

Project: Hudson National Golf Club – Matrix Solar Project
Croton-on-Hudson, NY

Scope: Drainage Computations

Date: November 8, 2021

Introduction:

The installation of solar panels on the lands of the Hudson National Golf Course requires an analysis of the drainage impact on downstream areas. There are seven (7) distinct sub-watersheds identified in the areas of the proposed solar panel installation. These areas are analyzed in both the current condition and the condition after the panels have been installed.

The current land use is woods, considered to be in a “fair” condition in relation to the drainage computations. The proposed condition is to be fully vegetated with a “meadow” style grass and fescue throughout the installed panel area. Areas that are cleared will be re-planted and covered with hay, organic mesh and new tree plantings that would simulate the “fair” wooded condition.

There are two Hydrologic Groups found on the site, “B” group and “D” group. The runoff curve numbers used in this report are as follows:

The site Soil Type and Soil Hydrologic groups are taken from the web soil survey website at <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.

Table: Runoff Curve Numbers (Source USDA SCS Tr-55)

Cover type and hydrologic condition	Hydrologic condition	HSG B	HSG D
Meadow – continuous grass, protected from grazing and generally mowed for hay		58	78
Woods	Fair	60	79

It is intended that runoff from each existing drainage area will continue to flow to the original design point, numbered 1 through 7.

Since all the drainage areas are to remain about the same as the current condition, the time of Concentration for each area should remain the same, and this value is computed using the “Lag-CN” method in the Hydrocad software. Land profiles of the travel path for each watershed are computed to indicate the flow length and slope of various segments of flow are used as input to the software.

The rainfall values are taken from the <http://precip.eas.cornell.edu/> website for the area of the golf course. The runoff hydrographs are computed for each drainage area in both the existing and proposed condition and compared to determine if there are any changes or increases in peak flow after development.

Results of Study:

Watershed	Existing Peak Flow	Proposed Peak Flow	Percent Change
WS1	(cfs)	(cfs)	
2	2.8	2.54	-9.3%
10	8.39	7.92	-5.6%
100	25.81	24.96	-3.3%
WS2			
2	5.92	5.81	-1.9%
10	13.77	13.61	-1.2%
100	35.56	35.32	-0.7%
WS3			
2	3.28	3.25	-0.9%
10	6.51	6.47	-0.6%
100	14.76	14.71	-0.3%
WS4			
2	1.11	1.1	-0.9%
10	4.08	4.07	-0.2%
100	14.05	14.01	-0.3%
WS5			
2	0.51	0.48	-5.9%
10	1.89	1.83	-3.2%
100	6.5	6.38	-1.8%
WS6			
2	0.88	0.81	-8.0%
10	3.38	3.24	-4.1%
100	11.58	11.32	-2.2%
WS7			
2	0.52	0.52	0.0%
10	2	2	0.0%
100	6.91	6.91	0.0%

Sediment Basin / Detention Basin / Pipe Computations:

At the Maintenance Area, a stormwater basin is to be constructed to act as a sediment basin during construction, then converted to a detention basin thereafter. The low level outlets (2-6" pipes) will be closed during the erosion control phase. The 15" pipe, with the drop of 10 feet, can convey the 100 year storm of about 25 cfs across the driveway.

The 90% storm through the 100 year storm are routed through the basin in the constructed condition and the flows are compared to the existing flows to determine the effectiveness of the basin.

Table: Existing and Proposed Peak Flows using the Basin as a Detention System

Storm /yr)	EX (cfs)	Total (cfs)	Change %
90%	0.02	0.02	0.0%
1	1.3	1.14	-12.3%
2	2.8	2.55	-8.9%
10	8.39	7.88	-6.1%
100	25.81	23.32	-9.6%

Accordingly, the further use of the basin to control peak flows will offer further reductions in WS1 as noted in the Table above.

Discussion:

As the runoff from each drainage area remains the same, or there is a reduction in peak flow, the Solar Project would have minimal or no impact on downstream properties.



Ralph G. Mastromonaco
Ralph G. Mastromonaco, PE

APPENDIX FOLLOWS

Figure: Watershed Map

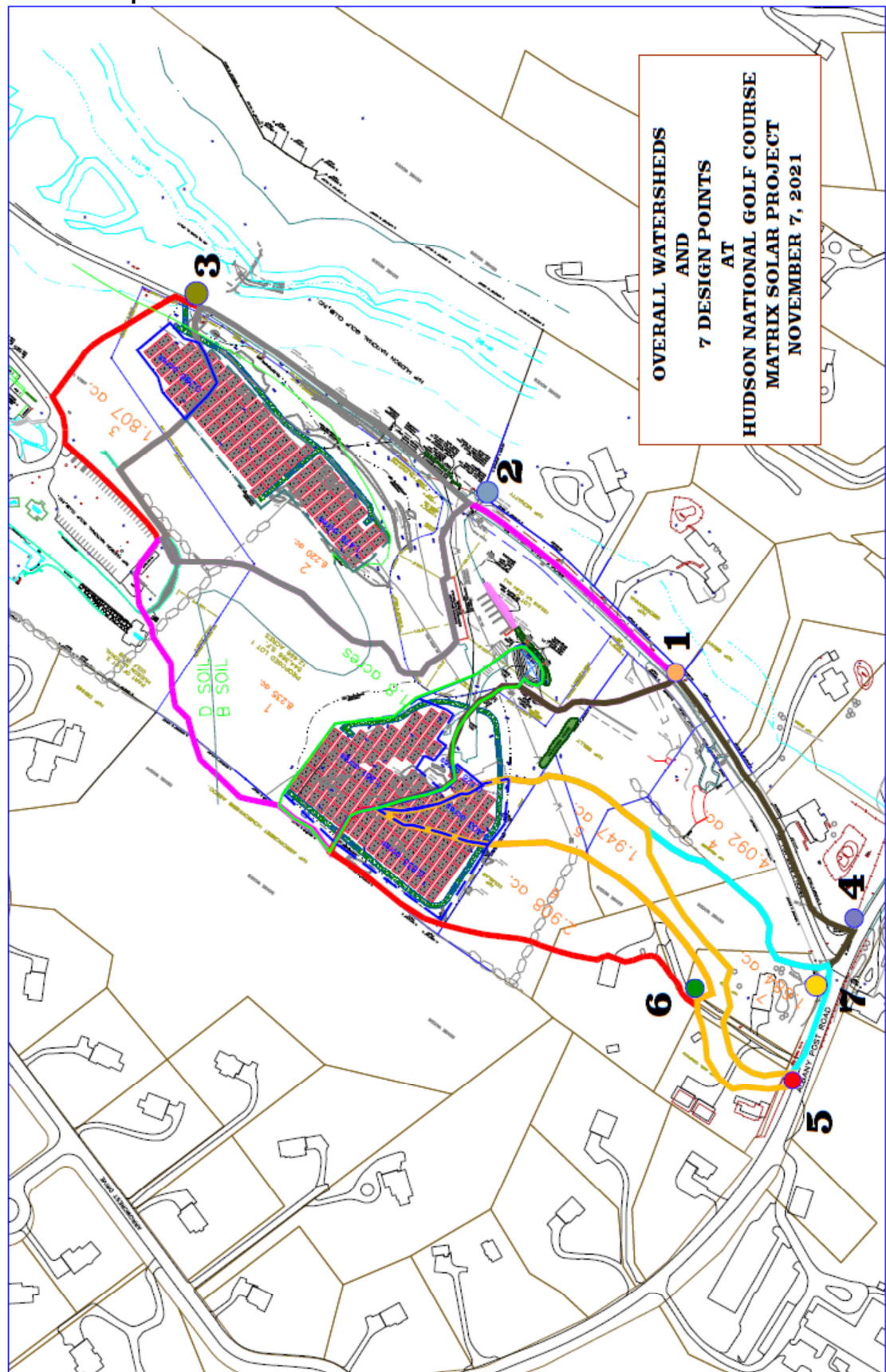
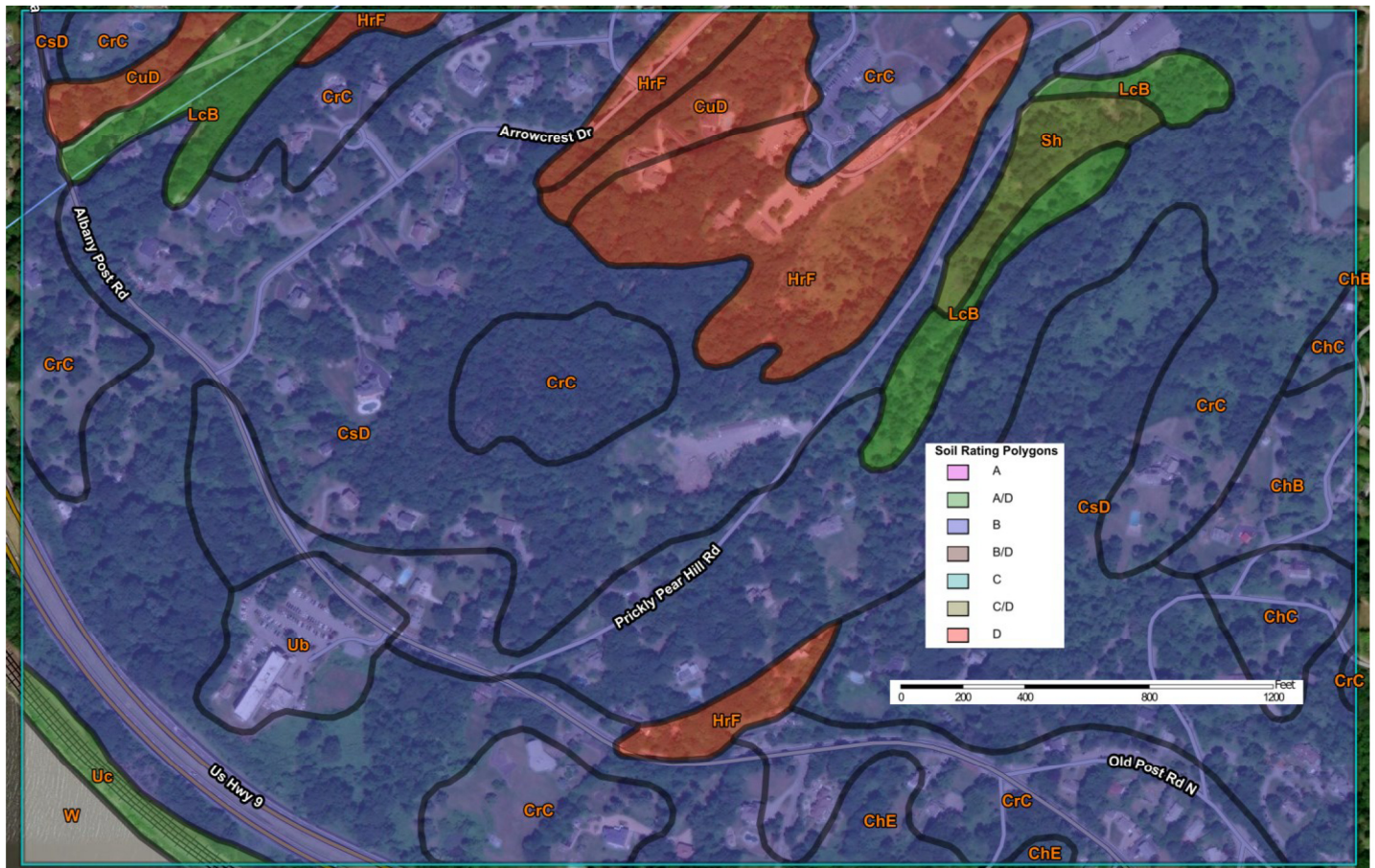


Figure: Overall Soil Hydrologic Groups

Rainfall Data: (Source: <http://precip.eas.cornell.edu/>)

Storm (yr)	Rainfall (in)
24hr	2.79
1yr	3.42
2yr	4.31
5yr	5.13
10yr	6.47
25yr	7.73
50yr	9.23
100yr	

Figure: Profiles of the Travel Paths for Each Watershed

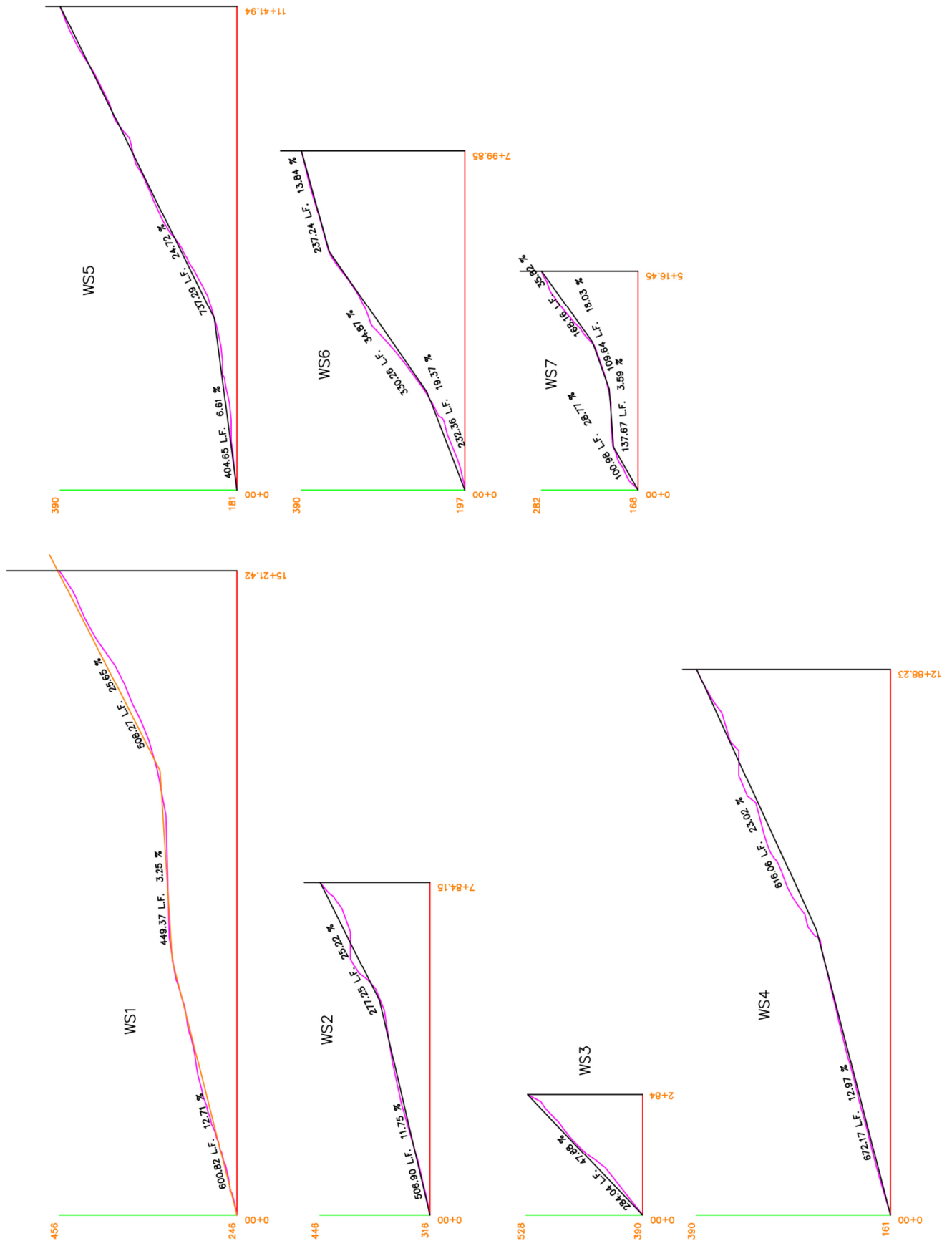


Figure: Watershed Characteristics

1	Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
	CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	2.0	23.8%
	CsD	Chatfield-Charlton complex, 15 to 35 percent slopes, very rocky	B	4.8	58.1%
	HrF	Hollis-Rock outcrop complex, 35 to 60 percent slopes	D	1.5	18.1%
	Totals for Area of Interest			8.2	100.0%

2	Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
	CsD	Chatfield-Charlton complex, 15 to 35 percent slopes, very rocky	B	2.6	41.8%
	HrF	Hollis-Rock outcrop complex, 35 to 60 percent slopes	D	3.6	58.2%
	Totals for Area of Interest			6.2	100.0%

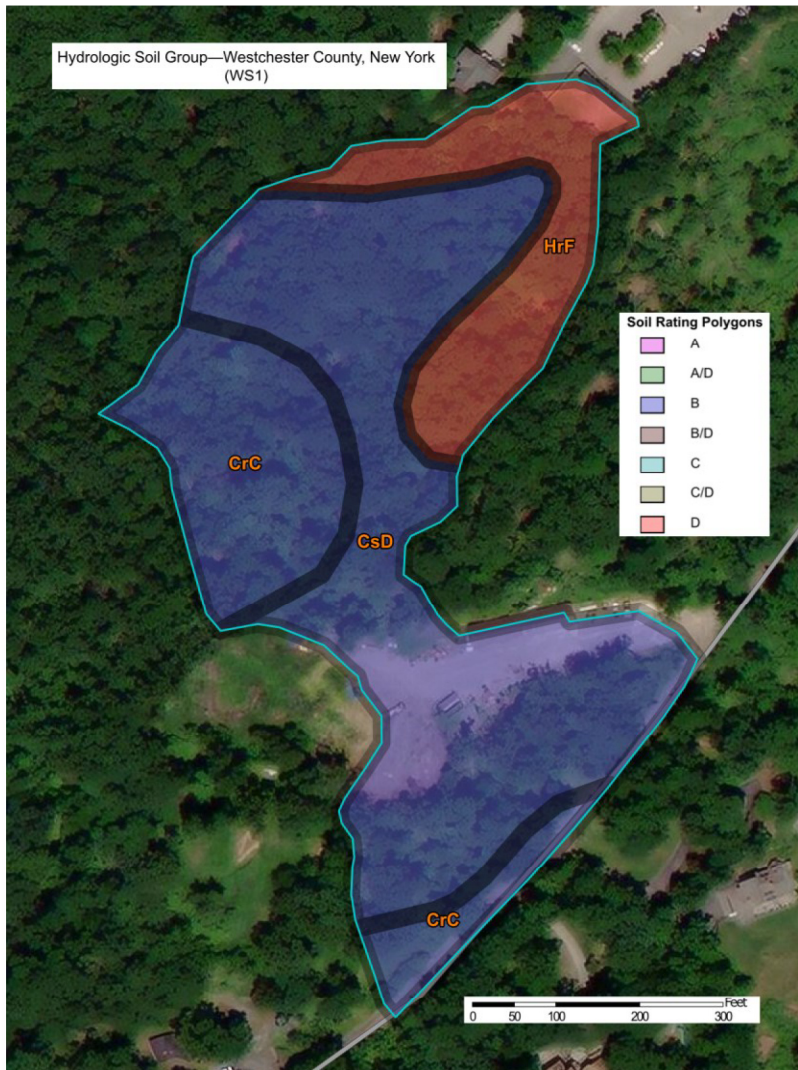
3	Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
	CsD	Chatfield-Charlton complex, 15 to 35 percent slopes, very rocky	B	0.1	5.3%
	HrF	Hollis-Rock outcrop complex, 35 to 60 percent slopes	D	1.7	94.7%
	Totals for Area of Interest			1.8	100.0%

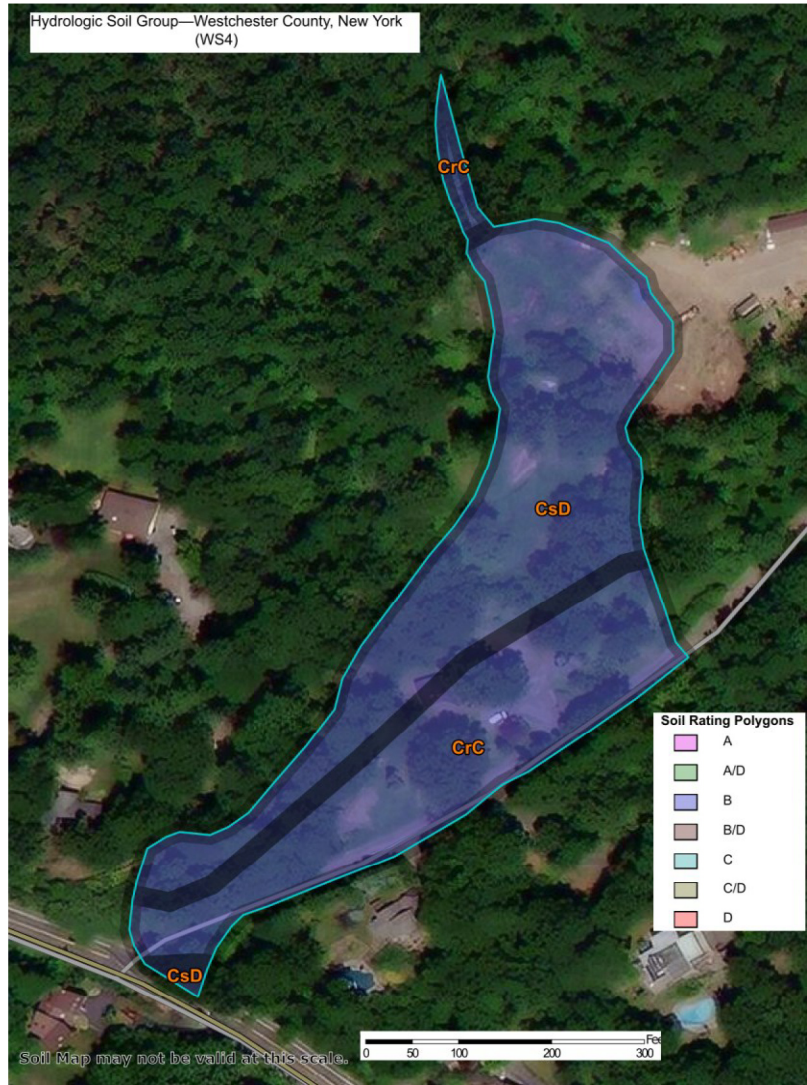
4	Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
	CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	1.7	41.6%
	CsD	Chatfield-Charlton complex, 15 to 35 percent slopes, very rocky	B	2.4	58.4%
	Totals for Area of Interest			4.1	100.0%

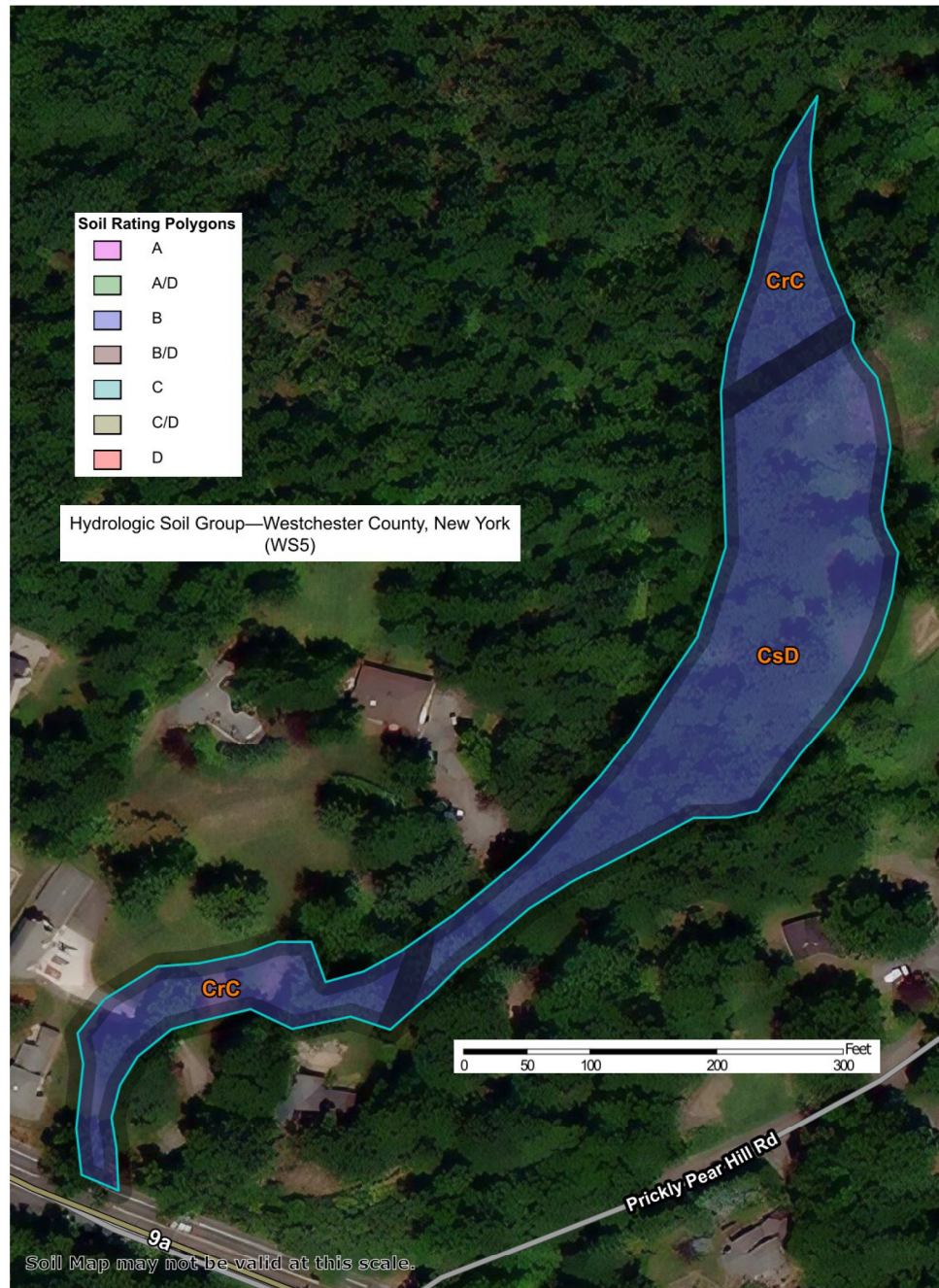
5	Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
	CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	0.6	31.5%
	CsD	Chatfield-Charlton complex, 15 to 35 percent slopes, very rocky	B	1.3	68.5%
	Totals for Area of Interest			1.9	100.0%

6	Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
	CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	1.4	49.4%
	CsD	Chatfield-Charlton complex, 15 to 35 percent slopes, very rocky	B	1.5	50.6%
	Totals for Area of Interest			2.9	100.0%

7	Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
	CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	0.8	49.3%
	CsD	Chatfield-Charlton complex, 15 to 35 percent slopes, very rocky	B	0.9	50.7%
	Totals for Area of Interest			1.7	100.0%









End of Report

Ralph G. Mastromonaco, PE PC Consulting Engineers

**DRAINAGE COMPUTATIONS
WITHOUT EFFECT OF THE
PROPOSED DETENTION BASIN**



WS1



WS2



PR WS1



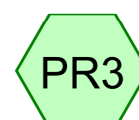
PR WS2



WS3



WS4



PRWS3



PRWS4



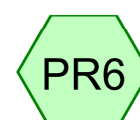
WS5



WS6



PRWS5



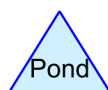
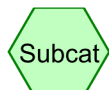
PRWS6



WS7



PRWS7



Routing Diagram for HN_WSHEDS

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.910	58.00	Meadow, non-grazed, HSG B (PR1, PR4, PR5, PR6)
1.880	78.00	Meadow, non-grazed, HSG D (PR2, PR3)
35.290	60.00	Woods, Fair, HSG B (EX1, EX2, EX3, EX4, EX5, EX6, EX7, PR1, PR2, PR3, PR4, PR5, PR6, PR7)
11.720	79.00	Woods, Fair, HSG D (EX1, EX2, EX3, PR1, PR2, PR3)

HN_WSHEDS

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Solar
Type III 24-hr 2 Rainfall=3.42"

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Summary for Subcatchment EX1: WS1

Runoff = 2.80 cfs @ 12.51 hrs, Volume= 0.438 af, Depth> 0.63"

