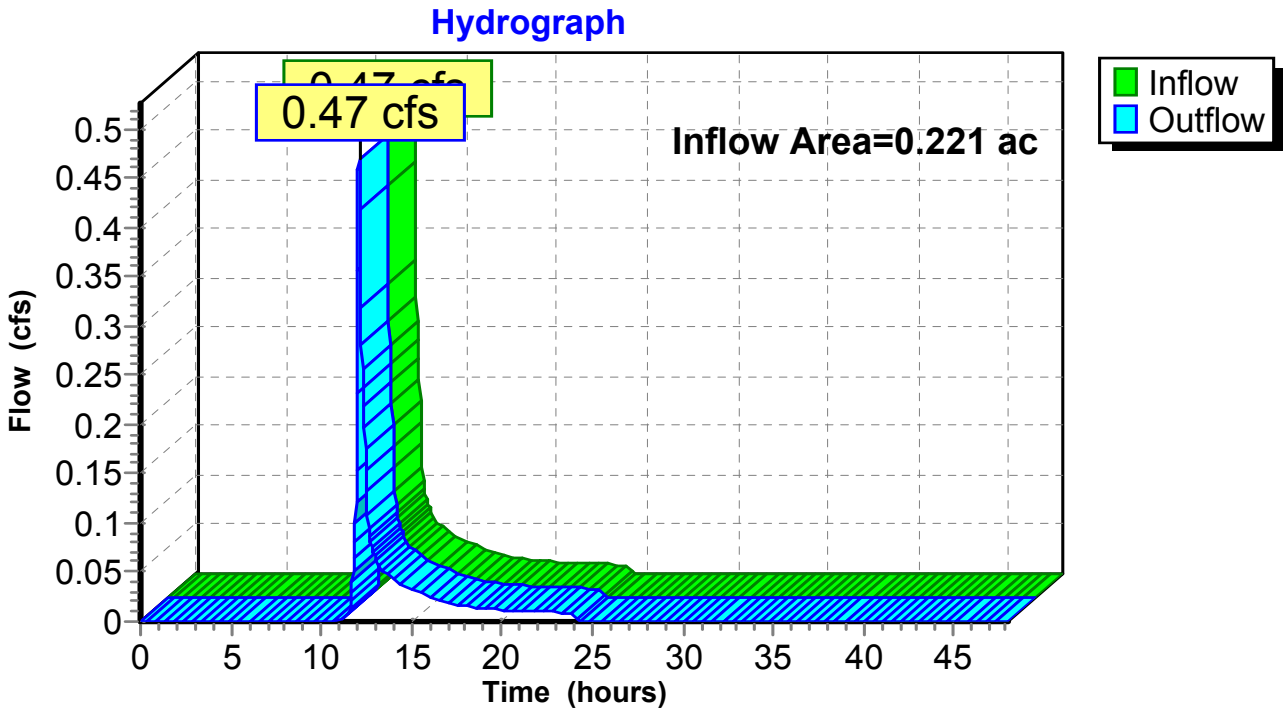


Summary for Reach DP-5: PL

Inflow Area = 0.221 ac, 22.04% Impervious, Inflow Depth = 2.00" for 100-Year event
Inflow = 0.47 cfs @ 12.10 hrs, Volume= 0.037 af
Outflow = 0.47 cfs @ 12.10 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Reach DP-5: PL



Summary for Pond D-1: Depression

Inflow Area = 0.194 ac, 7.92% Impervious, Inflow Depth = 1.20" for 100-Year event
Inflow = 0.20 cfs @ 12.12 hrs, Volume= 0.019 af
Outflow = 0.09 cfs @ 12.45 hrs, Volume= 0.019 af, Atten= 52%, Lag= 19.9 min
Discarded = 0.09 cfs @ 12.45 hrs, Volume= 0.019 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 59.19' @ 12.45 hrs Surf.Area= 492 sf Storage= 85 cf

Plug-Flow detention time= 4.3 min calculated for 0.019 af (100% of inflow)
Center-of-Mass det. time= 4.3 min (906.2 - 901.9)

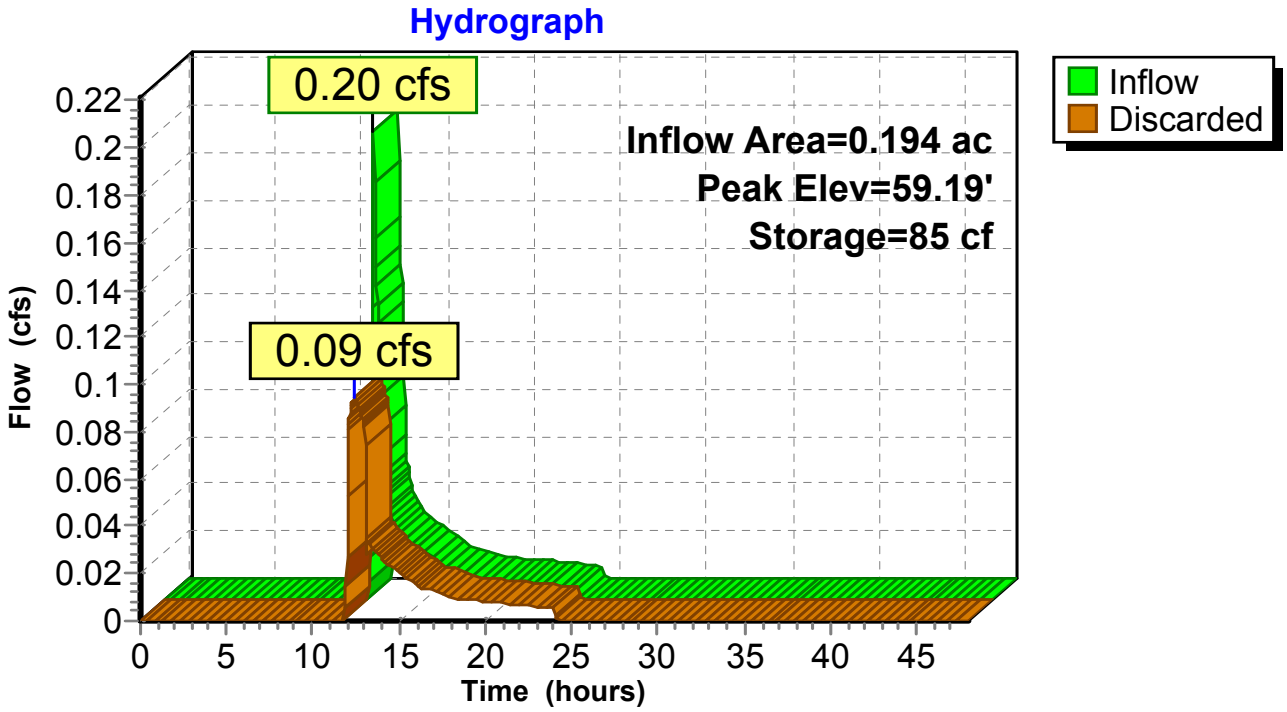
Volume	Invert	Avail.Storage	Storage Description
#1	59.00'	615 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.00	419	0	0
60.00	811	615	615

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.09 cfs @ 12.45 hrs HW=59.19' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.09 cfs)

Pond D-1: Depression



Summary for Pond D-2: Depression

Inflow Area = 0.502 ac, 37.54% Impervious, Inflow Depth = 3.25" for 100-Year event
Inflow = 1.80 cfs @ 12.09 hrs, Volume= 0.136 af
Outflow = 0.24 cfs @ 12.77 hrs, Volume= 0.136 af, Atten= 87%, Lag= 40.5 min
Discarded = 0.24 cfs @ 12.77 hrs, Volume= 0.136 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 58.64' @ 12.77 hrs Surf.Area= 1,267 sf Storage= 2,100 cf

Plug-Flow detention time= 86.9 min calculated for 0.136 af (100% of inflow)
Center-of-Mass det. time= 86.9 min (910.8 - 823.9)

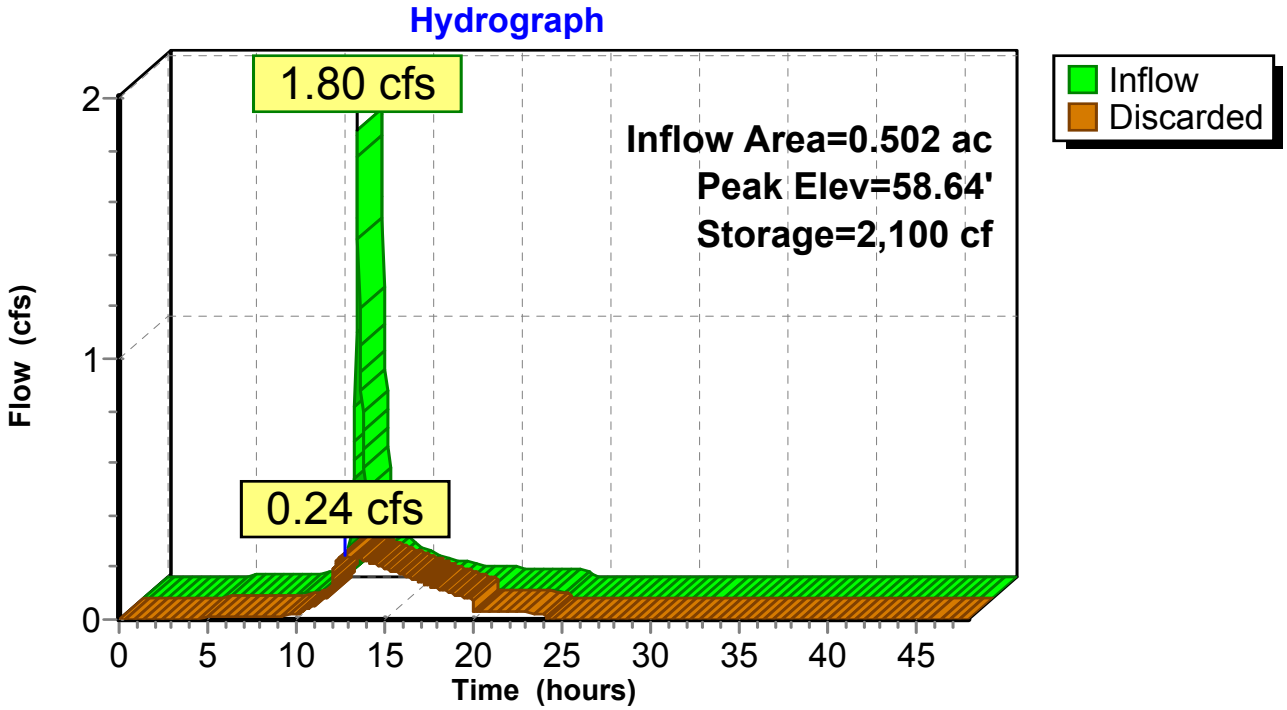
Volume	Invert	Avail.Storage	Storage Description
#1	56.00'	2,585 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.00	388	0	0
57.00	672	530	530
58.00	1,013	843	1,373
59.00	1,411	1,212	2,585

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.24 cfs @ 12.77 hrs HW=58.64' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.24 cfs)

Pond D-2: Depression



Summary for Pond D-3: Depression

Inflow Area = 0.086 ac, 31.27% Impervious, Inflow Depth = 2.38" for 100-Year event
Inflow = 0.23 cfs @ 12.10 hrs, Volume= 0.017 af
Outflow = 0.15 cfs @ 12.20 hrs, Volume= 0.017 af, Atten= 34%, Lag= 6.3 min
Discarded = 0.15 cfs @ 12.20 hrs, Volume= 0.017 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 63.05' @ 12.20 hrs Surf.Area= 785 sf Storage= 36 cf

Plug-Flow detention time= 1.4 min calculated for 0.017 af (100% of inflow)
Center-of-Mass det. time= 1.4 min (861.4 - 860.0)

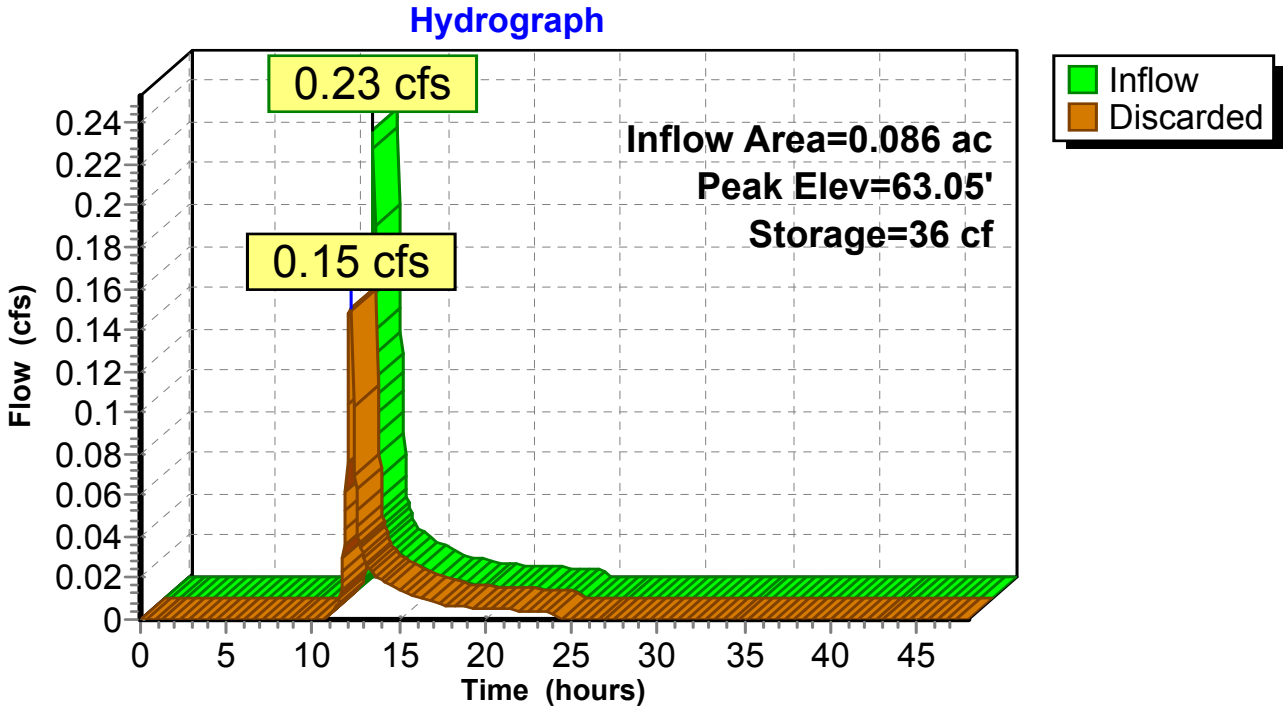
Volume	Invert	Avail.Storage	Storage Description
#1	63.00'	2,747 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
63.00	757	0	0
64.00	1,368	1,063	1,063
65.00	2,001	1,685	2,747

Device	Routing	Invert	Outlet Devices
#1	Discarded	63.00'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.15 cfs @ 12.20 hrs HW=63.05' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.15 cfs)

Pond D-3: Depression



Summary for Pond D-4: Depression

Inflow Area = 0.326 ac, 8.55% Impervious, Inflow Depth = 1.20" for 100-Year event
Inflow = 0.33 cfs @ 12.12 hrs, Volume= 0.033 af
Outflow = 0.01 cfs @ 11.92 hrs, Volume= 0.000 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.92 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 55.75' @ 24.36 hrs Surf.Area= 1,199 sf Storage= 1,418 cf

Plug-Flow detention time= 3.0 min calculated for 0.000 af (0% of inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

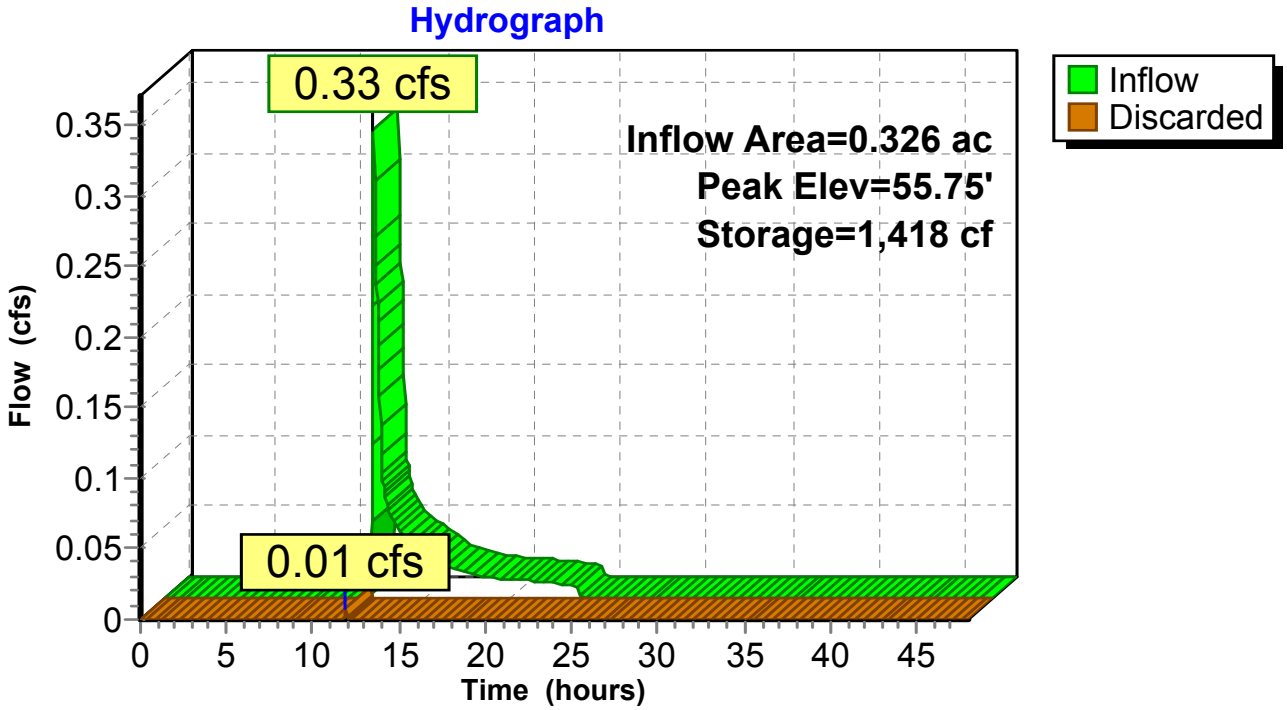
Volume	Invert	Avail.Storage	Storage Description
#1	54.00'	1,737 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
54.00	482	0	0
55.00	834	658	658
56.00	1,323	1,079	1,737

Device	Routing	Invert	Outlet Devices
#1	Discarded	54.00'	**Special & User-Defined** Head (feet) 0.00 0.01 0.02 0.50 2.00 Disch. (cfs) 0.000 0.010 0.000 0.000 0.000

Discarded OutFlow Max=0.01 cfs @ 11.92 hrs HW=54.01' (Free Discharge)
└─**1=Special & User-Defined** (Custom Controls 0.01 cfs)

