



**City of Concord
Site Plan
Application
Drainage
Report**

**25 Sandquist St.
Concord, NH**

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1. PROJECT NARRATIVE

1.1 Project Introduction

This project proposes stormwater management improvements at the existing facility for Radius Recycling (Applicant), located at 25 Sandquist St., Concord, NH. The facility is regulated under the United States Environmental Protection Agency (EPA) Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP) that became effective on March 1, 2021. The permit applies in areas of the country where EPA is the NPDES permitting authority, including New Hampshire. This project will replace the existing on-site stormwater infrastructure with new proposed conveyance, storage, and treatment systems to provide sufficient water quality treatment to consistently meet the MSGP benchmarks for target pollutants, which include total suspended solids (TSS), chemical oxygen demand (COD), and metals (aluminum, copper, lead, zinc) from runoff.

The Facility is located on a 6.9 acre parcel and includes approximately 5.1 acres of impervious area. The Facility is bounded to the north by an automotive salvage yard, to the west by commercial property, to the south by a residential neighborhood, and to the east by the Merrimack River. The Facility is used for activities related to scrap metal recycling. The Facility consists of an office, a processing building, a turning building, warehouse buildings, and covered storage areas. Portions of the property are unpaved, and therefore not subject to industrial operations, including the areas between the southern/southeastern edges of the paved area and the southern/southeastern property boundaries.

The total area of disturbance will be 1.2 acres, with an increase in impervious area by 2,906 square feet, as existing pervious areas on the southern portion of the property will be paved to accommodate the proposed stormwater storage and treatment infrastructure, as well as to provide a paved vehicular maintenance access pathway. No wetlands will be disturbed for this project; however, as the facility is within 250 feet of the shoreland, a shoreland protection permit will be required. The increase in impervious area for the site will be outside of the 250-foot shoreland protection buffer.

Pre-development and post-development drainage analyses have been prepared for this project. This report has been developed to demonstrate that the proposed stormwater improvements have been designed to match the pre-development conditions of the site in compliance with the City of Concord requirements. This includes pre-development and post-development drainage analyses and water quality treatment design calculations. Design calculations and drainage analyses are supplemented by the site plans which are appended in this report, and include typical construction details for erosion and sediment control and proposed drainage improvements and infrastructure.

1.2 Analysis Methods

In analyzing the impact of the proposed development on downstream waters, peak runoff rates were calculated for the 2, 10, 25, and 100-year storm events over a 24-hour period, in accordance with City of Concord Site Plan Regulations requirements. The calculations were performed to demonstrate the post-development runoff rates based on the proposed conditions were not in exceedance of the pre-development runoff rates under existing conditions for all modeled storm events.

Runoff depths for each storm event were calculated based upon standards set forth by the United States Department of Agriculture Soil Conservation Service (SCS) Technical Release 55, Urban Hydrology for Small Watersheds (TR-55), dated June 1986 and the TR-20 method. The methodology set forth in TR-55 considers

a multitude of characteristics for watershed areas including soil types, soil permeability, vegetative cover, time of concentration, topography, rainfall intensity, ponding areas, etc. The hydrologic model was created with HydroCAD version 10.20-2g. The model calculates the hydrologic analysis for each subcatchment of the watershed and develops peak flow rates and total runoff volume for each design storm event.

2. DRAINAGE ANALYSIS

2.1 Pre-Development Conditions

A pre-development conditions hydrologic model was established to determine the total stormwater runoff under the existing conditions of the site. The site is a total of 6.9 acres and the majority consists of impervious surfaces, with largely concrete pavement, covered buildings and an office. The southern areas are largely pervious areas with largely overgrown grass, with a run of vertically stacked conex containers that run from near the southwestern edge of the site to the 15' high metal fence on the eastern edge of the site that separates the facility from the bank along the Merrimack River to the east. An approximately 2' retaining wall runs from east to west along the southern portion of the site, and serves as a separation of the operational areas of the facility (i.e., metals recycling activity and logistics for vehicles) and the pervious area of the facility, where no operational activities are conducted.

Runoff from the paved areas flow to existing catch basins, and runoff areas from grassed areas currently discharge to the southwestern portion of the facility off-site. A total of 12 subcatchments were analyzed, with 11 subcatchments discharging to Design Point #1, and one subcatchment for the runoff that discharge off-site, Desing Point #2. The runoff from the grassed areas to the south of the paved areas are split, due to the existing stacked conex containers that also serve as a retaining wall. Runoff to the north of the conex containers runoff to the paved areas and enter the catch basins, and runoff to the south of the conext containers discharge off-site. The site consists of an existing 36" HDPE subsurface detention system and a diversion structure that also serves as an oil-separator for storage and treatment of the water quality volume. An existing drainage area map that provides drainage areas for each subcatchment, time of concentrations, and their flow paths is provided under Appendix C of this report.

Table 1 below provides a pre-development conditions summary of the flow rates for each discharge point for the 2, 10, 25, and 100-year storm events.

TABLE 1: PRE-DEVELOPMENT CONDITIONS PEAK FLOW SUMMARY

Discharge Point	2-year (cfs)	10-year (cfs)	25-year (cfs)	100-year (cfs)
DP-1	13.45	19.92	25.10	35.45
DP-2	0.22	0.45	0.63	1.02
Total	13.67	20.37	25.73	36.47

2.2 Post-Development Conditions

The post-development conditions remain the same as the pre-development conditions for the majority of the site, as the areas north of the existing retaining wall will not include any net change of impervious surfaces. For the areas south of the existing retaining wall, the conex containers will be removed, the area will be regraded, and a collection of above-grade and below-grade stormwater infrastructure will be installed, along with a paved maintenance access pathway. The existing retaining wall will be replaced by a 15' tall precast barrier wall to serve as a separation between the operational areas of the facility and the proposed stormwater infrastructure.

Under the proposed conditions, stormwater runoff will be captured on site through a series of catch basins and routed to a diversion structure, where up to 1-inch runoff treatment volume will be pretreated by an oil-water separator and diverted to a lift station. The lift station will pump the treatment volume and be

conveyed to an aboveground storage tank. The aboveground storage tank will be sized to store 150% of the water quality volume. The captured volume in the storage tank will then be pumped to an above-grade advanced treatment facility (ATS) where stormwater will be treated to meet permit benchmarks and then be discharged to the existing storm drain system. The diversion structure upstream of the lift station will allow stormwater flows exceeding the water quality event to bypass the storage tank and ATS. The treated stormwater from the ATS, as well as any bypassed flows, will then be discharged to the existing storm drain infrastructure which discharges to the Merrimack River. A proposed drainage area map that provides drainage areas for each subcatchment, time of concentrations, and their flow paths is provided under Appendix D of this report.

Table 2 below provides a post-development conditions summary of the flow rates for each discharge point for the 2, 10, 25, and 100-year storm events.

TABLE 2: POST-DEVELOPMENT CONDITIONS PEAK FLOW SUMMARY

Discharge Point	2-year (cfs)	10-year (cfs)	25-year (cfs)	100-year (cfs)
DP-1	8.06	14.95	20.28	36.68
DP-2	0.01	0.05	0.08	0.18
Total	8.07	15.00	20.36	36.86

2.3 Pre vs Post-Development Conditions Comparison

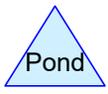
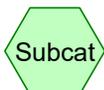
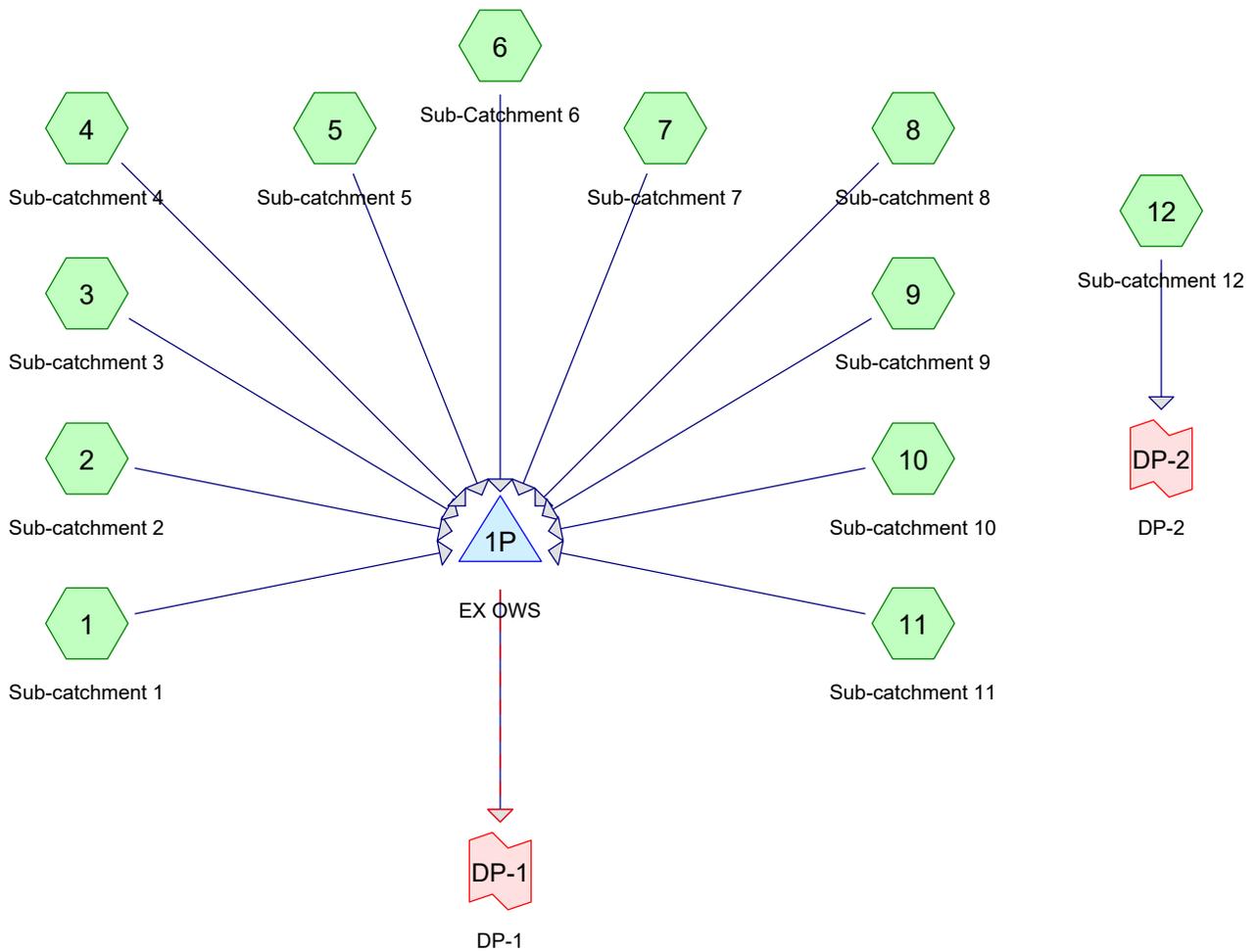
Table 3 provides a comparison of the pre-development and post-development conditions flow rates for the 2, 10, 25, and 100-year storm events. Based on the net reduction of peak flow rates for the 2, 10, and 25-year storm events, the site has been designed to not have adverse impacts to downstream conditions and their discharge points. While minor increases in peak discharge are observed for the 100-year storm event, the receiving waterbody – the Merrimack River – functions as a major regional conveyance system and negligible sensitivity to localized peak discharge variations at this scale. The proposed discharge hydrograph is anticipated to precede the peak stage of the Merrimack River, preventing coincident peak flows. Accordingly, the slight post-development increase is not anticipated to represent a measurable or adverse hydraulic impact. The analysis also demonstrates that due to the large amount of water quality volume that is captured by the aboveground storage tank (and, treated by the active treatment system), a significant reduction in peak flows for the 2-year and 10-year storm events are expected.

TABLE 3: PRE VS POST DEVELOPMENT FLOW RATE COMPARISON

Storm Event	Pre-Development Total (cfs)	Post-Development Total (cfs)	Net Total (cfs)	% Change (Pre vs. Post)
2-year	13.67	8.07	-5.66	-41%
10-year	20.37	15.00	-5.43	-27%
25-year	25.73	28.91	-1.84	-6%
100-year	36.47	36.86	0.39	1%

A complete HydroCAD report with analysis of each storm event for existing and proposed conditions is provided under Appendices A and B of this report, respectively.

APPENDIX A: PRE-DEVELOPMENT DRAINAGE ANALYSIS



Routing Diagram for Sandquist Existing Conditions
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Sandquist Existing Conditions

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	WQV	NRCC 24-hr	D	Default	24.00	1	1.30	2
2	2-Year	NRCC 24-hr	D	Default	24.00	1	2.82	2
3	10-Year	NRCC 24-hr	D	Default	24.00	1	4.16	2
4	25-Year	NRCC 24-hr	D	Default	24.00	1	5.20	2
5	100-Year	NRCC 24-hr	D	Default	24.00	1	7.29	2

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
24,528	79	<50% Grass cover, Poor, HSG B (9, 10, 12)
45,609	98	Roofs, HSG B (1, 2, 3, 4, 5, 7, 8, 10, 11)
176,002	98	Unconnected pavement, HSG B (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12)
246,139	96	TOTAL AREA

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
246,139	HSG B	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
0	HSG C	
0	HSG D	
0	Other	
246,139		TOTAL AREA

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	1P	227.14	227.10	36.0	0.0011	0.010	0.0	16.0	0.0	

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NRCC 24-hr D WQV Rainfall=1.30"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: Sub-catchment1	Runoff Area=33,590 sf 100.00% Impervious Runoff Depth=1.08" Tc=6.0 min CN=98 Runoff=0.86 cfs 3,033 cf
Subcatchment2: Sub-catchment2	Runoff Area=7,467 sf 100.00% Impervious Runoff Depth=1.08" Tc=6.0 min CN=98 Runoff=0.19 cfs 674 cf
Subcatchment3: Sub-catchment3	Runoff Area=7,120 sf 100.00% Impervious Runoff Depth=1.08" Tc=6.0 min CN=98 Runoff=0.18 cfs 643 cf
Subcatchment4: Sub-catchment4	Runoff Area=57,605 sf 100.00% Impervious Runoff Depth=1.08" Tc=6.0 min CN=98 Runoff=1.47 cfs 5,202 cf
Subcatchment5: Sub-catchment5	Runoff Area=14,314 sf 100.00% Impervious Runoff Depth=1.08" Tc=6.0 min CN=98 Runoff=0.37 cfs 1,293 cf
Subcatchment6: Sub-Catchment6	Runoff Area=20,333 sf 100.00% Impervious Runoff Depth=1.08" Tc=6.0 min CN=98 Runoff=0.52 cfs 1,836 cf
Subcatchment7: Sub-catchment7	Runoff Area=23,381 sf 100.00% Impervious Runoff Depth=1.08" Tc=6.0 min CN=98 Runoff=0.60 cfs 2,111 cf
Subcatchment8: Sub-catchment8	Runoff Area=25,531 sf 100.00% Impervious Runoff Depth=1.08" Tc=6.0 min CN=98 Runoff=0.65 cfs 2,305 cf
Subcatchment9: Sub-catchment9	Runoff Area=11,753 sf 73.89% Impervious Runoff Depth=0.69" Tc=6.0 min CN=93 Runoff=0.21 cfs 680 cf
Subcatchment10: Sub-catchment10	Runoff Area=32,181 sf 67.40% Impervious Runoff Depth=0.64" Tc=6.0 min CN=92 Runoff=0.52 cfs 1,704 cf
Subcatchment11: Sub-catchment11	Runoff Area=1,822 sf 100.00% Impervious Runoff Depth=1.08" Tc=6.0 min CN=98 Runoff=0.05 cfs 165 cf
Subcatchment12: Sub-catchment12	Runoff Area=11,042 sf 0.67% Impervious Runoff Depth=0.17" Flow Length=285' Tc=13.6 min CN=79 Runoff=0.02 cfs 159 cf
Pond 1P: EX OWS	Peak Elev=230.24' Storage=3,603 cf Inflow=5.62 cfs 19,646 cf Primary=1.60 cfs 19,437 cf Secondary=0.77 cfs 209 cf Outflow=2.37 cfs 19,646 cf
Link DP-1: DP-1	Inflow=2.37 cfs 19,646 cf Primary=2.37 cfs 19,646 cf
Link DP-2: DP-2	Inflow=0.02 cfs 159 cf Primary=0.02 cfs 159 cf

Total Runoff Area = 246,139 sf Runoff Volume = 19,804 cf Average Runoff Depth = 0.97"
9.97% Pervious = 24,528 sf 90.03% Impervious = 221,611 sf

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NRCC 24-hr D WQV Rainfall=1.30"

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Summary for Subcatchment 1: Sub-catchment 1

Runoff = 0.86 cfs @ 12.13 hrs, Volume= 3,033 cf, Depth= 1.08"
 Routed to Pond 1P : EX OWS

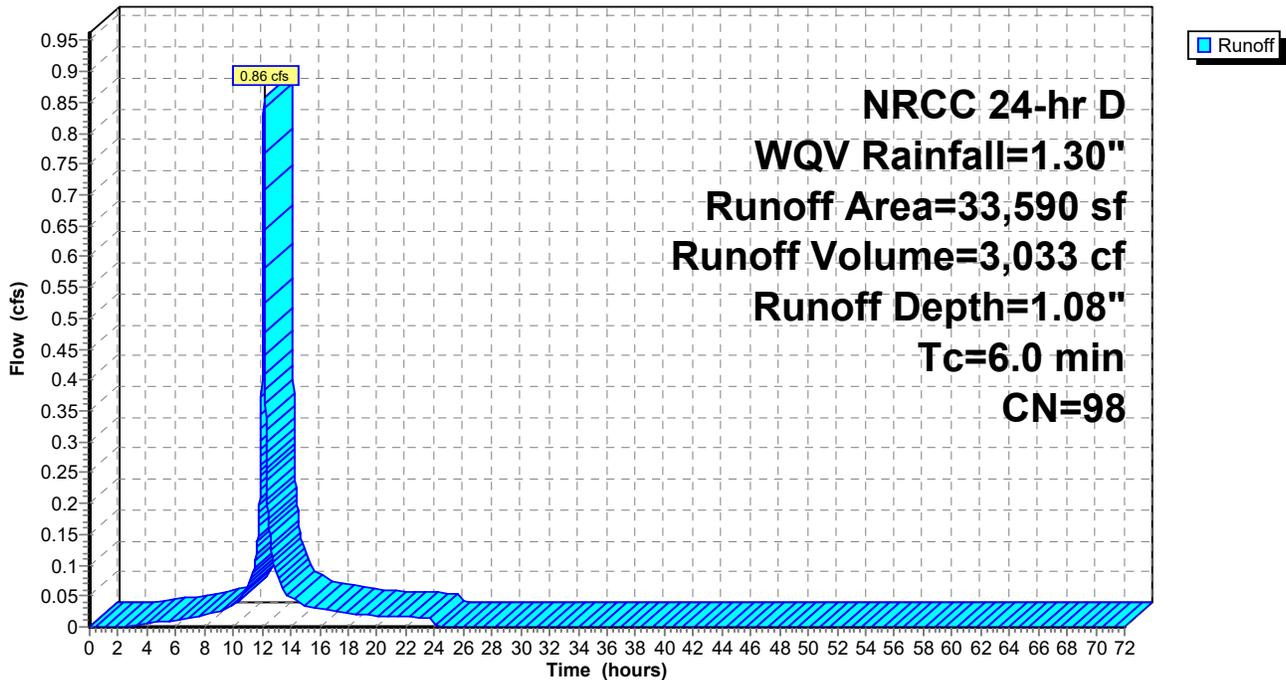
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV Rainfall=1.30"

Area (sf)	CN	Description
15,206	98	Roofs, HSG B
18,384	98	Unconnected pavement, HSG B
33,590	98	Weighted Average
33,590		100.00% Impervious Area
18,384		54.73% Unconnected

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

Subcatchment 1: Sub-catchment 1

Hydrograph



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Summary for Subcatchment 2: Sub-catchment 2

Runoff = 0.19 cfs @ 12.13 hrs, Volume= 674 cf, Depth= 1.08"
 Routed to Pond 1P : EX OWS

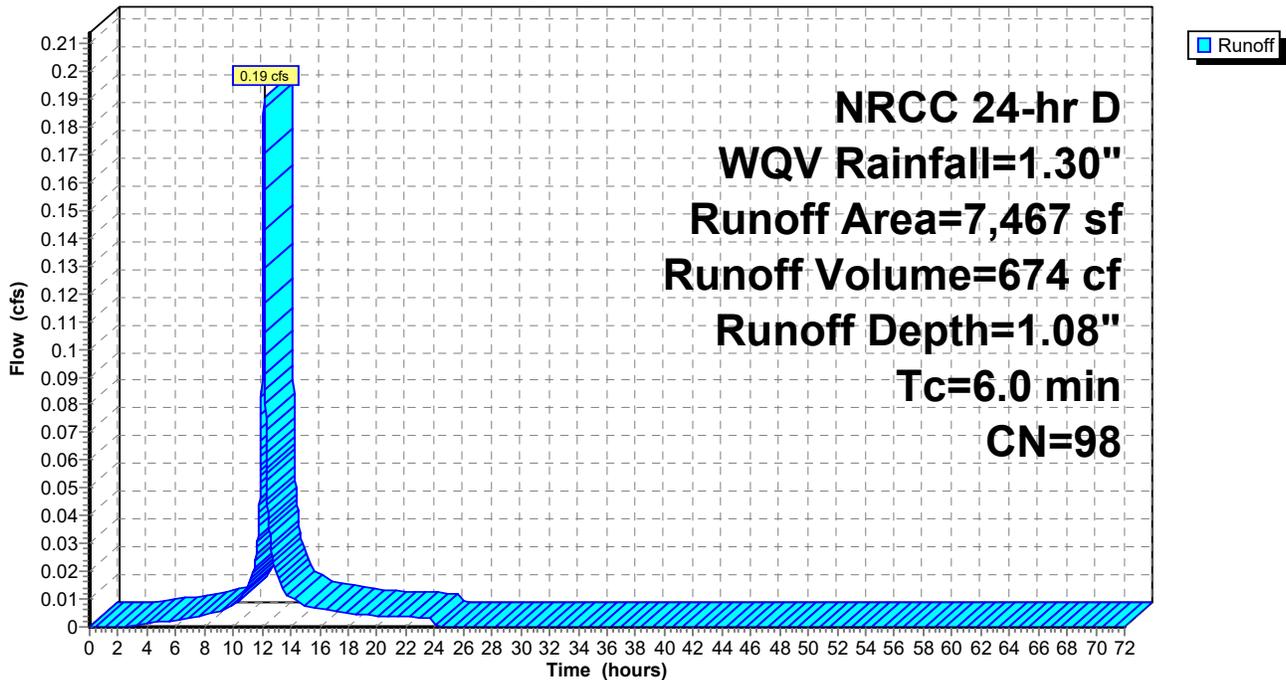
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV Rainfall=1.30"

Area (sf)	CN	Description
2,936	98	Roofs, HSG B
4,531	98	Unconnected pavement, HSG B
7,467	98	Weighted Average
7,467		100.00% Impervious Area
4,531		60.68% Unconnected

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

Subcatchment 2: Sub-catchment 2

Hydrograph



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Summary for Subcatchment 3: Sub-catchment 3

Runoff = 0.18 cfs @ 12.13 hrs, Volume= 643 cf, Depth= 1.08"
 Routed to Pond 1P : EX OWS

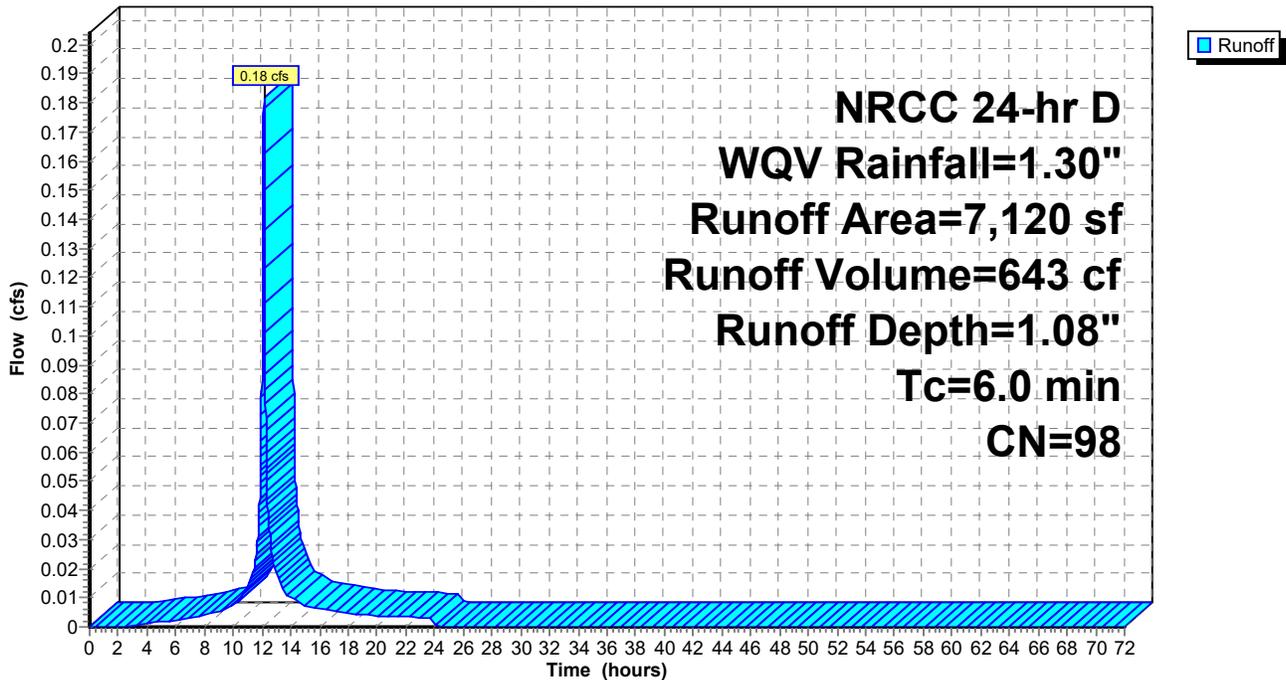
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV Rainfall=1.30"

Area (sf)	CN	Description
2,543	98	Roofs, HSG B
4,577	98	Unconnected pavement, HSG B
7,120	98	Weighted Average
7,120		100.00% Impervious Area
4,577		64.28% Unconnected

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

Subcatchment 3: Sub-catchment 3

Hydrograph



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NRCC 24-hr D WQV Rainfall=1.30"

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Summary for Subcatchment 4: Sub-catchment 4

Runoff = 1.47 cfs @ 12.13 hrs, Volume= 5,202 cf, Depth= 1.08"
 Routed to Pond 1P : EX OWS

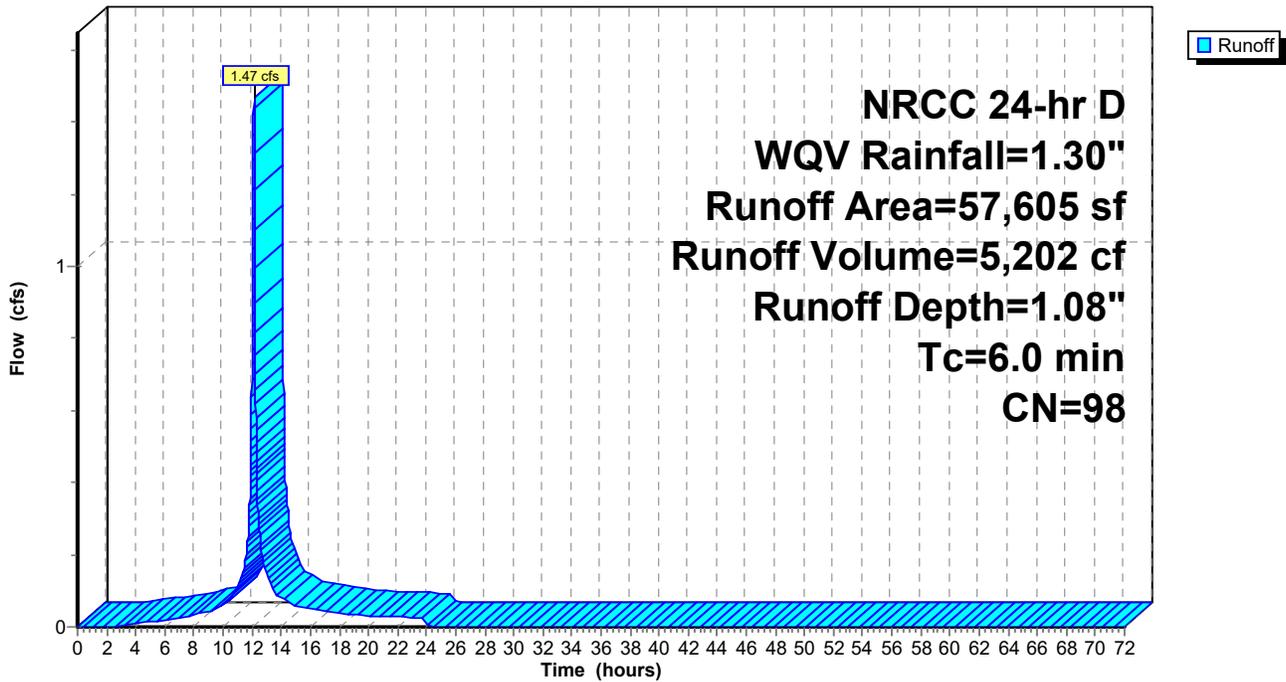
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV Rainfall=1.30"

Area (sf)	CN	Description
5,329	98	Roofs, HSG B
52,276	98	Unconnected pavement, HSG B
57,605	98	Weighted Average
57,605		100.00% Impervious Area
52,276		90.75% Unconnected

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

Subcatchment 4: Sub-catchment 4

Hydrograph



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Summary for Subcatchment 5: Sub-catchment 5

Runoff = 0.37 cfs @ 12.13 hrs, Volume= 1,293 cf, Depth= 1.08"
 Routed to Pond 1P : EX OWS

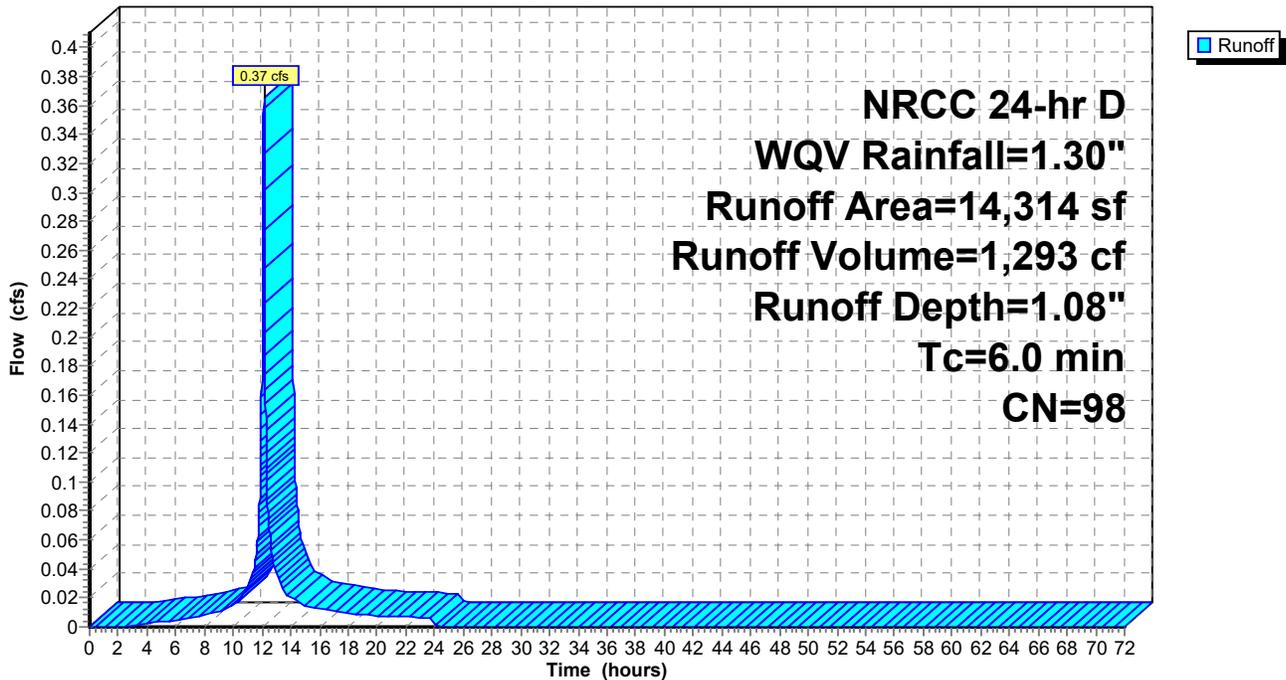
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV Rainfall=1.30"

Area (sf)	CN	Description
5,500	98	Roofs, HSG B
8,814	98	Unconnected pavement, HSG B
14,314	98	Weighted Average
14,314		100.00% Impervious Area
8,814		61.58% Unconnected

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

Subcatchment 5: Sub-catchment 5

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Summary for Subcatchment 6: Sub-Catchment 6

Runoff = 0.52 cfs @ 12.13 hrs, Volume= 1,836 cf, Depth= 1.08"
 Routed to Pond 1P : EX OWS

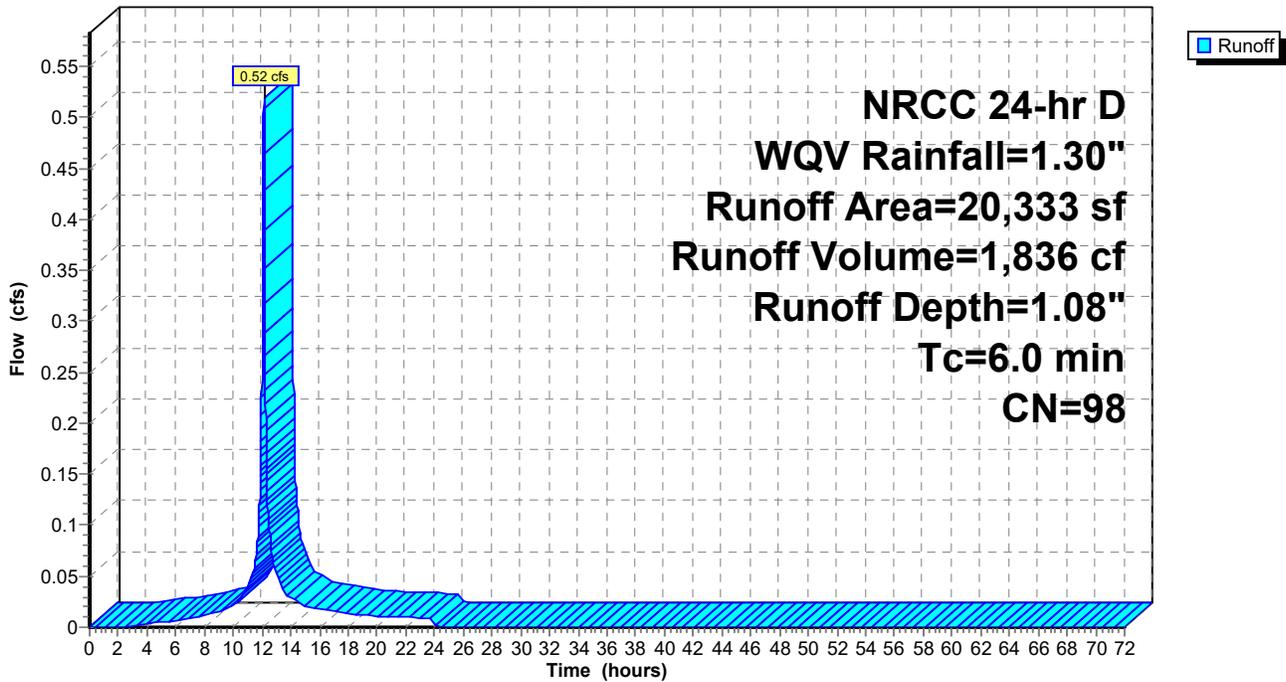
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV Rainfall=1.30"

Area (sf)	CN	Description
20,333	98	Unconnected pavement, HSG B
20,333		100.00% Impervious Area
20,333		100.00% Unconnected

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

Subcatchment 6: Sub-Catchment 6

Hydrograph



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NRCC 24-hr D WQV Rainfall=1.30"

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Summary for Subcatchment 7: Sub-catchment 7

Runoff = 0.60 cfs @ 12.13 hrs, Volume= 2,111 cf, Depth= 1.08"
 Routed to Pond 1P : EX OWS

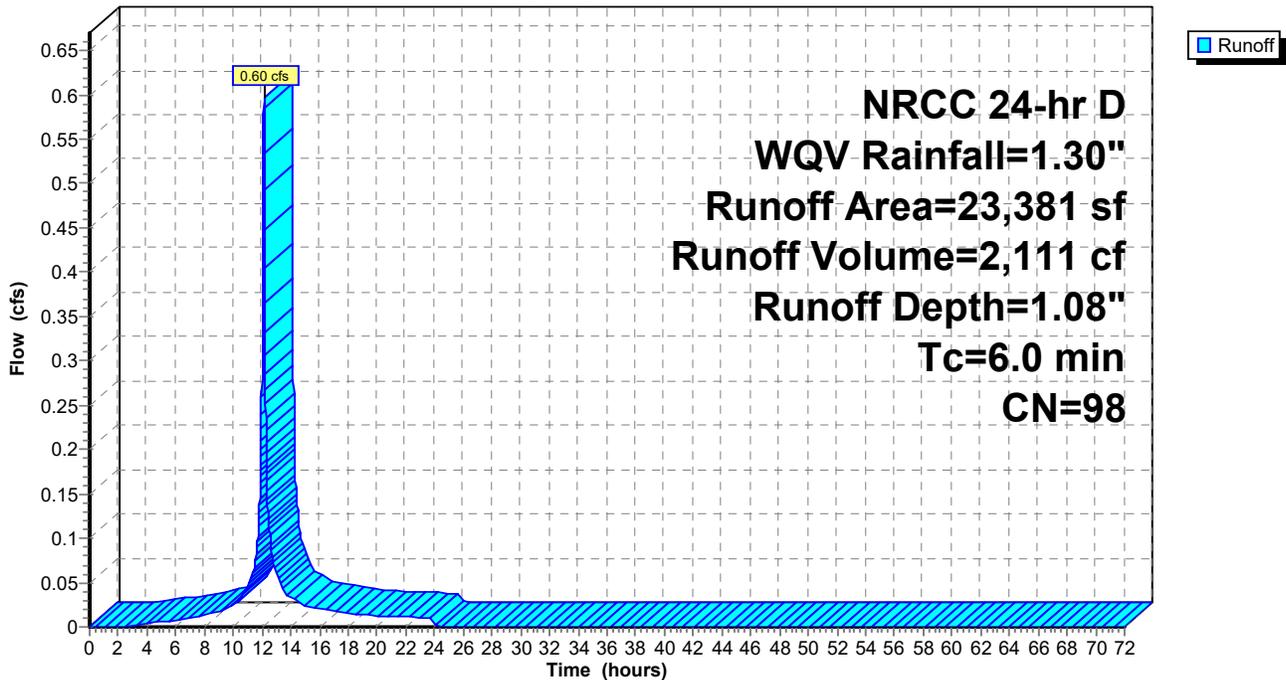
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV Rainfall=1.30"

Area (sf)	CN	Description
3,396	98	Roofs, HSG B
19,985	98	Unconnected pavement, HSG B
23,381	98	Weighted Average
23,381		100.00% Impervious Area
19,985		85.48% Unconnected

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

Subcatchment 7: Sub-catchment 7

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NRCC 24-hr D WQV Rainfall=1.30"

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Summary for Subcatchment 8: Sub-catchment 8

Runoff = 0.65 cfs @ 12.13 hrs, Volume= 2,305 cf, Depth= 1.08"
 Routed to Pond 1P : EX OWS

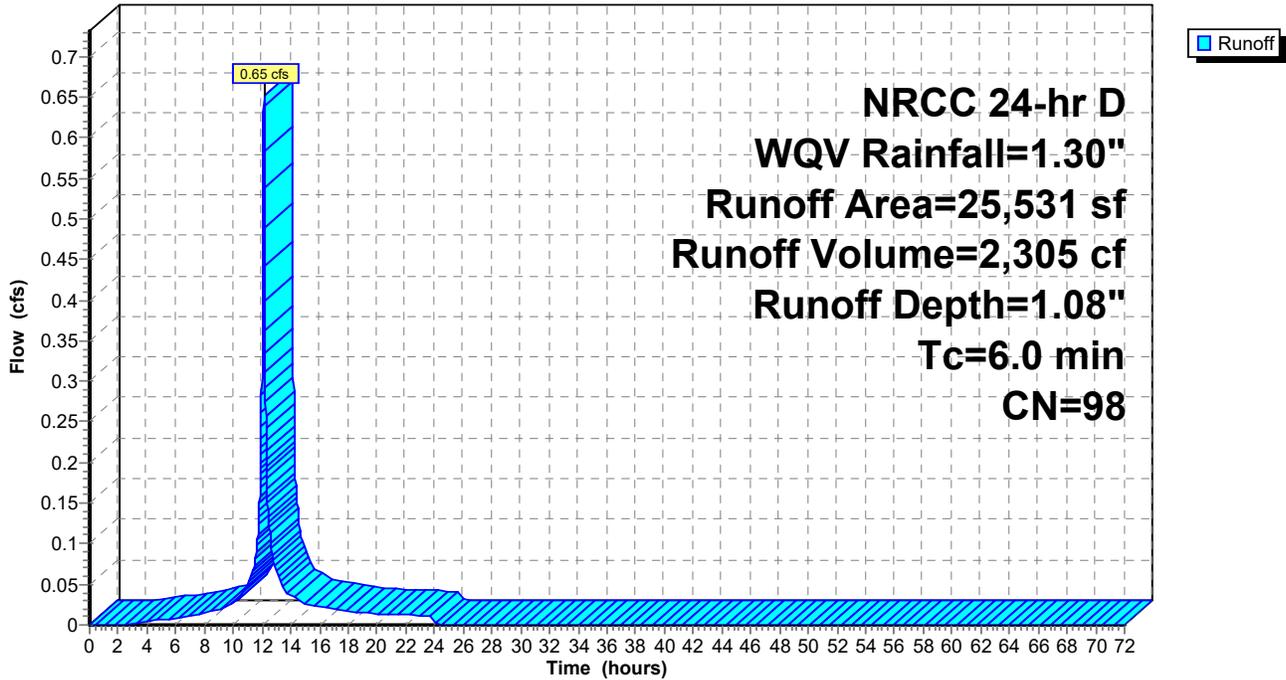
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV Rainfall=1.30"

Area (sf)	CN	Description
2,117	98	Roofs, HSG B
23,414	98	Unconnected pavement, HSG B
25,531	98	Weighted Average
25,531		100.00% Impervious Area
23,414		91.71% Unconnected

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

Subcatchment 8: Sub-catchment 8

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NRCC 24-hr D WQV Rainfall=1.30"

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Summary for Subcatchment 9: Sub-catchment 9

Runoff = 0.21 cfs @ 12.13 hrs, Volume= 680 cf, Depth= 0.69"
 Routed to Pond 1P : EX OWS

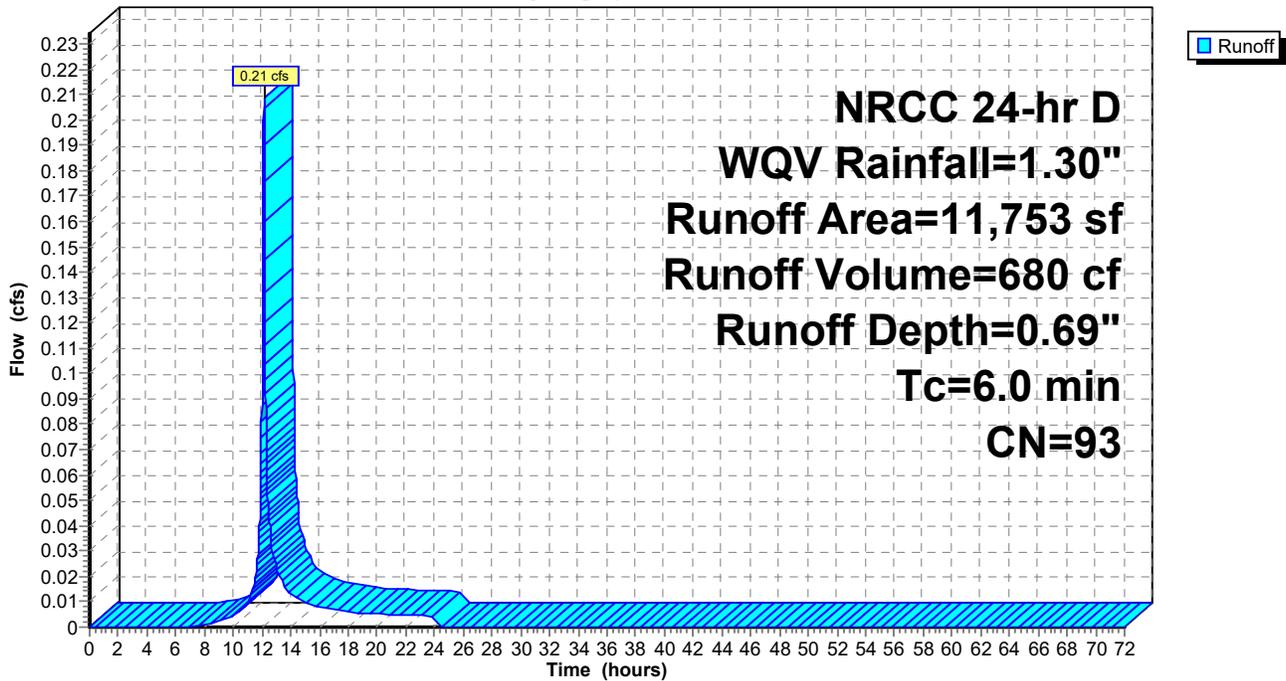
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV Rainfall=1.30"

Area (sf)	CN	Description
3,069	79	<50% Grass cover, Poor, HSG B
8,684	98	Unconnected pavement, HSG B
11,753	93	Weighted Average
3,069		26.11% Pervious Area
8,684		73.89% Impervious Area
8,684		100.00% Unconnected

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

Subcatchment 9: Sub-catchment 9

Hydrograph



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NRCC 24-hr D WQV Rainfall=1.30"

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Summary for Subcatchment 10: Sub-catchment 10

Runoff = 0.52 cfs @ 12.13 hrs, Volume= 1,704 cf, Depth= 0.64"
 Routed to Pond 1P : EX OWS

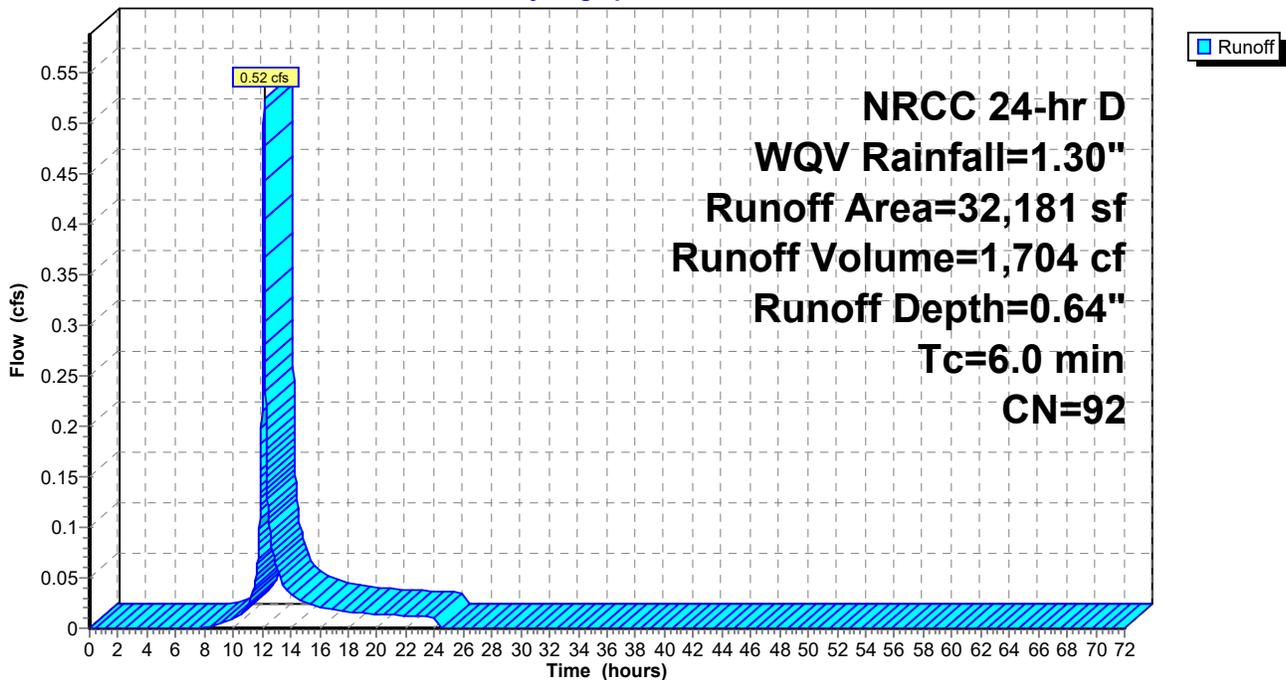
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV Rainfall=1.30"

Area (sf)	CN	Description
10,491	79	<50% Grass cover, Poor, HSG B
6,760	98	Roofs, HSG B
14,930	98	Unconnected pavement, HSG B
32,181	92	Weighted Average
10,491		32.60% Pervious Area
21,690		67.40% Impervious Area
14,930		68.83% Unconnected

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

Subcatchment 10: Sub-catchment 10

Hydrograph



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Summary for Subcatchment 11: Sub-catchment 11

Runoff = 0.05 cfs @ 12.13 hrs, Volume= 165 cf, Depth= 1.08"
Routed to Pond 1P : EX OWS

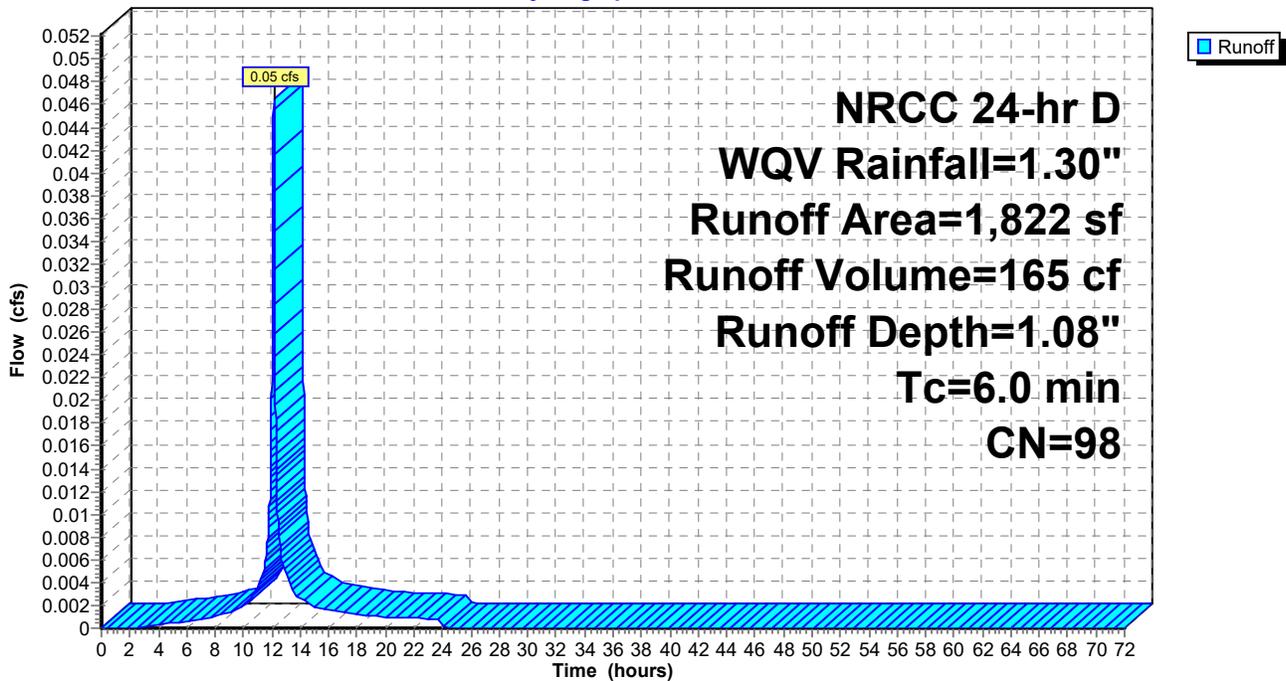
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D WQV Rainfall=1.30"

Area (sf)	CN	Description
1,822	98	Roofs, HSG B
1,822		100.00% Impervious Area

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

Subcatchment 11: Sub-catchment 11

Hydrograph



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Summary for Subcatchment 12: Sub-catchment 12

Runoff = 0.02 cfs @ 12.26 hrs, Volume= 159 cf, Depth= 0.17"
 Routed to Link DP-2 : DP-2

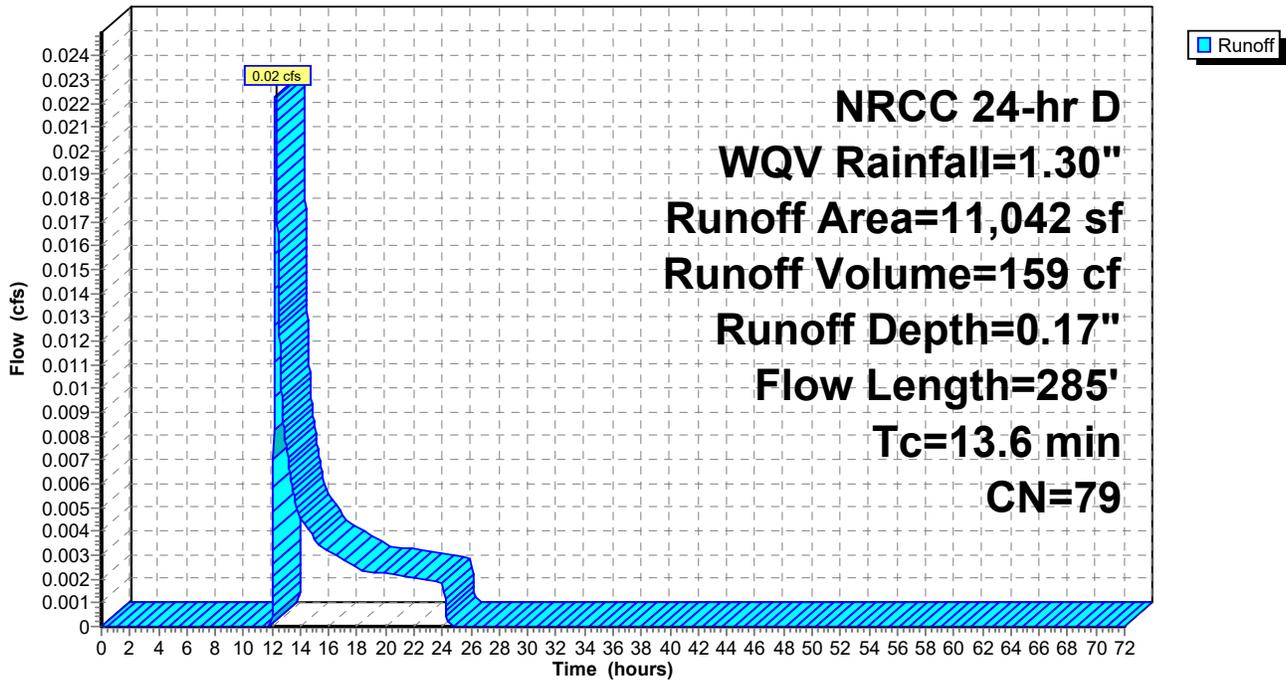
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV Rainfall=1.30"

Area (sf)	CN	Description
74	98	Unconnected pavement, HSG B
10,968	79	<50% Grass cover, Poor, HSG B
11,042	79	Weighted Average
10,968		99.33% Pervious Area
74		0.67% Impervious Area
74		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0120	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
1.6	185	0.0150	1.97		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.6	285	Total			

Subcatchment 12: Sub-catchment 12

Hydrograph



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Summary for Pond 1P: EX OWS

Inflow Area = 235,097 sf, 94.23% Impervious, Inflow Depth = 1.00" for WQV event
Inflow = 5.62 cfs @ 12.13 hrs, Volume= 19,646 cf
Outflow = 2.37 cfs @ 12.25 hrs, Volume= 19,646 cf, Atten= 58%, Lag= 7.4 min
Primary = 1.60 cfs @ 12.25 hrs, Volume= 19,437 cf
Routed to Link DP-1 : DP-1
Secondary = 0.77 cfs @ 12.25 hrs, Volume= 209 cf
Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.24' @ 12.25 hrs Surf.Area= 2,775 sf Storage= 3,603 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 13.6 min (811.1 - 797.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	227.14'	0 cf	53.75'W x 51.62'L x 4.00'H Field A 11,098 cf Overall - 4,587 cf Embedded = 6,511 cf x 0.0% Voids
#2A	227.14'	3,676 cf	ADS N-12 36" x 20 Inside #1 Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.1 cf Row Length Adjustment= +1.62' x 7.10 sf x 10 rows 50.75' Header x 7.10 sf x 2 = 720.6 cf Inside
		3,676 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	227.14'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Secondary	227.14'	16.0" Round Culvert L= 36.0' Ke= 0.500 Inlet / Outlet Invert= 227.14' / 227.10' S= 0.0011 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.40 sf
#3	Device 2	230.14'	9.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.60 cfs @ 12.25 hrs HW=230.24' TW=0.00' (Dynamic Tailwater)
↑**1=Orifice/Grate** (Orifice Controls 1.60 cfs @ 8.12 fps)

Secondary OutFlow Max=0.76 cfs @ 12.25 hrs HW=230.24' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Passes 0.76 cfs of 10.48 cfs potential flow)
↑**3=Broad-Crested Rectangular Weir**(Weir Controls 0.76 cfs @ 0.87 fps)

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Pond 1P: EX OWS - Chamber Wizard Field A

Chamber Model = ADS N-12 36" (ADS N-12® Pipe)

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf

Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.1 cf

Row Length Adjustment= +1.62' x 7.10 sf x 10 rows

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

2 Chambers/Row x 20.00' Long +1.62' Row Adjustment +3.50' Header x 2 = 48.62' Row Length +18.0"

End Stone x 2 = 51.62' Base Length

10 Rows x 42.0" Wide + 21.0" Spacing x 9 + 18.0" Side Stone x 2 = 53.75' Base Width

42.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

20 Chambers x 142.0 cf +1.62' Row Adjustment x 7.10 sf x 10 Rows + 50.75' Header x 7.10 sf x 2 =
3,675.7 cf Chamber Storage

20 Chambers x 177.1 cf +1.62' Row Adjustment x 8.86 sf x 10 Rows + 50.75' Header x 8.86 sf x 2 =
4,585.4 cf Displacement

11,098.3 cf Field - 4,585.4 cf Chambers = 6,512.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 3,675.7 cf = 0.084 af

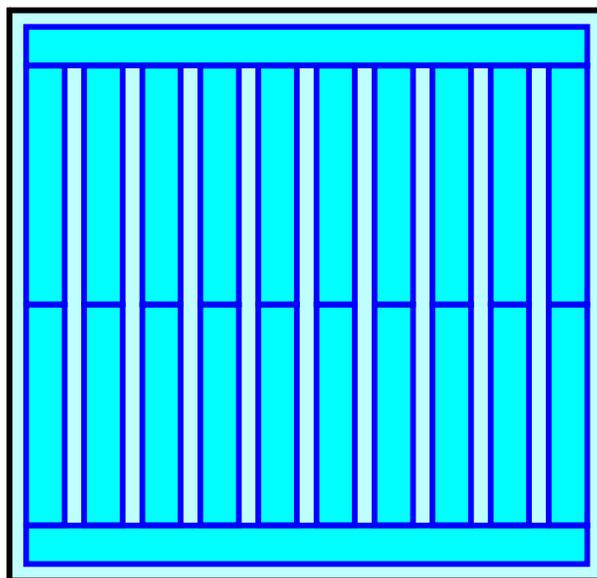
Overall Storage Efficiency = 33.1%

Overall System Size = 51.62' x 53.75' x 4.00'

20 Chambers

411.0 cy Field

241.2 cy Stone



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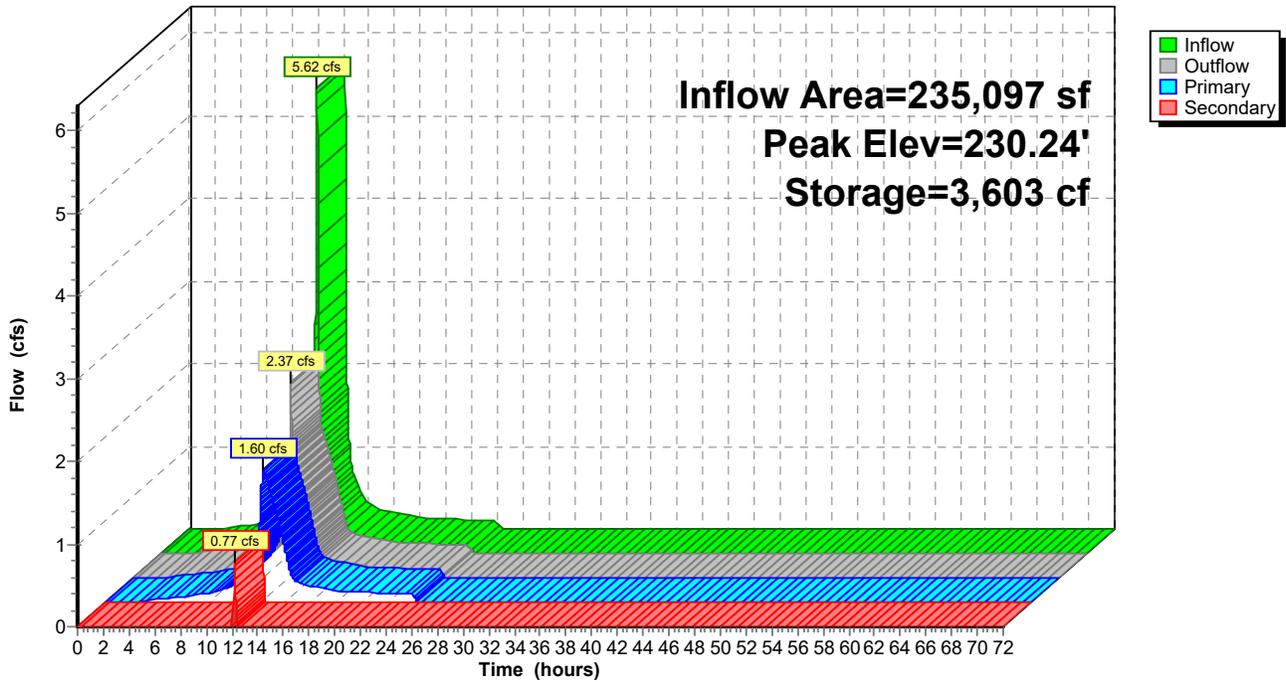
NRCC 24-hr D WQV Rainfall=1.30"

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Pond 1P: EX OWS

Hydrograph



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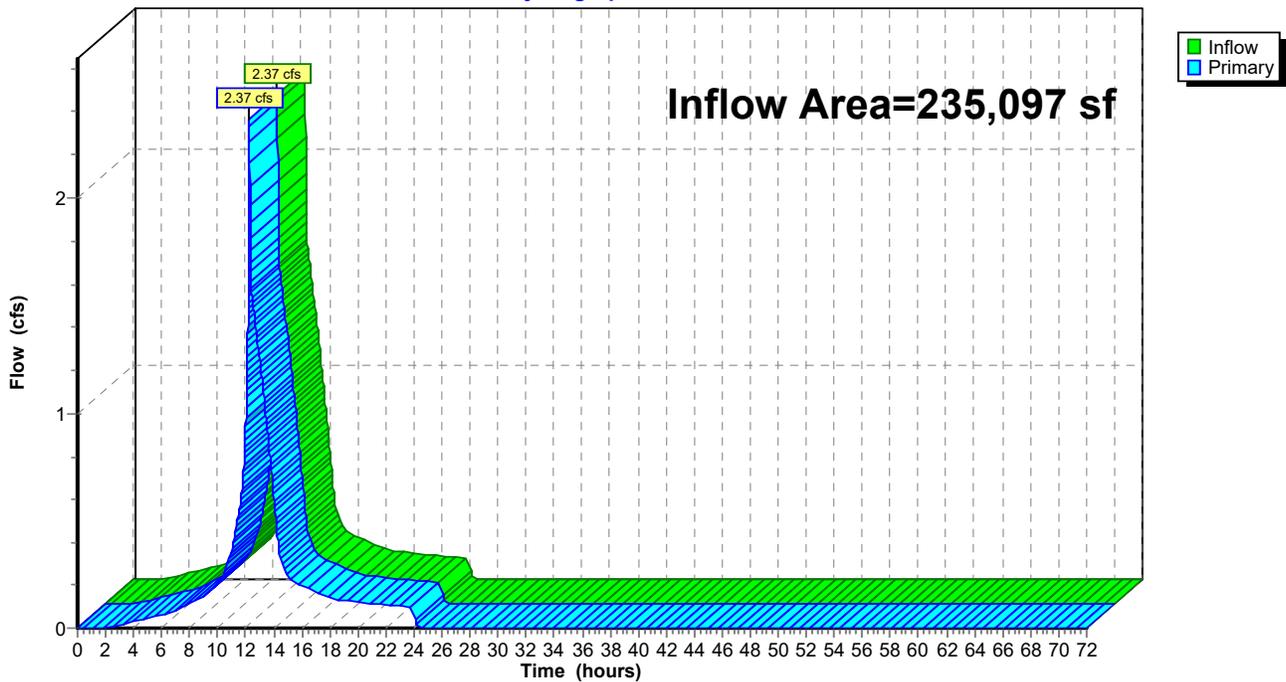
Summary for Link DP-1: DP-1

Inflow Area = 235,097 sf, 94.23% Impervious, Inflow Depth = 1.00" for WQV event
Inflow = 2.37 cfs @ 12.25 hrs, Volume= 19,646 cf
Primary = 2.37 cfs @ 12.25 hrs, Volume= 19,646 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-1: DP-1

Hydrograph



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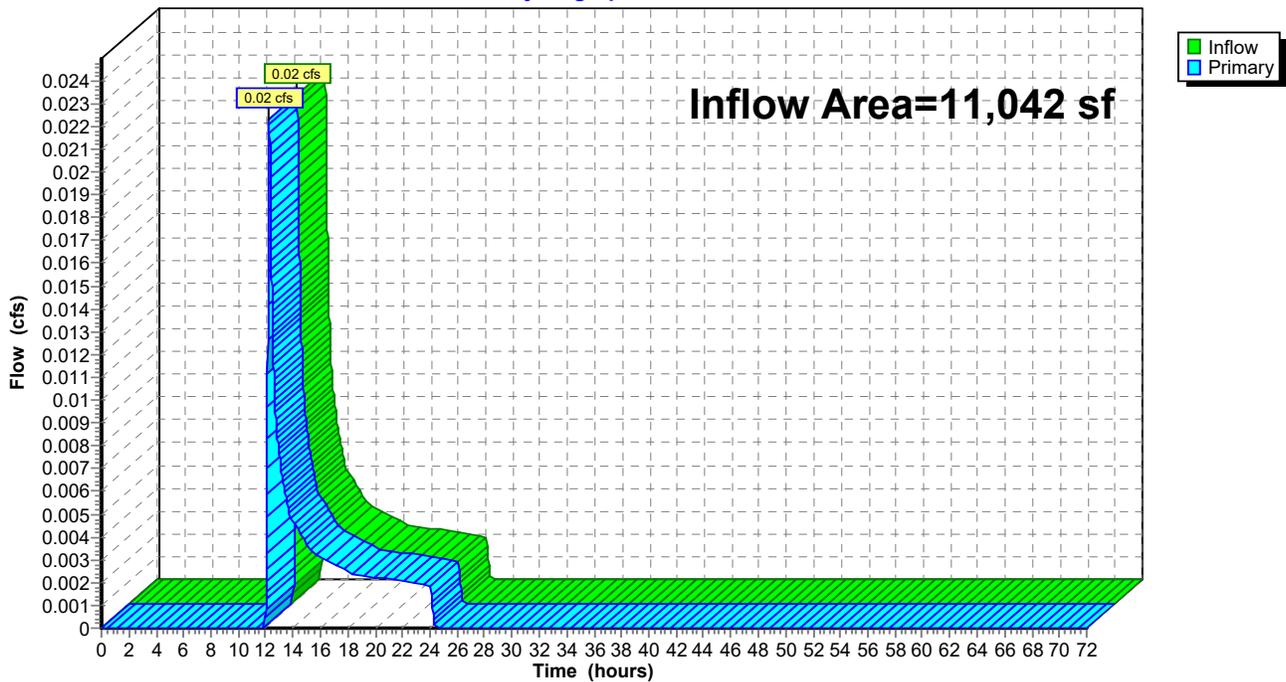
Summary for Link DP-2: DP-2

Inflow Area = 11,042 sf, 0.67% Impervious, Inflow Depth = 0.17" for WQV event
Inflow = 0.02 cfs @ 12.26 hrs, Volume= 159 cf
Primary = 0.02 cfs @ 12.26 hrs, Volume= 159 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-2: DP-2

Hydrograph



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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: Sub-catchment1	Runoff Area=33,590 sf 100.00% Impervious Runoff Depth=2.59" Tc=6.0 min CN=98 Runoff=1.95 cfs 7,247 cf
Subcatchment2: Sub-catchment2	Runoff Area=7,467 sf 100.00% Impervious Runoff Depth=2.59" Tc=6.0 min CN=98 Runoff=0.43 cfs 1,611 cf
Subcatchment3: Sub-catchment3	Runoff Area=7,120 sf 100.00% Impervious Runoff Depth=2.59" Tc=6.0 min CN=98 Runoff=0.41 cfs 1,536 cf
Subcatchment4: Sub-catchment4	Runoff Area=57,605 sf 100.00% Impervious Runoff Depth=2.59" Tc=6.0 min CN=98 Runoff=3.34 cfs 12,429 cf
Subcatchment5: Sub-catchment5	Runoff Area=14,314 sf 100.00% Impervious Runoff Depth=2.59" Tc=6.0 min CN=98 Runoff=0.83 cfs 3,088 cf
Subcatchment6: Sub-Catchment6	Runoff Area=20,333 sf 100.00% Impervious Runoff Depth=2.59" Tc=6.0 min CN=98 Runoff=1.18 cfs 4,387 cf
Subcatchment7: Sub-catchment7	Runoff Area=23,381 sf 100.00% Impervious Runoff Depth=2.59" Tc=6.0 min CN=98 Runoff=1.36 cfs 5,045 cf
Subcatchment8: Sub-catchment8	Runoff Area=25,531 sf 100.00% Impervious Runoff Depth=2.59" Tc=6.0 min CN=98 Runoff=1.48 cfs 5,508 cf
Subcatchment9: Sub-catchment9	Runoff Area=11,753 sf 73.89% Impervious Runoff Depth=2.08" Tc=6.0 min CN=93 Runoff=0.60 cfs 2,039 cf
Subcatchment10: Sub-catchment10	Runoff Area=32,181 sf 67.40% Impervious Runoff Depth=1.99" Tc=6.0 min CN=92 Runoff=1.59 cfs 5,341 cf
Subcatchment11: Sub-catchment11	Runoff Area=1,822 sf 100.00% Impervious Runoff Depth=2.59" Tc=6.0 min CN=98 Runoff=0.11 cfs 393 cf
Subcatchment12: Sub-catchment12	Runoff Area=11,042 sf 0.67% Impervious Runoff Depth=1.06" Flow Length=285' Tc=13.6 min CN=79 Runoff=0.22 cfs 974 cf
Pond 1P: EX OWS	Peak Elev=230.82' Storage=3,676 cf Inflow=13.29 cfs 48,625 cf Primary=1.75 cfs 38,587 cf Secondary=11.70 cfs 10,038 cf Outflow=13.45 cfs 48,625 cf
Link DP-1: DP-1	Inflow=13.45 cfs 48,625 cf Primary=13.45 cfs 48,625 cf
Link DP-2: DP-2	Inflow=0.22 cfs 974 cf Primary=0.22 cfs 974 cf

Total Runoff Area = 246,139 sf Runoff Volume = 49,599 cf Average Runoff Depth = 2.42"
9.97% Pervious = 24,528 sf 90.03% Impervious = 221,611 sf

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Summary for Subcatchment 1: Sub-catchment 1

Runoff = 1.95 cfs @ 12.13 hrs, Volume= 7,247 cf, Depth= 2.59"
Routed to Pond 1P : EX OWS