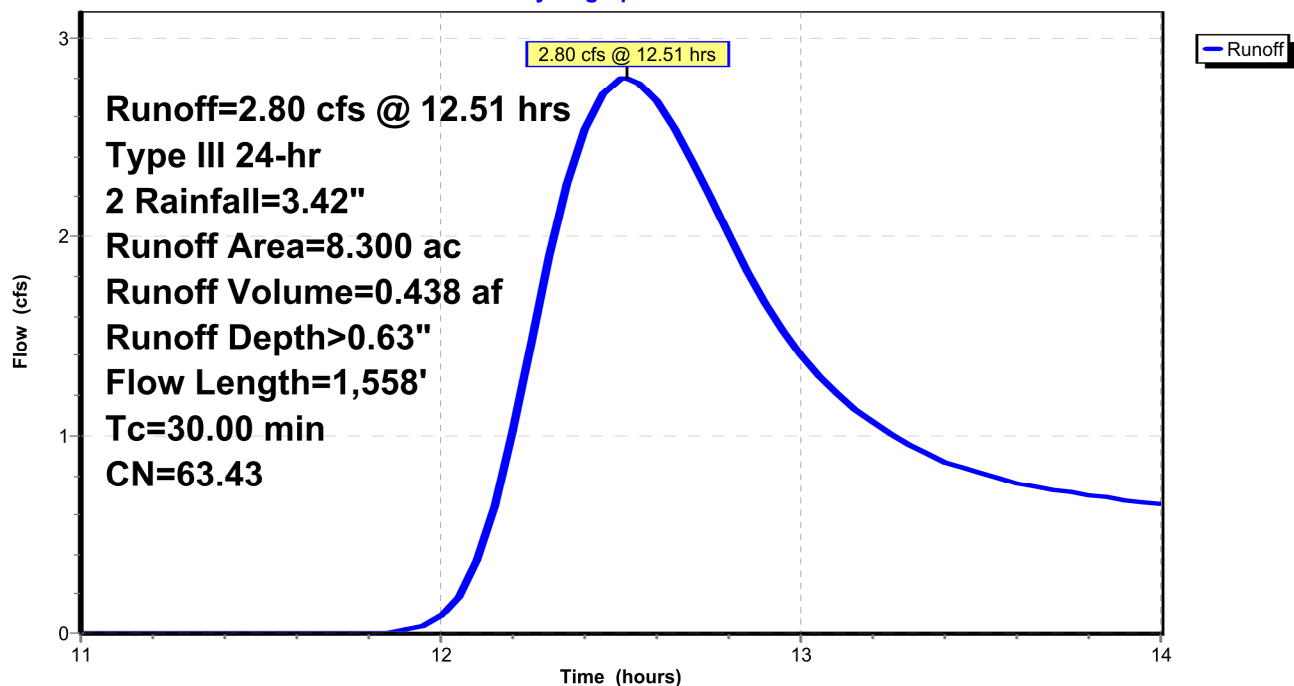
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
4.800	60.00	Woods, Fair, HSG B
1.500	79.00	Woods, Fair, HSG D
8.300	63.43	Weighted Average
8.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.86	508	0.2500	1.44		Lag/CN Method,
14.73	449	0.0325	0.51		Lag/CN Method,
9.41	601	0.1270	1.06		Lag/CN Method,
30.00	1,558				Total

Subcatchment EX1: WS1

Hydrograph



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Summary for Subcatchment EX2: WS2

Runoff = 5.92 cfs @ 12.16 hrs, Volume= 0.523 af, Depth> 1.01"

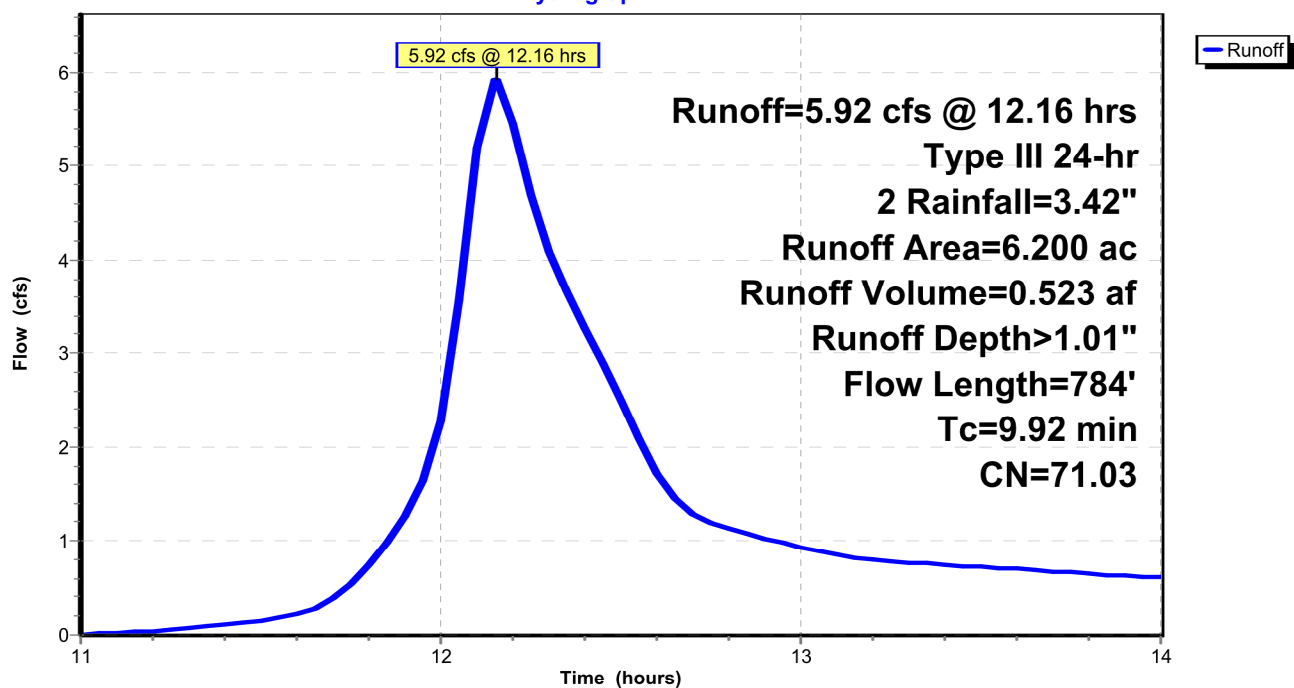
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
2.600	60.00	Woods, Fair, HSG B
3.600	79.00	Woods, Fair, HSG D
6.200	71.03	Weighted Average
6.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.95	277	0.2500	1.56		Lag/CN Method,
6.97	507	0.1180	1.21		Lag/CN Method,
9.92	784	Total			

Subcatchment EX2: WS2

Hydrograph



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Summary for Subcatchment EX3: WS3

Runoff = 3.28 cfs @ 12.04 hrs, Volume= 0.215 af, Depth> 1.43"

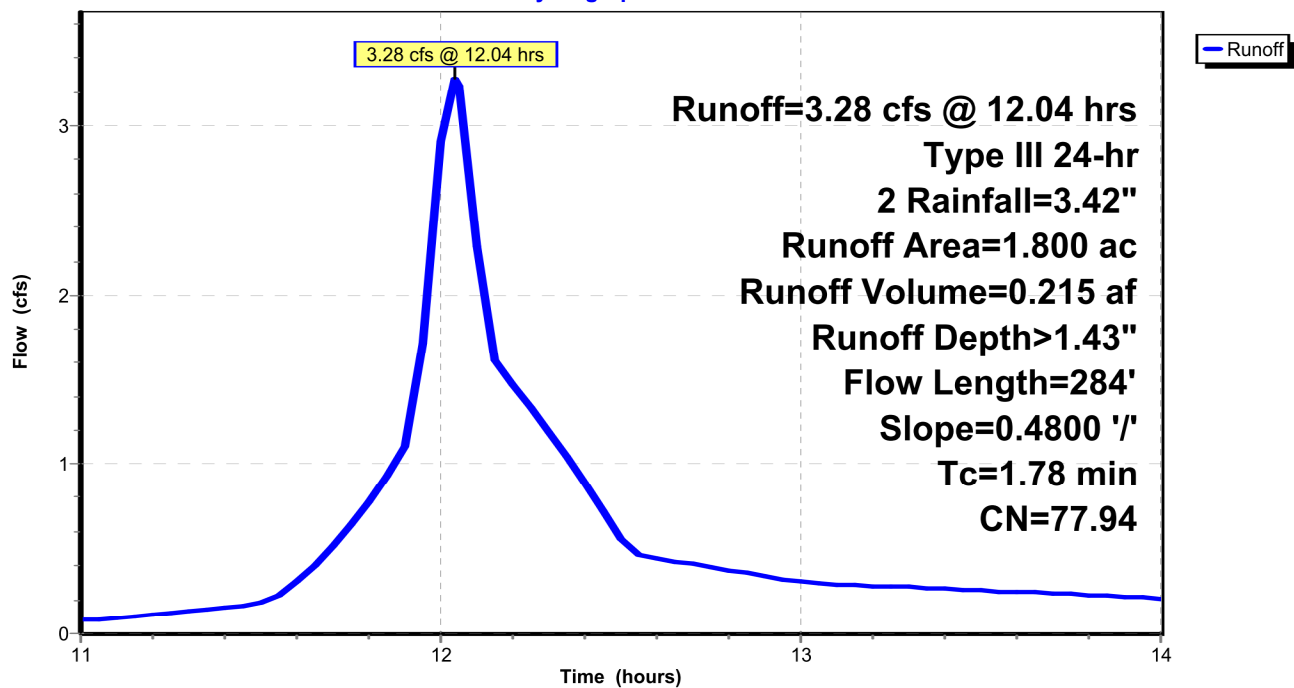
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
1.700	79.00	Woods, Fair, HSG D
0.100	60.00	Woods, Fair, HSG B
1.800	77.94	Weighted Average
1.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.78	284	0.4800	2.65		Lag/CN Method,

Subcatchment EX3: WS3

Hydrograph



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Solar
Type III 24-hr 2 Rainfall=3.42"

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Summary for Subcatchment EX4: WS4

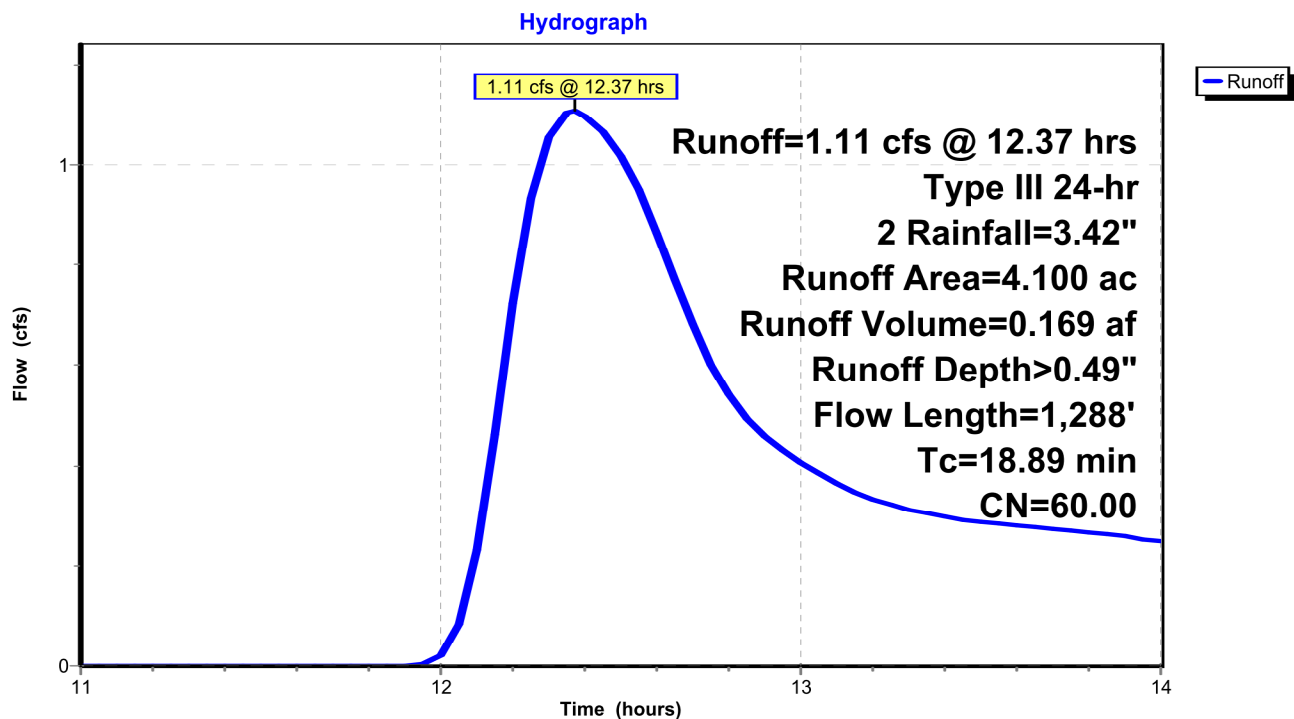
Runoff = 1.11 cfs @ 12.37 hrs, Volume= 0.169 af, Depth> 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
4.100	60.00	Woods, Fair, HSG B
4.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.79	616	0.2300	1.32		Lag/CN Method,
11.10	672	0.1300	1.01		Lag/CN Method,
18.89	1,288	Total			

Subcatchment EX4: WS4



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Summary for Subcatchment EX5: WS5

Runoff = 0.51 cfs @ 12.37 hrs, Volume= 0.078 af, Depth> 0.49"

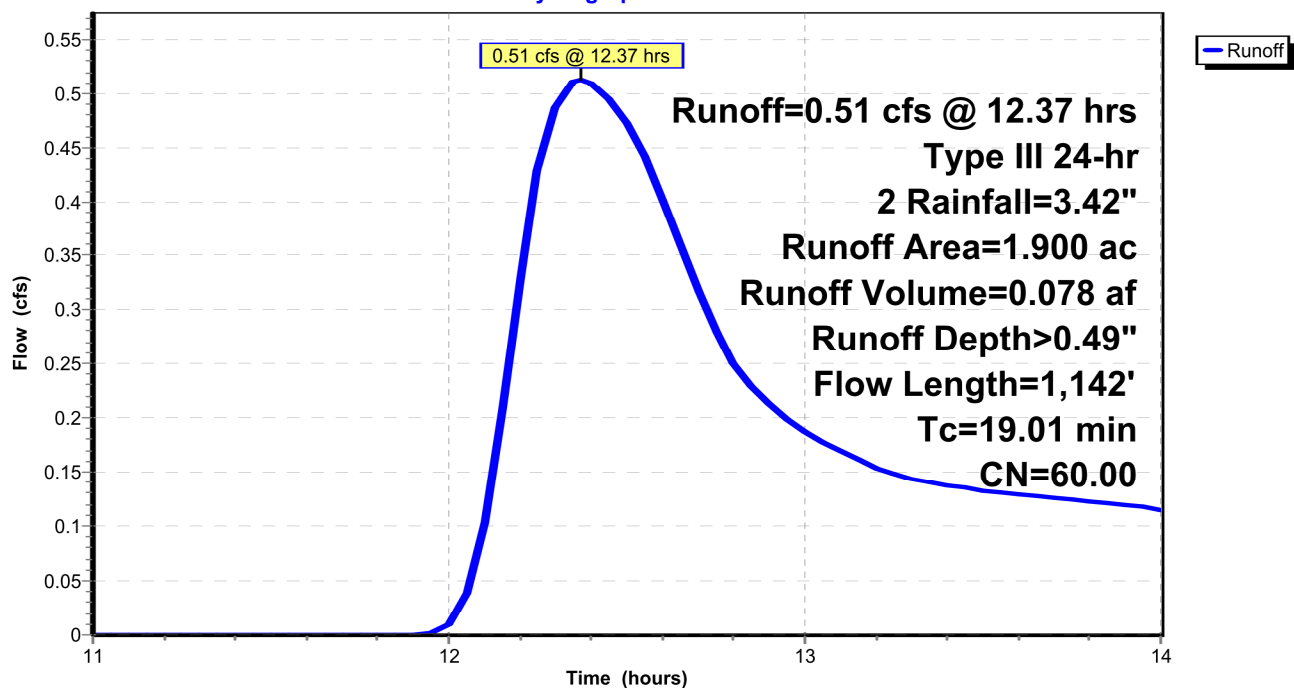
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
1.900	60.00	Woods, Fair, HSG B
1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.62	737	0.2500	1.43		Lag/CN Method,
10.39	405	0.0660	0.65		Lag/CN Method,
19.01	1,142	Total			

Subcatchment EX5: WS5

Hydrograph



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Type III 24-hr 2 Rainfall=3.42"

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Summary for Subcatchment EX6: WS6

Runoff = 0.88 cfs @ 12.24 hrs, Volume= 0.120 af, Depth> 0.50"

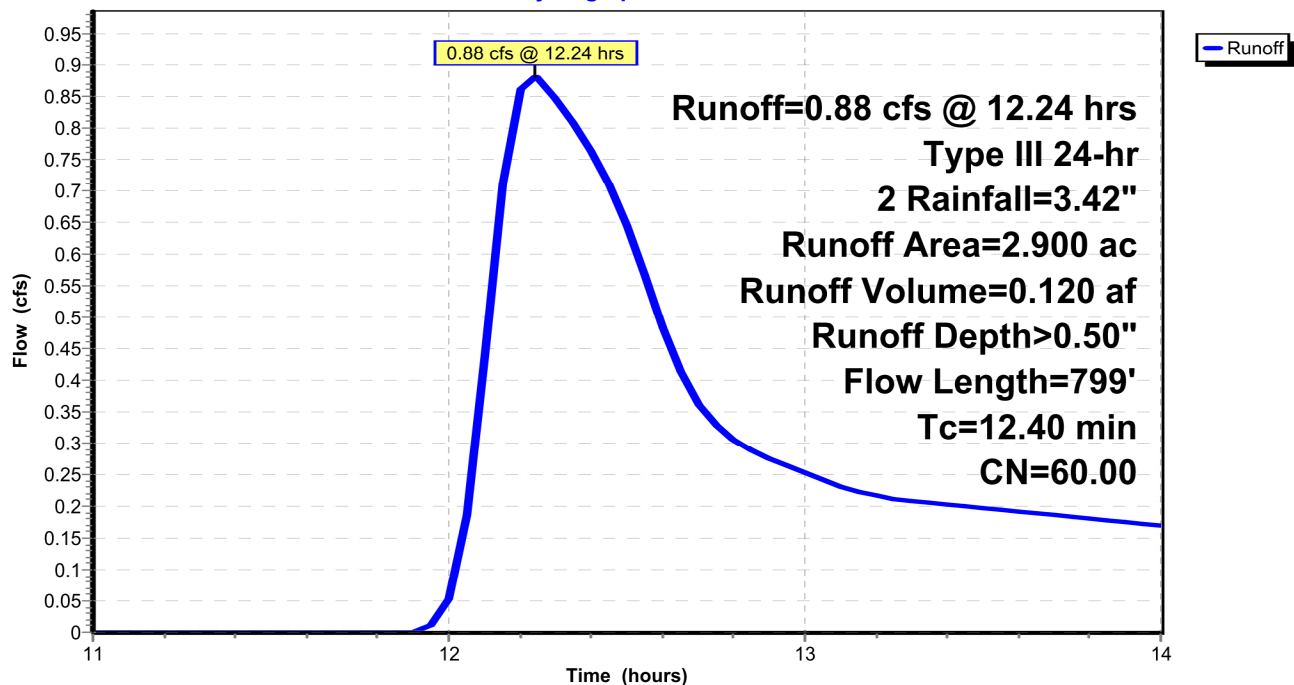
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
2.900	60.00	Woods, Fair, HSG B
2.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.68	237	0.1380	0.84		Lag/CN Method,
3.84	330	0.3490	1.43		Lag/CN Method,
3.88	232	0.1940	1.00		Lag/CN Method,
12.40	799	Total			

Subcatchment EX6: WS6

Hydrograph



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Type III 24-hr 2 Rainfall=3.42"

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Summary for Subcatchment EX7: WS7

Runoff = 0.52 cfs @ 12.23 hrs, Volume= 0.070 af, Depth> 0.50"

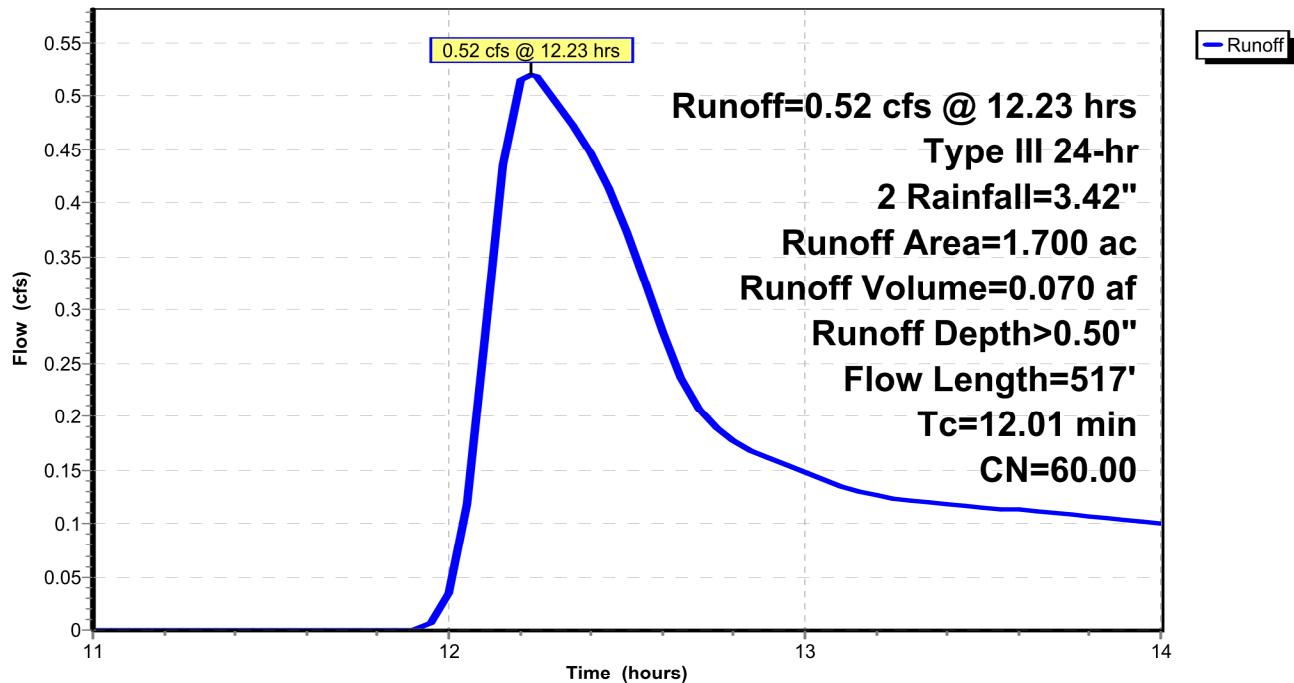
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
1.700	60.00	Woods, Fair, HSG B
1.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.20	168	0.3600	1.27		Lag/CN Method,
2.22	110	0.1800	0.83		Lag/CN Method,
5.95	138	0.0360	0.39		Lag/CN Method,
1.64	101	0.2870	1.03		Lag/CN Method,
12.01	517	Total			

Subcatchment EX7: WS7

Hydrograph



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Summary for Subcatchment PR1: PR WS1

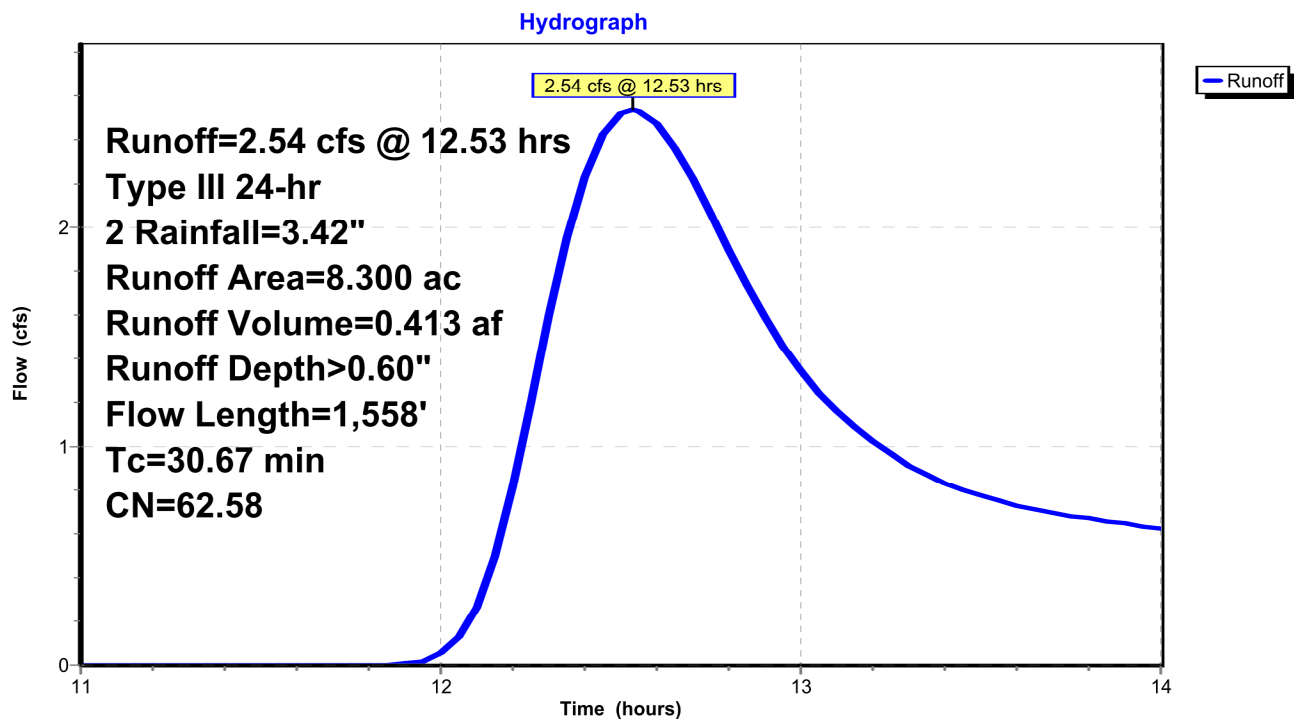
Runoff = 2.54 cfs @ 12.53 hrs, Volume= 0.413 af, Depth> 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
3.550	58.00	Meadow, non-grazed, HSG B
1.500	79.00	Woods, Fair, HSG D
1.250	60.00	Woods, Fair, HSG B
8.300	62.58	Weighted Average
8.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.99	508	0.2500	1.41		Lag/CN Method,
15.06	449	0.0325	0.50		Lag/CN Method,
9.62	601	0.1270	1.04		Lag/CN Method,
30.67	1,558	Total			

Subcatchment PR1: PR WS1



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Solar
Type III 24-hr 2 Rainfall=3.42"

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Summary for Subcatchment PR2: PR WS2

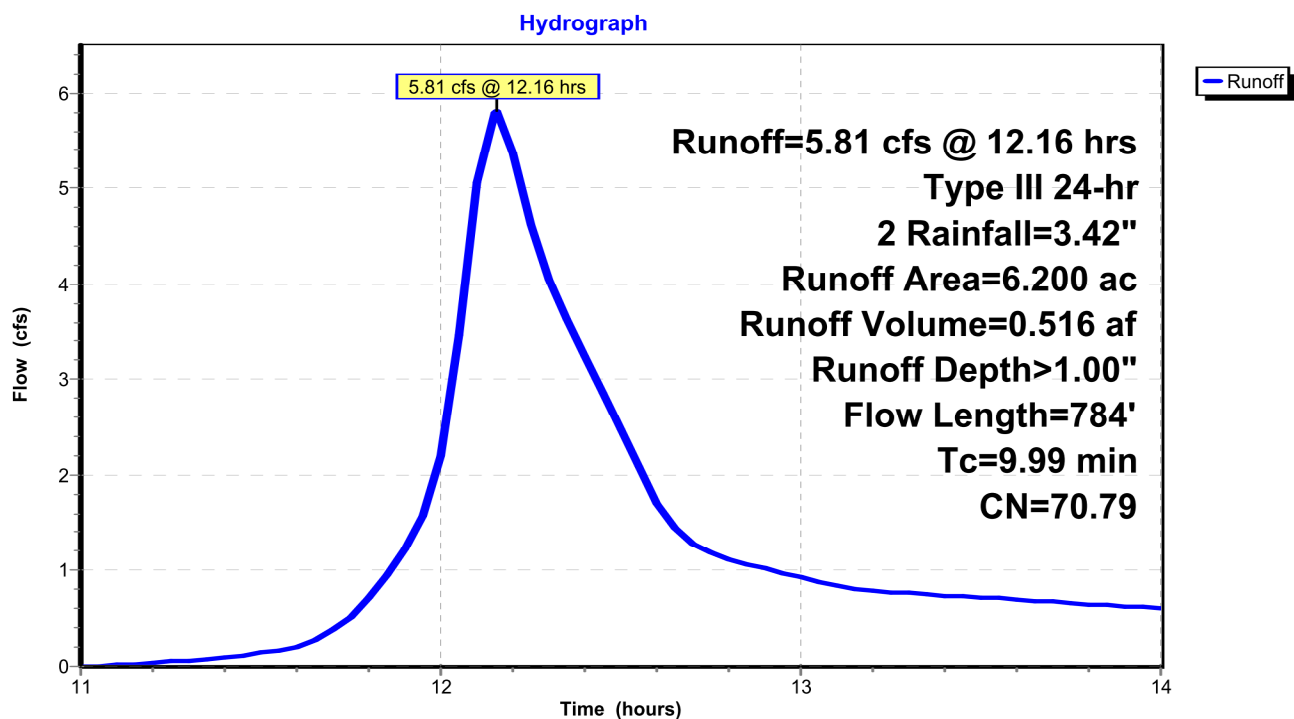
Runoff = 5.81 cfs @ 12.16 hrs, Volume= 0.516 af, Depth> 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
2.600	60.00	Woods, Fair, HSG B
2.120	79.00	Woods, Fair, HSG D
1.480	78.00	Meadow, non-grazed, HSG D
6.200	70.79	Weighted Average
6.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.97	277	0.2500	1.55		Lag/CN Method,
7.02	507	0.1180	1.20		Lag/CN Method,
9.99	784	Total			