Pond D-4: Depression



Summary for Pond DB-1: Prop Detention Basin

Inflow Area = 3.524 ac, 61.58% Impervious, Inflow Depth = 4.35" for 100-Year event
Inflow = 17.76 cfs @ 12.09 hrs, Volume= 1.277 af
Outflow = 4.67 cfs @ 12.47 hrs, Volume= 1.002 af, Atten= 74%, Lag= 22.9 min
Primary = 4.67 cfs @ 12.47 hrs, Volume= 1.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 60.95' @ 12.47 hrs Surf.Area= 11,179 sf Storage= 25,314 cf

Plug-Flow detention time= 223.8 min calculated for 1.001 af (78% of inflow)
Center-of-Mass det. time= 145.1 min (961.9 - 816.8)

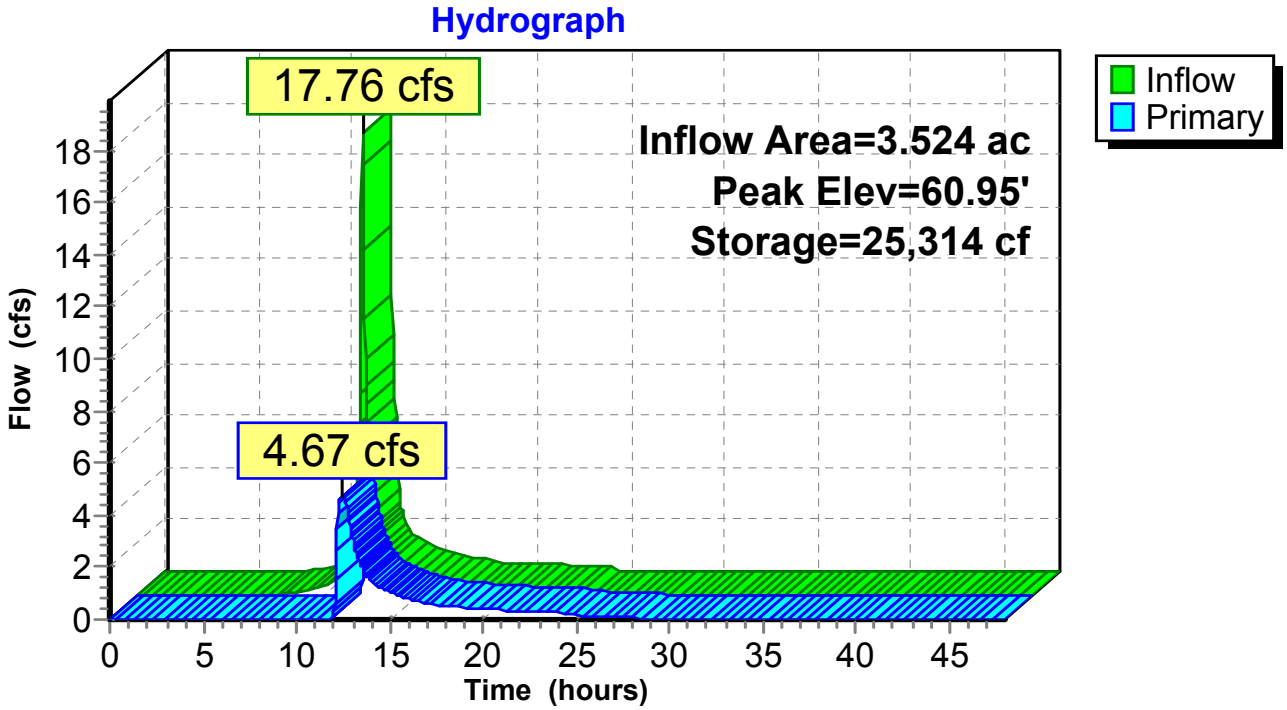
Volume	Invert	Avail.Storage	Storage Description
#1	58.00'	37,916 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.00	5,785	0	0
59.00	7,648	6,717	6,717
60.00	9,712	8,680	15,397
61.00	11,257	10,485	25,881
62.00	12,812	12,035	37,916

Device	Routing	Invert	Outlet Devices
#1	Primary	58.00'	**12.0" Round Culvert** L= 34.9' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 58.00' / 57.65' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	59.60'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	60.15'	**2.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=4.67 cfs @ 12.47 hrs HW=60.95' TW=55.29' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 4.67 cfs @ 5.95 fps)
  ├─**2=Orifice/Grate** (Passes < 0.99 cfs potential flow)
  └─**3=Sharp-Crested Rectangular Weir** (Passes < 4.29 cfs potential flow)

Pond DB-1: Prop Detention Basin



Summary for Pond P1: Infiltration Chambers

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth = 6.86" for 100-Year event
Inflow = 0.30 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.04 cfs @ 11.64 hrs, Volume= 0.025 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.64 hrs, Volume= 0.025 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 58.67' @ 12.63 hrs Surf.Area= 199 sf Storage= 318 cf

Plug-Flow detention time= 49.5 min calculated for 0.025 af (100% of inflow)
Center-of-Mass det. time= 49.5 min (792.2 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	195 cf	**6.33'W x 31.50'L x 3.54'H Field A** 707 cf Overall - 220 cf Embedded = 487 cf x 40.0% Voids
#2A	56.70'	220 cf	**Cultec R-330XLHD** x 4 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		415 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.200 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.04 cfs @ 11.64 hrs HW=56.24' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Pond P1: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

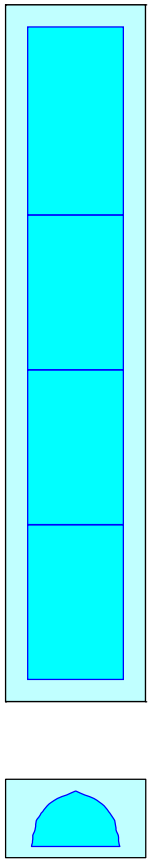
4 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 29.50' Row Length +12.0" End Stone x 2 = 31.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

4 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 219.8 cf Chamber Storage

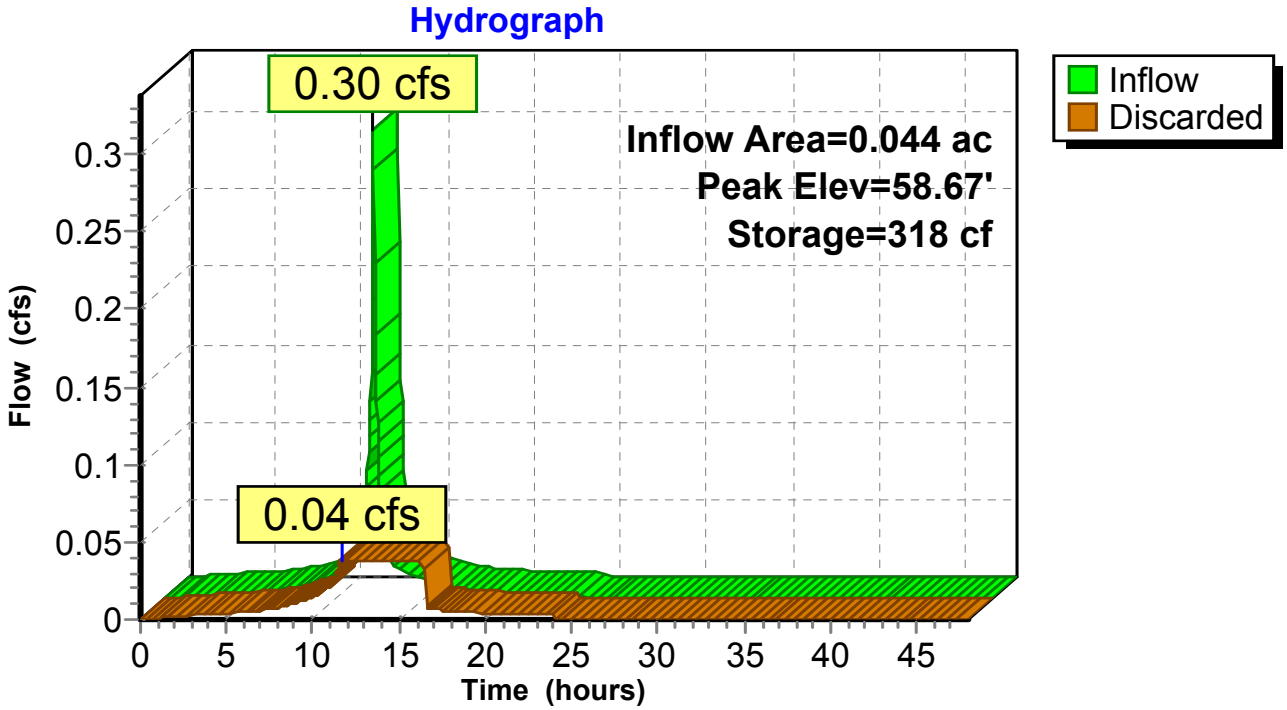
706.6 cf Field - 219.8 cf Chambers = 486.8 cf Stone x 40.0% Voids = 194.7 cf Stone Storage

Chamber Storage + Stone Storage = 414.5 cf = 0.010 af
Overall Storage Efficiency = 58.7%
Overall System Size = 31.50' x 6.33' x 3.54'

4 Chambers
26.2 cy Field
18.0 cy Stone



Pond P1: Infiltration Chambers



Summary for Pond P10: Infiltration Chambers

Inflow Area = 0.175 ac,100.00% Impervious, Inflow Depth = 6.86" for 100-Year event
Inflow = 1.21 cfs @ 12.08 hrs, Volume= 0.100 af
Outflow = 0.13 cfs @ 11.56 hrs, Volume= 0.100 af, Atten= 89%, Lag= 0.0 min
Discarded = 0.13 cfs @ 11.56 hrs, Volume= 0.100 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.73' @ 12.78 hrs Surf.Area= 664 sf Storage= 1,372 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 68.2 min (811.0 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	58.50'	599 cf	**11.17'W x 59.50'L x 3.54'H Field A** 2,353 cf Overall - 857 cf Embedded = 1,496 cf x 40.0% Voids
#2A	59.00'	857 cf	**Cultec R-330XLHD** x 16 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		1,455 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	58.50'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.13 cfs @ 11.56 hrs HW=58.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Pond P10: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

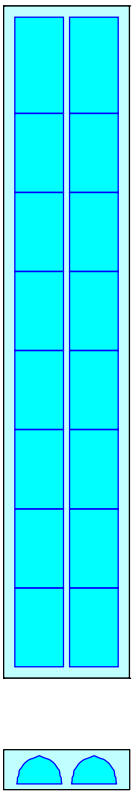
8 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 57.50' Row Length +12.0" End Stone x 2 = 59.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

16 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 856.9 cf Chamber Storage

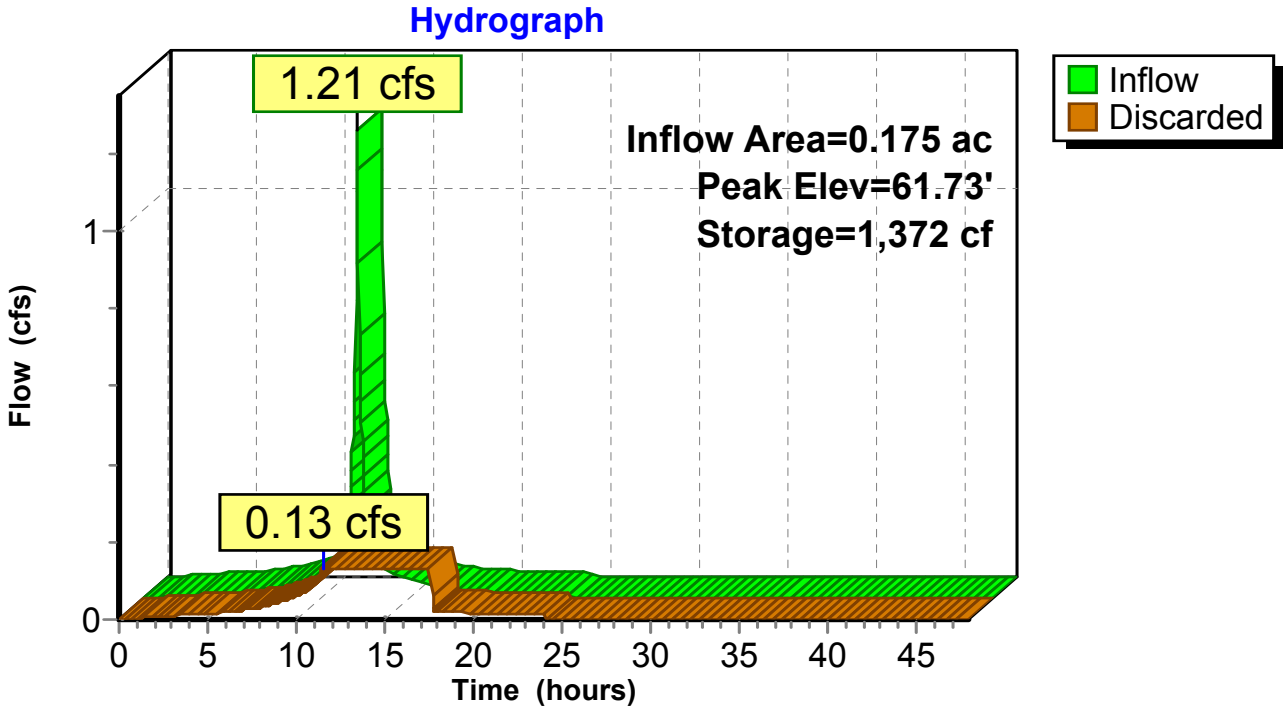
2,353.1 cf Field - 856.9 cf Chambers = 1,496.3 cf Stone x 40.0% Voids = 598.5 cf Stone Storage

Chamber Storage + Stone Storage = 1,455.4 cf = 0.033 af
Overall Storage Efficiency = 61.8%
Overall System Size = 59.50' x 11.17' x 3.54'

16 Chambers
87.2 cy Field
55.4 cy Stone



Pond P10: Infiltration Chambers



Summary for Pond P11: Infiltration Chambers

Inflow Area = 0.099 ac,100.00% Impervious, Inflow Depth = 6.86" for 100-Year event
Inflow = 0.69 cfs @ 12.08 hrs, Volume= 0.057 af
Outflow = 0.08 cfs @ 11.64 hrs, Volume= 0.057 af, Atten= 88%, Lag= 0.0 min
Discarded = 0.08 cfs @ 11.64 hrs, Volume= 0.057 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 62.22' @ 12.66 hrs Surf.Area= 430 sf Storage= 736 cf

Plug-Flow detention time= 53.7 min calculated for 0.057 af (100% of inflow)
Center-of-Mass det. time= 53.7 min (796.5 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	391 cf	**11.17'W x 38.50'L x 3.54'H Field A** 1,523 cf Overall - 544 cf Embedded = 979 cf x 40.0% Voids
#2A	60.20'	544 cf	**Cultec R-330XLHD** x 10 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		935 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.08 cfs @ 11.64 hrs HW=59.75' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Pond P11: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

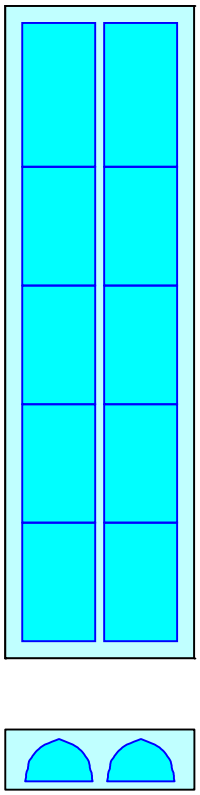
5 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 36.50' Row Length +12.0" End Stone x 2 = 38.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

10 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 543.9 cf Chamber Storage

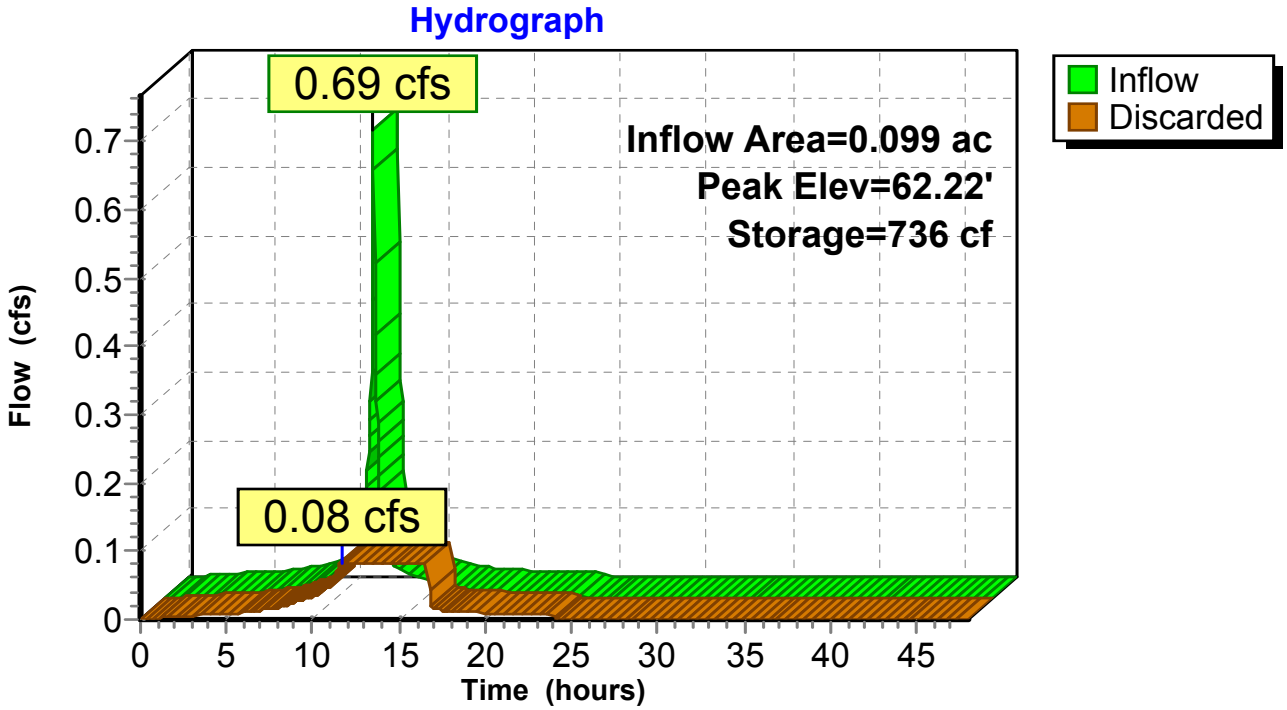
1,522.6 cf Field - 543.9 cf Chambers = 978.7 cf Stone x 40.0% Voids = 391.5 cf Stone Storage

Chamber Storage + Stone Storage = 935.4 cf = 0.021 af
Overall Storage Efficiency = 61.4%
Overall System Size = 38.50' x 11.17' x 3.54'

10 Chambers
56.4 cy Field
36.2 cy Stone



Pond P11: Infiltration Chambers



Summary for Pond P12: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 6.86" for 100-Year event
Inflow = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 58.68' @ 12.62 hrs Surf.Area= 111 sf Storage= 174 cf

Plug-Flow detention time= 47.9 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 47.9 min (790.6 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	56.70'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.64 hrs HW=56.24' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P12: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