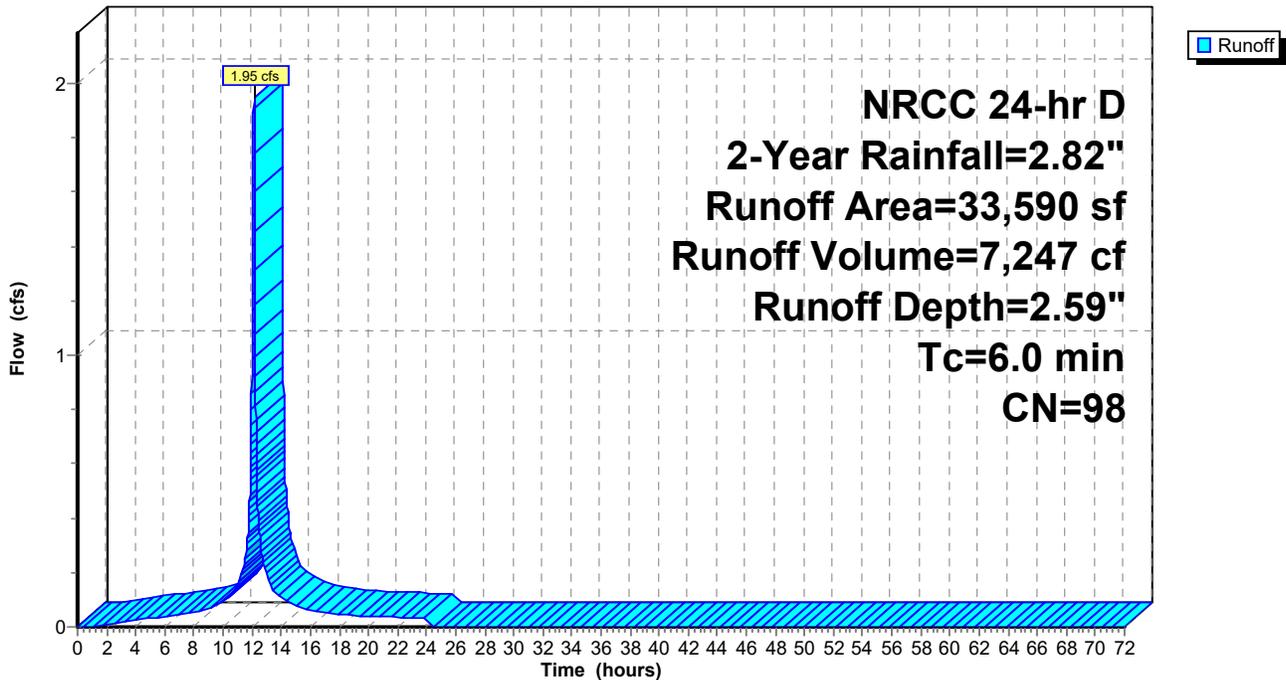
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
15,206	98	Roofs, HSG B
18,384	98	Unconnected pavement, HSG B
33,590	98	Weighted Average
33,590		100.00% Impervious Area
18,384		54.73% Unconnected

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

Subcatchment 1: Sub-catchment 1

Hydrograph



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Summary for Subcatchment 2: Sub-catchment 2

Runoff = 0.43 cfs @ 12.13 hrs, Volume= 1,611 cf, Depth= 2.59"
 Routed to Pond 1P : EX OWS

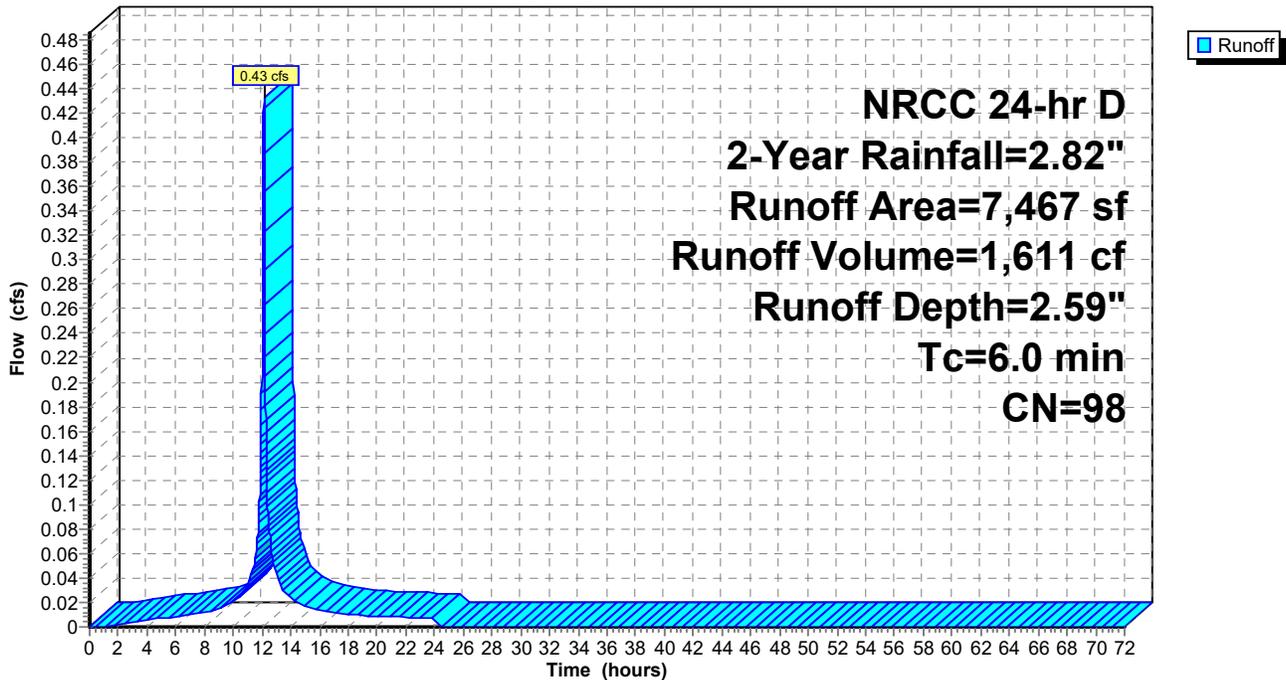
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
2,936	98	Roofs, HSG B
4,531	98	Unconnected pavement, HSG B
7,467	98	Weighted Average
7,467		100.00% Impervious Area
4,531		60.68% Unconnected

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

Subcatchment 2: Sub-catchment 2

Hydrograph



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Summary for Subcatchment 3: Sub-catchment 3

Runoff = 0.41 cfs @ 12.13 hrs, Volume= 1,536 cf, Depth= 2.59"
 Routed to Pond 1P : EX OWS

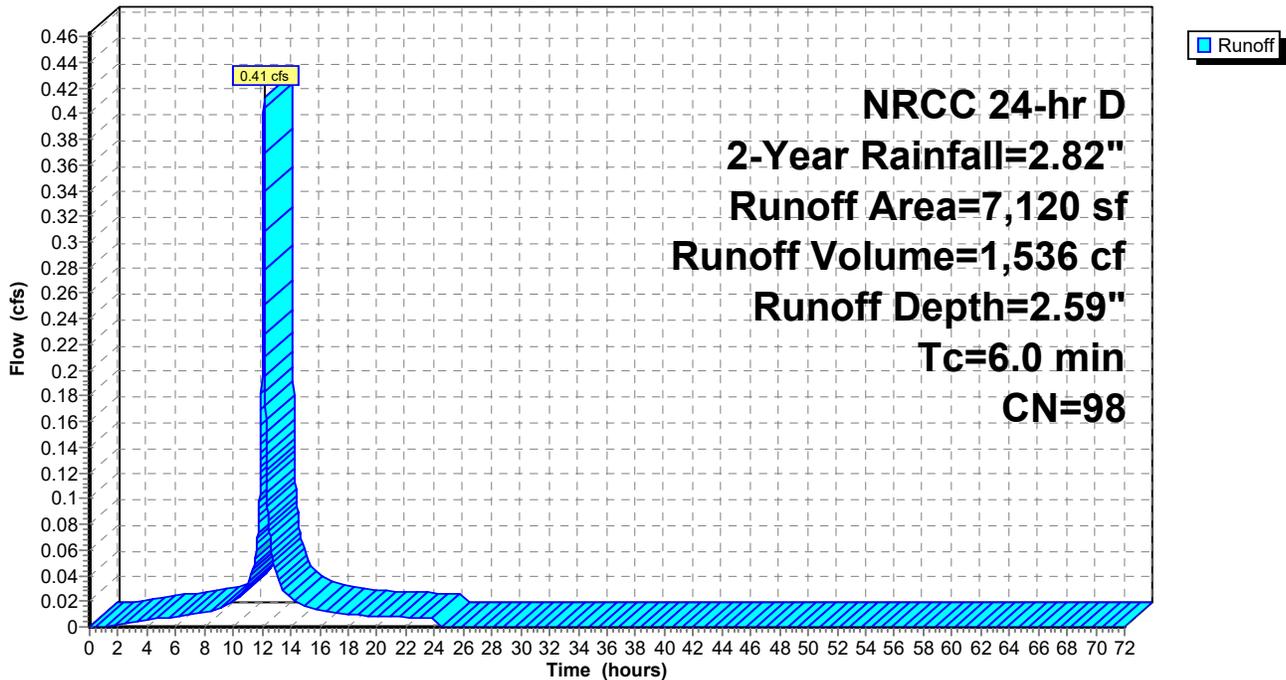
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
2,543	98	Roofs, HSG B
4,577	98	Unconnected pavement, HSG B
7,120	98	Weighted Average
7,120		100.00% Impervious Area
4,577		64.28% Unconnected

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

Subcatchment 3: Sub-catchment 3

Hydrograph



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Summary for Subcatchment 4: Sub-catchment 4

Runoff = 3.34 cfs @ 12.13 hrs, Volume= 12,429 cf, Depth= 2.59"
 Routed to Pond 1P : EX OWS

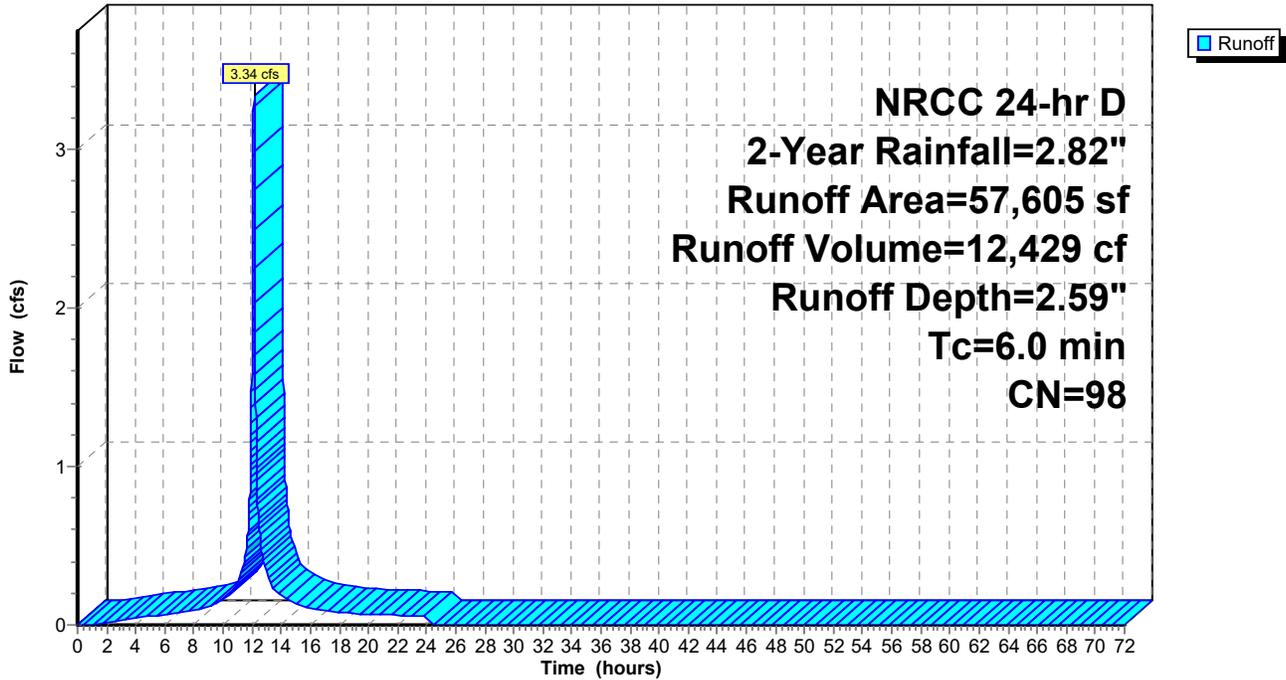
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
5,329	98	Roofs, HSG B
52,276	98	Unconnected pavement, HSG B
57,605	98	Weighted Average
57,605		100.00% Impervious Area
52,276		90.75% Unconnected

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

Subcatchment 4: Sub-catchment 4

Hydrograph



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Summary for Subcatchment 5: Sub-catchment 5

Runoff = 0.83 cfs @ 12.13 hrs, Volume= 3,088 cf, Depth= 2.59"
 Routed to Pond 1P : EX OWS

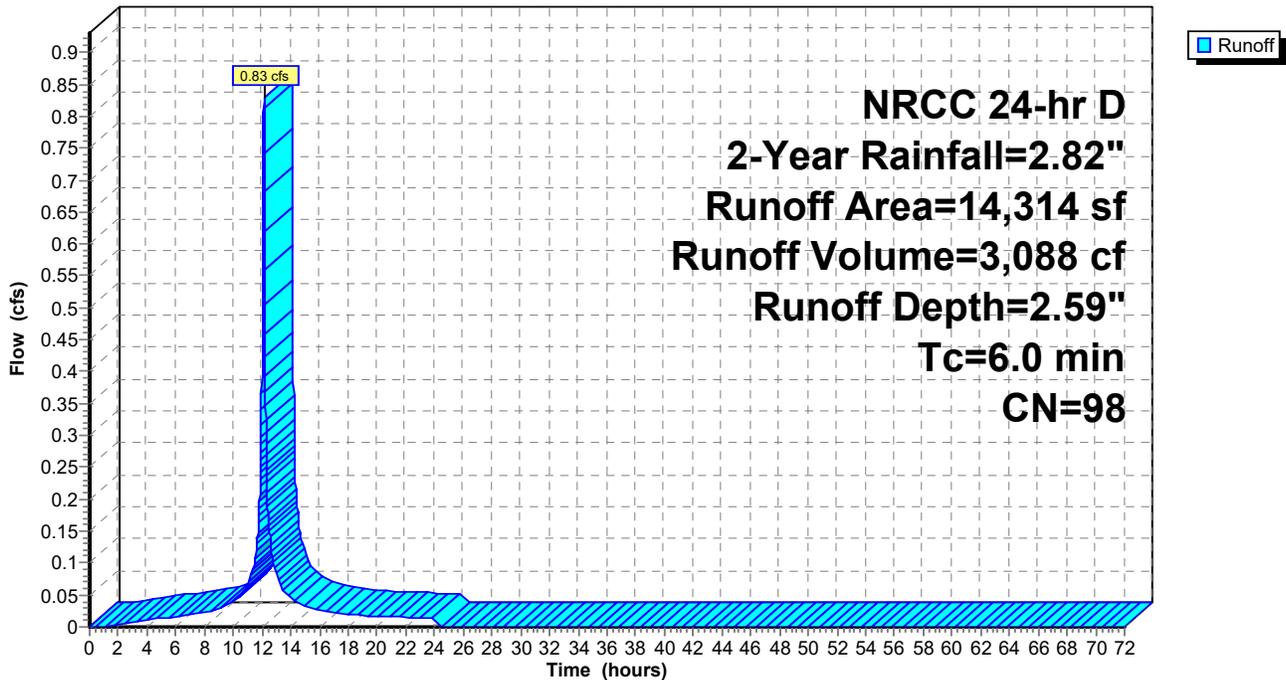
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
5,500	98	Roofs, HSG B
8,814	98	Unconnected pavement, HSG B
14,314	98	Weighted Average
14,314		100.00% Impervious Area
8,814		61.58% Unconnected

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

Subcatchment 5: Sub-catchment 5

Hydrograph



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Summary for Subcatchment 6: Sub-Catchment 6

Runoff = 1.18 cfs @ 12.13 hrs, Volume= 4,387 cf, Depth= 2.59"
 Routed to Pond 1P : EX OWS

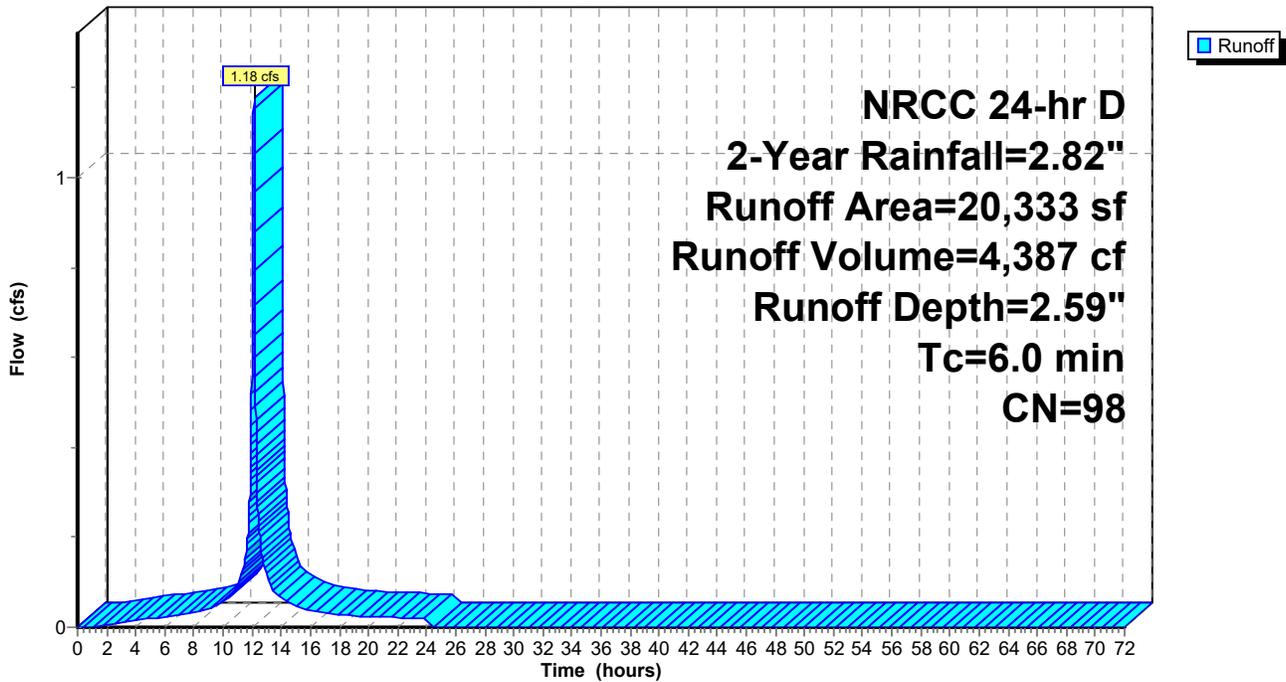
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
20,333	98	Unconnected pavement, HSG B
20,333		100.00% Impervious Area
20,333		100.00% Unconnected

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

Subcatchment 6: Sub-Catchment 6

Hydrograph



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Summary for Subcatchment 7: Sub-catchment 7

Runoff = 1.36 cfs @ 12.13 hrs, Volume= 5,045 cf, Depth= 2.59"
 Routed to Pond 1P : EX OWS

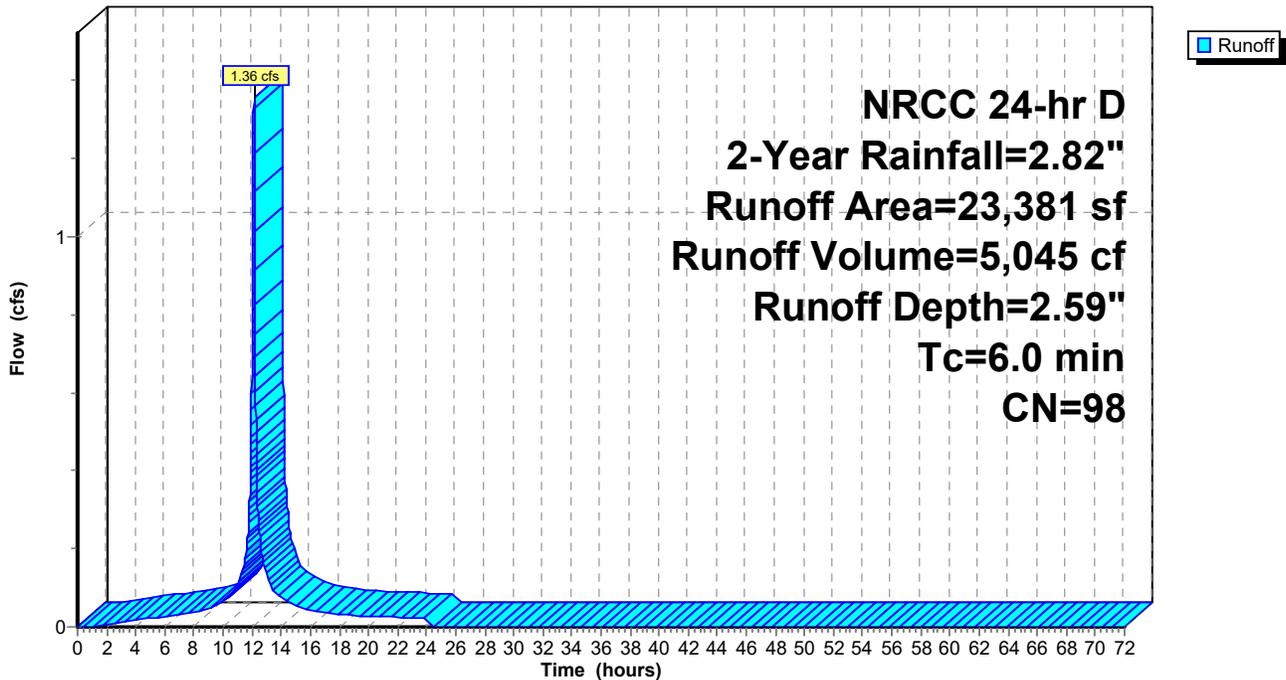
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
3,396	98	Roofs, HSG B
19,985	98	Unconnected pavement, HSG B
23,381	98	Weighted Average
23,381		100.00% Impervious Area
19,985		85.48% Unconnected

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

Subcatchment 7: Sub-catchment 7

Hydrograph



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Summary for Subcatchment 8: Sub-catchment 8

Runoff = 1.48 cfs @ 12.13 hrs, Volume= 5,508 cf, Depth= 2.59"
 Routed to Pond 1P : EX OWS

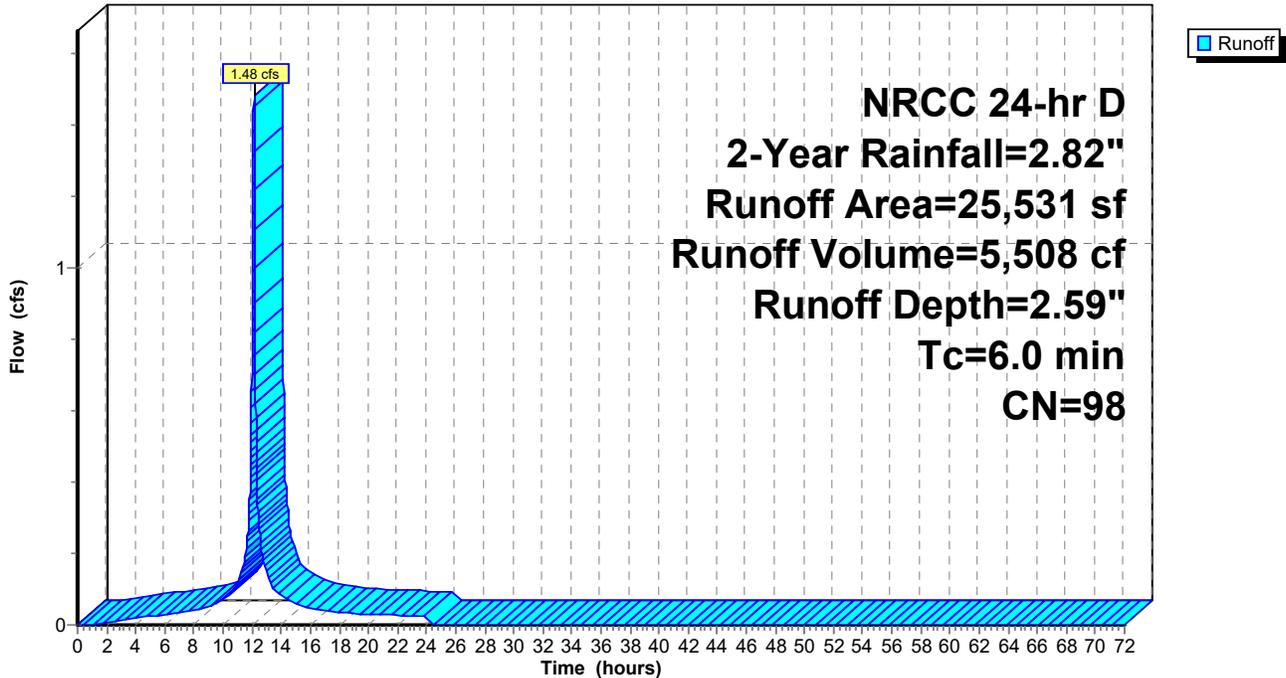
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
2,117	98	Roofs, HSG B
23,414	98	Unconnected pavement, HSG B
25,531	98	Weighted Average
25,531		100.00% Impervious Area
23,414		91.71% Unconnected

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

Subcatchment 8: Sub-catchment 8

Hydrograph



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NRCC 24-hr D 2-Year Rainfall=2.82"

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Summary for Subcatchment 9: Sub-catchment 9

Runoff = 0.60 cfs @ 12.13 hrs, Volume= 2,039 cf, Depth= 2.08"
 Routed to Pond 1P : EX OWS

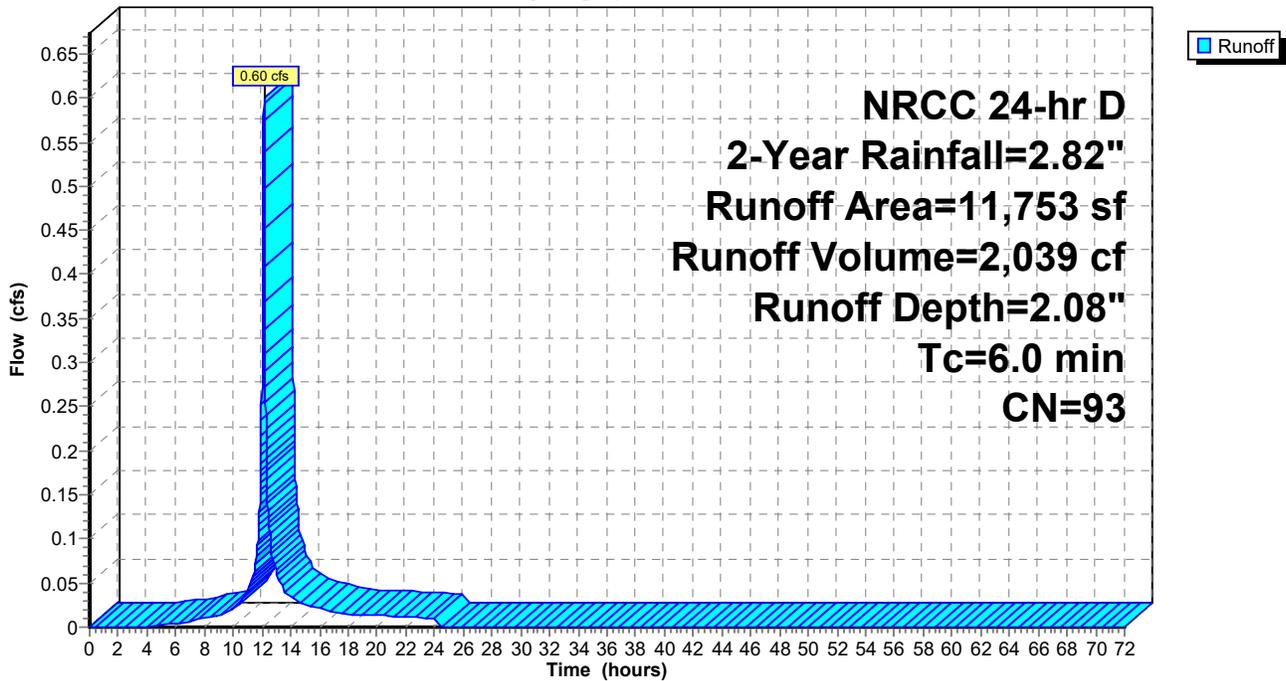
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
3,069	79	<50% Grass cover, Poor, HSG B
8,684	98	Unconnected pavement, HSG B
11,753	93	Weighted Average
3,069		26.11% Pervious Area
8,684		73.89% Impervious Area
8,684		100.00% Unconnected

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

Subcatchment 9: Sub-catchment 9

Hydrograph



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Summary for Subcatchment 10: Sub-catchment 10

Runoff = 1.59 cfs @ 12.13 hrs, Volume= 5,341 cf, Depth= 1.99"
 Routed to Pond 1P : EX OWS

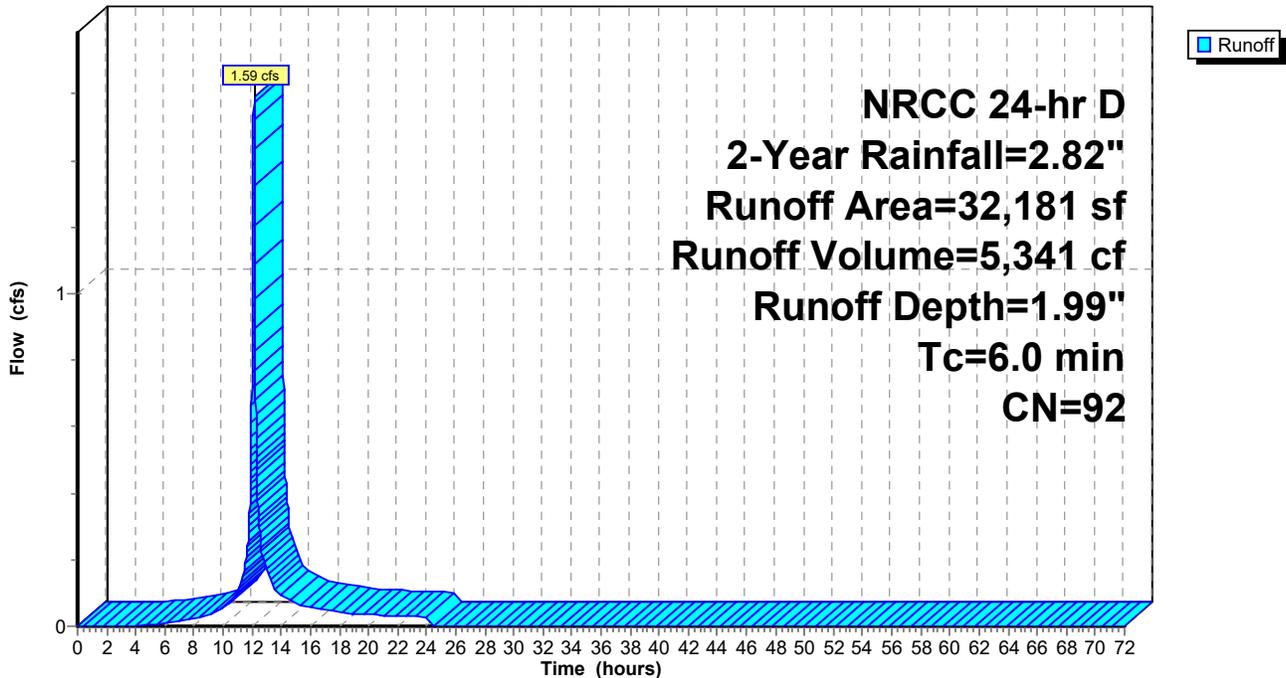
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
10,491	79	<50% Grass cover, Poor, HSG B
6,760	98	Roofs, HSG B
14,930	98	Unconnected pavement, HSG B
32,181	92	Weighted Average
10,491		32.60% Pervious Area
21,690		67.40% Impervious Area
14,930		68.83% Unconnected

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

Subcatchment 10: Sub-catchment 10

Hydrograph



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NRCC 24-hr D 2-Year Rainfall=2.82"

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Summary for Subcatchment 11: Sub-catchment 11

Runoff = 0.11 cfs @ 12.13 hrs, Volume= 393 cf, Depth= 2.59"
Routed to Pond 1P : EX OWS

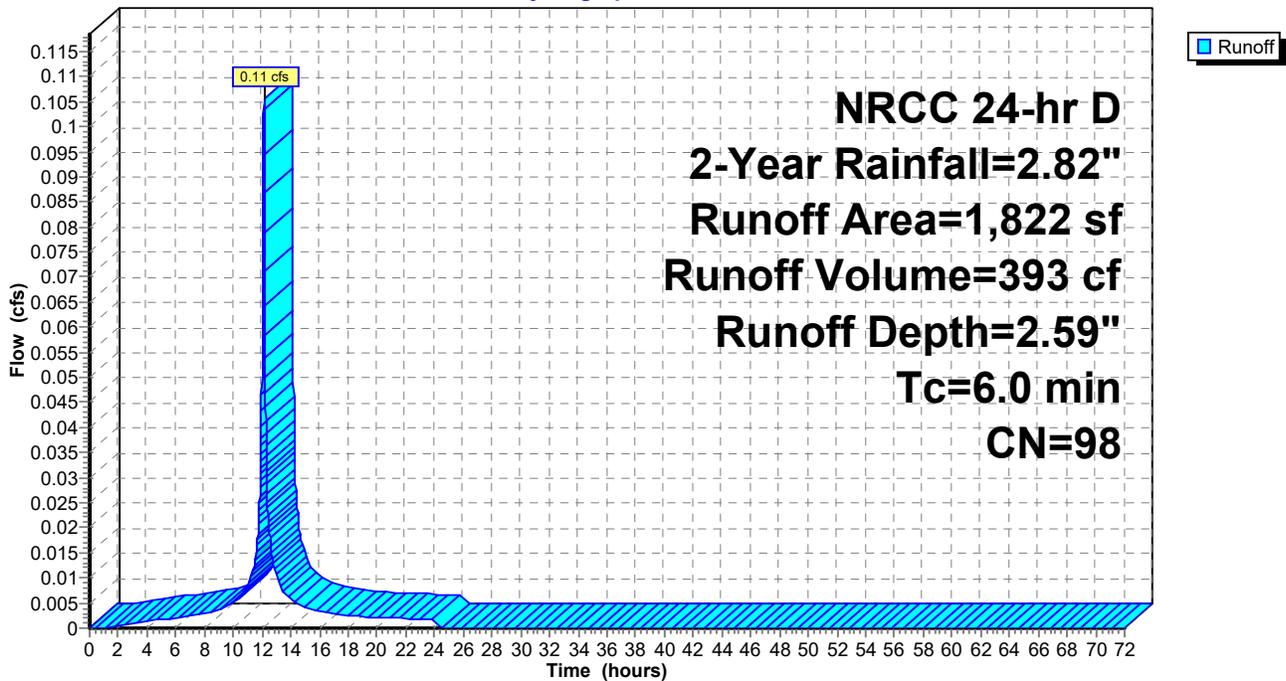
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
1,822	98	Roofs, HSG B
1,822		100.00% Impervious Area

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

Subcatchment 11: Sub-catchment 11

Hydrograph



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Summary for Subcatchment 12: Sub-catchment 12

Runoff = 0.22 cfs @ 12.22 hrs, Volume= 974 cf, Depth= 1.06"
 Routed to Link DP-2 : DP-2

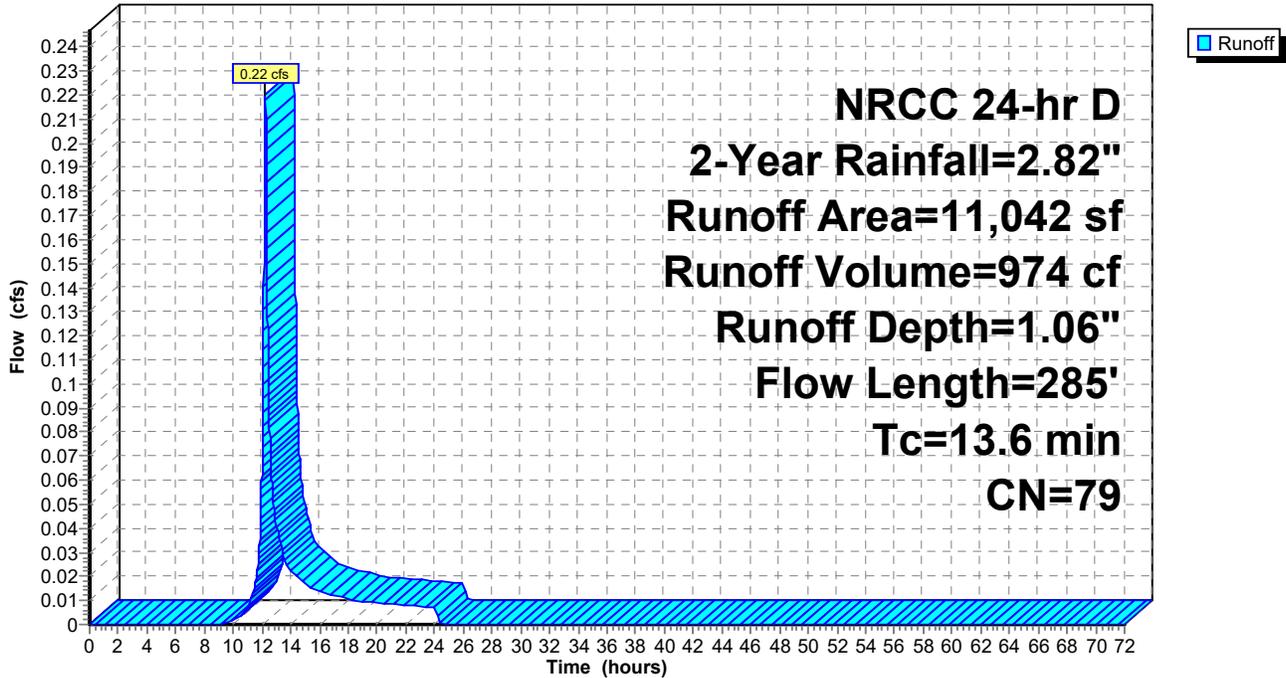
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
74	98	Unconnected pavement, HSG B
10,968	79	<50% Grass cover, Poor, HSG B
11,042	79	Weighted Average
10,968		99.33% Pervious Area
74		0.67% Impervious Area
74		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0120	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
1.6	185	0.0150	1.97		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.6	285	Total			

Subcatchment 12: Sub-catchment 12

Hydrograph



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NRCC 24-hr D 2-Year Rainfall=2.82"

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Summary for Pond 1P: EX OWS

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

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=5)

Inflow Area = 235,097 sf, 94.23% Impervious, Inflow Depth = 2.48" for 2-Year event
 Inflow = 13.29 cfs @ 12.13 hrs, Volume= 48,625 cf
 Outflow = 13.45 cfs @ 12.12 hrs, Volume= 48,625 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.75 cfs @ 12.12 hrs, Volume= 38,587 cf
 Routed to Link DP-1 : DP-1
 Secondary = 11.70 cfs @ 12.12 hrs, Volume= 10,038 cf
 Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 230.82' @ 12.12 hrs Surf.Area= 2,775 sf Storage= 3,676 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 13.1 min (784.9 - 771.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	227.14'	0 cf	53.75'W x 51.62'L x 4.00'H Field A 11,098 cf Overall - 4,587 cf Embedded = 6,511 cf x 0.0% Voids
#2A	227.14'	3,676 cf	ADS N-12 36" x 20 Inside #1 Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.1 cf Row Length Adjustment= +1.62' x 7.10 sf x 10 rows 50.75' Header x 7.10 sf x 2 = 720.6 cf Inside
		3,676 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	227.14'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Secondary	227.14'	16.0" Round Culvert L= 36.0' Ke= 0.500 Inlet / Outlet Invert= 227.14' / 227.10' S= 0.0011 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.40 sf
#3	Device 2	230.14'	9.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.75 cfs @ 12.12 hrs HW=230.82' TW=0.00' (Dynamic Tailwater)

↑**1=Orifice/Grate** (Orifice Controls 1.75 cfs @ 8.92 fps)

Secondary OutFlow Max=11.63 cfs @ 12.12 hrs HW=230.80' TW=0.00' (Dynamic Tailwater)

↑**2=Culvert** (Inlet Controls 11.63 cfs @ 8.33 fps)

↑**3=Broad-Crested Rectangular Weir**(Passes 11.63 cfs of 15.18 cfs potential flow)

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Pond 1P: EX OWS - Chamber Wizard Field A

Chamber Model = ADS N-12 36" (ADS N-12® Pipe)

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf

Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.1 cf

Row Length Adjustment= +1.62' x 7.10 sf x 10 rows

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

2 Chambers/Row x 20.00' Long +1.62' Row Adjustment +3.50' Header x 2 = 48.62' Row Length +18.0"

End Stone x 2 = 51.62' Base Length

10 Rows x 42.0" Wide + 21.0" Spacing x 9 + 18.0" Side Stone x 2 = 53.75' Base Width

42.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

20 Chambers x 142.0 cf +1.62' Row Adjustment x 7.10 sf x 10 Rows + 50.75' Header x 7.10 sf x 2 = 3,675.7 cf Chamber Storage

20 Chambers x 177.1 cf +1.62' Row Adjustment x 8.86 sf x 10 Rows + 50.75' Header x 8.86 sf x 2 = 4,585.4 cf Displacement

11,098.3 cf Field - 4,585.4 cf Chambers = 6,512.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 3,675.7 cf = 0.084 af

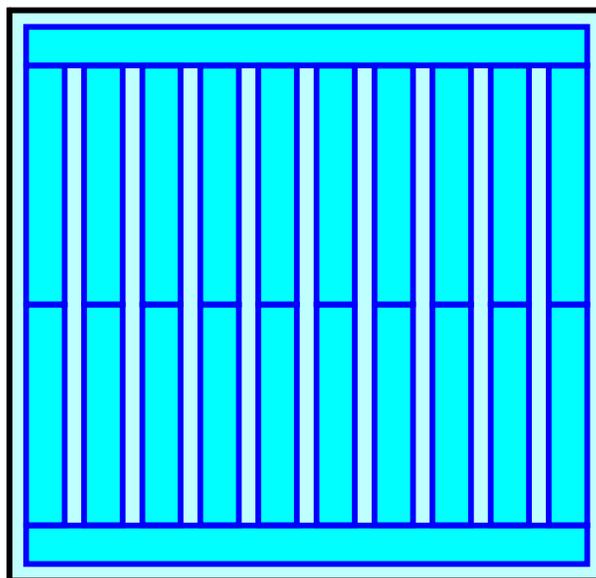
Overall Storage Efficiency = 33.1%

Overall System Size = 51.62' x 53.75' x 4.00'

20 Chambers

411.0 cy Field

241.2 cy Stone



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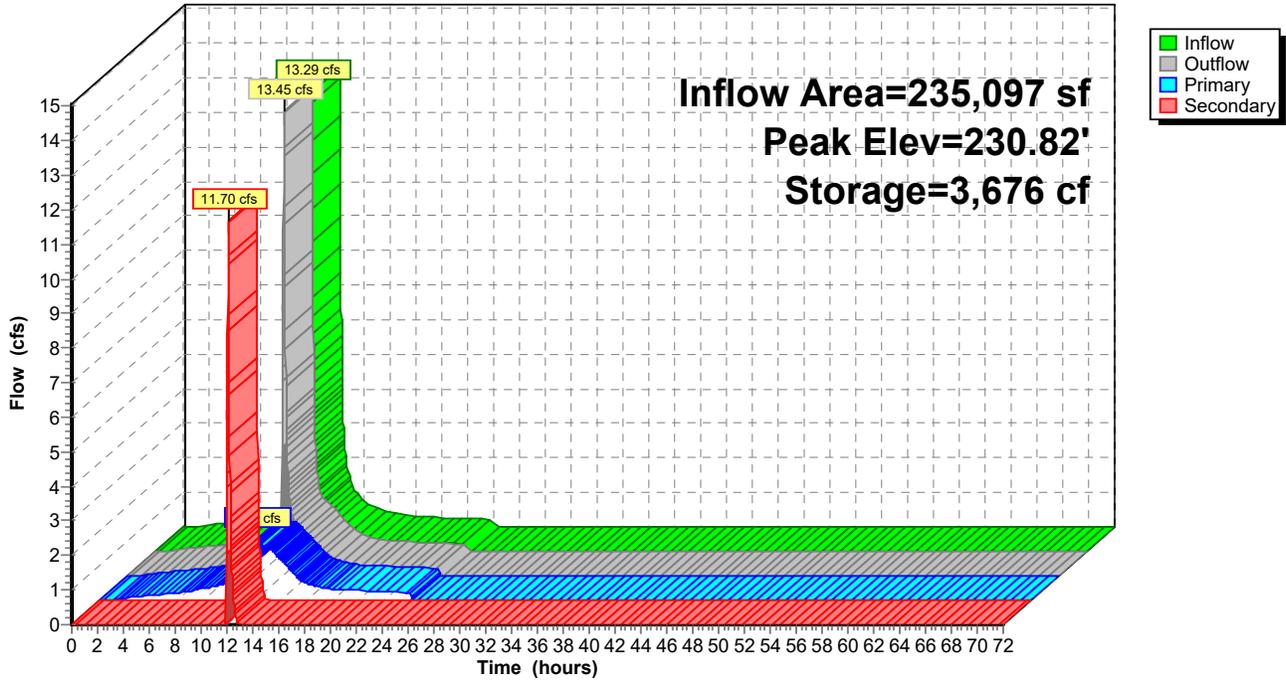
NRCC 24-hr D 2-Year Rainfall=2.82"

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Pond 1P: EX OWS

Hydrograph



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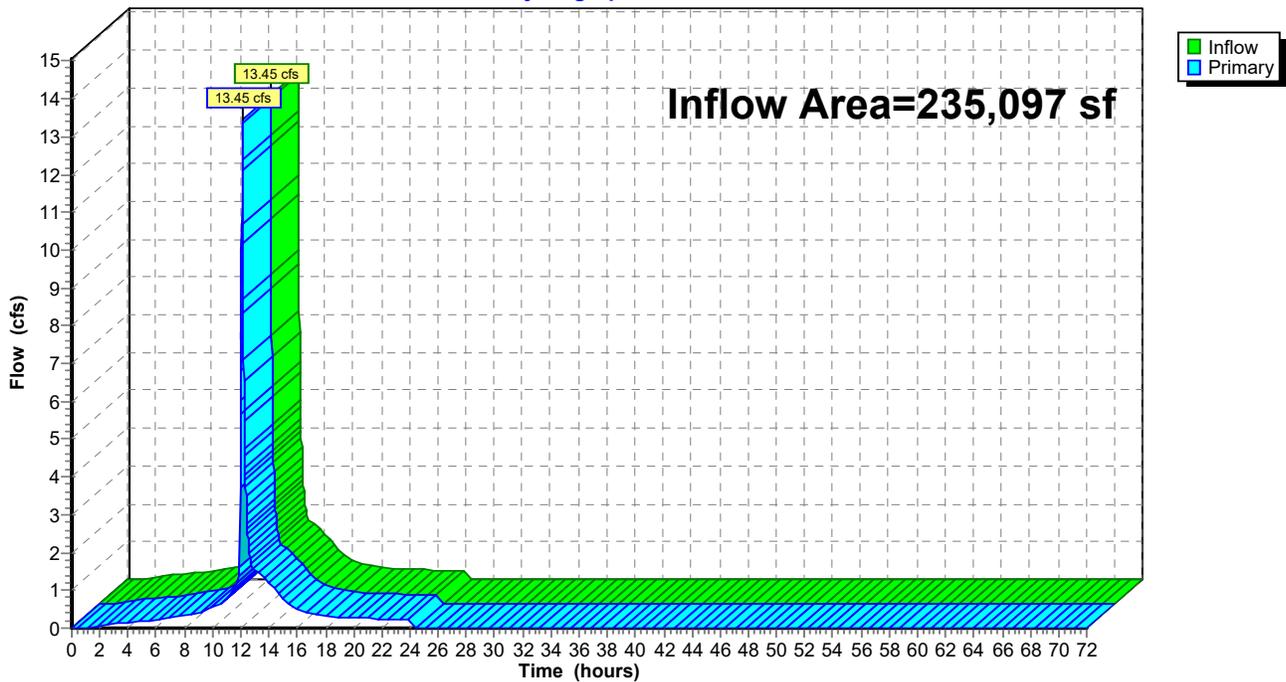
Summary for Link DP-1: DP-1

Inflow Area = 235,097 sf, 94.23% Impervious, Inflow Depth = 2.48" for 2-Year event
Inflow = 13.45 cfs @ 12.12 hrs, Volume= 48,625 cf
Primary = 13.45 cfs @ 12.12 hrs, Volume= 48,625 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-1: DP-1

Hydrograph



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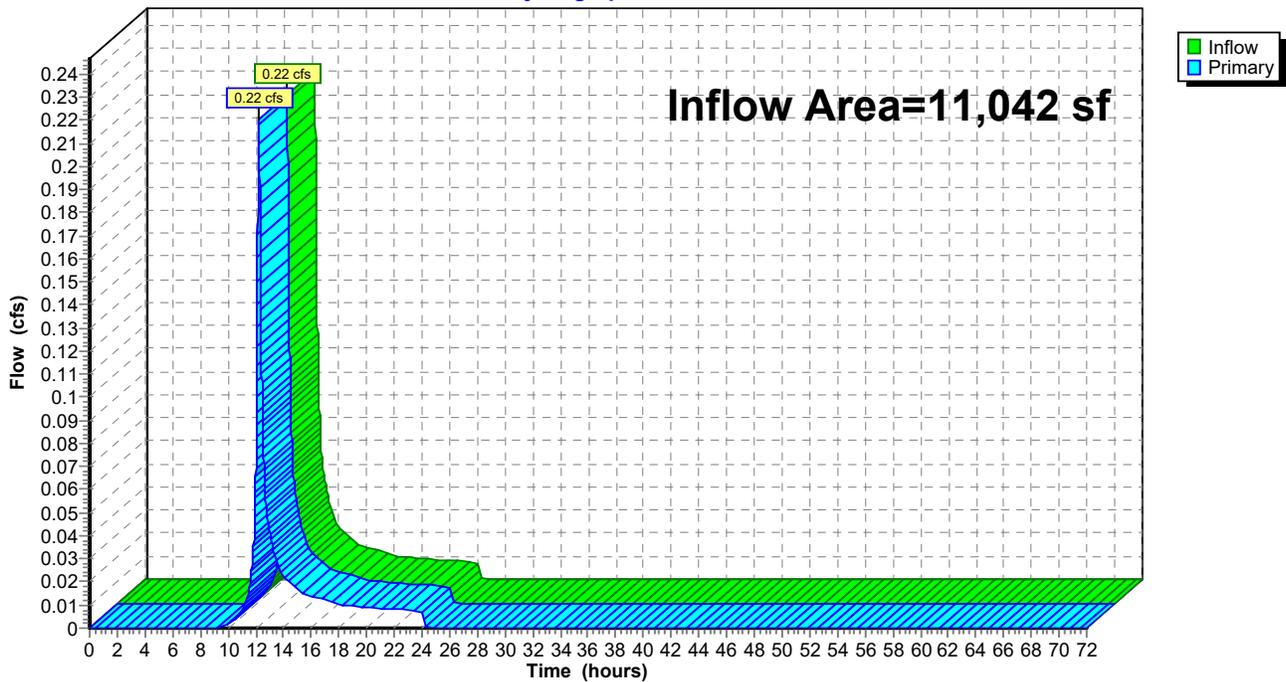
Summary for Link DP-2: DP-2

Inflow Area = 11,042 sf, 0.67% Impervious, Inflow Depth = 1.06" for 2-Year event
Inflow = 0.22 cfs @ 12.22 hrs, Volume= 974 cf
Primary = 0.22 cfs @ 12.22 hrs, Volume= 974 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-2: DP-2

Hydrograph



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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: Sub-catchment1	Runoff Area=33,590 sf 100.00% Impervious Runoff Depth=3.92" Tc=6.0 min CN=98 Runoff=2.90 cfs 10,986 cf
Subcatchment2: Sub-catchment2	Runoff Area=7,467 sf 100.00% Impervious Runoff Depth=3.92" Tc=6.0 min CN=98 Runoff=0.64 cfs 2,442 cf
Subcatchment3: Sub-catchment3	Runoff Area=7,120 sf 100.00% Impervious Runoff Depth=3.92" Tc=6.0 min CN=98 Runoff=0.61 cfs 2,329 cf
Subcatchment4: Sub-catchment4	Runoff Area=57,605 sf 100.00% Impervious Runoff Depth=3.92" Tc=6.0 min CN=98 Runoff=4.97 cfs 18,840 cf
Subcatchment5: Sub-catchment5	Runoff Area=14,314 sf 100.00% Impervious Runoff Depth=3.92" Tc=6.0 min CN=98 Runoff=1.24 cfs 4,682 cf
Subcatchment6: Sub-Catchment6	Runoff Area=20,333 sf 100.00% Impervious Runoff Depth=3.92" Tc=6.0 min CN=98 Runoff=1.76 cfs 6,650 cf
Subcatchment7: Sub-catchment7	Runoff Area=23,381 sf 100.00% Impervious Runoff Depth=3.92" Tc=6.0 min CN=98 Runoff=2.02 cfs 7,647 cf
Subcatchment8: Sub-catchment8	Runoff Area=25,531 sf 100.00% Impervious Runoff Depth=3.92" Tc=6.0 min CN=98 Runoff=2.20 cfs 8,350 cf
Subcatchment9: Sub-catchment9	Runoff Area=11,753 sf 73.89% Impervious Runoff Depth=3.38" Tc=6.0 min CN=93 Runoff=0.95 cfs 3,306 cf
Subcatchment10: Sub-catchment10	Runoff Area=32,181 sf 67.40% Impervious Runoff Depth=3.27" Tc=6.0 min CN=92 Runoff=2.54 cfs 8,775 cf
Subcatchment11: Sub-catchment11	Runoff Area=1,822 sf 100.00% Impervious Runoff Depth=3.92" Tc=6.0 min CN=98 Runoff=0.16 cfs 596 cf
Subcatchment12: Sub-catchment12	Runoff Area=11,042 sf 0.67% Impervious Runoff Depth=2.09" Flow Length=285' Tc=13.6 min CN=79 Runoff=0.45 cfs 1,927 cf
Pond 1P: EX OWS	Peak Elev=234.50' Storage=3,676 cf Inflow=19.99 cfs 74,604 cf Primary=2.52 cfs 53,461 cf Secondary=17.40 cfs 21,144 cf Outflow=19.92 cfs 74,605 cf
Link DP-1: DP-1	Inflow=19.92 cfs 74,605 cf Primary=19.92 cfs 74,605 cf
Link DP-2: DP-2	Inflow=0.45 cfs 1,927 cf Primary=0.45 cfs 1,927 cf

Total Runoff Area = 246,139 sf Runoff Volume = 76,531 cf Average Runoff Depth = 3.73"
9.97% Pervious = 24,528 sf 90.03% Impervious = 221,611 sf

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Summary for Subcatchment 1: Sub-catchment 1

Runoff = 2.90 cfs @ 12.13 hrs, Volume= 10,986 cf, Depth= 3.92"
 Routed to Pond 1P : EX OWS

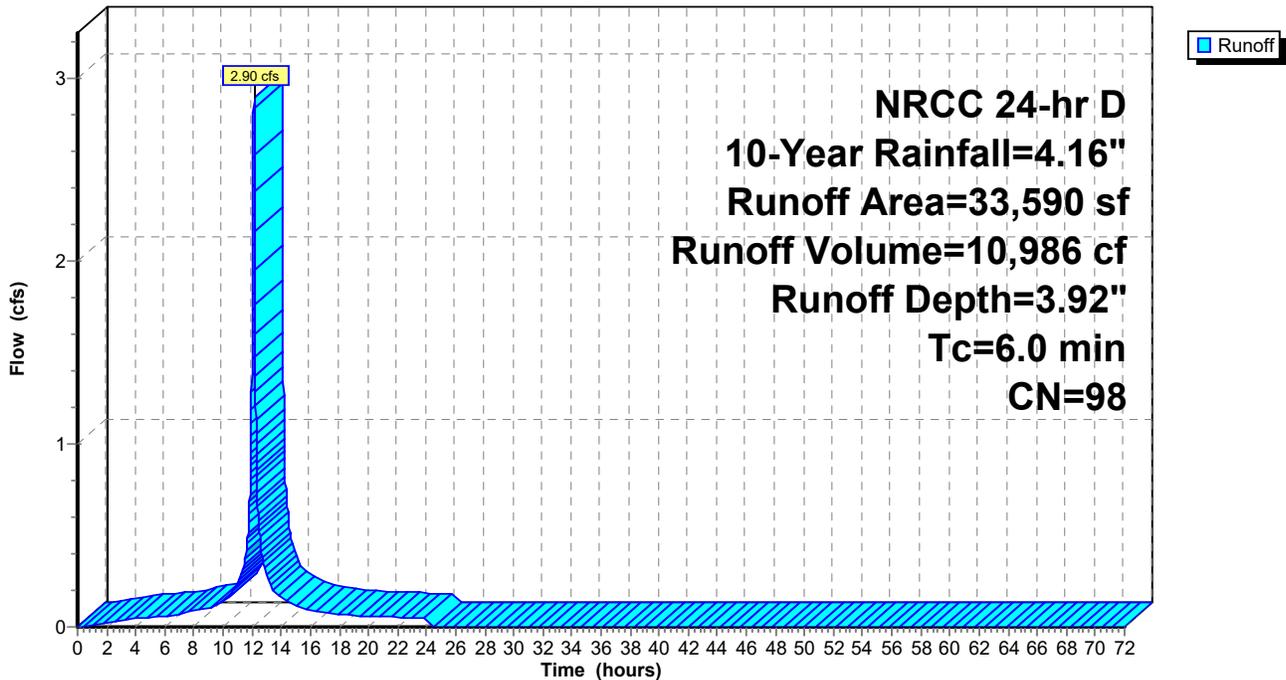
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
15,206	98	Roofs, HSG B
18,384	98	Unconnected pavement, HSG B
33,590	98	Weighted Average
33,590		100.00% Impervious Area
18,384		54.73% Unconnected

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

Subcatchment 1: Sub-catchment 1

Hydrograph



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Summary for Subcatchment 2: Sub-catchment 2

Runoff = 0.64 cfs @ 12.13 hrs, Volume= 2,442 cf, Depth= 3.92"
 Routed to Pond 1P : EX OWS

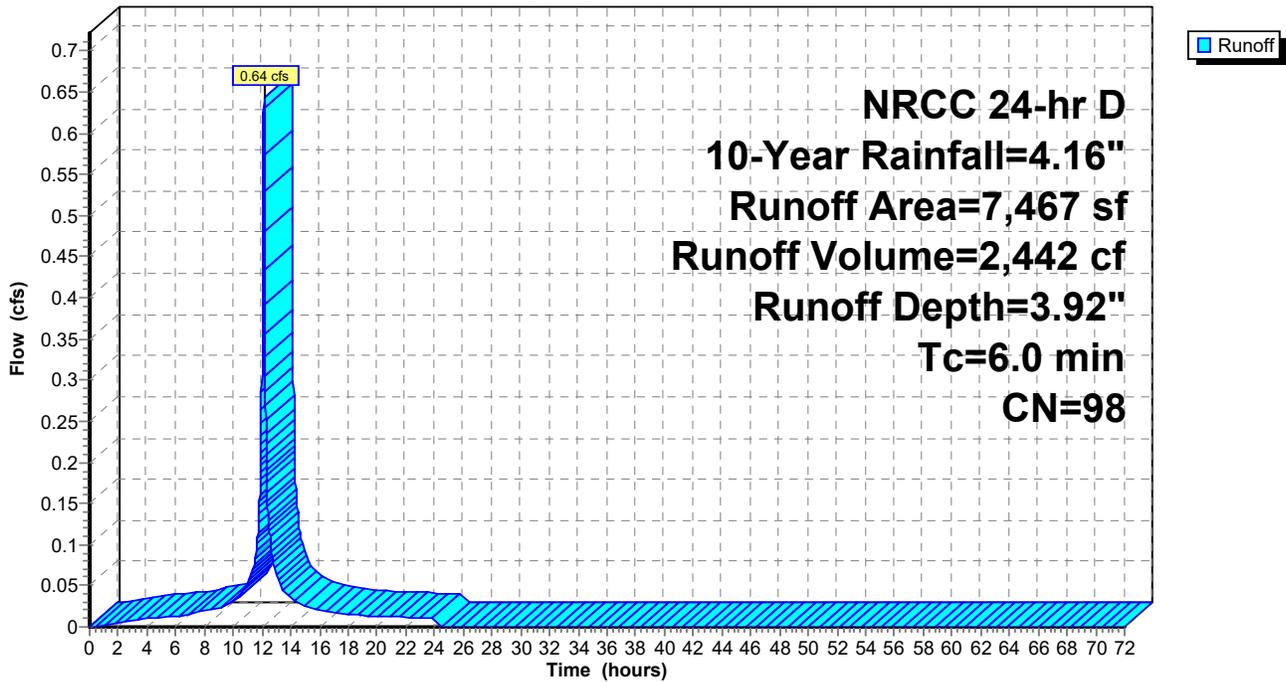
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
2,936	98	Roofs, HSG B
4,531	98	Unconnected pavement, HSG B
7,467	98	Weighted Average
7,467		100.00% Impervious Area
4,531		60.68% Unconnected

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

Subcatchment 2: Sub-catchment 2

Hydrograph



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Summary for Subcatchment 3: Sub-catchment 3

Runoff = 0.61 cfs @ 12.13 hrs, Volume= 2,329 cf, Depth= 3.92"
 Routed to Pond 1P : EX OWS

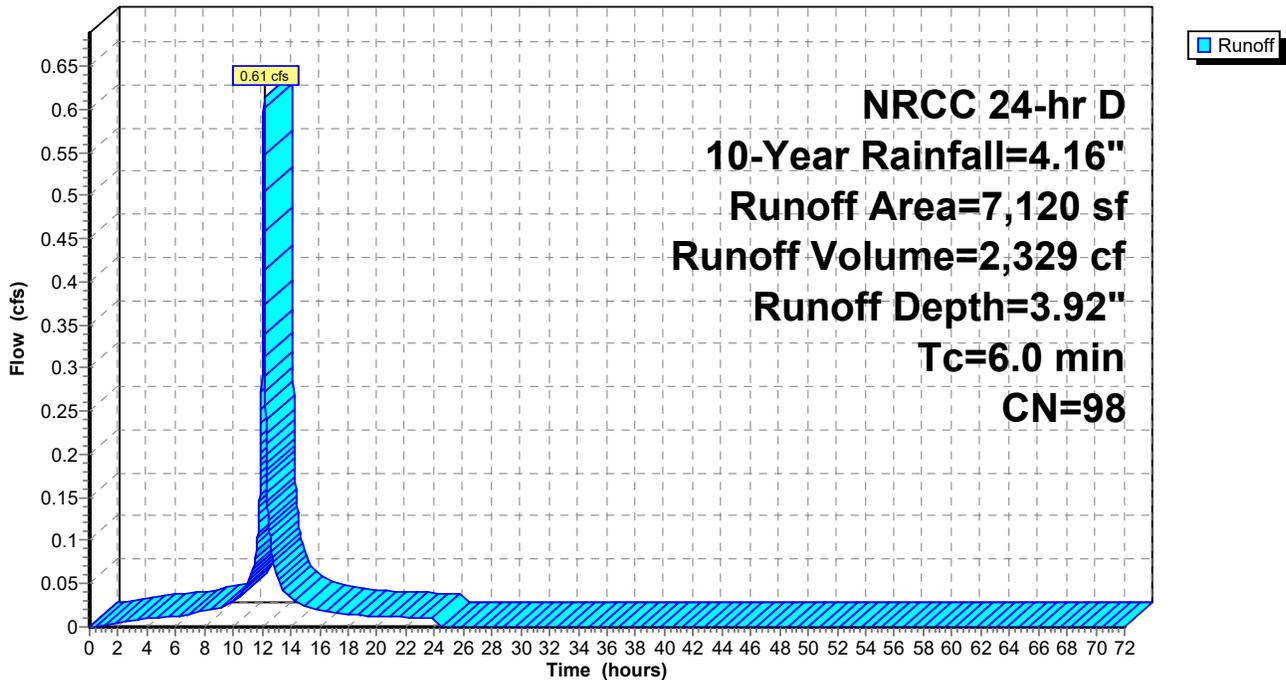
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
2,543	98	Roofs, HSG B
4,577	98	Unconnected pavement, HSG B
7,120	98	Weighted Average
7,120		100.00% Impervious Area
4,577		64.28% Unconnected

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

Subcatchment 3: Sub-catchment 3

Hydrograph



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Summary for Subcatchment 4: Sub-catchment 4

Runoff = 4.97 cfs @ 12.13 hrs, Volume= 18,840 cf, Depth= 3.92"
 Routed to Pond 1P : EX OWS

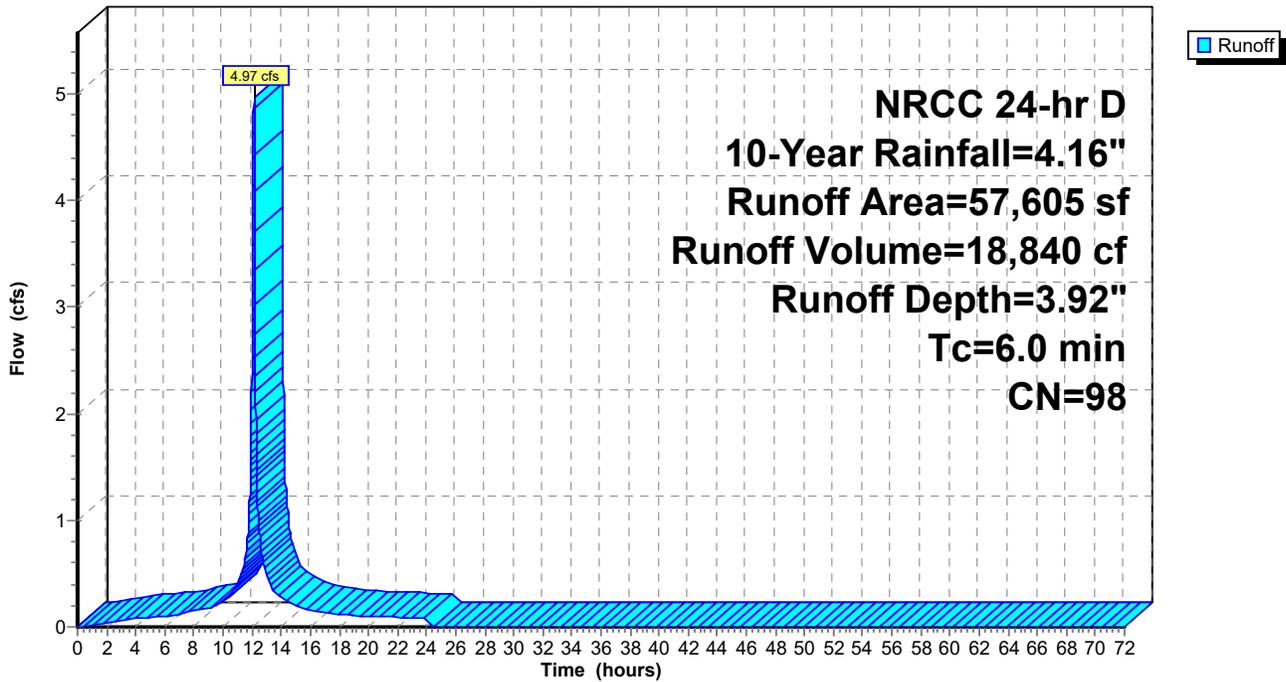
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
5,329	98	Roofs, HSG B
52,276	98	Unconnected pavement, HSG B
57,605	98	Weighted Average
57,605		100.00% Impervious Area
52,276		90.75% Unconnected

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

Subcatchment 4: Sub-catchment 4

Hydrograph



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NRCC 24-hr D 10-Year Rainfall=4.16"

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Summary for Subcatchment 5: Sub-catchment 5

Runoff = 1.24 cfs @ 12.13 hrs, Volume= 4,682 cf, Depth= 3.92"
 Routed to Pond 1P : EX OWS

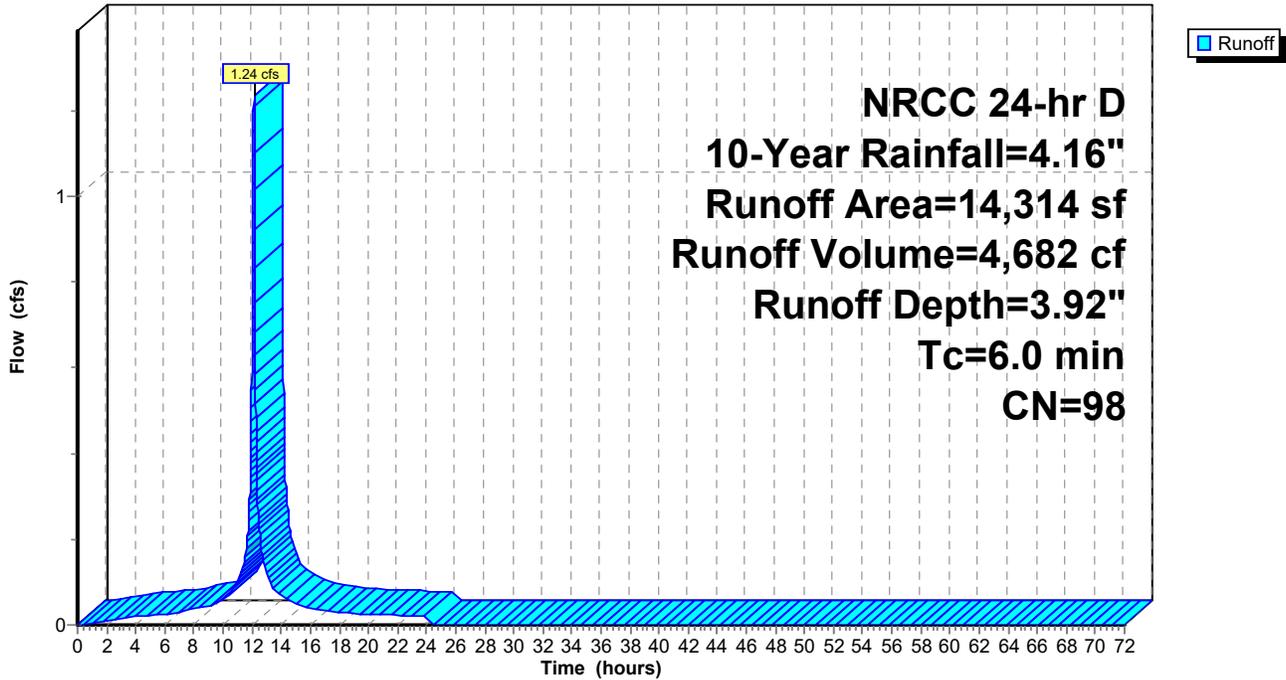
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
5,500	98	Roofs, HSG B
8,814	98	Unconnected pavement, HSG B
14,314	98	Weighted Average
14,314		100.00% Impervious Area
8,814		61.58% Unconnected

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

Subcatchment 5: Sub-catchment 5

Hydrograph



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Summary for Subcatchment 6: Sub-Catchment 6

Runoff = 1.76 cfs @ 12.13 hrs, Volume= 6,650 cf, Depth= 3.92"
 Routed to Pond 1P : EX OWS

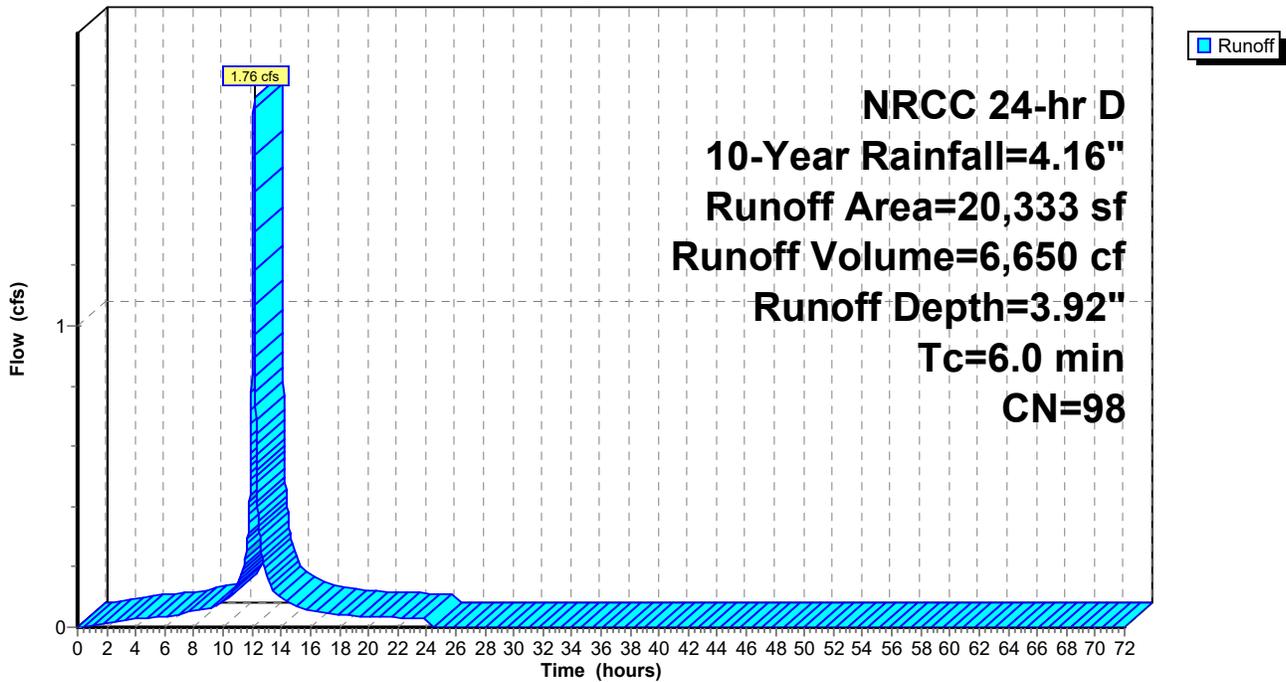
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
20,333	98	Unconnected pavement, HSG B
20,333		100.00% Impervious Area
20,333		100.00% Unconnected

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

Subcatchment 6: Sub-Catchment 6

Hydrograph



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Summary for Subcatchment 7: Sub-catchment 7

Runoff = 2.02 cfs @ 12.13 hrs, Volume= 7,647 cf, Depth= 3.92"
 Routed to Pond 1P : EX OWS