Subcatchment PR2: PR WS2



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Solar
Type III 24-hr 2 Rainfall=3.42"

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Summary for Subcatchment PR3: PRWS3

Runoff = 3.25 cfs @ 12.04 hrs, Volume= 0.213 af, Depth> 1.42"

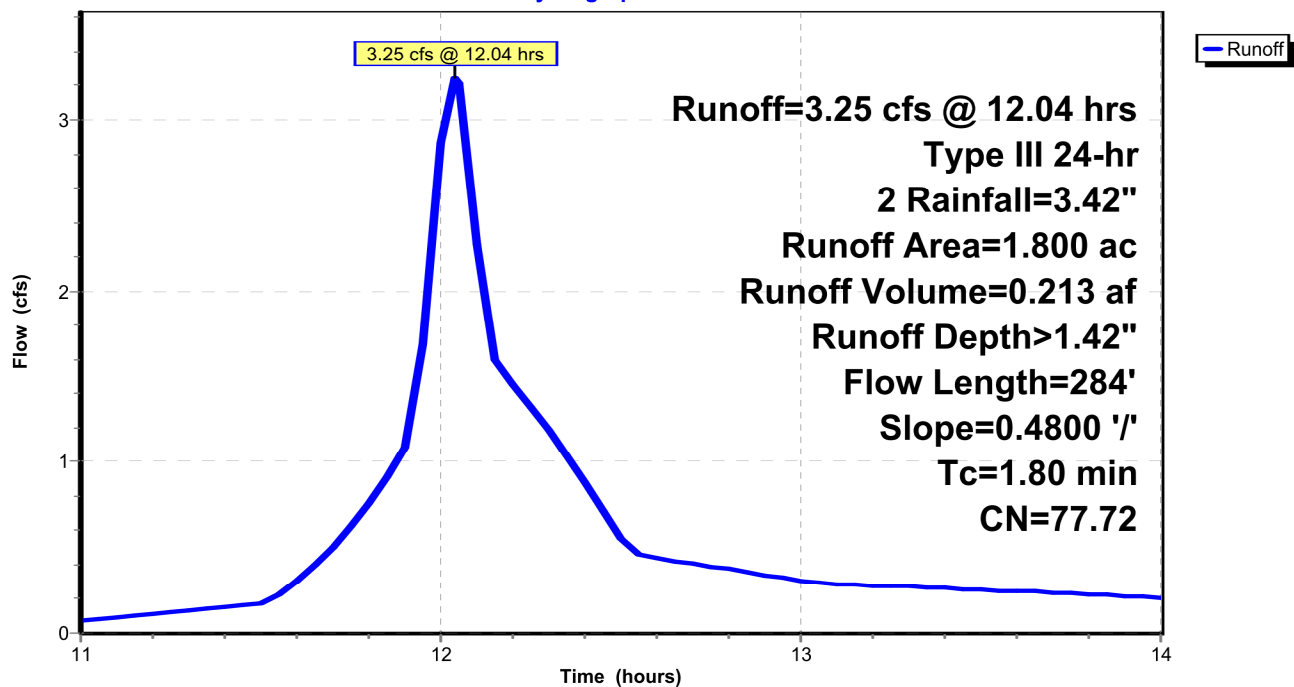
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
1.300	79.00	Woods, Fair, HSG D
0.100	60.00	Woods, Fair, HSG B
0.400	78.00	Meadow, non-grazed, HSG D
1.800	77.72	Weighted Average
1.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.80	284	0.4800	2.63		Lag/CN Method,

Subcatchment PR3: PRWS3

Hydrograph



HN_WSHEDS

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Solar
Type III 24-hr 2 Rainfall=3.42"

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Summary for Subcatchment PR4: PRWS4

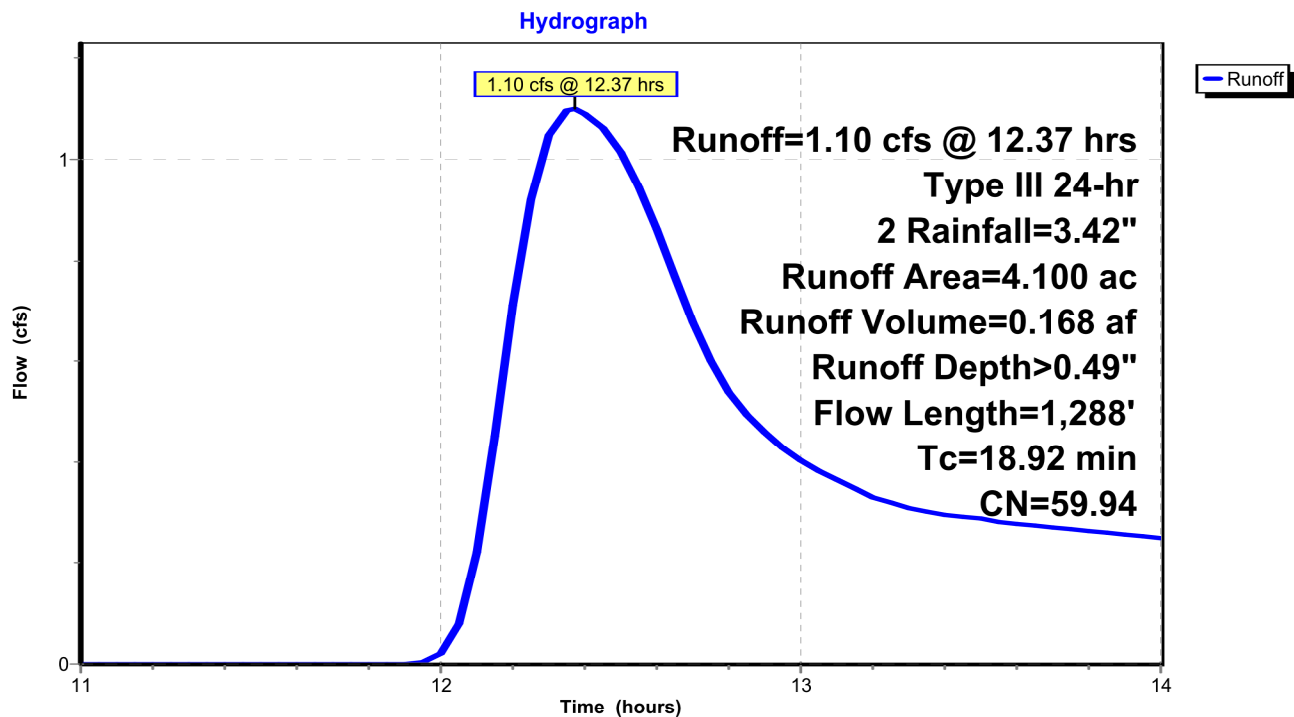
Runoff = 1.10 cfs @ 12.37 hrs, Volume= 0.168 af, Depth> 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
3.970	60.00	Woods, Fair, HSG B
0.130	58.00	Meadow, non-grazed, HSG B
4.100	59.94	Weighted Average
4.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.80	616	0.2300	1.32		Lag/CN Method,
11.12	672	0.1300	1.01		Lag/CN Method,
18.92	1,288				Total

Subcatchment PR4: PRWS4



HN_WSHEDS

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Solar
Type III 24-hr 2 Rainfall=3.42"

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Summary for Subcatchment PR5: PRWS5

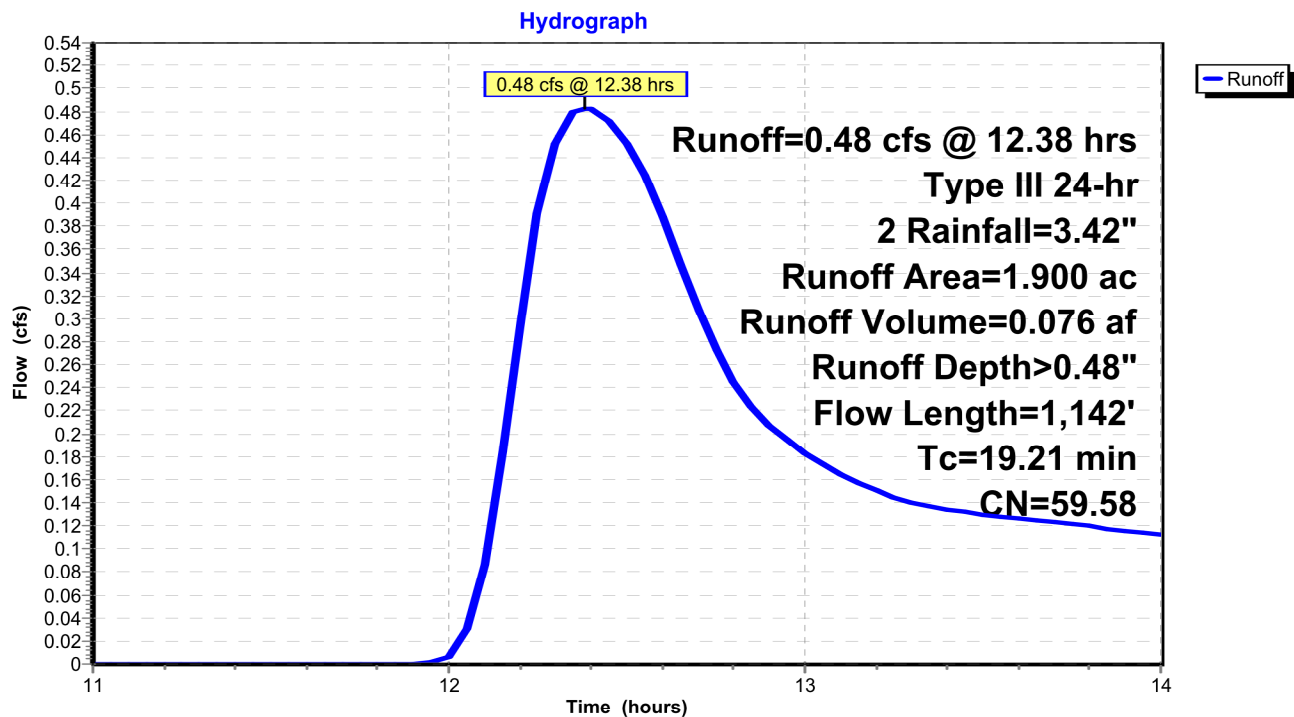
Runoff = 0.48 cfs @ 12.38 hrs, Volume= 0.076 af, Depth> 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
1.500	60.00	Woods, Fair, HSG B
0.400	58.00	Meadow, non-grazed, HSG B
1.900	59.58	Weighted Average
1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.71	737	0.2500	1.41		Lag/CN Method,
10.50	405	0.0660	0.64		Lag/CN Method,
19.21	1,142	Total			

Subcatchment PR5: PRWS5



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Solar
Type III 24-hr 2 Rainfall=3.42"

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Summary for Subcatchment PR6: PRWS6

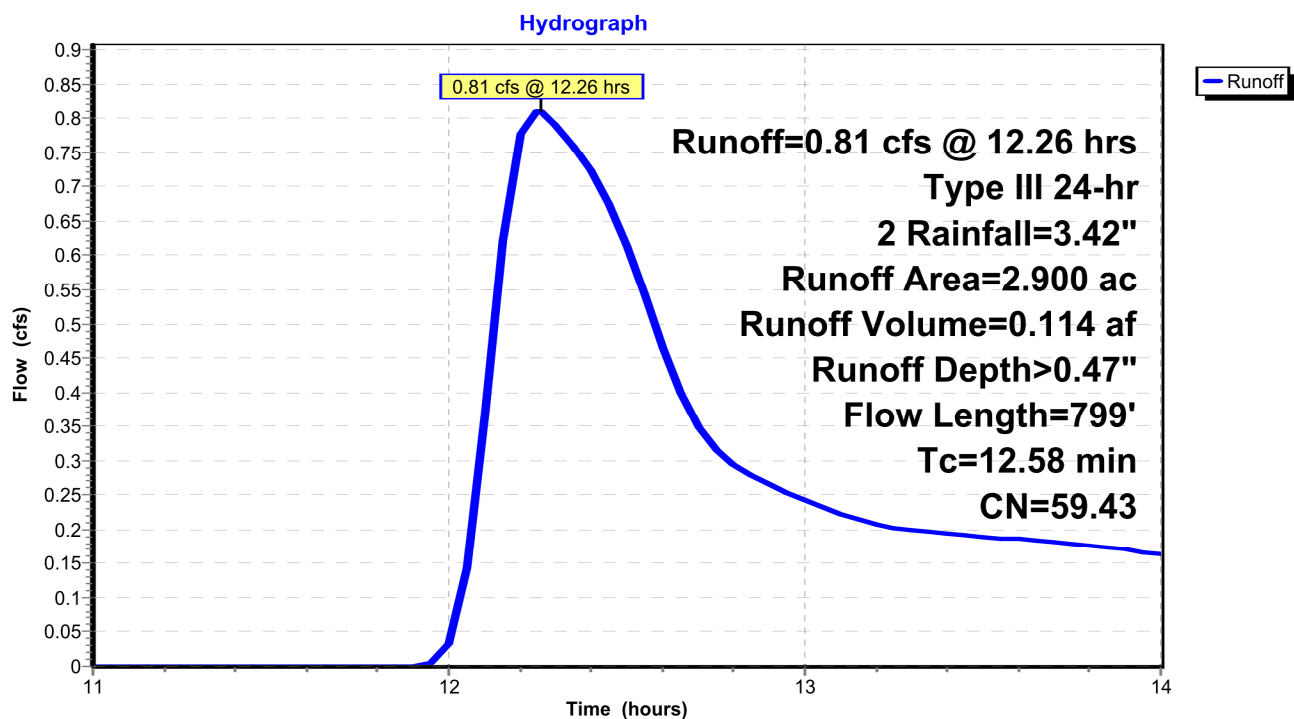
Runoff = 0.81 cfs @ 12.26 hrs, Volume= 0.114 af, Depth> 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
2.070	60.00	Woods, Fair, HSG B
0.830	58.00	Meadow, non-grazed, HSG B
2.900	59.43	Weighted Average
2.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.75	237	0.1380	0.83		Lag/CN Method,
3.89	330	0.3490	1.41		Lag/CN Method,
3.94	232	0.1940	0.98		Lag/CN Method,
12.58	799	Total			

Subcatchment PR6: PRWS6



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Solar
Type III 24-hr 2 Rainfall=3.42"

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Summary for Subcatchment PR7: PRWS7

Runoff = 0.52 cfs @ 12.23 hrs, Volume= 0.070 af, Depth> 0.50"

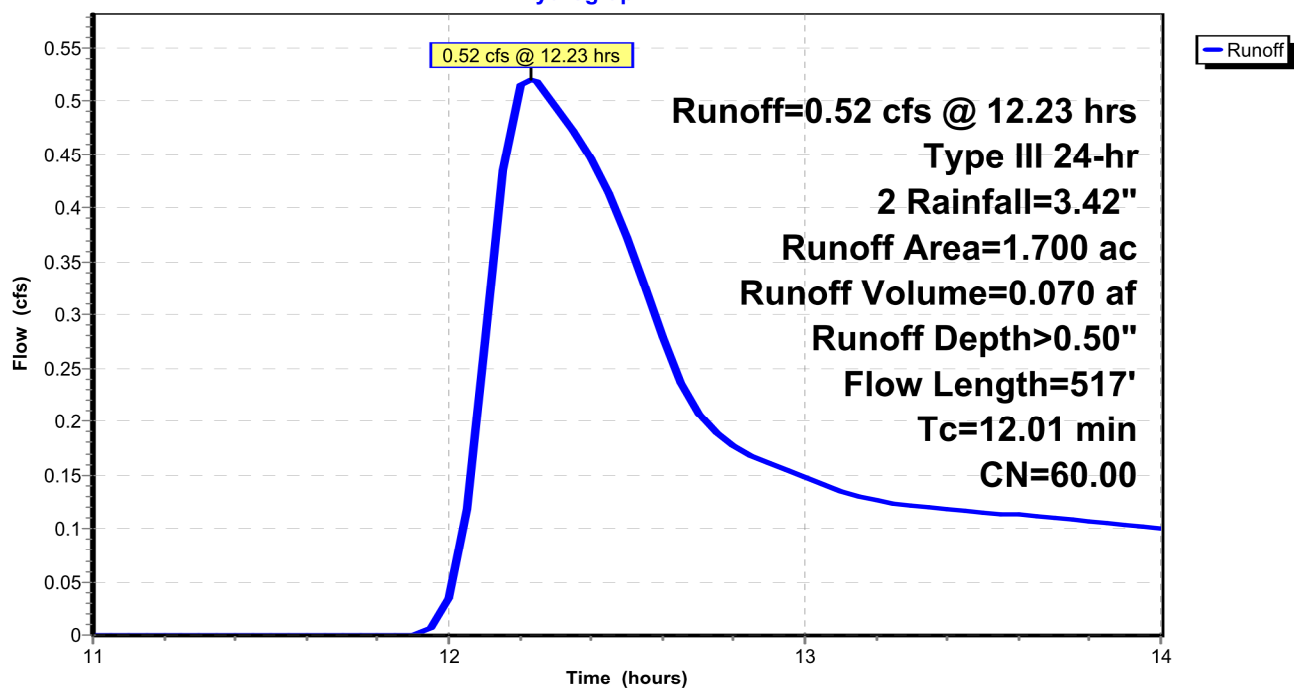
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
1.700	60.00	Woods, Fair, HSG B
1.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.20	168	0.3600	1.27		Lag/CN Method,
2.22	110	0.1800	0.83		Lag/CN Method,
5.95	138	0.0360	0.39		Lag/CN Method,
1.64	101	0.2870	1.03		Lag/CN Method,
12.01	517	Total			

Subcatchment PR7: PRWS7

Hydrograph



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment EX1: WS1

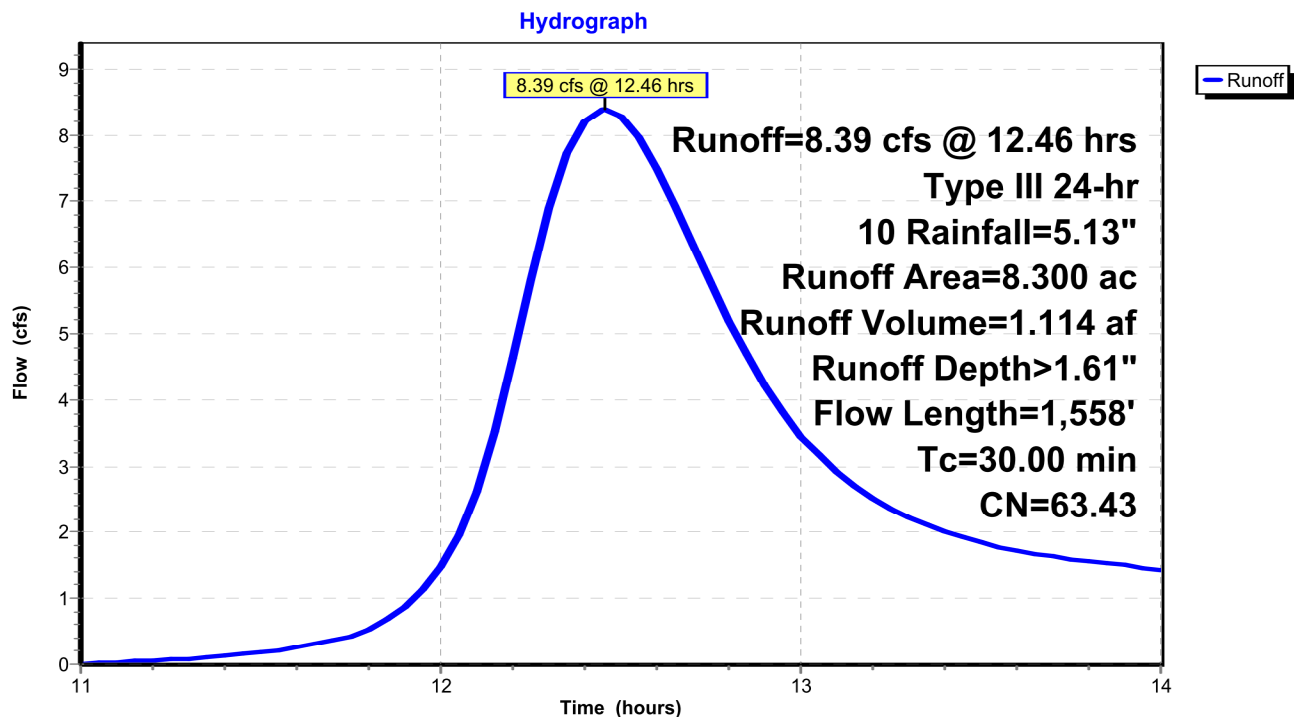
Runoff = 8.39 cfs @ 12.46 hrs, Volume= 1.114 af, Depth> 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
4.800	60.00	Woods, Fair, HSG B
1.500	79.00	Woods, Fair, HSG D
8.300	63.43	Weighted Average
8.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.86	508	0.2500	1.44		Lag/CN Method,
14.73	449	0.0325	0.51		Lag/CN Method,
9.41	601	0.1270	1.06		Lag/CN Method,
30.00	1,558				Total

Subcatchment EX1: WS1



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment EX2: WS2

Runoff = 13.77 cfs @ 12.15 hrs, Volume= 1.144 af, Depth> 2.21"

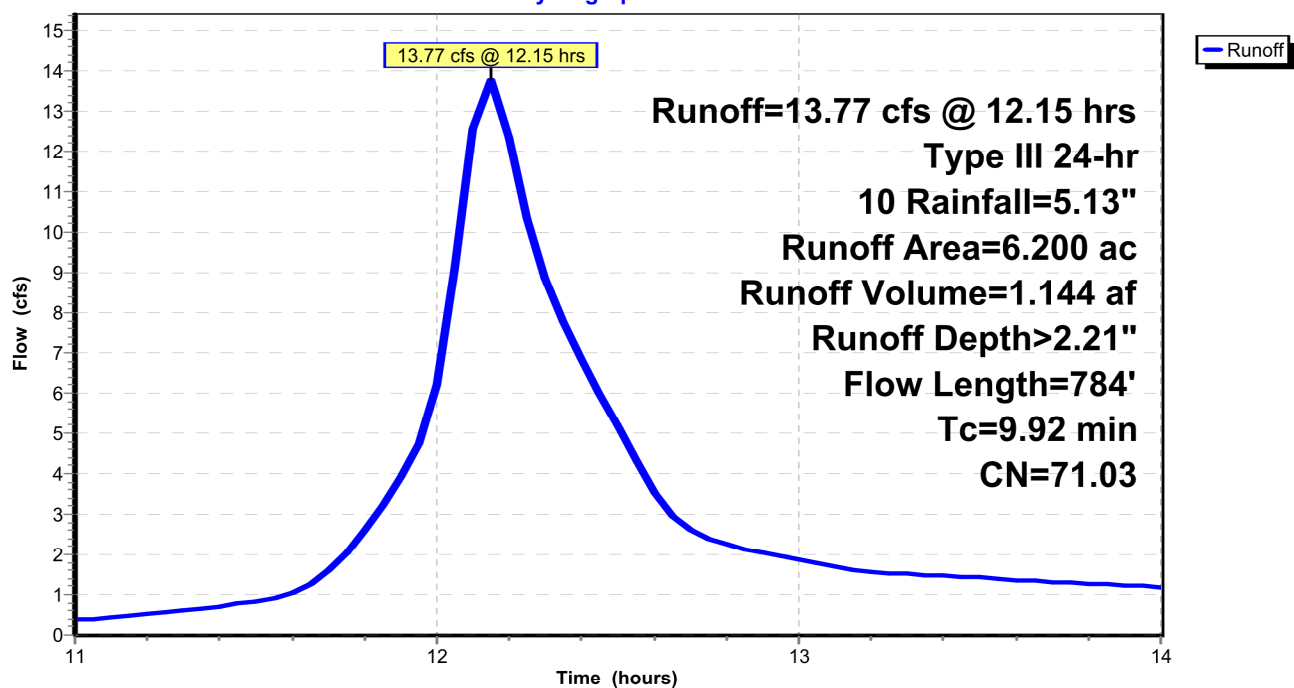
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
2.600	60.00	Woods, Fair, HSG B
3.600	79.00	Woods, Fair, HSG D
6.200	71.03	Weighted Average
6.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.95	277	0.2500	1.56		Lag/CN Method,
6.97	507	0.1180	1.21		Lag/CN Method,
9.92	784	Total			

Subcatchment EX2: WS2

Hydrograph



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment EX3: WS3

Runoff = 6.51 cfs @ 12.03 hrs, Volume= 0.423 af, Depth> 2.82"

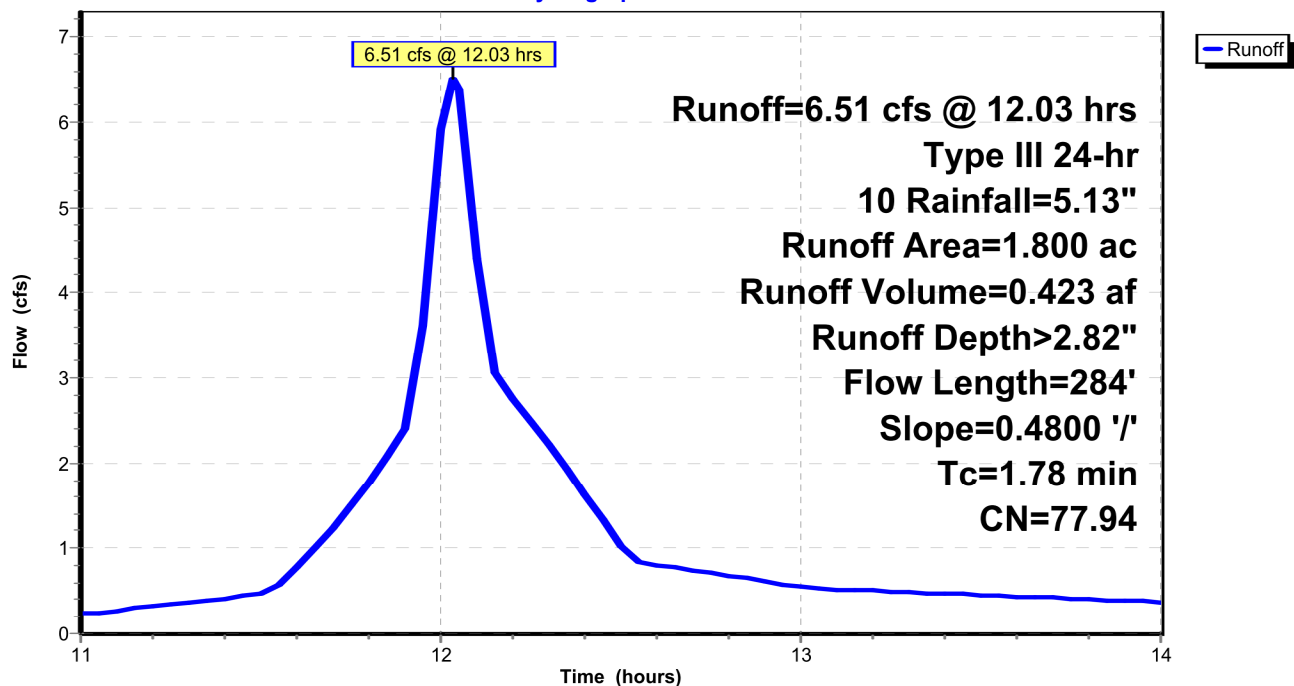
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
1.700	79.00	Woods, Fair, HSG D
0.100	60.00	Woods, Fair, HSG B
1.800	77.94	Weighted Average
1.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.78	284	0.4800	2.65		Lag/CN Method,

