DRAINAGE ANALYSIS

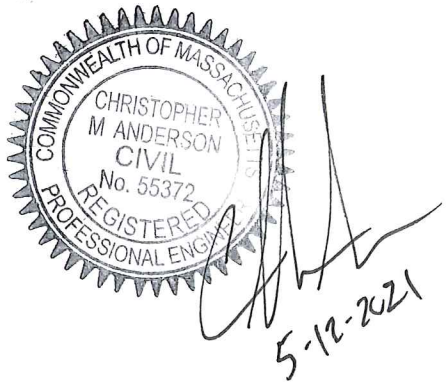
for

Building Addition

100 & 112 Fredette Street

Gardner, Massachusetts

May 12, 2021



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DRAINAGE NARRATIVE

1.0 NARRATIVE

1.1 INTRODUCTION

On behalf of our client, Jones Family Fredette Street, LLC, Hannigan Engineering, Inc. has prepared this Drainage Analysis and Report as part of the submittal package for Site Plan Approval from the City of Gardner for the construction of a warehouse addition and connecting structure between two existing buildings at #100 and #112 Fredette Street in Gardner, Massachusetts. Currently, the property is a heavily developed industrial parcel of land with several existing structures and paved areas utilized for parking and access to the various structures. It is the intent of the applicant to construct a new 15,035 square foot steel building addition between the two exising structures within an area of existing pavement.

The purpose of this analysis is to compare the pre-development and post-development peak flow rates to certain design points from the project. In particular, changes in peak rates of runoff generally associated with alterations of land use were studied. These alterations include land being transformed from areas of landscape (grass), woods, and brush to areas of grass, landscape, and impervious areas (rooftops, sidewalks and pavement). The effects of stormwater being re-directed to new areas as a result of the proposed construction and the associated drainage system were reviewed as well. For the purposes of this report, any developed areas which are not impervious will be considered to consist of lawn and landscape areas.

The U.S. Soil Conservation Sevice (SCS) methods were utilized for this analysis in order to establish land use and run-off characteristics in the determination of pre- and post-developement peak run-off rates. All proposed development areas and subsequent impacts on stormwater runoff relative to this development have been incorporated within this analysis and report.

Although this project is not subject to the wetlands protection act, it is being reviewed as a Redevelopment project and compliance with applicable Stormwater Regulations are being incoroporated to the maximum extent pracicable. As part of this overall redevelopment, the reduction in impervious area will provide the primary mechanism behind the peak rate mitigation and enhanced natural recharge on the property. In combination of the replacement of several piping connections within the area of the building, will provide an improvement over the existing condition.

1.2 METHOD OF ANALYSIS

The enclosed hydrologic calculations utilize the runoff estimating techniques developed by the USDA Soil Conservation Service (SCS). The following publications were used in the preparation of this report:

1. "Urban Hydrology for Small Watersheds"[1]
2. "National Engineering Handbook, Hydrology, Section 4" (NEH-4)[2]
3. "Handbook of Hydraulics" 6th ed. - E.F. Brater & H. Williams[3]
4. "Soil Survey Report for Northeastern Worcester County" 1985 ed. - USDA NRCS[4]

Using SCS publications and other texts on surface water hydrology, in conjunction with drainage software *HydroCAD* developed by Applied Microcomputer Systems[5], Hannigan Engineering, Inc. has calculated peak rates of runoff relative to the subject site for conditions prior to development as well as conditions upon the completion of construction. The drainage software program *HydroCAD* calculates peak rates of runoff similarly to the computer program known as *Computer Programs for Project Formulations-Hydrology, Technical Release Number 20 (TR-20),* developed by SCS. This program and series of programs are the technical standard utilized by engineers, Planning Boards, Conservation Commission, and Municipal Agencies throughout the region and across the country for the evaluation of storm water conditions.

The analysis reviews certain parameters of sub-watersheds surrounding the subject site and how these parameters are affected by various rainfall conditions. These parameters include land cover and use, soil strata and permeability, and variations in slope. These parameters are used to develop rainfall runoff characteristics, which are used to analyze both pre and post development conditions within and surrounding the proposed construction activity. Some of these characteristics include times of concentration (Tc), peak rates of runoff, runoff volume, and the time the peak rate of runoff occurs within the particular storm event.

Times of concentration were computed by using the SCS "Upland Method" as described in the aforementioned National Engineering Handbook and were utilized for the analysis of the individual watersheds. The Upland Method computes the time of travel of storm waters over segments of the watershed depending upon land conditions, such as surface roughness, channel configuration, slope of land, and flow patterns. The addition of these travel times determines the individual watershed Time of Concentration. This method translates to more accurate Tc's than other more general methods.

1.3 SITE DESCRIPTION

The combined properties are approximately 5.29 acres and located along the easterly side of the roadway at #100 and #112 Fredette Street. Currently, the property is a heavily developed industrial parcel of land with several existing structures and paved areas utilized for parking and access to the various structures. The perimeter of the property is primarily woodland with some areas of landscaped lawn immediately surround the buildings. It is noted that, a wetland area exists along the northerly property line and flows in an east-west general direction towards Fredette Street within a drainage channel.

It is the intent of the applicant to construct a new 15,035 s.f. warehousing and connector structure between the two primary buildings at #100 and #112 Fredette Street. This building will be primarily utilized as a warehousing structure as part of the expansion of the business on the property. The primary "box" of the addition will be 75-feet by 195-feet and be incorporated onto the #112 building, a small connector structure will be included between the addition and the #100 structure to provide a single contiguous building on the property. Due to the difference in finished floor elevations of the two structures an internal ramp system will be developed within the connector building to create access to the #100 structure. This building addition will not require any overhead loading doors for truck traffic and will only require a few pedestrian doors for access requirements. Upon the completion of construction all impacted access areas will be resurfaced with the asphalt pavement within the traveled ways around the building and crushed stone inbetween the two bulidngs. All other areas will be loamed and seeded for permanent stabilization.

For the purpose of the analysis, certain design points were reviewed. The design points are where the pre-development drainage for the subcatchment areas of the watershed over the property are directed. The same design points have been utilized and reviewed for both pre- and post-development runoff conditions. The design points are the basis for the design of the proposed drainage infrastructure depicted on the plans. The drainage from the site currently flows to one of several culverts that are located along Fredette Street as well as some on-site drainage infrasture on the abutting property. The culverts have been designated as Design Points #1 (DP#1), Design Point #2 (DP#2) and Design Point (DP#3), with the majority of the property flowing towards DP#1, including the project area. Design Point #4 (DP#4) has been designated at a manhole structure located on the abutting property.

1.4 SOIL CHARACTERISTICS

Soil types for this analysis were based upon review of soils information contained in the SCS publication *Interim Soil Report for Worcester County, Massachusetts – Northwestern Part.* The original mapping has been reestablished via the Web Soil Survey as part of the National Cooperative Soil Survey under the Natural Resource Conservation Service and its website (http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx). This mapping is the basis for the soil type determinations for this analysis.

Soils within the subject watersheds are also hydrologically classified into different soil groups as defined by the Soil Conservation Service. The following table provides the SCS Hydrological Soil Group classification for each soil type.

Soil Designation	Name	Hydrological Group
908C	Becket-skerry Association	908C

1.5 RUNOFF CURVE NUMBERS

The SCS runoff curve numbers used in all watershed modeling contained in this report are based on the Hydrologic Soil Groups and land uses below:

Land Use	Hydrologic Soil Group	Curve #
Grass Cover (good)	C	74
Woods (good)	C	70
Gravel, Surface	C	96
Impervious Area	NA	98

1.6 DESIGN CRITERIA

This drainage analysis was developed utilizing a Type III, 24-hour tropical storm as developed by SCS and required for this region. The storm frequencies and the corresponding 24-hour rainfall amounts are as follows:

Storm Frequency (years)	Rainfall (inches)
2	3.0
10	4.5
25	5.4
100	6.7

1.7 THE PROPOSED DRAINAGE SYSTEM

As with any development, changes in land use such as the transformation of woodland areas to lawn, landscape and impervious areas can cause increased peak rates of runoff. On this particular project, these transformed areas consist of the building's rooftop, as well as alterations in land use from the existing disturbed/grindings area to rooftop. These increases in peak rates of runoff are typically mitigated with an appropriately designed site including proper grading to direct stormwater flows to the storm drainage system.

As previously mentioned, the property is currently developed with an existing industrial building with associated driveways and parking/loading areas. As part of the project a new building addition will constructed within a previously paved area, with areas of pavement being removed and converted to green space. In the area of the proposed building a new yard drain will be installed along the easterly side of the building to capture runoff from the abutting hillside as well as the existing roof drain system and transmit that under the proposed addition to one of the aforementioned settling areas. To accommodate the modified flows a new line will be installed to the discharge point near Fredette Street.

Due the redevelopment of the property and the reconfiguration of the site, a reduction in the impervious area will occur. The reduction in the impervious area is the primary stormwater management feature which aids in the reduction of the rates and volumes of runoff ultimately reaching the design points and provides an improvement to the existing condition.

1.8 CONCLUSIONS

As stated above, a several design points has been established at a points along the Fredette Street. Changes in land use are the predominant cause of increases in peak rate of runoff to design points. As part of this project the site will experience a net decrease in impervious area due to the prposed construction, which lends itself to the mitigation of the peak rates of runoff. The results of the analysis are shown below with *Table 1* depicting the Peak Rates of Runoff.

Table #1: Peak Rate of Runoff

Design Point		2-yr Storm	10-yr Storm	25-yr Storm	100-yr Storm
#1	***Pre-***	***8.75***	***14.53***	***17.73***	***22.62***
	Post-	***8.48***	***14.13***	***17.26***	***22.01***
#2	Pre-	0.55	1.21	1.60	2.21
	Post-	0.55	1.21	1.60	2.21
#3	Pre-	0.21	0.47	0.63	0.87
	Post-	0.21	0.47	0.63	0.87
#4	Pre-	2.53	4.09	4.93	6.22
	Post-	2.53	4.09	4.93	6.22

All flows are in cubic feet per second.

As outline above, the post-development peak rates are of runoff have been mitigated for all Storm Events. This drainage design assures that adverse impacts to abutting properties relative to increases in peak rates of runoff will not occur due to the proposed development upon the completion of construction and are mitigated to the maximum extent practicable. The storm water management as outlined herein and as shown on the accompanying plans has the following positive values relative to storm water management:

A) Attenuation of the 2-, 10-, 25- and 100-year storm events has mitigated increases in peak rates of runoff, or has been justified herein.
B) Reduction in impervious as part of the proposed redevelopment.
C) The Stormwater Operation and Maintenance Plan (OMP) attached, has been prepared to ensure long-term function of the system, as designed

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[1]"Urban Hydrology for Small Watersheds (Technical Release Number 55); Engineering Division, United States Dept. of Agriculture ,Soil Conservation Service (Jan. 1975)

[2]"National Engineering Handbook Section 4- Hydrology" ; United States Dept. of Agriculture, Soil Conservation Service (March 1985)

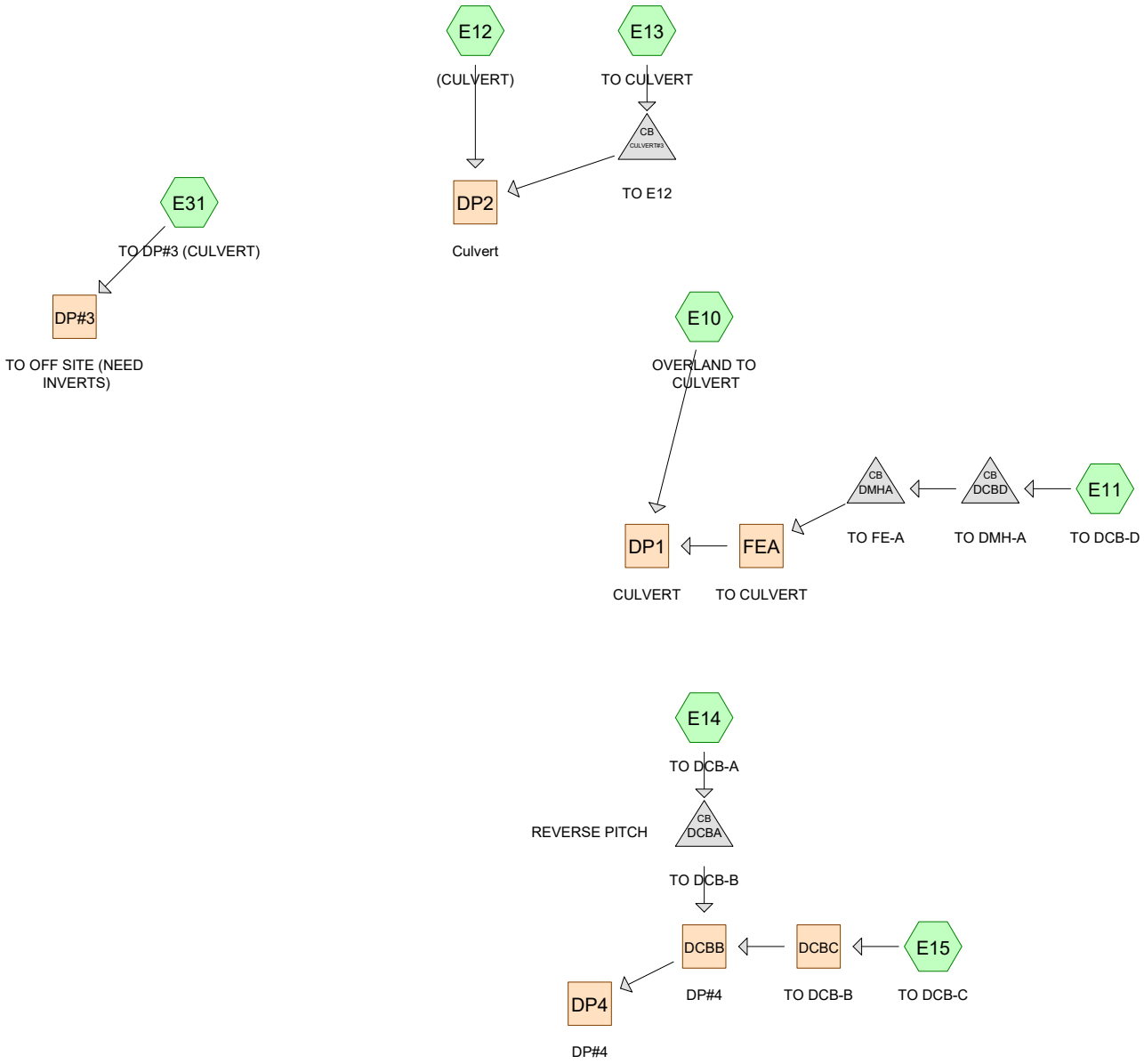
[3]"Handbook of Hydraulics" - 6th ed., E.F. Brater & H. Williams (1976)

[4]"Interim Soil Report for Southern Worcester County" 1995 ed., Published by the Southern Worcester County Conservation District, in cooperation with the United States Department of Agriculture, Natural Resources Conservation Service (1995)

[5] "HydroCAD" Drainage software developed by Applied Microcomputer, Page Hill Road, Chocorua, NH

2.0
HYDROLOGICAL CALCULATIONS

2.1
PRE-DEVELOPMENT CALCULATIONS



Subcat Reach Pond Link

Routing Diagram for 2977-Jones Family Pre

Prepared by HANNIGAN ENGINEERING, INC., Printed 5/11/2021

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.226	74	>75% Grass cover, Good, HSG C (E10, E11, E12, E13, E14, E15, E31)
0.038	96	Gravel surface, HSG C (E10, E14)
3.931	98	Paved parking, HSG C (E10, E11, E12, E14, E15, E31)
1.813	70	Woods, Good, HSG C (E10, E11, E12, E13, E14, E15, E31)
7.008	**87**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
7.008	HSG C	E10, E11, E12, E13, E14, E15, E31
0.000	HSG D	
0.000	Other	
7.008		**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
0.000	0.000	1.226	0.000	0.000	1.226	>75% Grass cover, Good	E10, E11, E12, E13, E14, E15, E31
0.000	0.000	0.038	0.000	0.000	0.038	Gravel surface	E10, E14
0.000	0.000	3.931	0.000	0.000	3.931	Paved parking	E10, E11, E12, E14, E15, E31
0.000	0.000	1.813	0.000	0.000	1.813	Woods, Good	E10, E11, E12, E13, E14, E15, E31
0.000	**0.000**	**7.008**	**0.000**	**0.000**	**7.008**	**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	DCBC	1,048.10	1,045.30	118.0	0.0237	0.013	12.0	0.0	0.0
2	DP1	1,049.69	1,048.50	72.2	0.0165	0.011	24.0	0.0	0.0
3	CULVERT#3	1,058.54	1,058.78	41.2	-0.0058	0.011	36.0	0.0	0.0
4	DCBA	1,045.10	1,045.30	38.0	-0.0053	0.013	12.0	0.0	0.0
5	DCBD	1,061.80	1,055.17	253.0	0.0262	0.025	8.0	0.0	0.0
6	DMHA	1,054.57	1,051.10	208.0	0.0167	0.025	8.0	0.0	0.0

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E10: OVERLAND TO Runoff Area=139,035 sf 71.35% Impervious Runoff Depth=2.23"
Flow Length=788' Tc=11.1 min CN=WQ Runoff=6.30 cfs 0.593 af

Subcatchment E11: TO DCB-D Runoff Area=79,267 sf 43.35% Impervious Runoff Depth=1.62"
Flow Length=307' Tc=12.1 min CN=WQ Runoff=2.50 cfs 0.245 af

Subcatchment E12: (CULVERT) Runoff Area=7,096 sf 47.67% Impervious Runoff Depth=1.73"
Flow Length=91' Tc=7.6 min CN=WQ Runoff=0.27 cfs 0.023 af

Subcatchment E13: TO CULVERT Runoff Area=20,345 sf 0.00% Impervious Runoff Depth=0.75"
Flow Length=380' Tc=10.9 min CN=WQ Runoff=0.30 cfs 0.029 af

Subcatchment E14: TO DCB-A Runoff Area=30,009 sf 76.16% Impervious Runoff Depth=2.39"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=1.72 cfs 0.137 af

Subcatchment E15: TO DCB-C Runoff Area=17,919 sf 56.55% Impervious Runoff Depth=1.93"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=0.83 cfs 0.066 af

Subcatchment E31: TO DP#3 (CULVERT) Runoff Area=11,601 sf 10.99% Impervious Runoff Depth=0.97"
Flow Length=129' Slope=0.0400 '/' Tc=13.0 min CN=WQ Runoff=0.21 cfs 0.022 af

Reach DCBB: DP#4 Inflow=2.53 cfs 0.203 af
Outflow=2.53 cfs 0.203 af

Reach DCBC: TO DCB-B Avg. Flow Depth=0.26' Max Vel=5.02 fps Inflow=0.83 cfs 0.066 af
12.0" Round Pipe n=0.013 L=118.0' S=0.0237 '/' Capacity=5.49 cfs Outflow=0.82 cfs 0.066 af

Reach DP#3: TO OFF SITE (NEED INVERTS) Inflow=0.21 cfs 0.022 af
Outflow=0.21 cfs 0.022 af

Reach DP1: CULVERT Avg. Flow Depth=0.69' Max Vel=9.14 fps Inflow=8.78 cfs 0.838 af
24.0" Round Pipe n=0.011 L=72.2' S=0.0165 '/' Capacity=34.32 cfs Outflow=8.75 cfs 0.838 af

Reach DP2: Culvert Inflow=0.55 cfs 0.052 af
Outflow=0.55 cfs 0.052 af

Reach DP4: DP#4 Inflow=2.53 cfs 0.203 af
Outflow=2.53 cfs 0.203 af

Reach FEA: TO CULVERT Inflow=2.50 cfs 0.245 af
Outflow=2.50 cfs 0.245 af

Pond CULVERT#3: TO E12 Peak Elev=1,058.98' Inflow=0.30 cfs 0.029 af
36.0" Round Culvert n=0.011 L=41.2' S=-0.0058 '/' Outflow=0.30 cfs 0.029 af

Pond DCBA: TO DCB-B Peak Elev=1,046.19' Inflow=1.72 cfs 0.137 af
12.0" Round Culvert n=0.013 L=38.0' S=-0.0053 '/' Outflow=1.72 cfs 0.137 af

Pond DCBD: TO DMH-A Peak Elev=1,096.97' Inflow=2.50 cfs 0.245 af
8.0" Round Culvert n=0.025 L=253.0' S=0.0262 '/' Outflow=2.50 cfs 0.245 af

Pond DMHA: TO FE-A Peak Elev=1,085.80' Inflow=2.50 cfs 0.245 af
8.0" Round Culvert n=0.025 L=208.0' S=0.0167 '/' Outflow=2.50 cfs 0.245 af

Total Runoff Area = 7.008 ac Runoff Volume = 1.116 af Average Runoff Depth = 1.91"
43.91% Pervious = 3.078 ac 56.09% Impervious = 3.931 ac

Summary for Subcatchment E10: OVERLAND TO CULVERT

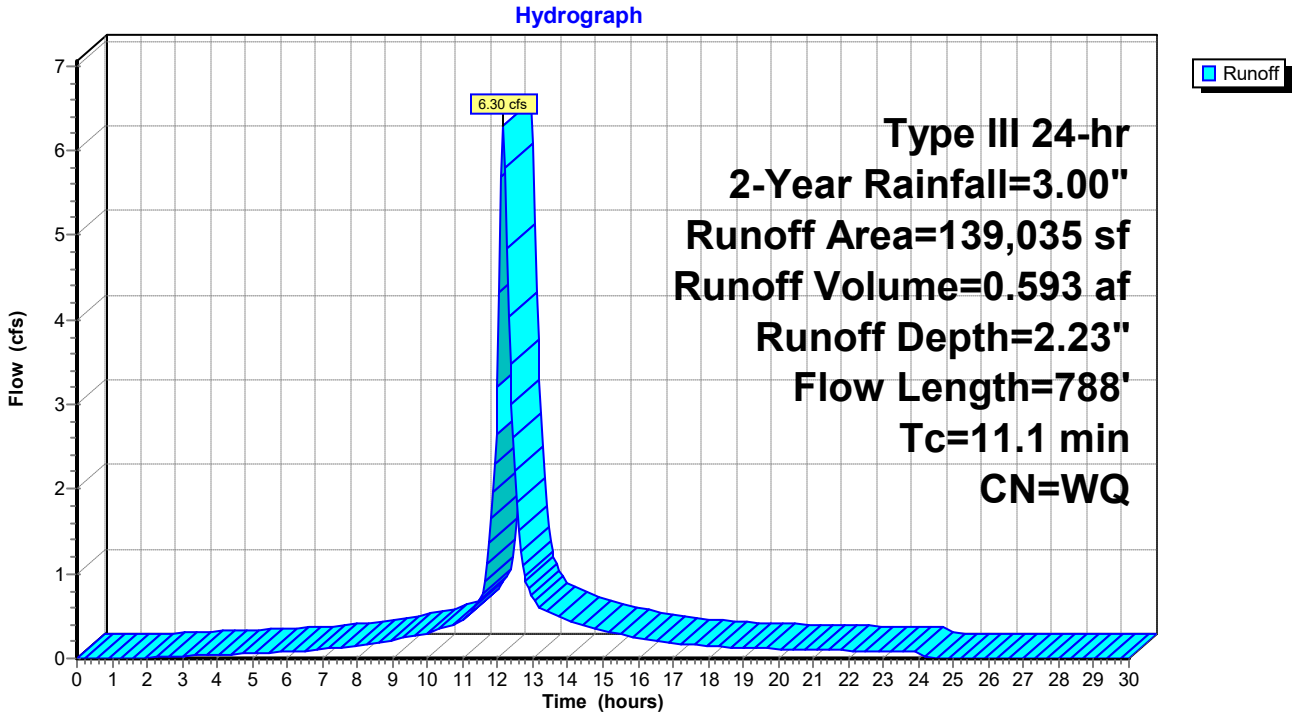
Runoff = 6.30 cfs @ 12.15 hrs, Volume= 0.593 af, Depth= 2.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
31,437	74	>75% Grass cover, Good, HSG C
7,879	70	Woods, Good, HSG C
99,207	98	Paved parking, HSG C
512	96	Gravel surface, HSG C
139,035		Weighted Average
39,828		28.65% Pervious Area
99,207		71.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	42	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.8	33	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	10	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	218	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.4	237	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	135	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	35	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	78	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.1	788	Total			

Subcatchment E10: OVERLAND TO CULVERT



Summary for Subcatchment E11: TO DCB-D

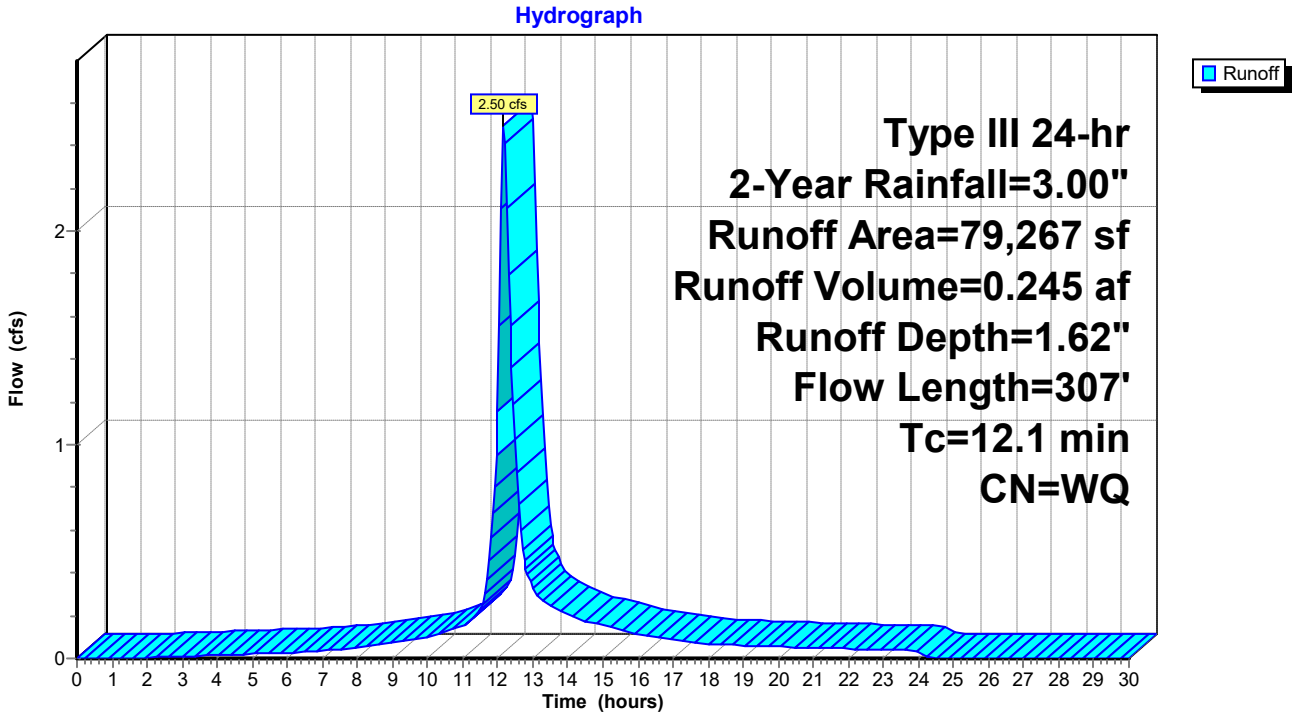
Runoff = 2.50 cfs @ 12.17 hrs, Volume= 0.245 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
4,985	74	>75% Grass cover, Good, HSG C
39,922	70	Woods, Good, HSG C
34,360	98	Paved parking, HSG C
79,267		Weighted Average
44,907		56.65% Pervious Area
34,360		43.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	44	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.7	31	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	15	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.2	198	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	19	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.1	307	Total			

Subcatchment E11: TO DCB-D



Summary for Subcatchment E12: (CULVERT)

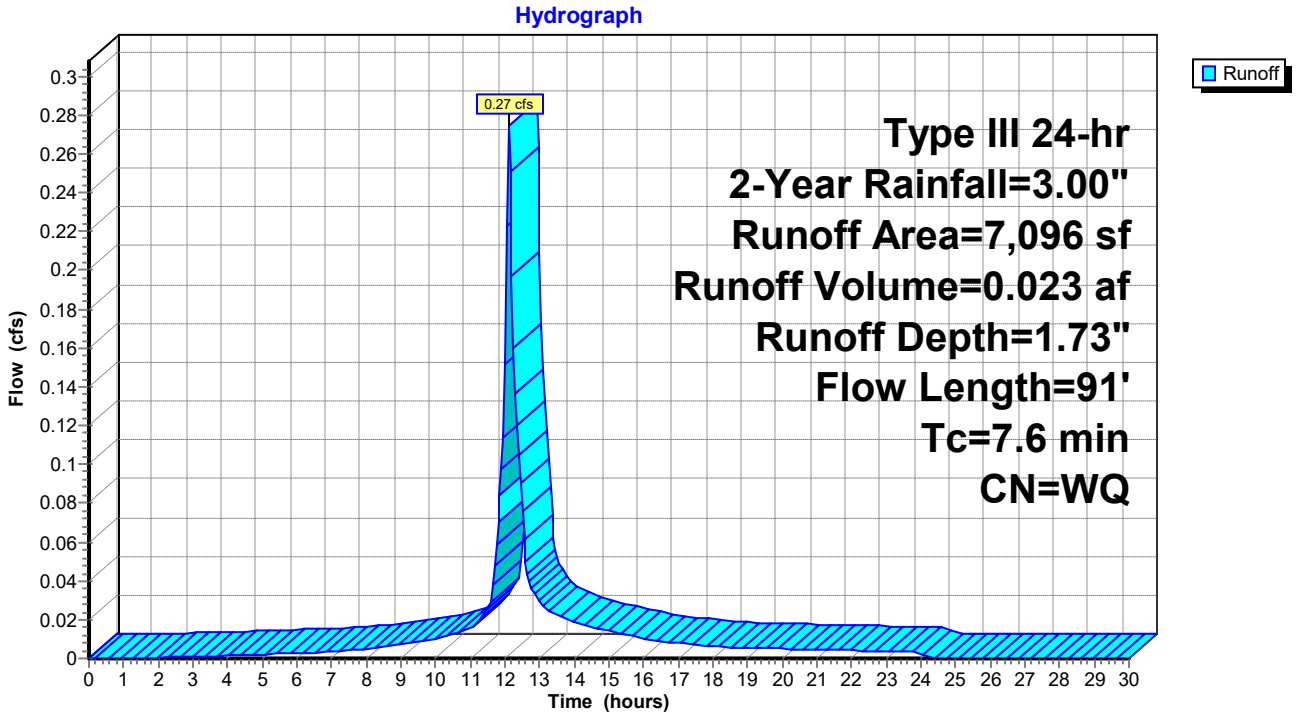
Runoff = 0.27 cfs @ 12.11 hrs, Volume= 0.023 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
1,158	74	>75% Grass cover, Good, HSG C
2,555	70	Woods, Good, HSG C
3,383	98	Paved parking, HSG C
7,096		Weighted Average
3,713		52.33% Pervious Area
3,383		47.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0500	1.33		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	3	0.0500	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	1	0.0500	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
6.5	55	0.1300	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	16	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.6	91	Total			

Subcatchment E12: (CULVERT)



Summary for Subcatchment E13: TO CULVERT

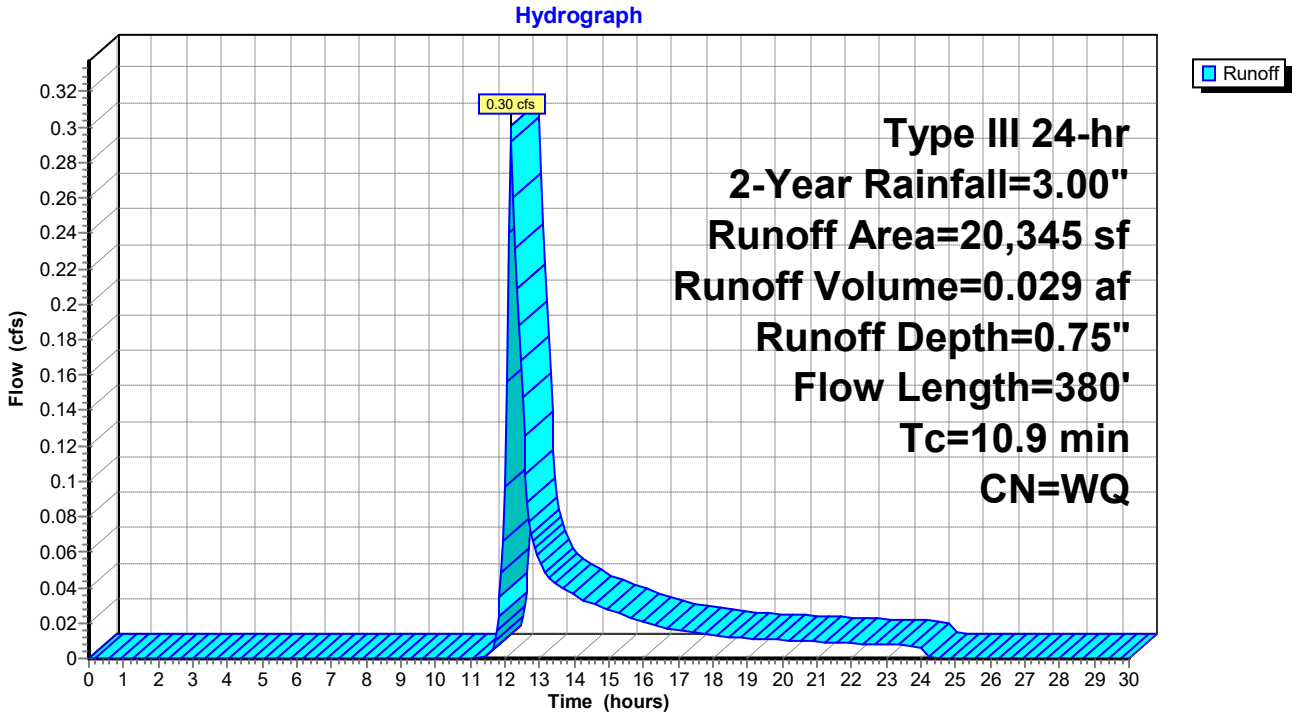
Runoff = 0.30 cfs @ 12.17 hrs, Volume= 0.029 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
3,243	74	>75% Grass cover, Good, HSG C
17,102	70	Woods, Good, HSG C
20,345		Weighted Average
20,345		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	75	0.2400	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	25	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	69	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	7	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	43	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	71	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	17	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	73	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.9	380	Total			

Subcatchment E13: TO CULVERT



Summary for Subcatchment E14: TO DCB-A

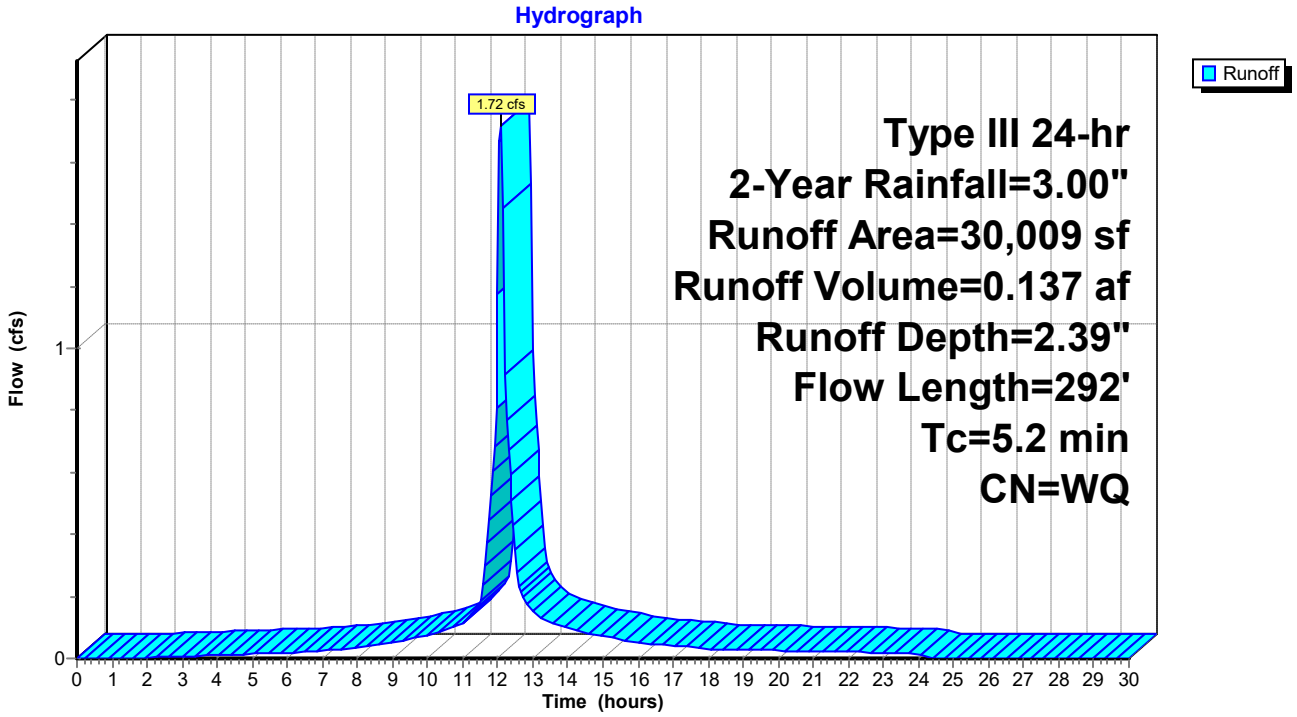
Runoff = 1.72 cfs @ 12.08 hrs, Volume= 0.137 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
5,894	74	>75% Grass cover, Good, HSG C
22,855	98	Paved parking, HSG C
125	70	Woods, Good, HSG C
1,135	96	Gravel surface, HSG C
30,009		Weighted Average
7,154		23.84% Pervious Area
22,855		76.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment E14: TO DCB-A



Summary for Subcatchment E15: TO DCB-C

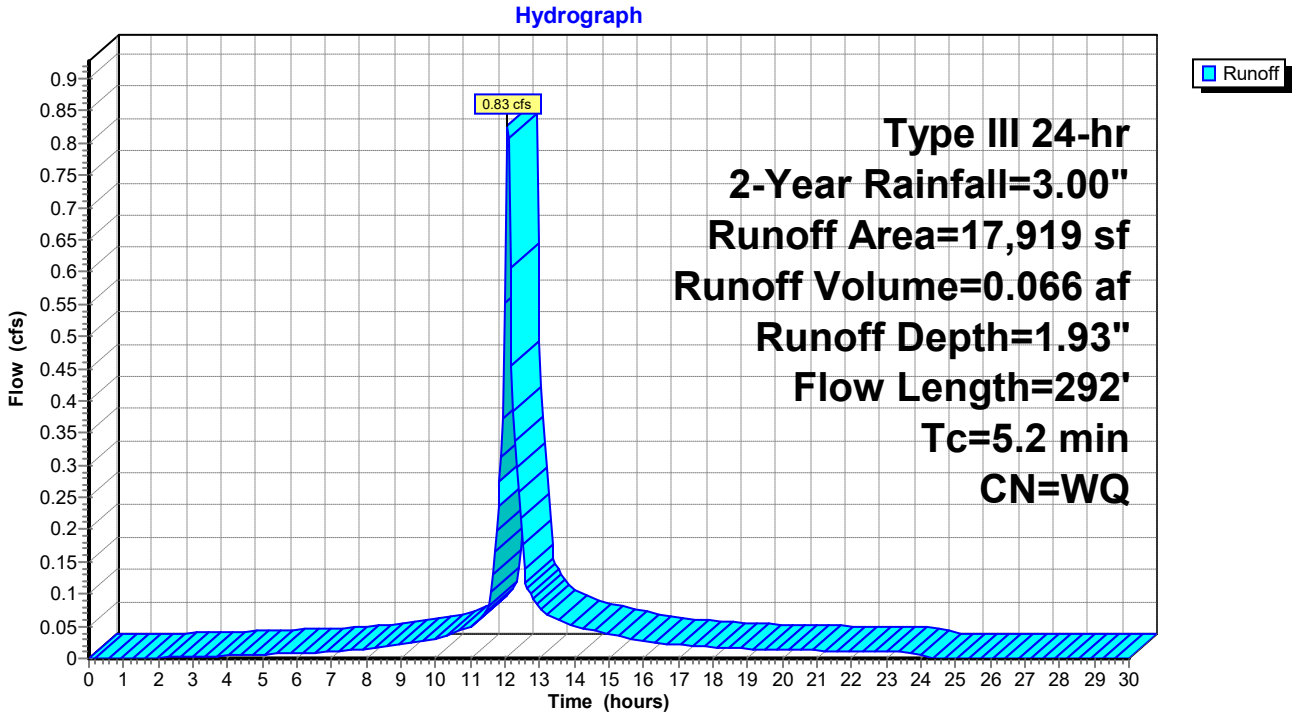
Runoff = 0.83 cfs @ 12.08 hrs, Volume= 0.066 af, Depth= 1.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
4,649	74	>75% Grass cover, Good, HSG C
10,134	98	Paved parking, HSG C
3,136	70	Woods, Good, HSG C
17,919		Weighted Average
7,785		43.45% Pervious Area
10,134		56.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment E15: TO DCB-C



Summary for Subcatchment E31: TO DP#3 (CULVERT)

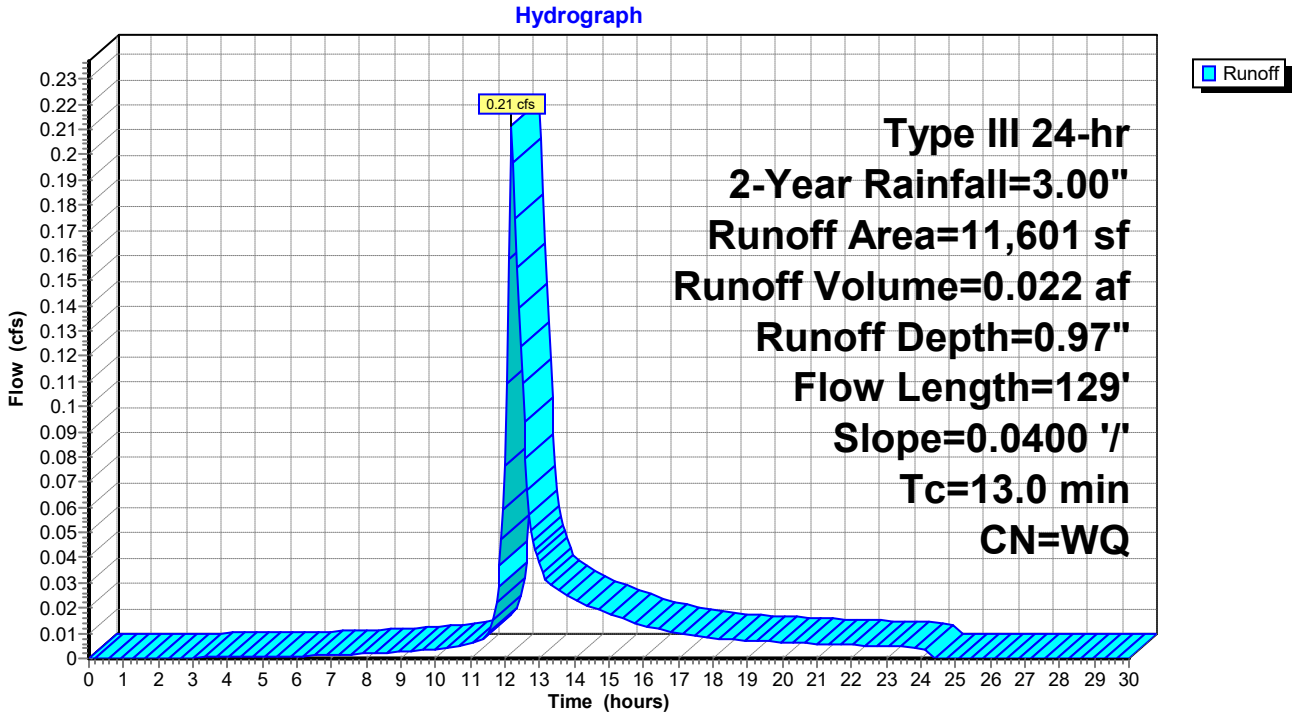
Runoff = 0.21 cfs @ 12.20 hrs, Volume= 0.022 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
2,060	74	>75% Grass cover, Good, HSG C
1,275	98	Paved parking, HSG C
8,266	70	Woods, Good, HSG C
11,601		Weighted Average
10,326		89.01% Pervious Area
1,275		10.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	4	0.0400	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
6.8	54	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
2.0	7	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
2.7	10	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	54	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.0	129	Total			

Subcatchment E31: TO DP#3 (CULVERT)

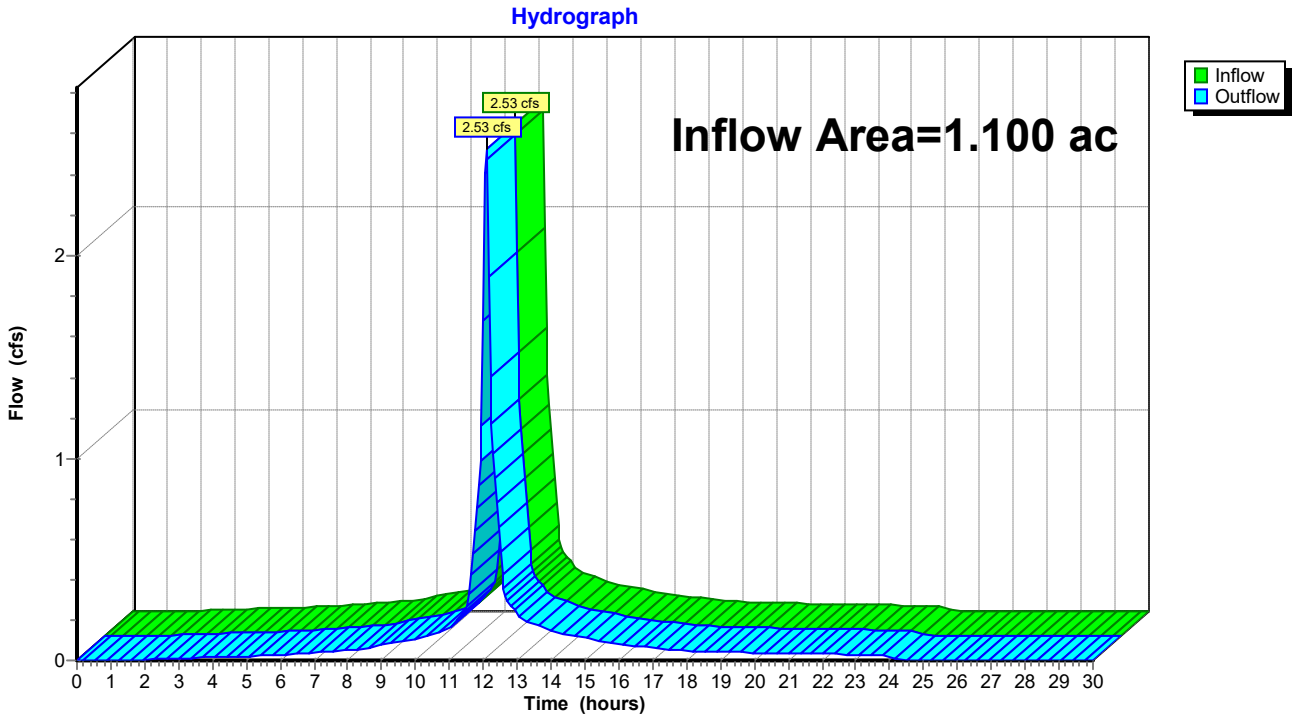


Summary for Reach DCBB: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 2.21" for 2-Year event
Inflow = 2.53 cfs @ 12.08 hrs, Volume= 0.203 af
Outflow = 2.53 cfs @ 12.08 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DCBB: DP#4



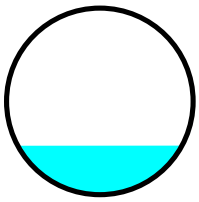
Summary for Reach DCBC: TO DCB-B

Inflow Area = 0.411 ac, 56.55% Impervious, Inflow Depth = 1.93" for 2-Year event
Inflow = 0.83 cfs @ 12.08 hrs, Volume= 0.066 af
Outflow = 0.82 cfs @ 12.09 hrs, Volume= 0.066 af, Atten= 1%, Lag= 0.8 min

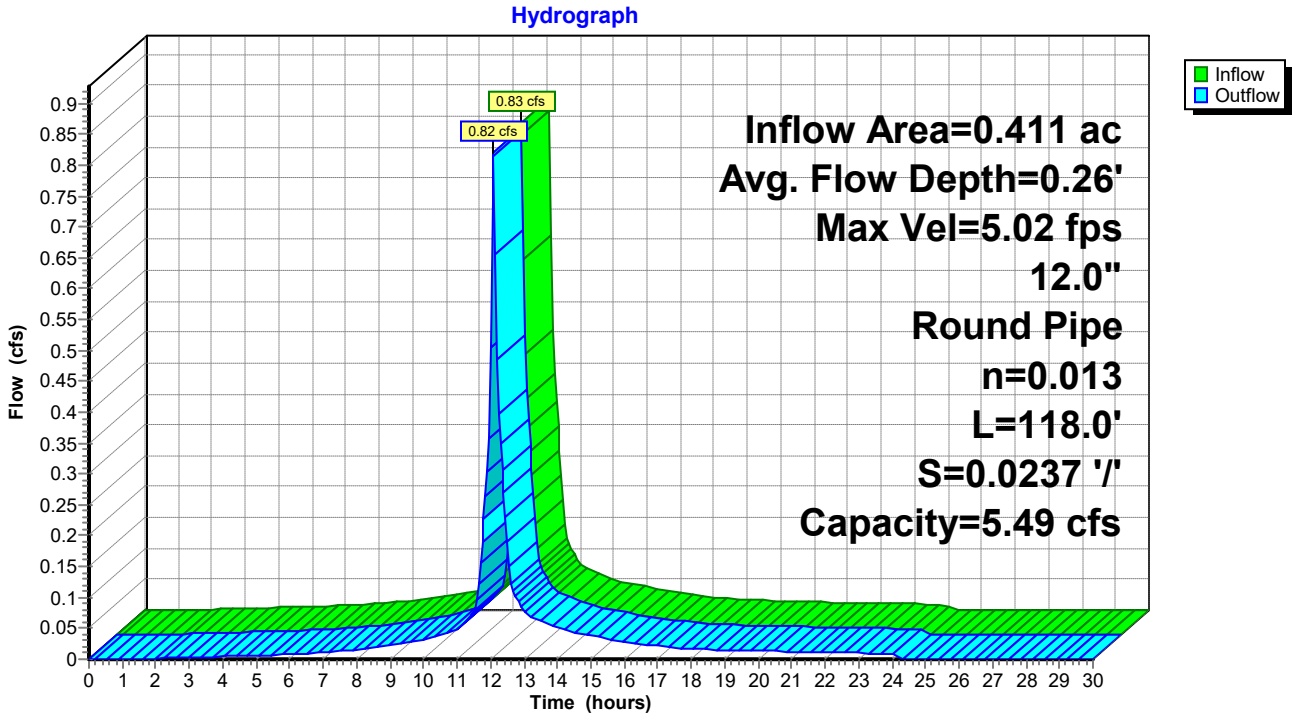
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.02 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.64 fps, Avg. Travel Time= 1.2 min

Peak Storage= 19 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.49 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 118.0' Slope= 0.0237 '/'
Inlet Invert= 1,048.10', Outlet Invert= 1,045.30'



Reach DCBC: TO DCB-B



Stage-Discharge for Reach DCBC: TO DCB-B

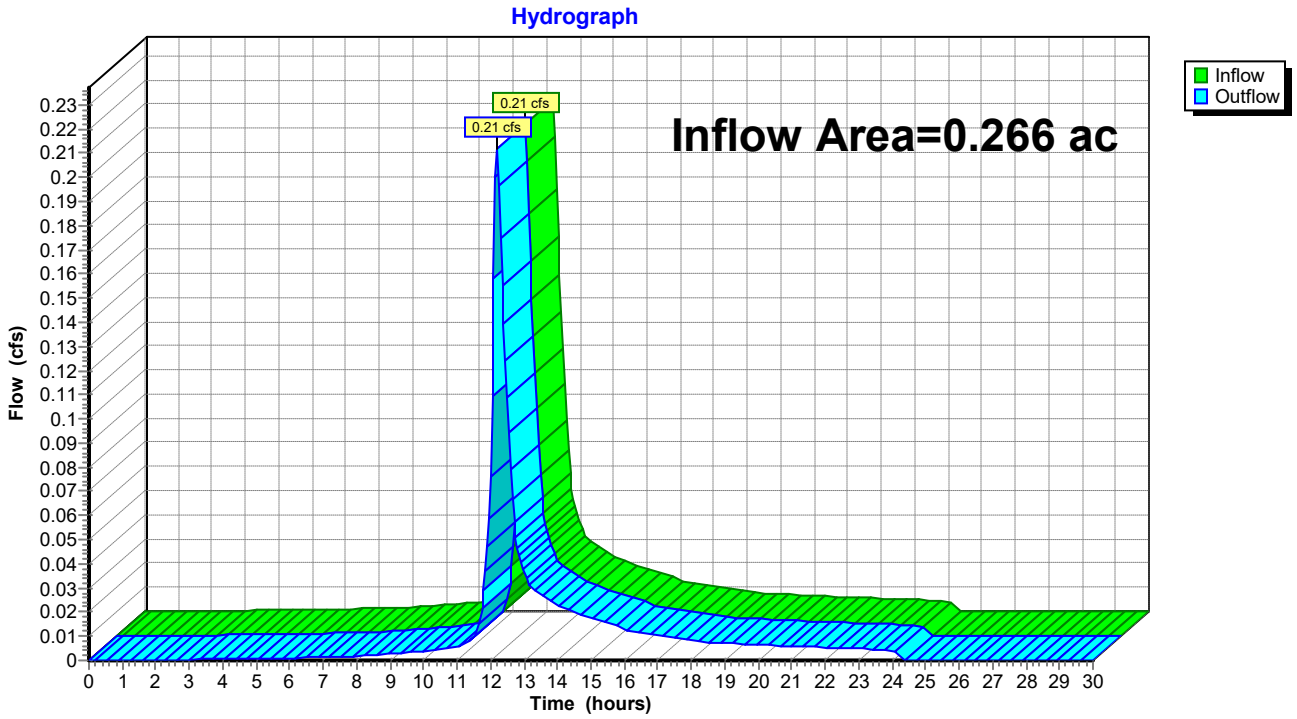
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,048.10	0.00	0.00
1,048.11	0.62	0.00
1,048.12	0.98	0.00
1,048.13	1.29	0.01
1,048.14	1.55	0.02
1,048.15	1.80	0.03
1,048.16	2.02	0.04
1,048.17	2.23	0.05
1,048.18	2.43	0.07
1,048.19	2.62	0.09
1,048.20	2.80	0.11
1,048.21	2.98	0.14
1,048.22	3.14	0.17
1,048.23	3.31	0.20
1,048.24	3.46	0.23
1,048.25	3.61	0.27
1,048.26	3.76	0.30
1,048.27	3.90	0.35
1,048.28	4.04	0.39
1,048.29	4.17	0.43
1,048.30	4.30	0.48
1,048.31	4.42	0.53
1,048.32	4.55	0.58
1,048.33	4.67	0.64
1,048.34	4.78	0.69
1,048.35	4.90	0.75
1,048.36	5.01	0.81
1,048.37	5.11	0.88
1,048.38	5.22	0.94
1,048.39	5.32	1.01
1,048.40	5.42	1.07
1,048.41	5.52	1.15
1,048.42	5.62	1.22
1,048.43	5.71	1.29
1,048.44	5.80	1.37
1,048.45	5.89	1.44
1,048.46	5.98	1.52
1,048.47	6.06	1.60
1,048.48	6.14	1.68
1,048.49	6.23	1.77
1,048.50	6.30	1.85
1,048.51	6.38	1.93
1,048.52	6.46	2.02
1,048.53	6.53	2.11
1,048.54	6.60	2.20
1,048.55	6.67	2.29
1,048.56	6.74	2.38
1,048.57	6.80	2.47
1,048.58	6.87	2.56
1,048.59	6.93	2.65
1,048.60	6.99	2.74
1,048.61	7.05	2.84
1,048.62	7.10	2.93
1,048.63	7.16	3.03
1,048.64	7.21	3.12
1,048.65	7.26	3.21
1,048.66	7.31	3.31
1,048.67	7.36	3.40
1,048.68	7.41	3.50
1,048.69	7.45	3.59
1,048.70	7.49	3.69
1,048.71	7.53	3.78
1,048.72	7.57	3.87
1,048.73	7.61	3.97
1,048.74	7.65	4.06
1,048.75	7.68	4.15
1,048.76	7.71	4.24
1,048.77	7.74	4.33
1,048.78	7.77	4.42
1,048.79	7.80	4.51
1,048.80	7.82	4.59
1,048.81	7.85	4.68
1,048.82	7.87	4.76
1,048.83	7.89	4.85
1,048.84	7.91	4.93
1,048.85	7.92	5.00
1,048.86	7.93	5.08
1,048.87	7.94	5.16
1,048.88	7.95	5.23
1,048.89	7.96	5.30
1,048.90	7.96	5.36
1,048.91	**7.97**	5.43
1,048.92	7.97	5.49
1,048.93	7.96	5.55
1,048.94	7.96	5.60
1,048.95	7.95	5.66
1,048.96	7.94	5.70
1,048.97	7.92	5.75
1,048.98	7.90	5.79
1,048.99	7.88	5.82
1,049.00	7.86	5.85
1,049.01	7.83	5.87
1,049.02	7.79	5.89
1,049.03	7.75	5.90
1,049.04	7.71	**5.90**
1,049.05	7.65	5.90
1,049.06	7.59	5.88
1,049.07	7.51	5.85
1,049.08	7.42	5.80
1,049.09	7.29	5.72
1,049.10	6.99	5.49

Summary for Reach DP#3: TO OFF SITE (NEED INVERTS)

Inflow Area = 0.266 ac, 10.99% Impervious, Inflow Depth = 0.97" for 2-Year event
Inflow = 0.21 cfs @ 12.20 hrs, Volume= 0.022 af
Outflow = 0.21 cfs @ 12.20 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP#3: TO OFF SITE (NEED INVERTS)



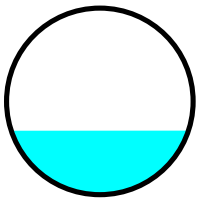
Summary for Reach DP1: CULVERT

Inflow Area = 5.012 ac, 61.18% Impervious, Inflow Depth = 2.01" for 2-Year event
Inflow = 8.78 cfs @ 12.16 hrs, Volume= 0.838 af
Outflow = 8.75 cfs @ 12.16 hrs, Volume= 0.838 af, Atten= 0%, Lag= 0.2 min

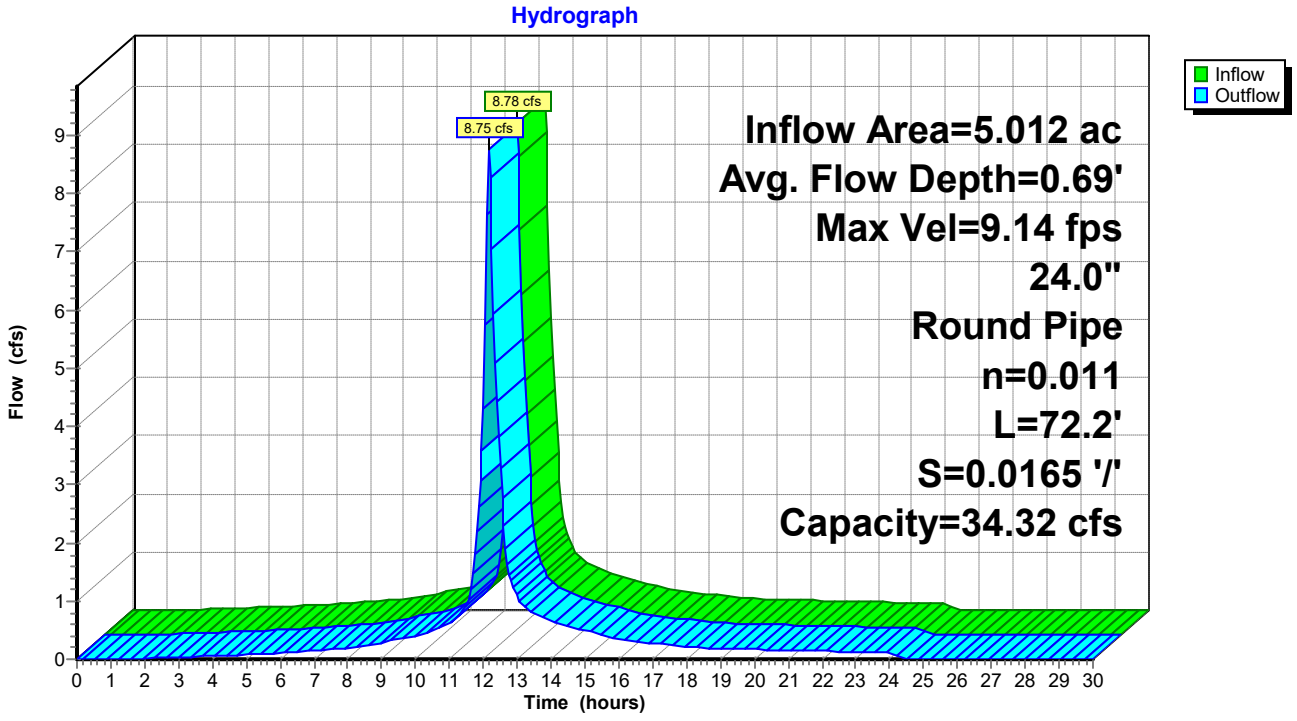
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.14 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.15 fps, Avg. Travel Time= 0.4 min

Peak Storage= 69 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.69'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 34.32 cfs

24.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 72.2' Slope= 0.0165 '/'
Inlet Invert= 1,049.69', Outlet Invert= 1,048.50'



Reach DP1: CULVERT



Stage-Discharge for Reach DP1: CULVERT

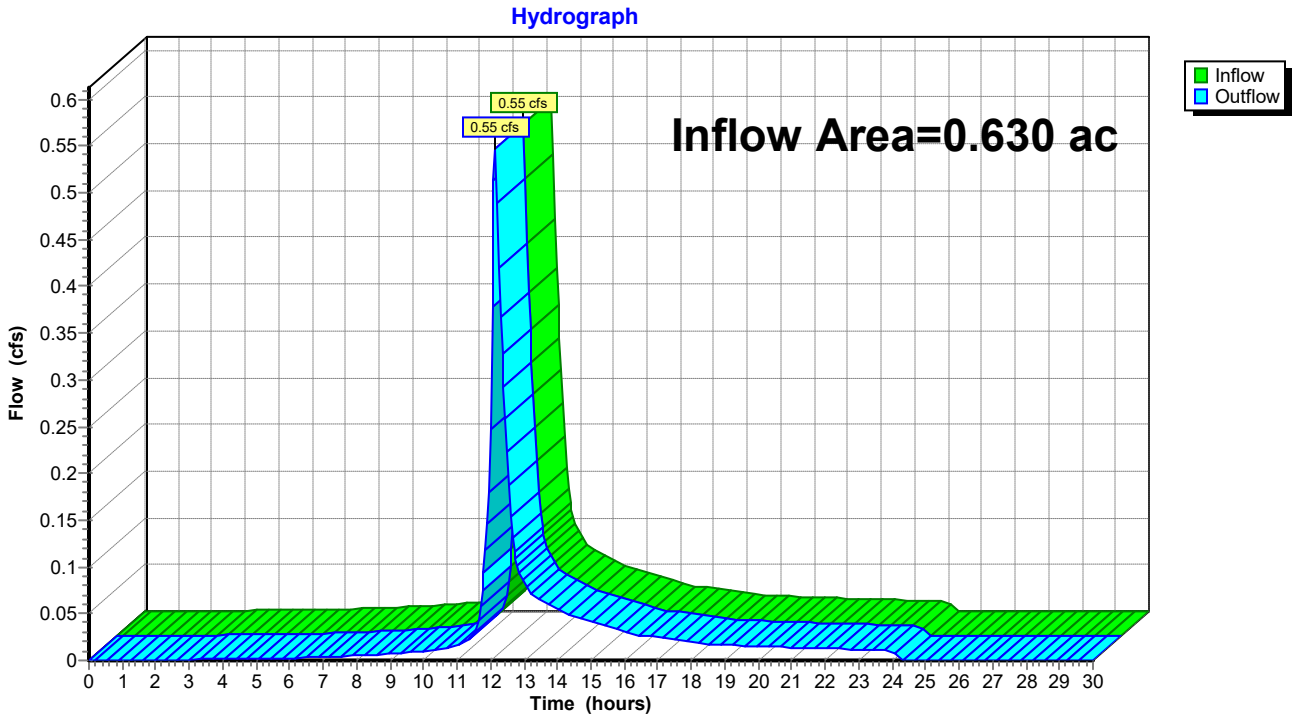
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,049.69	0.00	0.00
1,049.71	0.97	0.01
1,049.73	1.54	0.02
1,049.75	2.01	0.06
1,049.77	2.43	0.10
1,049.79	2.81	0.16
1,049.81	3.16	0.24
1,049.83	3.49	0.34
1,049.85	3.80	0.45
1,049.87	4.10	0.57
1,049.89	4.38	0.72
1,049.91	4.65	0.88
1,049.93	4.92	1.05
1,049.95	5.17	1.24
1,049.97	5.41	1.45
1,049.99	5.65	1.67
1,050.01	5.87	1.91
1,050.03	6.09	2.16
1,050.05	6.31	2.43
1,050.07	6.52	2.71
1,050.09	6.72	3.01
1,050.11	6.92	3.32
1,050.13	7.11	3.64
1,050.15	7.30	3.98
1,050.17	7.48	4.34
1,050.19	7.66	4.70
1,050.21	7.83	5.08
1,050.23	8.00	5.47
1,050.25	8.16	5.88
1,050.27	8.32	6.29
1,050.29	8.48	6.72
1,050.31	8.63	7.16
1,050.33	8.78	7.61
1,050.35	8.93	8.07
1,050.37	9.07	8.54
1,050.39	9.21	9.03
1,050.41	9.35	9.52
1,050.43	9.48	10.02
1,050.45	9.61	10.52
1,050.47	9.73	11.04
1,050.49	9.86	11.57
1,050.51	9.98	12.10
1,050.53	10.09	12.64
1,050.55	10.21	13.19
1,050.57	10.32	13.74
1,050.59	10.43	14.30
1,050.61	10.53	14.86
1,050.63	10.63	15.43
1,050.65	10.73	16.00
1,050.67	10.83	16.58
1,050.69	10.93	17.16
1,050.71	11.02	17.75
1,050.73	11.11	18.33
1,050.75	11.19	18.92
1,050.77	11.27	19.51
1,050.79	11.36	20.10
1,050.81	11.43	20.70
1,050.83	11.51	21.29
1,050.85	11.58	21.88
1,050.87	11.65	22.47
1,050.89	11.72	23.06
1,050.91	11.78	23.65
1,050.93	11.84	24.23
1,050.95	11.90	24.81
1,050.97	11.96	25.39
1,050.99	12.01	25.96
1,051.01	12.06	26.53
1,051.03	12.11	27.09
1,051.05	12.15	27.65
1,051.07	12.20	28.20
1,051.09	12.23	28.74
1,051.11	12.27	29.27
1,051.13	12.30	29.79
1,051.15	12.33	30.31
1,051.17	12.36	30.81
1,051.19	12.38	31.30
1,051.21	12.40	31.78
1,051.23	12.42	32.24
1,051.25	12.44	32.69
1,051.27	12.45	33.13
1,051.29	12.45	33.55
1,051.31	**12.46**	33.95
1,051.33	12.45	34.34
1,051.35	12.45	34.70
1,051.37	12.44	35.05
1,051.39	12.43	35.37
1,051.41	12.41	35.67
1,051.43	12.39	35.94
1,051.45	12.36	36.18
1,051.47	12.32	36.40
1,051.49	12.28	36.58
1,051.51	12.24	36.73
1,051.53	12.18	36.84
1,051.55	12.12	36.90
1,051.57	12.05	**36.92**
1,051.59	11.96	36.88
1,051.61	11.86	36.77
1,051.63	11.75	36.58
1,051.65	11.60	36.27
1,051.67	11.40	35.76
1,051.69	10.93	34.32

Summary for Reach DP2: Culvert

Inflow Area = 0.630 ac, 12.33% Impervious, Inflow Depth = 1.00" for 2-Year event
Inflow = 0.55 cfs @ 12.14 hrs, Volume= 0.052 af
Outflow = 0.55 cfs @ 12.14 hrs, Volume= 0.052 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: Culvert

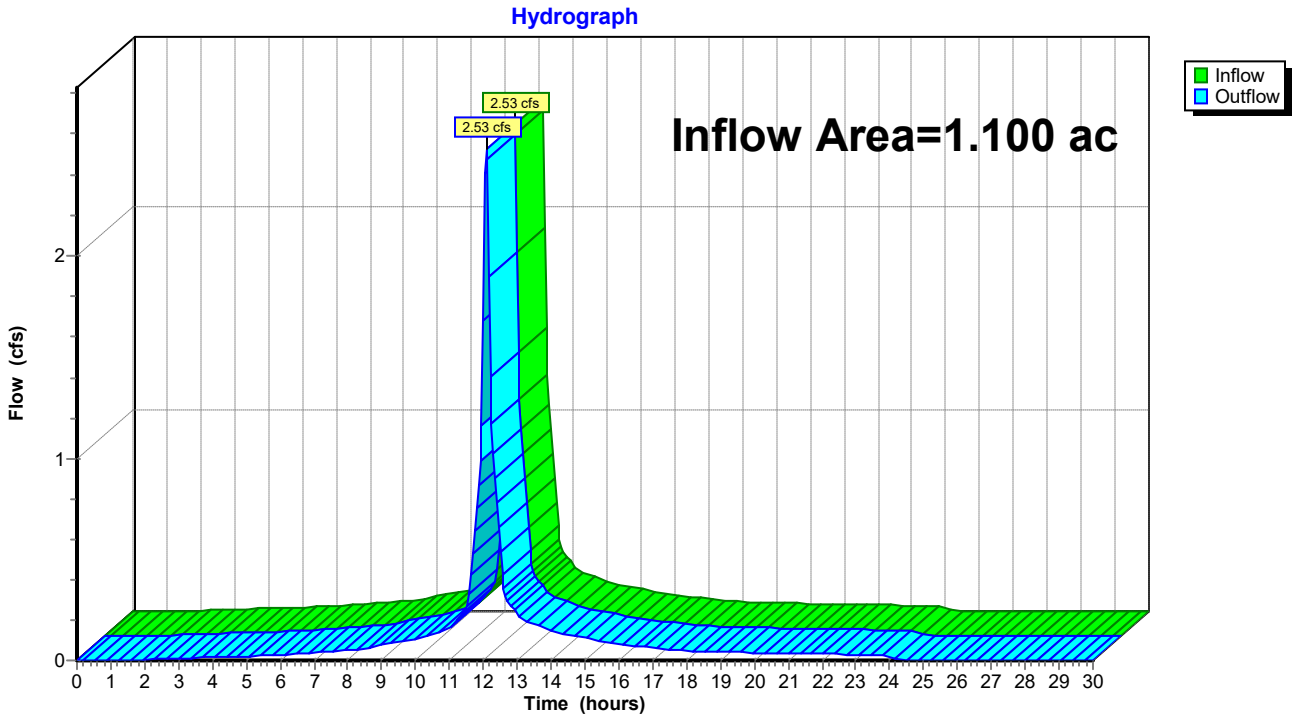


Summary for Reach DP4: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 2.21" for 2-Year event
Inflow = 2.53 cfs @ 12.08 hrs, Volume= 0.203 af
Outflow = 2.53 cfs @ 12.08 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP4: DP#4

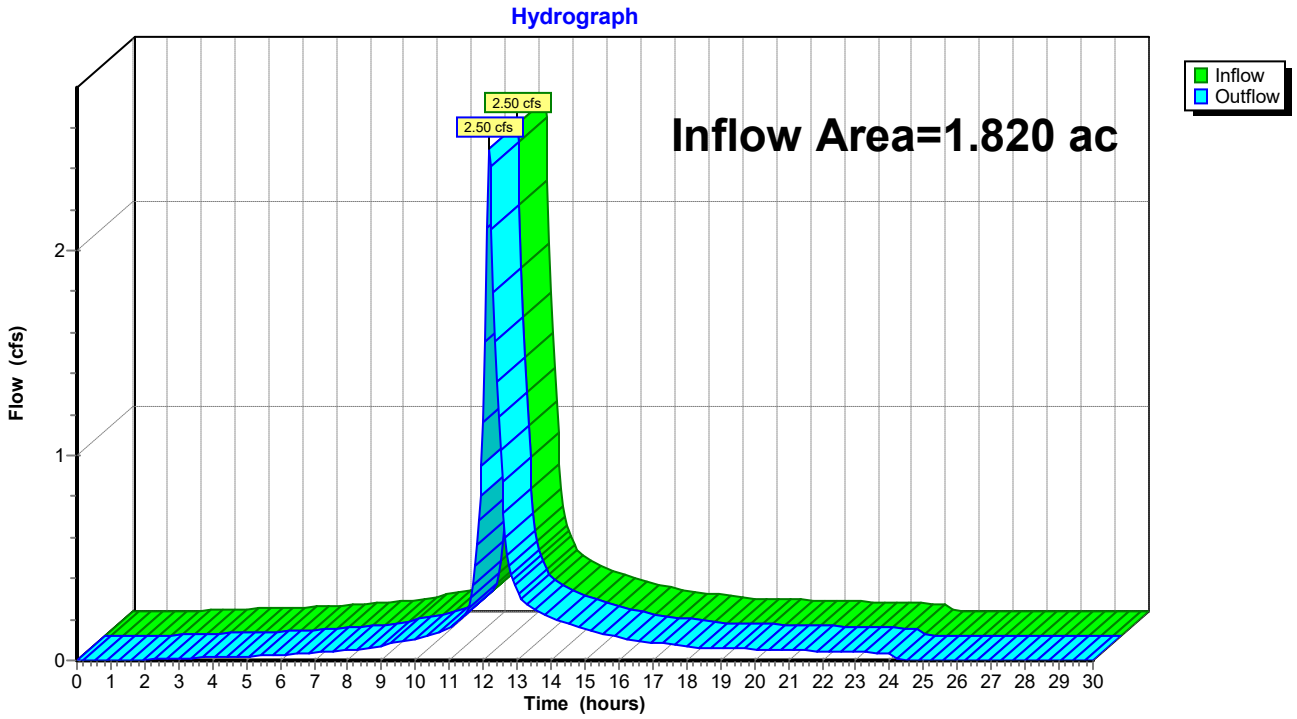


Summary for Reach FEA: TO CULVERT

Inflow Area = 1.820 ac, 43.35% Impervious, Inflow Depth = 1.62" for 2-Year event
Inflow = 2.50 cfs @ 12.17 hrs, Volume= 0.245 af
Outflow = 2.50 cfs @ 12.17 hrs, Volume= 0.245 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach FEA: TO CULVERT



Summary for Pond CULVERT#3: TO E12

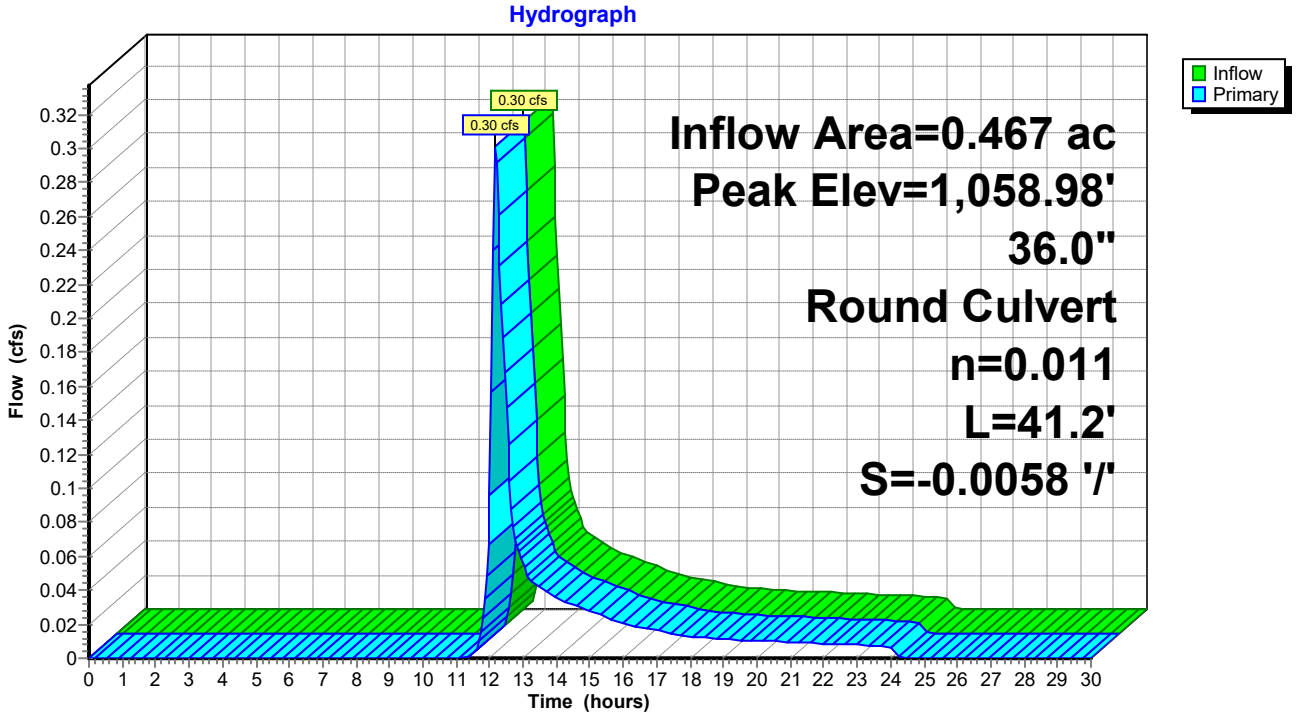
Inflow Area = 0.467 ac, 0.00% Impervious, Inflow Depth = 0.75" for 2-Year event
Inflow = 0.30 cfs @ 12.17 hrs, Volume= 0.029 af
Outflow = 0.30 cfs @ 12.17 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.17 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,058.98' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,058.78'	**36.0" Round Culvert#3** L= 41.2' Ke= 0.500 Inlet / Outlet Invert= 1,058.54' / 1,058.78' S= -0.0058 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=0.29 cfs @ 12.17 hrs HW=1,058.97' (Free Discharge)
1=Culvert#3 (Inlet Controls 0.29 cfs @ 1.50 fps)

Pond CULVERT#3: TO E12



Stage-Discharge for Pond CULVERT#3: TO E12

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,058.78	0.00	1,059.82	6.54	1,060.86	19.98
1,058.80	0.00	1,059.84	6.74	1,060.88	20.28
1,058.82	0.01	1,059.86	6.95	1,060.90	20.59
1,058.84	0.03	1,059.88	7.16	1,060.92	20.89
1,058.86	0.05	1,059.90	7.37	1,060.94	21.20
1,058.88	0.08	1,059.92	7.58	1,060.96	21.50
1,058.90	0.11	1,059.94	7.80	1,060.98	21.81
1,058.92	0.15	1,059.96	8.02	1,061.00	22.12
1,058.94	0.20	1,059.98	8.24	1,061.02	22.43
1,058.96	0.25	1,060.00	8.46	1,061.04	22.74
1,058.98	0.31	1,060.02	8.69	1,061.06	23.05
1,059.00	0.37	1,060.04	8.92	1,061.08	23.36
1,059.02	0.44	1,060.06	9.15	1,061.10	23.67
1,059.04	0.52	1,060.08	9.38	1,061.12	23.99
1,059.06	0.60	1,060.10	9.62	1,061.14	24.30
1,059.08	0.69	1,060.12	9.85	1,061.16	24.61
1,059.10	0.78	1,060.14	10.09	1,061.18	24.93
1,059.12	0.88	1,060.16	10.33	1,061.20	25.24
1,059.14	0.98	1,060.18	10.58	1,061.22	25.56
1,059.16	1.09	1,060.20	10.82	1,061.24	25.87
1,059.18	1.21	1,060.22	11.07	1,061.26	26.19
1,059.20	1.33	1,060.24	11.32	1,061.28	26.50
1,059.22	1.45	1,060.26	11.58	1,061.30	26.82
1,059.24	1.59	1,060.28	11.83	1,061.32	27.14
1,059.26	1.72	1,060.30	12.09	1,061.34	27.45
1,059.28	1.86	1,060.32	12.35	1,061.36	27.77
1,059.30	2.01	1,060.34	12.61	1,061.38	28.09
1,059.32	2.16	1,060.36	12.87	1,061.40	28.40
1,059.34	2.32	1,060.38	13.14	1,061.42	28.72
1,059.36	2.49	1,060.40	13.40	1,061.44	29.04
1,059.38	2.65	1,060.42	13.67	1,061.46	29.35
1,059.40	2.83	1,060.44	13.94	1,061.48	29.67
1,059.42	3.01	1,060.46	14.21	1,061.50	29.98
1,059.44	3.19	1,060.48	14.49	1,061.52	30.30
1,059.46	3.36	1,060.50	14.76	1,061.54	30.61
1,059.48	3.51	1,060.52	15.04	1,061.56	30.93
1,059.50	3.67	1,060.54	15.32	1,061.58	31.24
1,059.52	3.82	1,060.56	15.60	1,061.60	31.55
1,059.54	3.99	1,060.58	15.88	1,061.62	31.87
1,059.56	4.15	1,060.60	16.16	1,061.64	32.18
1,059.58	4.32	1,060.62	16.45	1,061.66	32.49
1,059.60	4.49	1,060.64	16.74	1,061.68	32.80
1,059.62	4.66	1,060.66	17.03	1,061.70	33.11
1,059.64	4.83	1,060.68	17.31	1,061.72	33.42
1,059.66	5.01	1,060.70	17.61	1,061.74	33.72
1,059.68	5.19	1,060.72	17.90	1,061.76	34.03
1,059.70	5.38	1,060.74	18.19	1,061.78	**34.33**
1,059.72	5.57	1,060.76	18.49		
1,059.74	5.76	1,060.78	18.78		
1,059.76	5.95	1,060.80	19.08		
1,059.78	6.14	1,060.82	19.38		
1,059.80	6.34	1,060.84	19.68		

Summary for Pond DCBA: TO DCB-B

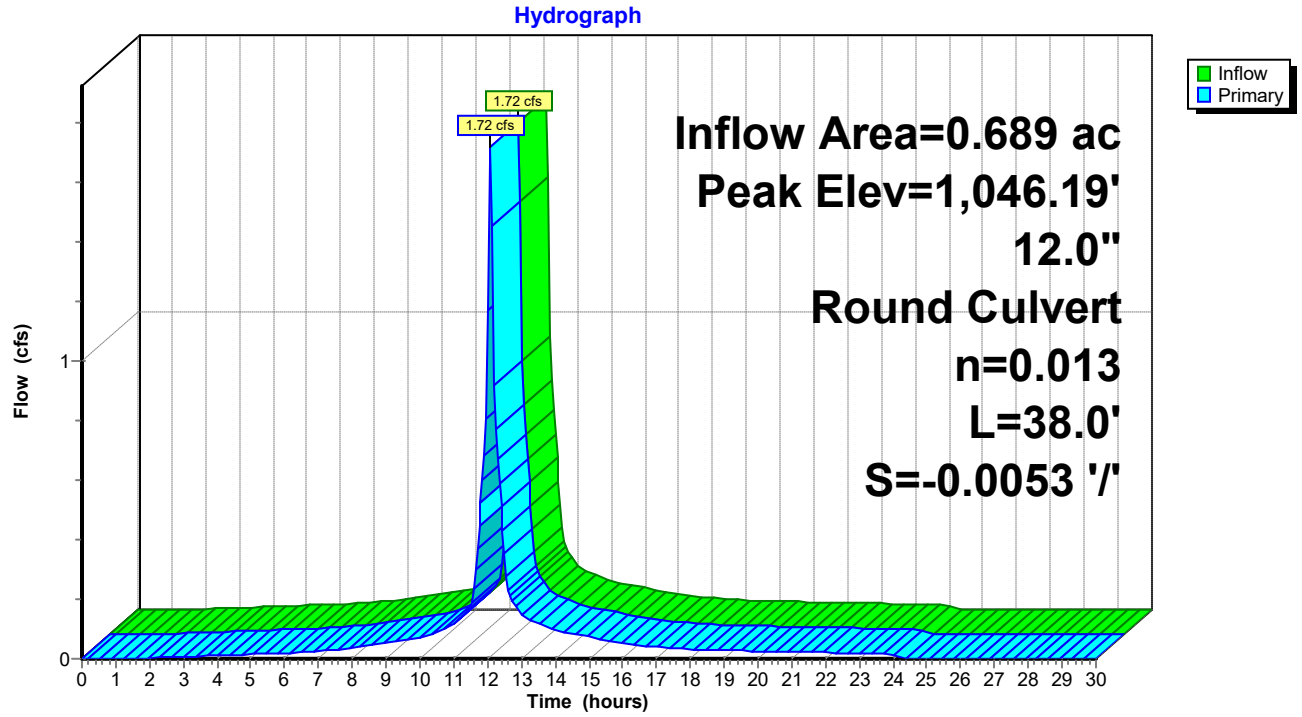
Inflow Area = 0.689 ac, 76.16% Impervious, Inflow Depth = 2.39" for 2-Year event
Inflow = 1.72 cfs @ 12.08 hrs, Volume= 0.137 af
Outflow = 1.72 cfs @ 12.08 hrs, Volume= 0.137 af, Atten= 0%, Lag= 0.0 min
Primary = 1.72 cfs @ 12.08 hrs, Volume= 0.137 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,046.19' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,045.30'	**12.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,045.10' / 1,045.30' S= -0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.67 cfs @ 12.08 hrs HW=1,046.17' (Free Discharge)
1=Culvert (Barrel Controls 1.67 cfs @ 2.47 fps)

Pond DCBA: TO DCB-B



Stage-Discharge for Pond DCBA: TO DCB-B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,045.30	0.00	1,045.82	0.80
1,045.31	0.00	1,045.83	0.83
1,045.32	0.00	1,045.84	0.85
1,045.33	0.00	1,045.85	0.88
1,045.34	0.01	1,045.86	0.91
1,045.35	0.01	1,045.87	0.94
1,045.36	0.01	1,045.88	0.97
1,045.37	0.02	1,045.89	1.00
1,045.38	0.02	1,045.90	1.02
1,045.39	0.03	1,045.91	1.05
1,045.40	0.03	1,045.92	1.08
1,045.41	0.04	1,045.93	1.10
1,045.42	0.05	1,045.94	1.12
1,045.43	0.06	1,045.95	1.15
1,045.44	0.07	1,045.96	1.17
1,045.45	0.08	1,045.97	1.20
1,045.46	0.09	1,045.98	1.22
1,045.47	0.10	1,045.99	1.24
1,045.48	0.11	1,046.00	1.27
1,045.49	0.12	1,046.01	1.29
1,045.50	0.13	1,046.02	1.32
1,045.51	0.15	1,046.03	1.34
1,045.52	0.16	1,046.04	1.36
1,045.53	0.18	1,046.05	1.39
1,045.54	0.19	1,046.06	1.41
1,045.55	0.21	1,046.07	1.44
1,045.56	0.22	1,046.08	1.46
1,045.57	0.24	1,046.09	1.48
1,045.58	0.26	1,046.10	1.51
1,045.59	0.27	1,046.11	1.53
1,045.60	0.29	1,046.12	1.55
1,045.61	0.31	1,046.13	1.58
1,045.62	0.33	1,046.14	1.60
1,045.63	0.35	1,046.15	1.62
1,045.64	0.37	1,046.16	1.65
1,045.65	0.39	1,046.17	1.67
1,045.66	0.41	1,046.18	1.69
1,045.67	0.43	1,046.19	1.72
1,045.68	0.45	1,046.20	1.74
1,045.69	0.48	1,046.21	1.76
1,045.70	0.50	1,046.22	1.78
1,045.71	0.52	1,046.23	1.80
1,045.72	0.55	1,046.24	1.82
1,045.73	0.57	1,046.25	1.84
1,045.74	0.59	1,046.26	1.86
1,045.75	0.62	1,046.27	1.88
1,045.76	0.64	1,046.28	1.90
1,045.77	0.67	1,046.29	1.92
1,045.78	0.69	1,046.30	**1.94**
1,045.79	0.72		
1,045.80	0.75		
1,045.81	0.77		

Summary for Pond DCBD: TO DMH-A

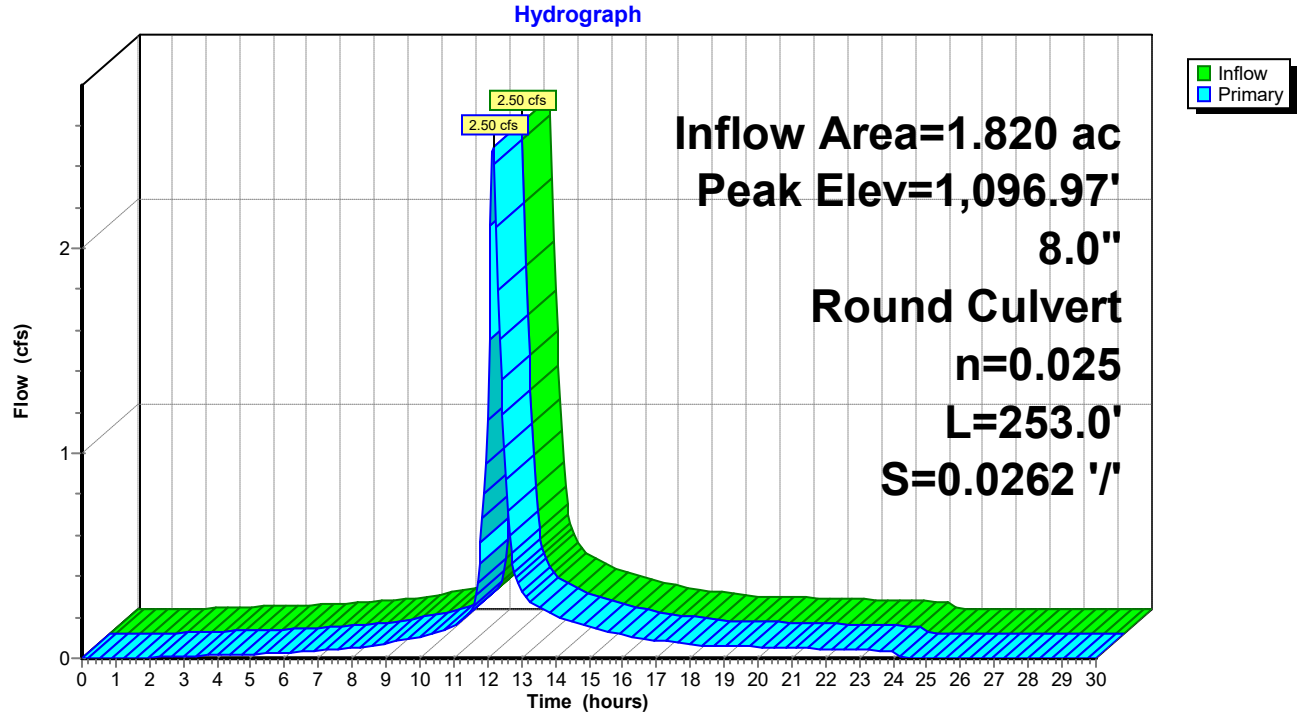
Inflow Area = 1.820 ac, 43.35% Impervious, Inflow Depth = 1.62" for 2-Year event
Inflow = 2.50 cfs @ 12.17 hrs, Volume= 0.245 af
Outflow = 2.50 cfs @ 12.17 hrs, Volume= 0.245 af, Atten= 0%, Lag= 0.0 min
Primary = 2.50 cfs @ 12.17 hrs, Volume= 0.245 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,096.97' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,061.80'	**8.0" Round Culvert** L= 253.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 1,061.80' / 1,055.17' S= 0.0262 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.35 sf

Primary OutFlow Max=2.45 cfs @ 12.17 hrs HW=1,095.50' (Free Discharge)
1=Culvert (Barrel Controls 2.45 cfs @ 7.01 fps)

Pond DCBD: TO DMH-A



Stage-Discharge for Pond DCBD: TO DMH-A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,061.80	0.00	1,080.00	1.91
1,062.15	0.33	1,080.35	1.92
1,062.50	0.97	1,080.70	1.94
1,062.85	1.03	1,081.05	1.95
1,063.20	1.05	1,081.40	1.97
1,063.55	1.08	1,081.75	1.98
1,063.90	1.10	1,082.10	1.99
1,064.25	1.13	1,082.45	2.01
1,064.60	1.15	1,082.80	2.02
1,064.95	1.17	1,083.15	2.03
1,065.30	1.20	1,083.50	2.04
1,065.65	1.22	1,083.85	2.06
1,066.00	1.24	1,084.20	2.07
1,066.35	1.26	1,084.55	2.08
1,066.70	1.28	1,084.90	2.10
1,067.05	1.30	1,085.25	2.11
1,067.40	1.32	1,085.60	2.12
1,067.75	1.34	1,085.95	2.13
1,068.10	1.36	1,086.30	2.15
1,068.45	1.38	1,086.65	2.16
1,068.80	1.40	1,087.00	2.17
1,069.15	1.42	1,087.35	2.18
1,069.50	1.44	1,087.70	2.19
1,069.85	1.46	1,088.05	2.21
1,070.20	1.47	1,088.40	2.22
1,070.55	1.49	1,088.75	2.23
1,070.90	1.51	1,089.10	2.24
1,071.25	1.53	1,089.45	2.25
1,071.60	1.54	1,089.80	2.27
1,071.95	1.56	1,090.15	2.28
1,072.30	1.58	1,090.50	2.29
1,072.65	1.59	1,090.85	2.30
1,073.00	1.61	1,091.20	2.31
1,073.35	1.63	1,091.55	2.32
1,073.70	1.64	1,091.90	2.33
1,074.05	1.66	1,092.25	2.35
1,074.40	1.67	1,092.60	2.36
1,074.75	1.69	1,092.95	2.37
1,075.10	1.71	1,093.30	2.38
1,075.45	1.72	1,093.65	2.39
1,075.80	1.74	1,094.00	2.40
1,076.15	1.75	1,094.35	2.41
1,076.50	1.77	1,094.70	2.42
1,076.85	1.78	1,095.05	2.43
1,077.20	1.80	1,095.40	2.44
1,077.55	1.81	1,095.75	2.46
1,077.90	1.83	1,096.10	**2.47**
1,078.25	1.84		
1,078.60	1.85		
1,078.95	1.87		
1,079.30	1.88		
1,079.65	1.90		

Summary for Pond DMHA: TO FE-A

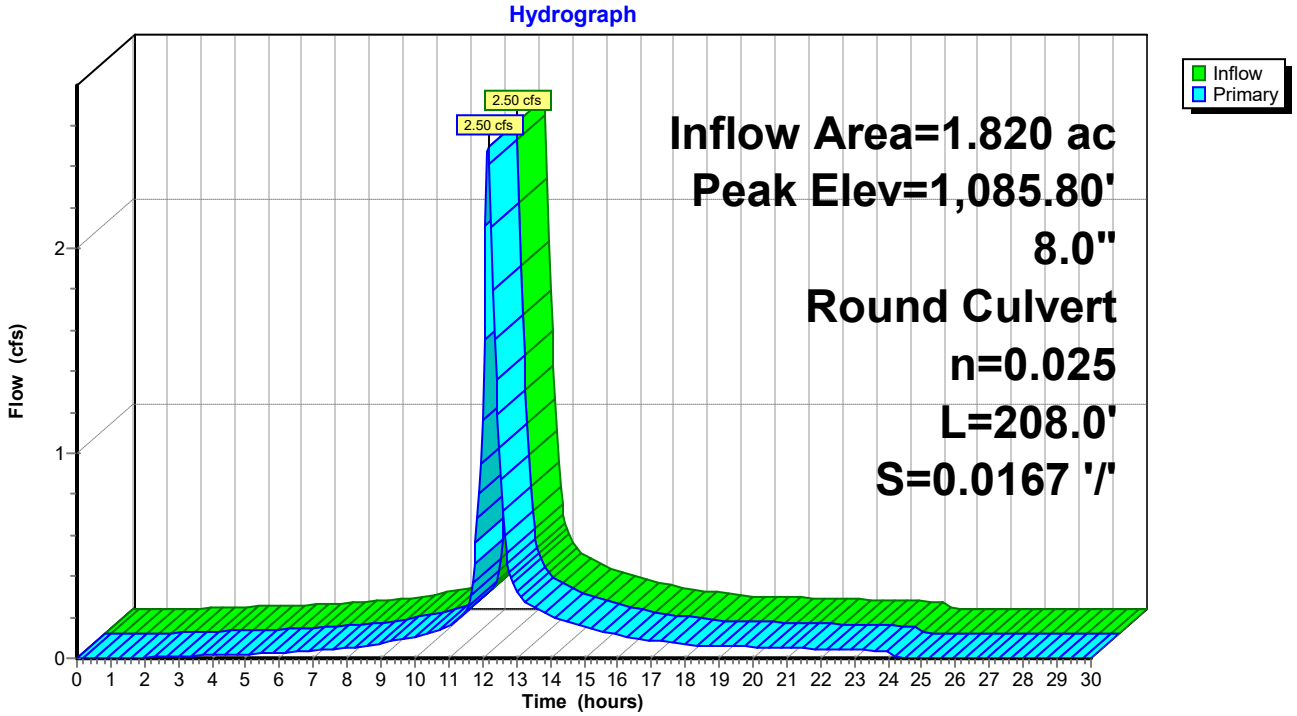
Inflow Area = 1.820 ac, 43.35% Impervious, Inflow Depth = 1.62" for 2-Year event
Inflow = 2.50 cfs @ 12.17 hrs, Volume= 0.245 af
Outflow = 2.50 cfs @ 12.17 hrs, Volume= 0.245 af, Atten= 0%, Lag= 0.0 min
Primary = 2.50 cfs @ 12.17 hrs, Volume= 0.245 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,085.80' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,054.57'	**8.0" Round Culvert** L= 208.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 1,054.57' / 1,051.10' S= 0.0167 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.35 sf