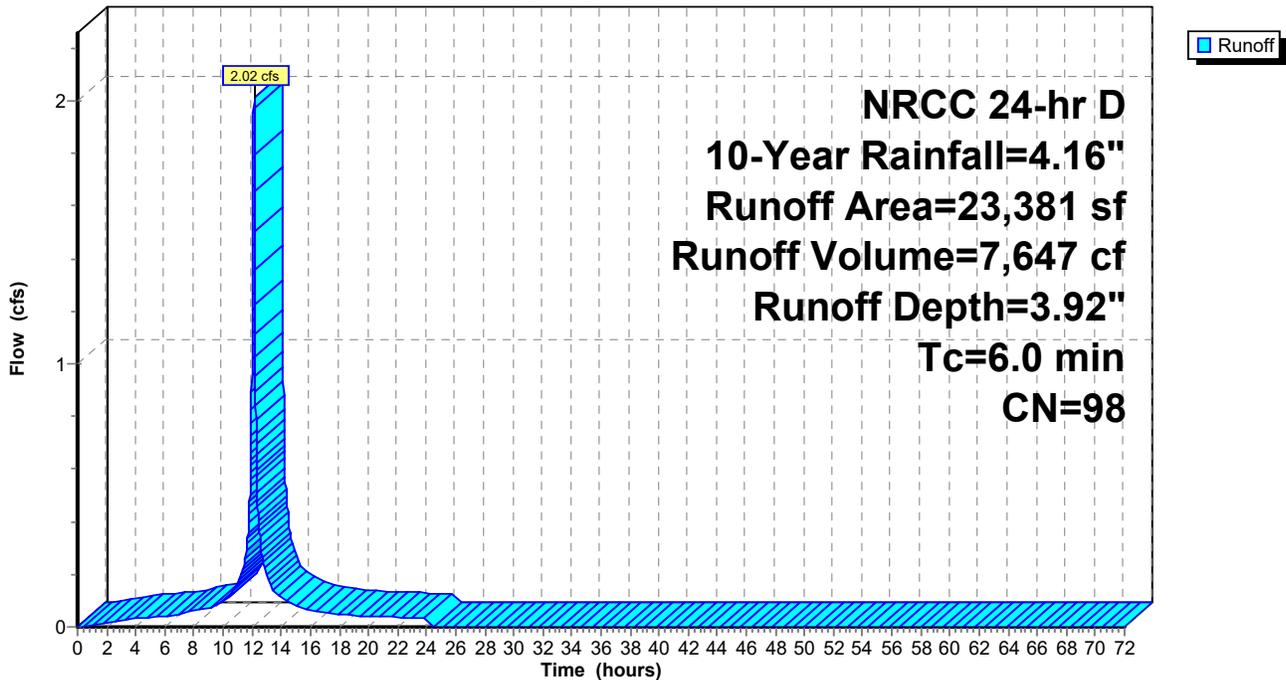
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
3,396	98	Roofs, HSG B
19,985	98	Unconnected pavement, HSG B
23,381	98	Weighted Average
23,381		100.00% Impervious Area
19,985		85.48% Unconnected

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

Subcatchment 7: Sub-catchment 7

Hydrograph



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NRCC 24-hr D 10-Year Rainfall=4.16"

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Summary for Subcatchment 8: Sub-catchment 8

Runoff = 2.20 cfs @ 12.13 hrs, Volume= 8,350 cf, Depth= 3.92"
 Routed to Pond 1P : EX OWS

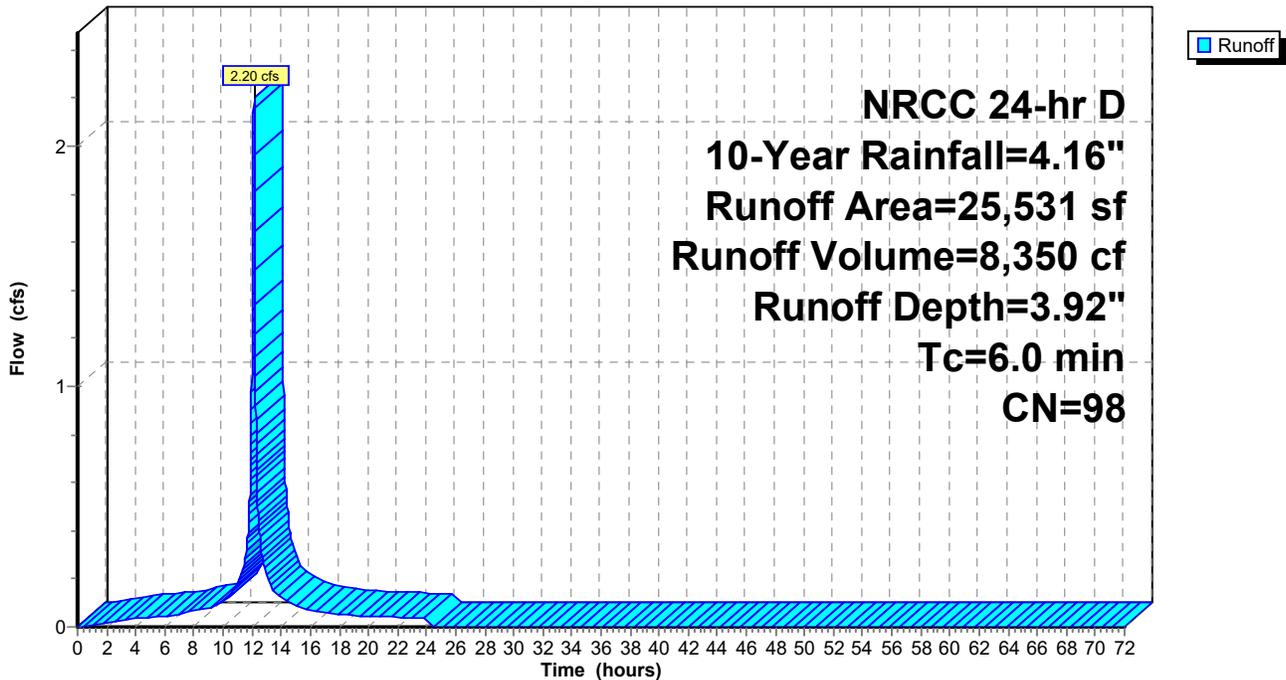
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
2,117	98	Roofs, HSG B
23,414	98	Unconnected pavement, HSG B
25,531	98	Weighted Average
25,531		100.00% Impervious Area
23,414		91.71% Unconnected

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

Subcatchment 8: Sub-catchment 8

Hydrograph



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NRCC 24-hr D 10-Year Rainfall=4.16"

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Summary for Subcatchment 9: Sub-catchment 9

Runoff = 0.95 cfs @ 12.13 hrs, Volume= 3,306 cf, Depth= 3.38"
 Routed to Pond 1P : EX OWS

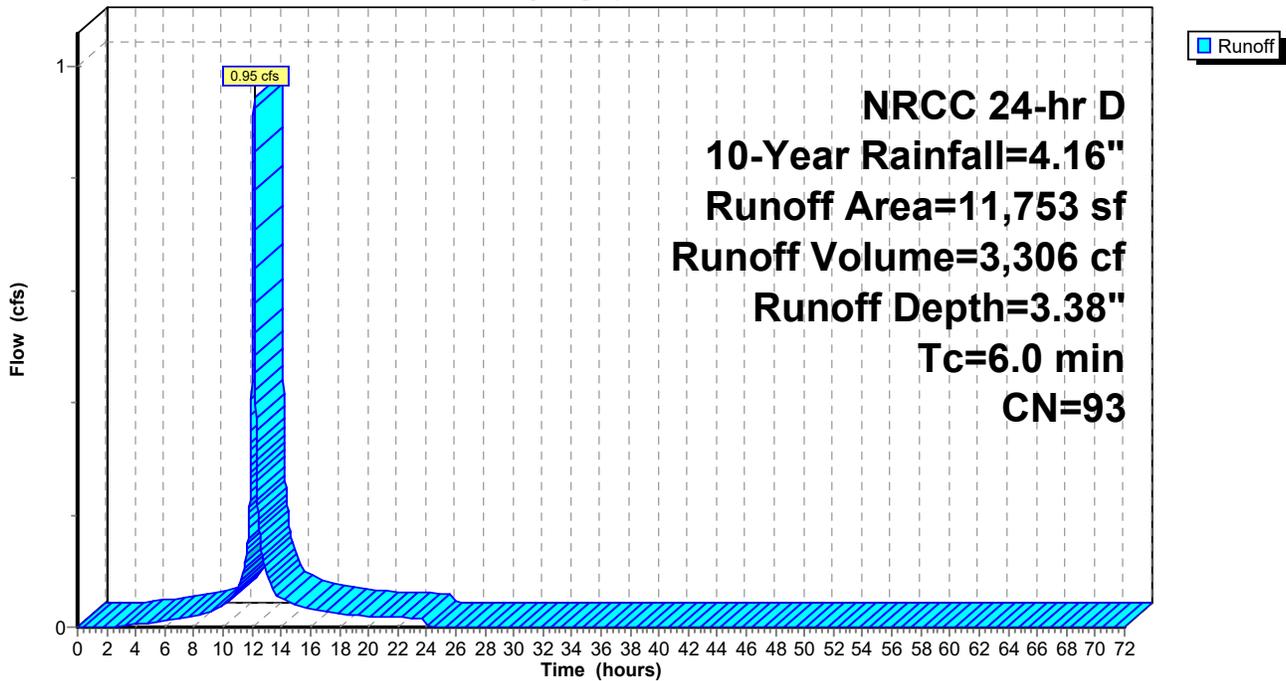
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
3,069	79	<50% Grass cover, Poor, HSG B
8,684	98	Unconnected pavement, HSG B
11,753	93	Weighted Average
3,069		26.11% Pervious Area
8,684		73.89% Impervious Area
8,684		100.00% Unconnected

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

Subcatchment 9: Sub-catchment 9

Hydrograph



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Summary for Subcatchment 10: Sub-catchment 10

Runoff = 2.54 cfs @ 12.13 hrs, Volume= 8,775 cf, Depth= 3.27"
 Routed to Pond 1P : EX OWS

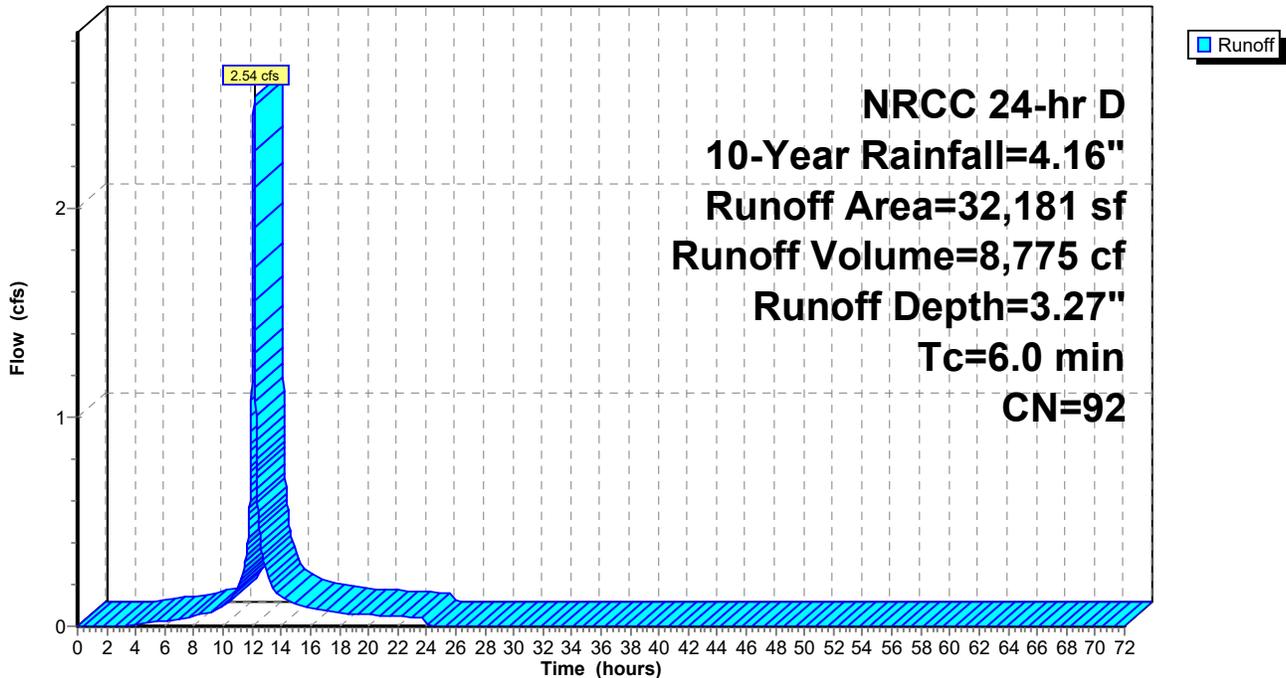
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
10,491	79	<50% Grass cover, Poor, HSG B
6,760	98	Roofs, HSG B
14,930	98	Unconnected pavement, HSG B
32,181	92	Weighted Average
10,491		32.60% Pervious Area
21,690		67.40% Impervious Area
14,930		68.83% Unconnected

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

Subcatchment 10: Sub-catchment 10

Hydrograph



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Summary for Subcatchment 11: Sub-catchment 11

Runoff = 0.16 cfs @ 12.13 hrs, Volume= 596 cf, Depth= 3.92"
Routed to Pond 1P : EX OWS

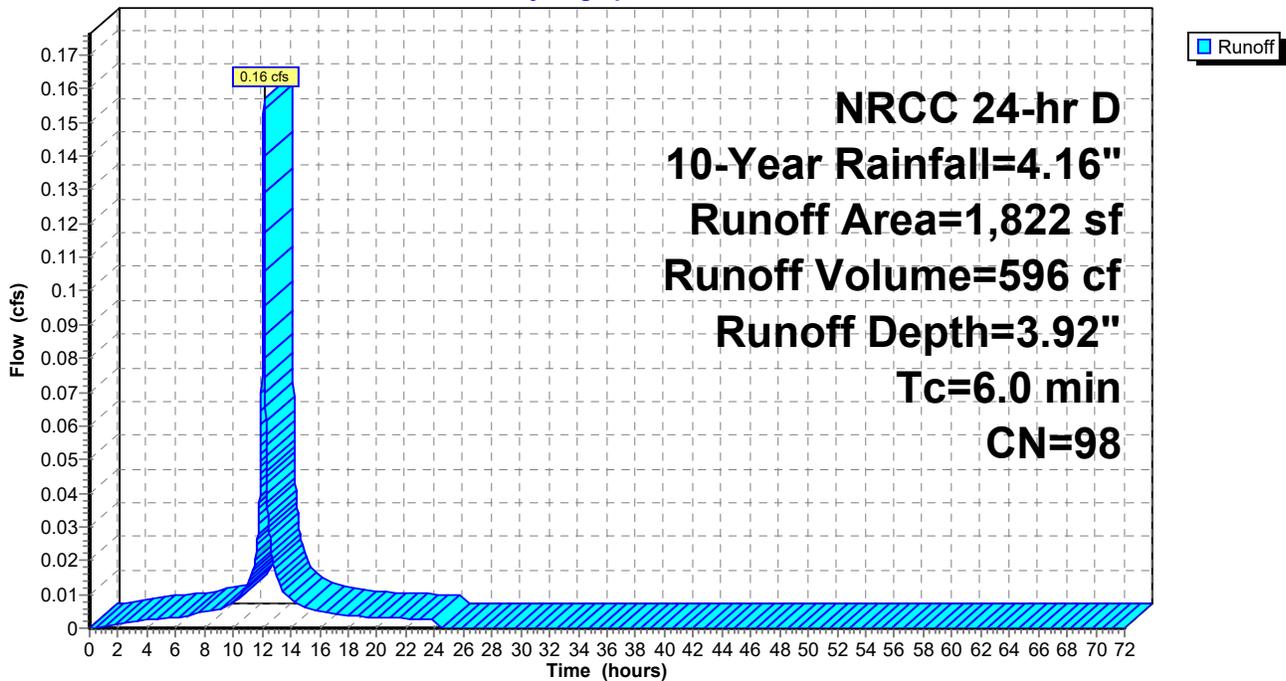
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
1,822	98	Roofs, HSG B
1,822		100.00% Impervious Area

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

Subcatchment 11: Sub-catchment 11

Hydrograph



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Summary for Subcatchment 12: Sub-catchment 12

Runoff = 0.45 cfs @ 12.22 hrs, Volume= 1,927 cf, Depth= 2.09"
 Routed to Link DP-2 : DP-2

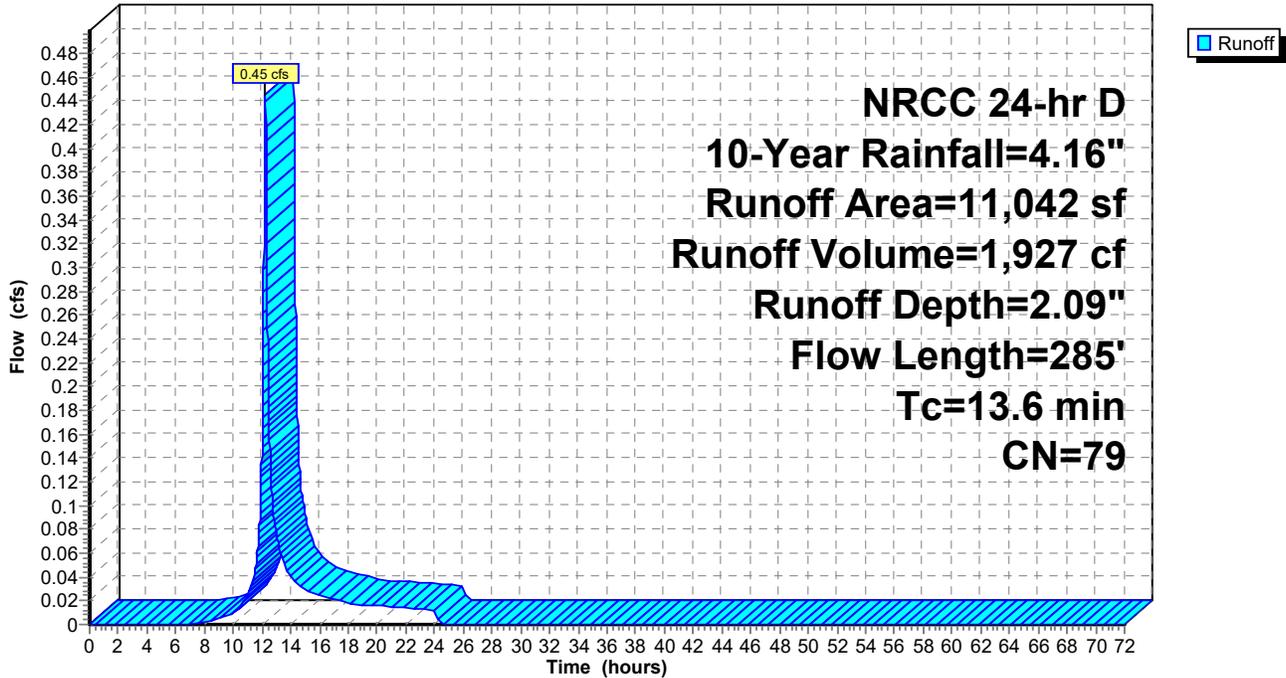
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
74	98	Unconnected pavement, HSG B
10,968	79	<50% Grass cover, Poor, HSG B
11,042	79	Weighted Average
10,968		99.33% Pervious Area
74		0.67% Impervious Area
74		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0120	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
1.6	185	0.0150	1.97		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.6	285	Total			

Subcatchment 12: Sub-catchment 12

Hydrograph



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Summary for Pond 1P: EX OWS

[93] Warning: Storage range exceeded by 3.36'

Inflow Area = 235,097 sf, 94.23% Impervious, Inflow Depth = 3.81" for 10-Year event
 Inflow = 19.99 cfs @ 12.13 hrs, Volume= 74,604 cf
 Outflow = 19.92 cfs @ 12.13 hrs, Volume= 74,605 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.52 cfs @ 12.13 hrs, Volume= 53,461 cf
 Routed to Link DP-1 : DP-1
 Secondary = 17.40 cfs @ 12.13 hrs, Volume= 21,144 cf
 Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 234.50' @ 12.13 hrs Surf.Area= 2,775 sf Storage= 3,676 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 13.7 min (775.2 - 761.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	227.14'	0 cf	53.75'W x 51.62'L x 4.00'H Field A 11,098 cf Overall - 4,587 cf Embedded = 6,511 cf x 0.0% Voids
#2A	227.14'	3,676 cf	ADS N-12 36" x 20 Inside #1 Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.1 cf Row Length Adjustment= +1.62' x 7.10 sf x 10 rows 50.75' Header x 7.10 sf x 2 = 720.6 cf Inside
		3,676 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	227.14'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Secondary	227.14'	16.0" Round Culvert L= 36.0' Ke= 0.500 Inlet / Outlet Invert= 227.14' / 227.10' S= 0.0011 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.40 sf
#3	Device 2	230.14'	9.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.52 cfs @ 12.13 hrs HW=234.49' TW=0.00' (Dynamic Tailwater)
 ↑**1=Orifice/Grate** (Orifice Controls 2.52 cfs @ 12.83 fps)

Secondary OutFlow Max=17.39 cfs @ 12.13 hrs HW=234.49' TW=0.00' (Dynamic Tailwater)
 ↑**2=Culvert** (Inlet Controls 17.39 cfs @ 12.45 fps)
 ↑**3=Broad-Crested Rectangular Weir**(Passes 17.39 cfs of 271.53 cfs potential flow)

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Pond 1P: EX OWS - Chamber Wizard Field A

Chamber Model = ADS N-12 36" (ADS N-12@ Pipe)

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf

Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.1 cf

Row Length Adjustment= +1.62' x 7.10 sf x 10 rows

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

2 Chambers/Row x 20.00' Long +1.62' Row Adjustment +3.50' Header x 2 = 48.62' Row Length +18.0"

End Stone x 2 = 51.62' Base Length

10 Rows x 42.0" Wide + 21.0" Spacing x 9 + 18.0" Side Stone x 2 = 53.75' Base Width

42.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

20 Chambers x 142.0 cf +1.62' Row Adjustment x 7.10 sf x 10 Rows + 50.75' Header x 7.10 sf x 2 = 3,675.7 cf Chamber Storage

20 Chambers x 177.1 cf +1.62' Row Adjustment x 8.86 sf x 10 Rows + 50.75' Header x 8.86 sf x 2 = 4,585.4 cf Displacement

11,098.3 cf Field - 4,585.4 cf Chambers = 6,512.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 3,675.7 cf = 0.084 af

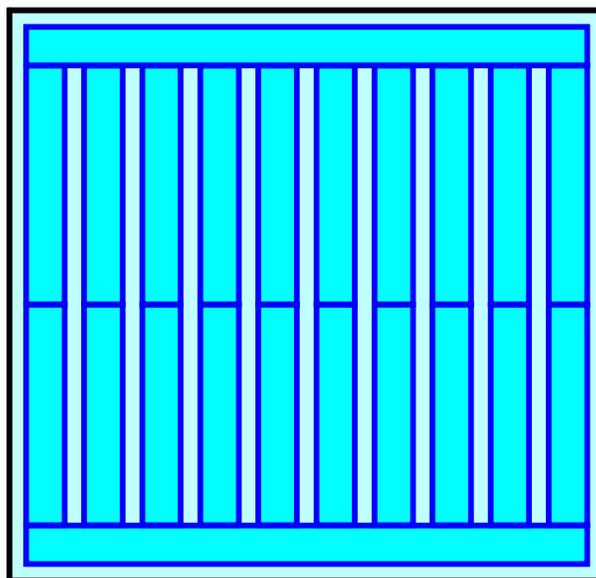
Overall Storage Efficiency = 33.1%

Overall System Size = 51.62' x 53.75' x 4.00'

20 Chambers

411.0 cy Field

241.2 cy Stone



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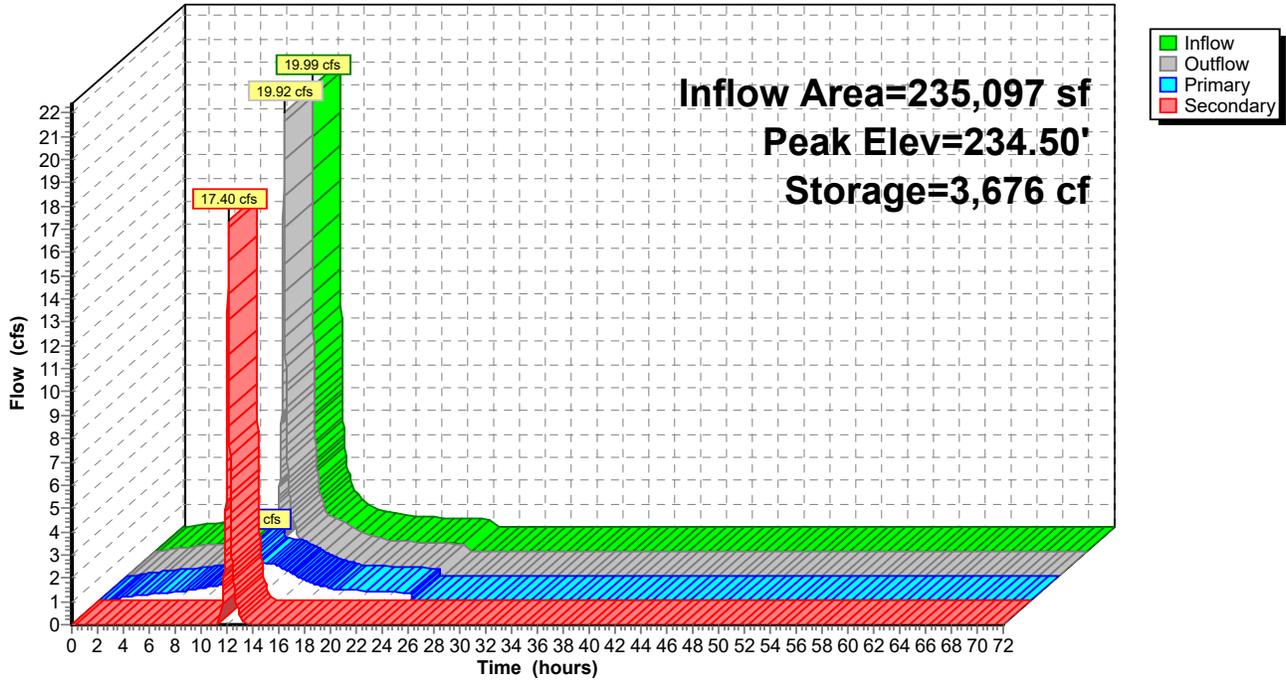
NRCC 24-hr D 10-Year Rainfall=4.16"

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Pond 1P: EX OWS

Hydrograph



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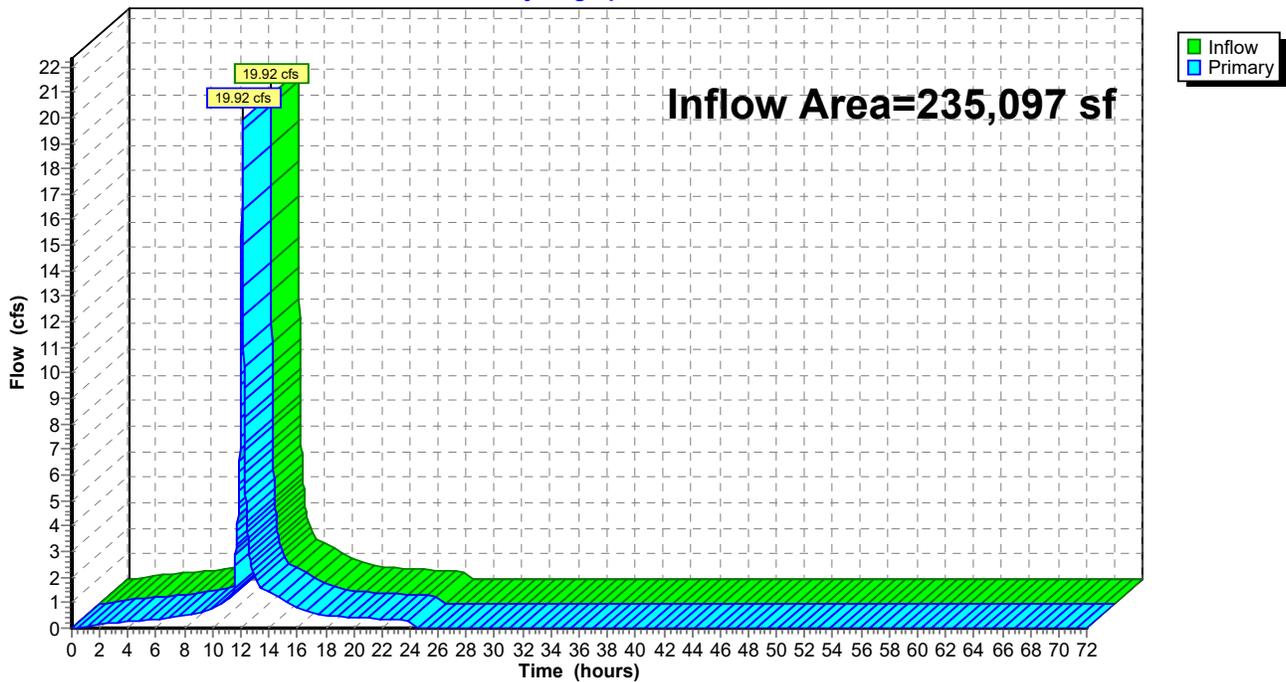
Summary for Link DP-1: DP-1

Inflow Area = 235,097 sf, 94.23% Impervious, Inflow Depth = 3.81" for 10-Year event
Inflow = 19.92 cfs @ 12.13 hrs, Volume= 74,605 cf
Primary = 19.92 cfs @ 12.13 hrs, Volume= 74,605 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-1: DP-1

Hydrograph



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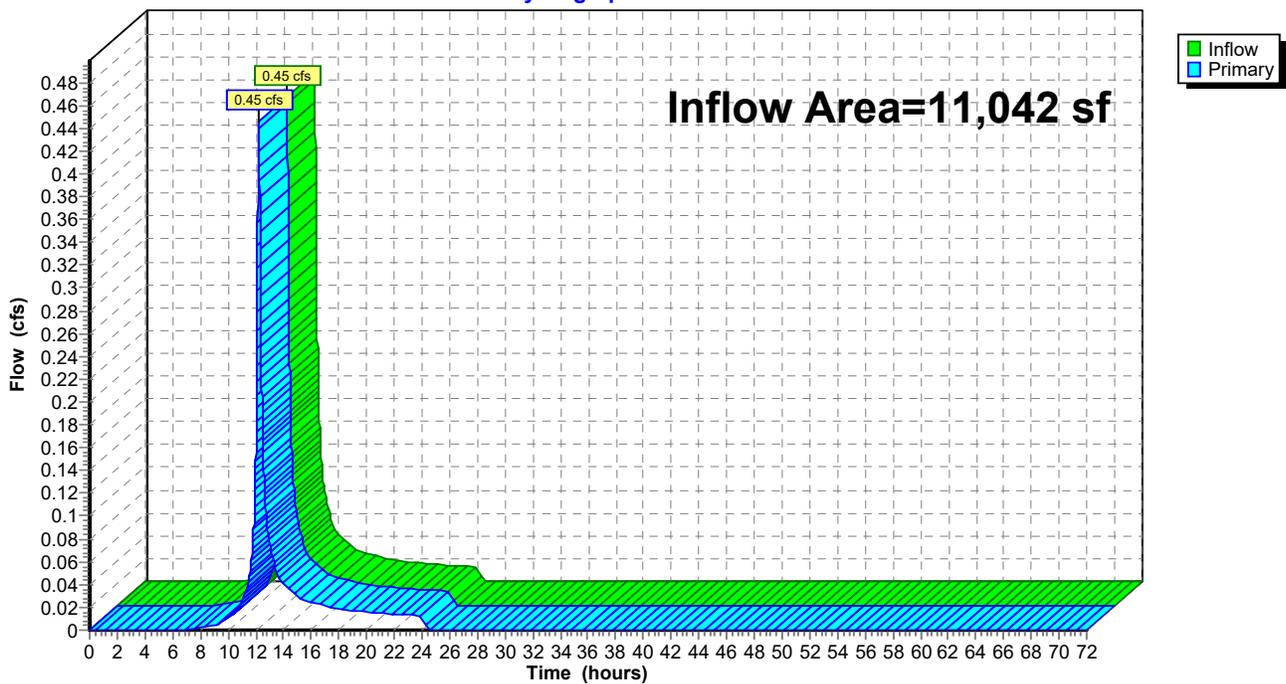
Summary for Link DP-2: DP-2

Inflow Area = 11,042 sf, 0.67% Impervious, Inflow Depth = 2.09" for 10-Year event
Inflow = 0.45 cfs @ 12.22 hrs, Volume= 1,927 cf
Primary = 0.45 cfs @ 12.22 hrs, Volume= 1,927 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-2: DP-2

Hydrograph



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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: Sub-catchment1	Runoff Area=33,590 sf 100.00% Impervious Runoff Depth=4.96" Tc=6.0 min CN=98 Runoff=3.63 cfs 13,892 cf
Subcatchment2: Sub-catchment2	Runoff Area=7,467 sf 100.00% Impervious Runoff Depth=4.96" Tc=6.0 min CN=98 Runoff=0.81 cfs 3,088 cf
Subcatchment3: Sub-catchment3	Runoff Area=7,120 sf 100.00% Impervious Runoff Depth=4.96" Tc=6.0 min CN=98 Runoff=0.77 cfs 2,945 cf
Subcatchment4: Sub-catchment4	Runoff Area=57,605 sf 100.00% Impervious Runoff Depth=4.96" Tc=6.0 min CN=98 Runoff=6.23 cfs 23,824 cf
Subcatchment5: Sub-catchment5	Runoff Area=14,314 sf 100.00% Impervious Runoff Depth=4.96" Tc=6.0 min CN=98 Runoff=1.55 cfs 5,920 cf
Subcatchment6: Sub-Catchment6	Runoff Area=20,333 sf 100.00% Impervious Runoff Depth=4.96" Tc=6.0 min CN=98 Runoff=2.20 cfs 8,409 cf
Subcatchment7: Sub-catchment7	Runoff Area=23,381 sf 100.00% Impervious Runoff Depth=4.96" Tc=6.0 min CN=98 Runoff=2.53 cfs 9,670 cf
Subcatchment8: Sub-catchment8	Runoff Area=25,531 sf 100.00% Impervious Runoff Depth=4.96" Tc=6.0 min CN=98 Runoff=2.76 cfs 10,559 cf
Subcatchment9: Sub-catchment9	Runoff Area=11,753 sf 73.89% Impervious Runoff Depth=4.39" Tc=6.0 min CN=93 Runoff=1.21 cfs 4,304 cf
Subcatchment10: Sub-catchment10	Runoff Area=32,181 sf 67.40% Impervious Runoff Depth=4.28" Tc=6.0 min CN=92 Runoff=3.27 cfs 11,491 cf
Subcatchment11: Sub-catchment11	Runoff Area=1,822 sf 100.00% Impervious Runoff Depth=4.96" Tc=6.0 min CN=98 Runoff=0.20 cfs 754 cf
Subcatchment12: Sub-catchment12	Runoff Area=11,042 sf 0.67% Impervious Runoff Depth=2.97" Flow Length=285' Tc=13.6 min CN=79 Runoff=0.63 cfs 2,737 cf
Pond 1P: EX OWS	Peak Elev=238.47' Storage=3,676 cf Inflow=25.17 cfs 94,854 cf Primary=3.15 cfs 64,047 cf Secondary=21.95 cfs 30,808 cf Outflow=25.10 cfs 94,856 cf
Link DP-1: DP-1	Inflow=25.10 cfs 94,856 cf Primary=25.10 cfs 94,856 cf
Link DP-2: DP-2	Inflow=0.63 cfs 2,737 cf Primary=0.63 cfs 2,737 cf

Total Runoff Area = 246,139 sf Runoff Volume = 97,592 cf Average Runoff Depth = 4.76"
9.97% Pervious = 24,528 sf 90.03% Impervious = 221,611 sf

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NRCC 24-hr D 25-Year Rainfall=5.20"

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Summary for Subcatchment 1: Sub-catchment 1

Runoff = 3.63 cfs @ 12.13 hrs, Volume= 13,892 cf, Depth= 4.96"
Routed to Pond 1P : EX OWS

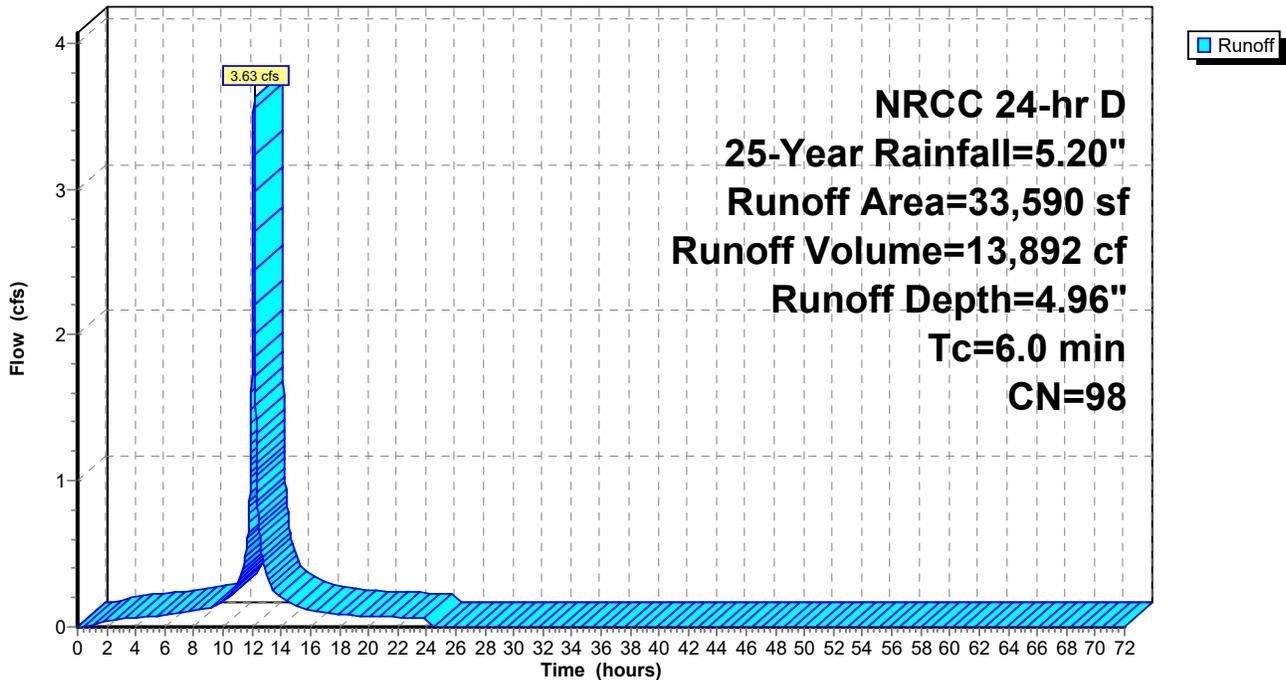
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
15,206	98	Roofs, HSG B
18,384	98	Unconnected pavement, HSG B
33,590	98	Weighted Average
33,590		100.00% Impervious Area
18,384		54.73% Unconnected

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

Subcatchment 1: Sub-catchment 1

Hydrograph



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Summary for Subcatchment 2: Sub-catchment 2

Runoff = 0.81 cfs @ 12.13 hrs, Volume= 3,088 cf, Depth= 4.96"
 Routed to Pond 1P : EX OWS

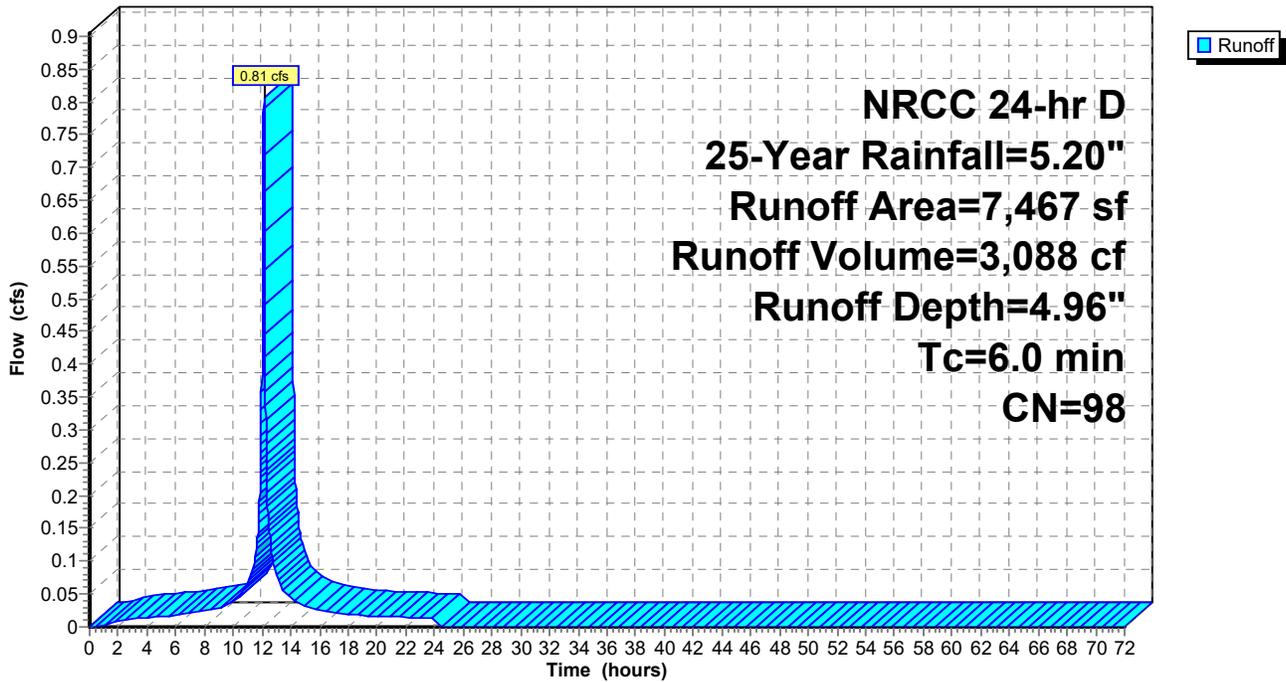
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
2,936	98	Roofs, HSG B
4,531	98	Unconnected pavement, HSG B
7,467	98	Weighted Average
7,467		100.00% Impervious Area
4,531		60.68% Unconnected

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

Subcatchment 2: Sub-catchment 2

Hydrograph



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NRCC 24-hr D 25-Year Rainfall=5.20"

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Summary for Subcatchment 3: Sub-catchment 3

Runoff = 0.77 cfs @ 12.13 hrs, Volume= 2,945 cf, Depth= 4.96"
 Routed to Pond 1P : EX OWS

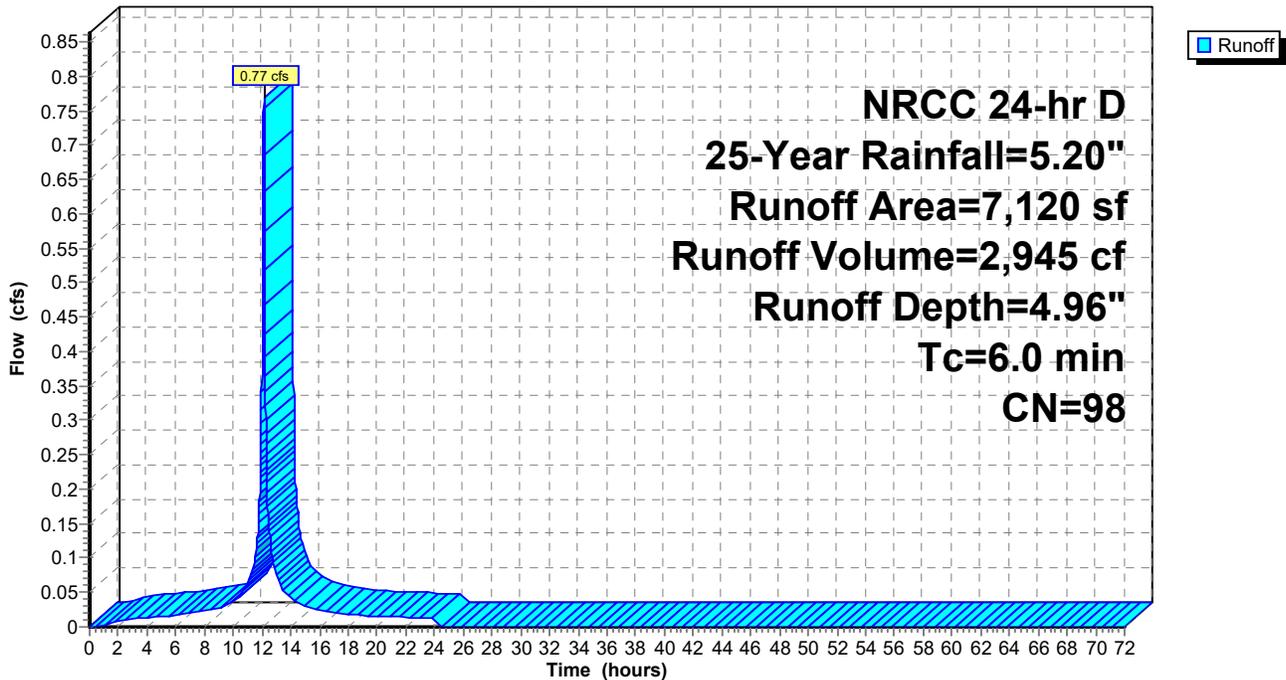
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
2,543	98	Roofs, HSG B
4,577	98	Unconnected pavement, HSG B
7,120	98	Weighted Average
7,120		100.00% Impervious Area
4,577		64.28% Unconnected

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

Subcatchment 3: Sub-catchment 3

Hydrograph



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NRCC 24-hr D 25-Year Rainfall=5.20"

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Summary for Subcatchment 4: Sub-catchment 4

Runoff = 6.23 cfs @ 12.13 hrs, Volume= 23,824 cf, Depth= 4.96"
 Routed to Pond 1P : EX OWS

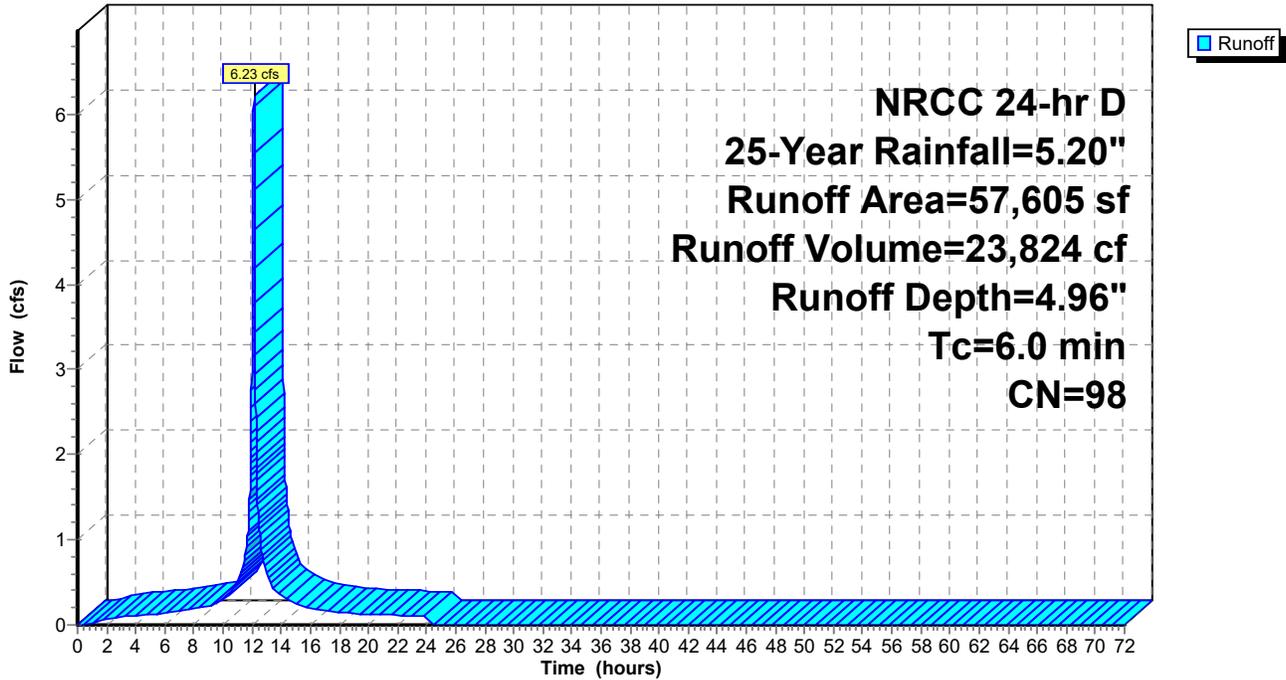
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
5,329	98	Roofs, HSG B
52,276	98	Unconnected pavement, HSG B
57,605	98	Weighted Average
57,605		100.00% Impervious Area
52,276		90.75% Unconnected

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

Subcatchment 4: Sub-catchment 4

Hydrograph



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NRCC 24-hr D 25-Year Rainfall=5.20"

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Summary for Subcatchment 5: Sub-catchment 5

Runoff = 1.55 cfs @ 12.13 hrs, Volume= 5,920 cf, Depth= 4.96"
 Routed to Pond 1P : EX OWS

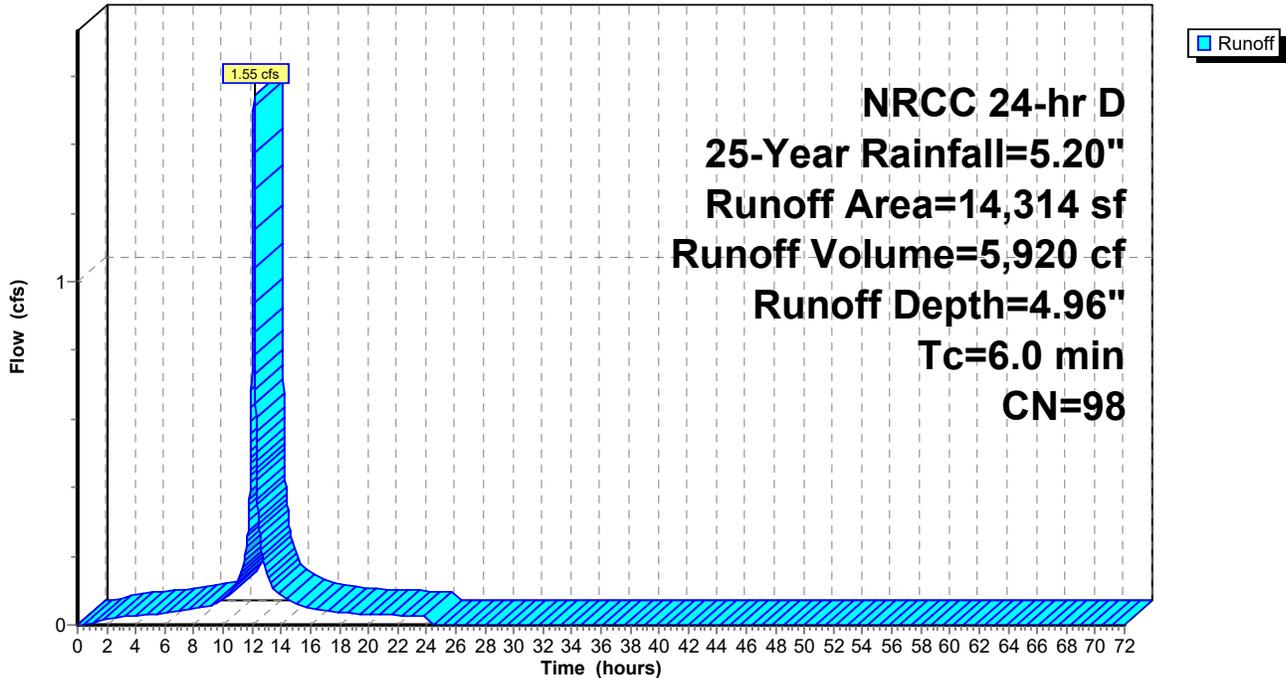
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
5,500	98	Roofs, HSG B
8,814	98	Unconnected pavement, HSG B
14,314	98	Weighted Average
14,314		100.00% Impervious Area
8,814		61.58% Unconnected

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

Subcatchment 5: Sub-catchment 5

Hydrograph



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NRCC 24-hr D 25-Year Rainfall=5.20"

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Summary for Subcatchment 6: Sub-Catchment 6

Runoff = 2.20 cfs @ 12.13 hrs, Volume= 8,409 cf, Depth= 4.96"
 Routed to Pond 1P : EX OWS

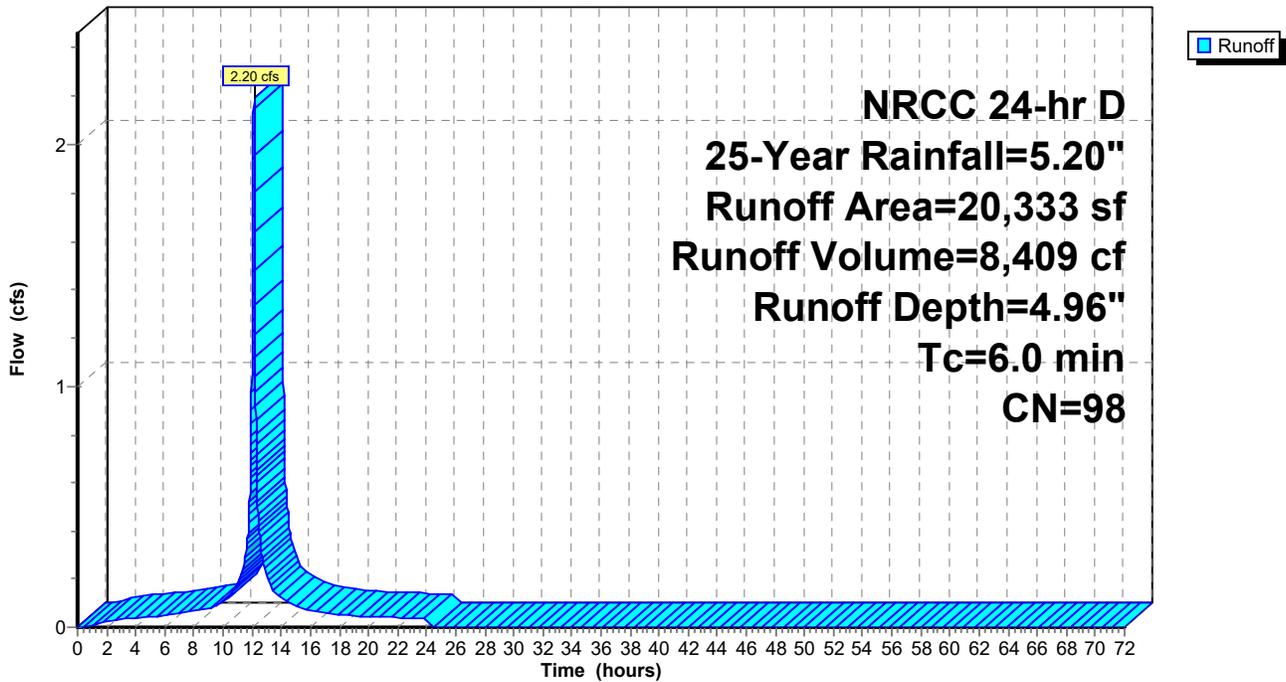
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
20,333	98	Unconnected pavement, HSG B
20,333		100.00% Impervious Area
20,333		100.00% Unconnected

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

Subcatchment 6: Sub-Catchment 6

Hydrograph



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NRCC 24-hr D 25-Year Rainfall=5.20"

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Summary for Subcatchment 7: Sub-catchment 7

Runoff = 2.53 cfs @ 12.13 hrs, Volume= 9,670 cf, Depth= 4.96"
 Routed to Pond 1P : EX OWS

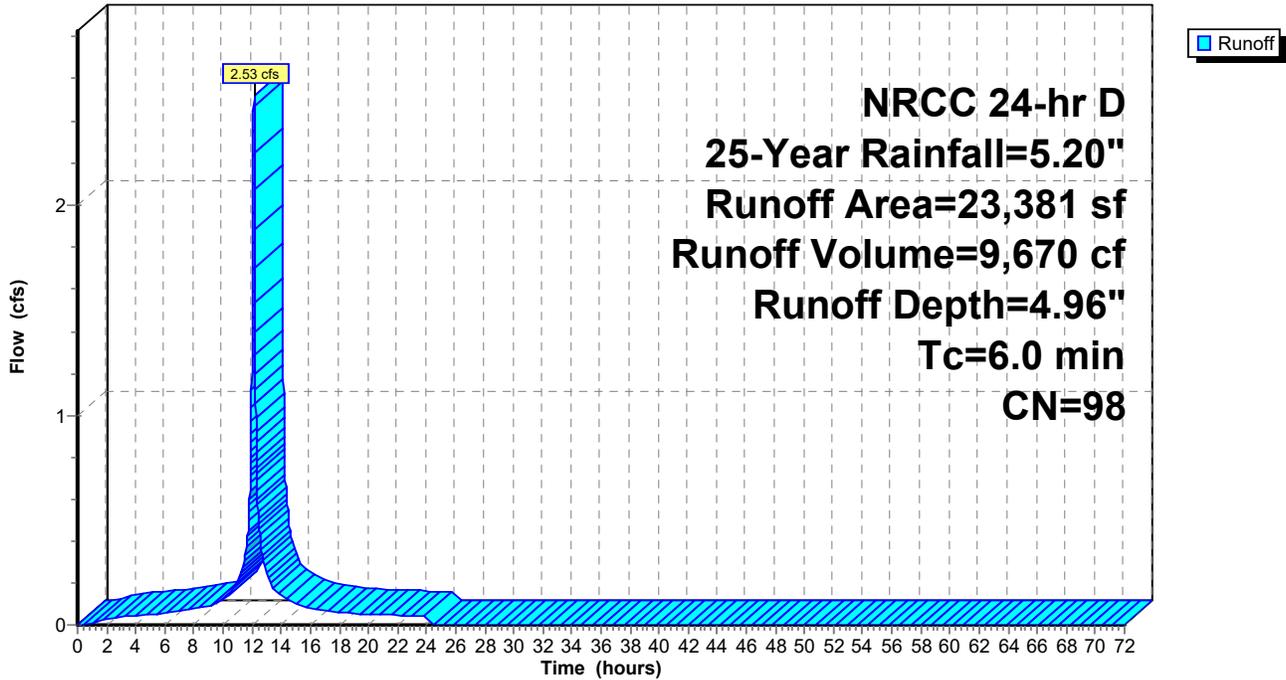
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
3,396	98	Roofs, HSG B
19,985	98	Unconnected pavement, HSG B
23,381	98	Weighted Average
23,381		100.00% Impervious Area
19,985		85.48% Unconnected

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

Subcatchment 7: Sub-catchment 7

Hydrograph



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NRCC 24-hr D 25-Year Rainfall=5.20"

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Summary for Subcatchment 8: Sub-catchment 8

Runoff = 2.76 cfs @ 12.13 hrs, Volume= 10,559 cf, Depth= 4.96"
 Routed to Pond 1P : EX OWS

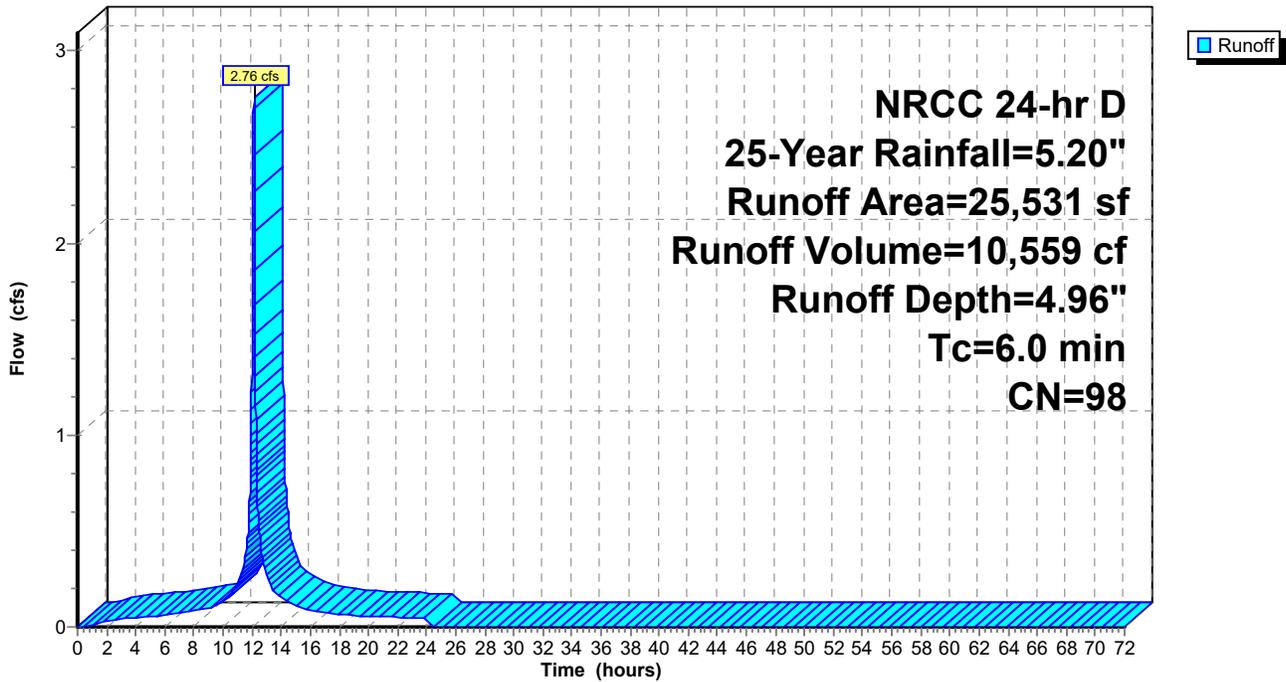
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
2,117	98	Roofs, HSG B
23,414	98	Unconnected pavement, HSG B
25,531	98	Weighted Average
25,531		100.00% Impervious Area
23,414		91.71% Unconnected

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

Subcatchment 8: Sub-catchment 8

Hydrograph



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NRCC 24-hr D 25-Year Rainfall=5.20"

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Summary for Subcatchment 9: Sub-catchment 9

Runoff = 1.21 cfs @ 12.13 hrs, Volume= 4,304 cf, Depth= 4.39"
 Routed to Pond 1P : EX OWS

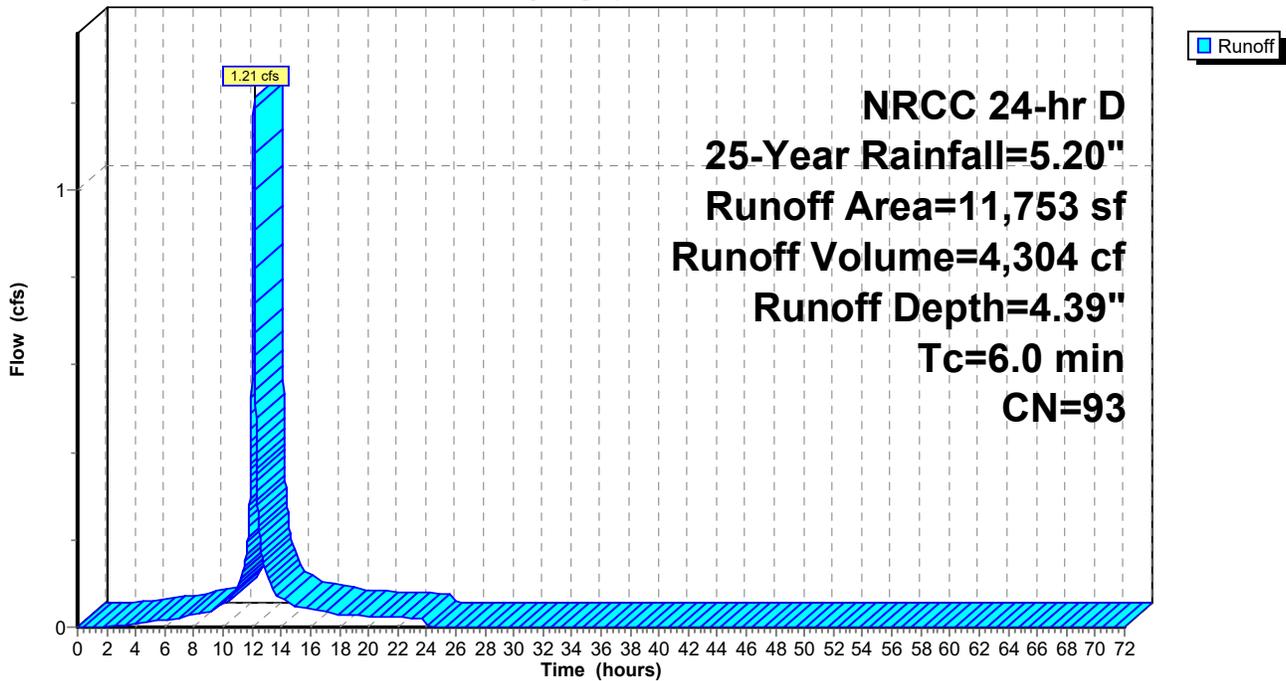
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
3,069	79	<50% Grass cover, Poor, HSG B
8,684	98	Unconnected pavement, HSG B
11,753	93	Weighted Average
3,069		26.11% Pervious Area
8,684		73.89% Impervious Area
8,684		100.00% Unconnected

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

Subcatchment 9: Sub-catchment 9

Hydrograph



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Summary for Subcatchment 10: Sub-catchment 10

Runoff = 3.27 cfs @ 12.13 hrs, Volume= 11,491 cf, Depth= 4.28"
 Routed to Pond 1P : EX OWS

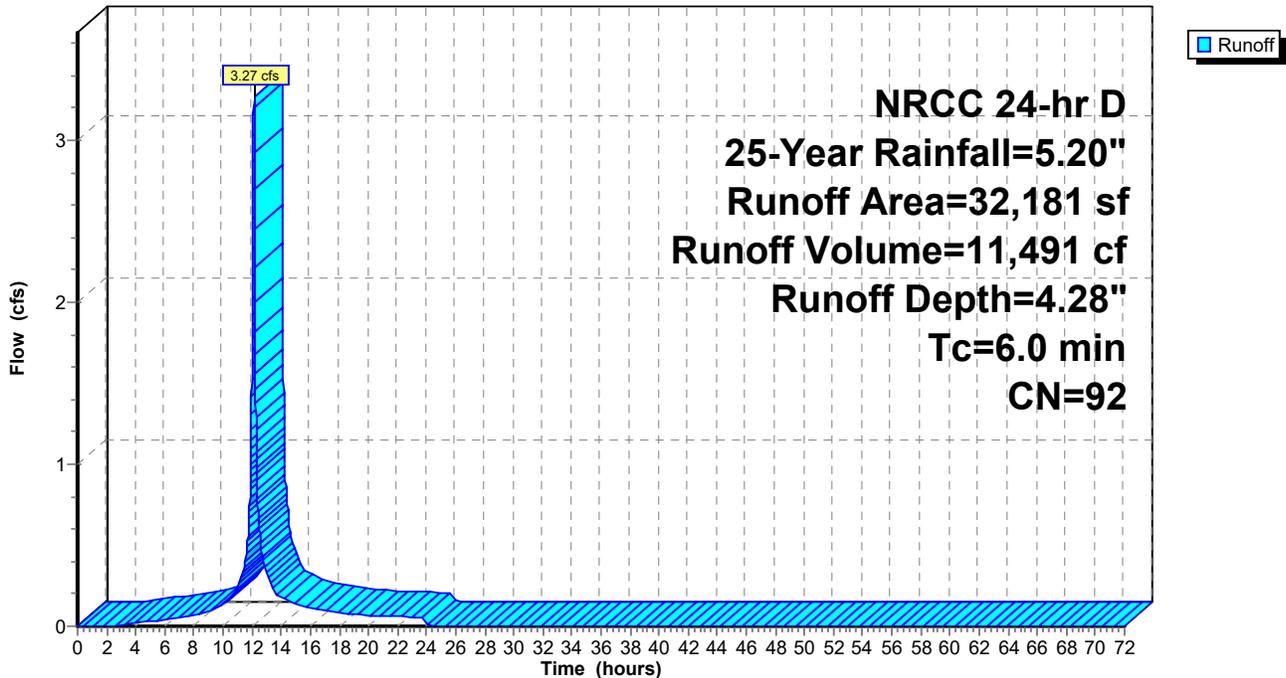
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
10,491	79	<50% Grass cover, Poor, HSG B
6,760	98	Roofs, HSG B
14,930	98	Unconnected pavement, HSG B
32,181	92	Weighted Average
10,491		32.60% Pervious Area
21,690		67.40% Impervious Area
14,930		68.83% Unconnected

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

Subcatchment 10: Sub-catchment 10

Hydrograph



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Summary for Subcatchment 11: Sub-catchment 11

Runoff = 0.20 cfs @ 12.13 hrs, Volume= 754 cf, Depth= 4.96"
Routed to Pond 1P : EX OWS

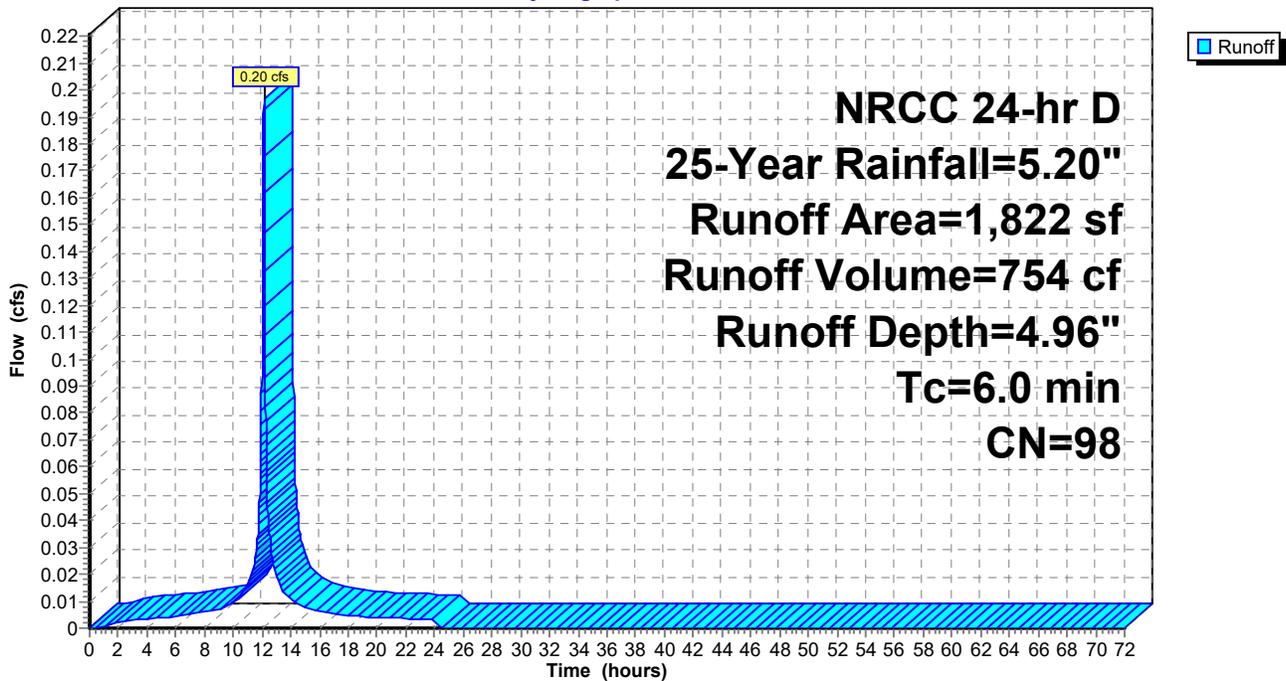
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
1,822	98	Roofs, HSG B
1,822		100.00% Impervious Area

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

Subcatchment 11: Sub-catchment 11

Hydrograph



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Summary for Subcatchment 12: Sub-catchment 12

Runoff = 0.63 cfs @ 12.22 hrs, Volume= 2,737 cf, Depth= 2.97"
 Routed to Link DP-2 : DP-2

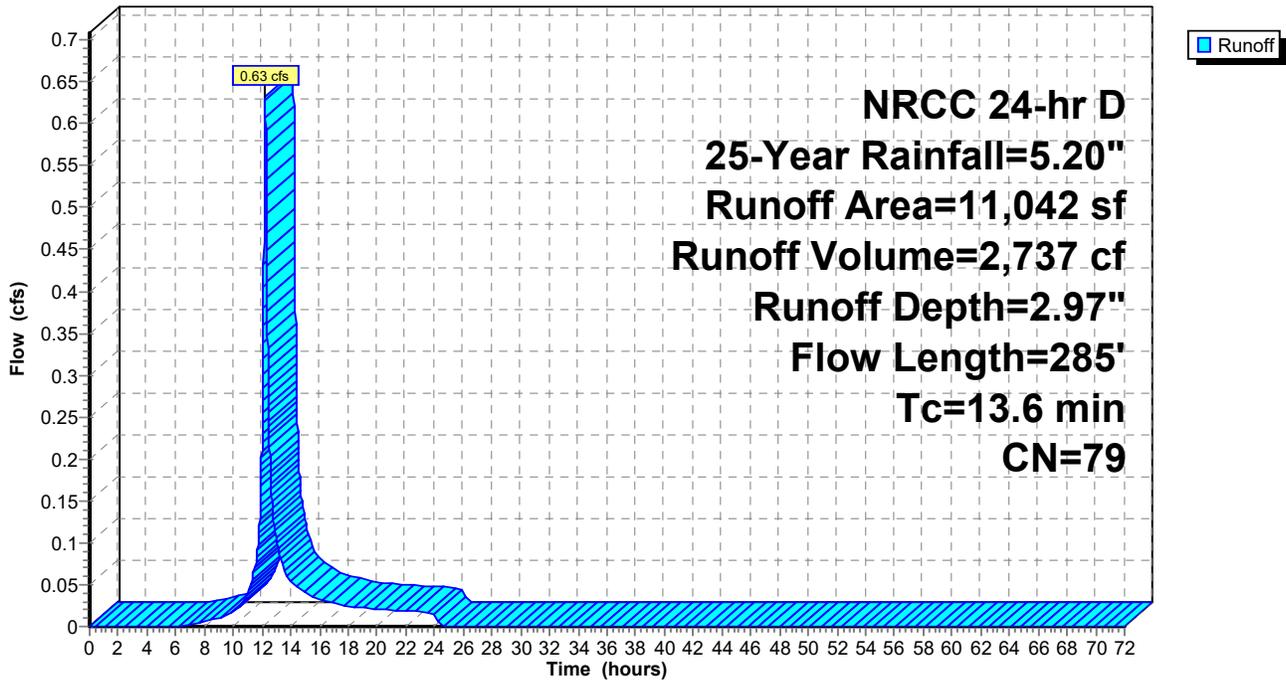
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
74	98	Unconnected pavement, HSG B
10,968	79	<50% Grass cover, Poor, HSG B
11,042	79	Weighted Average
10,968		99.33% Pervious Area
74		0.67% Impervious Area
74		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0120	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
1.6	185	0.0150	1.97		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.6	285	Total			