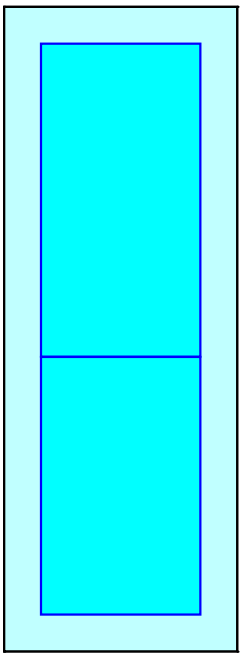
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

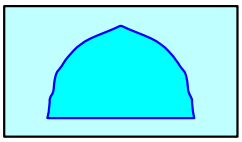
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

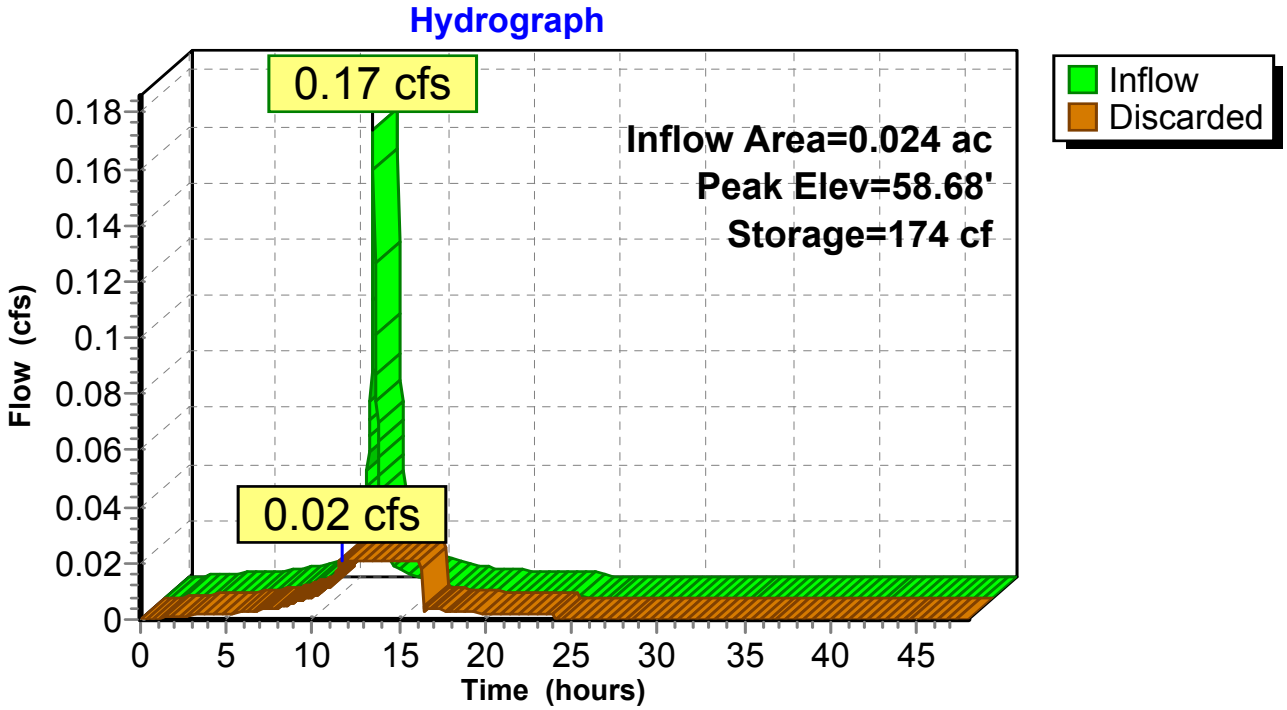
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P12: Infiltration Chambers



Summary for Pond P13: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 6.86" for 100-Year event
Inflow = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 62.17' @ 12.62 hrs Surf.Area= 111 sf Storage= 173 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 47.6 min (790.4 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.20'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.64 hrs HW=59.74' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P13: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

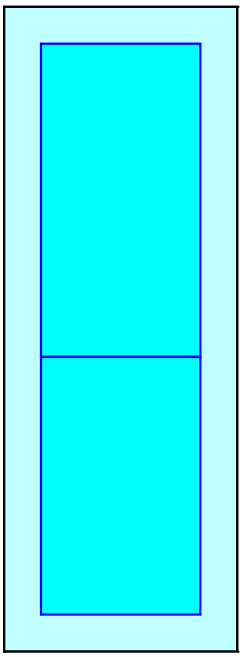
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

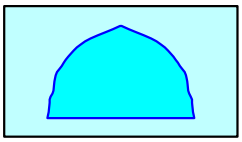
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

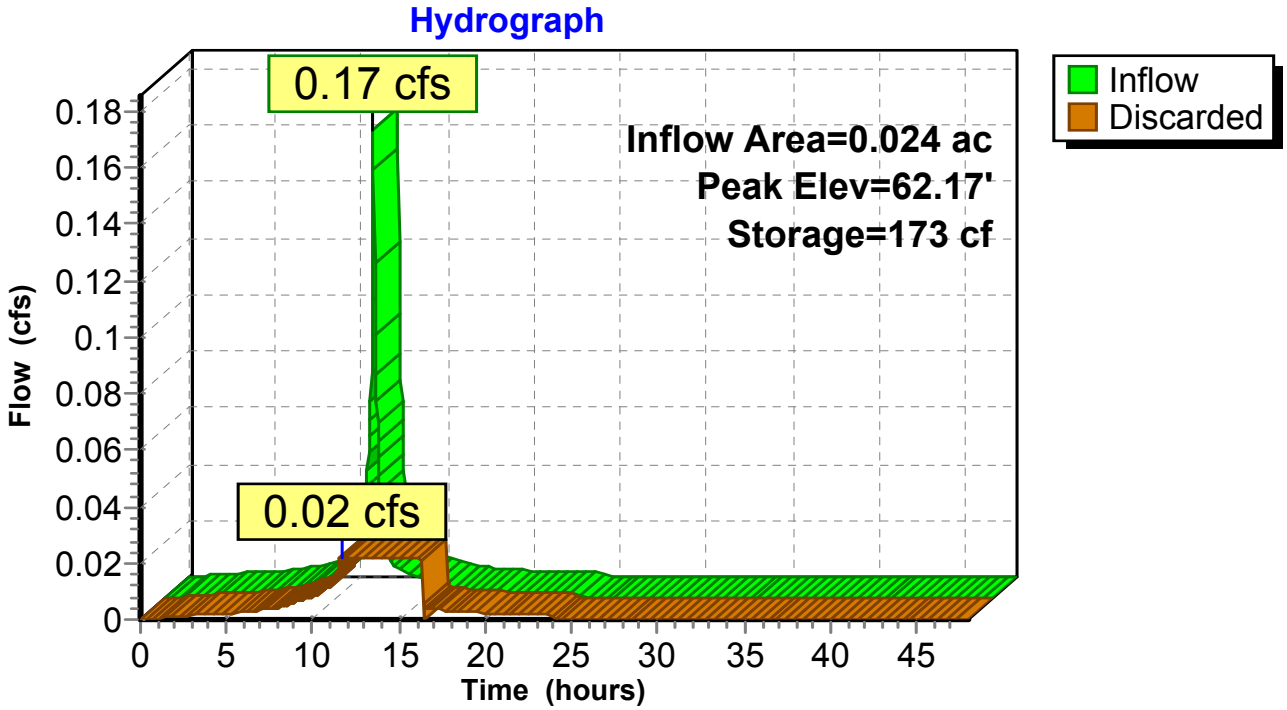
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P13: Infiltration Chambers



Summary for Pond P14: Infiltration Chambers

Inflow Area = 0.072 ac,100.00% Impervious, Inflow Depth = 6.86" for 100-Year event
Inflow = 0.50 cfs @ 12.08 hrs, Volume= 0.041 af
Outflow = 0.05 cfs @ 11.56 hrs, Volume= 0.041 af, Atten= 89%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.56 hrs, Volume= 0.041 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 61.80' @ 12.78 hrs Surf.Area= 274 sf Storage= 563 cf

Plug-Flow detention time= 67.9 min calculated for 0.041 af (100% of inflow)
Center-of-Mass det. time= 67.9 min (810.6 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	58.50'	253 cf	**11.17'W x 24.50'L x 3.54'H Field A** 969 cf Overall - 335 cf Embedded = 634 cf x 40.0% Voids
#2A	59.00'	335 cf	**Cultec R-330XLHD** x 6 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		589 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	58.50'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.05 cfs @ 11.56 hrs HW=58.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Pond P14: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

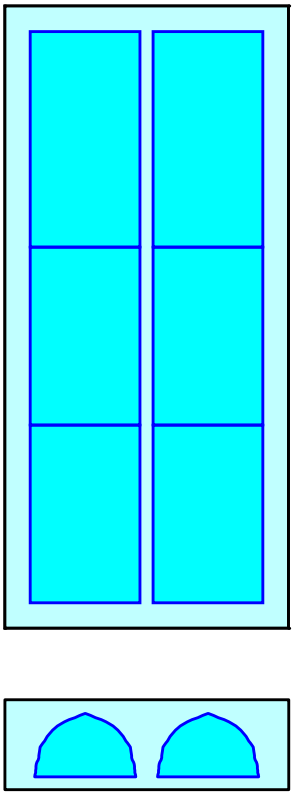
3 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 22.50' Row Length +12.0" End Stone x 2 = 24.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

6 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 335.3 cf Chamber Storage

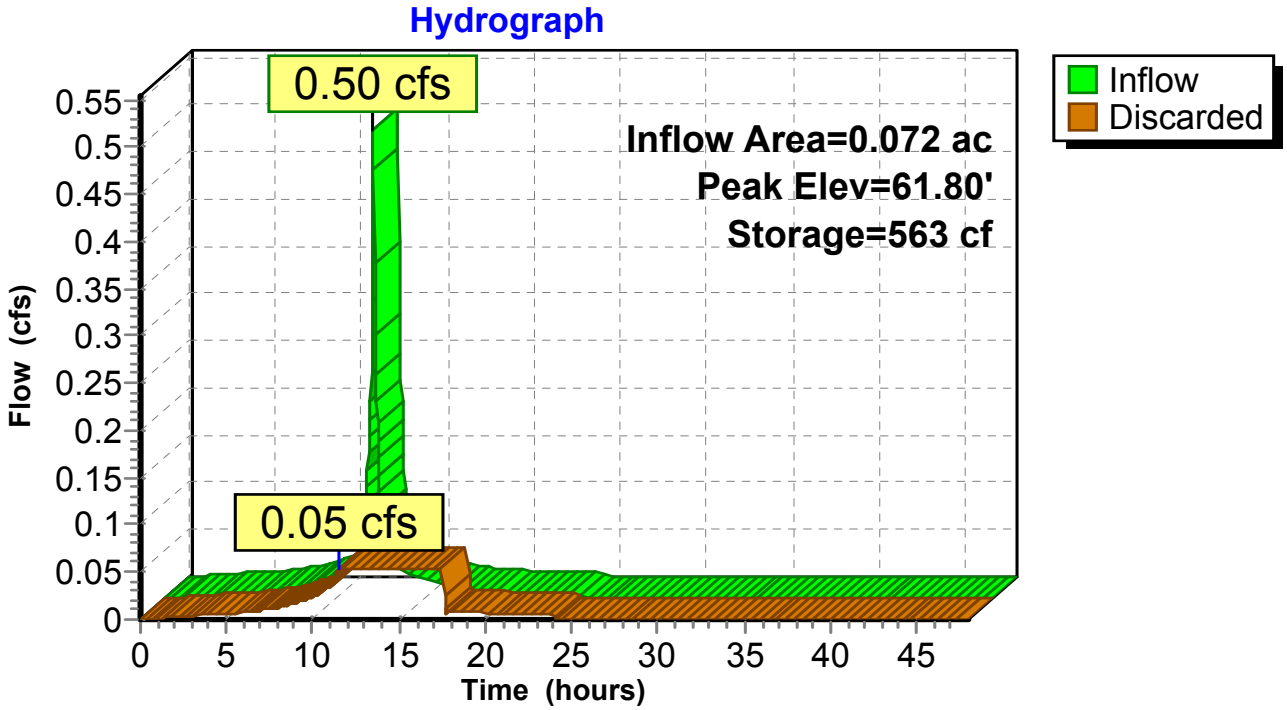
968.9 cf Field - 335.3 cf Chambers = 633.6 cf Stone x 40.0% Voids = 253.5 cf Stone Storage

Chamber Storage + Stone Storage = 588.8 cf = 0.014 af
Overall Storage Efficiency = 60.8%
Overall System Size = 24.50' x 11.17' x 3.54'

6 Chambers
35.9 cy Field
23.5 cy Stone



Pond P14: Infiltration Chambers



Summary for Pond P2: Infiltration Chambers

Inflow Area = 0.349 ac,100.00% Impervious, Inflow Depth = 6.86" for 100-Year event
Inflow = 2.41 cfs @ 12.08 hrs, Volume= 0.200 af
Outflow = 0.27 cfs @ 11.60 hrs, Volume= 0.200 af, Atten= 89%, Lag= 0.0 min
Discarded = 0.27 cfs @ 11.60 hrs, Volume= 0.200 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 59.01' @ 12.74 hrs Surf.Area= 1,385 sf Storage= 2,694 cf

Plug-Flow detention time= 63.2 min calculated for 0.200 af (100% of inflow)
Center-of-Mass det. time= 63.2 min (805.9 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	1,194 cf	**20.83'W x 66.50'L x 3.54'H Field A** 4,907 cf Overall - 1,922 cf Embedded = 2,984 cf x 40.0% Voids
#2A	56.70'	1,922 cf	**Cultec R-330XLHD** x 36 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 4 rows
		3,116 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.27 cfs @ 11.60 hrs HW=56.24' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.27 cfs)

Pond P2: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 4 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

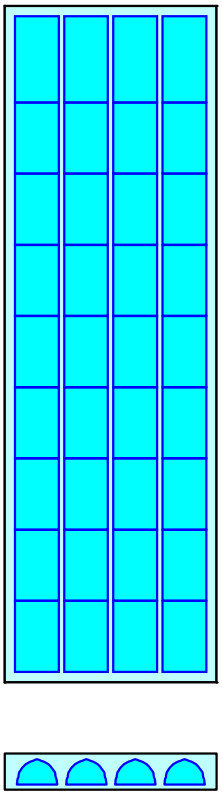
9 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 64.50' Row Length +12.0" End Stone x 2 = 66.50' Base Length
4 Rows x 52.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.83' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

36 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 4 Rows = 1,922.4 cf Chamber Storage

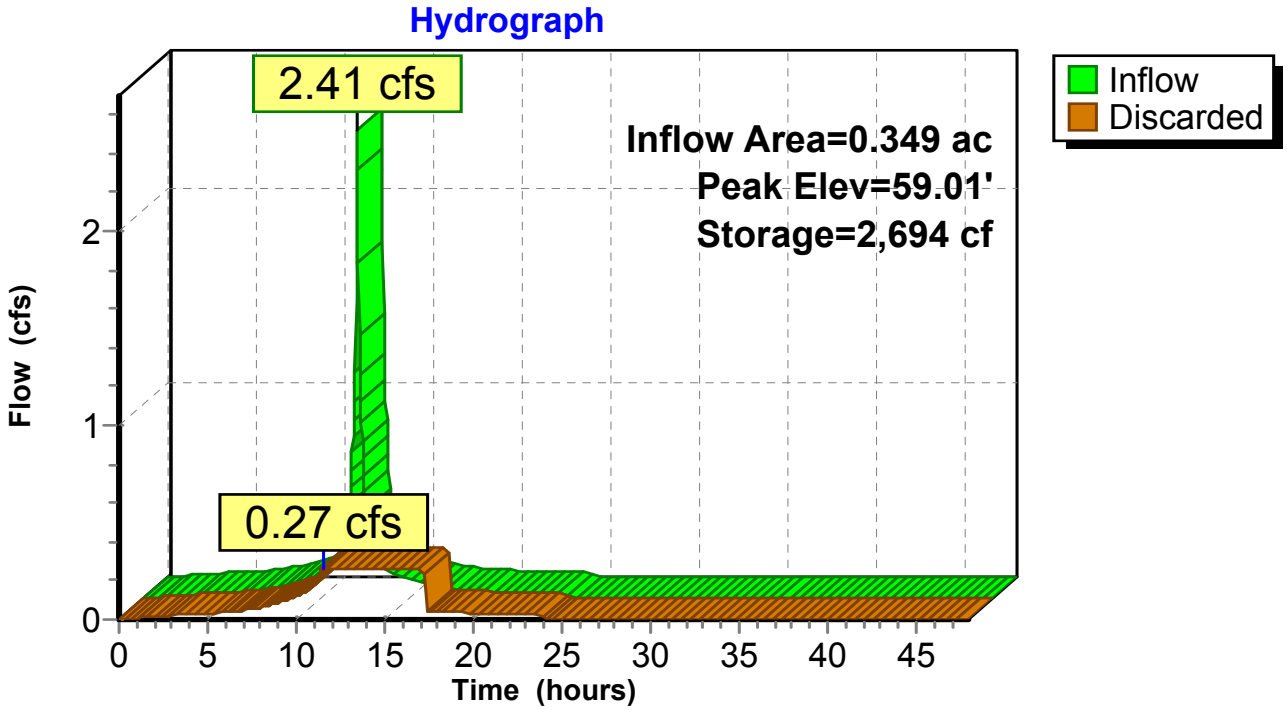
4,906.7 cf Field - 1,922.4 cf Chambers = 2,984.3 cf Stone x 40.0% Voids = 1,193.7 cf Stone Storage

Chamber Storage + Stone Storage = 3,116.1 cf = 0.072 af
Overall Storage Efficiency = 63.5%
Overall System Size = 66.50' x 20.83' x 3.54'

36 Chambers
181.7 cy Field
110.5 cy Stone



Pond P2: Infiltration Chambers



Summary for Pond P3: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 6.86" for 100-Year event
Inflow = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 58.68' @ 12.62 hrs Surf.Area= 111 sf Storage= 174 cf

Plug-Flow detention time= 47.9 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 47.9 min (790.6 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.20'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	56.70'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.20'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.64 hrs HW=56.24' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P3: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

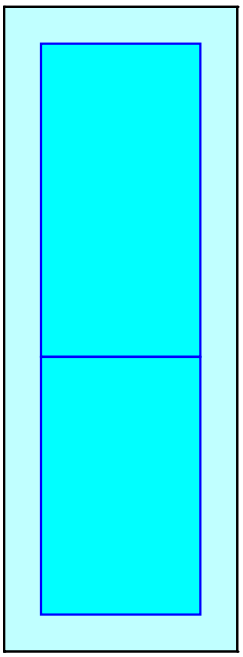
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

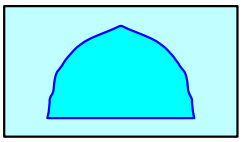
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