Primary OutFlow Max=2.45 cfs @ 12.17 hrs HW=1,084.58' (Free Discharge)
1=Culvert (Barrel Controls 2.45 cfs @ 7.01 fps)

Pond DMHA: TO FE-A



Stage-Discharge for Pond DMHA: TO FE-A

Elevation (feet)	Primary (cfs)
1,054.57	0.00
1,054.92	0.26
1,055.27	0.78
1,055.62	0.84
1,055.97	0.88
1,056.32	0.91
1,056.67	0.95
1,057.02	0.98
1,057.37	1.01
1,057.72	1.04
1,058.07	1.07
1,058.42	1.10
1,058.77	1.13
1,059.12	1.16
1,059.47	1.19
1,059.82	1.21
1,060.17	1.24
1,060.52	1.26
1,060.87	1.29
1,061.22	1.31
1,061.57	1.34
1,061.92	1.36
1,062.27	1.39
1,062.62	1.41
1,062.97	1.43
1,063.32	1.45
1,063.67	1.47
1,064.02	1.50
1,064.37	1.52
1,064.72	1.54
1,065.07	1.56
1,065.42	1.58
1,065.77	1.60
1,066.12	1.62
1,066.47	1.64
1,066.82	1.66
1,067.17	1.68
1,067.52	1.70
1,067.87	1.71
1,068.22	1.73
1,068.57	1.75
1,068.92	1.77
1,069.27	1.79
1,069.62	1.81
1,069.97	1.82
1,070.32	1.84
1,070.67	1.86
1,071.02	1.88
1,071.37	1.89
1,071.72	1.91
1,072.07	1.93
1,072.42	1.94
1,072.77	1.96
1,073.12	1.97
1,073.47	1.99
1,073.82	2.01
1,074.17	2.02
1,074.52	2.04
1,074.87	2.05
1,075.22	2.07
1,075.57	2.09
1,075.92	2.10
1,076.27	2.12
1,076.62	2.13
1,076.97	2.15
1,077.32	2.16
1,077.67	2.18
1,078.02	2.19
1,078.37	2.20
1,078.72	2.22
1,079.07	2.23
1,079.42	2.25
1,079.77	2.26
1,080.12	2.28
1,080.47	2.29
1,080.82	2.30
1,081.17	2.32
1,081.52	2.33
1,081.87	2.34
1,082.22	2.36
1,082.57	2.37
1,082.92	2.39
1,083.27	2.40
1,083.62	2.41
1,083.97	2.43
1,084.32	2.44
1,084.67	2.45
1,085.02	**2.46**

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E10: OVERLAND TO Runoff Area=139,035 sf 71.35% Impervious Runoff Depth=3.60"
Flow Length=788' Tc=11.1 min CN=WQ Runoff=10.14 cfs 0.957 af

Subcatchment E11: TO DCB-D Runoff Area=79,267 sf 43.35% Impervious Runoff Depth=2.82"
Flow Length=307' Tc=12.1 min CN=WQ Runoff=4.46 cfs 0.427 af

Subcatchment E12: (CULVERT) Runoff Area=7,096 sf 47.67% Impervious Runoff Depth=2.96"
Flow Length=91' Tc=7.6 min CN=WQ Runoff=0.48 cfs 0.040 af

Subcatchment E13: TO CULVERT Runoff Area=20,345 sf 0.00% Impervious Runoff Depth=1.72"
Flow Length=380' Tc=10.9 min CN=WQ Runoff=0.77 cfs 0.067 af

Subcatchment E14: TO DCB-A Runoff Area=30,009 sf 76.16% Impervious Runoff Depth=3.79"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=2.73 cfs 0.218 af

Subcatchment E15: TO DCB-C Runoff Area=17,919 sf 56.55% Impervious Runoff Depth=3.22"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=1.39 cfs 0.110 af

Subcatchment E31: TO DP#3 (CULVERT) Runoff Area=11,601 sf 10.99% Impervious Runoff Depth=2.01"
Flow Length=129' Slope=0.0400 '/' Tc=13.0 min CN=WQ Runoff=0.47 cfs 0.045 af

Reach DCBB: DP#4 Inflow=4.09 cfs 0.328 af
Outflow=4.09 cfs 0.328 af

Reach DCBC: TO DCB-B Avg. Flow Depth=0.34' Max Vel=5.82 fps Inflow=1.39 cfs 0.110 af
12.0" Round Pipe n=0.013 L=118.0' S=0.0237 '/' Capacity=5.49 cfs Outflow=1.38 cfs 0.110 af

Reach DP#3: TO OFF SITE (NEED INVERTS) Inflow=0.47 cfs 0.045 af
Outflow=0.47 cfs 0.045 af

Reach DP1: CULVERT Avg. Flow Depth=0.91' Max Vel=10.48 fps Inflow=14.57 cfs 1.384 af
24.0" Round Pipe n=0.011 L=72.2' S=0.0165 '/' Capacity=34.32 cfs Outflow=14.53 cfs 1.384 af

Reach DP2: Culvert Inflow=1.21 cfs 0.107 af
Outflow=1.21 cfs 0.107 af

Reach DP4: DP#4 Inflow=4.09 cfs 0.328 af
Outflow=4.09 cfs 0.328 af

Reach FEA: TO CULVERT Inflow=4.46 cfs 0.427 af
Outflow=4.46 cfs 0.427 af

Pond CULVERT#3: TO E12 Peak Elev=1,059.10' Inflow=0.77 cfs 0.067 af
36.0" Round Culvert n=0.011 L=41.2' S=-0.0058 '/' Outflow=0.77 cfs 0.067 af

Pond DCBA: TO DCB-B Peak Elev=1,046.69' Inflow=2.73 cfs 0.218 af
12.0" Round Culvert n=0.013 L=38.0' S=-0.0053 '/' Outflow=2.73 cfs 0.218 af

Pond DCBD: TO DMH-A Peak Elev=1,187.28' Inflow=4.46 cfs 0.427 af
8.0" Round Culvert n=0.025 L=253.0' S=0.0262 '/' Outflow=4.46 cfs 0.427 af

Pond DMHA: TO FE-A Peak Elev=1,160.50' Inflow=4.46 cfs 0.427 af
8.0" Round Culvert n=0.025 L=208.0' S=0.0167 '/' Outflow=4.46 cfs 0.427 af

Total Runoff Area = 7.008 ac Runoff Volume = 1.864 af Average Runoff Depth = 3.19"
43.91% Pervious = 3.078 ac 56.09% Impervious = 3.931 ac

Summary for Subcatchment E10: OVERLAND TO CULVERT

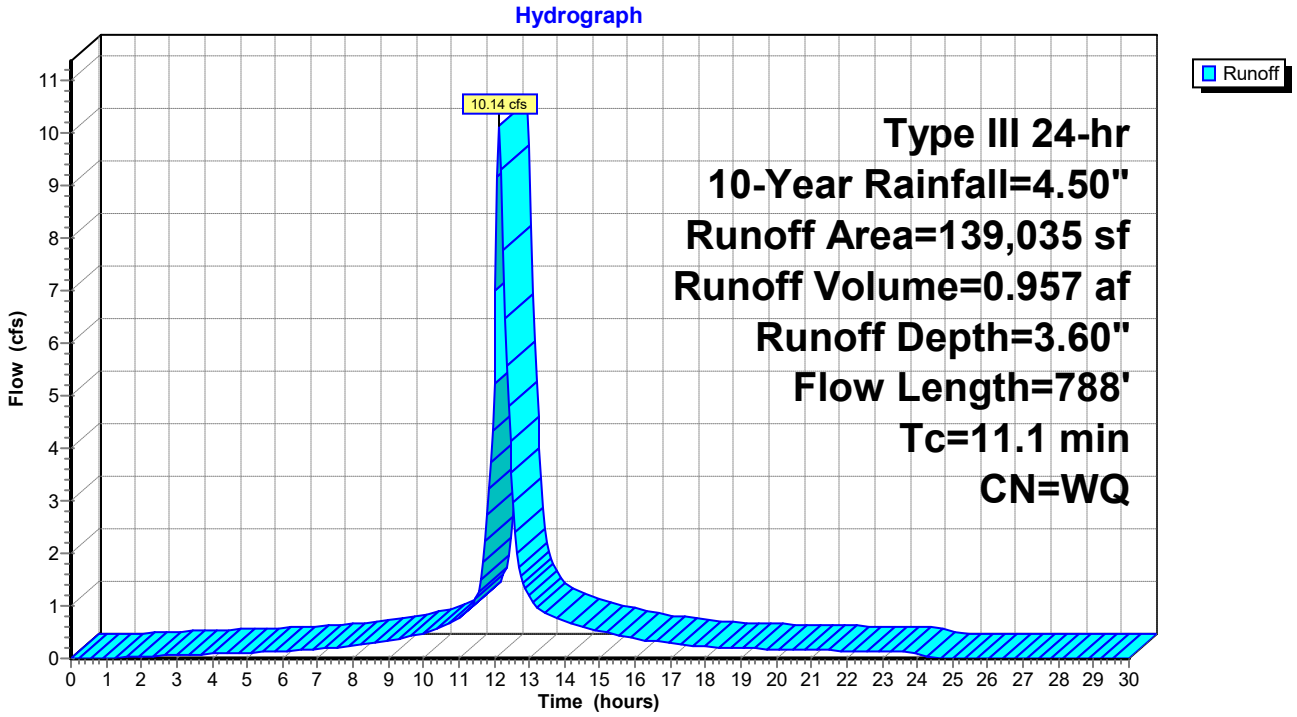
Runoff = 10.14 cfs @ 12.15 hrs, Volume= 0.957 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
31,437	74	>75% Grass cover, Good, HSG C
7,879	70	Woods, Good, HSG C
99,207	98	Paved parking, HSG C
512	96	Gravel surface, HSG C
139,035		Weighted Average
39,828		28.65% Pervious Area
99,207		71.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	42	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.8	33	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	10	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	218	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.4	237	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	135	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	35	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	78	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.1	788	Total			

Subcatchment E10: OVERLAND TO CULVERT



Summary for Subcatchment E11: TO DCB-D

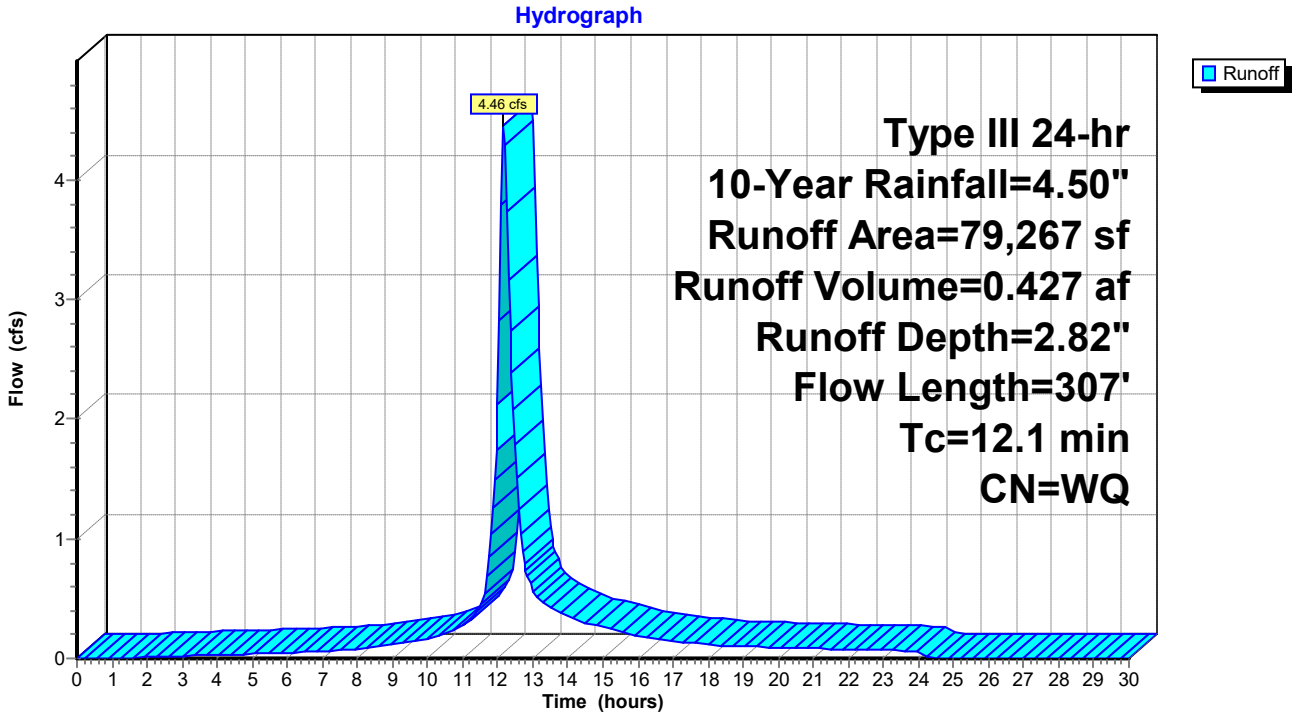
Runoff = 4.46 cfs @ 12.17 hrs, Volume= 0.427 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
4,985	74	>75% Grass cover, Good, HSG C
39,922	70	Woods, Good, HSG C
34,360	98	Paved parking, HSG C
79,267		Weighted Average
44,907		56.65% Pervious Area
34,360		43.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	44	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.7	31	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	15	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.2	198	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	19	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.1	307	Total			

Subcatchment E11: TO DCB-D



Summary for Subcatchment E12: (CULVERT)

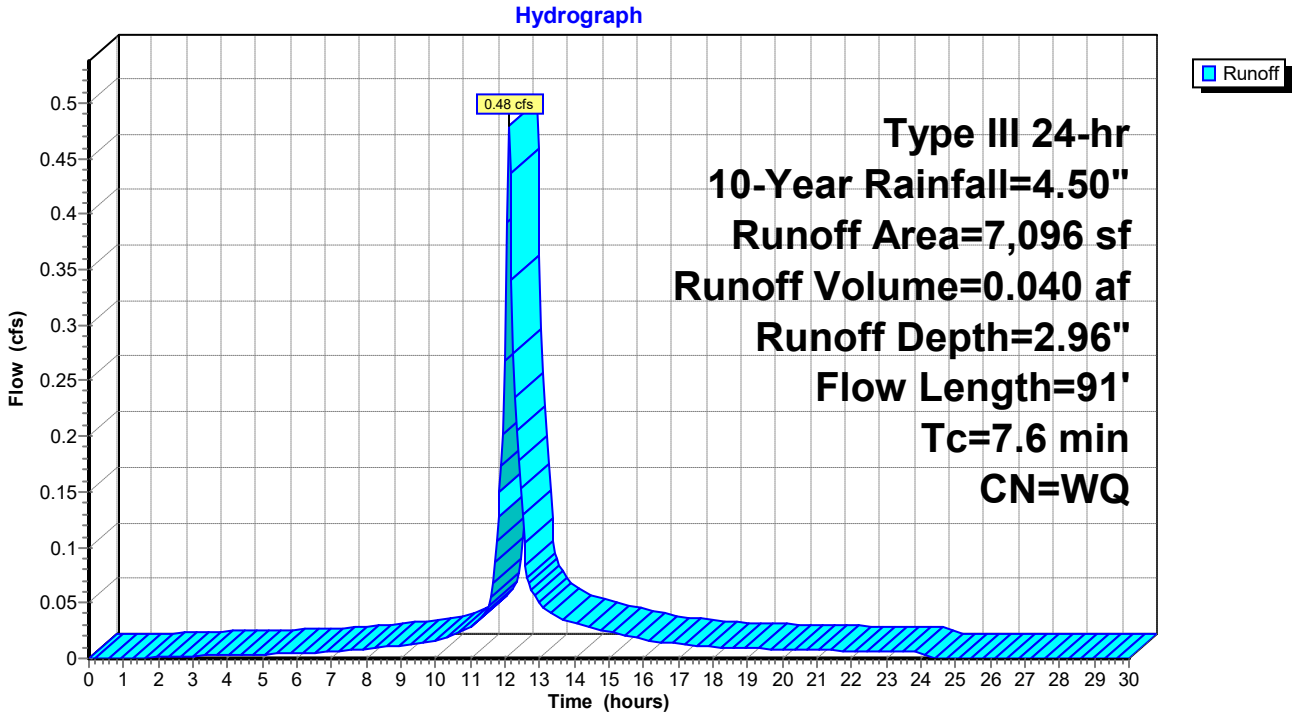
Runoff = 0.48 cfs @ 12.11 hrs, Volume= 0.040 af, Depth= 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
1,158	74	>75% Grass cover, Good, HSG C
2,555	70	Woods, Good, HSG C
3,383	98	Paved parking, HSG C
7,096		Weighted Average
3,713		52.33% Pervious Area
3,383		47.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0500	1.33		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	3	0.0500	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	1	0.0500	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
6.5	55	0.1300	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	16	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.6	91	Total			

Subcatchment E12: (CULVERT)



Summary for Subcatchment E13: TO CULVERT

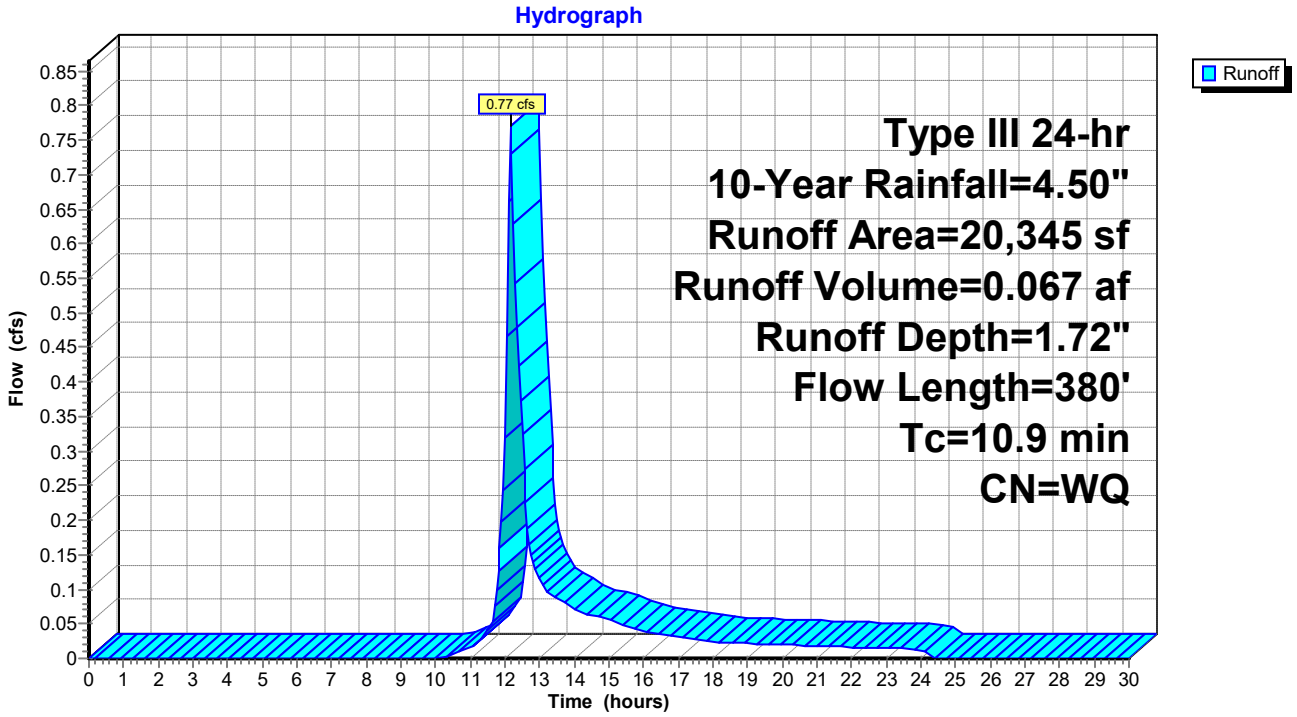
Runoff = 0.77 cfs @ 12.16 hrs, Volume= 0.067 af, Depth= 1.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
3,243	74	>75% Grass cover, Good, HSG C
17,102	70	Woods, Good, HSG C
20,345		Weighted Average
20,345		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	75	0.2400	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	25	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	69	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	7	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	43	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	71	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	17	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	73	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.9	380	Total			

Subcatchment E13: TO CULVERT



Summary for Subcatchment E14: TO DCB-A

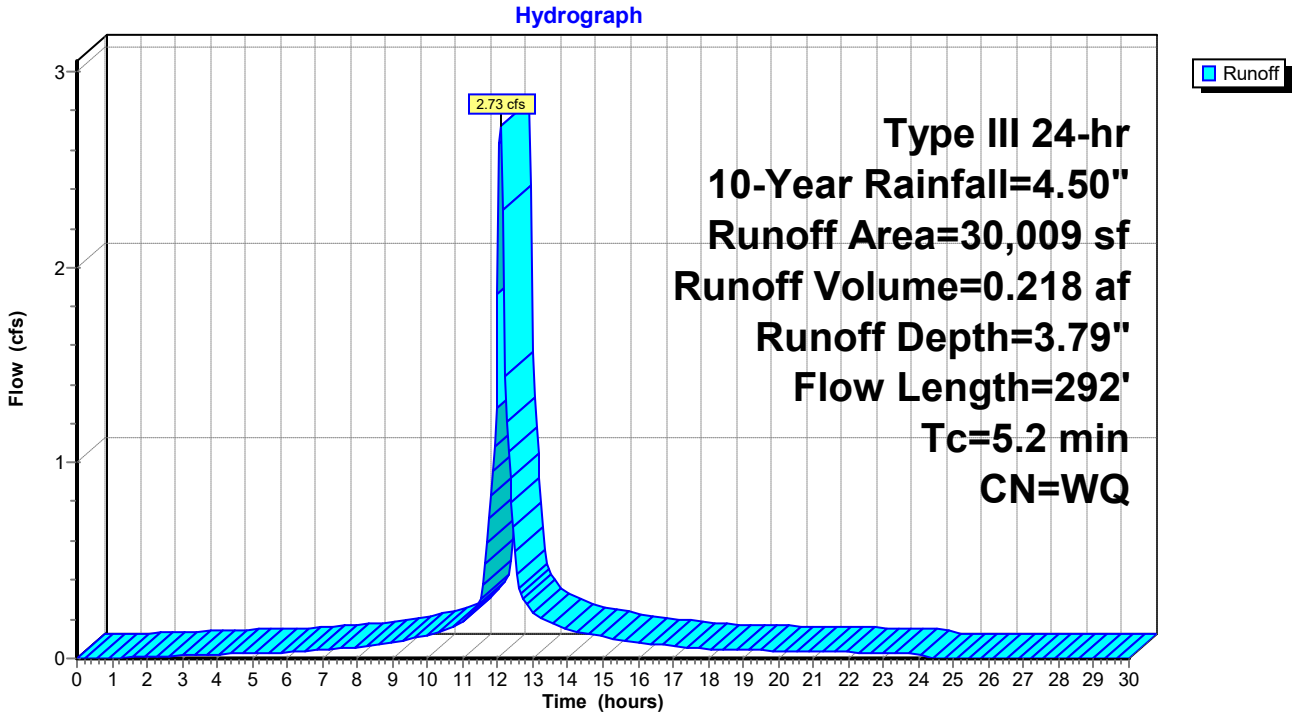
Runoff = 2.73 cfs @ 12.07 hrs, Volume= 0.218 af, Depth= 3.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
5,894	74	>75% Grass cover, Good, HSG C
22,855	98	Paved parking, HSG C
125	70	Woods, Good, HSG C
1,135	96	Gravel surface, HSG C
30,009		Weighted Average
7,154		23.84% Pervious Area
22,855		76.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment E14: TO DCB-A



Summary for Subcatchment E15: TO DCB-C

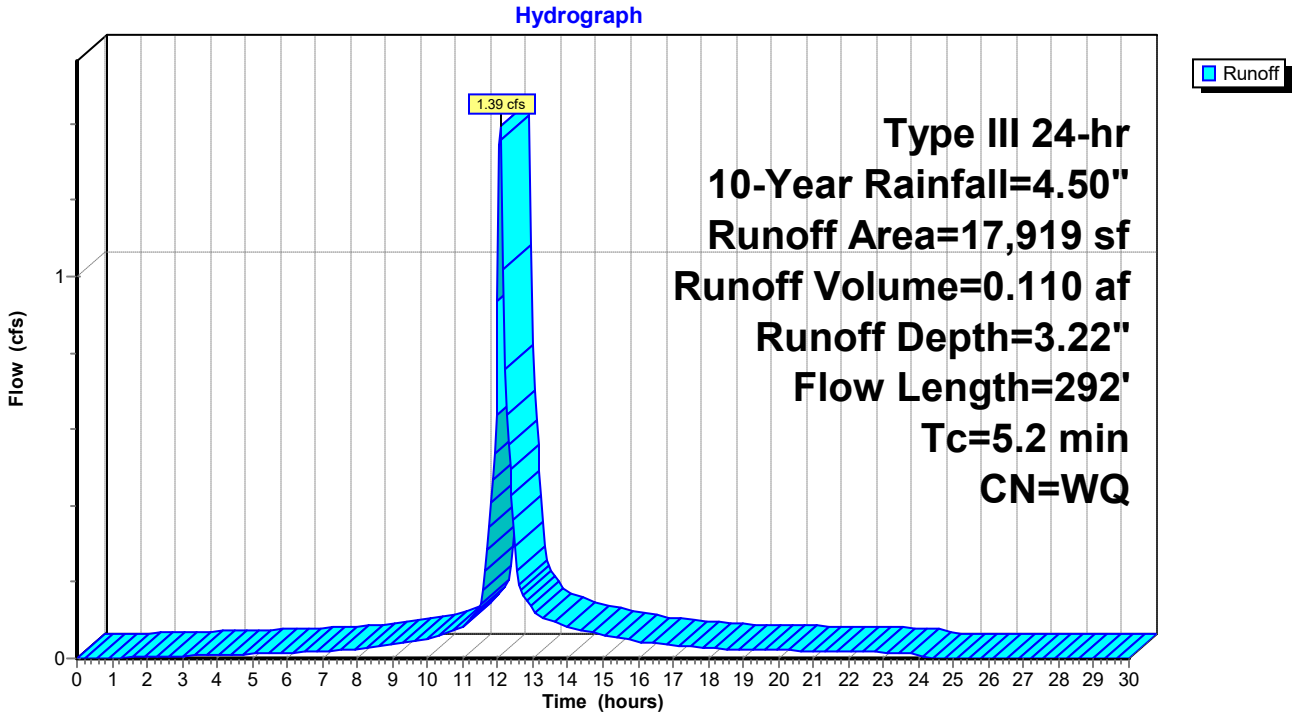
Runoff = 1.39 cfs @ 12.08 hrs, Volume= 0.110 af, Depth= 3.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
4,649	74	>75% Grass cover, Good, HSG C
10,134	98	Paved parking, HSG C
3,136	70	Woods, Good, HSG C
17,919		Weighted Average
7,785		43.45% Pervious Area
10,134		56.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment E15: TO DCB-C



Summary for Subcatchment E31: TO DP#3 (CULVERT)

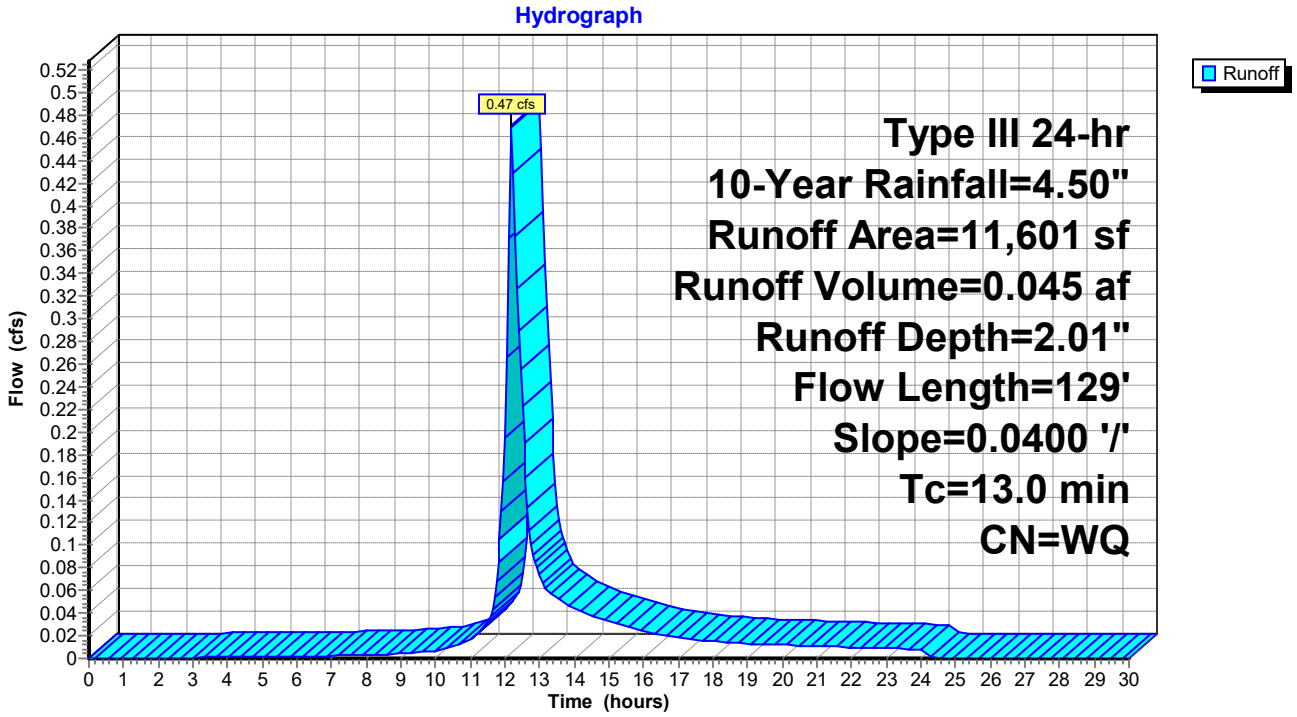
Runoff = 0.47 cfs @ 12.19 hrs, Volume= 0.045 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
2,060	74	>75% Grass cover, Good, HSG C
1,275	98	Paved parking, HSG C
8,266	70	Woods, Good, HSG C
11,601		Weighted Average
10,326		89.01% Pervious Area
1,275		10.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	4	0.0400	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
6.8	54	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
2.0	7	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
2.7	10	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	54	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.0	129	Total			

Subcatchment E31: TO DP#3 (CULVERT)

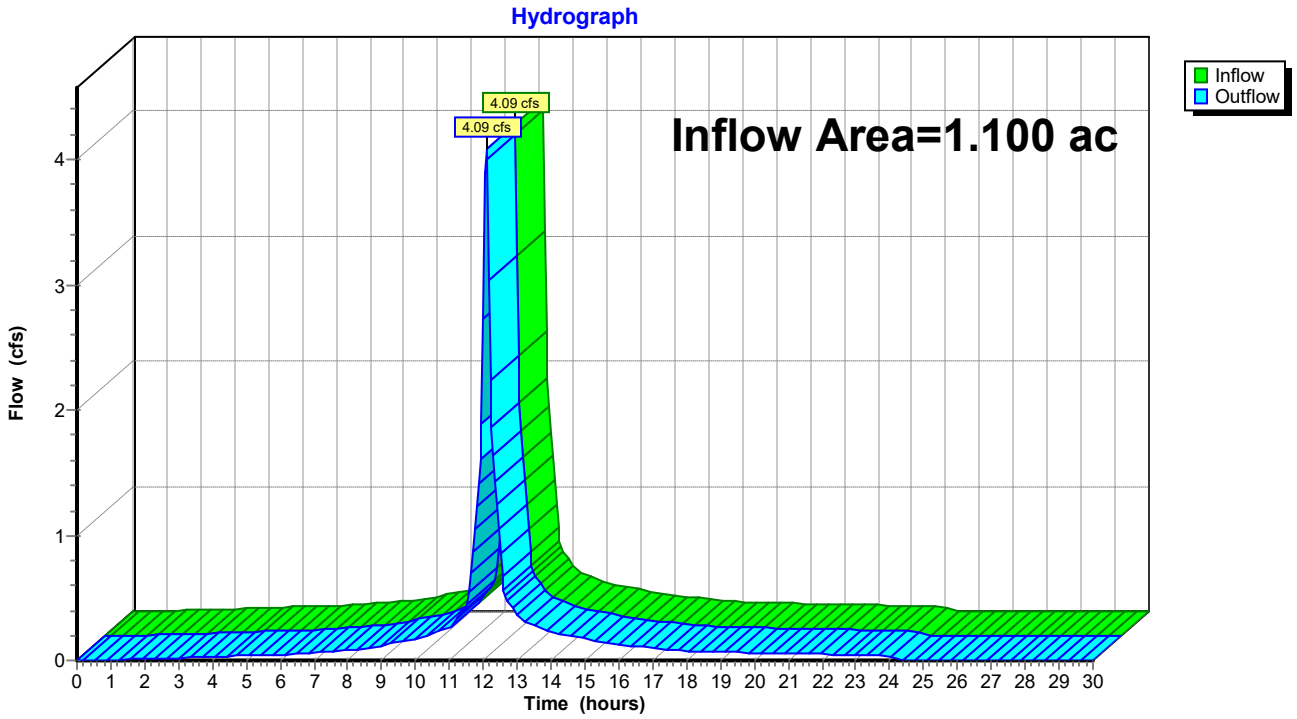


Summary for Reach DCBB: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 3.58" for 10-Year event
Inflow = 4.09 cfs @ 12.08 hrs, Volume= 0.328 af
Outflow = 4.09 cfs @ 12.08 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DCBB: DP#4



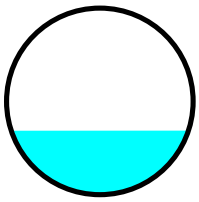
Summary for Reach DCBC: TO DCB-B

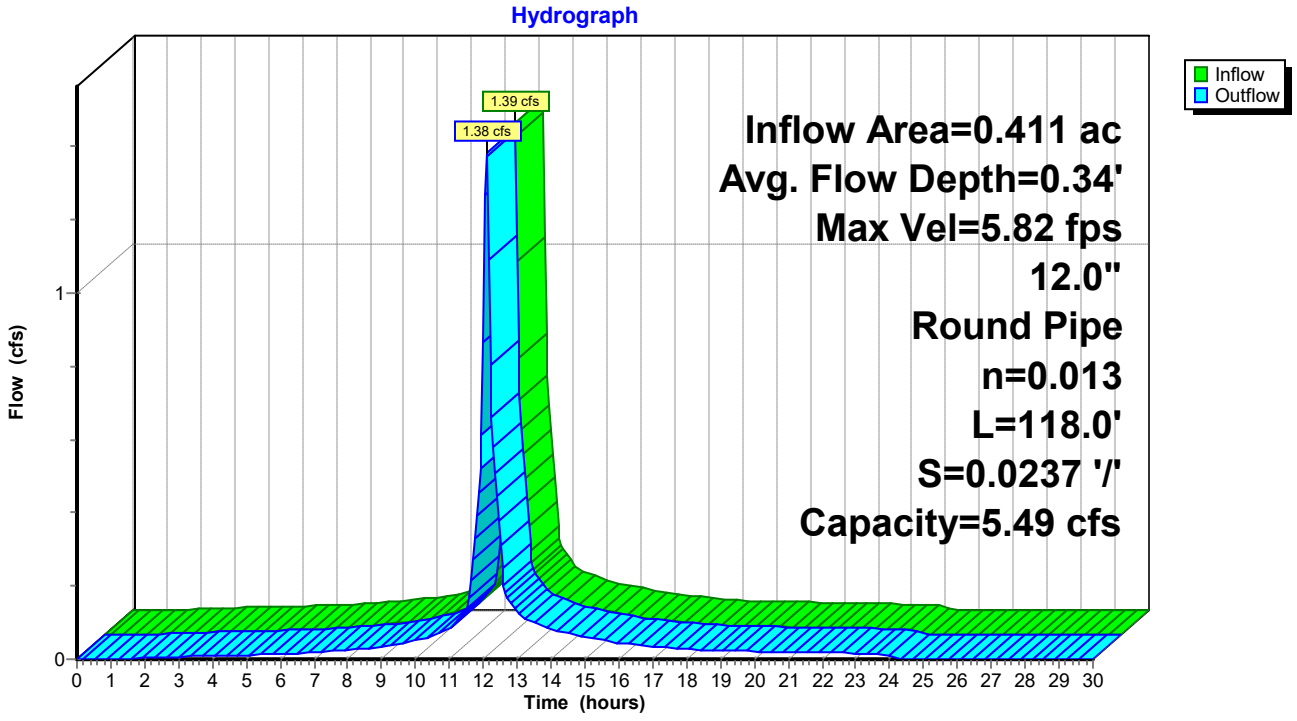
Inflow Area = 0.411 ac, 56.55% Impervious, Inflow Depth = 3.22" for 10-Year event
Inflow = 1.39 cfs @ 12.08 hrs, Volume= 0.110 af
Outflow = 1.38 cfs @ 12.09 hrs, Volume= 0.110 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.82 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.90 fps, Avg. Travel Time= 1.0 min

Peak Storage= 28 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.49 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 118.0' Slope= 0.0237 '/'
Inlet Invert= 1,048.10', Outlet Invert= 1,045.30'





Stage-Discharge for Reach DCBC: TO DCB-B

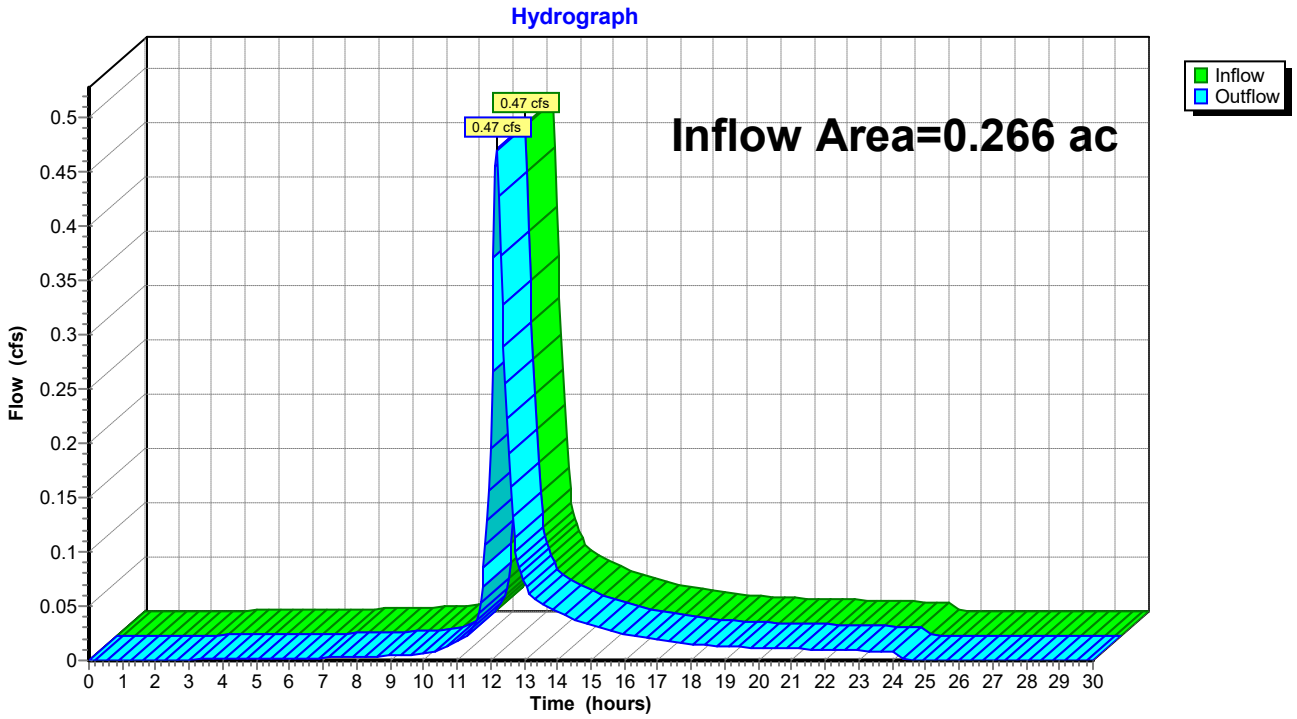
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,048.10	0.00	0.00
1,048.11	0.62	0.00
1,048.12	0.98	0.00
1,048.13	1.29	0.01
1,048.14	1.55	0.02
1,048.15	1.80	0.03
1,048.16	2.02	0.04
1,048.17	2.23	0.05
1,048.18	2.43	0.07
1,048.19	2.62	0.09
1,048.20	2.80	0.11
1,048.21	2.98	0.14
1,048.22	3.14	0.17
1,048.23	3.31	0.20
1,048.24	3.46	0.23
1,048.25	3.61	0.27
1,048.26	3.76	0.30
1,048.27	3.90	0.35
1,048.28	4.04	0.39
1,048.29	4.17	0.43
1,048.30	4.30	0.48
1,048.31	4.42	0.53
1,048.32	4.55	0.58
1,048.33	4.67	0.64
1,048.34	4.78	0.69
1,048.35	4.90	0.75
1,048.36	5.01	0.81
1,048.37	5.11	0.88
1,048.38	5.22	0.94
1,048.39	5.32	1.01
1,048.40	5.42	1.07
1,048.41	5.52	1.15
1,048.42	5.62	1.22
1,048.43	5.71	1.29
1,048.44	5.80	1.37
1,048.45	5.89	1.44
1,048.46	5.98	1.52
1,048.47	6.06	1.60
1,048.48	6.14	1.68
1,048.49	6.23	1.77
1,048.50	6.30	1.85
1,048.51	6.38	1.93
1,048.52	6.46	2.02
1,048.53	6.53	2.11
1,048.54	6.60	2.20
1,048.55	6.67	2.29
1,048.56	6.74	2.38
1,048.57	6.80	2.47
1,048.58	6.87	2.56
1,048.59	6.93	2.65
1,048.60	6.99	2.74
1,048.61	7.05	2.84
1,048.62	7.10	2.93
1,048.63	7.16	3.03
1,048.64	7.21	3.12
1,048.65	7.26	3.21
1,048.66	7.31	3.31
1,048.67	7.36	3.40
1,048.68	7.41	3.50
1,048.69	7.45	3.59
1,048.70	7.49	3.69
1,048.71	7.53	3.78
1,048.72	7.57	3.87
1,048.73	7.61	3.97
1,048.74	7.65	4.06
1,048.75	7.68	4.15
1,048.76	7.71	4.24
1,048.77	7.74	4.33
1,048.78	7.77	4.42
1,048.79	7.80	4.51
1,048.80	7.82	4.59
1,048.81	7.85	4.68
1,048.82	7.87	4.76
1,048.83	7.89	4.85
1,048.84	7.91	4.93
1,048.85	7.92	5.00
1,048.86	7.93	5.08
1,048.87	7.94	5.16
1,048.88	7.95	5.23
1,048.89	7.96	5.30
1,048.90	7.96	5.36
1,048.91	**7.97**	5.43
1,048.92	7.97	5.49
1,048.93	7.96	5.55
1,048.94	7.96	5.60
1,048.95	7.95	5.66
1,048.96	7.94	5.70
1,048.97	7.92	5.75
1,048.98	7.90	5.79
1,048.99	7.88	5.82
1,049.00	7.86	5.85
1,049.01	7.83	5.87
1,049.02	7.79	5.89
1,049.03	7.75	5.90
1,049.04	7.71	**5.90**
1,049.05	7.65	5.90
1,049.06	7.59	5.88
1,049.07	7.51	5.85
1,049.08	7.42	5.80
1,049.09	7.29	5.72
1,049.10	6.99	5.49

Summary for Reach DP#3: TO OFF SITE (NEED INVERTS)

Inflow Area = 0.266 ac, 10.99% Impervious, Inflow Depth = 2.01" for 10-Year event
Inflow = 0.47 cfs @ 12.19 hrs, Volume= 0.045 af
Outflow = 0.47 cfs @ 12.19 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP#3: TO OFF SITE (NEED INVERTS)



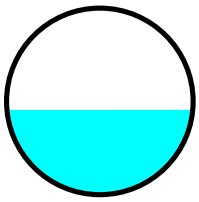
Summary for Reach DP1: CULVERT

Inflow Area = 5.012 ac, 61.18% Impervious, Inflow Depth = 3.31" for 10-Year event
Inflow = 14.57 cfs @ 12.16 hrs, Volume= 1.384 af
Outflow = 14.53 cfs @ 12.16 hrs, Volume= 1.384 af, Atten= 0%, Lag= 0.2 min

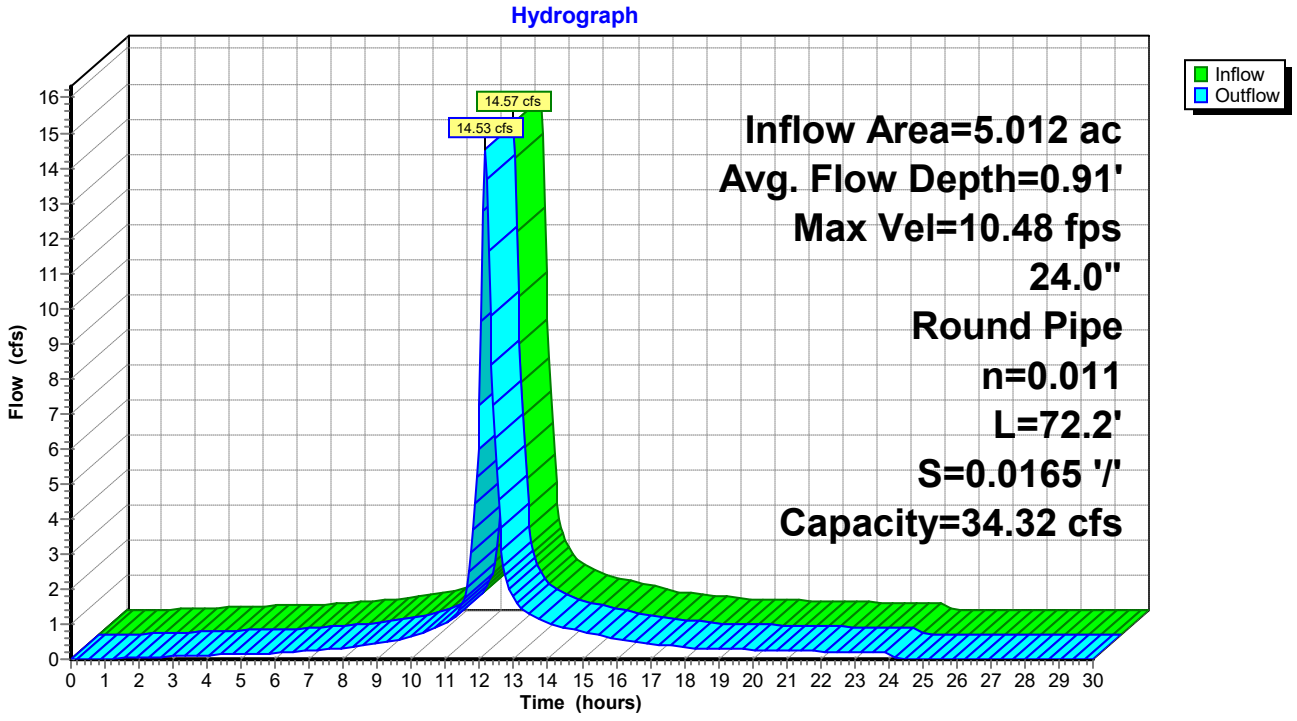
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.48 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.63 fps, Avg. Travel Time= 0.3 min

Peak Storage= 100 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.91'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 34.32 cfs

24.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 72.2' Slope= 0.0165 '/'
Inlet Invert= 1,049.69', Outlet Invert= 1,048.50'



Reach DP1: CULVERT



Stage-Discharge for Reach DP1: CULVERT

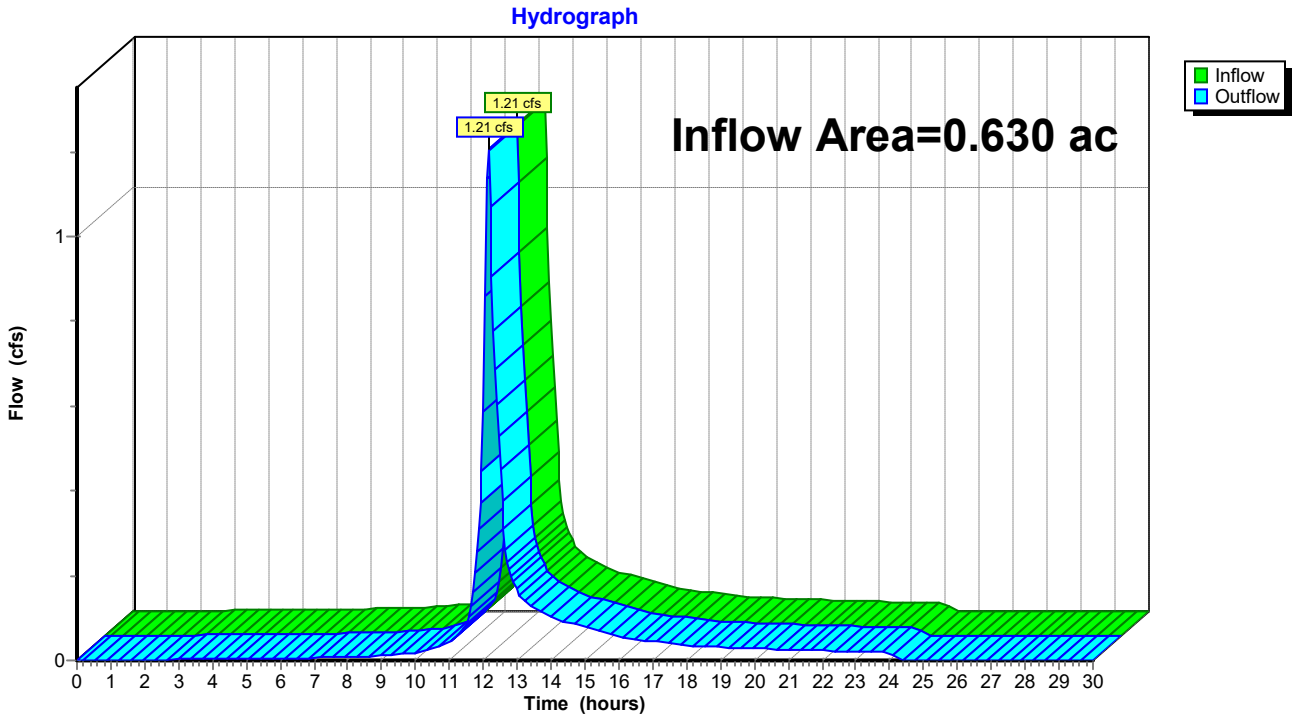
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,049.69	0.00	0.00
1,049.71	0.97	0.01
1,049.73	1.54	0.02
1,049.75	2.01	0.06
1,049.77	2.43	0.10
1,049.79	2.81	0.16
1,049.81	3.16	0.24
1,049.83	3.49	0.34
1,049.85	3.80	0.45
1,049.87	4.10	0.57
1,049.89	4.38	0.72
1,049.91	4.65	0.88
1,049.93	4.92	1.05
1,049.95	5.17	1.24
1,049.97	5.41	1.45
1,049.99	5.65	1.67
1,050.01	5.87	1.91
1,050.03	6.09	2.16
1,050.05	6.31	2.43
1,050.07	6.52	2.71
1,050.09	6.72	3.01
1,050.11	6.92	3.32
1,050.13	7.11	3.64
1,050.15	7.30	3.98
1,050.17	7.48	4.34
1,050.19	7.66	4.70
1,050.21	7.83	5.08
1,050.23	8.00	5.47
1,050.25	8.16	5.88
1,050.27	8.32	6.29
1,050.29	8.48	6.72
1,050.31	8.63	7.16
1,050.33	8.78	7.61
1,050.35	8.93	8.07
1,050.37	9.07	8.54
1,050.39	9.21	9.03
1,050.41	9.35	9.52
1,050.43	9.48	10.02
1,050.45	9.61	10.52
1,050.47	9.73	11.04
1,050.49	9.86	11.57
1,050.51	9.98	12.10
1,050.53	10.09	12.64
1,050.55	10.21	13.19
1,050.57	10.32	13.74
1,050.59	10.43	14.30
1,050.61	10.53	14.86
1,050.63	10.63	15.43
1,050.65	10.73	16.00
1,050.67	10.83	16.58
1,050.69	10.93	17.16
1,050.71	11.02	17.75
1,050.73	11.11	18.33
1,050.75	11.19	18.92
1,050.77	11.27	19.51
1,050.79	11.36	20.10
1,050.81	11.43	20.70
1,050.83	11.51	21.29
1,050.85	11.58	21.88
1,050.87	11.65	22.47
1,050.89	11.72	23.06
1,050.91	11.78	23.65
1,050.93	11.84	24.23
1,050.95	11.90	24.81
1,050.97	11.96	25.39
1,050.99	12.01	25.96
1,051.01	12.06	26.53
1,051.03	12.11	27.09
1,051.05	12.15	27.65
1,051.07	12.20	28.20
1,051.09	12.23	28.74
1,051.11	12.27	29.27
1,051.13	12.30	29.79
1,051.15	12.33	30.31
1,051.17	12.36	30.81
1,051.19	12.38	31.30
1,051.21	12.40	31.78
1,051.23	12.42	32.24
1,051.25	12.44	32.69
1,051.27	12.45	33.13
1,051.29	12.45	33.55
1,051.31	**12.46**	33.95
1,051.33	12.45	34.34
1,051.35	12.45	34.70
1,051.37	12.44	35.05
1,051.39	12.43	35.37
1,051.41	12.41	35.67
1,051.43	12.39	35.94
1,051.45	12.36	36.18
1,051.47	12.32	36.40
1,051.49	12.28	36.58
1,051.51	12.24	36.73
1,051.53	12.18	36.84
1,051.55	12.12	36.90
1,051.57	12.05	**36.92**
1,051.59	11.96	36.88
1,051.61	11.86	36.77
1,051.63	11.75	36.58
1,051.65	11.60	36.27
1,051.67	11.40	35.76
1,051.69	10.93	34.32

Summary for Reach DP2: Culvert

Inflow Area = 0.630 ac, 12.33% Impervious, Inflow Depth = 2.04" for 10-Year event
Inflow = 1.21 cfs @ 12.14 hrs, Volume= 0.107 af
Outflow = 1.21 cfs @ 12.14 hrs, Volume= 0.107 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: Culvert

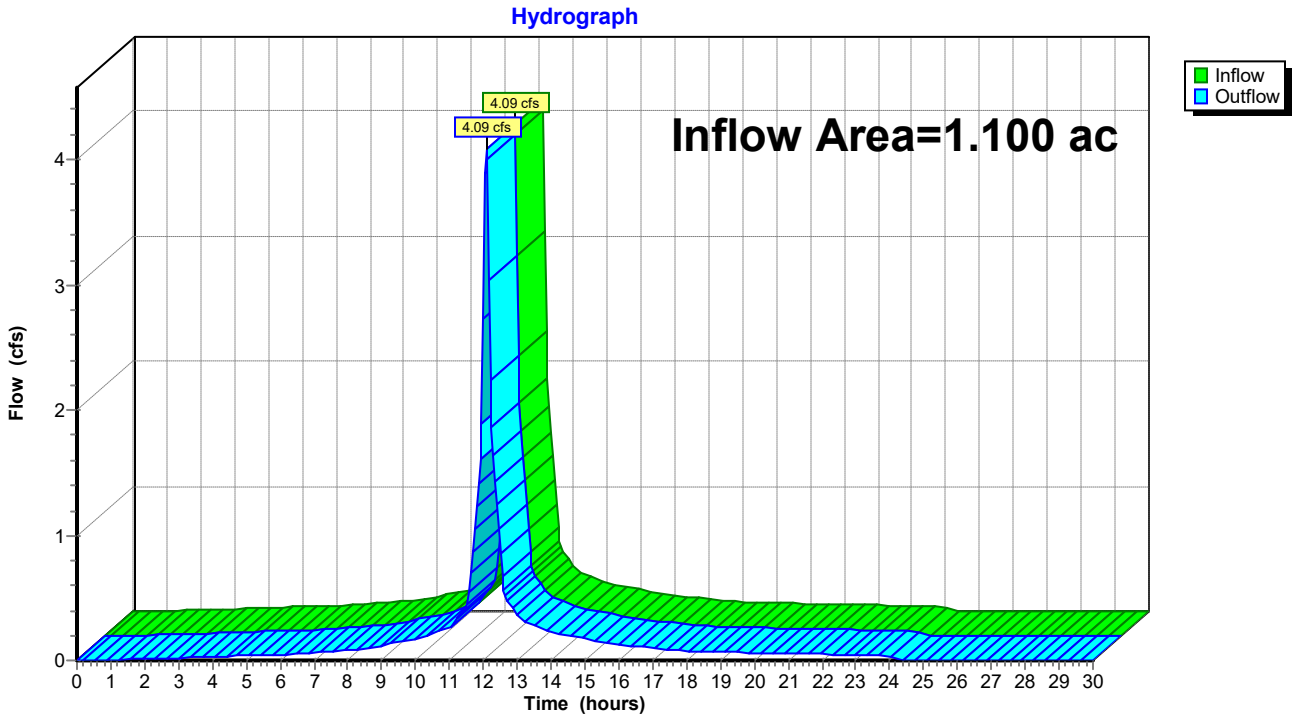


Summary for Reach DP4: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 3.58" for 10-Year event
Inflow = 4.09 cfs @ 12.08 hrs, Volume= 0.328 af
Outflow = 4.09 cfs @ 12.08 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP4: DP#4

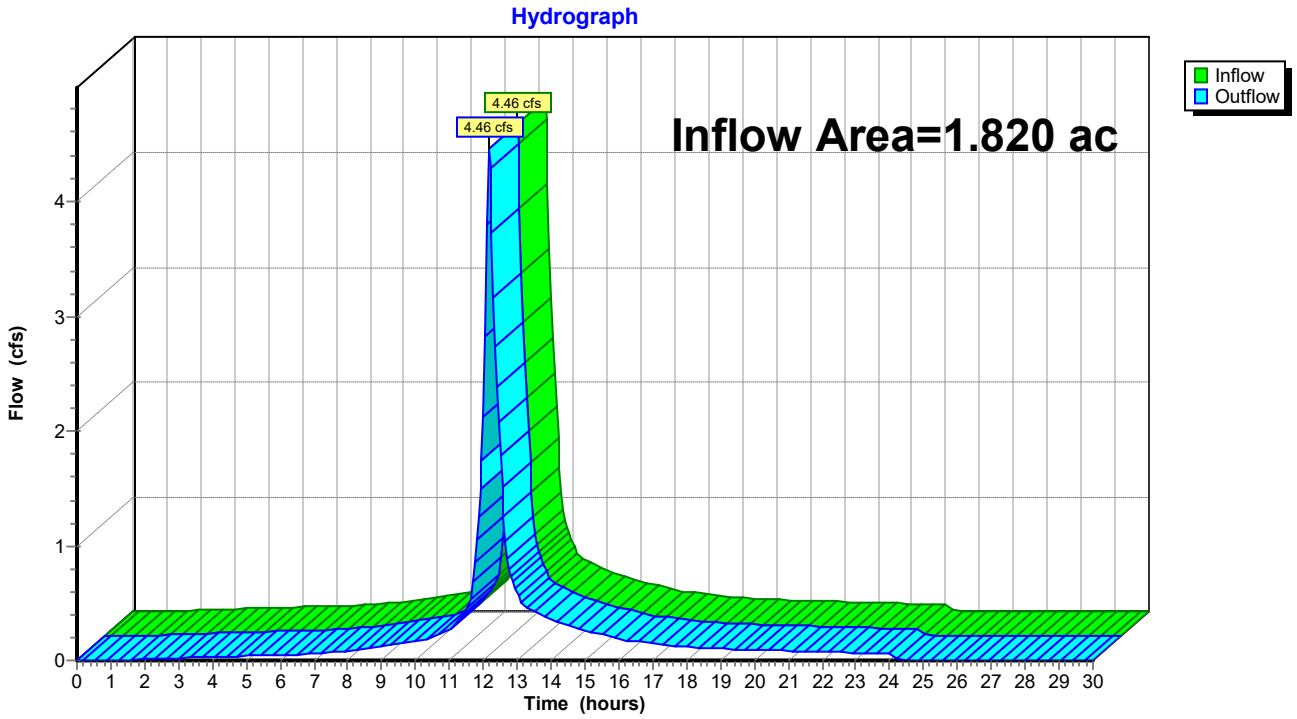


Summary for Reach FEA: TO CULVERT

Inflow Area = 1.820 ac, 43.35% Impervious, Inflow Depth = 2.82" for 10-Year event
Inflow = 4.46 cfs @ 12.17 hrs, Volume= 0.427 af
Outflow = 4.46 cfs @ 12.17 hrs, Volume= 0.427 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach FEA: TO CULVERT



Summary for Pond CULVERT#3: TO E12

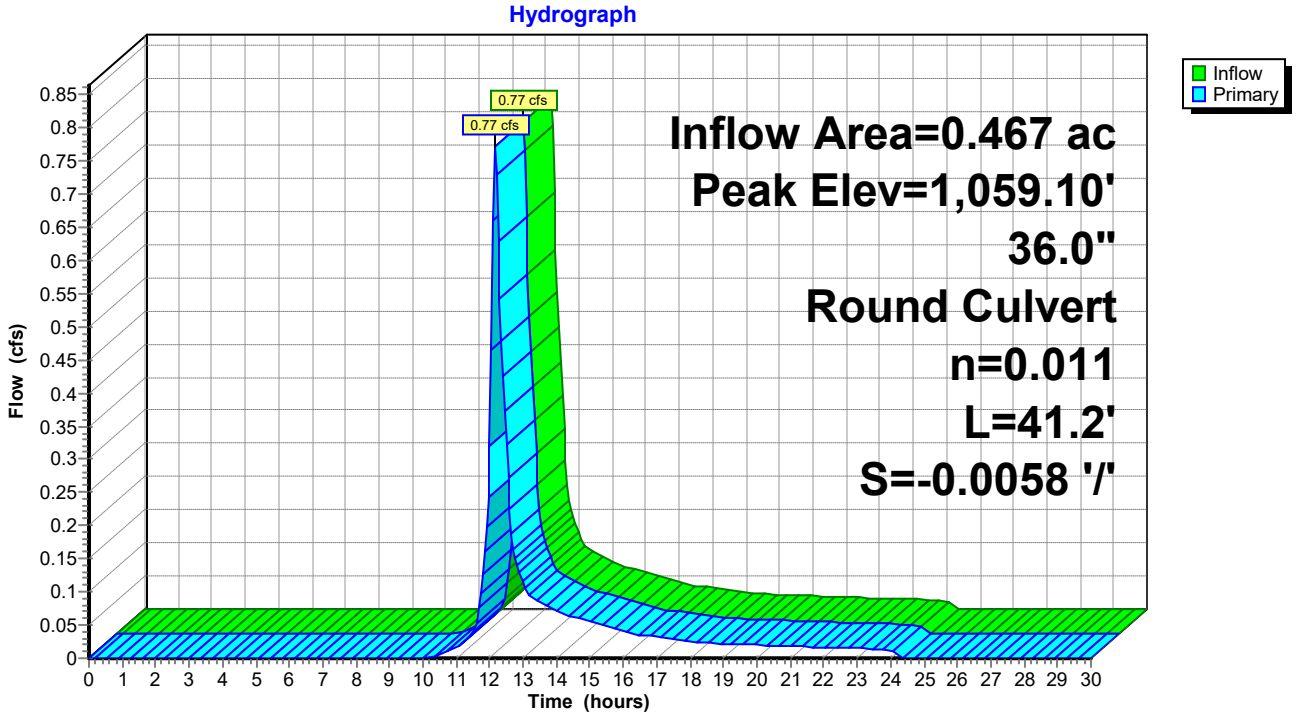
Inflow Area = 0.467 ac, 0.00% Impervious, Inflow Depth = 1.72" for 10-Year event
Inflow = 0.77 cfs @ 12.16 hrs, Volume= 0.067 af
Outflow = 0.77 cfs @ 12.16 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min
Primary = 0.77 cfs @ 12.16 hrs, Volume= 0.067 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,059.10' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,058.78'	**36.0" Round Culvert#3** L= 41.2' Ke= 0.500 Inlet / Outlet Invert= 1,058.54' / 1,058.78' S= -0.0058 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=0.76 cfs @ 12.16 hrs HW=1,059.10' (Free Discharge)
1=Culvert#3 (Inlet Controls 0.76 cfs @ 1.91 fps)

Pond CULVERT#3: TO E12



Stage-Discharge for Pond CULVERT#3: TO E12

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,058.78	0.00	1,059.82	6.54	1,060.86	19.98
1,058.80	0.00	1,059.84	6.74	1,060.88	20.28
1,058.82	0.01	1,059.86	6.95	1,060.90	20.59
1,058.84	0.03	1,059.88	7.16	1,060.92	20.89
1,058.86	0.05	1,059.90	7.37	1,060.94	21.20
1,058.88	0.08	1,059.92	7.58	1,060.96	21.50
1,058.90	0.11	1,059.94	7.80	1,060.98	21.81
1,058.92	0.15	1,059.96	8.02	1,061.00	22.12
1,058.94	0.20	1,059.98	8.24	1,061.02	22.43
1,058.96	0.25	1,060.00	8.46	1,061.04	22.74
1,058.98	0.31	1,060.02	8.69	1,061.06	23.05
1,059.00	0.37	1,060.04	8.92	1,061.08	23.36
1,059.02	0.44	1,060.06	9.15	1,061.10	23.67
1,059.04	0.52	1,060.08	9.38	1,061.12	23.99
1,059.06	0.60	1,060.10	9.62	1,061.14	24.30
1,059.08	0.69	1,060.12	9.85	1,061.16	24.61
1,059.10	0.78	1,060.14	10.09	1,061.18	24.93
1,059.12	0.88	1,060.16	10.33	1,061.20	25.24
1,059.14	0.98	1,060.18	10.58	1,061.22	25.56
1,059.16	1.09	1,060.20	10.82	1,061.24	25.87
1,059.18	1.21	1,060.22	11.07	1,061.26	26.19
1,059.20	1.33	1,060.24	11.32	1,061.28	26.50
1,059.22	1.45	1,060.26	11.58	1,061.30	26.82
1,059.24	1.59	1,060.28	11.83	1,061.32	27.14
1,059.26	1.72	1,060.30	12.09	1,061.34	27.45
1,059.28	1.86	1,060.32	12.35	1,061.36	27.77
1,059.30	2.01	1,060.34	12.61	1,061.38	28.09
1,059.32	2.16	1,060.36	12.87	1,061.40	28.40
1,059.34	2.32	1,060.38	13.14	1,061.42	28.72
1,059.36	2.49	1,060.40	13.40	1,061.44	29.04
1,059.38	2.65	1,060.42	13.67	1,061.46	29.35
1,059.40	2.83	1,060.44	13.94	1,061.48	29.67
1,059.42	3.01	1,060.46	14.21	1,061.50	29.98
1,059.44	3.19	1,060.48	14.49	1,061.52	30.30
1,059.46	3.36	1,060.50	14.76	1,061.54	30.61
1,059.48	3.51	1,060.52	15.04	1,061.56	30.93
1,059.50	3.67	1,060.54	15.32	1,061.58	31.24
1,059.52	3.82	1,060.56	15.60	1,061.60	31.55
1,059.54	3.99	1,060.58	15.88	1,061.62	31.87
1,059.56	4.15	1,060.60	16.16	1,061.64	32.18
1,059.58	4.32	1,060.62	16.45	1,061.66	32.49
1,059.60	4.49	1,060.64	16.74	1,061.68	32.80
1,059.62	4.66	1,060.66	17.03	1,061.70	33.11
1,059.64	4.83	1,060.68	17.31	1,061.72	33.42
1,059.66	5.01	1,060.70	17.61	1,061.74	33.72
1,059.68	5.19	1,060.72	17.90	1,061.76	34.03
1,059.70	5.38	1,060.74	18.19	1,061.78	**34.33**
1,059.72	5.57	1,060.76	18.49		
1,059.74	5.76	1,060.78	18.78		
1,059.76	5.95	1,060.80	19.08		
1,059.78	6.14	1,060.82	19.38		
1,059.80	6.34	1,060.84	19.68		

Summary for Pond DCBA: TO DCB-B

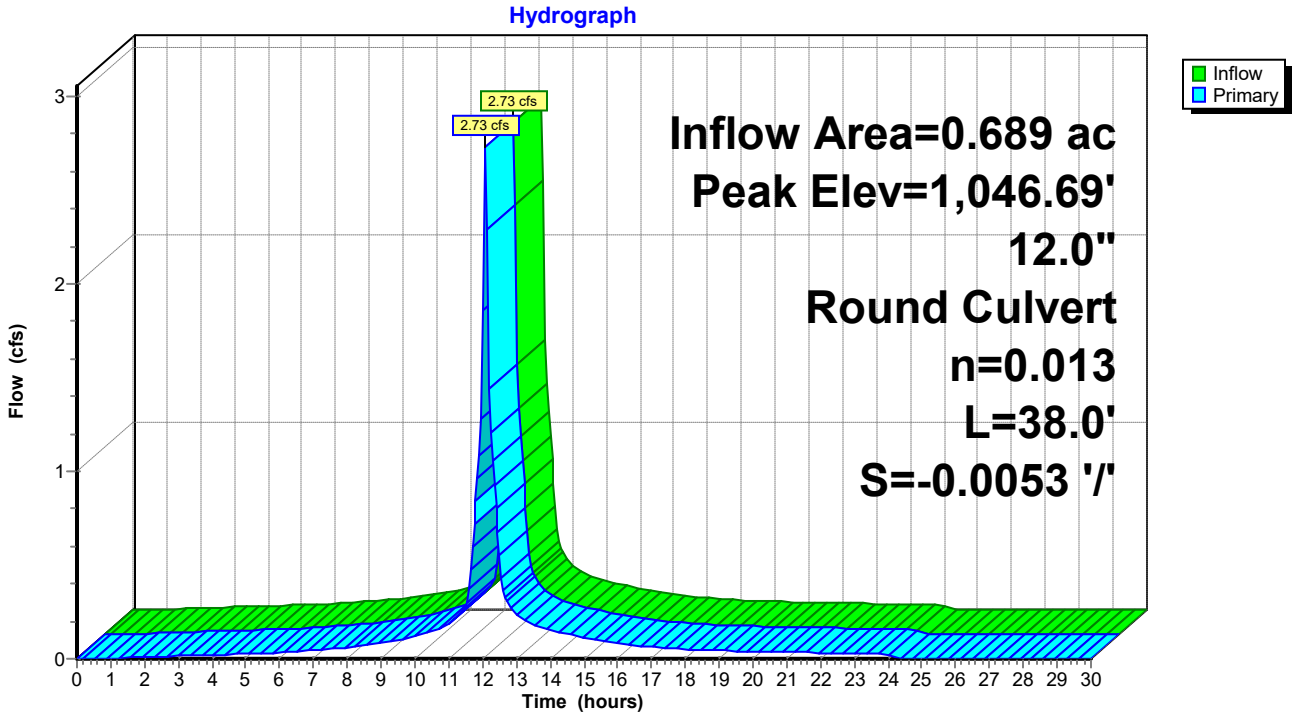
Inflow Area = 0.689 ac, 76.16% Impervious, Inflow Depth = 3.79" for 10-Year event
Inflow = 2.73 cfs @ 12.07 hrs, Volume= 0.218 af
Outflow = 2.73 cfs @ 12.07 hrs, Volume= 0.218 af, Atten= 0%, Lag= 0.0 min
Primary = 2.73 cfs @ 12.07 hrs, Volume= 0.218 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,046.69' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,045.30'	**12.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,045.10' / 1,045.30' S= -0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.63 cfs @ 12.07 hrs HW=1,046.64' (Free Discharge)
1=Culvert (Barrel Controls 2.63 cfs @ 3.35 fps)

Pond DCBA: TO DCB-B



Stage-Discharge for Pond DCBA: TO DCB-B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,045.30	0.00	1,045.82	0.80	1,046.34	2.01
1,045.31	0.00	1,045.83	0.83	1,046.35	2.02
1,045.32	0.00	1,045.84	0.85	1,046.36	2.04
1,045.33	0.00	1,045.85	0.88	1,046.37	2.05
1,045.34	0.01	1,045.86	0.91	1,046.38	2.06
1,045.35	0.01	1,045.87	0.94	1,046.39	2.07
1,045.36	0.01	1,045.88	0.97	1,046.40	2.08
1,045.37	0.02	1,045.89	1.00	1,046.41	2.09
1,045.38	0.02	1,045.90	1.02	1,046.42	2.09
1,045.39	0.03	1,045.91	1.05	1,046.43	2.08
1,045.40	0.03	1,045.92	1.08	1,046.44	2.09
1,045.41	0.04	1,045.93	1.10	1,046.45	2.12
1,045.42	0.05	1,045.94	1.12	1,046.46	2.15
1,045.43	0.06	1,045.95	1.15	1,046.47	2.18
1,045.44	0.07	1,045.96	1.17	1,046.48	2.21
1,045.45	0.08	1,045.97	1.20	1,046.49	2.24
1,045.46	0.09	1,045.98	1.22	1,046.50	2.27
1,045.47	0.10	1,045.99	1.24	1,046.51	2.29
1,045.48	0.11	1,046.00	1.27	1,046.52	2.32
1,045.49	0.12	1,046.01	1.29	1,046.53	2.35
1,045.50	0.13	1,046.02	1.32	1,046.54	2.38
1,045.51	0.15	1,046.03	1.34	1,046.55	2.40
1,045.52	0.16	1,046.04	1.36	1,046.56	2.43
1,045.53	0.18	1,046.05	1.39	1,046.57	2.46
1,045.54	0.19	1,046.06	1.41	1,046.58	2.48
1,045.55	0.21	1,046.07	1.44	1,046.59	2.51
1,045.56	0.22	1,046.08	1.46	1,046.60	2.53
1,045.57	0.24	1,046.09	1.48	1,046.61	2.56
1,045.58	0.26	1,046.10	1.51	1,046.62	2.58
1,045.59	0.27	1,046.11	1.53	1,046.63	2.61
1,045.60	0.29	1,046.12	1.55	1,046.64	**2.63**
1,045.61	0.31	1,046.13	1.58		
1,045.62	0.33	1,046.14	1.60		
1,045.63	0.35	1,046.15	1.62		
1,045.64	0.37	1,046.16	1.65		
1,045.65	0.39	1,046.17	1.67		
1,045.66	0.41	1,046.18	1.69		
1,045.67	0.43	1,046.19	1.72		
1,045.68	0.45	1,046.20	1.74		
1,045.69	0.48	1,046.21	1.76		
1,045.70	0.50	1,046.22	1.78		
1,045.71	0.52	1,046.23	1.80		
1,045.72	0.55	1,046.24	1.82		
1,045.73	0.57	1,046.25	1.84		
1,045.74	0.59	1,046.26	1.86		
1,045.75	0.62	1,046.27	1.88		
1,045.76	0.64	1,046.28	1.90		
1,045.77	0.67	1,046.29	1.92		
1,045.78	0.69	1,046.30	1.94		
1,045.79	0.72	1,046.31	1.96		
1,045.80	0.75	1,046.32	1.98		
1,045.81	0.77	1,046.33	1.99		

Summary for Pond DCBD: TO DMH-A

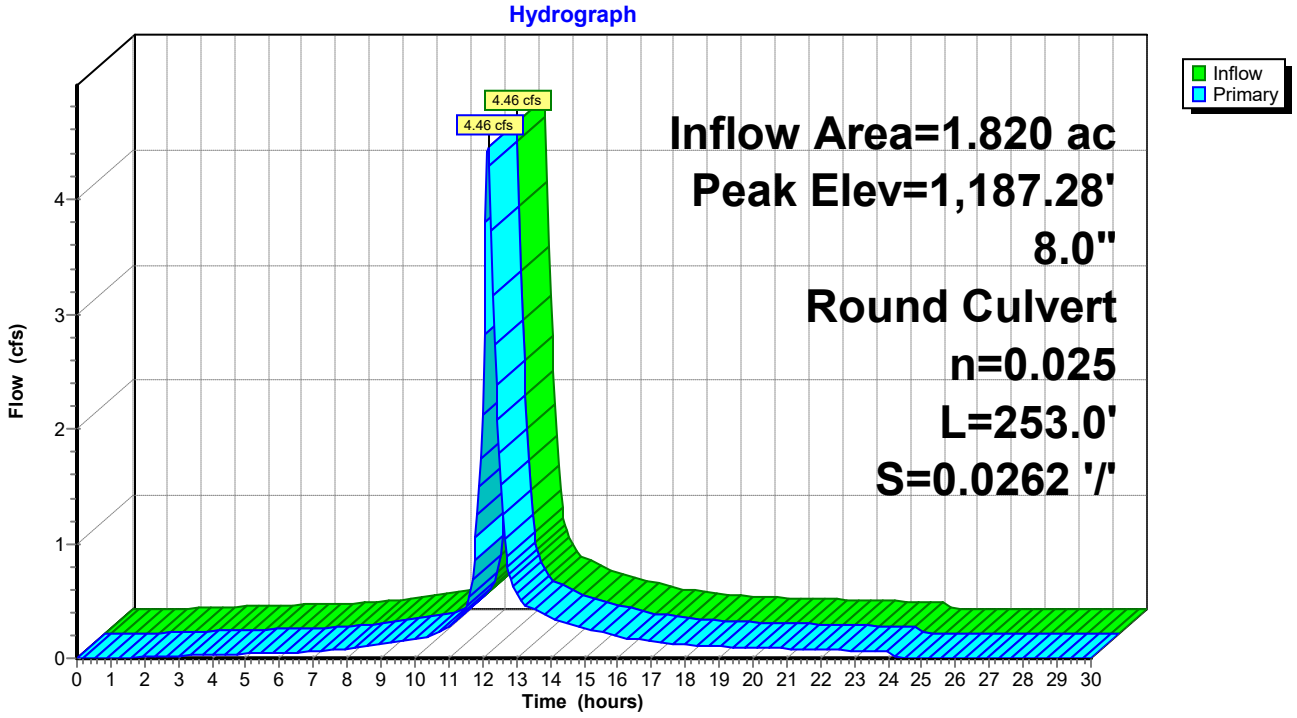
Inflow Area = 1.820 ac, 43.35% Impervious, Inflow Depth = 2.82" for 10-Year event
Inflow = 4.46 cfs @ 12.17 hrs, Volume= 0.427 af
Outflow = 4.46 cfs @ 12.17 hrs, Volume= 0.427 af, Atten= 0%, Lag= 0.0 min
Primary = 4.46 cfs @ 12.17 hrs, Volume= 0.427 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,187.28' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,061.80'	**8.0" Round Culvert** L= 253.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 1,061.80' / 1,055.17' S= 0.0262 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.35 sf

Primary OutFlow Max=4.38 cfs @ 12.17 hrs HW=1,182.74' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 4.38 cfs @ 12.54 fps)

Pond DCBD: TO DMH-A



Stage-Discharge for Pond DCBD: TO DMH-A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,061.80	0.00	1,126.80	3.27
1,063.05	1.04	1,128.05	3.30
1,064.30	1.13	1,129.30	3.33
1,065.55	1.21	1,130.55	3.36
1,066.80	1.29	1,131.80	3.39
1,068.05	1.36	1,133.05	3.42
1,069.30	1.43	1,134.30	3.44
1,070.55	1.49	1,135.55	3.47
1,071.80	1.55	1,136.80	3.50
1,073.05	1.61	1,138.05	3.52
1,074.30	1.67	1,139.30	3.55
1,075.55	1.73	1,140.55	3.58
1,076.80	1.78	1,141.80	3.60
1,078.05	1.83	1,143.05	3.63
1,079.30	1.88	1,144.30	3.66
1,080.55	1.93	1,145.55	3.68
1,081.80	1.98	1,146.80	3.71
1,083.05	2.03	1,148.05	3.73
1,084.30	2.07	1,149.30	3.76
1,085.55	2.12	1,150.55	3.78
1,086.80	2.16	1,151.80	3.81
1,088.05	2.21	1,153.05	3.83
1,089.30	2.25	1,154.30	3.86
1,090.55	2.29	1,155.55	3.88
1,091.80	2.33	1,156.80	3.91
1,093.05	2.37	1,158.05	3.93
1,094.30	2.41	1,159.30	3.95
1,095.55	2.45	1,160.55	3.98
1,096.80	2.49	1,161.80	4.00
1,098.05	2.53	1,163.05	4.02
1,099.30	2.56	1,164.30	4.05
1,100.55	2.60	1,165.55	4.07
1,101.80	2.64	1,166.80	4.09
1,103.05	2.67	1,168.05	4.12
1,104.30	2.71	1,169.30	4.14
1,105.55	2.74	1,170.55	4.16
1,106.80	2.77	1,171.80	4.19
1,108.05	2.81	1,173.05	4.21
1,109.30	2.84	1,174.30	4.23
1,110.55	2.88	1,175.55	4.25
1,111.80	2.91	1,176.80	4.28
1,113.05	2.94	1,178.05	4.30
1,114.30	2.97	1,179.30	4.32
1,115.55	3.00	1,180.55	4.34
1,116.80	3.03	1,181.80	4.36
1,118.05	3.07	1,183.05	4.38
1,119.30	3.10	1,184.30	**4.41**
1,120.55	3.13		
1,121.80	3.16		
1,123.05	3.19		
1,124.30	3.22		
1,125.55	3.25		

Summary for Pond DMHA: TO FE-A

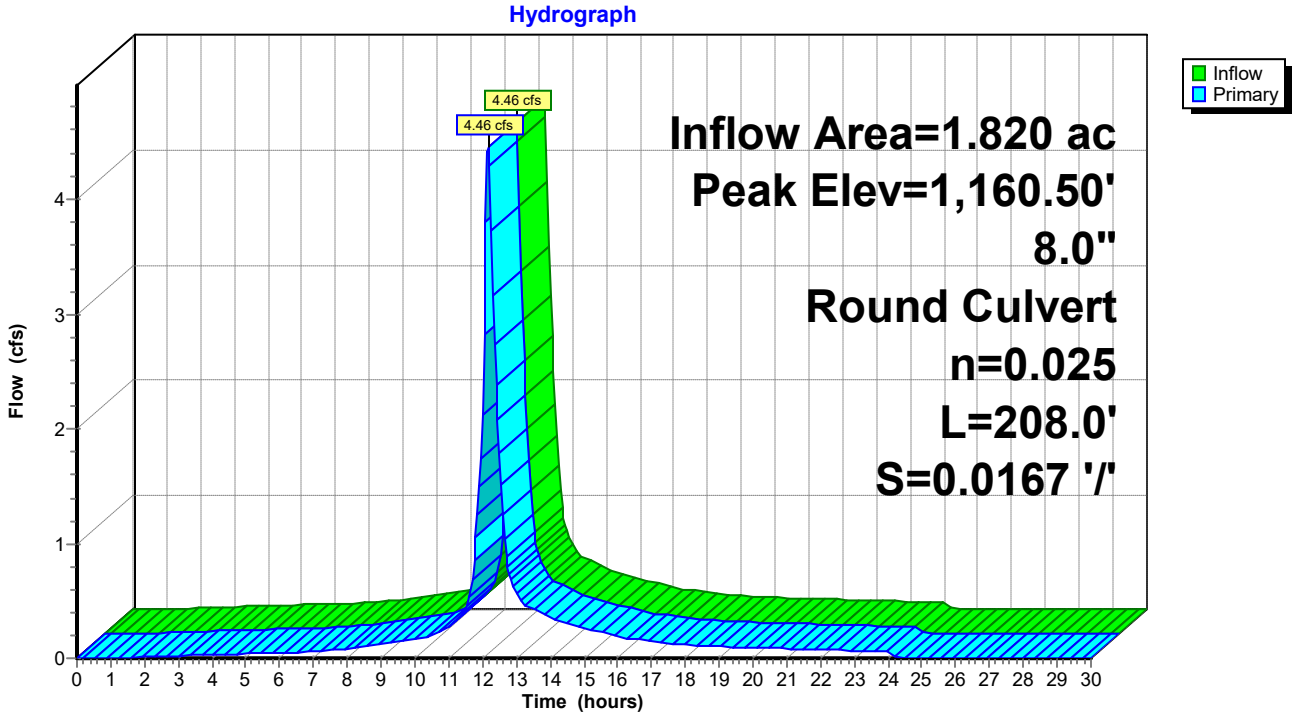
Inflow Area = 1.820 ac, 43.35% Impervious, Inflow Depth = 2.82" for 10-Year event
Inflow = 4.46 cfs @ 12.17 hrs, Volume= 0.427 af
Outflow = 4.46 cfs @ 12.17 hrs, Volume= 0.427 af, Atten= 0%, Lag= 0.0 min
Primary = 4.46 cfs @ 12.17 hrs, Volume= 0.427 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,160.50' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,054.57'	**8.0" Round Culvert** L= 208.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 1,054.57' / 1,051.10' S= 0.0167 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.35 sf

Primary OutFlow Max=4.38 cfs @ 12.17 hrs HW=1,156.75' (Free Discharge)
1=Culvert (Barrel Controls 4.38 cfs @ 12.54 fps)

Pond DMHA: TO FE-A



Stage-Discharge for Pond DMHA: TO FE-A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,054.57	0.00	1,109.17	3.24
1,055.62	0.84	1,110.22	3.27
1,056.67	0.95	1,111.27	3.30
1,057.72	1.04	1,112.32	3.33
1,058.77	1.13	1,113.37	3.35
1,059.82	1.21	1,114.42	3.38
1,060.87	1.29	1,115.47	3.41
1,061.92	1.36	1,116.52	3.44
1,062.97	1.43	1,117.57	3.47
1,064.02	1.50	1,118.62	3.49
1,065.07	1.56	1,119.67	3.52
1,066.12	1.62	1,120.72	3.55
1,067.17	1.68	1,121.77	3.58
1,068.22	1.73	1,122.82	3.60
1,069.27	1.79	1,123.87	3.63
1,070.32	1.84	1,124.92	3.66
1,071.37	1.89	1,125.97	3.68
1,072.42	1.94	1,127.02	3.71
1,073.47	1.99	1,128.07	3.73
1,074.52	2.04	1,129.12	3.76
1,075.57	2.09	1,130.17	3.78
1,076.62	2.13	1,131.22	3.81
1,077.67	2.18	1,132.27	3.83
1,078.72	2.22	1,133.32	3.86
1,079.77	2.26	1,134.37	3.88
1,080.82	2.30	1,135.42	3.91
1,081.87	2.34	1,136.47	3.93
1,082.92	2.39	1,137.52	3.96
1,083.97	2.43	1,138.57	3.98
1,085.02	2.46	1,139.62	4.01
1,086.07	2.50	1,140.67	4.03
1,087.12	2.54	1,141.72	4.05
1,088.17	2.58	1,142.77	4.08
1,089.22	2.62	1,143.82	4.10
1,090.27	2.65	1,144.87	4.12
1,091.32	2.69	1,145.92	4.15
1,092.37	2.72	1,146.97	4.17
1,093.42	2.76	1,148.02	4.19
1,094.47	2.79	1,149.07	4.22
1,095.52	2.83	1,150.12	4.24
1,096.57	2.86	1,151.17	4.26
1,097.62	2.89	1,152.22	4.28
1,098.67	2.93	1,153.27	4.31
1,099.72	2.96	1,154.32	4.33
1,100.77	2.99	1,155.37	4.35
1,101.82	3.02	1,156.42	4.37
1,102.87	3.06	1,157.47	4.39
1,103.92	3.09	1,158.52	**4.42**
1,104.97	3.12		
1,106.02	3.15		
1,107.07	3.18		
1,108.12	3.21		

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E10: OVERLAND TO Runoff Area=139,035 sf 71.35% Impervious Runoff Depth=4.35"
Flow Length=788' Tc=11.1 min CN=WQ Runoff=12.23 cfs 1.156 af

Subcatchment E11: TO DCB-D Runoff Area=79,267 sf 43.35% Impervious Runoff Depth=3.50"
Flow Length=307' Tc=12.1 min CN=WQ Runoff=5.58 cfs 0.530 af

Subcatchment E12: (CULVERT) Runoff Area=7,096 sf 47.67% Impervious Runoff Depth=3.65"
Flow Length=91' Tc=7.6 min CN=WQ Runoff=0.60 cfs 0.050 af

Subcatchment E13: TO CULVERT Runoff Area=20,345 sf 0.00% Impervious Runoff Depth=2.32"
Flow Length=380' Tc=10.9 min CN=WQ Runoff=1.06 cfs 0.090 af

Subcatchment E14: TO DCB-A Runoff Area=30,009 sf 76.16% Impervious Runoff Depth=4.56"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=3.27 cfs 0.262 af

Subcatchment E15: TO DCB-C Runoff Area=17,919 sf 56.55% Impervious Runoff Depth=3.94"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=1.71 cfs 0.135 af

Subcatchment E31: TO DP#3 (CULVERT) Runoff Area=11,601 sf 10.99% Impervious Runoff Depth=2.63"
Flow Length=129' Slope=0.0400 '/' Tc=13.0 min CN=WQ Runoff=0.63 cfs 0.058 af

Reach DCBB: DP#4 Inflow=4.93 cfs 0.397 af
Outflow=4.93 cfs 0.397 af

Reach DCBC: TO DCB-B Avg. Flow Depth=0.38' Max Vel=6.15 fps Inflow=1.71 cfs 0.135 af
12.0" Round Pipe n=0.013 L=118.0' S=0.0237 '/' Capacity=5.49 cfs Outflow=1.69 cfs 0.135 af

Reach DP#3: TO OFF SITE (NEED INVERTS) Inflow=0.63 cfs 0.058 af
Outflow=0.63 cfs 0.058 af

Reach DP1: CULVERT Avg. Flow Depth=1.02' Max Vel=11.02 fps Inflow=17.78 cfs 1.687 af
24.0" Round Pipe n=0.011 L=72.2' S=0.0165 '/' Capacity=34.32 cfs Outflow=17.73 cfs 1.687 af

Reach DP2: Culvert Inflow=1.60 cfs 0.140 af
Outflow=1.60 cfs 0.140 af

Reach DP4: DP#4 Inflow=4.93 cfs 0.397 af
Outflow=4.93 cfs 0.397 af

Reach FEA: TO CULVERT Inflow=5.58 cfs 0.530 af
Outflow=5.58 cfs 0.530 af

Pond CULVERT#3: TO E12 Peak Elev=1,059.15' Inflow=1.06 cfs 0.090 af
36.0" Round Culvert n=0.011 L=41.2' S=-0.0058 '/' Outflow=1.06 cfs 0.090 af

Pond DCBA: TO DCB-B Peak Elev=1,046.97' Inflow=3.27 cfs 0.262 af
12.0" Round Culvert n=0.013 L=38.0' S=-0.0053 '/' Outflow=3.27 cfs 0.262 af

Pond DCBD: TO DMH-A Peak Elev=1,261.36' Inflow=5.58 cfs 0.530 af
8.0" Round Culvert n=0.025 L=253.0' S=0.0262 '/' Outflow=5.58 cfs 0.530 af

Pond DMHA: TO FE-A Peak Elev=1,221.79' Inflow=5.58 cfs 0.530 af
8.0" Round Culvert n=0.025 L=208.0' S=0.0167 '/' Outflow=5.58 cfs 0.530 af

Total Runoff Area = 7.008 ac Runoff Volume = 2.282 af Average Runoff Depth = 3.91"
43.91% Pervious = 3.078 ac 56.09% Impervious = 3.931 ac

Summary for Subcatchment E10: OVERLAND TO CULVERT

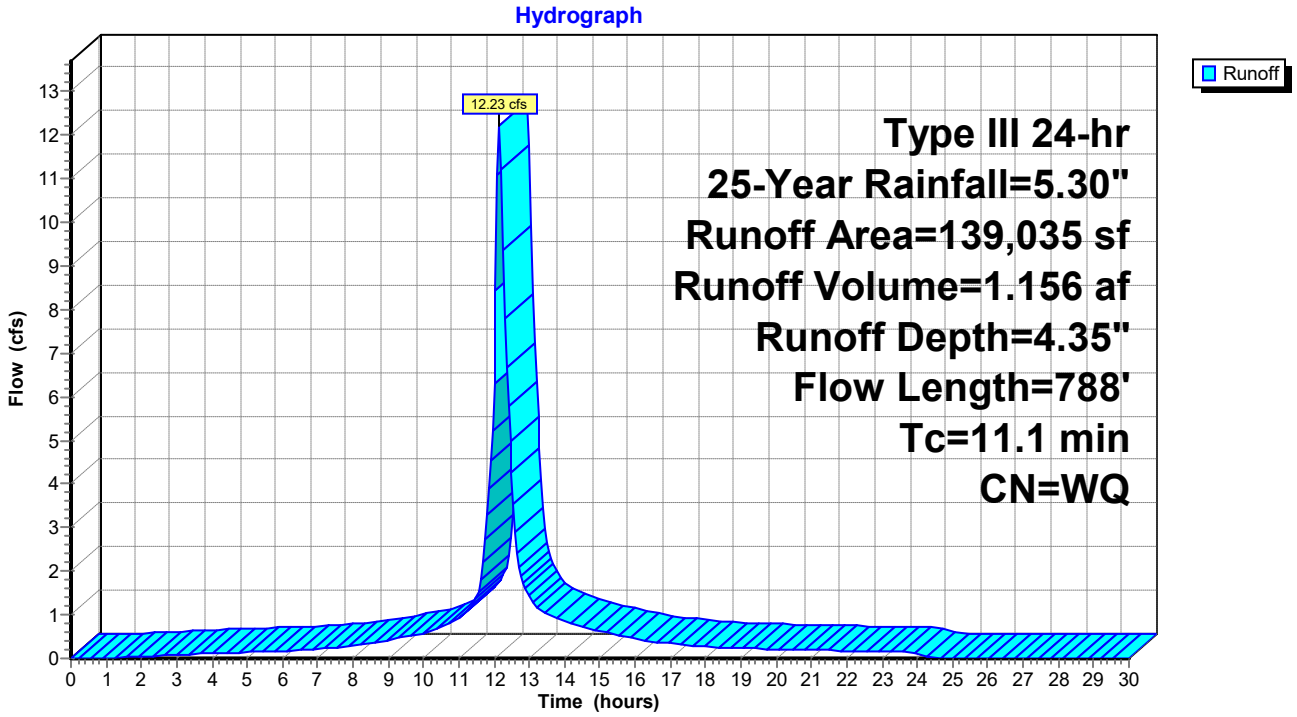
Runoff = 12.23 cfs @ 12.15 hrs, Volume= 1.156 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
31,437	74	>75% Grass cover, Good, HSG C
7,879	70	Woods, Good, HSG C
99,207	98	Paved parking, HSG C
512	96	Gravel surface, HSG C
139,035		Weighted Average
39,828		28.65% Pervious Area
99,207		71.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	42	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.8	33	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	10	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	218	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.4	237	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	135	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	35	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	78	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.1	788	Total			

Subcatchment E10: OVERLAND TO CULVERT



Summary for Subcatchment E11: TO DCB-D

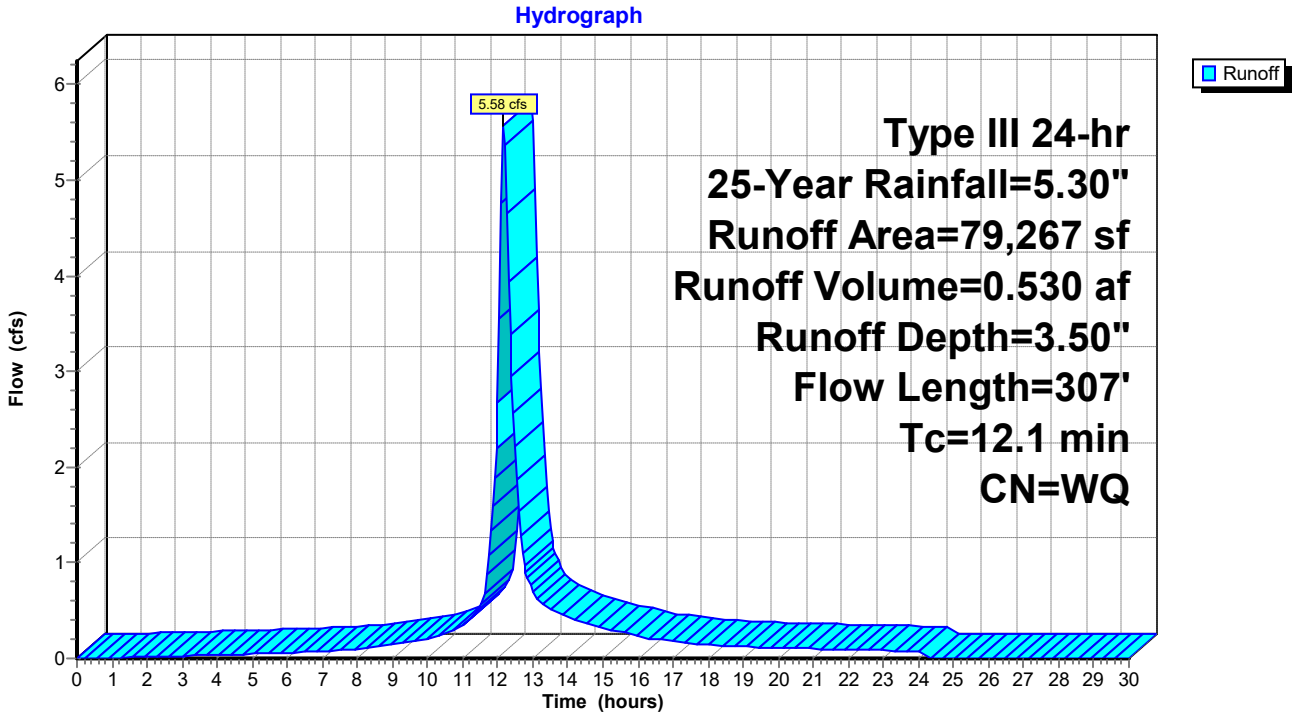
Runoff = 5.58 cfs @ 12.17 hrs, Volume= 0.530 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
4,985	74	>75% Grass cover, Good, HSG C
39,922	70	Woods, Good, HSG C
34,360	98	Paved parking, HSG C
79,267		Weighted Average
44,907		56.65% Pervious Area
34,360		43.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	44	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.7	31	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	15	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.2	198	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	19	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.1	307	Total			