Subcatchment 12: Sub-catchment 12

Hydrograph



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Summary for Pond 1P: EX OWS

[93] Warning: Storage range exceeded by 7.33'

Inflow Area = 235,097 sf, 94.23% Impervious, Inflow Depth = 4.84" for 25-Year event
 Inflow = 25.17 cfs @ 12.13 hrs, Volume= 94,854 cf
 Outflow = 25.10 cfs @ 12.13 hrs, Volume= 94,856 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.15 cfs @ 12.13 hrs, Volume= 64,047 cf
 Routed to Link DP-1 : DP-1
 Secondary = 21.95 cfs @ 12.13 hrs, Volume= 30,808 cf
 Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 238.47' @ 12.13 hrs Surf.Area= 2,775 sf Storage= 3,676 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 14.2 min (770.6 - 756.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	227.14'	0 cf	53.75'W x 51.62'L x 4.00'H Field A 11,098 cf Overall - 4,587 cf Embedded = 6,511 cf x 0.0% Voids
#2A	227.14'	3,676 cf	ADS N-12 36" x 20 Inside #1 Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.1 cf Row Length Adjustment= +1.62' x 7.10 sf x 10 rows 50.75' Header x 7.10 sf x 2 = 720.6 cf Inside
		3,676 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	227.14'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Secondary	227.14'	16.0" Round Culvert L= 36.0' Ke= 0.500 Inlet / Outlet Invert= 227.14' / 227.10' S= 0.0011 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.40 sf
#3	Device 2	230.14'	9.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.14 cfs @ 12.13 hrs HW=238.45' TW=0.00' (Dynamic Tailwater)
 ↑**1=Orifice/Grate** (Orifice Controls 3.14 cfs @ 16.01 fps)

Secondary OutFlow Max=21.93 cfs @ 12.13 hrs HW=238.45' TW=0.00' (Dynamic Tailwater)
 ↑**2=Culvert** (Inlet Controls 21.93 cfs @ 15.71 fps)
 ↑**3=Broad-Crested Rectangular Weir**(Passes 21.93 cfs of 715.23 cfs potential flow)

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Pond 1P: EX OWS - Chamber Wizard Field A

Chamber Model = ADS N-12 36" (ADS N-12® Pipe)

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf

Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.1 cf

Row Length Adjustment= +1.62' x 7.10 sf x 10 rows

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

2 Chambers/Row x 20.00' Long +1.62' Row Adjustment +3.50' Header x 2 = 48.62' Row Length +18.0"

End Stone x 2 = 51.62' Base Length

10 Rows x 42.0" Wide + 21.0" Spacing x 9 + 18.0" Side Stone x 2 = 53.75' Base Width

42.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

20 Chambers x 142.0 cf +1.62' Row Adjustment x 7.10 sf x 10 Rows + 50.75' Header x 7.10 sf x 2 = 3,675.7 cf Chamber Storage

20 Chambers x 177.1 cf +1.62' Row Adjustment x 8.86 sf x 10 Rows + 50.75' Header x 8.86 sf x 2 = 4,585.4 cf Displacement

11,098.3 cf Field - 4,585.4 cf Chambers = 6,512.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 3,675.7 cf = 0.084 af

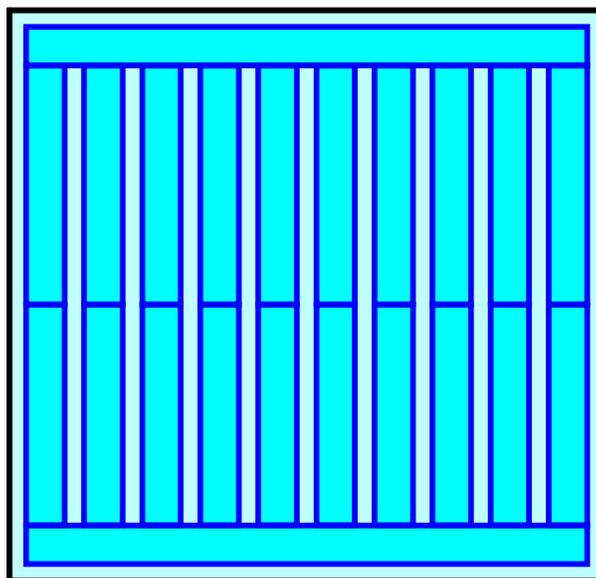
Overall Storage Efficiency = 33.1%

Overall System Size = 51.62' x 53.75' x 4.00'

20 Chambers

411.0 cy Field

241.2 cy Stone



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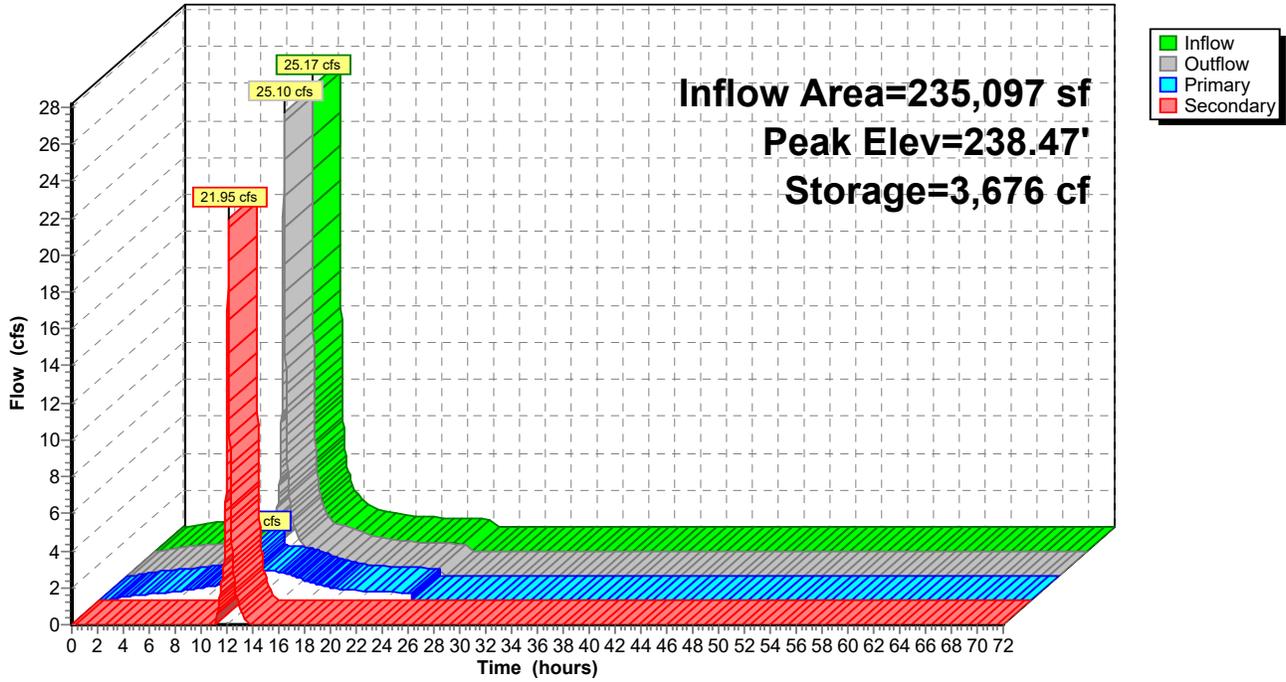
NRCC 24-hr D 25-Year Rainfall=5.20"

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Pond 1P: EX OWS

Hydrograph



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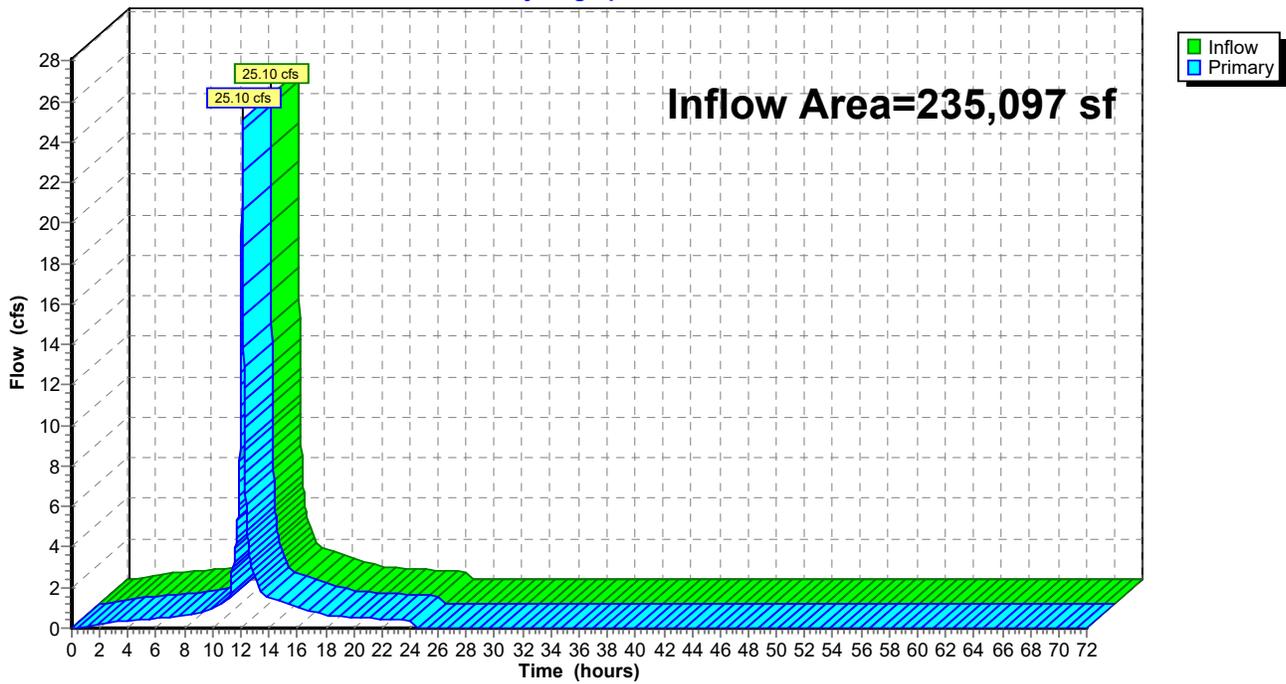
Summary for Link DP-1: DP-1

Inflow Area = 235,097 sf, 94.23% Impervious, Inflow Depth = 4.84" for 25-Year event
Inflow = 25.10 cfs @ 12.13 hrs, Volume= 94,856 cf
Primary = 25.10 cfs @ 12.13 hrs, Volume= 94,856 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-1: DP-1

Hydrograph



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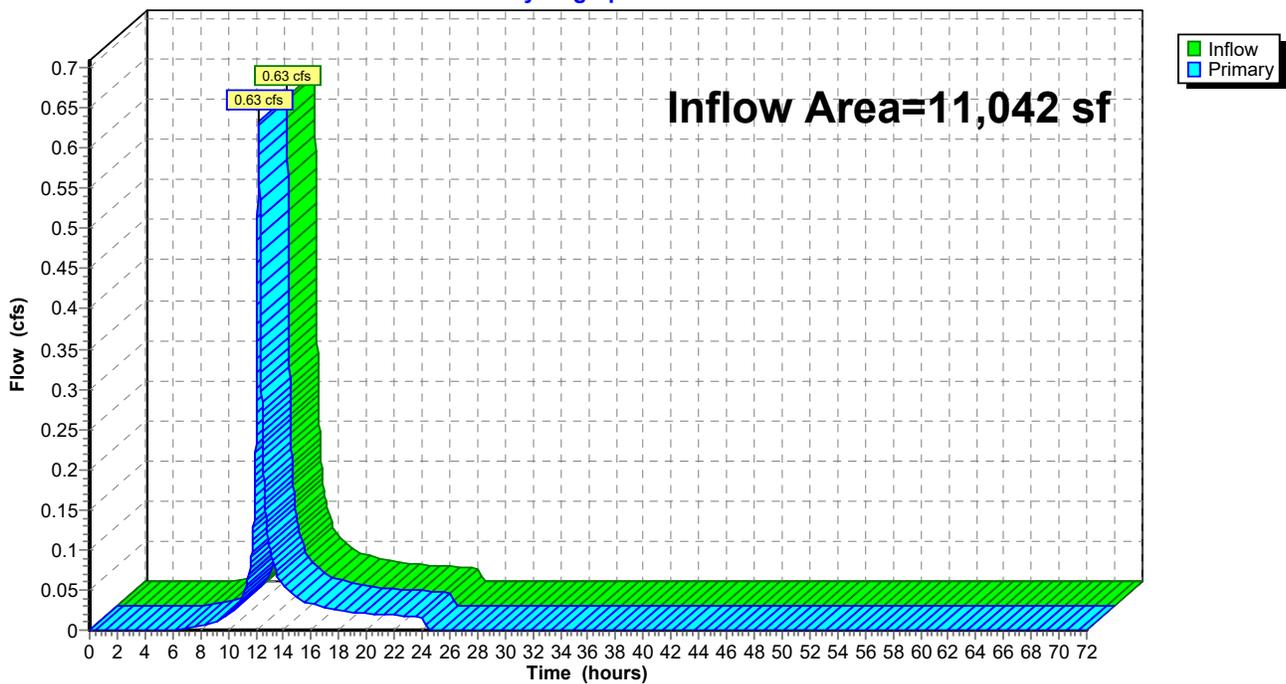
Summary for Link DP-2: DP-2

Inflow Area = 11,042 sf, 0.67% Impervious, Inflow Depth = 2.97" for 25-Year event
Inflow = 0.63 cfs @ 12.22 hrs, Volume= 2,737 cf
Primary = 0.63 cfs @ 12.22 hrs, Volume= 2,737 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-2: DP-2

Hydrograph



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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: Sub-catchment1	Runoff Area=33,590 sf 100.00% Impervious Runoff Depth=7.05" Tc=6.0 min CN=98 Runoff=5.11 cfs 19,736 cf
Subcatchment2: Sub-catchment2	Runoff Area=7,467 sf 100.00% Impervious Runoff Depth=7.05" Tc=6.0 min CN=98 Runoff=1.14 cfs 4,387 cf
Subcatchment3: Sub-catchment3	Runoff Area=7,120 sf 100.00% Impervious Runoff Depth=7.05" Tc=6.0 min CN=98 Runoff=1.08 cfs 4,183 cf
Subcatchment4: Sub-catchment4	Runoff Area=57,605 sf 100.00% Impervious Runoff Depth=7.05" Tc=6.0 min CN=98 Runoff=8.76 cfs 33,846 cf
Subcatchment5: Sub-catchment5	Runoff Area=14,314 sf 100.00% Impervious Runoff Depth=7.05" Tc=6.0 min CN=98 Runoff=2.18 cfs 8,410 cf
Subcatchment6: Sub-Catchment6	Runoff Area=20,333 sf 100.00% Impervious Runoff Depth=7.05" Tc=6.0 min CN=98 Runoff=3.09 cfs 11,947 cf
Subcatchment7: Sub-catchment7	Runoff Area=23,381 sf 100.00% Impervious Runoff Depth=7.05" Tc=6.0 min CN=98 Runoff=3.56 cfs 13,738 cf
Subcatchment8: Sub-catchment8	Runoff Area=25,531 sf 100.00% Impervious Runoff Depth=7.05" Tc=6.0 min CN=98 Runoff=3.88 cfs 15,001 cf
Subcatchment9: Sub-catchment9	Runoff Area=11,753 sf 73.89% Impervious Runoff Depth=6.46" Tc=6.0 min CN=93 Runoff=1.74 cfs 6,326 cf
Subcatchment10: Sub-catchment10	Runoff Area=32,181 sf 67.40% Impervious Runoff Depth=6.34" Tc=6.0 min CN=92 Runoff=4.72 cfs 17,006 cf
Subcatchment11: Sub-catchment11	Runoff Area=1,822 sf 100.00% Impervious Runoff Depth=7.05" Tc=6.0 min CN=98 Runoff=0.28 cfs 1,071 cf
Subcatchment12: Sub-catchment12	Runoff Area=11,042 sf 0.67% Impervious Runoff Depth=4.85" Flow Length=285' Tc=13.6 min CN=79 Runoff=1.02 cfs 4,463 cf
Pond 1P: EX OWS	Peak Elev=249.13' Storage=3,676 cf Inflow=35.53 cfs 135,650 cf Primary=4.41 cfs 82,970 cf Secondary=31.04 cfs 52,683 cf Outflow=35.45 cfs 135,653 cf
Link DP-1: DP-1	Inflow=35.45 cfs 135,653 cf Primary=35.45 cfs 135,653 cf
Link DP-2: DP-2	Inflow=1.02 cfs 4,463 cf Primary=1.02 cfs 4,463 cf

Total Runoff Area = 246,139 sf Runoff Volume = 140,114 cf Average Runoff Depth = 6.83"
9.97% Pervious = 24,528 sf 90.03% Impervious = 221,611 sf

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Summary for Subcatchment 1: Sub-catchment 1

Runoff = 5.11 cfs @ 12.13 hrs, Volume= 19,736 cf, Depth= 7.05"
 Routed to Pond 1P : EX OWS

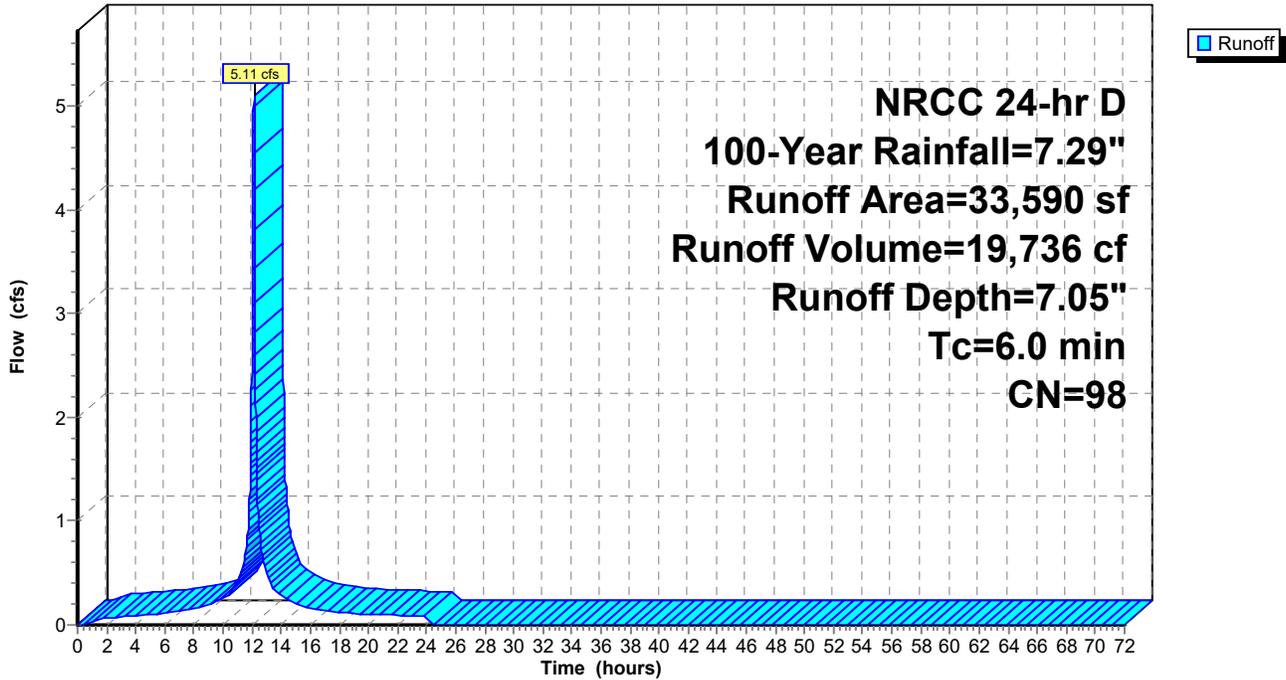
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
15,206	98	Roofs, HSG B
18,384	98	Unconnected pavement, HSG B
33,590	98	Weighted Average
33,590		100.00% Impervious Area
18,384		54.73% Unconnected

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

Subcatchment 1: Sub-catchment 1

Hydrograph



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Summary for Subcatchment 2: Sub-catchment 2

Runoff = 1.14 cfs @ 12.13 hrs, Volume= 4,387 cf, Depth= 7.05"
 Routed to Pond 1P : EX OWS

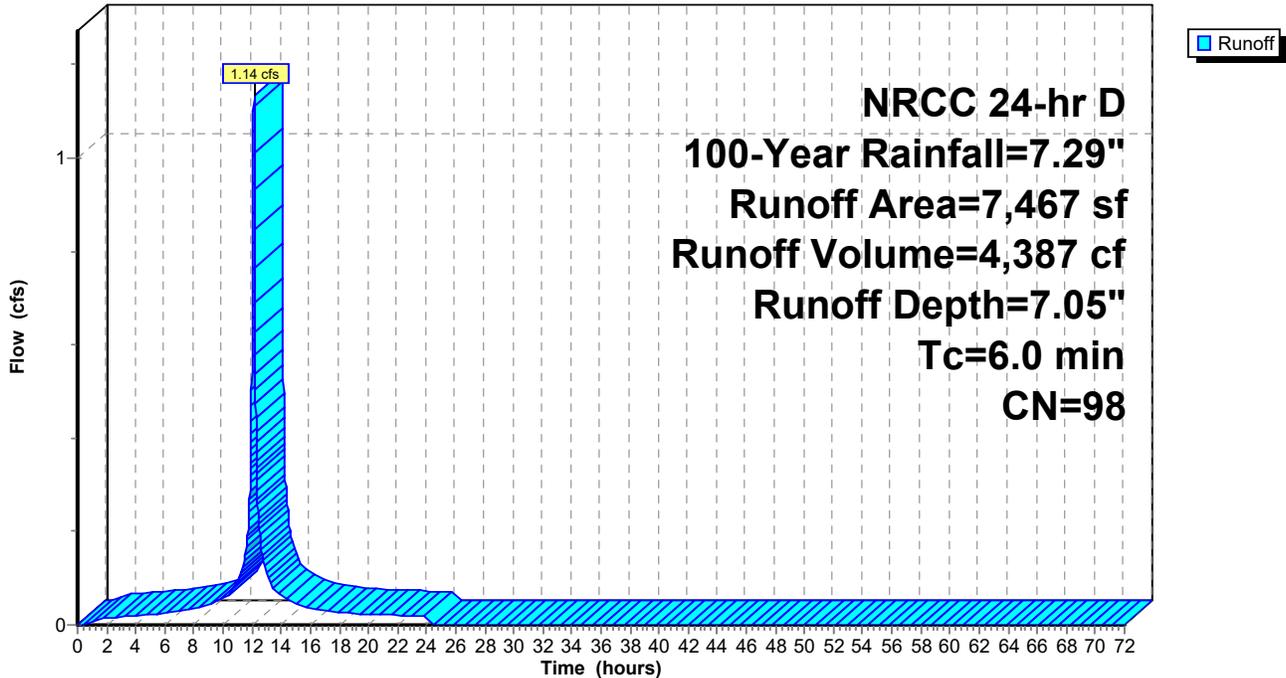
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
2,936	98	Roofs, HSG B
4,531	98	Unconnected pavement, HSG B
7,467	98	Weighted Average
7,467		100.00% Impervious Area
4,531		60.68% Unconnected

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

Subcatchment 2: Sub-catchment 2

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Summary for Subcatchment 3: Sub-catchment 3

Runoff = 1.08 cfs @ 12.13 hrs, Volume= 4,183 cf, Depth= 7.05"
 Routed to Pond 1P : EX OWS

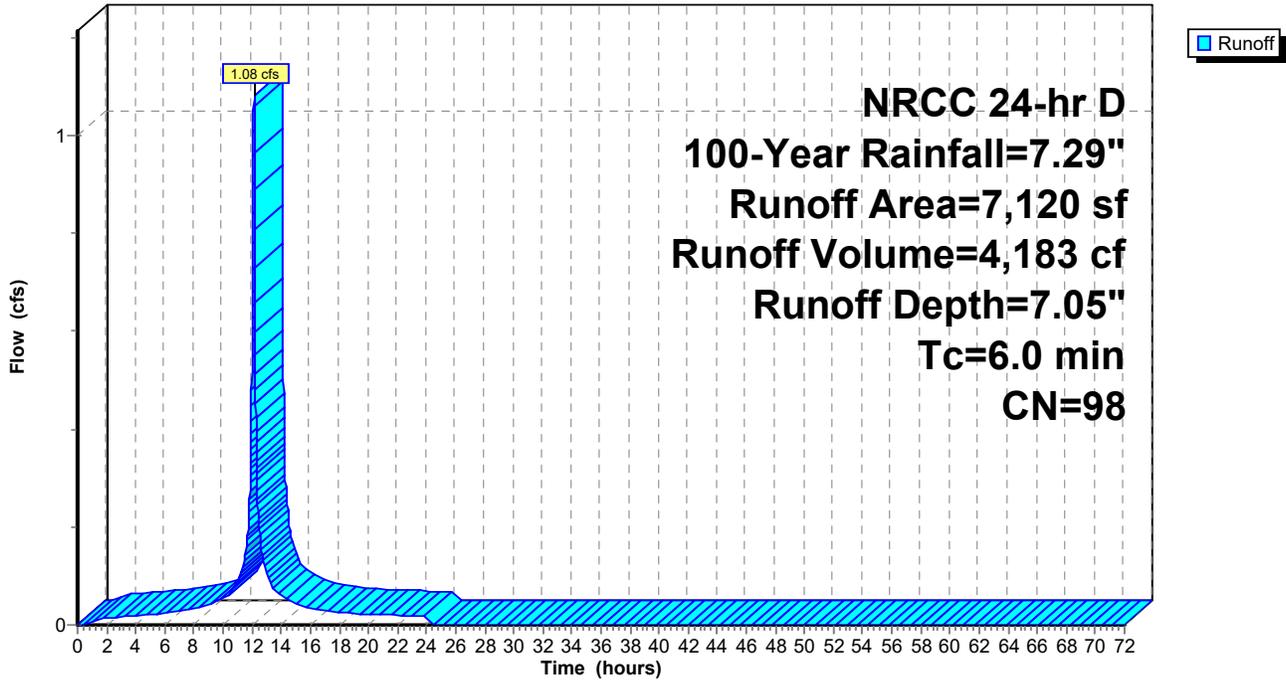
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
2,543	98	Roofs, HSG B
4,577	98	Unconnected pavement, HSG B
7,120	98	Weighted Average
7,120		100.00% Impervious Area
4,577		64.28% Unconnected

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

Subcatchment 3: Sub-catchment 3

Hydrograph



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Summary for Subcatchment 4: Sub-catchment 4

Runoff = 8.76 cfs @ 12.13 hrs, Volume= 33,846 cf, Depth= 7.05"
 Routed to Pond 1P : EX OWS

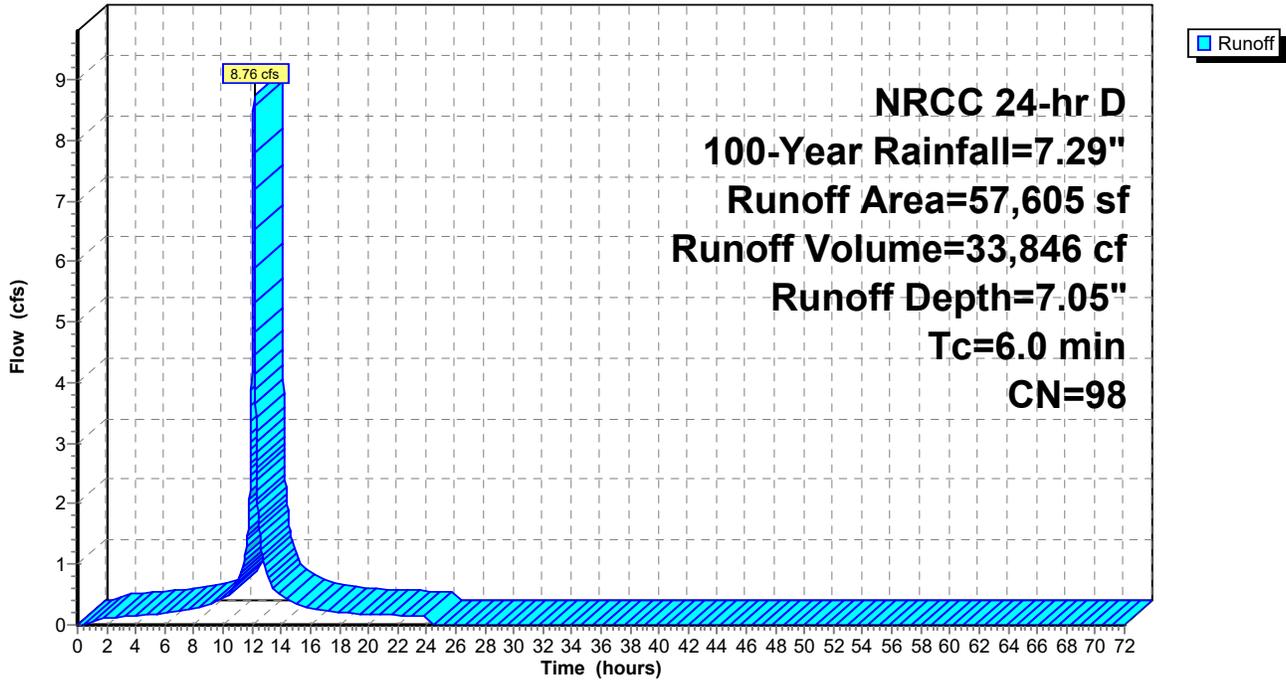
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
5,329	98	Roofs, HSG B
52,276	98	Unconnected pavement, HSG B
57,605	98	Weighted Average
57,605		100.00% Impervious Area
52,276		90.75% Unconnected

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

Subcatchment 4: Sub-catchment 4

Hydrograph



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Summary for Subcatchment 5: Sub-catchment 5

Runoff = 2.18 cfs @ 12.13 hrs, Volume= 8,410 cf, Depth= 7.05"
 Routed to Pond 1P : EX OWS

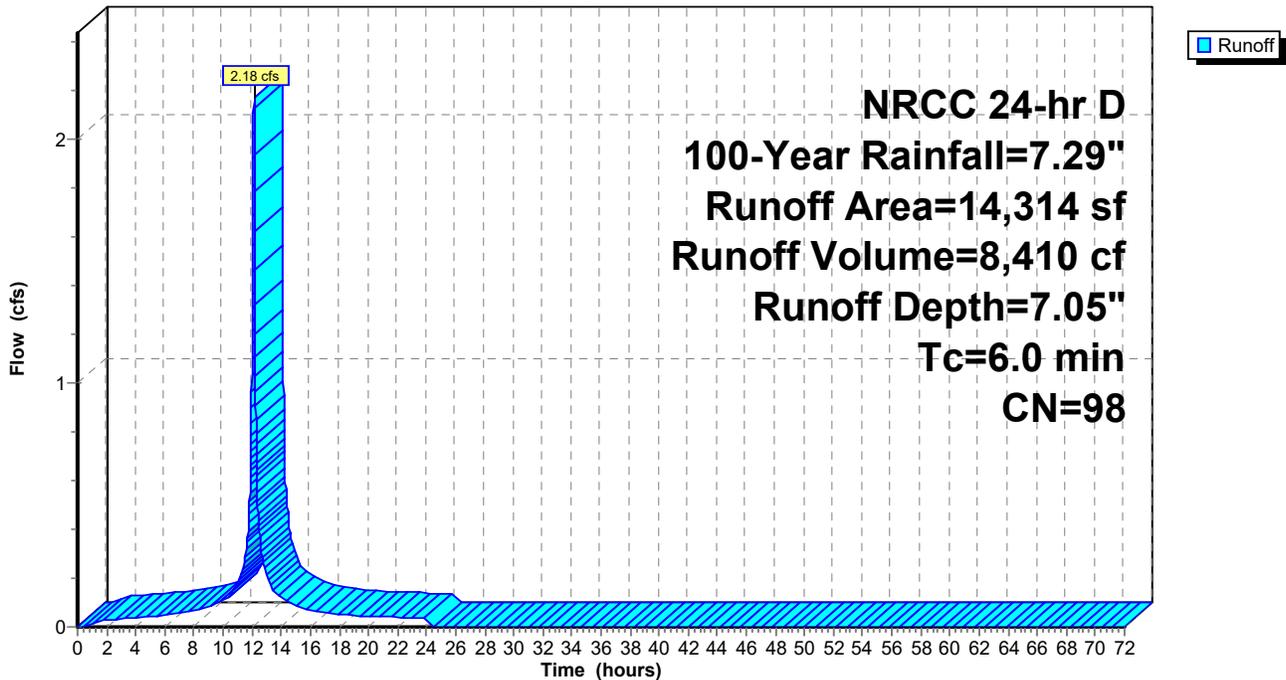
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
5,500	98	Roofs, HSG B
8,814	98	Unconnected pavement, HSG B
14,314	98	Weighted Average
14,314		100.00% Impervious Area
8,814		61.58% Unconnected

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

Subcatchment 5: Sub-catchment 5

Hydrograph



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Summary for Subcatchment 6: Sub-Catchment 6

Runoff = 3.09 cfs @ 12.13 hrs, Volume= 11,947 cf, Depth= 7.05"
 Routed to Pond 1P : EX OWS

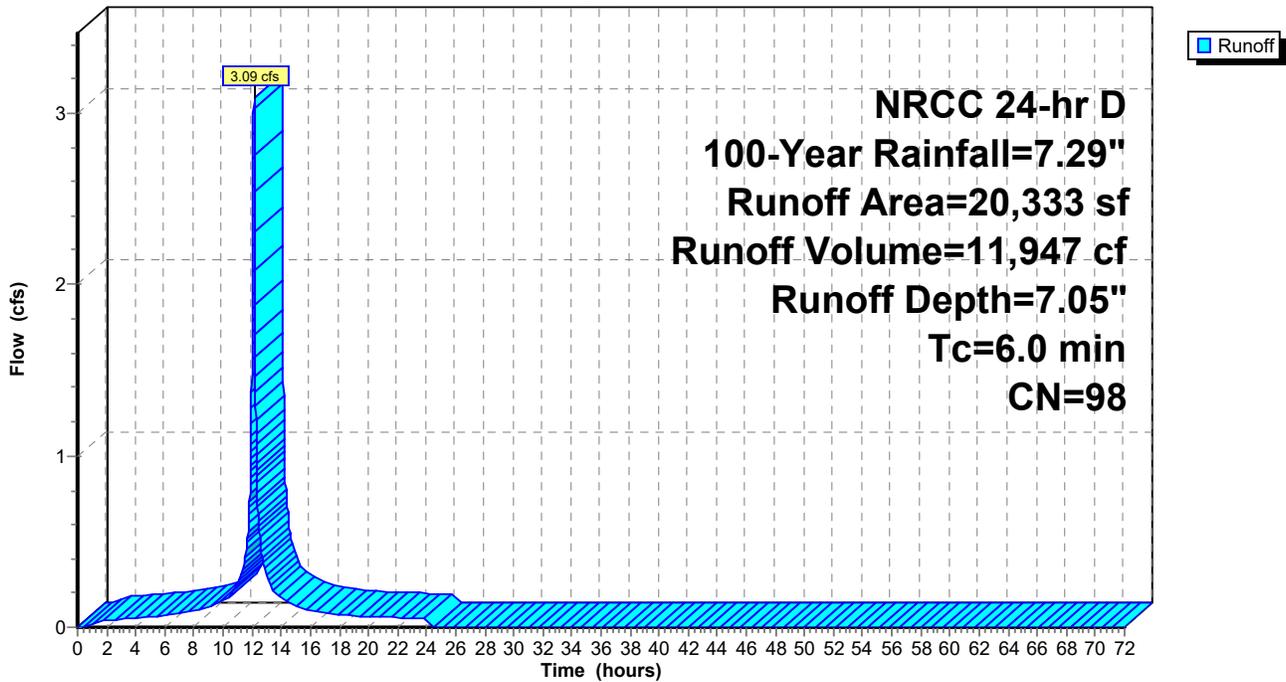
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
20,333	98	Unconnected pavement, HSG B
20,333		100.00% Impervious Area
20,333		100.00% Unconnected

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

Subcatchment 6: Sub-Catchment 6

Hydrograph



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Summary for Subcatchment 7: Sub-catchment 7

Runoff = 3.56 cfs @ 12.13 hrs, Volume= 13,738 cf, Depth= 7.05"
 Routed to Pond 1P : EX OWS

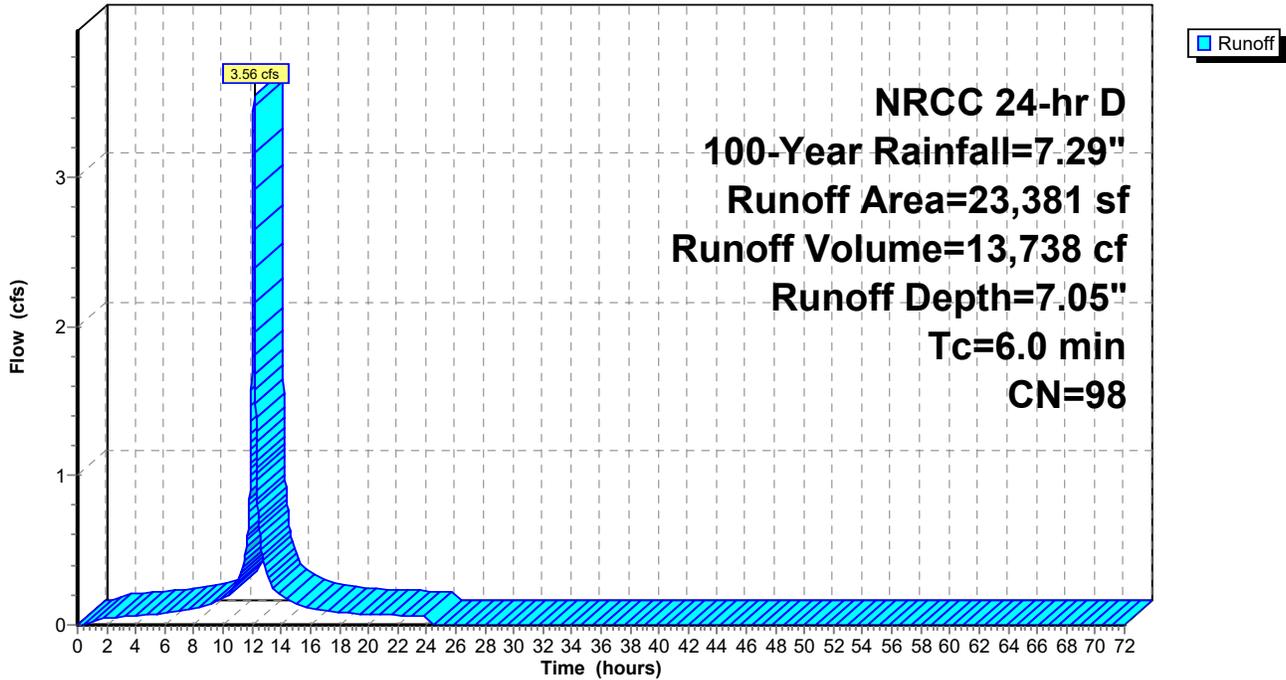
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
3,396	98	Roofs, HSG B
19,985	98	Unconnected pavement, HSG B
23,381	98	Weighted Average
23,381		100.00% Impervious Area
19,985		85.48% Unconnected

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

Subcatchment 7: Sub-catchment 7

Hydrograph



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Summary for Subcatchment 8: Sub-catchment 8

Runoff = 3.88 cfs @ 12.13 hrs, Volume= 15,001 cf, Depth= 7.05"
 Routed to Pond 1P : EX OWS

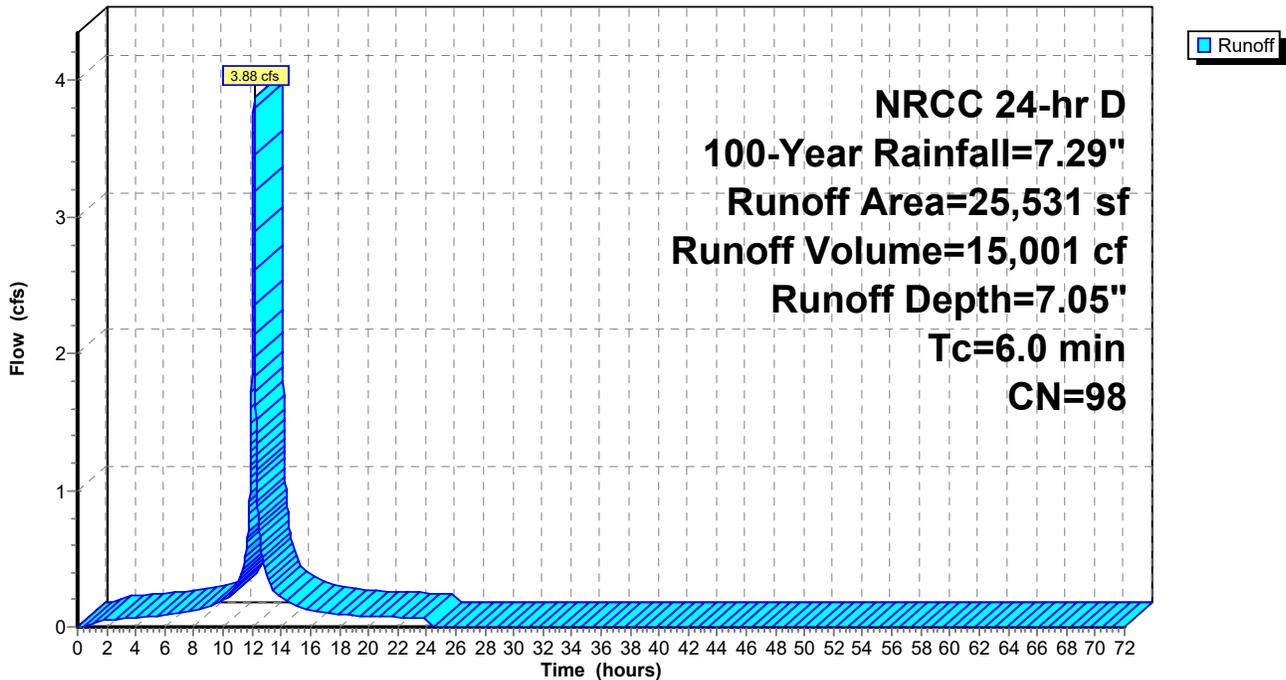
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
2,117	98	Roofs, HSG B
23,414	98	Unconnected pavement, HSG B
25,531	98	Weighted Average
25,531		100.00% Impervious Area
23,414		91.71% Unconnected

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

Subcatchment 8: Sub-catchment 8

Hydrograph



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Summary for Subcatchment 9: Sub-catchment 9

Runoff = 1.74 cfs @ 12.13 hrs, Volume= 6,326 cf, Depth= 6.46"
 Routed to Pond 1P : EX OWS

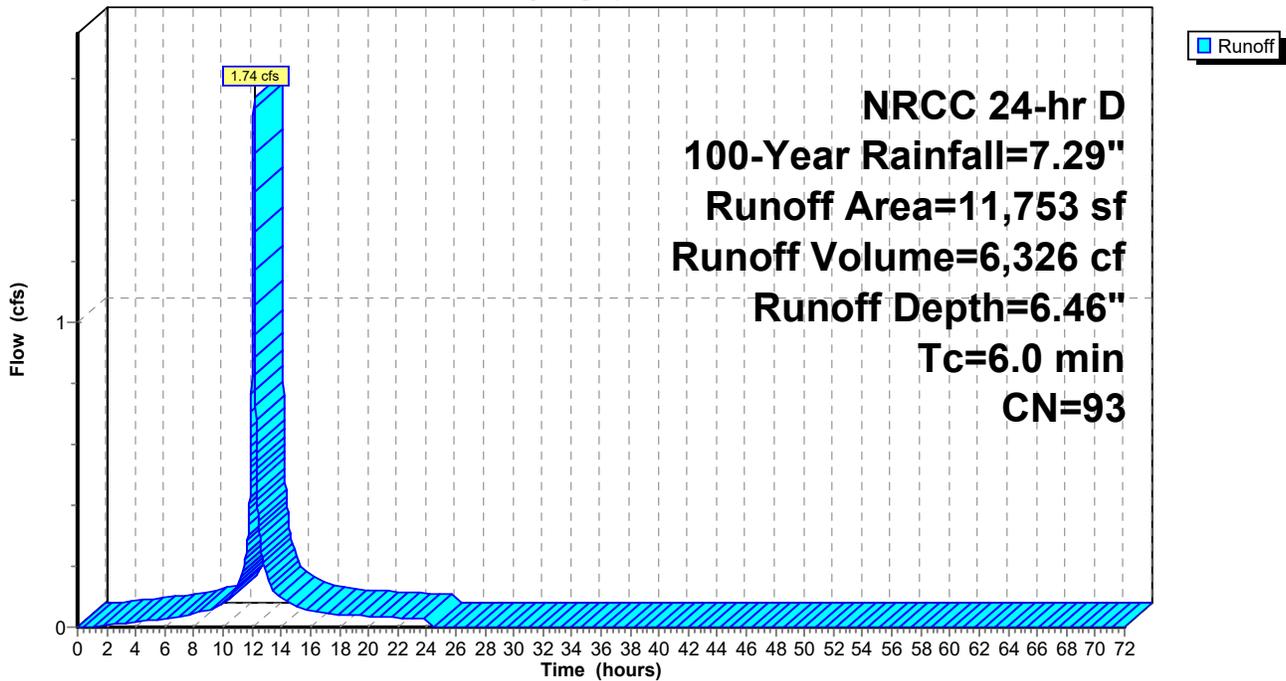
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
3,069	79	<50% Grass cover, Poor, HSG B
8,684	98	Unconnected pavement, HSG B
11,753	93	Weighted Average
3,069		26.11% Pervious Area
8,684		73.89% Impervious Area
8,684		100.00% Unconnected

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

Subcatchment 9: Sub-catchment 9

Hydrograph



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Summary for Subcatchment 10: Sub-catchment 10

Runoff = 4.72 cfs @ 12.13 hrs, Volume= 17,006 cf, Depth= 6.34"
 Routed to Pond 1P : EX OWS

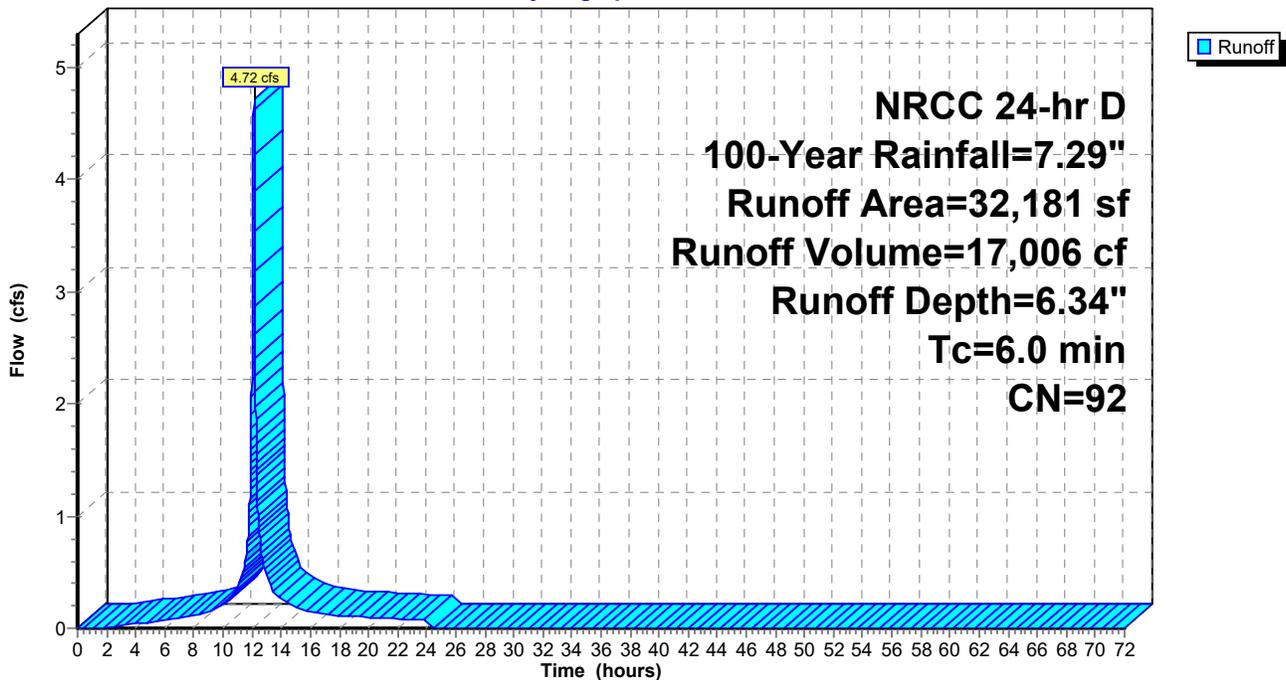
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
10,491	79	<50% Grass cover, Poor, HSG B
6,760	98	Roofs, HSG B
14,930	98	Unconnected pavement, HSG B
32,181	92	Weighted Average
10,491		32.60% Pervious Area
21,690		67.40% Impervious Area
14,930		68.83% Unconnected

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

Subcatchment 10: Sub-catchment 10

Hydrograph



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Summary for Subcatchment 11: Sub-catchment 11

Runoff = 0.28 cfs @ 12.13 hrs, Volume= 1,071 cf, Depth= 7.05"
 Routed to Pond 1P : EX OWS

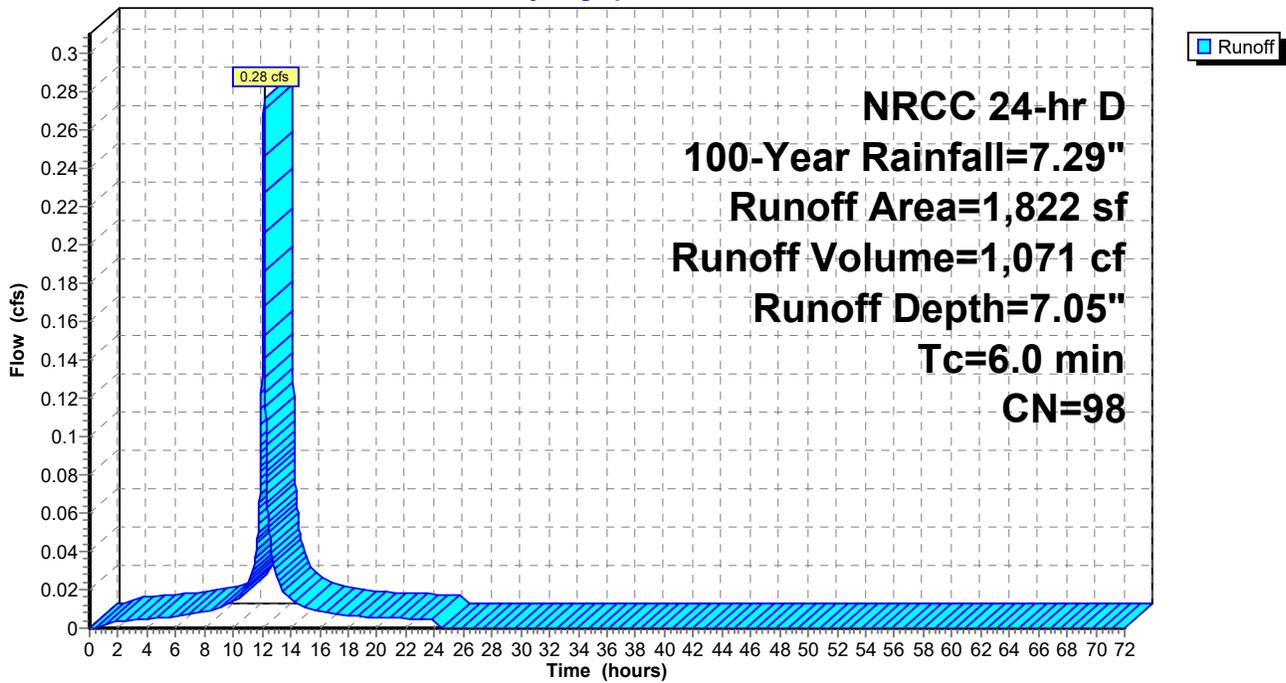
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
1,822	98	Roofs, HSG B
1,822		100.00% Impervious Area

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

Subcatchment 11: Sub-catchment 11

Hydrograph



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Summary for Subcatchment 12: Sub-catchment 12

Runoff = 1.02 cfs @ 12.21 hrs, Volume= 4,463 cf, Depth= 4.85"
 Routed to Link DP-2 : DP-2

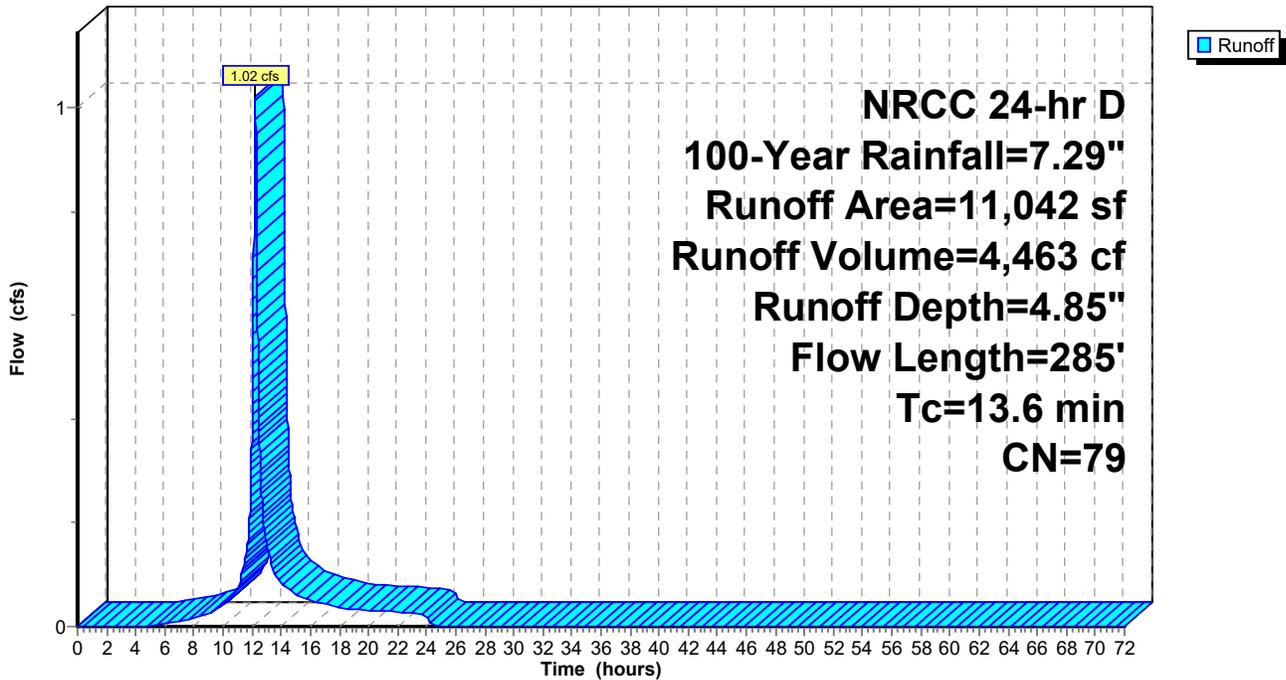
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
74	98	Unconnected pavement, HSG B
10,968	79	<50% Grass cover, Poor, HSG B
11,042	79	Weighted Average
10,968		99.33% Pervious Area
74		0.67% Impervious Area
74		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0120	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
1.6	185	0.0150	1.97		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.6	285	Total			

Subcatchment 12: Sub-catchment 12

Hydrograph



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Summary for Pond 1P: EX OWS

[93] Warning: Storage range exceeded by 17.99'

Inflow Area = 235,097 sf, 94.23% Impervious, Inflow Depth = 6.92" for 100-Year event
 Inflow = 35.53 cfs @ 12.13 hrs, Volume= 135,650 cf
 Outflow = 35.45 cfs @ 12.13 hrs, Volume= 135,653 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.41 cfs @ 12.13 hrs, Volume= 82,970 cf
 Routed to Link DP-1 : DP-1
 Secondary = 31.04 cfs @ 12.13 hrs, Volume= 52,683 cf
 Routed to Link DP-1 : DP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 249.13' @ 12.13 hrs Surf.Area= 2,775 sf Storage= 3,676 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 15.0 min (764.8 - 749.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	227.14'	0 cf	53.75'W x 51.62'L x 4.00'H Field A 11,098 cf Overall - 4,587 cf Embedded = 6,511 cf x 0.0% Voids
#2A	227.14'	3,676 cf	ADS N-12 36" x 20 Inside #1 Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.1 cf Row Length Adjustment= +1.62' x 7.10 sf x 10 rows 50.75' Header x 7.10 sf x 2 = 720.6 cf Inside
		3,676 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	227.14'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Secondary	227.14'	16.0" Round Culvert L= 36.0' Ke= 0.500 Inlet / Outlet Invert= 227.14' / 227.10' S= 0.0011 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.40 sf
#3	Device 2	230.14'	9.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.40 cfs @ 12.13 hrs HW=249.08' TW=0.00' (Dynamic Tailwater)
 ↑1=**Orifice/Grate** (Orifice Controls 4.40 cfs @ 22.43 fps)

Secondary OutFlow Max=31.01 cfs @ 12.13 hrs HW=249.08' TW=0.00' (Dynamic Tailwater)
 ↑2=**Culvert** (Inlet Controls 31.01 cfs @ 22.21 fps)
 ↑3=**Broad-Crested Rectangular Weir**(Passes 31.01 cfs of 2,463.88 cfs potential flow)

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Pond 1P: EX OWS - Chamber Wizard Field A

Chamber Model = ADS N-12 36" (ADS N-12® Pipe)

Inside= 36.1"W x 36.1"H => 7.10 sf x 20.00'L = 142.0 cf

Outside= 42.0"W x 42.0"H => 8.86 sf x 20.00'L = 177.1 cf

Row Length Adjustment= +1.62' x 7.10 sf x 10 rows

42.0" Wide + 21.0" Spacing = 63.0" C-C Row Spacing

2 Chambers/Row x 20.00' Long +1.62' Row Adjustment +3.50' Header x 2 = 48.62' Row Length +18.0"

End Stone x 2 = 51.62' Base Length

10 Rows x 42.0" Wide + 21.0" Spacing x 9 + 18.0" Side Stone x 2 = 53.75' Base Width

42.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

20 Chambers x 142.0 cf +1.62' Row Adjustment x 7.10 sf x 10 Rows + 50.75' Header x 7.10 sf x 2 =
3,675.7 cf Chamber Storage

20 Chambers x 177.1 cf +1.62' Row Adjustment x 8.86 sf x 10 Rows + 50.75' Header x 8.86 sf x 2 =
4,585.4 cf Displacement

11,098.3 cf Field - 4,585.4 cf Chambers = 6,512.9 cf Stone x 0.0% Voids = 0.0 cf Stone Storage

Chamber Storage = 3,675.7 cf = 0.084 af

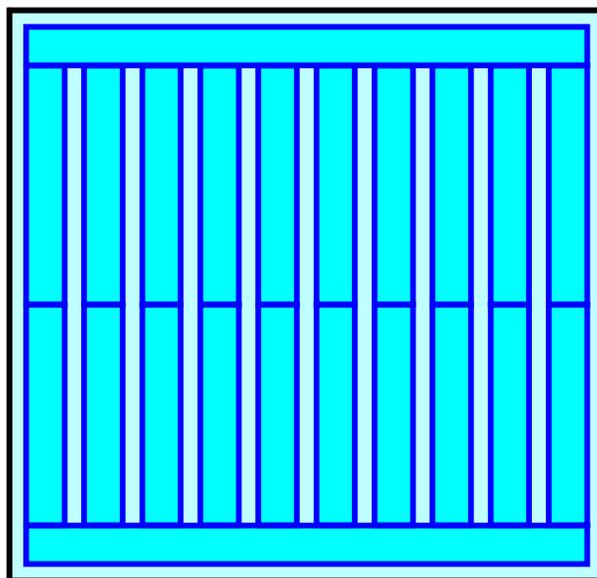
Overall Storage Efficiency = 33.1%

Overall System Size = 51.62' x 53.75' x 4.00'

20 Chambers

411.0 cy Field

241.2 cy Stone



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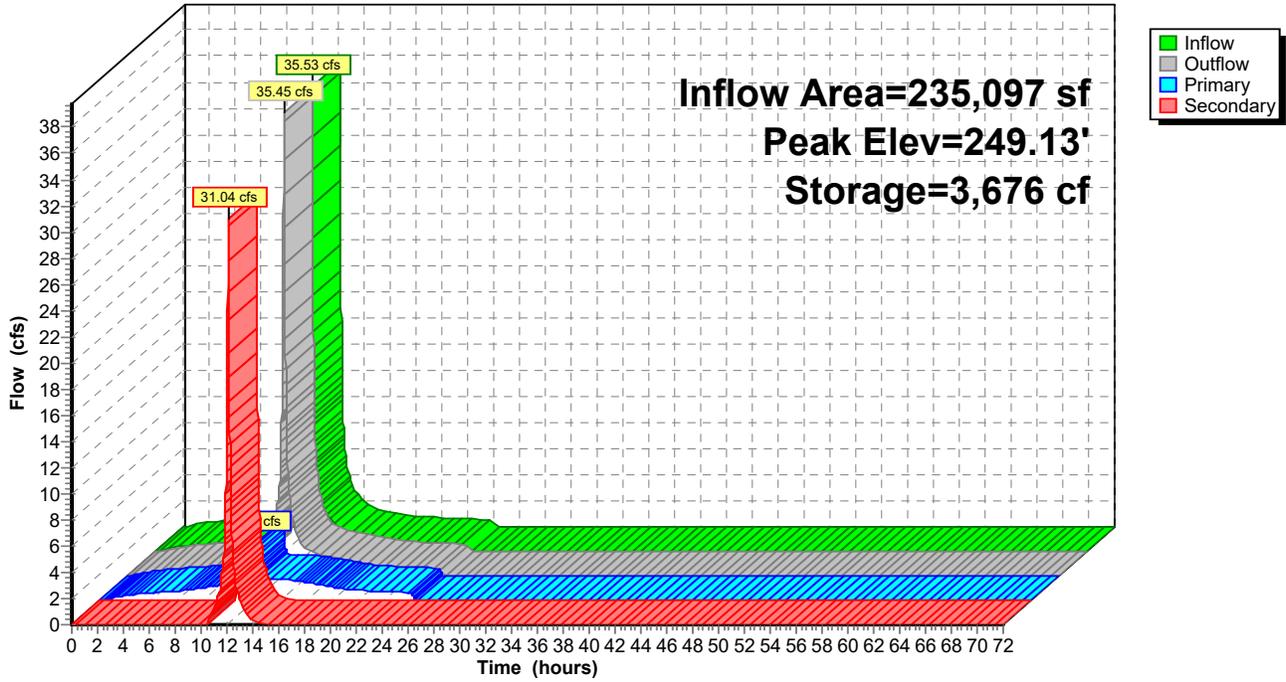
NRCC 24-hr D 100-Year Rainfall=7.29"

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Pond 1P: EX OWS

Hydrograph



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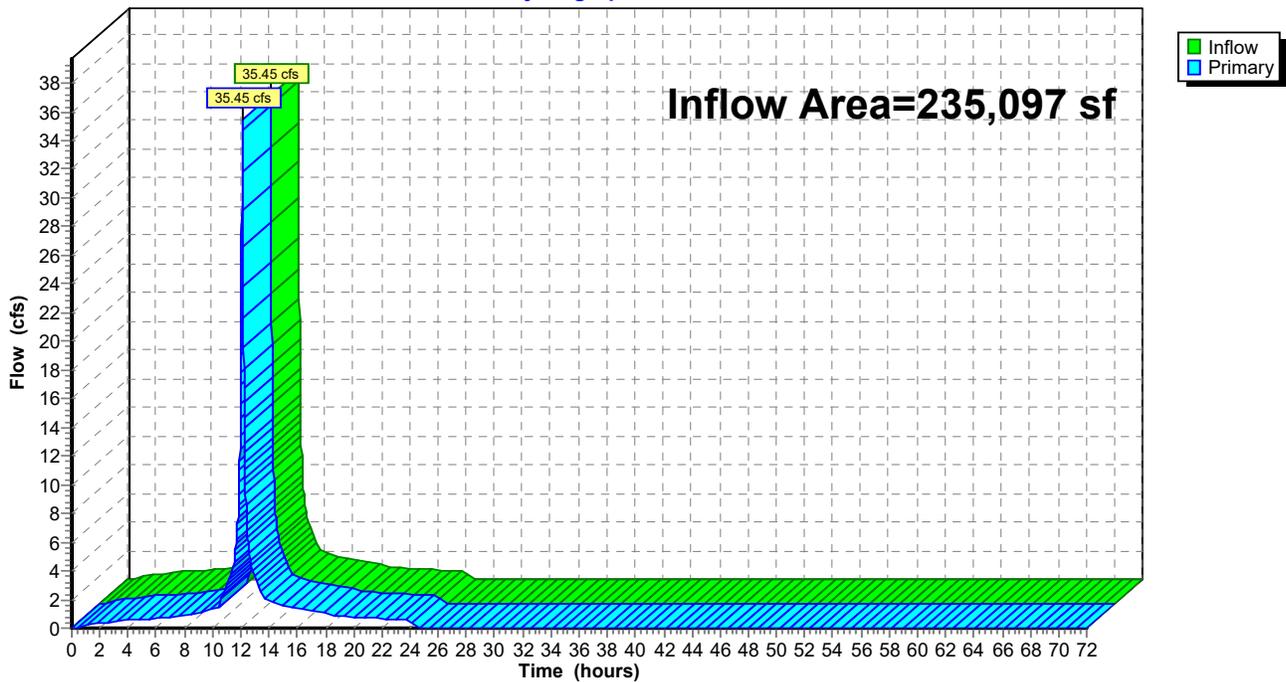
Summary for Link DP-1: DP-1

Inflow Area = 235,097 sf, 94.23% Impervious, Inflow Depth = 6.92" for 100-Year event
Inflow = 35.45 cfs @ 12.13 hrs, Volume= 135,653 cf
Primary = 35.45 cfs @ 12.13 hrs, Volume= 135,653 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-1: DP-1

Hydrograph



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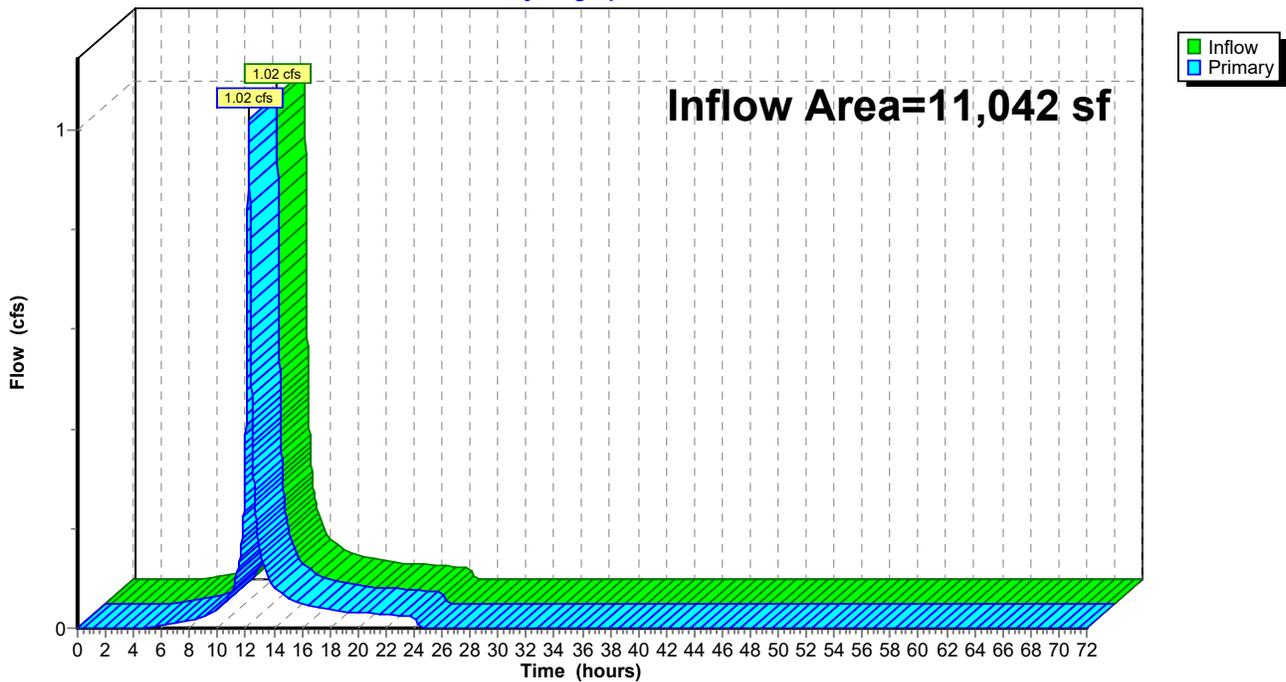
Summary for Link DP-2: DP-2

Inflow Area = 11,042 sf, 0.67% Impervious, Inflow Depth = 4.85" for 100-Year event
Inflow = 1.02 cfs @ 12.21 hrs, Volume= 4,463 cf
Primary = 1.02 cfs @ 12.21 hrs, Volume= 4,463 cf, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

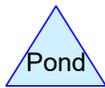
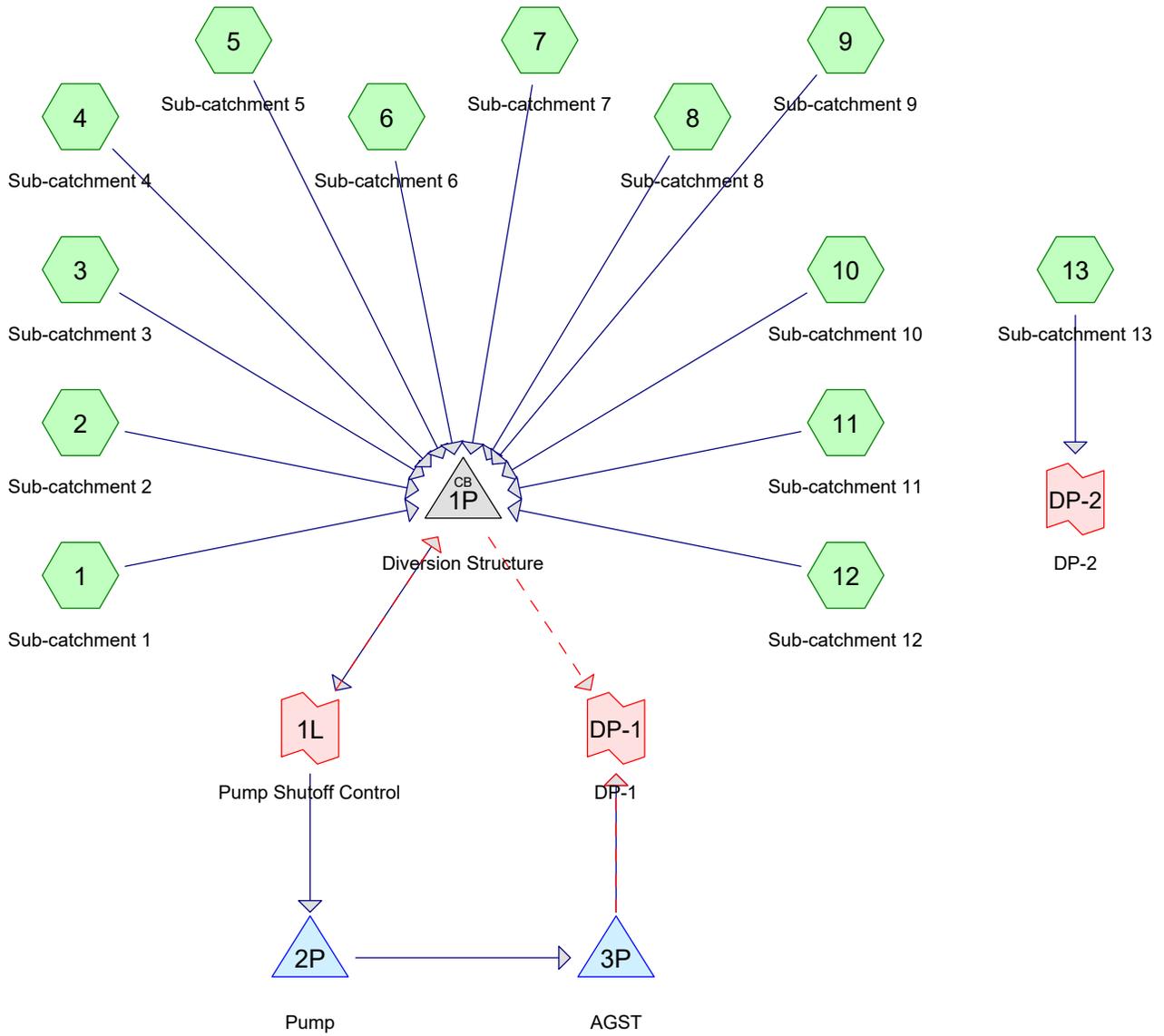
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-2: DP-2