Subcatchment EX3: WS3

Hydrograph



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment EX4: WS4

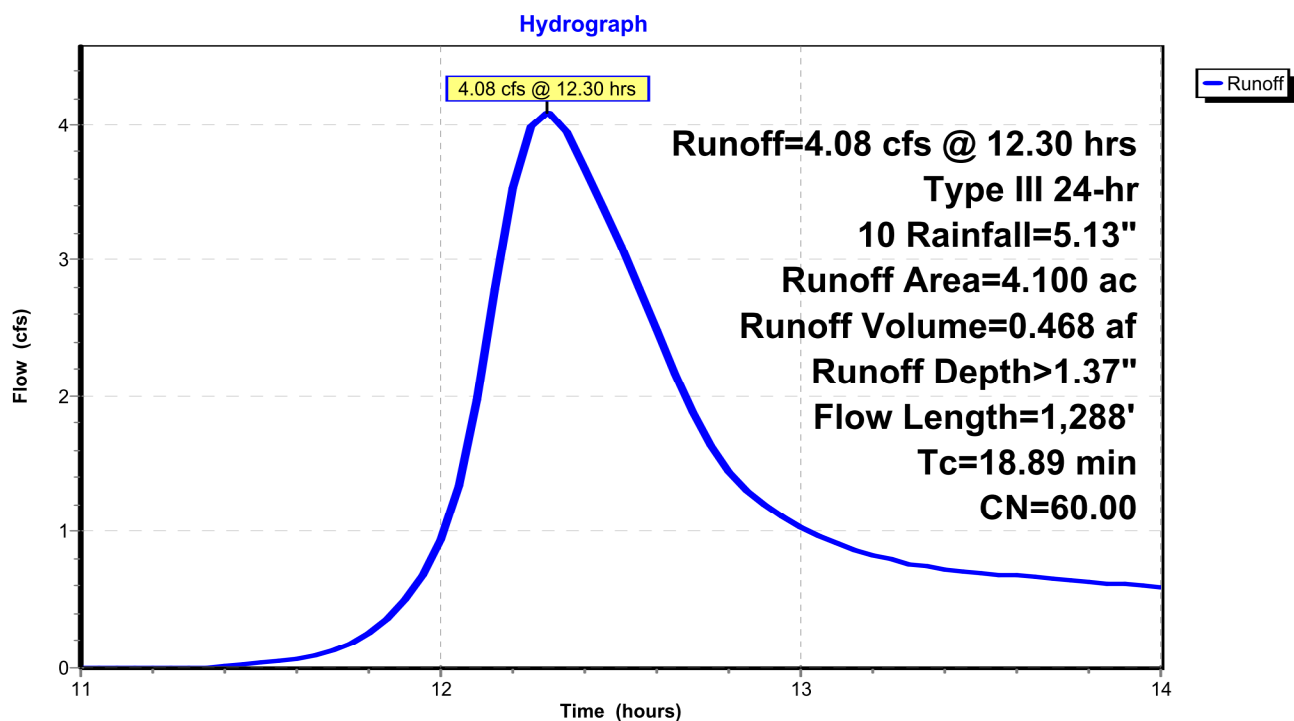
Runoff = 4.08 cfs @ 12.30 hrs, Volume= 0.468 af, Depth> 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
4.100	60.00	Woods, Fair, HSG B
4.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.79	616	0.2300	1.32		Lag/CN Method,
11.10	672	0.1300	1.01		Lag/CN Method,
18.89	1,288	Total			

Subcatchment EX4: WS4



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment EX5: WS5

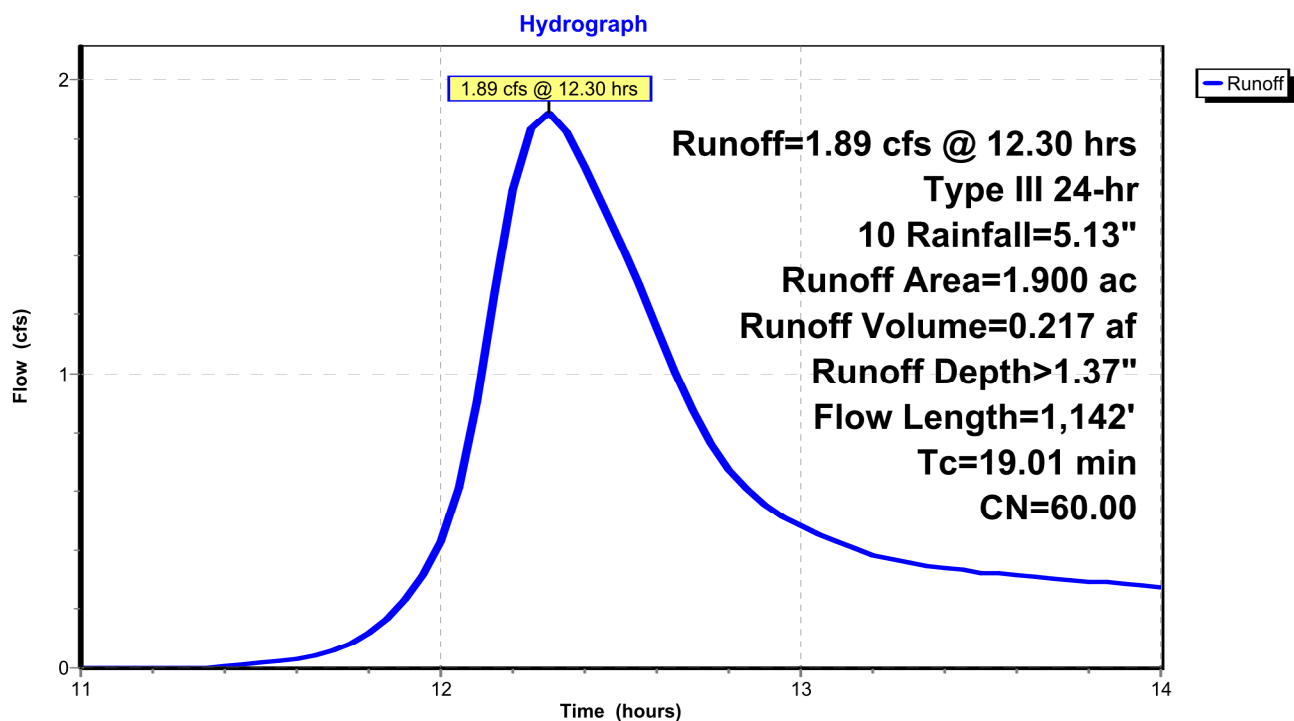
Runoff = 1.89 cfs @ 12.30 hrs, Volume= 0.217 af, Depth> 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
1.900	60.00	Woods, Fair, HSG B
1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.62	737	0.2500	1.43		Lag/CN Method,
10.39	405	0.0660	0.65		Lag/CN Method,
19.01	1,142	Total			

Subcatchment EX5: WS5



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment EX6: WS6

Runoff = 3.38 cfs @ 12.20 hrs, Volume= 0.332 af, Depth> 1.37"

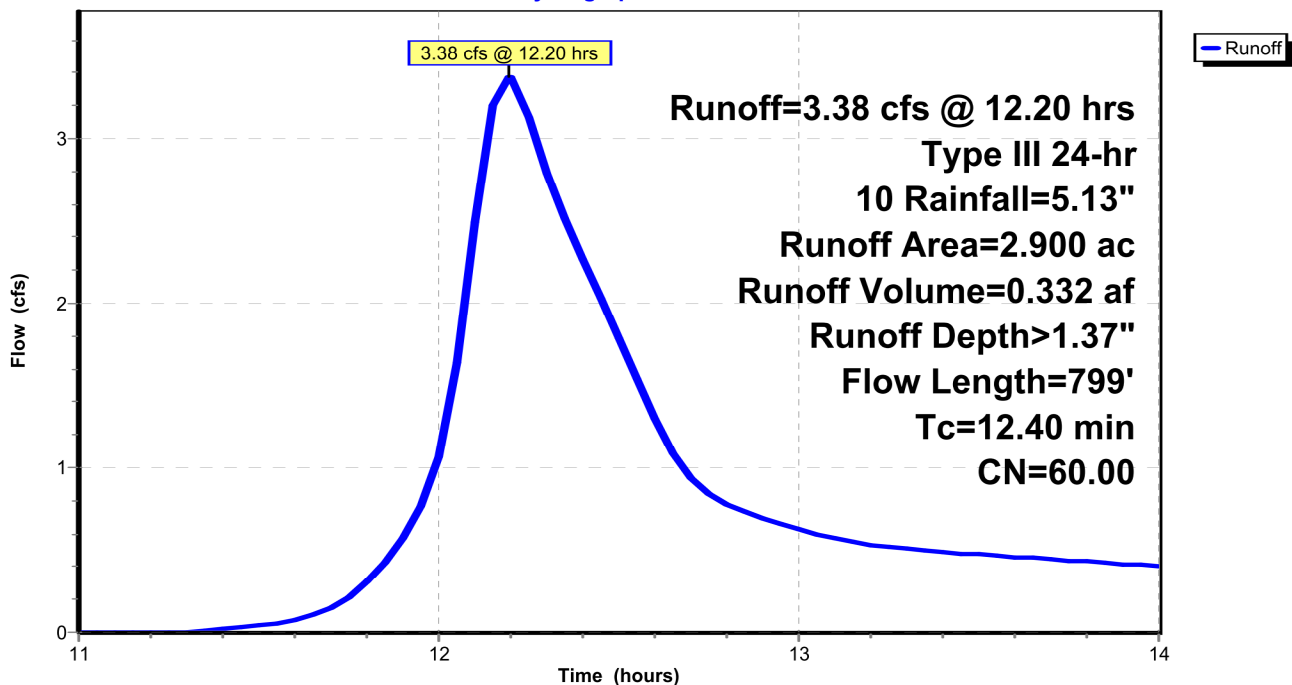
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
2.900	60.00	Woods, Fair, HSG B
2.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.68	237	0.1380	0.84		Lag/CN Method,
3.84	330	0.3490	1.43		Lag/CN Method,
3.88	232	0.1940	1.00		Lag/CN Method,
12.40	799	Total			

Subcatchment EX6: WS6

Hydrograph



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment EX7: WS7

Runoff = 2.00 cfs @ 12.19 hrs, Volume= 0.195 af, Depth> 1.37"

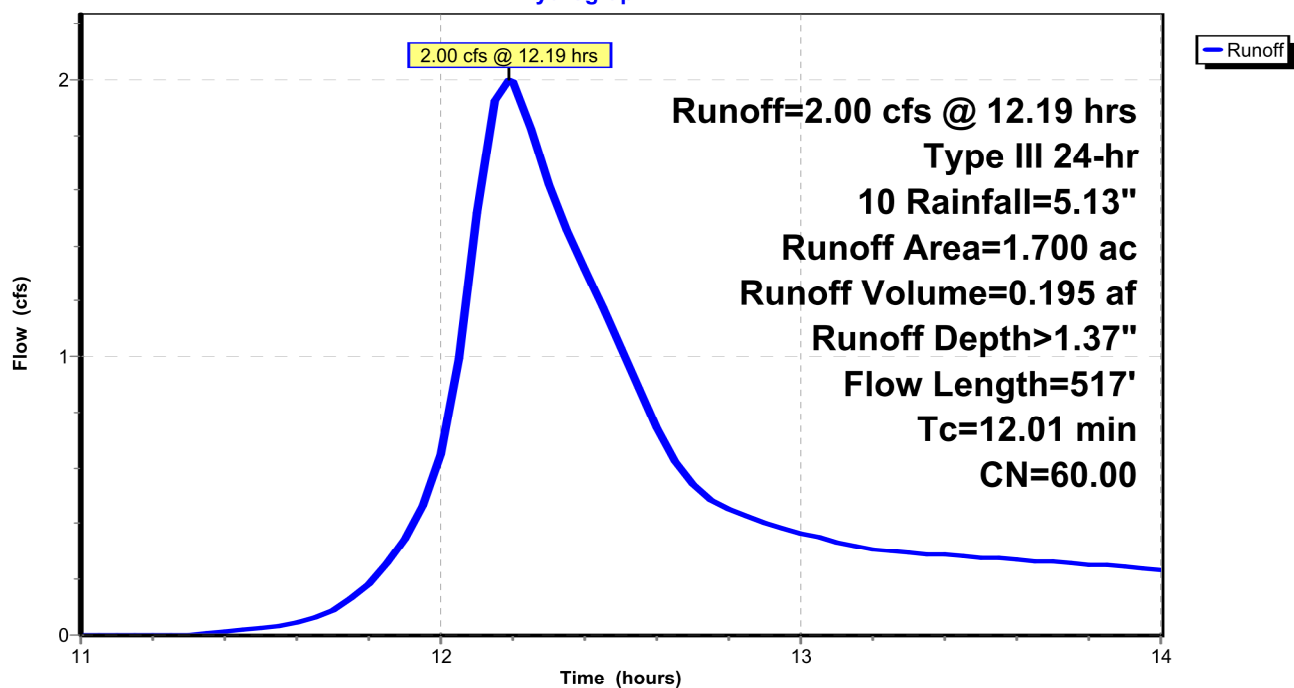
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
1.700	60.00	Woods, Fair, HSG B
1.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.20	168	0.3600	1.27		Lag/CN Method,
2.22	110	0.1800	0.83		Lag/CN Method,
5.95	138	0.0360	0.39		Lag/CN Method,
1.64	101	0.2870	1.03		Lag/CN Method,
12.01	517	Total			

Subcatchment EX7: WS7

Hydrograph



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment PR1: PR WS1

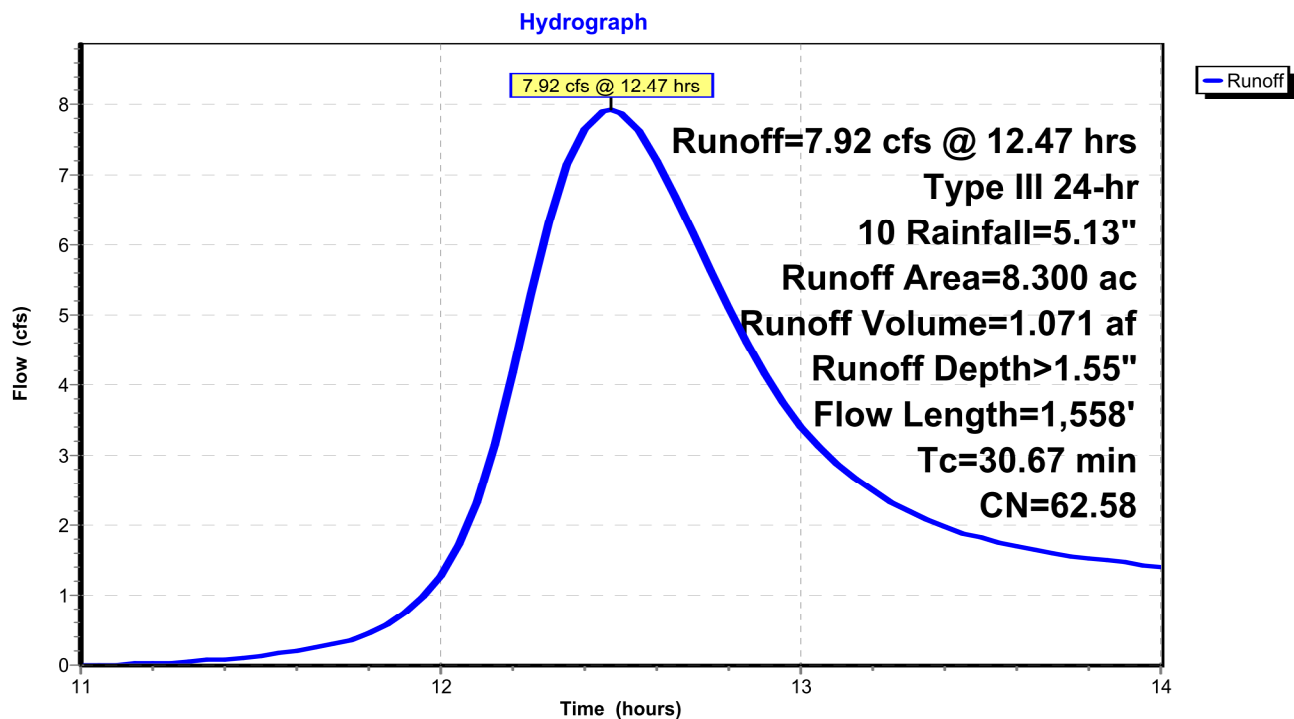
Runoff = 7.92 cfs @ 12.47 hrs, Volume= 1.071 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
3.550	58.00	Meadow, non-grazed, HSG B
1.500	79.00	Woods, Fair, HSG D
1.250	60.00	Woods, Fair, HSG B
8.300	62.58	Weighted Average
8.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.99	508	0.2500	1.41		Lag/CN Method,
15.06	449	0.0325	0.50		Lag/CN Method,
9.62	601	0.1270	1.04		Lag/CN Method,
30.67	1,558	Total			

Subcatchment PR1: PR WS1



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment PR2: PR WS2

Runoff = 13.61 cfs @ 12.15 hrs, Volume= 1.133 af, Depth> 2.19"

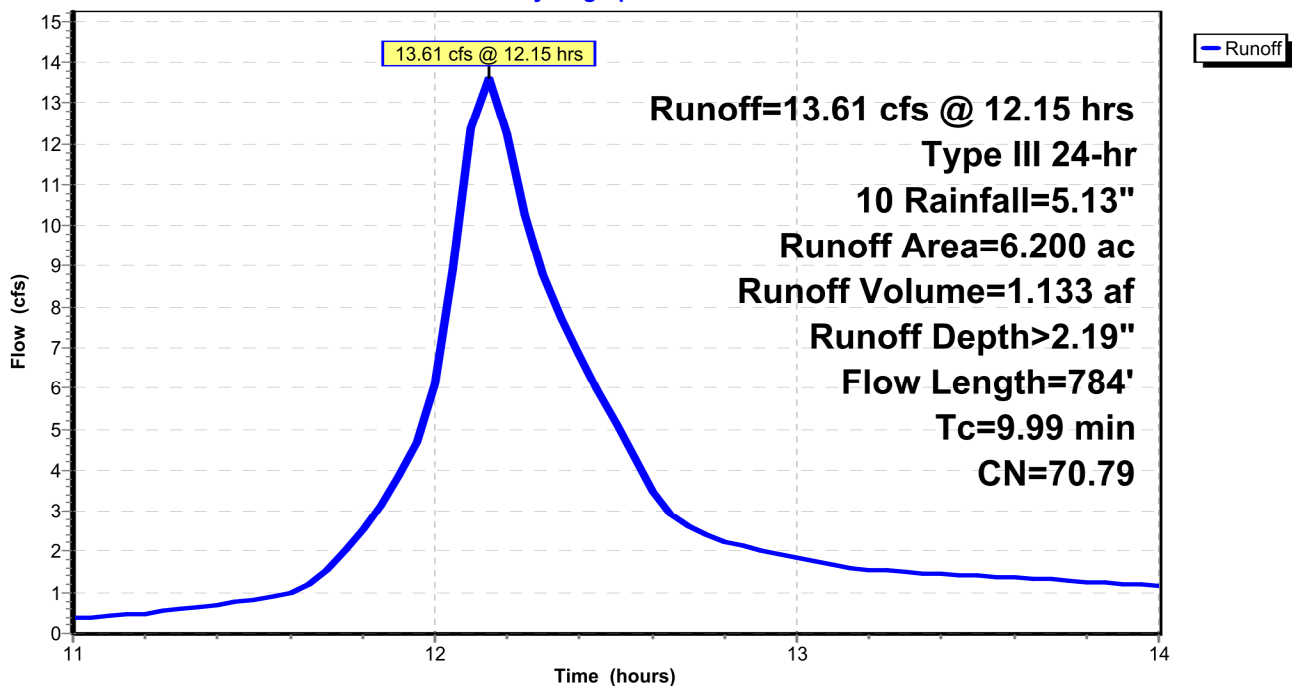
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
2.600	60.00	Woods, Fair, HSG B
2.120	79.00	Woods, Fair, HSG D
1.480	78.00	Meadow, non-grazed, HSG D
6.200	70.79	Weighted Average
6.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.97	277	0.2500	1.55		Lag/CN Method,
7.02	507	0.1180	1.20		Lag/CN Method,
9.99	784	Total			

Subcatchment PR2: PR WS2

Hydrograph



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment PR3: PRWS3

Runoff = 6.47 cfs @ 12.04 hrs, Volume= 0.420 af, Depth> 2.80"

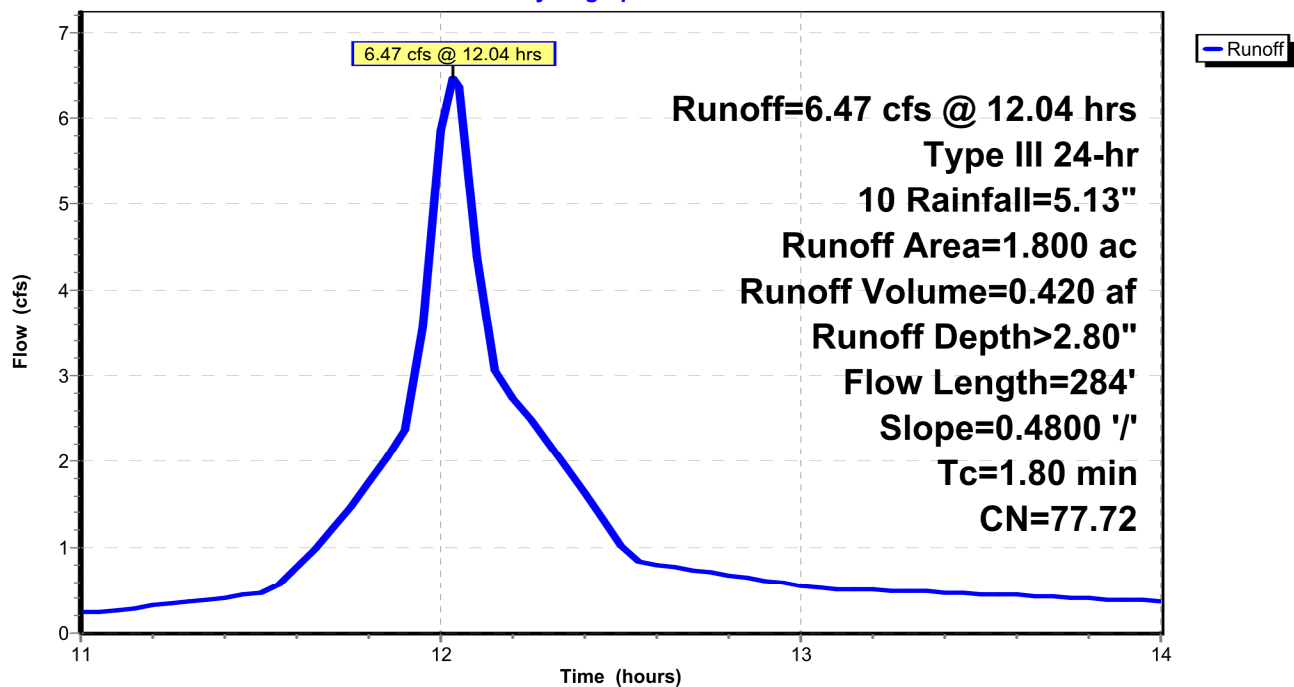
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
1.300	79.00	Woods, Fair, HSG D
0.100	60.00	Woods, Fair, HSG B
0.400	78.00	Meadow, non-grazed, HSG D
1.800	77.72	Weighted Average
1.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.80	284	0.4800	2.63		Lag/CN Method,

Subcatchment PR3: PRWS3

Hydrograph



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment PR4: PRWS4

Runoff = 4.07 cfs @ 12.30 hrs, Volume= 0.467 af, Depth> 1.37"

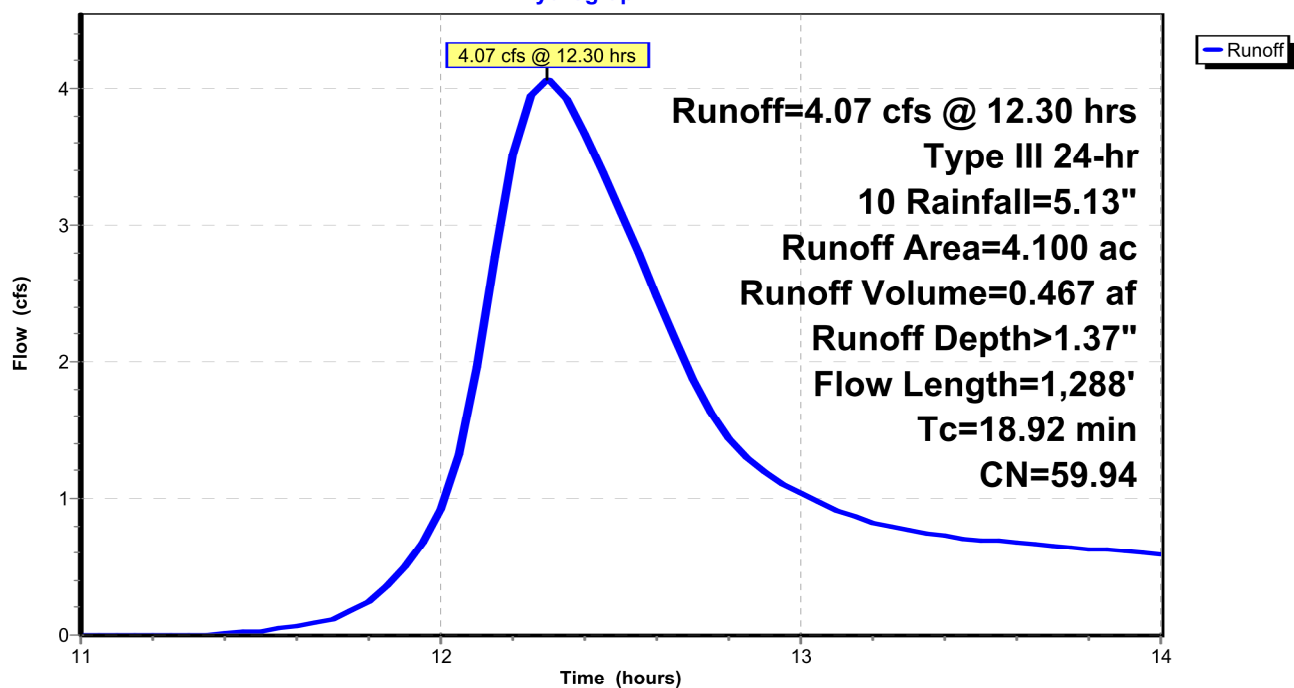
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
3.970	60.00	Woods, Fair, HSG B
0.130	58.00	Meadow, non-grazed, HSG B
4.100	59.94	Weighted Average
4.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.80	616	0.2300	1.32		Lag/CN Method,
11.12	672	0.1300	1.01		Lag/CN Method,
18.92	1,288	Total			