Subcatchment E11: TO DCB-D



Summary for Subcatchment E12: (CULVERT)

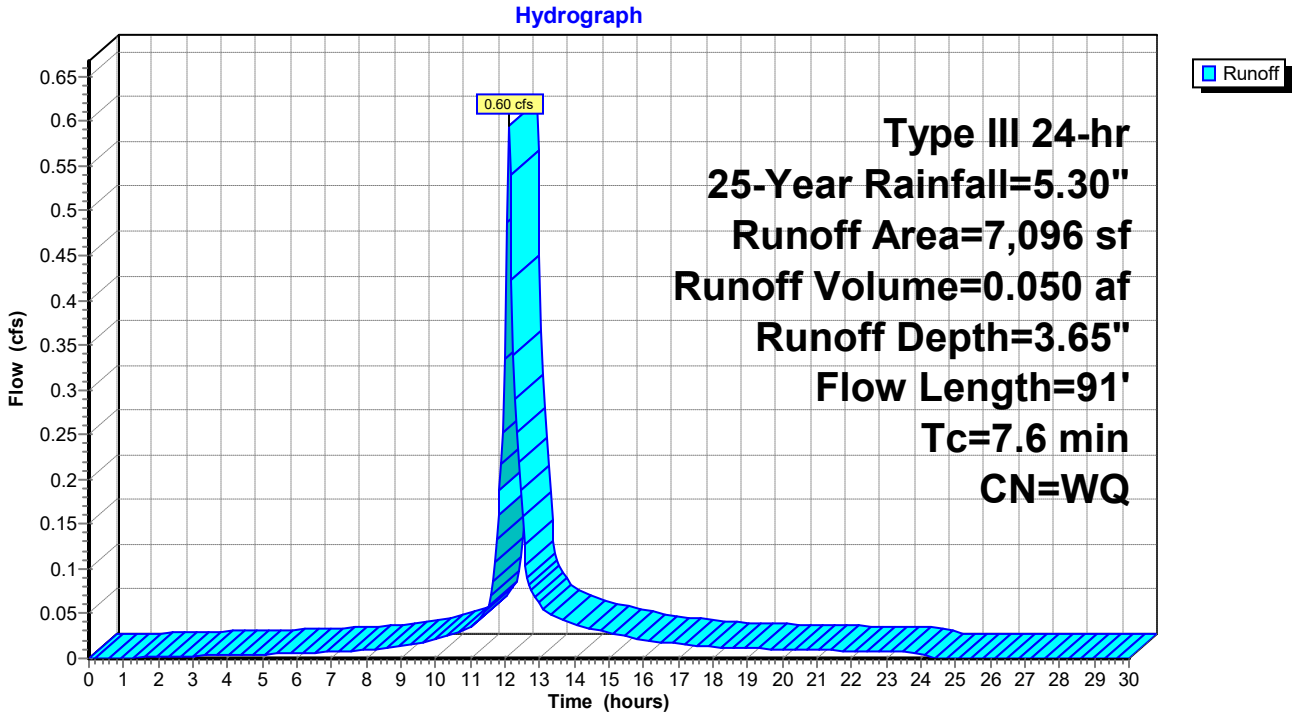
Runoff = 0.60 cfs @ 12.11 hrs, Volume= 0.050 af, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
1,158	74	>75% Grass cover, Good, HSG C
2,555	70	Woods, Good, HSG C
3,383	98	Paved parking, HSG C
7,096		Weighted Average
3,713		52.33% Pervious Area
3,383		47.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0500	1.33		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	3	0.0500	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	1	0.0500	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
6.5	55	0.1300	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	16	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.6	91	Total			

Subcatchment E12: (CULVERT)



Summary for Subcatchment E13: TO CULVERT

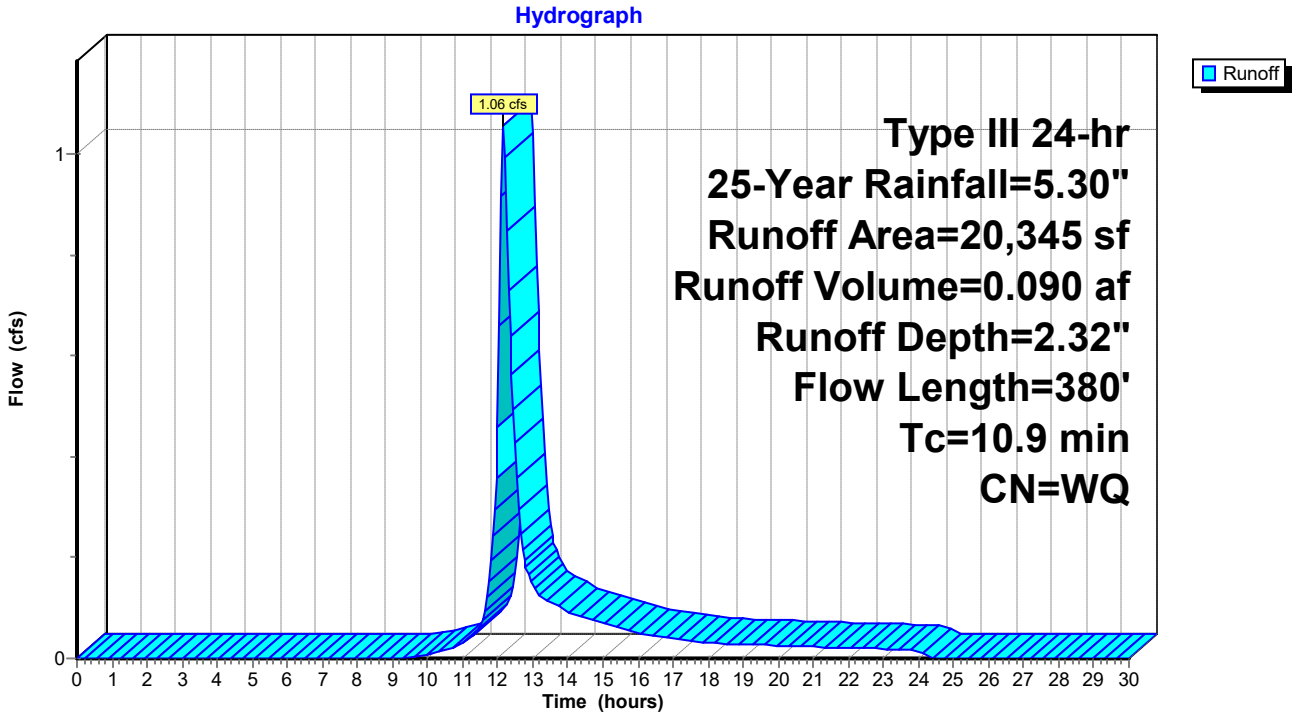
Runoff = 1.06 cfs @ 12.16 hrs, Volume= 0.090 af, Depth= 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
3,243	74	>75% Grass cover, Good, HSG C
17,102	70	Woods, Good, HSG C
20,345		Weighted Average
20,345		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	75	0.2400	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	25	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	69	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	7	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	43	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	71	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	17	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	73	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.9	380	Total			

Subcatchment E13: TO CULVERT



Summary for Subcatchment E14: TO DCB-A

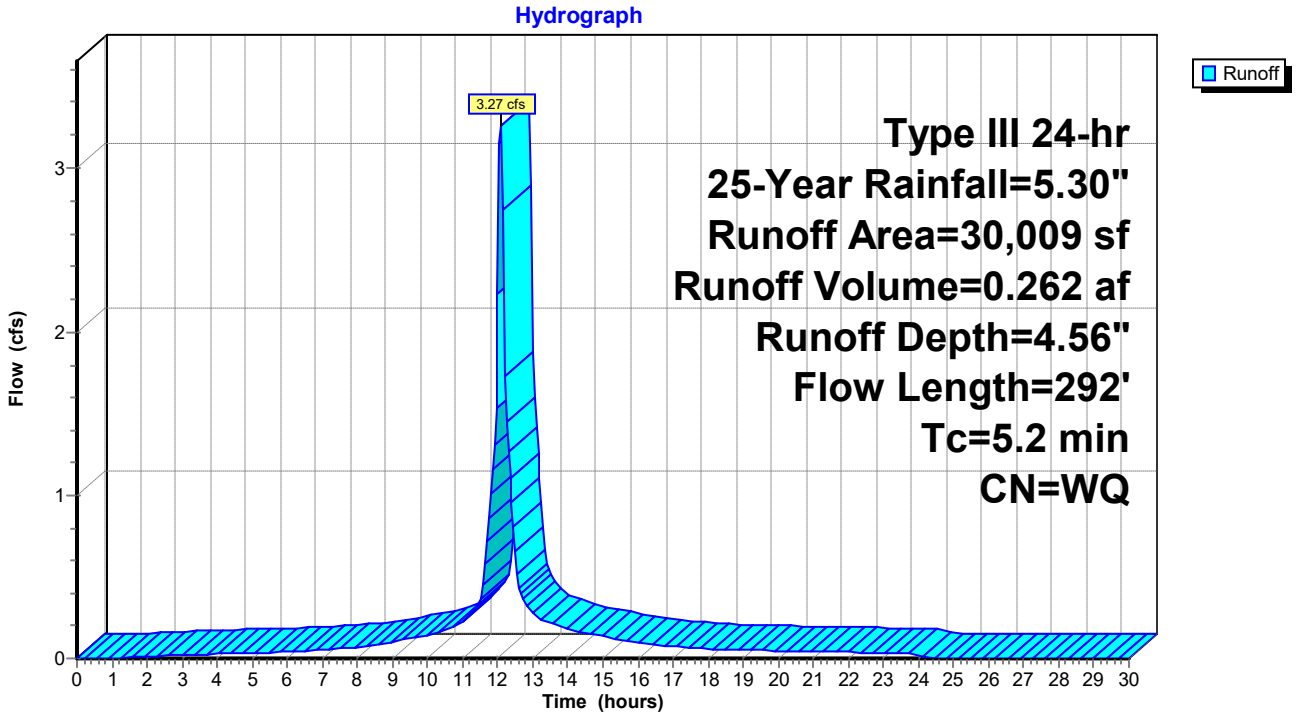
Runoff = 3.27 cfs @ 12.07 hrs, Volume= 0.262 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
5,894	74	>75% Grass cover, Good, HSG C
22,855	98	Paved parking, HSG C
125	70	Woods, Good, HSG C
1,135	96	Gravel surface, HSG C
30,009		Weighted Average
7,154		23.84% Pervious Area
22,855		76.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment E14: TO DCB-A



Summary for Subcatchment E15: TO DCB-C

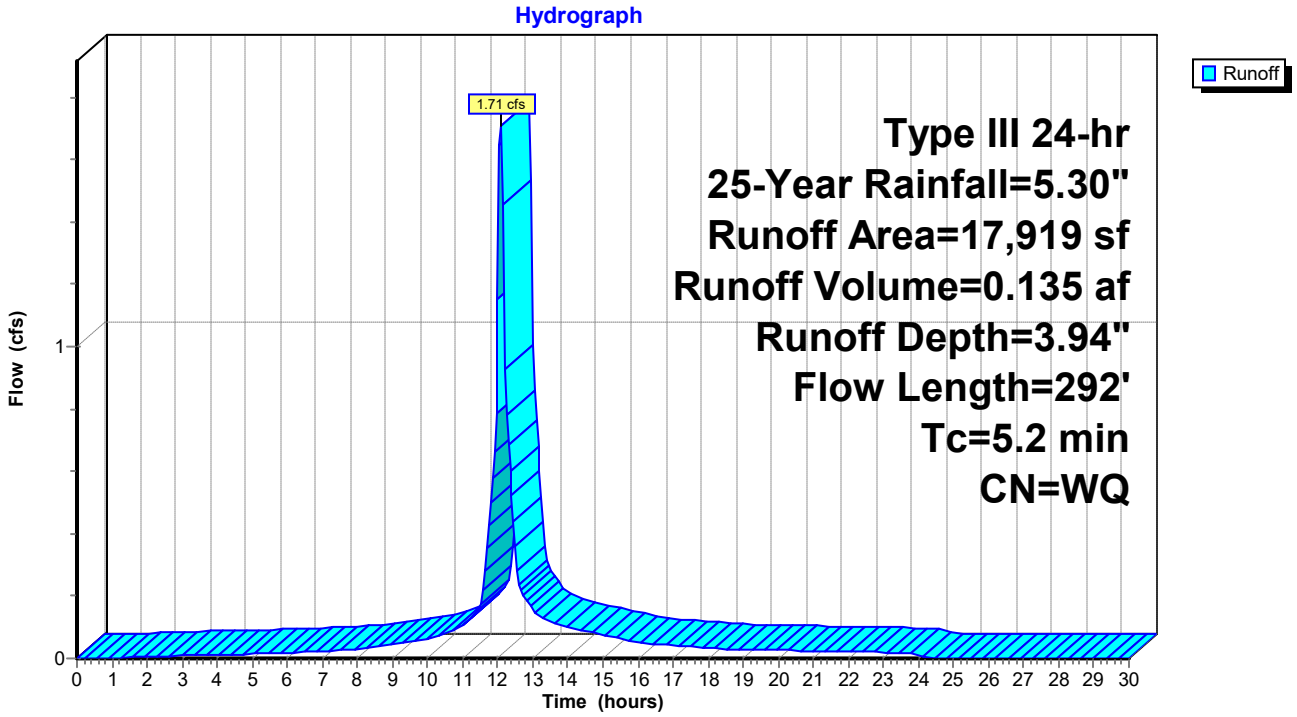
Runoff = 1.71 cfs @ 12.08 hrs, Volume= 0.135 af, Depth= 3.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
4,649	74	>75% Grass cover, Good, HSG C
10,134	98	Paved parking, HSG C
3,136	70	Woods, Good, HSG C
17,919		Weighted Average
7,785		43.45% Pervious Area
10,134		56.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment E15: TO DCB-C



Summary for Subcatchment E31: TO DP#3 (CULVERT)

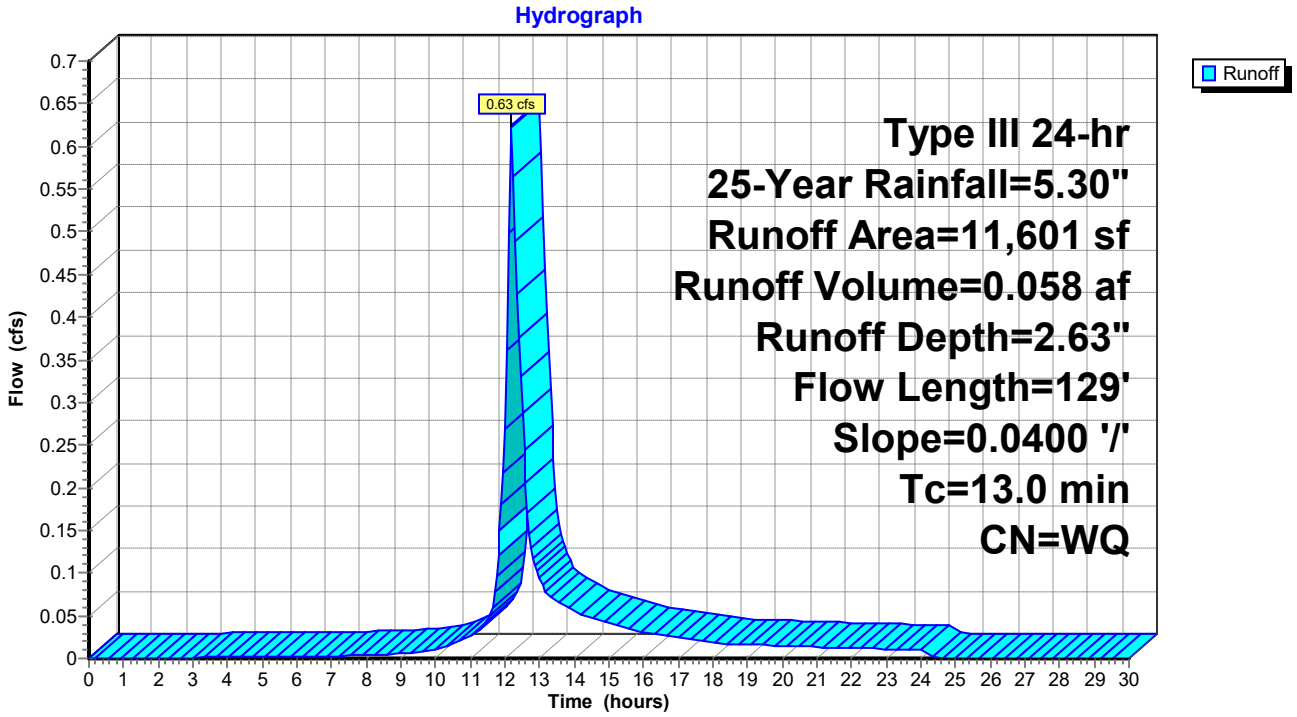
Runoff = 0.63 cfs @ 12.19 hrs, Volume= 0.058 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
2,060	74	>75% Grass cover, Good, HSG C
1,275	98	Paved parking, HSG C
8,266	70	Woods, Good, HSG C
11,601		Weighted Average
10,326		89.01% Pervious Area
1,275		10.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	4	0.0400	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
6.8	54	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
2.0	7	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
2.7	10	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	54	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.0	129	Total			

Subcatchment E31: TO DP#3 (CULVERT)

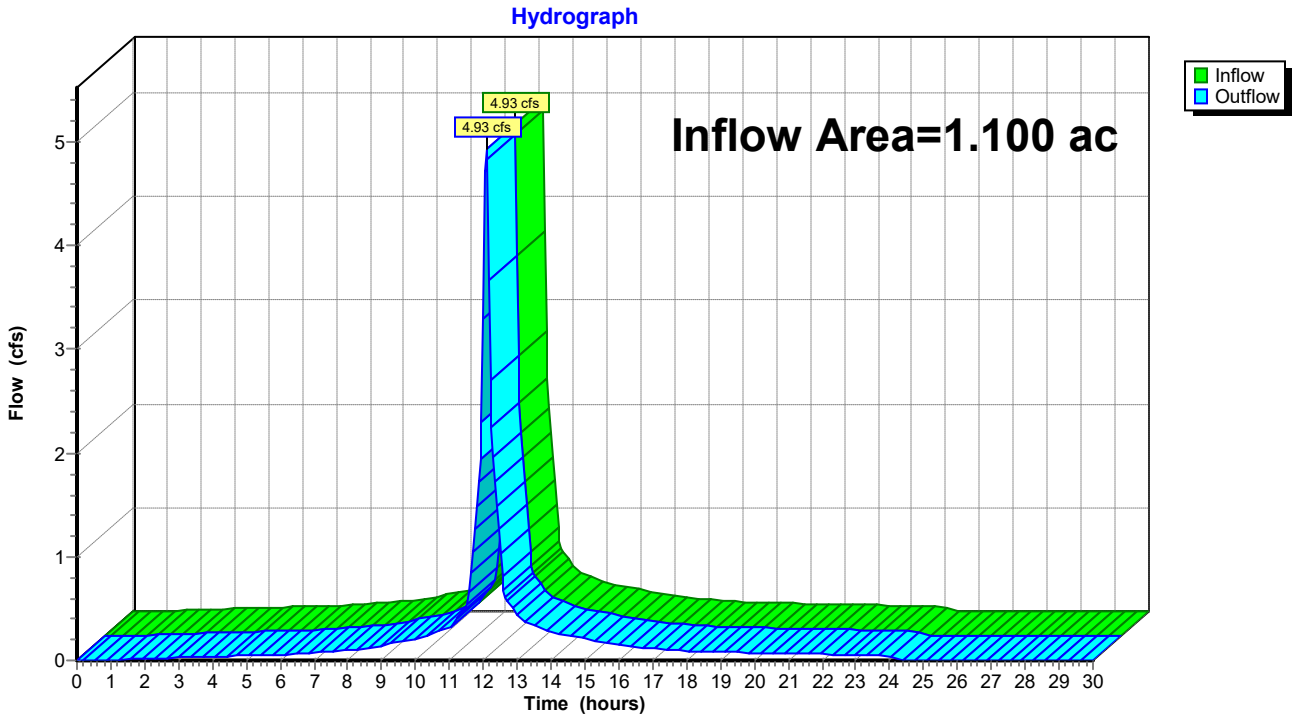


Summary for Reach DCBB: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 4.33" for 25-Year event
Inflow = 4.93 cfs @ 12.08 hrs, Volume= 0.397 af
Outflow = 4.93 cfs @ 12.08 hrs, Volume= 0.397 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DCBB: DP#4



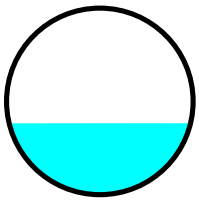
Summary for Reach DCBC: TO DCB-B

Inflow Area = 0.411 ac, 56.55% Impervious, Inflow Depth = 3.94" for 25-Year event
Inflow = 1.71 cfs @ 12.08 hrs, Volume= 0.135 af
Outflow = 1.69 cfs @ 12.09 hrs, Volume= 0.135 af, Atten= 1%, Lag= 0.7 min

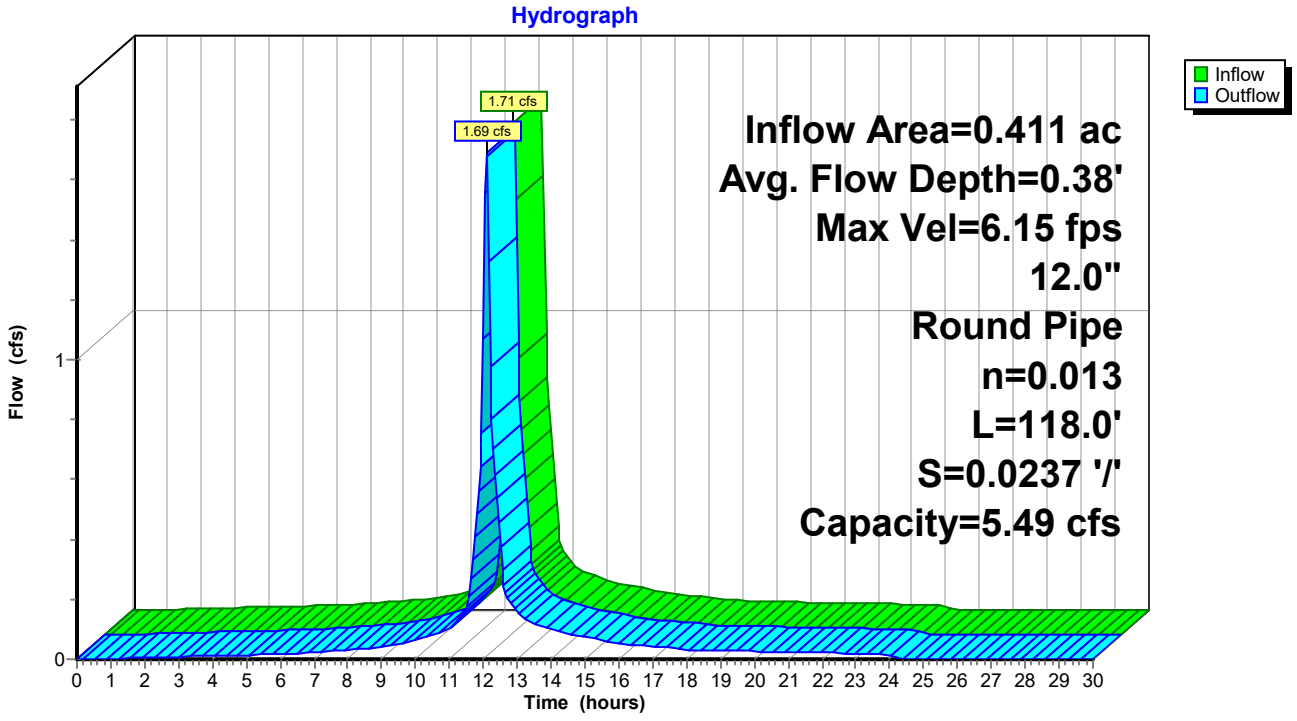
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.15 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.01 fps, Avg. Travel Time= 1.0 min

Peak Storage= 33 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.49 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 118.0' Slope= 0.0237 '/'
Inlet Invert= 1,048.10', Outlet Invert= 1,045.30'



Reach DCBC: TO DCB-B



Stage-Discharge for Reach DCBC: TO DCB-B

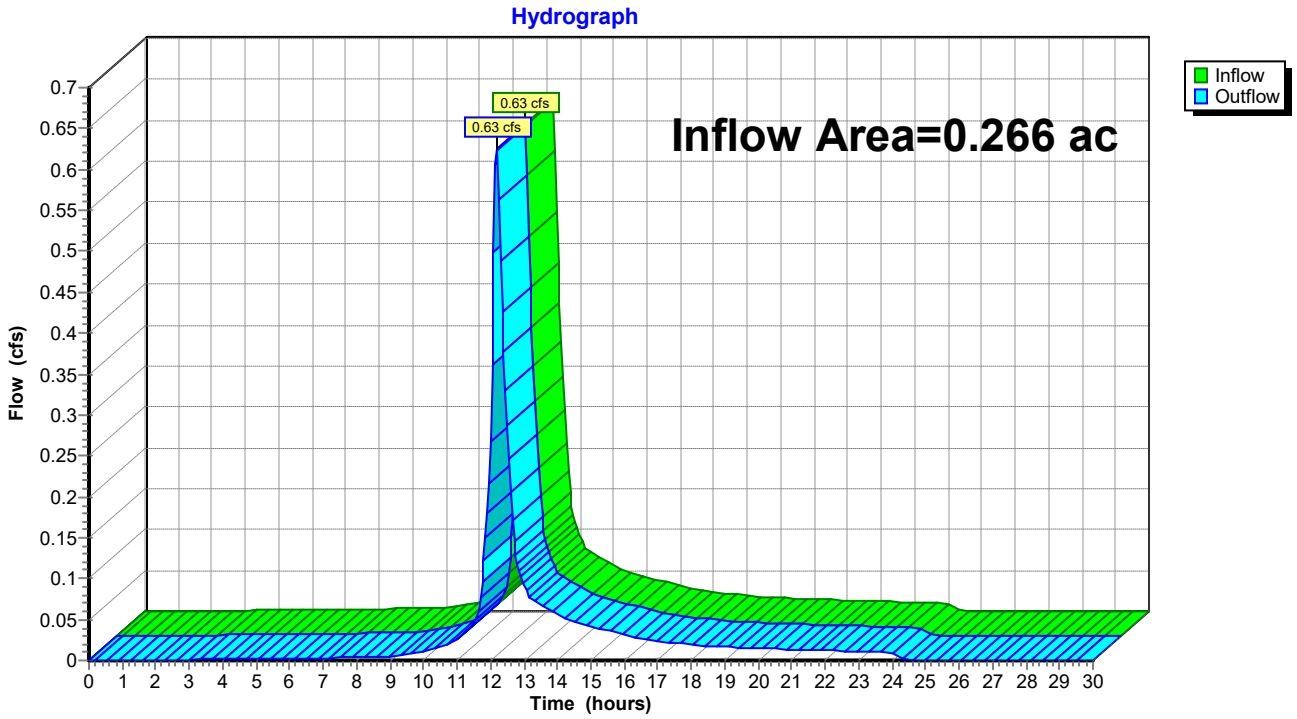
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,048.10	0.00	0.00
1,048.11	0.62	0.00
1,048.12	0.98	0.00
1,048.13	1.29	0.01
1,048.14	1.55	0.02
1,048.15	1.80	0.03
1,048.16	2.02	0.04
1,048.17	2.23	0.05
1,048.18	2.43	0.07
1,048.19	2.62	0.09
1,048.20	2.80	0.11
1,048.21	2.98	0.14
1,048.22	3.14	0.17
1,048.23	3.31	0.20
1,048.24	3.46	0.23
1,048.25	3.61	0.27
1,048.26	3.76	0.30
1,048.27	3.90	0.35
1,048.28	4.04	0.39
1,048.29	4.17	0.43
1,048.30	4.30	0.48
1,048.31	4.42	0.53
1,048.32	4.55	0.58
1,048.33	4.67	0.64
1,048.34	4.78	0.69
1,048.35	4.90	0.75
1,048.36	5.01	0.81
1,048.37	5.11	0.88
1,048.38	5.22	0.94
1,048.39	5.32	1.01
1,048.40	5.42	1.07
1,048.41	5.52	1.15
1,048.42	5.62	1.22
1,048.43	5.71	1.29
1,048.44	5.80	1.37
1,048.45	5.89	1.44
1,048.46	5.98	1.52
1,048.47	6.06	1.60
1,048.48	6.14	1.68
1,048.49	6.23	1.77
1,048.50	6.30	1.85
1,048.51	6.38	1.93
1,048.52	6.46	2.02
1,048.53	6.53	2.11
1,048.54	6.60	2.20
1,048.55	6.67	2.29
1,048.56	6.74	2.38
1,048.57	6.80	2.47
1,048.58	6.87	2.56
1,048.59	6.93	2.65
1,048.60	6.99	2.74
1,048.61	7.05	2.84
1,048.62	7.10	2.93
1,048.63	7.16	3.03
1,048.64	7.21	3.12
1,048.65	7.26	3.21
1,048.66	7.31	3.31
1,048.67	7.36	3.40
1,048.68	7.41	3.50
1,048.69	7.45	3.59
1,048.70	7.49	3.69
1,048.71	7.53	3.78
1,048.72	7.57	3.87
1,048.73	7.61	3.97
1,048.74	7.65	4.06
1,048.75	7.68	4.15
1,048.76	7.71	4.24
1,048.77	7.74	4.33
1,048.78	7.77	4.42
1,048.79	7.80	4.51
1,048.80	7.82	4.59
1,048.81	7.85	4.68
1,048.82	7.87	4.76
1,048.83	7.89	4.85
1,048.84	7.91	4.93
1,048.85	7.92	5.00
1,048.86	7.93	5.08
1,048.87	7.94	5.16
1,048.88	7.95	5.23
1,048.89	7.96	5.30
1,048.90	7.96	5.36
1,048.91	**7.97**	5.43
1,048.92	7.97	5.49
1,048.93	7.96	5.55
1,048.94	7.96	5.60
1,048.95	7.95	5.66
1,048.96	7.94	5.70
1,048.97	7.92	5.75
1,048.98	7.90	5.79
1,048.99	7.88	5.82
1,049.00	7.86	5.85
1,049.01	7.83	5.87
1,049.02	7.79	5.89
1,049.03	7.75	5.90
1,049.04	7.71	**5.90**
1,049.05	7.65	5.90
1,049.06	7.59	5.88
1,049.07	7.51	5.85
1,049.08	7.42	5.80
1,049.09	7.29	5.72
1,049.10	6.99	5.49

Summary for Reach DP#3: TO OFF SITE (NEED INVERTS)

Inflow Area = 0.266 ac, 10.99% Impervious, Inflow Depth = 2.63" for 25-Year event
Inflow = 0.63 cfs @ 12.19 hrs, Volume= 0.058 af
Outflow = 0.63 cfs @ 12.19 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP#3: TO OFF SITE (NEED INVERTS)



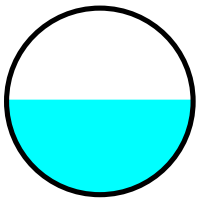
Summary for Reach DP1: CULVERT

Inflow Area = 5.012 ac, 61.18% Impervious, Inflow Depth = 4.04" for 25-Year event
Inflow = 17.78 cfs @ 12.16 hrs, Volume= 1.687 af
Outflow = 17.73 cfs @ 12.16 hrs, Volume= 1.687 af, Atten= 0%, Lag= 0.2 min

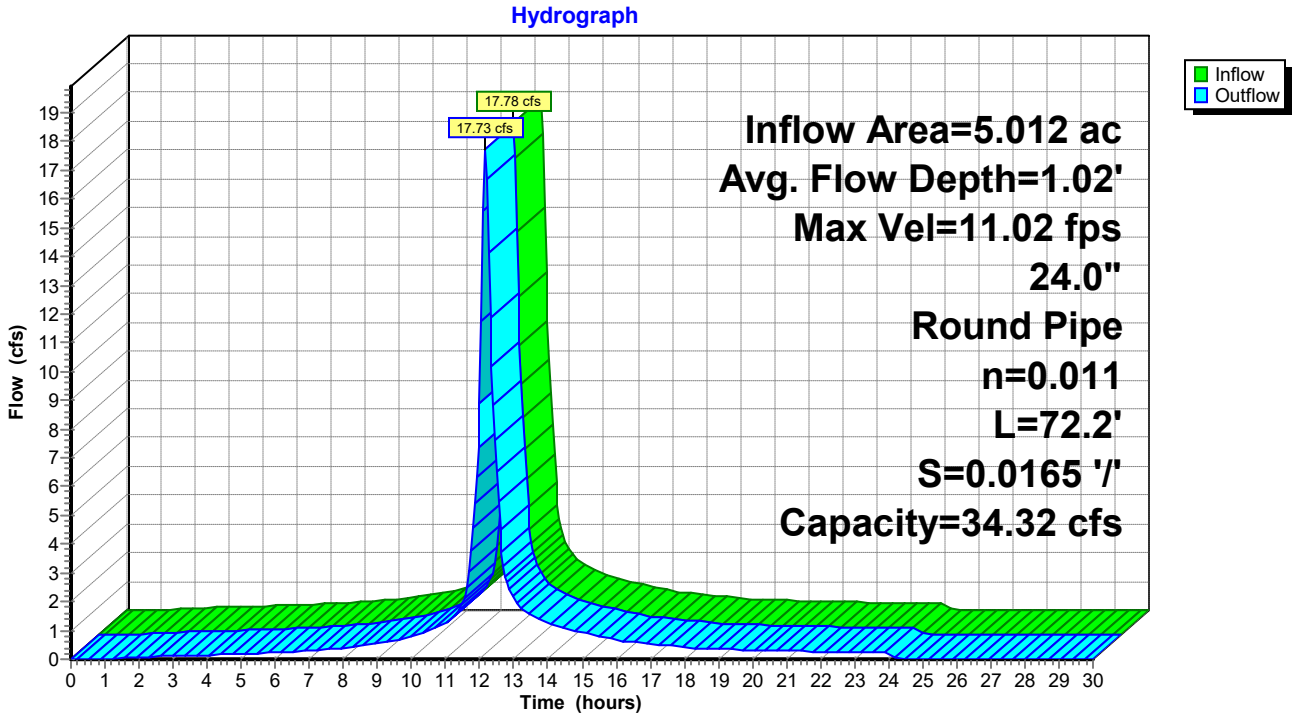
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.02 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.85 fps, Avg. Travel Time= 0.3 min

Peak Storage= 117 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.02'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 34.32 cfs

24.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 72.2' Slope= 0.0165 '/'
Inlet Invert= 1,049.69', Outlet Invert= 1,048.50'



Reach DP1: CULVERT



Stage-Discharge for Reach DP1: CULVERT

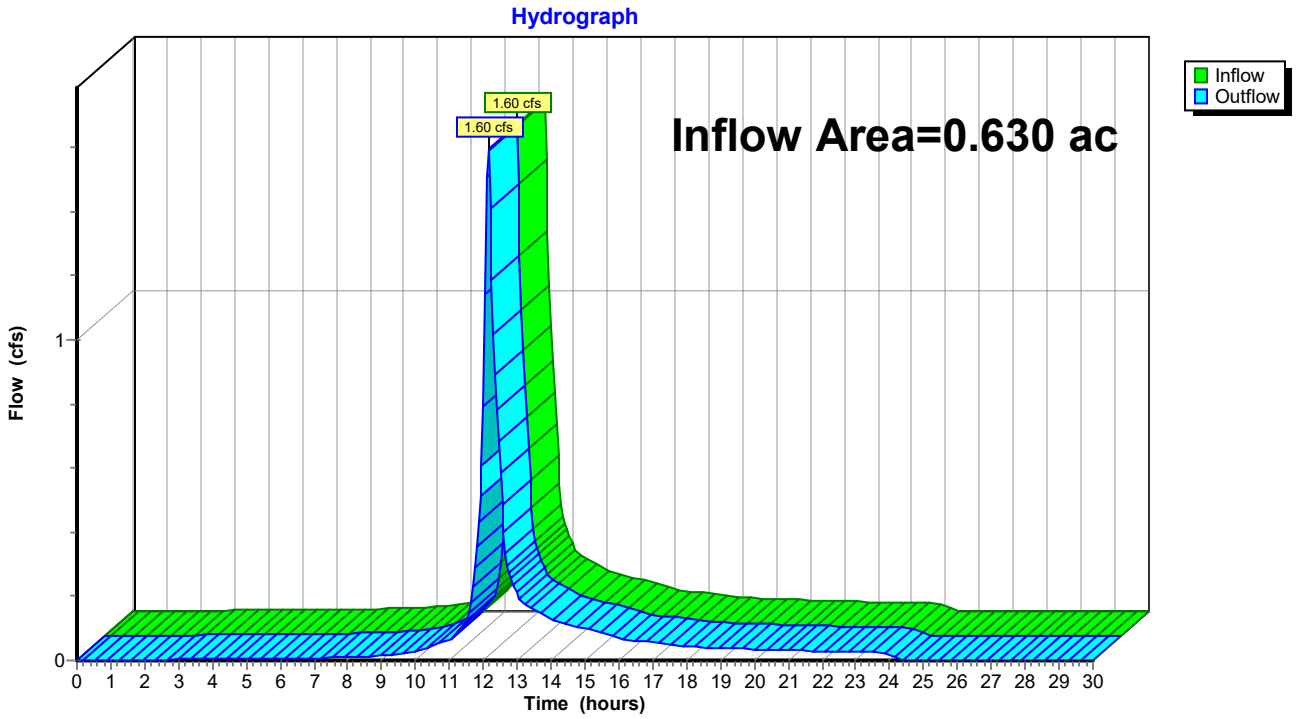
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,049.69	0.00	0.00
1,049.71	0.97	0.01
1,049.73	1.54	0.02
1,049.75	2.01	0.06
1,049.77	2.43	0.10
1,049.79	2.81	0.16
1,049.81	3.16	0.24
1,049.83	3.49	0.34
1,049.85	3.80	0.45
1,049.87	4.10	0.57
1,049.89	4.38	0.72
1,049.91	4.65	0.88
1,049.93	4.92	1.05
1,049.95	5.17	1.24
1,049.97	5.41	1.45
1,049.99	5.65	1.67
1,050.01	5.87	1.91
1,050.03	6.09	2.16
1,050.05	6.31	2.43
1,050.07	6.52	2.71
1,050.09	6.72	3.01
1,050.11	6.92	3.32
1,050.13	7.11	3.64
1,050.15	7.30	3.98
1,050.17	7.48	4.34
1,050.19	7.66	4.70
1,050.21	7.83	5.08
1,050.23	8.00	5.47
1,050.25	8.16	5.88
1,050.27	8.32	6.29
1,050.29	8.48	6.72
1,050.31	8.63	7.16
1,050.33	8.78	7.61
1,050.35	8.93	8.07
1,050.37	9.07	8.54
1,050.39	9.21	9.03
1,050.41	9.35	9.52
1,050.43	9.48	10.02
1,050.45	9.61	10.52
1,050.47	9.73	11.04
1,050.49	9.86	11.57
1,050.51	9.98	12.10
1,050.53	10.09	12.64
1,050.55	10.21	13.19
1,050.57	10.32	13.74
1,050.59	10.43	14.30
1,050.61	10.53	14.86
1,050.63	10.63	15.43
1,050.65	10.73	16.00
1,050.67	10.83	16.58
1,050.69	10.93	17.16
1,050.71	11.02	17.75
1,050.73	11.11	18.33
1,050.75	11.19	18.92
1,050.77	11.27	19.51
1,050.79	11.36	20.10
1,050.81	11.43	20.70
1,050.83	11.51	21.29
1,050.85	11.58	21.88
1,050.87	11.65	22.47
1,050.89	11.72	23.06
1,050.91	11.78	23.65
1,050.93	11.84	24.23
1,050.95	11.90	24.81
1,050.97	11.96	25.39
1,050.99	12.01	25.96
1,051.01	12.06	26.53
1,051.03	12.11	27.09
1,051.05	12.15	27.65
1,051.07	12.20	28.20
1,051.09	12.23	28.74
1,051.11	12.27	29.27
1,051.13	12.30	29.79
1,051.15	12.33	30.31
1,051.17	12.36	30.81
1,051.19	12.38	31.30
1,051.21	12.40	31.78
1,051.23	12.42	32.24
1,051.25	12.44	32.69
1,051.27	12.45	33.13
1,051.29	12.45	33.55
1,051.31	**12.46**	33.95
1,051.33	12.45	34.34
1,051.35	12.45	34.70
1,051.37	12.44	35.05
1,051.39	12.43	35.37
1,051.41	12.41	35.67
1,051.43	12.39	35.94
1,051.45	12.36	36.18
1,051.47	12.32	36.40
1,051.49	12.28	36.58
1,051.51	12.24	36.73
1,051.53	12.18	36.84
1,051.55	12.12	36.90
1,051.57	12.05	**36.92**
1,051.59	11.96	36.88
1,051.61	11.86	36.77
1,051.63	11.75	36.58
1,051.65	11.60	36.27
1,051.67	11.40	35.76
1,051.69	10.93	34.32

Summary for Reach DP2: Culvert

Inflow Area = 0.630 ac, 12.33% Impervious, Inflow Depth = 2.66" for 25-Year event
Inflow = 1.60 cfs @ 12.14 hrs, Volume= 0.140 af
Outflow = 1.60 cfs @ 12.14 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: Culvert

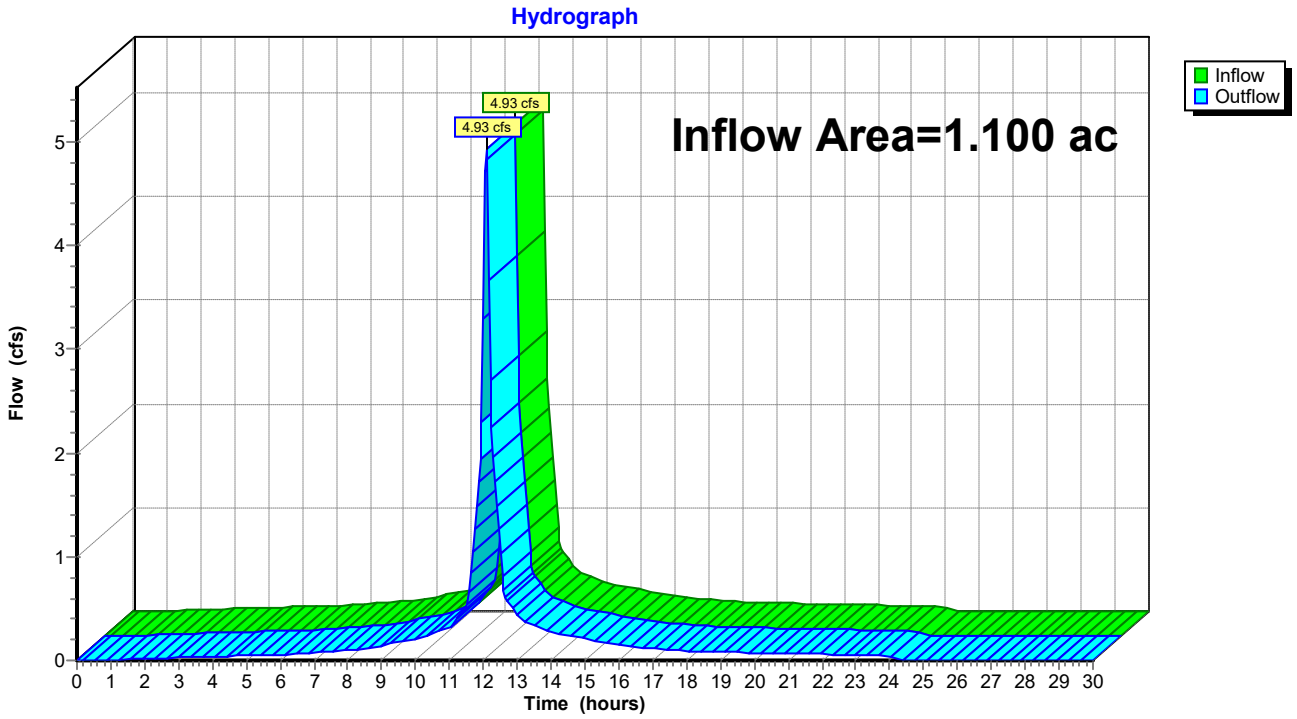


Summary for Reach DP4: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 4.33" for 25-Year event
Inflow = 4.93 cfs @ 12.08 hrs, Volume= 0.397 af
Outflow = 4.93 cfs @ 12.08 hrs, Volume= 0.397 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP4: DP#4

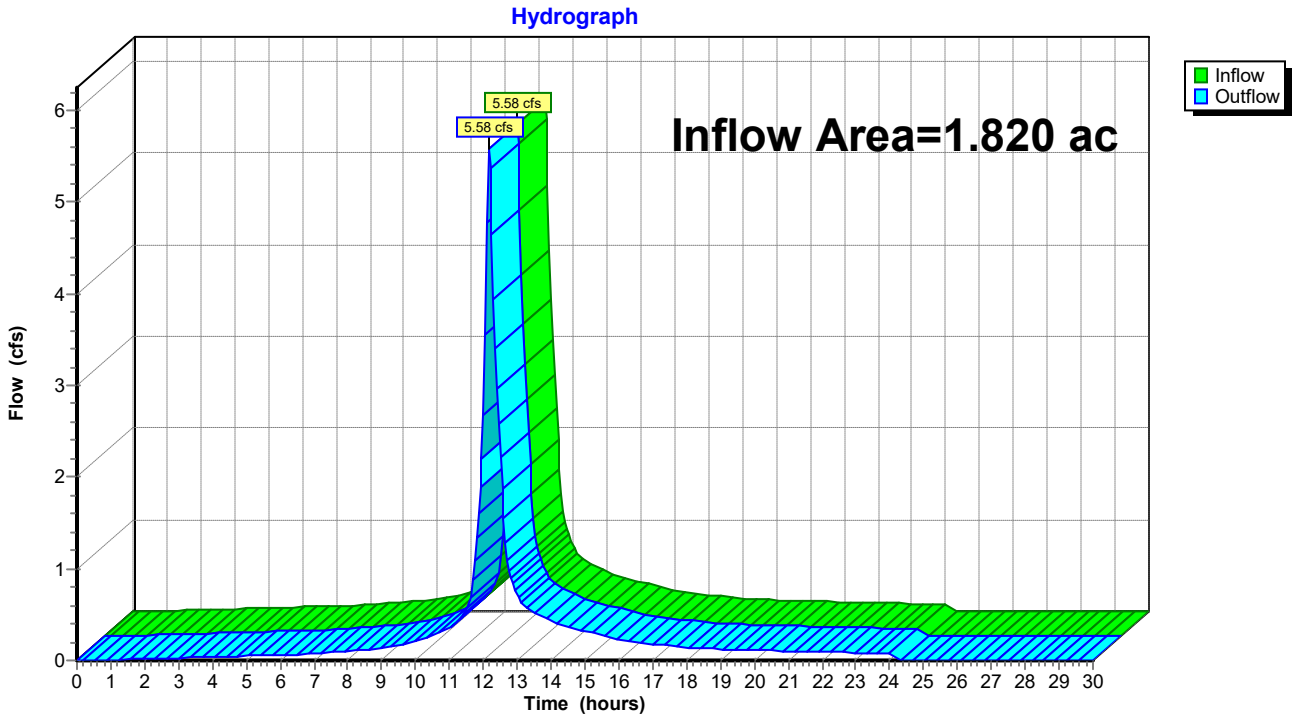


Summary for Reach FEA: TO CULVERT

Inflow Area = 1.820 ac, 43.35% Impervious, Inflow Depth = 3.50" for 25-Year event
Inflow = 5.58 cfs @ 12.17 hrs, Volume= 0.530 af
Outflow = 5.58 cfs @ 12.17 hrs, Volume= 0.530 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach FEA: TO CULVERT



Summary for Pond CULVERT#3: TO E12

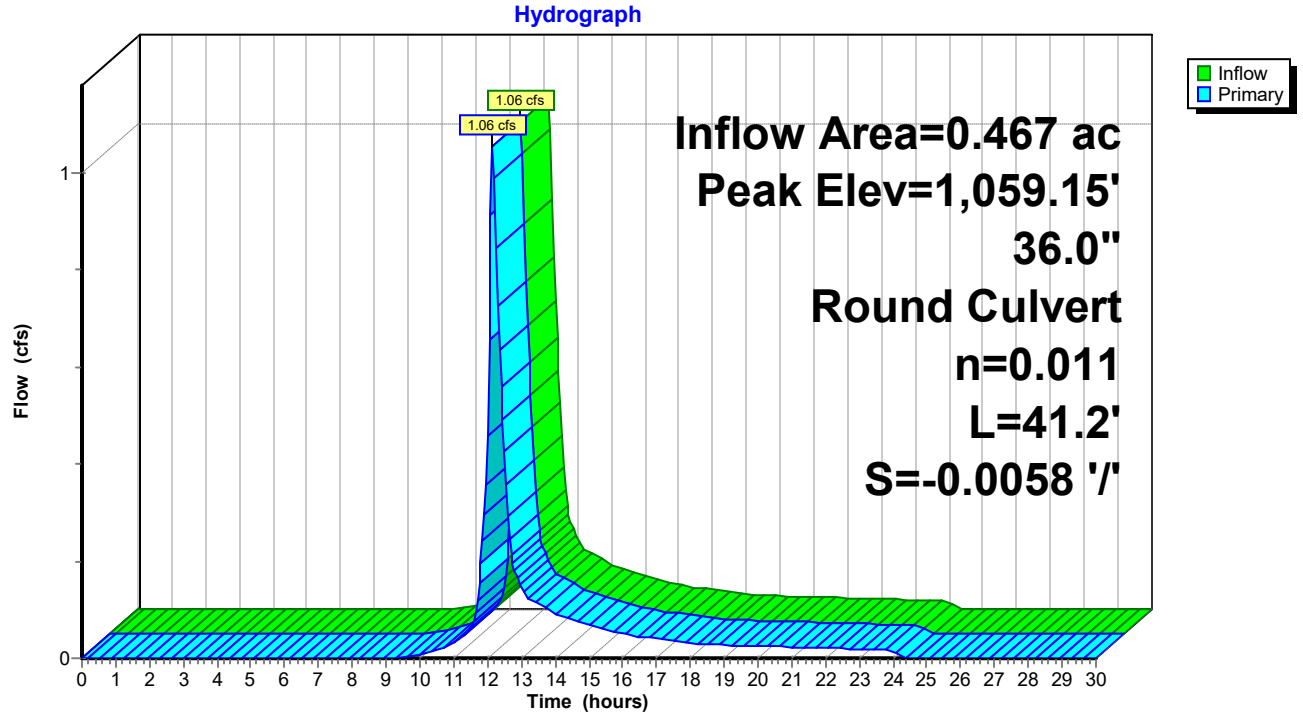
Inflow Area = 0.467 ac, 0.00% Impervious, Inflow Depth = 2.32" for 25-Year event
Inflow = 1.06 cfs @ 12.16 hrs, Volume= 0.090 af
Outflow = 1.06 cfs @ 12.16 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min
Primary = 1.06 cfs @ 12.16 hrs, Volume= 0.090 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,059.15' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,058.78'	**36.0" Round Culvert#3** L= 41.2' Ke= 0.500 Inlet / Outlet Invert= 1,058.54' / 1,058.78' S= -0.0058 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=1.04 cfs @ 12.16 hrs HW=1,059.15' (Free Discharge)
1=Culvert#3 (Inlet Controls 1.04 cfs @ 2.07 fps)

Pond CULVERT#3: TO E12



Stage-Discharge for Pond CULVERT#3: TO E12

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,058.78	0.00	1,059.82	6.54	1,060.86	19.98
1,058.80	0.00	1,059.84	6.74	1,060.88	20.28
1,058.82	0.01	1,059.86	6.95	1,060.90	20.59
1,058.84	0.03	1,059.88	7.16	1,060.92	20.89
1,058.86	0.05	1,059.90	7.37	1,060.94	21.20
1,058.88	0.08	1,059.92	7.58	1,060.96	21.50
1,058.90	0.11	1,059.94	7.80	1,060.98	21.81
1,058.92	0.15	1,059.96	8.02	1,061.00	22.12
1,058.94	0.20	1,059.98	8.24	1,061.02	22.43
1,058.96	0.25	1,060.00	8.46	1,061.04	22.74
1,058.98	0.31	1,060.02	8.69	1,061.06	23.05
1,059.00	0.37	1,060.04	8.92	1,061.08	23.36
1,059.02	0.44	1,060.06	9.15	1,061.10	23.67
1,059.04	0.52	1,060.08	9.38	1,061.12	23.99
1,059.06	0.60	1,060.10	9.62	1,061.14	24.30
1,059.08	0.69	1,060.12	9.85	1,061.16	24.61
1,059.10	0.78	1,060.14	10.09	1,061.18	24.93
1,059.12	0.88	1,060.16	10.33	1,061.20	25.24
1,059.14	0.98	1,060.18	10.58	1,061.22	25.56
1,059.16	1.09	1,060.20	10.82	1,061.24	25.87
1,059.18	1.21	1,060.22	11.07	1,061.26	26.19
1,059.20	1.33	1,060.24	11.32	1,061.28	26.50
1,059.22	1.45	1,060.26	11.58	1,061.30	26.82
1,059.24	1.59	1,060.28	11.83	1,061.32	27.14
1,059.26	1.72	1,060.30	12.09	1,061.34	27.45
1,059.28	1.86	1,060.32	12.35	1,061.36	27.77
1,059.30	2.01	1,060.34	12.61	1,061.38	28.09
1,059.32	2.16	1,060.36	12.87	1,061.40	28.40
1,059.34	2.32	1,060.38	13.14	1,061.42	28.72
1,059.36	2.49	1,060.40	13.40	1,061.44	29.04
1,059.38	2.65	1,060.42	13.67	1,061.46	29.35
1,059.40	2.83	1,060.44	13.94	1,061.48	29.67
1,059.42	3.01	1,060.46	14.21	1,061.50	29.98
1,059.44	3.19	1,060.48	14.49	1,061.52	30.30
1,059.46	3.36	1,060.50	14.76	1,061.54	30.61
1,059.48	3.51	1,060.52	15.04	1,061.56	30.93
1,059.50	3.67	1,060.54	15.32	1,061.58	31.24
1,059.52	3.82	1,060.56	15.60	1,061.60	31.55
1,059.54	3.99	1,060.58	15.88	1,061.62	31.87
1,059.56	4.15	1,060.60	16.16	1,061.64	32.18
1,059.58	4.32	1,060.62	16.45	1,061.66	32.49
1,059.60	4.49	1,060.64	16.74	1,061.68	32.80
1,059.62	4.66	1,060.66	17.03	1,061.70	33.11
1,059.64	4.83	1,060.68	17.31	1,061.72	33.42
1,059.66	5.01	1,060.70	17.61	1,061.74	33.72
1,059.68	5.19	1,060.72	17.90	1,061.76	34.03
1,059.70	5.38	1,060.74	18.19	1,061.78	**34.33**
1,059.72	5.57	1,060.76	18.49		
1,059.74	5.76	1,060.78	18.78		
1,059.76	5.95	1,060.80	19.08		
1,059.78	6.14	1,060.82	19.38		
1,059.80	6.34	1,060.84	19.68		

Summary for Pond DCBA: TO DCB-B

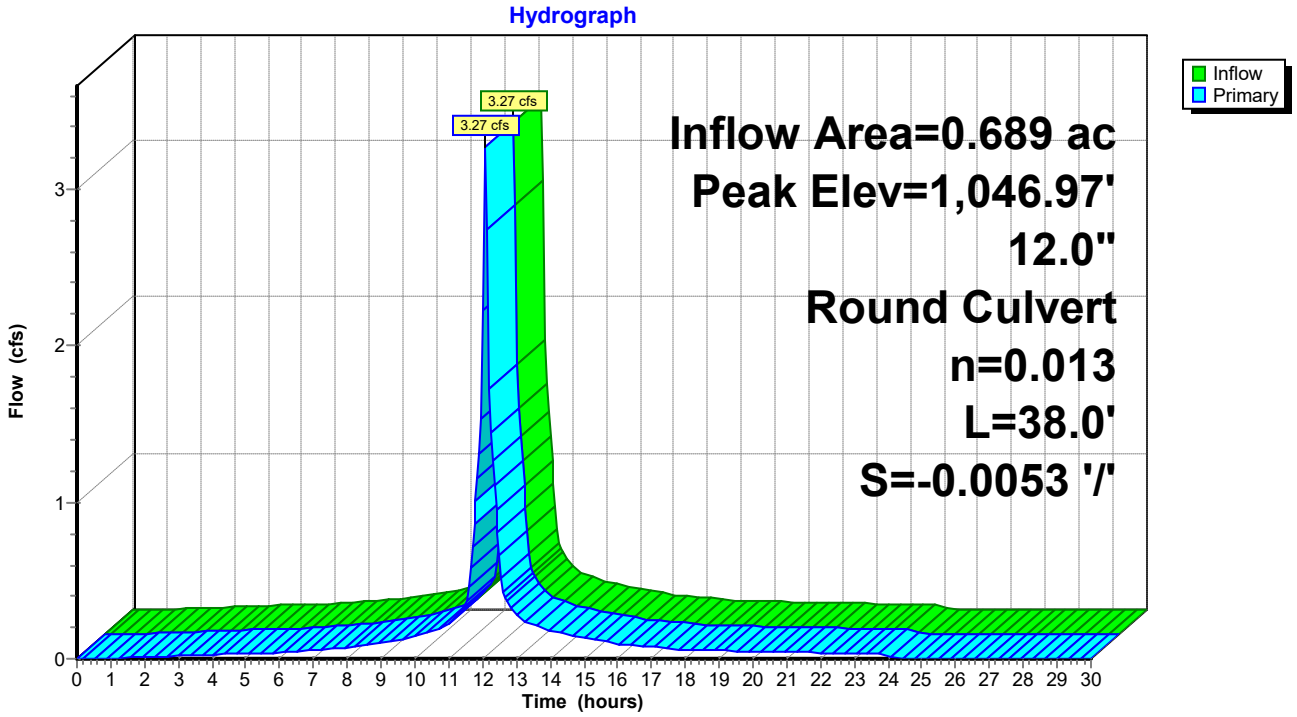
Inflow Area = 0.689 ac, 76.16% Impervious, Inflow Depth = 4.56" for 25-Year event
Inflow = 3.27 cfs @ 12.07 hrs, Volume= 0.262 af
Outflow = 3.27 cfs @ 12.07 hrs, Volume= 0.262 af, Atten= 0%, Lag= 0.0 min
Primary = 3.27 cfs @ 12.07 hrs, Volume= 0.262 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,046.97' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,045.30'	**12.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,045.10' / 1,045.30' S= -0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.15 cfs @ 12.07 hrs HW=1,046.91' (Free Discharge)
1=Culvert (Inlet Controls 3.15 cfs @ 4.01 fps)

Pond DCBA: TO DCB-B



Stage-Discharge for Pond DCBA: TO DCB-B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,045.30	0.00	1,045.82	0.80	1,046.34	2.01	1,046.86	3.07
1,045.31	0.00	1,045.83	0.83	1,046.35	2.02	1,046.87	3.09
1,045.32	0.00	1,045.84	0.85	1,046.36	2.04	1,046.88	3.10
1,045.33	0.00	1,045.85	0.88	1,046.37	2.05	1,046.89	3.12
1,045.34	0.01	1,045.86	0.91	1,046.38	2.06	1,046.90	3.13
1,045.35	0.01	1,045.87	0.94	1,046.39	2.07	1,046.91	3.15
1,045.36	0.01	1,045.88	0.97	1,046.40	2.08	1,046.92	**3.16**
1,045.37	0.02	1,045.89	1.00	1,046.41	2.09		
1,045.38	0.02	1,045.90	1.02	1,046.42	2.09		
1,045.39	0.03	1,045.91	1.05	1,046.43	2.08		
1,045.40	0.03	1,045.92	1.08	1,046.44	2.09		
1,045.41	0.04	1,045.93	1.10	1,046.45	2.12		
1,045.42	0.05	1,045.94	1.12	1,046.46	2.15		
1,045.43	0.06	1,045.95	1.15	1,046.47	2.18		
1,045.44	0.07	1,045.96	1.17	1,046.48	2.21		
1,045.45	0.08	1,045.97	1.20	1,046.49	2.24		
1,045.46	0.09	1,045.98	1.22	1,046.50	2.27		
1,045.47	0.10	1,045.99	1.24	1,046.51	2.29		
1,045.48	0.11	1,046.00	1.27	1,046.52	2.32		
1,045.49	0.12	1,046.01	1.29	1,046.53	2.35		
1,045.50	0.13	1,046.02	1.32	1,046.54	2.38		
1,045.51	0.15	1,046.03	1.34	1,046.55	2.40		
1,045.52	0.16	1,046.04	1.36	1,046.56	2.43		
1,045.53	0.18	1,046.05	1.39	1,046.57	2.46		
1,045.54	0.19	1,046.06	1.41	1,046.58	2.48		
1,045.55	0.21	1,046.07	1.44	1,046.59	2.51		
1,045.56	0.22	1,046.08	1.46	1,046.60	2.53		
1,045.57	0.24	1,046.09	1.48	1,046.61	2.56		
1,045.58	0.26	1,046.10	1.51	1,046.62	2.58		
1,045.59	0.27	1,046.11	1.53	1,046.63	2.61		
1,045.60	0.29	1,046.12	1.55	1,046.64	2.63		
1,045.61	0.31	1,046.13	1.58	1,046.65	2.66		
1,045.62	0.33	1,046.14	1.60	1,046.66	2.68		
1,045.63	0.35	1,046.15	1.62	1,046.67	2.71		
1,045.64	0.37	1,046.16	1.65	1,046.68	2.73		
1,045.65	0.39	1,046.17	1.67	1,046.69	2.75		
1,045.66	0.41	1,046.18	1.69	1,046.70	2.78		
1,045.67	0.43	1,046.19	1.72	1,046.71	2.80		
1,045.68	0.45	1,046.20	1.74	1,046.72	2.82		
1,045.69	0.48	1,046.21	1.76	1,046.73	2.84		
1,045.70	0.50	1,046.22	1.78	1,046.74	2.87		
1,045.71	0.52	1,046.23	1.80	1,046.75	2.89		
1,045.72	0.55	1,046.24	1.82	1,046.76	2.91		
1,045.73	0.57	1,046.25	1.84	1,046.77	2.93		
1,045.74	0.59	1,046.26	1.86	1,046.78	2.96		
1,045.75	0.62	1,046.27	1.88	1,046.79	2.97		
1,045.76	0.64	1,046.28	1.90	1,046.80	2.99		
1,045.77	0.67	1,046.29	1.92	1,046.81	3.00		
1,045.78	0.69	1,046.30	1.94	1,046.82	3.02		
1,045.79	0.72	1,046.31	1.96	1,046.83	3.03		
1,045.80	0.75	1,046.32	1.98	1,046.84	3.04		
1,045.81	0.77	1,046.33	1.99	1,046.85	3.06		

Summary for Pond DCBD: TO DMH-A

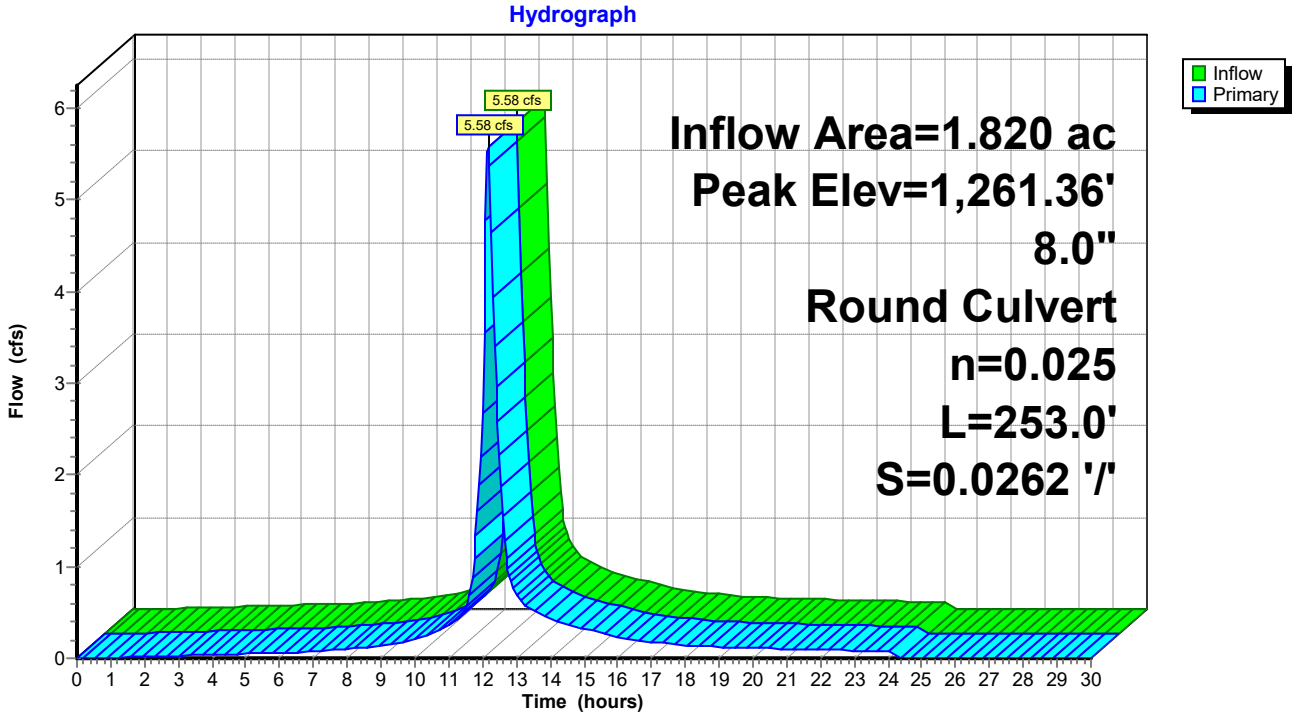
Inflow Area = 1.820 ac, 43.35% Impervious, Inflow Depth = 3.50" for 25-Year event
Inflow = 5.58 cfs @ 12.17 hrs, Volume= 0.530 af
Outflow = 5.58 cfs @ 12.17 hrs, Volume= 0.530 af, Atten= 0%, Lag= 0.0 min
Primary = 5.58 cfs @ 12.17 hrs, Volume= 0.530 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,261.36' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,061.80'	**8.0" Round Culvert** L= 253.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 1,061.80' / 1,055.17' S= 0.0262 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.35 sf

Primary OutFlow Max=5.48 cfs @ 12.17 hrs HW=1,254.38' (Free Discharge)
1=Culvert (Barrel Controls 5.48 cfs @ 15.69 fps)

Pond DCBD: TO DMH-A



Stage-Discharge for Pond DCBD: TO DMH-A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,061.80	0.00	1,165.80	4.08
1,063.80	1.10	1,167.80	4.11
1,065.80	1.23	1,169.80	4.15
1,067.80	1.34	1,171.80	4.19
1,069.80	1.45	1,173.80	4.22
1,071.80	1.55	1,175.80	4.26
1,073.80	1.65	1,177.80	4.29
1,075.80	1.74	1,179.80	4.33
1,077.80	1.82	1,181.80	4.36
1,079.80	1.90	1,183.80	4.40
1,081.80	1.98	1,185.80	4.43
1,083.80	2.06	1,187.80	4.47
1,085.80	2.13	1,189.80	4.50
1,087.80	2.20	1,191.80	4.53
1,089.80	2.27	1,193.80	4.57
1,091.80	2.33	1,195.80	4.60
1,093.80	2.39	1,197.80	4.63
1,095.80	2.46	1,199.80	4.66
1,097.80	2.52	1,201.80	4.70
1,099.80	2.58	1,203.80	4.73
1,101.80	2.64	1,205.80	4.76
1,103.80	2.69	1,207.80	4.79
1,105.80	2.75	1,209.80	4.82
1,107.80	2.80	1,211.80	4.85
1,109.80	2.86	1,213.80	4.89
1,111.80	2.91	1,215.80	4.92
1,113.80	2.96	1,217.80	4.95
1,115.80	3.01	1,219.80	4.98
1,117.80	3.06	1,221.80	5.01
1,119.80	3.11	1,223.80	5.04
1,121.80	3.16	1,225.80	5.07
1,123.80	3.20	1,227.80	5.10
1,125.80	3.25	1,229.80	5.13
1,127.80	3.30	1,231.80	5.16
1,129.80	3.34	1,233.80	5.19
1,131.80	3.39	1,235.80	5.21
1,133.80	3.43	1,237.80	5.24
1,135.80	3.48	1,239.80	5.27
1,137.80	3.52	1,241.80	5.30
1,139.80	3.56	1,243.80	5.33
1,141.80	3.60	1,245.80	5.36
1,143.80	3.65	1,247.80	5.39
1,145.80	3.69	1,249.80	5.41
1,147.80	3.73	1,251.80	5.44
1,149.80	3.77	1,253.80	5.47
1,151.80	3.81	1,255.80	5.50
1,153.80	3.85	1,257.80	**5.52**
1,155.80	3.89		
1,157.80	3.92		
1,159.80	3.96		
1,161.80	4.00		
1,163.80	4.04		

Summary for Pond DMHA: TO FE-A

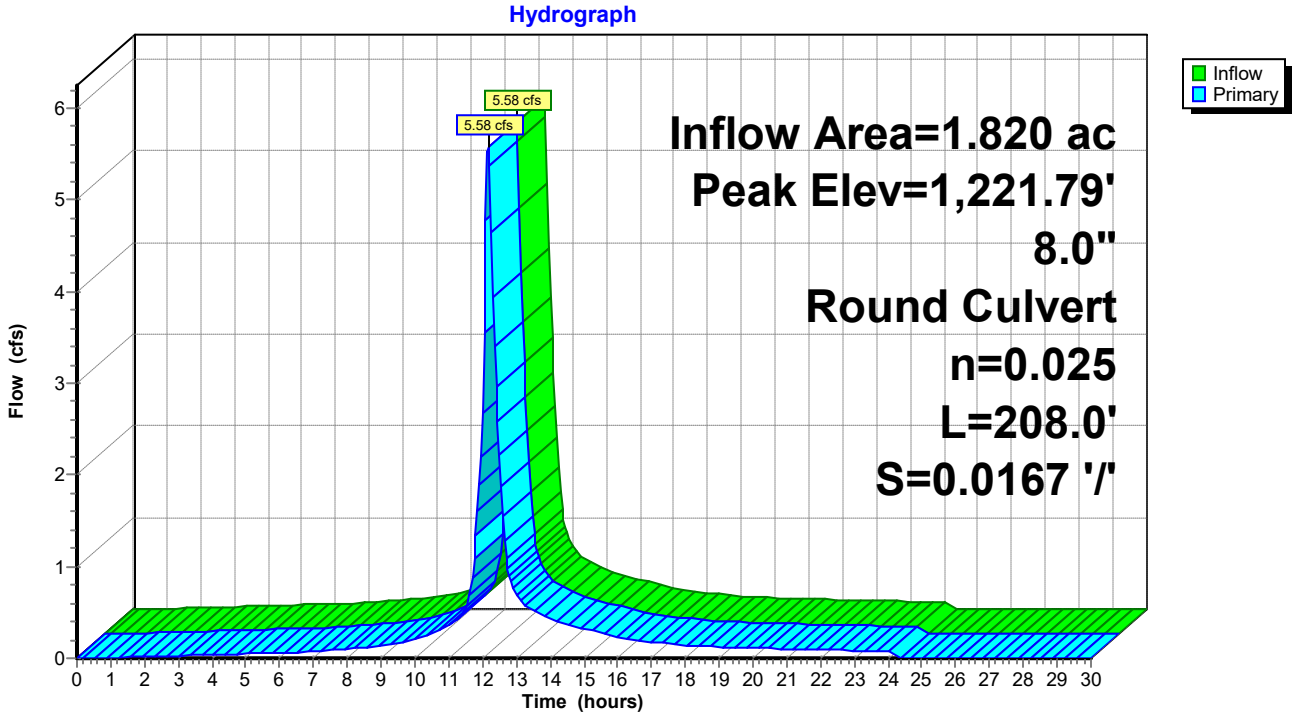
Inflow Area = 1.820 ac, 43.35% Impervious, Inflow Depth = 3.50" for 25-Year event
Inflow = 5.58 cfs @ 12.17 hrs, Volume= 0.530 af
Outflow = 5.58 cfs @ 12.17 hrs, Volume= 0.530 af, Atten= 0%, Lag= 0.0 min
Primary = 5.58 cfs @ 12.17 hrs, Volume= 0.530 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,221.79' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,054.57'	**8.0" Round Culvert** L= 208.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 1,054.57' / 1,051.10' S= 0.0167 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.35 sf

Primary OutFlow Max=5.48 cfs @ 12.17 hrs HW=1,216.02' (Free Discharge)
1=Culvert (Barrel Controls 5.48 cfs @ 15.69 fps)

Pond DMHA: TO FE-A



Stage-Discharge for Pond DMHA: TO FE-A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,054.57	0.00	1,140.37	4.02
1,056.22	0.90	1,142.02	4.06
1,057.87	1.06	1,143.67	4.10
1,059.52	1.19	1,145.32	4.13
1,061.17	1.31	1,146.97	4.17
1,062.82	1.42	1,148.62	4.21
1,064.47	1.52	1,150.27	4.24
1,066.12	1.62	1,151.92	4.28
1,067.77	1.71	1,153.57	4.31
1,069.42	1.80	1,155.22	4.35
1,071.07	1.88	1,156.87	4.38
1,072.72	1.96	1,158.52	4.42
1,074.37	2.03	1,160.17	4.45
1,076.02	2.10	1,161.82	4.48
1,077.67	2.18	1,163.47	4.52
1,079.32	2.24	1,165.12	4.55
1,080.97	2.31	1,166.77	4.58
1,082.62	2.37	1,168.42	4.62
1,084.27	2.44	1,170.07	4.65
1,085.92	2.50	1,171.72	4.68
1,087.57	2.56	1,173.37	4.71
1,089.22	2.62	1,175.02	4.74
1,090.87	2.67	1,176.67	4.78
1,092.52	2.73	1,178.32	4.81
1,094.17	2.78	1,179.97	4.84
1,095.82	2.84	1,181.62	4.87
1,097.47	2.89	1,183.27	4.90
1,099.12	2.94	1,184.92	4.93
1,100.77	2.99	1,186.57	4.96
1,102.42	3.04	1,188.22	4.99
1,104.07	3.09	1,189.87	5.02
1,105.72	3.14	1,191.52	5.05
1,107.37	3.19	1,193.17	5.08
1,109.02	3.23	1,194.82	5.11
1,110.67	3.28	1,196.47	5.14
1,112.32	3.33	1,198.12	5.17
1,113.97	3.37	1,199.77	5.20
1,115.62	3.41	1,201.42	5.23
1,117.27	3.46	1,203.07	5.26
1,118.92	3.50	1,204.72	5.29
1,120.57	3.54	1,206.37	5.31
1,122.22	3.59	1,208.02	5.34
1,123.87	3.63	1,209.67	5.37
1,125.52	3.67	1,211.32	5.40
1,127.17	3.71	1,212.97	5.43
1,128.82	3.75	1,214.62	5.45
1,130.47	3.79	1,216.27	5.48
1,132.12	3.83	1,217.92	**5.51**
1,133.77	3.87		
1,135.42	3.91		
1,137.07	3.95		
1,138.72	3.99		

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E10: OVERLAND TO Runoff Area=139,035 sf 71.35% Impervious Runoff Depth=5.49"
Flow Length=788' Tc=11.1 min CN=WQ Runoff=15.41 cfs 1.460 af

Subcatchment E11: TO DCB-D Runoff Area=79,267 sf 43.35% Impervious Runoff Depth=4.56"
Flow Length=307' Tc=12.1 min CN=WQ Runoff=7.31 cfs 0.691 af

Subcatchment E12: (CULVERT) Runoff Area=7,096 sf 47.67% Impervious Runoff Depth=4.73"
Flow Length=91' Tc=7.6 min CN=WQ Runoff=0.77 cfs 0.064 af

Subcatchment E13: TO CULVERT Runoff Area=20,345 sf 0.00% Impervious Runoff Depth=3.27"
Flow Length=380' Tc=10.9 min CN=WQ Runoff=1.51 cfs 0.127 af

Subcatchment E14: TO DCB-A Runoff Area=30,009 sf 76.16% Impervious Runoff Depth=5.72"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=4.08 cfs 0.328 af

Subcatchment E15: TO DCB-C Runoff Area=17,919 sf 56.55% Impervious Runoff Depth=5.04"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=2.19 cfs 0.173 af

Subcatchment E31: TO DP#3 (CULVERT) Runoff Area=11,601 sf 10.99% Impervious Runoff Depth=3.61"
Flow Length=129' Slope=0.0400 '/' Tc=13.0 min CN=WQ Runoff=0.87 cfs 0.080 af

Reach DCBB: DP#4 Inflow=6.22 cfs 0.501 af
Outflow=6.22 cfs 0.501 af

Reach DCBC: TO DCB-B Avg. Flow Depth=0.44' Max Vel=6.57 fps Inflow=2.19 cfs 0.173 af
12.0" Round Pipe n=0.013 L=118.0' S=0.0237 '/' Capacity=5.49 cfs Outflow=2.17 cfs 0.173 af

Reach DP#3: TO OFF SITE (NEED INVERTS) Inflow=0.87 cfs 0.080 af
Outflow=0.87 cfs 0.080 af

Reach DP1: CULVERT Avg. Flow Depth=1.19' Max Vel=11.67 fps Inflow=22.69 cfs 2.151 af
24.0" Round Pipe n=0.011 L=72.2' S=0.0165 '/' Capacity=34.32 cfs Outflow=22.62 cfs 2.151 af

Reach DP2: Culvert Inflow=2.21 cfs 0.192 af
Outflow=2.21 cfs 0.192 af

Reach DP4: DP#4 Inflow=6.22 cfs 0.501 af
Outflow=6.22 cfs 0.501 af

Reach FEA: TO CULVERT Inflow=7.31 cfs 0.691 af
Outflow=7.31 cfs 0.691 af

Pond CULVERT#3: TO E12 Peak Elev=1,059.23' Inflow=1.51 cfs 0.127 af
36.0" Round Culvert n=0.011 L=41.2' S=-0.0058 '/' Outflow=1.51 cfs 0.127 af

Pond DCBA: TO DCB-B Peak Elev=1,047.65' Inflow=4.08 cfs 0.328 af
12.0" Round Culvert n=0.013 L=38.0' S=-0.0053 '/' Outflow=4.08 cfs 0.328 af

Pond DCBD: TO DMH-A Peak Elev=1,408.47' Inflow=7.31 cfs 0.691 af
8.0" Round Culvert n=0.025 L=253.0' S=0.0262 '/' Outflow=7.31 cfs 0.691 af

Pond DMHA: TO FE-A Peak Elev=1,343.49' Inflow=7.31 cfs 0.691 af
8.0" Round Culvert n=0.025 L=208.0' S=0.0167 '/' Outflow=7.31 cfs 0.691 af

Total Runoff Area = 7.008 ac Runoff Volume = 2.923 af Average Runoff Depth = 5.01"
43.91% Pervious = 3.078 ac 56.09% Impervious = 3.931 ac

Summary for Subcatchment E10: OVERLAND TO CULVERT

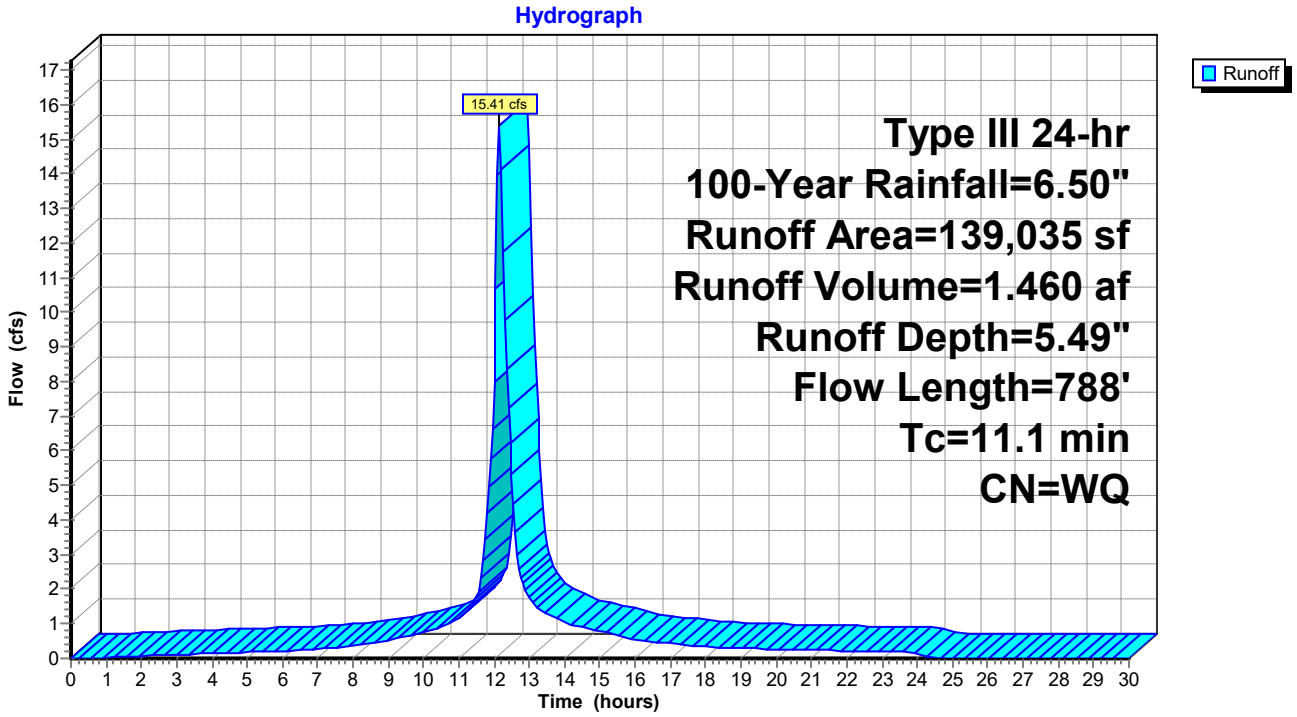
Runoff = 15.41 cfs @ 12.15 hrs, Volume= 1.460 af, Depth= 5.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
31,437	74	>75% Grass cover, Good, HSG C
7,879	70	Woods, Good, HSG C
99,207	98	Paved parking, HSG C
512	96	Gravel surface, HSG C
139,035		Weighted Average
39,828		28.65% Pervious Area
99,207		71.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	42	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.8	33	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	10	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	218	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.4	237	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	135	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	35	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	78	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.1	788	Total			

Subcatchment E10: OVERLAND TO CULVERT



Summary for Subcatchment E11: TO DCB-D

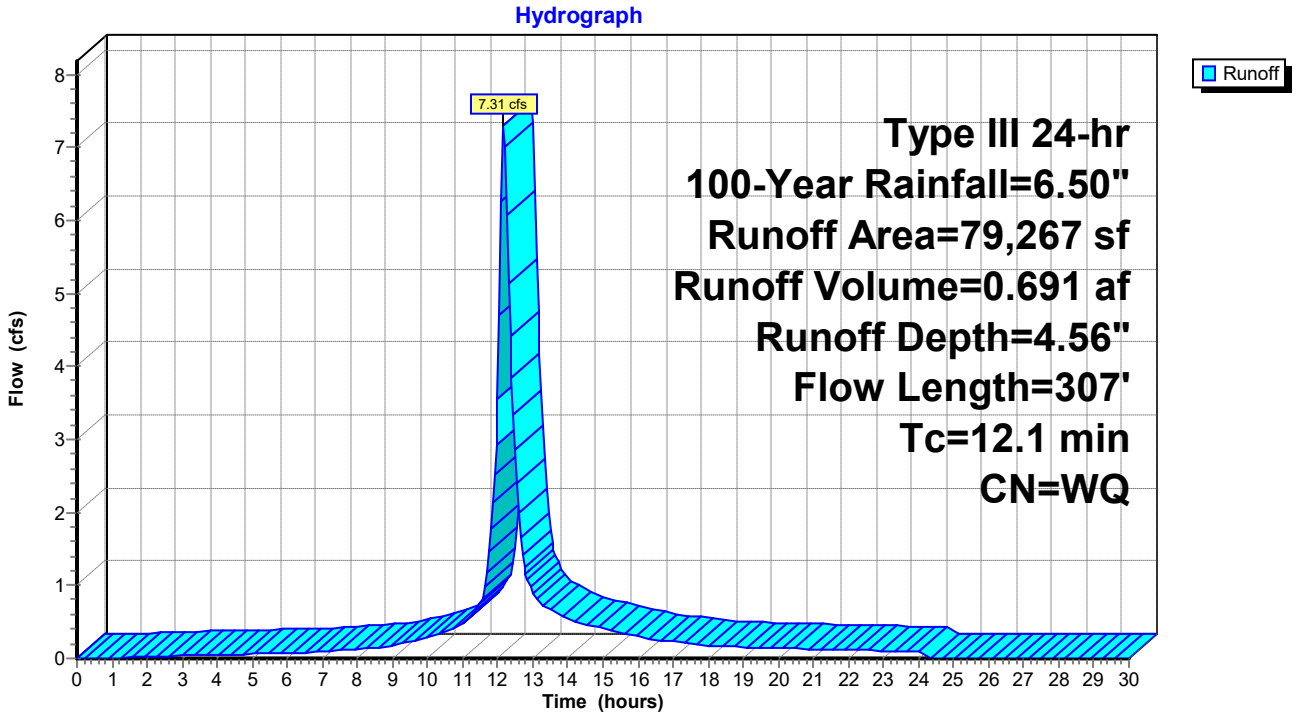
Runoff = 7.31 cfs @ 12.17 hrs, Volume= 0.691 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
4,985	74	>75% Grass cover, Good, HSG C
39,922	70	Woods, Good, HSG C
34,360	98	Paved parking, HSG C
79,267		Weighted Average
44,907		56.65% Pervious Area
34,360		43.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	44	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.7	31	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	15	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.2	198	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	19	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.1	307	Total			

Subcatchment E11: TO DCB-D



Summary for Subcatchment E12: (CULVERT)

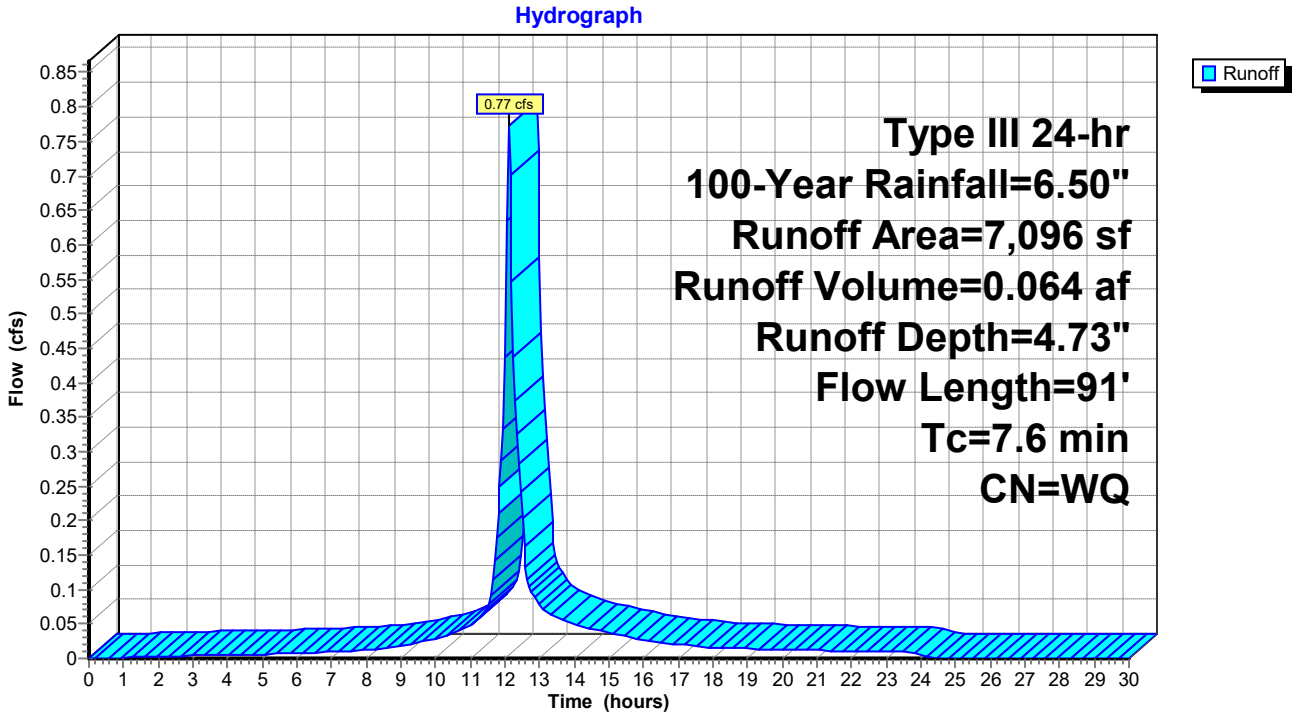
Runoff = 0.77 cfs @ 12.11 hrs, Volume= 0.064 af, Depth= 4.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
1,158	74	>75% Grass cover, Good, HSG C
2,555	70	Woods, Good, HSG C
3,383	98	Paved parking, HSG C
7,096		Weighted Average
3,713		52.33% Pervious Area
3,383		47.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0500	1.33		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	3	0.0500	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	1	0.0500	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
6.5	55	0.1300	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	16	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.6	91	Total			

Subcatchment E12: (CULVERT)



Summary for Subcatchment E13: TO CULVERT

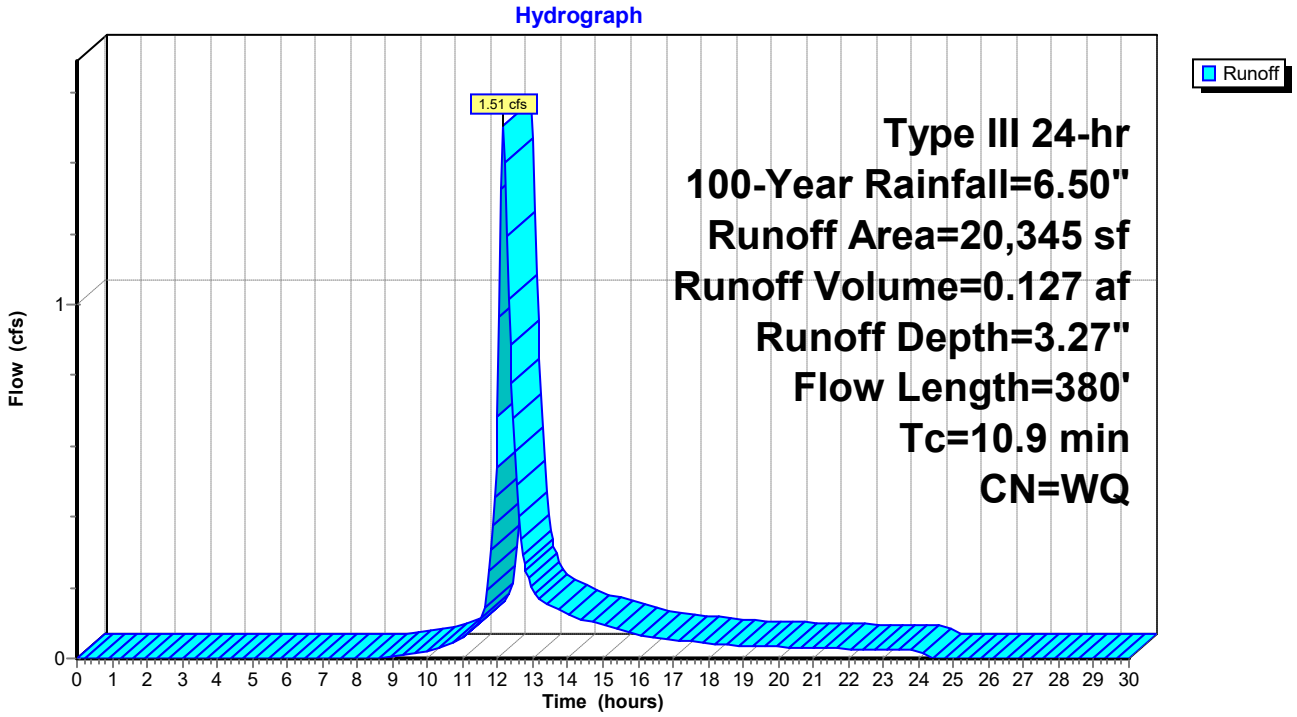
Runoff = 1.51 cfs @ 12.16 hrs, Volume= 0.127 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
3,243	74	>75% Grass cover, Good, HSG C
17,102	70	Woods, Good, HSG C
20,345		Weighted Average
20,345		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	75	0.2400	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	25	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	69	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	7	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	43	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	71	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	17	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	73	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.9	380	Total			

Subcatchment E13: TO CULVERT



Summary for Subcatchment E14: TO DCB-A

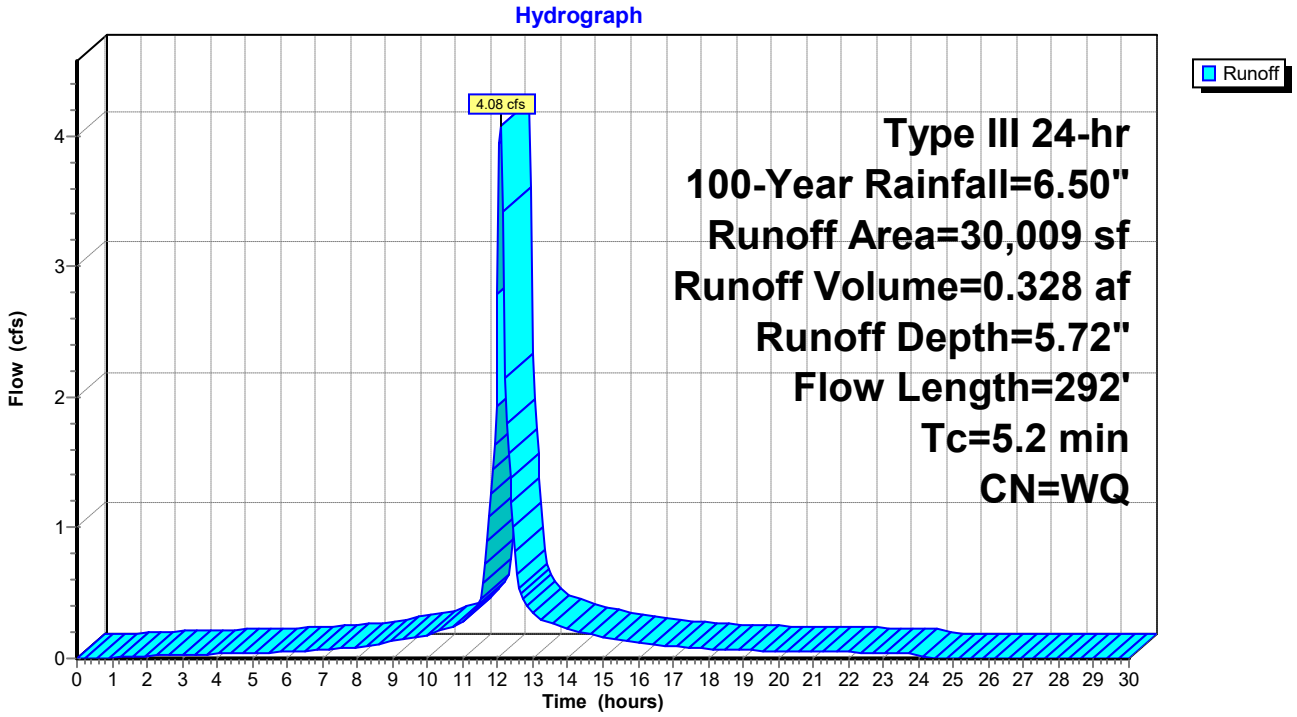
Runoff = 4.08 cfs @ 12.07 hrs, Volume= 0.328 af, Depth= 5.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
5,894	74	>75% Grass cover, Good, HSG C
22,855	98	Paved parking, HSG C
125	70	Woods, Good, HSG C
1,135	96	Gravel surface, HSG C
30,009		Weighted Average
7,154		23.84% Pervious Area
22,855		76.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment E14: TO DCB-A