Hydrograph



APPENDIX B: POST-DEVELOPMENT DRAINAGE ANALYSIS



Routing Diagram for Sandquist Proposed Conditions
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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	WQV-1in	NRCC 24-hr	D	Default	24.00	1	1.30	2
2	2-Year	NRCC 24-hr	D	Default	24.00	1	2.82	2
3	10-Year	NRCC 24-hr	D	Default	24.00	1	4.16	2
4	25-Year	NRCC 24-hr	D	Default	24.00	1	5.20	2
5	100-Year	NRCC 24-hr	D	Default	24.00	1	7.29	2

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
17,393	79	<50% Grass cover, Poor, HSG B (4, 10, 12)
4,231	61	>75% Grass cover, Good, HSG B (13)
43,788	98	Roofs, HSG B (1, 2, 3, 4, 5, 7, 8, 10)
180,727	98	Unconnected pavement, HSG B (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12)
246,139	96	TOTAL AREA

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
246,139	HSG B	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
0	HSG C	
0	HSG D	
0	Other	
246,139		TOTAL AREA

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	1	0.00	0.00	257.0	0.0020	0.012	0.0	18.0	0.0	
2	1	0.00	0.00	85.0	0.0020	0.012	0.0	30.0	0.0	
3	1	0.00	0.00	35.0	0.0020	0.012	0.0	30.0	0.0	
4	1	0.00	0.00	97.0	0.0020	0.012	0.0	30.0	0.0	
5	1	0.00	0.00	64.0	0.0020	0.012	0.0	30.0	0.0	
6	1	0.00	0.00	103.0	0.0200	0.012	0.0	30.0	0.0	
7	1	0.00	0.00	52.0	0.0200	0.012	0.0	30.0	0.0	
8	1	0.00	0.00	9.0	0.0200	0.012	0.0	30.0	0.0	
9	2	0.00	0.00	80.0	0.0010	0.012	0.0	10.0	0.0	
10	2	0.00	0.00	76.0	0.0120	0.012	0.0	10.0	0.0	
11	2	0.00	0.00	47.0	0.0020	0.012	0.0	18.0	0.0	
12	2	0.00	0.00	257.0	0.0020	0.012	0.0	18.0	0.0	
13	2	0.00	0.00	85.0	0.0020	0.012	0.0	30.0	0.0	
14	2	0.00	0.00	35.0	0.0020	0.012	0.0	30.0	0.0	
15	2	0.00	0.00	97.0	0.0020	0.012	0.0	30.0	0.0	
16	2	0.00	0.00	64.0	0.0020	0.012	0.0	30.0	0.0	
17	2	0.00	0.00	103.0	0.0200	0.012	0.0	30.0	0.0	
18	2	0.00	0.00	52.0	0.0200	0.012	0.0	30.0	0.0	
19	2	0.00	0.00	9.0	0.0200	0.012	0.0	30.0	0.0	
20	3	0.00	0.00	10.0	0.0012	0.012	0.0	10.0	0.0	
21	3	0.00	0.00	76.0	0.0120	0.012	0.0	10.0	0.0	
22	3	0.00	0.00	47.0	0.0020	0.012	0.0	18.0	0.0	
23	3	0.00	0.00	257.0	0.0020	0.012	0.0	18.0	0.0	
24	3	0.00	0.00	85.0	0.0020	0.012	0.0	30.0	0.0	
25	3	0.00	0.00	35.0	0.0020	0.012	0.0	30.0	0.0	
26	3	0.00	0.00	97.0	0.0020	0.012	0.0	30.0	0.0	
27	3	0.00	0.00	64.0	0.0020	0.012	0.0	30.0	0.0	
28	3	0.00	0.00	103.0	0.0200	0.012	0.0	30.0	0.0	
29	3	0.00	0.00	52.0	0.0200	0.012	0.0	30.0	0.0	
30	3	0.00	0.00	9.0	0.0200	0.012	0.0	30.0	0.0	
31	4	0.00	0.00	10.0	0.0020	0.012	0.0	18.0	0.0	
32	4	0.00	0.00	85.0	0.0020	0.012	0.0	30.0	0.0	
33	4	0.00	0.00	35.0	0.0020	0.012	0.0	30.0	0.0	
34	4	0.00	0.00	97.0	0.0020	0.012	0.0	30.0	0.0	
35	4	0.00	0.00	64.0	0.0020	0.012	0.0	30.0	0.0	
36	4	0.00	0.00	103.0	0.0200	0.012	0.0	30.0	0.0	
37	4	0.00	0.00	52.0	0.0200	0.012	0.0	30.0	0.0	
38	4	0.00	0.00	9.0	0.0200	0.012	0.0	30.0	0.0	
39	5	0.00	0.00	85.0	0.0020	0.012	0.0	12.0	0.0	
40	5	0.00	0.00	35.0	0.0020	0.012	0.0	30.0	0.0	
41	5	0.00	0.00	97.0	0.0020	0.012	0.0	30.0	0.0	

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Pipe Listing (all nodes) (continued)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
42	5	0.00	0.00	64.0	0.0020	0.012	0.0	30.0	0.0	
43	5	0.00	0.00	103.0	0.0200	0.012	0.0	30.0	0.0	
44	5	0.00	0.00	52.0	0.0200	0.012	0.0	30.0	0.0	
45	5	0.00	0.00	9.0	0.0200	0.012	0.0	30.0	0.0	
46	6	0.00	0.00	10.0	0.0050	0.012	0.0	10.0	0.0	
47	6	0.00	0.00	97.0	0.0020	0.012	0.0	30.0	0.0	
48	6	0.00	0.00	64.0	0.0020	0.012	0.0	30.0	0.0	
49	6	0.00	0.00	103.0	0.0200	0.012	0.0	30.0	0.0	
50	6	0.00	0.00	52.0	0.0200	0.012	0.0	30.0	0.0	
51	6	0.00	0.00	9.0	0.0200	0.012	0.0	30.0	0.0	
52	7	0.00	0.00	10.0	0.0050	0.012	0.0	18.0	0.0	
53	7	0.00	0.00	64.0	0.0020	0.012	0.0	30.0	0.0	
54	7	0.00	0.00	103.0	0.0200	0.012	0.0	30.0	0.0	
55	7	0.00	0.00	52.0	0.0200	0.012	0.0	30.0	0.0	
56	7	0.00	0.00	9.0	0.0200	0.012	0.0	30.0	0.0	
57	8	0.00	0.00	10.0	0.0050	0.012	0.0	18.0	0.0	
58	8	0.00	0.00	103.0	0.0200	0.012	0.0	30.0	0.0	
59	8	0.00	0.00	52.0	0.0200	0.012	0.0	30.0	0.0	
60	8	0.00	0.00	9.0	0.0200	0.012	0.0	30.0	0.0	
61	9	0.00	0.00	45.0	0.0050	0.012	0.0	12.0	0.0	
62	9	0.00	0.00	9.0	0.0200	0.012	0.0	30.0	0.0	
63	10	0.00	0.00	114.0	0.0050	0.012	0.0	12.0	0.0	
64	10	0.00	0.00	52.0	0.0200	0.012	0.0	30.0	0.0	
65	10	0.00	0.00	9.0	0.0200	0.012	0.0	30.0	0.0	
66	11	0.00	0.00	59.0	0.0020	0.012	0.0	12.0	0.0	
67	11	0.00	0.00	39.0	0.0050	0.012	0.0	15.0	0.0	
68	11	0.00	0.00	47.0	0.0020	0.012	0.0	18.0	0.0	
69	11	0.00	0.00	257.0	0.0020	0.012	0.0	18.0	0.0	
70	11	0.00	0.00	85.0	0.0020	0.012	0.0	30.0	0.0	
71	11	0.00	0.00	35.0	0.0020	0.012	0.0	30.0	0.0	
72	11	0.00	0.00	97.0	0.0020	0.012	0.0	30.0	0.0	
73	11	0.00	0.00	64.0	0.0020	0.012	0.0	30.0	0.0	
74	11	0.00	0.00	103.0	0.0200	0.012	0.0	30.0	0.0	
75	11	0.00	0.00	52.0	0.0200	0.012	0.0	30.0	0.0	
76	11	0.00	0.00	9.0	0.0200	0.012	0.0	30.0	0.0	
77	12	0.00	0.00	26.0	0.0050	0.012	0.0	12.0	0.0	
78	1P	226.32	226.28	5.0	0.0080	0.012	0.0	24.0	0.0	
79	1P	226.38	226.20	27.0	0.0067	0.012	0.0	30.0	0.0	

Sandquist Proposed Conditions

NRCC 24-hr D WQV-1in Rainfall=1.30"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment1: Sub-catchment1	Runoff Area=33,590 sf 100.00% Impervious Runoff Depth=1.08" Flow Length=851' Tc=6.0 min CN=98 Runoff=0.86 cfs 3,033 cf
Subcatchment2: Sub-catchment2	Runoff Area=7,467 sf 100.00% Impervious Runoff Depth=1.08" Flow Length=946' Tc=6.0 min CN=98 Runoff=0.19 cfs 674 cf
Subcatchment3: Sub-catchment3	Runoff Area=7,120 sf 100.00% Impervious Runoff Depth=1.08" Flow Length=897' Tc=6.0 min CN=98 Runoff=0.18 cfs 643 cf
Subcatchment4: Sub-catchment4	Runoff Area=57,605 sf 97.94% Impervious Runoff Depth=1.08" Flow Length=632' Tc=6.0 min CN=98 Runoff=1.47 cfs 5,202 cf
Subcatchment5: Sub-catchment5	Runoff Area=14,314 sf 100.00% Impervious Runoff Depth=1.08" Flow Length=500' Tc=6.0 min CN=98 Runoff=0.37 cfs 1,293 cf
Subcatchment6: Sub-catchment6	Runoff Area=20,333 sf 100.00% Impervious Runoff Depth=1.08" Flow Length=490' Tc=6.0 min CN=98 Runoff=0.52 cfs 1,836 cf
Subcatchment7: Sub-catchment7	Runoff Area=23,381 sf 100.00% Impervious Runoff Depth=1.08" Flow Length=393' Tc=6.0 min CN=98 Runoff=0.60 cfs 2,111 cf
Subcatchment8: Sub-catchment8	Runoff Area=25,531 sf 100.00% Impervious Runoff Depth=1.08" Flow Length=359' Tc=6.0 min CN=98 Runoff=0.65 cfs 2,305 cf
Subcatchment9: Sub-catchment9	Runoff Area=7,621 sf 100.00% Impervious Runoff Depth=1.08" Flow Length=216' Tc=6.0 min CN=98 Runoff=0.19 cfs 688 cf
Subcatchment10: Sub-catchment10	Runoff Area=29,279 sf 73.39% Impervious Runoff Depth=0.69" Flow Length=350' Tc=6.0 min CN=93 Runoff=0.52 cfs 1,695 cf
Subcatchment11: Sub-catchment11	Runoff Area=1,822 sf 100.00% Impervious Runoff Depth=1.08" Flow Length=900' Tc=6.0 min CN=98 Runoff=0.05 cfs 165 cf
Subcatchment12: Sub-catchment12	Runoff Area=13,845 sf 39.23% Impervious Runoff Depth=0.36" Flow Length=170' Tc=6.0 min CN=86 Runoff=0.12 cfs 421 cf
Subcatchment13: Sub-catchment13	Runoff Area=4,231 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=227' Slope=0.0100 1' Tc=24.9 min CN=61 Runoff=0.00 cfs 0 cf
Pond 1P: Diversion Structure	Peak Elev=227.60' Inflow=5.73 cfs 20,065 cf Primary=5.73 cfs 20,065 cf Secondary=0.00 cfs 0 cf Outflow=5.73 cfs 20,065 cf
Pond 2P: Pump	Peak Elev=225.27' Storage=1,387 cf Inflow=5.73 cfs 20,065 cf Outflow=5.57 cfs 19,850 cf
Pond 3P: AGST	Peak Elev=245.79' Storage=9,797 cf Inflow=5.57 cfs 19,850 cf Primary=0.22 cfs 19,853 cf Secondary=0.00 cfs 0 cf Outflow=0.22 cfs 19,853 cf

Sandquist Proposed Conditions

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Link 1L: Pump Shutoff Control

first 40,000 cf Inflow=5.73 cfs 20,065 cf
Primary=5.73 cfs 20,065 cf Secondary=0.00 cfs 0 cf

Link DP-1: DP-1

Inflow=0.22 cfs 19,853 cf
Primary=0.22 cfs 19,853 cf

Link DP-2: DP-2

Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf

Total Runoff Area = 246,139 sf Runoff Volume = 20,065 cf Average Runoff Depth = 0.98"
8.79% Pervious = 21,624 sf 91.21% Impervious = 224,515 sf

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Summary for Subcatchment 1: Sub-catchment 1

Runoff = 0.86 cfs @ 12.13 hrs, Volume= 3,033 cf, Depth= 1.08"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV-1in Rainfall=1.30"

Area (sf)	CN	Description
15,206	98	Roofs, HSG B
18,384	98	Unconnected pavement, HSG B
33,590	98	Weighted Average
33,590		100.00% Impervious Area
18,384		54.73% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0160	1.26		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.7	49	0.0030	1.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.8	851	Total, Increased to minimum Tc = 6.0 min			

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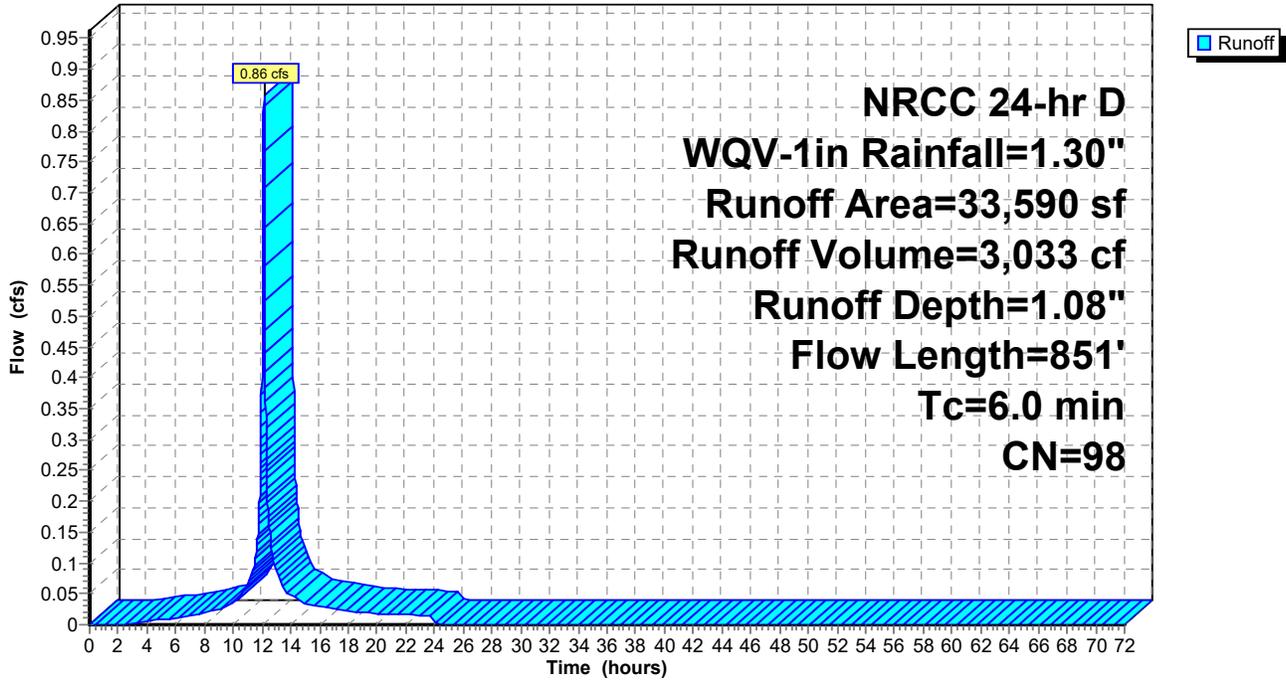
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Subcatchment 1: Sub-catchment 1

Hydrograph



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NRCC 24-hr D WQV-1in Rainfall=1.30"

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Summary for Subcatchment 2: Sub-catchment 2

Runoff = 0.19 cfs @ 12.13 hrs, Volume= 674 cf, Depth= 1.08"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV-1in Rainfall=1.30"

Area (sf)	CN	Description
2,936	98	Roofs, HSG B
4,531	98	Unconnected pavement, HSG B
7,467	98	Weighted Average
7,467		100.00% Impervious Area
4,531		60.68% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	41	0.0140	1.00		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
1.0	80	0.0010	1.38	0.75	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	76	0.0120	4.77	2.60	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63'

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NRCC 24-hr D WQV-1in Rainfall=1.30"

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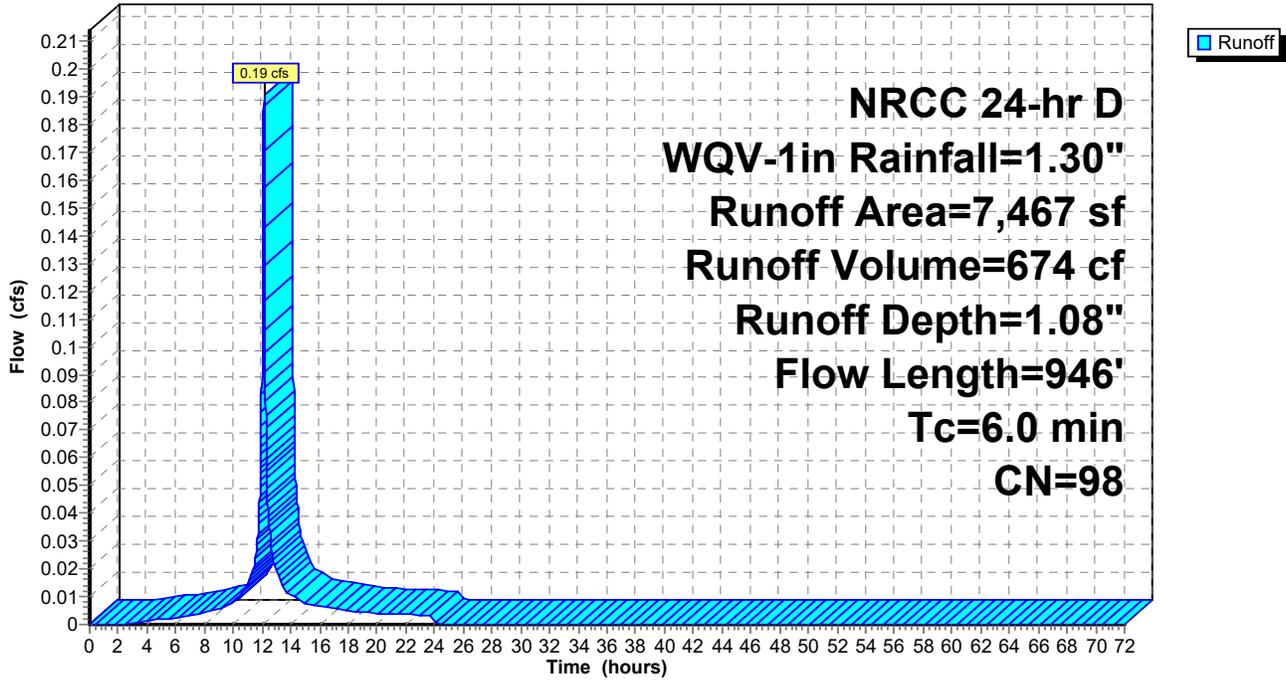
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n= 0.012 Concrete pipe, finished

5.1 946 Total, Increased to minimum Tc = 6.0 min

Subcatchment 2: Sub-catchment 2

Hydrograph



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NRCC 24-hr D WQV-1in Rainfall=1.30"

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Summary for Subcatchment 3: Sub-catchment 3

Runoff = 0.18 cfs @ 12.13 hrs, Volume= 643 cf, Depth= 1.08"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV-1in Rainfall=1.30"

Area (sf)	CN	Description
2,543	98	Roofs, HSG B
4,577	98	Unconnected pavement, HSG B
7,120	98	Weighted Average
7,120		100.00% Impervious Area
4,577		64.28% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	62	0.0030	0.59		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.1	10	0.0012	1.51	0.82	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	76	0.0120	4.77	2.60	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63'

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NRCC 24-hr D WQV-1in Rainfall=1.30"

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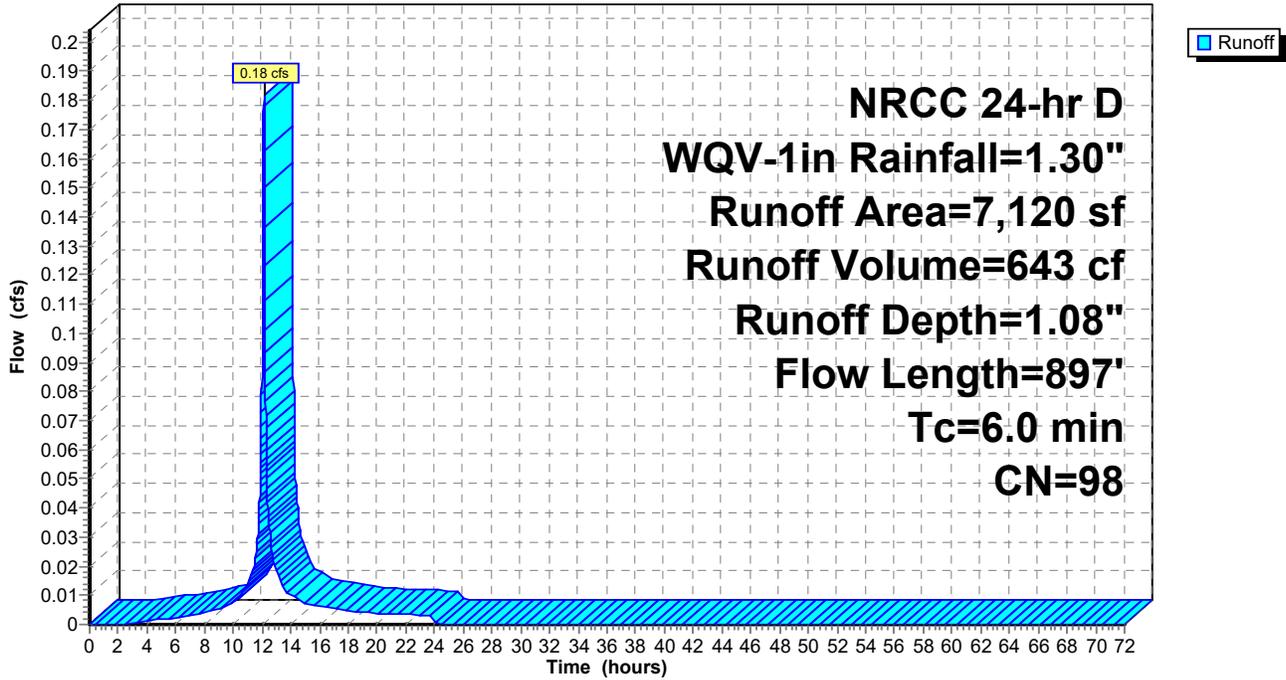
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n= 0.012 Concrete pipe, finished

5.3 897 Total, Increased to minimum Tc = 6.0 min

Subcatchment 3: Sub-catchment 3

Hydrograph



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NRCC 24-hr D WQV-1in Rainfall=1.30"

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Summary for Subcatchment 4: Sub-catchment 4

Runoff = 1.47 cfs @ 12.13 hrs, Volume= 5,202 cf, Depth= 1.08"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV-1in Rainfall=1.30"

Area (sf)	CN	Description
5,329	98	Roofs, HSG B
51,087	98	Unconnected pavement, HSG B
1,189	79	<50% Grass cover, Poor, HSG B
57,605	98	Weighted Average
1,189		2.06% Pervious Area
56,416		97.94% Impervious Area
51,087		90.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0120	1.12		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.4	77	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	10	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
3.3	632	Total, Increased to minimum Tc = 6.0 min			

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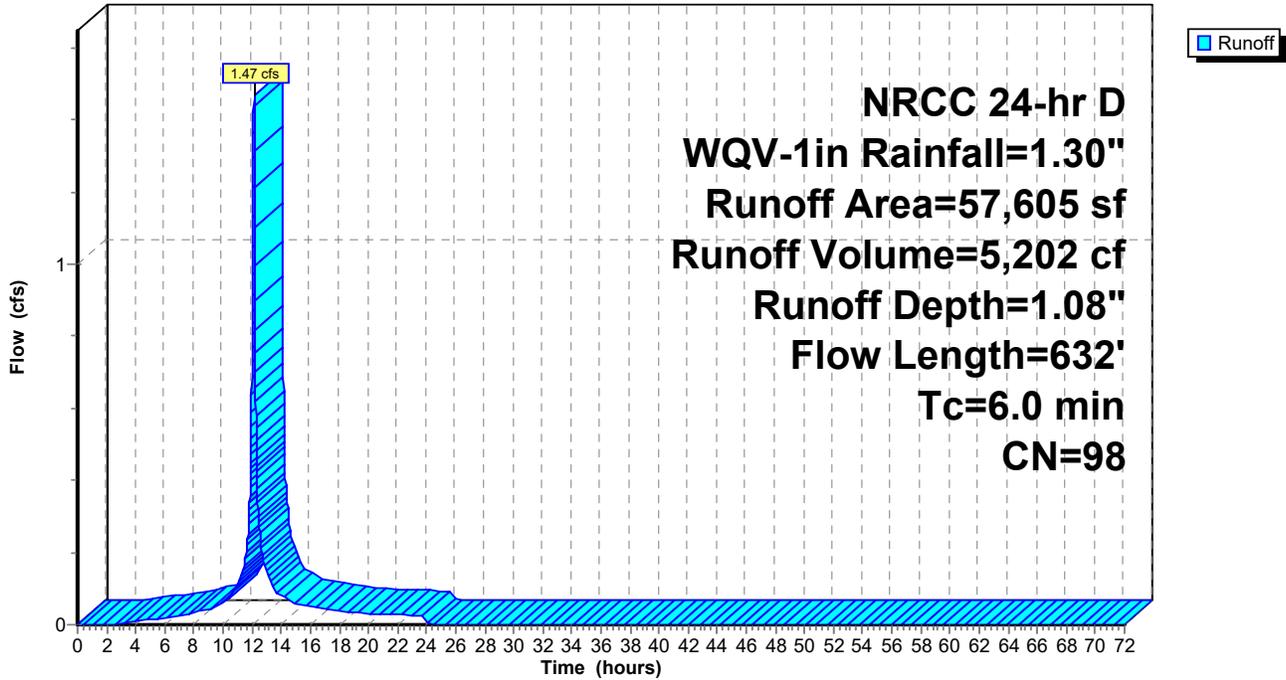
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Subcatchment 4: Sub-catchment 4

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Summary for Subcatchment 5: Sub-catchment 5

Runoff = 0.37 cfs @ 12.13 hrs, Volume= 1,293 cf, Depth= 1.08"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV-1in Rainfall=1.30"

Area (sf)	CN	Description
5,500	98	Roofs, HSG B
8,814	98	Unconnected pavement, HSG B
14,314	98	Weighted Average
14,314		100.00% Impervious Area
8,814		61.58% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	55	0.0550	1.83		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	85	0.0020	2.20	1.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.1	500	Total, Increased to minimum Tc = 6.0 min			

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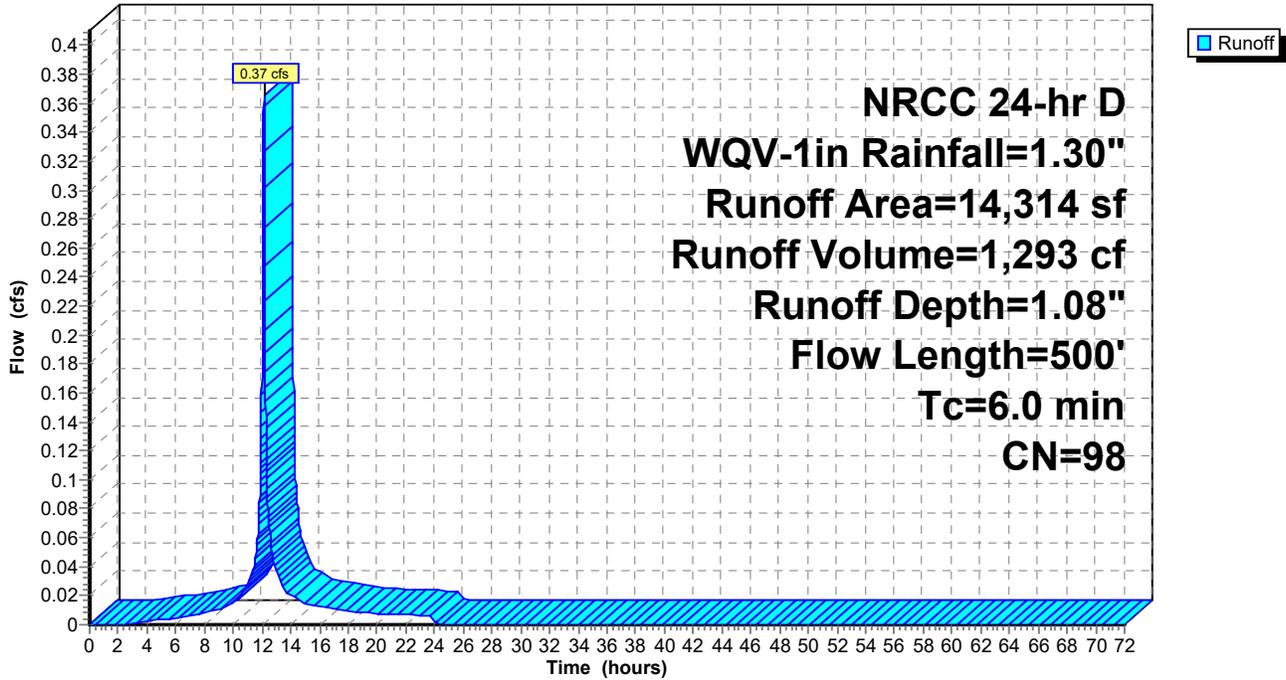
NRCC 24-hr D WQV-1in Rainfall=1.30"

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Subcatchment 5: Sub-catchment 5

Hydrograph



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NRCC 24-hr D WQV-1in Rainfall=1.30"

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Summary for Subcatchment 6: Sub-catchment 6

Runoff = 0.52 cfs @ 12.13 hrs, Volume= 1,836 cf, Depth= 1.08"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV-1in Rainfall=1.30"

Area (sf)	CN	Description
20,333	98	Unconnected pavement, HSG B
20,333		100.00% Impervious Area
20,333		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.5	55	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	10	0.0050	3.08	1.68	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
3.1	490	Total, Increased to minimum Tc = 6.0 min			

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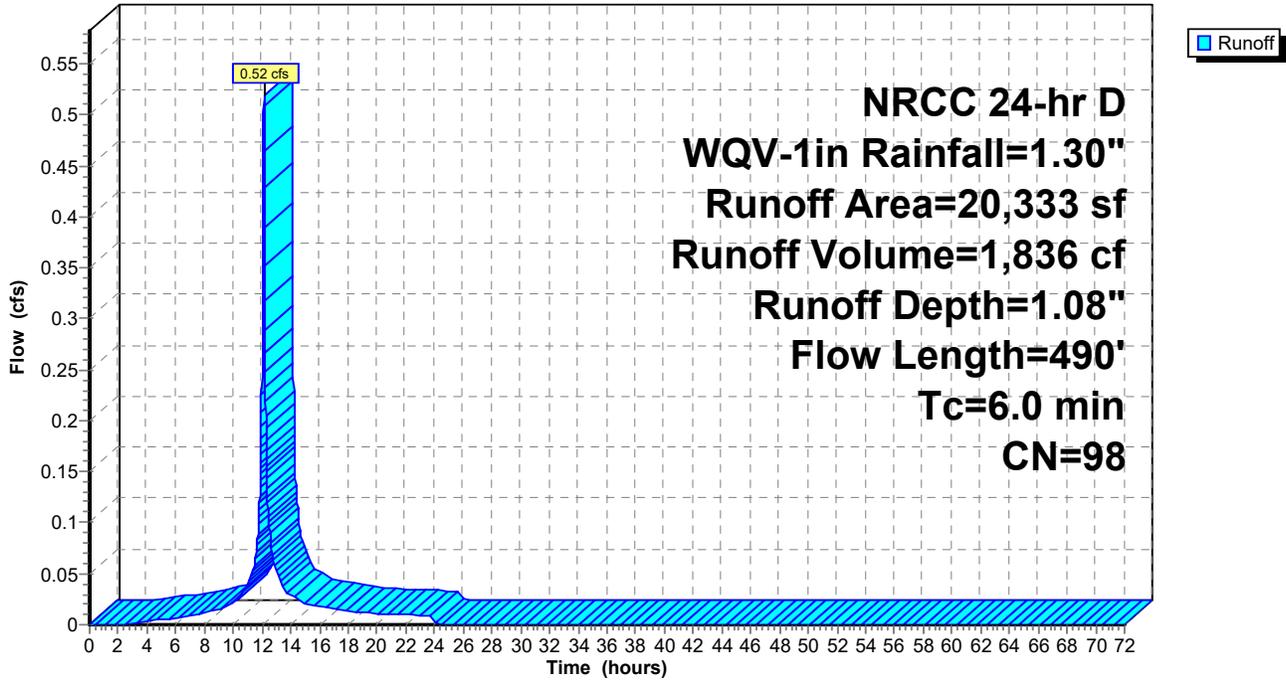
NRCC 24-hr D WQV-1in Rainfall=1.30"

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Subcatchment 6: Sub-catchment 6

Hydrograph



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NRCC 24-hr D WQV-1in Rainfall=1.30"

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Summary for Subcatchment 7: Sub-catchment 7

Runoff = 0.60 cfs @ 12.13 hrs, Volume= 2,111 cf, Depth= 1.08"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV-1in Rainfall=1.30"

Area (sf)	CN	Description
19,985	98	Unconnected pavement, HSG B
3,396	98	Roofs, HSG B
23,381	98	Weighted Average
23,381		100.00% Impervious Area
19,985		85.48% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.5	55	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	10	0.0050	4.55	8.05	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	393	Total, Increased to minimum Tc = 6.0 min			

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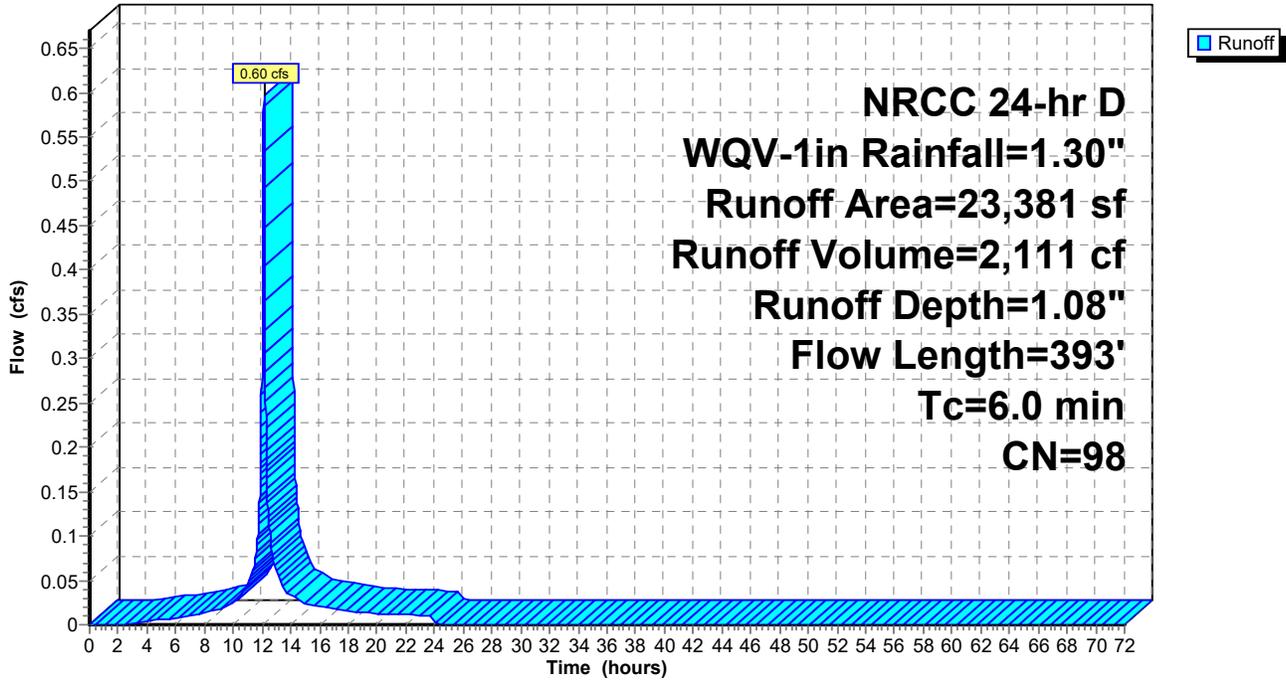
NRCC 24-hr D WQV-1in Rainfall=1.30"

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Subcatchment 7: Sub-catchment 7

Hydrograph



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NRCC 24-hr D WQV-1in Rainfall=1.30"

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Summary for Subcatchment 8: Sub-catchment 8

Runoff = 0.65 cfs @ 12.13 hrs, Volume= 2,305 cf, Depth= 1.08"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV-1in Rainfall=1.30"

Area (sf)	CN	Description
23,413	98	Unconnected pavement, HSG B
2,118	98	Roofs, HSG B
25,531	98	Weighted Average
25,531		100.00% Impervious Area
23,413		91.70% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0070	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	85	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	10	0.0050	4.55	8.05	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	359	Total, Increased to minimum Tc = 6.0 min			

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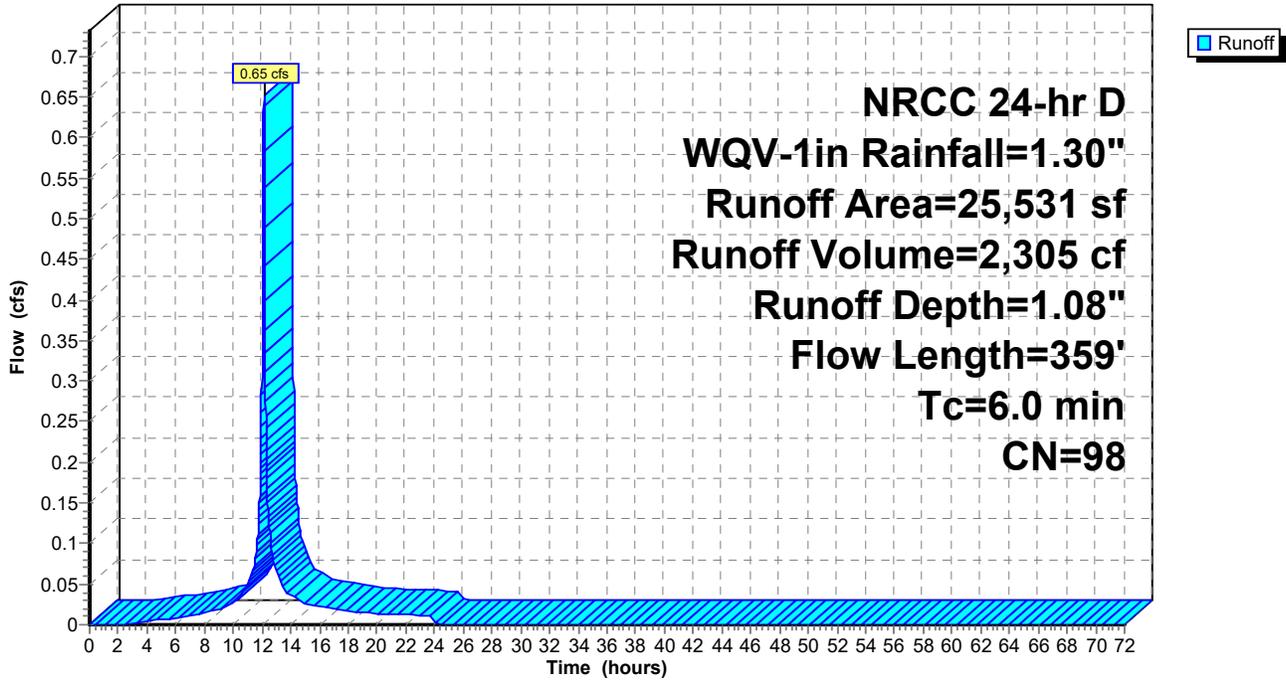
NRCC 24-hr D WQV-1in Rainfall=1.30"

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Subcatchment 8: Sub-catchment 8

Hydrograph



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Summary for Subcatchment 9: Sub-catchment 9

Runoff = 0.19 cfs @ 12.13 hrs, Volume= 688 cf, Depth= 1.08"
 Routed to Pond 1P : Diversion Structure

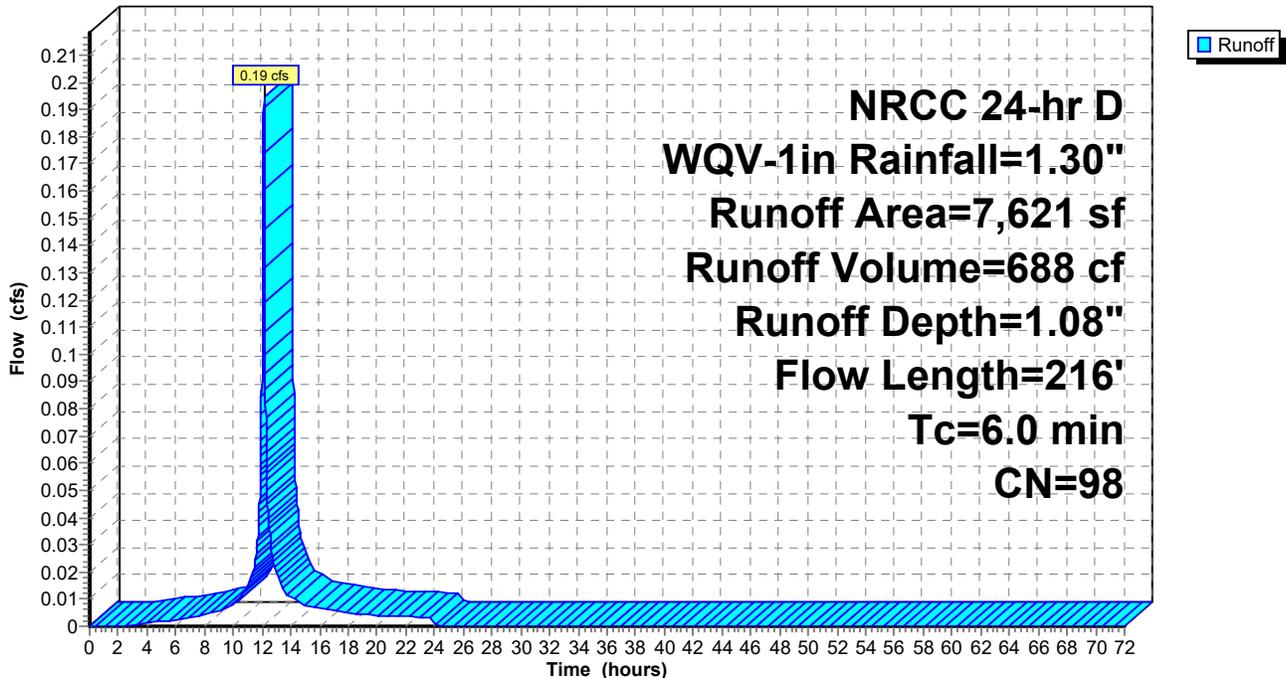
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV-1in Rainfall=1.30"

Area (sf)	CN	Description
7,621	98	Unconnected pavement, HSG B
7,621		100.00% Impervious Area
7,621		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0090	1.00		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.7	62	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	45	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	216	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9: Sub-catchment 9

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NRCC 24-hr D WQV-1in Rainfall=1.30"

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Summary for Subcatchment 10: Sub-catchment 10

Runoff = 0.52 cfs @ 12.13 hrs, Volume= 1,695 cf, Depth= 0.69"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV-1in Rainfall=1.30"

Area (sf)	CN	Description
14,729	98	Unconnected pavement, HSG B
6,760	98	Roofs, HSG B
7,790	79	<50% Grass cover, Poor, HSG B
29,279	93	Weighted Average
7,790		26.61% Pervious Area
21,489		73.39% Impervious Area
14,729		68.54% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	75	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.5	114	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.8	350	Total, Increased to minimum Tc = 6.0 min			

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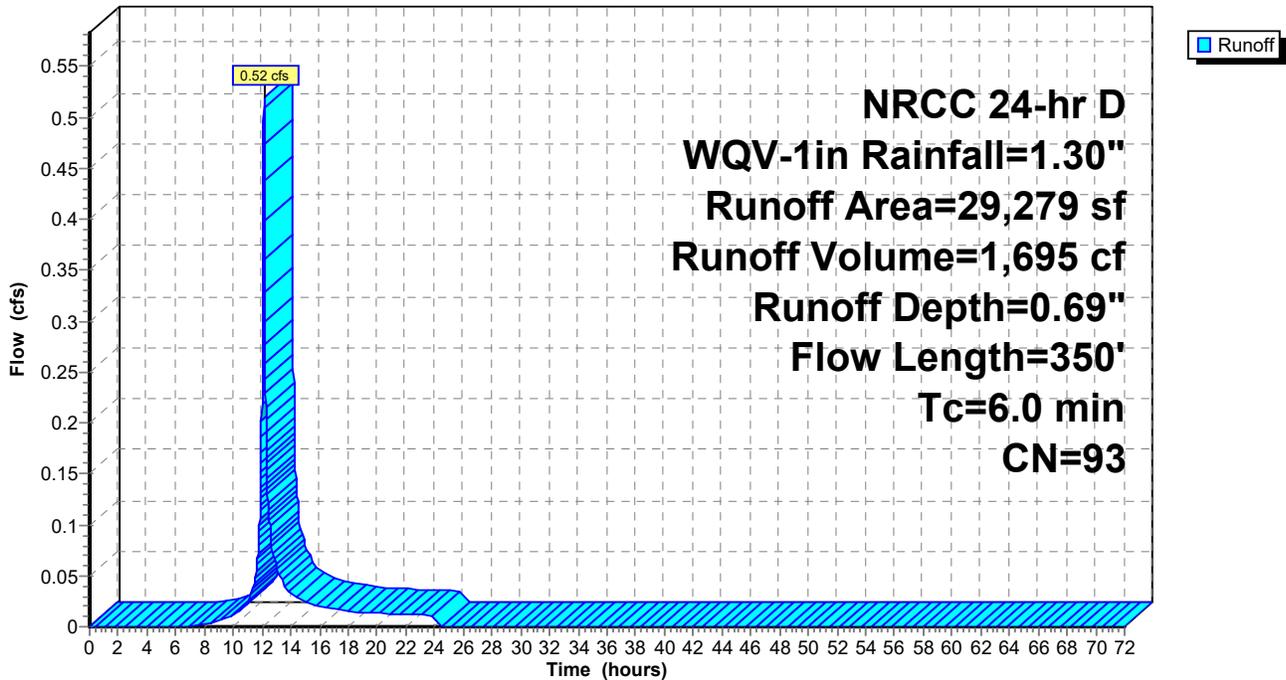
NRCC 24-hr D WQV-1in Rainfall=1.30"

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Subcatchment 10: Sub-catchment 10

Hydrograph



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NRCC 24-hr D WQV-1in Rainfall=1.30"

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Summary for Subcatchment 11: Sub-catchment 11

Runoff = 0.05 cfs @ 12.13 hrs, Volume= 165 cf, Depth= 1.08"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV-1in Rainfall=1.30"

Area (sf)	CN	Description
1,822	98	Unconnected pavement, HSG B
1,822		100.00% Impervious Area
1,822		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0690	1.99		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.4	59	0.0020	2.20	1.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	39	0.0050	4.03	4.95	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.1	900	Total, Increased to minimum Tc = 6.0 min			

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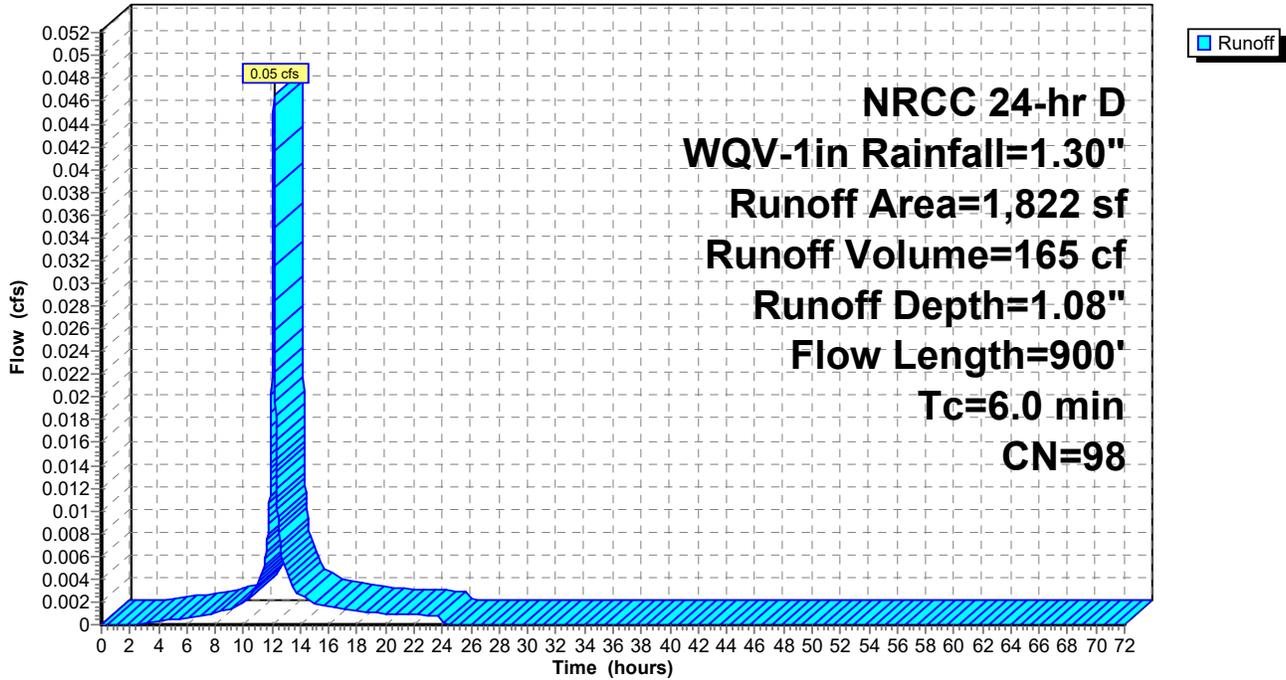
NRCC 24-hr D WQV-1in Rainfall=1.30"

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Subcatchment 11: Sub-catchment 11

Hydrograph



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Summary for Subcatchment 12: Sub-catchment 12

Runoff = 0.12 cfs @ 12.14 hrs, Volume= 421 cf, Depth= 0.36"
 Routed to Pond 1P : Diversion Structure

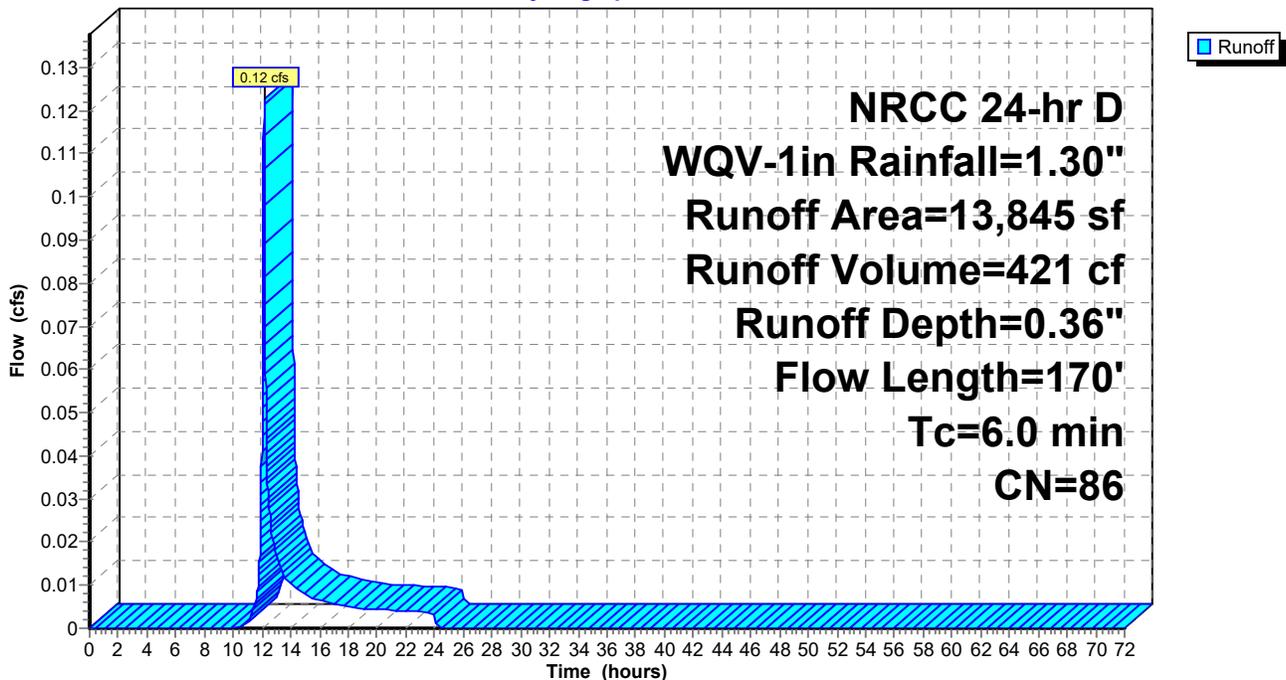
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D WQV-1in Rainfall=1.30"

Area (sf)	CN	Description
5,431	98	Unconnected pavement, HSG B
8,414	79	<50% Grass cover, Poor, HSG B
13,845	86	Weighted Average
8,414		60.77% Pervious Area
5,431		39.23% Impervious Area
5,431		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.2	44	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	26	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
1.9	170	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 12: Sub-catchment 12

Hydrograph



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NRCC 24-hr D WQV-1in Rainfall=1.30"

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Summary for Subcatchment 13: Sub-catchment 13

Runoff = 0.00 cfs @ 24.15 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Link DP-2 : DP-2

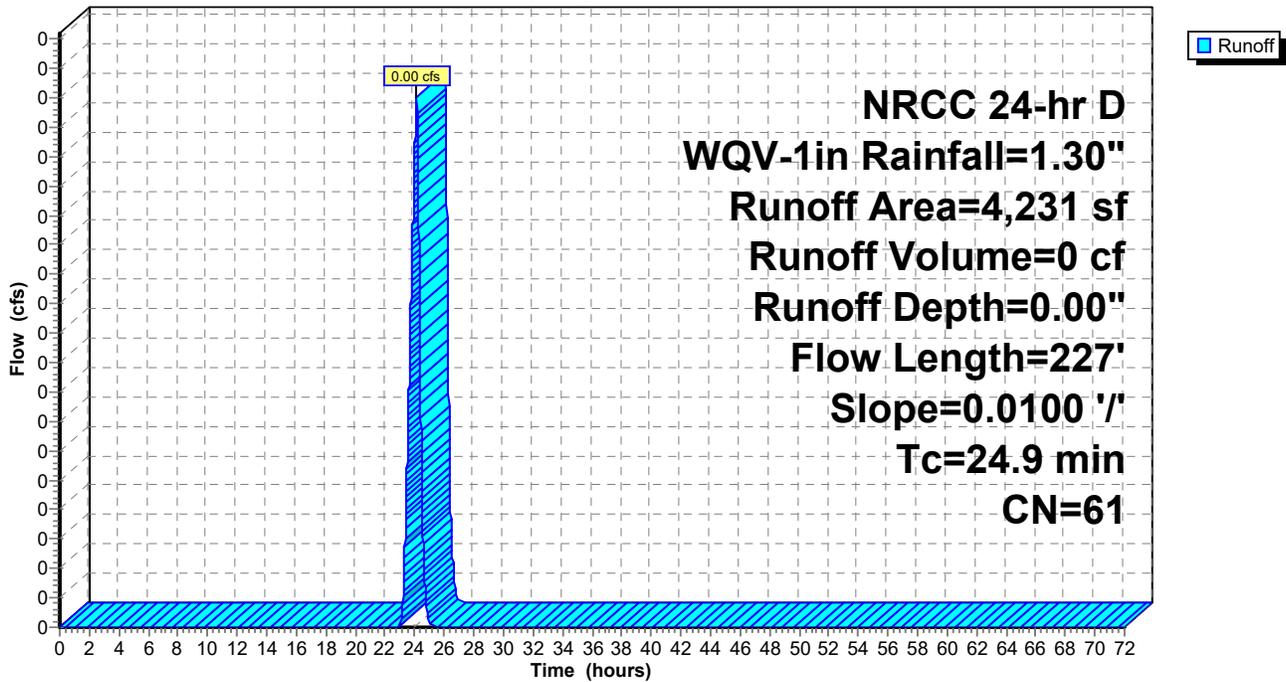
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D WQV-1in Rainfall=1.30"

Area (sf)	CN	Description
4,231	61	>75% Grass cover, Good, HSG B
4,231		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.9	227	0.0100	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"

Subcatchment 13: Sub-catchment 13

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NRCC 24-hr D WQV-1in Rainfall=1.30"

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Summary for Pond 1P: Diversion Structure

[57] Hint: Peaked at 227.60' (Flood elevation advised)

Inflow = 5.73 cfs @ 12.13 hrs, Volume= 20,065 cf
 Outflow = 5.73 cfs @ 12.14 hrs, Volume= 20,065 cf, Atten= 0%, Lag= 0.6 min
 Primary = 5.73 cfs @ 12.14 hrs, Volume= 20,065 cf
 Routed to Link 1L : Pump Shutoff Control
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link DP-1 : DP-1

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 227.60' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	226.32'	24.0" Round Culvert L= 5.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 226.32' / 226.28' S= 0.0080 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Secondary	226.38'	30.0" Round Culvert L= 27.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 226.38' / 226.20' S= 0.0067 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 4.91 sf
#3	Device 2	228.99'	6.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#4	Device 1	225.00'	Special & User-Defined Elev. (feet) 225.00 226.32 240.00 Disch. (cfs) 0.000 5.730 5.730

Primary OutFlow Max=5.73 cfs @ 12.14 hrs HW=227.60' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 5.73 cfs @ 3.86 fps)

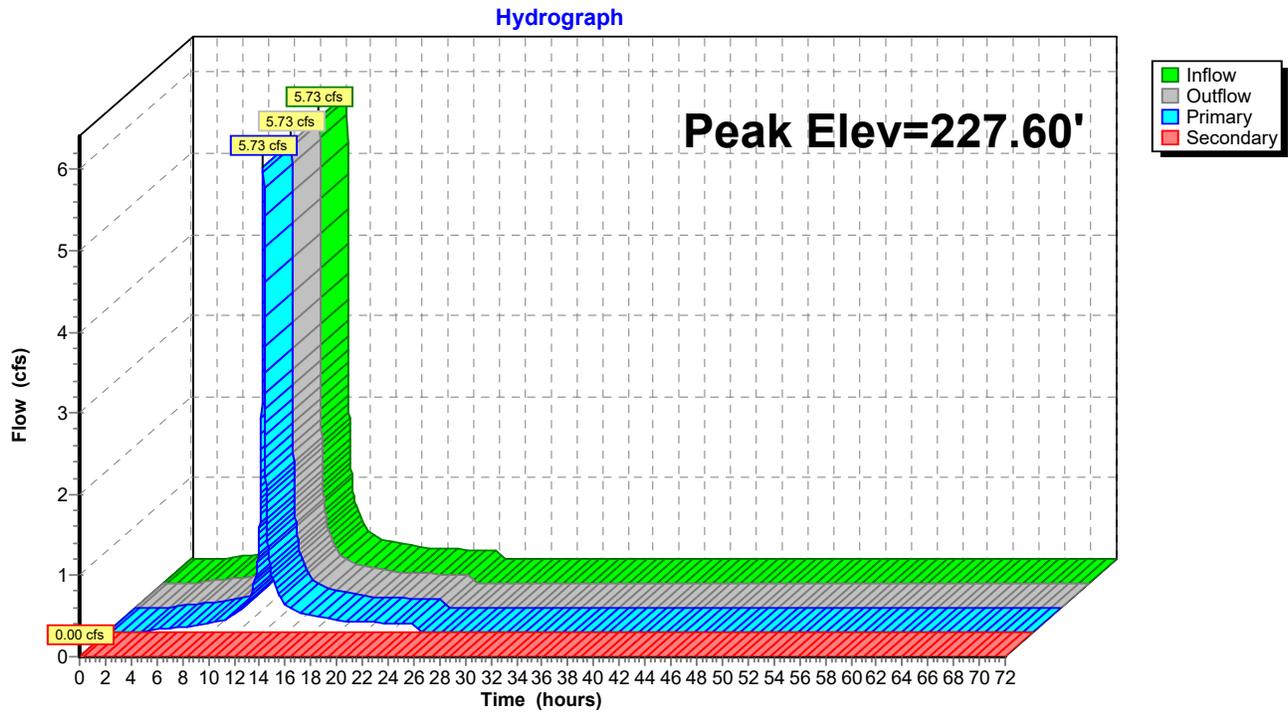
↑4=Special & User-Defined (Passes 5.73 cfs of 5.73 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=226.32' TW=0.00' (Dynamic Tailwater)

↑2=Culvert (Controls 0.00 cfs)

↑3=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Pond 1P: Diversion Structure



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NRCC 24-hr D WQV-1in Rainfall=1.30"

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Summary for Pond 2P: Pump

[99] Warning: Min. Lift of 10.66' is below pump rating

Inflow = 5.73 cfs @ 12.15 hrs, Volume= 20,065 cf
 Outflow = 5.57 cfs @ 6.21 hrs, Volume= 19,850 cf, Atten= 3%, Lag= 0.0 min
 Primary = 5.57 cfs @ 6.21 hrs, Volume= 19,850 cf
 Routed to Pond 3P : AGST

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Starting Elev= 220.30' Surf.Area= 126 sf Storage= 760 cf
 Peak Elev= 225.27' @ 12.17 hrs Surf.Area= 126 sf Storage= 1,387 cf (627 cf above start)

Plug-Flow detention time= 51.8 min calculated for 19,088 cf (95% of inflow)
 Center-of-Mass det. time= 6.5 min (804.5 - 798.0)

Volume	Invert	Avail.Storage	Storage Description
#1	214.27'	2,255 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.27	126	0	0
232.17	126	2,255	2,255

Device	Routing	Invert	Outlet Devices (Turned on 26 times)
#1	Primary	224.30'	Pump Discharges@225.32' Turns Off<220.30' 12.0" Diam. x 136.0' Long Discharge, Hazen-Williams C= 150 Flow (gpm)= 0.0 250.0 500.0 750.0 1,000.0 1,250.0 1,500.0 1,750.0 2,000.0 2,250.0 2,500.0 Head (feet)= 117.00 105.00 93.00 83.00 76.00 68.00 60.00 53.00 45.00 37.00 29.00 -Loss (feet)= 0.00 0.02 0.07 0.16 0.26 0.40 0.56 0.75 0.96 1.19 1.44 =Lift (feet)= 117.00 104.98 92.93 82.84 75.74 67.60 59.44 52.25 44.04 35.81 27.56

Primary OutFlow Max=5.57 cfs @ 6.21 hrs HW=224.31' TW=235.00' (Dynamic Tailwater)
 ↑1=Pump (Pump Controls 5.57 cfs)

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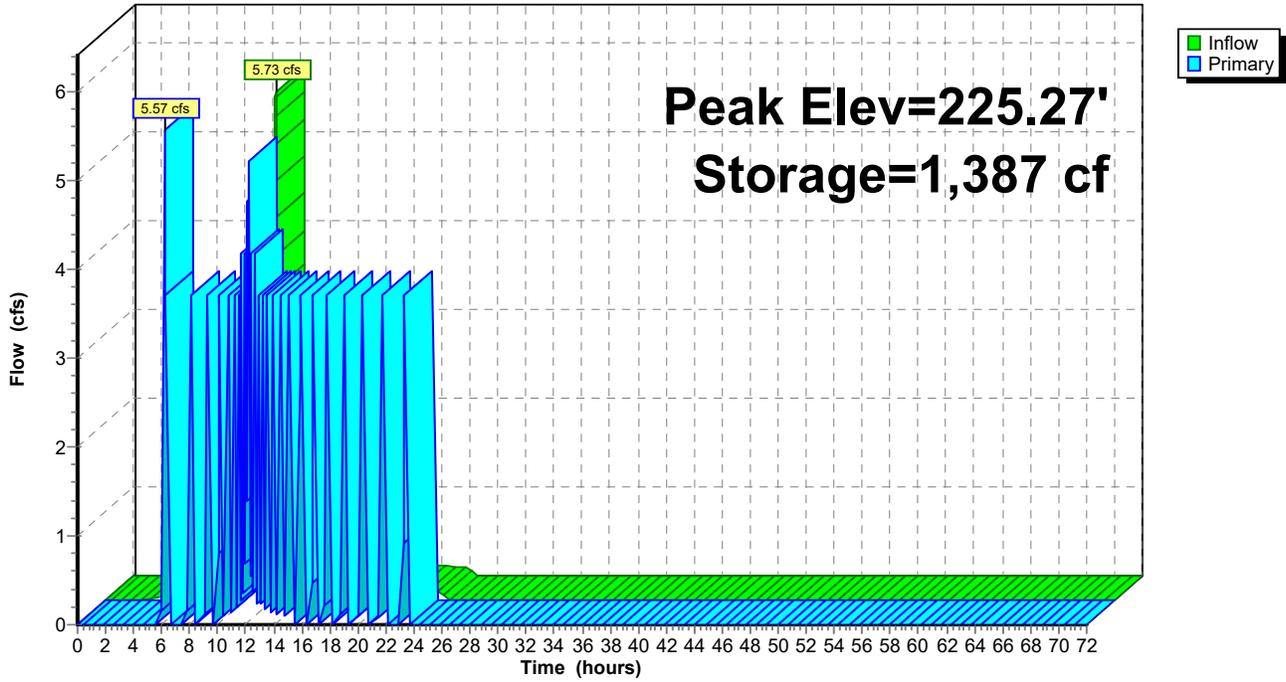
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Pond 2P: Pump

Hydrograph



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NRCC 24-hr D WQV-1in Rainfall=1.30"

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Summary for Pond 3P: AGST

Inflow = 5.57 cfs @ 6.21 hrs, Volume= 19,850 cf
 Outflow = 0.22 cfs @ 6.22 hrs, Volume= 19,853 cf, Atten= 96%, Lag= 0.6 min
 Primary = 0.22 cfs @ 6.22 hrs, Volume= 19,853 cf
 Routed to Link DP-1 : DP-1
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link DP-1 : DP-1

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 245.79' @ 15.12 hrs Surf.Area= 908 sf Storage= 9,797 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 403.4 min (1,207.9 - 804.5)

Volume	Invert	Avail.Storage	Storage Description
#1	235.00'	35,409 cf	34.00'D x 39.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	235.00'	0.223 cfs Constant Flow/Skimmer
#2	Secondary	271.49'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.22 cfs @ 6.22 hrs HW=235.22' TW=0.00' (Dynamic Tailwater)
 ↑1=**Constant Flow/Skimmer** (Constant Controls 0.22 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=235.00' TW=0.00' (Dynamic Tailwater)
 ↑2=**Orifice/Grate** (Controls 0.00 cfs)

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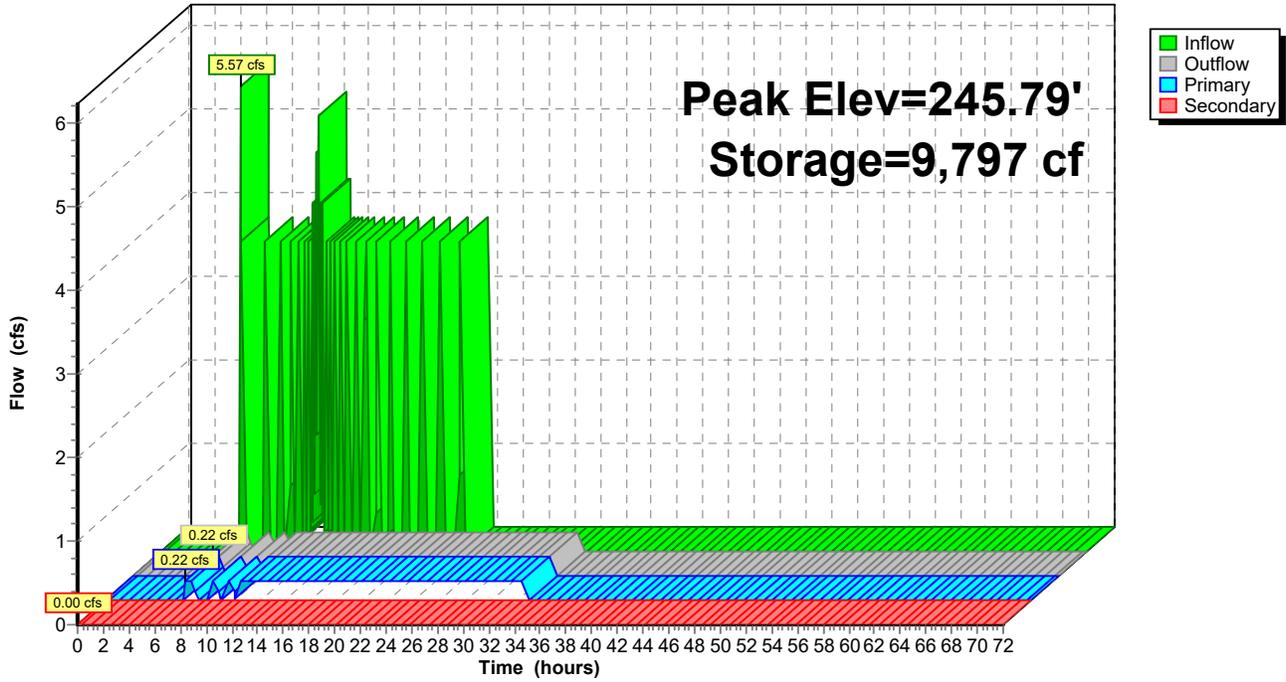
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Pond 3P: AGST

Hydrograph



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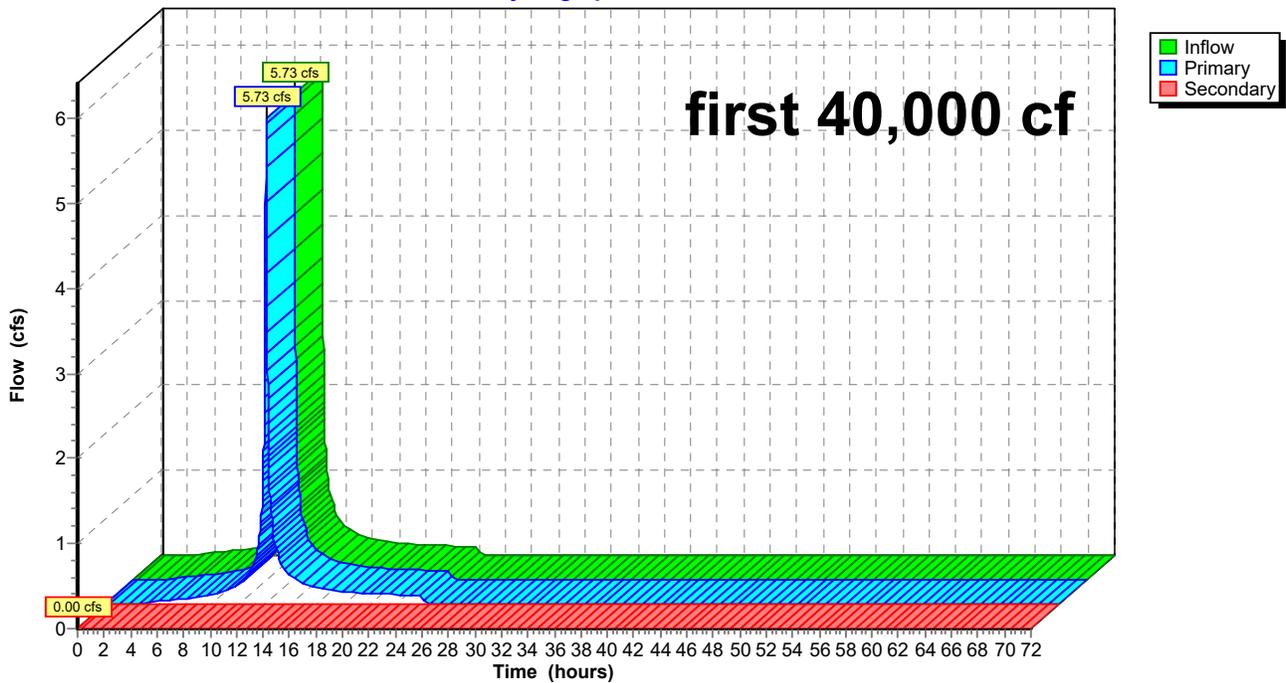
Summary for Link 1L: Pump Shutoff Control

Inflow = 5.73 cfs @ 12.14 hrs, Volume= 20,065 cf
Primary = 5.73 cfs @ 12.15 hrs, Volume= 20,065 cf, Atten= 0%, Lag= 0.6 min
Routed to Pond 2P : Pump
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond 1P : Diversion Structure

Primary outflow = Inflow first 40,000 cf, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1L: Pump Shutoff Control