Subcatchment PR4: PRWS4

Hydrograph



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment PR5: PRWS5

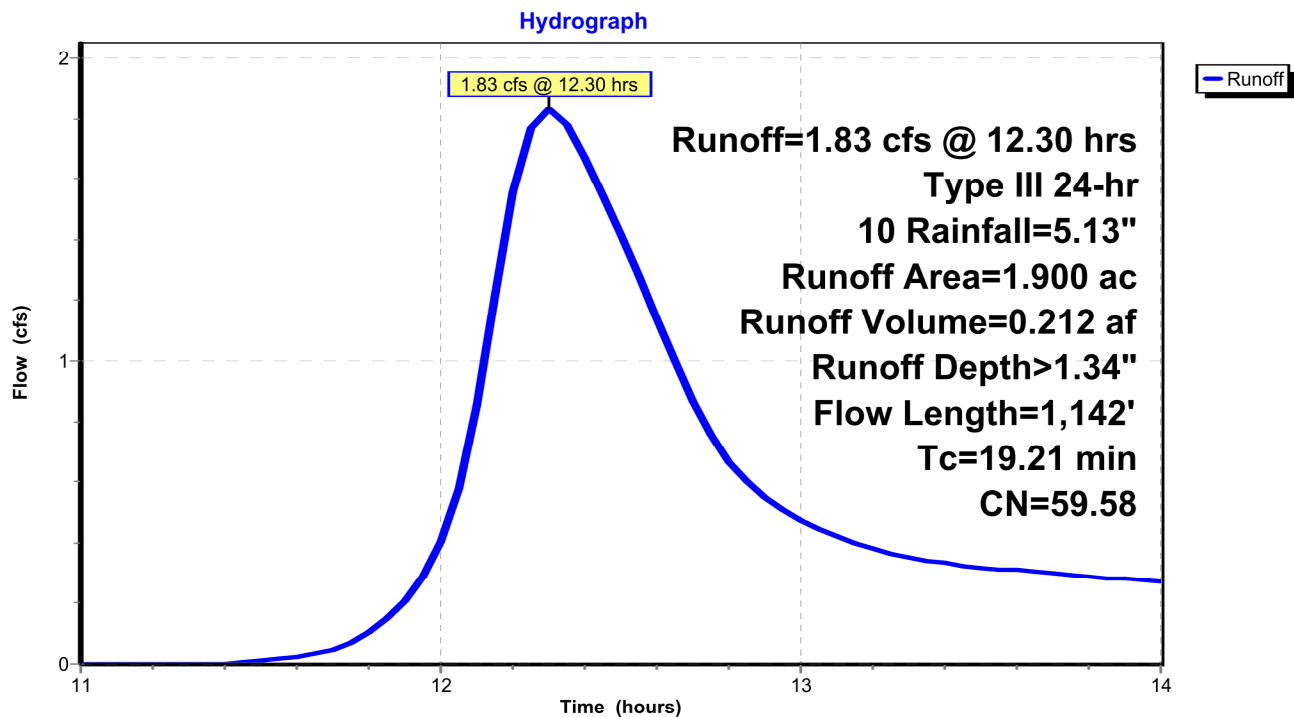
Runoff = 1.83 cfs @ 12.30 hrs, Volume= 0.212 af, Depth> 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
1.500	60.00	Woods, Fair, HSG B
0.400	58.00	Meadow, non-grazed, HSG B
1.900	59.58	Weighted Average
1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.71	737	0.2500	1.41		Lag/CN Method,
10.50	405	0.0660	0.64		Lag/CN Method,
19.21	1,142	Total			

Subcatchment PR5: PRWS5



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment PR6: PRWS6

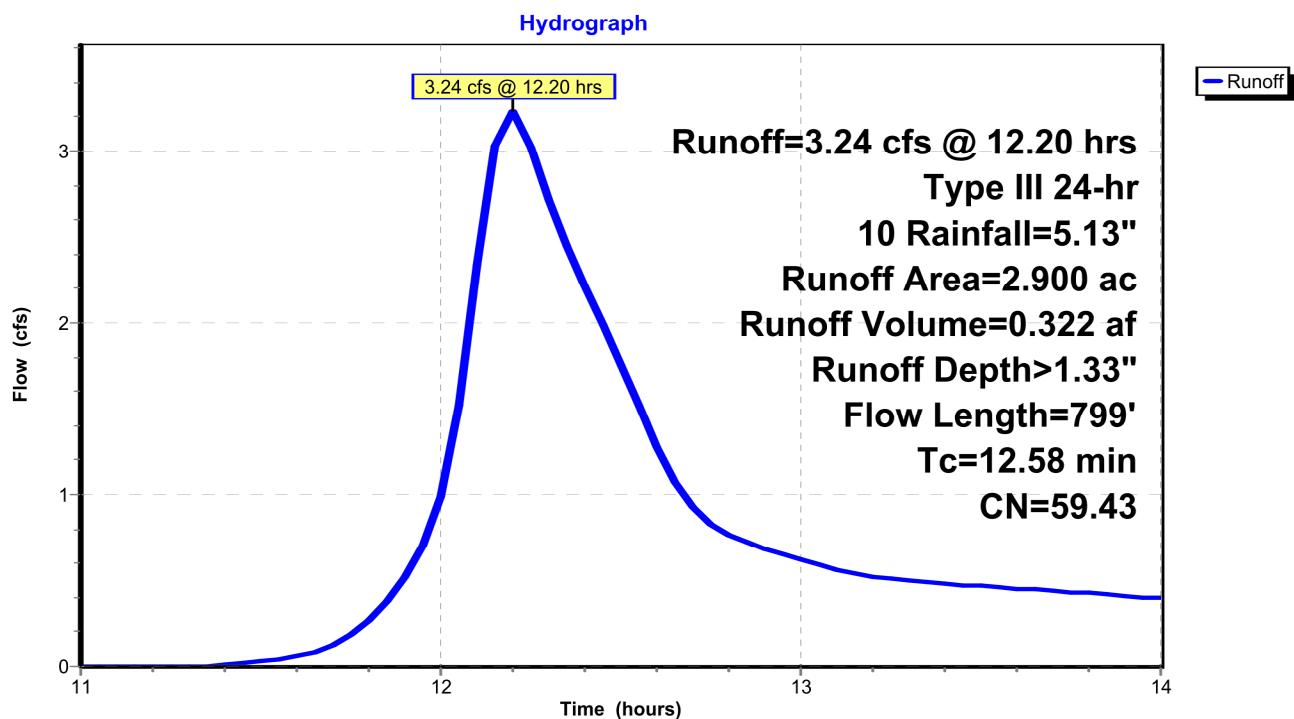
Runoff = 3.24 cfs @ 12.20 hrs, Volume= 0.322 af, Depth> 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
2.070	60.00	Woods, Fair, HSG B
0.830	58.00	Meadow, non-grazed, HSG B
2.900	59.43	Weighted Average
2.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.75	237	0.1380	0.83		Lag/CN Method,
3.89	330	0.3490	1.41		Lag/CN Method,
3.94	232	0.1940	0.98		Lag/CN Method,
12.58	799				Total

Subcatchment PR6: PRWS6



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Solar
Type III 24-hr 10 Rainfall=5.13"

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Summary for Subcatchment PR7: PRWS7

Runoff = 2.00 cfs @ 12.19 hrs, Volume= 0.195 af, Depth> 1.37"

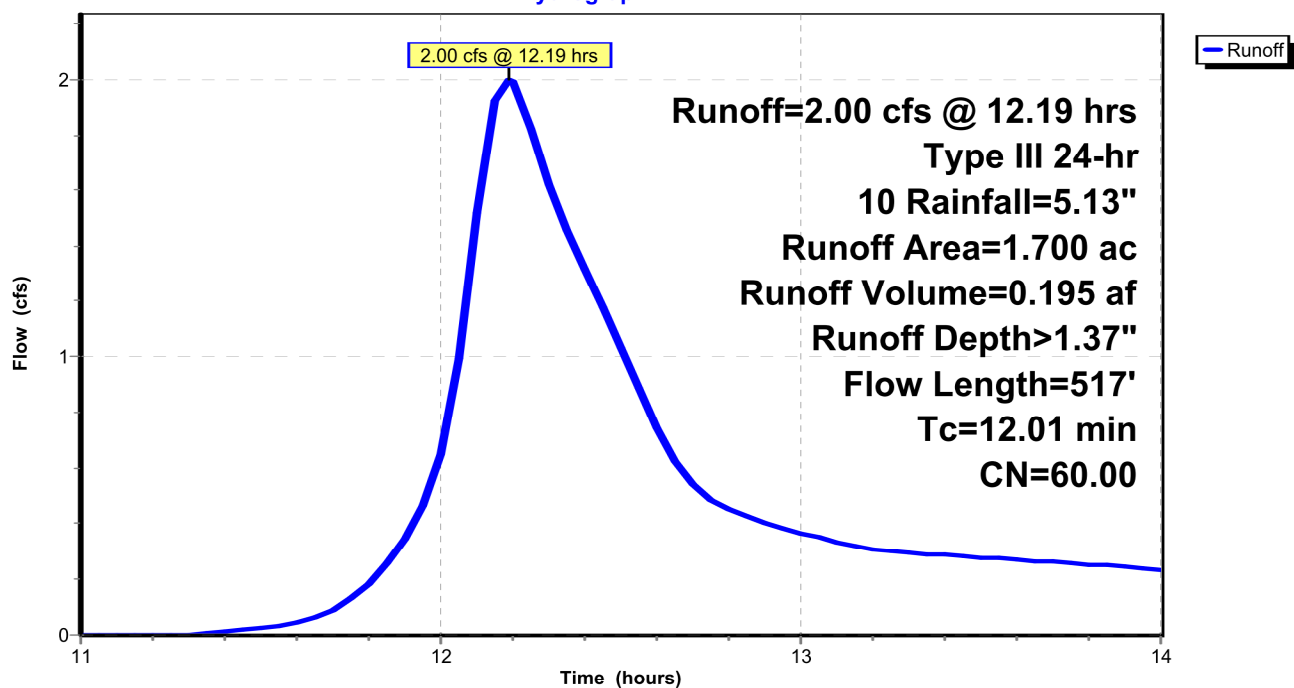
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
1.700	60.00	Woods, Fair, HSG B
1.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.20	168	0.3600	1.27		Lag/CN Method,
2.22	110	0.1800	0.83		Lag/CN Method,
5.95	138	0.0360	0.39		Lag/CN Method,
1.64	101	0.2870	1.03		Lag/CN Method,
12.01	517	Total			

Subcatchment PR7: PRWS7

Hydrograph



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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment EX1: WS1

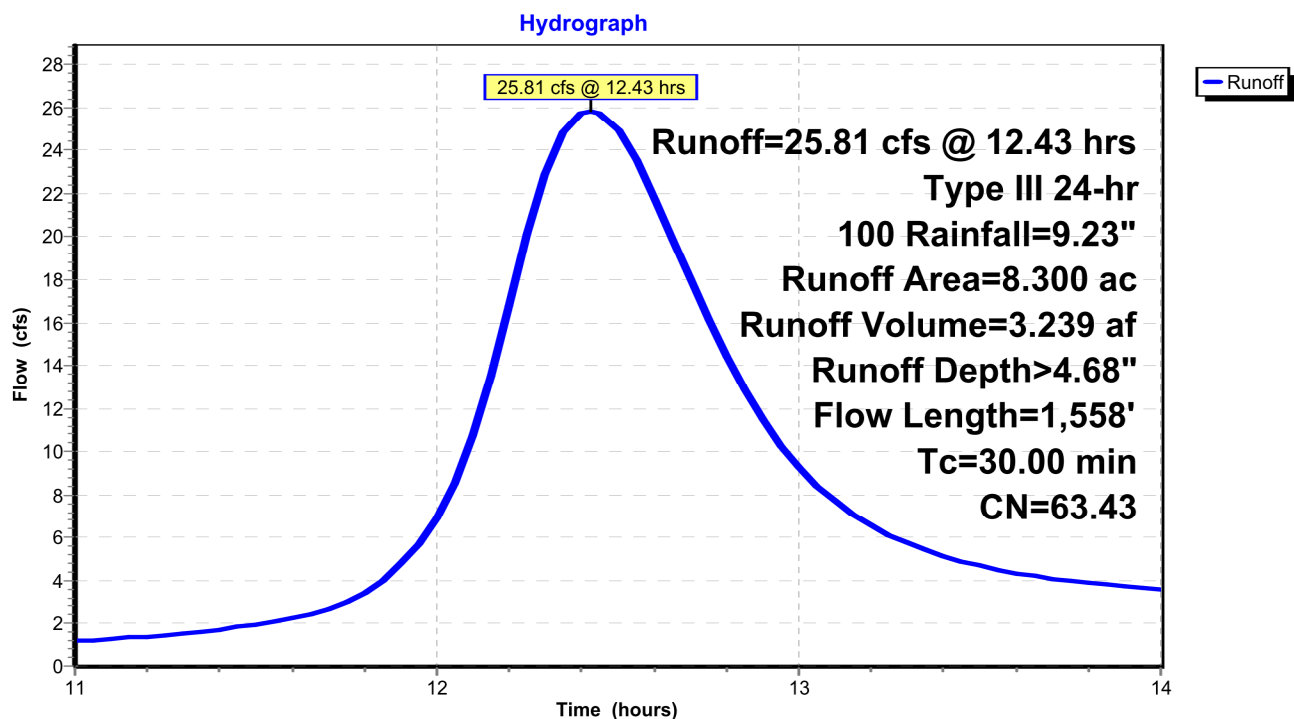
Runoff = 25.81 cfs @ 12.43 hrs, Volume= 3.239 af, Depth> 4.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
4.800	60.00	Woods, Fair, HSG B
1.500	79.00	Woods, Fair, HSG D
8.300	63.43	Weighted Average
8.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.86	508	0.2500	1.44		Lag/CN Method,
14.73	449	0.0325	0.51		Lag/CN Method,
9.41	601	0.1270	1.06		Lag/CN Method,
30.00	1,558				Total

Subcatchment EX1: WS1



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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment EX2: WS2

Runoff = 35.56 cfs @ 12.14 hrs, Volume= 2.923 af, Depth> 5.66"

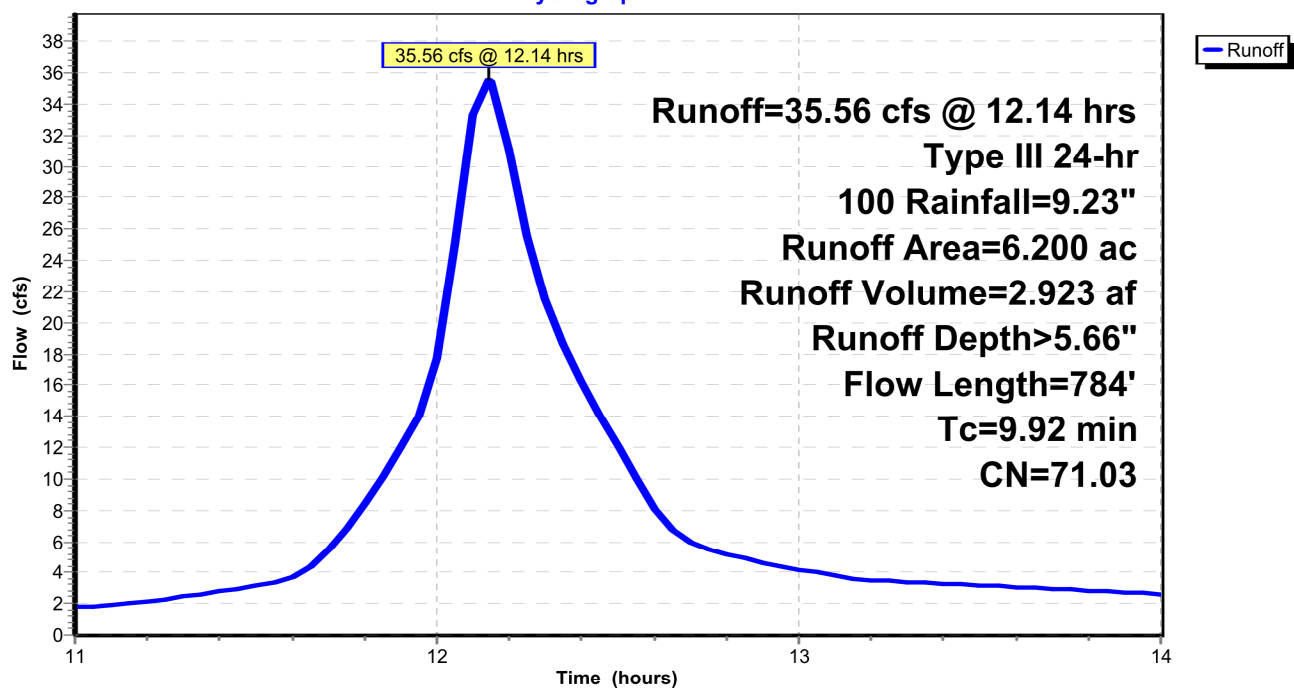
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
2.600	60.00	Woods, Fair, HSG B
3.600	79.00	Woods, Fair, HSG D
6.200	71.03	Weighted Average
6.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.95	277	0.2500	1.56		Lag/CN Method,
6.97	507	0.1180	1.21		Lag/CN Method,
9.92	784	Total			

Subcatchment EX2: WS2

Hydrograph



HN_WSHEDS

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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment EX3: WS3

Runoff = 14.76 cfs @ 12.03 hrs, Volume= 0.980 af, Depth> 6.53"

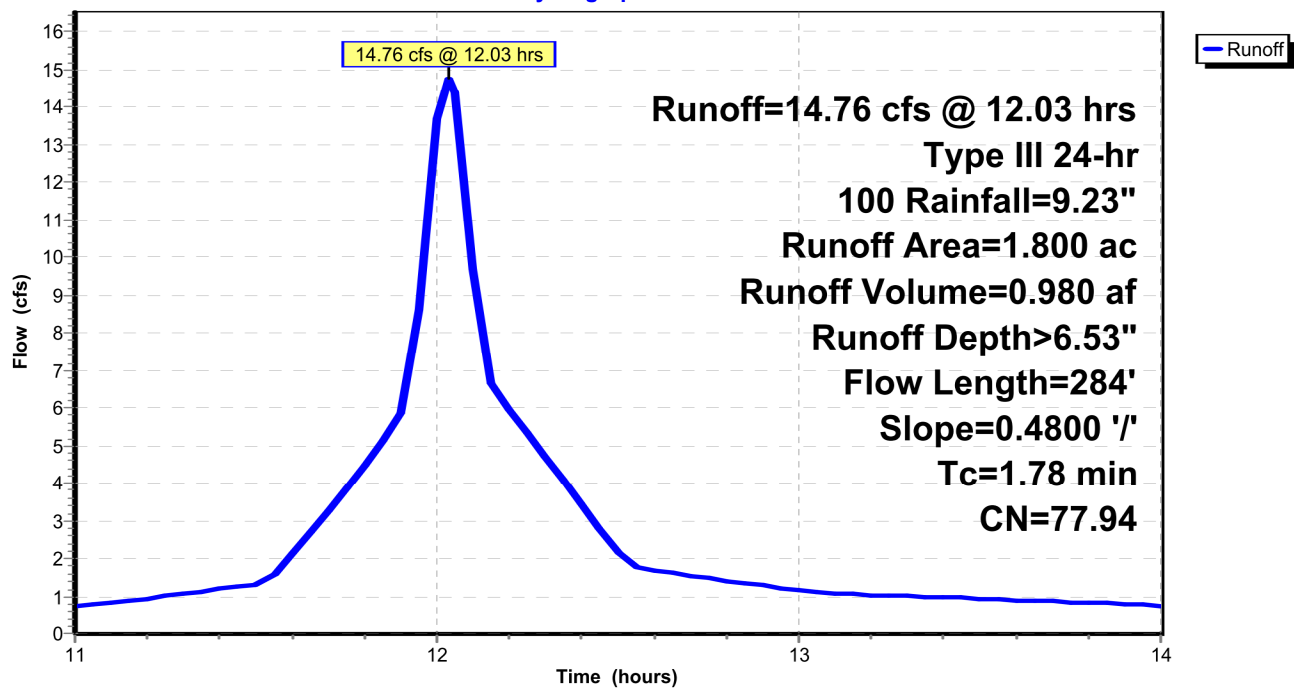
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
1.700	79.00	Woods, Fair, HSG D
0.100	60.00	Woods, Fair, HSG B
1.800	77.94	Weighted Average
1.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.78	284	0.4800	2.65		Lag/CN Method,

Subcatchment EX3: WS3

Hydrograph



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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment EX4: WS4

Runoff = 14.05 cfs @ 12.27 hrs, Volume= 1.457 af, Depth> 4.26"

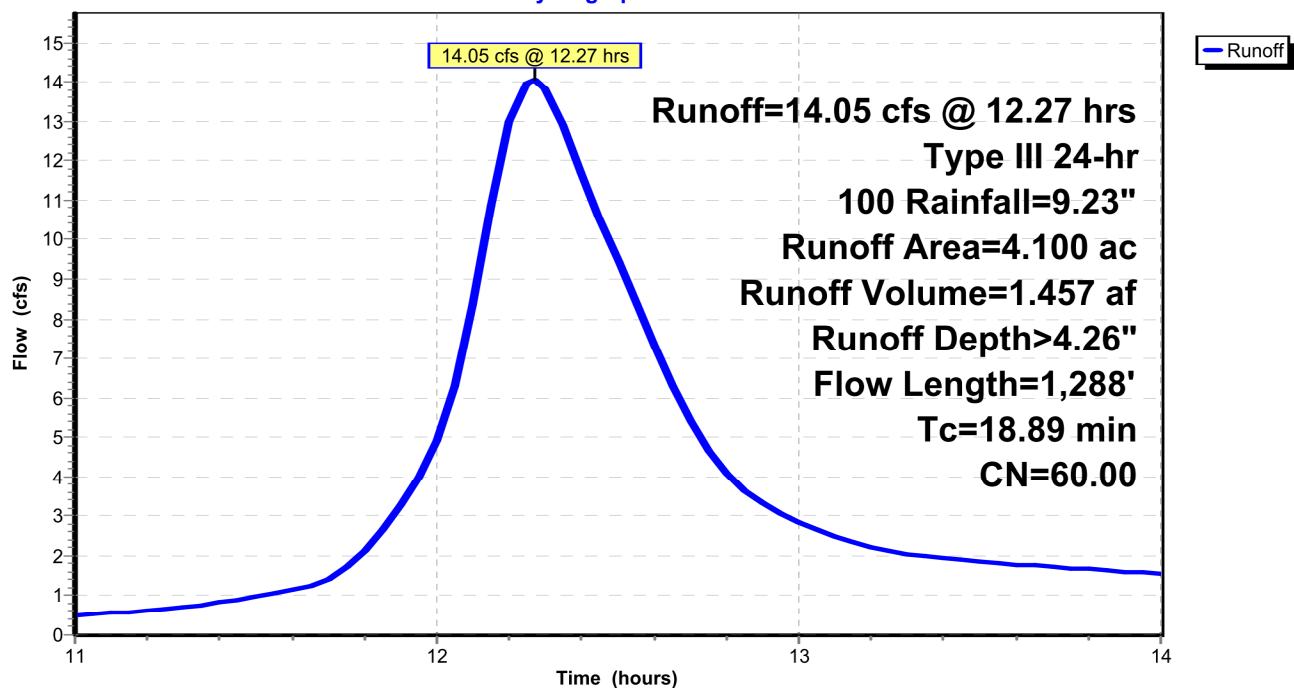
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
4.100	60.00	Woods, Fair, HSG B
4.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.79	616	0.2300	1.32		Lag/CN Method,
11.10	672	0.1300	1.01		Lag/CN Method,
18.89	1,288	Total			

Subcatchment EX4: WS4

Hydrograph



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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment EX5: WS5

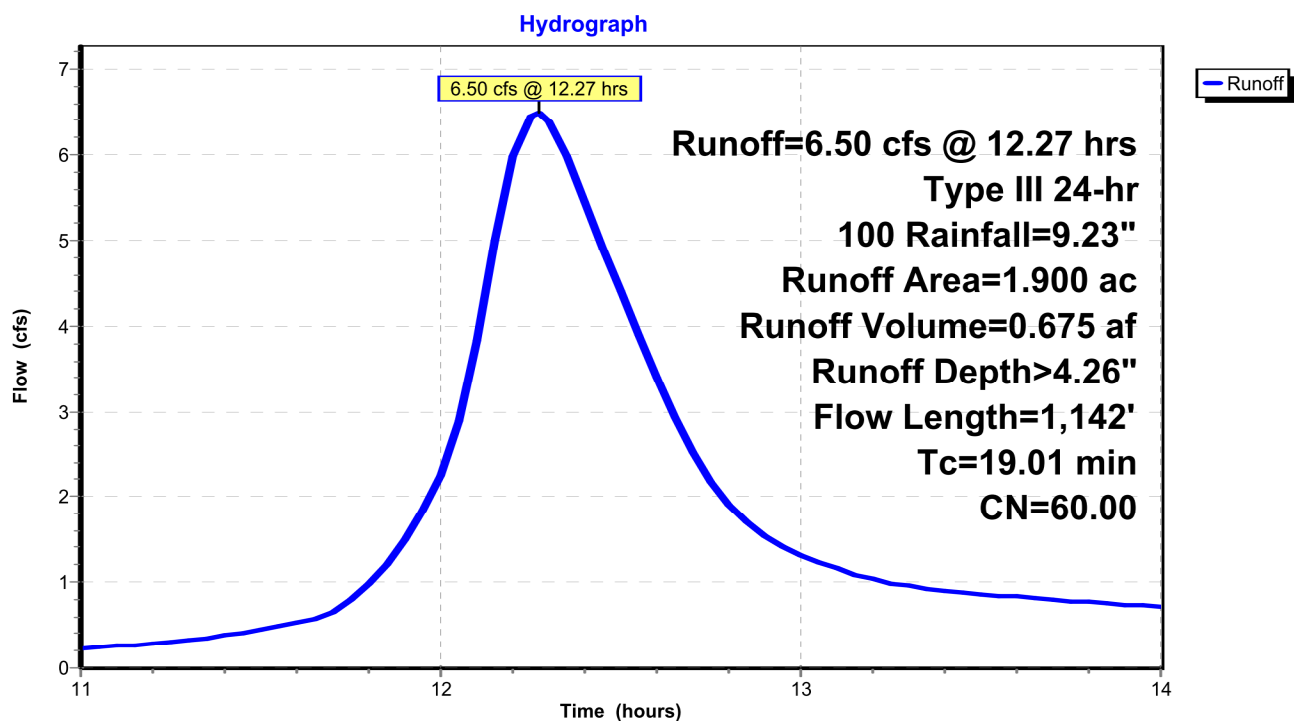
Runoff = 6.50 cfs @ 12.27 hrs, Volume= 0.675 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
1.900	60.00	Woods, Fair, HSG B
1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.62	737	0.2500	1.43		Lag/CN Method,
10.39	405	0.0660	0.65		Lag/CN Method,
19.01	1,142	Total			

Subcatchment EX5: WS5



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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment EX6: WS6

Runoff = 11.58 cfs @ 12.18 hrs, Volume= 1.032 af, Depth> 4.27"

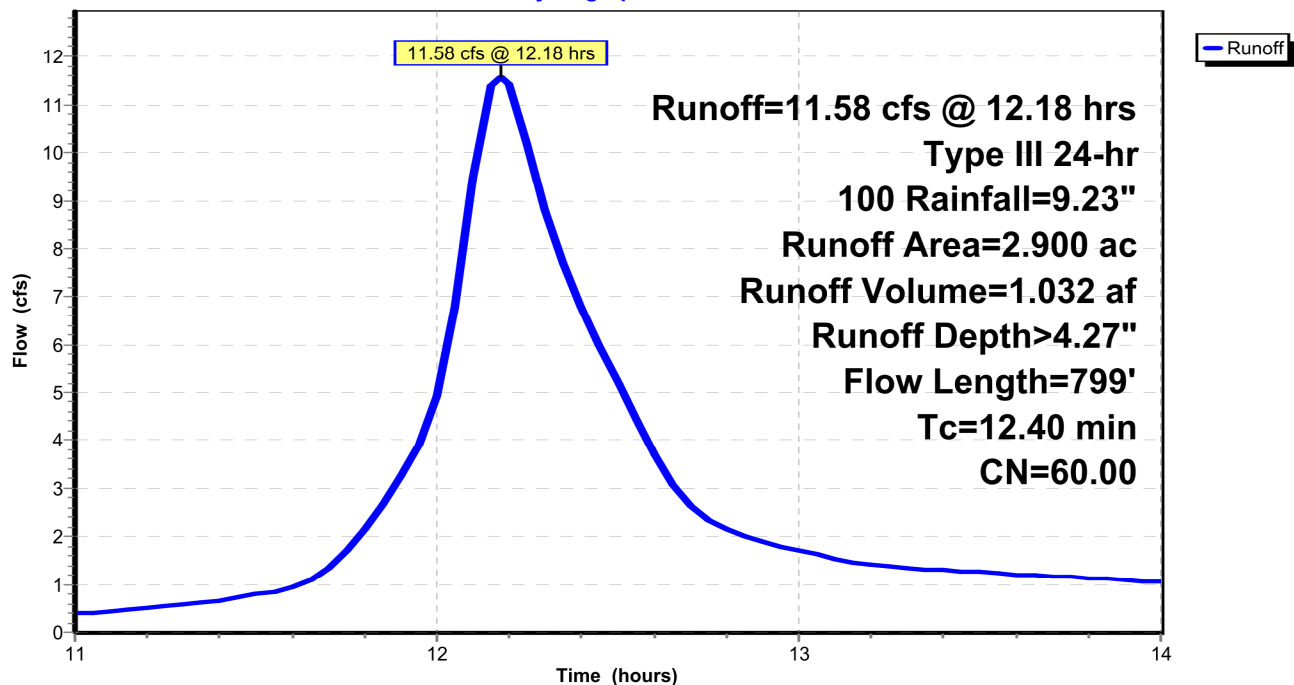
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
2.900	60.00	Woods, Fair, HSG B
2.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.68	237	0.1380	0.84		Lag/CN Method,
3.84	330	0.3490	1.43		Lag/CN Method,
3.88	232	0.1940	1.00		Lag/CN Method,
12.40	799	Total			