Summary for Subcatchment E15: TO DCB-C

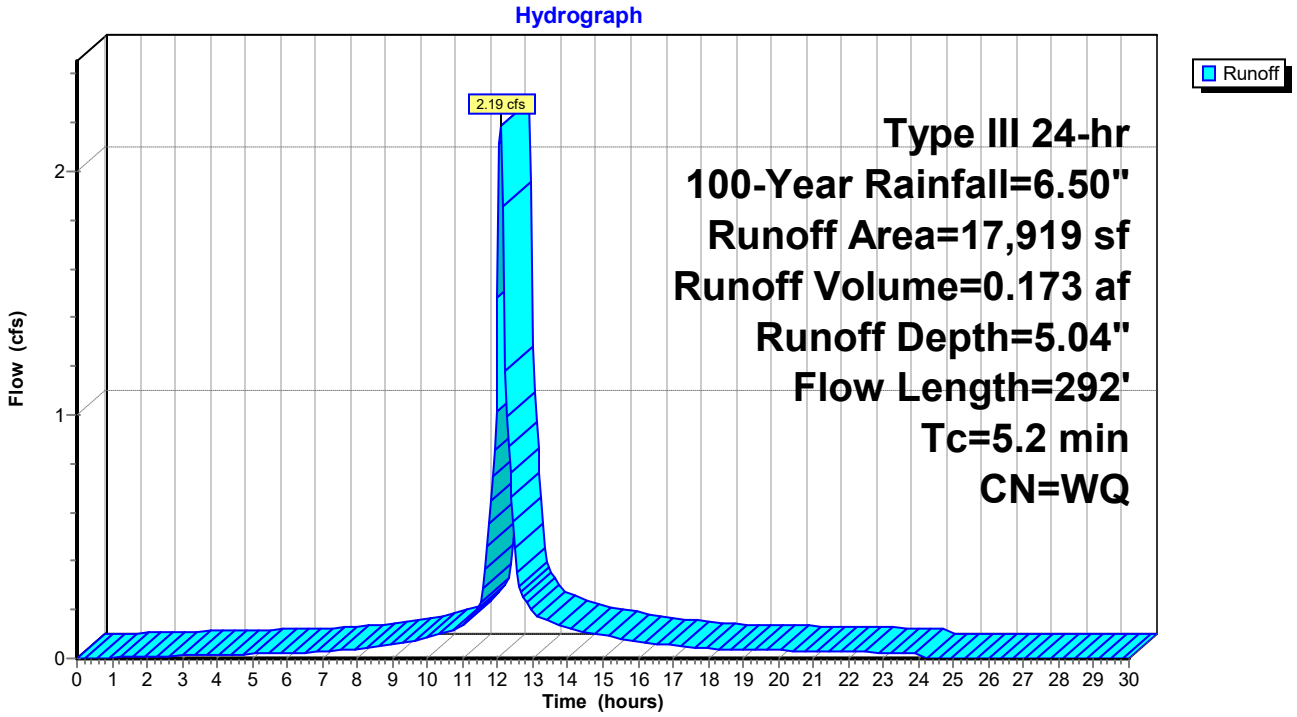
Runoff = 2.19 cfs @ 12.08 hrs, Volume= 0.173 af, Depth= 5.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
4,649	74	>75% Grass cover, Good, HSG C
10,134	98	Paved parking, HSG C
3,136	70	Woods, Good, HSG C
17,919		Weighted Average
7,785		43.45% Pervious Area
10,134		56.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment E15: TO DCB-C



Summary for Subcatchment E31: TO DP#3 (CULVERT)

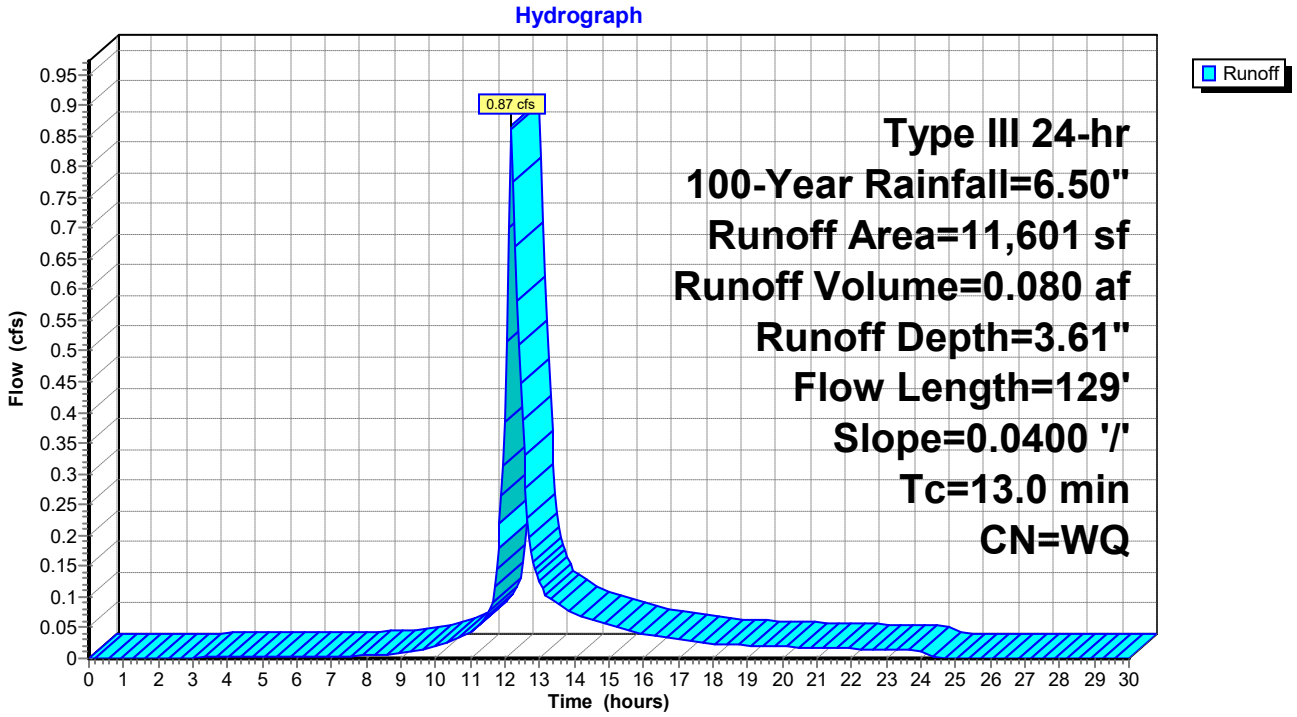
Runoff = 0.87 cfs @ 12.18 hrs, Volume= 0.080 af, Depth= 3.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
2,060	74	>75% Grass cover, Good, HSG C
1,275	98	Paved parking, HSG C
8,266	70	Woods, Good, HSG C
11,601		Weighted Average
10,326		89.01% Pervious Area
1,275		10.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	4	0.0400	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
6.8	54	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
2.0	7	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
2.7	10	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	54	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.0	129	Total			

Subcatchment E31: TO DP#3 (CULVERT)

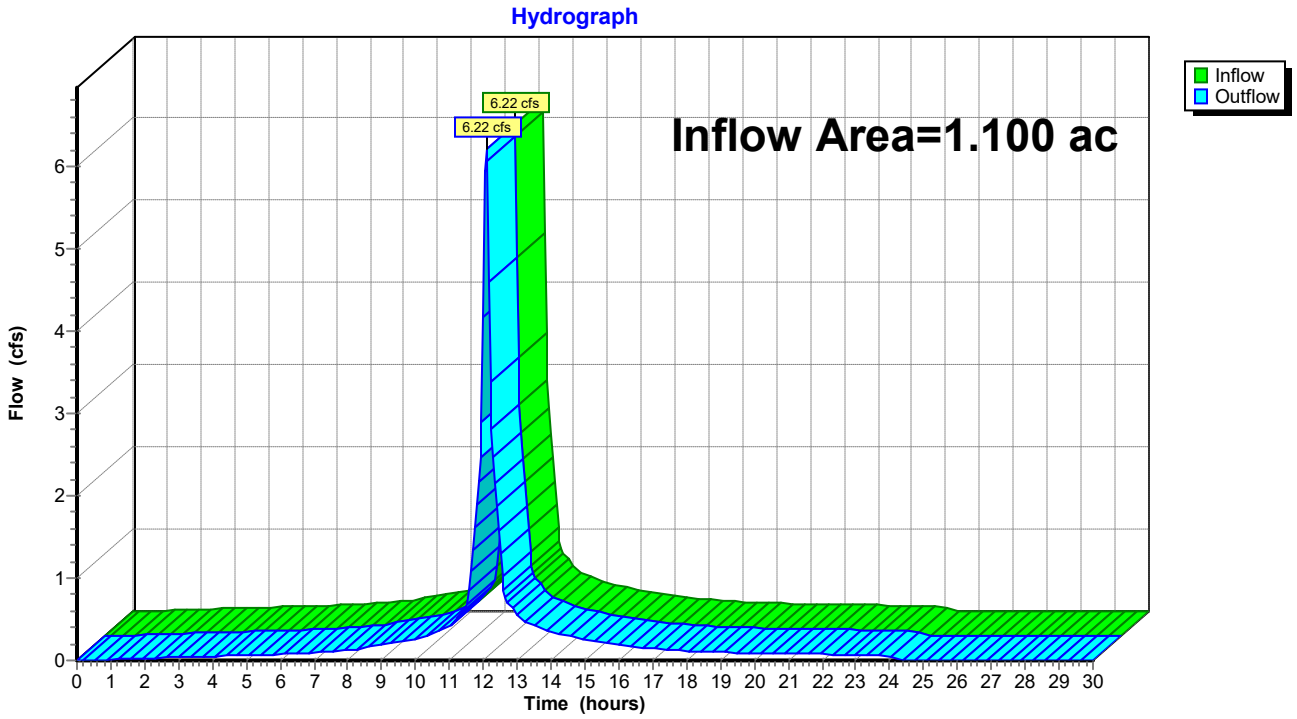


Summary for Reach DCBB: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 5.46" for 100-Year event
Inflow = 6.22 cfs @ 12.08 hrs, Volume= 0.501 af
Outflow = 6.22 cfs @ 12.08 hrs, Volume= 0.501 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DCBB: DP#4



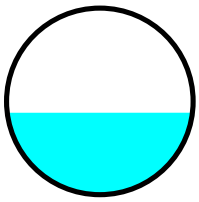
Summary for Reach DCBC: TO DCB-B

Inflow Area = 0.411 ac, 56.55% Impervious, Inflow Depth = 5.04" for 100-Year event
Inflow = 2.19 cfs @ 12.08 hrs, Volume= 0.173 af
Outflow = 2.17 cfs @ 12.09 hrs, Volume= 0.173 af, Atten= 1%, Lag= 0.6 min

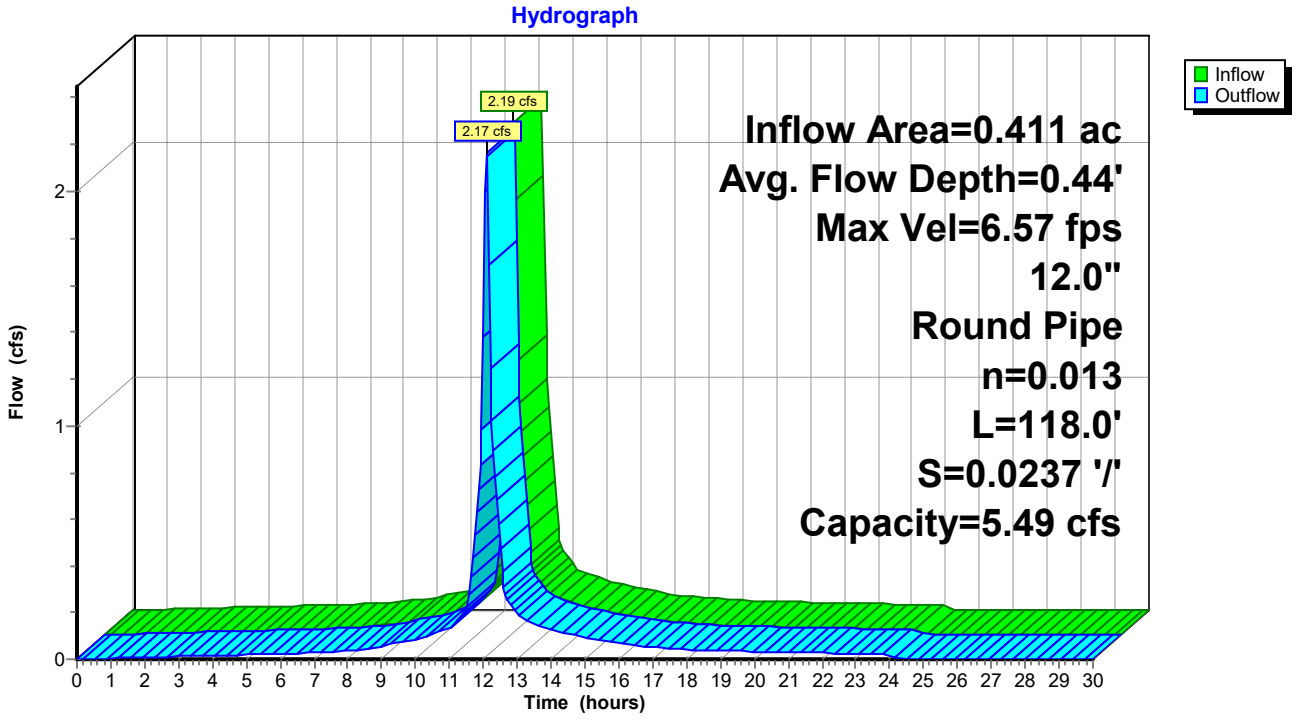
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.57 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.16 fps, Avg. Travel Time= 0.9 min

Peak Storage= 39 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.49 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 118.0' Slope= 0.0237 '/'
Inlet Invert= 1,048.10', Outlet Invert= 1,045.30'



Reach DCBC: TO DCB-B



Stage-Discharge for Reach DCBC: TO DCB-B

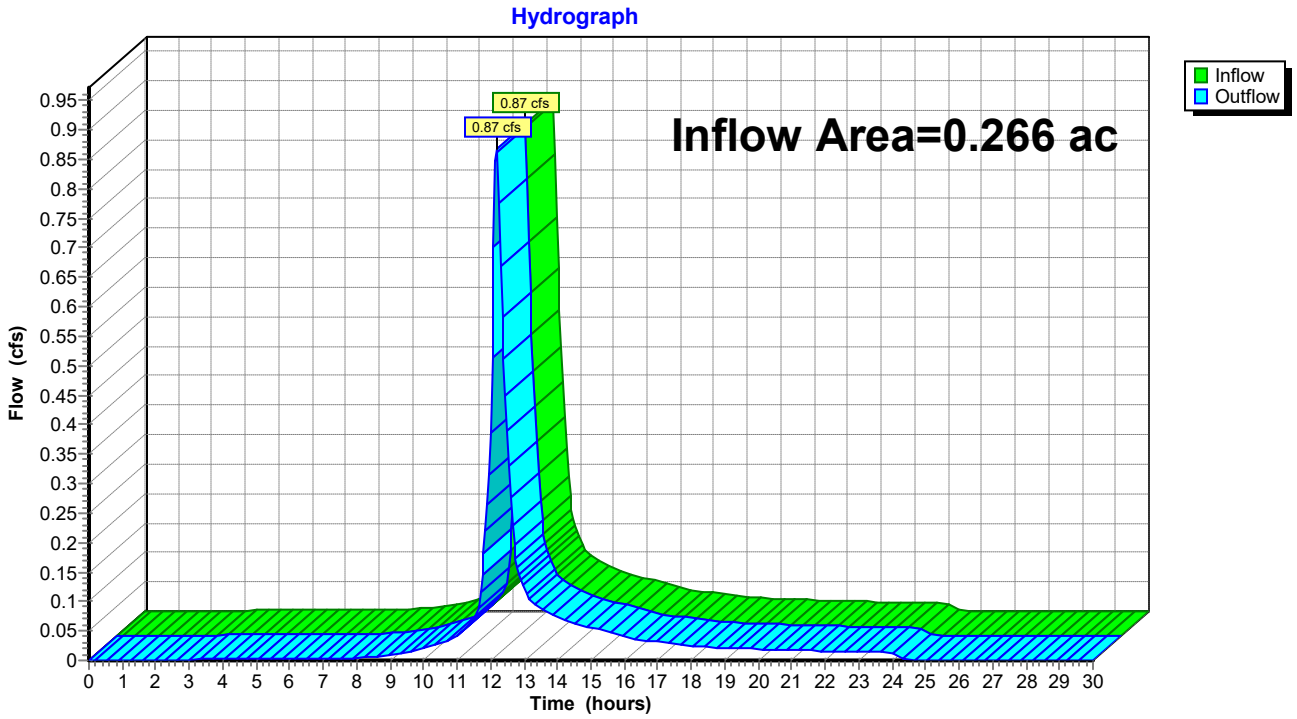
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,048.10	0.00	0.00
1,048.11	0.62	0.00
1,048.12	0.98	0.00
1,048.13	1.29	0.01
1,048.14	1.55	0.02
1,048.15	1.80	0.03
1,048.16	2.02	0.04
1,048.17	2.23	0.05
1,048.18	2.43	0.07
1,048.19	2.62	0.09
1,048.20	2.80	0.11
1,048.21	2.98	0.14
1,048.22	3.14	0.17
1,048.23	3.31	0.20
1,048.24	3.46	0.23
1,048.25	3.61	0.27
1,048.26	3.76	0.30
1,048.27	3.90	0.35
1,048.28	4.04	0.39
1,048.29	4.17	0.43
1,048.30	4.30	0.48
1,048.31	4.42	0.53
1,048.32	4.55	0.58
1,048.33	4.67	0.64
1,048.34	4.78	0.69
1,048.35	4.90	0.75
1,048.36	5.01	0.81
1,048.37	5.11	0.88
1,048.38	5.22	0.94
1,048.39	5.32	1.01
1,048.40	5.42	1.07
1,048.41	5.52	1.15
1,048.42	5.62	1.22
1,048.43	5.71	1.29
1,048.44	5.80	1.37
1,048.45	5.89	1.44
1,048.46	5.98	1.52
1,048.47	6.06	1.60
1,048.48	6.14	1.68
1,048.49	6.23	1.77
1,048.50	6.30	1.85
1,048.51	6.38	1.93
1,048.52	6.46	2.02
1,048.53	6.53	2.11
1,048.54	6.60	2.20
1,048.55	6.67	2.29
1,048.56	6.74	2.38
1,048.57	6.80	2.47
1,048.58	6.87	2.56
1,048.59	6.93	2.65
1,048.60	6.99	2.74
1,048.61	7.05	2.84
1,048.62	7.10	2.93
1,048.63	7.16	3.03
1,048.64	7.21	3.12
1,048.65	7.26	3.21
1,048.66	7.31	3.31
1,048.67	7.36	3.40
1,048.68	7.41	3.50
1,048.69	7.45	3.59
1,048.70	7.49	3.69
1,048.71	7.53	3.78
1,048.72	7.57	3.87
1,048.73	7.61	3.97
1,048.74	7.65	4.06
1,048.75	7.68	4.15
1,048.76	7.71	4.24
1,048.77	7.74	4.33
1,048.78	7.77	4.42
1,048.79	7.80	4.51
1,048.80	7.82	4.59
1,048.81	7.85	4.68
1,048.82	7.87	4.76
1,048.83	7.89	4.85
1,048.84	7.91	4.93
1,048.85	7.92	5.00
1,048.86	7.93	5.08
1,048.87	7.94	5.16
1,048.88	7.95	5.23
1,048.89	7.96	5.30
1,048.90	7.96	5.36
1,048.91	**7.97**	5.43
1,048.92	7.97	5.49
1,048.93	7.96	5.55
1,048.94	7.96	5.60
1,048.95	7.95	5.66
1,048.96	7.94	5.70
1,048.97	7.92	5.75
1,048.98	7.90	5.79
1,048.99	7.88	5.82
1,049.00	7.86	5.85
1,049.01	7.83	5.87
1,049.02	7.79	5.89
1,049.03	7.75	5.90
1,049.04	7.71	**5.90**
1,049.05	7.65	5.90
1,049.06	7.59	5.88
1,049.07	7.51	5.85
1,049.08	7.42	5.80
1,049.09	7.29	5.72
1,049.10	6.99	5.49

Summary for Reach DP#3: TO OFF SITE (NEED INVERTS)

Inflow Area = 0.266 ac, 10.99% Impervious, Inflow Depth = 3.61" for 100-Year event
Inflow = 0.87 cfs @ 12.18 hrs, Volume= 0.080 af
Outflow = 0.87 cfs @ 12.18 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP#3: TO OFF SITE (NEED INVERTS)



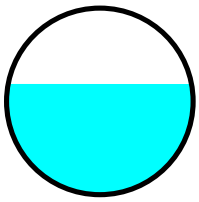
Summary for Reach DP1: CULVERT

Inflow Area = 5.012 ac, 61.18% Impervious, Inflow Depth = 5.15" for 100-Year event
Inflow = 22.69 cfs @ 12.16 hrs, Volume= 2.151 af
Outflow = 22.62 cfs @ 12.16 hrs, Volume= 2.151 af, Atten= 0%, Lag= 0.2 min

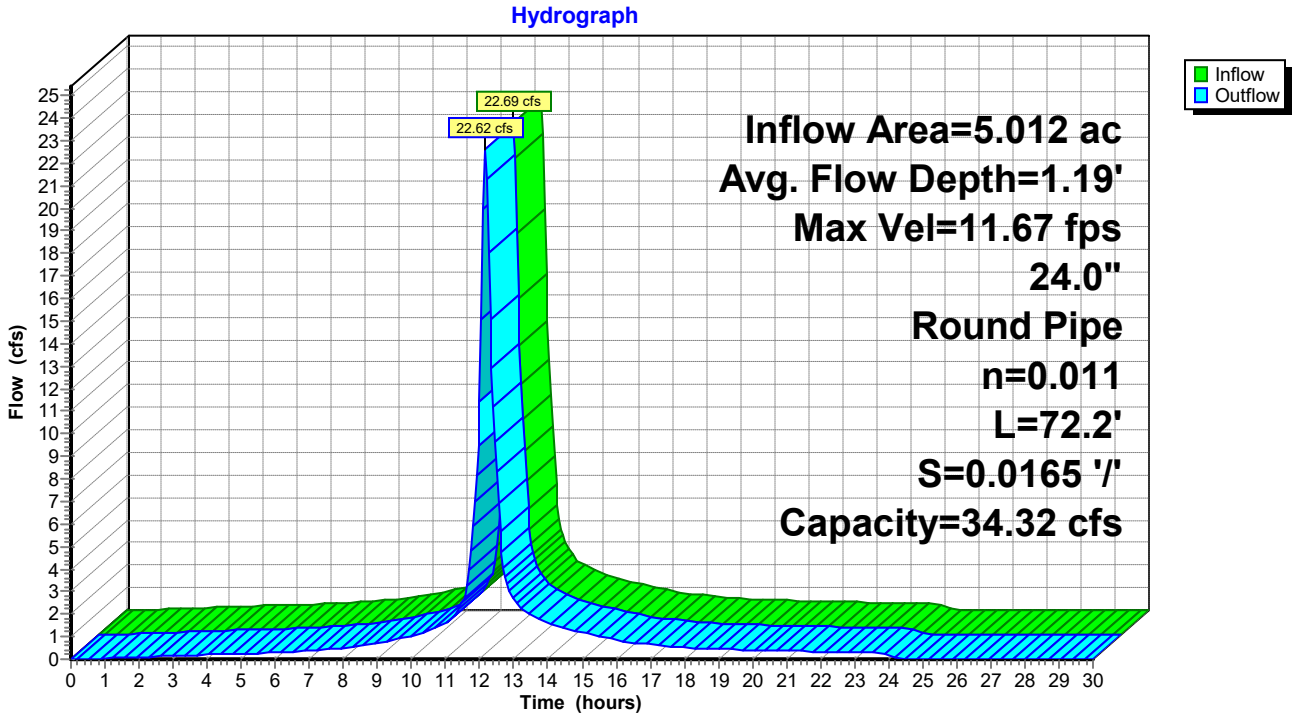
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.67 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.13 fps, Avg. Travel Time= 0.3 min

Peak Storage= 140 cf @ 12.16 hrs
Average Depth at Peak Storage= 1.19'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 34.32 cfs

24.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 72.2' Slope= 0.0165 '/'
Inlet Invert= 1,049.69', Outlet Invert= 1,048.50'



Reach DP1: CULVERT



Stage-Discharge for Reach DP1: CULVERT

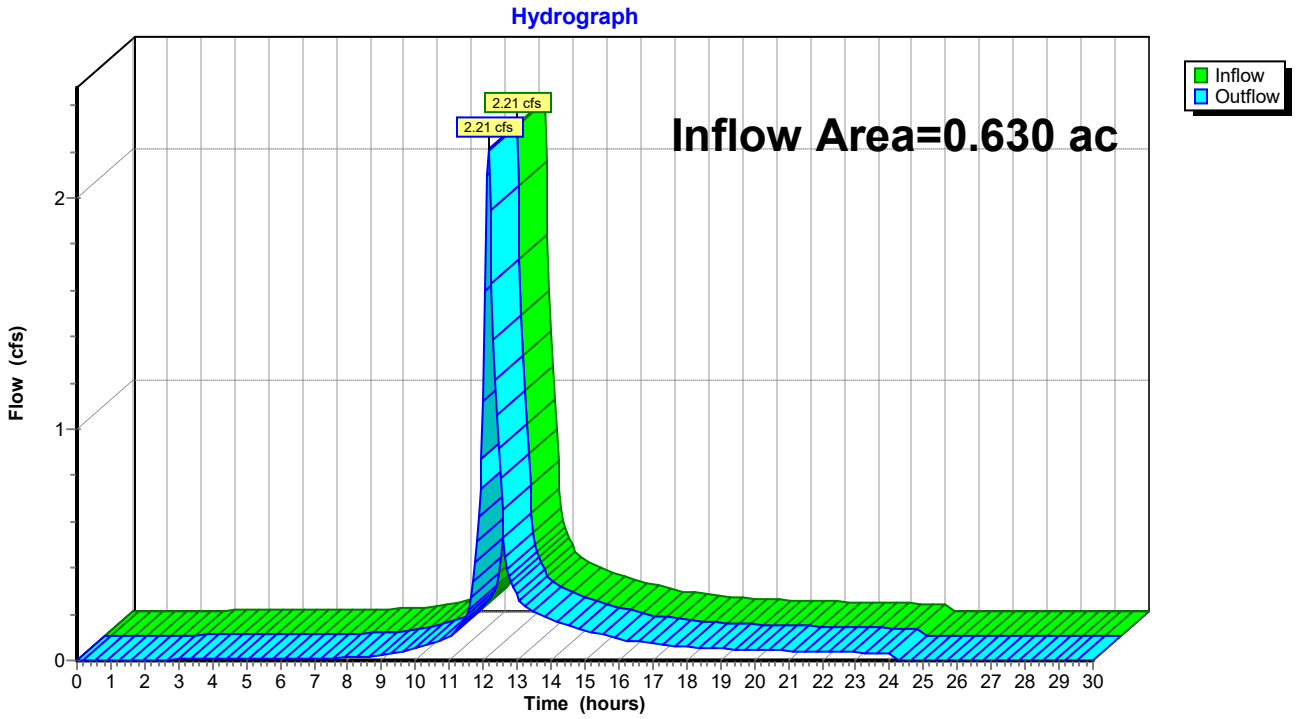
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,049.69	0.00	0.00
1,049.71	0.97	0.01
1,049.73	1.54	0.02
1,049.75	2.01	0.06
1,049.77	2.43	0.10
1,049.79	2.81	0.16
1,049.81	3.16	0.24
1,049.83	3.49	0.34
1,049.85	3.80	0.45
1,049.87	4.10	0.57
1,049.89	4.38	0.72
1,049.91	4.65	0.88
1,049.93	4.92	1.05
1,049.95	5.17	1.24
1,049.97	5.41	1.45
1,049.99	5.65	1.67
1,050.01	5.87	1.91
1,050.03	6.09	2.16
1,050.05	6.31	2.43
1,050.07	6.52	2.71
1,050.09	6.72	3.01
1,050.11	6.92	3.32
1,050.13	7.11	3.64
1,050.15	7.30	3.98
1,050.17	7.48	4.34
1,050.19	7.66	4.70
1,050.21	7.83	5.08
1,050.23	8.00	5.47
1,050.25	8.16	5.88
1,050.27	8.32	6.29
1,050.29	8.48	6.72
1,050.31	8.63	7.16
1,050.33	8.78	7.61
1,050.35	8.93	8.07
1,050.37	9.07	8.54
1,050.39	9.21	9.03
1,050.41	9.35	9.52
1,050.43	9.48	10.02
1,050.45	9.61	10.52
1,050.47	9.73	11.04
1,050.49	9.86	11.57
1,050.51	9.98	12.10
1,050.53	10.09	12.64
1,050.55	10.21	13.19
1,050.57	10.32	13.74
1,050.59	10.43	14.30
1,050.61	10.53	14.86
1,050.63	10.63	15.43
1,050.65	10.73	16.00
1,050.67	10.83	16.58
1,050.69	10.93	17.16
1,050.71	11.02	17.75
1,050.73	11.11	18.33
1,050.75	11.19	18.92
1,050.77	11.27	19.51
1,050.79	11.36	20.10
1,050.81	11.43	20.70
1,050.83	11.51	21.29
1,050.85	11.58	21.88
1,050.87	11.65	22.47
1,050.89	11.72	23.06
1,050.91	11.78	23.65
1,050.93	11.84	24.23
1,050.95	11.90	24.81
1,050.97	11.96	25.39
1,050.99	12.01	25.96
1,051.01	12.06	26.53
1,051.03	12.11	27.09
1,051.05	12.15	27.65
1,051.07	12.20	28.20
1,051.09	12.23	28.74
1,051.11	12.27	29.27
1,051.13	12.30	29.79
1,051.15	12.33	30.31
1,051.17	12.36	30.81
1,051.19	12.38	31.30
1,051.21	12.40	31.78
1,051.23	12.42	32.24
1,051.25	12.44	32.69
1,051.27	12.45	33.13
1,051.29	12.45	33.55
1,051.31	**12.46**	33.95
1,051.33	12.45	34.34
1,051.35	12.45	34.70
1,051.37	12.44	35.05
1,051.39	12.43	35.37
1,051.41	12.41	35.67
1,051.43	12.39	35.94
1,051.45	12.36	36.18
1,051.47	12.32	36.40
1,051.49	12.28	36.58
1,051.51	12.24	36.73
1,051.53	12.18	36.84
1,051.55	12.12	36.90
1,051.57	12.05	**36.92**
1,051.59	11.96	36.88
1,051.61	11.86	36.77
1,051.63	11.75	36.58
1,051.65	11.60	36.27
1,051.67	11.40	35.76
1,051.69	10.93	34.32

Summary for Reach DP2: Culvert

Inflow Area = 0.630 ac, 12.33% Impervious, Inflow Depth = 3.65" for 100-Year event
Inflow = 2.21 cfs @ 12.14 hrs, Volume= 0.192 af
Outflow = 2.21 cfs @ 12.14 hrs, Volume= 0.192 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: Culvert

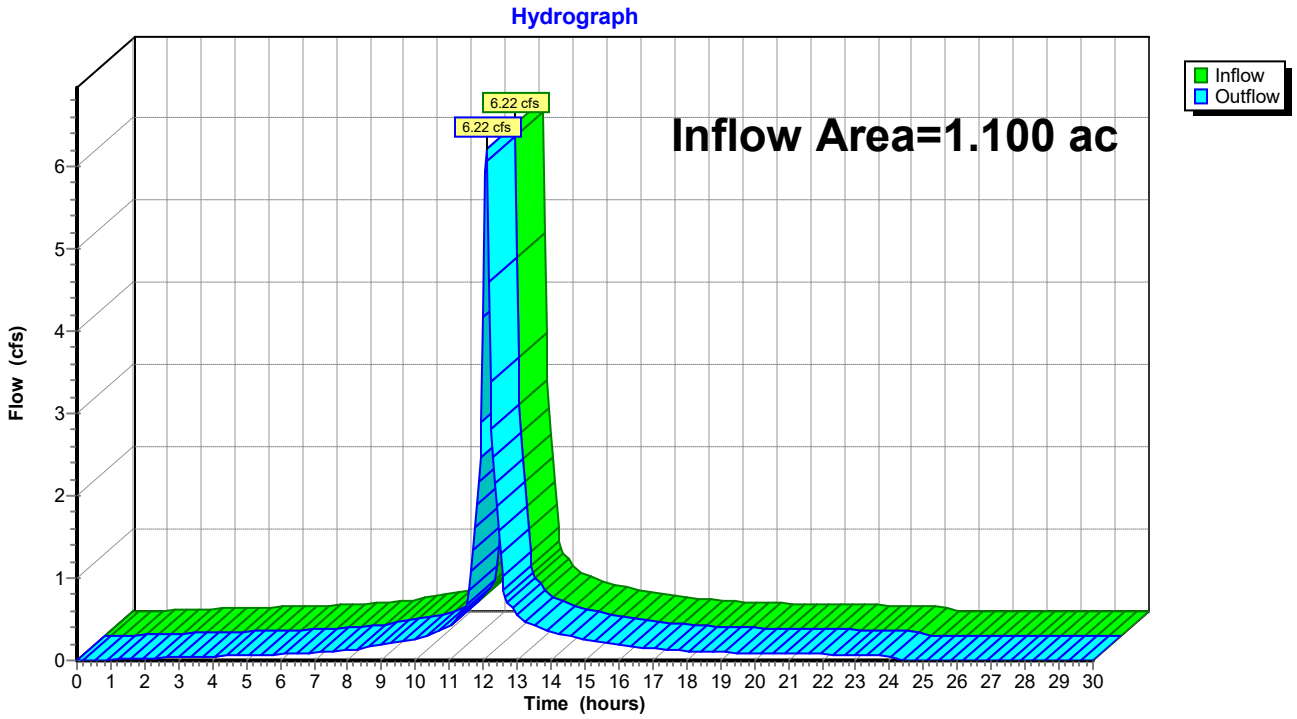


Summary for Reach DP4: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 5.46" for 100-Year event
Inflow = 6.22 cfs @ 12.08 hrs, Volume= 0.501 af
Outflow = 6.22 cfs @ 12.08 hrs, Volume= 0.501 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP4: DP#4

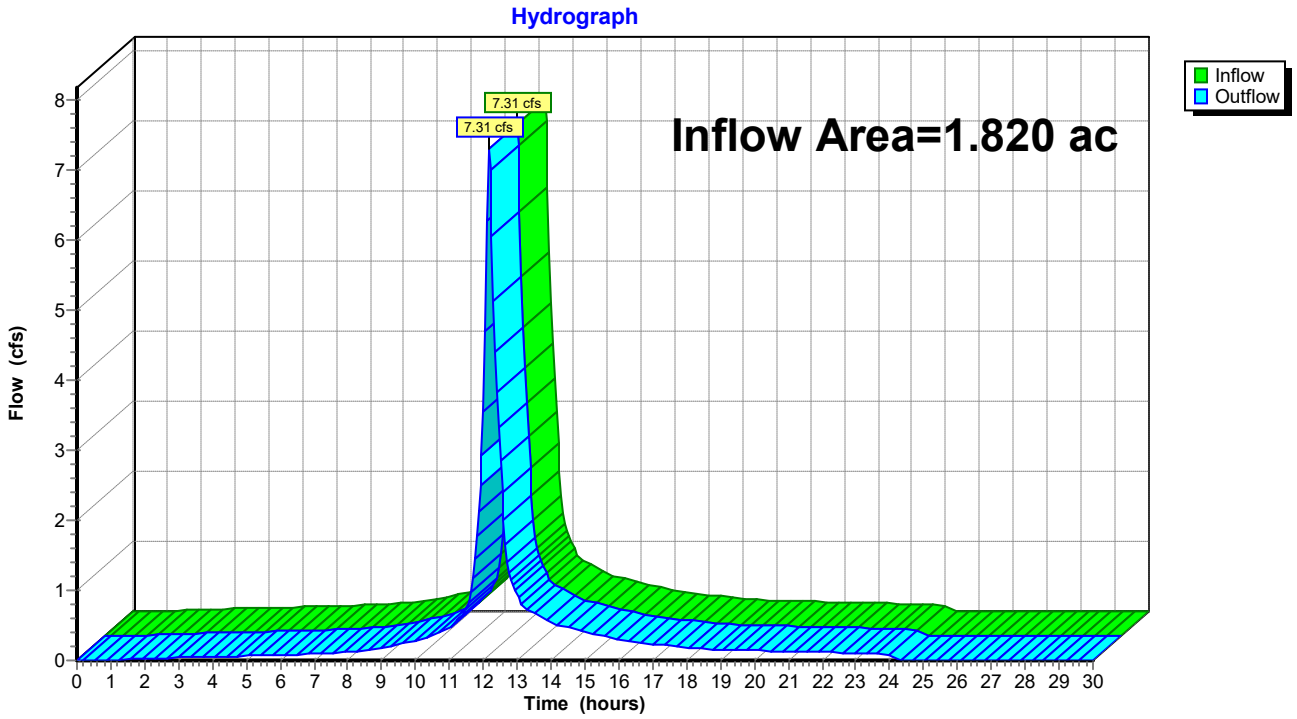


Summary for Reach FEA: TO CULVERT

Inflow Area = 1.820 ac, 43.35% Impervious, Inflow Depth = 4.56" for 100-Year event
Inflow = 7.31 cfs @ 12.17 hrs, Volume= 0.691 af
Outflow = 7.31 cfs @ 12.17 hrs, Volume= 0.691 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach FEA: TO CULVERT



Summary for Pond CULVERT#3: TO E12

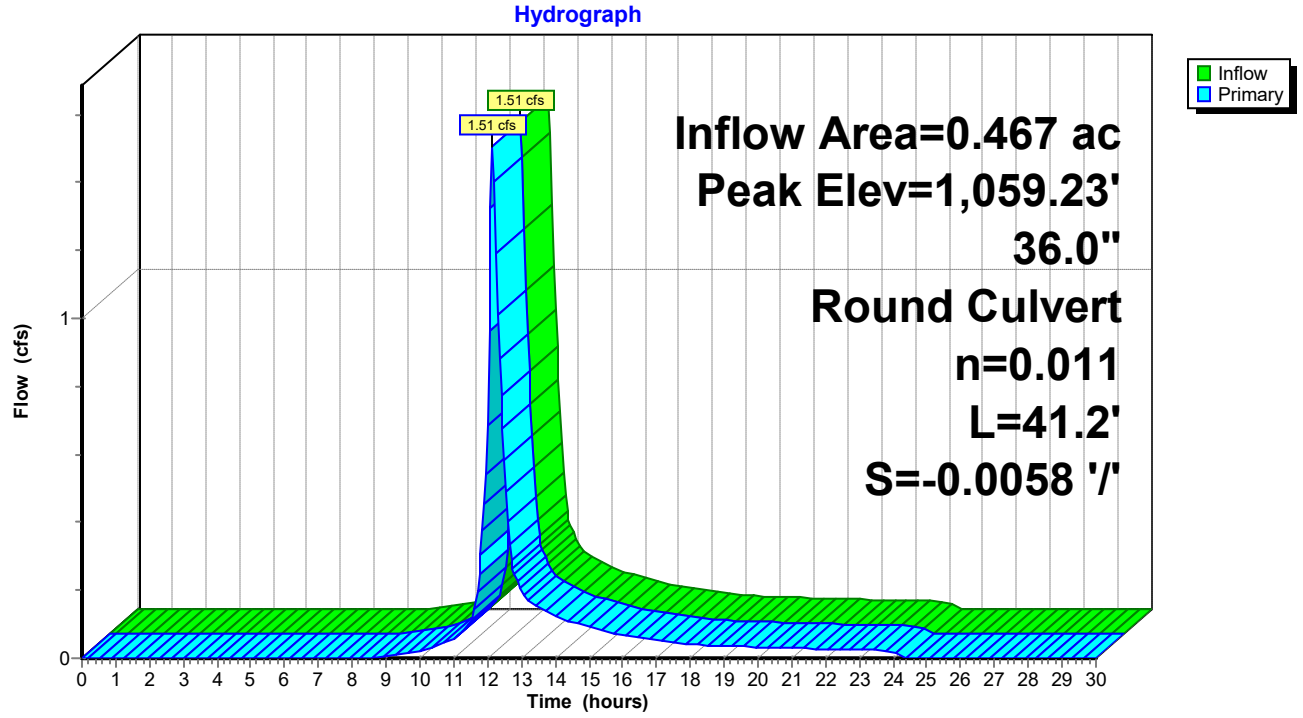
Inflow Area = 0.467 ac, 0.00% Impervious, Inflow Depth = 3.27" for 100-Year event
Inflow = 1.51 cfs @ 12.16 hrs, Volume= 0.127 af
Outflow = 1.51 cfs @ 12.16 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min
Primary = 1.51 cfs @ 12.16 hrs, Volume= 0.127 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,059.23' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,058.78'	**36.0" Round Culvert#3** L= 41.2' Ke= 0.500 Inlet / Outlet Invert= 1,058.54' / 1,058.78' S= -0.0058 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=1.49 cfs @ 12.16 hrs HW=1,059.23' (Free Discharge)
1=Culvert#3 (Inlet Controls 1.49 cfs @ 2.27 fps)

Pond CULVERT#3: TO E12



Stage-Discharge for Pond CULVERT#3: TO E12

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,058.78	0.00	1,059.82	6.54	1,060.86	19.98
1,058.80	0.00	1,059.84	6.74	1,060.88	20.28
1,058.82	0.01	1,059.86	6.95	1,060.90	20.59
1,058.84	0.03	1,059.88	7.16	1,060.92	20.89
1,058.86	0.05	1,059.90	7.37	1,060.94	21.20
1,058.88	0.08	1,059.92	7.58	1,060.96	21.50
1,058.90	0.11	1,059.94	7.80	1,060.98	21.81
1,058.92	0.15	1,059.96	8.02	1,061.00	22.12
1,058.94	0.20	1,059.98	8.24	1,061.02	22.43
1,058.96	0.25	1,060.00	8.46	1,061.04	22.74
1,058.98	0.31	1,060.02	8.69	1,061.06	23.05
1,059.00	0.37	1,060.04	8.92	1,061.08	23.36
1,059.02	0.44	1,060.06	9.15	1,061.10	23.67
1,059.04	0.52	1,060.08	9.38	1,061.12	23.99
1,059.06	0.60	1,060.10	9.62	1,061.14	24.30
1,059.08	0.69	1,060.12	9.85	1,061.16	24.61
1,059.10	0.78	1,060.14	10.09	1,061.18	24.93
1,059.12	0.88	1,060.16	10.33	1,061.20	25.24
1,059.14	0.98	1,060.18	10.58	1,061.22	25.56
1,059.16	1.09	1,060.20	10.82	1,061.24	25.87
1,059.18	1.21	1,060.22	11.07	1,061.26	26.19
1,059.20	1.33	1,060.24	11.32	1,061.28	26.50
1,059.22	1.45	1,060.26	11.58	1,061.30	26.82
1,059.24	1.59	1,060.28	11.83	1,061.32	27.14
1,059.26	1.72	1,060.30	12.09	1,061.34	27.45
1,059.28	1.86	1,060.32	12.35	1,061.36	27.77
1,059.30	2.01	1,060.34	12.61	1,061.38	28.09
1,059.32	2.16	1,060.36	12.87	1,061.40	28.40
1,059.34	2.32	1,060.38	13.14	1,061.42	28.72
1,059.36	2.49	1,060.40	13.40	1,061.44	29.04
1,059.38	2.65	1,060.42	13.67	1,061.46	29.35
1,059.40	2.83	1,060.44	13.94	1,061.48	29.67
1,059.42	3.01	1,060.46	14.21	1,061.50	29.98
1,059.44	3.19	1,060.48	14.49	1,061.52	30.30
1,059.46	3.36	1,060.50	14.76	1,061.54	30.61
1,059.48	3.51	1,060.52	15.04	1,061.56	30.93
1,059.50	3.67	1,060.54	15.32	1,061.58	31.24
1,059.52	3.82	1,060.56	15.60	1,061.60	31.55
1,059.54	3.99	1,060.58	15.88	1,061.62	31.87
1,059.56	4.15	1,060.60	16.16	1,061.64	32.18
1,059.58	4.32	1,060.62	16.45	1,061.66	32.49
1,059.60	4.49	1,060.64	16.74	1,061.68	32.80
1,059.62	4.66	1,060.66	17.03	1,061.70	33.11
1,059.64	4.83	1,060.68	17.31	1,061.72	33.42
1,059.66	5.01	1,060.70	17.61	1,061.74	33.72
1,059.68	5.19	1,060.72	17.90	1,061.76	34.03
1,059.70	5.38	1,060.74	18.19	1,061.78	**34.33**
1,059.72	5.57	1,060.76	18.49		
1,059.74	5.76	1,060.78	18.78		
1,059.76	5.95	1,060.80	19.08		
1,059.78	6.14	1,060.82	19.38		
1,059.80	6.34	1,060.84	19.68		

Summary for Pond DCBA: TO DCB-B

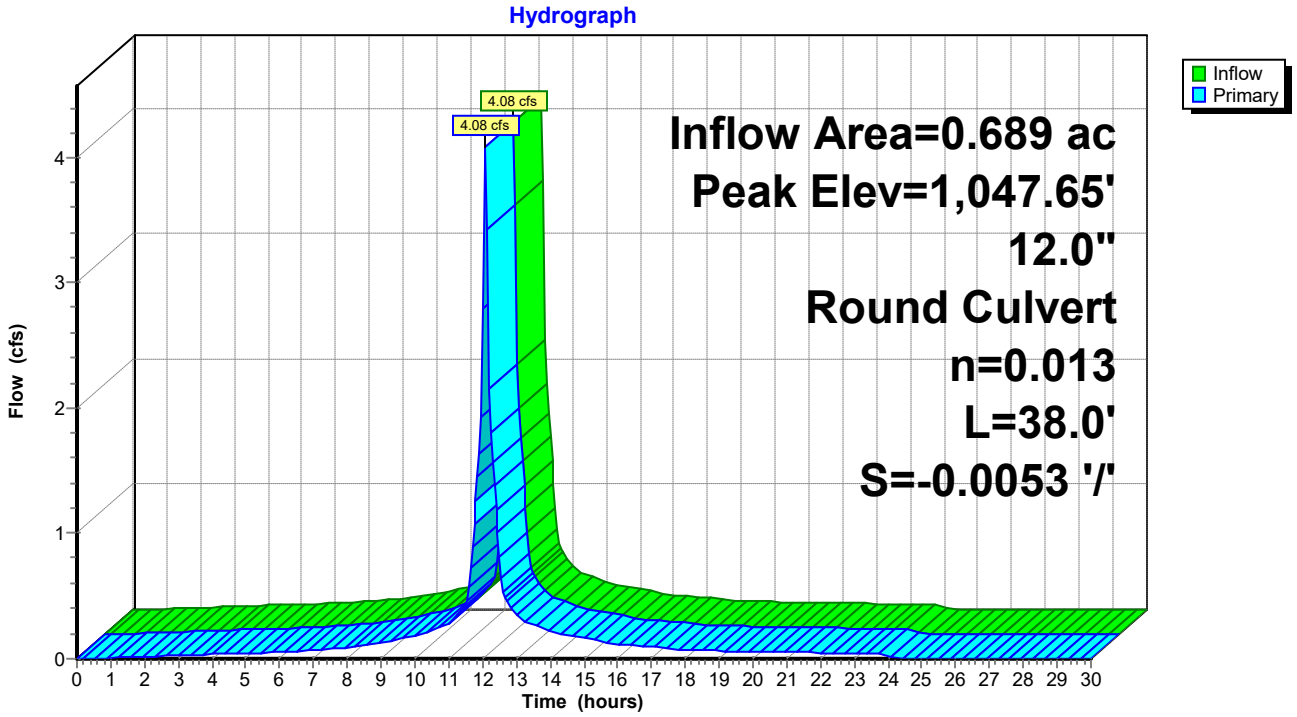
Inflow Area = 0.689 ac, 76.16% Impervious, Inflow Depth = 5.72" for 100-Year event
Inflow = 4.08 cfs @ 12.07 hrs, Volume= 0.328 af
Outflow = 4.08 cfs @ 12.07 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min
Primary = 4.08 cfs @ 12.07 hrs, Volume= 0.328 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,047.65' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,045.30'	**12.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,045.10' / 1,045.30' S= -0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.94 cfs @ 12.07 hrs HW=1,047.54' (Free Discharge)
1=Culvert (Inlet Controls 3.94 cfs @ 5.01 fps)

Pond DCBA: TO DCB-B



Stage-Discharge for Pond DCBA: TO DCB-B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,045.30	0.00	1,046.34	2.01	1,047.38	3.75
1,045.32	0.00	1,046.36	2.04	1,047.40	3.78
1,045.34	0.01	1,046.38	2.06	1,047.42	3.80
1,045.36	0.01	1,046.40	2.08	1,047.44	3.82
1,045.38	0.02	1,046.42	2.09	1,047.46	3.85
1,045.40	0.03	1,046.44	2.09	1,047.48	3.87
1,045.42	0.05	1,046.46	2.15	1,047.50	3.89
1,045.44	0.07	1,046.48	2.21	1,047.52	3.92
1,045.46	0.09	1,046.50	2.27	1,047.54	3.94
1,045.48	0.11	1,046.52	2.32	1,047.56	**3.96**
1,045.50	0.13	1,046.54	2.38		
1,045.52	0.16	1,046.56	2.43		
1,045.54	0.19	1,046.58	2.48		
1,045.56	0.22	1,046.60	2.53		
1,045.58	0.26	1,046.62	2.58		
1,045.60	0.29	1,046.64	2.63		
1,045.62	0.33	1,046.66	2.68		
1,045.64	0.37	1,046.68	2.73		
1,045.66	0.41	1,046.70	2.78		
1,045.68	0.45	1,046.72	2.82		
1,045.70	0.50	1,046.74	2.87		
1,045.72	0.55	1,046.76	2.91		
1,045.74	0.59	1,046.78	2.96		
1,045.76	0.64	1,046.80	2.99		
1,045.78	0.69	1,046.82	3.02		
1,045.80	0.75	1,046.84	3.04		
1,045.82	0.80	1,046.86	3.07		
1,045.84	0.85	1,046.88	3.10		
1,045.86	0.91	1,046.90	3.13		
1,045.88	0.97	1,046.92	3.16		
1,045.90	1.02	1,046.94	3.19		
1,045.92	1.08	1,046.96	3.22		
1,045.94	1.12	1,046.98	3.24		
1,045.96	1.17	1,047.00	3.27		
1,045.98	1.22	1,047.02	3.30		
1,046.00	1.27	1,047.04	3.32		
1,046.02	1.32	1,047.06	3.35		
1,046.04	1.36	1,047.08	3.38		
1,046.06	1.41	1,047.10	3.40		
1,046.08	1.46	1,047.12	3.43		
1,046.10	1.51	1,047.14	3.46		
1,046.12	1.55	1,047.16	3.48		
1,046.14	1.60	1,047.18	3.51		
1,046.16	1.65	1,047.20	3.53		
1,046.18	1.69	1,047.22	3.56		
1,046.20	1.74	1,047.24	3.58		
1,046.22	1.78	1,047.26	3.61		
1,046.24	1.82	1,047.28	3.63		
1,046.26	1.86	1,047.30	3.66		
1,046.28	1.90	1,047.32	3.68		
1,046.30	1.94	1,047.34	3.70		
1,046.32	1.98	1,047.36	3.73		

Summary for Pond DCBD: TO DMH-A

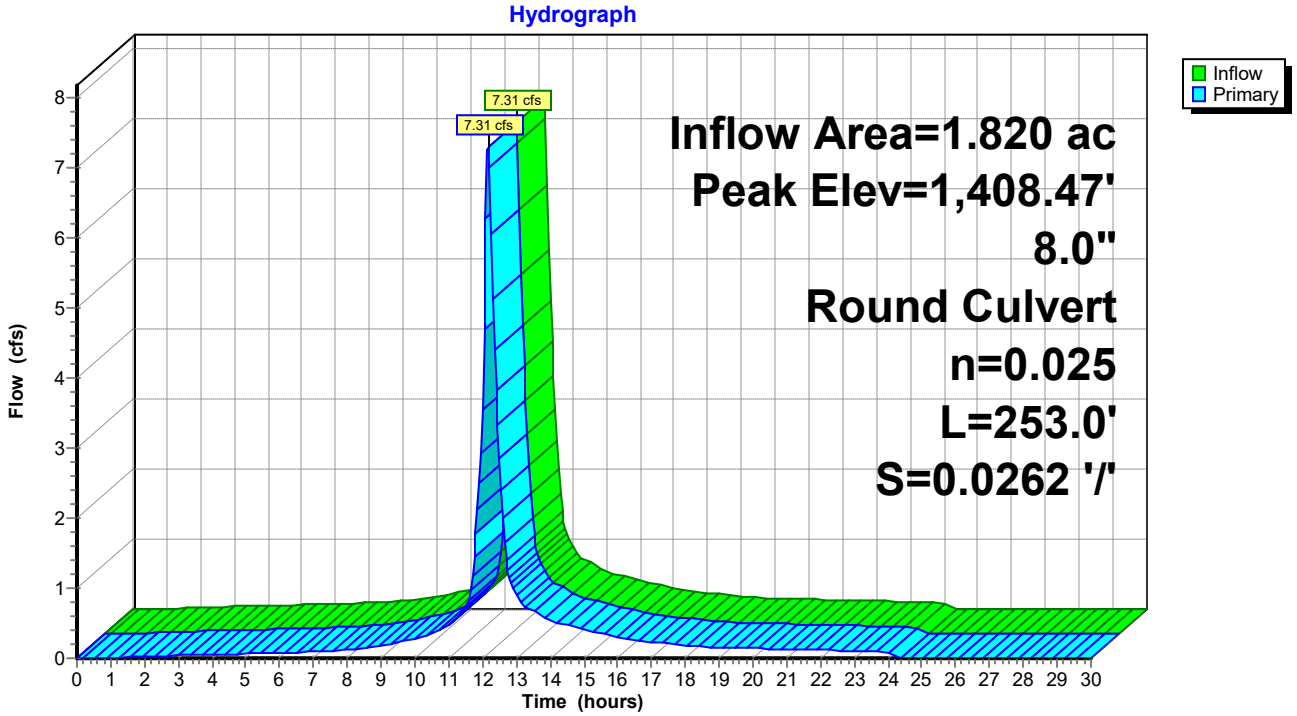
Inflow Area = 1.820 ac, 43.35% Impervious, Inflow Depth = 4.56" for 100-Year event
Inflow = 7.31 cfs @ 12.17 hrs, Volume= 0.691 af
Outflow = 7.31 cfs @ 12.17 hrs, Volume= 0.691 af, Atten= 0%, Lag= 0.0 min
Primary = 7.31 cfs @ 12.17 hrs, Volume= 0.691 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,408.47' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,061.80'	**8.0" Round Culvert** L= 253.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 1,061.80' / 1,055.17' S= 0.0262 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.35 sf

Primary OutFlow Max=7.18 cfs @ 12.17 hrs HW=1,396.78' (Free Discharge)
1=Culvert (Barrel Controls 7.18 cfs @ 20.56 fps)

Pond DCBD: TO DMH-A



Stage-Discharge for Pond DCBD: TO DMH-A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,061.80	0.00	1,241.20	5.29
1,065.25	1.19	1,244.65	5.34
1,068.70	1.39	1,248.10	5.39
1,072.15	1.57	1,251.55	5.44
1,075.60	1.73	1,255.00	5.49
1,079.05	1.87	1,258.45	5.53
1,082.50	2.01	1,261.90	5.58
1,085.95	2.13	1,265.35	5.63
1,089.40	2.25	1,268.80	5.67
1,092.85	2.36	1,272.25	5.72
1,096.30	2.47	1,275.70	5.76
1,099.75	2.58	1,279.15	5.81
1,103.20	2.68	1,282.60	5.85
1,106.65	2.77	1,286.05	5.90
1,110.10	2.86	1,289.50	5.94
1,113.55	2.95	1,292.95	5.99
1,117.00	3.04	1,296.40	6.03
1,120.45	3.12	1,299.85	6.07
1,123.90	3.21	1,303.30	6.11
1,127.35	3.29	1,306.75	6.16
1,130.80	3.37	1,310.20	6.20
1,134.25	3.44	1,313.65	6.24
1,137.70	3.52	1,317.10	6.28
1,141.15	3.59	1,320.55	6.32
1,144.60	3.66	1,324.00	6.37
1,148.05	3.73	1,327.45	6.41
1,151.50	3.80	1,330.90	6.45
1,154.95	3.87	1,334.35	6.49
1,158.40	3.94	1,337.80	6.53
1,161.85	4.00	1,341.25	6.57
1,165.30	4.07	1,344.70	6.61
1,168.75	4.13	1,348.15	6.65
1,172.20	4.19	1,351.60	6.68
1,175.65	4.25	1,355.05	6.72
1,179.10	4.32	1,358.50	6.76
1,182.55	4.38	1,361.95	6.80
1,186.00	4.43	1,365.40	6.84
1,189.45	4.49	1,368.85	6.88
1,192.90	4.55	1,372.30	6.91
1,196.35	4.61	1,375.75	6.95
1,199.80	4.66	1,379.20	6.99
1,203.25	4.72	1,382.65	7.03
1,206.70	4.77	1,386.10	7.06
1,210.15	4.83	1,389.55	7.10
1,213.60	4.88	1,393.00	7.14
1,217.05	4.94	1,396.45	7.17
1,220.50	4.99	1,399.90	7.21
1,223.95	5.04	1,403.35	**7.25**
1,227.40	5.09		
1,230.85	5.14		
1,234.30	5.19		
1,237.75	5.24		

Summary for Pond DMHA: TO FE-A

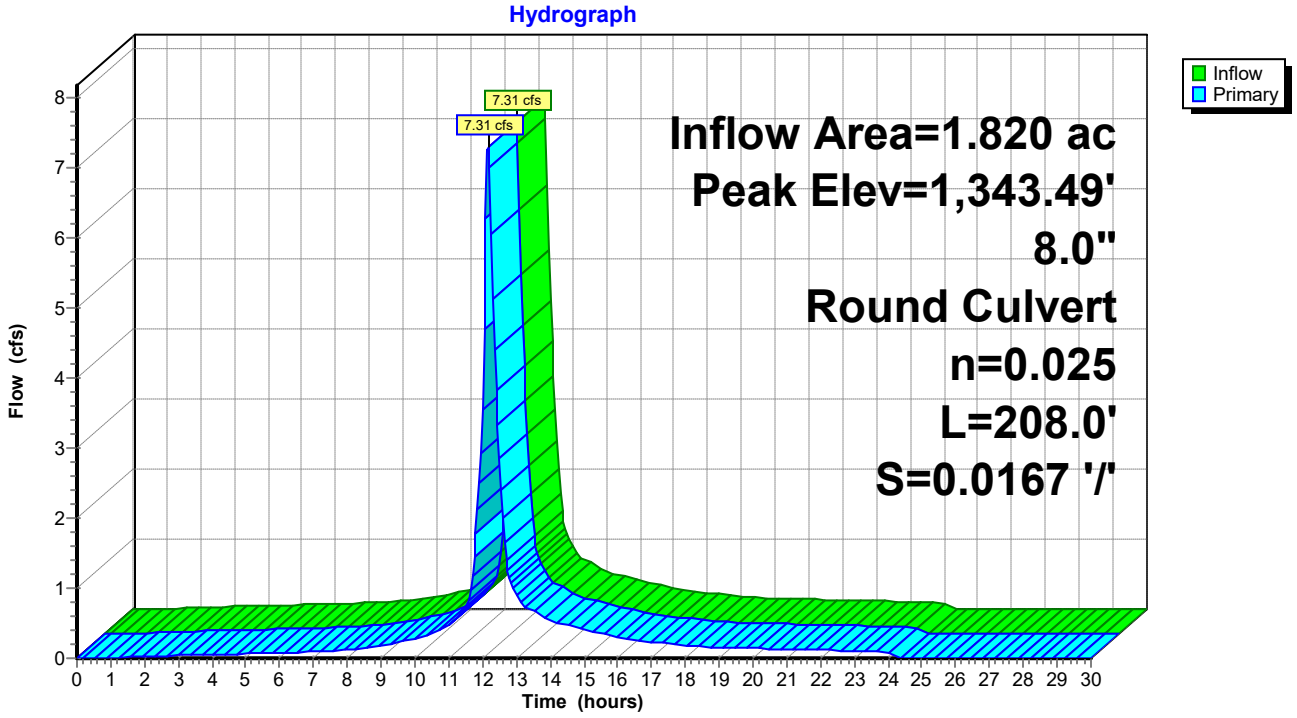
Inflow Area = 1.820 ac, 43.35% Impervious, Inflow Depth = 4.56" for 100-Year event
Inflow = 7.31 cfs @ 12.17 hrs, Volume= 0.691 af
Outflow = 7.31 cfs @ 12.17 hrs, Volume= 0.691 af, Atten= 0%, Lag= 0.0 min
Primary = 7.31 cfs @ 12.17 hrs, Volume= 0.691 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,343.49' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,054.57'	**8.0" Round Culvert** L= 208.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 1,054.57' / 1,051.10' S= 0.0167 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.35 sf

Primary OutFlow Max=7.18 cfs @ 12.17 hrs HW=1,333.82' (Free Discharge)
1=Culvert (Barrel Controls 7.18 cfs @ 20.56 fps)

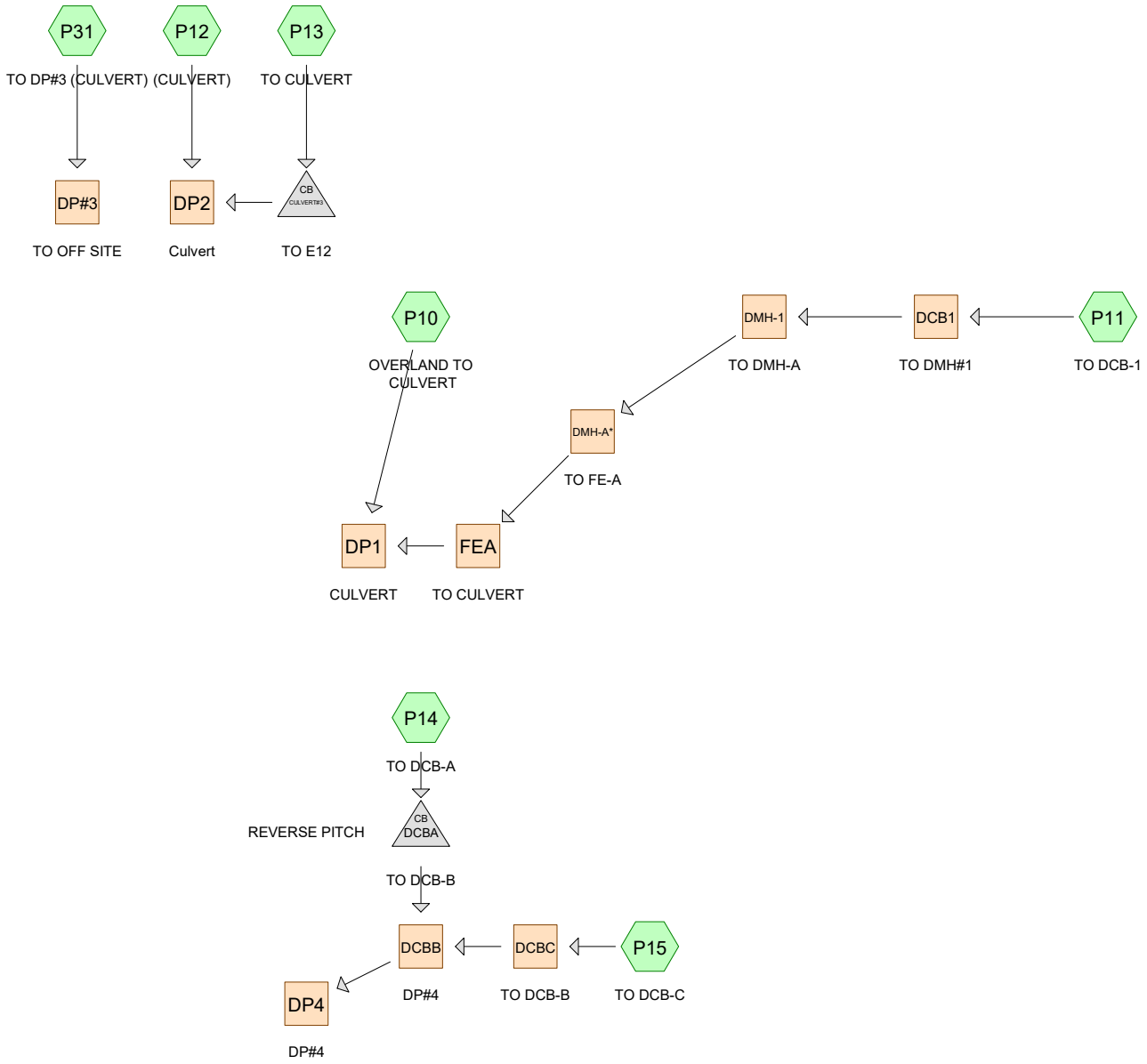
Pond DMHA: TO FE-A



Stage-Discharge for Pond DMHA: TO FE-A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,054.57	0.00	1,205.37	5.30
1,057.47	1.02	1,208.27	5.35
1,060.37	1.25	1,211.17	5.40
1,063.27	1.45	1,214.07	5.44
1,066.17	1.62	1,216.97	5.49
1,069.07	1.78	1,219.87	5.54
1,071.97	1.92	1,222.77	5.59
1,074.87	2.05	1,225.67	5.64
1,077.77	2.18	1,228.57	5.68
1,080.67	2.30	1,231.47	5.73
1,083.57	2.41	1,234.37	5.77
1,086.47	2.52	1,237.27	5.82
1,089.37	2.62	1,240.17	5.87
1,092.27	2.72	1,243.07	5.91
1,095.17	2.82	1,245.97	5.96
1,098.07	2.91	1,248.87	6.00
1,100.97	3.00	1,251.77	6.04
1,103.87	3.08	1,254.67	6.09
1,106.77	3.17	1,257.57	6.13
1,109.67	3.25	1,260.47	6.17
1,112.57	3.33	1,263.37	6.22
1,115.47	3.41	1,266.27	6.26
1,118.37	3.49	1,269.17	6.30
1,121.27	3.56	1,272.07	6.34
1,124.17	3.64	1,274.97	6.38
1,127.07	3.71	1,277.87	6.43
1,129.97	3.78	1,280.77	6.47
1,132.87	3.85	1,283.67	6.51
1,135.77	3.92	1,286.57	6.55
1,138.67	3.98	1,289.47	6.59
1,141.57	4.05	1,292.37	6.63
1,144.47	4.11	1,295.27	6.67
1,147.37	4.18	1,298.17	6.71
1,150.27	4.24	1,301.07	6.75
1,153.17	4.30	1,303.97	6.79
1,156.07	4.36	1,306.87	6.83
1,158.97	4.42	1,309.77	6.86
1,161.87	4.48	1,312.67	6.90
1,164.77	4.54	1,315.57	6.94
1,167.67	4.60	1,318.47	6.98
1,170.57	4.66	1,321.37	7.02
1,173.47	4.71	1,324.27	7.05
1,176.37	4.77	1,327.17	7.09
1,179.27	4.83	1,330.07	7.13
1,182.17	4.88	1,332.97	7.17
1,185.07	4.93	1,335.87	7.20
1,187.97	4.99	1,338.77	**7.24**
1,190.87	5.04		
1,193.77	5.09		
1,196.67	5.14		
1,199.57	5.20		
1,202.47	5.25		

2.2
POST DEVELOPMENT CALCULATIONS



Subcat Reach Pond Link

Routing Diagram for 2977-Jones Family POST

Prepared by HANNIGAN ENGINEERING, INC., Printed 5/11/2021

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.216	74	>75% Grass cover, Good, HSG C (P10, P11, P12, P13, P14, P15, P31)
0.071	96	Gravel surface, HSG C (P10, P14)
3.907	98	Paved parking, HSG C (P10, P11, P12, P14, P15, P31)
1.813	70	Woods, Good, HSG C (P10, P11, P12, P13, P14, P15, P31)
7.008	**87**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
7.008	HSG C	P10, P11, P12, P13, P14, P15, P31
0.000	HSG D	
0.000	Other	
7.008		**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
0.000	0.000	1.216	0.000	0.000	1.216	>75% Grass cover, Good	P10, P11, P12, P13, P14, P15, P31
0.000	0.000	0.071	0.000	0.000	0.071	Gravel surface	P10, P14
0.000	0.000	3.907	0.000	0.000	3.907	Paved parking	P10, P11, P12, P14, P15, P31
0.000	0.000	1.813	0.000	0.000	1.813	Woods, Good	P10, P11, P12, P13, P14, P15, P31
0.000	**0.000**	**7.008**	**0.000**	**0.000**	**7.008**	**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	DCB1	1,058.40	1,055.60	210.0	0.0133	0.012	15.0	0.0	0.0
2	DCBC	1,048.10	1,045.30	118.0	0.0237	0.013	12.0	0.0	0.0
3	DMH-1	1,055.50	1,054.60	70.0	0.0129	0.013	15.0	0.0	0.0
4	DMH-A*	1,054.50	1,051.10	208.0	0.0163	0.013	15.0	0.0	0.0
5	DP1	1,049.69	1,048.50	72.2	0.0165	0.011	24.0	0.0	0.0
6	CULVERT#3	1,058.54	1,058.78	41.2	-0.0058	0.011	36.0	0.0	0.0
7	DCBA	1,045.10	1,045.30	38.0	-0.0053	0.013	12.0	0.0	0.0

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P10: OVERLAND TO Runoff Area=134,863 sf 70.59% Impervious Runoff Depth=2.23"
Flow Length=788' Tc=11.1 min CN=WQ Runoff=6.12 cfs 0.576 af

Subcatchment P11: TO DCB-1 Runoff Area=83,440 sf 44.76% Impervious Runoff Depth=1.65"
Flow Length=307' Tc=12.1 min CN=WQ Runoff=2.68 cfs 0.263 af

Subcatchment P12: (CULVERT) Runoff Area=7,096 sf 47.67% Impervious Runoff Depth=1.73"
Flow Length=91' Tc=7.6 min CN=WQ Runoff=0.27 cfs 0.023 af

Subcatchment P13: TO CULVERT Runoff Area=20,345 sf 0.00% Impervious Runoff Depth=0.75"
Flow Length=380' Tc=10.9 min CN=WQ Runoff=0.30 cfs 0.029 af

Subcatchment P14: TO DCB-A Runoff Area=30,009 sf 76.16% Impervious Runoff Depth=2.39"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=1.72 cfs 0.137 af

Subcatchment P15: TO DCB-C Runoff Area=17,919 sf 56.55% Impervious Runoff Depth=1.93"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=0.83 cfs 0.066 af

Subcatchment P31: TO DP#3 (CULVERT) Runoff Area=11,601 sf 10.99% Impervious Runoff Depth=0.97"
Flow Length=129' Slope=0.0400 '/' Tc=13.0 min CN=WQ Runoff=0.21 cfs 0.022 af

Reach DCB1: TO DMH#1 Avg. Flow Depth=0.49' Max Vel=5.88 fps Inflow=2.68 cfs 0.263 af
15.0" Round Pipe n=0.012 L=210.0' S=0.0133 '/' Capacity=8.08 cfs Outflow=2.63 cfs 0.263 af

Reach DCBB: DP#4 Inflow=2.53 cfs 0.203 af
Outflow=2.53 cfs 0.203 af

Reach DCBC: TO DCB-B Avg. Flow Depth=0.26' Max Vel=5.02 fps Inflow=0.83 cfs 0.066 af
12.0" Round Pipe n=0.013 L=118.0' S=0.0237 '/' Capacity=5.49 cfs Outflow=0.82 cfs 0.066 af

Reach DMH-1: TO DMH-A Avg. Flow Depth=0.52' Max Vel=5.48 fps Inflow=2.63 cfs 0.263 af
15.0" Round Pipe n=0.013 L=70.0' S=0.0129 '/' Capacity=7.32 cfs Outflow=2.62 cfs 0.263 af

Reach DMH-A*: TO FE-A Avg. Flow Depth=0.48' Max Vel=5.97 fps Inflow=2.62 cfs 0.263 af
15.0" Round Pipe n=0.013 L=208.0' S=0.0163 '/' Capacity=8.26 cfs Outflow=2.59 cfs 0.263 af

Reach DP#3: TO OFF SITE Inflow=0.21 cfs 0.022 af
Outflow=0.21 cfs 0.022 af

Reach DP1: CULVERT Avg. Flow Depth=0.68' Max Vel=9.04 fps Inflow=8.51 cfs 0.839 af
24.0" Round Pipe n=0.011 L=72.2' S=0.0165 '/' Capacity=34.32 cfs Outflow=8.48 cfs 0.839 af

Reach DP2: Culvert Inflow=0.55 cfs 0.052 af
Outflow=0.55 cfs 0.052 af

Reach DP4: DP#4 Inflow=2.53 cfs 0.203 af
Outflow=2.53 cfs 0.203 af

Reach FEA: TO CULVERT Inflow=2.59 cfs 0.263 af
Outflow=2.59 cfs 0.263 af

Pond CULVERT#3: TO E12 Peak Elev=1,058.98' Inflow=0.30 cfs 0.029 af
36.0" Round Culvert n=0.011 L=41.2' S=-0.0058 '/' Outflow=0.30 cfs 0.029 af

Pond DCBA: TO DCB-B Peak Elev=1,046.19' Inflow=1.72 cfs 0.137 af
12.0" Round Culvert n=0.013 L=38.0' S=-0.0053 '/' Outflow=1.72 cfs 0.137 af

Total Runoff Area = 7.008 ac Runoff Volume = 1.117 af Average Runoff Depth = 1.91"
44.25% Pervious = 3.101 ac 55.75% Impervious = 3.907 ac

Summary for Subcatchment P10: OVERLAND TO CULVERT

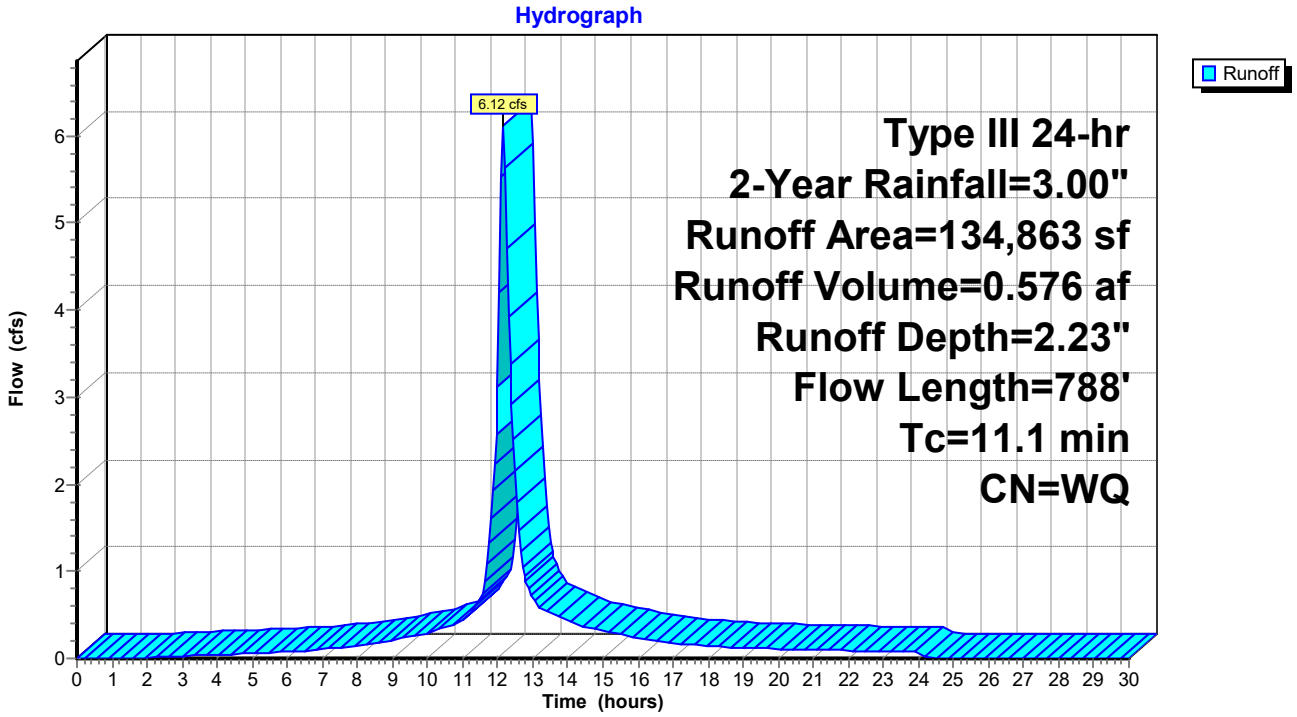
Runoff = 6.12 cfs @ 12.15 hrs, Volume= 0.576 af, Depth= 2.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
29,803	74	>75% Grass cover, Good, HSG C
7,879	70	Woods, Good, HSG C
95,203	98	Paved parking, HSG C
1,978	96	Gravel surface, HSG C
134,863		Weighted Average
39,660		29.41% Pervious Area
95,203		70.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	42	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.8	33	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	10	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	218	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.4	237	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	135	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	35	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	78	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.1	788	Total			

Subcatchment P10: OVERLAND TO CULVERT



Summary for Subcatchment P11: TO DCB-1

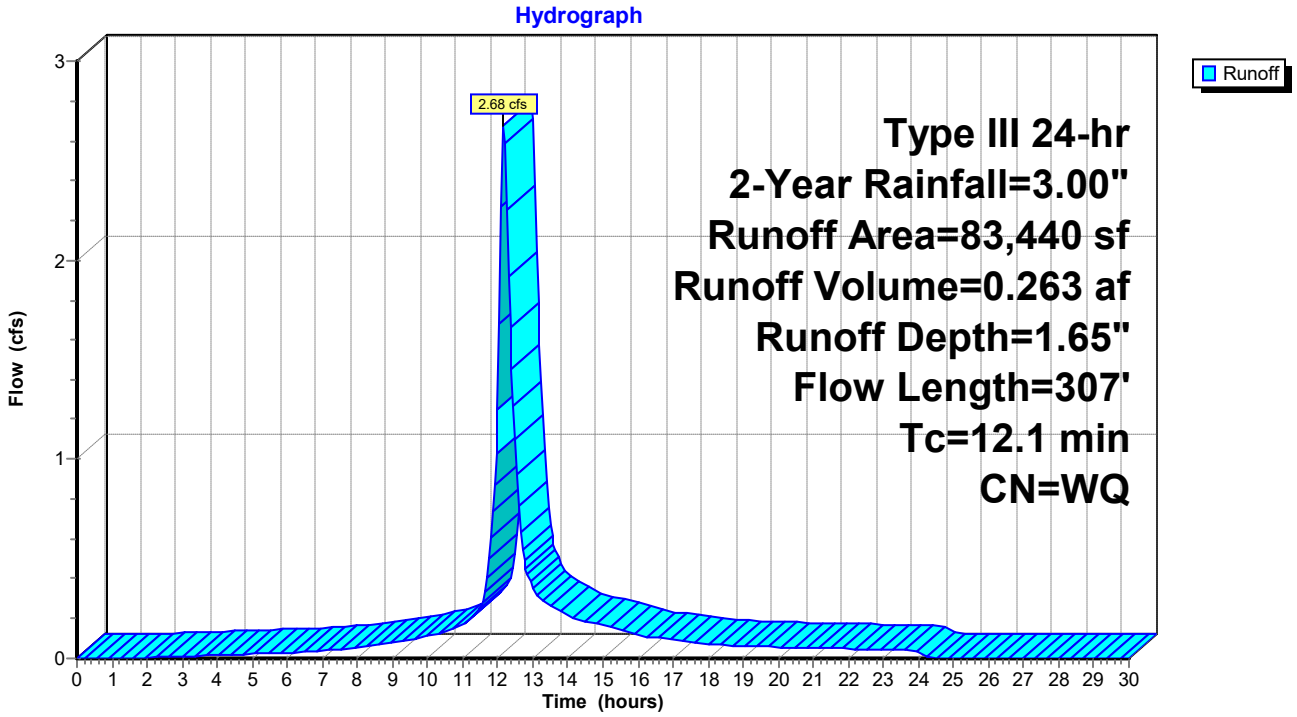
Runoff = 2.68 cfs @ 12.17 hrs, Volume= 0.263 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
6,167	74	>75% Grass cover, Good, HSG C
39,922	70	Woods, Good, HSG C
37,351	98	Paved parking, HSG C
83,440		Weighted Average
46,089		55.24% Pervious Area
37,351		44.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	44	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.7	31	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	15	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.2	198	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	19	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.1	307	Total			

Subcatchment P11: TO DCB-1



Summary for Subcatchment P12: (CULVERT)

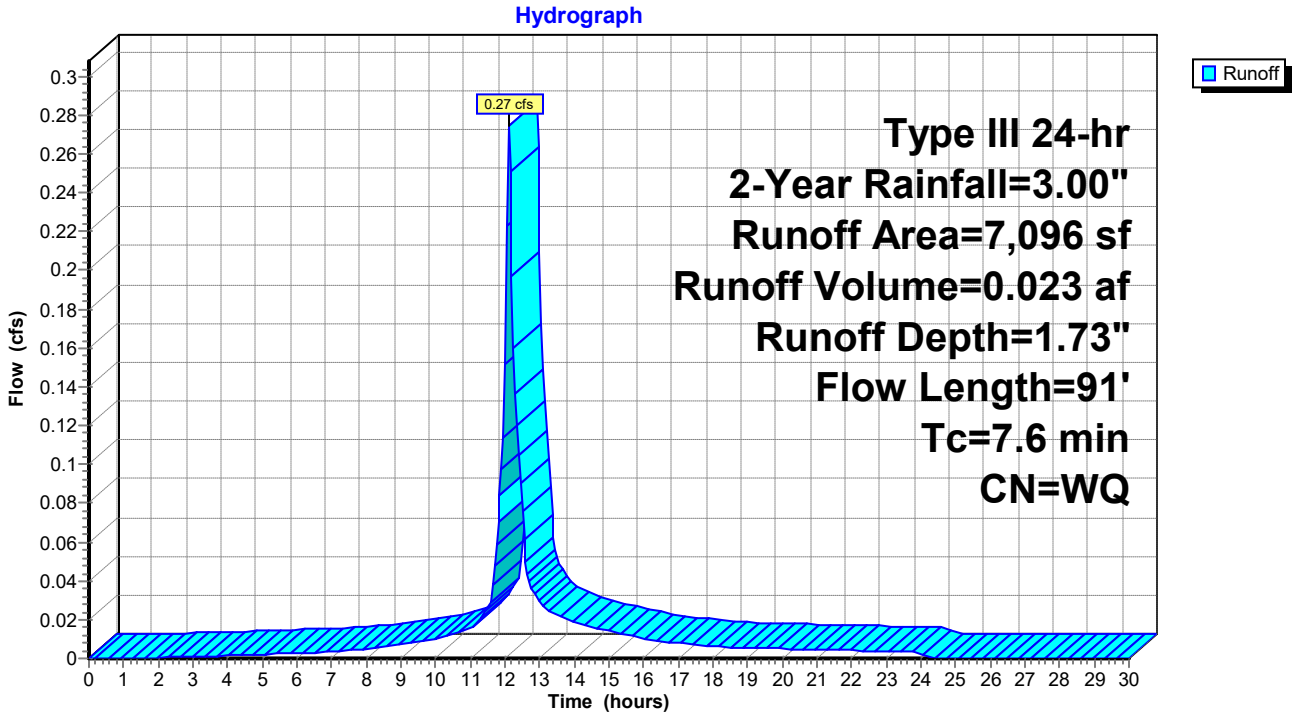
Runoff = 0.27 cfs @ 12.11 hrs, Volume= 0.023 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
1,158	74	>75% Grass cover, Good, HSG C
2,555	70	Woods, Good, HSG C
3,383	98	Paved parking, HSG C
7,096		Weighted Average
3,713		52.33% Pervious Area
3,383		47.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0500	1.33		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	3	0.0500	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	1	0.0500	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
6.5	55	0.1300	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	16	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.6	91	Total			

Subcatchment P12: (CULVERT)



Summary for Subcatchment P13: TO CULVERT

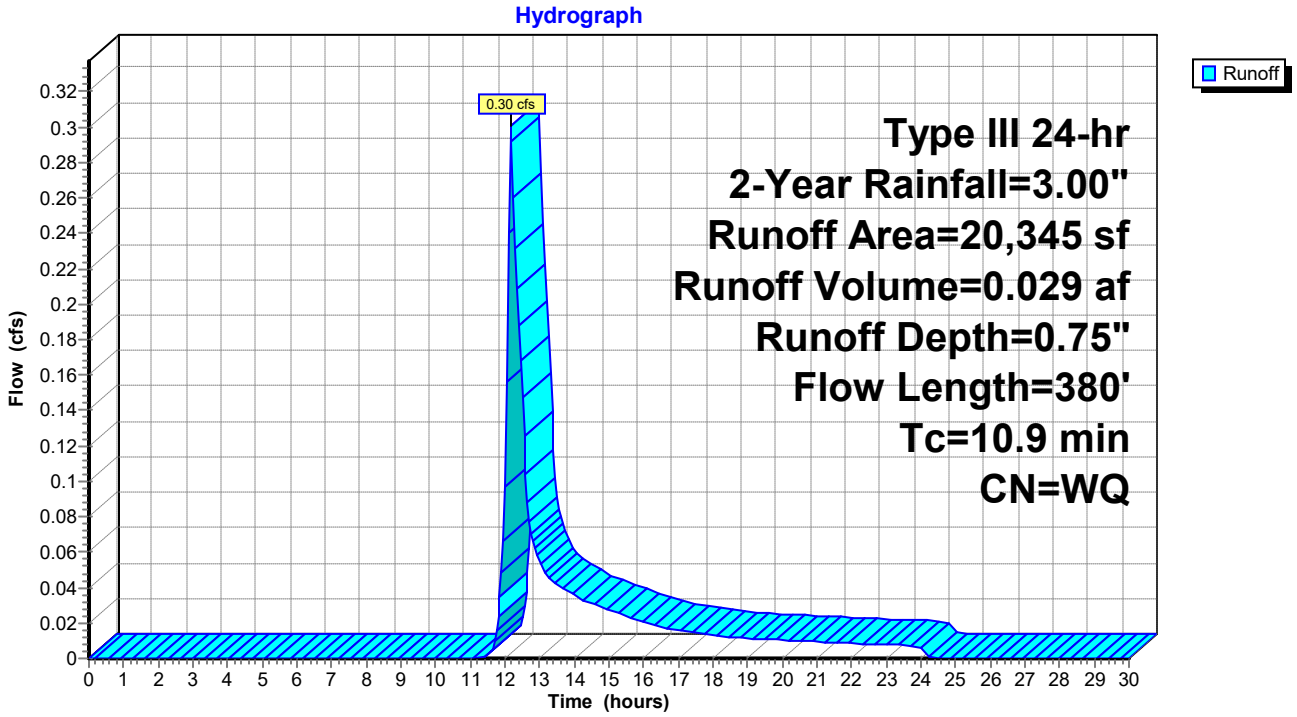
Runoff = 0.30 cfs @ 12.17 hrs, Volume= 0.029 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
3,243	74	>75% Grass cover, Good, HSG C
17,102	70	Woods, Good, HSG C
20,345		Weighted Average
20,345		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	75	0.2400	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	25	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	69	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	7	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	43	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	71	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	17	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	73	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.9	380	Total			

Subcatchment P13: TO CULVERT



Summary for Subcatchment P14: TO DCB-A

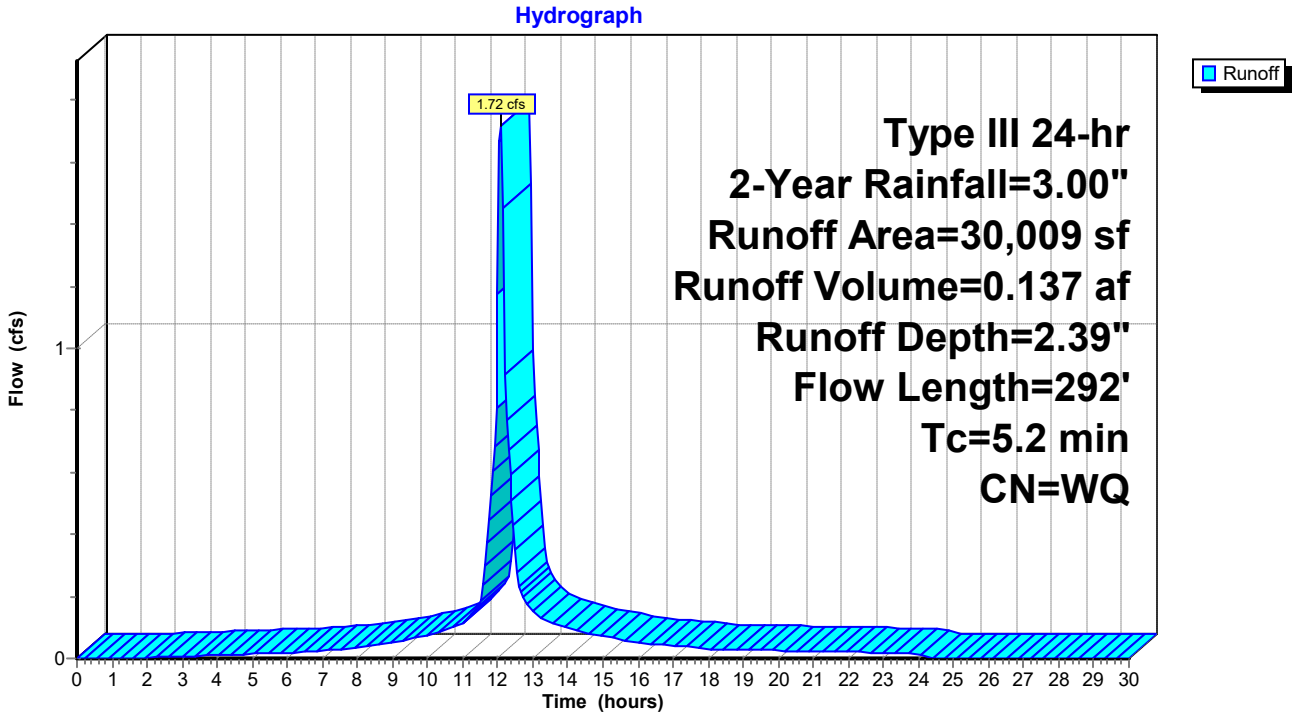
Runoff = 1.72 cfs @ 12.08 hrs, Volume= 0.137 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
5,894	74	>75% Grass cover, Good, HSG C
22,855	98	Paved parking, HSG C
125	70	Woods, Good, HSG C
1,135	96	Gravel surface, HSG C
30,009		Weighted Average
7,154		23.84% Pervious Area
22,855		76.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment P14: TO DCB-A



Summary for Subcatchment P15: TO DCB-C

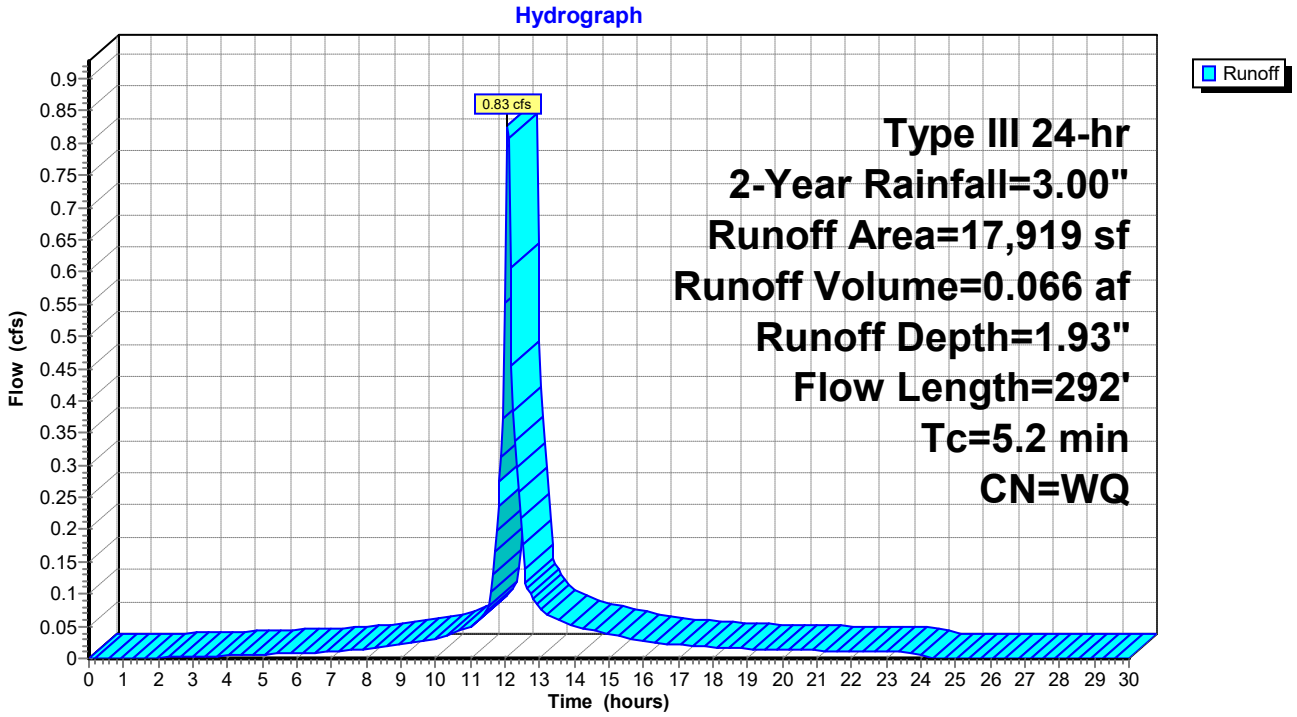
Runoff = 0.83 cfs @ 12.08 hrs, Volume= 0.066 af, Depth= 1.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
4,649	74	>75% Grass cover, Good, HSG C
10,134	98	Paved parking, HSG C
3,136	70	Woods, Good, HSG C
17,919		Weighted Average
7,785		43.45% Pervious Area
10,134		56.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment P15: TO DCB-C



Summary for Subcatchment P31: TO DP#3 (CULVERT)

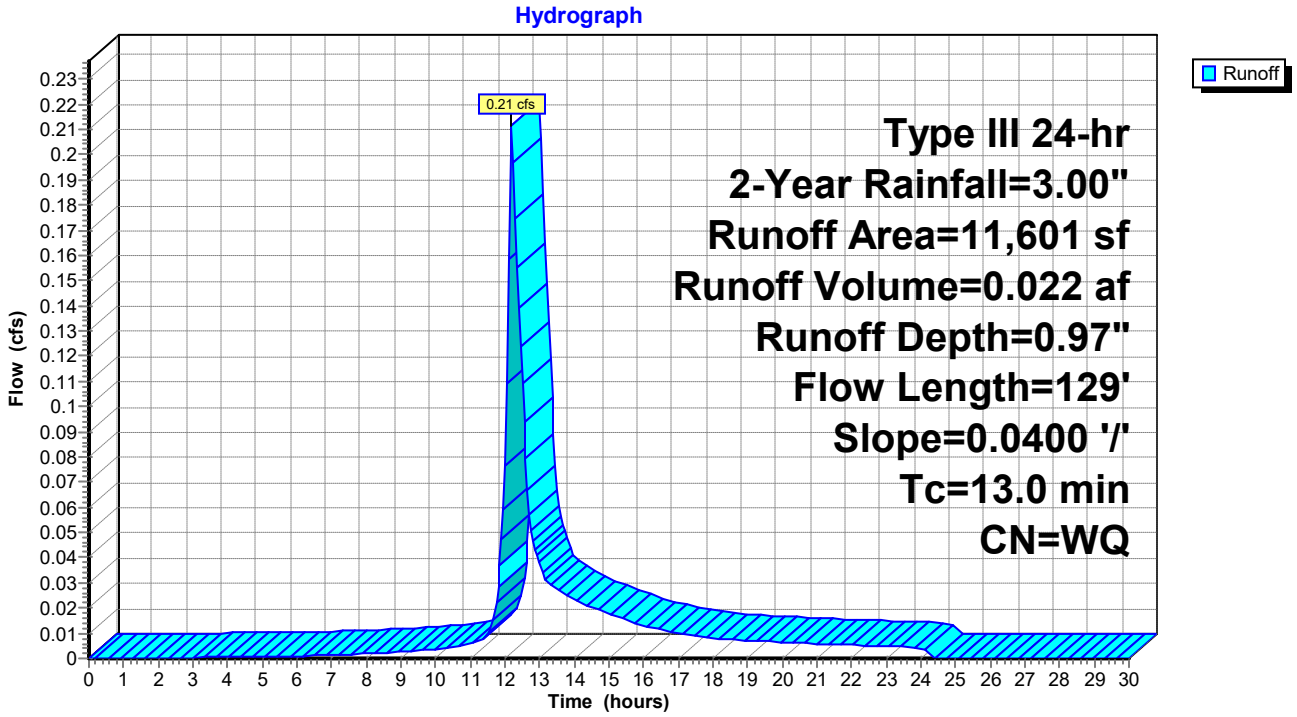
Runoff = 0.21 cfs @ 12.20 hrs, Volume= 0.022 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
2,060	74	>75% Grass cover, Good, HSG C
1,275	98	Paved parking, HSG C
8,266	70	Woods, Good, HSG C
11,601		Weighted Average
10,326		89.01% Pervious Area
1,275		10.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	4	0.0400	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
6.8	54	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
2.0	7	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
2.7	10	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	54	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.0	129	Total			