Hydrograph



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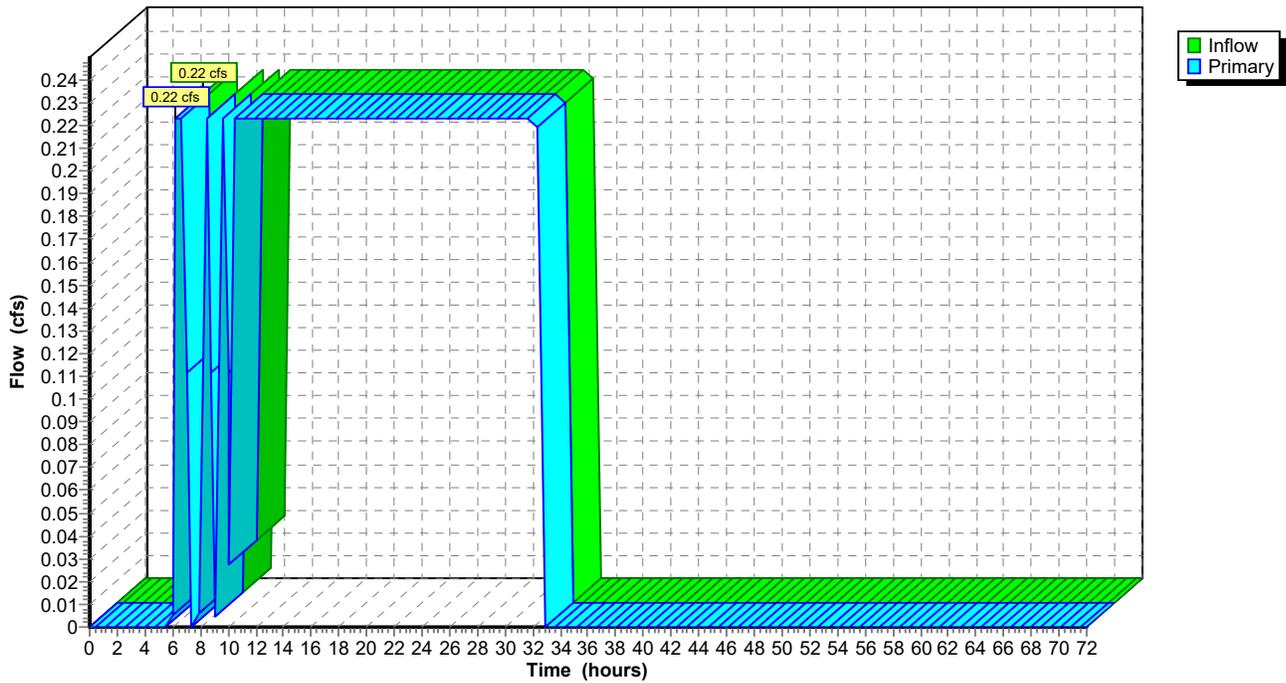
Summary for Link DP-1: DP-1

Inflow = 0.22 cfs @ 6.22 hrs, Volume= 19,853 cf
Primary = 0.22 cfs @ 6.23 hrs, Volume= 19,853 cf, Atten= 0%, Lag= 0.6 min
Routed to nonexistent node 3L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-1: DP-1

Hydrograph



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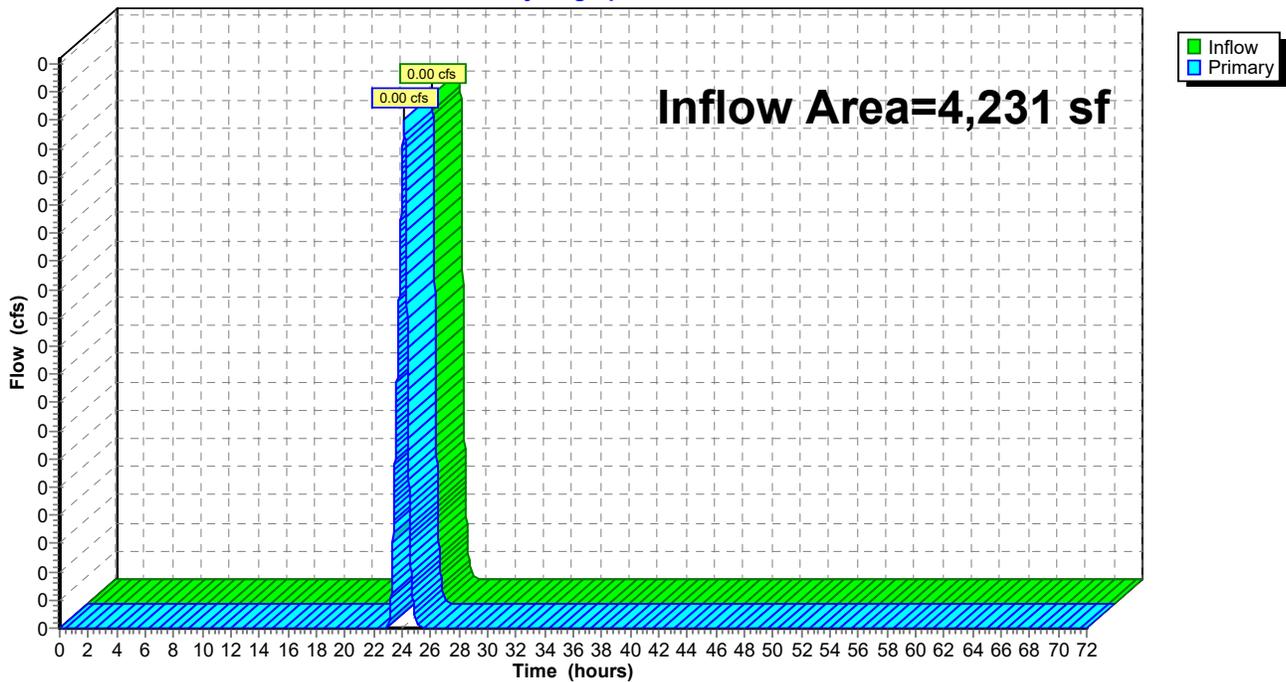
Summary for Link DP-2: DP-2

Inflow Area = 4,231 sf, 0.00% Impervious, Inflow Depth = 0.00" for WQV-1in event
Inflow = 0.00 cfs @ 24.15 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 24.16 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.6 min
Routed to nonexistent node 3L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-2: DP-2

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment1: Sub-catchment1	Runoff Area=33,590 sf 100.00% Impervious Runoff Depth=2.59" Flow Length=851' Tc=6.0 min CN=98 Runoff=1.95 cfs 7,247 cf
Subcatchment2: Sub-catchment2	Runoff Area=7,467 sf 100.00% Impervious Runoff Depth=2.59" Flow Length=946' Tc=6.0 min CN=98 Runoff=0.43 cfs 1,611 cf
Subcatchment3: Sub-catchment3	Runoff Area=7,120 sf 100.00% Impervious Runoff Depth=2.59" Flow Length=897' Tc=6.0 min CN=98 Runoff=0.41 cfs 1,536 cf
Subcatchment4: Sub-catchment4	Runoff Area=57,605 sf 97.94% Impervious Runoff Depth=2.59" Flow Length=632' Tc=6.0 min CN=98 Runoff=3.34 cfs 12,429 cf
Subcatchment5: Sub-catchment5	Runoff Area=14,314 sf 100.00% Impervious Runoff Depth=2.59" Flow Length=500' Tc=6.0 min CN=98 Runoff=0.83 cfs 3,088 cf
Subcatchment6: Sub-catchment6	Runoff Area=20,333 sf 100.00% Impervious Runoff Depth=2.59" Flow Length=490' Tc=6.0 min CN=98 Runoff=1.18 cfs 4,387 cf
Subcatchment7: Sub-catchment7	Runoff Area=23,381 sf 100.00% Impervious Runoff Depth=2.59" Flow Length=393' Tc=6.0 min CN=98 Runoff=1.36 cfs 5,045 cf
Subcatchment8: Sub-catchment8	Runoff Area=25,531 sf 100.00% Impervious Runoff Depth=2.59" Flow Length=359' Tc=6.0 min CN=98 Runoff=1.48 cfs 5,508 cf
Subcatchment9: Sub-catchment9	Runoff Area=7,621 sf 100.00% Impervious Runoff Depth=2.59" Flow Length=216' Tc=6.0 min CN=98 Runoff=0.44 cfs 1,644 cf
Subcatchment10: Sub-catchment10	Runoff Area=29,279 sf 73.39% Impervious Runoff Depth=2.08" Flow Length=350' Tc=6.0 min CN=93 Runoff=1.50 cfs 5,081 cf
Subcatchment11: Sub-catchment11	Runoff Area=1,822 sf 100.00% Impervious Runoff Depth=2.59" Flow Length=900' Tc=6.0 min CN=98 Runoff=0.11 cfs 393 cf
Subcatchment12: Sub-catchment12	Runoff Area=13,845 sf 39.23% Impervious Runoff Depth=1.51" Flow Length=170' Tc=6.0 min CN=86 Runoff=0.54 cfs 1,741 cf
Subcatchment13: Sub-catchment13	Runoff Area=4,231 sf 0.00% Impervious Runoff Depth=0.30" Flow Length=227' Slope=0.0100 '/' Tc=24.9 min CN=61 Runoff=0.01 cfs 106 cf
Pond 1P: Diversion Structure	Peak Elev=229.60' Inflow=13.57 cfs 1,159,994 cf Primary=5.73 cfs 1,150,696 cf Secondary=7.84 cfs 9,298 cf Outflow=13.57 cfs 1,159,994 cf
Pond 2P: Pump	Peak Elev=225.70' Storage=1,440 cf Inflow=5.73 cfs 40,000 cf Outflow=5.57 cfs 39,571 cf
Pond 3P: AGST	Peak Elev=266.47' Storage=28,574 cf Inflow=5.57 cfs 39,571 cf Primary=0.22 cfs 39,578 cf Secondary=0.00 cfs 0 cf Outflow=0.22 cfs 39,578 cf

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Link 1L: Pump Shutoff Control

first 40,000 cf Inflow=5.73 cfs 1,150,490 cf
Primary=5.73 cfs 40,000 cf Secondary=5.73 cfs 1,110,490 cf

Link DP-1: DP-1

Inflow=8.06 cfs 48,876 cf
Primary=8.06 cfs 48,876 cf

Link DP-2: DP-2

Inflow=0.01 cfs 106 cf
Primary=0.01 cfs 106 cf

Total Runoff Area = 246,139 sf Runoff Volume = 49,816 cf Average Runoff Depth = 2.43"
8.79% Pervious = 21,624 sf 91.21% Impervious = 224,515 sf

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Summary for Subcatchment 1: Sub-catchment 1

Runoff = 1.95 cfs @ 12.13 hrs, Volume= 7,247 cf, Depth= 2.59"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
15,206	98	Roofs, HSG B
18,384	98	Unconnected pavement, HSG B
33,590	98	Weighted Average
33,590		100.00% Impervious Area
18,384		54.73% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0160	1.26		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.7	49	0.0030	1.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.8	851	Total, Increased to minimum Tc = 6.0 min			

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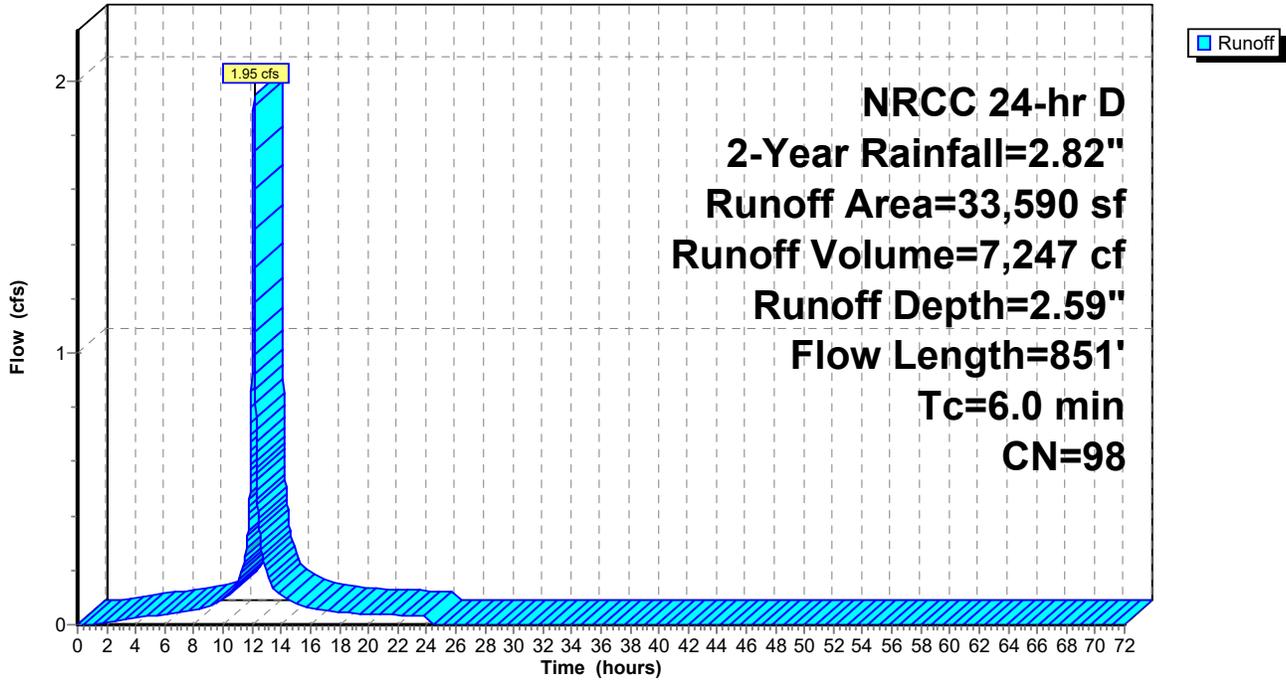
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Subcatchment 1: Sub-catchment 1

Hydrograph



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Summary for Subcatchment 2: Sub-catchment 2

Runoff = 0.43 cfs @ 12.13 hrs, Volume= 1,611 cf, Depth= 2.59"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
2,936	98	Roofs, HSG B
4,531	98	Unconnected pavement, HSG B
7,467	98	Weighted Average
7,467		100.00% Impervious Area
4,531		60.68% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	41	0.0140	1.00		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
1.0	80	0.0010	1.38	0.75	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	76	0.0120	4.77	2.60	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63'

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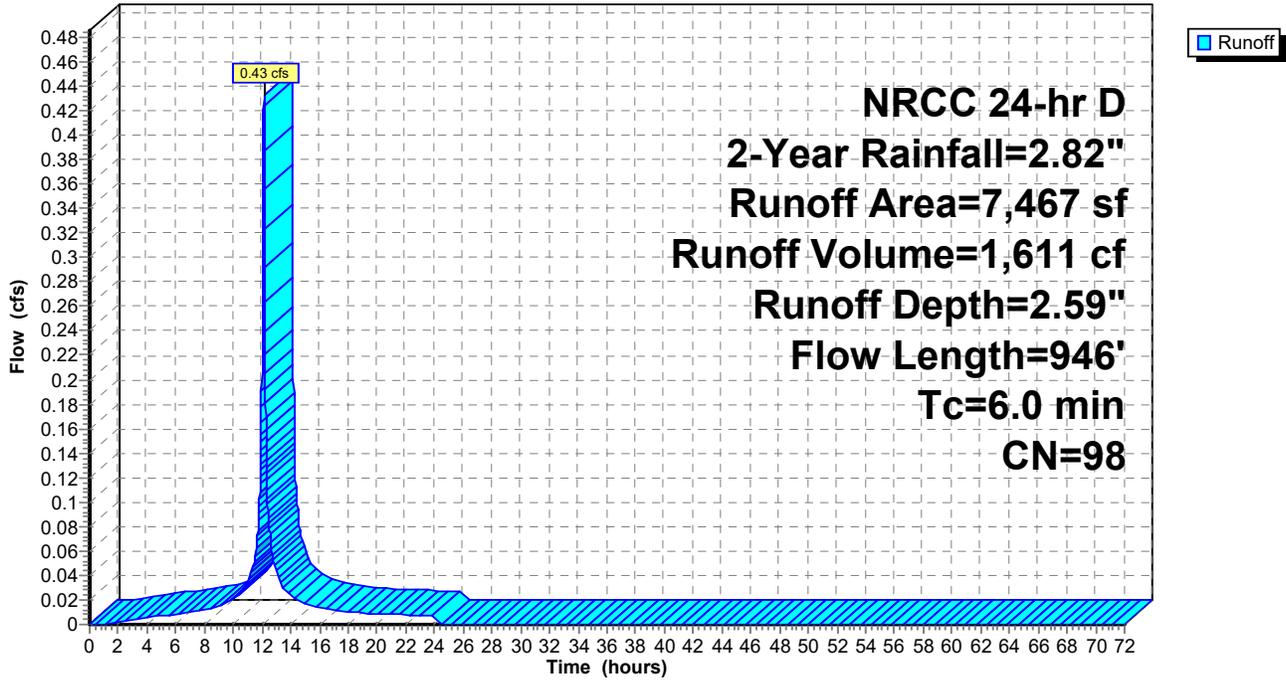
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n= 0.012 Concrete pipe, finished

5.1 946 Total, Increased to minimum Tc = 6.0 min

Subcatchment 2: Sub-catchment 2

Hydrograph



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Summary for Subcatchment 3: Sub-catchment 3

Runoff = 0.41 cfs @ 12.13 hrs, Volume= 1,536 cf, Depth= 2.59"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
2,543	98	Roofs, HSG B
4,577	98	Unconnected pavement, HSG B
7,120	98	Weighted Average
7,120		100.00% Impervious Area
4,577		64.28% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	62	0.0030	0.59		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.1	10	0.0012	1.51	0.82	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	76	0.0120	4.77	2.60	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63'

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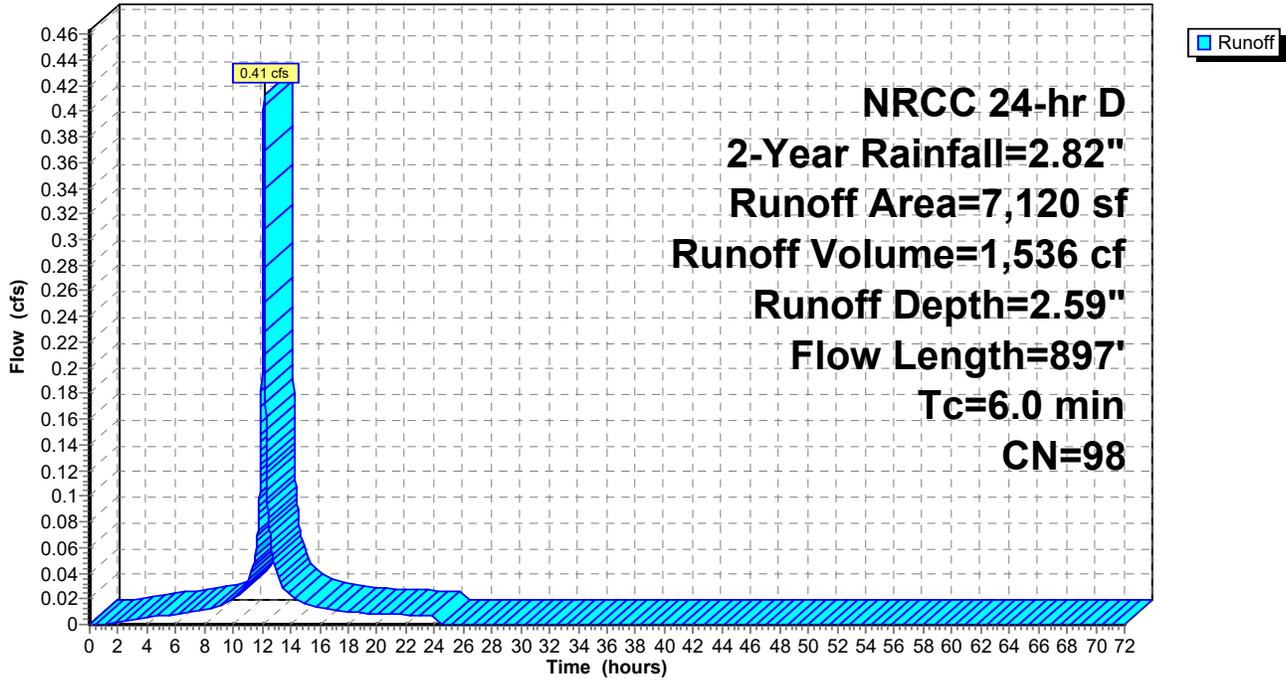
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n= 0.012 Concrete pipe, finished

5.3 897 Total, Increased to minimum Tc = 6.0 min

Subcatchment 3: Sub-catchment 3

Hydrograph



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Summary for Subcatchment 4: Sub-catchment 4

Runoff = 3.34 cfs @ 12.13 hrs, Volume= 12,429 cf, Depth= 2.59"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
5,329	98	Roofs, HSG B
51,087	98	Unconnected pavement, HSG B
1,189	79	<50% Grass cover, Poor, HSG B
57,605	98	Weighted Average
1,189		2.06% Pervious Area
56,416		97.94% Impervious Area
51,087		90.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0120	1.12		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.4	77	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	10	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
3.3	632	Total, Increased to minimum Tc = 6.0 min			

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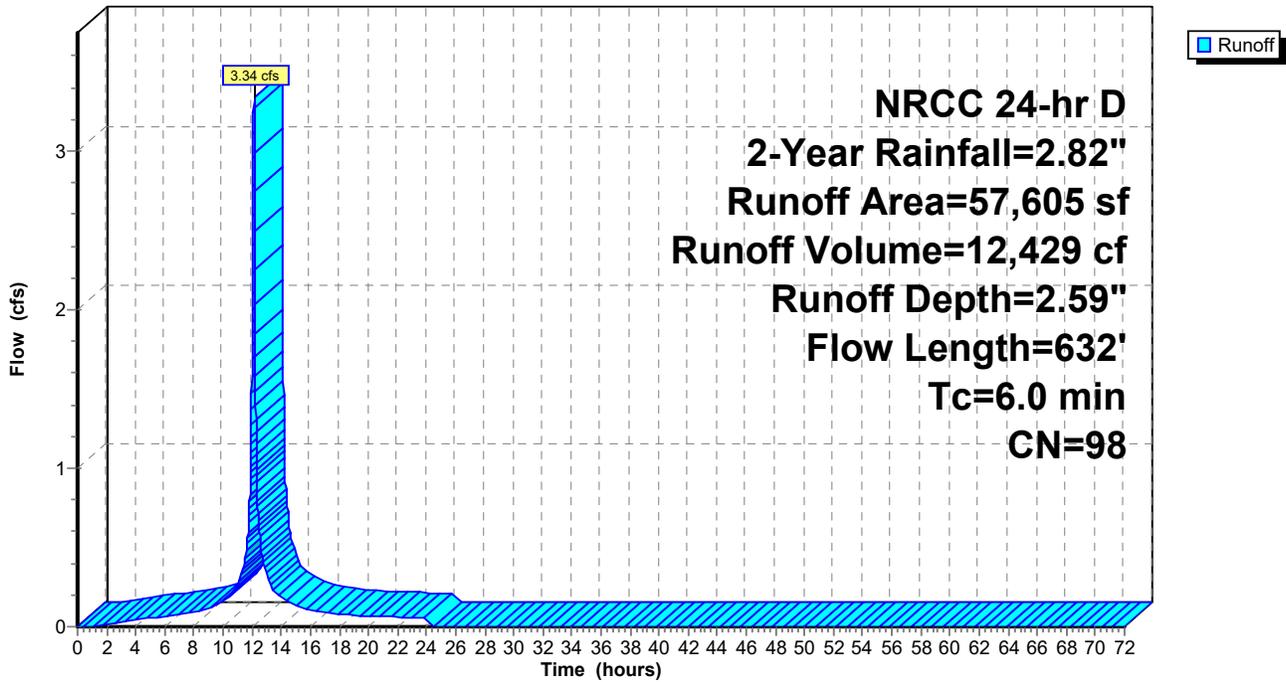
NRCC 24-hr D 2-Year Rainfall=2.82"

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Subcatchment 4: Sub-catchment 4

Hydrograph



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Summary for Subcatchment 5: Sub-catchment 5

Runoff = 0.83 cfs @ 12.13 hrs, Volume= 3,088 cf, Depth= 2.59"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
5,500	98	Roofs, HSG B
8,814	98	Unconnected pavement, HSG B
14,314	98	Weighted Average
14,314		100.00% Impervious Area
8,814		61.58% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	55	0.0550	1.83		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	85	0.0020	2.20	1.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.1	500	Total, Increased to minimum Tc = 6.0 min			

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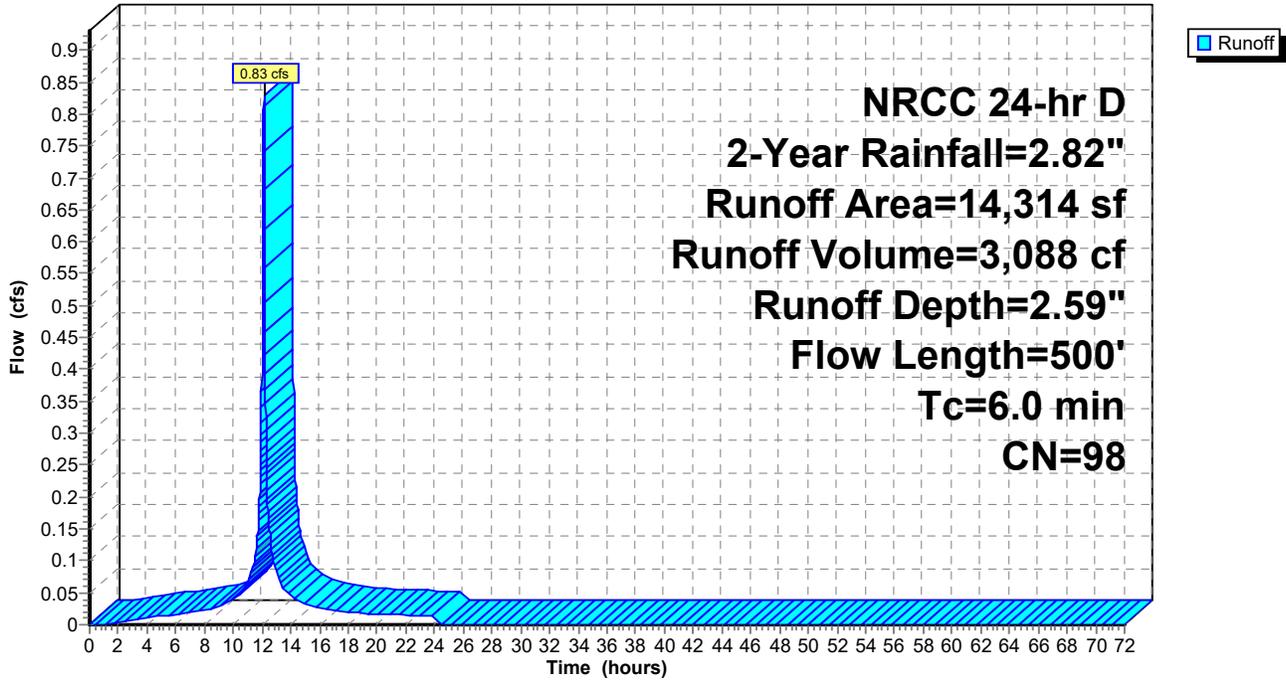
NRCC 24-hr D 2-Year Rainfall=2.82"

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Subcatchment 5: Sub-catchment 5

Hydrograph



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Summary for Subcatchment 6: Sub-catchment 6

Runoff = 1.18 cfs @ 12.13 hrs, Volume= 4,387 cf, Depth= 2.59"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
20,333	98	Unconnected pavement, HSG B
20,333		100.00% Impervious Area
20,333		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.5	55	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	10	0.0050	3.08	1.68	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
3.1	490	Total, Increased to minimum Tc = 6.0 min			

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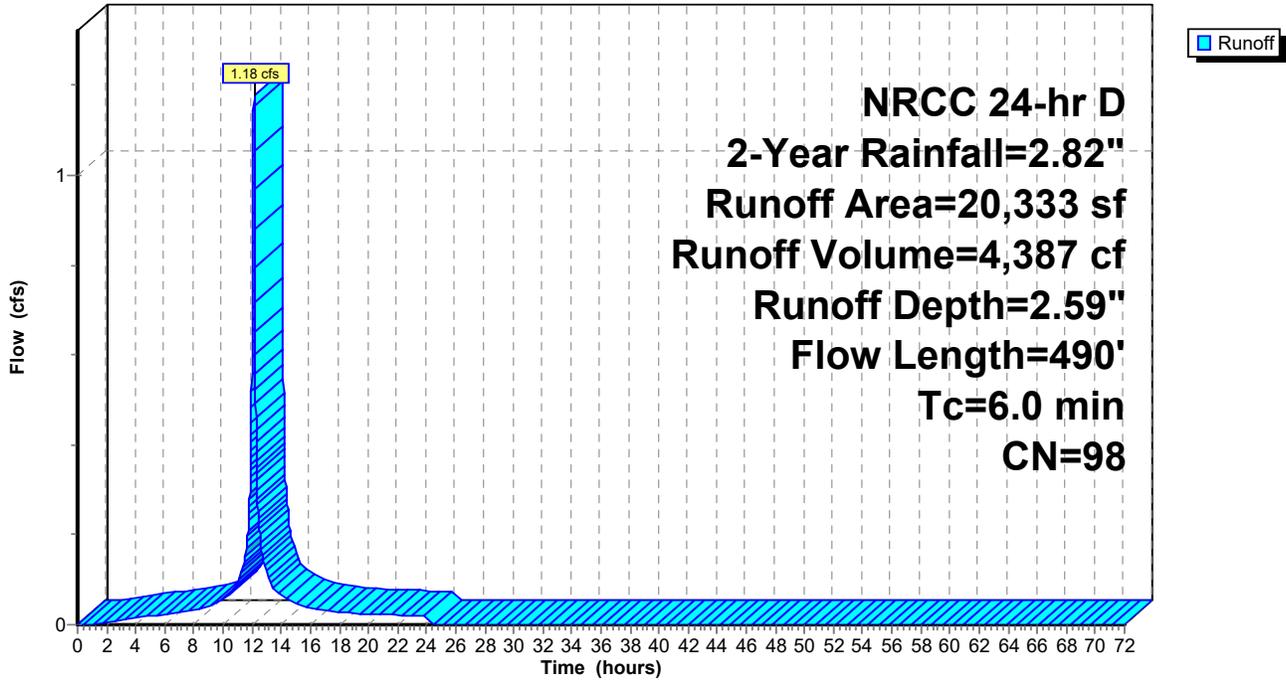
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Subcatchment 6: Sub-catchment 6

Hydrograph



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Summary for Subcatchment 7: Sub-catchment 7

Runoff = 1.36 cfs @ 12.13 hrs, Volume= 5,045 cf, Depth= 2.59"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
19,985	98	Unconnected pavement, HSG B
3,396	98	Roofs, HSG B
23,381	98	Weighted Average
23,381		100.00% Impervious Area
19,985		85.48% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.5	55	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	10	0.0050	4.55	8.05	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	393	Total, Increased to minimum Tc = 6.0 min			

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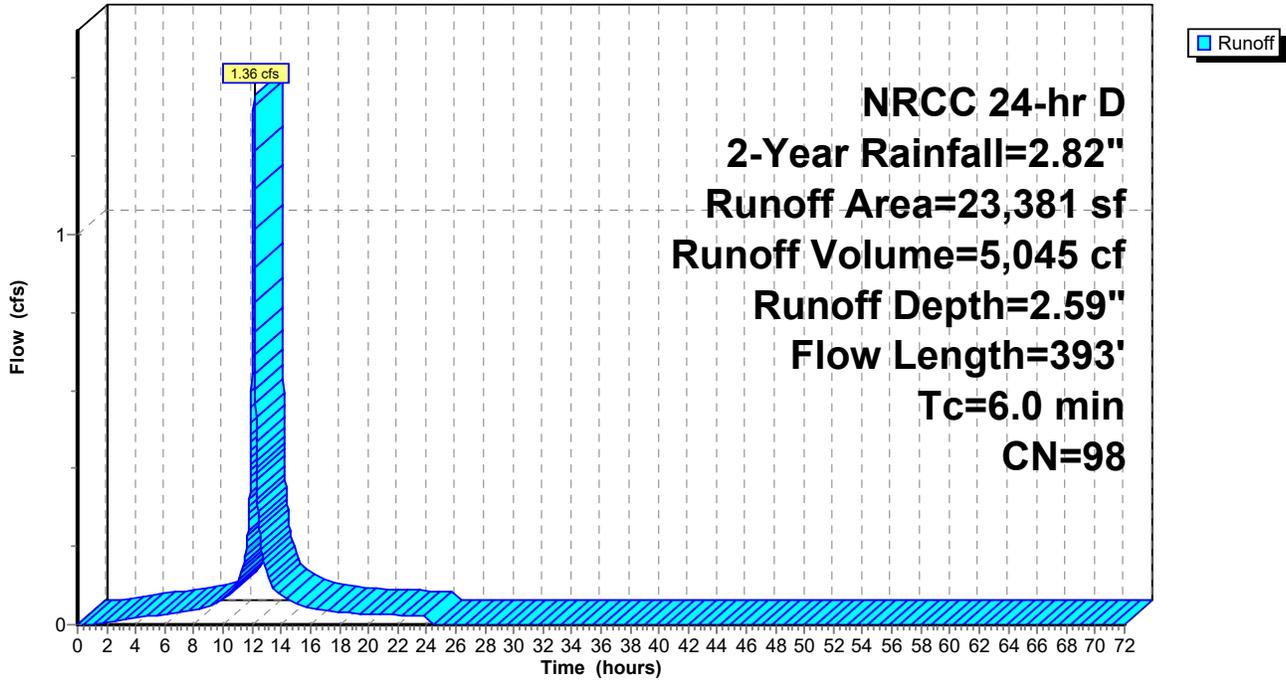
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Subcatchment 7: Sub-catchment 7

Hydrograph



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Summary for Subcatchment 8: Sub-catchment 8

Runoff = 1.48 cfs @ 12.13 hrs, Volume= 5,508 cf, Depth= 2.59"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
23,413	98	Unconnected pavement, HSG B
2,118	98	Roofs, HSG B
25,531	98	Weighted Average
25,531		100.00% Impervious Area
23,413		91.70% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0070	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	85	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	10	0.0050	4.55	8.05	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	359	Total, Increased to minimum Tc = 6.0 min			

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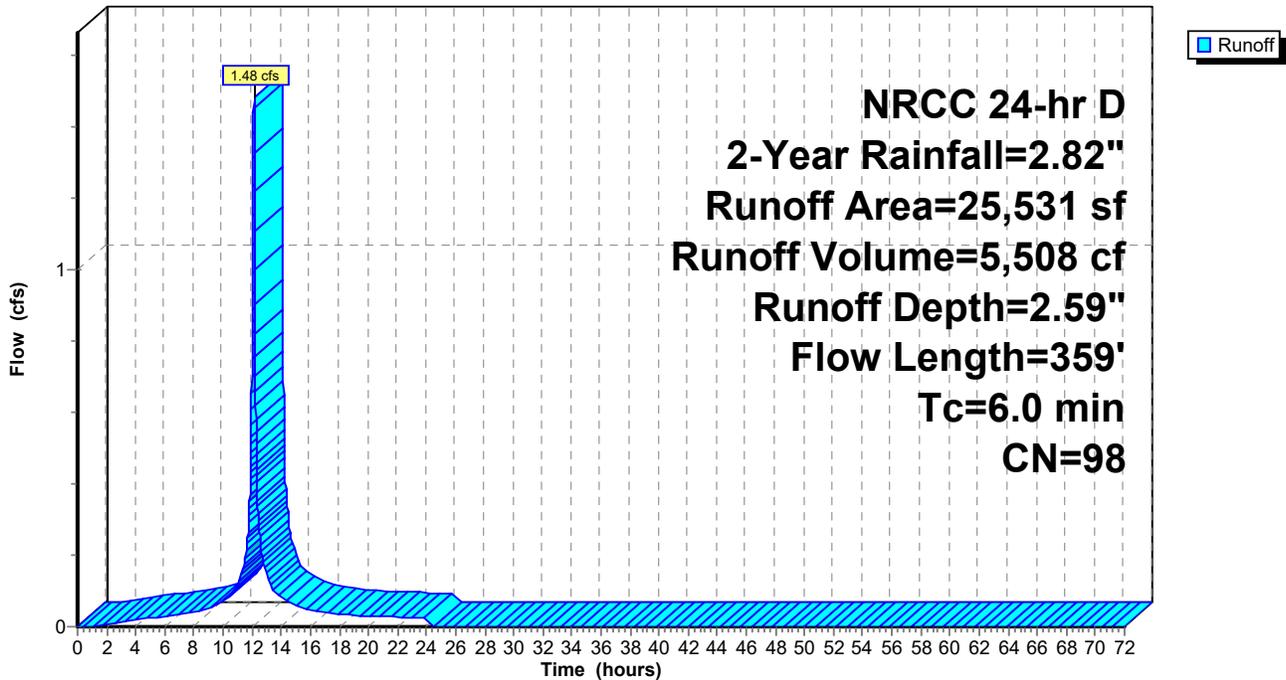
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Subcatchment 8: Sub-catchment 8

Hydrograph



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Summary for Subcatchment 9: Sub-catchment 9

Runoff = 0.44 cfs @ 12.13 hrs, Volume= 1,644 cf, Depth= 2.59"
 Routed to Pond 1P : Diversion Structure

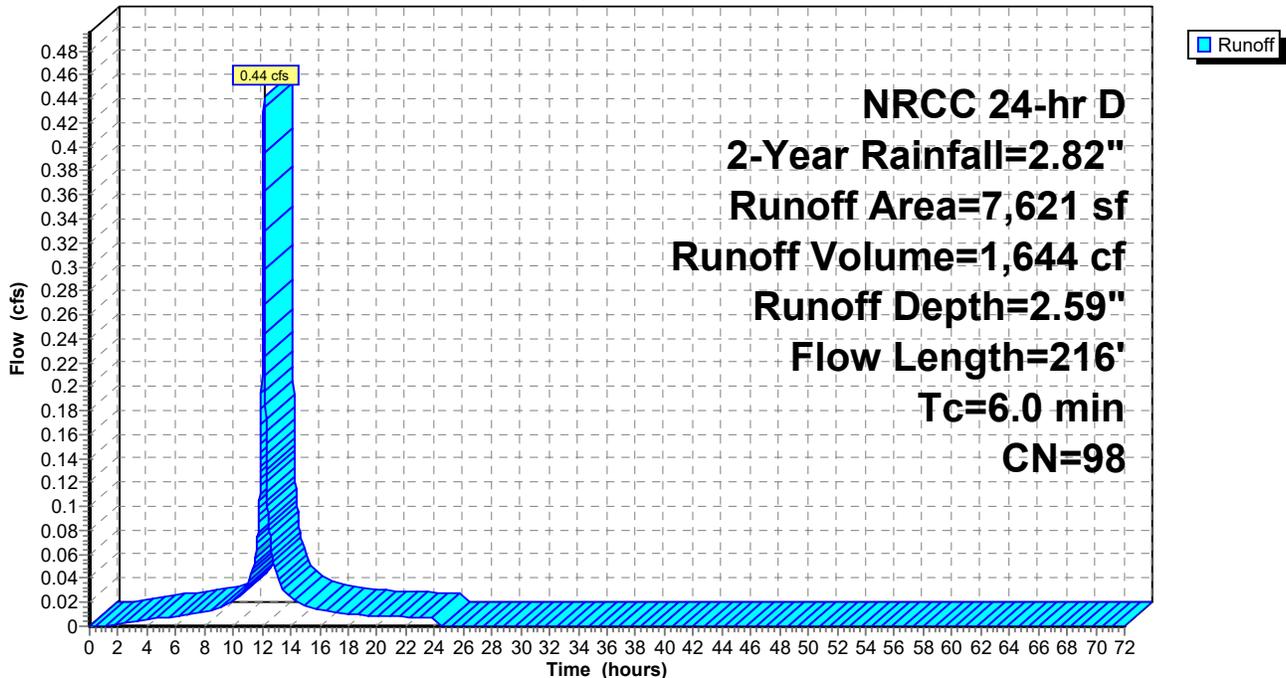
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
7,621	98	Unconnected pavement, HSG B
7,621		100.00% Impervious Area
7,621		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0090	1.00		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.7	62	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	45	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	216	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9: Sub-catchment 9

Hydrograph



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Summary for Subcatchment 10: Sub-catchment 10

Runoff = 1.50 cfs @ 12.13 hrs, Volume= 5,081 cf, Depth= 2.08"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
14,729	98	Unconnected pavement, HSG B
6,760	98	Roofs, HSG B
7,790	79	<50% Grass cover, Poor, HSG B
29,279	93	Weighted Average
7,790		26.61% Pervious Area
21,489		73.39% Impervious Area
14,729		68.54% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	75	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.5	114	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.8	350	Total, Increased to minimum Tc = 6.0 min			

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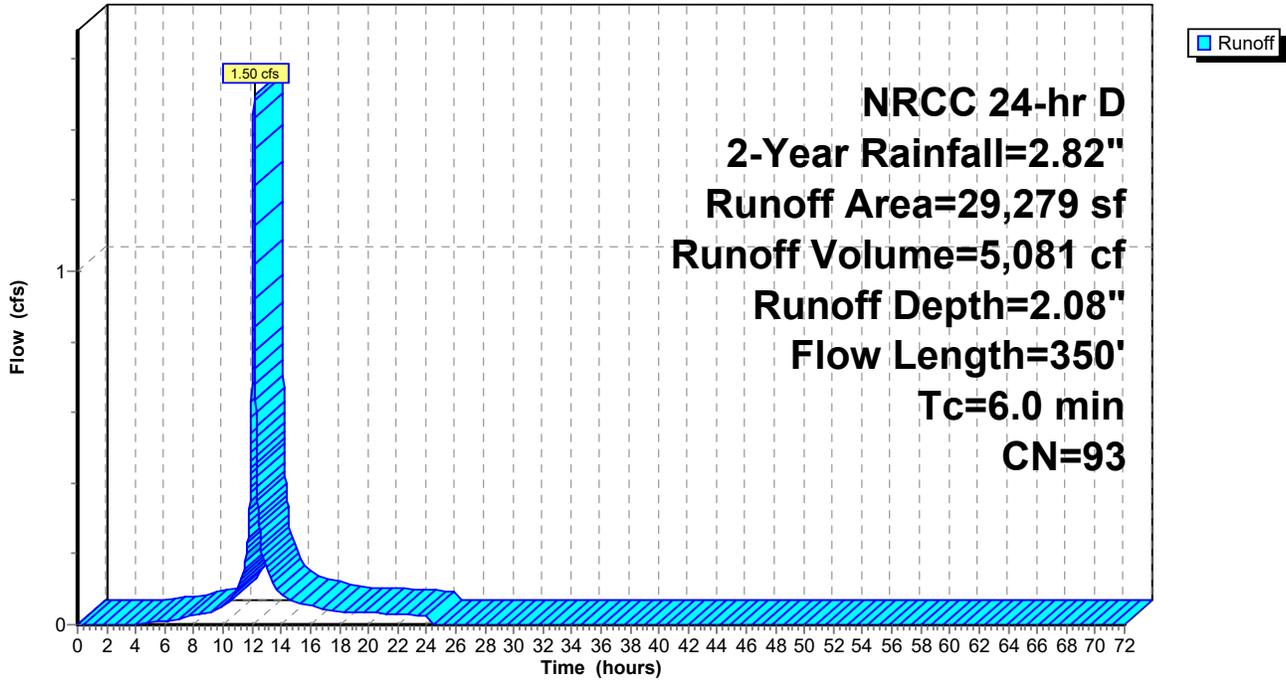
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Subcatchment 10: Sub-catchment 10

Hydrograph



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Summary for Subcatchment 11: Sub-catchment 11

Runoff = 0.11 cfs @ 12.13 hrs, Volume= 393 cf, Depth= 2.59"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
1,822	98	Unconnected pavement, HSG B
1,822		100.00% Impervious Area
1,822		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0690	1.99		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.4	59	0.0020	2.20	1.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	39	0.0050	4.03	4.95	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.1	900	Total, Increased to minimum Tc = 6.0 min			

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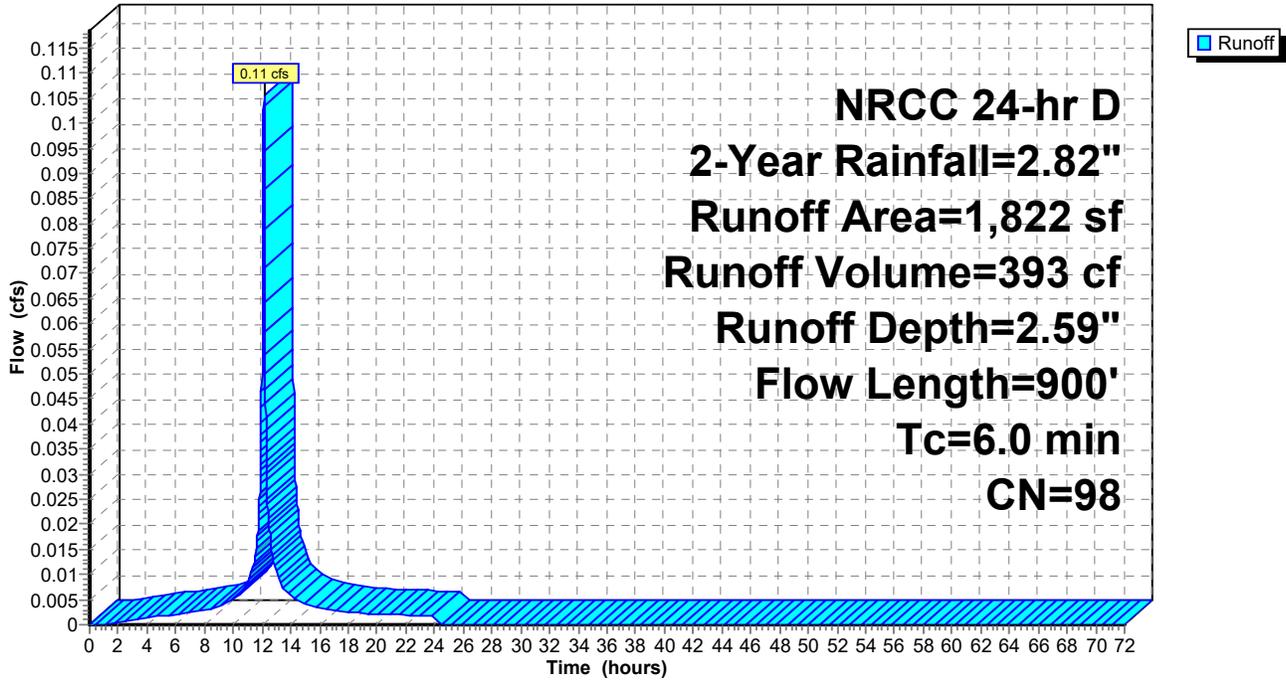
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Subcatchment 11: Sub-catchment 11

Hydrograph



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Summary for Subcatchment 12: Sub-catchment 12

Runoff = 0.54 cfs @ 12.13 hrs, Volume= 1,741 cf, Depth= 1.51"
 Routed to Pond 1P : Diversion Structure

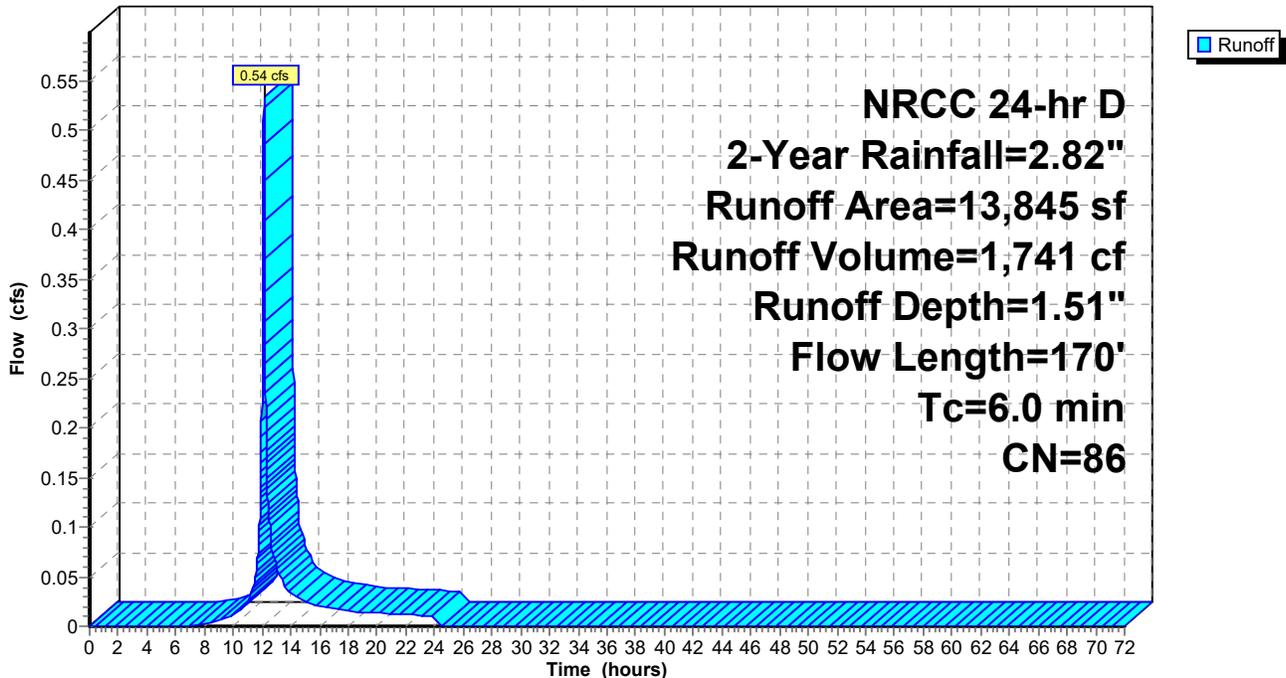
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
5,431	98	Unconnected pavement, HSG B
8,414	79	<50% Grass cover, Poor, HSG B
13,845	86	Weighted Average
8,414		60.77% Pervious Area
5,431		39.23% Impervious Area
5,431		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.2	44	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	26	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
1.9	170	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 12: Sub-catchment 12

Hydrograph



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Summary for Subcatchment 13: Sub-catchment 13

Runoff = 0.01 cfs @ 12.48 hrs, Volume= 106 cf, Depth= 0.30"
 Routed to Link DP-2 : DP-2

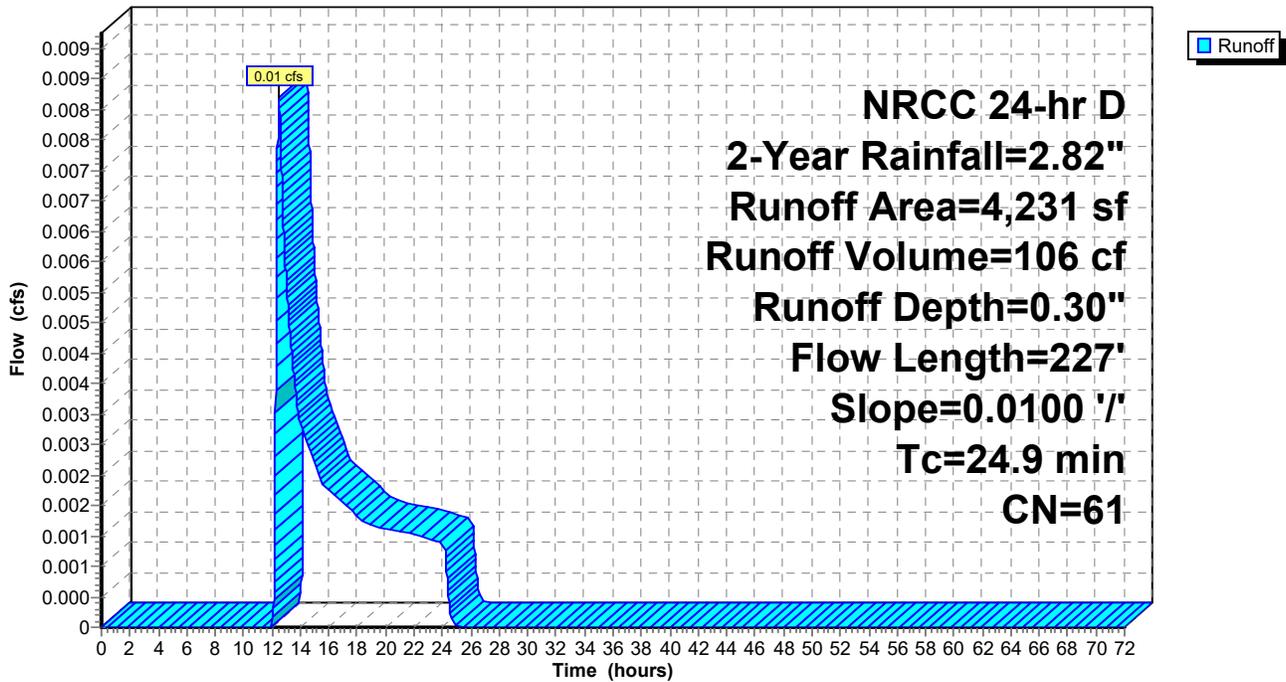
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=2.82"

Area (sf)	CN	Description
4,231	61	>75% Grass cover, Good, HSG B
4,231		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.9	227	0.0100	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"

Subcatchment 13: Sub-catchment 13

Hydrograph



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Summary for Pond 1P: Diversion Structure

[57] Hint: Peaked at 229.60' (Flood elevation advised)

Inflow = 13.57 cfs @ 12.13 hrs, Volume= 1,159,994 cf
 Outflow = 13.57 cfs @ 12.14 hrs, Volume= 1,159,994 cf, Atten= 0%, Lag= 0.6 min
 Primary = 5.73 cfs @ 11.98 hrs, Volume= 1,150,696 cf
 Routed to Link 1L : Pump Shutoff Control
 Secondary = 7.84 cfs @ 12.14 hrs, Volume= 9,298 cf
 Routed to Link DP-1 : DP-1

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.60' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	226.32'	24.0" Round Culvert L= 5.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 226.32' / 226.28' S= 0.0080 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Secondary	226.38'	30.0" Round Culvert L= 27.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 226.38' / 226.20' S= 0.0067 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 4.91 sf
#3	Device 2	228.99'	6.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#4	Device 1	225.00'	Special & User-Defined Elev. (feet) 225.00 226.32 240.00 Disch. (cfs) 0.000 5.730 5.730

Primary OutFlow Max=5.73 cfs @ 11.98 hrs HW=229.04' TW=0.00' (Dynamic Tailwater)

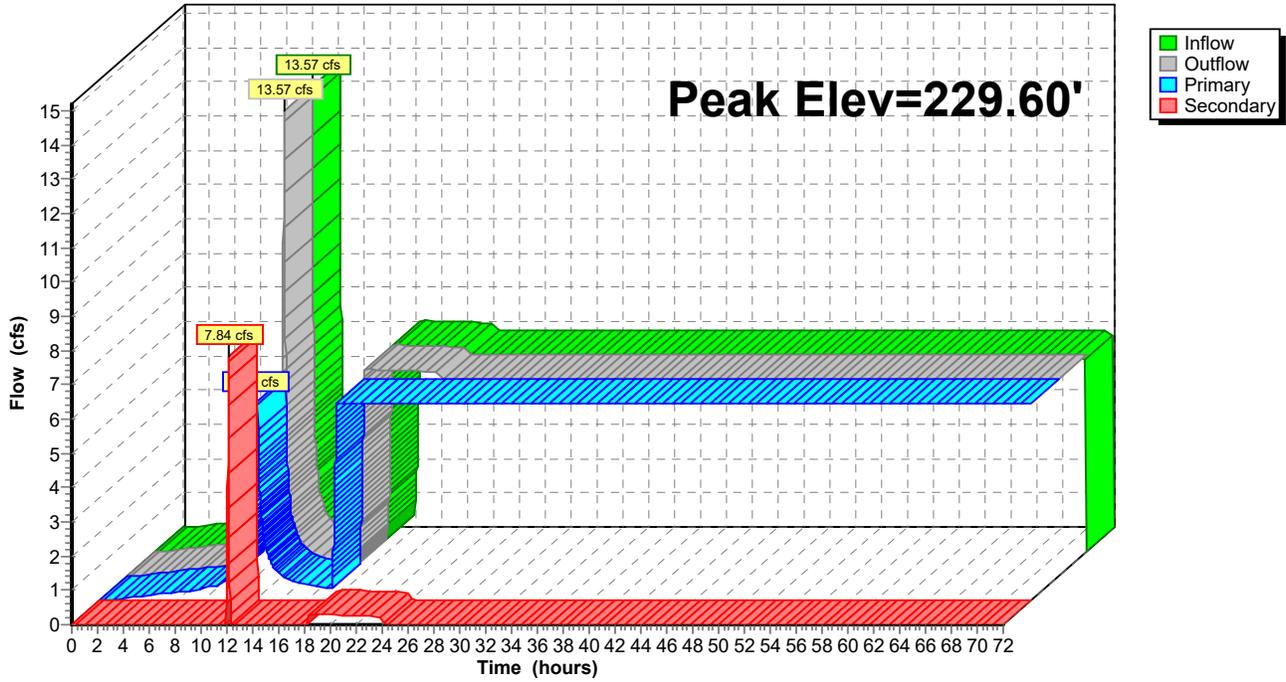
↑ **1=Culvert** (Passes 5.73 cfs of 17.68 cfs potential flow)
 ↑ **4=Special & User-Defined** (Custom Controls 5.73 cfs)

Secondary OutFlow Max=7.83 cfs @ 12.14 hrs HW=229.60' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Passes 7.83 cfs of 29.81 cfs potential flow)
 ↑ **3=Broad-Crested Rectangular Weir**(Weir Controls 7.83 cfs @ 2.15 fps)

Pond 1P: Diversion Structure

Hydrograph



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NRCC 24-hr D 2-Year Rainfall=2.82"

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Summary for Pond 2P: Pump

[99] Warning: Min. Lift of 10.65' is below pump rating

Inflow = 5.73 cfs @ 11.99 hrs, Volume= 40,000 cf
 Outflow = 5.57 cfs @ 3.21 hrs, Volume= 39,571 cf, Atten= 3%, Lag= 0.0 min
 Primary = 5.57 cfs @ 3.21 hrs, Volume= 39,571 cf
 Routed to Pond 3P : AGST

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Starting Elev= 220.30' Surf.Area= 126 sf Storage= 760 cf
 Peak Elev= 225.70' @ 12.28 hrs Surf.Area= 126 sf Storage= 1,440 cf (680 cf above start)

Plug-Flow detention time= 22.0 min calculated for 38,811 cf (97% of inflow)
 Center-of-Mass det. time= 1.7 min (708.6 - 706.9)

Volume	Invert	Avail.Storage	Storage Description
#1	214.27'	2,255 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.27	126	0	0
232.17	126	2,255	2,255

Device	Routing	Invert	Outlet Devices (Turned on 43 times)
#1	Primary	224.30'	Pump Discharges@225.32' Turns Off<220.30' 12.0" Diam. x 136.0' Long Discharge, Hazen-Williams C= 150 Flow (gpm)= 0.0 250.0 500.0 750.0 1,000.0 1,250.0 1,500.0 1,750.0 2,000.0 2,250.0 2,500.0 Head (feet)= 117.00 105.00 93.00 83.00 76.00 68.00 60.00 53.00 45.00 37.00 29.00 -Loss (feet)= 0.00 0.02 0.07 0.16 0.26 0.40 0.56 0.75 0.96 1.19 1.44 =Lift (feet)= 117.00 104.98 92.93 82.84 75.74 67.60 59.44 52.25 44.04 35.81 27.56

Primary OutFlow Max=5.57 cfs @ 3.21 hrs HW=224.31' TW=235.00' (Dynamic Tailwater)
 ↑1=Pump (Pump Controls 5.57 cfs)

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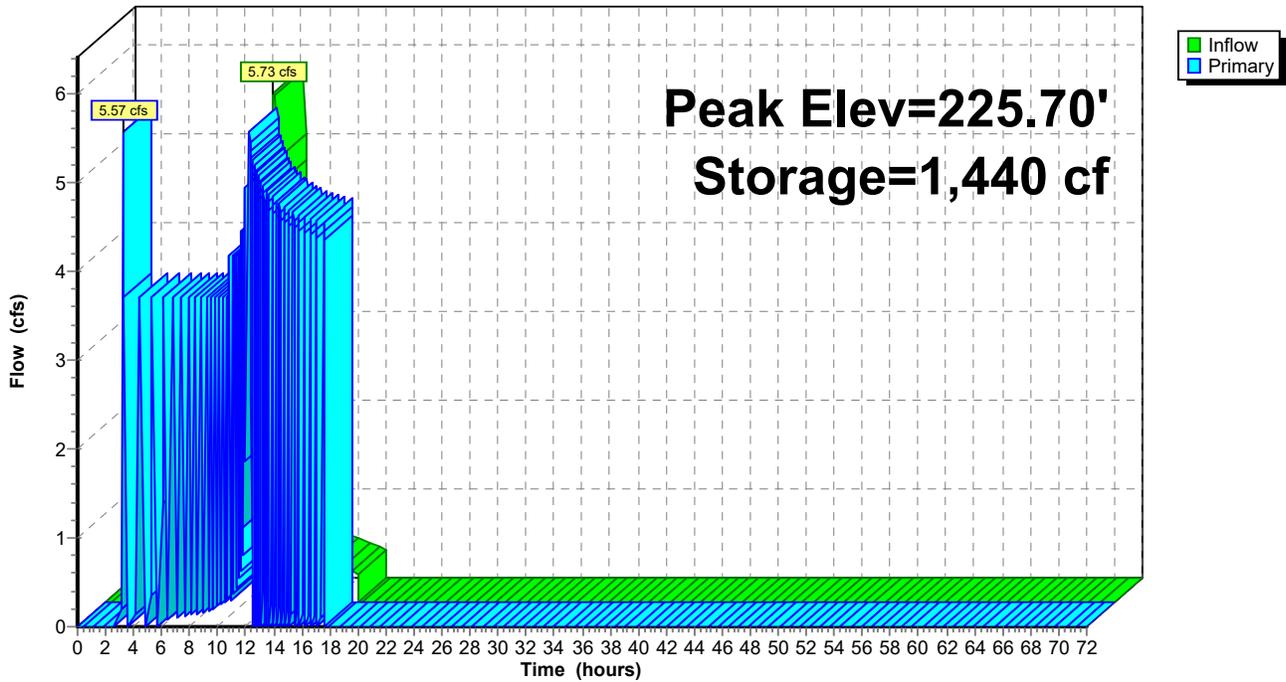
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Pond 2P: Pump

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Summary for Pond 3P: AGST

Inflow = 5.57 cfs @ 3.21 hrs, Volume= 39,571 cf
Outflow = 0.22 cfs @ 3.22 hrs, Volume= 39,578 cf, Atten= 96%, Lag= 0.6 min
Primary = 0.22 cfs @ 3.22 hrs, Volume= 39,578 cf
Routed to Link DP-1 : DP-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link DP-1 : DP-1

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 266.47' @ 17.58 hrs Surf.Area= 908 sf Storage= 28,574 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,000.9 min (1,709.5 - 708.6)

Volume	Invert	Avail.Storage	Storage Description
#1	235.00'	35,409 cf	34.00'D x 39.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	235.00'	0.223 cfs Constant Flow/Skimmer
#2	Secondary	271.49'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.22 cfs @ 3.22 hrs HW=235.22' TW=0.00' (Dynamic Tailwater)
↑**1=Constant Flow/Skimmer** (Constant Controls 0.22 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=235.00' TW=0.00' (Dynamic Tailwater)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

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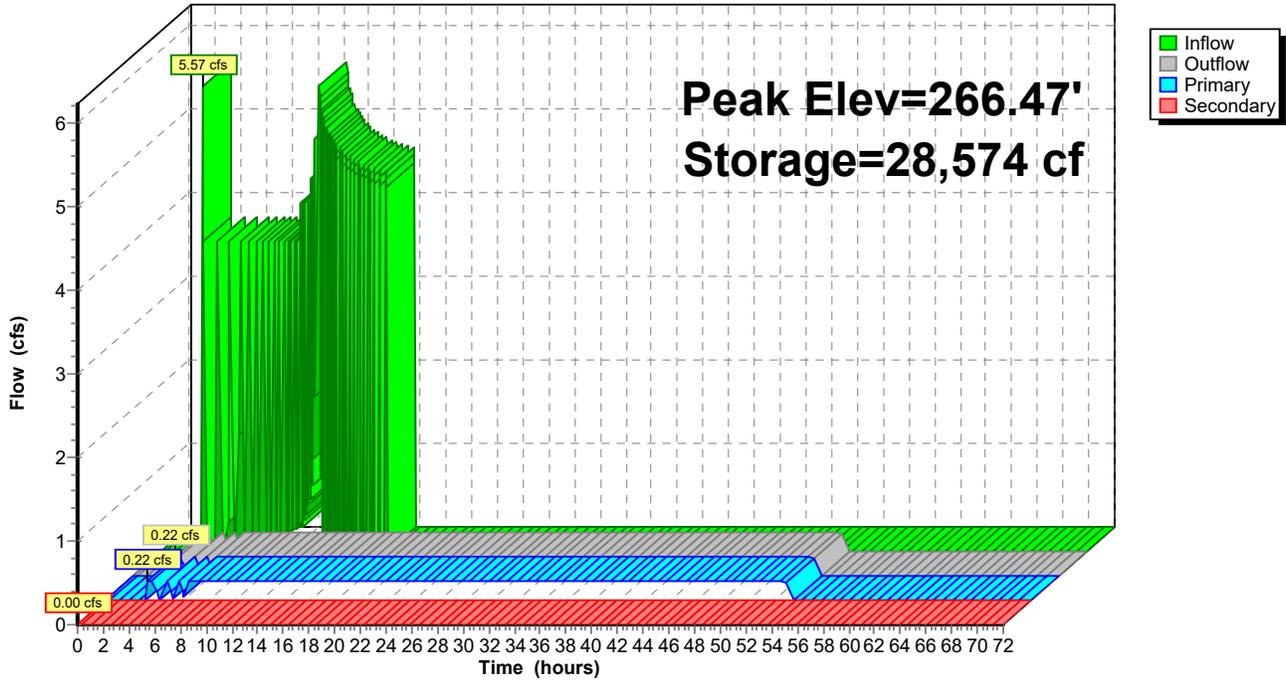
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Pond 3P: AGST

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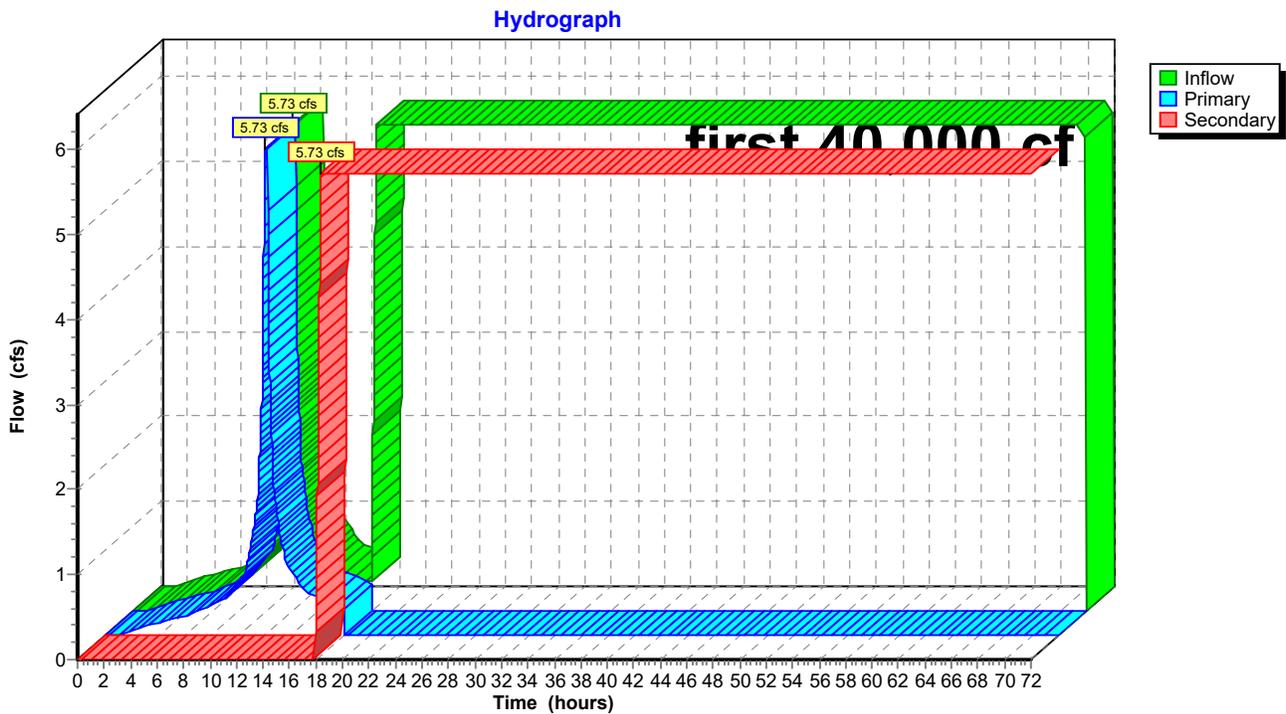
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Summary for Link 1L: Pump Shutoff Control

Inflow = 5.73 cfs @ 11.98 hrs, Volume= 1,150,490 cf
Primary = 5.73 cfs @ 11.99 hrs, Volume= 40,000 cf, Atten= 0%, Lag= 0.6 min
Routed to Pond 2P : Pump
Secondary = 5.73 cfs @ 18.36 hrs, Volume= 1,110,490 cf
Routed to Pond 1P : Diversion Structure

Primary outflow = Inflow first 40,000 cf, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1L: Pump Shutoff Control



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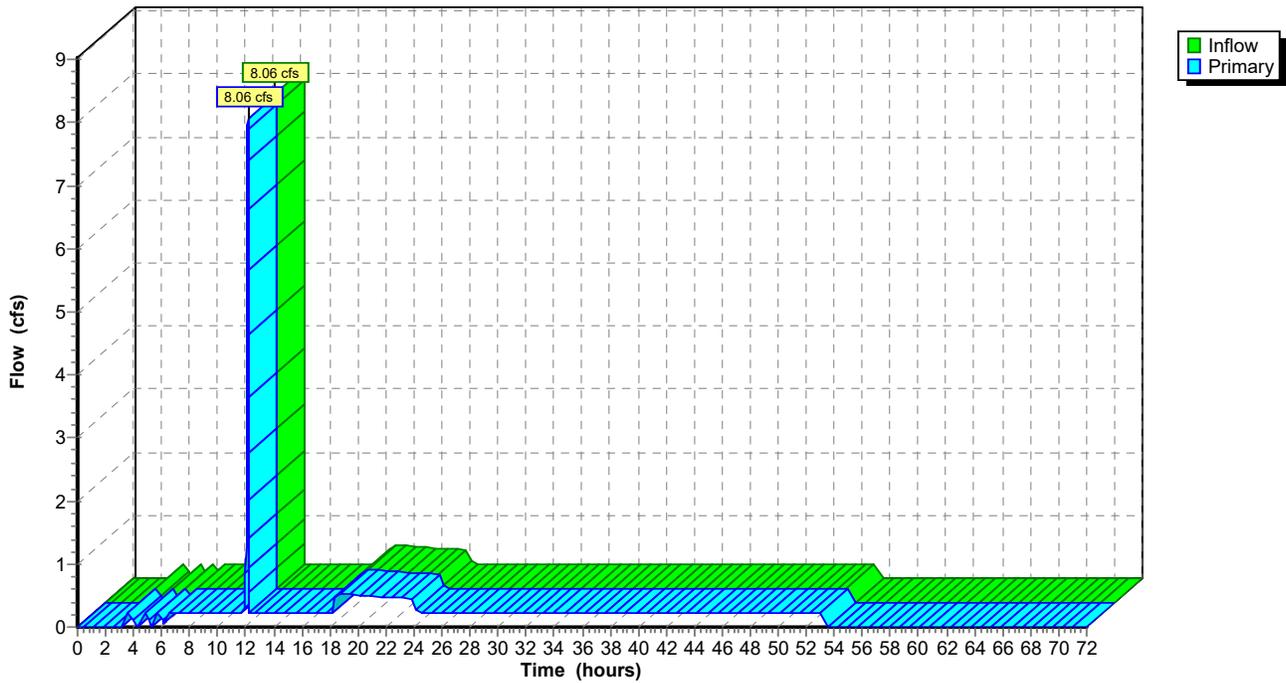
Summary for Link DP-1: DP-1

Inflow = 8.06 cfs @ 12.14 hrs, Volume= 48,876 cf
Primary = 8.06 cfs @ 12.15 hrs, Volume= 48,876 cf, Atten= 0%, Lag= 0.6 min
Routed to nonexistent node 3L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-1: DP-1

Hydrograph



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NRCC 24-hr D 2-Year Rainfall=2.82"

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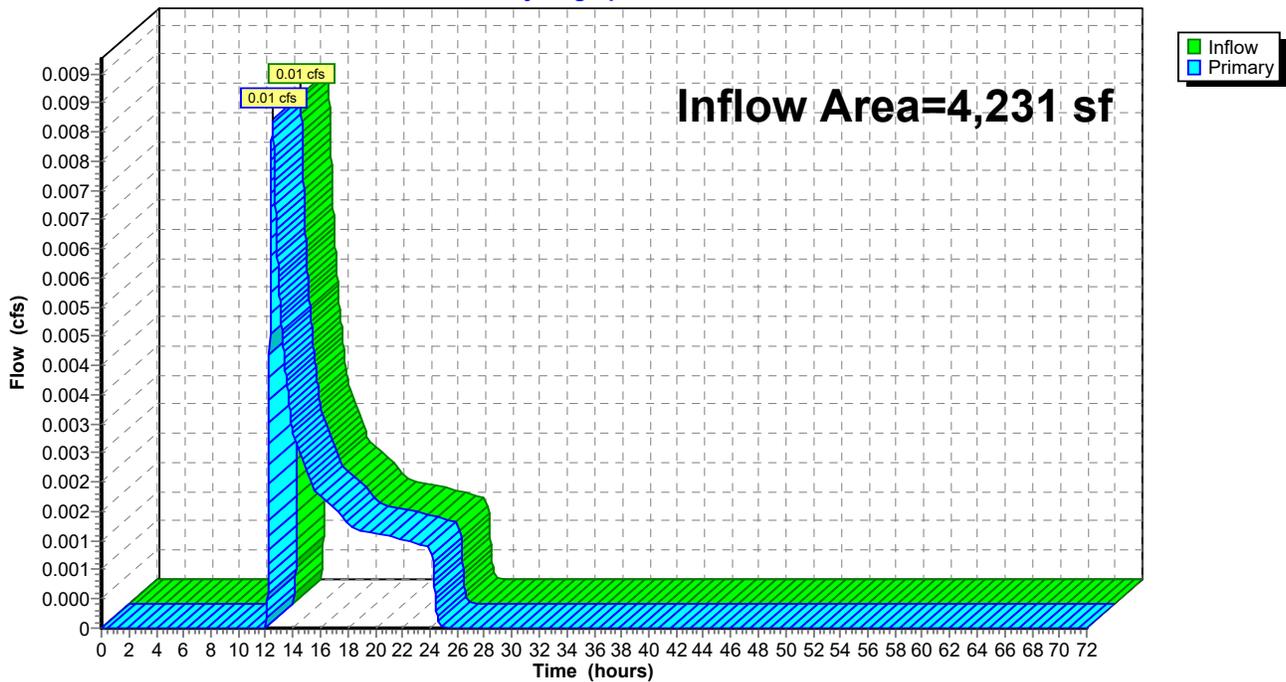
Summary for Link DP-2: DP-2