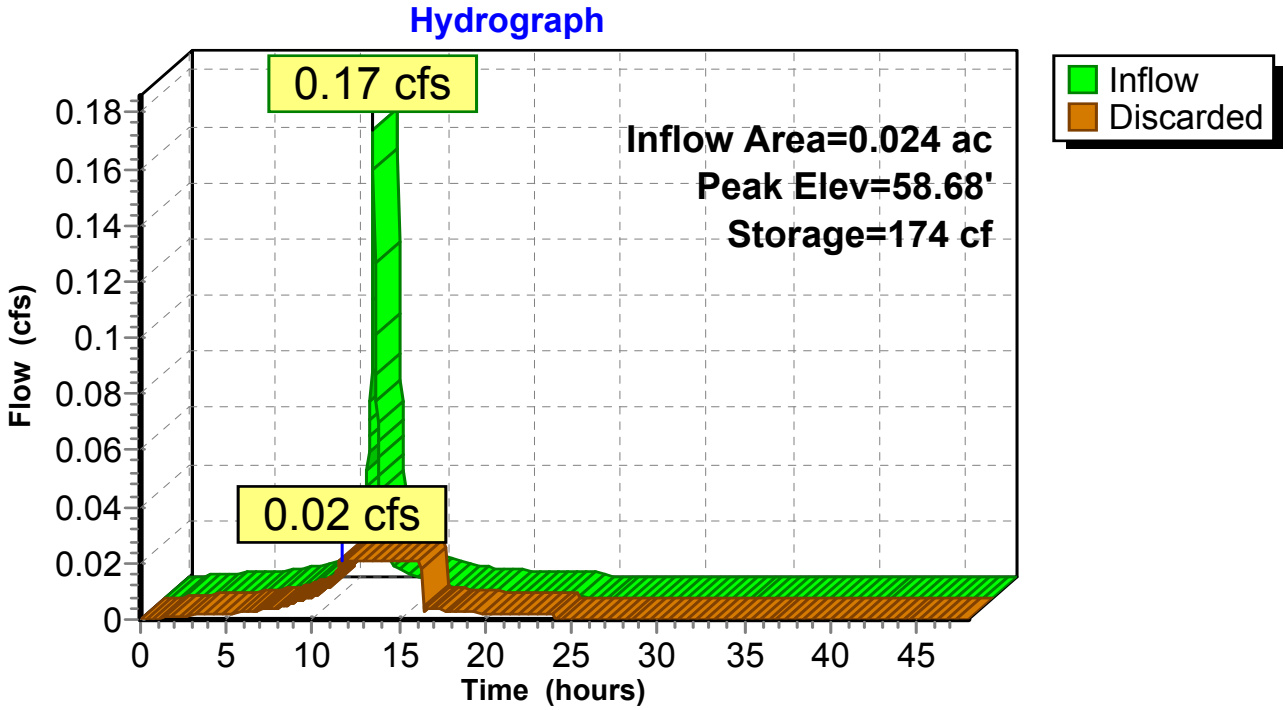
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P3: Infiltration Chambers



Summary for Pond P4: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 6.86" for 100-Year event
Inflow = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 62.17' @ 12.62 hrs Surf.Area= 111 sf Storage= 173 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 47.6 min (790.4 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.20'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.64 hrs HW=59.74' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P4: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

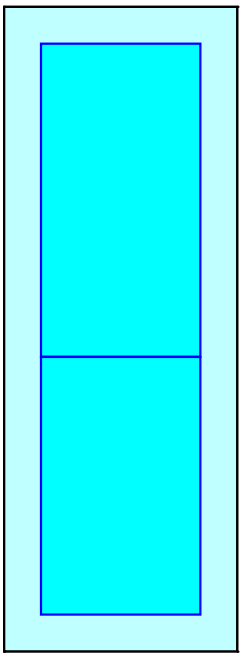
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

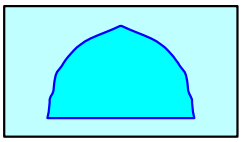
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

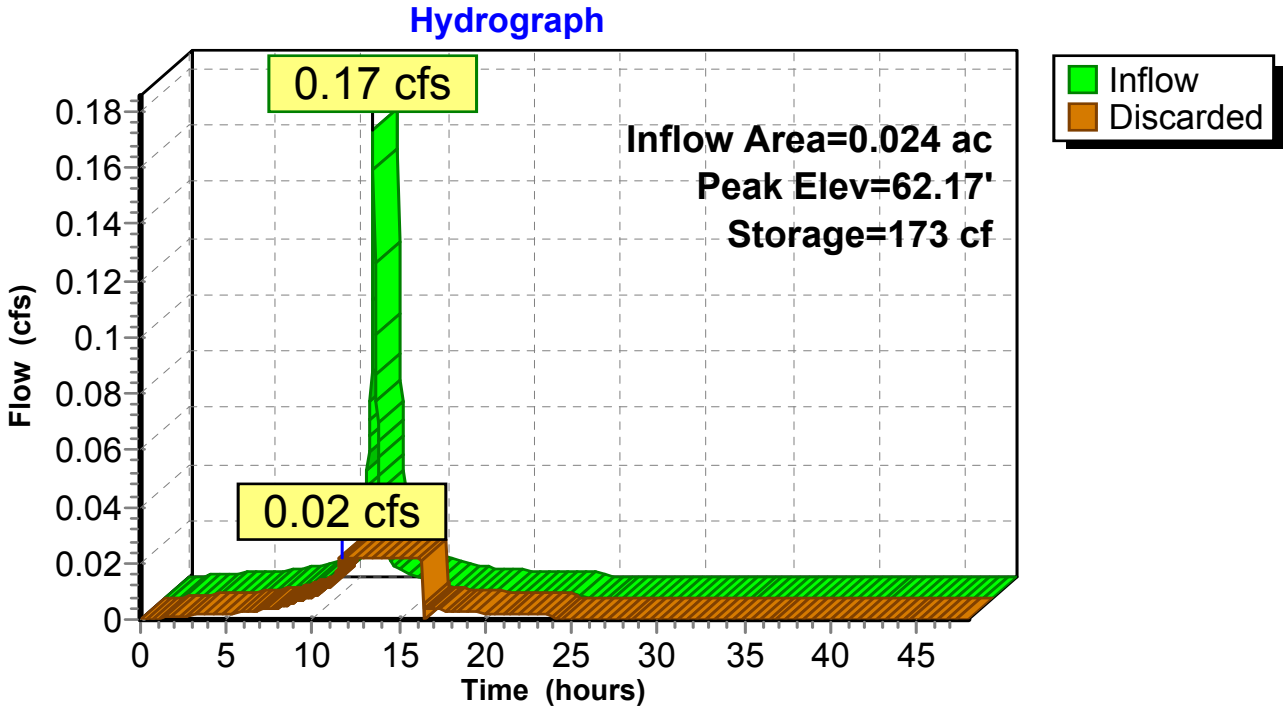
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P4: Infiltration Chambers



Summary for Pond P5: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 6.86" for 100-Year event
Inflow = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 62.18' @ 12.62 hrs Surf.Area= 111 sf Storage= 173 cf

Plug-Flow detention time= 47.8 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 47.8 min (790.6 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.70'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.20'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.70'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.64 hrs HW=59.74' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P5: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

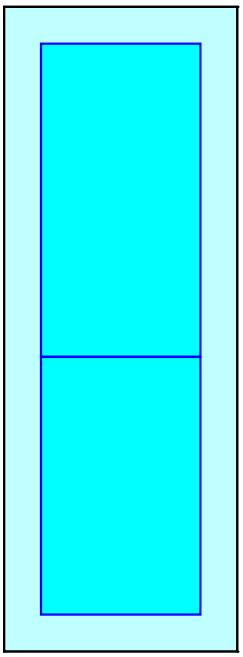
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

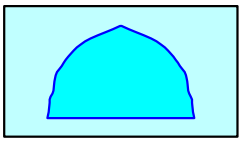
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

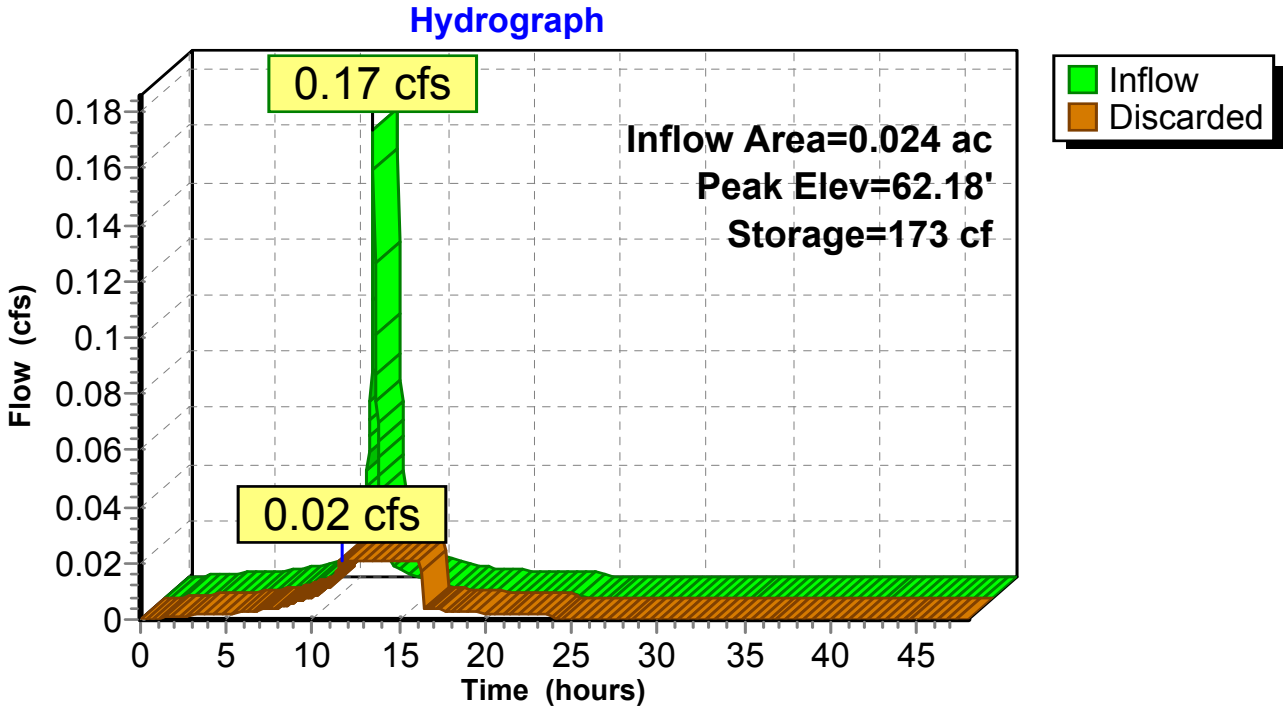
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P5: Infiltration Chambers



Summary for Pond P6: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 6.86" for 100-Year event
Inflow = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 62.08' @ 12.62 hrs Surf.Area= 111 sf Storage= 173 cf

Plug-Flow detention time= 47.8 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 47.8 min (790.6 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.60'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.10'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.64 hrs HW=59.64' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P6: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

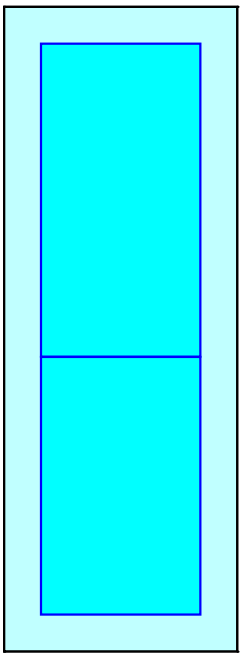
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

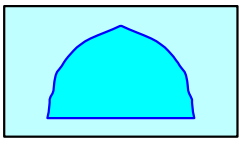
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

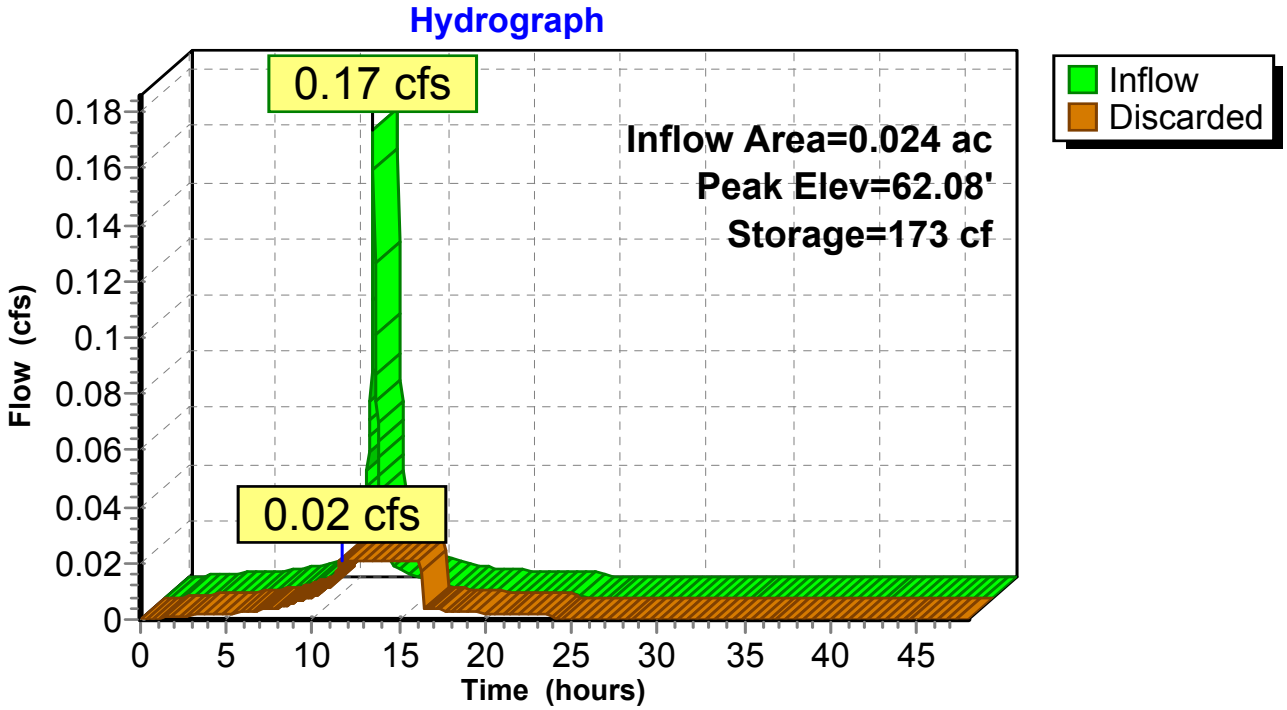
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P6: Infiltration Chambers



Summary for Pond P7: Infiltration Chambers

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 6.86" for 100-Year event
Inflow = 0.17 cfs @ 12.08 hrs, Volume= 0.014 af
Outflow = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.64 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 62.08' @ 12.62 hrs Surf.Area= 111 sf Storage= 174 cf

Plug-Flow detention time= 47.9 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 47.9 min (790.6 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.60'	111 cf	**6.33'W x 17.50'L x 3.54'H Field A** 393 cf Overall - 115 cf Embedded = 277 cf x 40.0% Voids
#2A	60.10'	115 cf	**Cultec R-330XLHD** x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		226 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.02 cfs @ 11.64 hrs HW=59.64' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond P7: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

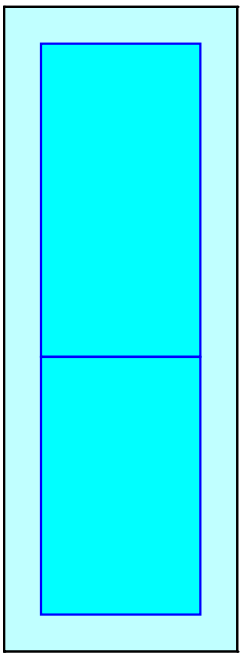
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

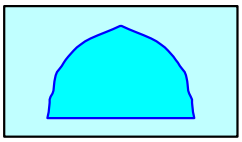
2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

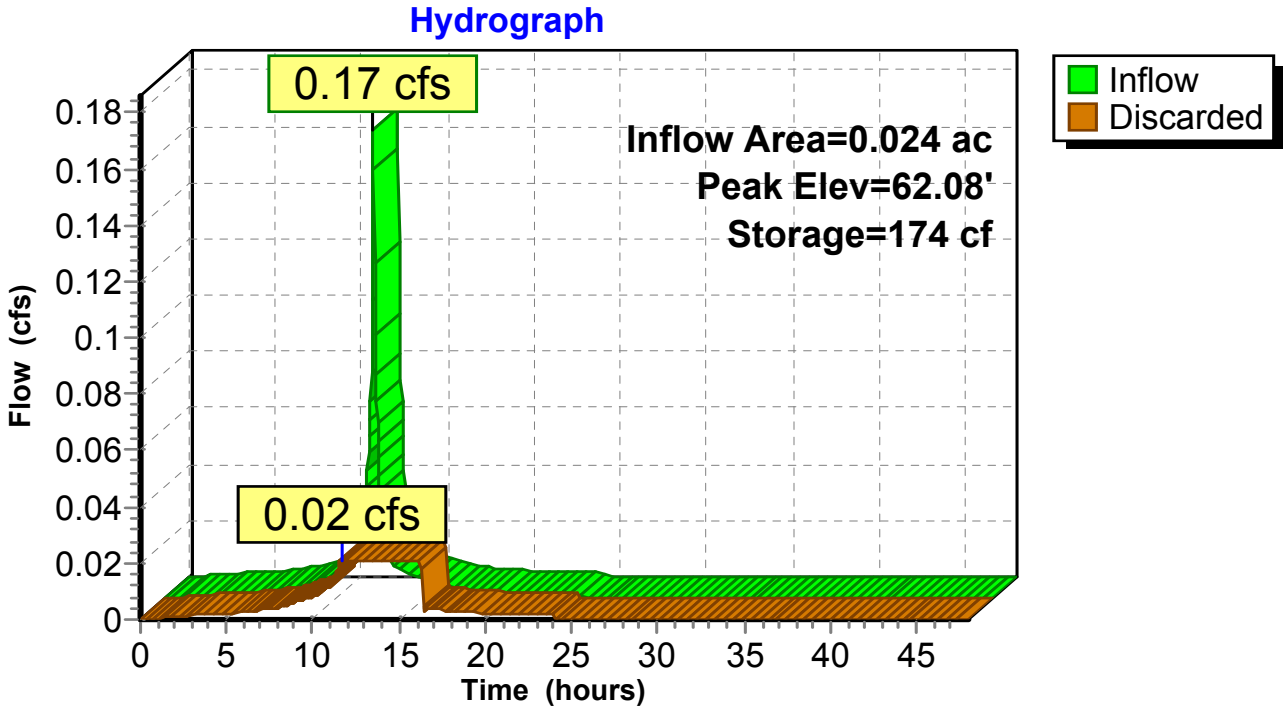
Chamber Storage + Stone Storage = 226.3 cf = 0.005 af
Overall Storage Efficiency = 57.7%
Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers
14.5 cy Field
10.3 cy Stone