Subcatchment P31: TO DP#3 (CULVERT)



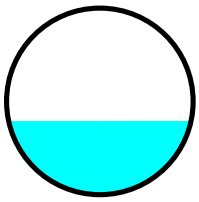
Summary for Reach DCB1: TO DMH#1

Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 1.65" for 2-Year event
Inflow = 2.68 cfs @ 12.17 hrs, Volume= 0.263 af
Outflow = 2.63 cfs @ 12.19 hrs, Volume= 0.263 af, Atten= 2%, Lag= 1.2 min

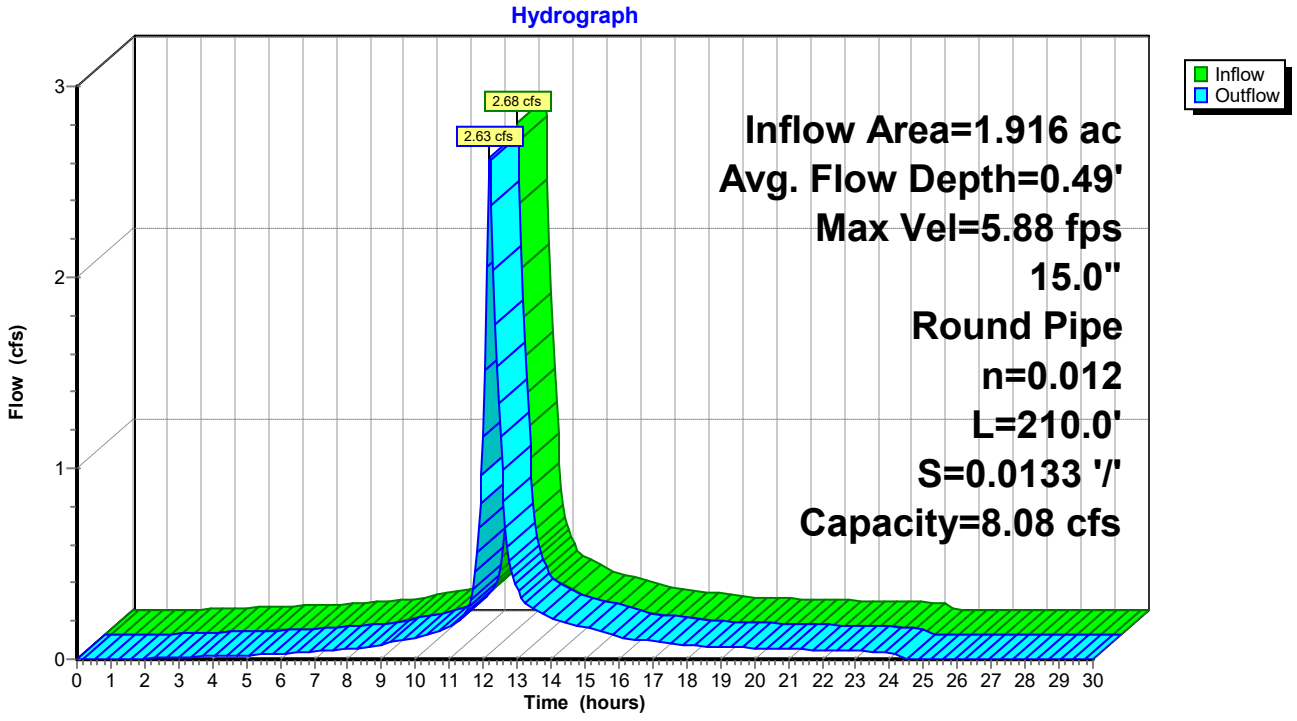
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.88 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.06 fps, Avg. Travel Time= 1.7 min

Peak Storage= 95 cf @ 12.18 hrs
Average Depth at Peak Storage= 0.49'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 8.08 cfs

15.0" Round Pipe
n= 0.012 Steel, smooth
Length= 210.0' Slope= 0.0133 '/'
Inlet Invert= 1,058.40', Outlet Invert= 1,055.60'



Reach DCB1: TO DMH#1



Stage-Discharge for Reach DCB1: TO DMH#1

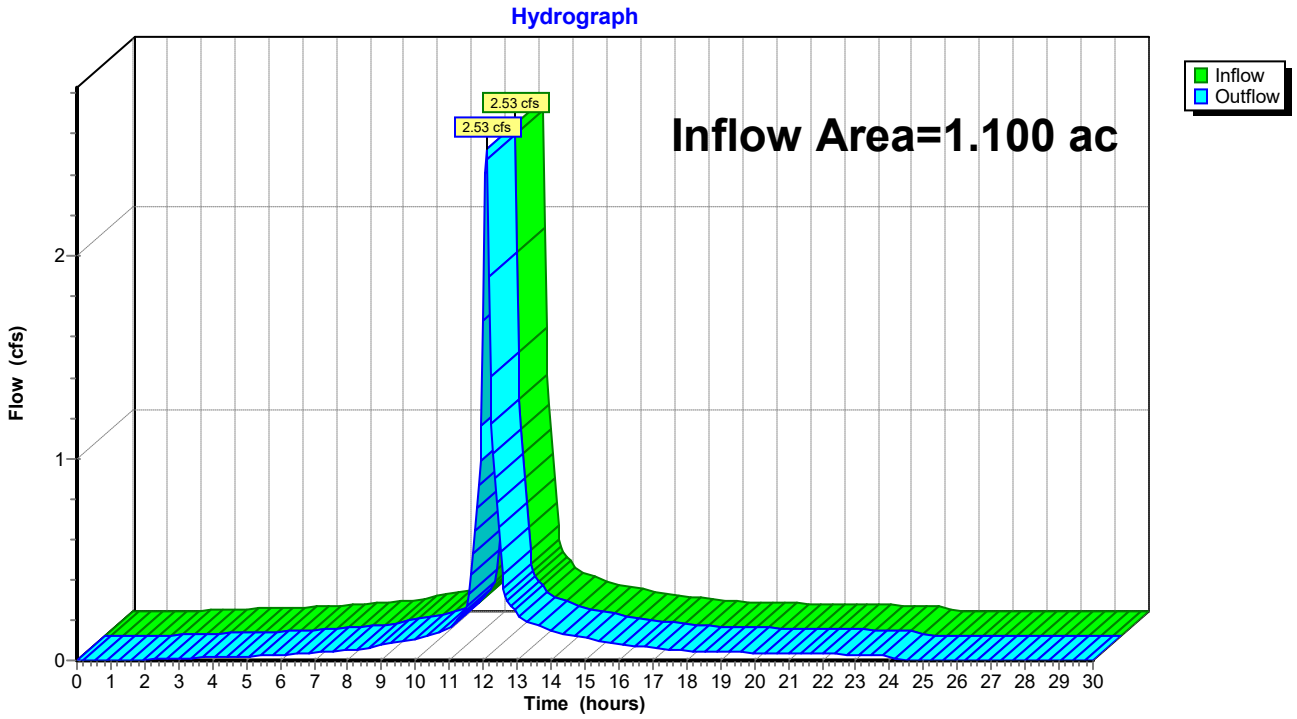
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,058.40	0.00	0.00
1,058.41	0.47	0.00
1,058.42	0.79	0.00
1,058.43	1.04	0.01
1,058.44	1.26	0.02
1,058.45	1.46	0.02
1,058.46	1.65	0.04
1,058.47	1.82	0.05
1,058.48	1.98	0.07
1,058.49	2.14	0.08
1,058.50	2.29	0.11
1,058.51	2.43	0.13
1,058.52	2.57	0.16
1,058.53	2.71	0.18
1,058.54	2.84	0.21
1,058.55	2.96	0.25
1,058.56	3.08	0.28
1,058.57	3.20	0.32
1,058.58	3.32	0.36
1,058.59	3.43	0.40
1,058.60	3.54	0.45
1,058.61	3.65	0.50
1,058.62	3.75	0.55
1,058.63	3.85	0.60
1,058.64	3.95	0.65
1,058.65	4.05	0.71
1,058.66	4.15	0.77
1,058.67	4.24	0.83
1,058.68	4.33	0.89
1,058.69	4.42	0.95
1,058.70	4.51	1.02
1,058.71	4.59	1.09
1,058.72	4.68	1.16
1,058.73	4.76	1.23
1,058.74	4.84	1.31
1,058.75	4.92	1.38
1,058.76	5.00	1.46
1,058.77	5.07	1.54
1,058.78	5.15	1.62
1,058.79	5.22	1.71
1,058.80	5.29	1.79
1,058.81	5.36	1.88
1,058.82	5.43	1.97
1,058.83	5.50	2.06
1,058.84	5.57	2.15
1,058.85	5.63	2.24
1,058.86	5.70	2.33
1,058.87	5.76	2.43
1,058.88	5.82	2.53
1,058.89	5.88	2.62
1,058.90	5.94	2.72
1,058.91	6.00	2.82
1,058.92	6.06	2.92
1,058.93	6.11	3.03
1,058.94	6.17	3.13
1,058.95	6.22	3.23
1,058.96	6.27	3.34
1,058.97	6.32	3.45
1,058.98	6.37	3.55
1,058.99	6.42	3.66
1,059.00	6.47	3.77
1,059.01	6.52	3.88
1,059.02	6.56	3.99
1,059.03	6.61	4.10
1,059.04	6.65	4.21
1,059.05	6.69	4.32
1,059.06	6.73	4.43
1,059.07	6.78	4.54
1,059.08	6.81	4.65
1,059.09	6.85	4.76
1,059.10	6.89	4.87
1,059.11	6.93	4.98
1,059.12	6.96	5.10
1,059.13	7.00	5.21
1,059.14	7.03	5.32
1,059.15	7.06	5.43
1,059.16	7.09	5.54
1,059.17	7.12	5.65
1,059.18	7.15	5.76
1,059.19	7.18	5.87
1,059.20	7.21	5.98
1,059.21	7.23	6.09
1,059.22	7.26	6.19
1,059.23	7.28	6.30
1,059.24	7.30	6.40
1,059.25	7.32	6.51
1,059.26	7.34	6.61
1,059.27	7.36	6.71
1,059.28	7.38	6.82
1,059.29	7.40	6.92
1,059.30	7.42	7.01
1,059.31	7.43	7.11
1,059.32	7.44	7.21
1,059.33	7.46	7.30
1,059.34	7.47	7.39
1,059.35	7.48	7.48
1,059.36	7.48	7.57
1,059.37	7.49	7.65
1,059.38	7.50	7.74
1,059.39	7.50	7.82
1,059.40	7.50	7.90
1,059.41	7.51	7.97
1,059.42	**7.51**	8.05
1,059.43	7.51	8.12
1,059.44	7.50	8.19
1,059.45	7.50	8.25
1,059.46	7.49	8.31
1,059.47	7.48	8.37
1,059.48	7.47	8.42
1,059.49	7.46	8.47
1,059.50	7.45	8.52
1,059.51	7.43	8.56
1,059.52	7.41	8.60
1,059.53	7.39	8.63
1,059.54	7.37	8.65
1,059.55	7.34	8.67
1,059.56	7.31	8.69
1,059.57	7.28	**8.69**
1,059.58	7.24	8.69
1,059.59	7.20	8.68
1,059.60	7.15	8.66
1,059.61	7.09	8.62
1,059.62	7.03	8.57
1,059.63	6.94	8.49
1,059.64	6.82	8.35
1,059.65	6.58	8.08

Summary for Reach DCBB: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 2.21" for 2-Year event
Inflow = 2.53 cfs @ 12.08 hrs, Volume= 0.203 af
Outflow = 2.53 cfs @ 12.08 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DCBB: DP#4



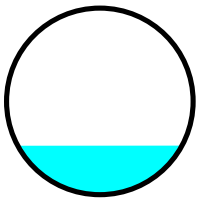
Summary for Reach DCBC: TO DCB-B

Inflow Area = 0.411 ac, 56.55% Impervious, Inflow Depth = 1.93" for 2-Year event
Inflow = 0.83 cfs @ 12.08 hrs, Volume= 0.066 af
Outflow = 0.82 cfs @ 12.09 hrs, Volume= 0.066 af, Atten= 1%, Lag= 0.8 min

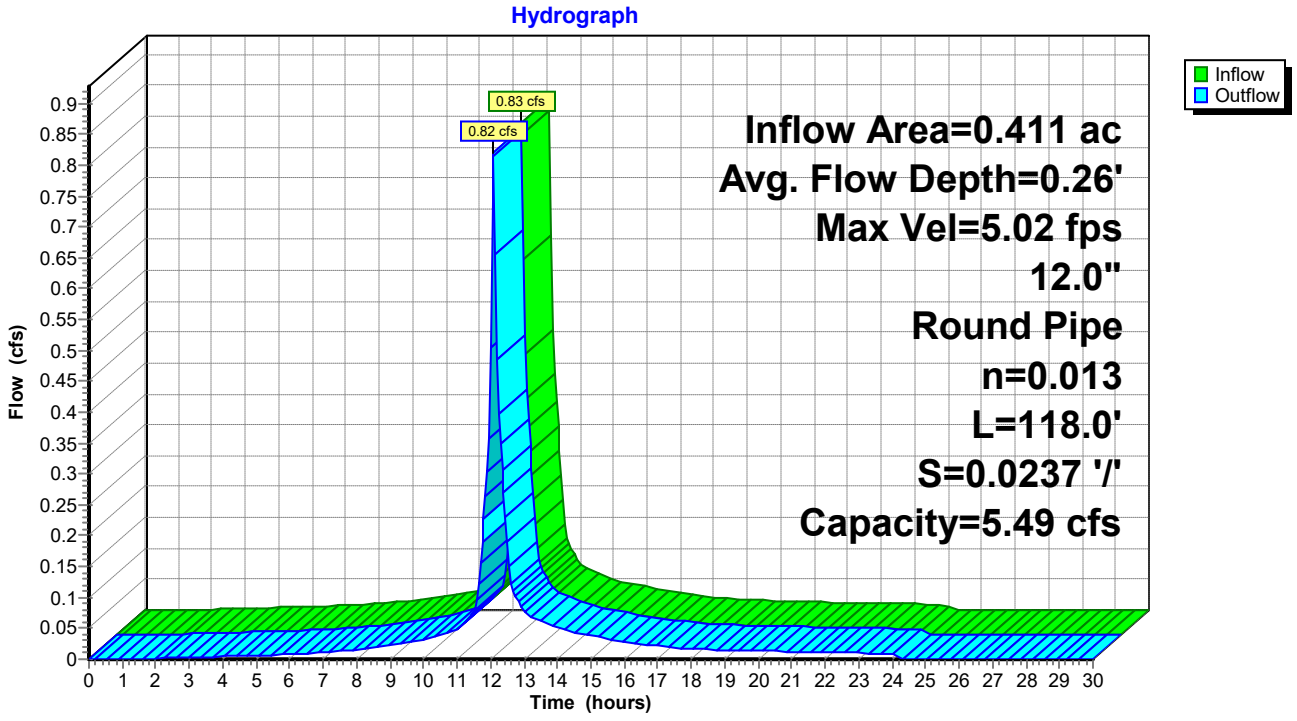
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.02 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.64 fps, Avg. Travel Time= 1.2 min

Peak Storage= 19 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.49 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 118.0' Slope= 0.0237 '/'
Inlet Invert= 1,048.10', Outlet Invert= 1,045.30'



Reach DCBC: TO DCB-B



Stage-Discharge for Reach DCBC: TO DCB-B

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,048.10	0.00	0.00
1,048.11	0.62	0.00
1,048.12	0.98	0.00
1,048.13	1.29	0.01
1,048.14	1.55	0.02
1,048.15	1.80	0.03
1,048.16	2.02	0.04
1,048.17	2.23	0.05
1,048.18	2.43	0.07
1,048.19	2.62	0.09
1,048.20	2.80	0.11
1,048.21	2.98	0.14
1,048.22	3.14	0.17
1,048.23	3.31	0.20
1,048.24	3.46	0.23
1,048.25	3.61	0.27
1,048.26	3.76	0.30
1,048.27	3.90	0.35
1,048.28	4.04	0.39
1,048.29	4.17	0.43
1,048.30	4.30	0.48
1,048.31	4.42	0.53
1,048.32	4.55	0.58
1,048.33	4.67	0.64
1,048.34	4.78	0.69
1,048.35	4.90	0.75
1,048.36	5.01	0.81
1,048.37	5.11	0.88
1,048.38	5.22	0.94
1,048.39	5.32	1.01
1,048.40	5.42	1.07
1,048.41	5.52	1.15
1,048.42	5.62	1.22
1,048.43	5.71	1.29
1,048.44	5.80	1.37
1,048.45	5.89	1.44
1,048.46	5.98	1.52
1,048.47	6.06	1.60
1,048.48	6.14	1.68
1,048.49	6.23	1.77
1,048.50	6.30	1.85
1,048.51	6.38	1.93
1,048.52	6.46	2.02
1,048.53	6.53	2.11
1,048.54	6.60	2.20
1,048.55	6.67	2.29
1,048.56	6.74	2.38
1,048.57	6.80	2.47
1,048.58	6.87	2.56
1,048.59	6.93	2.65
1,048.60	6.99	2.74
1,048.61	7.05	2.84
1,048.62	7.10	2.93
1,048.63	7.16	3.03
1,048.64	7.21	3.12
1,048.65	7.26	3.21
1,048.66	7.31	3.31
1,048.67	7.36	3.40
1,048.68	7.41	3.50
1,048.69	7.45	3.59
1,048.70	7.49	3.69
1,048.71	7.53	3.78
1,048.72	7.57	3.87
1,048.73	7.61	3.97
1,048.74	7.65	4.06
1,048.75	7.68	4.15
1,048.76	7.71	4.24
1,048.77	7.74	4.33
1,048.78	7.77	4.42
1,048.79	7.80	4.51
1,048.80	7.82	4.59
1,048.81	7.85	4.68
1,048.82	7.87	4.76
1,048.83	7.89	4.85
1,048.84	7.91	4.93
1,048.85	7.92	5.00
1,048.86	7.93	5.08
1,048.87	7.94	5.16
1,048.88	7.95	5.23
1,048.89	7.96	5.30
1,048.90	7.96	5.36
1,048.91	**7.97**	5.43
1,048.92	7.97	5.49
1,048.93	7.96	5.55
1,048.94	7.96	5.60
1,048.95	7.95	5.66
1,048.96	7.94	5.70
1,048.97	7.92	5.75
1,048.98	7.90	5.79
1,048.99	7.88	5.82
1,049.00	7.86	5.85
1,049.01	7.83	5.87
1,049.02	7.79	5.89
1,049.03	7.75	5.90
1,049.04	7.71	**5.90**
1,049.05	7.65	5.90
1,049.06	7.59	5.88
1,049.07	7.51	5.85
1,049.08	7.42	5.80
1,049.09	7.29	5.72
1,049.10	6.99	5.49

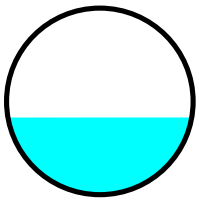
Summary for Reach DMH-1: TO DMH-A

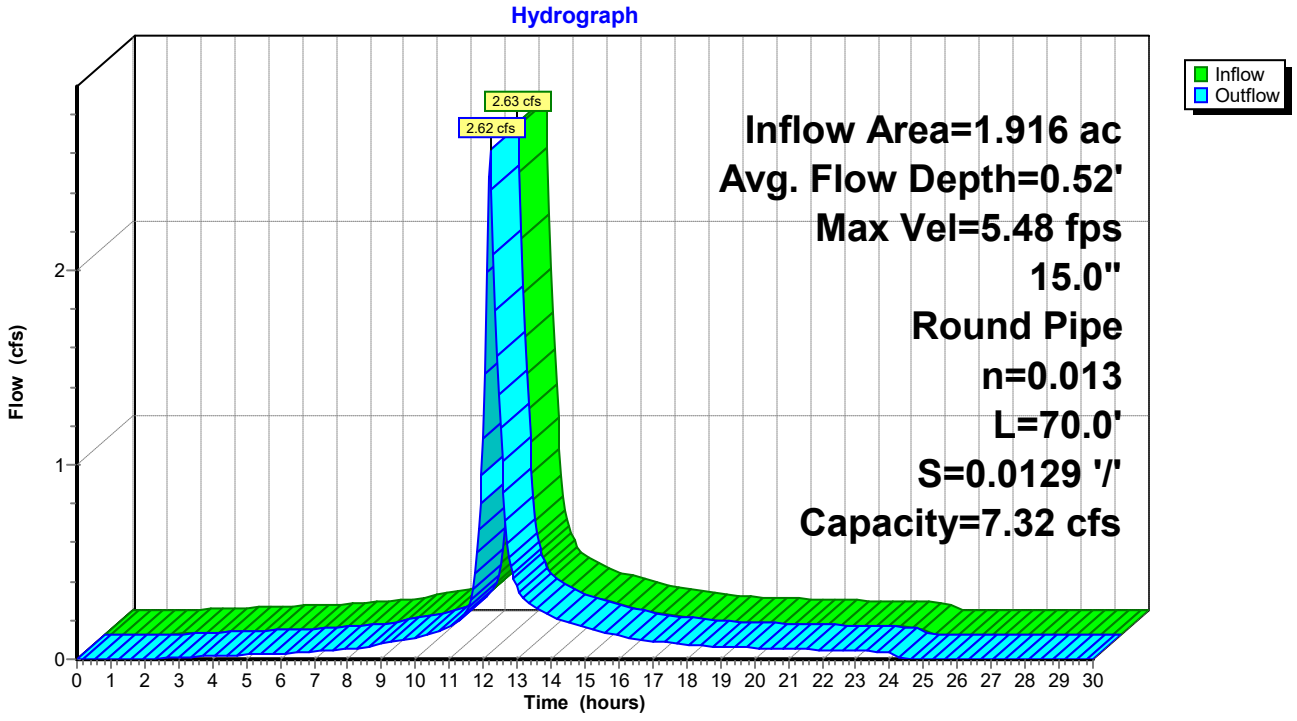
Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 1.65" for 2-Year event
Inflow = 2.63 cfs @ 12.19 hrs, Volume= 0.263 af
Outflow = 2.62 cfs @ 12.20 hrs, Volume= 0.263 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.48 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.92 fps, Avg. Travel Time= 0.6 min

Peak Storage= 34 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.52'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.32 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 70.0' Slope= 0.0129 '/'
Inlet Invert= 1,055.50', Outlet Invert= 1,054.60'





Stage-Discharge for Reach DMH-1: TO DMH-A

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,055.50	0.00	0.00
1,055.51	0.42	0.00
1,055.52	0.72	0.00
1,055.53	0.94	0.01
1,055.54	1.14	0.01
1,055.55	1.33	0.02
1,055.56	1.49	0.03
1,055.57	1.65	0.05
1,055.58	1.80	0.06
1,055.59	1.94	0.08
1,055.60	2.08	0.10
1,055.61	2.21	0.12
1,055.62	2.33	0.14
1,055.63	2.45	0.17
1,055.64	2.57	0.19
1,055.65	2.69	0.22
1,055.66	2.80	0.26
1,055.67	2.90	0.29
1,055.68	3.01	0.33
1,055.69	3.11	0.37
1,055.70	3.21	0.41
1,055.71	3.31	0.45
1,055.72	3.40	0.49
1,055.73	3.49	0.54
1,055.74	3.58	0.59
1,055.75	3.67	0.64
1,055.76	3.76	0.69
1,055.77	3.84	0.75
1,055.78	3.92	0.81
1,055.79	4.01	0.86
1,055.80	4.09	0.93
1,055.81	4.16	0.99
1,055.82	4.24	1.05
1,055.83	4.31	1.12
1,055.84	4.39	1.19
1,055.85	4.46	1.25
1,055.86	4.53	1.33
1,055.87	4.60	1.40
1,055.88	4.67	1.47
1,055.89	4.73	1.55
1,055.90	4.80	1.62
1,055.91	4.86	1.70
1,055.92	4.92	1.78
1,055.93	4.99	1.86
1,055.94	5.05	1.95
1,055.95	5.11	2.03
1,055.96	5.16	2.12
1,055.97	5.22	2.20
1,055.98	5.28	2.29
1,055.99	5.33	2.38
1,056.00	5.38	2.47
1,056.01	5.44	2.56
1,056.02	5.49	2.65
1,056.03	5.54	2.74
1,056.04	5.59	2.84
1,056.05	5.64	2.93
1,056.06	5.68	3.03
1,056.07	5.73	3.12
1,056.08	5.78	3.22
1,056.09	5.82	3.32
1,056.10	5.86	3.42
1,056.11	5.91	3.51
1,056.12	5.95	3.61
1,056.13	5.99	3.71
1,056.14	6.03	3.81
1,056.15	6.07	3.91
1,056.16	6.10	4.01
1,056.17	6.14	4.11
1,056.18	6.18	4.21
1,056.19	6.21	4.32
1,056.20	6.25	4.42
1,056.21	6.28	4.52
1,056.22	6.31	4.62
1,056.23	6.34	4.72
1,056.24	6.37	4.82
1,056.25	6.40	4.92
1,056.26	6.43	5.02
1,056.27	6.46	5.12
1,056.28	6.48	5.22
1,056.29	6.51	5.32
1,056.30	6.53	5.42
1,056.31	6.56	5.52
1,056.32	6.58	5.61
1,056.33	6.60	5.71
1,056.34	6.62	5.81
1,056.35	6.64	5.90
1,056.36	6.66	5.99
1,056.37	6.68	6.09
1,056.38	6.69	6.18
1,056.39	6.71	6.27
1,056.40	6.72	6.36
1,056.41	6.73	6.45
1,056.42	6.75	6.53
1,056.43	6.76	6.62
1,056.44	6.77	6.70
1,056.45	6.78	6.78
1,056.46	6.78	6.86
1,056.47	6.79	6.94
1,056.48	6.80	7.01
1,056.49	6.80	7.09
1,056.50	6.80	7.16
1,056.51	6.80	7.23
1,056.52	**6.80**	7.29
1,056.53	6.80	7.36
1,056.54	6.80	7.42
1,056.55	6.80	7.48
1,056.56	6.79	7.53
1,056.57	6.78	7.59
1,056.58	6.77	7.63
1,056.59	6.76	7.68
1,056.60	6.75	7.72
1,056.61	6.74	7.76
1,056.62	6.72	7.79
1,056.63	6.70	7.82
1,056.64	6.68	7.84
1,056.65	6.66	7.86
1,056.66	6.63	7.87
1,056.67	6.60	**7.88**
1,056.68	6.56	7.88
1,056.69	6.52	7.87
1,056.70	6.48	7.85
1,056.71	6.43	7.81
1,056.72	6.37	7.77
1,056.73	6.29	7.70
1,056.74	6.18	7.57
1,056.75	5.97	7.32

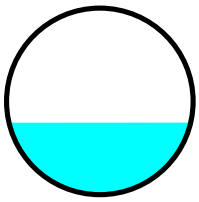
Summary for Reach DMH-A*: TO FE-A

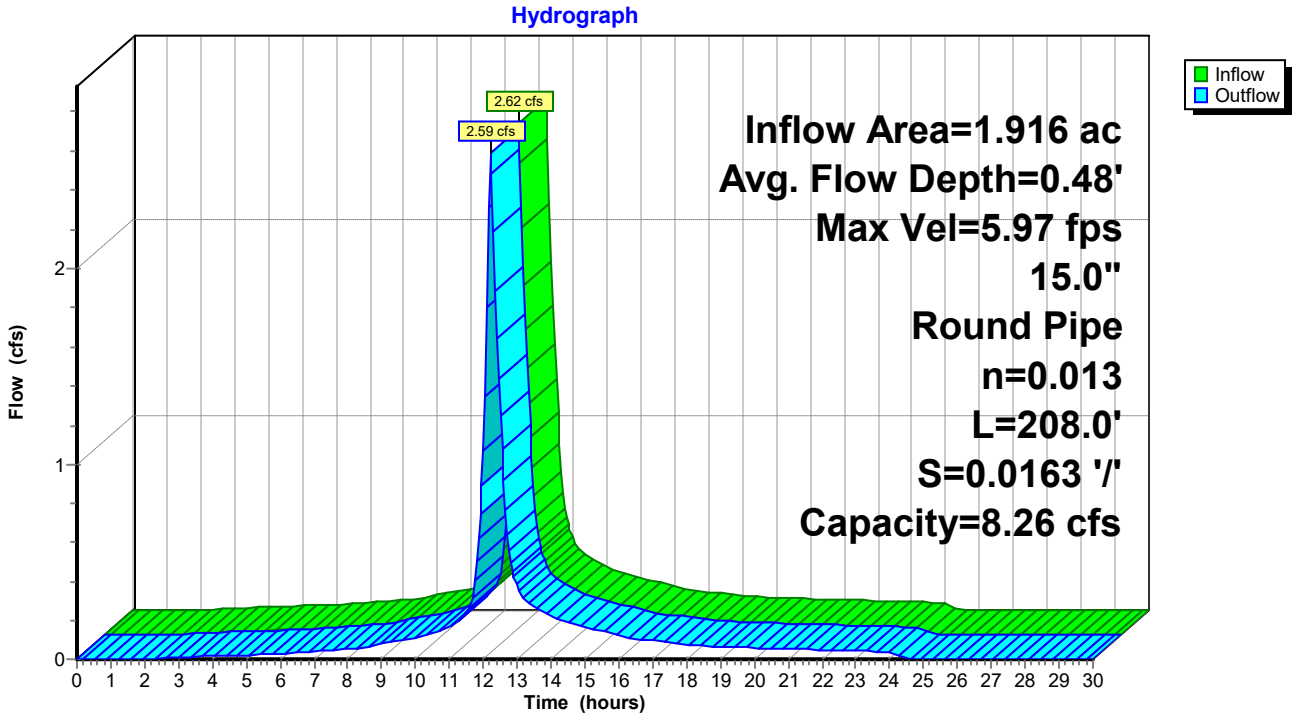
Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 1.65" for 2-Year event
Inflow = 2.62 cfs @ 12.20 hrs, Volume= 0.263 af
Outflow = 2.59 cfs @ 12.21 hrs, Volume= 0.263 af, Atten= 1%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.97 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.08 fps, Avg. Travel Time= 1.7 min

Peak Storage= 91 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.48'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 8.26 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 208.0' Slope= 0.0163 '/'
Inlet Invert= 1,054.50', Outlet Invert= 1,051.10'





Stage-Discharge for Reach DMH-A*: TO FE-A

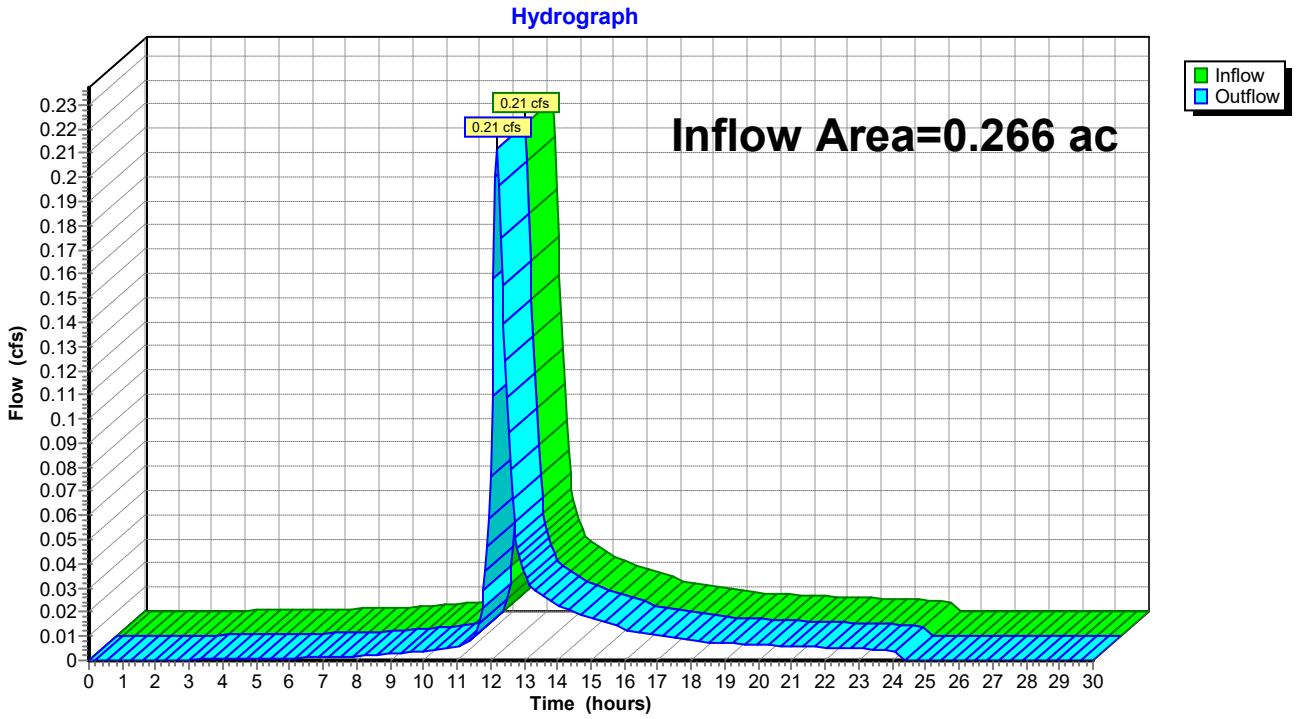
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,054.50	0.00	0.00
1,054.51	0.48	0.00
1,054.52	0.81	0.00
1,054.53	1.06	0.01
1,054.54	1.29	0.02
1,054.55	1.49	0.02
1,054.56	1.68	0.04
1,054.57	1.86	0.05
1,054.58	2.03	0.07
1,054.59	2.19	0.09
1,054.60	2.34	0.11
1,054.61	2.49	0.13
1,054.62	2.63	0.16
1,054.63	2.77	0.19
1,054.64	2.90	0.22
1,054.65	3.03	0.25
1,054.66	3.15	0.29
1,054.67	3.27	0.33
1,054.68	3.39	0.37
1,054.69	3.51	0.41
1,054.70	3.62	0.46
1,054.71	3.73	0.51
1,054.72	3.83	0.56
1,054.73	3.94	0.61
1,054.74	4.04	0.67
1,054.75	4.14	0.72
1,054.76	4.24	0.78
1,054.77	4.33	0.85
1,054.78	4.42	0.91
1,054.79	4.52	0.98
1,054.80	4.61	1.04
1,054.81	4.69	1.11
1,054.82	4.78	1.19
1,054.83	4.86	1.26
1,054.84	4.95	1.34
1,054.85	5.03	1.41
1,054.86	5.11	1.49
1,054.87	5.18	1.58
1,054.88	5.26	1.66
1,054.89	5.34	1.74
1,054.90	5.41	1.83
1,054.91	5.48	1.92
1,054.92	5.55	2.01
1,054.93	5.62	2.10
1,054.94	5.69	2.20
1,054.95	5.76	2.29
1,054.96	5.82	2.39
1,054.97	5.89	2.48
1,054.98	5.95	2.58
1,054.99	6.01	2.68
1,055.00	6.07	2.78
1,055.01	6.13	2.89
1,055.02	6.19	2.99
1,055.03	6.25	3.09
1,055.04	6.30	3.20
1,055.05	6.36	3.31
1,055.06	6.41	3.41
1,055.07	6.46	3.52
1,055.08	6.51	3.63
1,055.09	6.56	3.74
1,055.10	6.61	3.85
1,055.11	6.66	3.96
1,055.12	6.71	4.07
1,055.13	6.75	4.19
1,055.14	6.80	4.30
1,055.15	6.84	4.41
1,055.16	6.88	4.52
1,055.17	6.92	4.64
1,055.18	6.96	4.75
1,055.19	7.00	4.87
1,055.20	7.04	4.98
1,055.21	7.08	5.09
1,055.22	7.12	5.21
1,055.23	7.15	5.32
1,055.24	7.18	5.44
1,055.25	7.22	5.55
1,055.26	7.25	5.66
1,055.27	7.28	5.77
1,055.28	7.31	5.89
1,055.29	7.34	6.00
1,055.30	7.37	6.11
1,055.31	7.39	6.22
1,055.32	7.42	6.33
1,055.33	7.44	6.44
1,055.34	7.46	6.55
1,055.35	7.49	6.65
1,055.36	7.51	6.76
1,055.37	7.53	6.86
1,055.38	7.54	6.97
1,055.39	7.56	7.07
1,055.40	7.58	7.17
1,055.41	7.59	7.27
1,055.42	7.61	7.36
1,055.43	7.62	7.46
1,055.44	7.63	7.55
1,055.45	7.64	7.65
1,055.46	7.65	7.74
1,055.47	7.66	7.82
1,055.48	7.66	7.91
1,055.49	7.67	7.99
1,055.50	7.67	8.07
1,055.51	7.67	8.15
1,055.52	**7.67**	8.23
1,055.53	7.67	8.30
1,055.54	7.67	8.37
1,055.55	7.66	8.43
1,055.56	7.66	8.49
1,055.57	7.65	8.55
1,055.58	7.64	8.61
1,055.59	7.63	8.66
1,055.60	7.61	8.71
1,055.61	7.60	8.75
1,055.62	7.58	8.78
1,055.63	7.56	8.82
1,055.64	7.53	8.84
1,055.65	7.50	8.86
1,055.66	7.47	8.88
1,055.67	7.44	**8.88**
1,055.68	7.40	8.88
1,055.69	7.36	8.87
1,055.70	7.31	8.85
1,055.71	7.25	8.81
1,055.72	7.18	8.76
1,055.73	7.10	8.68
1,055.74	6.97	8.54
1,055.75	6.73	8.26

Summary for Reach DP#3: TO OFF SITE

Inflow Area = 0.266 ac, 10.99% Impervious, Inflow Depth = 0.97" for 2-Year event
Inflow = 0.21 cfs @ 12.20 hrs, Volume= 0.022 af
Outflow = 0.21 cfs @ 12.20 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP#3: TO OFF SITE



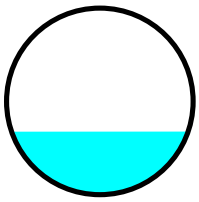
Summary for Reach DP1: CULVERT

Inflow Area = 5.012 ac, 60.72% Impervious, Inflow Depth = 2.01" for 2-Year event
Inflow = 8.51 cfs @ 12.17 hrs, Volume= 0.839 af
Outflow = 8.48 cfs @ 12.17 hrs, Volume= 0.839 af, Atten= 0%, Lag= 0.2 min

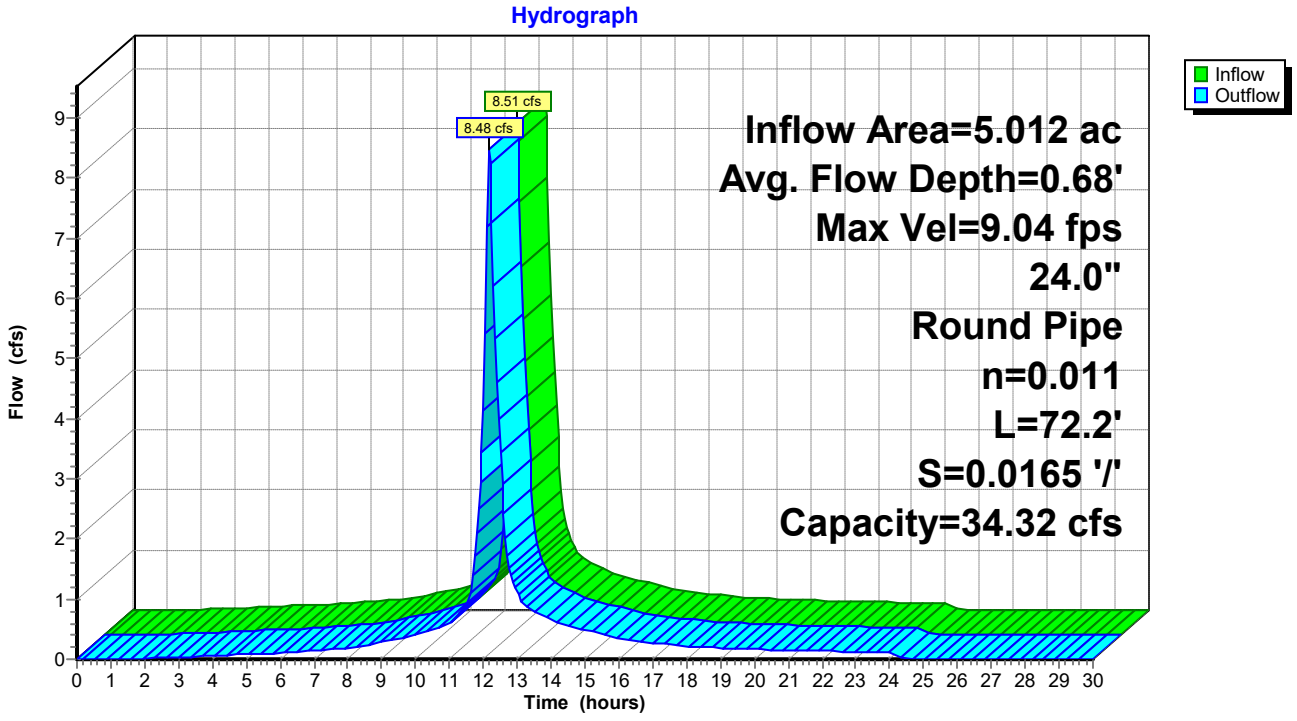
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.04 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.11 fps, Avg. Travel Time= 0.4 min

Peak Storage= 68 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.68'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 34.32 cfs

24.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 72.2' Slope= 0.0165 '/'
Inlet Invert= 1,049.69', Outlet Invert= 1,048.50'



Reach DP1: CULVERT



Stage-Discharge for Reach DP1: CULVERT

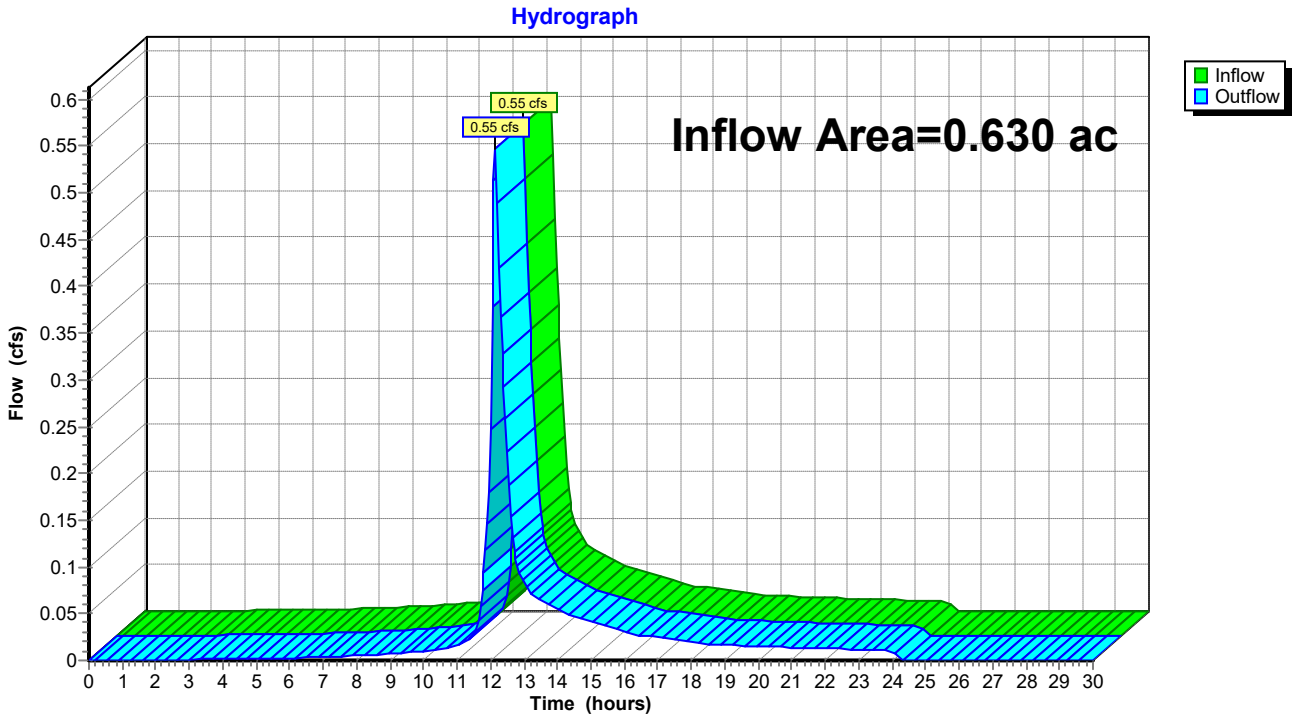
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,049.69	0.00	0.00
1,049.71	0.97	0.01
1,049.73	1.54	0.02
1,049.75	2.01	0.06
1,049.77	2.43	0.10
1,049.79	2.81	0.16
1,049.81	3.16	0.24
1,049.83	3.49	0.34
1,049.85	3.80	0.45
1,049.87	4.10	0.57
1,049.89	4.38	0.72
1,049.91	4.65	0.88
1,049.93	4.92	1.05
1,049.95	5.17	1.24
1,049.97	5.41	1.45
1,049.99	5.65	1.67
1,050.01	5.87	1.91
1,050.03	6.09	2.16
1,050.05	6.31	2.43
1,050.07	6.52	2.71
1,050.09	6.72	3.01
1,050.11	6.92	3.32
1,050.13	7.11	3.64
1,050.15	7.30	3.98
1,050.17	7.48	4.34
1,050.19	7.66	4.70
1,050.21	7.83	5.08
1,050.23	8.00	5.47
1,050.25	8.16	5.88
1,050.27	8.32	6.29
1,050.29	8.48	6.72
1,050.31	8.63	7.16
1,050.33	8.78	7.61
1,050.35	8.93	8.07
1,050.37	9.07	8.54
1,050.39	9.21	9.03
1,050.41	9.35	9.52
1,050.43	9.48	10.02
1,050.45	9.61	10.52
1,050.47	9.73	11.04
1,050.49	9.86	11.57
1,050.51	9.98	12.10
1,050.53	10.09	12.64
1,050.55	10.21	13.19
1,050.57	10.32	13.74
1,050.59	10.43	14.30
1,050.61	10.53	14.86
1,050.63	10.63	15.43
1,050.65	10.73	16.00
1,050.67	10.83	16.58
1,050.69	10.93	17.16
1,050.71	11.02	17.75
1,050.73	11.11	18.33
1,050.75	11.19	18.92
1,050.77	11.27	19.51
1,050.79	11.36	20.10
1,050.81	11.43	20.70
1,050.83	11.51	21.29
1,050.85	11.58	21.88
1,050.87	11.65	22.47
1,050.89	11.72	23.06
1,050.91	11.78	23.65
1,050.93	11.84	24.23
1,050.95	11.90	24.81
1,050.97	11.96	25.39
1,050.99	12.01	25.96
1,051.01	12.06	26.53
1,051.03	12.11	27.09
1,051.05	12.15	27.65
1,051.07	12.20	28.20
1,051.09	12.23	28.74
1,051.11	12.27	29.27
1,051.13	12.30	29.79
1,051.15	12.33	30.31
1,051.17	12.36	30.81
1,051.19	12.38	31.30
1,051.21	12.40	31.78
1,051.23	12.42	32.24
1,051.25	12.44	32.69
1,051.27	12.45	33.13
1,051.29	12.45	33.55
1,051.31	**12.46**	33.95
1,051.33	12.45	34.34
1,051.35	12.45	34.70
1,051.37	12.44	35.05
1,051.39	12.43	35.37
1,051.41	12.41	35.67
1,051.43	12.39	35.94
1,051.45	12.36	36.18
1,051.47	12.32	36.40
1,051.49	12.28	36.58
1,051.51	12.24	36.73
1,051.53	12.18	36.84
1,051.55	12.12	36.90
1,051.57	12.05	**36.92**
1,051.59	11.96	36.88
1,051.61	11.86	36.77
1,051.63	11.75	36.58
1,051.65	11.60	36.27
1,051.67	11.40	35.76
1,051.69	10.93	34.32

Summary for Reach DP2: Culvert

Inflow Area = 0.630 ac, 12.33% Impervious, Inflow Depth = 1.00" for 2-Year event
Inflow = 0.55 cfs @ 12.14 hrs, Volume= 0.052 af
Outflow = 0.55 cfs @ 12.14 hrs, Volume= 0.052 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: Culvert

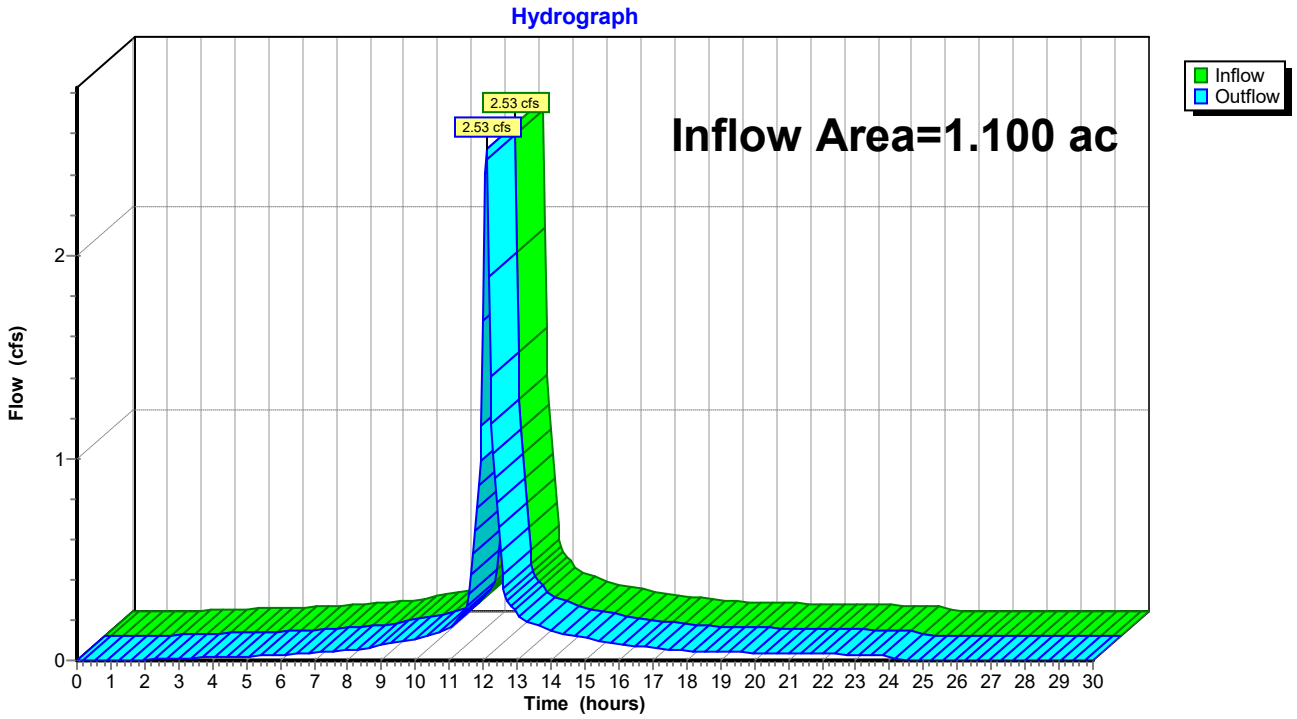


Summary for Reach DP4: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 2.21" for 2-Year event
Inflow = 2.53 cfs @ 12.08 hrs, Volume= 0.203 af
Outflow = 2.53 cfs @ 12.08 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP4: DP#4

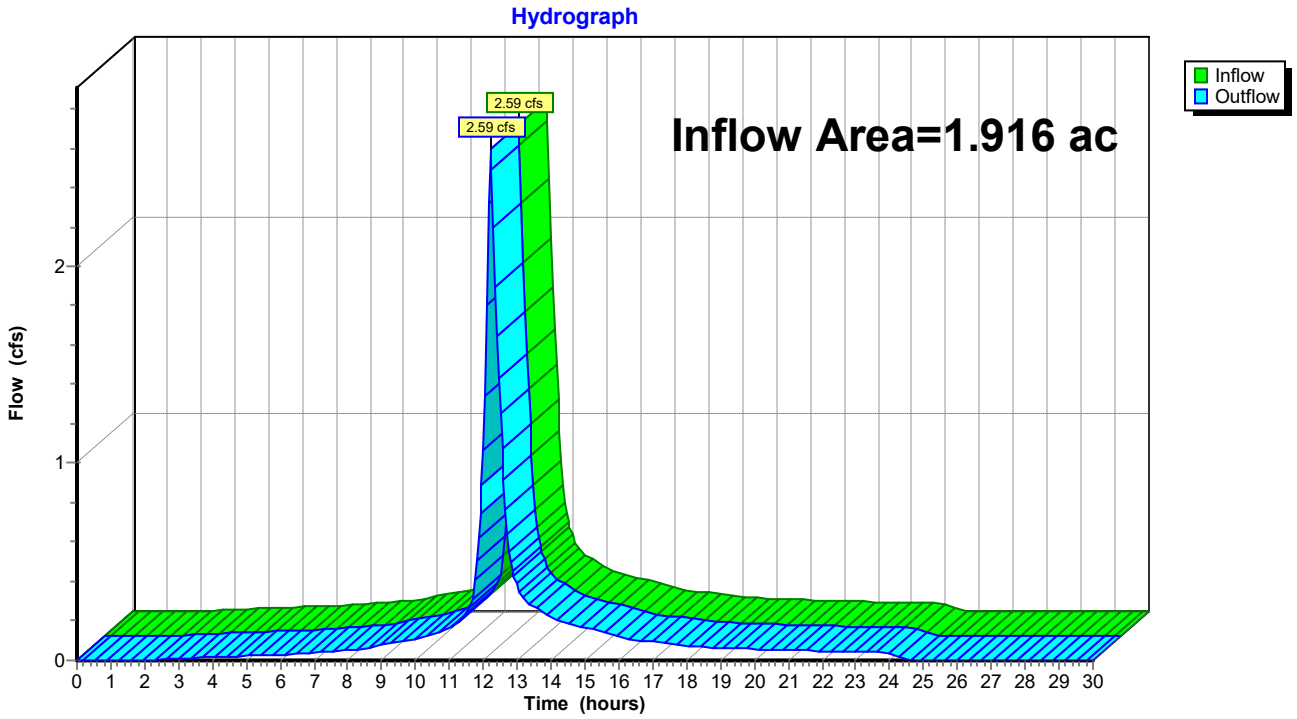


Summary for Reach FEA: TO CULVERT

Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 1.65" for 2-Year event
Inflow = 2.59 cfs @ 12.21 hrs, Volume= 0.263 af
Outflow = 2.59 cfs @ 12.21 hrs, Volume= 0.263 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach FEA: TO CULVERT



Summary for Pond CULVERT#3: TO E12

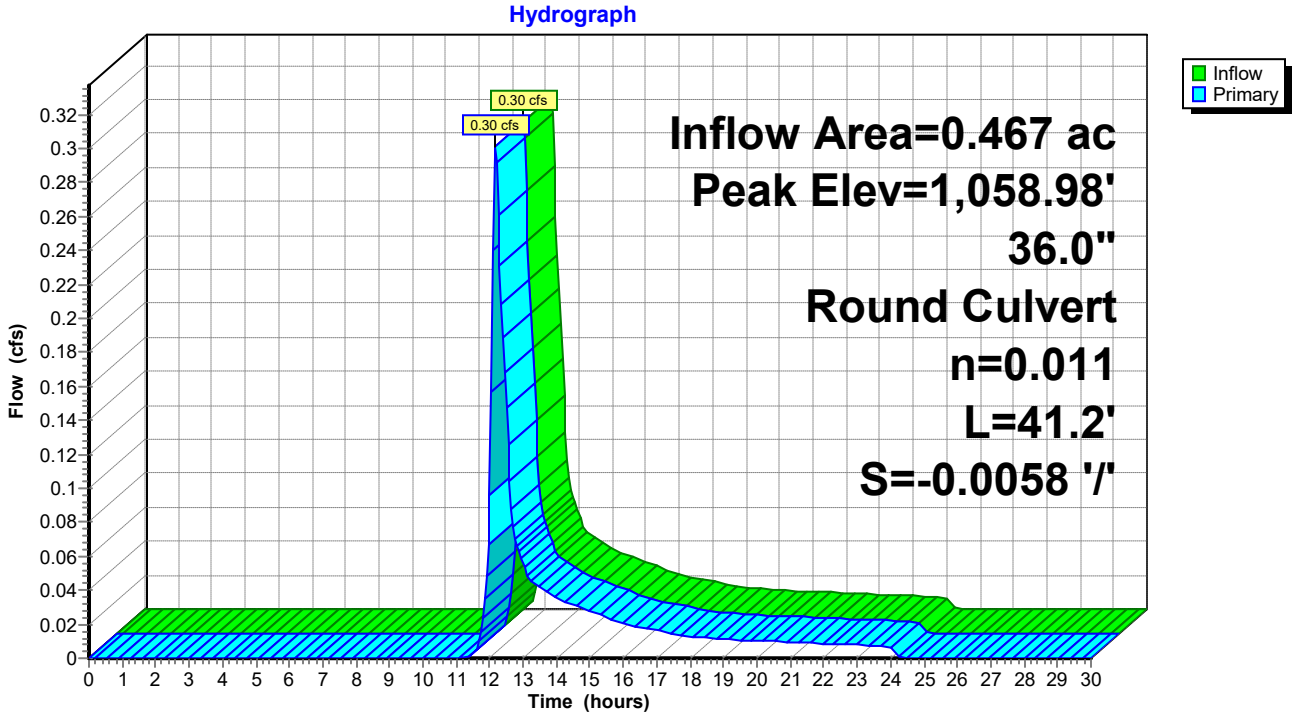
Inflow Area = 0.467 ac, 0.00% Impervious, Inflow Depth = 0.75" for 2-Year event
Inflow = 0.30 cfs @ 12.17 hrs, Volume= 0.029 af
Outflow = 0.30 cfs @ 12.17 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.17 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,058.98' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,058.78'	**36.0" Round Culvert#3** L= 41.2' Ke= 0.500 Inlet / Outlet Invert= 1,058.54' / 1,058.78' S= -0.0058 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=0.29 cfs @ 12.17 hrs HW=1,058.97' (Free Discharge)
1=Culvert#3 (Inlet Controls 0.29 cfs @ 1.50 fps)

Pond CULVERT#3: TO E12



Stage-Discharge for Pond CULVERT#3: TO E12

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,058.78	0.00	1,059.82	6.54	1,060.86	19.98
1,058.80	0.00	1,059.84	6.74	1,060.88	20.28
1,058.82	0.01	1,059.86	6.95	1,060.90	20.59
1,058.84	0.03	1,059.88	7.16	1,060.92	20.89
1,058.86	0.05	1,059.90	7.37	1,060.94	21.20
1,058.88	0.08	1,059.92	7.58	1,060.96	21.50
1,058.90	0.11	1,059.94	7.80	1,060.98	21.81
1,058.92	0.15	1,059.96	8.02	1,061.00	22.12
1,058.94	0.20	1,059.98	8.24	1,061.02	22.43
1,058.96	0.25	1,060.00	8.46	1,061.04	22.74
1,058.98	0.31	1,060.02	8.69	1,061.06	23.05
1,059.00	0.37	1,060.04	8.92	1,061.08	23.36
1,059.02	0.44	1,060.06	9.15	1,061.10	23.67
1,059.04	0.52	1,060.08	9.38	1,061.12	23.99
1,059.06	0.60	1,060.10	9.62	1,061.14	24.30
1,059.08	0.69	1,060.12	9.85	1,061.16	24.61
1,059.10	0.78	1,060.14	10.09	1,061.18	24.93
1,059.12	0.88	1,060.16	10.33	1,061.20	25.24
1,059.14	0.98	1,060.18	10.58	1,061.22	25.56
1,059.16	1.09	1,060.20	10.82	1,061.24	25.87
1,059.18	1.21	1,060.22	11.07	1,061.26	26.19
1,059.20	1.33	1,060.24	11.32	1,061.28	26.50
1,059.22	1.45	1,060.26	11.58	1,061.30	26.82
1,059.24	1.59	1,060.28	11.83	1,061.32	27.14
1,059.26	1.72	1,060.30	12.09	1,061.34	27.45
1,059.28	1.86	1,060.32	12.35	1,061.36	27.77
1,059.30	2.01	1,060.34	12.61	1,061.38	28.09
1,059.32	2.16	1,060.36	12.87	1,061.40	28.40
1,059.34	2.32	1,060.38	13.14	1,061.42	28.72
1,059.36	2.49	1,060.40	13.40	1,061.44	29.04
1,059.38	2.65	1,060.42	13.67	1,061.46	29.35
1,059.40	2.83	1,060.44	13.94	1,061.48	29.67
1,059.42	3.01	1,060.46	14.21	1,061.50	29.98
1,059.44	3.19	1,060.48	14.49	1,061.52	30.30
1,059.46	3.36	1,060.50	14.76	1,061.54	30.61
1,059.48	3.51	1,060.52	15.04	1,061.56	30.93
1,059.50	3.67	1,060.54	15.32	1,061.58	31.24
1,059.52	3.82	1,060.56	15.60	1,061.60	31.55
1,059.54	3.99	1,060.58	15.88	1,061.62	31.87
1,059.56	4.15	1,060.60	16.16	1,061.64	32.18
1,059.58	4.32	1,060.62	16.45	1,061.66	32.49
1,059.60	4.49	1,060.64	16.74	1,061.68	32.80
1,059.62	4.66	1,060.66	17.03	1,061.70	33.11
1,059.64	4.83	1,060.68	17.31	1,061.72	33.42
1,059.66	5.01	1,060.70	17.61	1,061.74	33.72
1,059.68	5.19	1,060.72	17.90	1,061.76	34.03
1,059.70	5.38	1,060.74	18.19	1,061.78	**34.33**
1,059.72	5.57	1,060.76	18.49		
1,059.74	5.76	1,060.78	18.78		
1,059.76	5.95	1,060.80	19.08		
1,059.78	6.14	1,060.82	19.38		
1,059.80	6.34	1,060.84	19.68		

Summary for Pond DCBA: TO DCB-B

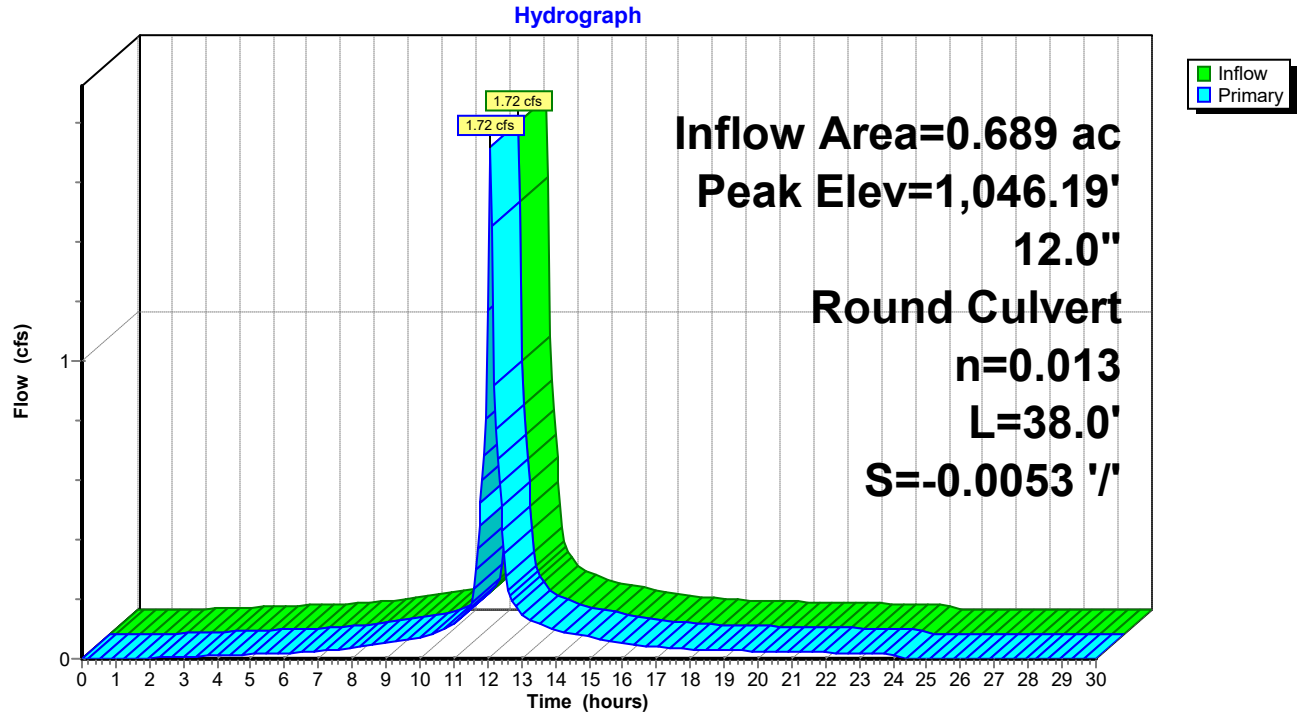
Inflow Area = 0.689 ac, 76.16% Impervious, Inflow Depth = 2.39" for 2-Year event
Inflow = 1.72 cfs @ 12.08 hrs, Volume= 0.137 af
Outflow = 1.72 cfs @ 12.08 hrs, Volume= 0.137 af, Atten= 0%, Lag= 0.0 min
Primary = 1.72 cfs @ 12.08 hrs, Volume= 0.137 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,046.19' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,045.30'	**12.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,045.10' / 1,045.30' S= -0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.67 cfs @ 12.08 hrs HW=1,046.17' (Free Discharge)
1=Culvert (Barrel Controls 1.67 cfs @ 2.47 fps)

Pond DCBA: TO DCB-B



Stage-Discharge for Pond DCBA: TO DCB-B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,045.30	0.00	1,045.82	0.80
1,045.31	0.00	1,045.83	0.83
1,045.32	0.00	1,045.84	0.85
1,045.33	0.00	1,045.85	0.88
1,045.34	0.01	1,045.86	0.91
1,045.35	0.01	1,045.87	0.94
1,045.36	0.01	1,045.88	0.97
1,045.37	0.02	1,045.89	1.00
1,045.38	0.02	1,045.90	1.02
1,045.39	0.03	1,045.91	1.05
1,045.40	0.03	1,045.92	1.08
1,045.41	0.04	1,045.93	1.10
1,045.42	0.05	1,045.94	1.12
1,045.43	0.06	1,045.95	1.15
1,045.44	0.07	1,045.96	1.17
1,045.45	0.08	1,045.97	1.20
1,045.46	0.09	1,045.98	1.22
1,045.47	0.10	1,045.99	1.24
1,045.48	0.11	1,046.00	1.27
1,045.49	0.12	1,046.01	1.29
1,045.50	0.13	1,046.02	1.32
1,045.51	0.15	1,046.03	1.34
1,045.52	0.16	1,046.04	1.36
1,045.53	0.18	1,046.05	1.39
1,045.54	0.19	1,046.06	1.41
1,045.55	0.21	1,046.07	1.44
1,045.56	0.22	1,046.08	1.46
1,045.57	0.24	1,046.09	1.48
1,045.58	0.26	1,046.10	1.51
1,045.59	0.27	1,046.11	1.53
1,045.60	0.29	1,046.12	1.55
1,045.61	0.31	1,046.13	1.58
1,045.62	0.33	1,046.14	1.60
1,045.63	0.35	1,046.15	1.62
1,045.64	0.37	1,046.16	1.65
1,045.65	0.39	1,046.17	1.67
1,045.66	0.41	1,046.18	1.69
1,045.67	0.43	1,046.19	1.72
1,045.68	0.45	1,046.20	1.74
1,045.69	0.48	1,046.21	1.76
1,045.70	0.50	1,046.22	1.78
1,045.71	0.52	1,046.23	1.80
1,045.72	0.55	1,046.24	1.82
1,045.73	0.57	1,046.25	1.84
1,045.74	0.59	1,046.26	1.86
1,045.75	0.62	1,046.27	1.88
1,045.76	0.64	1,046.28	1.90
1,045.77	0.67	1,046.29	1.92
1,045.78	0.69	1,046.30	**1.94**
1,045.79	0.72		
1,045.80	0.75		
1,045.81	0.77		

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P10: OVERLAND TO Runoff Area=134,863 sf 70.59% Impervious Runoff Depth=3.60"
Flow Length=788' Tc=11.1 min CN=WQ Runoff=9.85 cfs 0.930 af

Subcatchment P11: TO DCB-1 Runoff Area=83,440 sf 44.76% Impervious Runoff Depth=2.86"
Flow Length=307' Tc=12.1 min CN=WQ Runoff=4.76 cfs 0.456 af

Subcatchment P12: (CULVERT) Runoff Area=7,096 sf 47.67% Impervious Runoff Depth=2.96"
Flow Length=91' Tc=7.6 min CN=WQ Runoff=0.48 cfs 0.040 af

Subcatchment P13: TO CULVERT Runoff Area=20,345 sf 0.00% Impervious Runoff Depth=1.72"
Flow Length=380' Tc=10.9 min CN=WQ Runoff=0.77 cfs 0.067 af

Subcatchment P14: TO DCB-A Runoff Area=30,009 sf 76.16% Impervious Runoff Depth=3.79"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=2.73 cfs 0.218 af

Subcatchment P15: TO DCB-C Runoff Area=17,919 sf 56.55% Impervious Runoff Depth=3.22"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=1.39 cfs 0.110 af

Subcatchment P31: TO DP#3 (CULVERT) Runoff Area=11,601 sf 10.99% Impervious Runoff Depth=2.01"
Flow Length=129' Slope=0.0400 '/' Tc=13.0 min CN=WQ Runoff=0.47 cfs 0.045 af

Reach DCB1: TO DMH#1 Avg. Flow Depth=0.69' Max Vel=6.82 fps Inflow=4.76 cfs 0.456 af
15.0" Round Pipe n=0.012 L=210.0' S=0.0133 '/' Capacity=8.08 cfs Outflow=4.67 cfs 0.456 af

Reach DCBB: DP#4 Inflow=4.09 cfs 0.328 af
Outflow=4.09 cfs 0.328 af

Reach DCBC: TO DCB-B Avg. Flow Depth=0.34' Max Vel=5.82 fps Inflow=1.39 cfs 0.110 af
12.0" Round Pipe n=0.013 L=118.0' S=0.0237 '/' Capacity=5.49 cfs Outflow=1.38 cfs 0.110 af

Reach DMH-1: TO DMH-A Avg. Flow Depth=0.73' Max Vel=6.32 fps Inflow=4.67 cfs 0.456 af
15.0" Round Pipe n=0.013 L=70.0' S=0.0129 '/' Capacity=7.32 cfs Outflow=4.66 cfs 0.456 af

Reach DMH-A*: TO FE-A Avg. Flow Depth=0.67' Max Vel=6.93 fps Inflow=4.66 cfs 0.456 af
15.0" Round Pipe n=0.013 L=208.0' S=0.0163 '/' Capacity=8.26 cfs Outflow=4.62 cfs 0.456 af

Reach DP#3: TO OFF SITE Inflow=0.47 cfs 0.045 af
Outflow=0.47 cfs 0.045 af

Reach DP1: CULVERT Avg. Flow Depth=0.90' Max Vel=10.38 fps Inflow=14.18 cfs 1.385 af
24.0" Round Pipe n=0.011 L=72.2' S=0.0165 '/' Capacity=34.32 cfs Outflow=14.13 cfs 1.385 af

Reach DP2: Culvert Inflow=1.21 cfs 0.107 af
Outflow=1.21 cfs 0.107 af

Reach DP4: DP#4 Inflow=4.09 cfs 0.328 af
Outflow=4.09 cfs 0.328 af

Reach FEA: TO CULVERT Inflow=4.62 cfs 0.456 af
Outflow=4.62 cfs 0.456 af

Pond CULVERT#3: TO E12 Peak Elev=1,059.10' Inflow=0.77 cfs 0.067 af
36.0" Round Culvert n=0.011 L=41.2' S=-0.0058 '/' Outflow=0.77 cfs 0.067 af

Pond DCBA: TO DCB-B Peak Elev=1,046.69' Inflow=2.73 cfs 0.218 af
12.0" Round Culvert n=0.013 L=38.0' S=-0.0053 '/' Outflow=2.73 cfs 0.218 af

Total Runoff Area = 7.008 ac Runoff Volume = 1.865 af Average Runoff Depth = 3.19"
44.25% Pervious = 3.101 ac 55.75% Impervious = 3.907 ac

Summary for Subcatchment P10: OVERLAND TO CULVERT

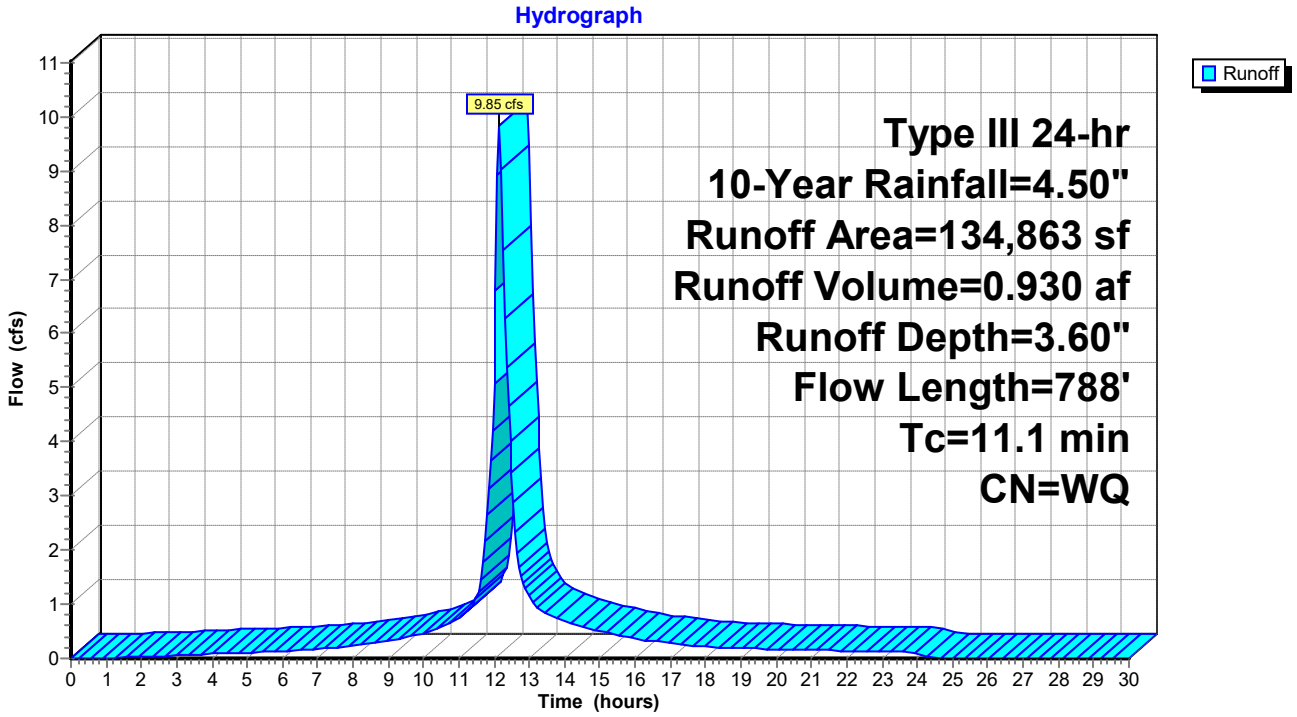
Runoff = 9.85 cfs @ 12.15 hrs, Volume= 0.930 af, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
29,803	74	>75% Grass cover, Good, HSG C
7,879	70	Woods, Good, HSG C
95,203	98	Paved parking, HSG C
1,978	96	Gravel surface, HSG C
134,863		Weighted Average
39,660		29.41% Pervious Area
95,203		70.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	42	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.8	33	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	10	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	218	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.4	237	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	135	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	35	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	78	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.1	788	Total			

Subcatchment P10: OVERLAND TO CULVERT



Summary for Subcatchment P11: TO DCB-1

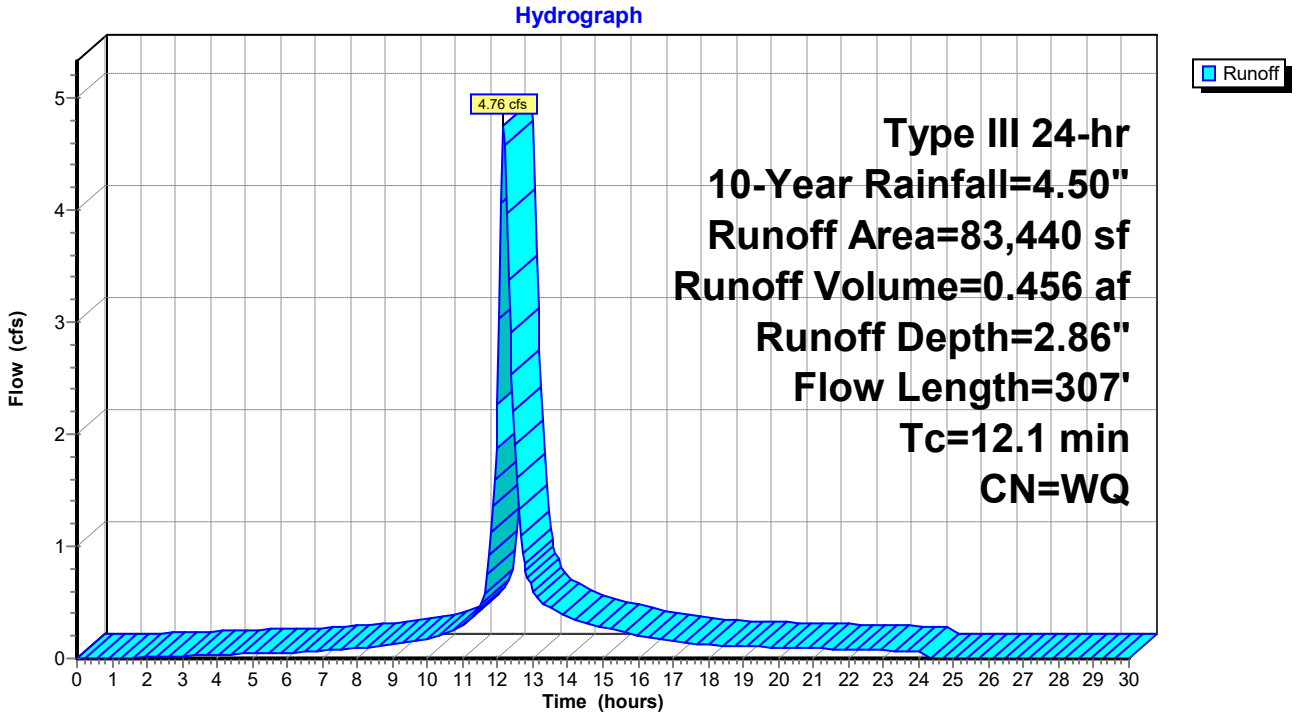
Runoff = 4.76 cfs @ 12.17 hrs, Volume= 0.456 af, Depth= 2.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
6,167	74	>75% Grass cover, Good, HSG C
39,922	70	Woods, Good, HSG C
37,351	98	Paved parking, HSG C
83,440		Weighted Average
46,089		55.24% Pervious Area
37,351		44.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	44	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.7	31	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	15	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.2	198	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	19	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.1	307	Total			

Subcatchment P11: TO DCB-1



Summary for Subcatchment P12: (CULVERT)

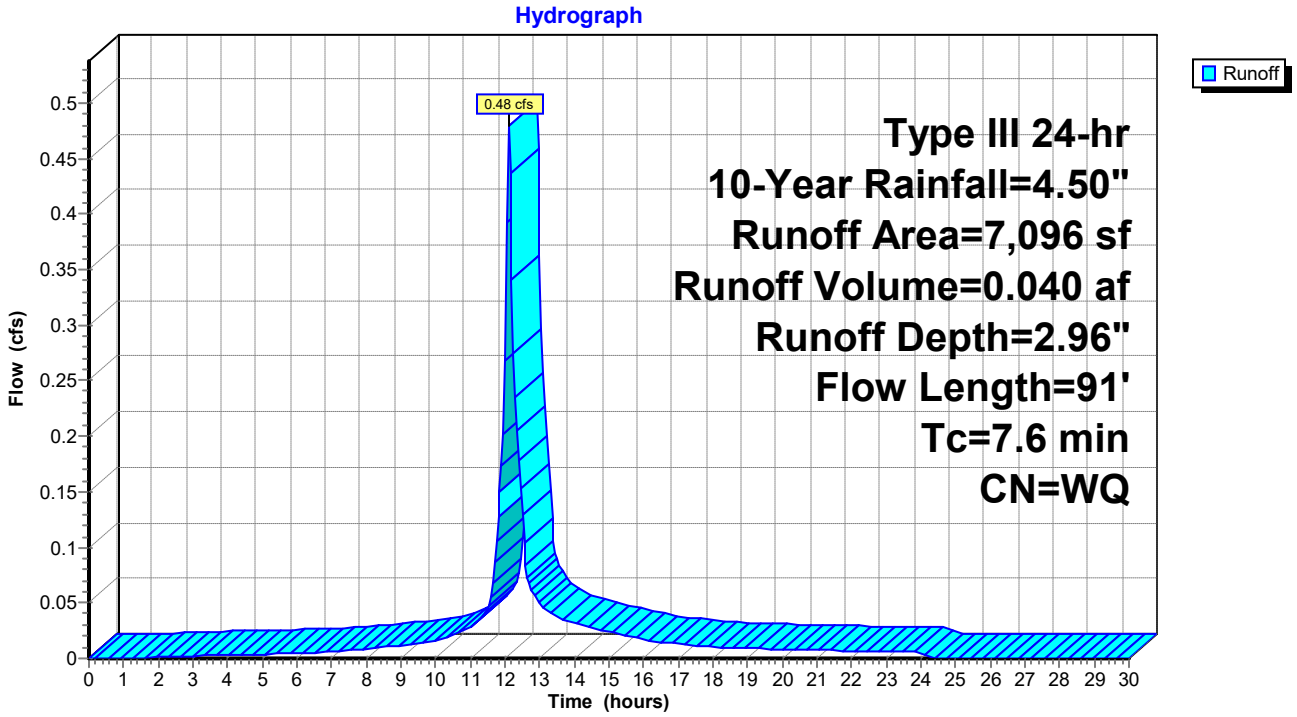
Runoff = 0.48 cfs @ 12.11 hrs, Volume= 0.040 af, Depth= 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
1,158	74	>75% Grass cover, Good, HSG C
2,555	70	Woods, Good, HSG C
3,383	98	Paved parking, HSG C
7,096		Weighted Average
3,713		52.33% Pervious Area
3,383		47.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0500	1.33		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	3	0.0500	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	1	0.0500	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
6.5	55	0.1300	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	16	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.6	91	Total			

Subcatchment P12: (CULVERT)



Summary for Subcatchment P13: TO CULVERT

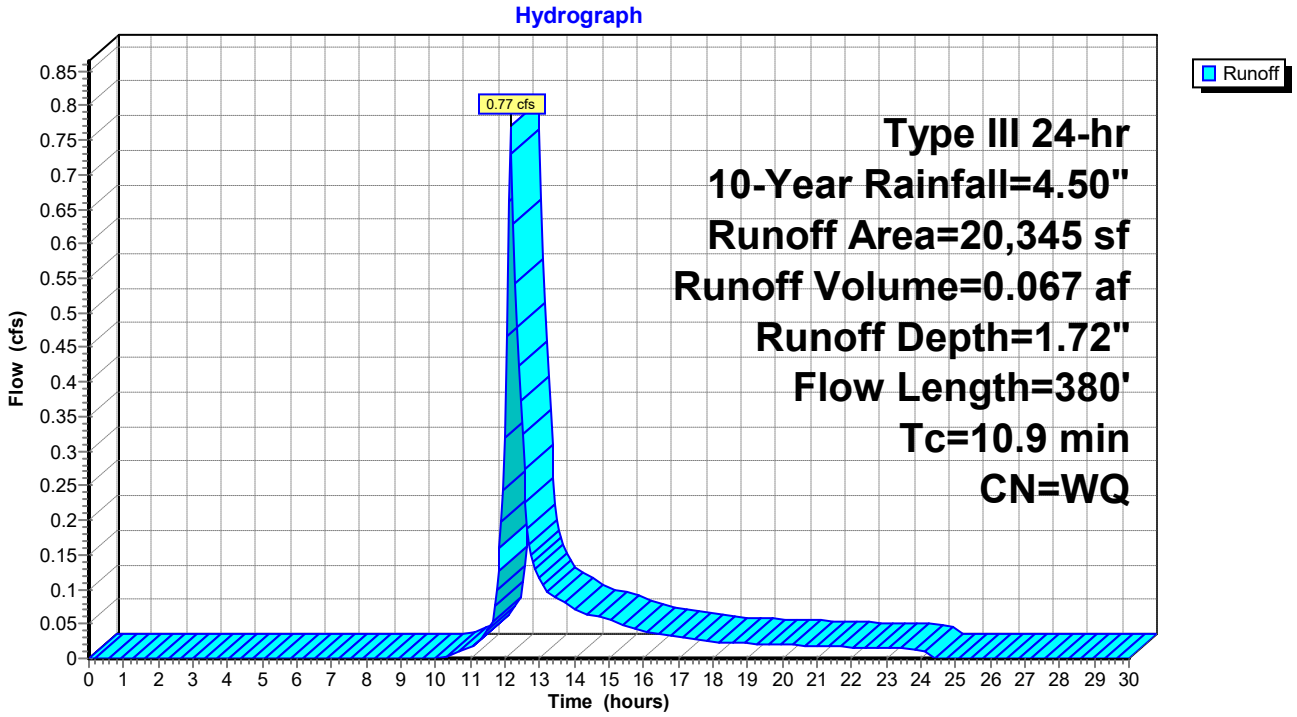
Runoff = 0.77 cfs @ 12.16 hrs, Volume= 0.067 af, Depth= 1.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
3,243	74	>75% Grass cover, Good, HSG C
17,102	70	Woods, Good, HSG C
20,345		Weighted Average
20,345		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	75	0.2400	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	25	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	69	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	7	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	43	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	71	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	17	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	73	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.9	380	Total			

Subcatchment P13: TO CULVERT



Summary for Subcatchment P14: TO DCB-A

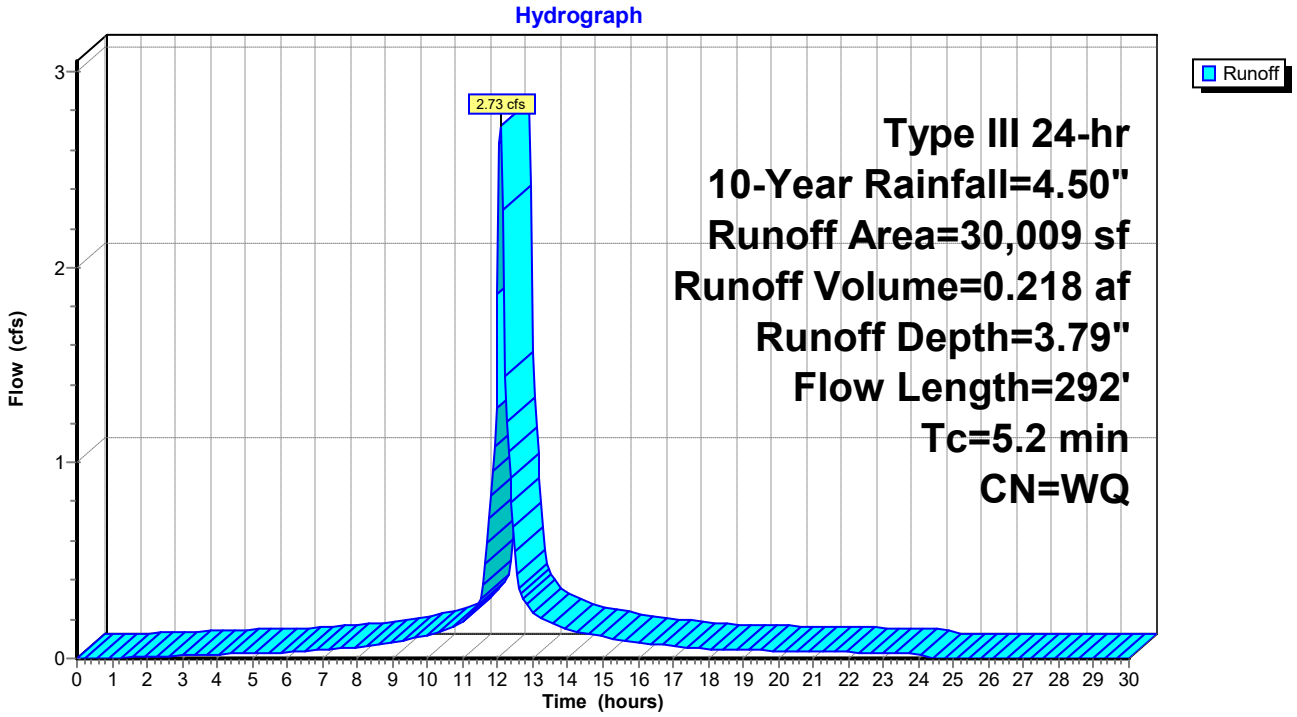
Runoff = 2.73 cfs @ 12.07 hrs, Volume= 0.218 af, Depth= 3.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
5,894	74	>75% Grass cover, Good, HSG C
22,855	98	Paved parking, HSG C
125	70	Woods, Good, HSG C
1,135	96	Gravel surface, HSG C
30,009		Weighted Average
7,154		23.84% Pervious Area
22,855		76.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment P14: TO DCB-A



Summary for Subcatchment P15: TO DCB-C

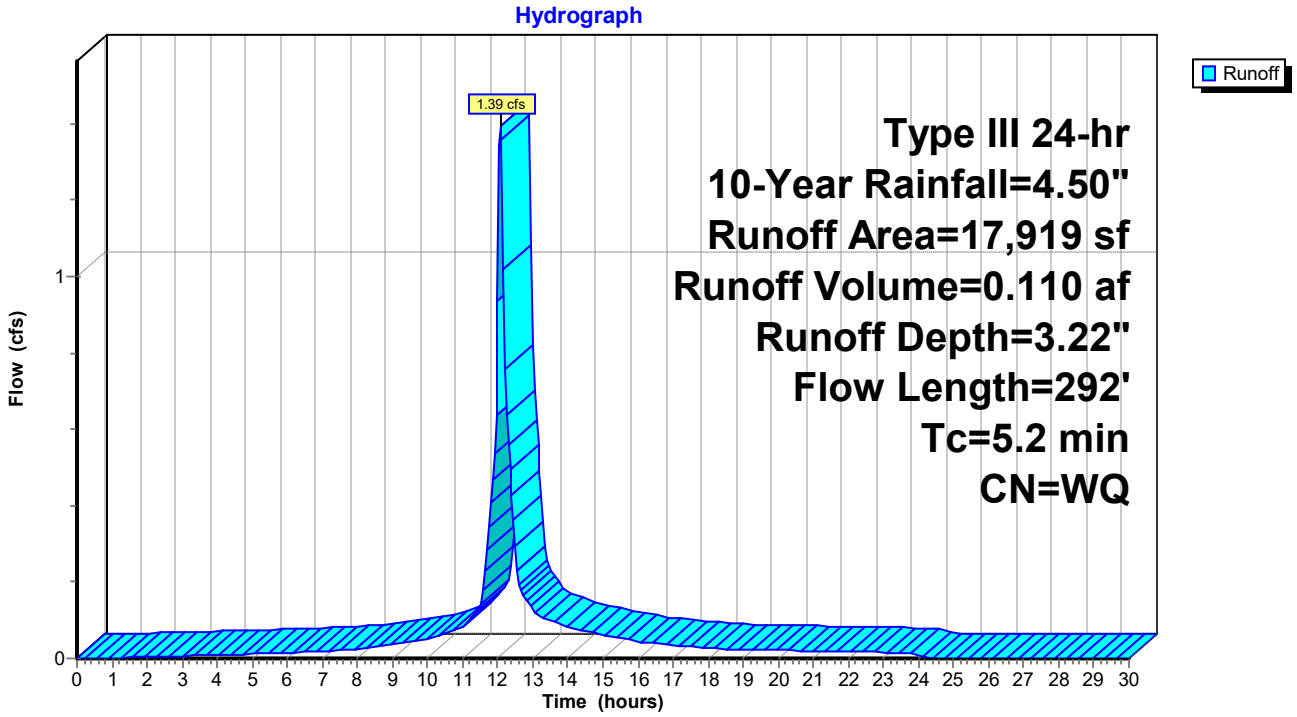
Runoff = 1.39 cfs @ 12.08 hrs, Volume= 0.110 af, Depth= 3.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
4,649	74	>75% Grass cover, Good, HSG C
10,134	98	Paved parking, HSG C
3,136	70	Woods, Good, HSG C
17,919		Weighted Average
7,785		43.45% Pervious Area
10,134		56.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment P15: TO DCB-C



Summary for Subcatchment P31: TO DP#3 (CULVERT)

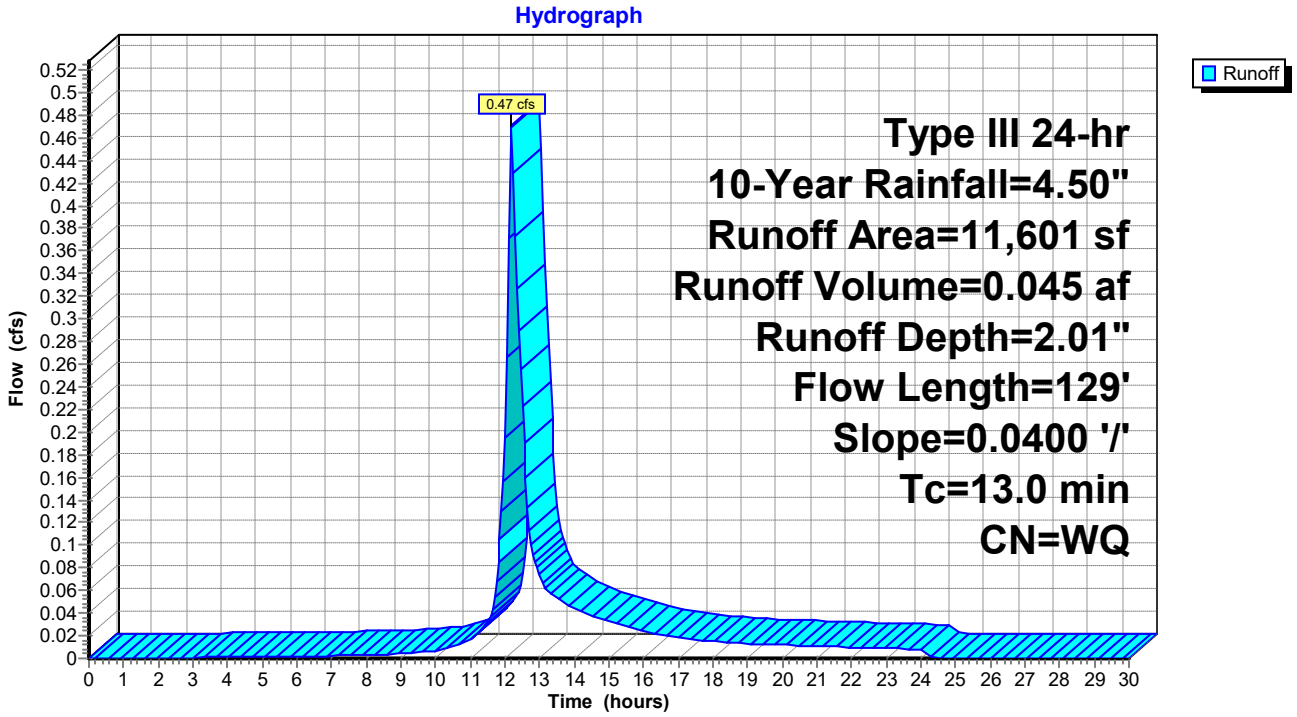
Runoff = 0.47 cfs @ 12.19 hrs, Volume= 0.045 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
2,060	74	>75% Grass cover, Good, HSG C
1,275	98	Paved parking, HSG C
8,266	70	Woods, Good, HSG C
11,601		Weighted Average
10,326		89.01% Pervious Area
1,275		10.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	4	0.0400	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
6.8	54	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
2.0	7	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
2.7	10	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	54	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.0	129	Total			

Subcatchment P31: TO DP#3 (CULVERT)



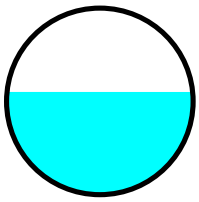
Summary for Reach DCB1: TO DMH#1

Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 2.86" for 10-Year event
Inflow = 4.76 cfs @ 12.17 hrs, Volume= 0.456 af
Outflow = 4.67 cfs @ 12.18 hrs, Volume= 0.456 af, Atten= 2%, Lag= 1.1 min