Inflow Area = 4,231 sf, 0.00% Impervious, Inflow Depth = 0.30" for 2-Year event
Inflow = 0.01 cfs @ 12.48 hrs, Volume= 106 cf
Primary = 0.01 cfs @ 12.49 hrs, Volume= 106 cf, Atten= 0%, Lag= 0.6 min
Routed to nonexistent node 3L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-2: DP-2

Hydrograph



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NRCC 24-hr D 10-Year Rainfall=4.16"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment1: Sub-catchment1	Runoff Area=33,590 sf 100.00% Impervious Runoff Depth=3.92" Flow Length=851' Tc=6.0 min CN=98 Runoff=2.90 cfs 10,986 cf
Subcatchment2: Sub-catchment2	Runoff Area=7,467 sf 100.00% Impervious Runoff Depth=3.92" Flow Length=946' Tc=6.0 min CN=98 Runoff=0.64 cfs 2,442 cf
Subcatchment3: Sub-catchment3	Runoff Area=7,120 sf 100.00% Impervious Runoff Depth=3.92" Flow Length=897' Tc=6.0 min CN=98 Runoff=0.61 cfs 2,329 cf
Subcatchment4: Sub-catchment4	Runoff Area=57,605 sf 97.94% Impervious Runoff Depth=3.92" Flow Length=632' Tc=6.0 min CN=98 Runoff=4.97 cfs 18,840 cf
Subcatchment5: Sub-catchment5	Runoff Area=14,314 sf 100.00% Impervious Runoff Depth=3.92" Flow Length=500' Tc=6.0 min CN=98 Runoff=1.24 cfs 4,682 cf
Subcatchment6: Sub-catchment6	Runoff Area=20,333 sf 100.00% Impervious Runoff Depth=3.92" Flow Length=490' Tc=6.0 min CN=98 Runoff=1.76 cfs 6,650 cf
Subcatchment7: Sub-catchment7	Runoff Area=23,381 sf 100.00% Impervious Runoff Depth=3.92" Flow Length=393' Tc=6.0 min CN=98 Runoff=2.02 cfs 7,647 cf
Subcatchment8: Sub-catchment8	Runoff Area=25,531 sf 100.00% Impervious Runoff Depth=3.92" Flow Length=359' Tc=6.0 min CN=98 Runoff=2.20 cfs 8,350 cf
Subcatchment9: Sub-catchment9	Runoff Area=7,621 sf 100.00% Impervious Runoff Depth=3.92" Flow Length=216' Tc=6.0 min CN=98 Runoff=0.66 cfs 2,493 cf
Subcatchment10: Sub-catchment10	Runoff Area=29,279 sf 73.39% Impervious Runoff Depth=3.38" Flow Length=350' Tc=6.0 min CN=93 Runoff=2.36 cfs 8,237 cf
Subcatchment11: Sub-catchment11	Runoff Area=1,822 sf 100.00% Impervious Runoff Depth=3.92" Flow Length=900' Tc=6.0 min CN=98 Runoff=0.16 cfs 596 cf
Subcatchment12: Sub-catchment12	Runoff Area=13,845 sf 39.23% Impervious Runoff Depth=2.69" Flow Length=170' Tc=6.0 min CN=86 Runoff=0.94 cfs 3,106 cf
Subcatchment13: Sub-catchment13	Runoff Area=4,231 sf 0.00% Impervious Runoff Depth=0.90" Flow Length=227' Slope=0.0100 '/' Tc=24.9 min CN=61 Runoff=0.05 cfs 316 cf
Pond 1P: Diversion Structure	Peak Elev=229.88' Inflow=20.46 cfs 1,299,203 cf Primary=5.73 cfs 1,263,259 cf Secondary=14.73 cfs 35,944 cf Outflow=20.46 cfs 1,299,203 cf
Pond 2P: Pump	Peak Elev=230.02' Storage=1,984 cf Inflow=5.73 cfs 40,000 cf Outflow=5.57 cfs 39,959 cf
Pond 3P: AGST	Peak Elev=269.91' Storage=31,697 cf Inflow=5.57 cfs 39,959 cf Primary=0.22 cfs 39,963 cf Secondary=0.00 cfs 0 cf Outflow=0.22 cfs 39,963 cf

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Link 1L: Pump Shutoff Control

first 40,000 cf Inflow=5.73 cfs 1,263,052 cf
Primary=5.73 cfs 40,000 cf Secondary=5.73 cfs 1,223,052 cf

Link DP-1: DP-1

Inflow=14.95 cfs 75,907 cf
Primary=14.95 cfs 75,907 cf

Link DP-2: DP-2

Inflow=0.05 cfs 316 cf
Primary=0.05 cfs 316 cf

Total Runoff Area = 246,139 sf Runoff Volume = 76,672 cf Average Runoff Depth = 3.74"
8.79% Pervious = 21,624 sf 91.21% Impervious = 224,515 sf

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Summary for Subcatchment 1: Sub-catchment 1

Runoff = 2.90 cfs @ 12.13 hrs, Volume= 10,986 cf, Depth= 3.92"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
15,206	98	Roofs, HSG B
18,384	98	Unconnected pavement, HSG B
33,590	98	Weighted Average
33,590		100.00% Impervious Area
18,384		54.73% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0160	1.26		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.7	49	0.0030	1.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.8	851	Total, Increased to minimum Tc = 6.0 min			

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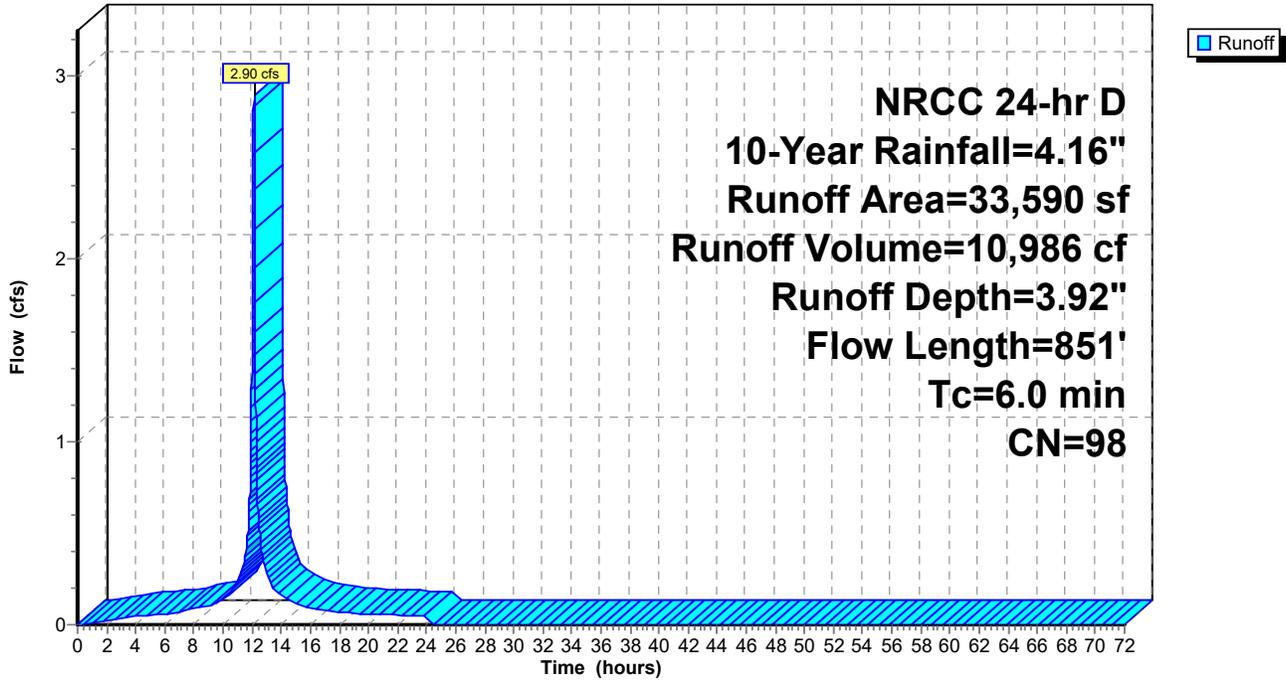
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Subcatchment 1: Sub-catchment 1

Hydrograph



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Summary for Subcatchment 2: Sub-catchment 2

Runoff = 0.64 cfs @ 12.13 hrs, Volume= 2,442 cf, Depth= 3.92"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
2,936	98	Roofs, HSG B
4,531	98	Unconnected pavement, HSG B
7,467	98	Weighted Average
7,467		100.00% Impervious Area
4,531		60.68% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	41	0.0140	1.00		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
1.0	80	0.0010	1.38	0.75	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	76	0.0120	4.77	2.60	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63'

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NRCC 24-hr D 10-Year Rainfall=4.16"

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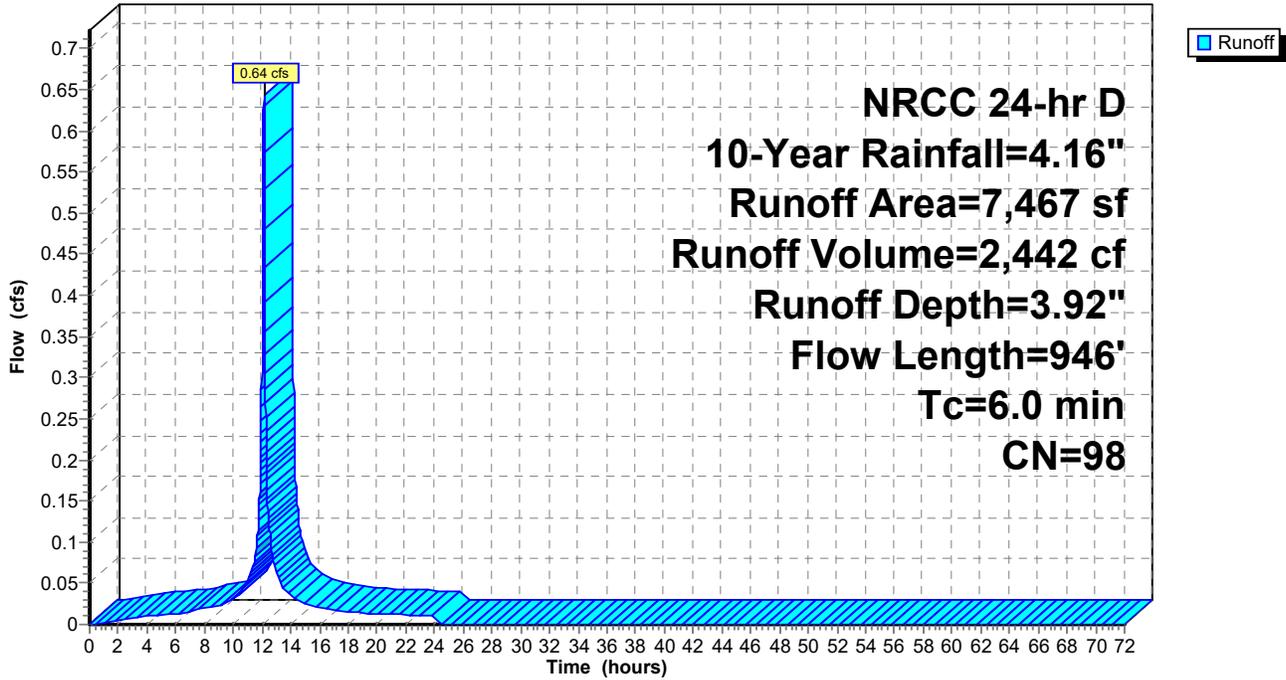
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n= 0.012 Concrete pipe, finished

5.1 946 Total, Increased to minimum Tc = 6.0 min

Subcatchment 2: Sub-catchment 2

Hydrograph



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Summary for Subcatchment 3: Sub-catchment 3

Runoff = 0.61 cfs @ 12.13 hrs, Volume= 2,329 cf, Depth= 3.92"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
2,543	98	Roofs, HSG B
4,577	98	Unconnected pavement, HSG B
7,120	98	Weighted Average
7,120		100.00% Impervious Area
4,577		64.28% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	62	0.0030	0.59		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.1	10	0.0012	1.51	0.82	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	76	0.0120	4.77	2.60	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63'

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NRCC 24-hr D 10-Year Rainfall=4.16"

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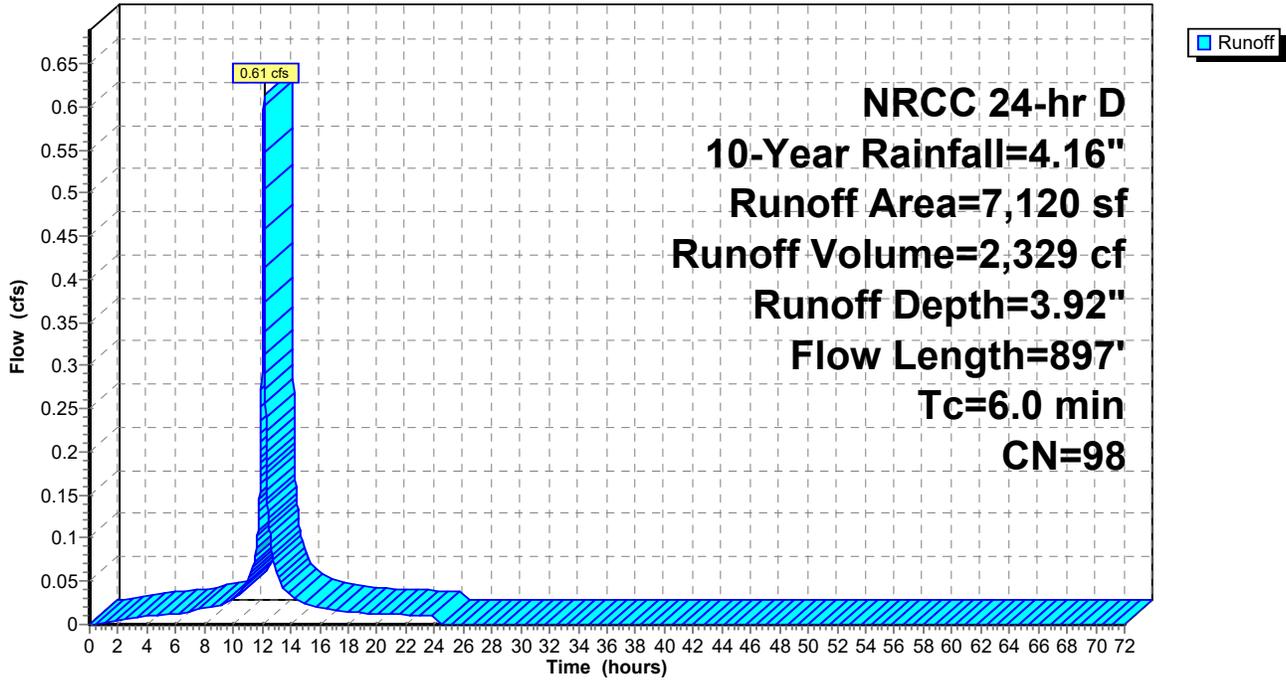
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n= 0.012 Concrete pipe, finished

5.3 897 Total, Increased to minimum Tc = 6.0 min

Subcatchment 3: Sub-catchment 3

Hydrograph



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NRCC 24-hr D 10-Year Rainfall=4.16"

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Summary for Subcatchment 4: Sub-catchment 4

Runoff = 4.97 cfs @ 12.13 hrs, Volume= 18,840 cf, Depth= 3.92"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
5,329	98	Roofs, HSG B
51,087	98	Unconnected pavement, HSG B
1,189	79	<50% Grass cover, Poor, HSG B
57,605	98	Weighted Average
1,189		2.06% Pervious Area
56,416		97.94% Impervious Area
51,087		90.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0120	1.12		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.4	77	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	10	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
3.3	632	Total, Increased to minimum Tc = 6.0 min			

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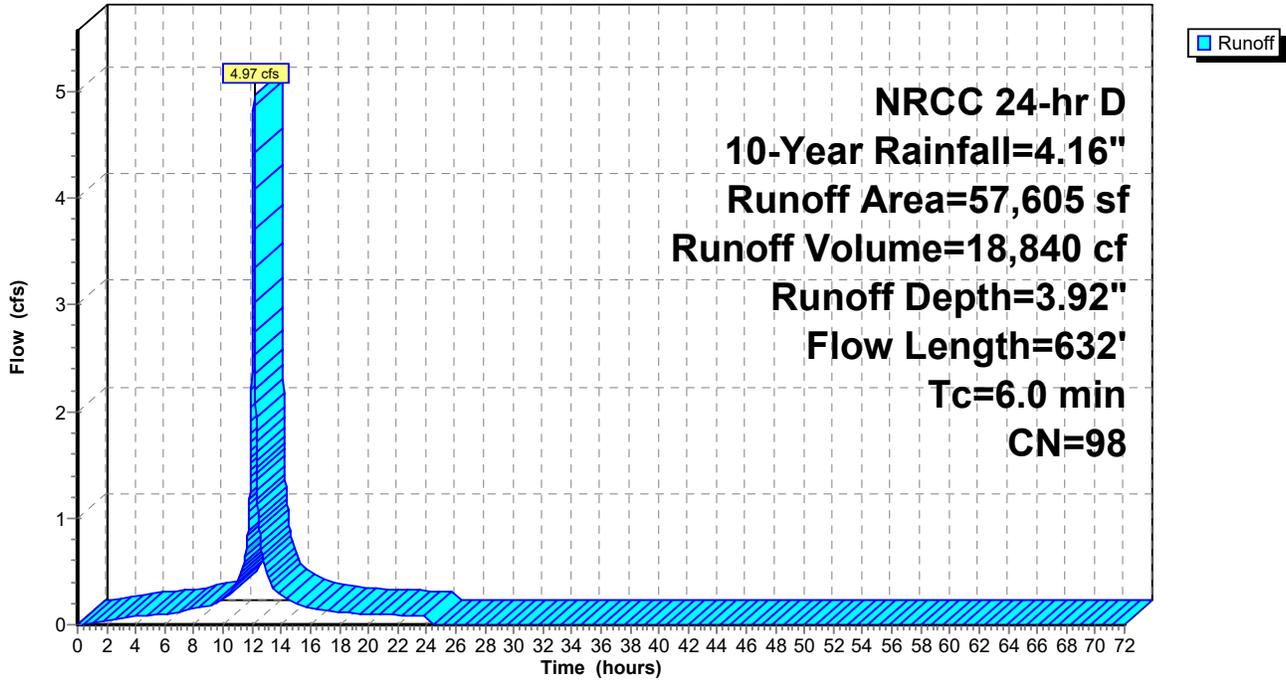
NRCC 24-hr D 10-Year Rainfall=4.16"

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Subcatchment 4: Sub-catchment 4

Hydrograph



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Summary for Subcatchment 5: Sub-catchment 5

Runoff = 1.24 cfs @ 12.13 hrs, Volume= 4,682 cf, Depth= 3.92"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
5,500	98	Roofs, HSG B
8,814	98	Unconnected pavement, HSG B
14,314	98	Weighted Average
14,314		100.00% Impervious Area
8,814		61.58% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	55	0.0550	1.83		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	85	0.0020	2.20	1.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.1	500	Total, Increased to minimum Tc = 6.0 min			

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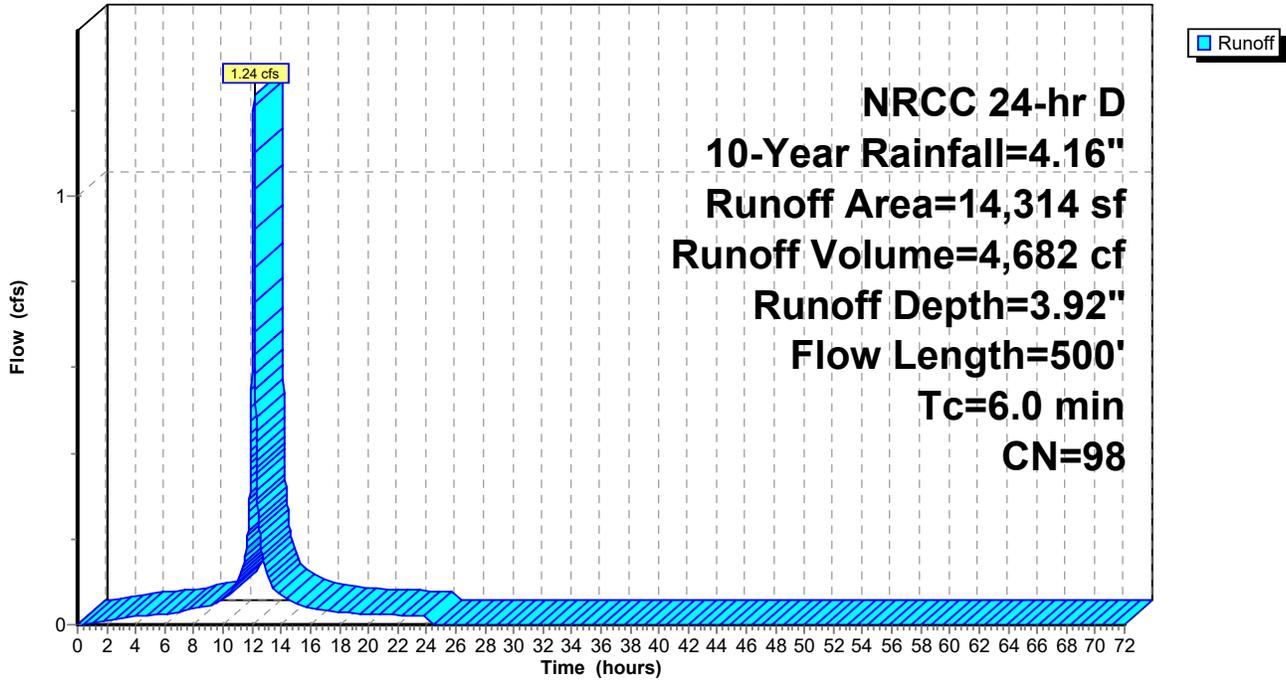
NRCC 24-hr D 10-Year Rainfall=4.16"

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Subcatchment 5: Sub-catchment 5

Hydrograph



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Summary for Subcatchment 6: Sub-catchment 6

[47] Hint: Peak is 105% of capacity of segment #3

Runoff = 1.76 cfs @ 12.13 hrs, Volume= 6,650 cf, Depth= 3.92"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
20,333	98	Unconnected pavement, HSG B
20,333		100.00% Impervious Area
20,333		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.5	55	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	10	0.0050	3.08	1.68	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
3.1	490	Total, Increased to minimum Tc = 6.0 min			

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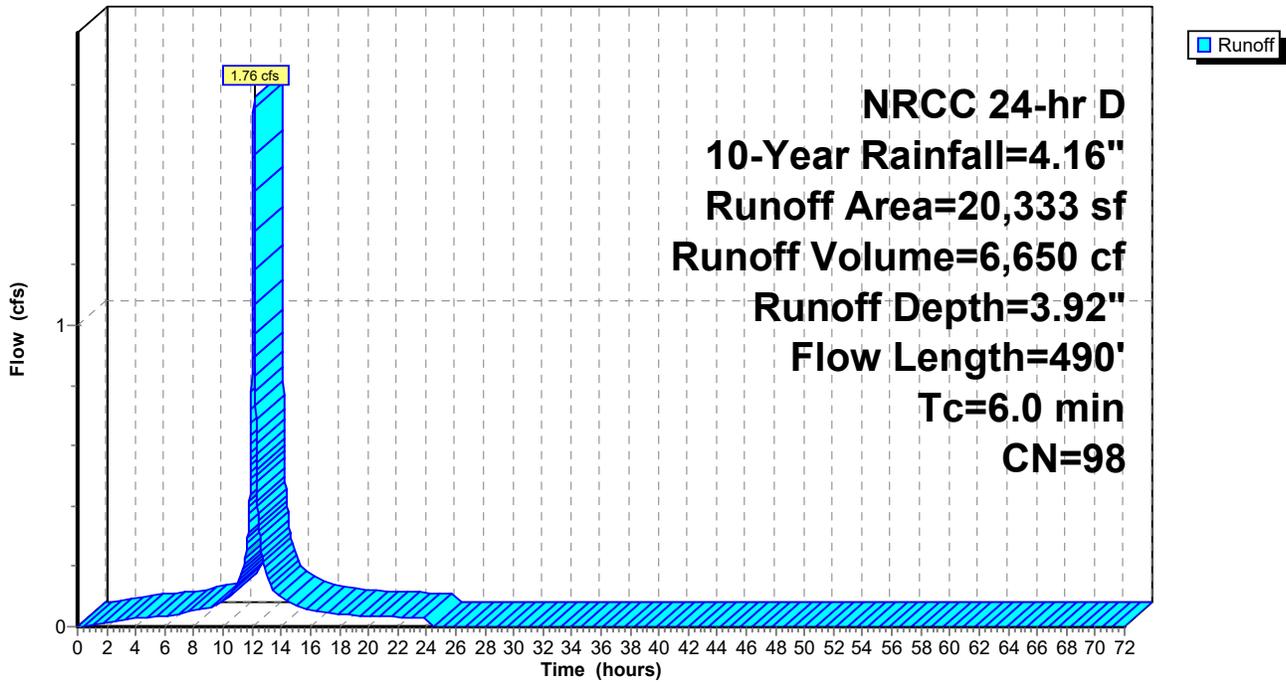
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Subcatchment 6: Sub-catchment 6

Hydrograph



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Summary for Subcatchment 7: Sub-catchment 7

Runoff = 2.02 cfs @ 12.13 hrs, Volume= 7,647 cf, Depth= 3.92"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
19,985	98	Unconnected pavement, HSG B
3,396	98	Roofs, HSG B
23,381	98	Weighted Average
23,381		100.00% Impervious Area
19,985		85.48% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.5	55	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	10	0.0050	4.55	8.05	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	393	Total, Increased to minimum Tc = 6.0 min			

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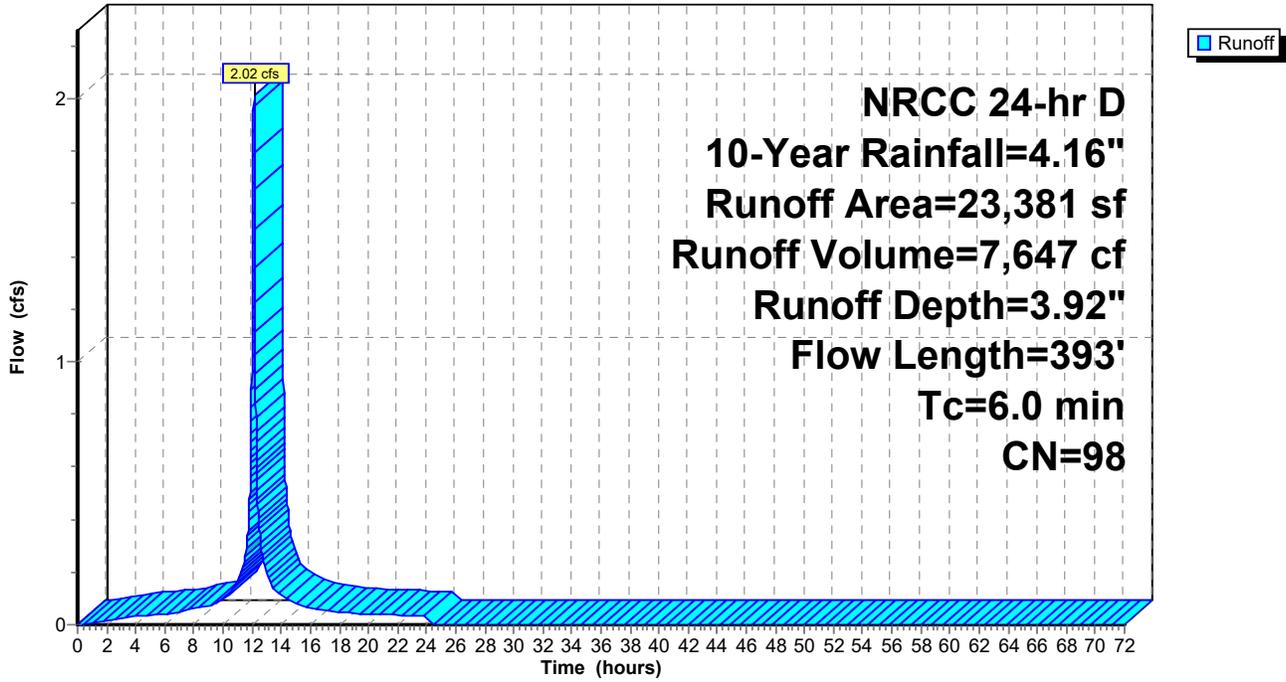
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Subcatchment 7: Sub-catchment 7

Hydrograph



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Summary for Subcatchment 8: Sub-catchment 8

Runoff = 2.20 cfs @ 12.13 hrs, Volume= 8,350 cf, Depth= 3.92"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
23,413	98	Unconnected pavement, HSG B
2,118	98	Roofs, HSG B
25,531	98	Weighted Average
25,531		100.00% Impervious Area
23,413		91.70% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0070	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	85	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	10	0.0050	4.55	8.05	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	359	Total, Increased to minimum Tc = 6.0 min			

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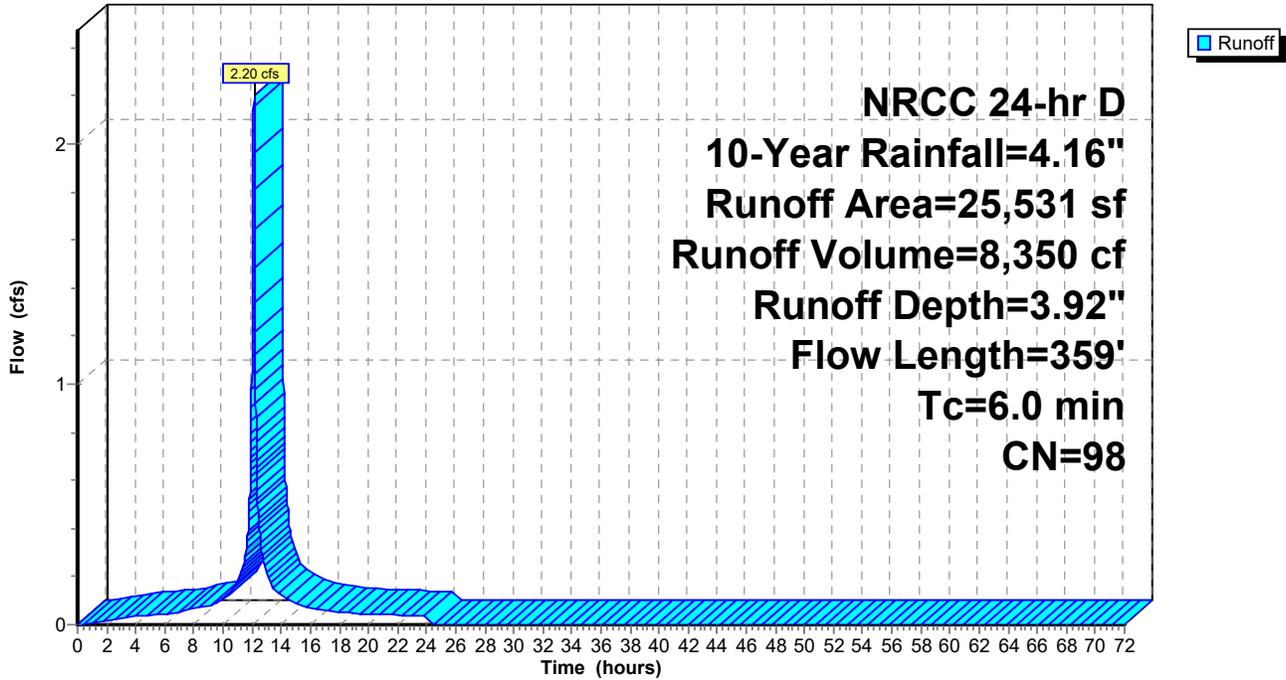
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Subcatchment 8: Sub-catchment 8

Hydrograph



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Summary for Subcatchment 9: Sub-catchment 9

Runoff = 0.66 cfs @ 12.13 hrs, Volume= 2,493 cf, Depth= 3.92"
 Routed to Pond 1P : Diversion Structure

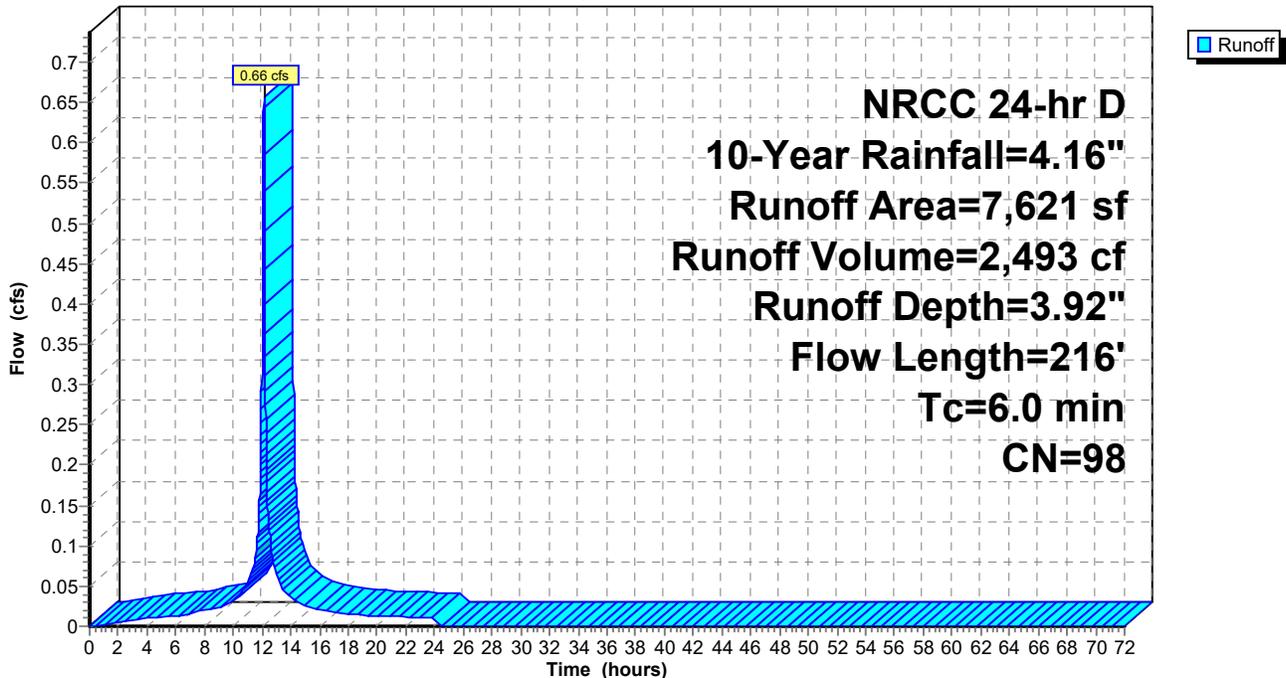
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
7,621	98	Unconnected pavement, HSG B
7,621		100.00% Impervious Area
7,621		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0090	1.00		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.7	62	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	45	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	216	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9: Sub-catchment 9

Hydrograph



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Summary for Subcatchment 10: Sub-catchment 10

Runoff = 2.36 cfs @ 12.13 hrs, Volume= 8,237 cf, Depth= 3.38"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
14,729	98	Unconnected pavement, HSG B
6,760	98	Roofs, HSG B
7,790	79	<50% Grass cover, Poor, HSG B
29,279	93	Weighted Average
7,790		26.61% Pervious Area
21,489		73.39% Impervious Area
14,729		68.54% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	75	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.5	114	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.8	350	Total, Increased to minimum Tc = 6.0 min			

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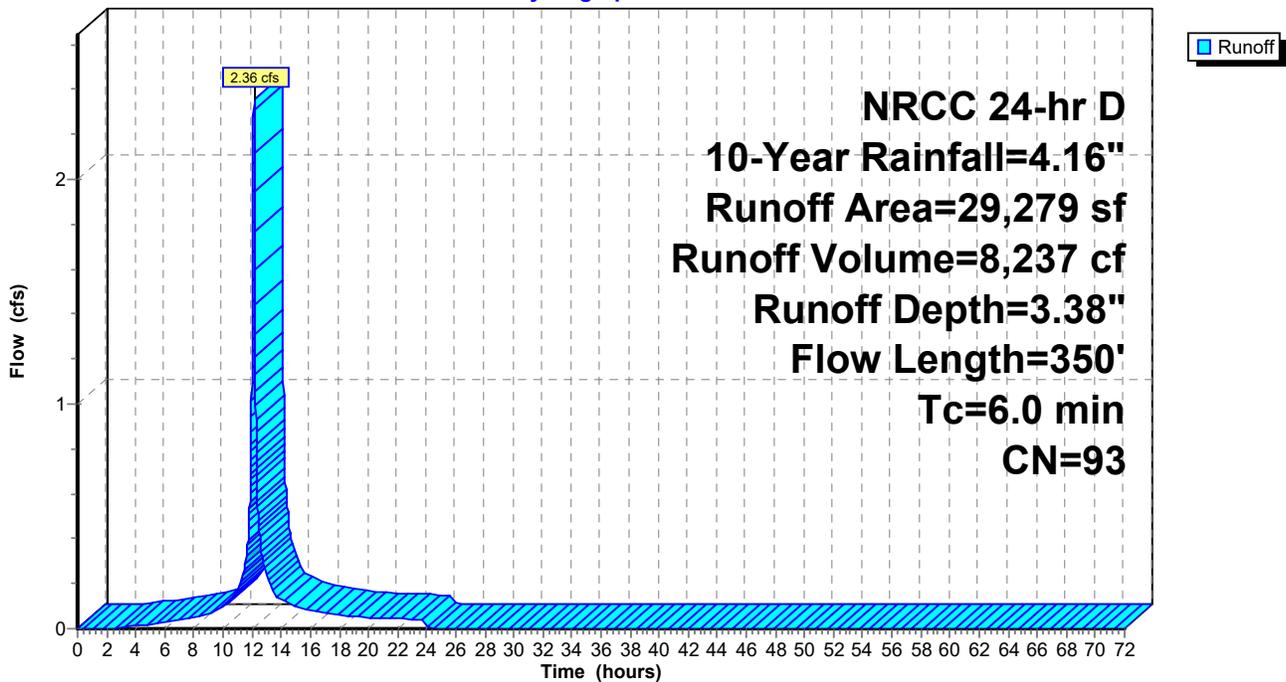
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Subcatchment 10: Sub-catchment 10

Hydrograph



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Summary for Subcatchment 11: Sub-catchment 11

Runoff = 0.16 cfs @ 12.13 hrs, Volume= 596 cf, Depth= 3.92"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
1,822	98	Unconnected pavement, HSG B
1,822		100.00% Impervious Area
1,822		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0690	1.99		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.4	59	0.0020	2.20	1.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	39	0.0050	4.03	4.95	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.1	900	Total, Increased to minimum Tc = 6.0 min			

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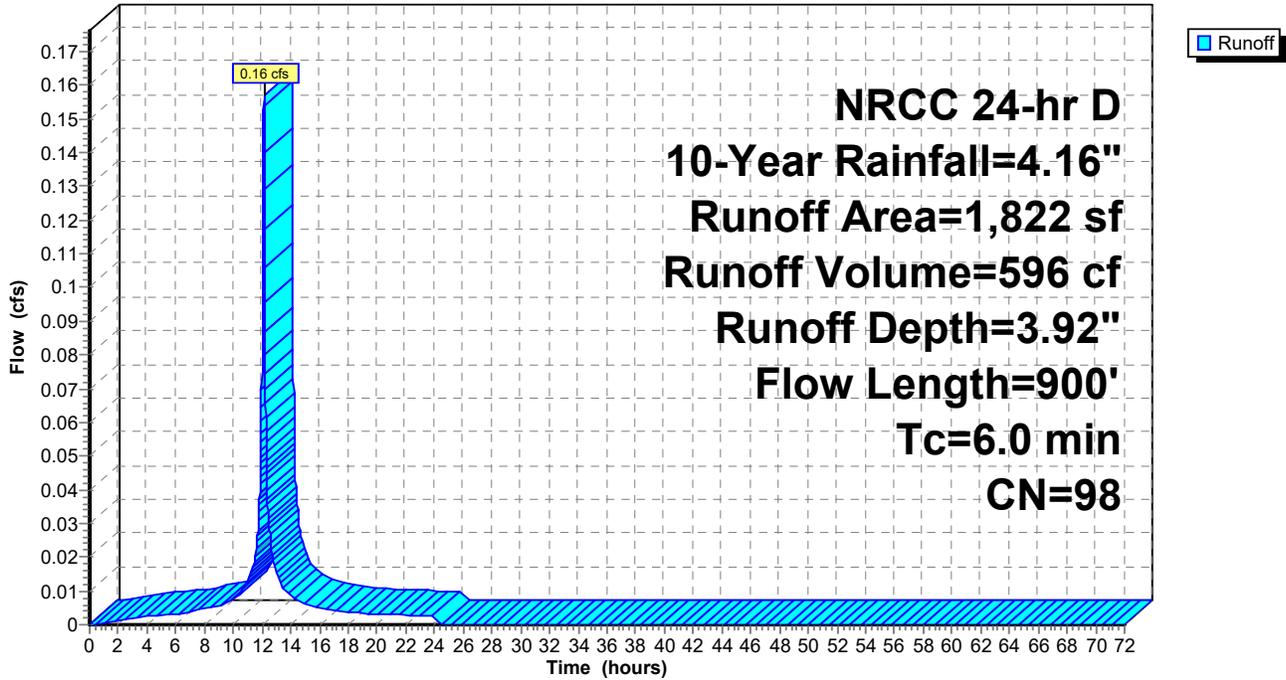
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Subcatchment 11: Sub-catchment 11

Hydrograph



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Summary for Subcatchment 12: Sub-catchment 12

Runoff = 0.94 cfs @ 12.13 hrs, Volume= 3,106 cf, Depth= 2.69"
 Routed to Pond 1P : Diversion Structure

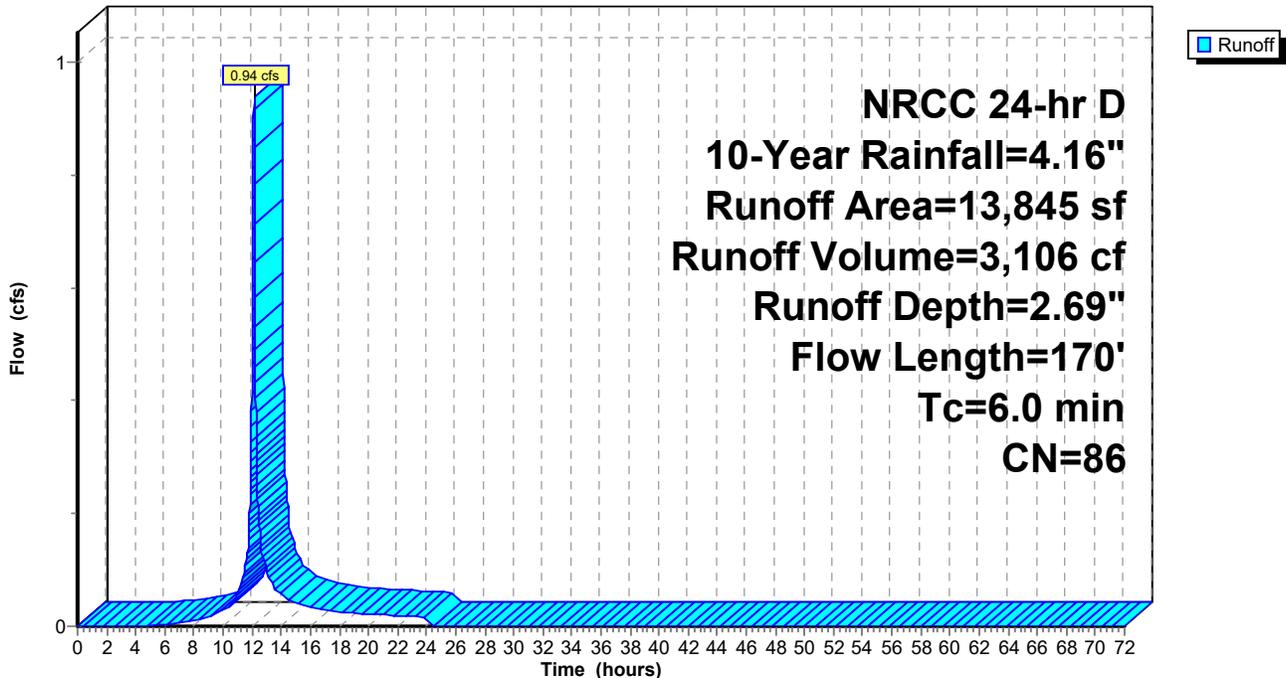
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
5,431	98	Unconnected pavement, HSG B
8,414	79	<50% Grass cover, Poor, HSG B
13,845	86	Weighted Average
8,414		60.77% Pervious Area
5,431		39.23% Impervious Area
5,431		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.2	44	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	26	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
1.9	170	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 12: Sub-catchment 12

Hydrograph



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NRCC 24-hr D 10-Year Rainfall=4.16"

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Summary for Subcatchment 13: Sub-catchment 13

Runoff = 0.05 cfs @ 12.39 hrs, Volume= 316 cf, Depth= 0.90"
 Routed to Link DP-2 : DP-2

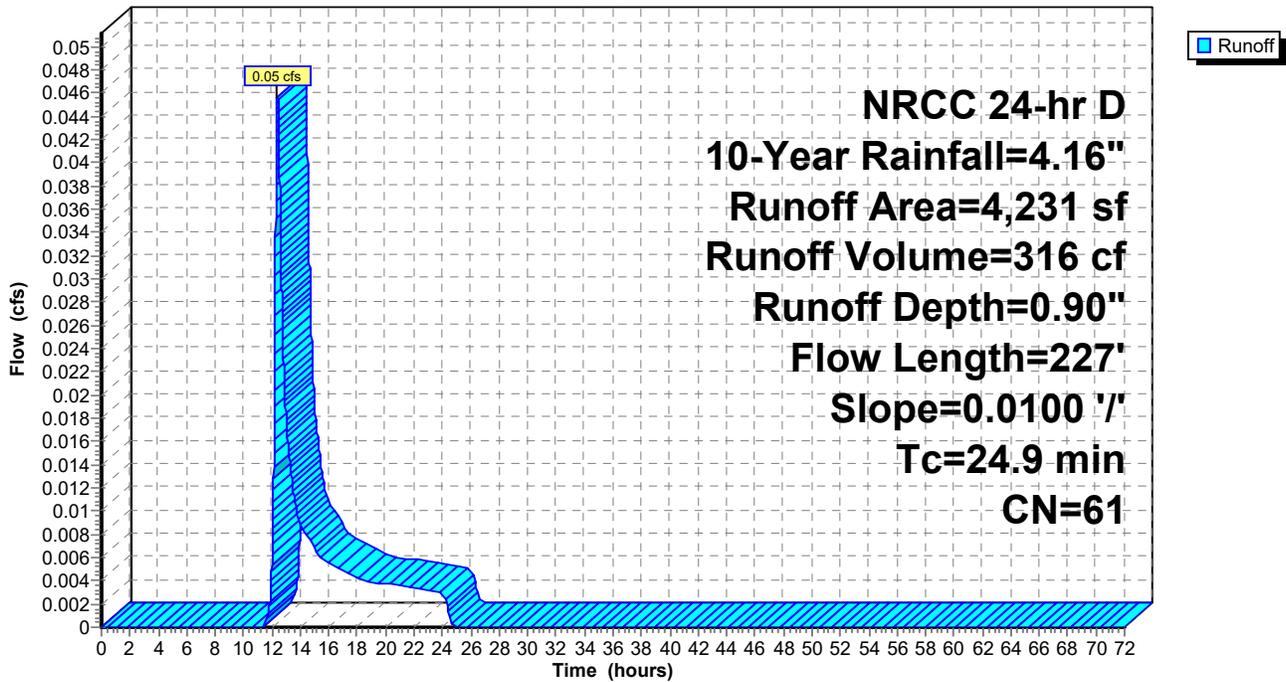
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.16"

Area (sf)	CN	Description
4,231	61	>75% Grass cover, Good, HSG B
4,231		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.9	227	0.0100	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"

Subcatchment 13: Sub-catchment 13

Hydrograph



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Summary for Pond 1P: Diversion Structure

[57] Hint: Peaked at 229.88' (Flood elevation advised)

Inflow = 20.46 cfs @ 12.13 hrs, Volume= 1,299,203 cf
 Outflow = 20.46 cfs @ 12.14 hrs, Volume= 1,299,203 cf, Atten= 0%, Lag= 0.6 min
 Primary = 5.73 cfs @ 11.89 hrs, Volume= 1,263,259 cf
 Routed to Link 1L : Pump Shutoff Control
 Secondary = 14.73 cfs @ 12.14 hrs, Volume= 35,944 cf
 Routed to Link DP-1 : DP-1

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 229.88' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	226.32'	24.0" Round Culvert L= 5.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 226.32' / 226.28' S= 0.0080 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Secondary	226.38'	30.0" Round Culvert L= 27.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 226.38' / 226.20' S= 0.0067 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 4.91 sf
#3	Device 2	228.99'	6.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#4	Device 1	225.00'	Special & User-Defined Elev. (feet) 225.00 226.32 240.00 Disch. (cfs) 0.000 5.730 5.730

Primary OutFlow Max=5.73 cfs @ 11.89 hrs HW=229.05' TW=0.00' (Dynamic Tailwater)

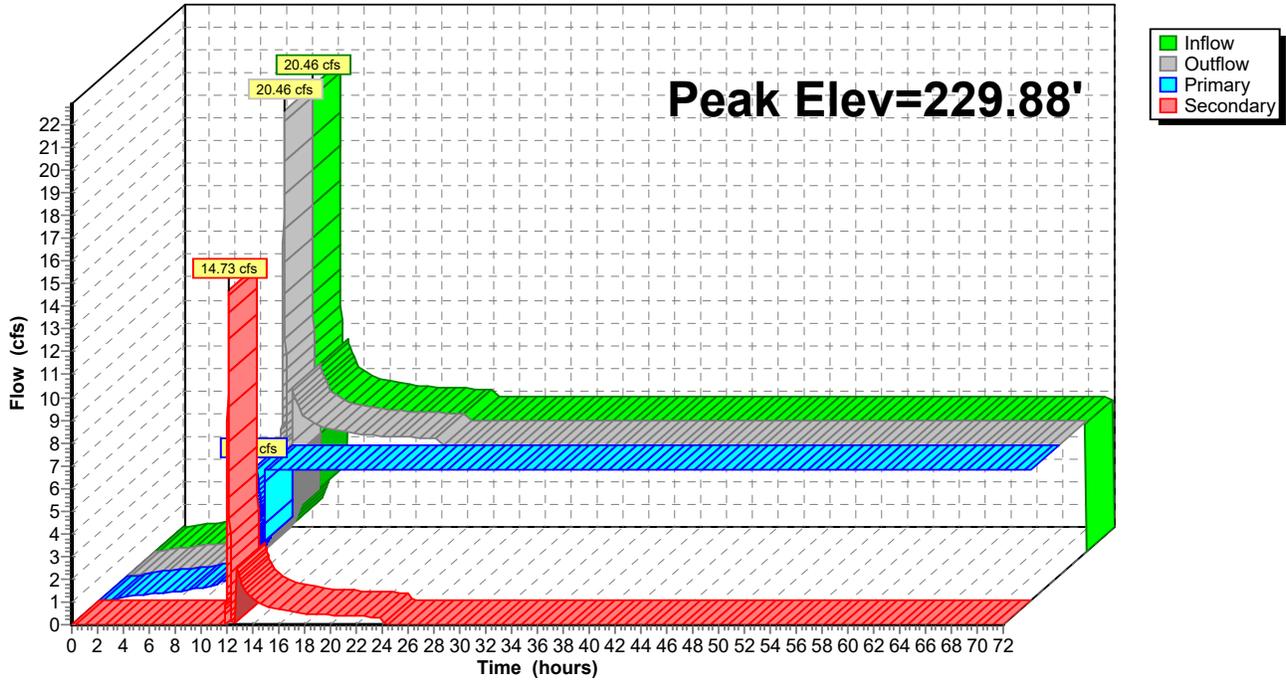
↑ **1=Culvert** (Passes 5.73 cfs of 17.70 cfs potential flow)
 ↑ **4=Special & User-Defined** (Custom Controls 5.73 cfs)

Secondary OutFlow Max=14.71 cfs @ 12.14 hrs HW=229.88' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Passes 14.71 cfs of 32.72 cfs potential flow)
 ↑ **3=Broad-Crested Rectangular Weir**(Weir Controls 14.71 cfs @ 2.75 fps)

Pond 1P: Diversion Structure

Hydrograph



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Summary for Pond 2P: Pump

[99] Warning: Min. Lift of 10.66' is below pump rating

Inflow = 5.73 cfs @ 11.90 hrs, Volume= 40,000 cf
 Outflow = 5.57 cfs @ 2.28 hrs, Volume= 39,959 cf, Atten= 3%, Lag= 0.0 min
 Primary = 5.57 cfs @ 2.28 hrs, Volume= 39,959 cf
 Routed to Pond 3P : AGST

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Starting Elev= 220.30' Surf.Area= 126 sf Storage= 760 cf
 Peak Elev= 230.02' @ 12.38 hrs Surf.Area= 126 sf Storage= 1,984 cf (1,224 cf above start)

Plug-Flow detention time= 16.5 min calculated for 39,199 cf (98% of inflow)
 Center-of-Mass det. time= 4.4 min (615.9 - 611.5)

Volume	Invert	Avail.Storage	Storage Description
#1	214.27'	2,255 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.27	126	0	0
232.17	126	2,255	2,255

Device	Routing	Invert	Outlet Devices (Turned on 32 times)
#1	Primary	224.30'	Pump Discharges@225.32' Turns Off<220.30' 12.0" Diam. x 136.0' Long Discharge, Hazen-Williams C= 150 Flow (gpm)= 0.0 250.0 500.0 750.0 1,000.0 1,250.0 1,500.0 1,750.0 2,000.0 2,250.0 2,500.0 Head (feet)= 117.00 105.00 93.00 83.00 76.00 68.00 60.00 53.00 45.00 37.00 29.00 -Loss (feet)= 0.00 0.02 0.07 0.16 0.26 0.40 0.56 0.75 0.96 1.19 1.44 =Lift (feet)= 117.00 104.98 92.93 82.84 75.74 67.60 59.44 52.25 44.04 35.81 27.56

Primary OutFlow Max=5.57 cfs @ 2.28 hrs HW=224.30' TW=235.00' (Dynamic Tailwater)
 ↑1=Pump (Pump Controls 5.57 cfs)

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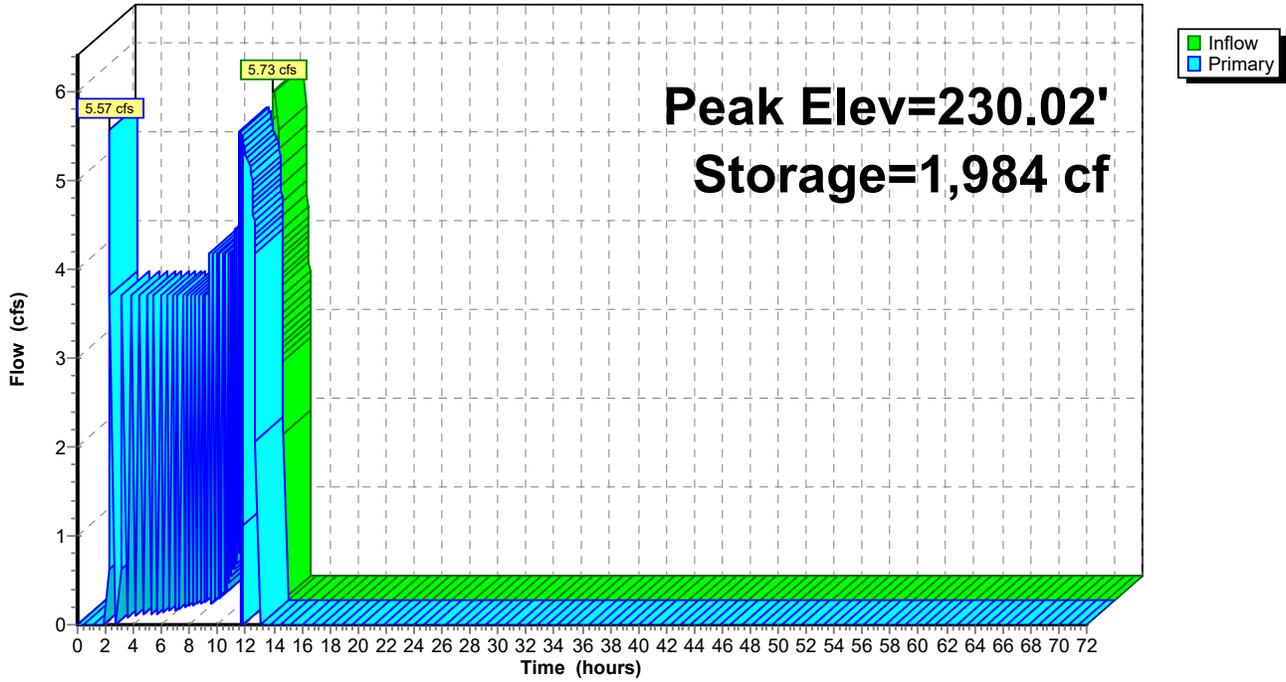
NRCC 24-hr D 10-Year Rainfall=4.16"

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Pond 2P: Pump

Hydrograph



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Summary for Pond 3P: AGST

Inflow = 5.57 cfs @ 2.28 hrs, Volume= 39,959 cf
 Outflow = 0.22 cfs @ 2.29 hrs, Volume= 39,963 cf, Atten= 96%, Lag= 0.6 min
 Primary = 0.22 cfs @ 2.29 hrs, Volume= 39,963 cf
 Routed to Link DP-1 : DP-1
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link DP-1 : DP-1

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 269.91' @ 12.70 hrs Surf.Area= 908 sf Storage= 31,697 cf

Plug-Flow detention time= 1,020.3 min calculated for 39,958 cf (100% of inflow)
 Center-of-Mass det. time= 1,020.5 min (1,636.4 - 615.9)

Volume	Invert	Avail.Storage	Storage Description
#1	235.00'	35,409 cf	34.00'D x 39.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	235.00'	0.223 cfs Constant Flow/Skimmer
#2	Secondary	271.49'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.22 cfs @ 2.29 hrs HW=235.22' TW=0.00' (Dynamic Tailwater)
 ↑1=**Constant Flow/Skimmer** (Constant Controls 0.22 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=235.00' TW=0.00' (Dynamic Tailwater)
 ↑2=**Orifice/Grate** (Controls 0.00 cfs)

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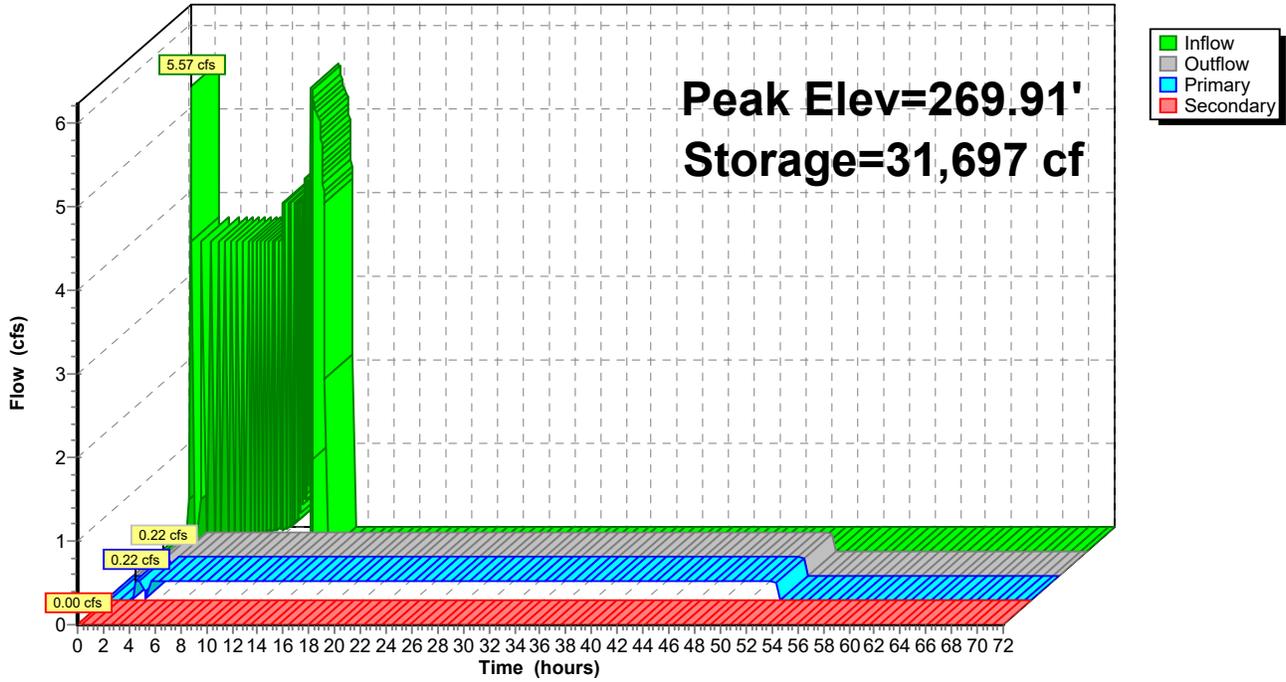
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Pond 3P: AGST

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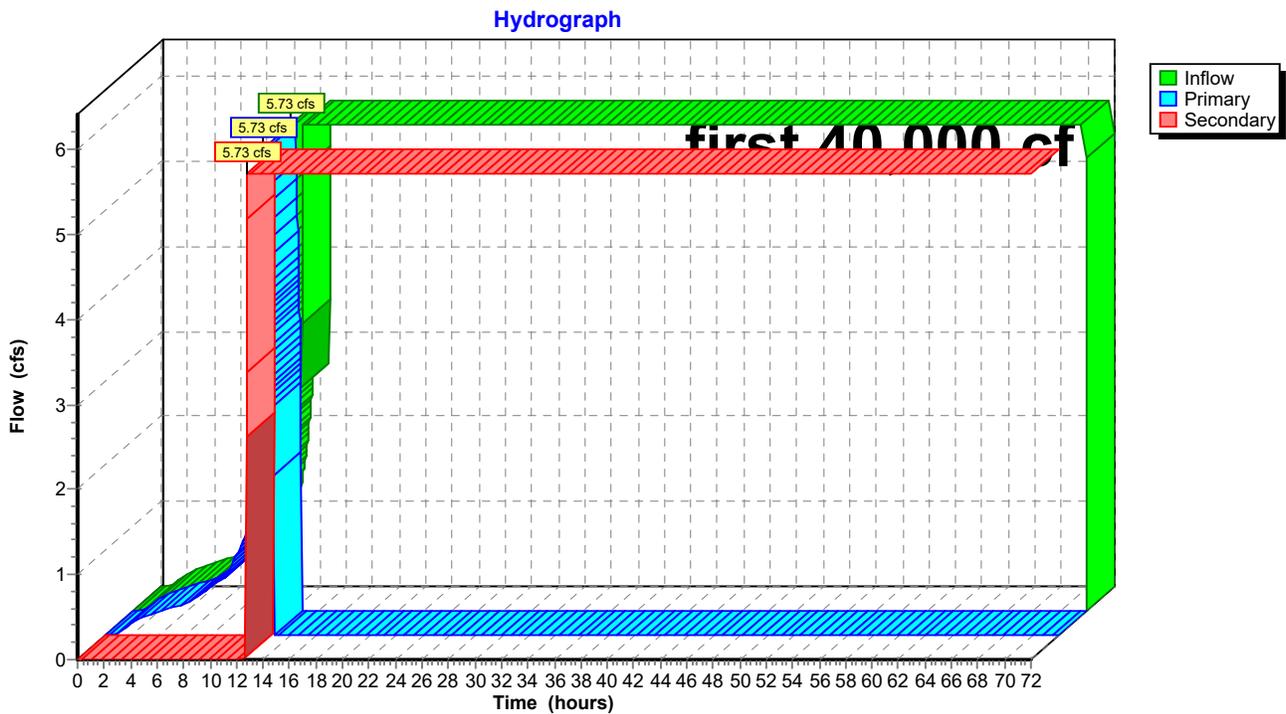
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Summary for Link 1L: Pump Shutoff Control

Inflow = 5.73 cfs @ 11.89 hrs, Volume= 1,263,052 cf
Primary = 5.73 cfs @ 11.90 hrs, Volume= 40,000 cf, Atten= 0%, Lag= 0.6 min
Routed to Pond 2P : Pump
Secondary = 5.73 cfs @ 12.74 hrs, Volume= 1,223,052 cf
Routed to Pond 1P : Diversion Structure

Primary outflow = Inflow first 40,000 cf, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1L: Pump Shutoff Control



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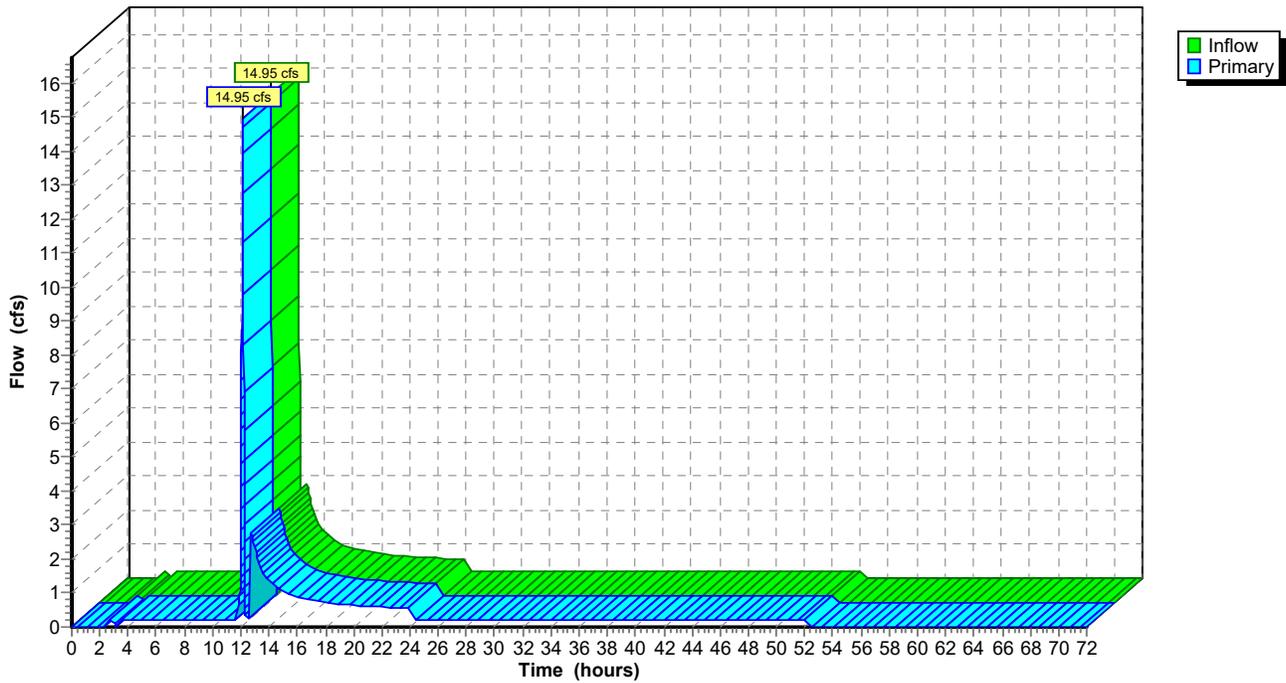
Summary for Link DP-1: DP-1

Inflow = 14.95 cfs @ 12.14 hrs, Volume= 75,907 cf
Primary = 14.95 cfs @ 12.15 hrs, Volume= 75,907 cf, Atten= 0%, Lag= 0.6 min
Routed to nonexistent node 3L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-1: DP-1

Hydrograph



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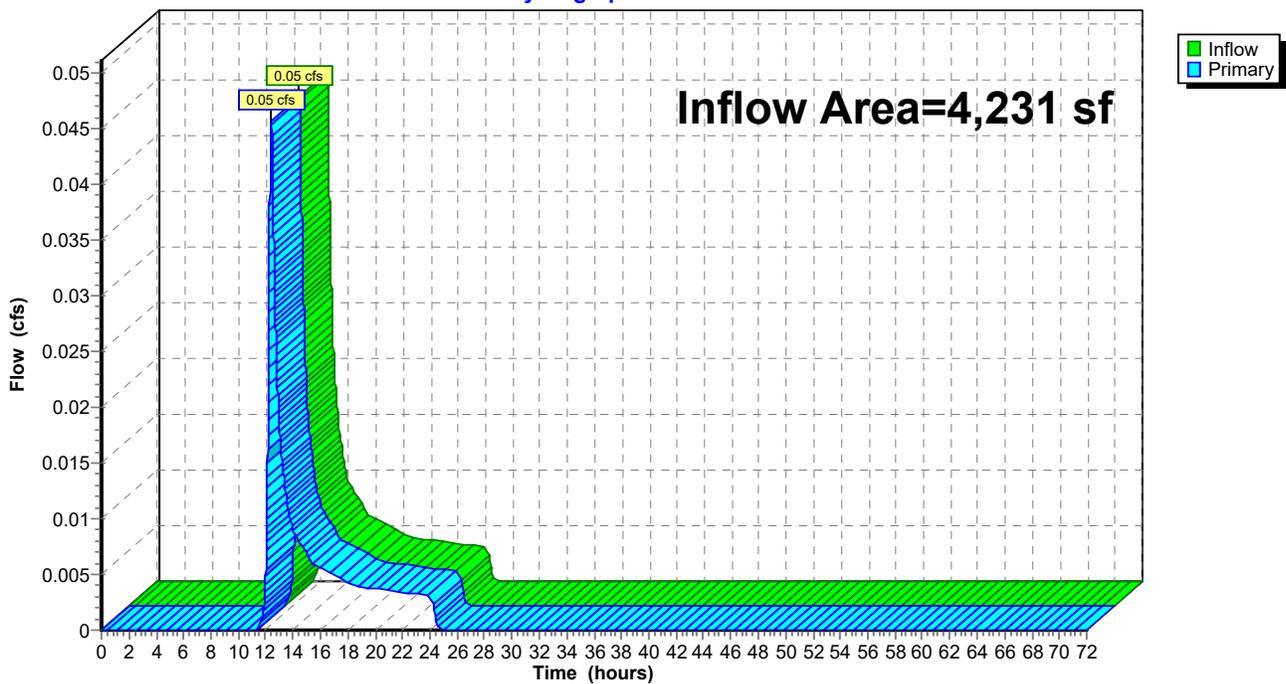
Summary for Link DP-2: DP-2

Inflow Area = 4,231 sf, 0.00% Impervious, Inflow Depth = 0.90" for 10-Year event
Inflow = 0.05 cfs @ 12.39 hrs, Volume= 316 cf
Primary = 0.05 cfs @ 12.40 hrs, Volume= 316 cf, Atten= 0%, Lag= 0.6 min
Routed to nonexistent node 3L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-2: DP-2