Pond P7: Infiltration Chambers



Summary for Pond P8: Infiltration Chambers

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth = 6.86" for 100-Year event
Inflow = 0.30 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.04 cfs @ 11.64 hrs, Volume= 0.025 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.04 cfs @ 11.64 hrs, Volume= 0.025 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 62.07' @ 12.63 hrs Surf.Area= 199 sf Storage= 317 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 48.7 min (791.5 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	59.60'	195 cf	**6.33'W x 31.50'L x 3.54'H Field A** 707 cf Overall - 220 cf Embedded = 487 cf x 40.0% Voids
#2A	60.10'	220 cf	**Cultec R-330XLHD** x 4 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		415 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	59.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.04 cfs @ 11.64 hrs HW=59.64' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Pond P8: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

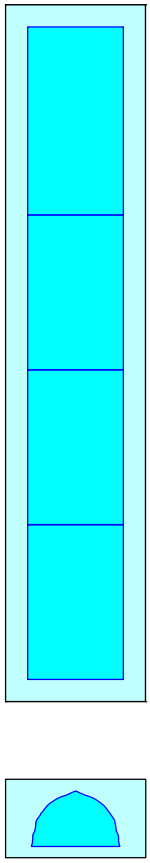
4 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 29.50' Row Length +12.0" End Stone x 2 = 31.50' Base Length
1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

4 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 219.8 cf Chamber Storage

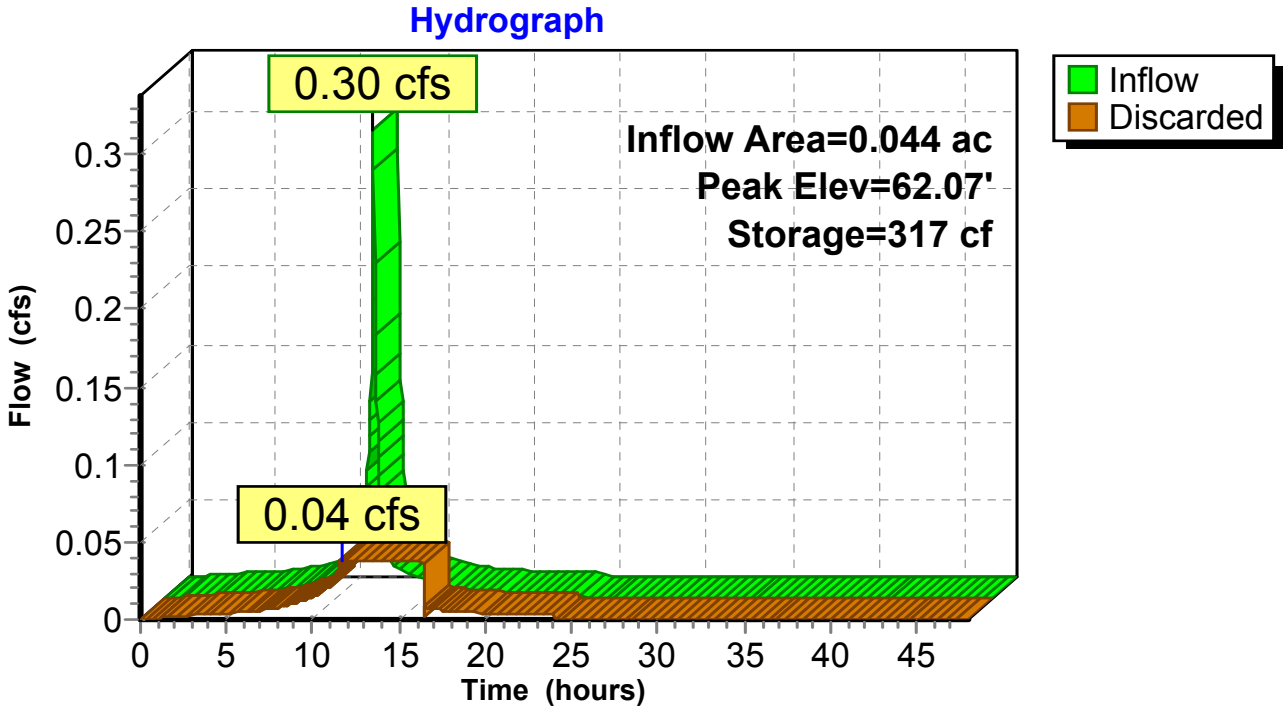
706.6 cf Field - 219.8 cf Chambers = 486.8 cf Stone x 40.0% Voids = 194.7 cf Stone Storage

Chamber Storage + Stone Storage = 414.5 cf = 0.010 af
Overall Storage Efficiency = 58.7%
Overall System Size = 31.50' x 6.33' x 3.54'

4 Chambers
26.2 cy Field
18.0 cy Stone



Pond P8: Infiltration Chambers



Summary for Pond P9: Infiltration Chambers

Inflow Area = 0.457 ac, 68.14% Impervious, Inflow Depth = 4.76" for 100-Year event
Inflow = 2.39 cfs @ 12.09 hrs, Volume= 0.181 af
Outflow = 0.25 cfs @ 11.64 hrs, Volume= 0.181 af, Atten= 90%, Lag= 0.0 min
Discarded = 0.25 cfs @ 11.64 hrs, Volume= 0.181 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 58.88' @ 12.91 hrs Surf.Area= 1,290 sf Storage= 2,706 cf

Plug-Flow detention time= 80.8 min calculated for 0.181 af (100% of inflow)
Center-of-Mass det. time= 80.8 min (872.2 - 791.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	55.60'	1,151 cf	**11.17'W x 115.50'L x 3.54'H Field A** 4,568 cf Overall - 1,691 cf Embedded = 2,876 cf x 40.0% Voids
#2A	56.10'	1,691 cf	**Cultec R-330XLHD** x 32 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 2 rows
		2,842 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	55.60'	**8.270 in/hr Exfiltration over Surface area** Phase-In= 0.02'

Discarded OutFlow Max=0.25 cfs @ 11.64 hrs HW=55.64' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.25 cfs)

Pond P9: Infiltration Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 2 rows

52.0" Wide + 6.0" Spacing = 58.0" C-C Row Spacing

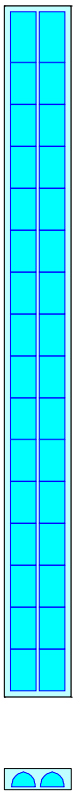
16 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 113.50' Row Length +12.0" End Stone x 2 = 115.50' Base Length
2 Rows x 52.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 11.17' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

32 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 1,691.4 cf Chamber Storage

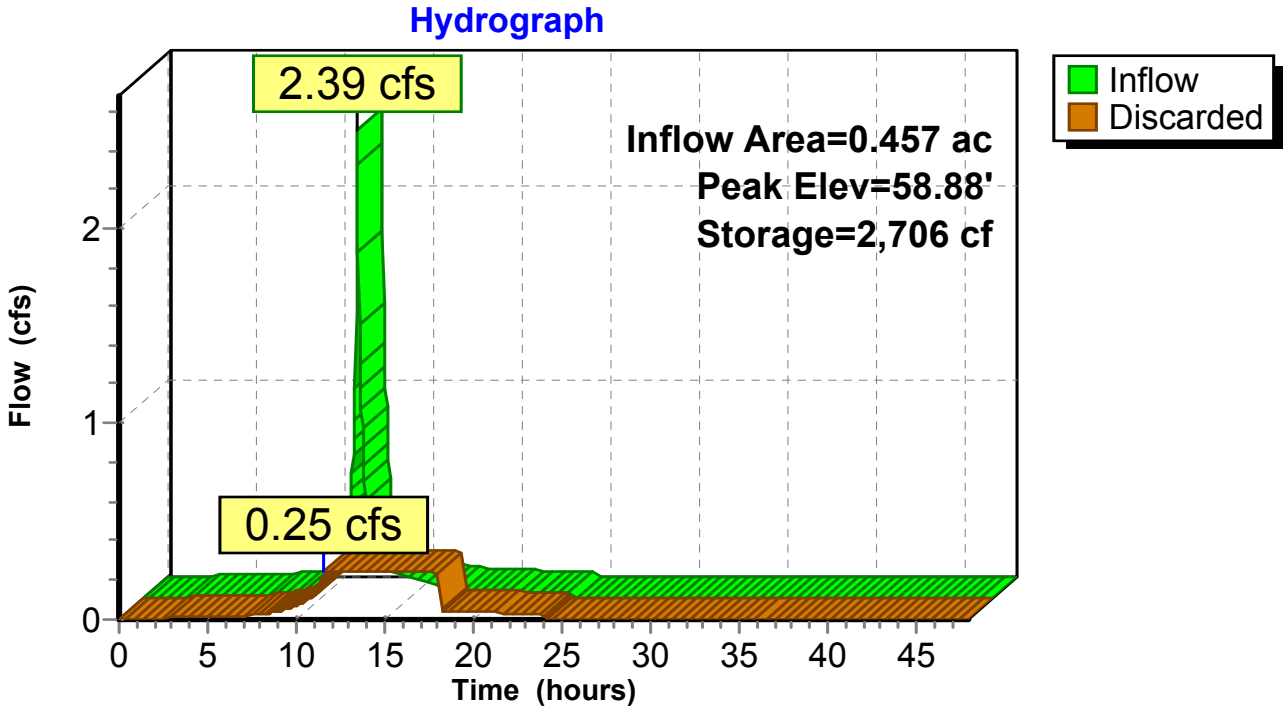
4,567.9 cf Field - 1,691.4 cf Chambers = 2,876.5 cf Stone x 40.0% Voids = 1,150.6 cf Stone Storage

Chamber Storage + Stone Storage = 2,842.0 cf = 0.065 af
Overall Storage Efficiency = 62.2%
Overall System Size = 115.50' x 11.17' x 3.54'

32 Chambers
169.2 cy Field
106.5 cy Stone



Pond P9: Infiltration Chambers



Summary for Pond W1: BVW

Inflow Area = 4.439 ac, 57.57% Impervious, Inflow Depth > 3.49" for 100-Year event
Inflow = 6.37 cfs @ 12.30 hrs, Volume= 1.292 af
Outflow = 6.36 cfs @ 12.31 hrs, Volume= 1.292 af, Atten= 0%, Lag= 0.8 min
Primary = 6.36 cfs @ 12.31 hrs, Volume= 1.292 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 55.30' @ 12.31 hrs Surf.Area= 1,214 sf Storage= 186 cf

Plug-Flow detention time= 0.5 min calculated for 1.291 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (932.4 - 931.9)

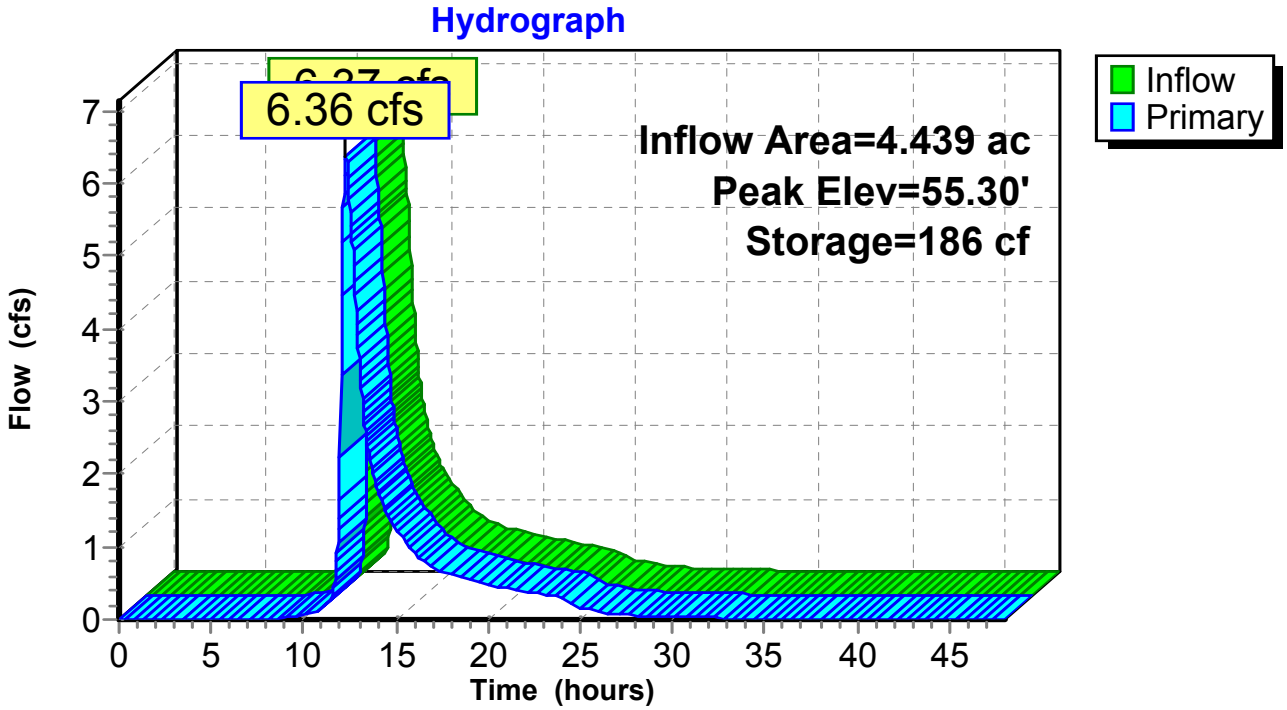
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	14,409 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
55.00	10	0	0
56.00	3,962	1,986	1,986
57.00	20,884	12,423	14,409

Device	Routing	Invert	Outlet Devices
#1	Primary	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 66.00
#2	Device 1	55.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 84.00

Primary OutFlow Max=6.34 cfs @ 12.31 hrs HW=55.30' TW=0.00' (Dynamic Tailwater)
└─**1=Custom Weir/Orifice** (Weir Controls 6.34 cfs @ 1.55 fps)
  └─**2=Custom Weir/Orifice** (Passes 6.34 cfs of 7.54 cfs potential flow)

Pond W1: BVW


Hydrograph
6.36 cfs
Inflow Area=4.439 ac
Peak Elev=55.30'
Storage=186 cf
Inflow
Primary
Flow (cfs)
0
1
2
3
4
5
6
7
0
5
10
15
20
25
30
35
40
45
Time (hours)

OBSERVATION HOLE DATA

OBSERVATION HOLE #101 — DATE: 10-22-2003
GRND ELEV.= 61.2 — GW ELEV.= NOT ENC. — MOTTLING ELEV.= NOT ENC.
TESTED BY: RALPH COLE — WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING — CERTIFIED BY: RALPH COLE

ELEV. 61.2	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
60.7	0"– 6"	OA	LOAMY SAND	10YR 3/3		FRIABLE
51.9	6"–112"	C1	GRAVELLY SAND	2.5Y 7/1		LOOSE 10–15% GRAVEL
51.2	112"–120"	C2	SANDY LOAM	10YR 7/3		HARD

NO GROUNDWATER OBSERVED @ 120" (ELEV.= 51.2) — TOP OF PERC 18" HOLE @ ELEV. 59.7 — PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE #102 — DATE: 10-22-2003
GRND ELEV.= 61.3 — GW ELEV.= – — MOTTLING ELEV.= 56.6
TESTED BY: RALPH COLE — WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING — CERTIFIED BY: RALPH COLE

ELEV. 61.3	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
60.5	0"– 10"	A	SANDY LOAM	10YR 4/3		FRIABLE
56.6	10"– 57"	C1	GRAVELLY SAND	2.5Y 7/1	Y 57" 7.5YR 5/8	LOOSE GRAVELLY SAND
54.3	57"– 84"	C2	SANDY LOAM	10YR 7/3		HARD

SOIL MOTTLES OBSERVED @ 57" (ELEV.= 56.6) — TOP OF PERC – HOLE @ ELEV. – — PERC RATE – MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE #103 — DATE: 10-22-2003
GRND ELEV.= 63.5 — GW ELEV.= NOT ENC. — LEDGE ELEV.= 57.5
TESTED BY: RALPH COLE — WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING — CERTIFIED BY: RALPH COLE

ELEV. 63.5	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
62.7	0"– 10"	A FILL	SANDY LOAM	10YR 4/3		FRIABLE
58.9	10"– 58"	C1	GRAVELLY SAND	2.5Y 7/1		LOOSE GRAVELLY SAND
57.5	58"– 72"	C2	SANDY LOAM	10YR 7/3		HARD
57.5	72" LEDGE	LEDGE				LEDGE

LEDGE OBSERVED @ 72" (ELEV.= 57.5) — TOP OF PERC – HOLE @ ELEV. – — PERC RATE – MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE #104 — DATE: 10-23-2003
GRND ELEV.= 61.4 — GW ELEV.= – — MOTTLING ELEV.= 56.7
TESTED BY: RALPH COLE — WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING — CERTIFIED BY: RALPH COLE

ELEV. 61.4	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
60.2	0"– 14"	AO	LOAMY SAND	10YR 4/3		FRIABLE
50.6	14"–130"	C	GRAVEL	2.5Y 7/1	Y 57" 7.5YR 5/8	LOOSE GRAVELLY SAND
50.6	LEDGE				LEDGE	LEDGE

SOIL MOTTLES OBSERVED @ 57" (ELEV.= 56.7) — TOP OF PERC 31" HOLE @ ELEV. 58.8' — PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE #105 — DATE: 10-23-2003
GRND ELEV.= 63.9 — GW ELEV.= NOT ENC. — MOTTLING ELEV.= NOT ENC.
TESTED BY: RALPH COLE — WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING — CERTIFIED BY: RALPH COLE

ELEV. 63.9	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
63.1	0"– 10"	OA	LOAMY SAND	10YR 4/3		FRIABLE
57.1	10"– 82"	C	GRAVEL	2.5Y 7/1		LOOSE GRAVEL 20–25% MEDIUM SAND

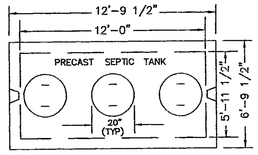
NO GROUNDWATER OBSERVED @ 82" (ELEV.= 57.1) — TOP OF PERC 24" HOLE @ ELEV. – — PERC RATE < 2 MIN./INCH

SEPTIC TANK DETAIL: 2000 GALLON

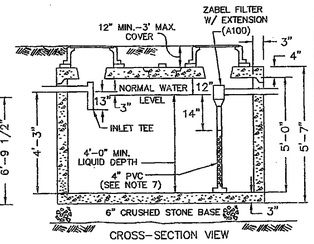
NOTE: TANK TO BE MONOLITHIC

NOT TO SCALE

NOTES:
1. SEPTIC TANK SHALL BE STEEL REINFORCED CONCRETE, WITH THREE (3) 20" MANHOLES.
2. SEPTIC TANK TO WITHSTAND H-10 LOADING UNLESS UNDER PAVEMENT, DRIVES, OR TRAVELED WAYS WHERE BY H-20 LOADING SHALL APPLY.
3. ALL PIPE CONNECTIONS AND CONCRETE CONSTRUCTION SHALL BE WATERTIGHT.
4. MANHOLE COVERS TO BE BROUGHT TO WITHIN 6" OF FINISHED GRADE.
5. RECOMMENDED MANUFACTURER– PEMBROKE CONCRETE OR APPROVED EQUAL.
6. INLET TEE TO BE CAST IRON, SCHEDULE 40 PVC OR CAST–IN–PLACE CONCRETE. OUTLET TEE TO BE ZABEL FILTER (A100) WITH EXTENSION. TEES TO BE CENTERED UNDER MANHOLE COVERS.
7. 4" SCH 40 PVC PIPE EXTENDED TO BOTTOM OF TANK WITH 2" DIA. HOLES DRILLED WITHIN PIPE. INSTALL 4"X4" SCH 40 PVC TEE ON BOTTOM



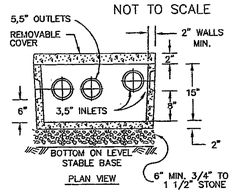
PLAN VIEW



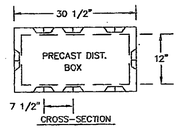
CROSS–SECTION VIEW

DISTRIBUTION BOX DETAIL:

NOT TO SCALE — NO. OF OUTLETS 3

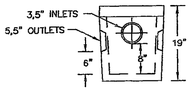


PLAN VIEW



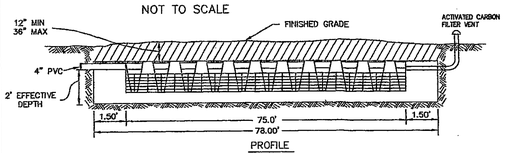
CROSS–SECTION

NOTES:
1. DIST. BOX TO WITHSTAND H–10 LOADING UNLESS UNDER PAVEMENT, DRIVES OR TRAVELED WAYS WHEREIN H–20 LOADING SHALL APPLY.
2. PROVIDE INLET TEE OR BAFFLE WHERE SLOPE OF PIPE EXCEEDS 0.08 FT./FT OR IN PUMPED SYSTEM.
3. FIRST TWO FEET OF PIPE OUT OF DIST. BOX TO BE LAID LEVEL.
4. RECOMMENDED MANUFACTURER–ROTONDO OR APPROVED EQUAL.
5. ALL PIPE CONNECTIONS AND CONCRETE CONSTRUCTION SHALL BE WATERTIGHT.