Subcatchment EX6: WS6

Hydrograph



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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment EX7: WS7

Runoff = 6.91 cfs @ 12.17 hrs, Volume= 0.605 af, Depth> 4.27"

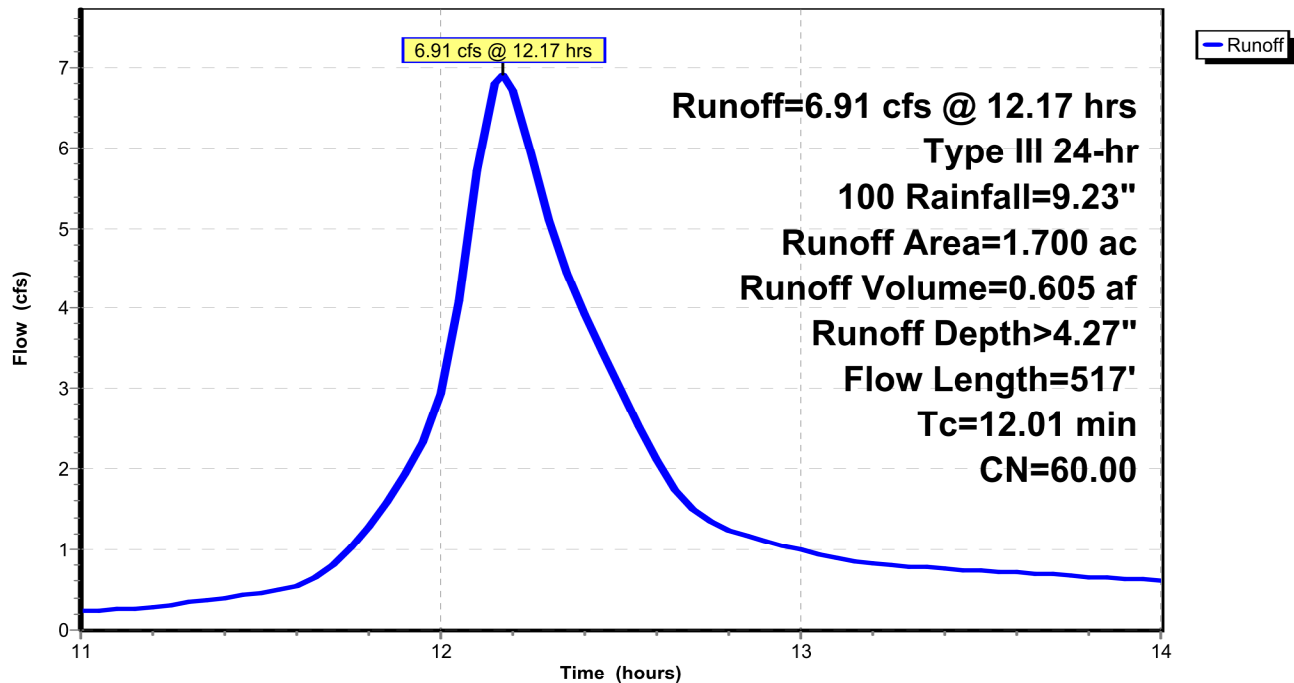
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
1.700	60.00	Woods, Fair, HSG B
1.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.20	168	0.3600	1.27		Lag/CN Method,
2.22	110	0.1800	0.83		Lag/CN Method,
5.95	138	0.0360	0.39		Lag/CN Method,
1.64	101	0.2870	1.03		Lag/CN Method,
12.01	517	Total			

Subcatchment EX7: WS7

Hydrograph



HN_WSHEDS

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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment PR1: PR WS1

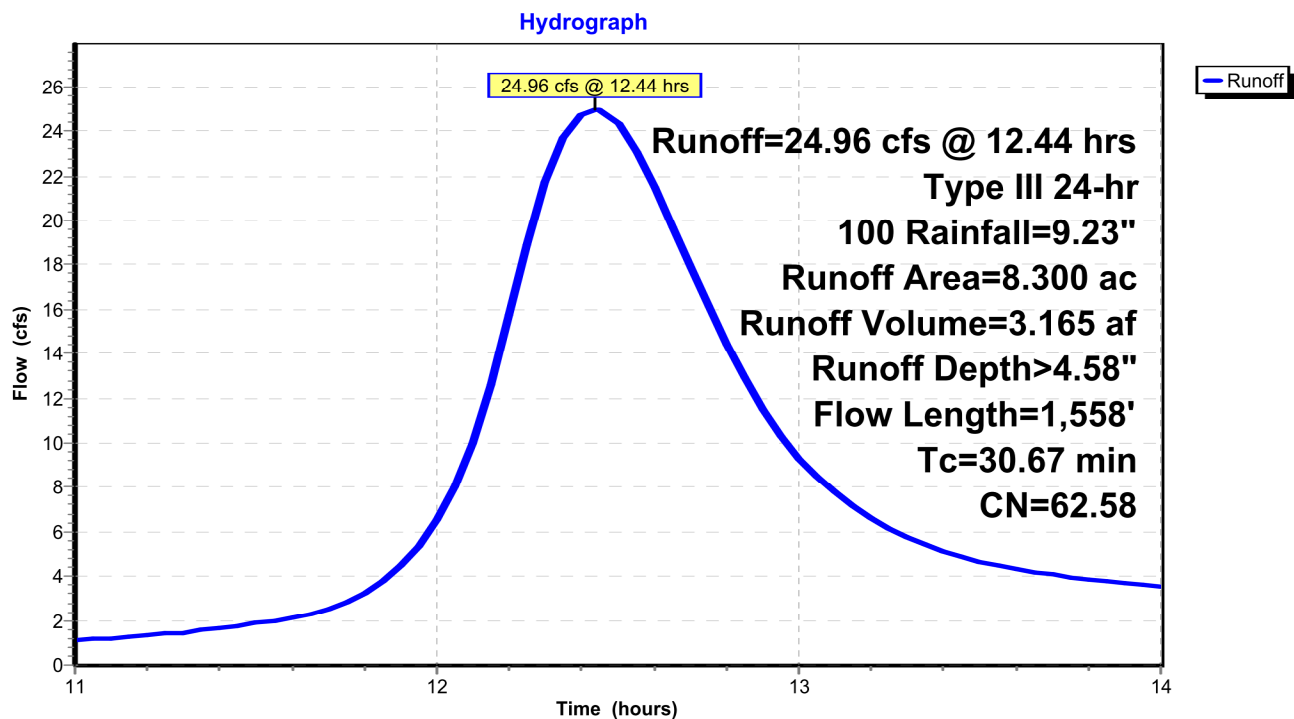
Runoff = 24.96 cfs @ 12.44 hrs, Volume= 3.165 af, Depth> 4.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
3.550	58.00	Meadow, non-grazed, HSG B
1.500	79.00	Woods, Fair, HSG D
1.250	60.00	Woods, Fair, HSG B
8.300	62.58	Weighted Average
8.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.99	508	0.2500	1.41		Lag/CN Method,
15.06	449	0.0325	0.50		Lag/CN Method,
9.62	601	0.1270	1.04		Lag/CN Method,
30.67	1,558	Total			

Subcatchment PR1: PR WS1



HN_WSHEDS

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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment PR2: PR WS2

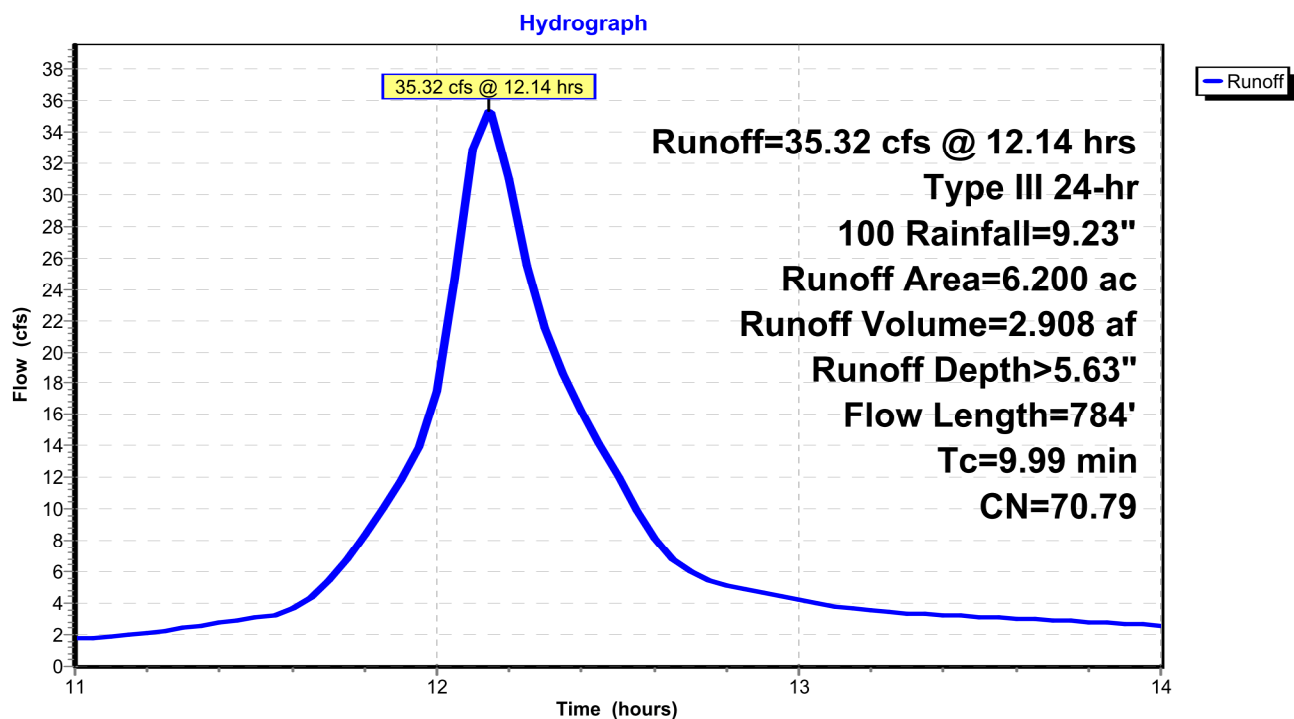
Runoff = 35.32 cfs @ 12.14 hrs, Volume= 2.908 af, Depth> 5.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
2.600	60.00	Woods, Fair, HSG B
2.120	79.00	Woods, Fair, HSG D
1.480	78.00	Meadow, non-grazed, HSG D
6.200	70.79	Weighted Average
6.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.97	277	0.2500	1.55		Lag/CN Method,
7.02	507	0.1180	1.20		Lag/CN Method,
9.99	784	Total			

Subcatchment PR2: PR WS2



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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment PR3: PRWS3

Runoff = 14.71 cfs @ 12.03 hrs, Volume= 0.975 af, Depth> 6.50"

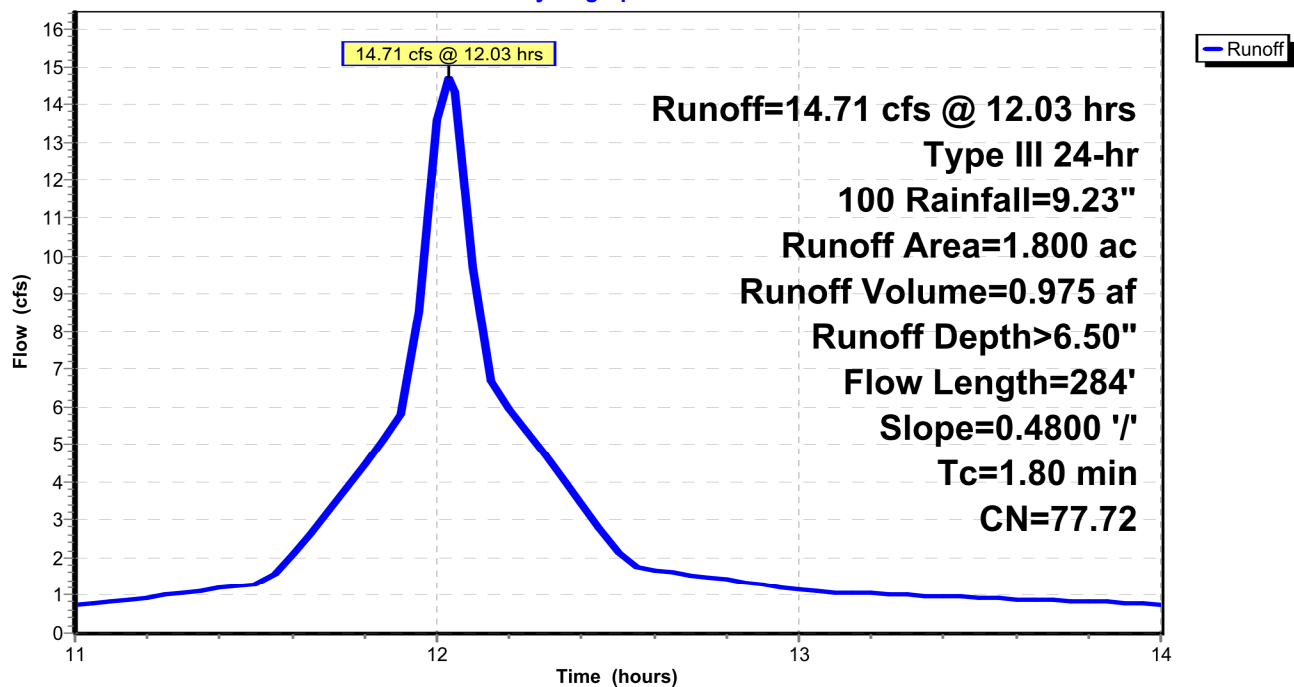
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
1.300	79.00	Woods, Fair, HSG D
0.100	60.00	Woods, Fair, HSG B
0.400	78.00	Meadow, non-grazed, HSG D
1.800	77.72	Weighted Average
1.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.80	284	0.4800	2.63		Lag/CN Method,

Subcatchment PR3: PRWS3

Hydrograph



HN_WSHEDS

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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment PR4: PRWS4

Runoff = 14.01 cfs @ 12.27 hrs, Volume= 1.455 af, Depth> 4.26"

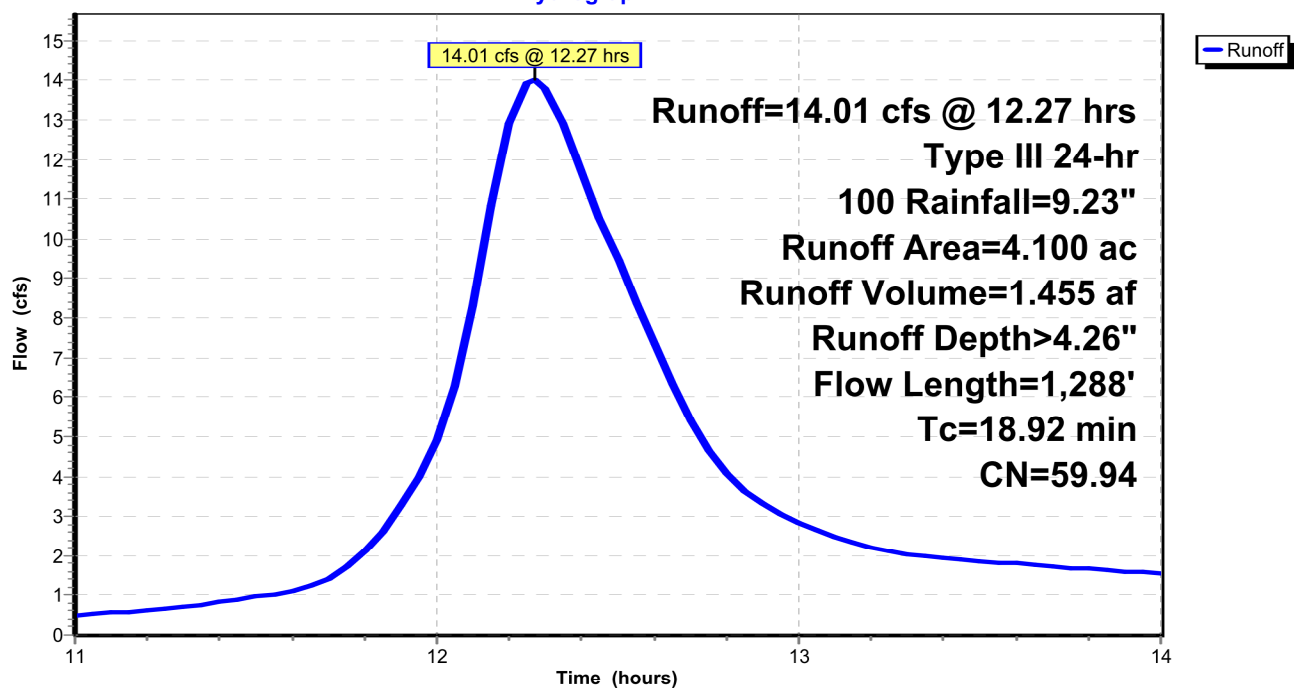
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
3.970	60.00	Woods, Fair, HSG B
0.130	58.00	Meadow, non-grazed, HSG B
4.100	59.94	Weighted Average
4.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.80	616	0.2300	1.32		Lag/CN Method,
11.12	672	0.1300	1.01		Lag/CN Method,
18.92	1,288	Total			

Subcatchment PR4: PRWS4

Hydrograph



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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment PR5: PRWS5

Runoff = 6.38 cfs @ 12.27 hrs, Volume= 0.667 af, Depth> 4.21"

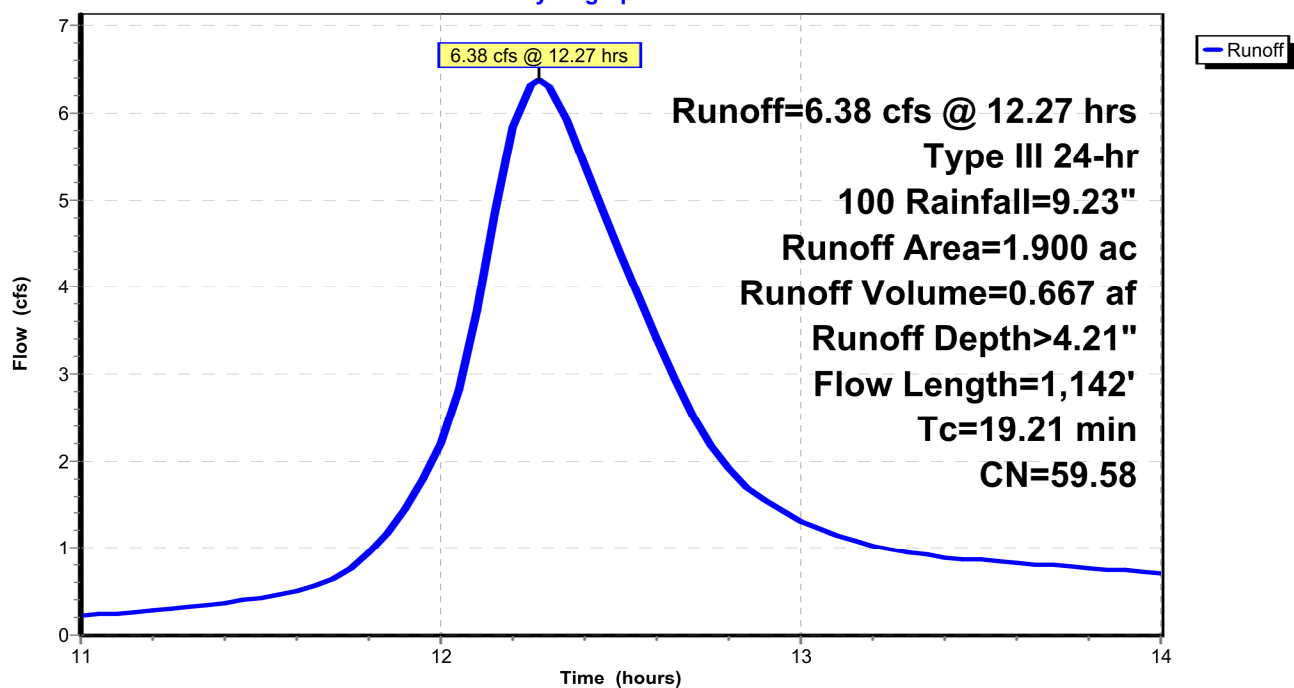
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
1.500	60.00	Woods, Fair, HSG B
0.400	58.00	Meadow, non-grazed, HSG B
1.900	59.58	Weighted Average
1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.71	737	0.2500	1.41		Lag/CN Method,
10.50	405	0.0660	0.64		Lag/CN Method,
19.21	1,142	Total			

Subcatchment PR5: PRWS5

Hydrograph



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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment PR6: PRWS6

Runoff = 11.32 cfs @ 12.18 hrs, Volume= 1.015 af, Depth> 4.20"

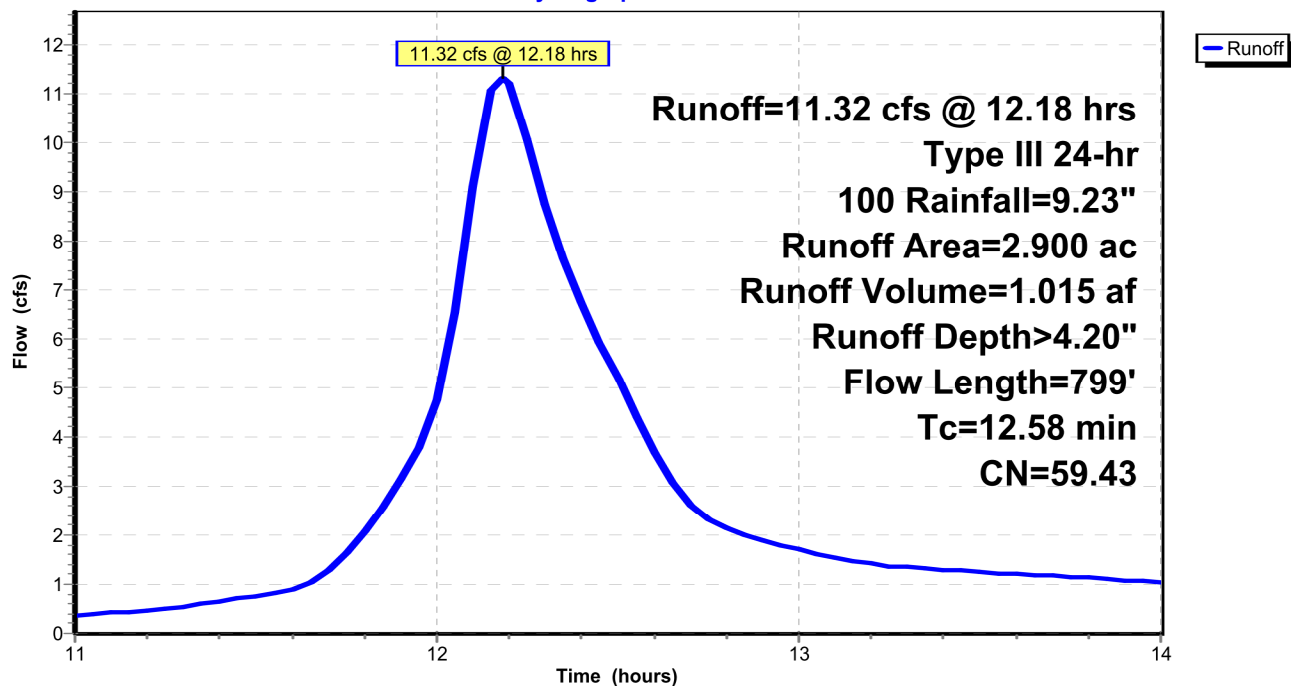
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
2.070	60.00	Woods, Fair, HSG B
0.830	58.00	Meadow, non-grazed, HSG B
2.900	59.43	Weighted Average
2.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.75	237	0.1380	0.83		Lag/CN Method,
3.89	330	0.3490	1.41		Lag/CN Method,
3.94	232	0.1940	0.98		Lag/CN Method,
12.58	799	Total			

Subcatchment PR6: PRWS6

Hydrograph



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Solar
Type III 24-hr 100 Rainfall=9.23"

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Summary for Subcatchment PR7: PRWS7

Runoff = 6.91 cfs @ 12.17 hrs, Volume= 0.605 af, Depth> 4.27"

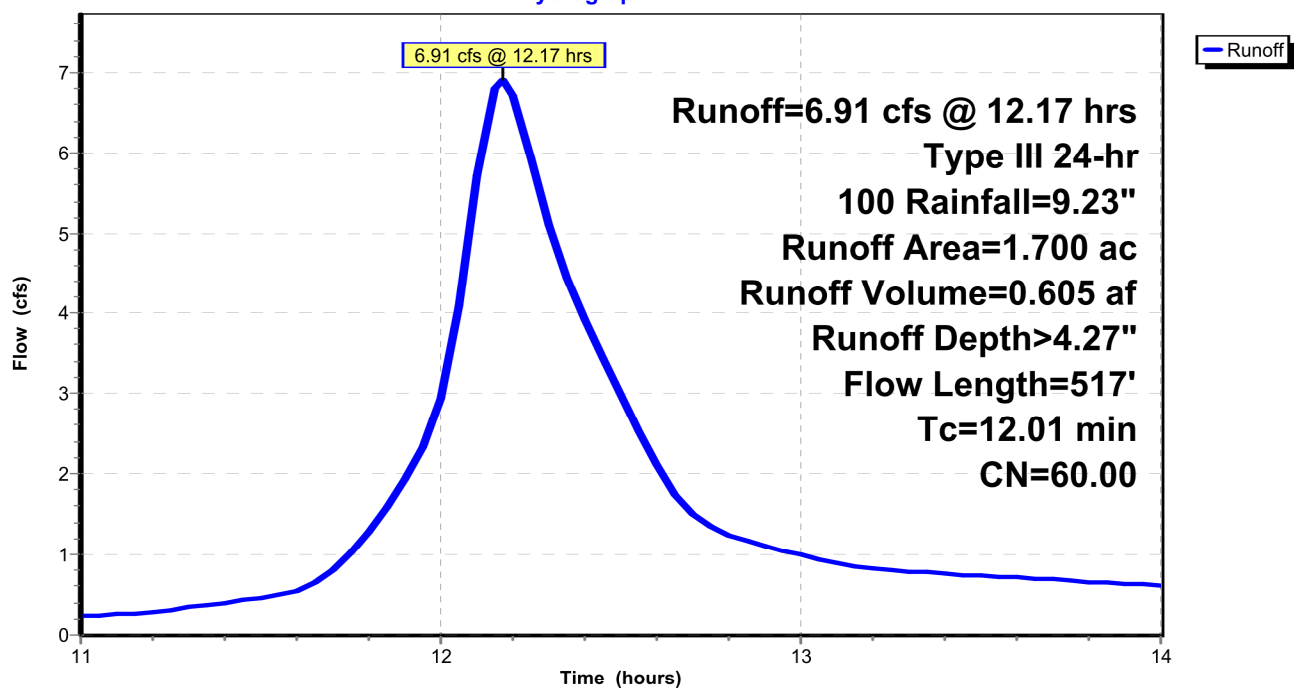
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
1.700	60.00	Woods, Fair, HSG B
1.700		100.00% Pervious Area