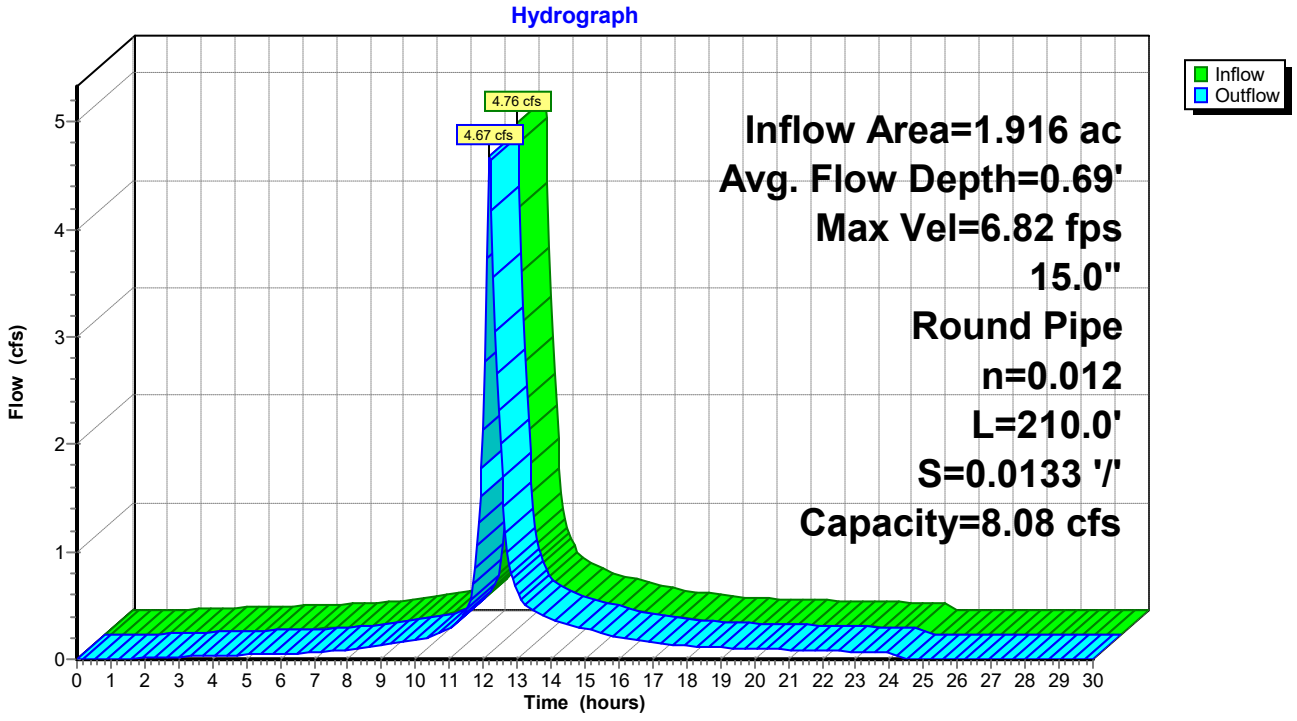
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.82 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.39 fps, Avg. Travel Time= 1.5 min

Peak Storage= 146 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.69'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 8.08 cfs

15.0" Round Pipe
n= 0.012 Steel, smooth
Length= 210.0' Slope= 0.0133 '/'
Inlet Invert= 1,058.40', Outlet Invert= 1,055.60'



Reach DCB1: TO DMH#1



Stage-Discharge for Reach DCB1: TO DMH#1

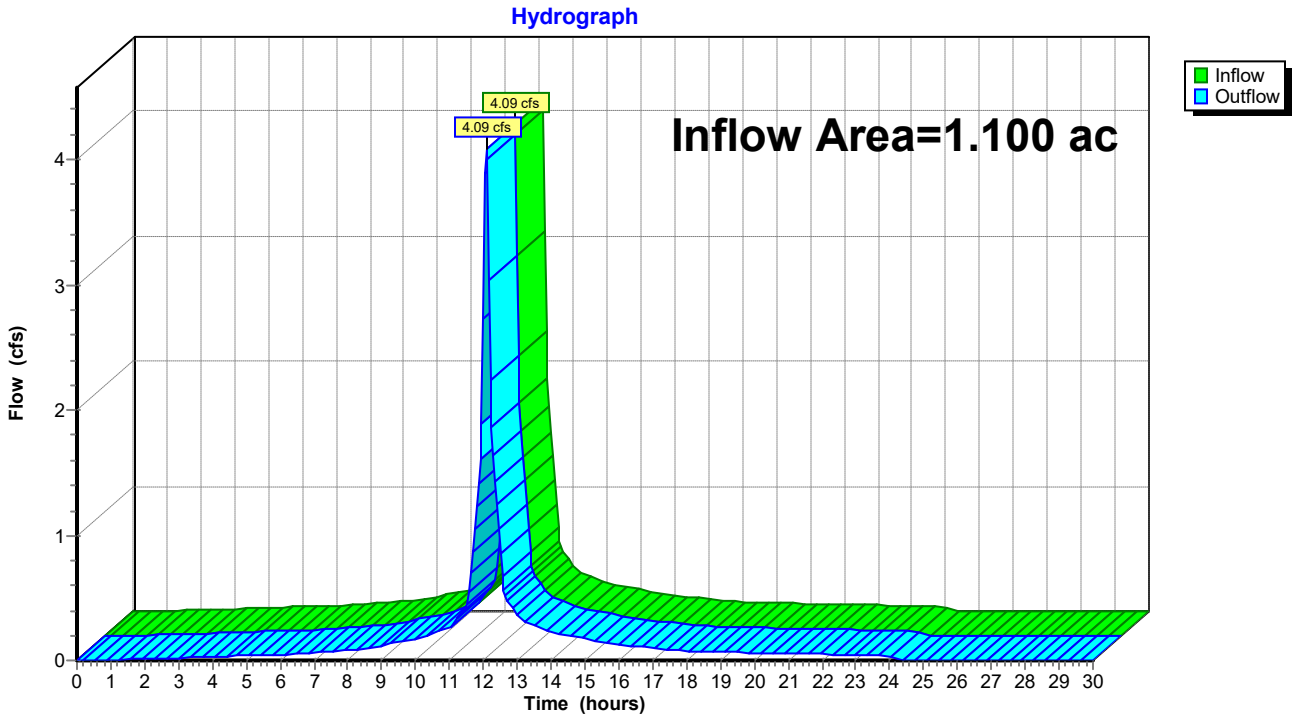
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,058.40	0.00	0.00
1,058.41	0.47	0.00
1,058.42	0.79	0.00
1,058.43	1.04	0.01
1,058.44	1.26	0.02
1,058.45	1.46	0.02
1,058.46	1.65	0.04
1,058.47	1.82	0.05
1,058.48	1.98	0.07
1,058.49	2.14	0.08
1,058.50	2.29	0.11
1,058.51	2.43	0.13
1,058.52	2.57	0.16
1,058.53	2.71	0.18
1,058.54	2.84	0.21
1,058.55	2.96	0.25
1,058.56	3.08	0.28
1,058.57	3.20	0.32
1,058.58	3.32	0.36
1,058.59	3.43	0.40
1,058.60	3.54	0.45
1,058.61	3.65	0.50
1,058.62	3.75	0.55
1,058.63	3.85	0.60
1,058.64	3.95	0.65
1,058.65	4.05	0.71
1,058.66	4.15	0.77
1,058.67	4.24	0.83
1,058.68	4.33	0.89
1,058.69	4.42	0.95
1,058.70	4.51	1.02
1,058.71	4.59	1.09
1,058.72	4.68	1.16
1,058.73	4.76	1.23
1,058.74	4.84	1.31
1,058.75	4.92	1.38
1,058.76	5.00	1.46
1,058.77	5.07	1.54
1,058.78	5.15	1.62
1,058.79	5.22	1.71
1,058.80	5.29	1.79
1,058.81	5.36	1.88
1,058.82	5.43	1.97
1,058.83	5.50	2.06
1,058.84	5.57	2.15
1,058.85	5.63	2.24
1,058.86	5.70	2.33
1,058.87	5.76	2.43
1,058.88	5.82	2.53
1,058.89	5.88	2.62
1,058.90	5.94	2.72
1,058.91	6.00	2.82
1,058.92	6.06	2.92
1,058.93	6.11	3.03
1,058.94	6.17	3.13
1,058.95	6.22	3.23
1,058.96	6.27	3.34
1,058.97	6.32	3.45
1,058.98	6.37	3.55
1,058.99	6.42	3.66
1,059.00	6.47	3.77
1,059.01	6.52	3.88
1,059.02	6.56	3.99
1,059.03	6.61	4.10
1,059.04	6.65	4.21
1,059.05	6.69	4.32
1,059.06	6.73	4.43
1,059.07	6.78	4.54
1,059.08	6.81	4.65
1,059.09	6.85	4.76
1,059.10	6.89	4.87
1,059.11	6.93	4.98
1,059.12	6.96	5.10
1,059.13	7.00	5.21
1,059.14	7.03	5.32
1,059.15	7.06	5.43
1,059.16	7.09	5.54
1,059.17	7.12	5.65
1,059.18	7.15	5.76
1,059.19	7.18	5.87
1,059.20	7.21	5.98
1,059.21	7.23	6.09
1,059.22	7.26	6.19
1,059.23	7.28	6.30
1,059.24	7.30	6.40
1,059.25	7.32	6.51
1,059.26	7.34	6.61
1,059.27	7.36	6.71
1,059.28	7.38	6.82
1,059.29	7.40	6.92
1,059.30	7.42	7.01
1,059.31	7.43	7.11
1,059.32	7.44	7.21
1,059.33	7.46	7.30
1,059.34	7.47	7.39
1,059.35	7.48	7.48
1,059.36	7.48	7.57
1,059.37	7.49	7.65
1,059.38	7.50	7.74
1,059.39	7.50	7.82
1,059.40	7.50	7.90
1,059.41	7.51	7.97
1,059.42	**7.51**	8.05
1,059.43	7.51	8.12
1,059.44	7.50	8.19
1,059.45	7.50	8.25
1,059.46	7.49	8.31
1,059.47	7.48	8.37
1,059.48	7.47	8.42
1,059.49	7.46	8.47
1,059.50	7.45	8.52
1,059.51	7.43	8.56
1,059.52	7.41	8.60
1,059.53	7.39	8.63
1,059.54	7.37	8.65
1,059.55	7.34	8.67
1,059.56	7.31	8.69
1,059.57	7.28	**8.69**
1,059.58	7.24	8.69
1,059.59	7.20	8.68
1,059.60	7.15	8.66
1,059.61	7.09	8.62
1,059.62	7.03	8.57
1,059.63	6.94	8.49
1,059.64	6.82	8.35
1,059.65	6.58	8.08

Summary for Reach DCBB: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 3.58" for 10-Year event
Inflow = 4.09 cfs @ 12.08 hrs, Volume= 0.328 af
Outflow = 4.09 cfs @ 12.08 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DCBB: DP#4



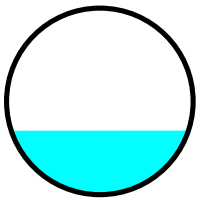
Summary for Reach DCBC: TO DCB-B

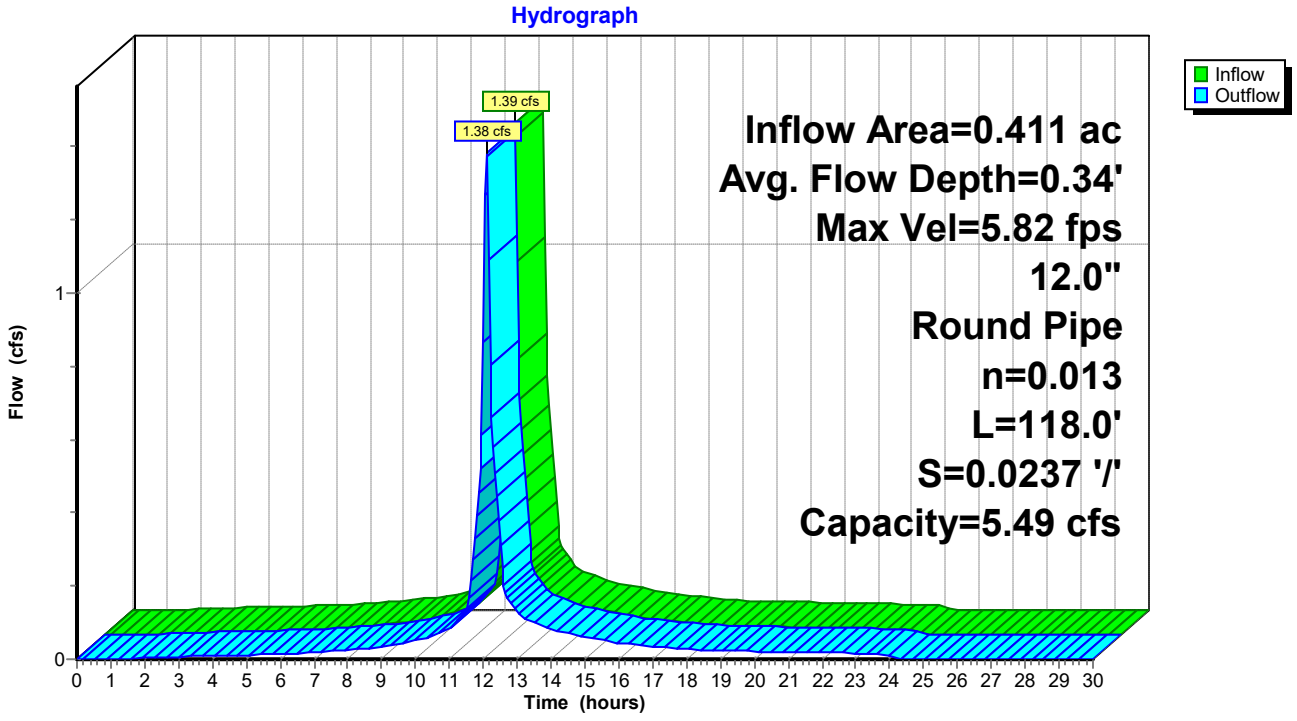
Inflow Area = 0.411 ac, 56.55% Impervious, Inflow Depth = 3.22" for 10-Year event
Inflow = 1.39 cfs @ 12.08 hrs, Volume= 0.110 af
Outflow = 1.38 cfs @ 12.09 hrs, Volume= 0.110 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.82 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.90 fps, Avg. Travel Time= 1.0 min

Peak Storage= 28 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.49 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 118.0' Slope= 0.0237 '/'
Inlet Invert= 1,048.10', Outlet Invert= 1,045.30'





Stage-Discharge for Reach DCBC: TO DCB-B

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,048.10	0.00	0.00
1,048.11	0.62	0.00
1,048.12	0.98	0.00
1,048.13	1.29	0.01
1,048.14	1.55	0.02
1,048.15	1.80	0.03
1,048.16	2.02	0.04
1,048.17	2.23	0.05
1,048.18	2.43	0.07
1,048.19	2.62	0.09
1,048.20	2.80	0.11
1,048.21	2.98	0.14
1,048.22	3.14	0.17
1,048.23	3.31	0.20
1,048.24	3.46	0.23
1,048.25	3.61	0.27
1,048.26	3.76	0.30
1,048.27	3.90	0.35
1,048.28	4.04	0.39
1,048.29	4.17	0.43
1,048.30	4.30	0.48
1,048.31	4.42	0.53
1,048.32	4.55	0.58
1,048.33	4.67	0.64
1,048.34	4.78	0.69
1,048.35	4.90	0.75
1,048.36	5.01	0.81
1,048.37	5.11	0.88
1,048.38	5.22	0.94
1,048.39	5.32	1.01
1,048.40	5.42	1.07
1,048.41	5.52	1.15
1,048.42	5.62	1.22
1,048.43	5.71	1.29
1,048.44	5.80	1.37
1,048.45	5.89	1.44
1,048.46	5.98	1.52
1,048.47	6.06	1.60
1,048.48	6.14	1.68
1,048.49	6.23	1.77
1,048.50	6.30	1.85
1,048.51	6.38	1.93
1,048.52	6.46	2.02
1,048.53	6.53	2.11
1,048.54	6.60	2.20
1,048.55	6.67	2.29
1,048.56	6.74	2.38
1,048.57	6.80	2.47
1,048.58	6.87	2.56
1,048.59	6.93	2.65
1,048.60	6.99	2.74
1,048.61	7.05	2.84
1,048.62	7.10	2.93
1,048.63	7.16	3.03
1,048.64	7.21	3.12
1,048.65	7.26	3.21
1,048.66	7.31	3.31
1,048.67	7.36	3.40
1,048.68	7.41	3.50
1,048.69	7.45	3.59
1,048.70	7.49	3.69
1,048.71	7.53	3.78
1,048.72	7.57	3.87
1,048.73	7.61	3.97
1,048.74	7.65	4.06
1,048.75	7.68	4.15
1,048.76	7.71	4.24
1,048.77	7.74	4.33
1,048.78	7.77	4.42
1,048.79	7.80	4.51
1,048.80	7.82	4.59
1,048.81	7.85	4.68
1,048.82	7.87	4.76
1,048.83	7.89	4.85
1,048.84	7.91	4.93
1,048.85	7.92	5.00
1,048.86	7.93	5.08
1,048.87	7.94	5.16
1,048.88	7.95	5.23
1,048.89	7.96	5.30
1,048.90	7.96	5.36
1,048.91	**7.97**	5.43
1,048.92	7.97	5.49
1,048.93	7.96	5.55
1,048.94	7.96	5.60
1,048.95	7.95	5.66
1,048.96	7.94	5.70
1,048.97	7.92	5.75
1,048.98	7.90	5.79
1,048.99	7.88	5.82
1,049.00	7.86	5.85
1,049.01	7.83	5.87
1,049.02	7.79	5.89
1,049.03	7.75	5.90
1,049.04	7.71	**5.90**
1,049.05	7.65	5.90
1,049.06	7.59	5.88
1,049.07	7.51	5.85
1,049.08	7.42	5.80
1,049.09	7.29	5.72
1,049.10	6.99	5.49

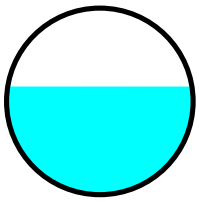
Summary for Reach DMH-1: TO DMH-A

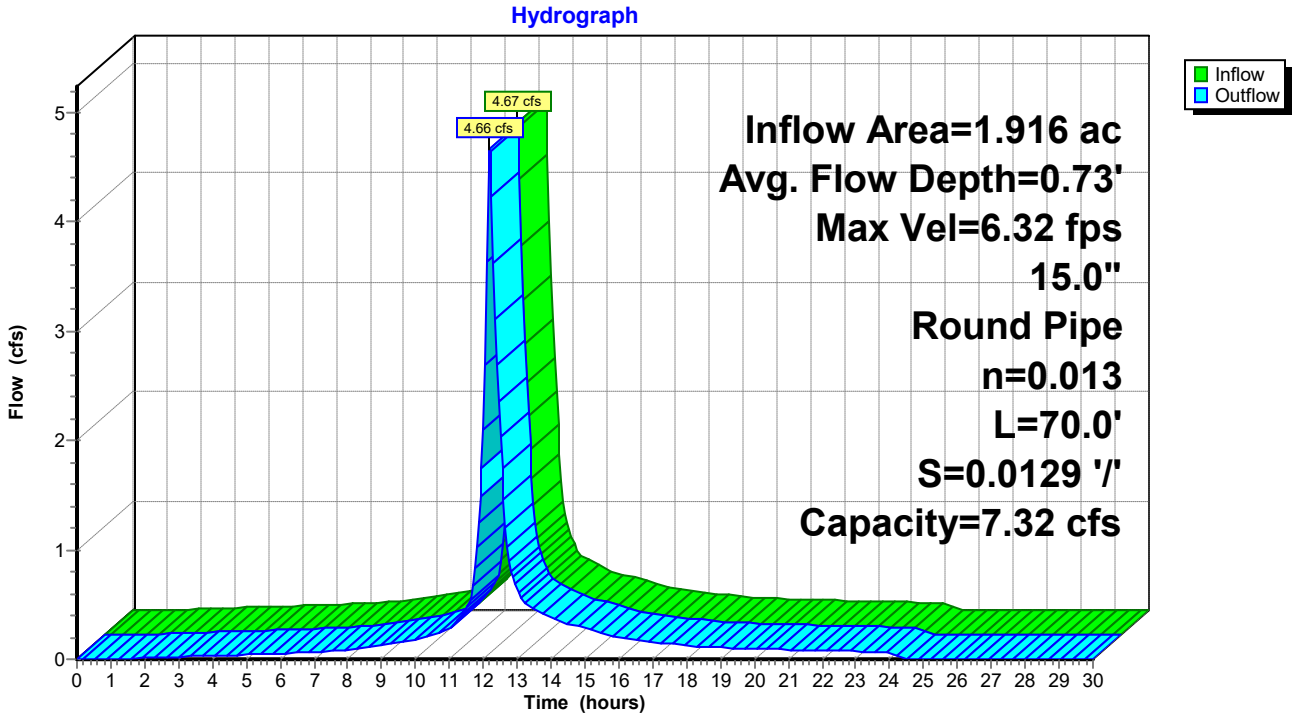
Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 2.86" for 10-Year event
Inflow = 4.67 cfs @ 12.18 hrs, Volume= 0.456 af
Outflow = 4.66 cfs @ 12.19 hrs, Volume= 0.456 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.32 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.23 fps, Avg. Travel Time= 0.5 min

Peak Storage= 52 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.73'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.32 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 70.0' Slope= 0.0129 '/'
Inlet Invert= 1,055.50', Outlet Invert= 1,054.60'





Stage-Discharge for Reach DMH-1: TO DMH-A

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,055.50	0.00	0.00
1,055.51	0.42	0.00
1,055.52	0.72	0.00
1,055.53	0.94	0.01
1,055.54	1.14	0.01
1,055.55	1.33	0.02
1,055.56	1.49	0.03
1,055.57	1.65	0.05
1,055.58	1.80	0.06
1,055.59	1.94	0.08
1,055.60	2.08	0.10
1,055.61	2.21	0.12
1,055.62	2.33	0.14
1,055.63	2.45	0.17
1,055.64	2.57	0.19
1,055.65	2.69	0.22
1,055.66	2.80	0.26
1,055.67	2.90	0.29
1,055.68	3.01	0.33
1,055.69	3.11	0.37
1,055.70	3.21	0.41
1,055.71	3.31	0.45
1,055.72	3.40	0.49
1,055.73	3.49	0.54
1,055.74	3.58	0.59
1,055.75	3.67	0.64
1,055.76	3.76	0.69
1,055.77	3.84	0.75
1,055.78	3.92	0.81
1,055.79	4.01	0.86
1,055.80	4.09	0.93
1,055.81	4.16	0.99
1,055.82	4.24	1.05
1,055.83	4.31	1.12
1,055.84	4.39	1.19
1,055.85	4.46	1.25
1,055.86	4.53	1.33
1,055.87	4.60	1.40
1,055.88	4.67	1.47
1,055.89	4.73	1.55
1,055.90	4.80	1.62
1,055.91	4.86	1.70
1,055.92	4.92	1.78
1,055.93	4.99	1.86
1,055.94	5.05	1.95
1,055.95	5.11	2.03
1,055.96	5.16	2.12
1,055.97	5.22	2.20
1,055.98	5.28	2.29
1,055.99	5.33	2.38
1,056.00	5.38	2.47
1,056.01	5.44	2.56
1,056.02	5.49	2.65
1,056.03	5.54	2.74
1,056.04	5.59	2.84
1,056.05	5.64	2.93
1,056.06	5.68	3.03
1,056.07	5.73	3.12
1,056.08	5.78	3.22
1,056.09	5.82	3.32
1,056.10	5.86	3.42
1,056.11	5.91	3.51
1,056.12	5.95	3.61
1,056.13	5.99	3.71
1,056.14	6.03	3.81
1,056.15	6.07	3.91
1,056.16	6.10	4.01
1,056.17	6.14	4.11
1,056.18	6.18	4.21
1,056.19	6.21	4.32
1,056.20	6.25	4.42
1,056.21	6.28	4.52
1,056.22	6.31	4.62
1,056.23	6.34	4.72
1,056.24	6.37	4.82
1,056.25	6.40	4.92
1,056.26	6.43	5.02
1,056.27	6.46	5.12
1,056.28	6.48	5.22
1,056.29	6.51	5.32
1,056.30	6.53	5.42
1,056.31	6.56	5.52
1,056.32	6.58	5.61
1,056.33	6.60	5.71
1,056.34	6.62	5.81
1,056.35	6.64	5.90
1,056.36	6.66	5.99
1,056.37	6.68	6.09
1,056.38	6.69	6.18
1,056.39	6.71	6.27
1,056.40	6.72	6.36
1,056.41	6.73	6.45
1,056.42	6.75	6.53
1,056.43	6.76	6.62
1,056.44	6.77	6.70
1,056.45	6.78	6.78
1,056.46	6.78	6.86
1,056.47	6.79	6.94
1,056.48	6.80	7.01
1,056.49	6.80	7.09
1,056.50	6.80	7.16
1,056.51	6.80	7.23
1,056.52	**6.80**	7.29
1,056.53	6.80	7.36
1,056.54	6.80	7.42
1,056.55	6.80	7.48
1,056.56	6.79	7.53
1,056.57	6.78	7.59
1,056.58	6.77	7.63
1,056.59	6.76	7.68
1,056.60	6.75	7.72
1,056.61	6.74	7.76
1,056.62	6.72	7.79
1,056.63	6.70	7.82
1,056.64	6.68	7.84
1,056.65	6.66	7.86
1,056.66	6.63	7.87
1,056.67	6.60	**7.88**
1,056.68	6.56	7.88
1,056.69	6.52	7.87
1,056.70	6.48	7.85
1,056.71	6.43	7.81
1,056.72	6.37	7.77
1,056.73	6.29	7.70
1,056.74	6.18	7.57
1,056.75	5.97	7.32

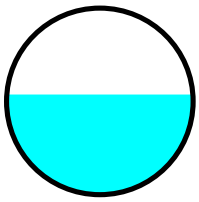
Summary for Reach DMH-A*: TO FE-A

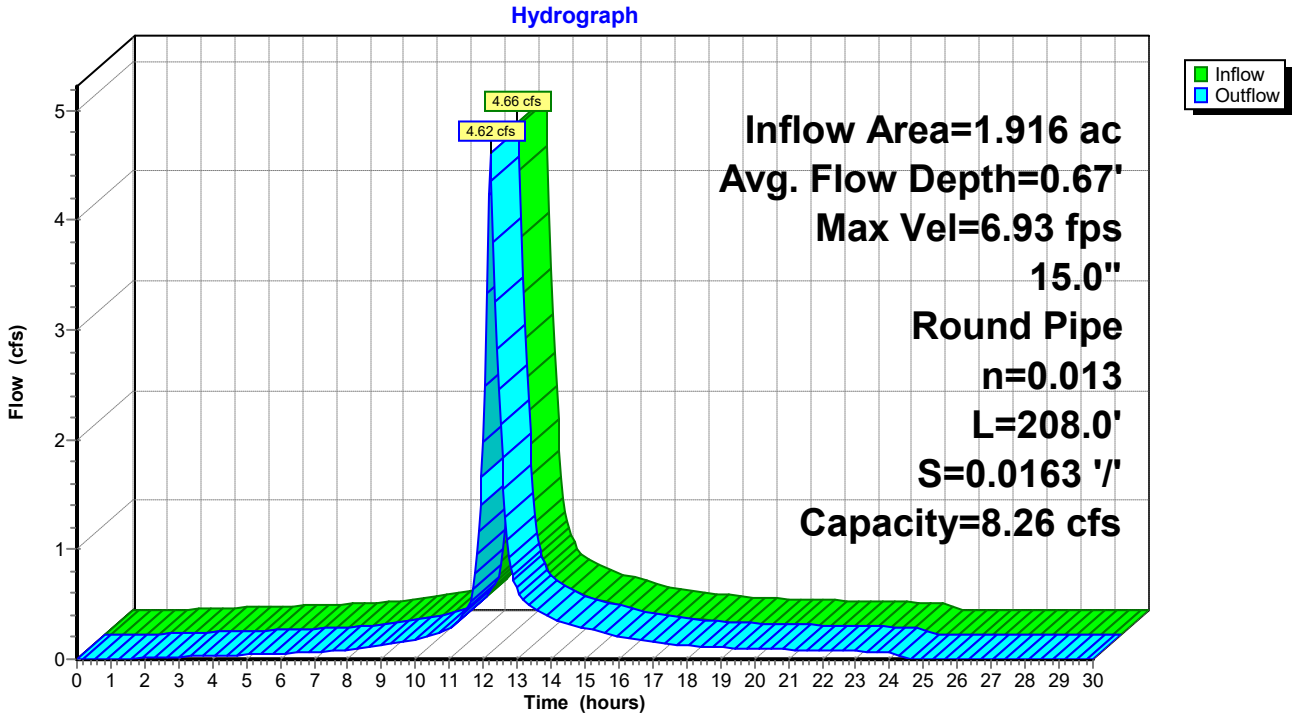
Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 2.86" for 10-Year event
Inflow = 4.66 cfs @ 12.19 hrs, Volume= 0.456 af
Outflow = 4.62 cfs @ 12.21 hrs, Volume= 0.456 af, Atten= 1%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.93 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.42 fps, Avg. Travel Time= 1.4 min

Peak Storage= 140 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 8.26 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 208.0' Slope= 0.0163 '/'
Inlet Invert= 1,054.50', Outlet Invert= 1,051.10'





Stage-Discharge for Reach DMH-A*: TO FE-A

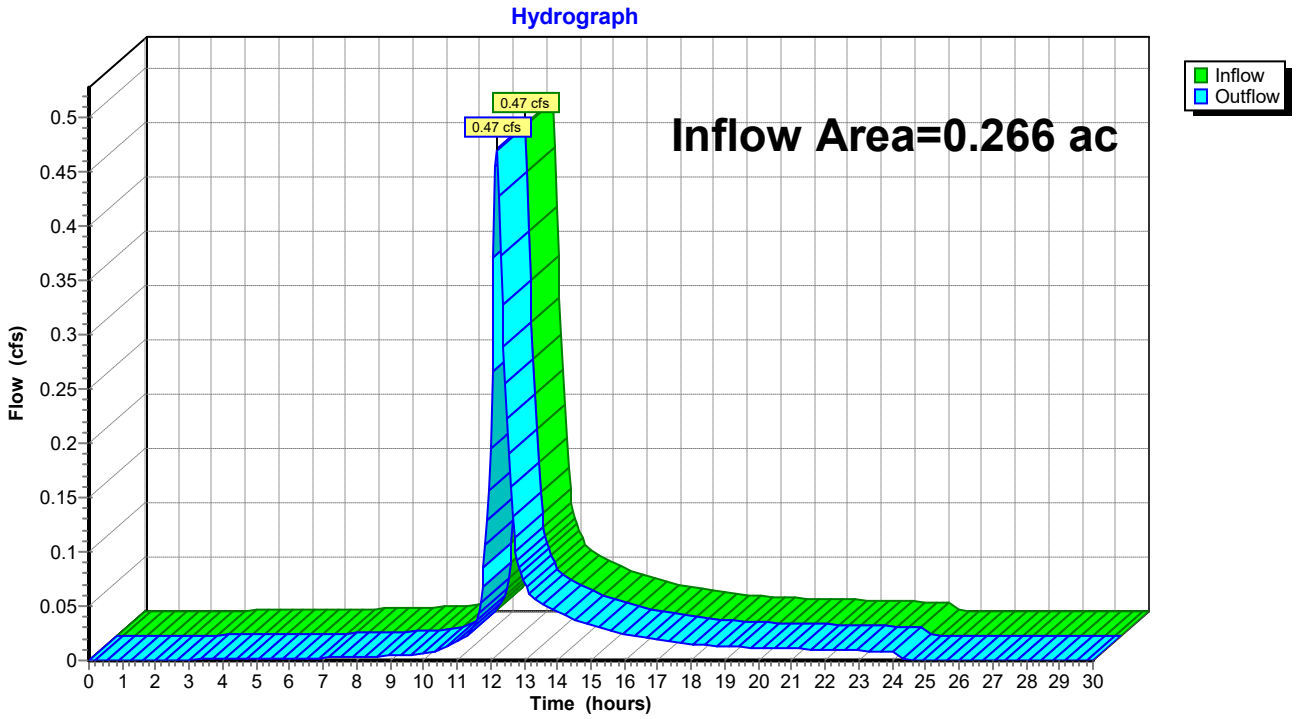
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,054.50	0.00	0.00
1,054.51	0.48	0.00
1,054.52	0.81	0.00
1,054.53	1.06	0.01
1,054.54	1.29	0.02
1,054.55	1.49	0.02
1,054.56	1.68	0.04
1,054.57	1.86	0.05
1,054.58	2.03	0.07
1,054.59	2.19	0.09
1,054.60	2.34	0.11
1,054.61	2.49	0.13
1,054.62	2.63	0.16
1,054.63	2.77	0.19
1,054.64	2.90	0.22
1,054.65	3.03	0.25
1,054.66	3.15	0.29
1,054.67	3.27	0.33
1,054.68	3.39	0.37
1,054.69	3.51	0.41
1,054.70	3.62	0.46
1,054.71	3.73	0.51
1,054.72	3.83	0.56
1,054.73	3.94	0.61
1,054.74	4.04	0.67
1,054.75	4.14	0.72
1,054.76	4.24	0.78
1,054.77	4.33	0.85
1,054.78	4.42	0.91
1,054.79	4.52	0.98
1,054.80	4.61	1.04
1,054.81	4.69	1.11
1,054.82	4.78	1.19
1,054.83	4.86	1.26
1,054.84	4.95	1.34
1,054.85	5.03	1.41
1,054.86	5.11	1.49
1,054.87	5.18	1.58
1,054.88	5.26	1.66
1,054.89	5.34	1.74
1,054.90	5.41	1.83
1,054.91	5.48	1.92
1,054.92	5.55	2.01
1,054.93	5.62	2.10
1,054.94	5.69	2.20
1,054.95	5.76	2.29
1,054.96	5.82	2.39
1,054.97	5.89	2.48
1,054.98	5.95	2.58
1,054.99	6.01	2.68
1,055.00	6.07	2.78
1,055.01	6.13	2.89
1,055.02	6.19	2.99
1,055.03	6.25	3.09
1,055.04	6.30	3.20
1,055.05	6.36	3.31
1,055.06	6.41	3.41
1,055.07	6.46	3.52
1,055.08	6.51	3.63
1,055.09	6.56	3.74
1,055.10	6.61	3.85
1,055.11	6.66	3.96
1,055.12	6.71	4.07
1,055.13	6.75	4.19
1,055.14	6.80	4.30
1,055.15	6.84	4.41
1,055.16	6.88	4.52
1,055.17	6.92	4.64
1,055.18	6.96	4.75
1,055.19	7.00	4.87
1,055.20	7.04	4.98
1,055.21	7.08	5.09
1,055.22	7.12	5.21
1,055.23	7.15	5.32
1,055.24	7.18	5.44
1,055.25	7.22	5.55
1,055.26	7.25	5.66
1,055.27	7.28	5.77
1,055.28	7.31	5.89
1,055.29	7.34	6.00
1,055.30	7.37	6.11
1,055.31	7.39	6.22
1,055.32	7.42	6.33
1,055.33	7.44	6.44
1,055.34	7.46	6.55
1,055.35	7.49	6.65
1,055.36	7.51	6.76
1,055.37	7.53	6.86
1,055.38	7.54	6.97
1,055.39	7.56	7.07
1,055.40	7.58	7.17
1,055.41	7.59	7.27
1,055.42	7.61	7.36
1,055.43	7.62	7.46
1,055.44	7.63	7.55
1,055.45	7.64	7.65
1,055.46	7.65	7.74
1,055.47	7.66	7.82
1,055.48	7.66	7.91
1,055.49	7.67	7.99
1,055.50	7.67	8.07
1,055.51	7.67	8.15
1,055.52	**7.67**	8.23
1,055.53	7.67	8.30
1,055.54	7.67	8.37
1,055.55	7.66	8.43
1,055.56	7.66	8.49
1,055.57	7.65	8.55
1,055.58	7.64	8.61
1,055.59	7.63	8.66
1,055.60	7.61	8.71
1,055.61	7.60	8.75
1,055.62	7.58	8.78
1,055.63	7.56	8.82
1,055.64	7.53	8.84
1,055.65	7.50	8.86
1,055.66	7.47	8.88
1,055.67	7.44	**8.88**
1,055.68	7.40	8.88
1,055.69	7.36	8.87
1,055.70	7.31	8.85
1,055.71	7.25	8.81
1,055.72	7.18	8.76
1,055.73	7.10	8.68
1,055.74	6.97	8.54
1,055.75	6.73	8.26

Summary for Reach DP#3: TO OFF SITE

Inflow Area = 0.266 ac, 10.99% Impervious, Inflow Depth = 2.01" for 10-Year event
Inflow = 0.47 cfs @ 12.19 hrs, Volume= 0.045 af
Outflow = 0.47 cfs @ 12.19 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP#3: TO OFF SITE



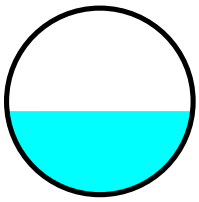
Summary for Reach DP1: CULVERT

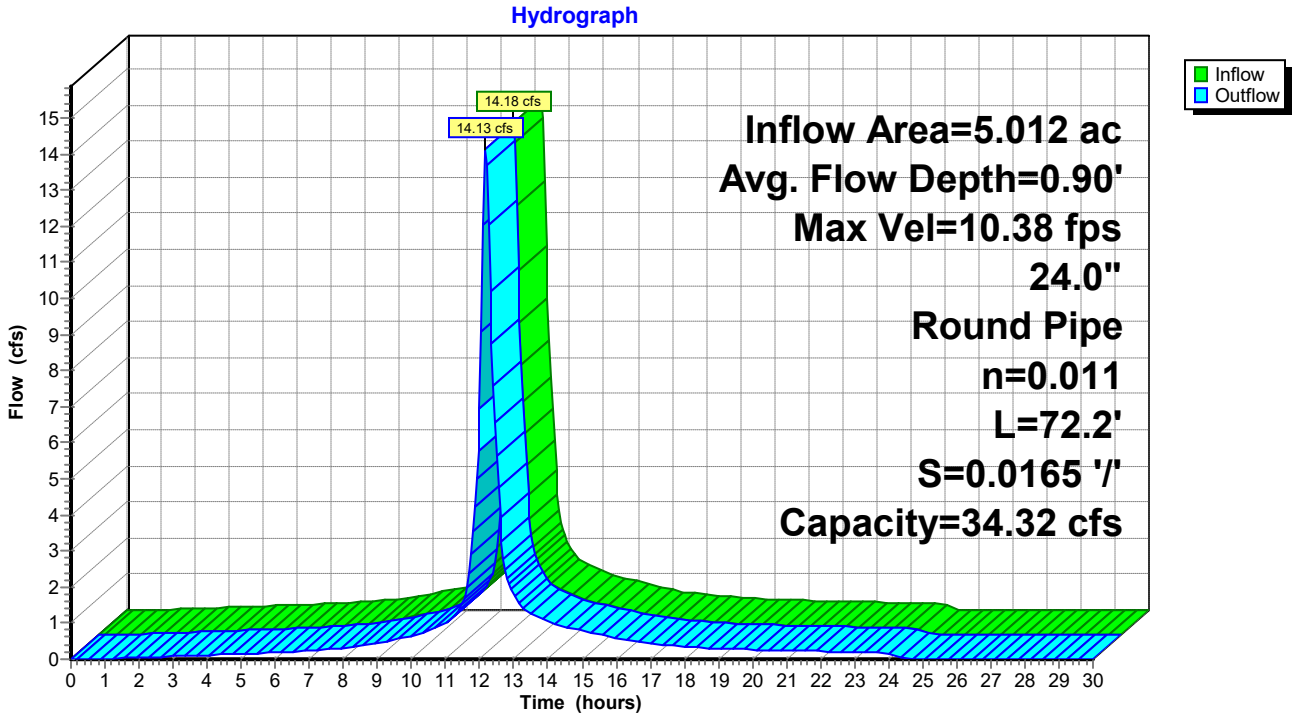
Inflow Area = 5.012 ac, 60.72% Impervious, Inflow Depth = 3.32" for 10-Year event
Inflow = 14.18 cfs @ 12.17 hrs, Volume= 1.385 af
Outflow = 14.13 cfs @ 12.17 hrs, Volume= 1.385 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.38 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.59 fps, Avg. Travel Time= 0.3 min

Peak Storage= 98 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.90'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 34.32 cfs

24.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 72.2' Slope= 0.0165 '/'
Inlet Invert= 1,049.69', Outlet Invert= 1,048.50'





Stage-Discharge for Reach DP1: CULVERT

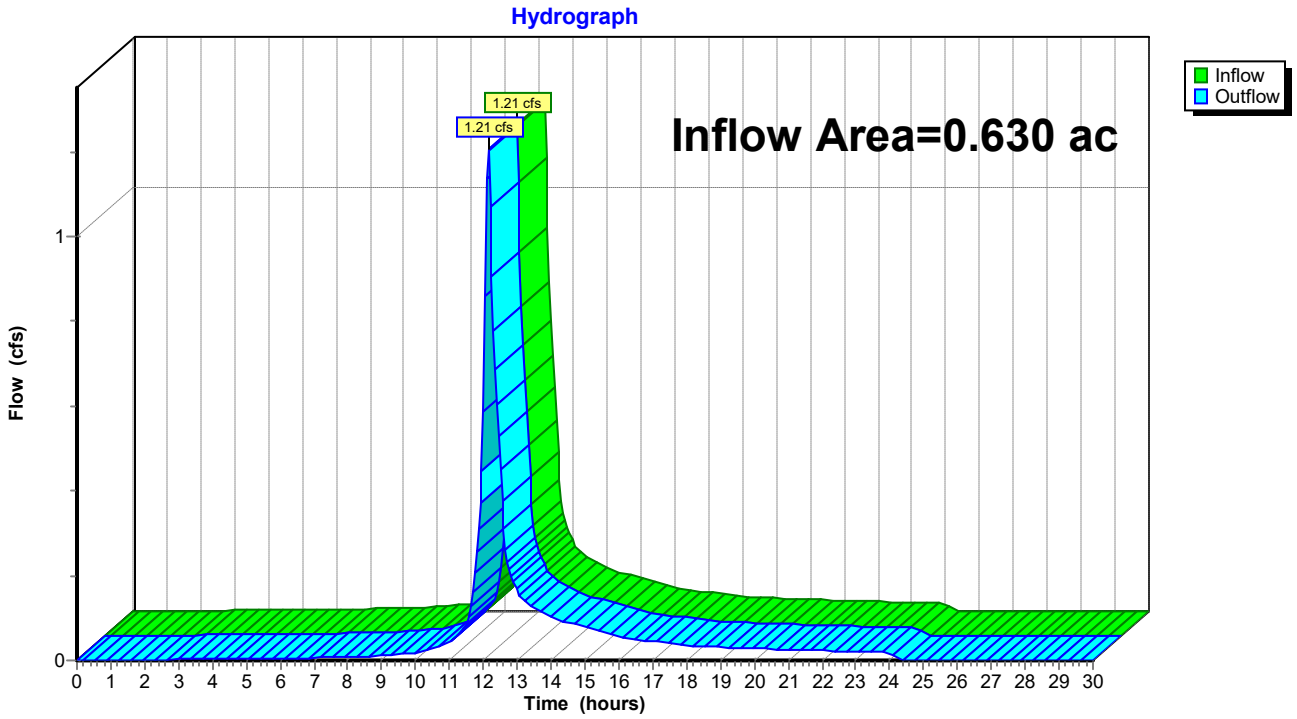
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,049.69	0.00	0.00
1,049.71	0.97	0.01
1,049.73	1.54	0.02
1,049.75	2.01	0.06
1,049.77	2.43	0.10
1,049.79	2.81	0.16
1,049.81	3.16	0.24
1,049.83	3.49	0.34
1,049.85	3.80	0.45
1,049.87	4.10	0.57
1,049.89	4.38	0.72
1,049.91	4.65	0.88
1,049.93	4.92	1.05
1,049.95	5.17	1.24
1,049.97	5.41	1.45
1,049.99	5.65	1.67
1,050.01	5.87	1.91
1,050.03	6.09	2.16
1,050.05	6.31	2.43
1,050.07	6.52	2.71
1,050.09	6.72	3.01
1,050.11	6.92	3.32
1,050.13	7.11	3.64
1,050.15	7.30	3.98
1,050.17	7.48	4.34
1,050.19	7.66	4.70
1,050.21	7.83	5.08
1,050.23	8.00	5.47
1,050.25	8.16	5.88
1,050.27	8.32	6.29
1,050.29	8.48	6.72
1,050.31	8.63	7.16
1,050.33	8.78	7.61
1,050.35	8.93	8.07
1,050.37	9.07	8.54
1,050.39	9.21	9.03
1,050.41	9.35	9.52
1,050.43	9.48	10.02
1,050.45	9.61	10.52
1,050.47	9.73	11.04
1,050.49	9.86	11.57
1,050.51	9.98	12.10
1,050.53	10.09	12.64
1,050.55	10.21	13.19
1,050.57	10.32	13.74
1,050.59	10.43	14.30
1,050.61	10.53	14.86
1,050.63	10.63	15.43
1,050.65	10.73	16.00
1,050.67	10.83	16.58
1,050.69	10.93	17.16
1,050.71	11.02	17.75
1,050.73	11.11	18.33
1,050.75	11.19	18.92
1,050.77	11.27	19.51
1,050.79	11.36	20.10
1,050.81	11.43	20.70
1,050.83	11.51	21.29
1,050.85	11.58	21.88
1,050.87	11.65	22.47
1,050.89	11.72	23.06
1,050.91	11.78	23.65
1,050.93	11.84	24.23
1,050.95	11.90	24.81
1,050.97	11.96	25.39
1,050.99	12.01	25.96
1,051.01	12.06	26.53
1,051.03	12.11	27.09
1,051.05	12.15	27.65
1,051.07	12.20	28.20
1,051.09	12.23	28.74
1,051.11	12.27	29.27
1,051.13	12.30	29.79
1,051.15	12.33	30.31
1,051.17	12.36	30.81
1,051.19	12.38	31.30
1,051.21	12.40	31.78
1,051.23	12.42	32.24
1,051.25	12.44	32.69
1,051.27	12.45	33.13
1,051.29	12.45	33.55
1,051.31	**12.46**	33.95
1,051.33	12.45	34.34
1,051.35	12.45	34.70
1,051.37	12.44	35.05
1,051.39	12.43	35.37
1,051.41	12.41	35.67
1,051.43	12.39	35.94
1,051.45	12.36	36.18
1,051.47	12.32	36.40
1,051.49	12.28	36.58
1,051.51	12.24	36.73
1,051.53	12.18	36.84
1,051.55	12.12	36.90
1,051.57	12.05	**36.92**
1,051.59	11.96	36.88
1,051.61	11.86	36.77
1,051.63	11.75	36.58
1,051.65	11.60	36.27
1,051.67	11.40	35.76
1,051.69	10.93	34.32

Summary for Reach DP2: Culvert

Inflow Area = 0.630 ac, 12.33% Impervious, Inflow Depth = 2.04" for 10-Year event
Inflow = 1.21 cfs @ 12.14 hrs, Volume= 0.107 af
Outflow = 1.21 cfs @ 12.14 hrs, Volume= 0.107 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: Culvert

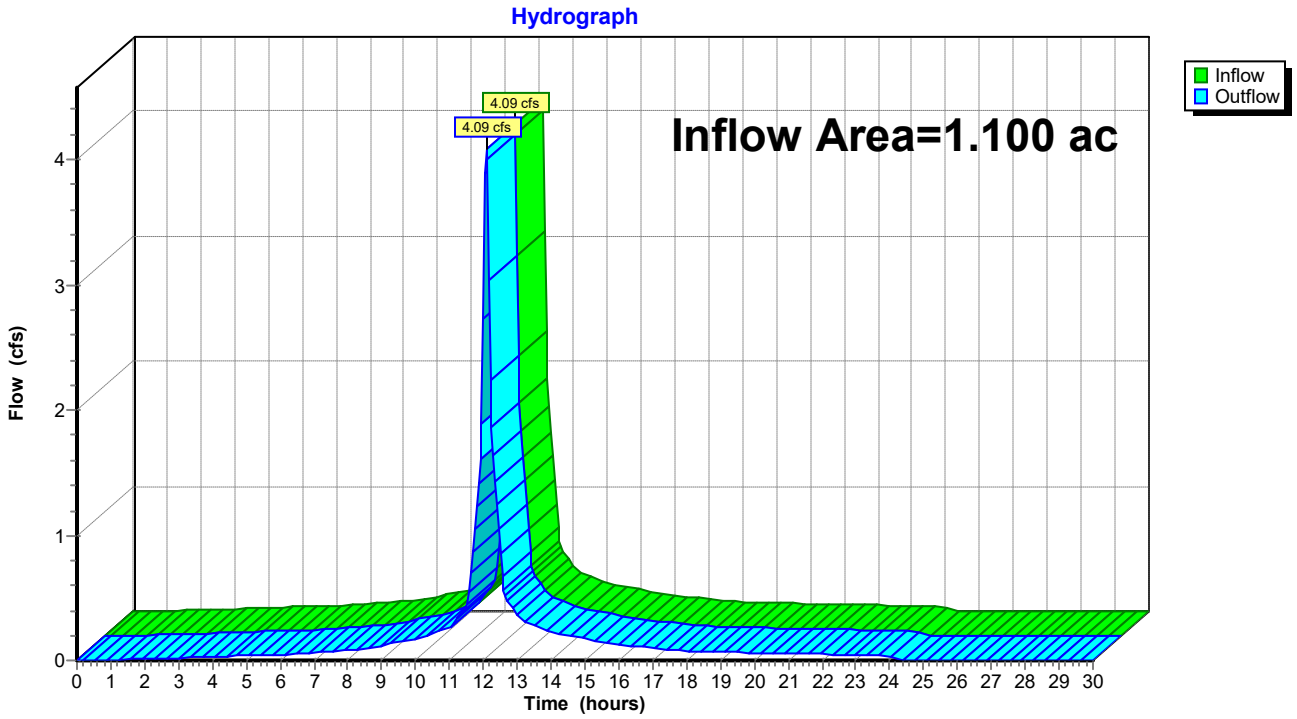


Summary for Reach DP4: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 3.58" for 10-Year event
Inflow = 4.09 cfs @ 12.08 hrs, Volume= 0.328 af
Outflow = 4.09 cfs @ 12.08 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP4: DP#4

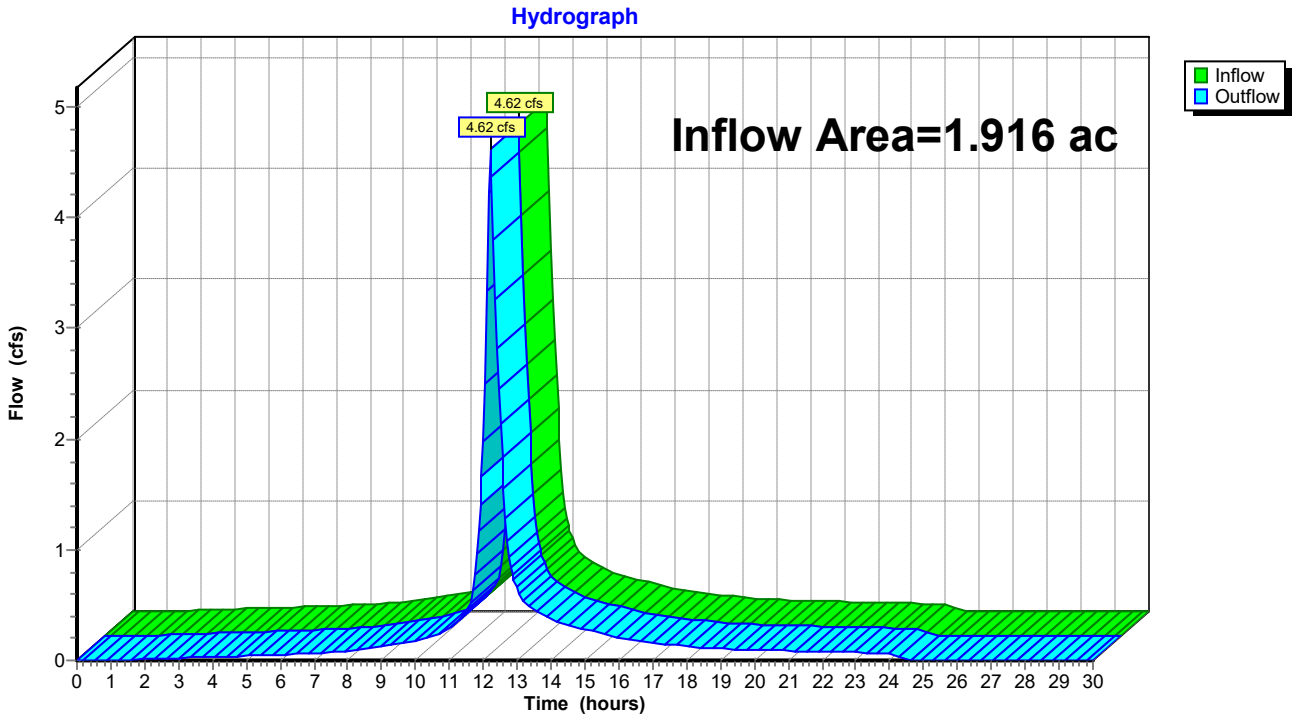


Summary for Reach FEA: TO CULVERT

Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 2.86" for 10-Year event
Inflow = 4.62 cfs @ 12.21 hrs, Volume= 0.456 af
Outflow = 4.62 cfs @ 12.21 hrs, Volume= 0.456 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach FEA: TO CULVERT



Summary for Pond CULVERT#3: TO E12

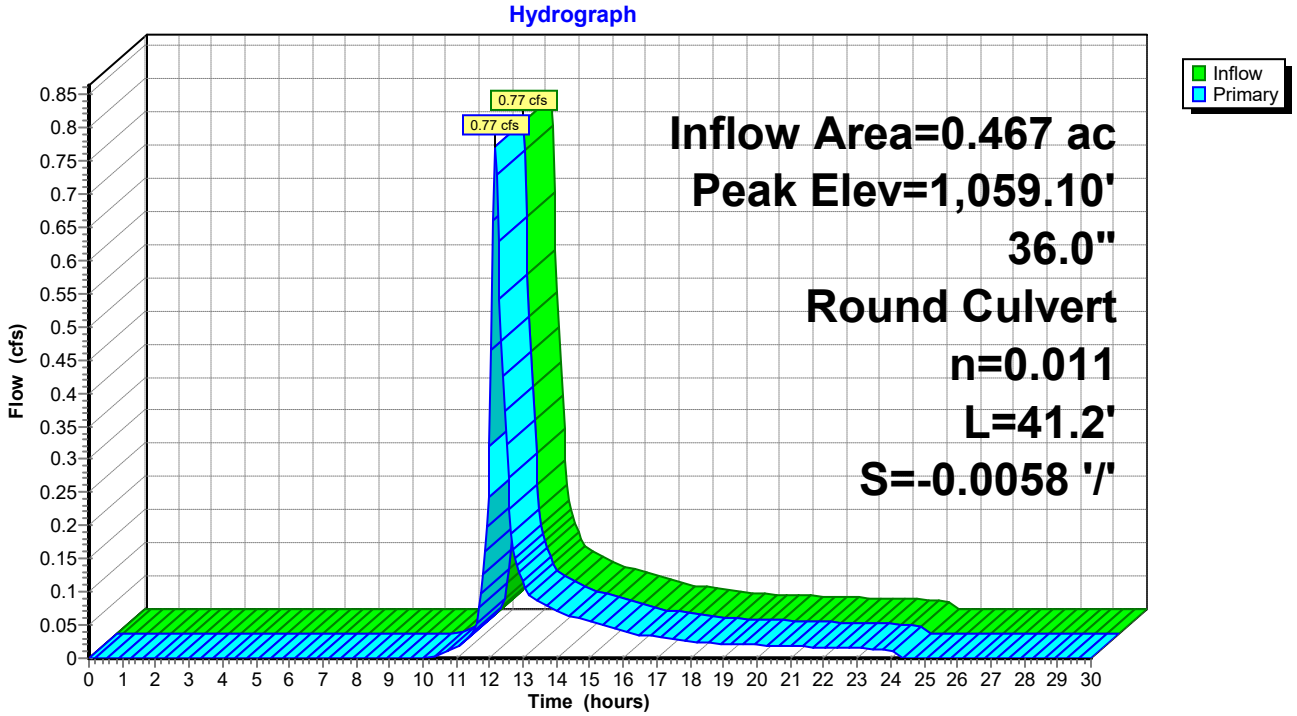
Inflow Area = 0.467 ac, 0.00% Impervious, Inflow Depth = 1.72" for 10-Year event
Inflow = 0.77 cfs @ 12.16 hrs, Volume= 0.067 af
Outflow = 0.77 cfs @ 12.16 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min
Primary = 0.77 cfs @ 12.16 hrs, Volume= 0.067 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,059.10' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,058.78'	**36.0" Round Culvert#3** L= 41.2' Ke= 0.500 Inlet / Outlet Invert= 1,058.54' / 1,058.78' S= -0.0058 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=0.76 cfs @ 12.16 hrs HW=1,059.10' (Free Discharge)
1=Culvert#3 (Inlet Controls 0.76 cfs @ 1.91 fps)

Pond CULVERT#3: TO E12



Stage-Discharge for Pond CULVERT#3: TO E12

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,058.78	0.00	1,059.82	6.54	1,060.86	19.98
1,058.80	0.00	1,059.84	6.74	1,060.88	20.28
1,058.82	0.01	1,059.86	6.95	1,060.90	20.59
1,058.84	0.03	1,059.88	7.16	1,060.92	20.89
1,058.86	0.05	1,059.90	7.37	1,060.94	21.20
1,058.88	0.08	1,059.92	7.58	1,060.96	21.50
1,058.90	0.11	1,059.94	7.80	1,060.98	21.81
1,058.92	0.15	1,059.96	8.02	1,061.00	22.12
1,058.94	0.20	1,059.98	8.24	1,061.02	22.43
1,058.96	0.25	1,060.00	8.46	1,061.04	22.74
1,058.98	0.31	1,060.02	8.69	1,061.06	23.05
1,059.00	0.37	1,060.04	8.92	1,061.08	23.36
1,059.02	0.44	1,060.06	9.15	1,061.10	23.67
1,059.04	0.52	1,060.08	9.38	1,061.12	23.99
1,059.06	0.60	1,060.10	9.62	1,061.14	24.30
1,059.08	0.69	1,060.12	9.85	1,061.16	24.61
1,059.10	0.78	1,060.14	10.09	1,061.18	24.93
1,059.12	0.88	1,060.16	10.33	1,061.20	25.24
1,059.14	0.98	1,060.18	10.58	1,061.22	25.56
1,059.16	1.09	1,060.20	10.82	1,061.24	25.87
1,059.18	1.21	1,060.22	11.07	1,061.26	26.19
1,059.20	1.33	1,060.24	11.32	1,061.28	26.50
1,059.22	1.45	1,060.26	11.58	1,061.30	26.82
1,059.24	1.59	1,060.28	11.83	1,061.32	27.14
1,059.26	1.72	1,060.30	12.09	1,061.34	27.45
1,059.28	1.86	1,060.32	12.35	1,061.36	27.77
1,059.30	2.01	1,060.34	12.61	1,061.38	28.09
1,059.32	2.16	1,060.36	12.87	1,061.40	28.40
1,059.34	2.32	1,060.38	13.14	1,061.42	28.72
1,059.36	2.49	1,060.40	13.40	1,061.44	29.04
1,059.38	2.65	1,060.42	13.67	1,061.46	29.35
1,059.40	2.83	1,060.44	13.94	1,061.48	29.67
1,059.42	3.01	1,060.46	14.21	1,061.50	29.98
1,059.44	3.19	1,060.48	14.49	1,061.52	30.30
1,059.46	3.36	1,060.50	14.76	1,061.54	30.61
1,059.48	3.51	1,060.52	15.04	1,061.56	30.93
1,059.50	3.67	1,060.54	15.32	1,061.58	31.24
1,059.52	3.82	1,060.56	15.60	1,061.60	31.55
1,059.54	3.99	1,060.58	15.88	1,061.62	31.87
1,059.56	4.15	1,060.60	16.16	1,061.64	32.18
1,059.58	4.32	1,060.62	16.45	1,061.66	32.49
1,059.60	4.49	1,060.64	16.74	1,061.68	32.80
1,059.62	4.66	1,060.66	17.03	1,061.70	33.11
1,059.64	4.83	1,060.68	17.31	1,061.72	33.42
1,059.66	5.01	1,060.70	17.61	1,061.74	33.72
1,059.68	5.19	1,060.72	17.90	1,061.76	34.03
1,059.70	5.38	1,060.74	18.19	1,061.78	**34.33**
1,059.72	5.57	1,060.76	18.49		
1,059.74	5.76	1,060.78	18.78		
1,059.76	5.95	1,060.80	19.08		
1,059.78	6.14	1,060.82	19.38		
1,059.80	6.34	1,060.84	19.68		

Summary for Pond DCBA: TO DCB-B

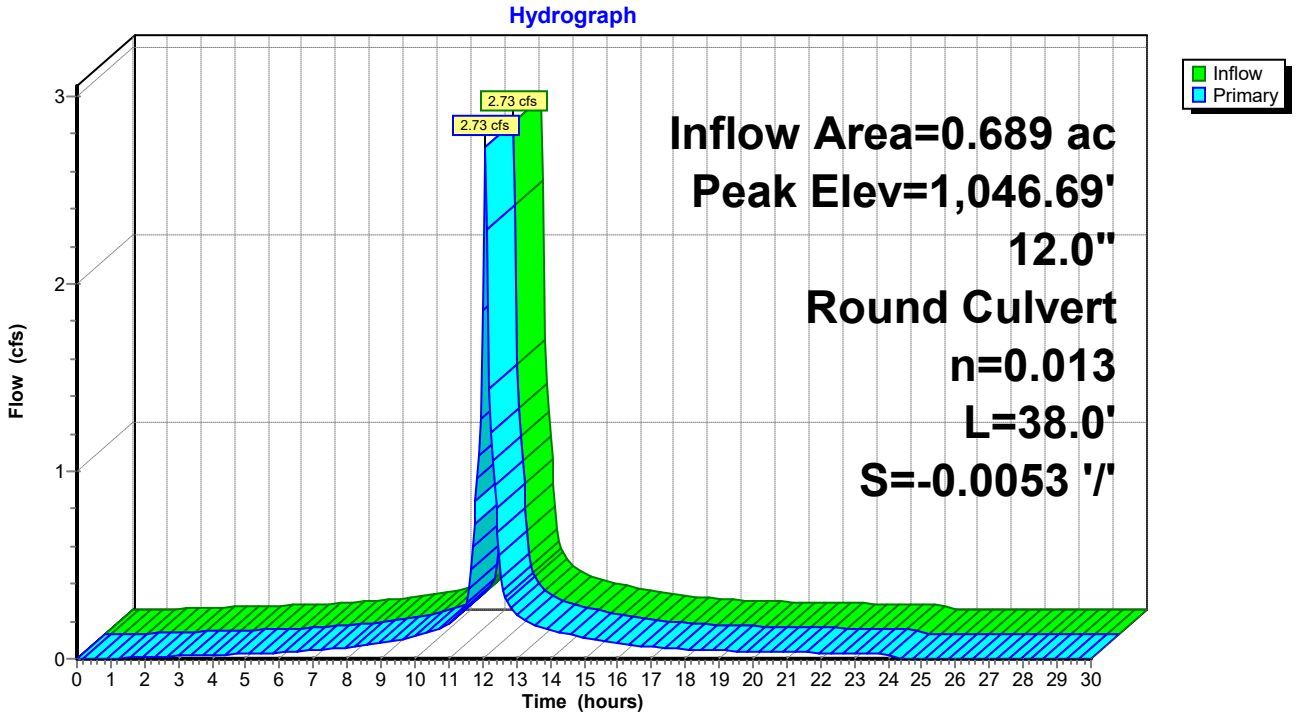
Inflow Area = 0.689 ac, 76.16% Impervious, Inflow Depth = 3.79" for 10-Year event
Inflow = 2.73 cfs @ 12.07 hrs, Volume= 0.218 af
Outflow = 2.73 cfs @ 12.07 hrs, Volume= 0.218 af, Atten= 0%, Lag= 0.0 min
Primary = 2.73 cfs @ 12.07 hrs, Volume= 0.218 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,046.69' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,045.30'	**12.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,045.10' / 1,045.30' S= -0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.63 cfs @ 12.07 hrs HW=1,046.64' (Free Discharge)
1=Culvert (Barrel Controls 2.63 cfs @ 3.35 fps)

Pond DCBA: TO DCB-B



Stage-Discharge for Pond DCBA: TO DCB-B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,045.30	0.00	1,045.82	0.80	1,046.34	2.01
1,045.31	0.00	1,045.83	0.83	1,046.35	2.02
1,045.32	0.00	1,045.84	0.85	1,046.36	2.04
1,045.33	0.00	1,045.85	0.88	1,046.37	2.05
1,045.34	0.01	1,045.86	0.91	1,046.38	2.06
1,045.35	0.01	1,045.87	0.94	1,046.39	2.07
1,045.36	0.01	1,045.88	0.97	1,046.40	2.08
1,045.37	0.02	1,045.89	1.00	1,046.41	2.09
1,045.38	0.02	1,045.90	1.02	1,046.42	2.09
1,045.39	0.03	1,045.91	1.05	1,046.43	2.08
1,045.40	0.03	1,045.92	1.08	1,046.44	2.09
1,045.41	0.04	1,045.93	1.10	1,046.45	2.12
1,045.42	0.05	1,045.94	1.12	1,046.46	2.15
1,045.43	0.06	1,045.95	1.15	1,046.47	2.18
1,045.44	0.07	1,045.96	1.17	1,046.48	2.21
1,045.45	0.08	1,045.97	1.20	1,046.49	2.24
1,045.46	0.09	1,045.98	1.22	1,046.50	2.27
1,045.47	0.10	1,045.99	1.24	1,046.51	2.29
1,045.48	0.11	1,046.00	1.27	1,046.52	2.32
1,045.49	0.12	1,046.01	1.29	1,046.53	2.35
1,045.50	0.13	1,046.02	1.32	1,046.54	2.38
1,045.51	0.15	1,046.03	1.34	1,046.55	2.40
1,045.52	0.16	1,046.04	1.36	1,046.56	2.43
1,045.53	0.18	1,046.05	1.39	1,046.57	2.46
1,045.54	0.19	1,046.06	1.41	1,046.58	2.48
1,045.55	0.21	1,046.07	1.44	1,046.59	2.51
1,045.56	0.22	1,046.08	1.46	1,046.60	2.53
1,045.57	0.24	1,046.09	1.48	1,046.61	2.56
1,045.58	0.26	1,046.10	1.51	1,046.62	2.58
1,045.59	0.27	1,046.11	1.53	1,046.63	2.61
1,045.60	0.29	1,046.12	1.55	1,046.64	**2.63**
1,045.61	0.31	1,046.13	1.58		
1,045.62	0.33	1,046.14	1.60		
1,045.63	0.35	1,046.15	1.62		
1,045.64	0.37	1,046.16	1.65		
1,045.65	0.39	1,046.17	1.67		
1,045.66	0.41	1,046.18	1.69		
1,045.67	0.43	1,046.19	1.72		
1,045.68	0.45	1,046.20	1.74		
1,045.69	0.48	1,046.21	1.76		
1,045.70	0.50	1,046.22	1.78		
1,045.71	0.52	1,046.23	1.80		
1,045.72	0.55	1,046.24	1.82		
1,045.73	0.57	1,046.25	1.84		
1,045.74	0.59	1,046.26	1.86		
1,045.75	0.62	1,046.27	1.88		
1,045.76	0.64	1,046.28	1.90		
1,045.77	0.67	1,046.29	1.92		
1,045.78	0.69	1,046.30	1.94		
1,045.79	0.72	1,046.31	1.96		
1,045.80	0.75	1,046.32	1.98		
1,045.81	0.77	1,046.33	1.99		

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P10: OVERLAND TO Runoff Area=134,863 sf 70.59% Impervious Runoff Depth=4.35"
Flow Length=788' Tc=11.1 min CN=WQ Runoff=11.88 cfs 1.123 af

Subcatchment P11: TO DCB-1 Runoff Area=83,440 sf 44.76% Impervious Runoff Depth=3.54"
Flow Length=307' Tc=12.1 min CN=WQ Runoff=5.94 cfs 0.565 af

Subcatchment P12: (CULVERT) Runoff Area=7,096 sf 47.67% Impervious Runoff Depth=3.65"
Flow Length=91' Tc=7.6 min CN=WQ Runoff=0.60 cfs 0.050 af

Subcatchment P13: TO CULVERT Runoff Area=20,345 sf 0.00% Impervious Runoff Depth=2.32"
Flow Length=380' Tc=10.9 min CN=WQ Runoff=1.06 cfs 0.090 af

Subcatchment P14: TO DCB-A Runoff Area=30,009 sf 76.16% Impervious Runoff Depth=4.56"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=3.27 cfs 0.262 af

Subcatchment P15: TO DCB-C Runoff Area=17,919 sf 56.55% Impervious Runoff Depth=3.94"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=1.71 cfs 0.135 af

Subcatchment P31: TO DP#3 (CULVERT) Runoff Area=11,601 sf 10.99% Impervious Runoff Depth=2.63"
Flow Length=129' Slope=0.0400 '/' Tc=13.0 min CN=WQ Runoff=0.63 cfs 0.058 af

Reach DCB1: TO DMH#1 Avg. Flow Depth=0.79' Max Vel=7.17 fps Inflow=5.94 cfs 0.565 af
15.0" Round Pipe n=0.012 L=210.0' S=0.0133 '/' Capacity=8.08 cfs Outflow=5.83 cfs 0.565 af

Reach DCBB: DP#4 Inflow=4.93 cfs 0.397 af
Outflow=4.93 cfs 0.397 af

Reach DCBC: TO DCB-B Avg. Flow Depth=0.38' Max Vel=6.15 fps Inflow=1.71 cfs 0.135 af
12.0" Round Pipe n=0.013 L=118.0' S=0.0237 '/' Capacity=5.49 cfs Outflow=1.69 cfs 0.135 af

Reach DMH-1: TO DMH-A Avg. Flow Depth=0.84' Max Vel=6.62 fps Inflow=5.83 cfs 0.565 af
15.0" Round Pipe n=0.013 L=70.0' S=0.0129 '/' Capacity=7.32 cfs Outflow=5.81 cfs 0.565 af

Reach DMH-A*: TO FE-A Avg. Flow Depth=0.77' Max Vel=7.29 fps Inflow=5.81 cfs 0.565 af
15.0" Round Pipe n=0.013 L=208.0' S=0.0163 '/' Capacity=8.26 cfs Outflow=5.76 cfs 0.565 af

Reach DP#3: TO OFF SITE Inflow=0.63 cfs 0.058 af
Outflow=0.63 cfs 0.058 af

Reach DP1: CULVERT Avg. Flow Depth=1.01' Max Vel=10.93 fps Inflow=17.31 cfs 1.688 af
24.0" Round Pipe n=0.011 L=72.2' S=0.0165 '/' Capacity=34.32 cfs Outflow=17.26 cfs 1.688 af

Reach DP2: Culvert Inflow=1.60 cfs 0.140 af
Outflow=1.60 cfs 0.140 af

Reach DP4: DP#4 Inflow=4.93 cfs 0.397 af
Outflow=4.93 cfs 0.397 af

Reach FEA: TO CULVERT Inflow=5.76 cfs 0.565 af
Outflow=5.76 cfs 0.565 af

Pond CULVERT#3: TO E12 Peak Elev=1,059.15' Inflow=1.06 cfs 0.090 af
36.0" Round Culvert n=0.011 L=41.2' S=-0.0058 '/' Outflow=1.06 cfs 0.090 af

Pond DCBA: TO DCB-B Peak Elev=1,046.97' Inflow=3.27 cfs 0.262 af
12.0" Round Culvert n=0.013 L=38.0' S=-0.0053 '/' Outflow=3.27 cfs 0.262 af

Total Runoff Area = 7.008 ac Runoff Volume = 2.283 af Average Runoff Depth = 3.91"
44.25% Pervious = 3.101 ac 55.75% Impervious = 3.907 ac

Summary for Subcatchment P10: OVERLAND TO CULVERT

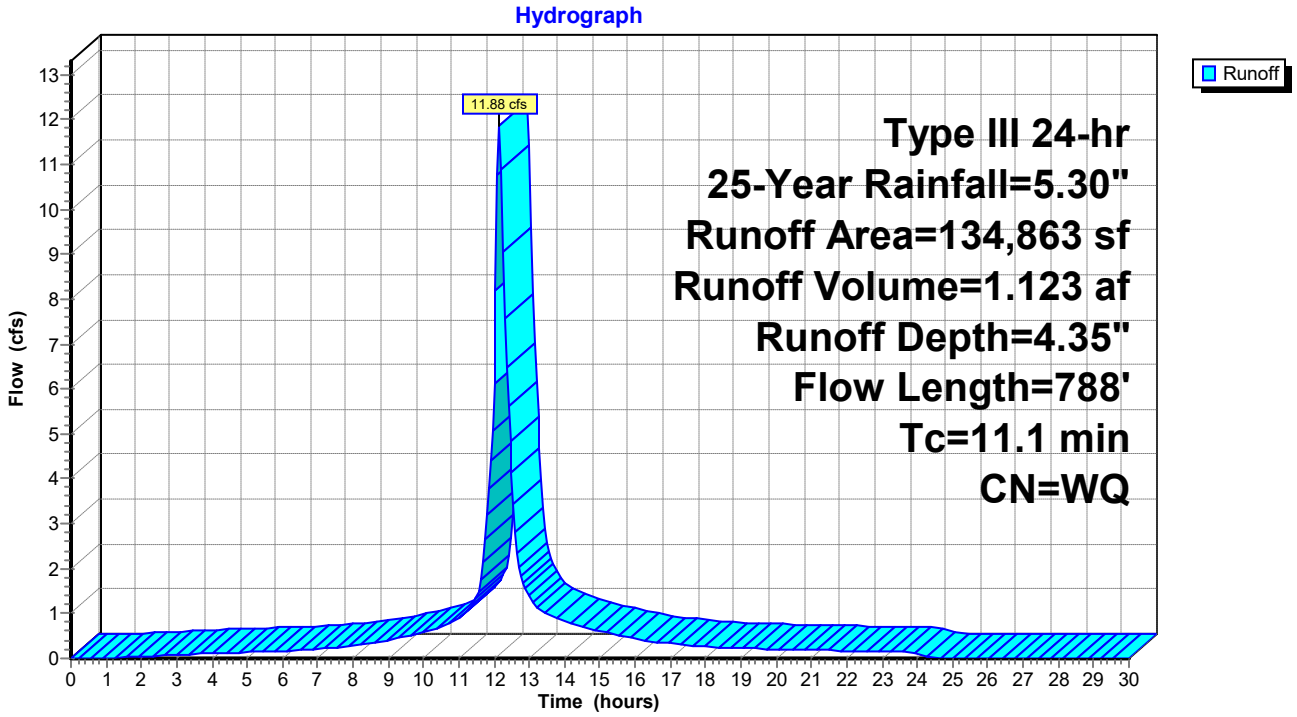
Runoff = 11.88 cfs @ 12.15 hrs, Volume= 1.123 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
29,803	74	>75% Grass cover, Good, HSG C
7,879	70	Woods, Good, HSG C
95,203	98	Paved parking, HSG C
1,978	96	Gravel surface, HSG C
134,863		Weighted Average
39,660		29.41% Pervious Area
95,203		70.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	42	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.8	33	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	10	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	218	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.4	237	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	135	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	35	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	78	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.1	788	Total			

Subcatchment P10: OVERLAND TO CULVERT



Summary for Subcatchment P11: TO DCB-1

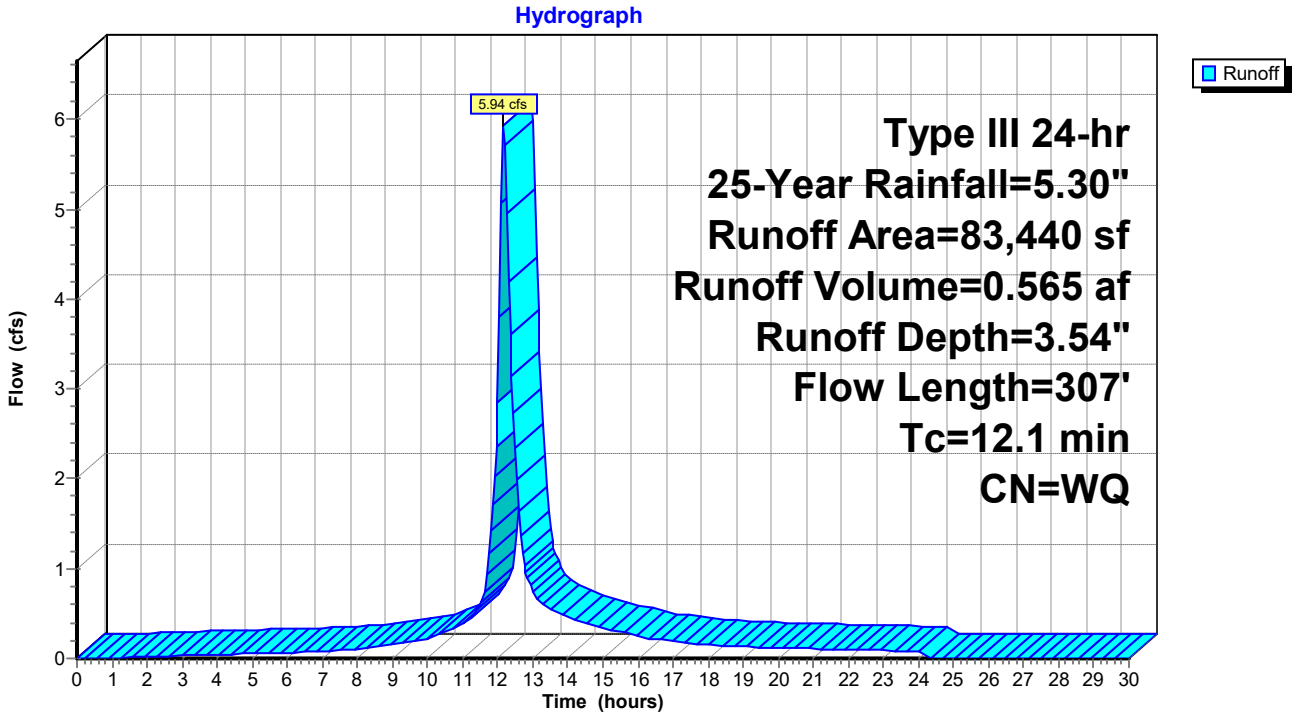
Runoff = 5.94 cfs @ 12.17 hrs, Volume= 0.565 af, Depth= 3.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
6,167	74	>75% Grass cover, Good, HSG C
39,922	70	Woods, Good, HSG C
37,351	98	Paved parking, HSG C
83,440		Weighted Average
46,089		55.24% Pervious Area
37,351		44.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	44	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.7	31	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	15	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.2	198	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	19	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.1	307	Total			

Subcatchment P11: TO DCB-1



Summary for Subcatchment P12: (CULVERT)

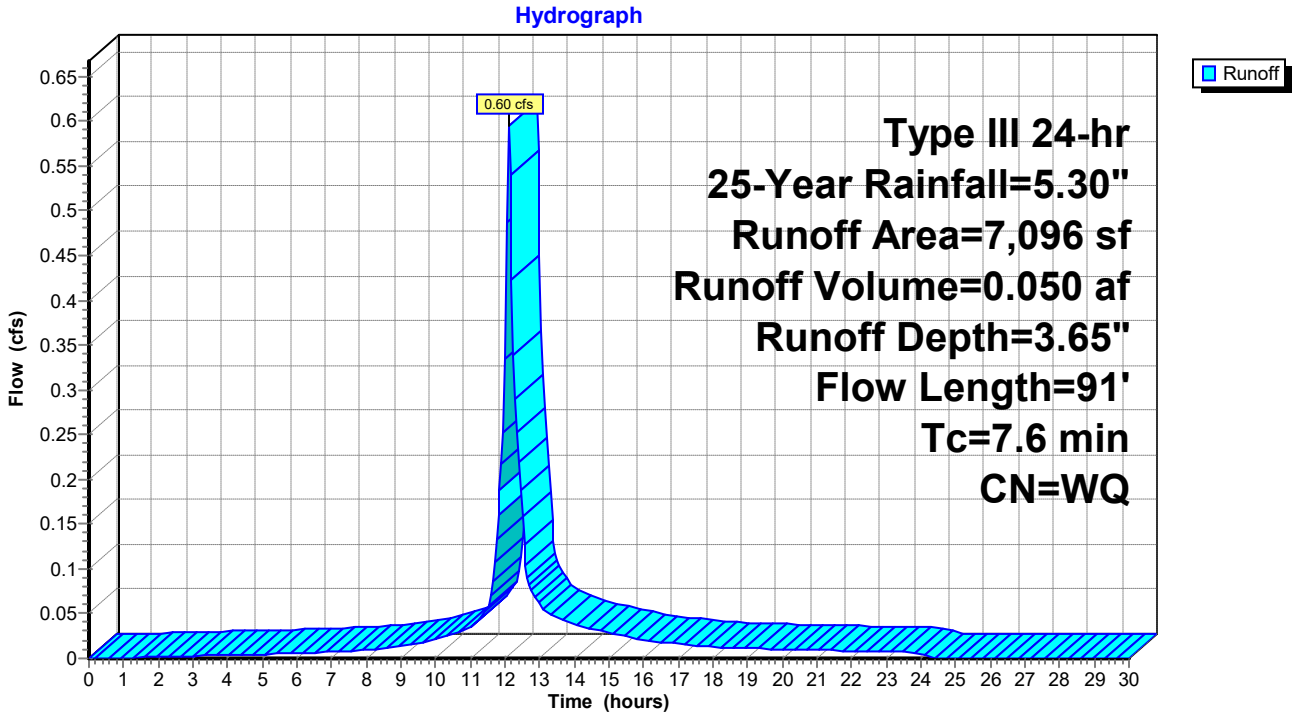
Runoff = 0.60 cfs @ 12.11 hrs, Volume= 0.050 af, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
1,158	74	>75% Grass cover, Good, HSG C
2,555	70	Woods, Good, HSG C
3,383	98	Paved parking, HSG C
7,096		Weighted Average
3,713		52.33% Pervious Area
3,383		47.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0500	1.33		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	3	0.0500	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	1	0.0500	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
6.5	55	0.1300	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	16	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.6	91	Total			

Subcatchment P12: (CULVERT)



Summary for Subcatchment P13: TO CULVERT

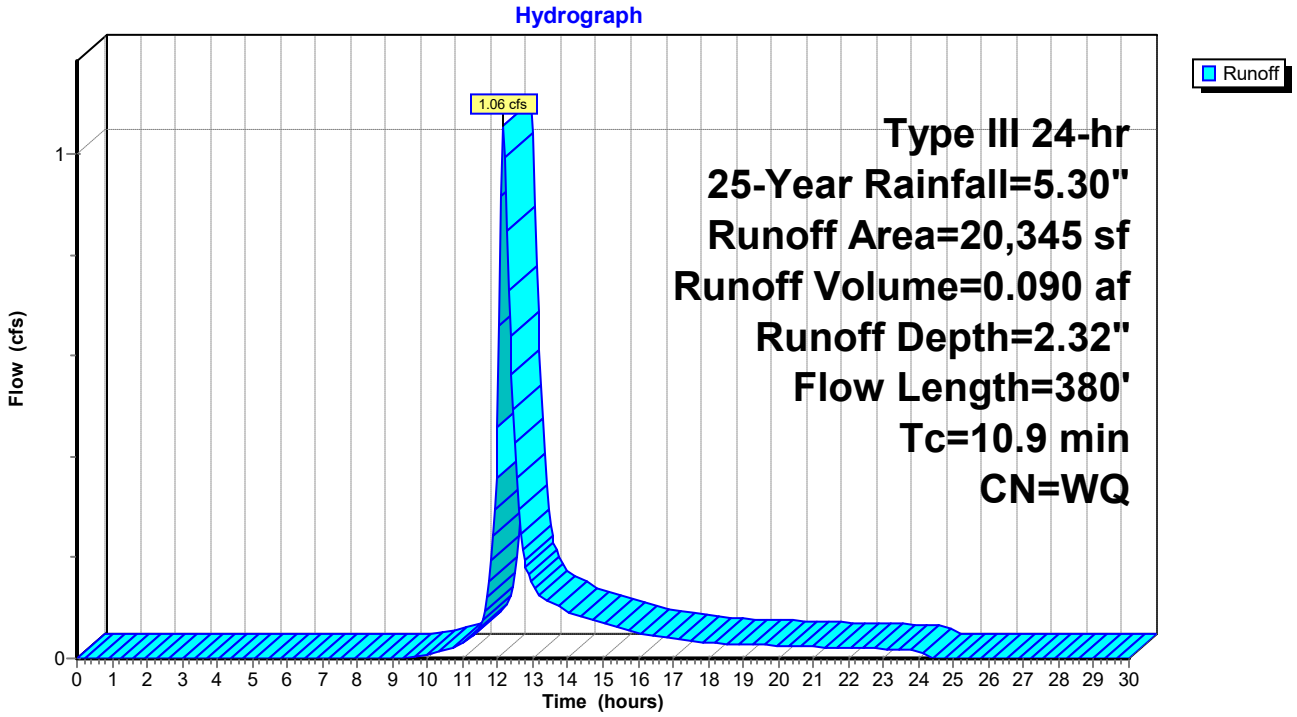
Runoff = 1.06 cfs @ 12.16 hrs, Volume= 0.090 af, Depth= 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
3,243	74	>75% Grass cover, Good, HSG C
17,102	70	Woods, Good, HSG C
20,345		Weighted Average
20,345		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	75	0.2400	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	25	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	69	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	7	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	43	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	71	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	17	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	73	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.9	380	Total			

Subcatchment P13: TO CULVERT



Summary for Subcatchment P14: TO DCB-A

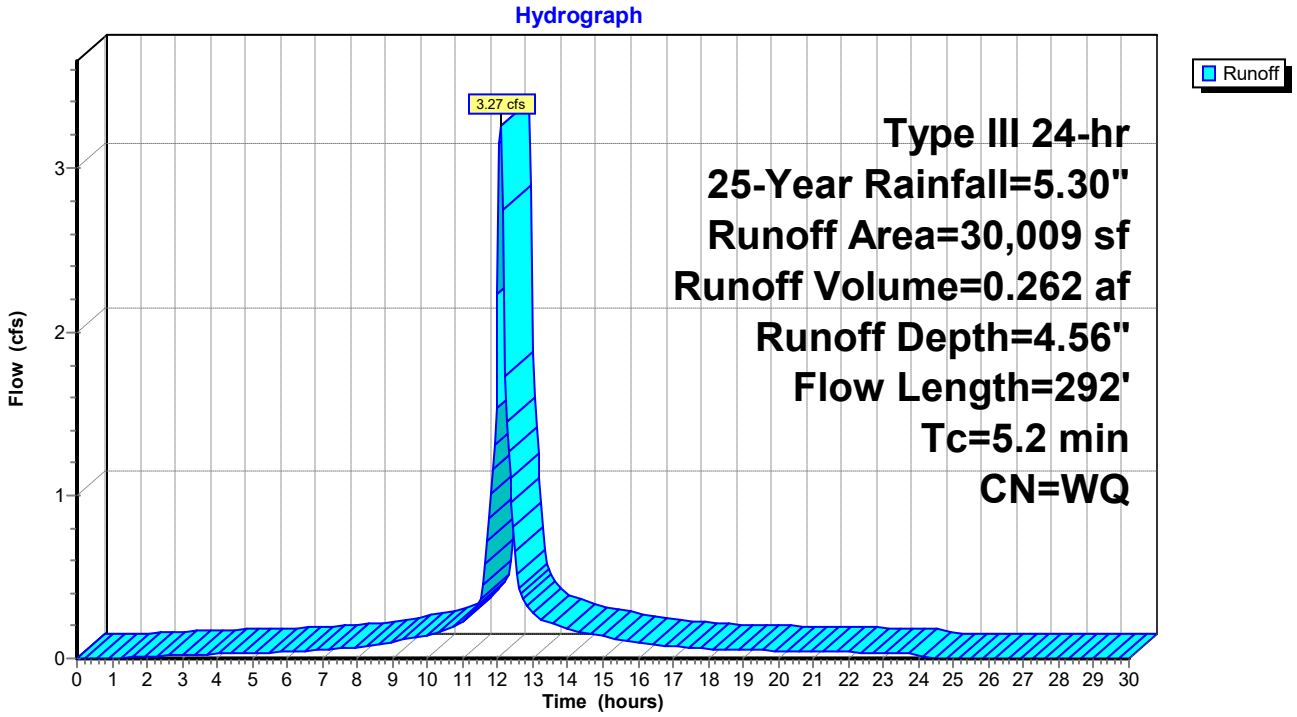
Runoff = 3.27 cfs @ 12.07 hrs, Volume= 0.262 af, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
5,894	74	>75% Grass cover, Good, HSG C
22,855	98	Paved parking, HSG C
125	70	Woods, Good, HSG C
1,135	96	Gravel surface, HSG C
30,009		Weighted Average
7,154		23.84% Pervious Area
22,855		76.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment P14: TO DCB-A



Summary for Subcatchment P15: TO DCB-C

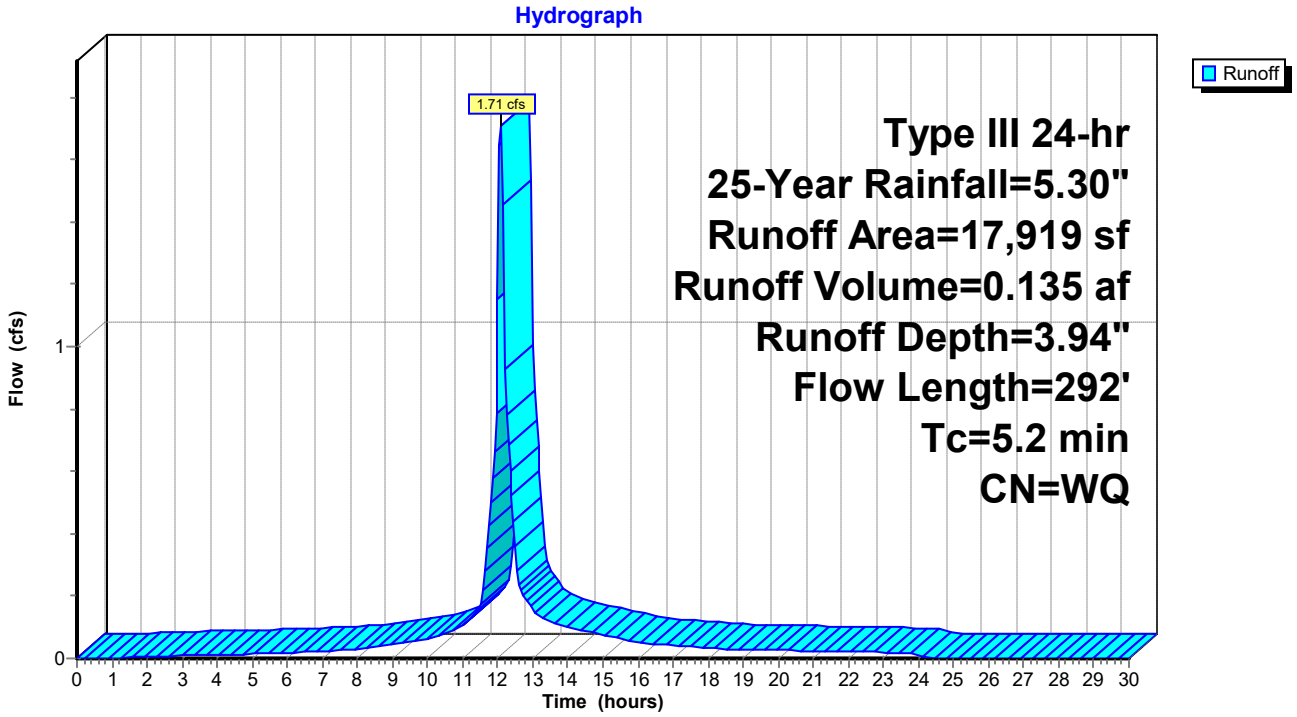
Runoff = 1.71 cfs @ 12.08 hrs, Volume= 0.135 af, Depth= 3.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
4,649	74	>75% Grass cover, Good, HSG C
10,134	98	Paved parking, HSG C
3,136	70	Woods, Good, HSG C
17,919		Weighted Average
7,785		43.45% Pervious Area
10,134		56.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment P15: TO DCB-C



Summary for Subcatchment P31: TO DP#3 (CULVERT)

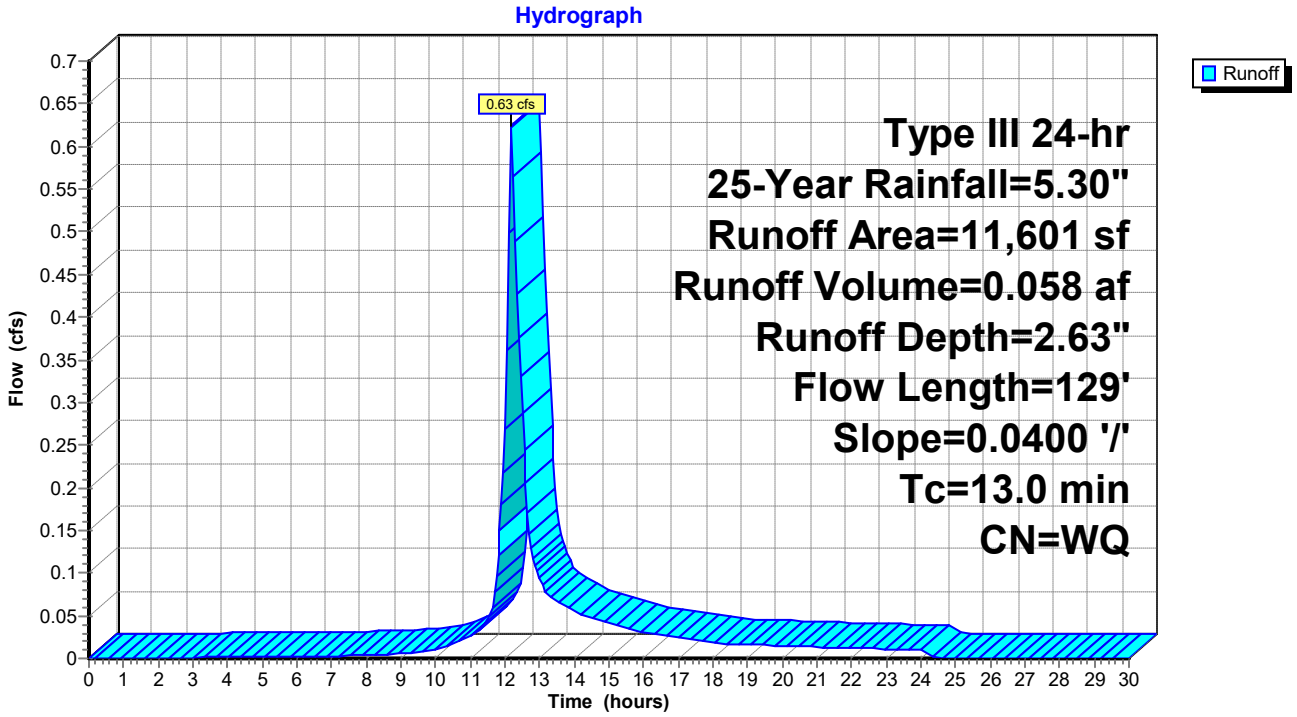
Runoff = 0.63 cfs @ 12.19 hrs, Volume= 0.058 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
2,060	74	>75% Grass cover, Good, HSG C
1,275	98	Paved parking, HSG C
8,266	70	Woods, Good, HSG C
11,601		Weighted Average
10,326		89.01% Pervious Area
1,275		10.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	4	0.0400	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
6.8	54	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
2.0	7	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
2.7	10	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	54	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.0	129	Total			

Subcatchment P31: TO DP#3 (CULVERT)



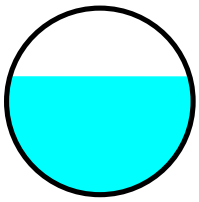
Summary for Reach DCB1: TO DMH#1

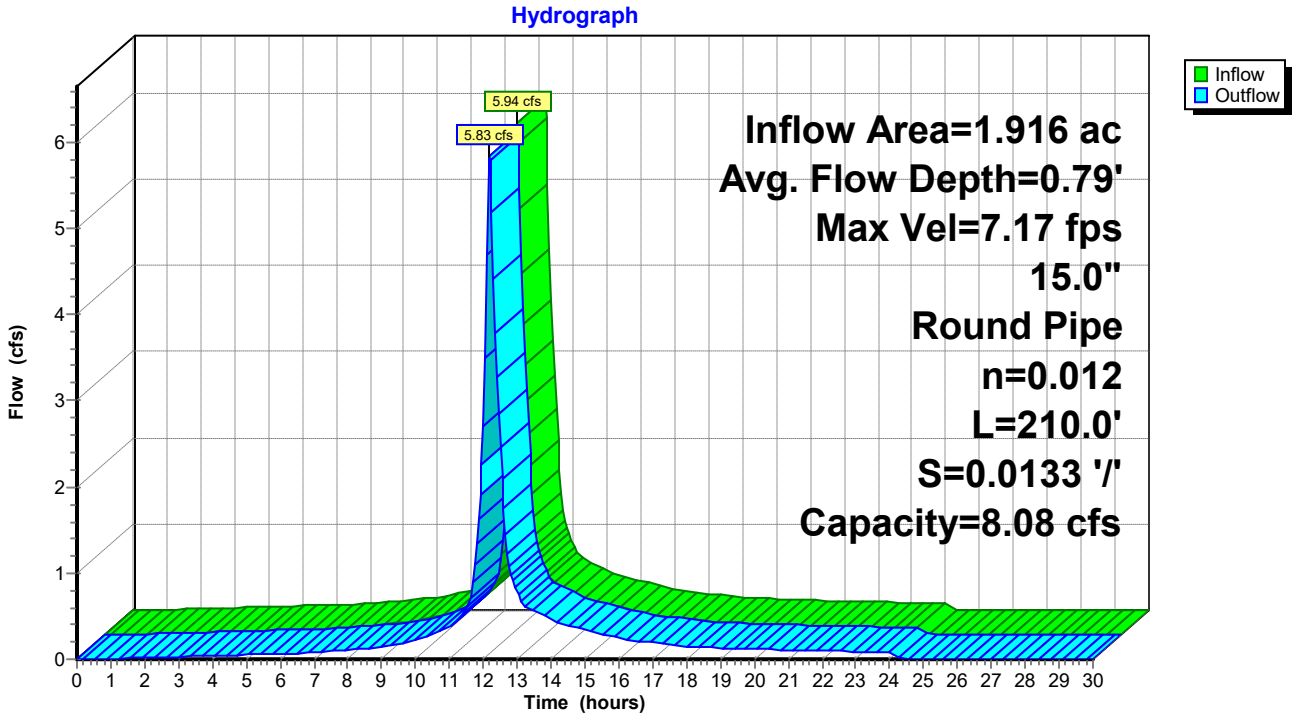
Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 3.54" for 25-Year event
Inflow = 5.94 cfs @ 12.17 hrs, Volume= 0.565 af
Outflow = 5.83 cfs @ 12.18 hrs, Volume= 0.565 af, Atten= 2%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.17 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.54 fps, Avg. Travel Time= 1.4 min