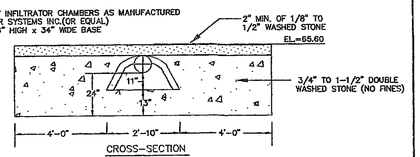
LEACHING TRENCH DETAIL: HIGH CAPACITY INFILTRATOR

NOT TO SCALE



PROFILE

HIGH CAPACITY INFILTRATOR CHAMBERS AS MANUFACTURED BY INFILTRATOR SYSTEMS INC.(OR EQUAL) 75" LONG x 16" HIGH x 34" WIDE BASE



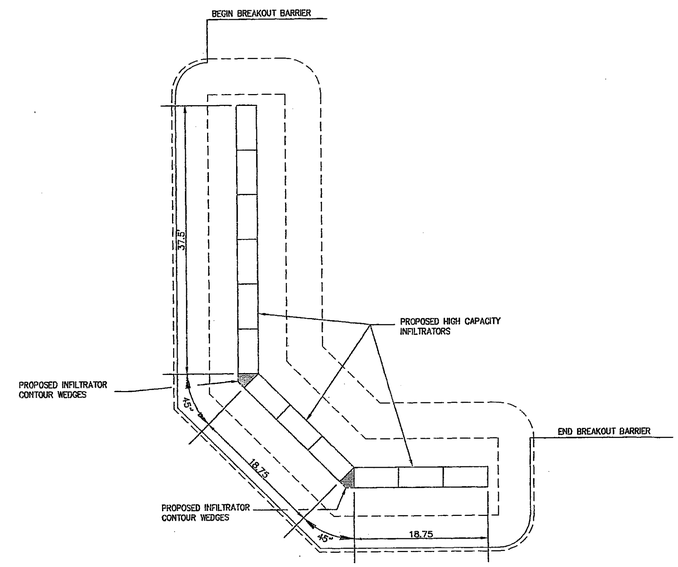
CROSS–SECTION

OBSERVATION HOLE DATA

OBSERVATION HOLE #106 — DATE: 10-23-2003
GRND ELEV.= 60.9 — GW ELEV.= NOT ENC. — LEDGE ELEV.= 52.4
TESTED BY: RALPH COLE — WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING — CERTIFIED BY: RALPH COLE

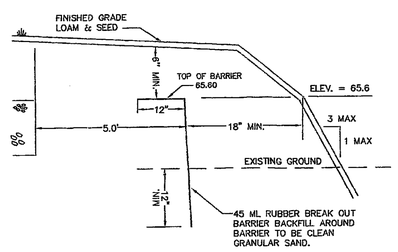
ELEV. 60.9	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
60.2	0"– 8"	OA	LOAMY SAND	10YR 4/3		FRIABLE
52.9	8"– 96"	C1	GRAVELLY	2.5Y 7/1		LOOSE GRAVEL 20–25% MEDIUM SAND
52.4	96"–102"	C2	SANDY LOAM	10YR 7/1		HARD
52.4	102"	LEDGE				LEDGE

LEDGE OBSERVED @ 102" (ELEV.= 52.4) — TOP OF PERC 32" HOLE @ ELEV. 58.2 — PERC RATE < 2 MIN./INCH



SYSTEM LAYOUT

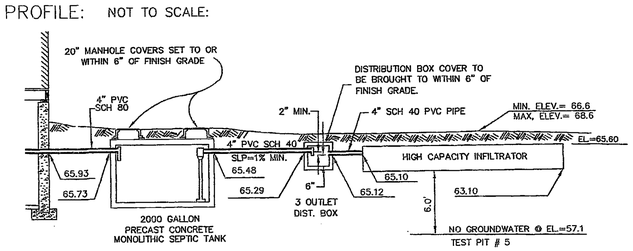
– NOT TO SCALE –



SECTION A – A

NOT TO SCALE

PROFILE: NOT TO SCALE:



REVISIONS:

No.	DESCRIPTION	DATE
1	NO REV. THIS SHT.	2/6/06

PHILLIP SPATH P.E. — DATE

PREPARED BY:
ROSANO • DAVIS • SPATH ENGINEERING
9 ROCKY LANE
COHASSET, MA 02025
781–383–1234

SURVEY SERVICES PROVIDED BY:
mr SURVEYING, INC.
P.O. BOX 5104
NORWELL, MA 02061

PROJECT TITLE:
SEWAGE DISPOSAL SYSTEM DESIGN
AT
LOT 1 VIKING LANE
HINGHAM, MA
ASSESSORS' MAP 124, LOT 24

PREPARED FOR:
XERXES REALTY TRUST
293 Washington Street
Norwell, MA 02061

DATE: SEPT. 12, 2005
COMP./DESIGN: P.H.SPATH
CHECK: P.H.SPATH / R.H.COLE
DRAWN: M.W.C.
FIELD: M.W.C./J.B.T. — VIKING LOT 1.DWG
RDS JOB # RDS 458
mr JOB # mr–415
SHEET 2 OF 2

OBSERVATION HOLE DATA

OBSERVATION HOLE # 201 — GRND ELEV.= 63.6 — GW ELEV.= – — TESTED BY: RALPH COLE — WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING

DATE: 10-22-2003 — MOTTLING ELEV.= 57.4 — CERTIFIED BY: RALPH COLE

ELEV. 63.6	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
63.4	0"– 3"	OA	LOAMY SAND	10YR 4/3		FRIABLE
57.4	3"– 75"	C1	GRAVELLY SAND	2.5Y 7/1	NONE	LOOSE 15–20% GRAVEL
56.7	75"– 83"	C2	FINE LOAMY SAND	10YR 7/2	Y 75" 7.5YR 5/8	HARD

SOIL MOTTLES OBSERVED @ 75" (ELEV.= 57.4) — TOP OF PERC 6" HOLE @ ELEV. 631 — PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE # 202 — GRND ELEV.= 64.5 — GW ELEV.= – — TESTED BY: RALPH COLE — WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING

DATE: 10-22-2003 — MOTTLING ELEV.= – — CERTIFIED BY: RALPH COLE

ELEV. 64.5	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
64.3	0"– 3"	A FILL	SANDY LOAM	10YR 4/3		FRIABLE
53.9	3"–127"	C1	GRAVELLY SAND	2.5Y 7/1	NONE	LOOSE 20–25% GRAVEL

NO SOIL MOTTLES OBSERVED @ 127" (ELEV.= 53.9) — TOP OF PERC 6" HOLE @ ELEV. 64.0 — PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE # 203 — GRND ELEV.= 65.3 — GW ELEV.= – — TESTED BY: RALPH COLE — WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING

DATE: 10-22-2003 — MOTTLING ELEV.= – — CERTIFIED BY: RALPH COLE

ELEV. 65.3	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
64.3	0"– 12"	A FILL	SANDY LOAM	10YR 4/3		FRIABLE
60.9	12"– 53"	C1	GRAVELLY SAND	2.5Y 7/1		LOOSE GRAVEL, SAND
60.9	53"	LEDGE				LEDGE

LEDGE OBSERVED @ 53.0 (ELEV.= 60.9) — TOP OF PERC – HOLE @ ELEV. – — PERC RATE – MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE # 204 — GRND ELEV.= 65.2 — GW ELEV.= – — TESTED BY: RALPH COLE — WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING

DATE: 10-23-2003 — MOTTLING ELEV.= 59.0 — CERTIFIED BY: RALPH COLE

ELEV. 65.2	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
65.0	0"– 3"	A0	LOAMY SAND	10YR 4/3		FRIABLE
59.0	3"– 75"	C1	GRAVELLY SAND	2.5Y 7/1	NONE	LOOSE GRAVELLY SAND
56.9	75"–100"	C2	SANDY LOAM	10YR 7/3	Y 75" 7.5YR 5/8	HARD

SOIL MOTTLES OBSERVED @ 75" (ELEV.= 59.0) — TOP OF PERC 12" HOLE @ ELEV. 64.2 — PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE # 205 — GRND ELEV.= 67.2 — GW ELEV.= – — TESTED BY: RALPH COLE — WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING

DATE: 10-23-2003 — MOTTLING ELEV.= – — CERTIFIED BY: RALPH COLE

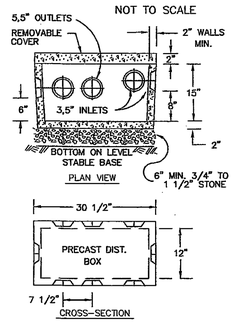
ELEV. 67.2	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
67.0	0"– 3"	OA	LOAMY SAND	10YR 4/3		FRIABLE
60.4	3"– 82"	C1	GRAVEL SAND	2.5Y 7/1		LOOSE GRAVEL 10–15%

NO SOIL MOTTLES OBSERVED @ 82" (ELEV.= 60.4) — TOP OF PERC 12" HOLE @ ELEV. 66.2 — PERC RATE < 2 MIN./INCH

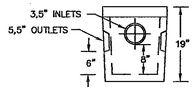
DISTRIBUTION BOX DETAIL:

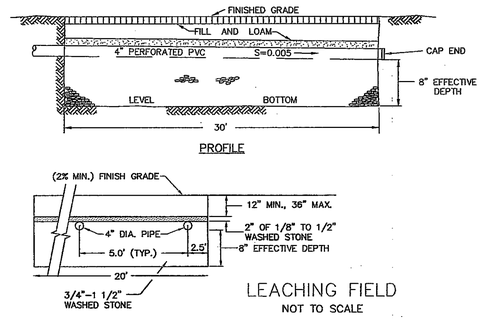
NOT TO SCALE

NO. OF OUTLETS 4

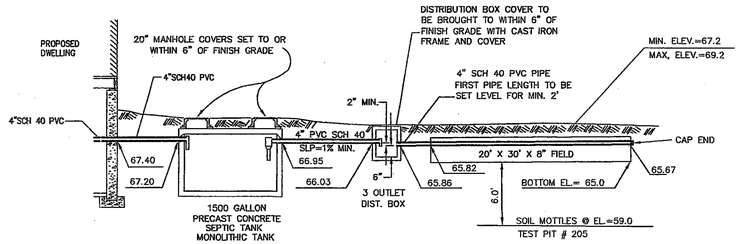


NOTES:
1. DIST. BOX TO WITHSTAND H-10 LOADING UNLESS UNDER PAVEMENT, DRIVES OR TRAVELED WAYS WHEREIN H-20 LOADING SHALL APPLY.
2. PROVIDE INLET TEE OR BAFFLE WHERE SLOPE OF PIPE EXCEEDS 0.08 FT./FT OR IN PUMPED SYSTEM.
3. FIRST TWO FEET OF PIPE OUT OF DIST. BOX TO BE LAID LEVEL.
4. RECOMMENDED MANUFACTURER–ROTONDO OR APPROVED EQUAL.
5. ALL PIPE CONNECTIONS AND CONCRETE CONSTRUCTION SHALL BE WATERTIGHT.





LEACHING FIELD
NOT TO SCALE



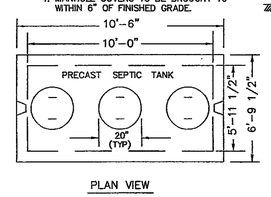
PROFILE
NOT TO SCALE

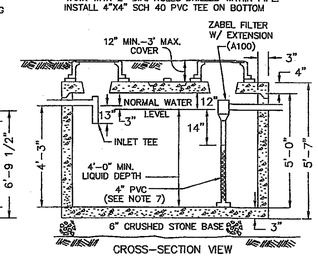
SEPTIC TANK DETAIL: 1500 GALLON

NOTE: TANK TO BE MONOLITHIC

NOT TO SCALE

NOTES:
1. SEPTIC TANK SHALL BE STEEL REINFORCED CONCRETE, WITH THREE (3) 20" MANHOLES.
2. SEPTIC TANK TO WITHSTAND H-10 LOADING UNLESS UNDER PAVEMENT, DRIVES, OR TRAVELED WAYS WHERE BY H-20 LOADING SHALL APPLY.
3. ALL PIPE CONNECTIONS AND CONCRETE CONSTRUCTION SHALL BE WATERTIGHT.
4. MANHOLE COVERS TO BE BROUGHT TO WITHIN 6" OF FINISHED GRADE.
5. RECOMMENDED MANUFACTURER– PEMBROKE CONCRETE OR APPROVED EQUAL.
6. INLET TEE TO BE CAST IRON, SCHEDULE 40 PVC OR CAST–IN–PLACE CONCRETE. OUTLET TEE TO BE ZABEL FILTER (A100) WITH EXTENSION. TEES TO BE CENTERED UNDER MANHOLE COVERS.
7. 4" SCH 40 PVC PIPE EXTENDED TO BOTTOM OF TANK WITH 2" DIA. HOLES DRILLED WITHIN PIPE. INSTALL 4"X4" SCH 40 PVC TEE ON BOTTOM





REVISIONS:

No.	DESCRIPTION	DATE
1	REV. SAS	5–16–06

PHILLIP SPATH P.E. — DATE

PREPARED BY:
ROSANO • DAVIS • SPATH ENGINEERING
9 ROCKY LANE
COHASSET, MA 02025
781–383–1234

SURVEY SERVICES PROVIDED BY:
mr SURVEYING, INC.
P.O. BOX 5104
NORWELL, MA 02061

PROJECT TITLE:
SEWAGE DISPOSAL SYSTEM DESIGN
AT
LOT 2 VIKING LANE
HINGHAM, MA
ASSESSORS' MAP 124, LOT 24

PREPARED FOR:
XERXES REALTY TRUST
293 WASHINGTON STREET
NORWELL, MA 02061

DATE: JUNE 27, 2005
COMP./DESIGN: P.H.SPATH
CHECK: P.H.SPATH / R.H.COLE
DRAWN: M.W.C.
FIELD: M.W.C./J.B.T. — LOT 2 VIKING LANE
RDS JOB # RDS 458
mr JOB # mr–
SHEET 2 OF 2

OBSERVATION HOLE DATA

OBSERVATION HOLE # 301

GRND ELEV.= 62.0 | GW ELEV.= – | MOTTLING ELEV.= 52.9

TESTED BY: PHILLIP SPATH P.E. & RALPH COLE P.L.S.

WITNESSED BY: PAUL A BROGNA P.E.

DATE: 10-22-2003 | CERTIFIED BY: PHILLIP SPATH P.E.

ELEV. 62.0	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
60.7	0"– 16"	A	SANDY LOAM	10YR 4/3		– FRIABLE –
59.5	16"– 30"	B	LOAMY SAND	10YR 5/8	NONE	FRIABLE 10–15% GRAVEL –
52.0	30"–120"	C	GRAVELLY SAND	2.5Y 7/4	Y 109" 7.5YR 5/8	LOOSE 10–15% GRAVEL VEINS OF MEDIUM SAND

SOIL MOTTLES OBSERVED @ 109" (ELEV.= 52.9) | TOP OF PERC HOLE @ ELEV. 18" 60.5 | PERC RATE 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE # 302

GRND ELEV.= 62.9 | GW ELEV.= – | NO MOTTLING ELEV.= 51.9

TESTED BY: PHILLIP SPATH P.E. & RALPH COLE P.L.S.

WITNESSED BY: PAUL A BROGNA P.E.

DATE: 10-22-2003 | CERTIFIED BY: PHILLIP SPATH P.E.

ELEV. 62.9	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
62.2	0"– 8"	A	SANDY LOAM	10YR 4/3		FRIABLE
60.4	8"– 30"	B	SANDY LOAM	10YR 5/8	NONE	FRIABLE
51.9	30"–132"	C	GRAVELLY SAND	2.5Y 7/1	NONE	LOOSE 15–20% GRAVEL

NO SOIL MOTTLES OBSERVED @ 132" (ELEV.= 51.9) | TOP OF PERC HOLE @ ELEV. 17" 61.5 | PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE # 303

GRND ELEV.= 65.1 | GW ELEV.= – | NO MOTTLING ELEV.= 54.1

TESTED BY: PHILLIP SPATH P.E. & RALPH COLE P.L.S.

WITNESSED BY: PAUL A BROGNA P.E.

DATE: 10-22-2003 | CERTIFIED BY: PHILLIP SPATH P.E.

ELEV. 65.1	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
64.6	0"– 6"	A	SANDY LOAM	10YR 4/3		FRIABLE
63.1	6"– 24"	B	SANDY LOAM	2.5Y 7/1	NONE	FRIABLE
54.1	24"–132"	C	GRAVELLY SAND	2.5Y 7/1	NONE	LOOSE 20–25% GRAVEL

NO SOIL MOTTLES OBSERVED @ 132" (ELEV.= 54.1) | TOP OF PERC HOLE @ ELEV. 37" 62.0 | PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE # 304

GRND ELEV.= 66.2 | GW ELEV.= – | NO MOTTLING ELEV.= 55.7

TESTED BY: PHILLIP SPATH P.E. & RALPH COLE P.L.S.

WITNESSED BY: PAUL A BROGNA P.E.

DATE: 10-22-2003 | CERTIFIED BY: PHILLIP SPATH P.E.