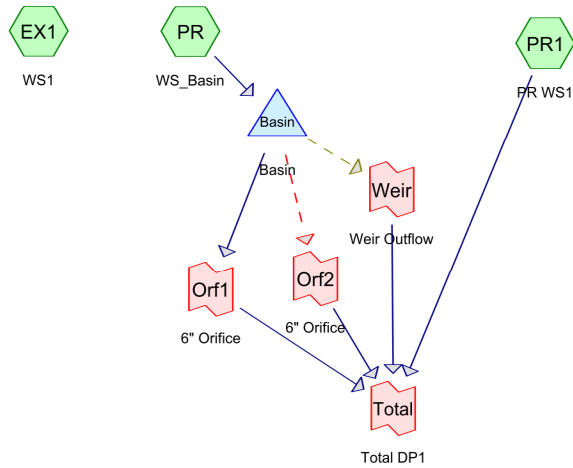
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.20	168	0.3600	1.27		Lag/CN Method,
2.22	110	0.1800	0.83		Lag/CN Method,
5.95	138	0.0360	0.39		Lag/CN Method,
1.64	101	0.2870	1.03		Lag/CN Method,
12.01	517	Total			

Subcatchment PR7: PRWS7

Hydrograph



DRAINAGE COMPUTATIONS WITH DETENTION BASIN AT WS 1



Routing Diagram for hn_basin
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hn_basin Basin
Prepared by RGMPEPC Type III 24-hr 1 Rainfall=2.79"
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Summary for Subcatchment EX1: WS1

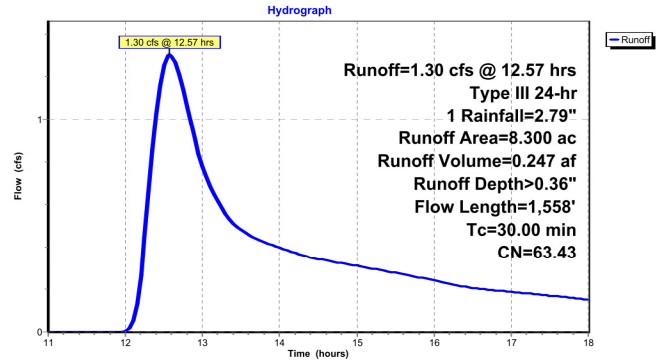
Runoff = 1.30 cfs @ 12.57 hrs, Volume= 0.247 af, Depth> 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 Rainfall=2.79"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
4.800	60.00	Woods, Fair, HSG B
1.500	79.00	Woods, Fair, HSG D
8.300	63.43	Weighted Average
8.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.86	508	0.2500	1.44		Lag/CN Method,
14.73	449	0.0325	0.51		Lag/CN Method,
9.41	601	0.1270	1.06		Lag/CN Method,
30.00	1,558	Total			

Subcatchment EX1: WS1



hn_basin Basin
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.000	58.00	Meadow, non-grazed, HSG B (PR, PR1)
10.600	60.00	Woods, Fair, HSG B (EX1, PR, PR1)
3.000	79.00	Woods, Fair, HSG D (EX1, PR1)

hn_basin Basin
Prepared by RGMPEPC Type III 24-hr 1 Rainfall=2.79"
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Summary for Subcatchment PR: WS_Basin

Runoff = 0.13 cfs @ 12.66 hrs, Volume= 0.033 af, Depth> 0.22"

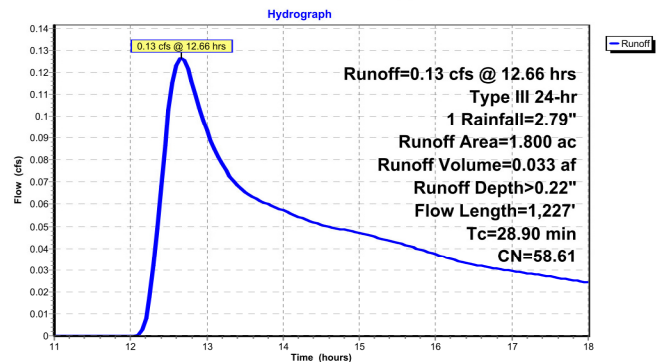
Routed to Pond Basin : Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 Rainfall=2.79"

Area (ac)	CN	Description
0.550	60.00	Woods, Fair, HSG B
1.250	58.00	Meadow, non-grazed, HSG B
1.800	58.61	Weighted Average
1.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.63	508	0.2500	1.28		Lag/CN Method,
16.66	449	0.0325	0.45		Lag/CN Method,
5.61	270	0.1270	0.80		Lag/CN Method,
28.90	1,227	Total			

Subcatchment PR: WS_Basin



Summary for Subcatchment PR1: PR WS1

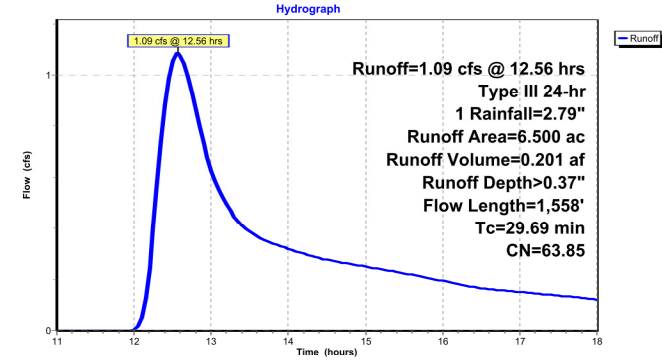
Runoff = 1.09 cfs @ 12.56 hrs, Volume= 0.201 af, Depth> 0.37"
 Routed to Link Total : Total DP1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1 Rainfall=2.79"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
1.750	58.00	Meadow, non-grazed, HSG B
1.500	79.00	Woods, Fair, HSG D
1.250	60.00	Woods, Fair, HSG B
6.500	63.85	Weighted Average
6.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.80	508	0.2500	1.46		Lag/CN Method,
14.58	449	0.0325	0.51		Lag/CN Method,
9.31	601	0.1270	1.08		Lag/CN Method,
29.69	1,558	Total			

Subcatchment PR1: PR WS1



Summary for Pond Basin: Basin

Inflow Area = 1.800 ac, 0.00% Impervious, Inflow Depth > 0.22" for 1 event
 Inflow = 0.13 cfs @ 12.66 hrs, Volume= 0.033 af
 Outflow = 0.11 cfs @ 12.87 hrs, Volume= 0.032 af, Atten= 15%, Lag= 12.6 min
 Primary = 0.05 cfs @ 12.87 hrs, Volume= 0.016 af
 Routed to Link Orf1 : 6" Orifice
 Secondary = 0.05 cfs @ 12.87 hrs, Volume= 0.016 af
 Routed to Link Orf2 : 6" Orifice
 Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link Weir : Weir Outflow

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 318.13' @ 12.87 hrs Surf.Area= 790 sf Storage= 103 cf

Plug-Flow detention time= 25.5 min calculated for 0.032 af (97% of inflow)
 Center-of-Mass det. time= 14.5 min (982.3 - 967.8)

Volume	Invert	Avail.Storage	Storage Description
#1	318.00'	5,428 cf	Basin (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
318.00	751	0	0
320.00	1,329	2,080	2,080
322.00	2,019	3,348	5,428

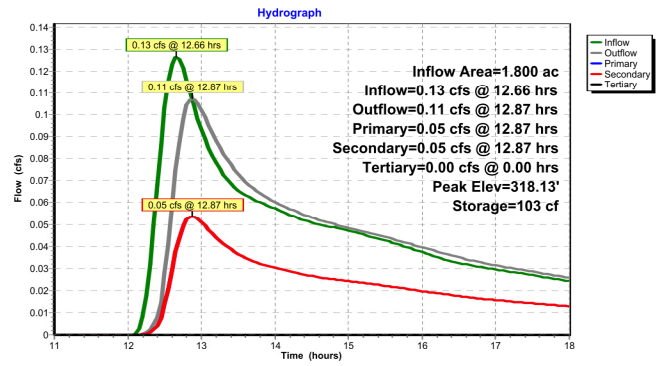
Device	Routing	Invert	Outlet Devices
#1	Primary	318.00'	6.0" Vert. Orifice1 C= 0.600 Limited to weir flow at low heads
#2	Secondary	318.00'	6.0" Vert. Orifice2 C= 0.600 Limited to weir flow at low heads
#3	Tertiary	321.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.05 cfs @ 12.87 hrs HW=318.13' (Free Discharge)
 1=Orifice1 (Orifice Controls 0.05 cfs @ 1.25 fps)

Secondary OutFlow Max=0.05 cfs @ 12.87 hrs HW=318.13' (Free Discharge)
 2=Orifice2 (Orifice Controls 0.05 cfs @ 1.25 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=318.00' (Free Discharge)
 3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond Basin: Basin

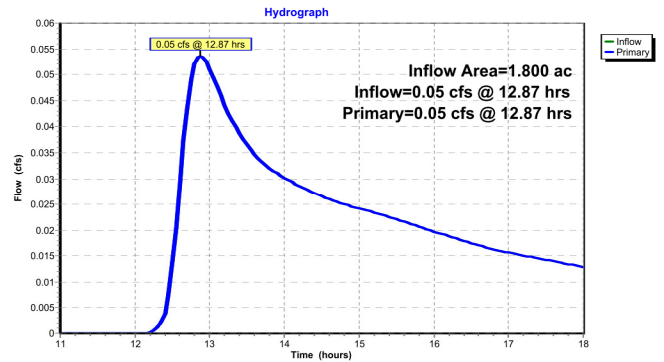


Summary for Link Orf1: 6" Orifice

Inflow Area = 1.800 ac, 0.00% Impervious, Inflow Depth > 0.11" for 1 event
 Inflow = 0.05 cfs @ 12.87 hrs, Volume= 0.016 af
 Primary = 0.05 cfs @ 12.87 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
 Routed to Link Total : Total DP1

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

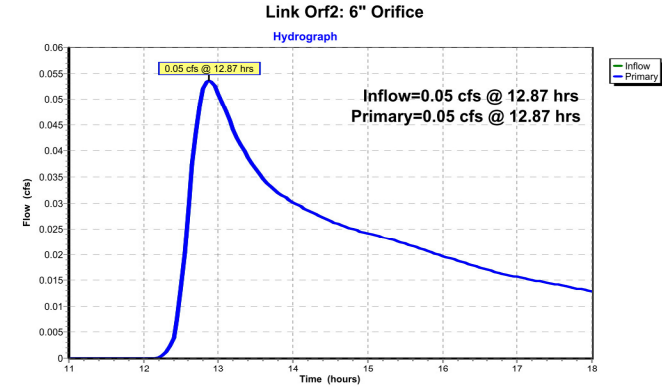
Link Orf1: 6" Orifice



Summary for Link Orf2: 6" Orifice

Inflow = 0.05 cfs @ 12.87 hrs, Volume= 0.016 af
 Primary = 0.05 cfs @ 12.87 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
 Routed to Link Total : Total DP1

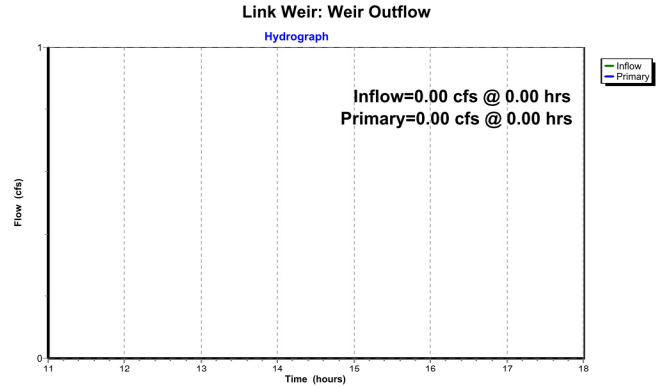
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs



Summary for Link Weir: Weir Outflow

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Routed to Link Total : Total DP1

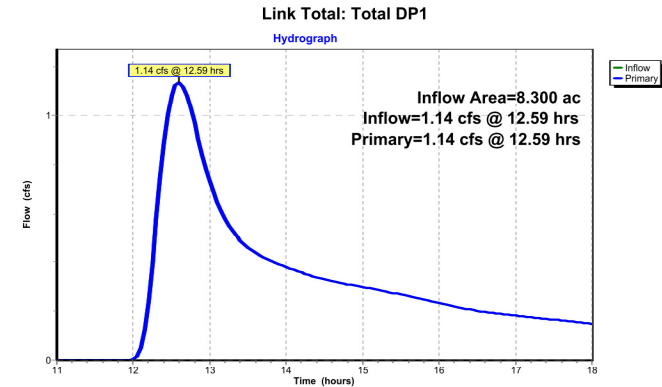
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs



Summary for Link Total: Total DP1

Inflow Area = 8.300 ac, 0.00% Impervious, Inflow Depth > 0.34" for 1 event
 Inflow = 1.14 cfs @ 12.59 hrs, Volume= 0.234 af
 Primary = 1.14 cfs @ 12.59 hrs, Volume= 0.234 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs



Summary for Subcatchment EX1: WS1

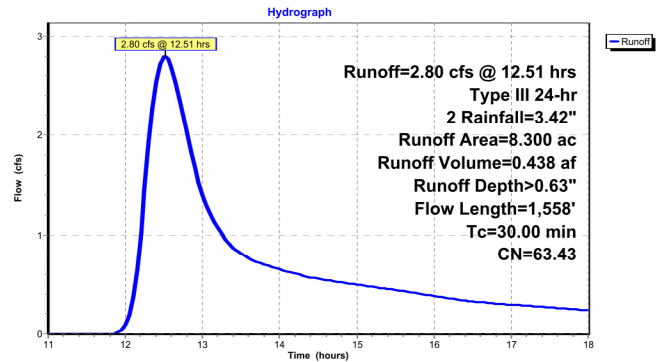
Runoff = 2.80 cfs @ 12.51 hrs, Volume= 0.438 af, Depth> 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
4.800	60.00	Woods, Fair, HSG B
1.500	79.00	Woods, Fair, HSG D
8.300	63.43	Weighted Average
8.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.86	508	0.2500	1.44		Lag/CN Method,
14.73	449	0.0325	0.51		Lag/CN Method,
9.41	601	0.1270	1.06		Lag/CN Method,
30.00	1,558				Total

Subcatchment EX1: WS1



Summary for Subcatchment PR: WS_Basin

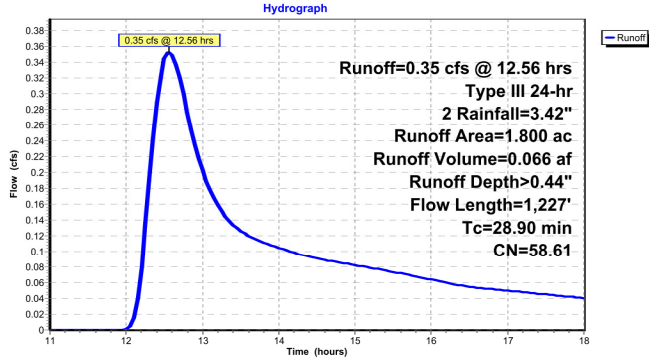
Runoff = 0.35 cfs @ 12.56 hrs, Volume= 0.066 af, Depth> 0.44"
 Routed to Pond Basin : Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
0.550	60.00	Woods, Fair, HSG B
1.250	58.00	Meadow, non-grazed, HSG B
1.800	58.61	Weighted Average
1.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.63	508	0.2500	1.28		Lag/CN Method,
16.66	449	0.0325	0.45		Lag/CN Method,
5.61	270	0.1270	0.80		Lag/CN Method,
28.90	1,227	Total			

Subcatchment PR: WS_Basin



Summary for Subcatchment PR1: PR WS1

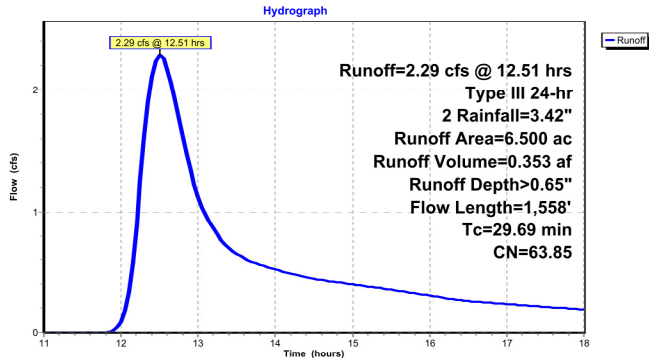
Runoff = 2.29 cfs @ 12.51 hrs, Volume= 0.353 af, Depth> 0.65"
 Routed to Link Total : Total DP1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2 Rainfall=3.42"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
1.750	58.00	Meadow, non-grazed, HSG B
1.500	79.00	Woods, Fair, HSG D
1.250	60.00	Woods, Fair, HSG B
6.500	63.85	Weighted Average
6.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.80	508	0.2500	1.46		Lag/CN Method,
14.58	449	0.0325	0.51		Lag/CN Method,
9.31	601	0.1270	1.08		Lag/CN Method,
29.69	1,558	Total			

Subcatchment PR1: PR WS1



Summary for Pond Basin: Basin

Inflow Area = 1.800 ac, 0.00% Impervious, Inflow Depth > 0.44" for 2 event
 Inflow = 0.35 cfs @ 12.56 hrs, Volume= 0.066 af
 Outflow = 0.33 cfs @ 12.69 hrs, Volume= 0.065 af, Atten= 7%, Lag= 7.7 min
 Primary = 0.16 cfs @ 12.69 hrs, Volume= 0.032 af
 Routed to Link Orf1 : 6" Orifice
 Secondary = 0.16 cfs @ 12.69 hrs, Volume= 0.032 af
 Routed to Link Orf2 : 6" Orifice
 Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link Weir : Weir Outflow

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 318.25' @ 12.69 hrs Surf.Area= 822 sf Storage= 194 cf

Plug-Flow detention time= 18.4 min calculated for 0.065 af (98% of inflow)
 Center-of-Mass det. time= 10.8 min (945.3 - 934.5)

Volume	Invert	Avail.Storage	Storage Description
#1	318.00'	5,428 cf	Basin (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
318.00	751	0	0
320.00	1,329	2,080	2,080
322.00	2,019	3,348	5,428

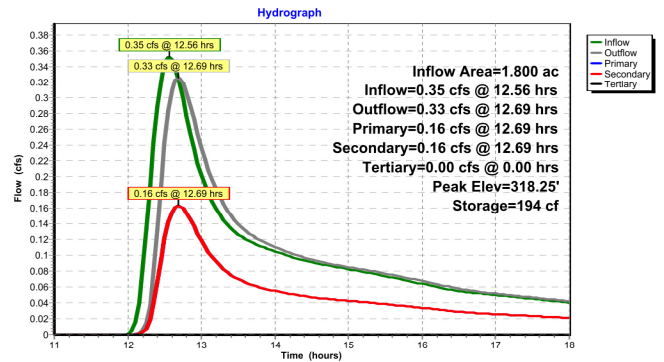
Device	Routing	Invert	Outlet Devices
#1	Primary	318.00'	6.0" Vert. Orifice1 C= 0.600 Limited to weir flow at low heads
#2	Secondary	318.00'	6.0" Vert. Orifice2 C= 0.600 Limited to weir flow at low heads
#3	Tertiary	321.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contractions(s)

Primary OutFlow Max=0.16 cfs @ 12.69 hrs HW=318.25' (Free Discharge)
 1=Orifice1 (Orifice Controls 0.16 cfs @ 1.69 fps)

Secondary OutFlow Max=0.16 cfs @ 12.69 hrs HW=318.25' (Free Discharge)
 2=Orifice2 (Orifice Controls 0.16 cfs @ 1.69 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=318.00' (Free Discharge)
 3=Sharp-Crested Rectangular Weir(Controls 0.00 cfs)

Pond Basin: Basin

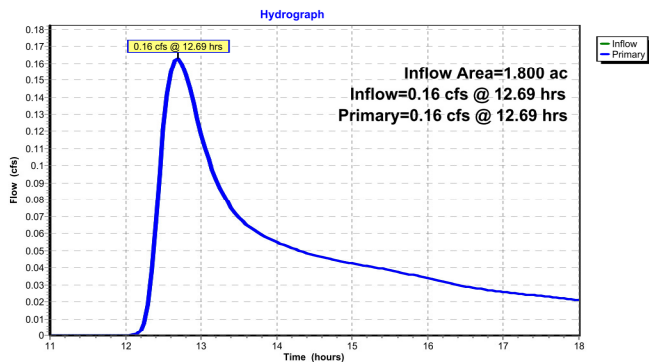


Summary for Link Orf1: 6" Orifice

Inflow Area = 1.800 ac, 0.00% Impervious, Inflow Depth > 0.22" for 2 event
 Inflow = 0.16 cfs @ 12.69 hrs, Volume= 0.032 af
 Primary = 0.16 cfs @ 12.69 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min
 Routed to Link Total : Total DP1

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Orf1: 6" Orifice

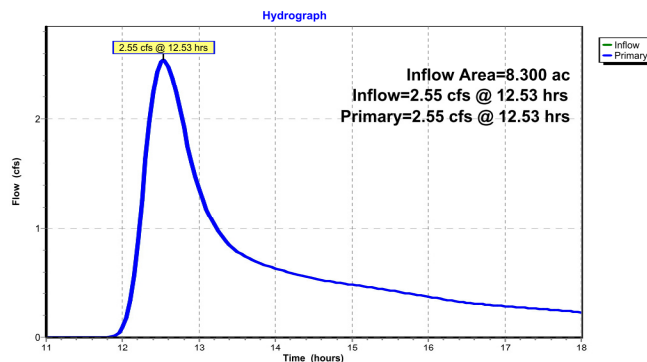


Summary for Link Total: Total DP1

Inflow Area = 8.300 ac, 0.00% Impervious, Inflow Depth > 0.60" for 2 event
 Inflow = 2.55 cfs @ 12.53 hrs, Volume= 0.418 af
 Primary = 2.55 cfs @ 12.53 hrs, Volume= 0.418 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Total: Total DP1

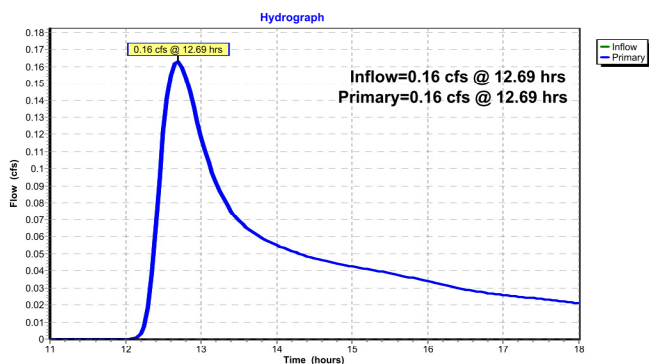


Summary for Link Orf2: 6" Orifice

Inflow = 0.16 cfs @ 12.69 hrs, Volume= 0.032 af
 Primary = 0.16 cfs @ 12.69 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min
 Routed to Link Total : Total DP1

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Orf2: 6" Orifice

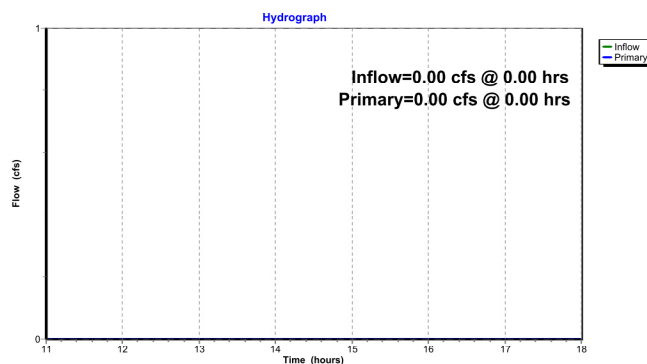


Summary for Link Weir: Weir Outflow

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Routed to Link Total : Total DP1

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Weir: Weir Outflow



Summary for Subcatchment EX1: WS1

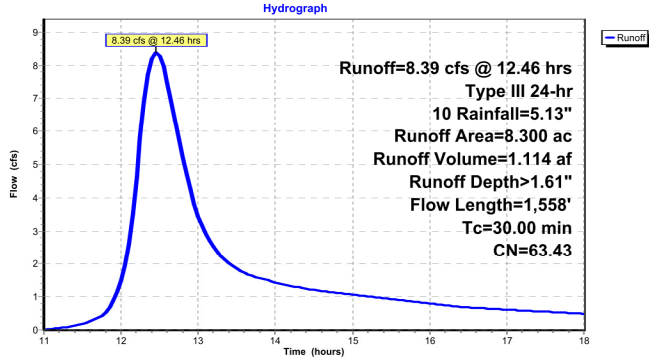
Runoff = 8.39 cfs @ 12.46 hrs, Volume= 1.114 af, Depth> 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
4.800	60.00	Woods, Fair, HSG B
1.500	79.00	Woods, Fair, HSG D
8.300	63.43	Weighted Average
8.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.86	508	0.2500	1.44		Lag/CN Method,
14.73	449	0.0325	0.51		Lag/CN Method,
9.41	601	0.1270	1.06		Lag/CN Method,
30.00	1,558	Total			

Subcatchment EX1: WS1



Summary for Subcatchment PR1: PR WS1

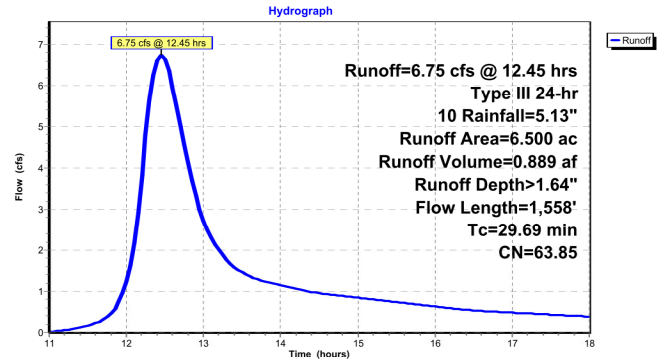
Runoff = 6.75 cfs @ 12.45 hrs, Volume= 0.889 af, Depth> 1.64"
 Routed to Link Total : Total DP1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
1.750	58.00	Meadow, non-grazed, HSG B
1.500	79.00	Woods, Fair, HSG D
1.250	60.00	Woods, Fair, HSG B
6.500	63.85	Weighted Average
6.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.80	508	0.2500	1.46		Lag/CN Method,
14.58	449	0.0325	0.51		Lag/CN Method,
9.31	601	0.1270	1.08		Lag/CN Method,
29.69	1,558	Total			

Subcatchment PR1: PR WS1



Summary for Subcatchment PR: WS_Basin

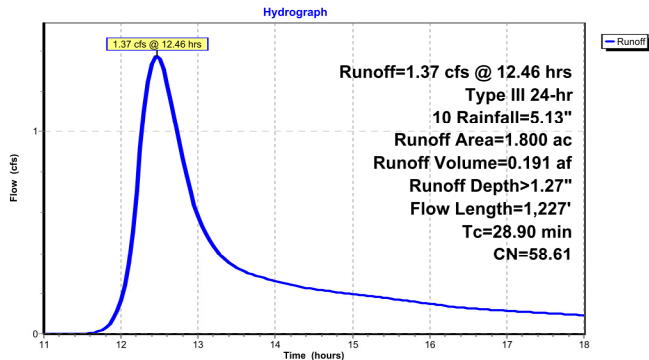
Runoff = 1.37 cfs @ 12.46 hrs, Volume= 0.191 af, Depth> 1.27"
 Routed to Pond Basin : Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Rainfall=5.13"

Area (ac)	CN	Description
0.550	60.00	Woods, Fair, HSG B
1.250	58.00	Meadow, non-grazed, HSG B
1.800	58.61	Weighted Average
1.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.63	508	0.2500	1.28		Lag/CN Method,
16.66	449	0.0325	0.45		Lag/CN Method,
5.61	270	0.1270	0.80		Lag/CN Method,
28.90	1,227	Total			

Subcatchment PR: WS_Basin



Summary for Pond Basin: Basin

Inflow Area = 1.800 ac, 0.00% Impervious, Inflow Depth > 1.27" for 10 event
 Inflow = 1.37 cfs @ 12.46 hrs, Volume= 0.191 af
 Outflow = 1.24 cfs @ 12.60 hrs, Volume= 0.189 af, Atten= 10%, Lag= 8.3 min
 Primary = 0.62 cfs @ 12.60 hrs, Volume= 0.095 af
 Routed to Link Orf1 : 6" Orifice
 Secondary = 0.62 cfs @ 12.60 hrs, Volume= 0.095 af
 Routed to Link Orf2 : 6" Orifice
 Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link Weir : Weir Outflow