Peak Storage= 173 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.79'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 8.08 cfs

15.0" Round Pipe
n= 0.012 Steel, smooth
Length= 210.0' Slope= 0.0133 '/'
Inlet Invert= 1,058.40', Outlet Invert= 1,055.60'





Stage-Discharge for Reach DCB1: TO DMH#1

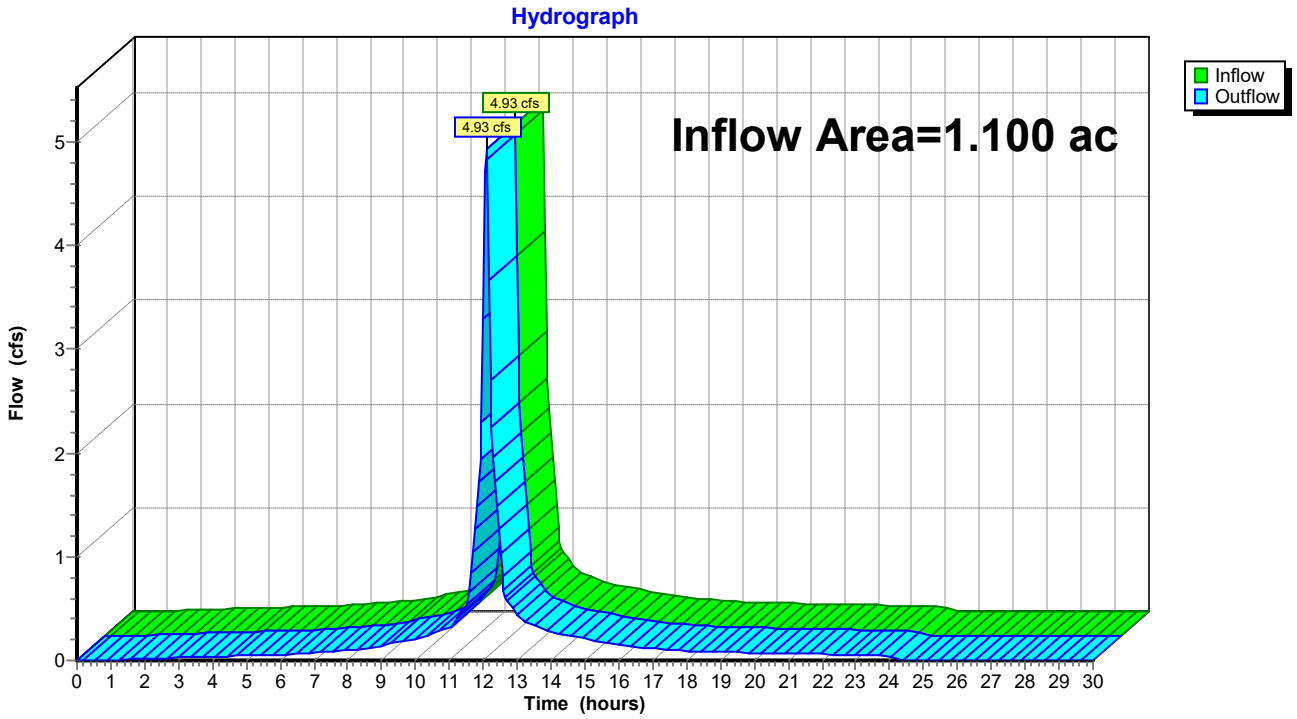
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,058.40	0.00	0.00
1,058.41	0.47	0.00
1,058.42	0.79	0.00
1,058.43	1.04	0.01
1,058.44	1.26	0.02
1,058.45	1.46	0.02
1,058.46	1.65	0.04
1,058.47	1.82	0.05
1,058.48	1.98	0.07
1,058.49	2.14	0.08
1,058.50	2.29	0.11
1,058.51	2.43	0.13
1,058.52	2.57	0.16
1,058.53	2.71	0.18
1,058.54	2.84	0.21
1,058.55	2.96	0.25
1,058.56	3.08	0.28
1,058.57	3.20	0.32
1,058.58	3.32	0.36
1,058.59	3.43	0.40
1,058.60	3.54	0.45
1,058.61	3.65	0.50
1,058.62	3.75	0.55
1,058.63	3.85	0.60
1,058.64	3.95	0.65
1,058.65	4.05	0.71
1,058.66	4.15	0.77
1,058.67	4.24	0.83
1,058.68	4.33	0.89
1,058.69	4.42	0.95
1,058.70	4.51	1.02
1,058.71	4.59	1.09
1,058.72	4.68	1.16
1,058.73	4.76	1.23
1,058.74	4.84	1.31
1,058.75	4.92	1.38
1,058.76	5.00	1.46
1,058.77	5.07	1.54
1,058.78	5.15	1.62
1,058.79	5.22	1.71
1,058.80	5.29	1.79
1,058.81	5.36	1.88
1,058.82	5.43	1.97
1,058.83	5.50	2.06
1,058.84	5.57	2.15
1,058.85	5.63	2.24
1,058.86	5.70	2.33
1,058.87	5.76	2.43
1,058.88	5.82	2.53
1,058.89	5.88	2.62
1,058.90	5.94	2.72
1,058.91	6.00	2.82
1,058.92	6.06	2.92
1,058.93	6.11	3.03
1,058.94	6.17	3.13
1,058.95	6.22	3.23
1,058.96	6.27	3.34
1,058.97	6.32	3.45
1,058.98	6.37	3.55
1,058.99	6.42	3.66
1,059.00	6.47	3.77
1,059.01	6.52	3.88
1,059.02	6.56	3.99
1,059.03	6.61	4.10
1,059.04	6.65	4.21
1,059.05	6.69	4.32
1,059.06	6.73	4.43
1,059.07	6.78	4.54
1,059.08	6.81	4.65
1,059.09	6.85	4.76
1,059.10	6.89	4.87
1,059.11	6.93	4.98
1,059.12	6.96	5.10
1,059.13	7.00	5.21
1,059.14	7.03	5.32
1,059.15	7.06	5.43
1,059.16	7.09	5.54
1,059.17	7.12	5.65
1,059.18	7.15	5.76
1,059.19	7.18	5.87
1,059.20	7.21	5.98
1,059.21	7.23	6.09
1,059.22	7.26	6.19
1,059.23	7.28	6.30
1,059.24	7.30	6.40
1,059.25	7.32	6.51
1,059.26	7.34	6.61
1,059.27	7.36	6.71
1,059.28	7.38	6.82
1,059.29	7.40	6.92
1,059.30	7.42	7.01
1,059.31	7.43	7.11
1,059.32	7.44	7.21
1,059.33	7.46	7.30
1,059.34	7.47	7.39
1,059.35	7.48	7.48
1,059.36	7.48	7.57
1,059.37	7.49	7.65
1,059.38	7.50	7.74
1,059.39	7.50	7.82
1,059.40	7.50	7.90
1,059.41	7.51	7.97
1,059.42	**7.51**	8.05
1,059.43	7.51	8.12
1,059.44	7.50	8.19
1,059.45	7.50	8.25
1,059.46	7.49	8.31
1,059.47	7.48	8.37
1,059.48	7.47	8.42
1,059.49	7.46	8.47
1,059.50	7.45	8.52
1,059.51	7.43	8.56
1,059.52	7.41	8.60
1,059.53	7.39	8.63
1,059.54	7.37	8.65
1,059.55	7.34	8.67
1,059.56	7.31	8.69
1,059.57	7.28	**8.69**
1,059.58	7.24	8.69
1,059.59	7.20	8.68
1,059.60	7.15	8.66
1,059.61	7.09	8.62
1,059.62	7.03	8.57
1,059.63	6.94	8.49
1,059.64	6.82	8.35
1,059.65	6.58	8.08

Summary for Reach DCBB: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 4.33" for 25-Year event
Inflow = 4.93 cfs @ 12.08 hrs, Volume= 0.397 af
Outflow = 4.93 cfs @ 12.08 hrs, Volume= 0.397 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DCBB: DP#4



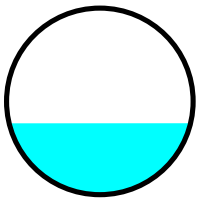
Summary for Reach DCBC: TO DCB-B

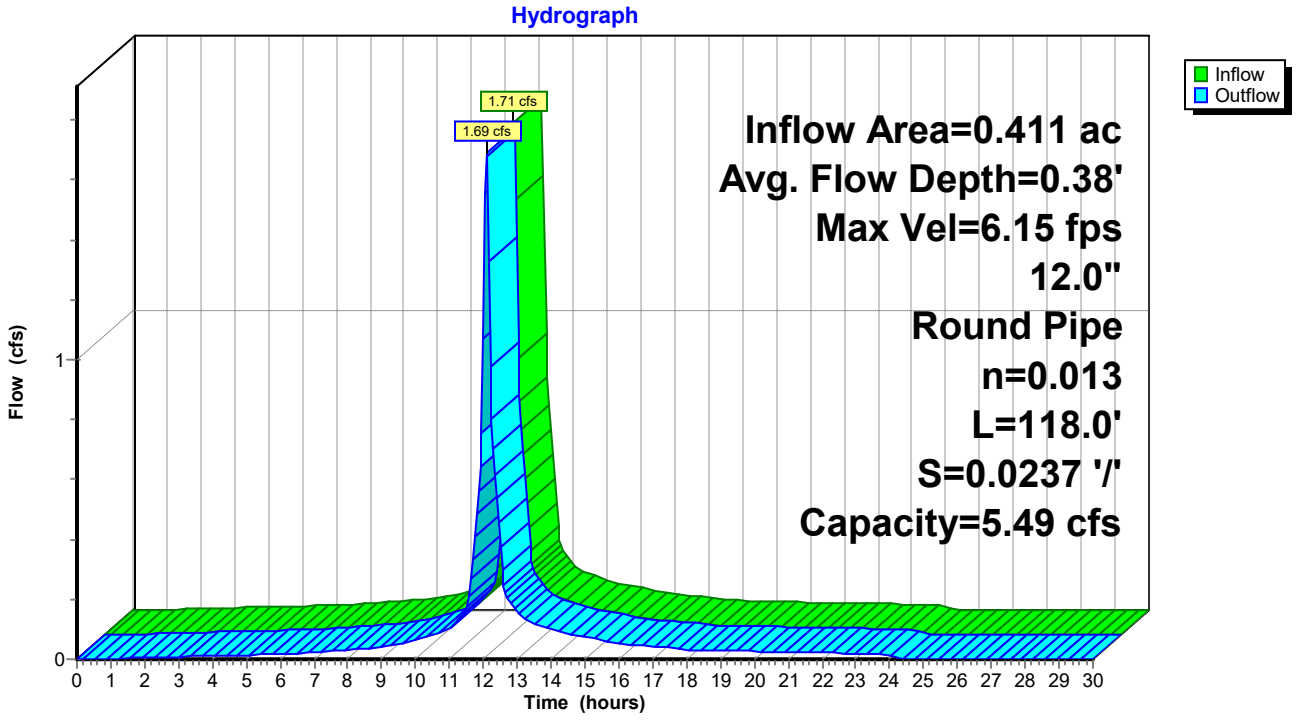
Inflow Area = 0.411 ac, 56.55% Impervious, Inflow Depth = 3.94" for 25-Year event
Inflow = 1.71 cfs @ 12.08 hrs, Volume= 0.135 af
Outflow = 1.69 cfs @ 12.09 hrs, Volume= 0.135 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.15 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.01 fps, Avg. Travel Time= 1.0 min

Peak Storage= 33 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.49 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 118.0' Slope= 0.0237 '/'
Inlet Invert= 1,048.10', Outlet Invert= 1,045.30'





Stage-Discharge for Reach DCBC: TO DCB-B

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,048.10	0.00	0.00
1,048.11	0.62	0.00
1,048.12	0.98	0.00
1,048.13	1.29	0.01
1,048.14	1.55	0.02
1,048.15	1.80	0.03
1,048.16	2.02	0.04
1,048.17	2.23	0.05
1,048.18	2.43	0.07
1,048.19	2.62	0.09
1,048.20	2.80	0.11
1,048.21	2.98	0.14
1,048.22	3.14	0.17
1,048.23	3.31	0.20
1,048.24	3.46	0.23
1,048.25	3.61	0.27
1,048.26	3.76	0.30
1,048.27	3.90	0.35
1,048.28	4.04	0.39
1,048.29	4.17	0.43
1,048.30	4.30	0.48
1,048.31	4.42	0.53
1,048.32	4.55	0.58
1,048.33	4.67	0.64
1,048.34	4.78	0.69
1,048.35	4.90	0.75
1,048.36	5.01	0.81
1,048.37	5.11	0.88
1,048.38	5.22	0.94
1,048.39	5.32	1.01
1,048.40	5.42	1.07
1,048.41	5.52	1.15
1,048.42	5.62	1.22
1,048.43	5.71	1.29
1,048.44	5.80	1.37
1,048.45	5.89	1.44
1,048.46	5.98	1.52
1,048.47	6.06	1.60
1,048.48	6.14	1.68
1,048.49	6.23	1.77
1,048.50	6.30	1.85
1,048.51	6.38	1.93
1,048.52	6.46	2.02
1,048.53	6.53	2.11
1,048.54	6.60	2.20
1,048.55	6.67	2.29
1,048.56	6.74	2.38
1,048.57	6.80	2.47
1,048.58	6.87	2.56
1,048.59	6.93	2.65
1,048.60	6.99	2.74
1,048.61	7.05	2.84
1,048.62	7.10	2.93
1,048.63	7.16	3.03
1,048.64	7.21	3.12
1,048.65	7.26	3.21
1,048.66	7.31	3.31
1,048.67	7.36	3.40
1,048.68	7.41	3.50
1,048.69	7.45	3.59
1,048.70	7.49	3.69
1,048.71	7.53	3.78
1,048.72	7.57	3.87
1,048.73	7.61	3.97
1,048.74	7.65	4.06
1,048.75	7.68	4.15
1,048.76	7.71	4.24
1,048.77	7.74	4.33
1,048.78	7.77	4.42
1,048.79	7.80	4.51
1,048.80	7.82	4.59
1,048.81	7.85	4.68
1,048.82	7.87	4.76
1,048.83	7.89	4.85
1,048.84	7.91	4.93
1,048.85	7.92	5.00
1,048.86	7.93	5.08
1,048.87	7.94	5.16
1,048.88	7.95	5.23
1,048.89	7.96	5.30
1,048.90	7.96	5.36
1,048.91	**7.97**	5.43
1,048.92	7.97	5.49
1,048.93	7.96	5.55
1,048.94	7.96	5.60
1,048.95	7.95	5.66
1,048.96	7.94	5.70
1,048.97	7.92	5.75
1,048.98	7.90	5.79
1,048.99	7.88	5.82
1,049.00	7.86	5.85
1,049.01	7.83	5.87
1,049.02	7.79	5.89
1,049.03	7.75	5.90
1,049.04	7.71	**5.90**
1,049.05	7.65	5.90
1,049.06	7.59	5.88
1,049.07	7.51	5.85
1,049.08	7.42	5.80
1,049.09	7.29	5.72
1,049.10	6.99	5.49

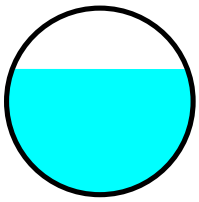
Summary for Reach DMH-1: TO DMH-A

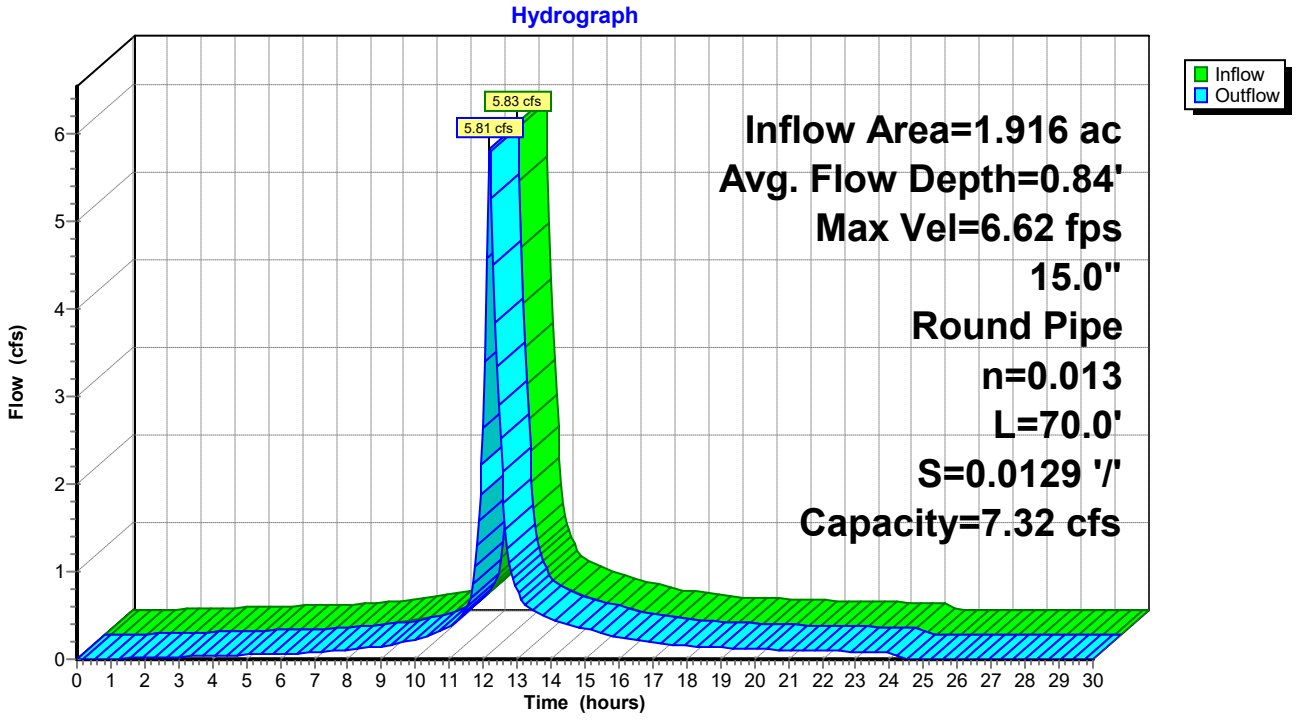
Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 3.54" for 25-Year event
Inflow = 5.83 cfs @ 12.18 hrs, Volume= 0.565 af
Outflow = 5.81 cfs @ 12.19 hrs, Volume= 0.565 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.62 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.36 fps, Avg. Travel Time= 0.5 min

Peak Storage= 62 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.32 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 70.0' Slope= 0.0129 '/'
Inlet Invert= 1,055.50', Outlet Invert= 1,054.60'





Stage-Discharge for Reach DMH-1: TO DMH-A

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,055.50	0.00	0.00
1,055.51	0.42	0.00
1,055.52	0.72	0.00
1,055.53	0.94	0.01
1,055.54	1.14	0.01
1,055.55	1.33	0.02
1,055.56	1.49	0.03
1,055.57	1.65	0.05
1,055.58	1.80	0.06
1,055.59	1.94	0.08
1,055.60	2.08	0.10
1,055.61	2.21	0.12
1,055.62	2.33	0.14
1,055.63	2.45	0.17
1,055.64	2.57	0.19
1,055.65	2.69	0.22
1,055.66	2.80	0.26
1,055.67	2.90	0.29
1,055.68	3.01	0.33
1,055.69	3.11	0.37
1,055.70	3.21	0.41
1,055.71	3.31	0.45
1,055.72	3.40	0.49
1,055.73	3.49	0.54
1,055.74	3.58	0.59
1,055.75	3.67	0.64
1,055.76	3.76	0.69
1,055.77	3.84	0.75
1,055.78	3.92	0.81
1,055.79	4.01	0.86
1,055.80	4.09	0.93
1,055.81	4.16	0.99
1,055.82	4.24	1.05
1,055.83	4.31	1.12
1,055.84	4.39	1.19
1,055.85	4.46	1.25
1,055.86	4.53	1.33
1,055.87	4.60	1.40
1,055.88	4.67	1.47
1,055.89	4.73	1.55
1,055.90	4.80	1.62
1,055.91	4.86	1.70
1,055.92	4.92	1.78
1,055.93	4.99	1.86
1,055.94	5.05	1.95
1,055.95	5.11	2.03
1,055.96	5.16	2.12
1,055.97	5.22	2.20
1,055.98	5.28	2.29
1,055.99	5.33	2.38
1,056.00	5.38	2.47
1,056.01	5.44	2.56
1,056.02	5.49	2.65
1,056.03	5.54	2.74
1,056.04	5.59	2.84
1,056.05	5.64	2.93
1,056.06	5.68	3.03
1,056.07	5.73	3.12
1,056.08	5.78	3.22
1,056.09	5.82	3.32
1,056.10	5.86	3.42
1,056.11	5.91	3.51
1,056.12	5.95	3.61
1,056.13	5.99	3.71
1,056.14	6.03	3.81
1,056.15	6.07	3.91
1,056.16	6.10	4.01
1,056.17	6.14	4.11
1,056.18	6.18	4.21
1,056.19	6.21	4.32
1,056.20	6.25	4.42
1,056.21	6.28	4.52
1,056.22	6.31	4.62
1,056.23	6.34	4.72
1,056.24	6.37	4.82
1,056.25	6.40	4.92
1,056.26	6.43	5.02
1,056.27	6.46	5.12
1,056.28	6.48	5.22
1,056.29	6.51	5.32
1,056.30	6.53	5.42
1,056.31	6.56	5.52
1,056.32	6.58	5.61
1,056.33	6.60	5.71
1,056.34	6.62	5.81
1,056.35	6.64	5.90
1,056.36	6.66	5.99
1,056.37	6.68	6.09
1,056.38	6.69	6.18
1,056.39	6.71	6.27
1,056.40	6.72	6.36
1,056.41	6.73	6.45
1,056.42	6.75	6.53
1,056.43	6.76	6.62
1,056.44	6.77	6.70
1,056.45	6.78	6.78
1,056.46	6.78	6.86
1,056.47	6.79	6.94
1,056.48	6.80	7.01
1,056.49	6.80	7.09
1,056.50	6.80	7.16
1,056.51	6.80	7.23
1,056.52	**6.80**	7.29
1,056.53	6.80	7.36
1,056.54	6.80	7.42
1,056.55	6.80	7.48
1,056.56	6.79	7.53
1,056.57	6.78	7.59
1,056.58	6.77	7.63
1,056.59	6.76	7.68
1,056.60	6.75	7.72
1,056.61	6.74	7.76
1,056.62	6.72	7.79
1,056.63	6.70	7.82
1,056.64	6.68	7.84
1,056.65	6.66	7.86
1,056.66	6.63	7.87
1,056.67	6.60	**7.88**
1,056.68	6.56	7.88
1,056.69	6.52	7.87
1,056.70	6.48	7.85
1,056.71	6.43	7.81
1,056.72	6.37	7.77
1,056.73	6.29	7.70
1,056.74	6.18	7.57
1,056.75	5.97	7.32

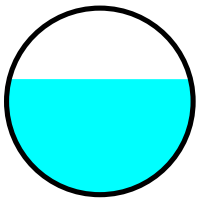
Summary for Reach DMH-A*: TO FE-A

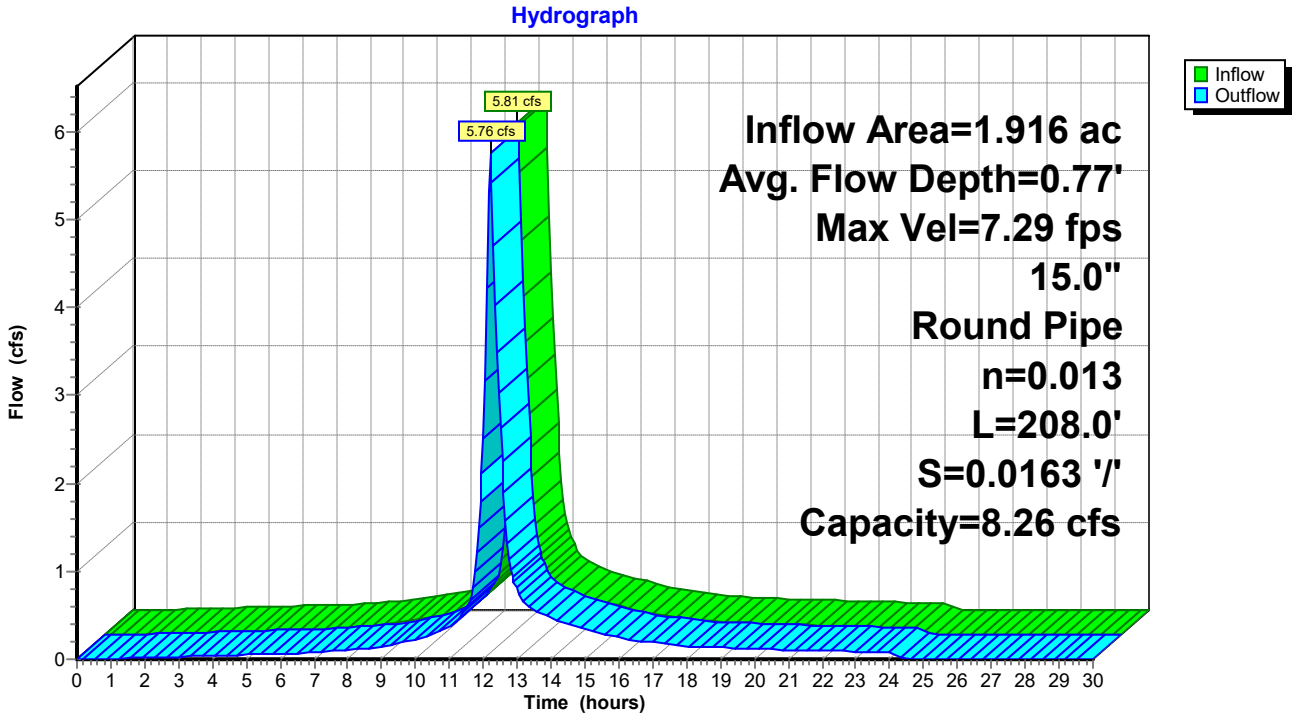
Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 3.54" for 25-Year event
Inflow = 5.81 cfs @ 12.19 hrs, Volume= 0.565 af
Outflow = 5.76 cfs @ 12.20 hrs, Volume= 0.565 af, Atten= 1%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.29 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.56 fps, Avg. Travel Time= 1.4 min

Peak Storage= 166 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.77'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 8.26 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 208.0' Slope= 0.0163 '/'
Inlet Invert= 1,054.50', Outlet Invert= 1,051.10'





Stage-Discharge for Reach DMH-A*: TO FE-A

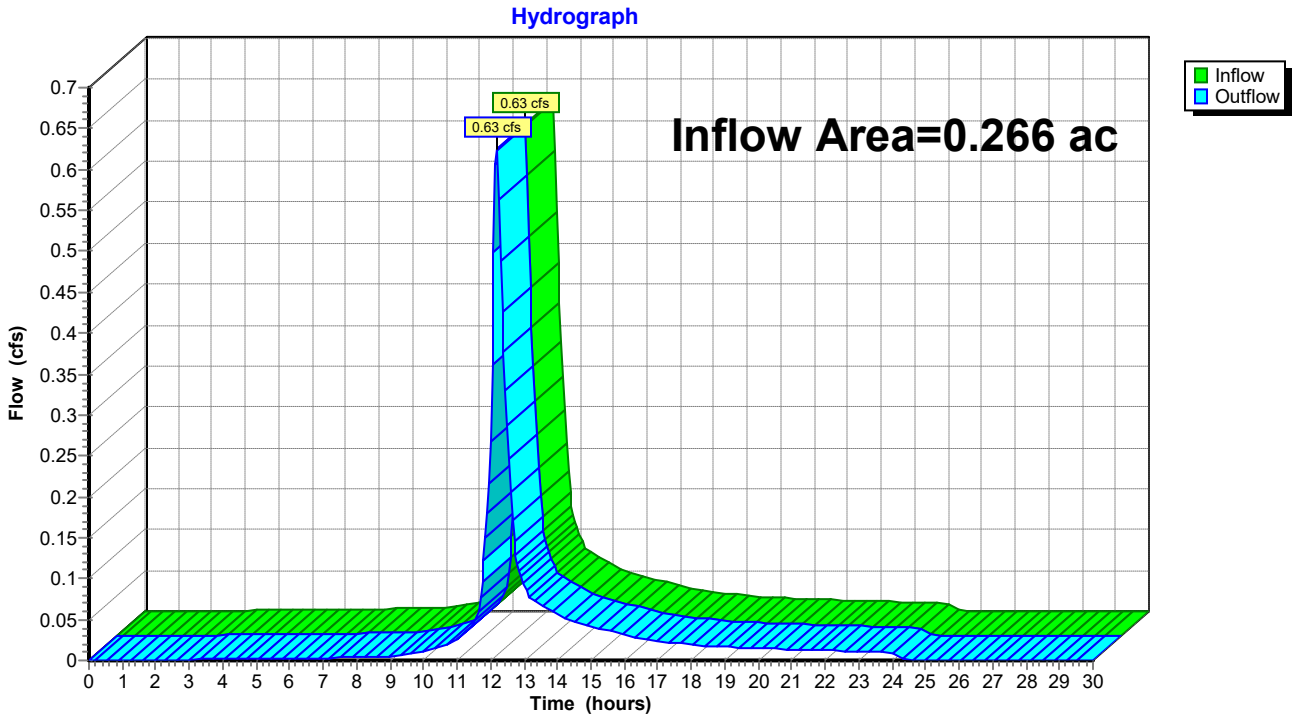
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,054.50	0.00	0.00
1,054.51	0.48	0.00
1,054.52	0.81	0.00
1,054.53	1.06	0.01
1,054.54	1.29	0.02
1,054.55	1.49	0.02
1,054.56	1.68	0.04
1,054.57	1.86	0.05
1,054.58	2.03	0.07
1,054.59	2.19	0.09
1,054.60	2.34	0.11
1,054.61	2.49	0.13
1,054.62	2.63	0.16
1,054.63	2.77	0.19
1,054.64	2.90	0.22
1,054.65	3.03	0.25
1,054.66	3.15	0.29
1,054.67	3.27	0.33
1,054.68	3.39	0.37
1,054.69	3.51	0.41
1,054.70	3.62	0.46
1,054.71	3.73	0.51
1,054.72	3.83	0.56
1,054.73	3.94	0.61
1,054.74	4.04	0.67
1,054.75	4.14	0.72
1,054.76	4.24	0.78
1,054.77	4.33	0.85
1,054.78	4.42	0.91
1,054.79	4.52	0.98
1,054.80	4.61	1.04
1,054.81	4.69	1.11
1,054.82	4.78	1.19
1,054.83	4.86	1.26
1,054.84	4.95	1.34
1,054.85	5.03	1.41
1,054.86	5.11	1.49
1,054.87	5.18	1.58
1,054.88	5.26	1.66
1,054.89	5.34	1.74
1,054.90	5.41	1.83
1,054.91	5.48	1.92
1,054.92	5.55	2.01
1,054.93	5.62	2.10
1,054.94	5.69	2.20
1,054.95	5.76	2.29
1,054.96	5.82	2.39
1,054.97	5.89	2.48
1,054.98	5.95	2.58
1,054.99	6.01	2.68
1,055.00	6.07	2.78
1,055.01	6.13	2.89
1,055.02	6.19	2.99
1,055.03	6.25	3.09
1,055.04	6.30	3.20
1,055.05	6.36	3.31
1,055.06	6.41	3.41
1,055.07	6.46	3.52
1,055.08	6.51	3.63
1,055.09	6.56	3.74
1,055.10	6.61	3.85
1,055.11	6.66	3.96
1,055.12	6.71	4.07
1,055.13	6.75	4.19
1,055.14	6.80	4.30
1,055.15	6.84	4.41
1,055.16	6.88	4.52
1,055.17	6.92	4.64
1,055.18	6.96	4.75
1,055.19	7.00	4.87
1,055.20	7.04	4.98
1,055.21	7.08	5.09
1,055.22	7.12	5.21
1,055.23	7.15	5.32
1,055.24	7.18	5.44
1,055.25	7.22	5.55
1,055.26	7.25	5.66
1,055.27	7.28	5.77
1,055.28	7.31	5.89
1,055.29	7.34	6.00
1,055.30	7.37	6.11
1,055.31	7.39	6.22
1,055.32	7.42	6.33
1,055.33	7.44	6.44
1,055.34	7.46	6.55
1,055.35	7.49	6.65
1,055.36	7.51	6.76
1,055.37	7.53	6.86
1,055.38	7.54	6.97
1,055.39	7.56	7.07
1,055.40	7.58	7.17
1,055.41	7.59	7.27
1,055.42	7.61	7.36
1,055.43	7.62	7.46
1,055.44	7.63	7.55
1,055.45	7.64	7.65
1,055.46	7.65	7.74
1,055.47	7.66	7.82
1,055.48	7.66	7.91
1,055.49	7.67	7.99
1,055.50	7.67	8.07
1,055.51	7.67	8.15
1,055.52	**7.67**	8.23
1,055.53	7.67	8.30
1,055.54	7.67	8.37
1,055.55	7.66	8.43
1,055.56	7.66	8.49
1,055.57	7.65	8.55
1,055.58	7.64	8.61
1,055.59	7.63	8.66
1,055.60	7.61	8.71
1,055.61	7.60	8.75
1,055.62	7.58	8.78
1,055.63	7.56	8.82
1,055.64	7.53	8.84
1,055.65	7.50	8.86
1,055.66	7.47	8.88
1,055.67	7.44	**8.88**
1,055.68	7.40	8.88
1,055.69	7.36	8.87
1,055.70	7.31	8.85
1,055.71	7.25	8.81
1,055.72	7.18	8.76
1,055.73	7.10	8.68
1,055.74	6.97	8.54
1,055.75	6.73	8.26

Summary for Reach DP#3: TO OFF SITE

Inflow Area = 0.266 ac, 10.99% Impervious, Inflow Depth = 2.63" for 25-Year event
Inflow = 0.63 cfs @ 12.19 hrs, Volume= 0.058 af
Outflow = 0.63 cfs @ 12.19 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP#3: TO OFF SITE



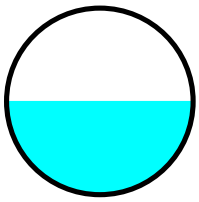
Summary for Reach DP1: CULVERT

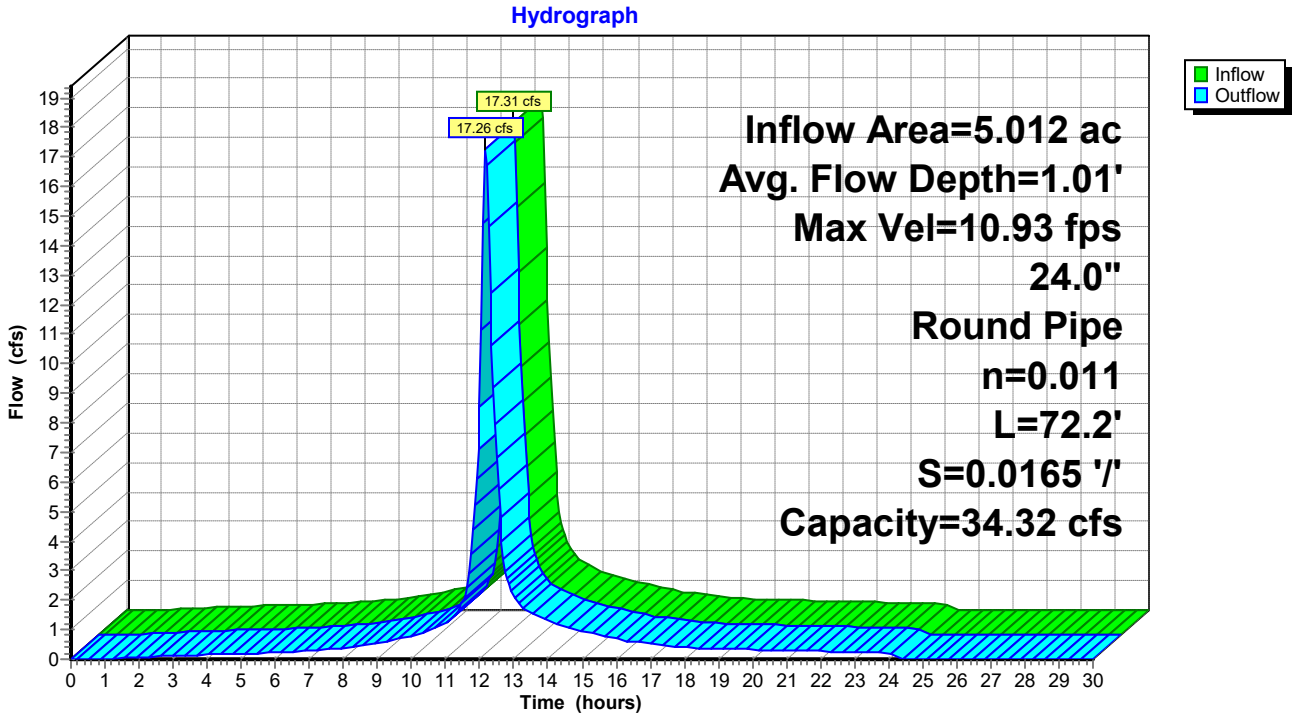
Inflow Area = 5.012 ac, 60.72% Impervious, Inflow Depth = 4.04" for 25-Year event
Inflow = 17.31 cfs @ 12.17 hrs, Volume= 1.688 af
Outflow = 17.26 cfs @ 12.17 hrs, Volume= 1.688 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.93 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.80 fps, Avg. Travel Time= 0.3 min

Peak Storage= 114 cf @ 12.17 hrs
Average Depth at Peak Storage= 1.01'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 34.32 cfs

24.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 72.2' Slope= 0.0165 '/'
Inlet Invert= 1,049.69', Outlet Invert= 1,048.50'





Stage-Discharge for Reach DP1: CULVERT

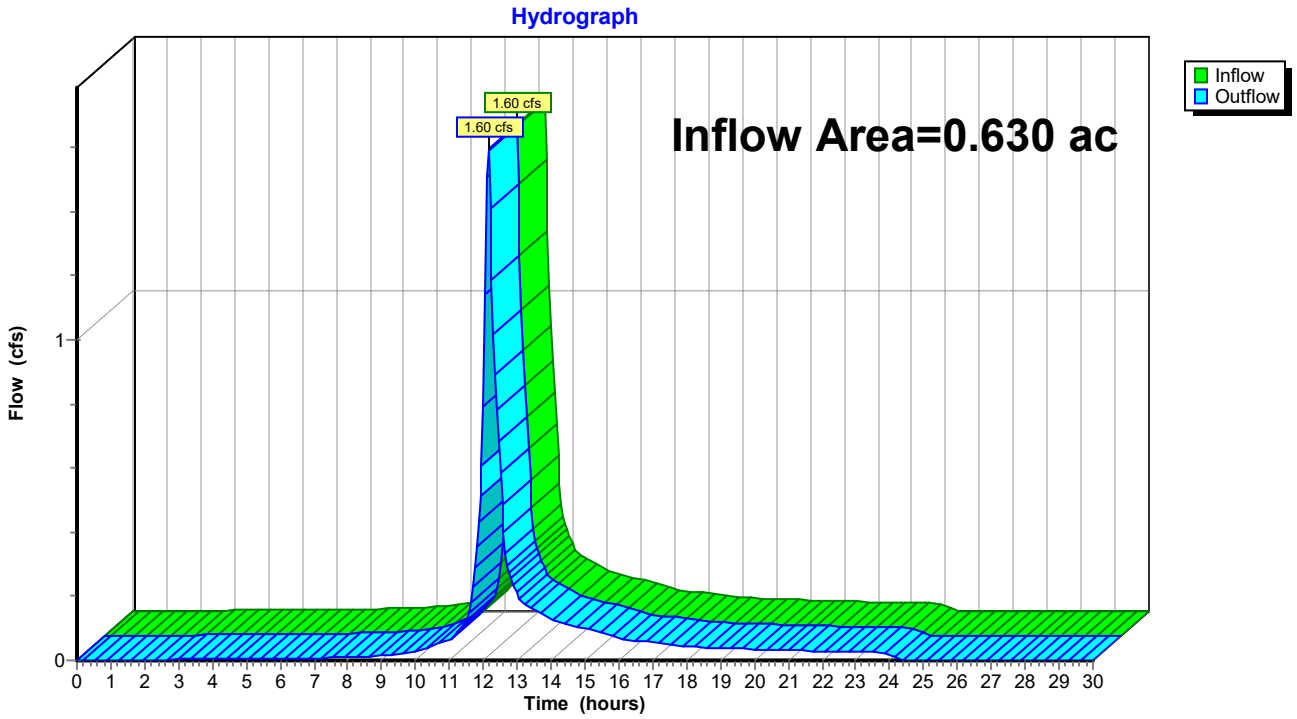
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,049.69	0.00	0.00
1,049.71	0.97	0.01
1,049.73	1.54	0.02
1,049.75	2.01	0.06
1,049.77	2.43	0.10
1,049.79	2.81	0.16
1,049.81	3.16	0.24
1,049.83	3.49	0.34
1,049.85	3.80	0.45
1,049.87	4.10	0.57
1,049.89	4.38	0.72
1,049.91	4.65	0.88
1,049.93	4.92	1.05
1,049.95	5.17	1.24
1,049.97	5.41	1.45
1,049.99	5.65	1.67
1,050.01	5.87	1.91
1,050.03	6.09	2.16
1,050.05	6.31	2.43
1,050.07	6.52	2.71
1,050.09	6.72	3.01
1,050.11	6.92	3.32
1,050.13	7.11	3.64
1,050.15	7.30	3.98
1,050.17	7.48	4.34
1,050.19	7.66	4.70
1,050.21	7.83	5.08
1,050.23	8.00	5.47
1,050.25	8.16	5.88
1,050.27	8.32	6.29
1,050.29	8.48	6.72
1,050.31	8.63	7.16
1,050.33	8.78	7.61
1,050.35	8.93	8.07
1,050.37	9.07	8.54
1,050.39	9.21	9.03
1,050.41	9.35	9.52
1,050.43	9.48	10.02
1,050.45	9.61	10.52
1,050.47	9.73	11.04
1,050.49	9.86	11.57
1,050.51	9.98	12.10
1,050.53	10.09	12.64
1,050.55	10.21	13.19
1,050.57	10.32	13.74
1,050.59	10.43	14.30
1,050.61	10.53	14.86
1,050.63	10.63	15.43
1,050.65	10.73	16.00
1,050.67	10.83	16.58
1,050.69	10.93	17.16
1,050.71	11.02	17.75
1,050.73	11.11	18.33
1,050.75	11.19	18.92
1,050.77	11.27	19.51
1,050.79	11.36	20.10
1,050.81	11.43	20.70
1,050.83	11.51	21.29
1,050.85	11.58	21.88
1,050.87	11.65	22.47
1,050.89	11.72	23.06
1,050.91	11.78	23.65
1,050.93	11.84	24.23
1,050.95	11.90	24.81
1,050.97	11.96	25.39
1,050.99	12.01	25.96
1,051.01	12.06	26.53
1,051.03	12.11	27.09
1,051.05	12.15	27.65
1,051.07	12.20	28.20
1,051.09	12.23	28.74
1,051.11	12.27	29.27
1,051.13	12.30	29.79
1,051.15	12.33	30.31
1,051.17	12.36	30.81
1,051.19	12.38	31.30
1,051.21	12.40	31.78
1,051.23	12.42	32.24
1,051.25	12.44	32.69
1,051.27	12.45	33.13
1,051.29	12.45	33.55
1,051.31	**12.46**	33.95
1,051.33	12.45	34.34
1,051.35	12.45	34.70
1,051.37	12.44	35.05
1,051.39	12.43	35.37
1,051.41	12.41	35.67
1,051.43	12.39	35.94
1,051.45	12.36	36.18
1,051.47	12.32	36.40
1,051.49	12.28	36.58
1,051.51	12.24	36.73
1,051.53	12.18	36.84
1,051.55	12.12	36.90
1,051.57	12.05	**36.92**
1,051.59	11.96	36.88
1,051.61	11.86	36.77
1,051.63	11.75	36.58
1,051.65	11.60	36.27
1,051.67	11.40	35.76
1,051.69	10.93	34.32

Summary for Reach DP2: Culvert

Inflow Area = 0.630 ac, 12.33% Impervious, Inflow Depth = 2.66" for 25-Year event
Inflow = 1.60 cfs @ 12.14 hrs, Volume= 0.140 af
Outflow = 1.60 cfs @ 12.14 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: Culvert

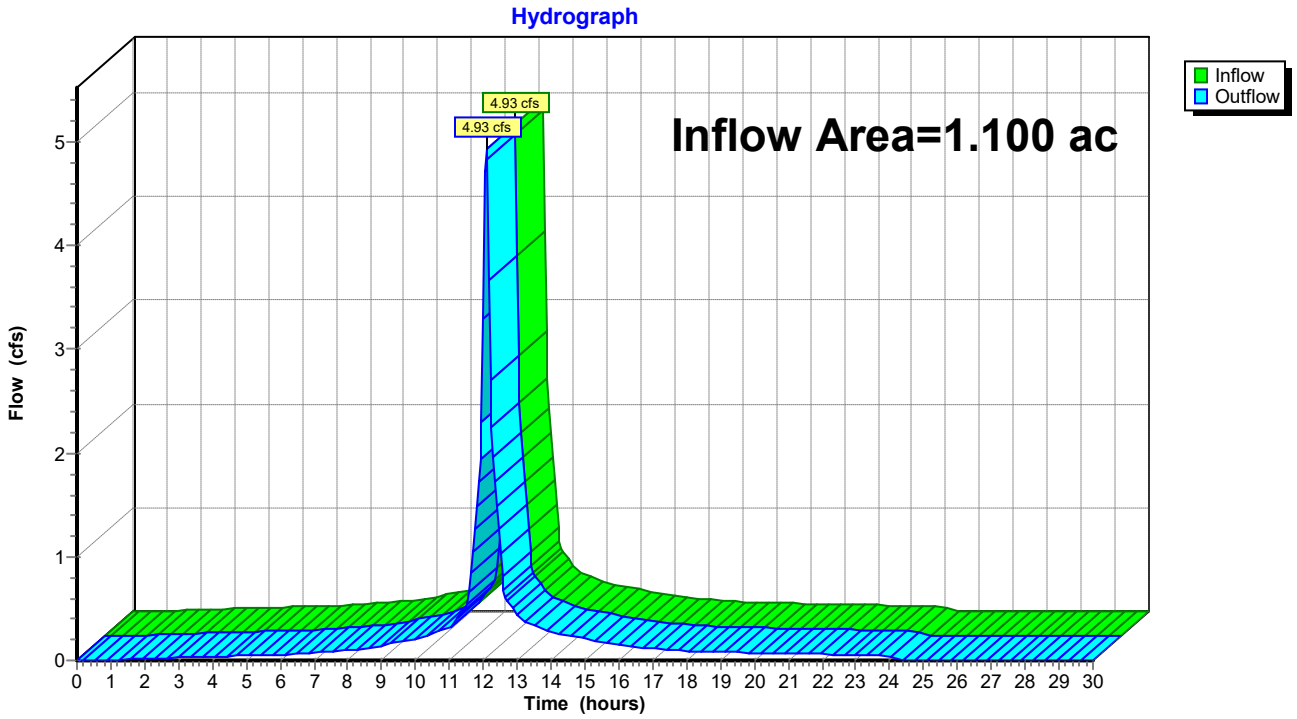


Summary for Reach DP4: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 4.33" for 25-Year event
Inflow = 4.93 cfs @ 12.08 hrs, Volume= 0.397 af
Outflow = 4.93 cfs @ 12.08 hrs, Volume= 0.397 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP4: DP#4

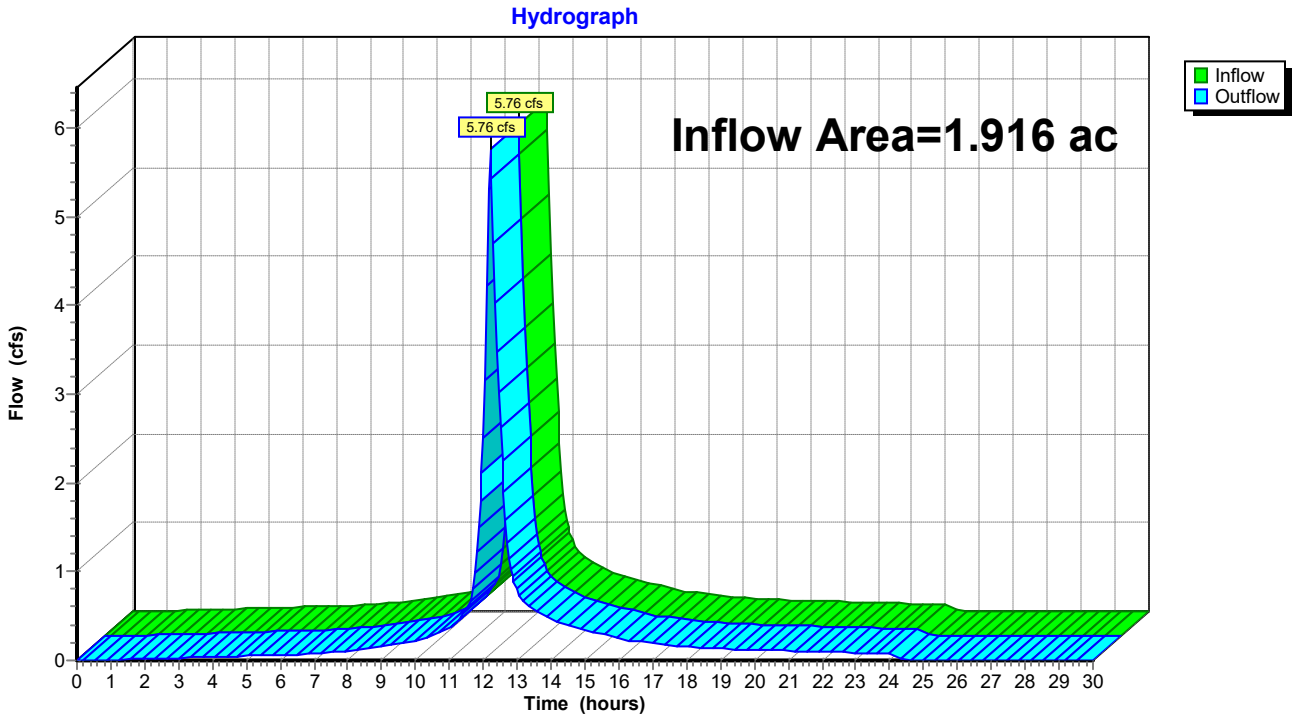


Summary for Reach FEA: TO CULVERT

Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 3.54" for 25-Year event
Inflow = 5.76 cfs @ 12.20 hrs, Volume= 0.565 af
Outflow = 5.76 cfs @ 12.20 hrs, Volume= 0.565 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach FEA: TO CULVERT



Summary for Pond CULVERT#3: TO E12

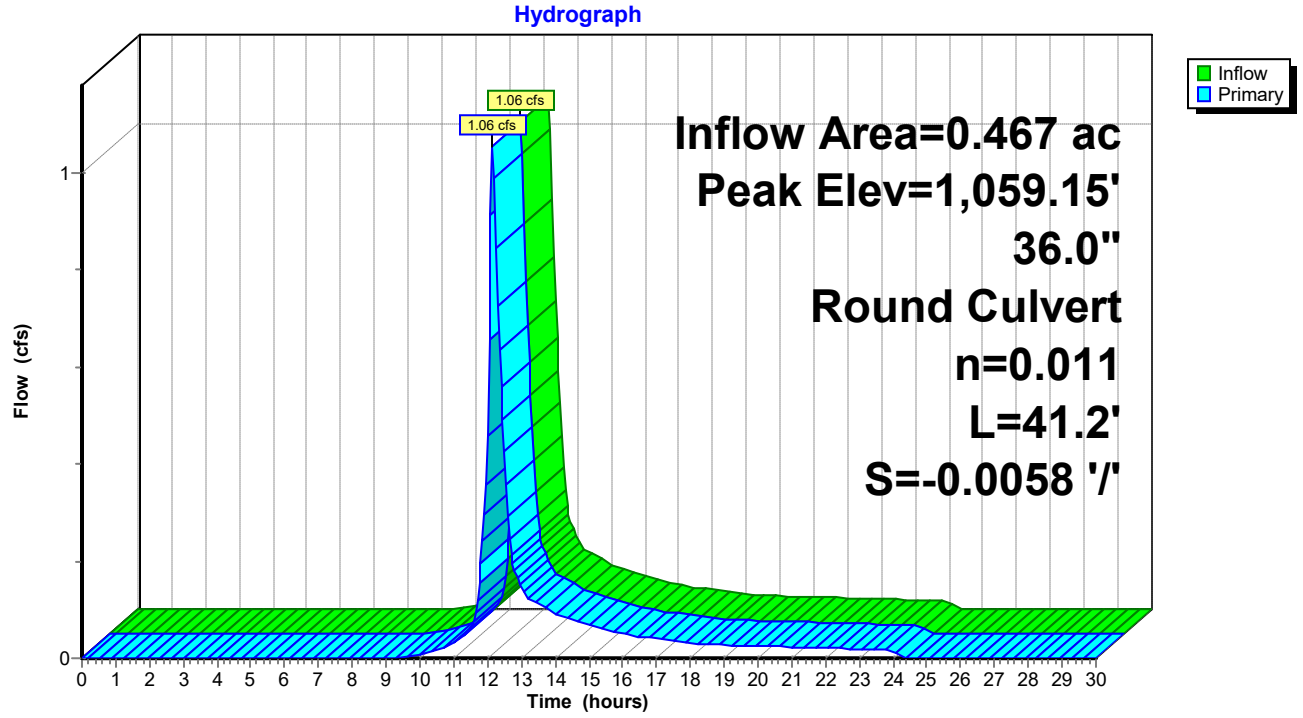
Inflow Area = 0.467 ac, 0.00% Impervious, Inflow Depth = 2.32" for 25-Year event
Inflow = 1.06 cfs @ 12.16 hrs, Volume= 0.090 af
Outflow = 1.06 cfs @ 12.16 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min
Primary = 1.06 cfs @ 12.16 hrs, Volume= 0.090 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,059.15' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,058.78'	**36.0" Round Culvert#3** L= 41.2' Ke= 0.500 Inlet / Outlet Invert= 1,058.54' / 1,058.78' S= -0.0058 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=1.04 cfs @ 12.16 hrs HW=1,059.15' (Free Discharge)
1=Culvert#3 (Inlet Controls 1.04 cfs @ 2.07 fps)

Pond CULVERT#3: TO E12



Stage-Discharge for Pond CULVERT#3: TO E12

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,058.78	0.00	1,059.82	6.54	1,060.86	19.98
1,058.80	0.00	1,059.84	6.74	1,060.88	20.28
1,058.82	0.01	1,059.86	6.95	1,060.90	20.59
1,058.84	0.03	1,059.88	7.16	1,060.92	20.89
1,058.86	0.05	1,059.90	7.37	1,060.94	21.20
1,058.88	0.08	1,059.92	7.58	1,060.96	21.50
1,058.90	0.11	1,059.94	7.80	1,060.98	21.81
1,058.92	0.15	1,059.96	8.02	1,061.00	22.12
1,058.94	0.20	1,059.98	8.24	1,061.02	22.43
1,058.96	0.25	1,060.00	8.46	1,061.04	22.74
1,058.98	0.31	1,060.02	8.69	1,061.06	23.05
1,059.00	0.37	1,060.04	8.92	1,061.08	23.36
1,059.02	0.44	1,060.06	9.15	1,061.10	23.67
1,059.04	0.52	1,060.08	9.38	1,061.12	23.99
1,059.06	0.60	1,060.10	9.62	1,061.14	24.30
1,059.08	0.69	1,060.12	9.85	1,061.16	24.61
1,059.10	0.78	1,060.14	10.09	1,061.18	24.93
1,059.12	0.88	1,060.16	10.33	1,061.20	25.24
1,059.14	0.98	1,060.18	10.58	1,061.22	25.56
1,059.16	1.09	1,060.20	10.82	1,061.24	25.87
1,059.18	1.21	1,060.22	11.07	1,061.26	26.19
1,059.20	1.33	1,060.24	11.32	1,061.28	26.50
1,059.22	1.45	1,060.26	11.58	1,061.30	26.82
1,059.24	1.59	1,060.28	11.83	1,061.32	27.14
1,059.26	1.72	1,060.30	12.09	1,061.34	27.45
1,059.28	1.86	1,060.32	12.35	1,061.36	27.77
1,059.30	2.01	1,060.34	12.61	1,061.38	28.09
1,059.32	2.16	1,060.36	12.87	1,061.40	28.40
1,059.34	2.32	1,060.38	13.14	1,061.42	28.72
1,059.36	2.49	1,060.40	13.40	1,061.44	29.04
1,059.38	2.65	1,060.42	13.67	1,061.46	29.35
1,059.40	2.83	1,060.44	13.94	1,061.48	29.67
1,059.42	3.01	1,060.46	14.21	1,061.50	29.98
1,059.44	3.19	1,060.48	14.49	1,061.52	30.30
1,059.46	3.36	1,060.50	14.76	1,061.54	30.61
1,059.48	3.51	1,060.52	15.04	1,061.56	30.93
1,059.50	3.67	1,060.54	15.32	1,061.58	31.24
1,059.52	3.82	1,060.56	15.60	1,061.60	31.55
1,059.54	3.99	1,060.58	15.88	1,061.62	31.87
1,059.56	4.15	1,060.60	16.16	1,061.64	32.18
1,059.58	4.32	1,060.62	16.45	1,061.66	32.49
1,059.60	4.49	1,060.64	16.74	1,061.68	32.80
1,059.62	4.66	1,060.66	17.03	1,061.70	33.11
1,059.64	4.83	1,060.68	17.31	1,061.72	33.42
1,059.66	5.01	1,060.70	17.61	1,061.74	33.72
1,059.68	5.19	1,060.72	17.90	1,061.76	34.03
1,059.70	5.38	1,060.74	18.19	1,061.78	**34.33**
1,059.72	5.57	1,060.76	18.49		
1,059.74	5.76	1,060.78	18.78		
1,059.76	5.95	1,060.80	19.08		
1,059.78	6.14	1,060.82	19.38		
1,059.80	6.34	1,060.84	19.68		

Summary for Pond DCBA: TO DCB-B

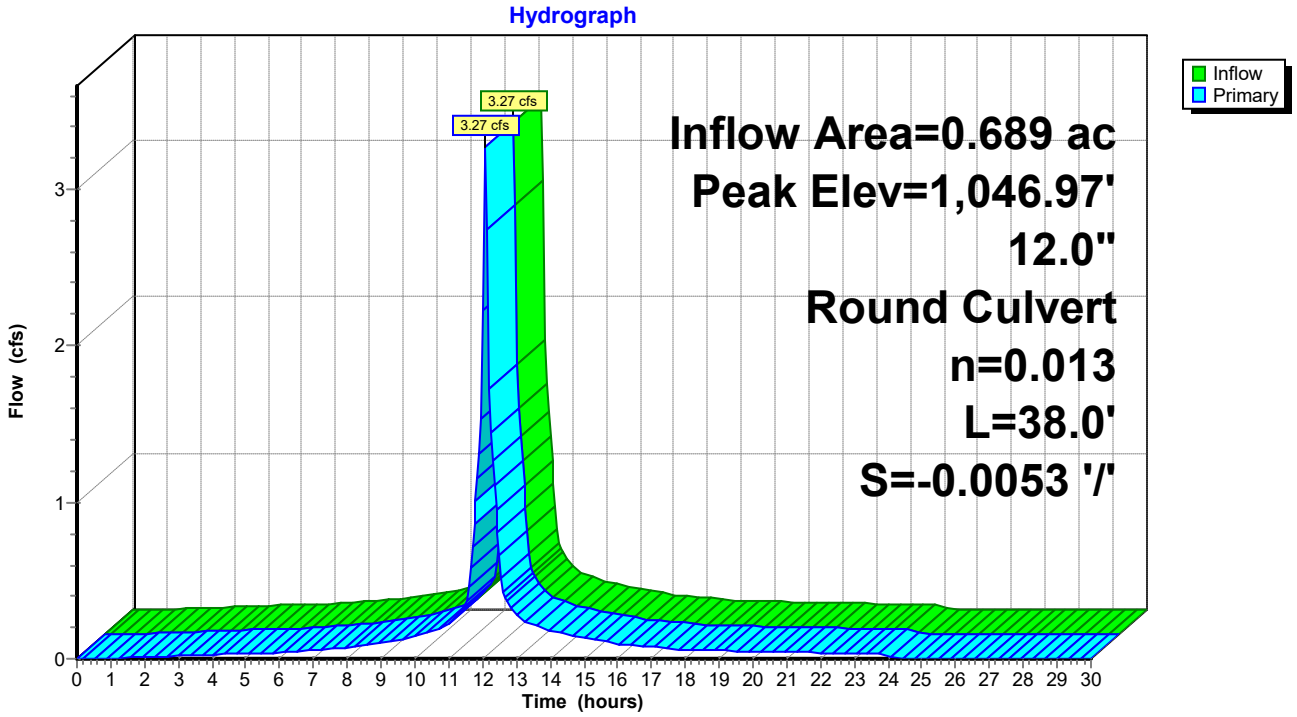
Inflow Area = 0.689 ac, 76.16% Impervious, Inflow Depth = 4.56" for 25-Year event
Inflow = 3.27 cfs @ 12.07 hrs, Volume= 0.262 af
Outflow = 3.27 cfs @ 12.07 hrs, Volume= 0.262 af, Atten= 0%, Lag= 0.0 min
Primary = 3.27 cfs @ 12.07 hrs, Volume= 0.262 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,046.97' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,045.30'	**12.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,045.10' / 1,045.30' S= -0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.15 cfs @ 12.07 hrs HW=1,046.91' (Free Discharge)
1=Culvert (Inlet Controls 3.15 cfs @ 4.01 fps)

Pond DCBA: TO DCB-B



Stage-Discharge for Pond DCBA: TO DCB-B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,045.30	0.00	1,045.82	0.80	1,046.34	2.01	1,046.86	3.07
1,045.31	0.00	1,045.83	0.83	1,046.35	2.02	1,046.87	3.09
1,045.32	0.00	1,045.84	0.85	1,046.36	2.04	1,046.88	3.10
1,045.33	0.00	1,045.85	0.88	1,046.37	2.05	1,046.89	3.12
1,045.34	0.01	1,045.86	0.91	1,046.38	2.06	1,046.90	3.13
1,045.35	0.01	1,045.87	0.94	1,046.39	2.07	1,046.91	3.15
1,045.36	0.01	1,045.88	0.97	1,046.40	2.08	1,046.92	**3.16**
1,045.37	0.02	1,045.89	1.00	1,046.41	2.09		
1,045.38	0.02	1,045.90	1.02	1,046.42	2.09		
1,045.39	0.03	1,045.91	1.05	1,046.43	2.08		
1,045.40	0.03	1,045.92	1.08	1,046.44	2.09		
1,045.41	0.04	1,045.93	1.10	1,046.45	2.12		
1,045.42	0.05	1,045.94	1.12	1,046.46	2.15		
1,045.43	0.06	1,045.95	1.15	1,046.47	2.18		
1,045.44	0.07	1,045.96	1.17	1,046.48	2.21		
1,045.45	0.08	1,045.97	1.20	1,046.49	2.24		
1,045.46	0.09	1,045.98	1.22	1,046.50	2.27		
1,045.47	0.10	1,045.99	1.24	1,046.51	2.29		
1,045.48	0.11	1,046.00	1.27	1,046.52	2.32		
1,045.49	0.12	1,046.01	1.29	1,046.53	2.35		
1,045.50	0.13	1,046.02	1.32	1,046.54	2.38		
1,045.51	0.15	1,046.03	1.34	1,046.55	2.40		
1,045.52	0.16	1,046.04	1.36	1,046.56	2.43		
1,045.53	0.18	1,046.05	1.39	1,046.57	2.46		
1,045.54	0.19	1,046.06	1.41	1,046.58	2.48		
1,045.55	0.21	1,046.07	1.44	1,046.59	2.51		
1,045.56	0.22	1,046.08	1.46	1,046.60	2.53		
1,045.57	0.24	1,046.09	1.48	1,046.61	2.56		
1,045.58	0.26	1,046.10	1.51	1,046.62	2.58		
1,045.59	0.27	1,046.11	1.53	1,046.63	2.61		
1,045.60	0.29	1,046.12	1.55	1,046.64	2.63		
1,045.61	0.31	1,046.13	1.58	1,046.65	2.66		
1,045.62	0.33	1,046.14	1.60	1,046.66	2.68		
1,045.63	0.35	1,046.15	1.62	1,046.67	2.71		
1,045.64	0.37	1,046.16	1.65	1,046.68	2.73		
1,045.65	0.39	1,046.17	1.67	1,046.69	2.75		
1,045.66	0.41	1,046.18	1.69	1,046.70	2.78		
1,045.67	0.43	1,046.19	1.72	1,046.71	2.80		
1,045.68	0.45	1,046.20	1.74	1,046.72	2.82		
1,045.69	0.48	1,046.21	1.76	1,046.73	2.84		
1,045.70	0.50	1,046.22	1.78	1,046.74	2.87		
1,045.71	0.52	1,046.23	1.80	1,046.75	2.89		
1,045.72	0.55	1,046.24	1.82	1,046.76	2.91		
1,045.73	0.57	1,046.25	1.84	1,046.77	2.93		
1,045.74	0.59	1,046.26	1.86	1,046.78	2.96		
1,045.75	0.62	1,046.27	1.88	1,046.79	2.97		
1,045.76	0.64	1,046.28	1.90	1,046.80	2.99		
1,045.77	0.67	1,046.29	1.92	1,046.81	3.00		
1,045.78	0.69	1,046.30	1.94	1,046.82	3.02		
1,045.79	0.72	1,046.31	1.96	1,046.83	3.03		
1,045.80	0.75	1,046.32	1.98	1,046.84	3.04		
1,045.81	0.77	1,046.33	1.99	1,046.85	3.06		

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P10: OVERLAND TO Runoff Area=134,863 sf 70.59% Impervious Runoff Depth=5.49"
Flow Length=788' Tc=11.1 min CN=WQ Runoff=14.97 cfs 1.417 af

Subcatchment P11: TO DCB-1 Runoff Area=83,440 sf 44.76% Impervious Runoff Depth=4.60"
Flow Length=307' Tc=12.1 min CN=WQ Runoff=7.76 cfs 0.735 af

Subcatchment P12: (CULVERT) Runoff Area=7,096 sf 47.67% Impervious Runoff Depth=4.73"
Flow Length=91' Tc=7.6 min CN=WQ Runoff=0.77 cfs 0.064 af

Subcatchment P13: TO CULVERT Runoff Area=20,345 sf 0.00% Impervious Runoff Depth=3.27"
Flow Length=380' Tc=10.9 min CN=WQ Runoff=1.51 cfs 0.127 af

Subcatchment P14: TO DCB-A Runoff Area=30,009 sf 76.16% Impervious Runoff Depth=5.72"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=4.08 cfs 0.328 af

Subcatchment P15: TO DCB-C Runoff Area=17,919 sf 56.55% Impervious Runoff Depth=5.04"
Flow Length=292' Tc=5.2 min CN=WQ Runoff=2.19 cfs 0.173 af

Subcatchment P31: TO DP#3 (CULVERT) Runoff Area=11,601 sf 10.99% Impervious Runoff Depth=3.61"
Flow Length=129' Slope=0.0400 '/' Tc=13.0 min CN=WQ Runoff=0.87 cfs 0.080 af

Reach DCB1: TO DMH#1 Avg. Flow Depth=0.98' Max Vel=7.49 fps Inflow=7.76 cfs 0.735 af
15.0" Round Pipe n=0.012 L=210.0' S=0.0133 '/' Capacity=8.08 cfs Outflow=7.62 cfs 0.735 af

Reach DCBB: DP#4 Inflow=6.22 cfs 0.501 af
Outflow=6.22 cfs 0.501 af

Reach DCBC: TO DCB-B Avg. Flow Depth=0.44' Max Vel=6.57 fps Inflow=2.19 cfs 0.173 af
12.0" Round Pipe n=0.013 L=118.0' S=0.0237 '/' Capacity=5.49 cfs Outflow=2.17 cfs 0.173 af

Reach DMH-1: TO DMH-A Avg. Flow Depth=1.07' Max Vel=6.80 fps Inflow=7.62 cfs 0.735 af
15.0" Round Pipe n=0.013 L=70.0' S=0.0129 '/' Capacity=7.32 cfs Outflow=7.60 cfs 0.735 af

Reach DMH-A*: TO FE-A Avg. Flow Depth=0.94' Max Vel=7.64 fps Inflow=7.60 cfs 0.735 af
15.0" Round Pipe n=0.013 L=208.0' S=0.0163 '/' Capacity=8.26 cfs Outflow=7.53 cfs 0.735 af

Reach DP#3: TO OFF SITE Inflow=0.87 cfs 0.080 af
Outflow=0.87 cfs 0.080 af

Reach DP1: CULVERT Avg. Flow Depth=1.17' Max Vel=11.58 fps Inflow=22.08 cfs 2.152 af
24.0" Round Pipe n=0.011 L=72.2' S=0.0165 '/' Capacity=34.32 cfs Outflow=22.01 cfs 2.152 af

Reach DP2: Culvert Inflow=2.21 cfs 0.192 af
Outflow=2.21 cfs 0.192 af

Reach DP4: DP#4 Inflow=6.22 cfs 0.501 af
Outflow=6.22 cfs 0.501 af

Reach FEA: TO CULVERT Inflow=7.53 cfs 0.735 af
Outflow=7.53 cfs 0.735 af

Pond CULVERT#3: TO E12 Peak Elev=1,059.23' Inflow=1.51 cfs 0.127 af
36.0" Round Culvert n=0.011 L=41.2' S=-0.0058 '/' Outflow=1.51 cfs 0.127 af

Pond DCBA: TO DCB-B Peak Elev=1,047.65' Inflow=4.08 cfs 0.328 af
12.0" Round Culvert n=0.013 L=38.0' S=-0.0053 '/' Outflow=4.08 cfs 0.328 af

Total Runoff Area = 7.008 ac Runoff Volume = 2.925 af Average Runoff Depth = 5.01"
44.25% Pervious = 3.101 ac 55.75% Impervious = 3.907 ac

Summary for Subcatchment P10: OVERLAND TO CULVERT

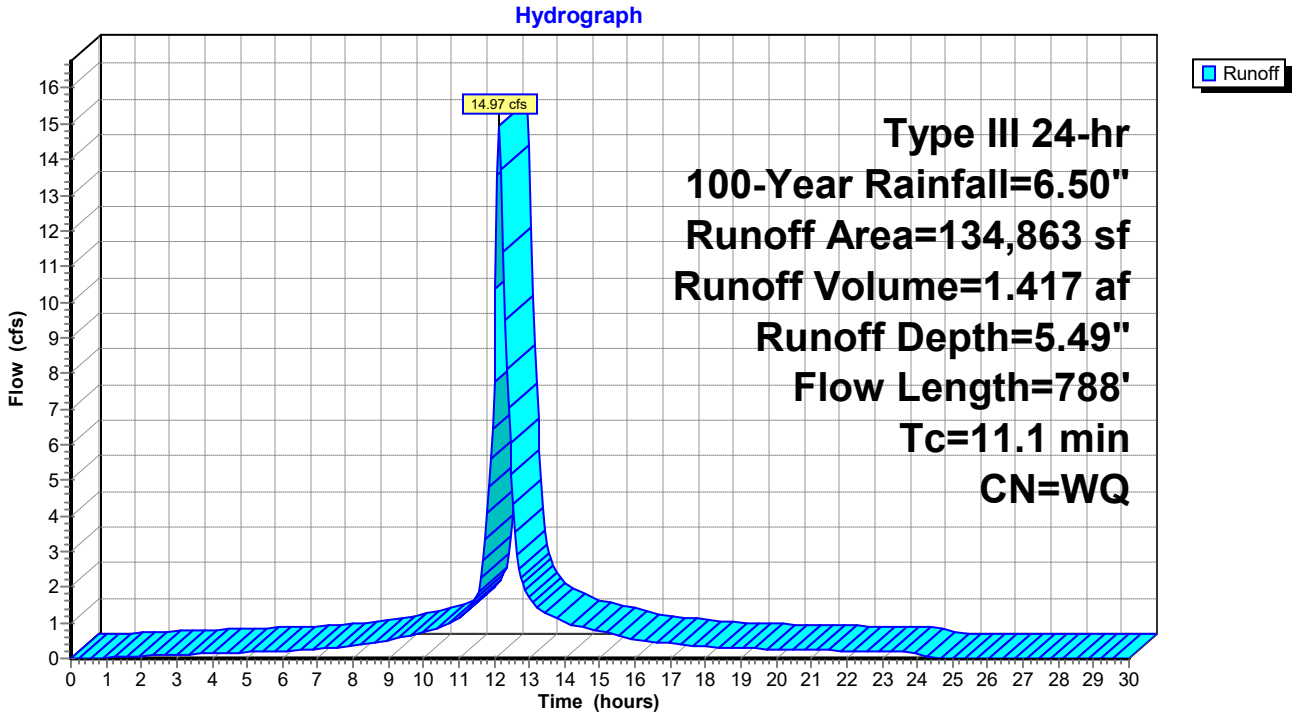
Runoff = 14.97 cfs @ 12.15 hrs, Volume= 1.417 af, Depth= 5.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
29,803	74	>75% Grass cover, Good, HSG C
7,879	70	Woods, Good, HSG C
95,203	98	Paved parking, HSG C
1,978	96	Gravel surface, HSG C
134,863		Weighted Average
39,660		29.41% Pervious Area
95,203		70.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	42	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.8	33	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	10	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	218	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.4	237	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	135	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	35	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	78	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.1	788	Total			

Subcatchment P10: OVERLAND TO CULVERT



Summary for Subcatchment P11: TO DCB-1

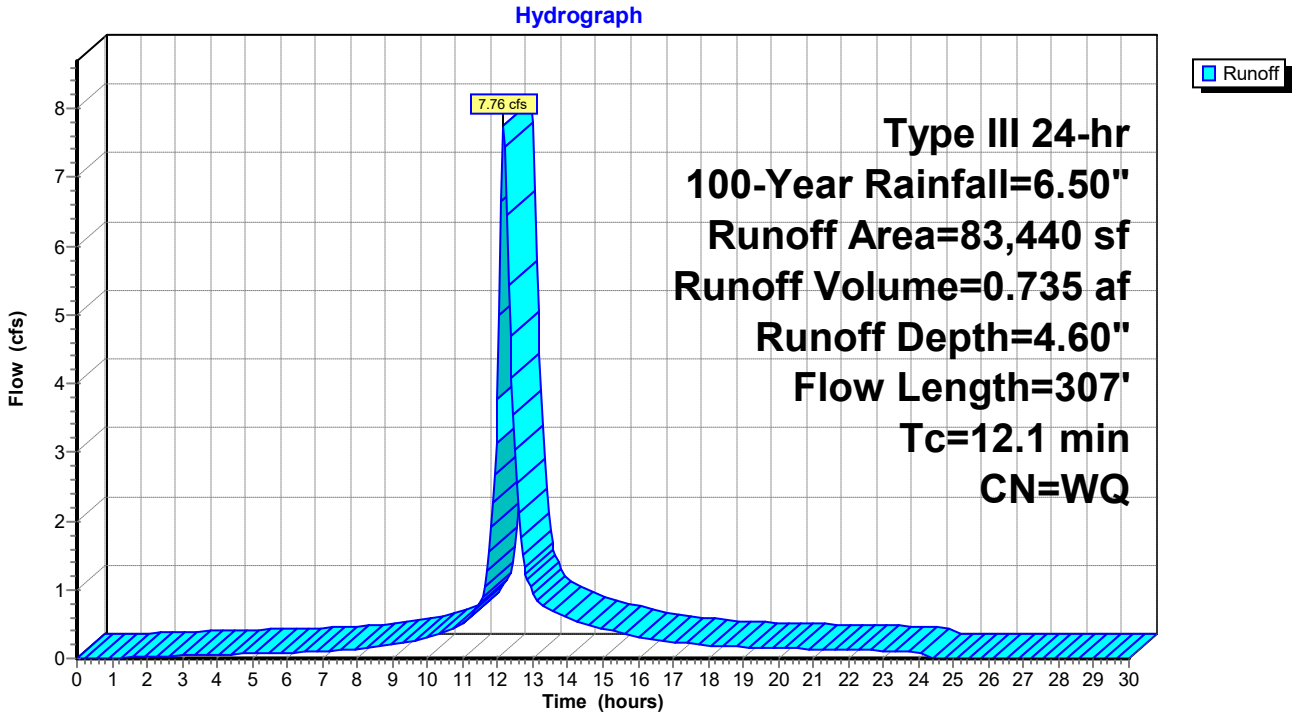
Runoff = 7.76 cfs @ 12.17 hrs, Volume= 0.735 af, Depth= 4.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
6,167	74	>75% Grass cover, Good, HSG C
39,922	70	Woods, Good, HSG C
37,351	98	Paved parking, HSG C
83,440		Weighted Average
46,089		55.24% Pervious Area
37,351		44.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	44	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
2.7	31	0.3700	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	15	0.3700	3.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.2	198	0.0090	1.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	19	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.1	307	Total			

Subcatchment P11: TO DCB-1



Summary for Subcatchment P12: (CULVERT)

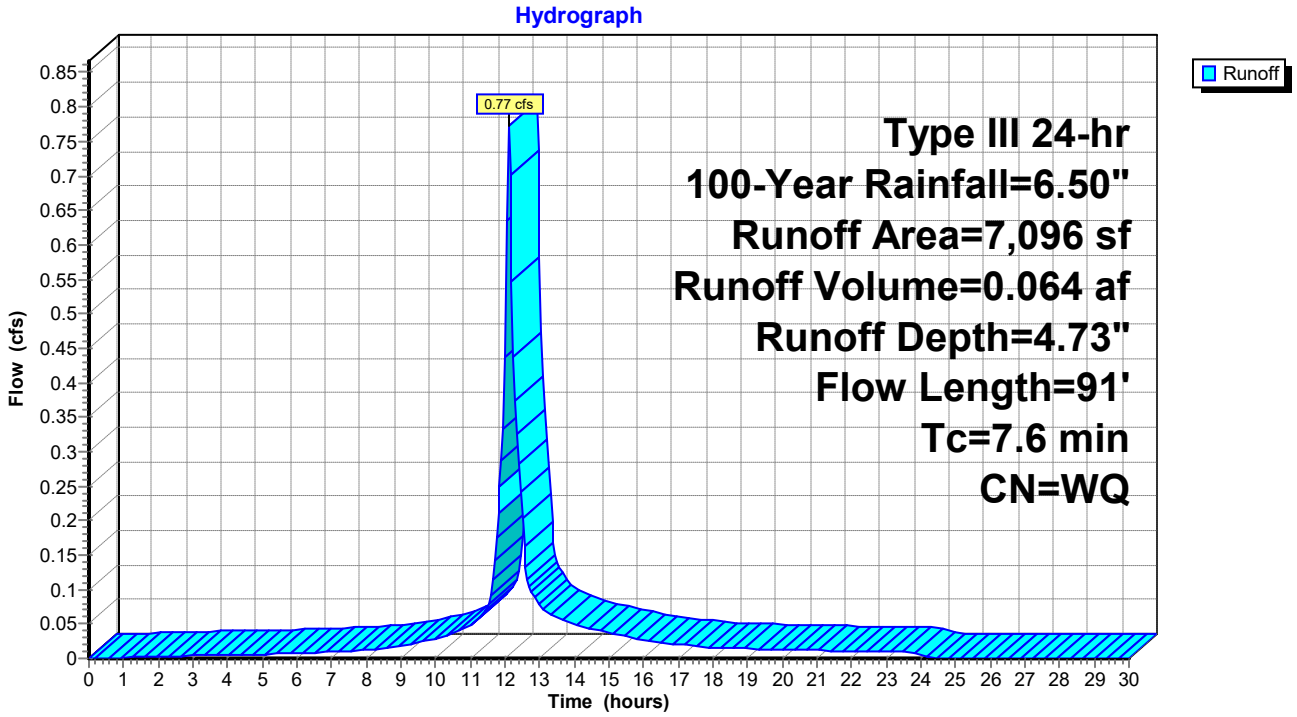
Runoff = 0.77 cfs @ 12.11 hrs, Volume= 0.064 af, Depth= 4.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
1,158	74	>75% Grass cover, Good, HSG C
2,555	70	Woods, Good, HSG C
3,383	98	Paved parking, HSG C
7,096		Weighted Average
3,713		52.33% Pervious Area
3,383		47.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0500	1.33		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	3	0.0500	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	1	0.0500	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
6.5	55	0.1300	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.1	16	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.6	91	Total			

Subcatchment P12: (CULVERT)



Summary for Subcatchment P13: TO CULVERT

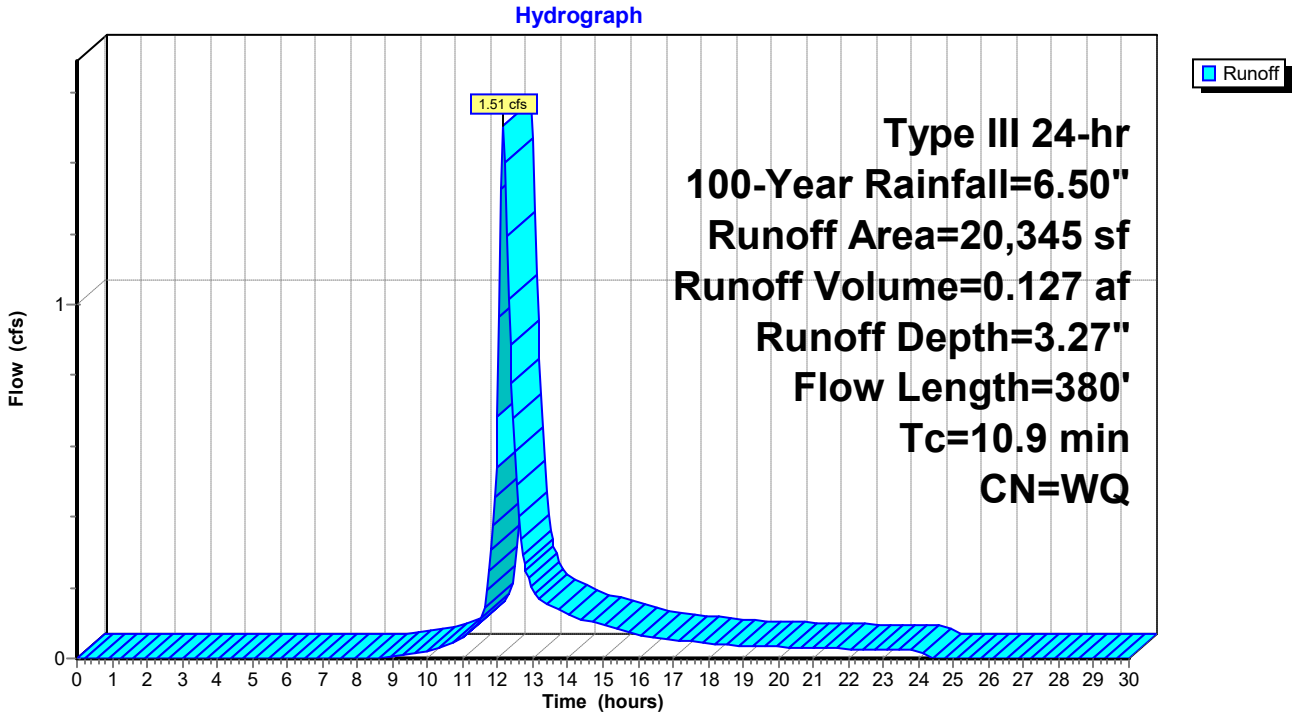
Runoff = 1.51 cfs @ 12.16 hrs, Volume= 0.127 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
3,243	74	>75% Grass cover, Good, HSG C
17,102	70	Woods, Good, HSG C
20,345		Weighted Average
20,345		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	75	0.2400	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	25	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	69	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	7	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	43	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	71	0.0270	2.65		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	17	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	73	0.0270	0.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.9	380	Total			

Subcatchment P13: TO CULVERT



Summary for Subcatchment P14: TO DCB-A

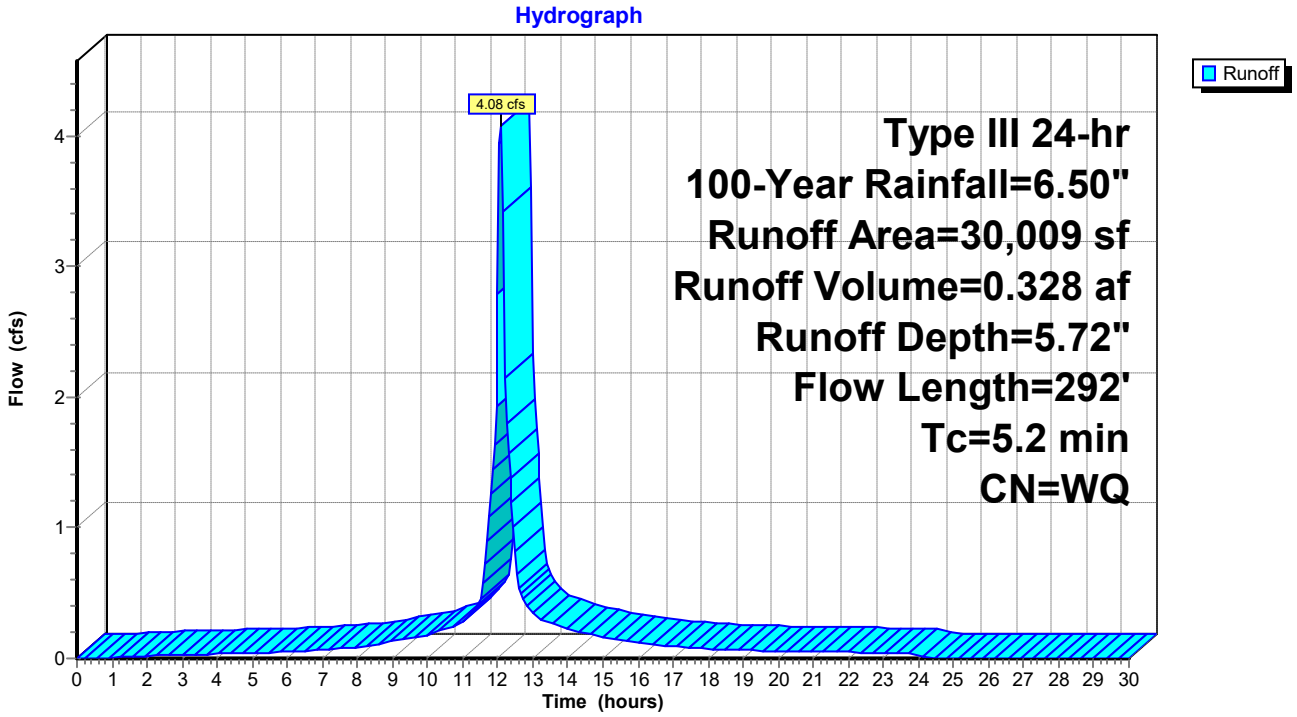
Runoff = 4.08 cfs @ 12.07 hrs, Volume= 0.328 af, Depth= 5.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
5,894	74	>75% Grass cover, Good, HSG C
22,855	98	Paved parking, HSG C
125	70	Woods, Good, HSG C
1,135	96	Gravel surface, HSG C
30,009		Weighted Average
7,154		23.84% Pervious Area
22,855		76.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment P14: TO DCB-A



Summary for Subcatchment P15: TO DCB-C

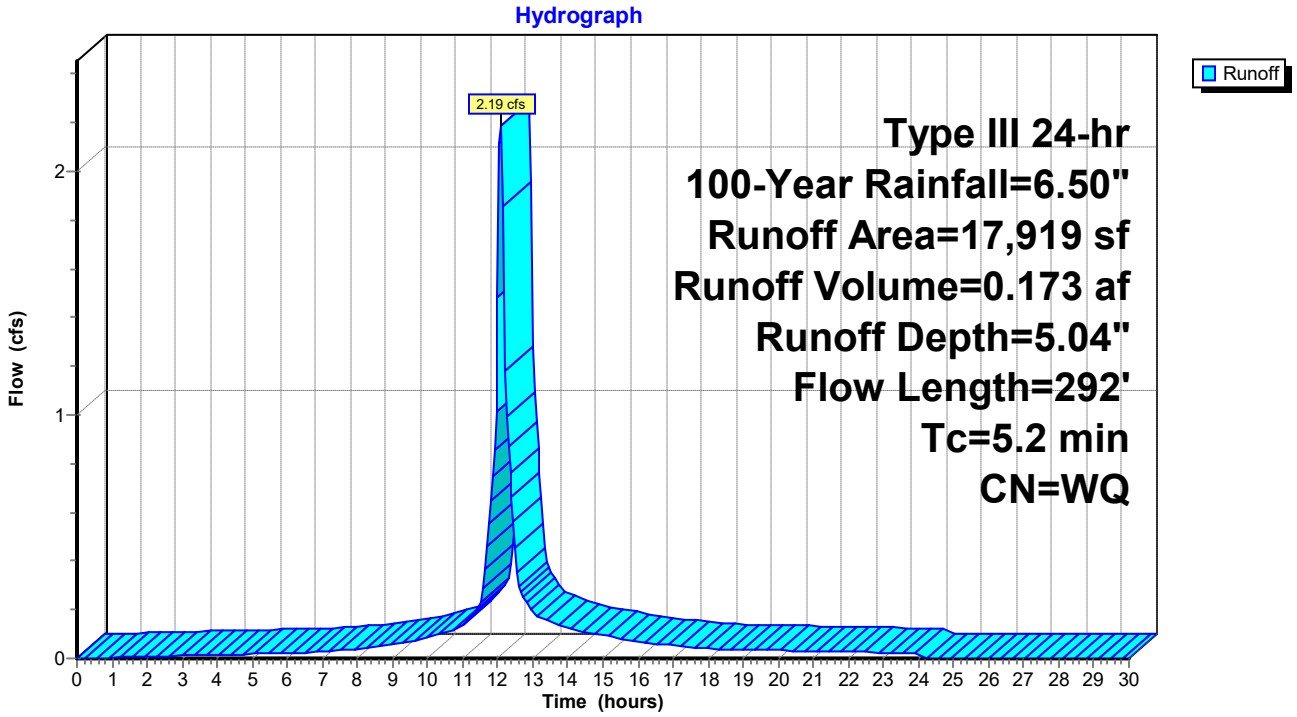
Runoff = 2.19 cfs @ 12.08 hrs, Volume= 0.173 af, Depth= 5.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
4,649	74	>75% Grass cover, Good, HSG C
10,134	98	Paved parking, HSG C
3,136	70	Woods, Good, HSG C
17,919		Weighted Average
7,785		43.45% Pervious Area
10,134		56.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	37	0.0900	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.6	6	0.0900	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	18	0.0900	1.73		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.0	12	0.0900	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	2	0.0900	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	1	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	120	0.0650	5.18		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.2	292	Total			

Subcatchment P15: TO DCB-C



Summary for Subcatchment P31: TO DP#3 (CULVERT)

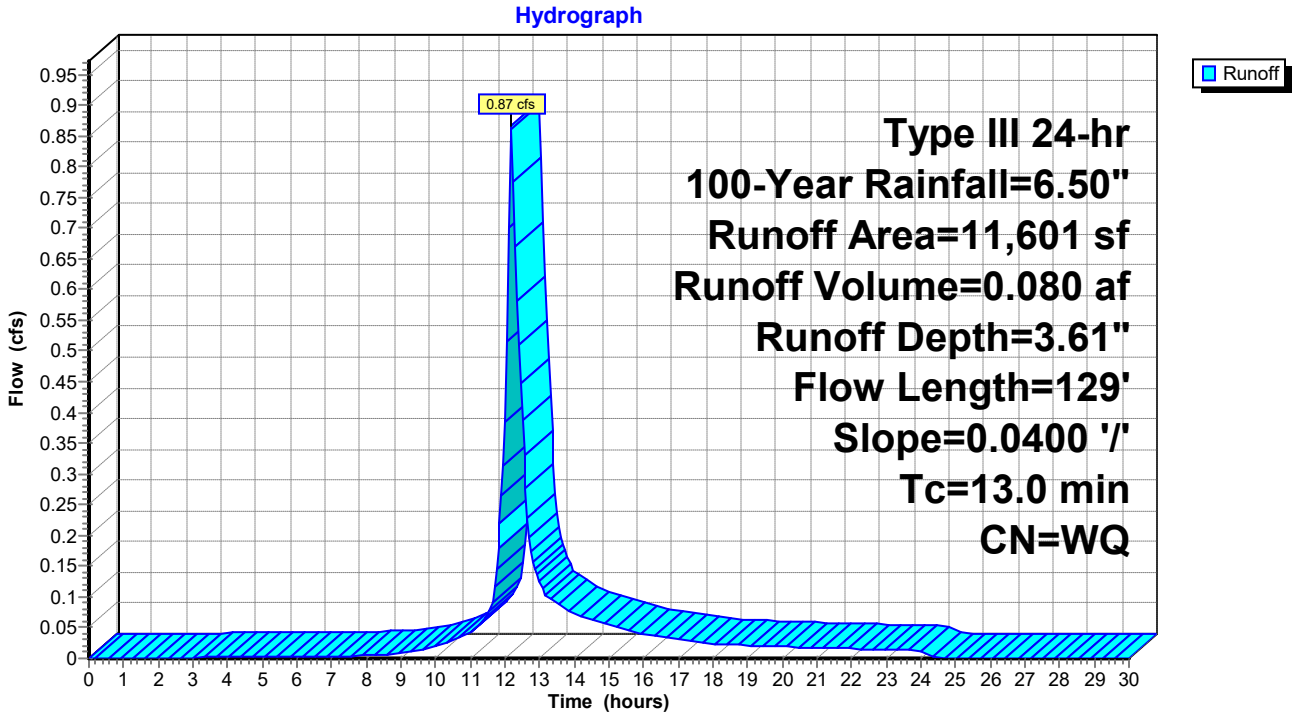
Runoff = 0.87 cfs @ 12.18 hrs, Volume= 0.080 af, Depth= 3.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
2,060	74	>75% Grass cover, Good, HSG C
1,275	98	Paved parking, HSG C
8,266	70	Woods, Good, HSG C
11,601		Weighted Average
10,326		89.01% Pervious Area
1,275		10.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	4	0.0400	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
6.8	54	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
2.0	7	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
2.7	10	0.0400	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.9	54	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.0	129	Total			

Subcatchment P31: TO DP#3 (CULVERT)