ELEV. 66.2	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
65.2	0"– 12"	A	LOAMY SAND	10YR 4/3		FRIABLE
63.9	12"– 28"	B	SANDY LOAM	10YR 5/8		FRIABLE
55.7	28"–126"	C	GRAVELLY SAND	2.5Y 7/1	NONE	LOOSE 20–25% GRAVEL MEDIUM SAND

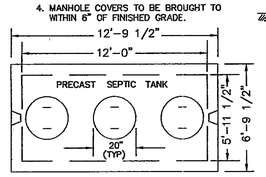
NO SOIL MOTTLES OBSERVED @ 126" (ELEV.= 55.7) | TOP OF PERC HOLE @ ELEV. 31" 63.6 | PERC RATE < 2 MIN./INCH

SEPTIC TANK DETAIL: 2000 GALLON

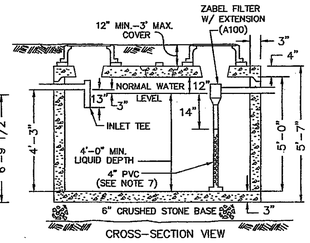
NOTE: TANK TO BE MONOLITHIC

NOT TO SCALE

NOTES:
1. SEPTIC TANK SHALL BE STEEL REINFORCED CONCRETE, WITH THREE (3) 20" MANHOLES.
2. SEPTIC TANK TO WITHSTAND H–10 LOADING UNLESS UNDER PAVEMENT, DRIVES, OR TRAVELED WAYS WHERE BY H–20 LOADING SHALL APPLY.
3. ALL PIPE CONNECTIONS AND CONCRETE CONSTRUCTION SHALL BE WATERTIGHT.
4. MANHOLE COVERS TO BE BROUGHT TO WITHIN 6" OF FINISHED GRADE.
5. RECOMMENDED MANUFACTURER– PEMBROKE CONCRETE OR APPROVED EQUAL.
6. INLET TEE TO BE CAST IRON, SCHEDULE 40 PVC OR CAST–IN–PLACE CONCRETE. OUTLET TEE TO BE ZABEL FILTER (A100) WITH EXTENSION. TEES TO BE CENTERED UNDER MANHOLE COVERS.
7. 4" SCH 40 PVC PIPE EXTENDED TO BOTTOM OF TANK WITH 2" DIA. HOLES DRILLED WITHIN PIPE. INSTALL 4"X4" SCH 40 PVC TEE ON BOTTOM



PLAN VIEW

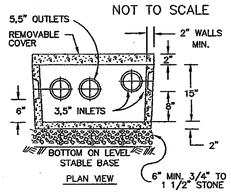


CROSS–SECTION VIEW

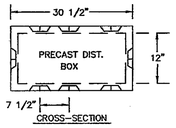
DISTRIBUTION BOX DETAIL:

NOT TO SCALE

NO. OF OUTLETS 3

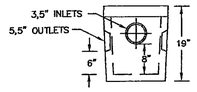


PLAN VIEW



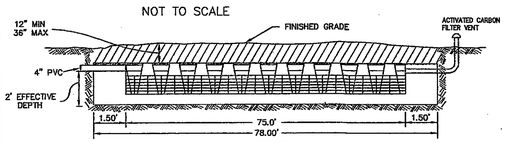
CROSS–SECTION

NOTES:
1. DIST. BOX TO WITHSTAND H–10 LOADING UNLESS UNDER PAVEMENT, DRIVES OR TRAVELED WAYS WHEREIN H–20 LOADING SHALL APPLY.
2. PROVIDE INLET TEE OR BAFFLE WHERE SLOPE OF PIPE EXCEEDS 0.08 FT./FT OR IN PUMPED SYSTEM.
3. FIRST TWO FEET OF PIPE OUT OF DIST. BOX TO BE LAID LEVEL.
4. RECOMMENDED MANUFACTURER–ROTONDO OR APPROVED EQUAL.
5. ALL PIPE CONNECTIONS AND CONCRETE CONSTRUCTION SHALL BE WATERTIGHT.



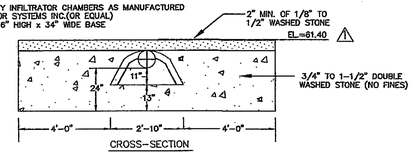
LEACHING TRENCH DETAIL: HIGH CAPACITY INFILTRATOR

NOT TO SCALE



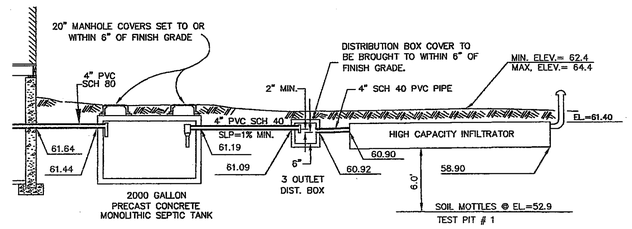
PROFILE

HIGH CAPACITY INFILTRATOR CHAMBERS AS MANUFACTURED BY INFILTRATOR SYSTEMS INC.(OR EQUAL) 75" LONG x 16" HIGH x 34" WIDE BASE



CROSS–SECTION

PROFILE: NOT TO SCALE:



REVISIONS:

No.	DESCRIPTION	DATE
1	REV. PER BOH	2/6/06

PHILLIP SPATH P.E. | DATE

PREPARED BY:

ROSANO • DAVIS • SPATH ENGINEERING
9 ROCKY LANE
COHASSET, MA 02025
781–383–1234

SURVEY SERVICES PROVIDED BY:

mr SURVEYING, INC.
P.O. BOX 5104
NORWELL, MA 02061

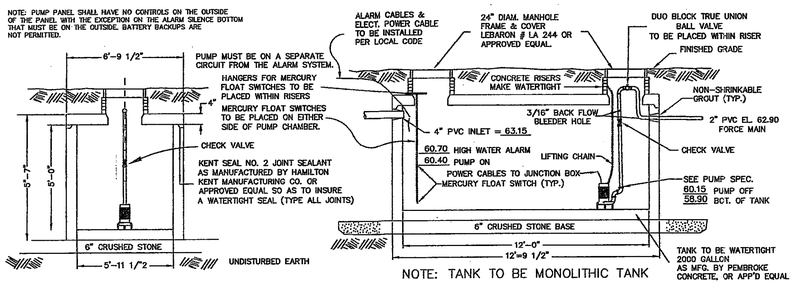
PROJECT TITLE:

SEWAGE DISPOSAL SYSTEM DESIGN
AT
LOT 3 VIKING LANE
HINGHAM, MA
ASSESSORS' MAP 124, LOT 24

PREPARED FOR:

XERXES REALTY TRUST
293 WASHINGTON STREET
NORWELL, MA 02061

DATE: SEPT. 12, 2005
COMP./DESIGN: P.H.SPATH
CHECK: P.H.SPATH / R.H.COLE
DRAWN: M.W.C.
FIELD: M.W.C./J.B.T. | LOT 2 VIKING LANE
RDS JOB # RDS 458
mr JOB # mr–415
SHEET 2 OF 2



NOTE: TANK TO BE MONOLITHIC TANK

PUMP SPECIFICATIONS

47 GPM AT 26' TDH
DISCHARGE 2"
NON CLOG IMPELLERS
SINGLE PHASE SUBMERSIBLE PUMP
MIN. DIA. SOLIDS 1 1/4"

NOTES:

CONTROL PANEL, ALARM AND SWITCHBOX TO BE LOCATED WITHIN DWELLING

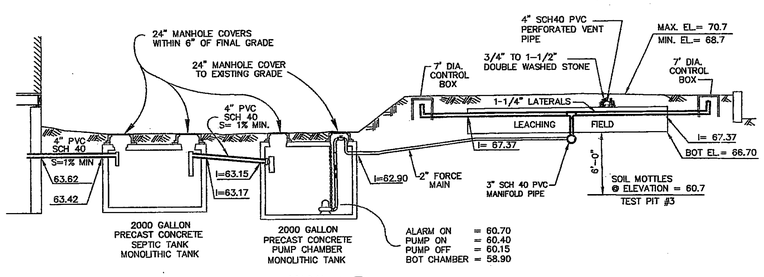
ONE DAY FLOW FOR EMERGENCY STORAGE PROVIDED IN PUMP STATION ABOVE HIGH WATER ALARM ELEVATION.

INSTALL PUMP & CONTROLS PER MANUFACTURERS SPECIFICATIONS.

NOTE:
THE CONTRACTOR SHALL SUBMIT TO THE DESIGN ENGINEER, FOR HIS REVIEW AND APPROVAL, THE MANUFACTURERS SPECIFICATIONS FOR THE PUMP AND ACCESSORIES (MERCURY SWITCHES, VALVES, ETC.) PRIOR TO THE CONSTRUCTION OF THE SYSTEM.

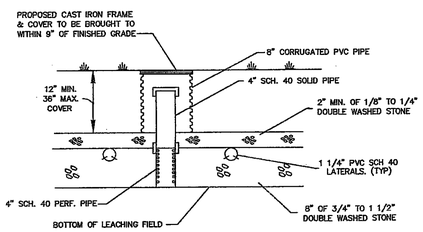
SEWAGE PUMP STATION DETAIL

NOT TO SCALE



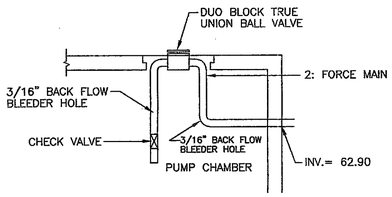
PROFILE

NOT TO SCALE



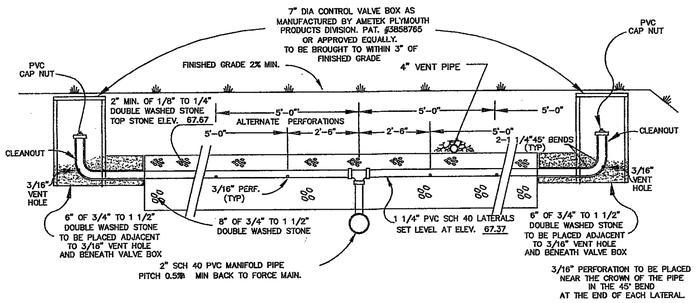
INSPECTION PORT DETAIL

NOT TO SCALE



BALL VALVE PLACEMENT DETAIL

NOT TO SCALE



SECTION A – A

NOT TO SCALE

OBSERVATION HOLE DATA

OBSERVATION HOLE # 401
DATE: 10-14-2003
GRND ELEV.= 74.3
GW ELEV.= –
MOTTLING ELEV.= 68.1
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 74.3	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
73.7	0"– 7"	A	LOAMY SAND	10YR 3/3		FRIABLE
72.0	7"– 28"	B	LOAMY SAND	10YR 5/4	NONE	FRIABLE STONES
64.3	28"–120"	C	GRAVEL	10YR 7/3	Y 75" 7.5YR 5/8	LOOSE GRAVEL MEDIUM SAND STONES COBBLES

SOIL MOTTLES OBSERVED @ 75" (ELEV.= 68.1)
TOP OF PERC 30" HOLE @ ELEV. 71.8
PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE # 402
DATE: 10-14-2003
GRND ELEV.= 72.3
NO GW AT ELEV.= 62.3
NO MOTTLING AT ELEV.= 62.3
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 72.3	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
71.7	0"– 7"	A	LOAMY SAND	10YR 3/3	–	FRIABLE
70.5	7"– 22"	B	LOAMY SAND	10YR 5/4	NONE	FRIABLE STONES
62.3	22"–120"	C	GRAVEL	10YR 7/3	NONE	LOOSE GRAVEL MEDIUM SAND, STONES

NO MOTTLES OR G.W. OBSERVED @ 120" (ELEV.= 62.3)
TOP OF PERC 25" HOLE @ ELEV. 70.2
PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE # 403
DATE: 10-14-2003
GRND ELEV.= 70.7
GW ELEV.= –
NO MOTTLING AT ELEV.= 60.7
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 70.7	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
70.1	0"– 7"	A	LOAMY SAND	10YR 3/3	–	FRIABLE
68.9	7"– 22"	B	LOAMY SAND	10YR 5/4	–	FRIABLE STONES
60.7	22"–120"	C	GRAVEL	10YR 7/3	–	LOOSE GRAVEL MEDIUM SAND, STONES

NO MOTTLES OR G.W. OBSERVED @ 120" (ELEV.= 60.7)
TOP OF PERC 35" HOLE @ ELEV. 67.8
PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE # 404
DATE: 10-14-2003
GRND ELEV.= 72.7
GW ELEV.= –
NO MOTTLING AT ELEV.= 62.7
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 72.7	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
72.0	0"– 8"	A	LOAMY SAND	10YR 3/3	–	FRIABLE
70.5	8"– 26"	B	LOAMY SAND	10YR 5/4	–	FRIABLE STONES
62.7	26"–120"	C	GRAVEL	10YR 7/3	NONE	LOOSE GRAVEL MEDIUM SAND, STONES

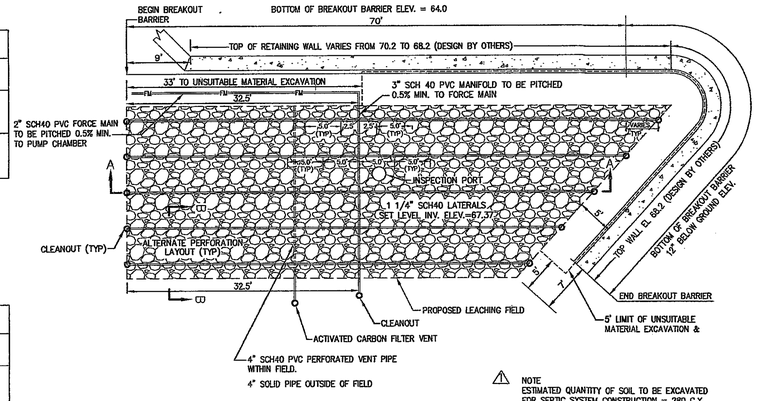
NO MOTTLES OBSERVED @ 120" (ELEV.= 62.7)
TOP OF PERC 22" HOLE @ ELEV. 70.9
PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE # 405
DATE: 10-14-2003
GRND ELEV.= 65.4
GW ELEV.= –
MOTTLING ELEV.= 57.5
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 65.4	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
64.2	0"– 5"	A	LOAMY SAND	10YR 3/3	–	FRIABLE
63.9	5"– 16"	B	LOAMY SAND	10YR 5/4	–	FRIABLE STONES
56.1	18"–112"	C	SAND	10YR 7/3	Y 95" 7.5YR 5/6	LOOSE MEDIUM SAND 10% GRAVEL

SOIL MOTTLES OBSERVED @ 95" (ELEV.= 57.5)
TOP OF PERC – HOLE @ ELEV. –
PERC RATE – MIN./INCH

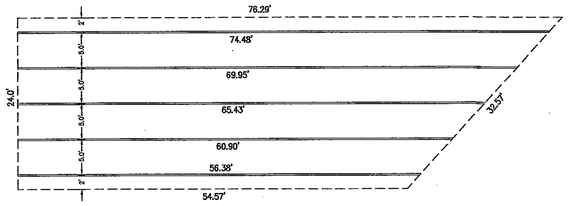


TOTAL PERFORATIONS = 71 (61 PERFORATIONS + 10 VENT HOLES)

⚠ NOTE
ESTIMATED QUANTITY OF SOIL TO BE EXCAVATED FOR SEPTIC SYSTEM CONSTRUCTION = 280 C.Y.

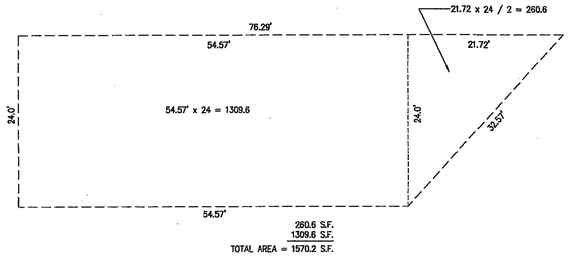
SYSTEM LAYOUT

– NOT TO SCALE –



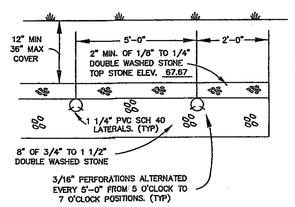
SYSTEM DIMENSIONS

– NOT TO SCALE –



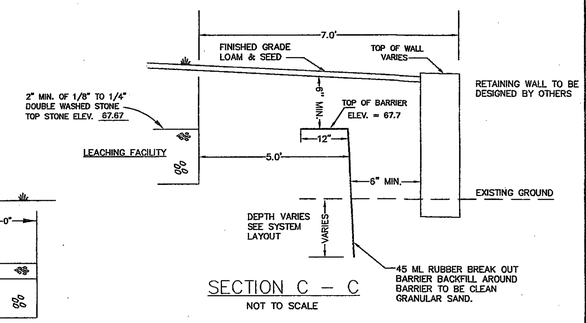
SYSTEM AREA CALCULATION

– NOT TO SCALE –



SECTION B – B

NOT TO SCALE



SECTION C – C

NOT TO SCALE

REVISIONS:

No.	DESCRIPTION	DATE
1	REV. PER BOH	2/6/06

PHILLIP SPATH P.E. — DATE

PREPARED BY:
ROSANO • DAVIS • SPATH ENGINEERING
9 ROCKY LANE
COHASSET, MA 02025
781-383-1234

SURVEY SERVICES PROVIDED BY:
mr SURVEYING, INC.
P.O. BOX 5104
NORWELL, MA 02061

PROJECT TITLE:
SEWAGE DISPOSAL SYSTEM DESIGN
AT
LOT 4 VIKING LANE
NORWELL, MA
ASSESSORS MAP 124 LOT 24

PREPARED FOR:
XERXES REALTY TRUST
293 WASHINGTON STREET
NORWELL, MA 02061

DATE: JUNE 29, 2005	
COMP./DESIGN: P.H.SPATH	
CHECK: P.H.SPATH / R.H.COLE	
DRAWN: M.W.C.	
FIELD: M.W.C./J.B.T.	VIKING LOT 4.DWG
RDS JOB # RDS 458	SHEET 2 OF 2
mr JOB # mr-415	

OBSERVATION HOLE DATA

OBSERVATION HOLE #501
DATE: 10-14-2003
GRND ELEV.= 68.6
GW ELEV.= –
NO MOTTLING @ ELEV.= 59.0
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 68.6	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
67.9	0"– 8"	A	LOAMY SAND	10YR 3/3		FRIABLE
65.9	8"– 32"	B	LOAMY SAND	10YR 5/4	NONE	FRIABLE STONES
59.0	32"–115"	C	SAND	10YR 7/3	NONE	LOOSE GRAVEL MEDIUM SAND 10% GRAVEL

NO GROUNDWATER OBSERVED @ 115" (ELEV.= 59.0)
TOP OF PERC 45" HOLE @ ELEV. 64.9
PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE #502
DATE: 10-22-2003
GRND ELEV.= 71.9
GW ELEV.= –
MOTTLING ELEV.= 65.9
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 71.9	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
71.4	0"– 6"	OA	LOAMY SAND	10YR 3/3		FRIABLE
69.9	6"– 24"	B	LOAMY SAND	10YR 5/8		FRIABLE STONES
65.9	24"– 72"	C1	GRAVELLY SAND	2.5Y 7/4	72" 7.5YR 5/8	LOOSE GRAVEL 10% – 15% GRAVEL
60.4	72"–138"	C2	SANDY LOAM	10YR 7/3		HARD SILTY SAND