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 318.68' @ 12.60 hrs Surf.Area= 947 sf Storage= 575 cf

Plug-Flow detention time= 11.6 min calculated for 0.189 af (99% of inflow)
 Center-of-Mass det. time= 7.2 min (901.5 - 894.3)

Volume	Invert	Avail.Storage	Storage	Description
#1	318.00'	5,428 cf	Basin (Prismatic)	Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
318.00	751	0	0
320.00	1,329	2,080	2,080
322.00	2,019	3,348	5,428

Device	Routing	Invert	Outlet Devices
#1	Primary	318.00'	6.0" Vert. Orifice1 C= 0.600 Limited to weir flow at low heads
#2	Secondary	318.00'	6.0" Vert. Orifice2 C= 0.600 Limited to weir flow at low heads
#3	Tertiary	321.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

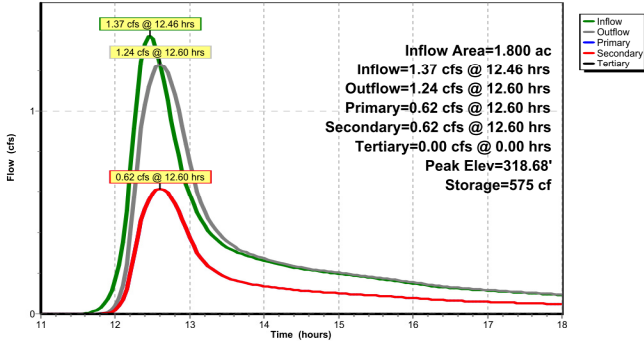
Primary OutFlow Max=0.62 cfs @ 12.60 hrs HW=318.68' (Free Discharge)
 1=Orifice1 (Orifice Controls 0.62 cfs @ 3.15 fps)

Secondary OutFlow Max=0.62 cfs @ 12.60 hrs HW=318.68' (Free Discharge)
 2=Orifice2 (Orifice Controls 0.62 cfs @ 3.15 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=318.00' (Free Discharge)
 3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond Basin: Basin

Hydrograph



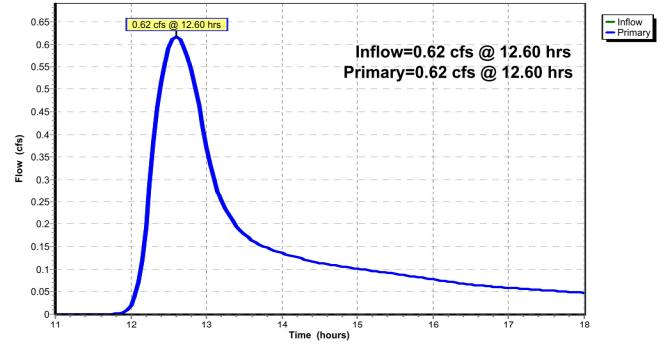
Summary for Link Orf2: 6" Orifice

Inflow = 0.62 cfs @ 12.60 hrs, Volume= 0.095 af
 Primary = 0.62 cfs @ 12.60 hrs, Volume= 0.095 af, Atten= 0%, Lag= 0.0 min
 Routed to Link Total : Total DP1

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Orf2: 6" Orifice

Hydrograph



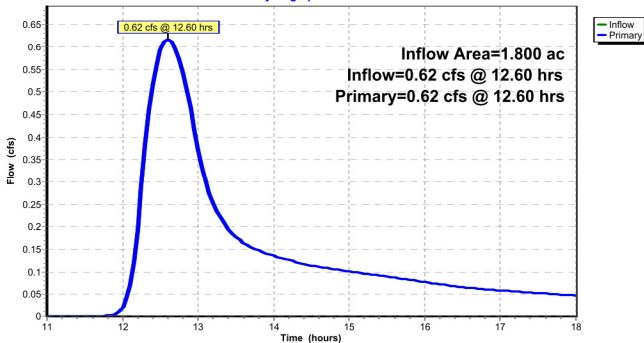
Summary for Link Orf1: 6" Orifice

Inflow Area = 1.800 ac, 0.00% Impervious, Inflow Depth > 0.63" for 10 event
 Inflow = 0.62 cfs @ 12.60 hrs, Volume= 0.095 af
 Primary = 0.62 cfs @ 12.60 hrs, Volume= 0.095 af, Atten= 0%, Lag= 0.0 min
 Routed to Link Total : Total DP1

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Orf1: 6" Orifice

Hydrograph



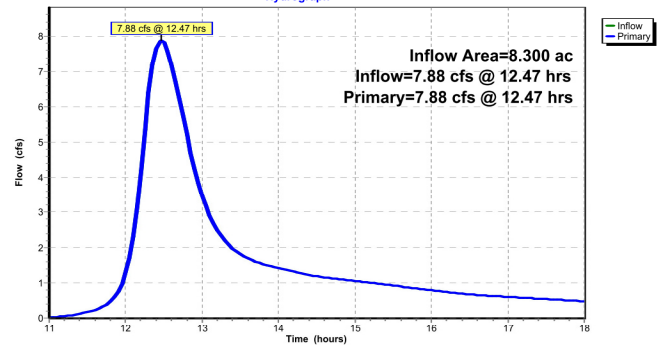
Summary for Link Total: Total DP1

Inflow Area = 8.300 ac, 0.00% Impervious, Inflow Depth > 1.56" for 10 event
 Inflow = 7.88 cfs @ 12.47 hrs, Volume= 1.078 af
 Primary = 7.88 cfs @ 12.47 hrs, Volume= 1.078 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Total: Total DP1

Hydrograph

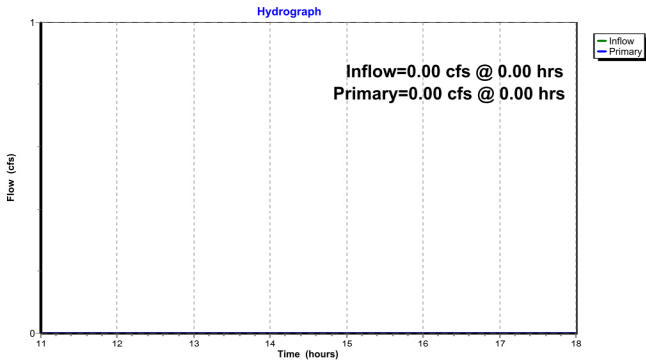


Summary for Link Weir: Weir Outflow

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Routed to Link Total : Total DP1

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Weir: Weir Outflow



Summary for Subcatchment EX1: WS1

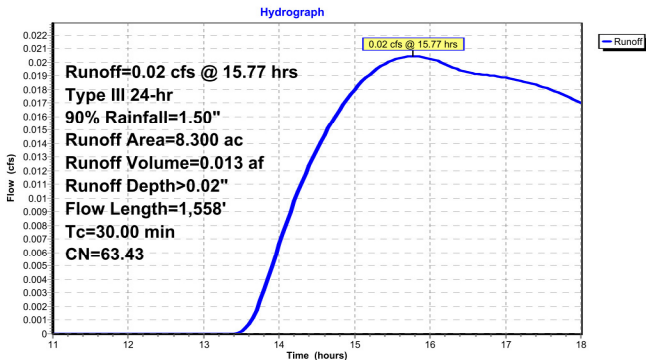
Runoff = 0.02 cfs @ 15.77 hrs, Volume= 0.013 af, Depth> 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 90% Rainfall=1.50"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
4.800	60.00	Woods, Fair, HSG B
1.500	79.00	Woods, Fair, HSG D
8.300	63.43	Weighted Average
8.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.86	508	0.2500	1.44		Lag/CN Method,
14.73	449	0.0325	0.51		Lag/CN Method,
9.41	601	0.1270	1.06		Lag/CN Method,
30.00	1,558	Total			

Subcatchment EX1: WS1



Summary for Subcatchment PR: WS_Basin

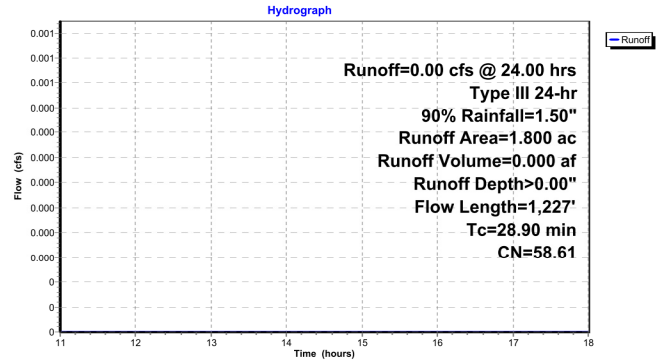
Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth> 0.00"
 Routed to Pond Basin : Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 90% Rainfall=1.50"

Area (ac)	CN	Description
0.550	60.00	Woods, Fair, HSG B
1.250	58.00	Meadow, non-grazed, HSG B
1.800	58.61	Weighted Average
1.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.63	508	0.2500	1.28		Lag/CN Method,
16.66	449	0.0325	0.45		Lag/CN Method,
5.61	270	0.1270	0.80		Lag/CN Method,
28.90	1,227	Total			

Subcatchment PR: WS_Basin



Summary for Subcatchment PR1: PR WS1

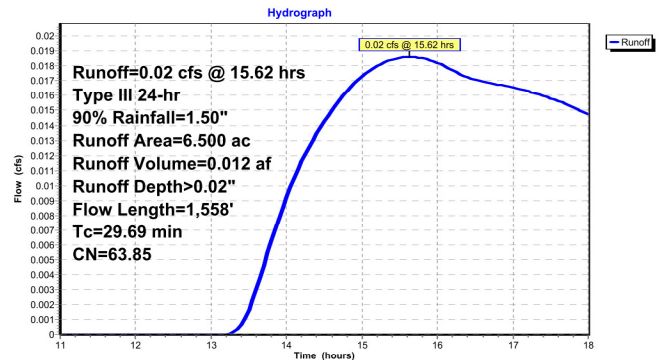
Runoff = 0.02 cfs @ 15.62 hrs, Volume= 0.012 af, Depth> 0.02"
 Routed to Link Total : Total DP1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 90% Rainfall=1.50"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
1.750	58.00	Meadow, non-grazed, HSG B
1.500	79.00	Woods, Fair, HSG D
1.250	60.00	Woods, Fair, HSG B
6.500	63.85	Weighted Average
6.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.80	508	0.2500	1.46		Lag/CN Method,
14.58	449	0.0325	0.51		Lag/CN Method,
9.31	601	0.1270	1.08		Lag/CN Method,
29.69	1,558	Total			

Subcatchment PR1: PR WS1



Summary for Pond Basin: Basin

Inflow Area = 1.800 ac, 0.00% Impervious, Inflow Depth > 0.00" for 90% event
Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 8%, Lag= 0.0 min
Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Routed to Link Orf1 : 6" Orifice
Secondary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Routed to Link Orf2 : 6" Orifice
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link Weir : Weir Outflow

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 318.00' @ 24.00 hrs Surf.Area= 752 sf Storage= 2 cf

Plug-Flow detention time= 42.4 min calculated for 0.000 af (75% of inflow)
Center-of-Mass det. time= 14.6 min (1,350.0 - 1,335.4)

Volume	Invert	Avail.Storage	Storage Description
#1	318.00'	5,428 cf	Basin (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
318.00	751	0	0
320.00	1,329	2,080	2,080
322.00	2,019	3,348	5,428

Device	Routing	Invert	Outlet Devices
#1	Primary	318.00'	6.0" Vert. Orifice1 C= 0.600 Limited to weir flow at low heads
#2	Secondary	318.00'	6.0" Vert. Orifice2 C= 0.600 Limited to weir flow at low heads
#3	Tertiary	321.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 24.00 hrs HW=318.00' (Free Discharge)
1=Orifice1 (Orifice Controls 0.00 cfs @ 0.15 fps)

Secondary OutFlow Max=0.00 cfs @ 24.00 hrs HW=318.00' (Free Discharge)
2=Orifice2 (Orifice Controls 0.00 cfs @ 0.15 fps)

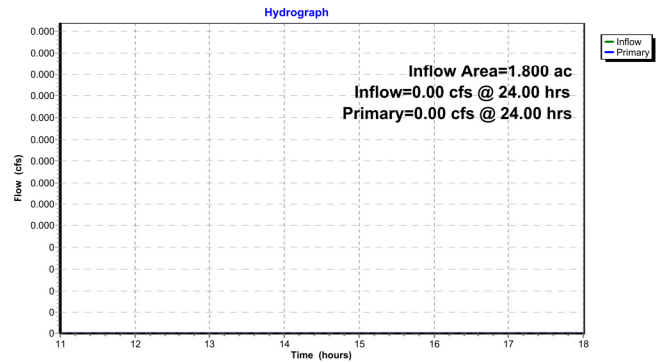
Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=318.00' (Free Discharge)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link Orf1: 6" Orifice

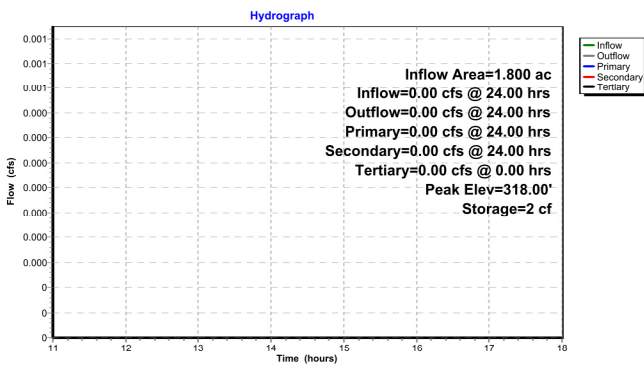
Inflow Area = 1.800 ac, 0.00% Impervious, Inflow Depth > 0.00" for 90% event
Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Routed to Link Total : Total DP1

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Orf1: 6" Orifice



Pond Basin: Basin

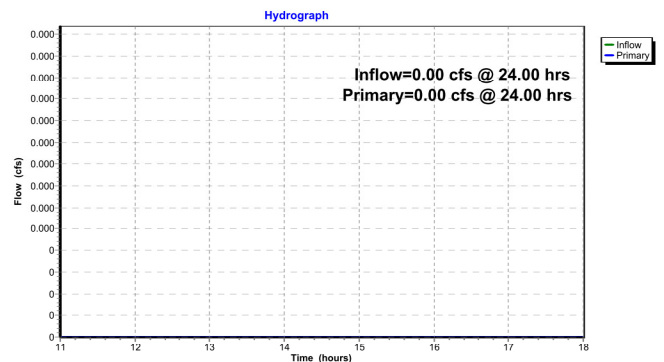


Summary for Link Orf2: 6" Orifice

Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Routed to Link Total : Total DP1

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Orf2: 6" Orifice

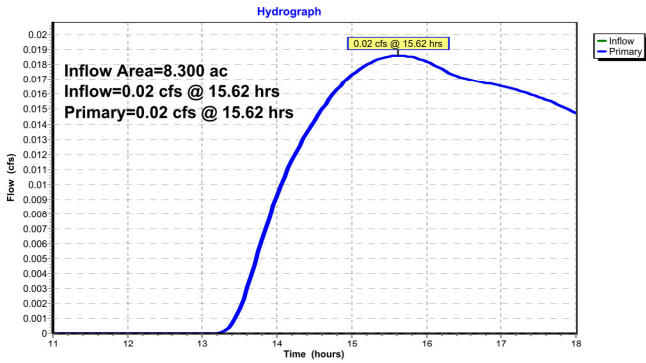


Summary for Link Total: Total DP1

Inflow Area = 8.300 ac, 0.00% Impervious, Inflow Depth > 0.02" for 90% event
 Inflow = 0.02 cfs @ 15.62 hrs, Volume= 0.012 af
 Primary = 0.02 cfs @ 15.62 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Total: Total DP1



Summary for Subcatchment EX1: WS1

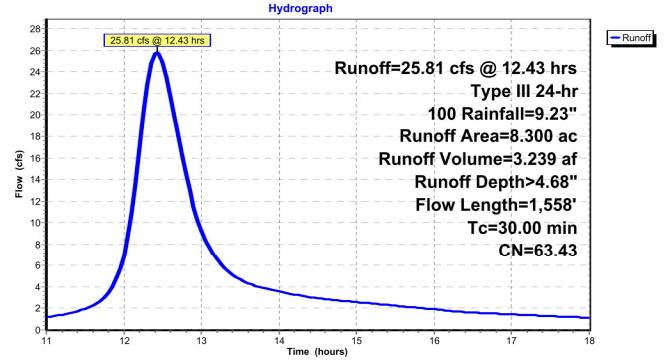
Runoff = 25.81 cfs @ 12.43 hrs, Volume= 3.239 af, Depth> 4.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
4.800	60.00	Woods, Fair, HSG B
1.500	79.00	Woods, Fair, HSG D
8.300	63.43	Weighted Average
8.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.86	508	0.2500	1.44		Lag/CN Method,
14.73	449	0.0325	0.51		Lag/CN Method,
9.41	601	0.1270	1.06		Lag/CN Method,
30.00	1,558	Total			

Subcatchment EX1: WS1

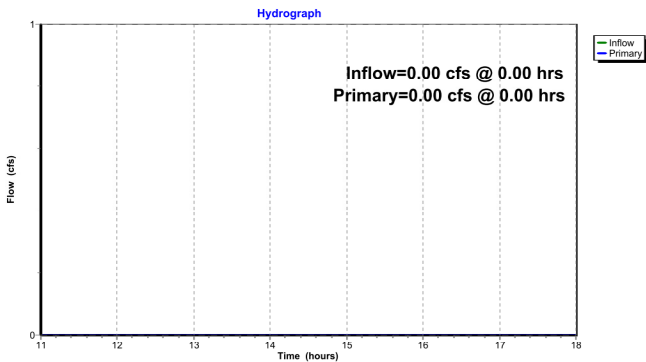


Summary for Link Weir: Weir Outflow

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Routed to Link Total : Total DP1

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Weir: Weir Outflow



Summary for Subcatchment PR: WS_Basin

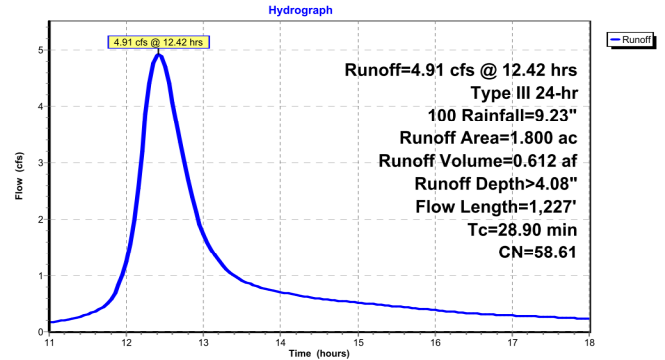
Runoff = 4.91 cfs @ 12.42 hrs, Volume= 0.612 af, Depth> 4.08"
 Routed to Pond Basin : Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
0.550	60.00	Woods, Fair, HSG B
1.250	58.00	Meadow, non-grazed, HSG B
1.800	58.61	Weighted Average
1.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.63	508	0.2500	1.28		Lag/CN Method,
16.66	449	0.0325	0.45		Lag/CN Method,
5.61	270	0.1270	0.80		Lag/CN Method,
28.90	1,227	Total			

Subcatchment PR: WS_Basin



Summary for Subcatchment PR1: PR WS1

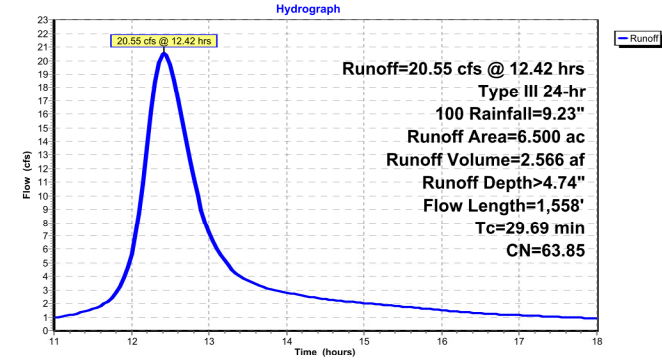
Runoff = 20.55 cfs @ 12.42 hrs, Volume= 2.566 af, Depth> 4.74"
 Routed to Link Total : Total DP1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100 Rainfall=9.23"

Area (ac)	CN	Description
2.000	60.00	Woods, Fair, HSG B
1.750	58.00	Meadow, non-grazed, HSG B
1.500	79.00	Woods, Fair, HSG D
1.250	60.00	Woods, Fair, HSG B
6.500	63.85	Weighted Average
6.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.80	508	0.2500	1.46		Lag/CN Method,
14.58	449	0.0325	0.51		Lag/CN Method,
9.31	601	0.1270	1.08		Lag/CN Method,
29.69	1,558	Total			

Subcatchment PR1: PR WS1



Summary for Pond Basin: Basin

Inflow Area = 1.800 ac, 0.00% Impervious, Inflow Depth > 4.08" for 100 event
 Inflow = 4.91 cfs @ 12.42 hrs, Volume= 0.612 af
 Outflow = 3.49 cfs @ 12.69 hrs, Volume= 0.610 af, Atten=29%, Lag= 16.1 min
 Primary = 1.60 cfs @ 12.69 hrs, Volume= 0.303 af
 Routed to Link Orf1 : 6" Orifice
 Secondary = 1.60 cfs @ 12.69 hrs, Volume= 0.303 af
 Routed to Link Orf2 : 6" Orifice
 Tertiary = 0.30 cfs @ 12.69 hrs, Volume= 0.004 af
 Routed to Link Weir : Weir Outflow

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 321.10' @ 12.69 hrs Surf.Area= 1,708 sf Storage= 3,747 cf

Plug-Flow detention time= 12.7 min calculated for 0.610 af (100% of inflow)
 Center-of-Mass det. time= 10.4 min (869.4 - 859.1)

Volume	Invert	Avail.Storage	Storage Description
#1	318.00'	5,428 cf	Basin (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
318.00	751	0	0
320.00	1,329	2,080	2,080
322.00	2,019	3,348	5,428

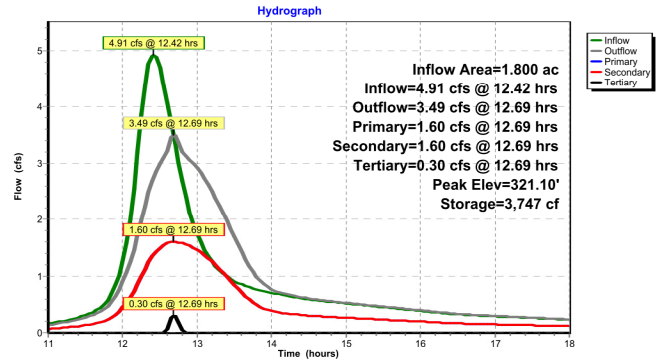
Device	Routing	Invert	Outlet Devices
#1	Primary	318.00'	6.0" Vert. Orifice1 C= 0.600 Limited to weir flow at low heads
#2	Secondary	318.00'	6.0" Vert. Orifice2 C= 0.600 Limited to weir flow at low heads
#3	Tertiary	321.00'	3.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=1.59 cfs @ 12.69 hrs HW=321.09' (Free Discharge)
 1=Orifice1 (Orifice Controls 1.59 cfs @ 8.12 fps)

Secondary OutFlow Max=1.59 cfs @ 12.69 hrs HW=321.09' (Free Discharge)
 2=Orifice2 (Orifice Controls 1.59 cfs @ 8.12 fps)

Tertiary OutFlow Max=0.28 cfs @ 12.69 hrs HW=321.09' (Free Discharge)
 3=Sharp-Crested Rectangular Weir (Weir Controls 0.28 cfs @ 1.01 fps)

Pond Basin: Basin

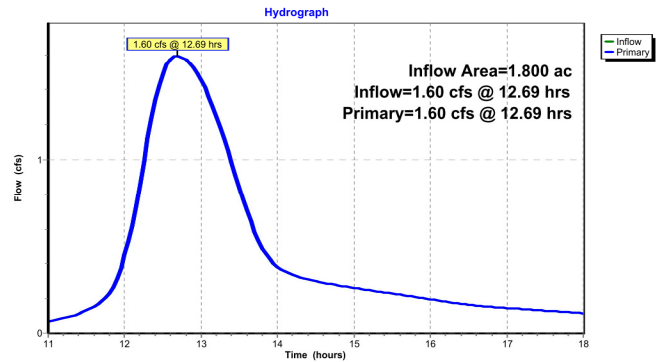


Summary for Link Orf1: 6" Orifice

Inflow Area = 1.800 ac, 0.00% Impervious, Inflow Depth > 2.02" for 100 event
 Inflow = 1.60 cfs @ 12.69 hrs, Volume= 0.303 af
 Primary = 1.60 cfs @ 12.69 hrs, Volume= 0.303 af, Atten= 0%, Lag= 0.0 min
 Routed to Link Total : Total DP1

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Orf1: 6" Orifice

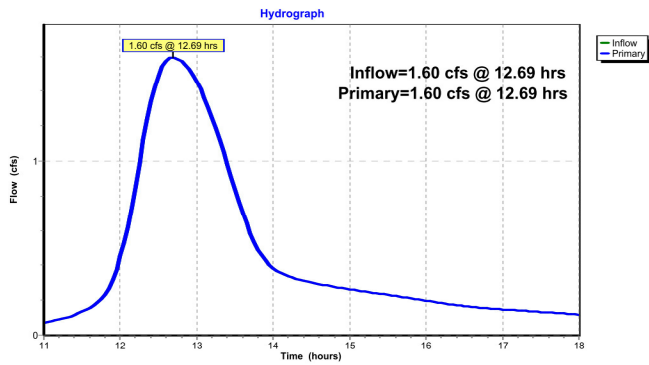


Summary for Link Orf2: 6" Orifice

Inflow = 1.60 cfs @ 12.69 hrs, Volume= 0.303 af
 Primary = 1.60 cfs @ 12.69 hrs, Volume= 0.303 af, Atten= 0%, Lag= 0.0 min
 Routed to Link Total : Total DP1

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Orf2: 6" Orifice

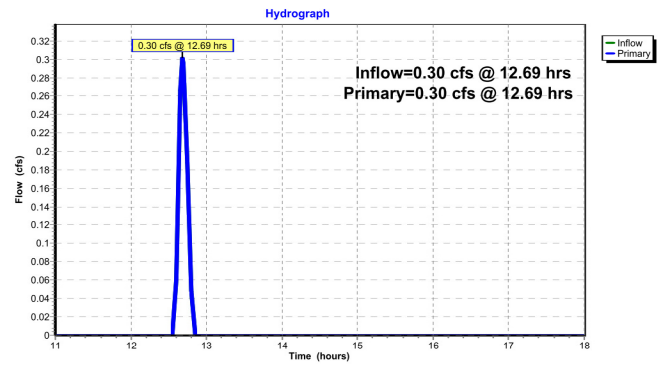


Summary for Link Weir: Weir Outflow

Inflow = 0.30 cfs @ 12.69 hrs, Volume= 0.004 af
 Primary = 0.30 cfs @ 12.69 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min
 Routed to Link Total : Total DP1

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Weir: Weir Outflow

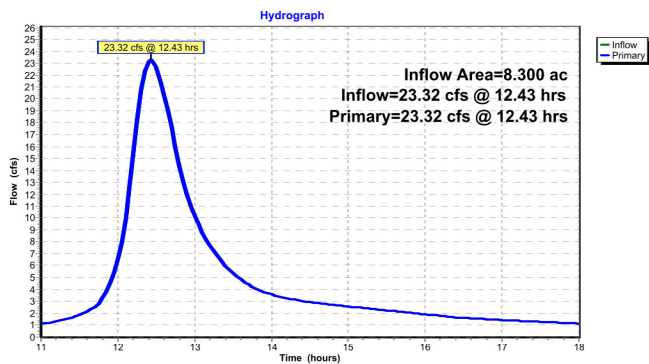


Summary for Link Total: Total DP1

Inflow Area = 8.300 ac, 0.00% Impervious, Inflow Depth > 4.59" for 100 event
 Inflow = 23.32 cfs @ 12.43 hrs, Volume= 3.175 af
 Primary = 23.32 cfs @ 12.43 hrs, Volume= 3.175 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link Total: Total DP1



END OF COMPUTATIONS