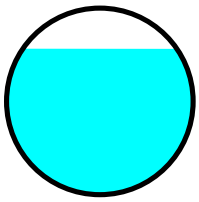
Summary for Reach DCB1: TO DMH#1

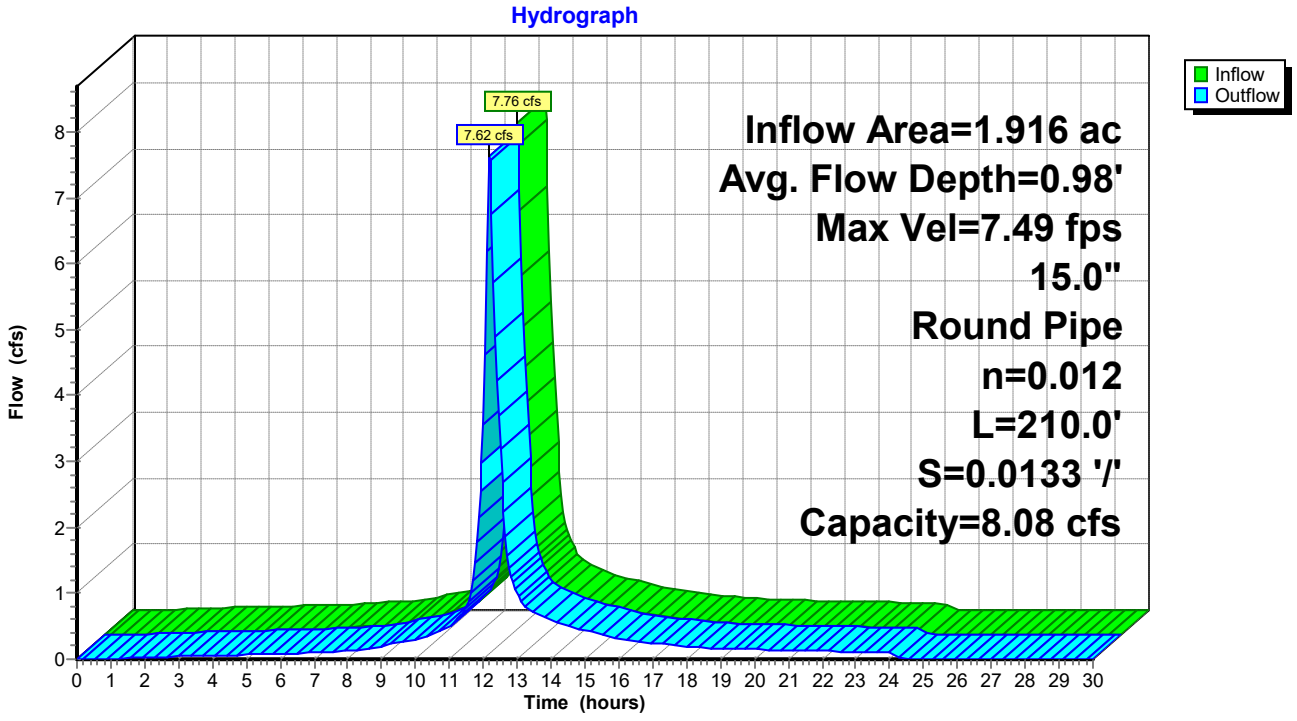
Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 4.60" for 100-Year event
Inflow = 7.76 cfs @ 12.17 hrs, Volume= 0.735 af
Outflow = 7.62 cfs @ 12.18 hrs, Volume= 0.735 af, Atten= 2%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.49 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.73 fps, Avg. Travel Time= 1.3 min

Peak Storage= 216 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.98'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 8.08 cfs

15.0" Round Pipe
n= 0.012 Steel, smooth
Length= 210.0' Slope= 0.0133 '/'
Inlet Invert= 1,058.40', Outlet Invert= 1,055.60'





Stage-Discharge for Reach DCB1: TO DMH#1

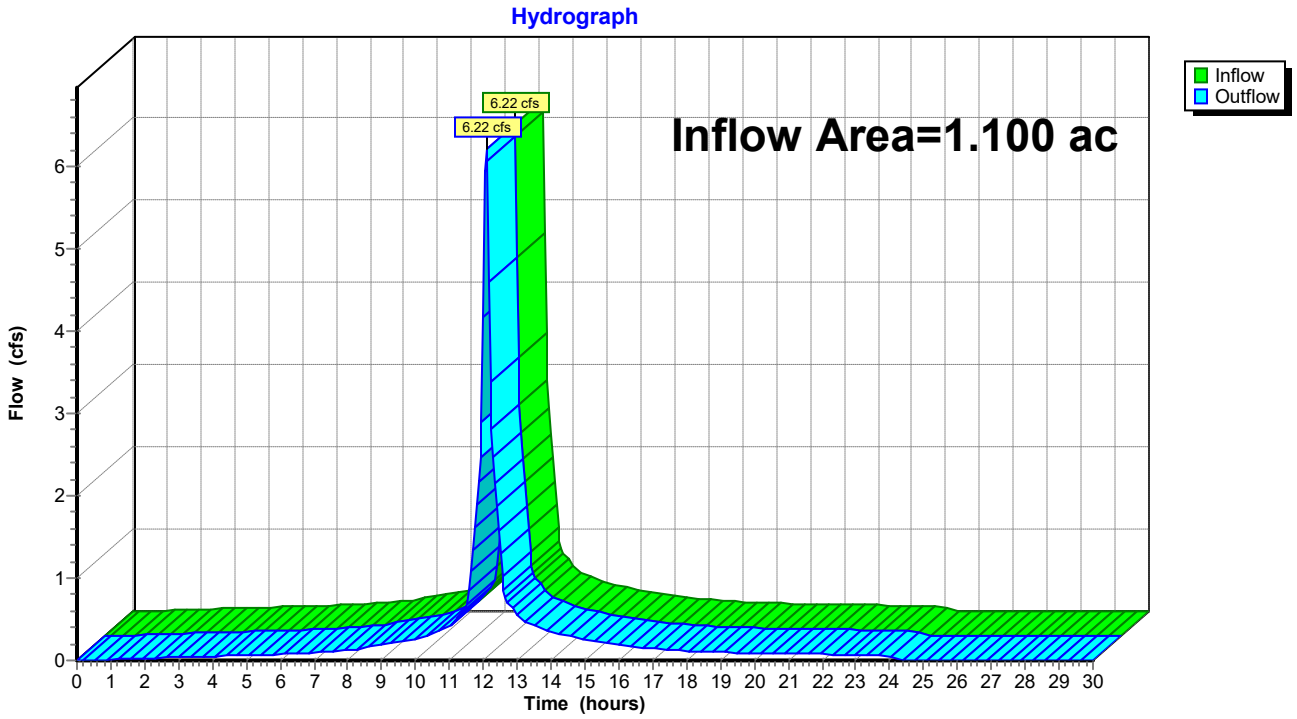
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,058.40	0.00	0.00
1,058.41	0.47	0.00
1,058.42	0.79	0.00
1,058.43	1.04	0.01
1,058.44	1.26	0.02
1,058.45	1.46	0.02
1,058.46	1.65	0.04
1,058.47	1.82	0.05
1,058.48	1.98	0.07
1,058.49	2.14	0.08
1,058.50	2.29	0.11
1,058.51	2.43	0.13
1,058.52	2.57	0.16
1,058.53	2.71	0.18
1,058.54	2.84	0.21
1,058.55	2.96	0.25
1,058.56	3.08	0.28
1,058.57	3.20	0.32
1,058.58	3.32	0.36
1,058.59	3.43	0.40
1,058.60	3.54	0.45
1,058.61	3.65	0.50
1,058.62	3.75	0.55
1,058.63	3.85	0.60
1,058.64	3.95	0.65
1,058.65	4.05	0.71
1,058.66	4.15	0.77
1,058.67	4.24	0.83
1,058.68	4.33	0.89
1,058.69	4.42	0.95
1,058.70	4.51	1.02
1,058.71	4.59	1.09
1,058.72	4.68	1.16
1,058.73	4.76	1.23
1,058.74	4.84	1.31
1,058.75	4.92	1.38
1,058.76	5.00	1.46
1,058.77	5.07	1.54
1,058.78	5.15	1.62
1,058.79	5.22	1.71
1,058.80	5.29	1.79
1,058.81	5.36	1.88
1,058.82	5.43	1.97
1,058.83	5.50	2.06
1,058.84	5.57	2.15
1,058.85	5.63	2.24
1,058.86	5.70	2.33
1,058.87	5.76	2.43
1,058.88	5.82	2.53
1,058.89	5.88	2.62
1,058.90	5.94	2.72
1,058.91	6.00	2.82
1,058.92	6.06	2.92
1,058.93	6.11	3.03
1,058.94	6.17	3.13
1,058.95	6.22	3.23
1,058.96	6.27	3.34
1,058.97	6.32	3.45
1,058.98	6.37	3.55
1,058.99	6.42	3.66
1,059.00	6.47	3.77
1,059.01	6.52	3.88
1,059.02	6.56	3.99
1,059.03	6.61	4.10
1,059.04	6.65	4.21
1,059.05	6.69	4.32
1,059.06	6.73	4.43
1,059.07	6.78	4.54
1,059.08	6.81	4.65
1,059.09	6.85	4.76
1,059.10	6.89	4.87
1,059.11	6.93	4.98
1,059.12	6.96	5.10
1,059.13	7.00	5.21
1,059.14	7.03	5.32
1,059.15	7.06	5.43
1,059.16	7.09	5.54
1,059.17	7.12	5.65
1,059.18	7.15	5.76
1,059.19	7.18	5.87
1,059.20	7.21	5.98
1,059.21	7.23	6.09
1,059.22	7.26	6.19
1,059.23	7.28	6.30
1,059.24	7.30	6.40
1,059.25	7.32	6.51
1,059.26	7.34	6.61
1,059.27	7.36	6.71
1,059.28	7.38	6.82
1,059.29	7.40	6.92
1,059.30	7.42	7.01
1,059.31	7.43	7.11
1,059.32	7.44	7.21
1,059.33	7.46	7.30
1,059.34	7.47	7.39
1,059.35	7.48	7.48
1,059.36	7.48	7.57
1,059.37	7.49	7.65
1,059.38	7.50	7.74
1,059.39	7.50	7.82
1,059.40	7.50	7.90
1,059.41	7.51	7.97
1,059.42	**7.51**	8.05
1,059.43	7.51	8.12
1,059.44	7.50	8.19
1,059.45	7.50	8.25
1,059.46	7.49	8.31
1,059.47	7.48	8.37
1,059.48	7.47	8.42
1,059.49	7.46	8.47
1,059.50	7.45	8.52
1,059.51	7.43	8.56
1,059.52	7.41	8.60
1,059.53	7.39	8.63
1,059.54	7.37	8.65
1,059.55	7.34	8.67
1,059.56	7.31	8.69
1,059.57	7.28	**8.69**
1,059.58	7.24	8.69
1,059.59	7.20	8.68
1,059.60	7.15	8.66
1,059.61	7.09	8.62
1,059.62	7.03	8.57
1,059.63	6.94	8.49
1,059.64	6.82	8.35
1,059.65	6.58	8.08

Summary for Reach DCBB: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 5.46" for 100-Year event
Inflow = 6.22 cfs @ 12.08 hrs, Volume= 0.501 af
Outflow = 6.22 cfs @ 12.08 hrs, Volume= 0.501 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DCBB: DP#4



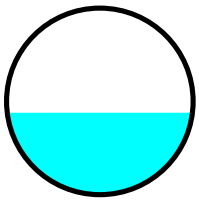
Summary for Reach DCBC: TO DCB-B

Inflow Area = 0.411 ac, 56.55% Impervious, Inflow Depth = 5.04" for 100-Year event
Inflow = 2.19 cfs @ 12.08 hrs, Volume= 0.173 af
Outflow = 2.17 cfs @ 12.09 hrs, Volume= 0.173 af, Atten= 1%, Lag= 0.6 min

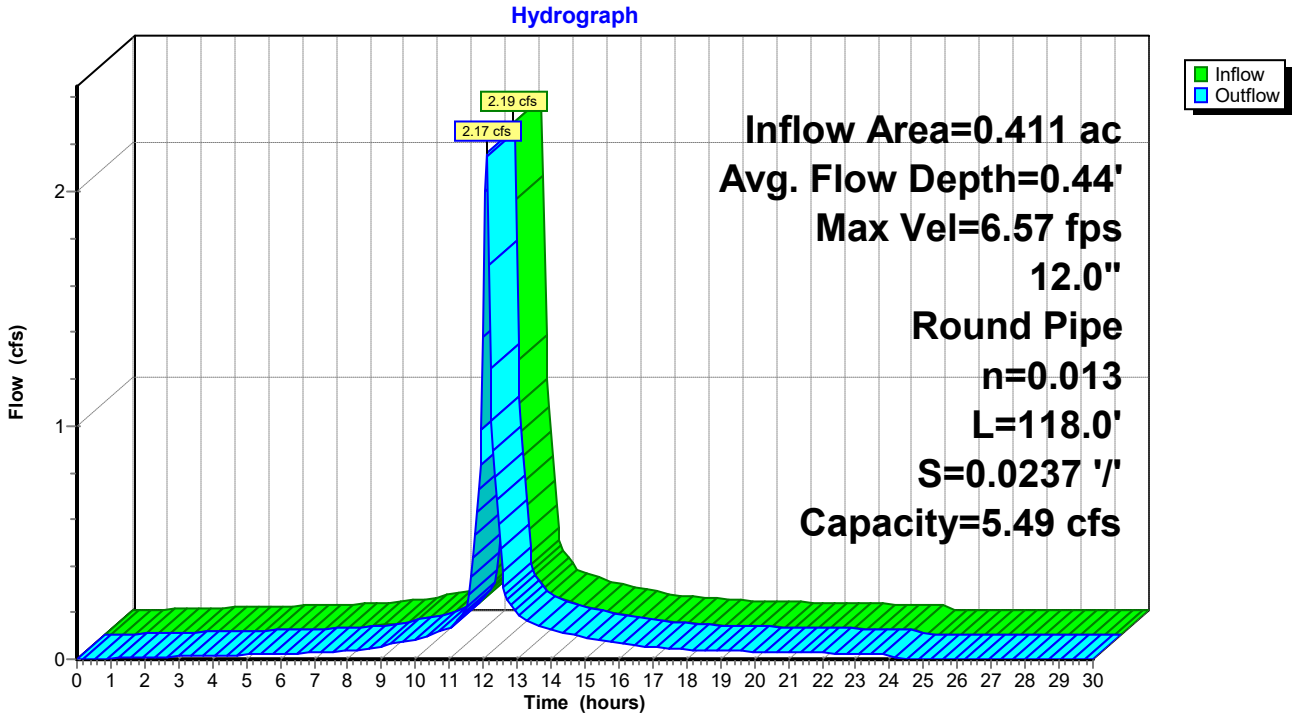
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.57 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.16 fps, Avg. Travel Time= 0.9 min

Peak Storage= 39 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.49 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 118.0' Slope= 0.0237 '/'
Inlet Invert= 1,048.10', Outlet Invert= 1,045.30'



Reach DCBC: TO DCB-B



Stage-Discharge for Reach DCBC: TO DCB-B

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,048.10	0.00	0.00
1,048.11	0.62	0.00
1,048.12	0.98	0.00
1,048.13	1.29	0.01
1,048.14	1.55	0.02
1,048.15	1.80	0.03
1,048.16	2.02	0.04
1,048.17	2.23	0.05
1,048.18	2.43	0.07
1,048.19	2.62	0.09
1,048.20	2.80	0.11
1,048.21	2.98	0.14
1,048.22	3.14	0.17
1,048.23	3.31	0.20
1,048.24	3.46	0.23
1,048.25	3.61	0.27
1,048.26	3.76	0.30
1,048.27	3.90	0.35
1,048.28	4.04	0.39
1,048.29	4.17	0.43
1,048.30	4.30	0.48
1,048.31	4.42	0.53
1,048.32	4.55	0.58
1,048.33	4.67	0.64
1,048.34	4.78	0.69
1,048.35	4.90	0.75
1,048.36	5.01	0.81
1,048.37	5.11	0.88
1,048.38	5.22	0.94
1,048.39	5.32	1.01
1,048.40	5.42	1.07
1,048.41	5.52	1.15
1,048.42	5.62	1.22
1,048.43	5.71	1.29
1,048.44	5.80	1.37
1,048.45	5.89	1.44
1,048.46	5.98	1.52
1,048.47	6.06	1.60
1,048.48	6.14	1.68
1,048.49	6.23	1.77
1,048.50	6.30	1.85
1,048.51	6.38	1.93
1,048.52	6.46	2.02
1,048.53	6.53	2.11
1,048.54	6.60	2.20
1,048.55	6.67	2.29
1,048.56	6.74	2.38
1,048.57	6.80	2.47
1,048.58	6.87	2.56
1,048.59	6.93	2.65
1,048.60	6.99	2.74
1,048.61	7.05	2.84
1,048.62	7.10	2.93
1,048.63	7.16	3.03
1,048.64	7.21	3.12
1,048.65	7.26	3.21
1,048.66	7.31	3.31
1,048.67	7.36	3.40
1,048.68	7.41	3.50
1,048.69	7.45	3.59
1,048.70	7.49	3.69
1,048.71	7.53	3.78
1,048.72	7.57	3.87
1,048.73	7.61	3.97
1,048.74	7.65	4.06
1,048.75	7.68	4.15
1,048.76	7.71	4.24
1,048.77	7.74	4.33
1,048.78	7.77	4.42
1,048.79	7.80	4.51
1,048.80	7.82	4.59
1,048.81	7.85	4.68
1,048.82	7.87	4.76
1,048.83	7.89	4.85
1,048.84	7.91	4.93
1,048.85	7.92	5.00
1,048.86	7.93	5.08
1,048.87	7.94	5.16
1,048.88	7.95	5.23
1,048.89	7.96	5.30
1,048.90	7.96	5.36
1,048.91	**7.97**	5.43
1,048.92	7.97	5.49
1,048.93	7.96	5.55
1,048.94	7.96	5.60
1,048.95	7.95	5.66
1,048.96	7.94	5.70
1,048.97	7.92	5.75
1,048.98	7.90	5.79
1,048.99	7.88	5.82
1,049.00	7.86	5.85
1,049.01	7.83	5.87
1,049.02	7.79	5.89
1,049.03	7.75	5.90
1,049.04	7.71	**5.90**
1,049.05	7.65	5.90
1,049.06	7.59	5.88
1,049.07	7.51	5.85
1,049.08	7.42	5.80
1,049.09	7.29	5.72
1,049.10	6.99	5.49

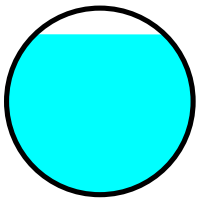
Summary for Reach DMH-1: TO DMH-A

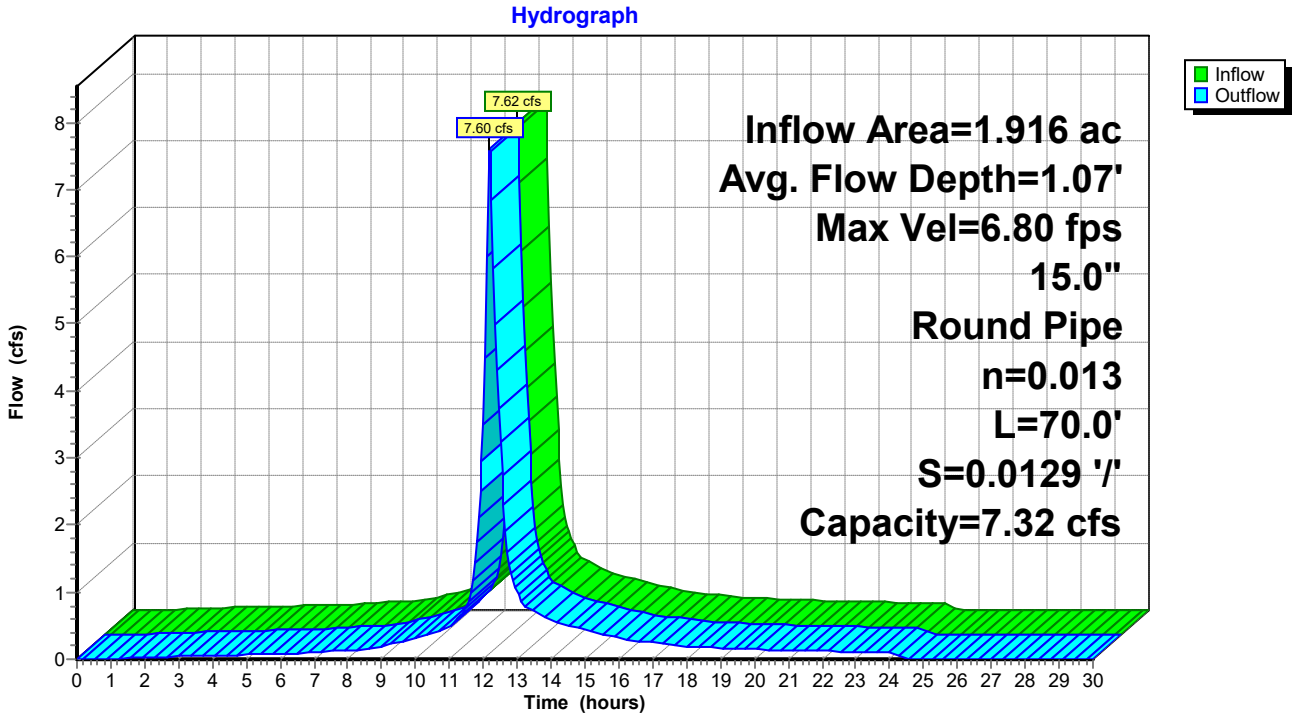
Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 4.60" for 100-Year event
Inflow = 7.62 cfs @ 12.18 hrs, Volume= 0.735 af
Outflow = 7.60 cfs @ 12.19 hrs, Volume= 0.735 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.80 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.54 fps, Avg. Travel Time= 0.5 min

Peak Storage= 79 cf @ 12.19 hrs
Average Depth at Peak Storage= 1.07'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.32 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 70.0' Slope= 0.0129 '/'
Inlet Invert= 1,055.50', Outlet Invert= 1,054.60'





Stage-Discharge for Reach DMH-1: TO DMH-A

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,055.50	0.00	0.00
1,055.51	0.42	0.00
1,055.52	0.72	0.00
1,055.53	0.94	0.01
1,055.54	1.14	0.01
1,055.55	1.33	0.02
1,055.56	1.49	0.03
1,055.57	1.65	0.05
1,055.58	1.80	0.06
1,055.59	1.94	0.08
1,055.60	2.08	0.10
1,055.61	2.21	0.12
1,055.62	2.33	0.14
1,055.63	2.45	0.17
1,055.64	2.57	0.19
1,055.65	2.69	0.22
1,055.66	2.80	0.26
1,055.67	2.90	0.29
1,055.68	3.01	0.33
1,055.69	3.11	0.37
1,055.70	3.21	0.41
1,055.71	3.31	0.45
1,055.72	3.40	0.49
1,055.73	3.49	0.54
1,055.74	3.58	0.59
1,055.75	3.67	0.64
1,055.76	3.76	0.69
1,055.77	3.84	0.75
1,055.78	3.92	0.81
1,055.79	4.01	0.86
1,055.80	4.09	0.93
1,055.81	4.16	0.99
1,055.82	4.24	1.05
1,055.83	4.31	1.12
1,055.84	4.39	1.19
1,055.85	4.46	1.25
1,055.86	4.53	1.33
1,055.87	4.60	1.40
1,055.88	4.67	1.47
1,055.89	4.73	1.55
1,055.90	4.80	1.62
1,055.91	4.86	1.70
1,055.92	4.92	1.78
1,055.93	4.99	1.86
1,055.94	5.05	1.95
1,055.95	5.11	2.03
1,055.96	5.16	2.12
1,055.97	5.22	2.20
1,055.98	5.28	2.29
1,055.99	5.33	2.38
1,056.00	5.38	2.47
1,056.01	5.44	2.56
1,056.02	5.49	2.65
1,056.03	5.54	2.74
1,056.04	5.59	2.84
1,056.05	5.64	2.93
1,056.06	5.68	3.03
1,056.07	5.73	3.12
1,056.08	5.78	3.22
1,056.09	5.82	3.32
1,056.10	5.86	3.42
1,056.11	5.91	3.51
1,056.12	5.95	3.61
1,056.13	5.99	3.71
1,056.14	6.03	3.81
1,056.15	6.07	3.91
1,056.16	6.10	4.01
1,056.17	6.14	4.11
1,056.18	6.18	4.21
1,056.19	6.21	4.32
1,056.20	6.25	4.42
1,056.21	6.28	4.52
1,056.22	6.31	4.62
1,056.23	6.34	4.72
1,056.24	6.37	4.82
1,056.25	6.40	4.92
1,056.26	6.43	5.02
1,056.27	6.46	5.12
1,056.28	6.48	5.22
1,056.29	6.51	5.32
1,056.30	6.53	5.42
1,056.31	6.56	5.52
1,056.32	6.58	5.61
1,056.33	6.60	5.71
1,056.34	6.62	5.81
1,056.35	6.64	5.90
1,056.36	6.66	5.99
1,056.37	6.68	6.09
1,056.38	6.69	6.18
1,056.39	6.71	6.27
1,056.40	6.72	6.36
1,056.41	6.73	6.45
1,056.42	6.75	6.53
1,056.43	6.76	6.62
1,056.44	6.77	6.70
1,056.45	6.78	6.78
1,056.46	6.78	6.86
1,056.47	6.79	6.94
1,056.48	6.80	7.01
1,056.49	6.80	7.09
1,056.50	6.80	7.16
1,056.51	6.80	7.23
1,056.52	**6.80**	7.29
1,056.53	6.80	7.36
1,056.54	6.80	7.42
1,056.55	6.80	7.48
1,056.56	6.79	7.53
1,056.57	6.78	7.59
1,056.58	6.77	7.63
1,056.59	6.76	7.68
1,056.60	6.75	7.72
1,056.61	6.74	7.76
1,056.62	6.72	7.79
1,056.63	6.70	7.82
1,056.64	6.68	7.84
1,056.65	6.66	7.86
1,056.66	6.63	7.87
1,056.67	6.60	**7.88**
1,056.68	6.56	7.88
1,056.69	6.52	7.87
1,056.70	6.48	7.85
1,056.71	6.43	7.81
1,056.72	6.37	7.77
1,056.73	6.29	7.70
1,056.74	6.18	7.57
1,056.75	5.97	7.32

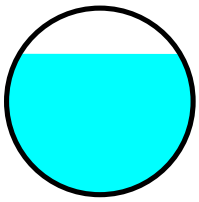
Summary for Reach DMH-A*: TO FE-A

Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 4.60" for 100-Year event
Inflow = 7.60 cfs @ 12.19 hrs, Volume= 0.735 af
Outflow = 7.53 cfs @ 12.20 hrs, Volume= 0.735 af, Atten= 1%, Lag= 0.9 min

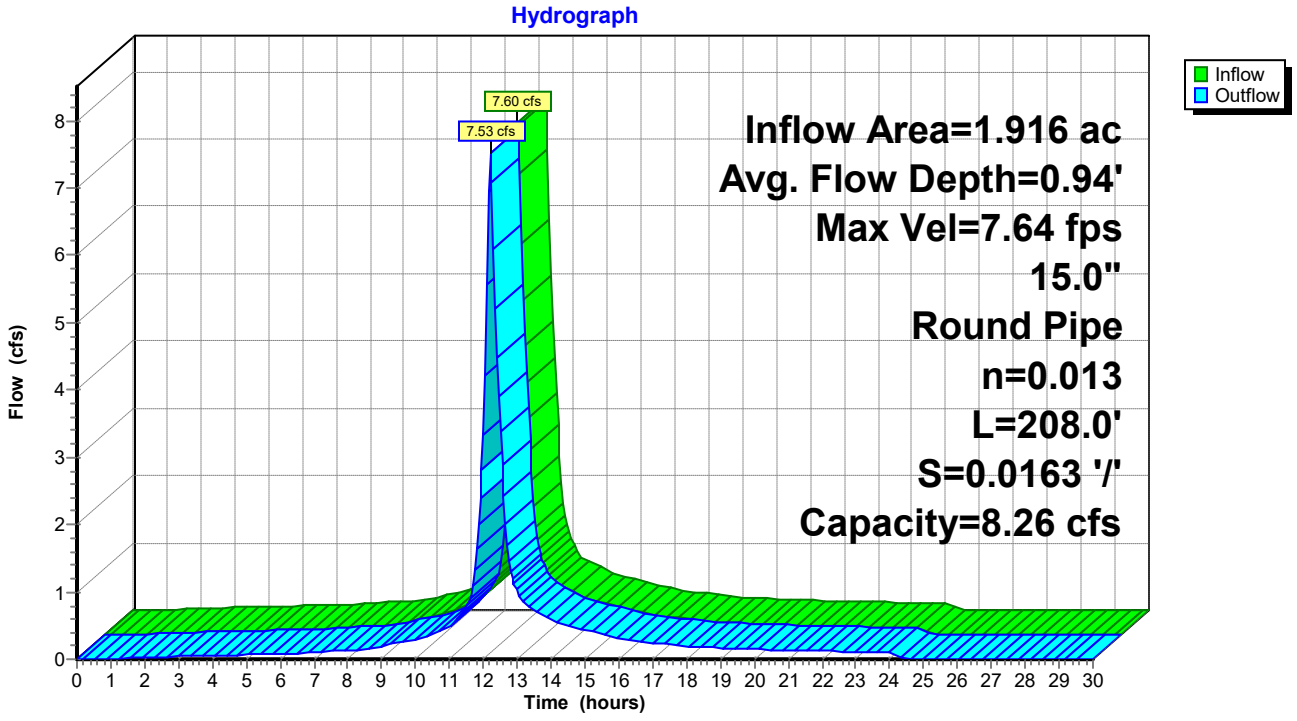
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.64 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.76 fps, Avg. Travel Time= 1.3 min

Peak Storage= 207 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.94'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 8.26 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 208.0' Slope= 0.0163 '/'
Inlet Invert= 1,054.50', Outlet Invert= 1,051.10'



Reach DMH-A*: TO FE-A



Stage-Discharge for Reach DMH-A*: TO FE-A

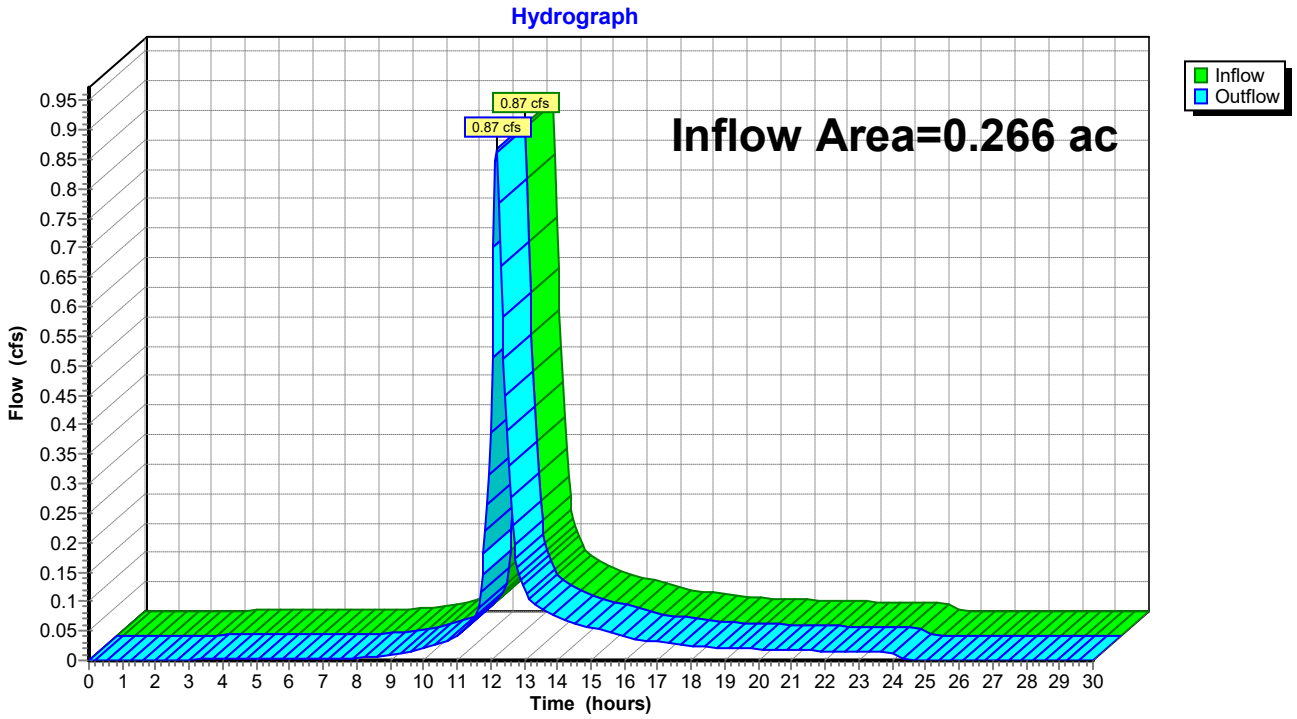
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,054.50	0.00	0.00
1,054.51	0.48	0.00
1,054.52	0.81	0.00
1,054.53	1.06	0.01
1,054.54	1.29	0.02
1,054.55	1.49	0.02
1,054.56	1.68	0.04
1,054.57	1.86	0.05
1,054.58	2.03	0.07
1,054.59	2.19	0.09
1,054.60	2.34	0.11
1,054.61	2.49	0.13
1,054.62	2.63	0.16
1,054.63	2.77	0.19
1,054.64	2.90	0.22
1,054.65	3.03	0.25
1,054.66	3.15	0.29
1,054.67	3.27	0.33
1,054.68	3.39	0.37
1,054.69	3.51	0.41
1,054.70	3.62	0.46
1,054.71	3.73	0.51
1,054.72	3.83	0.56
1,054.73	3.94	0.61
1,054.74	4.04	0.67
1,054.75	4.14	0.72
1,054.76	4.24	0.78
1,054.77	4.33	0.85
1,054.78	4.42	0.91
1,054.79	4.52	0.98
1,054.80	4.61	1.04
1,054.81	4.69	1.11
1,054.82	4.78	1.19
1,054.83	4.86	1.26
1,054.84	4.95	1.34
1,054.85	5.03	1.41
1,054.86	5.11	1.49
1,054.87	5.18	1.58
1,054.88	5.26	1.66
1,054.89	5.34	1.74
1,054.90	5.41	1.83
1,054.91	5.48	1.92
1,054.92	5.55	2.01
1,054.93	5.62	2.10
1,054.94	5.69	2.20
1,054.95	5.76	2.29
1,054.96	5.82	2.39
1,054.97	5.89	2.48
1,054.98	5.95	2.58
1,054.99	6.01	2.68
1,055.00	6.07	2.78
1,055.01	6.13	2.89
1,055.02	6.19	2.99
1,055.03	6.25	3.09
1,055.04	6.30	3.20
1,055.05	6.36	3.31
1,055.06	6.41	3.41
1,055.07	6.46	3.52
1,055.08	6.51	3.63
1,055.09	6.56	3.74
1,055.10	6.61	3.85
1,055.11	6.66	3.96
1,055.12	6.71	4.07
1,055.13	6.75	4.19
1,055.14	6.80	4.30
1,055.15	6.84	4.41
1,055.16	6.88	4.52
1,055.17	6.92	4.64
1,055.18	6.96	4.75
1,055.19	7.00	4.87
1,055.20	7.04	4.98
1,055.21	7.08	5.09
1,055.22	7.12	5.21
1,055.23	7.15	5.32
1,055.24	7.18	5.44
1,055.25	7.22	5.55
1,055.26	7.25	5.66
1,055.27	7.28	5.77
1,055.28	7.31	5.89
1,055.29	7.34	6.00
1,055.30	7.37	6.11
1,055.31	7.39	6.22
1,055.32	7.42	6.33
1,055.33	7.44	6.44
1,055.34	7.46	6.55
1,055.35	7.49	6.65
1,055.36	7.51	6.76
1,055.37	7.53	6.86
1,055.38	7.54	6.97
1,055.39	7.56	7.07
1,055.40	7.58	7.17
1,055.41	7.59	7.27
1,055.42	7.61	7.36
1,055.43	7.62	7.46
1,055.44	7.63	7.55
1,055.45	7.64	7.65
1,055.46	7.65	7.74
1,055.47	7.66	7.82
1,055.48	7.66	7.91
1,055.49	7.67	7.99
1,055.50	7.67	8.07
1,055.51	7.67	8.15
1,055.52	**7.67**	8.23
1,055.53	7.67	8.30
1,055.54	7.67	8.37
1,055.55	7.66	8.43
1,055.56	7.66	8.49
1,055.57	7.65	8.55
1,055.58	7.64	8.61
1,055.59	7.63	8.66
1,055.60	7.61	8.71
1,055.61	7.60	8.75
1,055.62	7.58	8.78
1,055.63	7.56	8.82
1,055.64	7.53	8.84
1,055.65	7.50	8.86
1,055.66	7.47	8.88
1,055.67	7.44	**8.88**
1,055.68	7.40	8.88
1,055.69	7.36	8.87
1,055.70	7.31	8.85
1,055.71	7.25	8.81
1,055.72	7.18	8.76
1,055.73	7.10	8.68
1,055.74	6.97	8.54
1,055.75	6.73	8.26

Summary for Reach DP#3: TO OFF SITE

Inflow Area = 0.266 ac, 10.99% Impervious, Inflow Depth = 3.61" for 100-Year event
Inflow = 0.87 cfs @ 12.18 hrs, Volume= 0.080 af
Outflow = 0.87 cfs @ 12.18 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP#3: TO OFF SITE



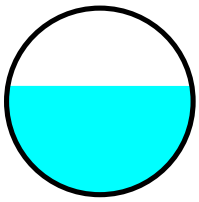
Summary for Reach DP1: CULVERT

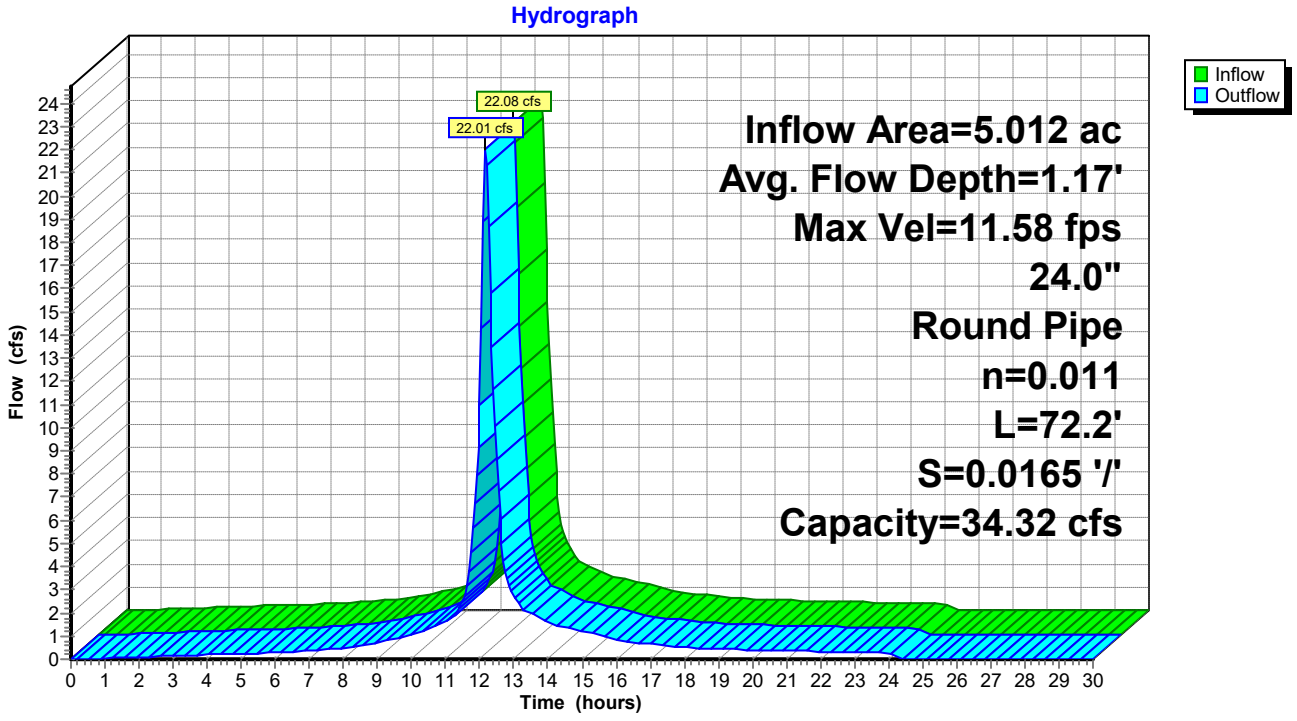
Inflow Area = 5.012 ac, 60.72% Impervious, Inflow Depth = 5.15" for 100-Year event
Inflow = 22.08 cfs @ 12.16 hrs, Volume= 2.152 af
Outflow = 22.01 cfs @ 12.17 hrs, Volume= 2.152 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.58 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.07 fps, Avg. Travel Time= 0.3 min

Peak Storage= 137 cf @ 12.17 hrs
Average Depth at Peak Storage= 1.17'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 34.32 cfs

24.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 72.2' Slope= 0.0165 '/'
Inlet Invert= 1,049.69', Outlet Invert= 1,048.50'





Stage-Discharge for Reach DP1: CULVERT

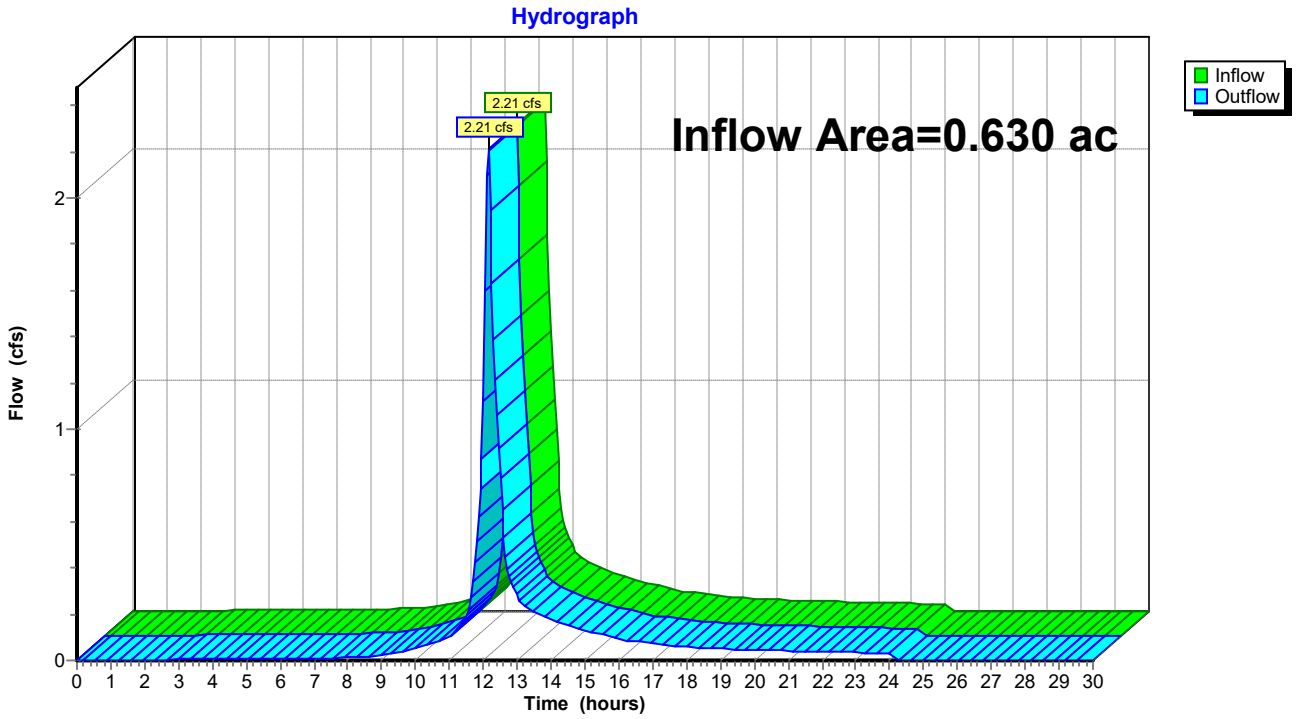
Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
1,049.69	0.00	0.00
1,049.71	0.97	0.01
1,049.73	1.54	0.02
1,049.75	2.01	0.06
1,049.77	2.43	0.10
1,049.79	2.81	0.16
1,049.81	3.16	0.24
1,049.83	3.49	0.34
1,049.85	3.80	0.45
1,049.87	4.10	0.57
1,049.89	4.38	0.72
1,049.91	4.65	0.88
1,049.93	4.92	1.05
1,049.95	5.17	1.24
1,049.97	5.41	1.45
1,049.99	5.65	1.67
1,050.01	5.87	1.91
1,050.03	6.09	2.16
1,050.05	6.31	2.43
1,050.07	6.52	2.71
1,050.09	6.72	3.01
1,050.11	6.92	3.32
1,050.13	7.11	3.64
1,050.15	7.30	3.98
1,050.17	7.48	4.34
1,050.19	7.66	4.70
1,050.21	7.83	5.08
1,050.23	8.00	5.47
1,050.25	8.16	5.88
1,050.27	8.32	6.29
1,050.29	8.48	6.72
1,050.31	8.63	7.16
1,050.33	8.78	7.61
1,050.35	8.93	8.07
1,050.37	9.07	8.54
1,050.39	9.21	9.03
1,050.41	9.35	9.52
1,050.43	9.48	10.02
1,050.45	9.61	10.52
1,050.47	9.73	11.04
1,050.49	9.86	11.57
1,050.51	9.98	12.10
1,050.53	10.09	12.64
1,050.55	10.21	13.19
1,050.57	10.32	13.74
1,050.59	10.43	14.30
1,050.61	10.53	14.86
1,050.63	10.63	15.43
1,050.65	10.73	16.00
1,050.67	10.83	16.58
1,050.69	10.93	17.16
1,050.71	11.02	17.75
1,050.73	11.11	18.33
1,050.75	11.19	18.92
1,050.77	11.27	19.51
1,050.79	11.36	20.10
1,050.81	11.43	20.70
1,050.83	11.51	21.29
1,050.85	11.58	21.88
1,050.87	11.65	22.47
1,050.89	11.72	23.06
1,050.91	11.78	23.65
1,050.93	11.84	24.23
1,050.95	11.90	24.81
1,050.97	11.96	25.39
1,050.99	12.01	25.96
1,051.01	12.06	26.53
1,051.03	12.11	27.09
1,051.05	12.15	27.65
1,051.07	12.20	28.20
1,051.09	12.23	28.74
1,051.11	12.27	29.27
1,051.13	12.30	29.79
1,051.15	12.33	30.31
1,051.17	12.36	30.81
1,051.19	12.38	31.30
1,051.21	12.40	31.78
1,051.23	12.42	32.24
1,051.25	12.44	32.69
1,051.27	12.45	33.13
1,051.29	12.45	33.55
1,051.31	**12.46**	33.95
1,051.33	12.45	34.34
1,051.35	12.45	34.70
1,051.37	12.44	35.05
1,051.39	12.43	35.37
1,051.41	12.41	35.67
1,051.43	12.39	35.94
1,051.45	12.36	36.18
1,051.47	12.32	36.40
1,051.49	12.28	36.58
1,051.51	12.24	36.73
1,051.53	12.18	36.84
1,051.55	12.12	36.90
1,051.57	12.05	**36.92**
1,051.59	11.96	36.88
1,051.61	11.86	36.77
1,051.63	11.75	36.58
1,051.65	11.60	36.27
1,051.67	11.40	35.76
1,051.69	10.93	34.32

Summary for Reach DP2: Culvert

Inflow Area = 0.630 ac, 12.33% Impervious, Inflow Depth = 3.65" for 100-Year event
Inflow = 2.21 cfs @ 12.14 hrs, Volume= 0.192 af
Outflow = 2.21 cfs @ 12.14 hrs, Volume= 0.192 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: Culvert

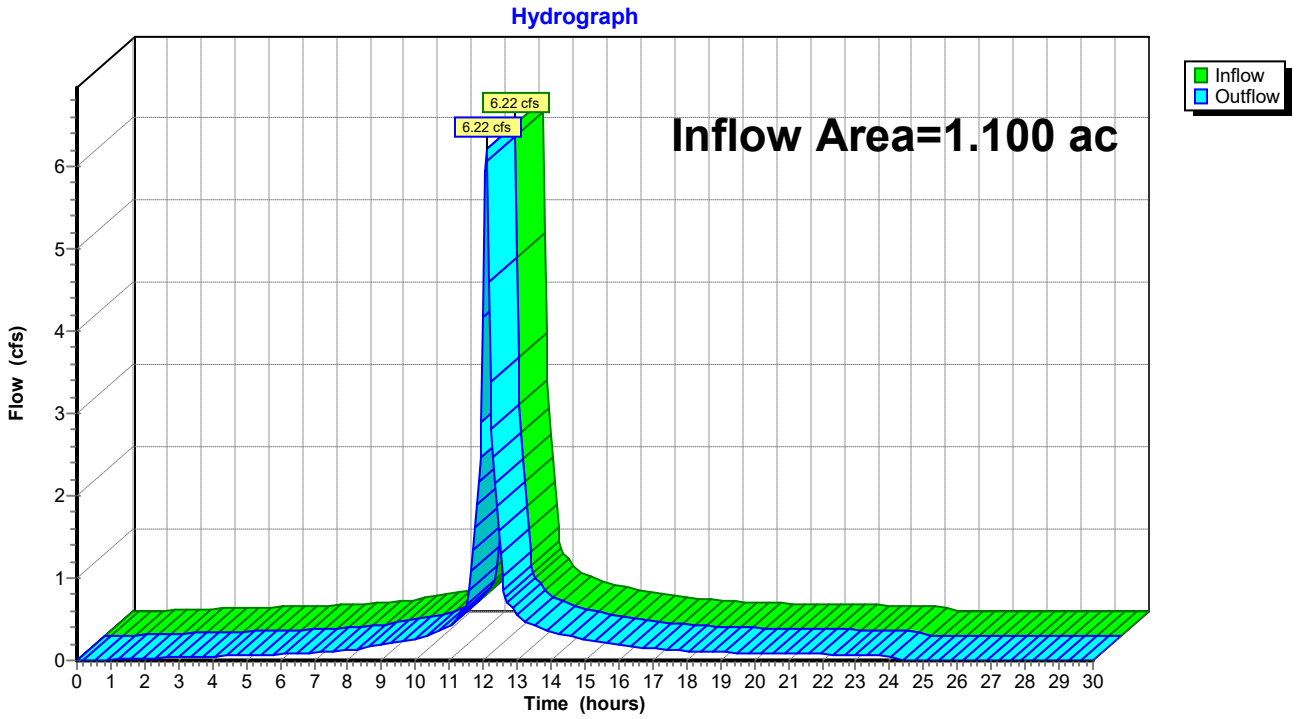


Summary for Reach DP4: DP#4

Inflow Area = 1.100 ac, 68.83% Impervious, Inflow Depth = 5.46" for 100-Year event
Inflow = 6.22 cfs @ 12.08 hrs, Volume= 0.501 af
Outflow = 6.22 cfs @ 12.08 hrs, Volume= 0.501 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP4: DP#4

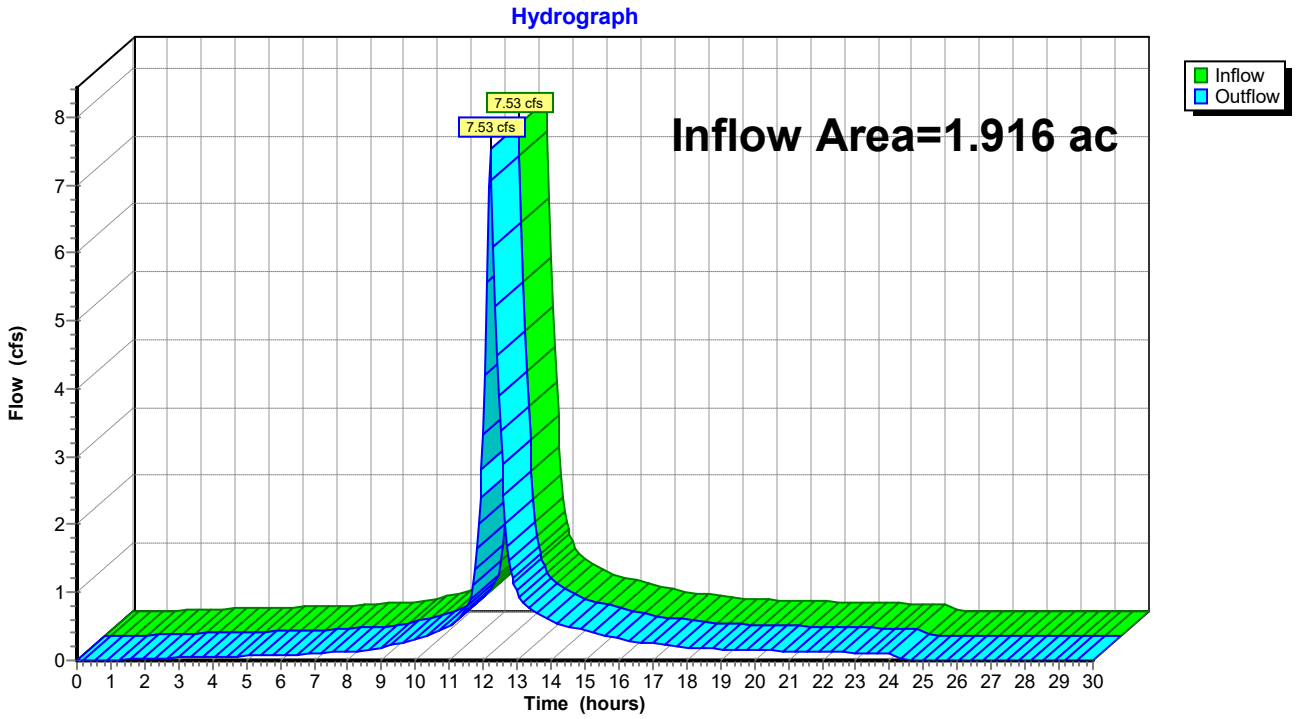


Summary for Reach FEA: TO CULVERT

Inflow Area = 1.916 ac, 44.76% Impervious, Inflow Depth = 4.60" for 100-Year event
Inflow = 7.53 cfs @ 12.20 hrs, Volume= 0.735 af
Outflow = 7.53 cfs @ 12.20 hrs, Volume= 0.735 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach FEA: TO CULVERT



Summary for Pond CULVERT#3: TO E12

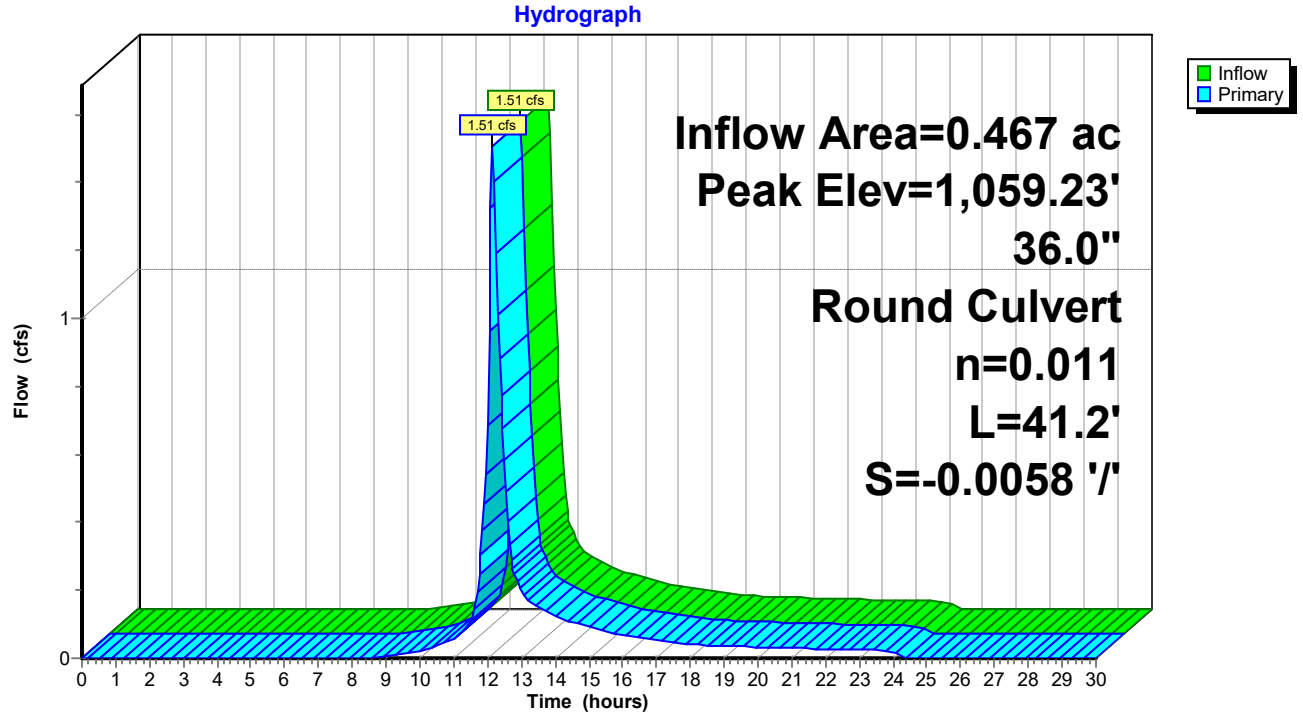
Inflow Area = 0.467 ac, 0.00% Impervious, Inflow Depth = 3.27" for 100-Year event
Inflow = 1.51 cfs @ 12.16 hrs, Volume= 0.127 af
Outflow = 1.51 cfs @ 12.16 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min
Primary = 1.51 cfs @ 12.16 hrs, Volume= 0.127 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,059.23' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,058.78'	**36.0" Round Culvert#3** L= 41.2' Ke= 0.500 Inlet / Outlet Invert= 1,058.54' / 1,058.78' S= -0.0058 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=1.49 cfs @ 12.16 hrs HW=1,059.23' (Free Discharge)
1=Culvert#3 (Inlet Controls 1.49 cfs @ 2.27 fps)

Pond CULVERT#3: TO E12



Stage-Discharge for Pond CULVERT#3: TO E12

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,058.78	0.00	1,059.82	6.54	1,060.86	19.98
1,058.80	0.00	1,059.84	6.74	1,060.88	20.28
1,058.82	0.01	1,059.86	6.95	1,060.90	20.59
1,058.84	0.03	1,059.88	7.16	1,060.92	20.89
1,058.86	0.05	1,059.90	7.37	1,060.94	21.20
1,058.88	0.08	1,059.92	7.58	1,060.96	21.50
1,058.90	0.11	1,059.94	7.80	1,060.98	21.81
1,058.92	0.15	1,059.96	8.02	1,061.00	22.12
1,058.94	0.20	1,059.98	8.24	1,061.02	22.43
1,058.96	0.25	1,060.00	8.46	1,061.04	22.74
1,058.98	0.31	1,060.02	8.69	1,061.06	23.05
1,059.00	0.37	1,060.04	8.92	1,061.08	23.36
1,059.02	0.44	1,060.06	9.15	1,061.10	23.67
1,059.04	0.52	1,060.08	9.38	1,061.12	23.99
1,059.06	0.60	1,060.10	9.62	1,061.14	24.30
1,059.08	0.69	1,060.12	9.85	1,061.16	24.61
1,059.10	0.78	1,060.14	10.09	1,061.18	24.93
1,059.12	0.88	1,060.16	10.33	1,061.20	25.24
1,059.14	0.98	1,060.18	10.58	1,061.22	25.56
1,059.16	1.09	1,060.20	10.82	1,061.24	25.87
1,059.18	1.21	1,060.22	11.07	1,061.26	26.19
1,059.20	1.33	1,060.24	11.32	1,061.28	26.50
1,059.22	1.45	1,060.26	11.58	1,061.30	26.82
1,059.24	1.59	1,060.28	11.83	1,061.32	27.14
1,059.26	1.72	1,060.30	12.09	1,061.34	27.45
1,059.28	1.86	1,060.32	12.35	1,061.36	27.77
1,059.30	2.01	1,060.34	12.61	1,061.38	28.09
1,059.32	2.16	1,060.36	12.87	1,061.40	28.40
1,059.34	2.32	1,060.38	13.14	1,061.42	28.72
1,059.36	2.49	1,060.40	13.40	1,061.44	29.04
1,059.38	2.65	1,060.42	13.67	1,061.46	29.35
1,059.40	2.83	1,060.44	13.94	1,061.48	29.67
1,059.42	3.01	1,060.46	14.21	1,061.50	29.98
1,059.44	3.19	1,060.48	14.49	1,061.52	30.30
1,059.46	3.36	1,060.50	14.76	1,061.54	30.61
1,059.48	3.51	1,060.52	15.04	1,061.56	30.93
1,059.50	3.67	1,060.54	15.32	1,061.58	31.24
1,059.52	3.82	1,060.56	15.60	1,061.60	31.55
1,059.54	3.99	1,060.58	15.88	1,061.62	31.87
1,059.56	4.15	1,060.60	16.16	1,061.64	32.18
1,059.58	4.32	1,060.62	16.45	1,061.66	32.49
1,059.60	4.49	1,060.64	16.74	1,061.68	32.80
1,059.62	4.66	1,060.66	17.03	1,061.70	33.11
1,059.64	4.83	1,060.68	17.31	1,061.72	33.42
1,059.66	5.01	1,060.70	17.61	1,061.74	33.72
1,059.68	5.19	1,060.72	17.90	1,061.76	34.03
1,059.70	5.38	1,060.74	18.19	1,061.78	**34.33**
1,059.72	5.57	1,060.76	18.49		
1,059.74	5.76	1,060.78	18.78		
1,059.76	5.95	1,060.80	19.08		
1,059.78	6.14	1,060.82	19.38		
1,059.80	6.34	1,060.84	19.68		

Summary for Pond DCBA: TO DCB-B

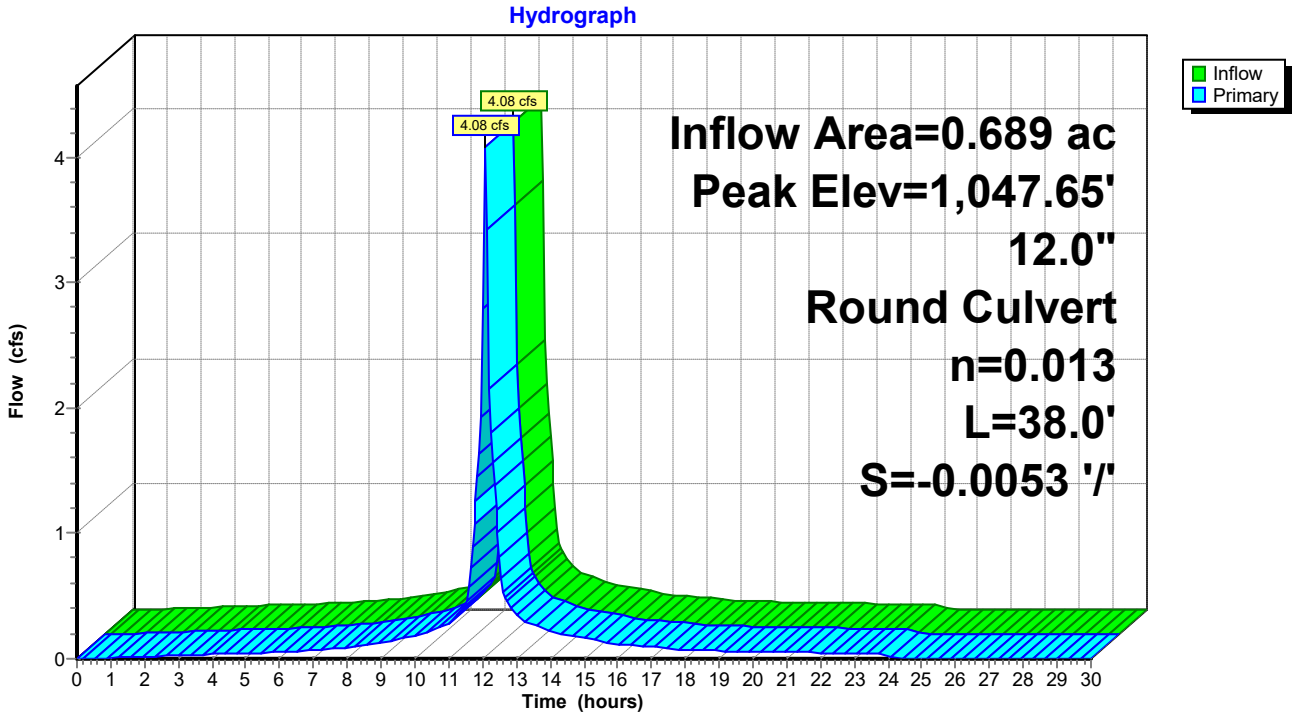
Inflow Area = 0.689 ac, 76.16% Impervious, Inflow Depth = 5.72" for 100-Year event
Inflow = 4.08 cfs @ 12.07 hrs, Volume= 0.328 af
Outflow = 4.08 cfs @ 12.07 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min
Primary = 4.08 cfs @ 12.07 hrs, Volume= 0.328 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 1,047.65' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,045.30'	**12.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,045.10' / 1,045.30' S= -0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.94 cfs @ 12.07 hrs HW=1,047.54' (Free Discharge)
1=Culvert (Inlet Controls 3.94 cfs @ 5.01 fps)

Pond DCBA: TO DCB-B



Stage-Discharge for Pond DCBA: TO DCB-B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
1,045.30	0.00	1,046.34	2.01	1,047.38	3.75
1,045.32	0.00	1,046.36	2.04	1,047.40	3.78
1,045.34	0.01	1,046.38	2.06	1,047.42	3.80
1,045.36	0.01	1,046.40	2.08	1,047.44	3.82
1,045.38	0.02	1,046.42	2.09	1,047.46	3.85
1,045.40	0.03	1,046.44	2.09	1,047.48	3.87
1,045.42	0.05	1,046.46	2.15	1,047.50	3.89
1,045.44	0.07	1,046.48	2.21	1,047.52	3.92
1,045.46	0.09	1,046.50	2.27	1,047.54	3.94
1,045.48	0.11	1,046.52	2.32	1,047.56	**3.96**
1,045.50	0.13	1,046.54	2.38		
1,045.52	0.16	1,046.56	2.43		
1,045.54	0.19	1,046.58	2.48		
1,045.56	0.22	1,046.60	2.53		
1,045.58	0.26	1,046.62	2.58		
1,045.60	0.29	1,046.64	2.63		
1,045.62	0.33	1,046.66	2.68		
1,045.64	0.37	1,046.68	2.73		
1,045.66	0.41	1,046.70	2.78		
1,045.68	0.45	1,046.72	2.82		
1,045.70	0.50	1,046.74	2.87		
1,045.72	0.55	1,046.76	2.91		
1,045.74	0.59	1,046.78	2.96		
1,045.76	0.64	1,046.80	2.99		
1,045.78	0.69	1,046.82	3.02		
1,045.80	0.75	1,046.84	3.04		
1,045.82	0.80	1,046.86	3.07		
1,045.84	0.85	1,046.88	3.10		
1,045.86	0.91	1,046.90	3.13		
1,045.88	0.97	1,046.92	3.16		
1,045.90	1.02	1,046.94	3.19		
1,045.92	1.08	1,046.96	3.22		
1,045.94	1.12	1,046.98	3.24		
1,045.96	1.17	1,047.00	3.27		
1,045.98	1.22	1,047.02	3.30		
1,046.00	1.27	1,047.04	3.32		
1,046.02	1.32	1,047.06	3.35		
1,046.04	1.36	1,047.08	3.38		
1,046.06	1.41	1,047.10	3.40		
1,046.08	1.46	1,047.12	3.43		
1,046.10	1.51	1,047.14	3.46		
1,046.12	1.55	1,047.16	3.48		
1,046.14	1.60	1,047.18	3.51		
1,046.16	1.65	1,047.20	3.53		
1,046.18	1.69	1,047.22	3.56		
1,046.20	1.74	1,047.24	3.58		
1,046.22	1.78	1,047.26	3.61		
1,046.24	1.82	1,047.28	3.63		
1,046.26	1.86	1,047.30	3.66		
1,046.28	1.90	1,047.32	3.68		
1,046.30	1.94	1,047.34	3.70		
1,046.32	1.98	1,047.36	3.73		

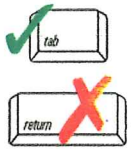
3.0
STORMWATER MANAGEMENT FORMS

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

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



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

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

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

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

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

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

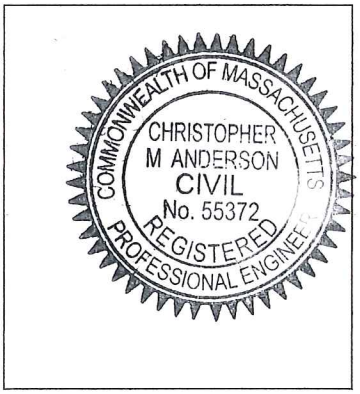
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



5-12-2021

Signature and Date

Checklist

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

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

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

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

Standard 1: No New Untreated Discharges

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

Checklist for Stormwater Report

Standard 2: Peak Rate Attenuation- N/A-Maximum Extent Practicable (REDEVELOPMENT)

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do no exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge – N/A-Maximum Extent Practicable (REDEVELOPMENT)

☒ Soil Analysis provided.

☐ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☐ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☐ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

☐ Site is comprised solely of C and D soils and/or bedrock at the land surface

☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000

☐ Solid Waste Landfill pursuant to 310 CMR 19.000

☒ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

Checklist for Stormwater Report

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

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality N/A-Maximum Extent Practicable (REDEVELOPMENT)

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

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☐ The BMP is sized (and calculations provided) based on:

- ☐ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)
N/A-Maximum Extent Practicable (REDEVELOPMENT)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas N/A-Maximum Extent Practicable (REDEVELOPMENT)

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

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

☒ *Portions of the project are* subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☒ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

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

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

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

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

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☒ The project is ***not*** covered by a NPDES Construction General Permit

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☐ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☐ Description and delineation of public safety features;
- ☐ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☐ An Illicit Discharge Compliance Statement is attached;

☒ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

Stormwater Compliance Documentation

100 and 112 Fredette Street, Gardner, MA

May 12, 2021

Standard 1: No Untreated Discharges or Erosion to Wetlands

The drainage from the site currently flows to one of several culverts that are located along Fredette Street as well as some on-site drainage infrastructure on the abutting property. The culverts have been designated as Design Points #1 (DP#1), Design Point #2 (DP#2) and Design Point (DP#3), with the majority of the property flowing towards DP#1, including the project area. Design Point #4 (DP#4) has been designated at a manhole structure located on the abutting property. As part of this project these discharge points will be maintained upon the completion of construction.

See the narrative within the Drainage Analysis and Report for further information.

Standard 2: Peak Rate Attenuation

This project is considered as a Redevelopment project. Compliance with Stormwater Water Management Regulations are required only to the Maximum Extent Practicable.

Table #1: Peak Rate of Runoff

Design Point		2-yr Storm	10-yr Storm	25-yr Storm	100-yr Storm
#1	***Pre-***	***8.75***	***14.53***	***17.73***	***22.62***
	Post-	***8.48***	***14.13***	***17.26***	***22.01***
#2	Pre-	0.55	1.21	1.60	2.21
	Post-	0.55	1.21	1.60	2.21
#3	Pre-	0.21	0.47	0.63	0.87
	Post-	0.21	0.47	0.63	0.87
#4	Pre-	2.53	4.09	4.93	6.22
	Post-	2.53	4.09	4.93	6.22

All flows are in cubic feet per second.

As outline above, the post-development peak rates are of runoff have been mitigated for all Storm Events.

Standard 3: Stormwater Recharge

This project is considered as a Redevelopment project. Compliance with Stormwater Water Management Regulations are required only to the Maximum Extent Practicable.

Impervious Area Proposed: (This area includes all proposed buildings, driveways, etc.)

The soils within the reviewed project area classified as HSG C:
Existing Impervious HSG-C: 171,234 s.f.
Proposed Impervious HSG-C: 170,189 s.f.
Net New Impervious HSG-C: -1,045 s.f.

Total New Impervious area = -1,045 s.f.

Required Recharge Volume:

Net Increase HSG Soil C

Net Impervious HSG C= -1,045 s.f.
HSG C: -1,045 s.f. x (0.25 in/12) = 0 c.f.

Required Recharge Volume = 0 c.f.

Storage Volume Provided:

There are no mitigation BMPs proposed as part of this project

Recharge Provided:

There are no mitigation BMPs proposed as part of this project

Standard 4: Water Quality

This project is considered as a Redevelopment project. Compliance with Stormwater Water Management Regulations are required only to the Maximum Extent Practicable.

Water Quality Volume (WQV) = Water Quality Depth x Impervious Area

Water Quality Depth = 0.5 inch
WQV = [(0.5 inch) / 12 inches/foot] x (7,000 s.f.) = 466 cf

The proposed building is located within a paved parking area and the site experiences a net decrease it is anticipated that the site will experience a positive improvement of the runoff quality. As the proposed roof top does not generate a sediment load that is typical of pavement, treatment of the proposed additional runoff is not warranted as the runoff from the roof does not contain the sediment load.

Standard 5: Land Uses with Higher Potential Pollutant Loads

Not Applicable

Standard 6: Critical Areas

Not Applicable

Standard 7: Redevelopment

The project is considered a Redevelopment project. The requirements of Standards of 2 through 6 have been achieved. Overall site improvement have been achieved by a providing peak rate mitigation and the reduction in impervious area aids in the natural recharge capacity of the property as well as reducing the sediment loading to the discharge points as the previous parking area will be converted to a roof top which does not generate sediment in a similar manner. Therefore, compliance is provided.

Standard 8: Construction Period Controls

Proper erosion controls have been incorporated into the submitted plans and details to ensure compliance with the standard.

Standard 9: Operation and Maintenance Plan

Operation and Maintenance plans for the project have been incorporated into the submitted plans and details to ensure compliance with the standard.

Standard 10: Illicit Discharges to Drainage System

No Illicit discharges to the drainage system will occur as a result of this proposed project. A No Illicit discharge statement shall be provided prior to construction.

3.1
OPERATION AND MAINTENANCE

STORMWATER OPERATION, MAINTENANCE AND POLLUTION PREVENTION PLAN

Building Addition
100 and 112 Fredette Street
Gardner, Massachusetts

RESPONSIBLE PARTY DURING CONSTRUCTION:
T.B.D.

RESPONSIBLE PARTY POST CONSTRUCTION:
Jones Family Fredette Street, LLC
35 Wilkins Road
Gardner, Massachusetts 01440
(Or Subsequent Land Owner)

BEST MANAGEMENT PRACTICES

To prevent the migration of soils, Best Management Practices (BMP's) shall be employed. During construction, hay bales and silt fence will be installed as shown on the plans and also at additional locations on an as needed basis to provide sufficient erosion controls on the site. These components shall be installed to catch and trap the migrating soil materials and pollutants.

All applicable BMP's listed below and in the Department of Environmental Protection's Stormwater Management Handbooks (Volume1: Overview of Massachusetts Stormwater Management Standards and Volume 2: Technical Guide for Compliance with Massachusetts Stormwater Management Standards) dated January 2008 (as amended), shall be incorporated in this project. Reference to this Operation and Maintenance Plan will be made within and recorded within the deed of the Land. This Plan shall be followed by subsequent land owners as required and amended by the Massachusetts Department of Environmental Protection's Stormwater Management Regulations.

INSPECTION AND MAINTENANCE (DURING CONSTRUCTION)

1. At all times, hay bales, siltation fabric fencing and wooden stakes sufficient to construct sedimentation control barrier a minimum of 50 feet long will be stockpiled on the site in order to repair established barriers which may have been damaged or breached.

2. Necessary erosion controls shall be in place prior to any clearing or construction on the site. Construction sequence shall be phased in such a manner that the on-site detention basins are stabilized and functioning prior to the establishment of any new impervious areas on the site. The Contractor shall provide temporary stilling or settling basins as needed to catch and trap any migrating soil materials and pollutants from the construction areas.
3. An inspection of all erosion control and stormwater management systems shall be conducted at least once every fourteen (14) calendar days and following significant storm

events. Where sites have been finally or temporarily stabilized, or runoff is unlikely due to winter conditions, such inspections shall be conducted at least once every month

In case of any noted breach or failure, the General Contractor shall immediately make appropriate repairs to any erosion control system and notify the engineer of any problems involving storm water management systems.

A significant storm event shall be defined as all or one of the following thresholds.

a. Any storm in which rain is predicted to last for twelve consecutive hours or more.
b. Any storm for which a flash flood watch or warning is issued.
c. Any single storm predicted to have a cumulative rainfall of greater than one inch.
d. Any storm not meeting the previous three thresholds but which would mark a third consecutive day of measurable rainfall.

4. If site inspections identify BMPs not operating effectively, maintenance must be performed as soon as possible and before the next storm event.

5. If BMPs need modification or additional BMPs need to be added, implementation must be completed before the next storm if practicable. If implementation before the next storm event is impracticable, the situation must be documented in the construction log and alternative BMPs must be implemented as soon as possible

6. The General Contractor shall also inspect the erosion control and stormwater management systems at times of significant increase in surface water runoff due to rapid thawing when the risk of failure of erosion control measures is significant.

7. In such instances as remedial action is necessary, the General Contractor shall repair any and all significant deficiencies in erosion control systems within two days.

8. The Department of Public Works and/or Conservation Commission shall be notified of any significant failure of storm water management systems and erosion and sediment control measures and shall be notified of any release of pollutants to a water body (stream, brook, pond, etc.).

9. The General Contractor shall remove the sediment from behind the fence of the sedimentation control barrier when the accumulated sediment has reached one-half of the original installed height of the barrier.

INSPECTION AND MAINTENANCE (POST-CONSTRUCTION)

It is the agreement of the responsible parties to finance, inspect, and perform (respectfully) the long-term maintenance of the erosion control devices and the stormwater management systems within the limits stated below.

1. A visual inspection of all erosion control and stormwater management systems shall be conducted by the above identified person(s) a minimum of once per month and after every major storm during the first six months of operation (a portion of that time must be in the growing season). Thorough investigations shall be conducted twice a year. Monthly maintenance requirements may be adjusted based upon the results obtained from the first year of operation.

2. Roads and parking lots shall be swept at least twice per year and on a more frequent basis depending on sanding operations. All resulting sweepings shall be collected and properly disposed of off-site in accordance with MADEP and other applicable requirements.

3. Reference to this Operation and Maintenance Plan will be made within the chain of title by reference or recorded within the initial deed transfer if this is to occur prior to construction. This Plan shall be followed by subsequent land owners as required and amended by the Massachusetts Department of Environmental Protection's Stormwater Management Regulations.

4. It shall be the responsibility of the ***Land Owner*** to insure that the Operation and Maintenance of all stormwater structures is performed as outlined in the provided Maintenance Schedule and to provide full funding of the required tasks.

5. **Maintenance Schedule**

Structure Type	Inspection	Maintenance	Task
Catchbasins	Monthly	Seasonally	Remove Debris

LONG TERM POLLUTION PREVENTION PLAN

1. Access drives to the site shall be swept on an annual basis with a commercial cleaning unit. Any sediment removed shall be disposed of in accordance with applicable local and state requirements.

2. Trash and other debris shall be removed from the drives periodically as needed. Full inspection of the site shall be made on a semi-annual basis to ensure clean and neat appearance to the site. This measure will help in the overall performance of the onsite systems.

3. Trash and other debris shall be removed from landscaped and planted areas periodically as needed. Full inspection of the site shall be made on a semi-annual basis to ensure clean and neat appearance to the site. This measure will help in the overall performance of the onsite systems.

4. Reseed any bare areas as soon as they occur. Erosion control measures shall be installed in these areas to prevent deposits of sediment from entering the drainage system

5. Grass shall be maintained at a minimum blade height of two to three inches and only 1/3 of the plant height shall be removed at a time.

6. Plants shall be pruned as necessary. The use of fertilizers will be kept at a level consistent with typical residential use. Fertilizer will be applied a maximum of once to twice per year during the initial planting and stabilization of landscaped areas. Once plants are established and growing well fertilizer will be applied judiciously.

7. The use of pesticides will be kept at a level consistent with typical residential use. Where possible mechanical methods (i.e. pest traps) or biological methods (i.e. beneficial insects) of pest control shall be implemented. If pesticides (insecticide, herbicide, and fungicide) are required to be used a pesticide which poses the lowest risk to public health and the environment shall be used.

8. Pet waste shall be disposed of in accordance with local regulations. Pet waste shall not be disposed of in a storm drain or catch basin.

Inspection Log

100 and 112 Fredette Street, Massachusetts

DATE	ACTION	RESULT	PERFORMED BY

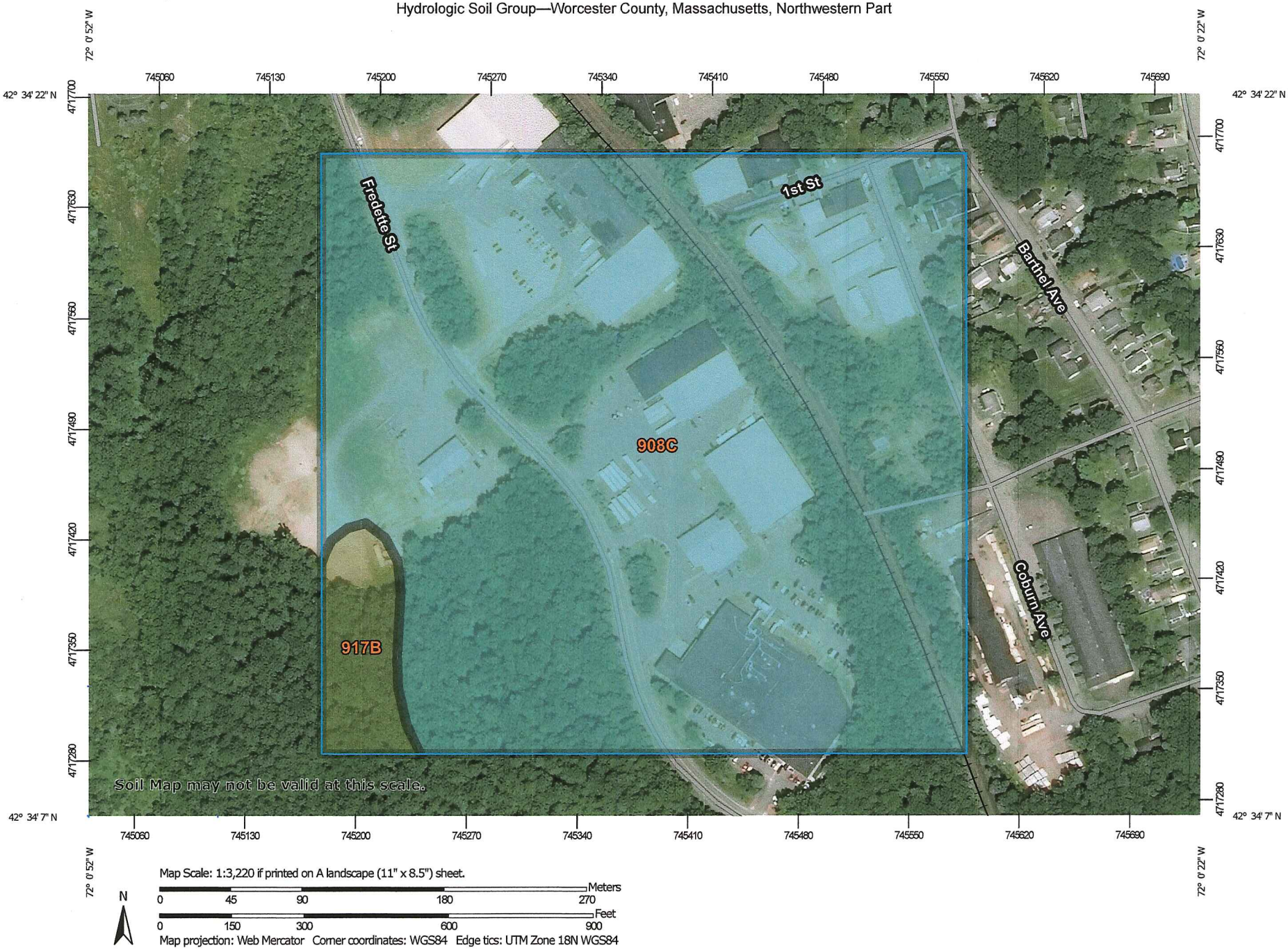
Maintenance Log

100 and 112 Fredette Street, Massachusetts

DATE	ACTION	PERFORMED BY

FIGURE 1
LOCUS MAP AND SOILS MAP

Hydrologic Soil Group—Worcester County, Massachusetts, Northwestern Part



Map Scale: 1:3,220 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

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

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

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

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

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

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

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

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

Soil Survey Area: Worcester County, Massachusetts, Northwestern Part
Survey Area Data: Version 14, Jun 10, 2020

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

Date(s) aerial images were photographed: May 18, 2019—Jul 9, 2019

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
908C	Becket-Skerry association, 0 to 15 percent slopes, extremely stony	C	36.7	95.5%
917B	Pillsbury-Peacham association, 0 to 8 percent slopes, extremely stony	C/D	1.7	4.5%
Totals for Area of Interest			**38.5**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

#100 and #112 Fredette Street, Gardner, MA

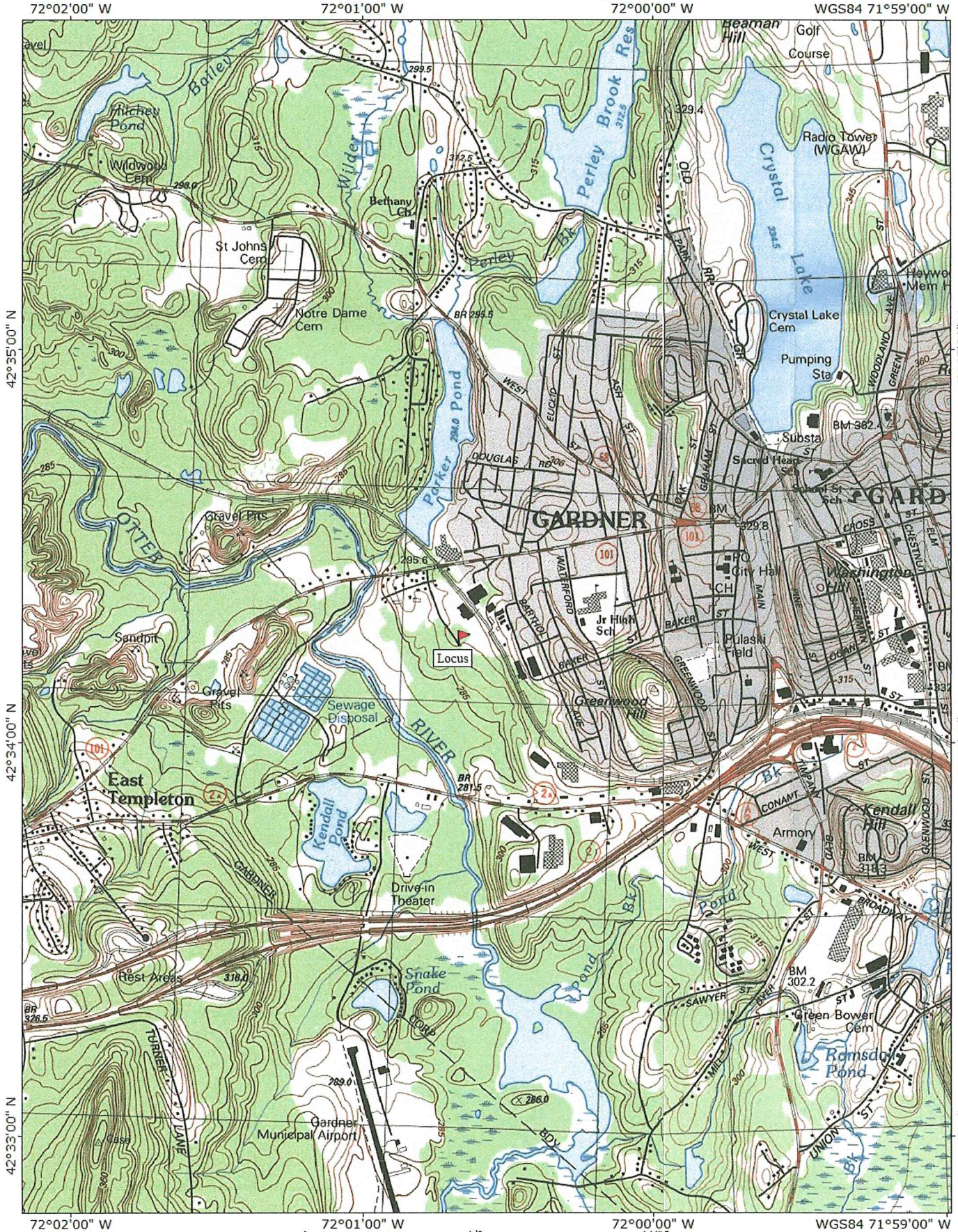


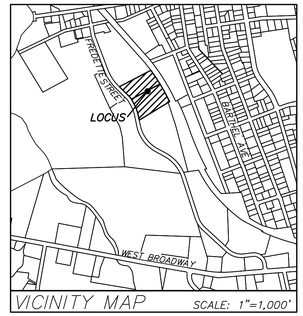
FIGURE 2
PRE-DEVELOMPENT WATERSHED MAP

LAND N/F
SEAMAN PAPER COMPANY
BK. 20595-6
MAP M22-6-29
(70 FREDETTE STREET)

DP#3
DP#2
DP#1
DP#4

E31
E13
E12
E10
E11
E14
E15

FND IR
CMP
484.51'
WOODED
APPROXIMATE LIMIT OF WETLAND AREA
OVERHANG
EXISTING BUILDING #100
FFE=1067.3±
(26,658sf)
100FT BUFFER ZONE
(APPROXIMATE)
LOT "A"
2.642 ACRES
SMH
RIM=1061.21
INV=1050.20
SMH
RIM=1062.43
INV=1050.10
BTCMP
RCP
R=225.00'
L=133.69'
FREDETTE STREET
PUBLIC - 50' WIDE
DMH-A
RIM=1061.27
INV=1056.07(N)
INV=1055.17(E)
INV=1054.57
EX 8" CMP
446.22'
EX 8" CMP
CARLOCK PRINTING & CONVERTING
NO HARD TURNING ON BLACKTOP
1 EXIT ONLY
R=425.00'
L=192.28'
NO TRESPASSING NO SOLICITATION
NO HARD TURNING ON BLACKTOP
FE-A
INV=1051.10
EXISTING BUILDING #120
(9,148 sf)
EXISTING BUILDING #112
FFE=1066.2±
(27,552)
LAND N/F
GARLOCK PRINTING & CONVERTING CORP.
BK. 34836-341
PL. BK. 674-63 LOT B
(112 FREDETTE STREET)
SMH
RIM=1062.55
INV=1057.35(LAT-N)
INV=1056.15(LAT-S)
INV=1050.75
INV=1050.55
DCB-D
RIM=1065.6
INV=1062.0(BLDG)
INV=1061.8(E)
INV=1061.8(OUT)
DCB-A
RIM=1048.18
INV=1045.1±
DCB-B
RIM=1048.12
INV=1045.3±(W)
INV=1045.3±(N)
INV=1045.1±(E)
DCB-C
RIM=1052.09
INV=1048.1±
LAND N/F
GARLOCK PRINTING & CONVERTING CORP.
BK. 19593-46
(164 FREDETTE STREET)
WETLAND FLAG #A
WETLAND FLAG #B
ZONING SETBACK LINE
WEST BOSTON AND MAINE CORPORATION
R=2815.43'
L=162.26'
R=2815.43'
L=250.50'
FND DH
3.03'



VICINITY MAP SCALE: 1"=1,000'

PROJECT INFORMATION

LAND INFORMATION

MAP/PARCEL:	M22-11-3; M22-16-2
DEED BOOK/PAGE:	40820/0095; 34836/0341
LOT FRONTAGE:	261.99 FT; 255.77FT (517.76FT TOTAL)
LOT AREA:	2.64 ACRES±; 2.65 ACRES± (5.29AC± TOTAL)

ZONING INFORMATION

ZONING DISTRICT:	INDUSTRIAL (IND2)
DIMENSIONAL REQUIREMENTS:	
MINIMUM AREA:	30,000 SF
MINIMUM FRONTAGE:	150 FEET
MAXIMUM HEIGHT:	84 FEET
MAXIMUM LOT COVERAGE:	85%
MINIMUM SETBACKS:	
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14. THE AREA PROPOSED FOR DEVELOPMENT IS NOT WITHIN A 100 YEAR FLOOD PLAIN PER F.E.M.A. FIRM PANEL #250305-0008B DATED: JULY 2, 1981. COMPLIANCE WITH APPLICABLE REGULATIONS IS REQUIRED.
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DEFINITIVE PLAN

NO.	DATE	REVISIONS	BY

HANNIGAN ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS
8 MONUMENT SQUARE
LEOMINSTER, MASSACHUSETTS 01453
(978) 534-1234 (T)
(978) 534-6060 (F)
WWW.HANNIGANENGINEERING.COM

EXISTING WATERSHED PLAN
IN
GARDNER, MASSACHUSETTS

PREPARED FOR:
JONES FAMILY FREDETTE STREET, LLC
JOE LICHWELL
35 WILKINS ROAD
GARDNER, MASSACHUSETTS 01440
TEL:

GRAPHIC SCALE: 1"=30'

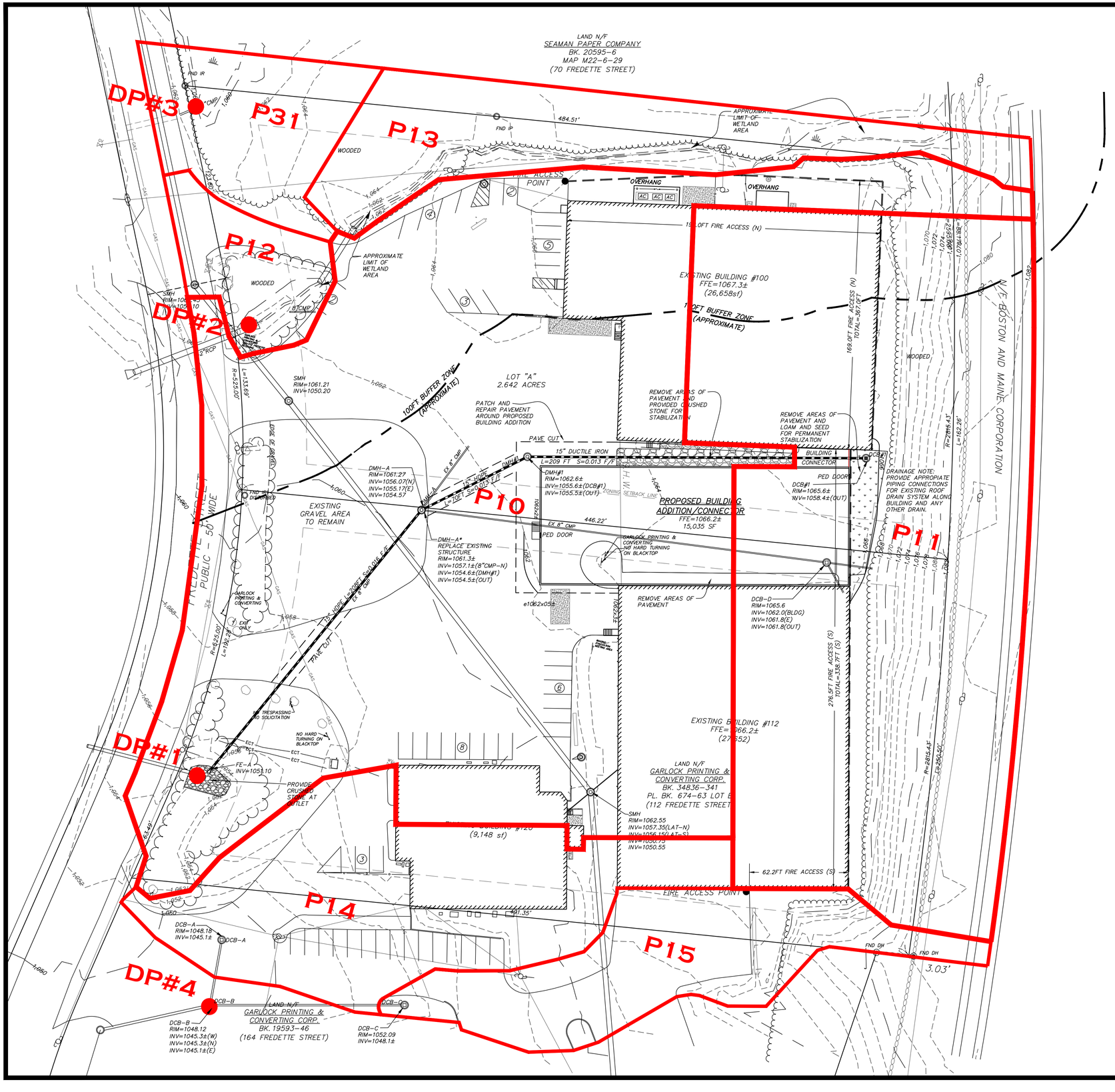
0 10 20 30 40 50 75 100 125 FEET
0 5 10 15 20 25 30 35 METERS

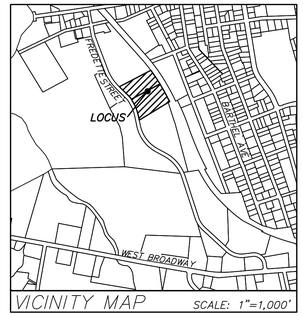
CALC: CMA	DRWN: CMA	SCALE: 1"=30'
CHKD: WDH	APPD: WDH	DATE: MAY 12, 2021
SRV: JHG	FB: 67-120	JOB NO: 2977
TAB: WS	SHEET 1 OF 2	PLAN NO: C-16-10

OWNER:
JONES FAMILY FREDETTE STREET, LLC
35 WILKINS ROAD
GARDNER, MA 01440

GARLOCK PRINTING AND CONVERTING, CORP.
164 FREDETTE STREET
GARDNER, MA 01440

FIGURE 3
POST-DEVELOMPENT WATERSHED MAP





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DEFINITIVE PLAN

NO.	DATE	REVISIONS	BY

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CIVIL ENGINEERS & LAND SURVEYORS
8 MONUMENT SQUARE (978) 534-1234 (T)
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PROPOSED WATERSHED PLAN
IN
GARDNER, MASSACHUSETTS

PREPARED FOR:
JONES FAMILY FREDETTE STREET, LLC
JOE LICHWELL
35 WILKINS ROAD
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TEL:

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CALC: CMA	DRWN: CMA	SCALE: 1"=30'
CHKD: WDH	APPD: WDH	DATE: MAY 12, 2021
SRV: JHG	FB: 67-120	JOB NO: 2977
TAB: WS	SHEET 2 OF 2	PLAN NO: C-16-10

OWNER:
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GARDNER, MA 01440

GARLOCK PRINTING AND CONVERTING, CORP.
164 FREDETTE STREET
GARDNER, MA 01440