SOIL MOTTLES OBSERVED @ 72" (ELEV.= 65.9)
TOP OF PERC – HOLE @ ELEV. –
PERC RATE – MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE #503
DATE: 10-22-2003
GRND ELEV.= 70.0
GW ELEV.= –
MOTTLING ELEV.= 57.5
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 70.0	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
69.5	0"– 6"	OA	LOAMY SAND	10YR 4/1		FRIABLE
57.5	6"–150"	C1	GRAVELLY SAND	2.5Y 7/1	NONE	LOOSE 15% – 20% GRAVEL
57.5	150"– "	C2	SANDY LOAM	10YR 7/3	Y 150" 7.5YR 5/8	HARD

SOIL MOTTLES OBSERVED @ 150" (ELEV.= 57.5)
TOP OF PERC 36" HOLE @ ELEV. 67.0
PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE #504
DATE: 10-22-2003
GRND ELEV.= 67.5
GW ELEV.=
MOTTLING ELEV.= 55.5
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 67.5	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
65.5	0"– 24"	A	SANDY LOAM	10YR 4/3		FRIABLE
64.2	24"– 40"	B	LOAMY SAND	10YR 6/4		FRIABLE STONES
55.5	40"–144"	C1	GRAVELLY SAND	2.5Y 7/1		LOOSE GRAVEL MEDIUM SAND STONES
55.5	144"– "	C2	SANDY LOAM	10YR 7/3	Y 144" 7.5YR 5/8	HARD

SOIL MOTTLES OBSERVED @ 144" (ELEV.= 55.5)
TOP OF PERC 36" HOLE @ ELEV. 64.5
PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE #505
DATE: 10-22-2003
GRND ELEV.= 67.8
GW ELEV.= –
MOTTLING ELEV.= 56.1
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 67.8	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
64.4	0"– 41"	FILL				
56.1	41"–140"	C1	GRAVELLY SAND	2.5Y 7/1	NONE	LOOSE 10% – 15% GRAVEL
56.1	140"	C2	SANDY LOAM	10YR 7/2	Y 140" 7.5YR 5/8	HARD

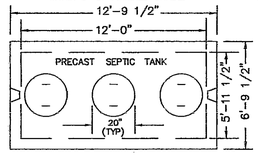
SOIL MOTTLES OBSERVED @ 140" (ELEV.= 56.1)
TOP OF PERC 41" HOLE @ ELEV. 64.4
PERC RATE < 2 MIN./INCH

SEPTIC TANK DETAIL: 2000 GALLON

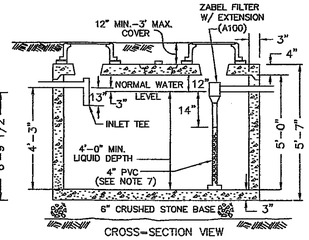
NOTE: TANK TO BE MONOLITHIC

NOT TO SCALE

NOTES:
1. SEPTIC TANK SHALL BE STEEL REINFORCED CONCRETE, WITH THREE (3) 20" MANHOLES.
2. SEPTIC TANK TO WITHSTAND H–10 LOADING UNLESS UNDER PAVEMENT, DRIVES, OR TRAVELED WAYS WHERE BY H–20 LOADING SHALL APPLY.
3. ALL PIPE CONNECTIONS AND CONCRETE CONSTRUCTION SHALL BE WATERTIGHT.
4. MANHOLE COVERS TO BE BROUGHT TO WITHIN 6" OF FINISHED GRADE.
5. RECOMMENDED MANUFACTURER– PEMBROKE CONCRETE OR APPROVED EQUAL.
6. INLET TEE TO BE CAST IRON, SCHEDULE 40 PVC OR CAST–IN–PLACE CONCRETE. OUTLET TEE TO BE ZABEL FILTER (A100) WITH EXTENSION. TEES TO BE CENTERED UNDER MANHOLE COVERS.
7. 4" SCH 40 PVC PIPE EXTENDED TO BOTTOM OF TANK WITH 2" DIA. HOLES DRILLED WITHIN PIPE. INSTALL 4"X4" SCH 40 PVC TEE ON BOTTOM



PLAN VIEW

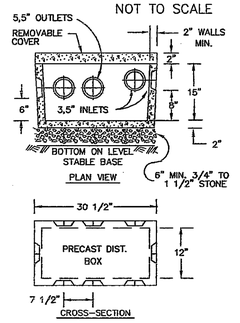


CROSS–SECTION VIEW

DISTRIBUTION BOX DETAIL:

NOT TO SCALE

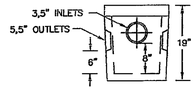
NO. OF OUTLETS 3



PLAN VIEW

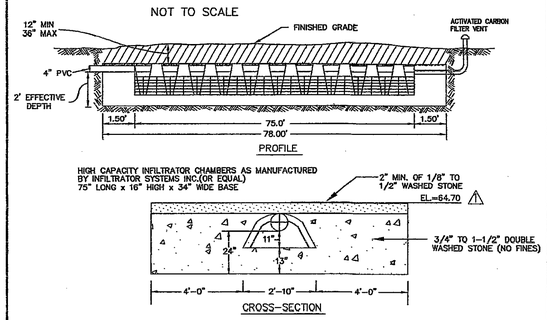
CROSS–SECTION

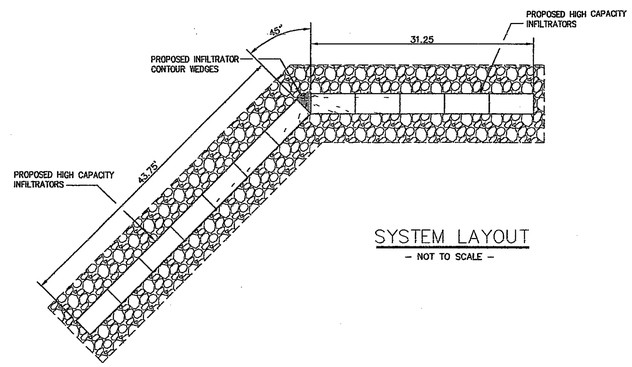
NOTES:
1. DIST. BOX TO WITHSTAND H–10 LOADING UNLESS UNDER PAVEMENT, DRIVES OR TRAVELED WAYS WHEREIN H–20 LOADING SHALL APPLY.
2. PROVIDE INLET TEE OR BAFFLE WHERE SLOPE OF PIPE EXCEEDS 0.08 FT./FT OR IN PUMPED SYSTEM.
3. FIRST TWO FEET OF PIPE OUT OF DIST. BOX TO BE LAID LEVEL.
4. RECOMMENDED MANUFACTURER–ROTONDO OR APPROVED EQUAL.
5. ALL PIPE CONNECTIONS AND CONCRETE CONSTRUCTION SHALL BE WATERTIGHT.



LEACHING TRENCH DETAIL: HIGH CAPACITY INFILTRATOR

NOT TO SCALE

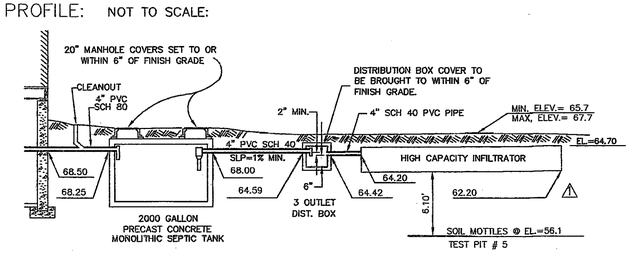




SYSTEM LAYOUT

– NOT TO SCALE –

PROFILE: NOT TO SCALE:



REVISIONS:

No.	DESCRIPTION	DATE
1	REV. PER BOH	2/6/06

PHILLIP SPATH P.E. DATE

PREPARED BY:
ROSANO • DAVIS • SPATH ENGINEERING
9 ROCKY LANE
COHASSET, MA 02025
781–383–1234

SURVEY SERVICES PROVIDED BY:
mr SURVEYING, INC.
P.O. BOX 5104
NORWELL, MA 02061

PROJECT TITLE:
SEWAGE DISPOSAL SYSTEM DESIGN
AT
LOT 5 VIKING LANE
HINGHAM, MA
ASSESSORS' MAP 124, LOT 24

PREPARED FOR:
XERXES REALTY TRUST
293 WASHINGTON STREET
HINGHAM, MA 02061

DATE: JUNE 29, 2005
COMP./DESIGN: P.H.SPATH
CHECK: P.H.SPATH / R.H.COLE
DRAWN: M.W.C.
FIELD: M.W.C./J.B.T. | LOT 5 VIKING LANE
RDS JOB # RDS 458
mr JOB # mr–415
SHEET 2 OF 2

OBSERVATION HOLE DATA

OBSERVATION HOLE #6A–1
DATE: 11–3–04
GRND ELEV.= 77.1
GW ELEV.= –
MOTTLING ELEV.= –
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 77.1	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
76.1	0"– 12"	O	LEAVES PINE NEEDLES	10YR 3/3		LEAVES, PINE NEEDLES
75.1	12"– 24"	A	GRAVELLY SAND	10YR 3/3		FRIABLE ROOTS
74.1	24"– 36"	B	SANDY LOAM	10YR 5/4	NONE	FRIABLE ROOTS
67.1	36"–120"	C	GRAVEL	2.5Y 7/3	NONE	LOOSE MEDIUM SAND 25% STONES 10%, COBBLES 10%

SOIL MOTTLES OBSERVED @ 120" (ELEV.= 67.1)
TOP OF PERC 39" HOLE @ ELEV. 73.8
PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE #6A–2
DATE: 11–3–04
GRND ELEV.= 68.6
GW ELEV.= –
MOTTLING ELEV.= –
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 68.6	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
67.6	0"– 12"	O				LEAVES, PINE NEEDLES
66.6	12"– 24"	A	LOAMY SAND	10YR 3/3		FRIABLE ROOTS
65.6	24"– 36"	B	LOAMY SAND	10YR 5/4		FRIABLE ROOTS
58.6	36"–120"	C	GRAVEL	2.5Y 7/3		LOOSE MEDIUM SAND 25% STONES 10%, COBBLES 10%

SOIL MOTTLES OBSERVED @ 120" (ELEV.= 58.6)
TOP OF PERC 80" HOLE @ ELEV. 61.9
PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE #6A–3
DATE: 11–3–04
GRND ELEV.= 70.0
GW ELEV.= –
MOTTLING ELEV.= –
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 7.0	SURFACE DEPTH EAST	SURFACE DEPTH WEST	SOIL HOR.	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
69.2	0"– 10"	0"– 10"	A	LOAMY SAND	10YR 3/3		FRIABLE ROOTS
69.6	10"– 47"	10"– 52"	B	LOAMY SAND	10YR 5/4		FRIABLE
61.5	47"–102"	52" LEDGE	C	GRAVEL	2.5Y 7/3		LOOSE MEDIUM SAND 25% STONES 10%, COBBLES 10%

SOIL MOTTLES OBSERVED @ 102" (ELEV.= 61.5)
TOP OF PERC 57" HOLE @ ELEV. 65.2
PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE #6A–4
DATE: 11–3–04
GRND ELEV.= 61.1
GW ELEV.= –
MOTTLING ELEV.= –
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 61.2	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
60.1	0"– 12"	A	LOAMY SAND	10YR 3/3		FRIABLE
57.8	12"– 52"	B	LOAMY SAND	10YR 5/4		FRIABLE
52.7	52"– 101"	C	GRAVEL	2.5Y 7/3		LOOSE MEDIUM SAND 25% STONES 10%, COBBLES 10%

SOIL MOTTLES OBSERVED @ 101" (ELEV.= 52.7)
TOP OF PERC 52" HOLE @ ELEV. –
PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE #504
DATE: 10–22–2003
GRND ELEV.= 67.5
GW ELEV.=
MOTTLING ELEV.= 55.5
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 67.5	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
65.5	0"– 24"	A	SANDY LOAM	10YR 4/3		FRIABLE
64.2	24"– 40"	B	LOAMY SAND	10YR 6/4		FRIABLE STONES
55.5	40"–144"	C1	GRAVELLY SAND	2.5Y 7/1		LOOSE GRAVEL MEDIUM SAND STONES
55.5	144"– "	C2	SANDY LOAM	10YR 7/3	Y 144" 7.5YR 5/8	HARD

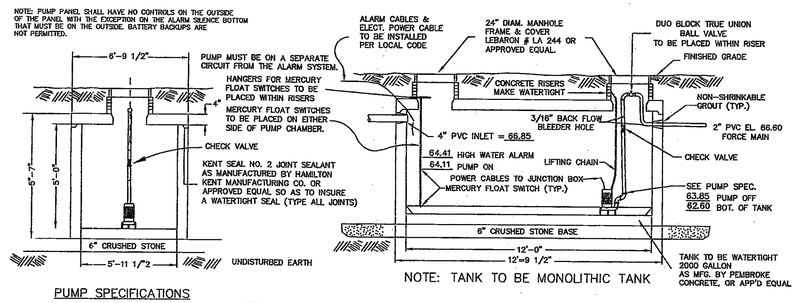
SOIL MOTTLES OBSERVED @ 144" (ELEV.= 55.5)
TOP OF PERC 36" HOLE @ ELEV. 64.5
PERC RATE < 2 MIN./INCH

OBSERVATION HOLE DATA

OBSERVATION HOLE #505
DATE: 10–22–2003
GRND ELEV.= 67.8
GW ELEV.= –
MOTTLING ELEV.= 58.1
TESTED BY: RALPH COLE
WITNESSED BY: PAUL BROGNA, P.E. SEACOAST ENGINEERING
CERTIFIED BY: RALPH COLE

ELEV. 67.8	SURFACE DEPTH	SOIL HORIZON	SOIL TEXTURE	SOIL COLOR	SOIL MOTTLING	OTHER
64.4	0"– 41"	FILL				
56.1	41"–140"	C1	GRAVELLY SAND	2.5Y 7/1	NONE	LOOSE 10% – 15% GRAVEL
56.1	140"	C2	SANDY LOAM	10YR 7/2	Y 140" 7.5YR 5/8	HARD

SOIL MOTTLES OBSERVED @ 140" (ELEV.= 56.1)
TOP OF PERC 41" HOLE @ ELEV. 64.4
PERC RATE < 2 MIN./INCH



NOTE: TANK TO BE MONOLITHIC TANK

PUMP SPECIFICATIONS

30 GPM AT 35' TDH
DISCHARGE 2"
NON CLOG IMPELLERS
SINGLE PHASE SUBMERSIBLE PUMP
MIN. DIA. SOLIDS 1 1/4"

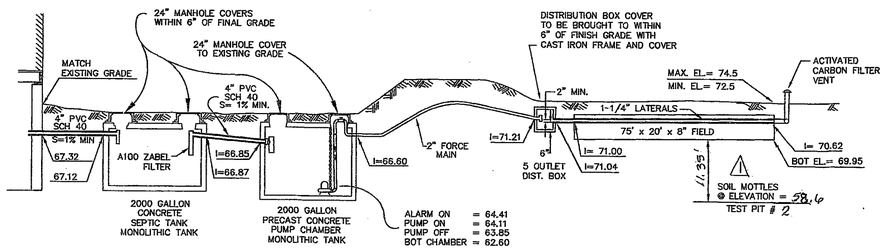
NOTES:
CONTROL PANEL, ALARM AND SWITCHBOX TO BE LOCATED WITHIN DWELLING

ONE DAY FLOW FOR EMERGENCY STORAGE PROVIDED IN PUMP STATION ABOVE HIGH WATER ALARM ELEVATION.

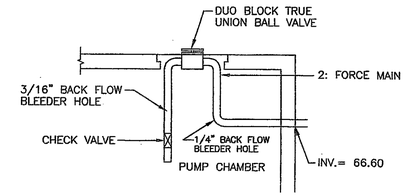
INSTALL PUMP & CONTROLS PER MANUFACTURERS SPECIFICATIONS.

NOTE:
THE CONTRACTOR SHALL SUBMIT TO THE DESIGN ENGINEER, FOR HIS REVIEW AND APPROVAL, THE MANUFACTURERS SPECIFICATIONS FOR THE PUMP AND ACCESSORIES (MERCURY SWITCHES, VALVES, ETC.) PRIOR TO THE CONSTRUCTION OF THE SYSTEM.

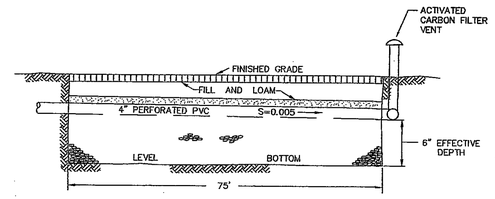
SEWAGE PUMP STATION DETAIL
NOT TO SCALE



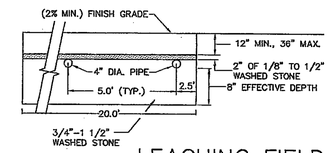
PROFILE
NOT TO SCALE



BALL VALVE PLACEMENT DETAIL
NOT TO SCALE



PROFILE

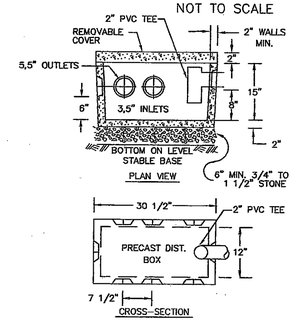


LEACHING FIELD
NOT TO SCALE

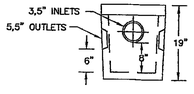
DISTRIBUTION BOX DETAIL:

NOT TO SCALE

NO. OF OUTLETS 5



NOTES:
1. DIST. BOX TO WITHSTAND H–10 LOADING UNLESS UNDER PAVEMENT, DRIVES OR TRAVELED WAYS WHEREIN H–20 LOADING SHALL APPLY.
2. PROVIDE INLET TEE OR BAFFLE WHERE SLOPE OF PIPE EXCEEDS 0.08 FT./FT OR IN PUMPED SYSTEM.
3. FIRST TWO FEET OF PIPE OUT OF DIST. BOX TO BE LAID LEVEL.
4. RECOMMENDED MANUFACTURER–ROTONDO OR APPROVED EQUAL.
5. ALL PIPE CONNECTIONS AND CONCRETE CONSTRUCTION SHALL BE WATERTIGHT.



REVISIONS:

No.	DESCRIPTION	DATE
1	REV. PER BOH COMMENTS	2-15-06

PHILLIP SPATH P.E. DATE

PREPARED BY:
ROSANO • DAVIS • SPATH ENGINEERING
9 ROCKY LANE
COHASSET, MA 02025
781–383–1234

SURVEY SERVICES PROVIDED BY:
mr SURVEYING, INC.
P.O. BOX 5104
NORWELL, MA 02061

PROJECT TITLE:
SEWAGE DISPOSAL SYSTEM DESIGN
AT
LOT 6 VIKING LANE
HINGHAM, MA
ASSESSORS' MAP 124, LOT 24

PREPARED FOR:
XERXES REALTY TRUST
2932 WASHINGTON STREET
NORWELL, MA 02061

DATE: JUNE 29, 2005
COMP./DESIGN: P.H.SPATH
CHECK: P.H.SPATH / R.H.COLE
DRAWN: M.W.C.
FIELD: M.W.C./J.B.T. | VIKING LOT 6
RDS JOB # RDS 458
mr JOB # mr–415
SHEET 2 OF 2

A P P E N D I X D

Closed Drainage System Calculations