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NRCC 24-hr D 25-Year Rainfall=5.20"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment1: Sub-catchment1	Runoff Area=33,590 sf 100.00% Impervious Runoff Depth=4.96" Flow Length=851' Tc=6.0 min CN=98 Runoff=3.63 cfs 13,892 cf
Subcatchment2: Sub-catchment2	Runoff Area=7,467 sf 100.00% Impervious Runoff Depth=4.96" Flow Length=946' Tc=6.0 min CN=98 Runoff=0.81 cfs 3,088 cf
Subcatchment3: Sub-catchment3	Runoff Area=7,120 sf 100.00% Impervious Runoff Depth=4.96" Flow Length=897' Tc=6.0 min CN=98 Runoff=0.77 cfs 2,945 cf
Subcatchment4: Sub-catchment4	Runoff Area=57,605 sf 97.94% Impervious Runoff Depth=4.96" Flow Length=632' Tc=6.0 min CN=98 Runoff=6.23 cfs 23,824 cf
Subcatchment5: Sub-catchment5	Runoff Area=14,314 sf 100.00% Impervious Runoff Depth=4.96" Flow Length=500' Tc=6.0 min CN=98 Runoff=1.55 cfs 5,920 cf
Subcatchment6: Sub-catchment6	Runoff Area=20,333 sf 100.00% Impervious Runoff Depth=4.96" Flow Length=490' Tc=6.0 min CN=98 Runoff=2.20 cfs 8,409 cf
Subcatchment7: Sub-catchment7	Runoff Area=23,381 sf 100.00% Impervious Runoff Depth=4.96" Flow Length=393' Tc=6.0 min CN=98 Runoff=2.53 cfs 9,670 cf
Subcatchment8: Sub-catchment8	Runoff Area=25,531 sf 100.00% Impervious Runoff Depth=4.96" Flow Length=359' Tc=6.0 min CN=98 Runoff=2.76 cfs 10,559 cf
Subcatchment9: Sub-catchment9	Runoff Area=7,621 sf 100.00% Impervious Runoff Depth=4.96" Flow Length=216' Tc=6.0 min CN=98 Runoff=0.82 cfs 3,152 cf
Subcatchment10: Sub-catchment10	Runoff Area=29,279 sf 73.39% Impervious Runoff Depth=4.39" Flow Length=350' Tc=6.0 min CN=93 Runoff=3.02 cfs 10,722 cf
Subcatchment11: Sub-catchment11	Runoff Area=1,822 sf 100.00% Impervious Runoff Depth=4.96" Flow Length=900' Tc=6.0 min CN=98 Runoff=0.20 cfs 754 cf
Subcatchment12: Sub-catchment12	Runoff Area=13,845 sf 39.23% Impervious Runoff Depth=3.65" Flow Length=170' Tc=6.0 min CN=86 Runoff=1.26 cfs 4,216 cf
Subcatchment13: Sub-catchment13	Runoff Area=4,231 sf 0.00% Impervious Runoff Depth=1.49" Flow Length=227' Slope=0.0100 '/' Tc=24.9 min CN=61 Runoff=0.08 cfs 526 cf
Pond 1P: Diversion Structure	Peak Elev=230.06' Inflow=25.78 cfs 1,330,447 cf Primary=5.73 cfs 1,273,710 cf Secondary=20.05 cfs 56,737 cf Outflow=25.78 cfs 1,330,447 cf
Pond 2P: Pump	Peak Elev=231.82' Storage=2,211 cf Inflow=5.73 cfs 40,000 cf Outflow=5.57 cfs 40,139 cf
Pond 3P: AGST	Peak Elev=270.01' Storage=31,788 cf Inflow=5.57 cfs 40,139 cf Primary=0.22 cfs 40,140 cf Secondary=0.00 cfs 0 cf Outflow=0.22 cfs 40,140 cf

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Link 1L: Pump Shutoff Control

first 40,000 cf Inflow=5.73 cfs 1,273,504 cf
Primary=5.73 cfs 40,000 cf Secondary=5.73 cfs 1,233,504 cf

Link DP-1: DP-1

Inflow=20.28 cfs 96,877 cf
Primary=20.28 cfs 96,877 cf

Link DP-2: DP-2

Inflow=0.08 cfs 526 cf
Primary=0.08 cfs 526 cf

Total Runoff Area = 246,139 sf Runoff Volume = 97,675 cf Average Runoff Depth = 4.76"
8.79% Pervious = 21,624 sf 91.21% Impervious = 224,515 sf

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Summary for Subcatchment 1: Sub-catchment 1

Runoff = 3.63 cfs @ 12.13 hrs, Volume= 13,892 cf, Depth= 4.96"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
15,206	98	Roofs, HSG B
18,384	98	Unconnected pavement, HSG B
33,590	98	Weighted Average
33,590		100.00% Impervious Area
18,384		54.73% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0160	1.26		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.7	49	0.0030	1.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.8	851	Total, Increased to minimum Tc = 6.0 min			

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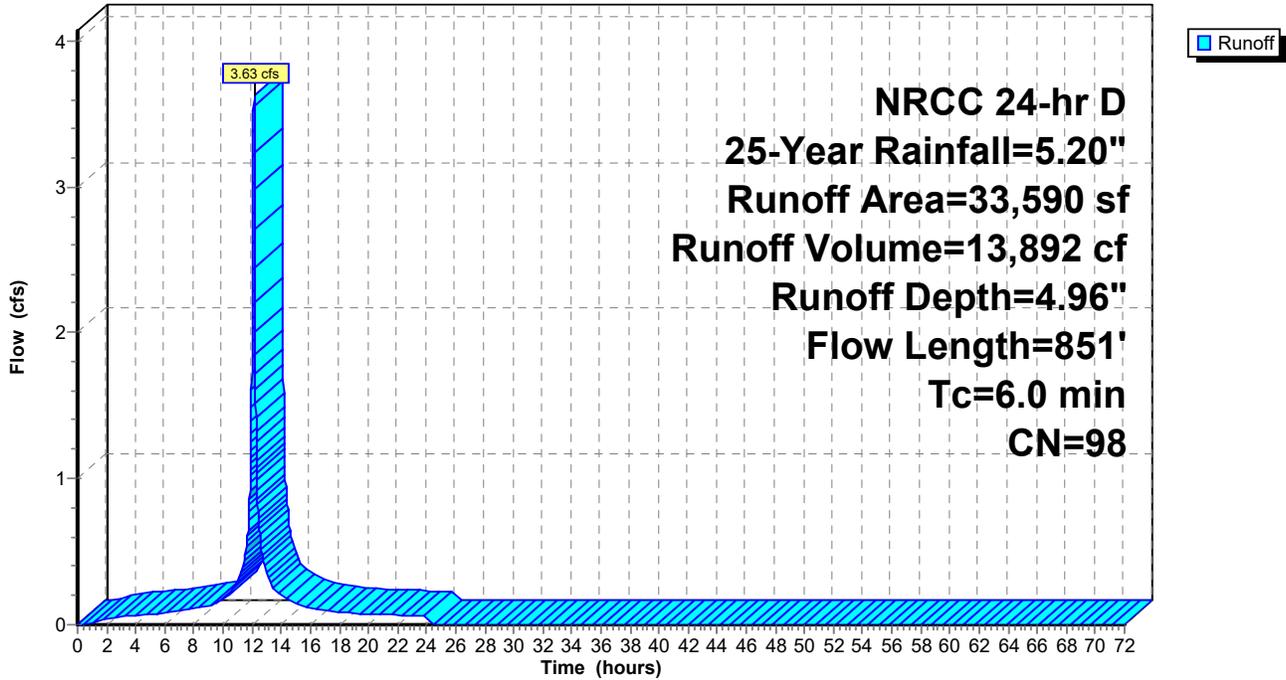
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Subcatchment 1: Sub-catchment 1

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Summary for Subcatchment 2: Sub-catchment 2

[47] Hint: Peak is 108% of capacity of segment #2

Runoff = 0.81 cfs @ 12.13 hrs, Volume= 3,088 cf, Depth= 4.96"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
2,936	98	Roofs, HSG B
4,531	98	Unconnected pavement, HSG B
7,467	98	Weighted Average
7,467		100.00% Impervious Area
4,531		60.68% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	41	0.0140	1.00		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
1.0	80	0.0010	1.38	0.75	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	76	0.0120	4.77	2.60	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished

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NRCC 24-hr D 25-Year Rainfall=5.20"

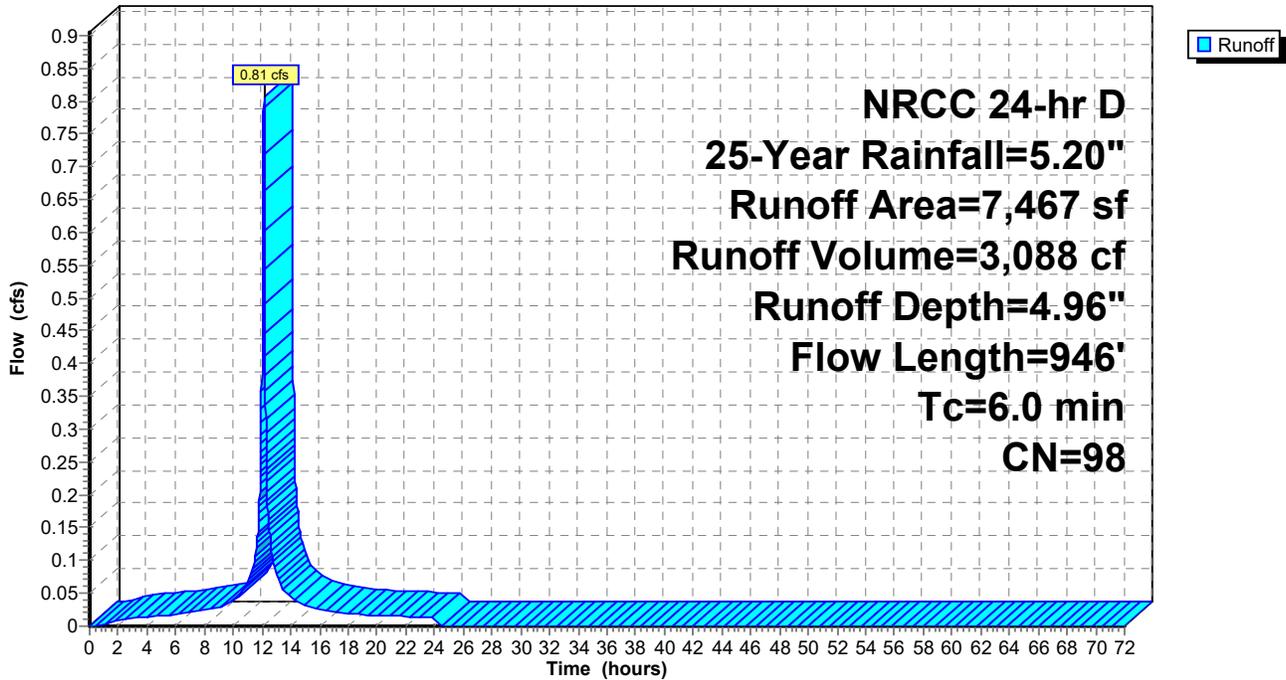
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0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
5.1	946	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2: Sub-catchment 2

Hydrograph



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NRCC 24-hr D 25-Year Rainfall=5.20"

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Summary for Subcatchment 3: Sub-catchment 3

Runoff = 0.77 cfs @ 12.13 hrs, Volume= 2,945 cf, Depth= 4.96"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
2,543	98	Roofs, HSG B
4,577	98	Unconnected pavement, HSG B
7,120	98	Weighted Average
7,120		100.00% Impervious Area
4,577		64.28% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	62	0.0030	0.59		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.1	10	0.0012	1.51	0.82	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	76	0.0120	4.77	2.60	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63'

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NRCC 24-hr D 25-Year Rainfall=5.20"

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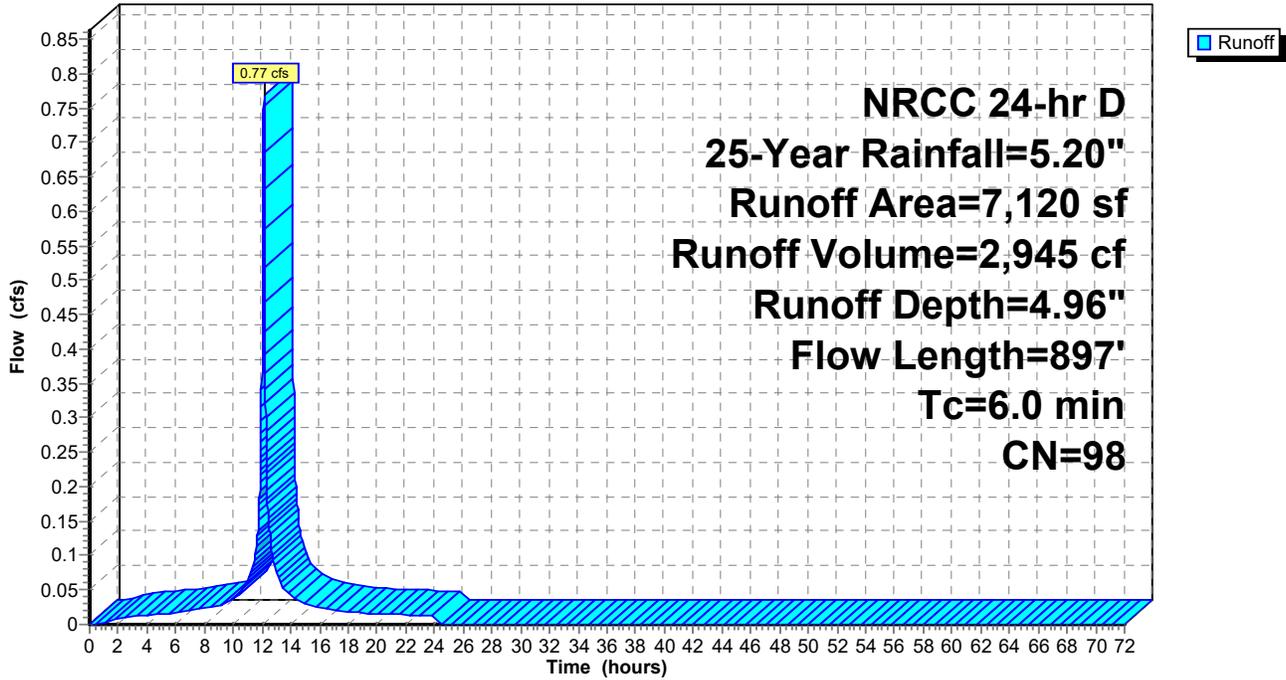
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n= 0.012 Concrete pipe, finished

5.3 897 Total, Increased to minimum Tc = 6.0 min

Subcatchment 3: Sub-catchment 3

Hydrograph



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Summary for Subcatchment 4: Sub-catchment 4

[47] Hint: Peak is 122% of capacity of segment #3

Runoff = 6.23 cfs @ 12.13 hrs, Volume= 23,824 cf, Depth= 4.96"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
5,329	98	Roofs, HSG B
51,087	98	Unconnected pavement, HSG B
1,189	79	<50% Grass cover, Poor, HSG B
57,605	98	Weighted Average
1,189		2.06% Pervious Area
56,416		97.94% Impervious Area
51,087		90.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
1.5	100	0.0120	1.12		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"	
0.4	77	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps	
0.1	10	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished	
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished	
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished	
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished	
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished	
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished	
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished	
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished	
3.3	632	Total, Increased to minimum Tc = 6.0 min				

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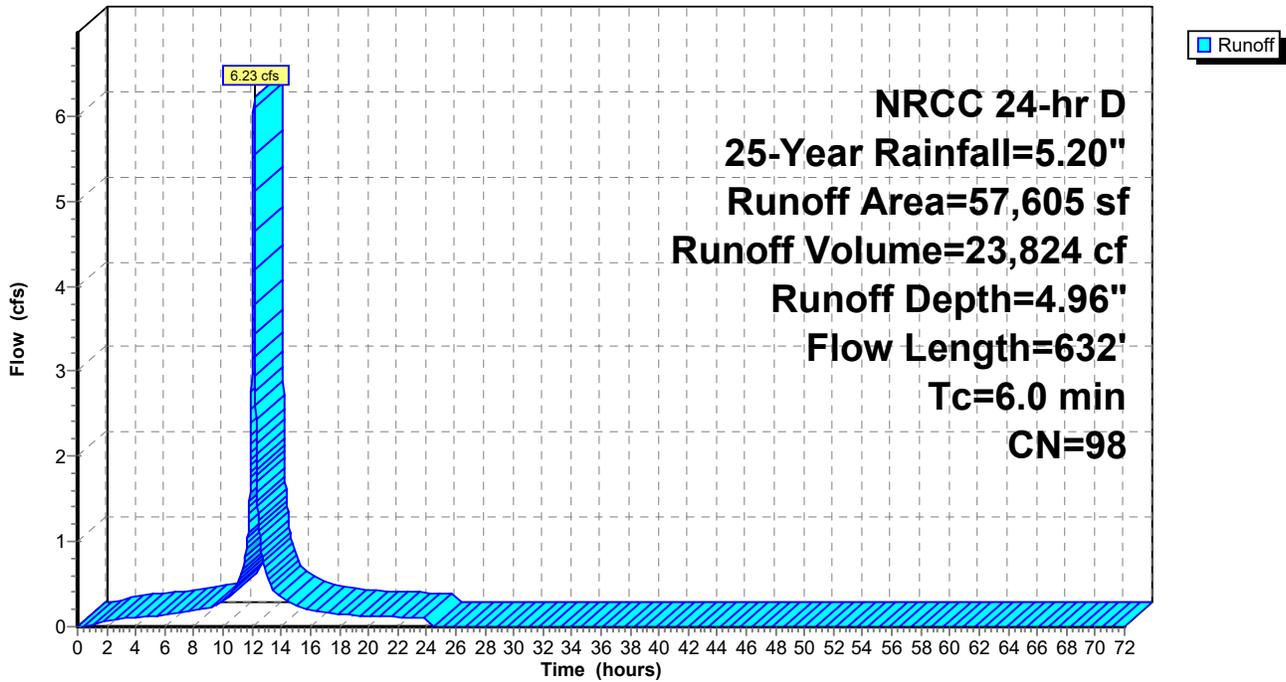
NRCC 24-hr D 25-Year Rainfall=5.20"

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Subcatchment 4: Sub-catchment 4

Hydrograph



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NRCC 24-hr D 25-Year Rainfall=5.20"

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Summary for Subcatchment 5: Sub-catchment 5

Runoff = 1.55 cfs @ 12.13 hrs, Volume= 5,920 cf, Depth= 4.96"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
5,500	98	Roofs, HSG B
8,814	98	Unconnected pavement, HSG B
14,314	98	Weighted Average
14,314		100.00% Impervious Area
8,814		61.58% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	55	0.0550	1.83		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	85	0.0020	2.20	1.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.1	500	Total, Increased to minimum Tc = 6.0 min			

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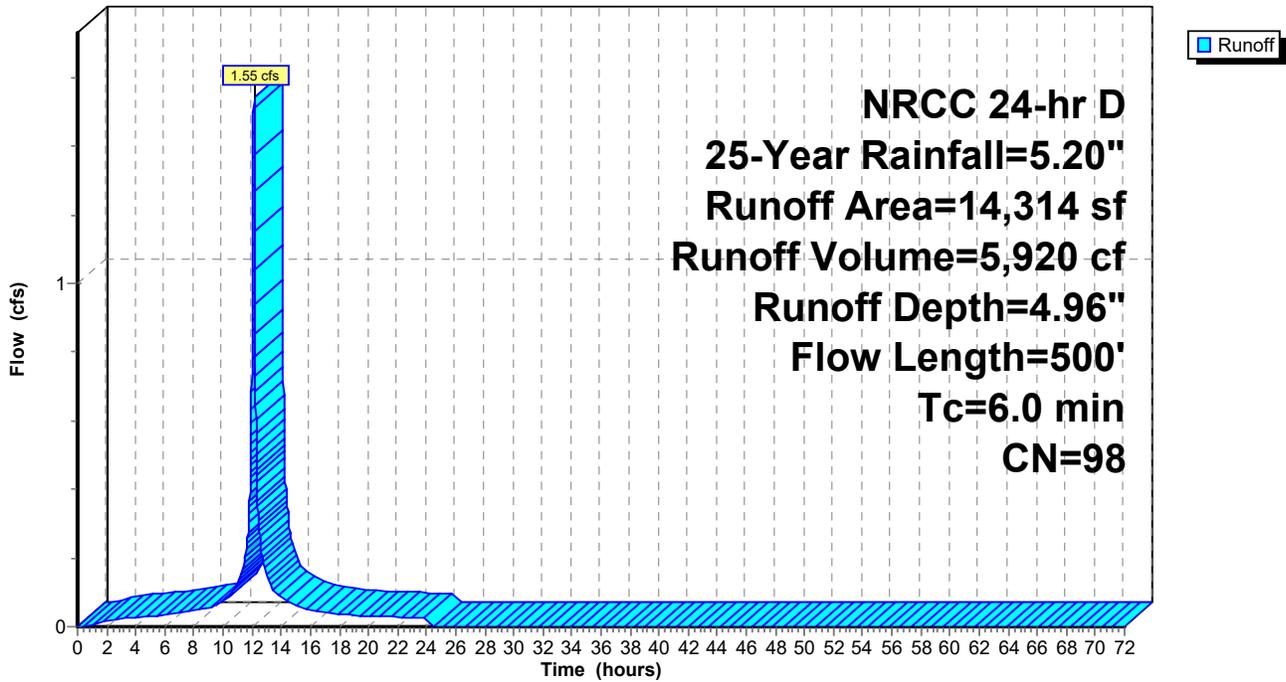
NRCC 24-hr D 25-Year Rainfall=5.20"

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Subcatchment 5: Sub-catchment 5

Hydrograph



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Summary for Subcatchment 6: Sub-catchment 6

[47] Hint: Peak is 131% of capacity of segment #3

Runoff = 2.20 cfs @ 12.13 hrs, Volume= 8,409 cf, Depth= 4.96"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
20,333	98	Unconnected pavement, HSG B
20,333		100.00% Impervious Area
20,333		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.5	55	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	10	0.0050	3.08	1.68	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
3.1	490	Total, Increased to minimum Tc = 6.0 min			

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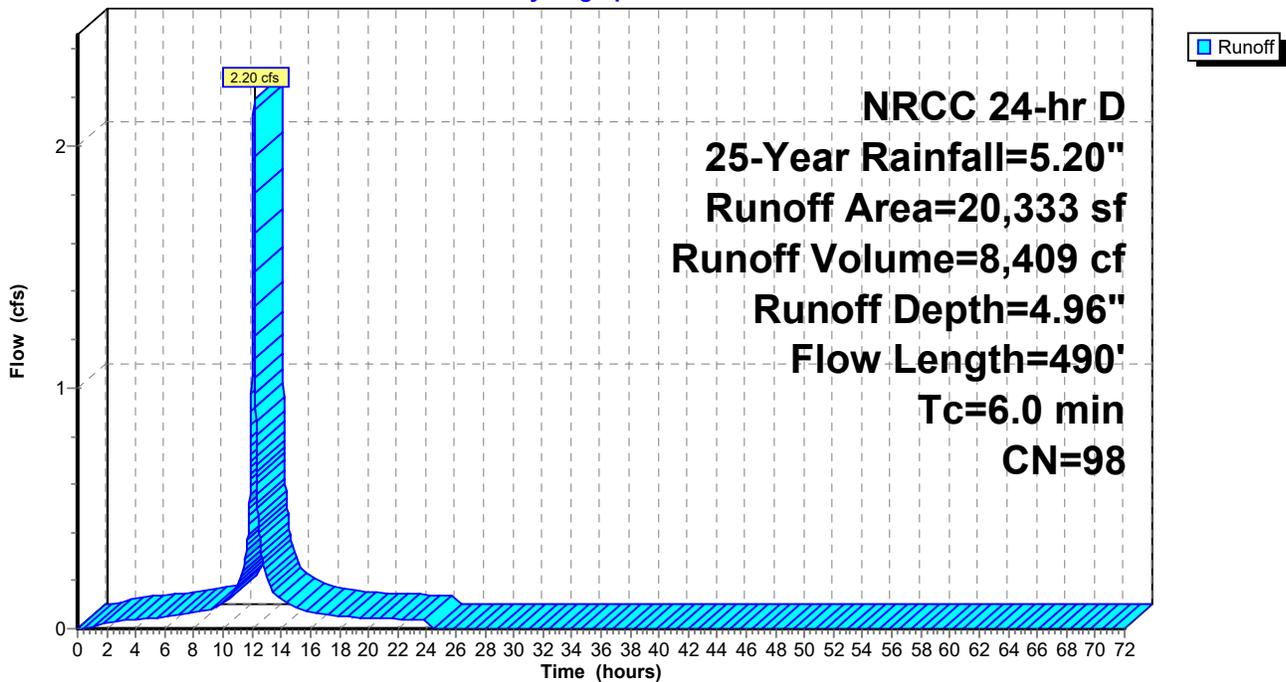
NRCC 24-hr D 25-Year Rainfall=5.20"

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Subcatchment 6: Sub-catchment 6

Hydrograph



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Summary for Subcatchment 7: Sub-catchment 7

Runoff = 2.53 cfs @ 12.13 hrs, Volume= 9,670 cf, Depth= 4.96"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
19,985	98	Unconnected pavement, HSG B
3,396	98	Roofs, HSG B
23,381	98	Weighted Average
23,381		100.00% Impervious Area
19,985		85.48% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.5	55	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	10	0.0050	4.55	8.05	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	393	Total, Increased to minimum Tc = 6.0 min			

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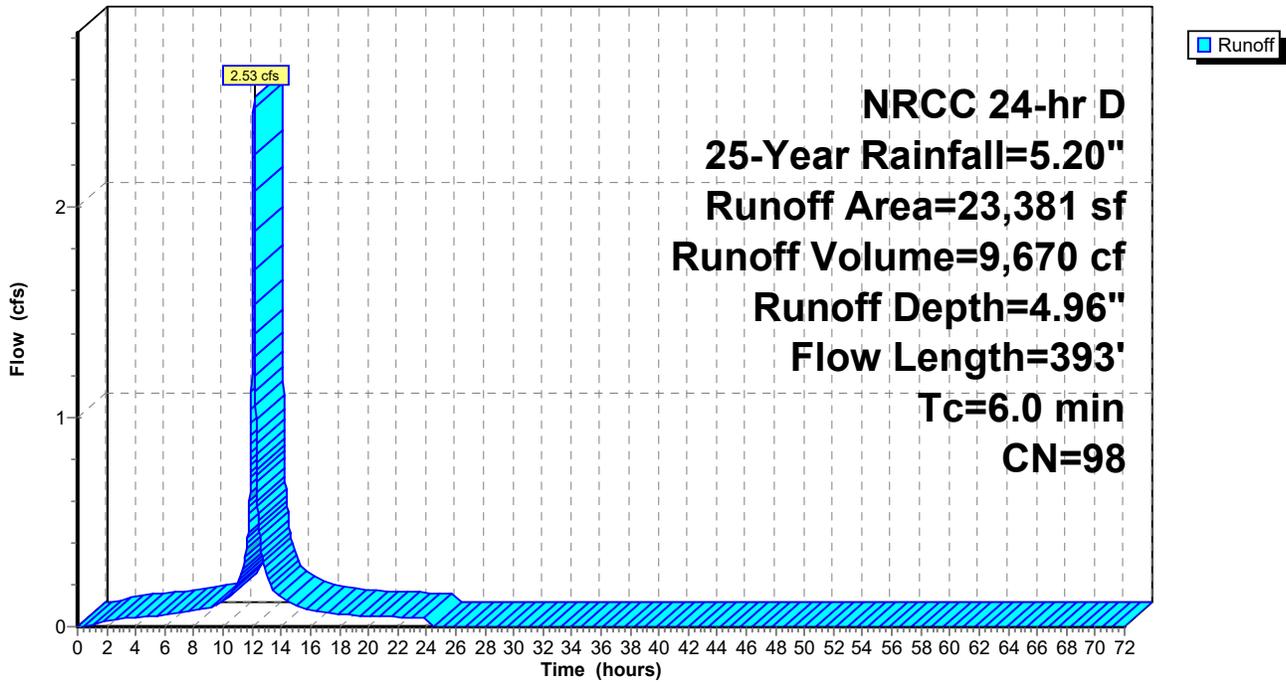
NRCC 24-hr D 25-Year Rainfall=5.20"

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Subcatchment 7: Sub-catchment 7

Hydrograph



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NRCC 24-hr D 25-Year Rainfall=5.20"

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Summary for Subcatchment 8: Sub-catchment 8

Runoff = 2.76 cfs @ 12.13 hrs, Volume= 10,559 cf, Depth= 4.96"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
23,413	98	Unconnected pavement, HSG B
2,118	98	Roofs, HSG B
25,531	98	Weighted Average
25,531		100.00% Impervious Area
23,413		91.70% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0070	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	85	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	10	0.0050	4.55	8.05	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	359	Total, Increased to minimum Tc = 6.0 min			

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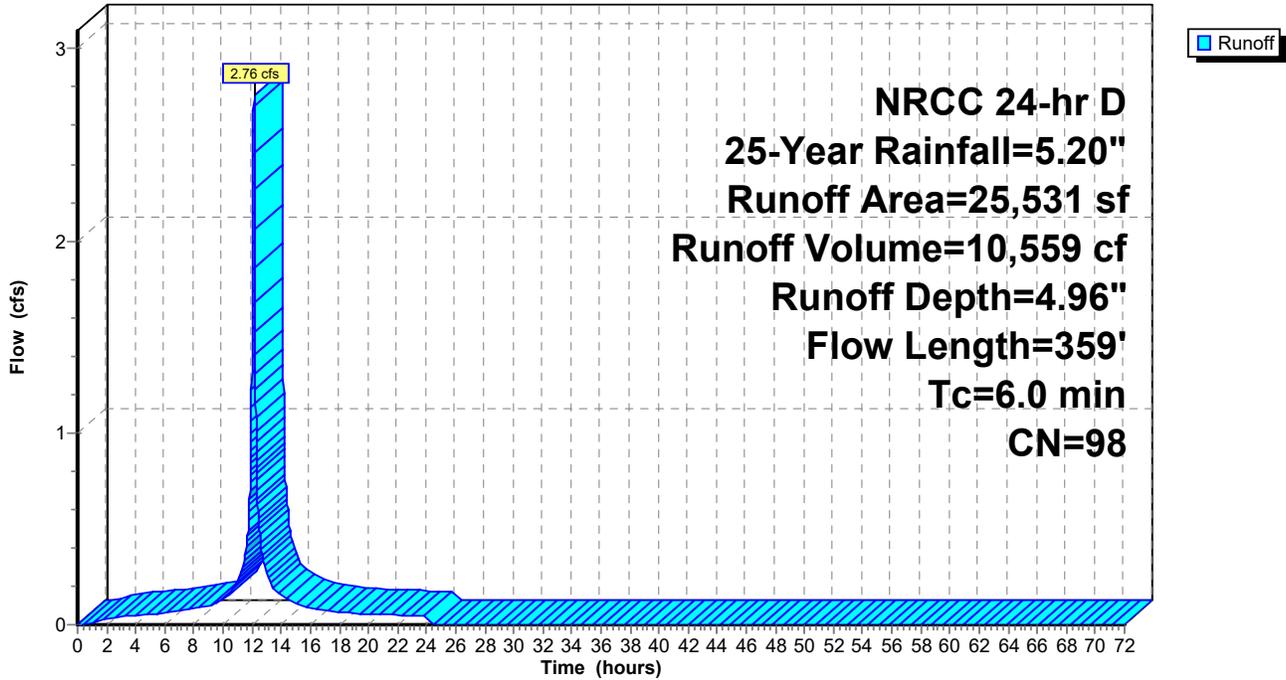
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Subcatchment 8: Sub-catchment 8

Hydrograph



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Summary for Subcatchment 9: Sub-catchment 9

Runoff = 0.82 cfs @ 12.13 hrs, Volume= 3,152 cf, Depth= 4.96"
 Routed to Pond 1P : Diversion Structure

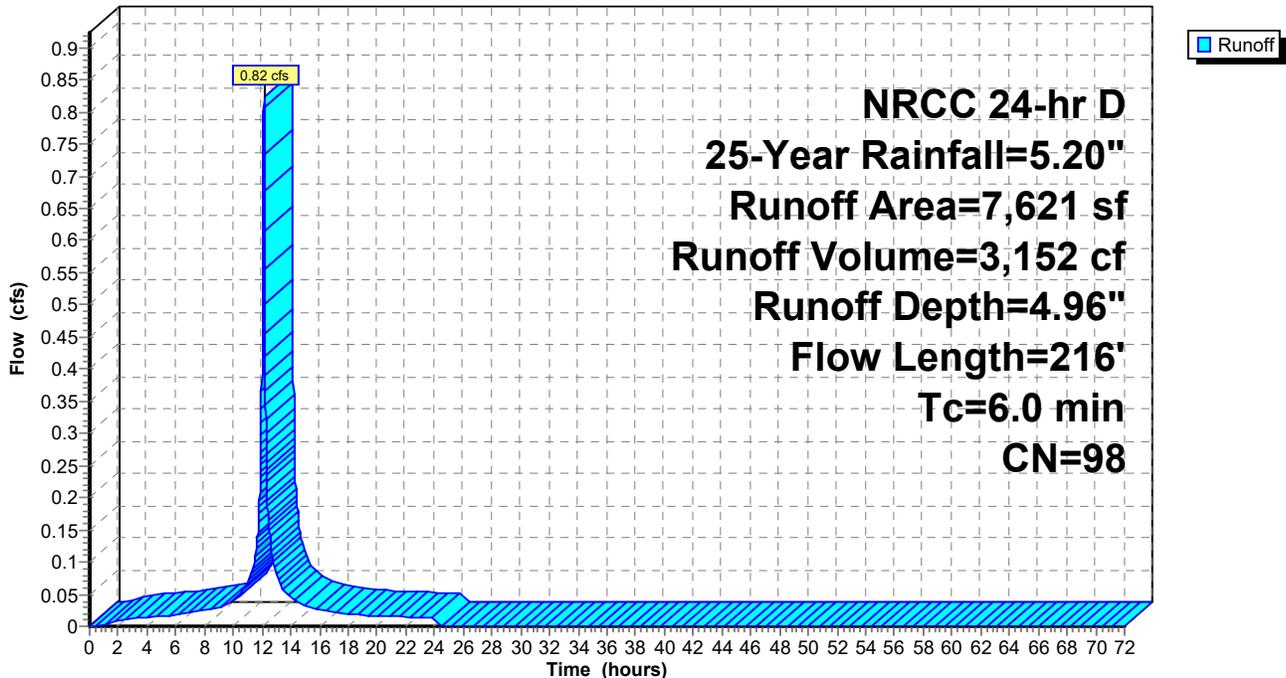
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
7,621	98	Unconnected pavement, HSG B
7,621		100.00% Impervious Area
7,621		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0090	1.00		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.7	62	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	45	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	216	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9: Sub-catchment 9

Hydrograph



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Summary for Subcatchment 10: Sub-catchment 10

[47] Hint: Peak is 111% of capacity of segment #3

Runoff = 3.02 cfs @ 12.13 hrs, Volume= 10,722 cf, Depth= 4.39"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
14,729	98	Unconnected pavement, HSG B
6,760	98	Roofs, HSG B
7,790	79	<50% Grass cover, Poor, HSG B
29,279	93	Weighted Average
7,790		26.61% Pervious Area
21,489		73.39% Impervious Area
14,729		68.54% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	75	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.5	114	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.8	350	Total, Increased to minimum Tc = 6.0 min			

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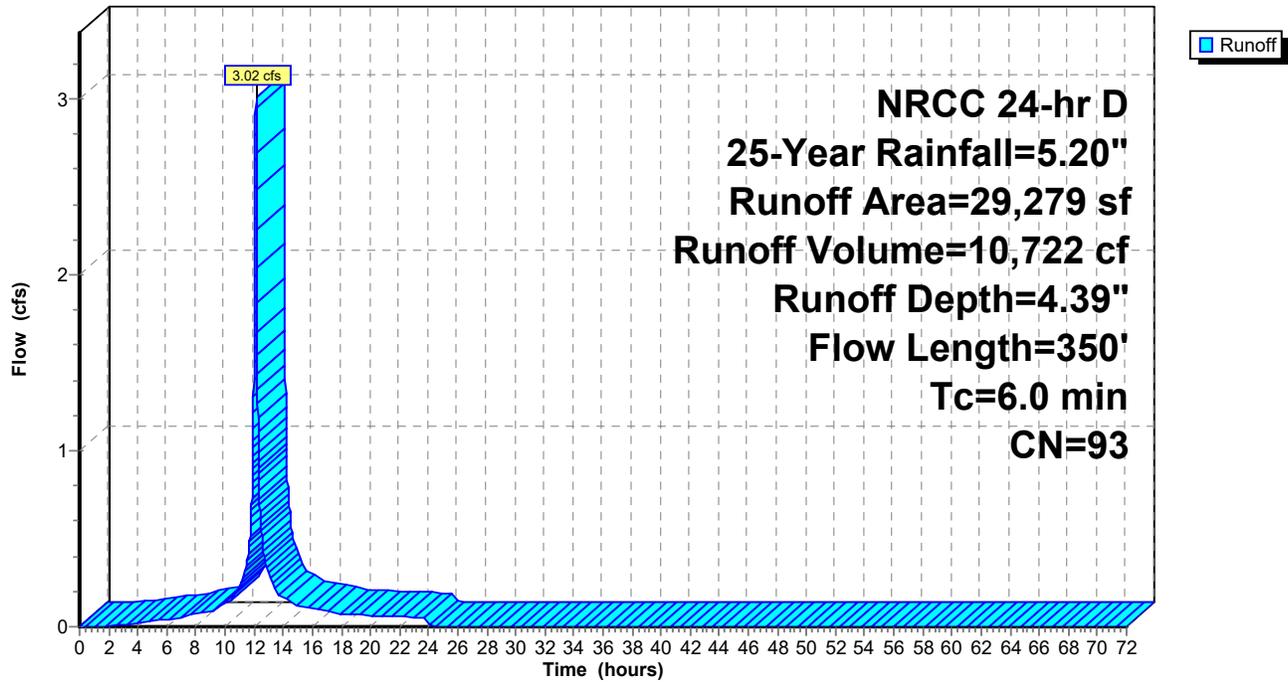
NRCC 24-hr D 25-Year Rainfall=5.20"

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Subcatchment 10: Sub-catchment 10

Hydrograph



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Summary for Subcatchment 11: Sub-catchment 11

Runoff = 0.20 cfs @ 12.13 hrs, Volume= 754 cf, Depth= 4.96"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
1,822	98	Unconnected pavement, HSG B
1,822		100.00% Impervious Area
1,822		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0690	1.99		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.4	59	0.0020	2.20	1.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	39	0.0050	4.03	4.95	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.1	900	Total, Increased to minimum Tc = 6.0 min			

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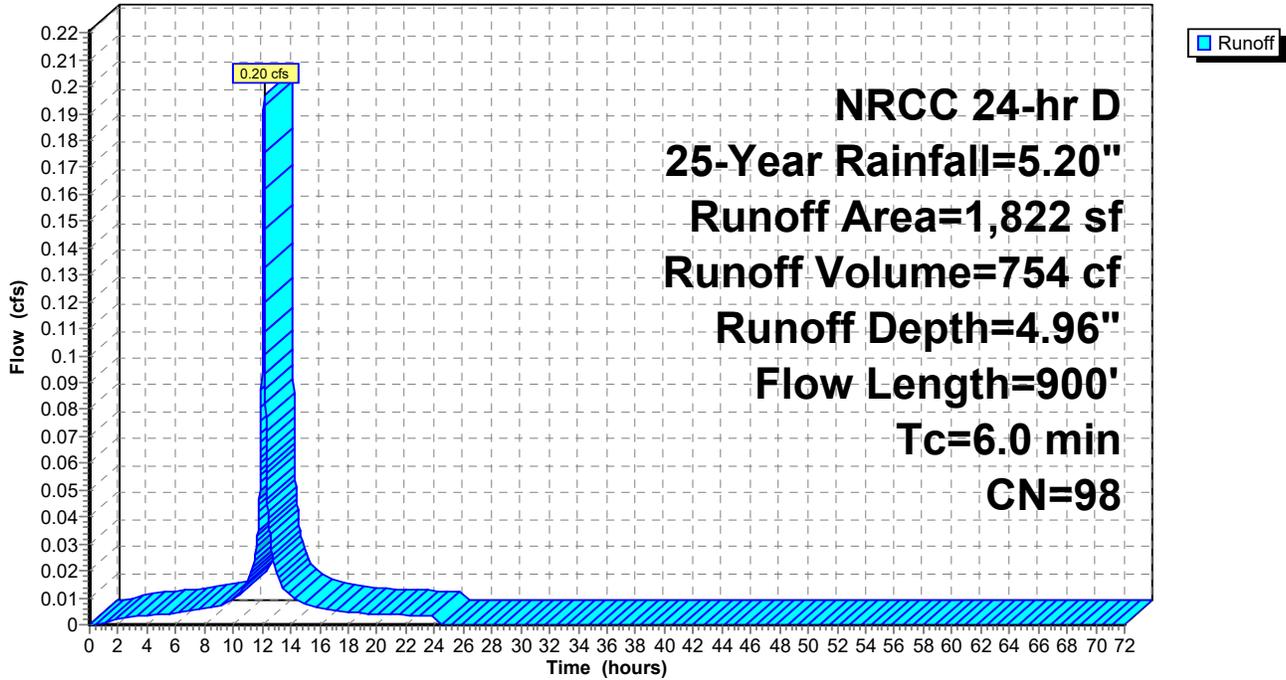
NRCC 24-hr D 25-Year Rainfall=5.20"

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Subcatchment 11: Sub-catchment 11

Hydrograph



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Summary for Subcatchment 12: Sub-catchment 12

Runoff = 1.26 cfs @ 12.13 hrs, Volume= 4,216 cf, Depth= 3.65"
 Routed to Pond 1P : Diversion Structure

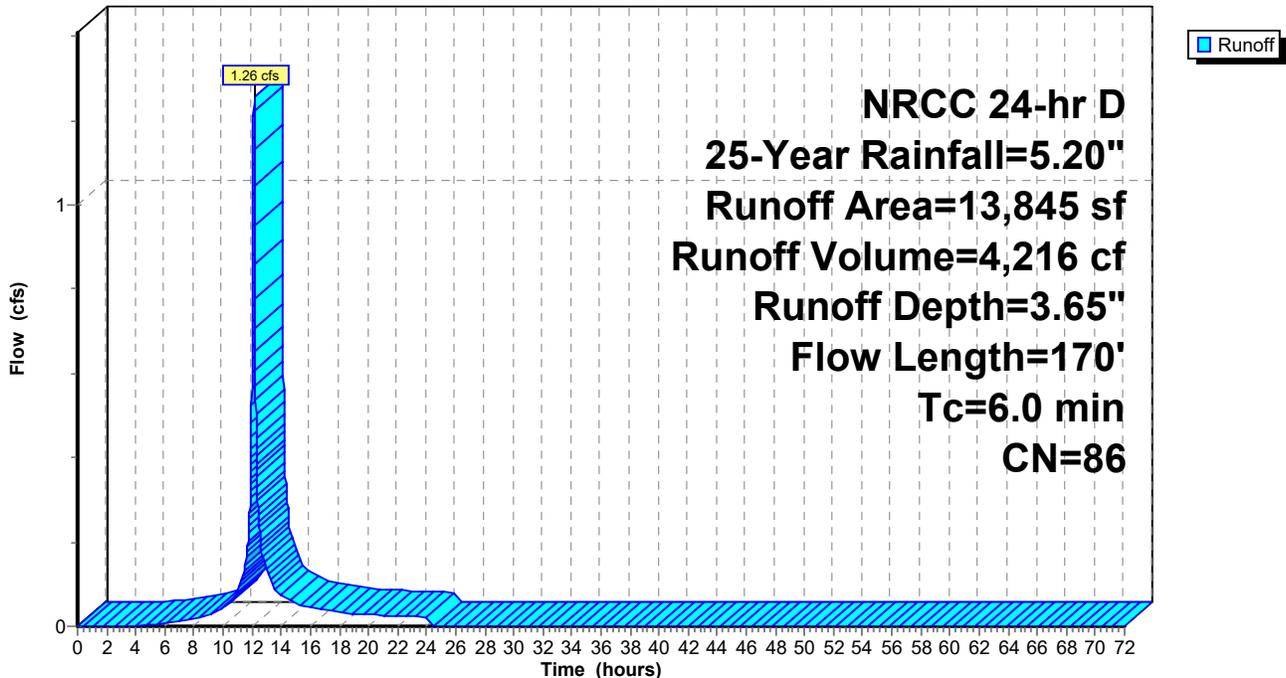
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
5,431	98	Unconnected pavement, HSG B
8,414	79	<50% Grass cover, Poor, HSG B
13,845	86	Weighted Average
8,414		60.77% Pervious Area
5,431		39.23% Impervious Area
5,431		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.2	44	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	26	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25" n= 0.012 Concrete pipe, finished
1.9	170	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 12: Sub-catchment 12

Hydrograph



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NRCC 24-hr D 25-Year Rainfall=5.20"

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Summary for Subcatchment 13: Sub-catchment 13

Runoff = 0.08 cfs @ 12.37 hrs, Volume= 526 cf, Depth= 1.49"
 Routed to Link DP-2 : DP-2

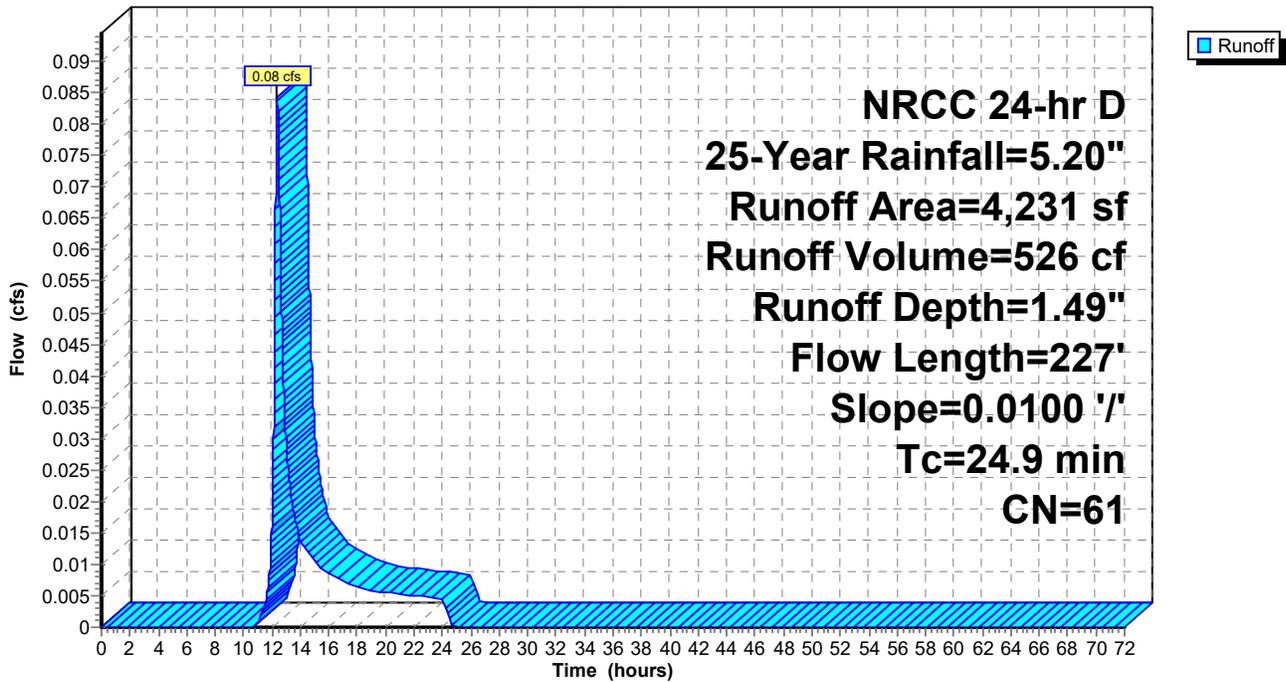
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
4,231	61	>75% Grass cover, Good, HSG B
4,231		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.9	227	0.0100	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"

Subcatchment 13: Sub-catchment 13

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NRCC 24-hr D 25-Year Rainfall=5.20"

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Summary for Pond 1P: Diversion Structure

[57] Hint: Peaked at 230.06' (Flood elevation advised)

Inflow = 25.78 cfs @ 12.13 hrs, Volume= 1,330,447 cf
Outflow = 25.78 cfs @ 12.14 hrs, Volume= 1,330,447 cf, Atten= 0%, Lag= 0.6 min
Primary = 5.73 cfs @ 11.82 hrs, Volume= 1,273,710 cf
Routed to Link 1L : Pump Shutoff Control
Secondary = 20.05 cfs @ 12.14 hrs, Volume= 56,737 cf
Routed to Link DP-1 : DP-1

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 230.06' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	226.32'	24.0" Round Culvert L= 5.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 226.32' / 226.28' S= 0.0080 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Secondary	226.38'	30.0" Round Culvert L= 27.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 226.38' / 226.20' S= 0.0067 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 4.91 sf
#3	Device 2	228.99'	6.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#4	Device 1	225.00'	Special & User-Defined Elev. (feet) 225.00 226.32 240.00 Disch. (cfs) 0.000 5.730 5.730

Primary OutFlow Max=5.73 cfs @ 11.82 hrs HW=229.03' TW=0.00' (Dynamic Tailwater)

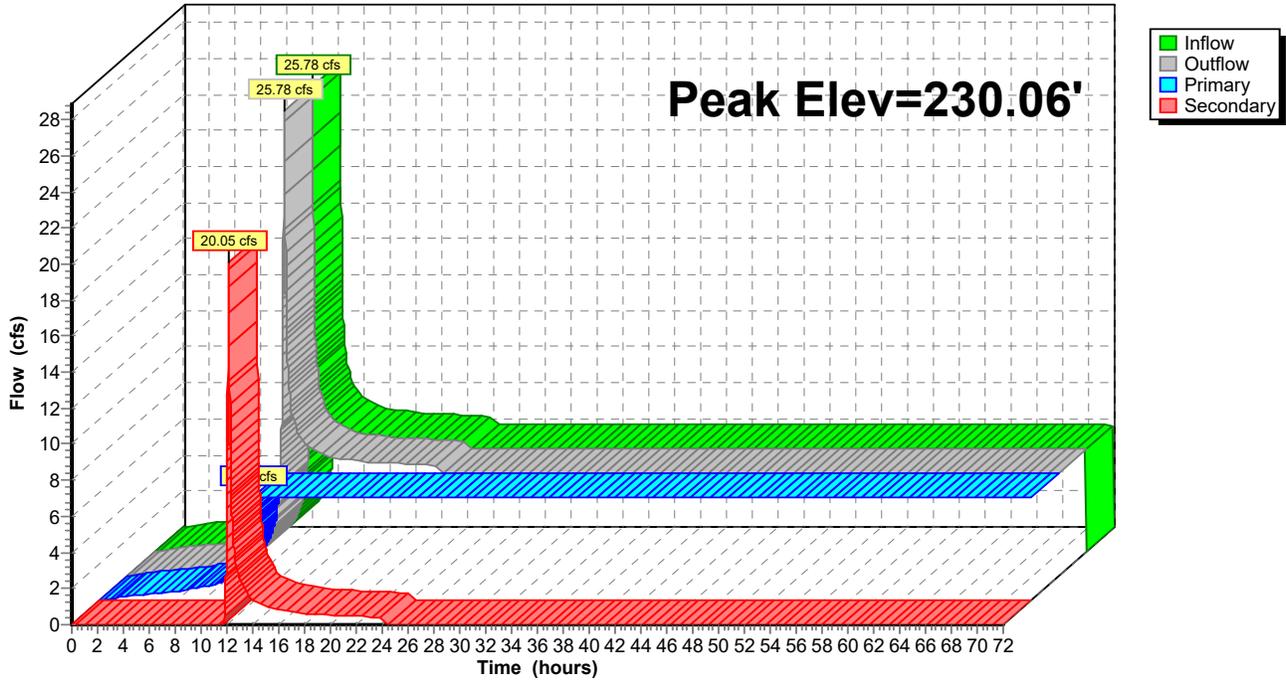
↑1=Culvert (Passes 5.73 cfs of 17.54 cfs potential flow)
↑4=Special & User-Defined (Custom Controls 5.73 cfs)

Secondary OutFlow Max=20.03 cfs @ 12.14 hrs HW=230.06' TW=0.00' (Dynamic Tailwater)

↑2=Culvert (Passes 20.03 cfs of 35.10 cfs potential flow)
↑3=Broad-Crested Rectangular Weir (Weir Controls 20.03 cfs @ 3.12 fps)

Pond 1P: Diversion Structure

Hydrograph



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Summary for Pond 2P: Pump

[99] Warning: Min. Lift of 10.65' is below pump rating

Inflow = 5.73 cfs @ 11.83 hrs, Volume= 40,000 cf
 Outflow = 5.57 cfs @ 1.88 hrs, Volume= 40,139 cf, Atten= 3%, Lag= 0.0 min
 Primary = 5.57 cfs @ 1.88 hrs, Volume= 40,139 cf
 Routed to Pond 3P : AGST

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Starting Elev= 220.30' Surf.Area= 126 sf Storage= 760 cf
 Peak Elev= 231.82' @ 12.21 hrs Surf.Area= 126 sf Storage= 2,211 cf (1,452 cf above start)

Plug-Flow detention time= 16.2 min calculated for 39,379 cf (98% of inflow)
 Center-of-Mass det. time= 4.9 min (572.1 - 567.2)

Volume	Invert	Avail.Storage	Storage Description
#1	214.27'	2,255 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.27	126	0	0
232.17	126	2,255	2,255

Device	Routing	Invert	Outlet Devices (Turned on 38 times)
#1	Primary	224.30'	Pump Discharges@225.32' Turns Off<220.30' 12.0" Diam. x 136.0' Long Discharge, Hazen-Williams C= 150 Flow (gpm)= 0.0 250.0 500.0 750.0 1,000.0 1,250.0 1,500.0 1,750.0 2,000.0 2,250.0 2,500.0 Head (feet)= 117.00 105.00 93.00 83.00 76.00 68.00 60.00 53.00 45.00 37.00 29.00 -Loss (feet)= 0.00 0.02 0.07 0.16 0.26 0.40 0.56 0.75 0.96 1.19 1.44 =Lift (feet)= 117.00 104.98 92.93 82.84 75.74 67.60 59.44 52.25 44.04 35.81 27.56

Primary OutFlow Max=5.57 cfs @ 1.88 hrs HW=224.35' TW=235.00' (Dynamic Tailwater)
 ↑1=Pump (Pump Controls 5.57 cfs)

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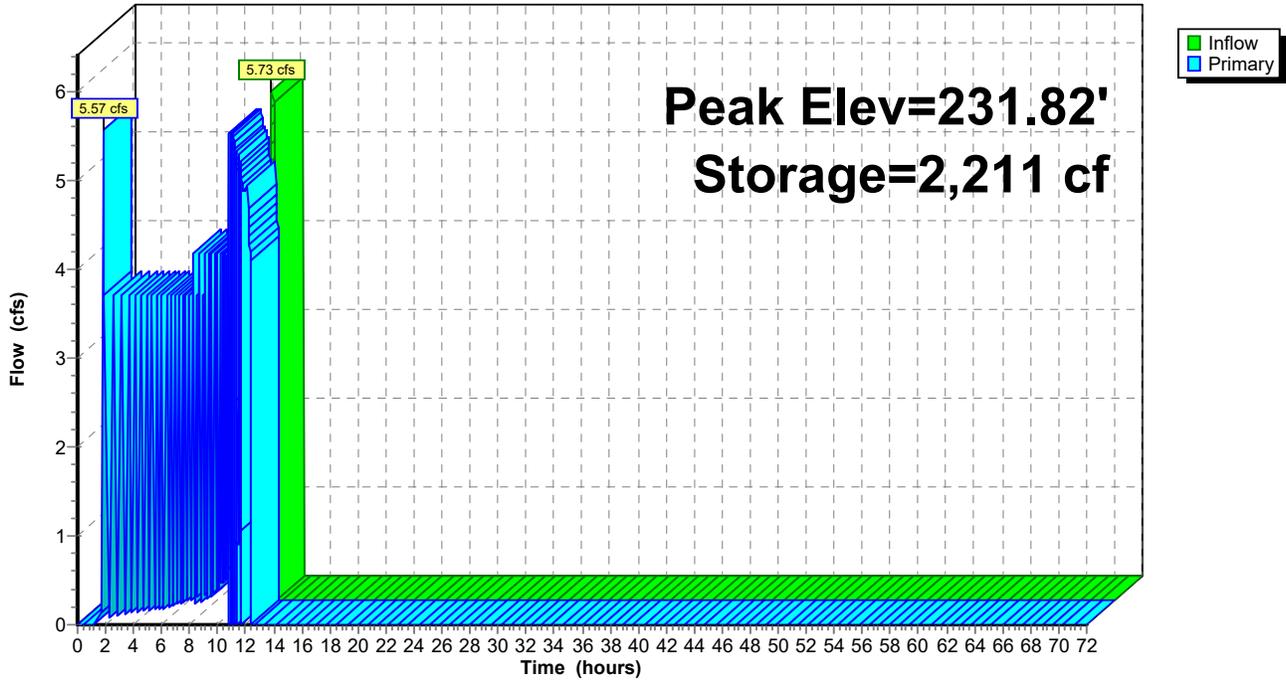
NRCC 24-hr D 25-Year Rainfall=5.20"

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Pond 2P: Pump

Hydrograph



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Summary for Pond 3P: AGST

Inflow = 5.57 cfs @ 1.88 hrs, Volume= 40,139 cf
 Outflow = 0.22 cfs @ 1.89 hrs, Volume= 40,140 cf, Atten= 96%, Lag= 0.6 min
 Primary = 0.22 cfs @ 1.89 hrs, Volume= 40,140 cf
 Routed to Link DP-1 : DP-1
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link DP-1 : DP-1

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 270.01' @ 12.31 hrs Surf.Area= 908 sf Storage= 31,788 cf

Plug-Flow detention time= 1,040.8 min calculated for 40,134 cf (100% of inflow)
 Center-of-Mass det. time= 1,041.0 min (1,613.1 - 572.1)

Volume	Invert	Avail.Storage	Storage Description
#1	235.00'	35,409 cf	34.00'D x 39.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	235.00'	0.223 cfs Constant Flow/Skimmer
#2	Secondary	271.49'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.22 cfs @ 1.89 hrs HW=235.22' TW=0.00' (Dynamic Tailwater)
 ↑1=**Constant Flow/Skimmer** (Constant Controls 0.22 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=235.00' TW=0.00' (Dynamic Tailwater)
 ↑2=**Orifice/Grate** (Controls 0.00 cfs)

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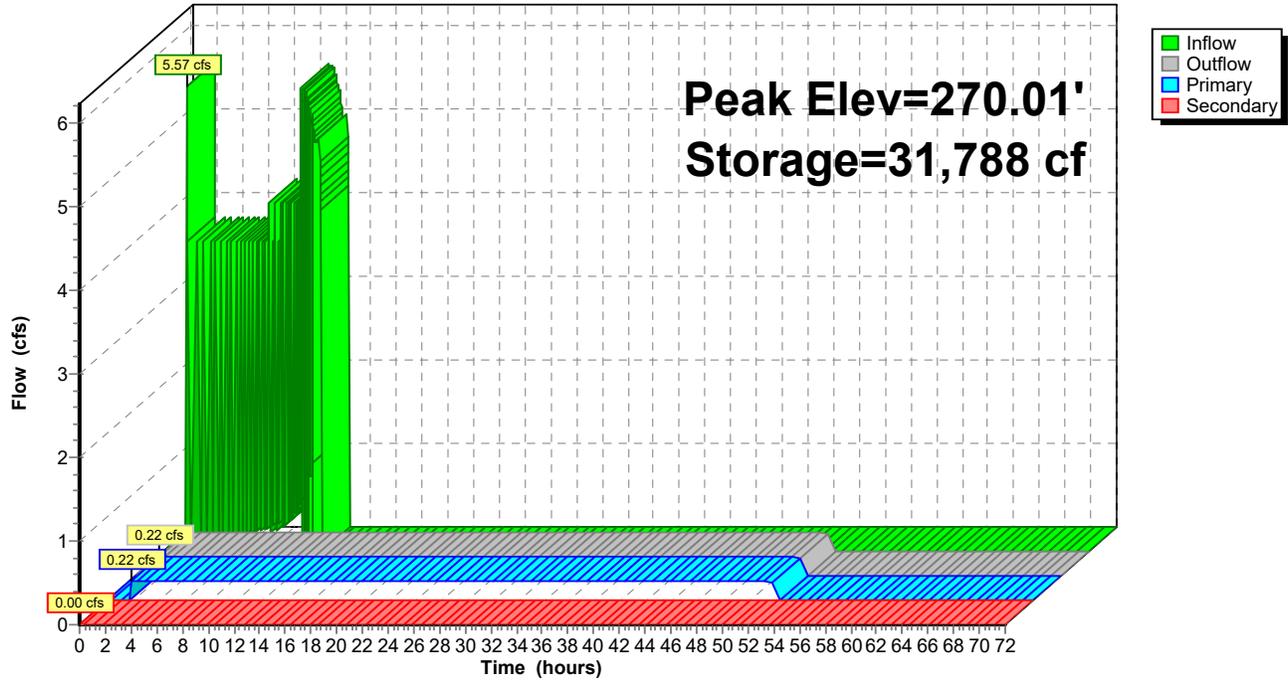
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Pond 3P: AGST

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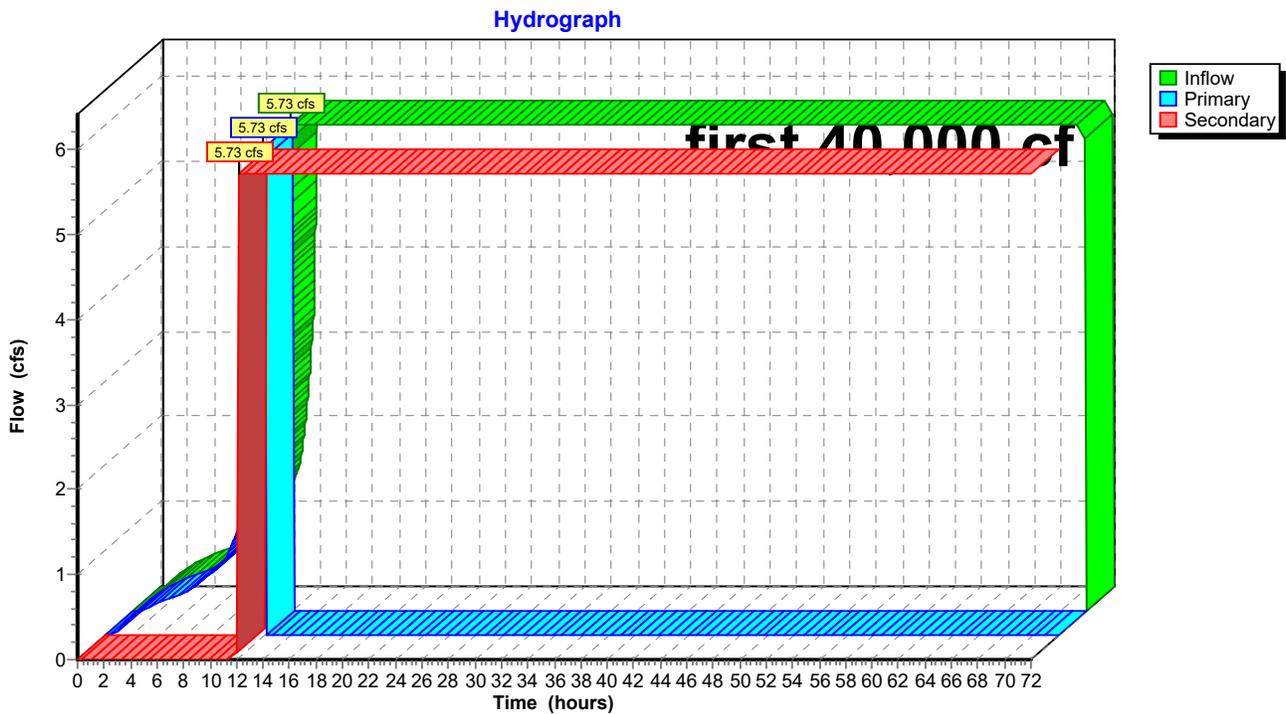
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Summary for Link 1L: Pump Shutoff Control

Inflow = 5.73 cfs @ 11.82 hrs, Volume= 1,273,504 cf
Primary = 5.73 cfs @ 11.83 hrs, Volume= 40,000 cf, Atten= 0%, Lag= 0.6 min
Routed to Pond 2P : Pump
Secondary = 5.73 cfs @ 12.22 hrs, Volume= 1,233,504 cf
Routed to Pond 1P : Diversion Structure

Primary outflow = Inflow first 40,000 cf, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1L: Pump Shutoff Control



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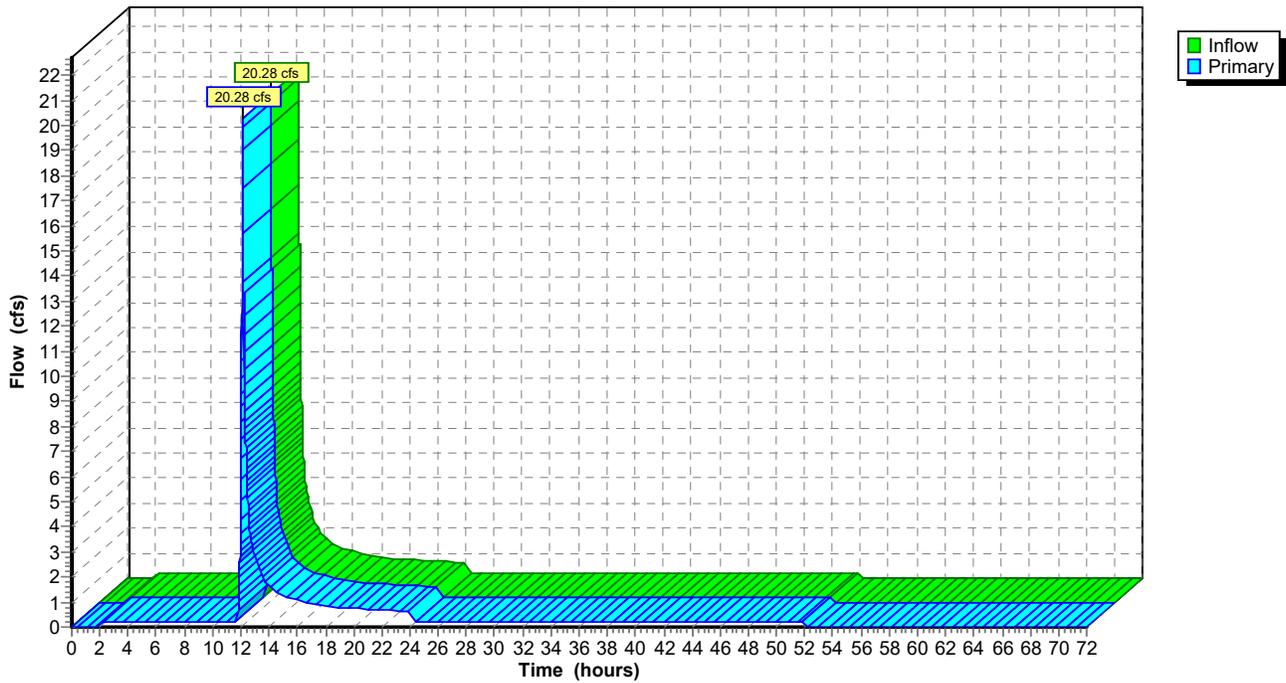
Summary for Link DP-1: DP-1

Inflow = 20.28 cfs @ 12.14 hrs, Volume= 96,877 cf
Primary = 20.28 cfs @ 12.15 hrs, Volume= 96,877 cf, Atten= 0%, Lag= 0.6 min
Routed to nonexistent node 3L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-1: DP-1

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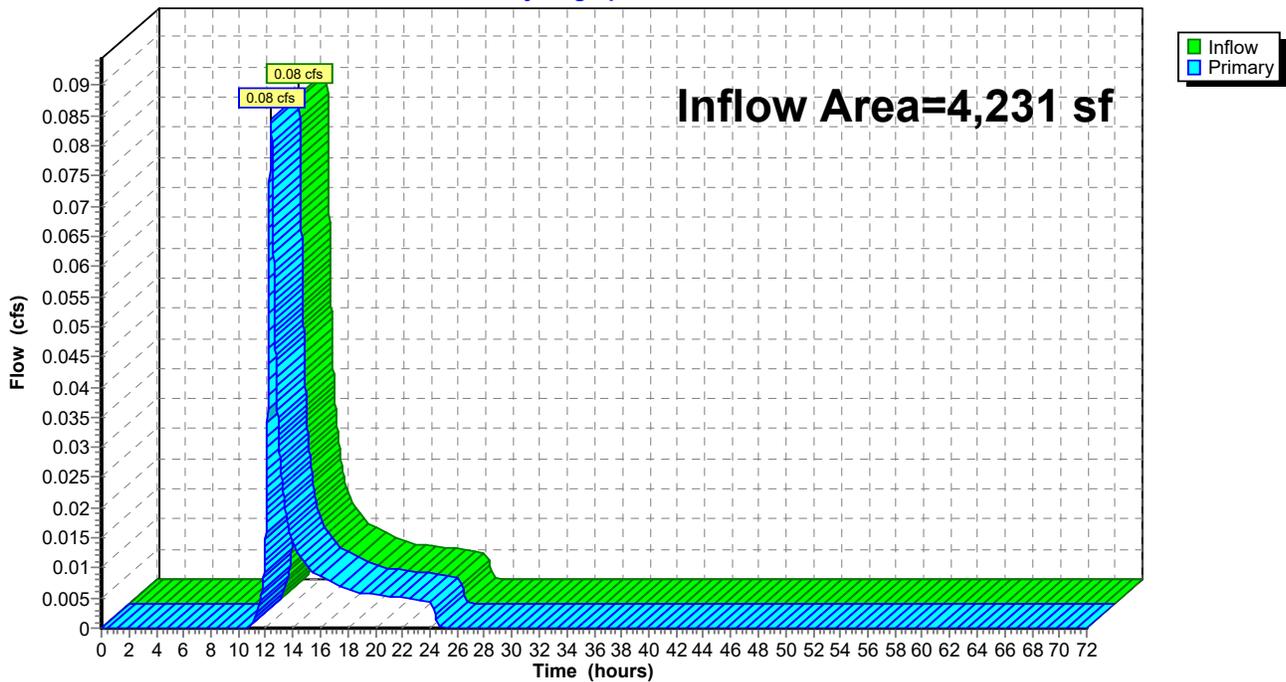
Summary for Link DP-2: DP-2

Inflow Area = 4,231 sf, 0.00% Impervious, Inflow Depth = 1.49" for 25-Year event
Inflow = 0.08 cfs @ 12.37 hrs, Volume= 526 cf
Primary = 0.08 cfs @ 12.38 hrs, Volume= 526 cf, Atten= 0%, Lag= 0.6 min
Routed to nonexistent node 3L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-2: DP-2

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment1: Sub-catchment1	Runoff Area=33,590 sf 100.00% Impervious Runoff Depth=7.05" Flow Length=851' Tc=6.0 min CN=98 Runoff=5.11 cfs 19,736 cf
Subcatchment2: Sub-catchment2	Runoff Area=7,467 sf 100.00% Impervious Runoff Depth=7.05" Flow Length=946' Tc=6.0 min CN=98 Runoff=1.14 cfs 4,387 cf
Subcatchment3: Sub-catchment3	Runoff Area=7,120 sf 100.00% Impervious Runoff Depth=7.05" Flow Length=897' Tc=6.0 min CN=98 Runoff=1.08 cfs 4,183 cf
Subcatchment4: Sub-catchment4	Runoff Area=57,605 sf 97.94% Impervious Runoff Depth=7.05" Flow Length=632' Tc=6.0 min CN=98 Runoff=8.76 cfs 33,846 cf
Subcatchment5: Sub-catchment5	Runoff Area=14,314 sf 100.00% Impervious Runoff Depth=7.05" Flow Length=500' Tc=6.0 min CN=98 Runoff=2.18 cfs 8,410 cf
Subcatchment6: Sub-catchment6	Runoff Area=20,333 sf 100.00% Impervious Runoff Depth=7.05" Flow Length=490' Tc=6.0 min CN=98 Runoff=3.09 cfs 11,947 cf
Subcatchment7: Sub-catchment7	Runoff Area=23,381 sf 100.00% Impervious Runoff Depth=7.05" Flow Length=393' Tc=6.0 min CN=98 Runoff=3.56 cfs 13,738 cf
Subcatchment8: Sub-catchment8	Runoff Area=25,531 sf 100.00% Impervious Runoff Depth=7.05" Flow Length=359' Tc=6.0 min CN=98 Runoff=3.88 cfs 15,001 cf
Subcatchment9: Sub-catchment9	Runoff Area=7,621 sf 100.00% Impervious Runoff Depth=7.05" Flow Length=216' Tc=6.0 min CN=98 Runoff=1.16 cfs 4,478 cf
Subcatchment10: Sub-catchment10	Runoff Area=29,279 sf 73.39% Impervious Runoff Depth=6.46" Flow Length=350' Tc=6.0 min CN=93 Runoff=4.33 cfs 15,758 cf
Subcatchment11: Sub-catchment11	Runoff Area=1,822 sf 100.00% Impervious Runoff Depth=7.05" Flow Length=900' Tc=6.0 min CN=98 Runoff=0.28 cfs 1,071 cf
Subcatchment12: Sub-catchment12	Runoff Area=13,845 sf 39.23% Impervious Runoff Depth=5.64" Flow Length=170' Tc=6.0 min CN=86 Runoff=1.90 cfs 6,513 cf
Subcatchment13: Sub-catchment13	Runoff Area=4,231 sf 0.00% Impervious Runoff Depth=2.91" Flow Length=227' Slope=0.0100 '/' Tc=24.9 min CN=61 Runoff=0.18 cfs 1,027 cf
Pond 1P: Diversion Structure	Peak Elev=230.51' Inflow=42.18 cfs 1,387,364 cf Primary=5.73 cfs 1,288,708 cf Secondary=36.45 cfs 98,656 cf Outflow=42.18 cfs 1,387,364 cf
Pond 2P: Pump	Peak Elev=225.12' Storage=1,367 cf Inflow=4.38 cfs 40,000 cf Outflow=5.57 cfs 40,088 cf
Pond 3P: AGST	Peak Elev=270.24' Storage=31,995 cf Inflow=5.57 cfs 40,088 cf Primary=0.22 cfs 40,092 cf Secondary=0.00 cfs 0 cf Outflow=0.22 cfs 40,092 cf

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Link 1L: Pump Shutoff Control

first 40,000 cf Inflow=5.73 cfs 1,288,502 cf
Primary=4.38 cfs 40,000 cf Secondary=5.73 cfs 1,248,502 cf

Link DP-1: DP-1

Inflow=36.68 cfs 138,747 cf
Primary=36.68 cfs 138,747 cf

Link DP-2: DP-2

Inflow=0.18 cfs 1,027 cf
Primary=0.18 cfs 1,027 cf

Total Runoff Area = 246,139 sf Runoff Volume = 140,095 cf Average Runoff Depth = 6.83"
8.79% Pervious = 21,624 sf 91.21% Impervious = 224,515 sf

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Summary for Subcatchment 1: Sub-catchment 1

Runoff = 5.11 cfs @ 12.13 hrs, Volume= 19,736 cf, Depth= 7.05"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
15,206	98	Roofs, HSG B
18,384	98	Unconnected pavement, HSG B
33,590	98	Weighted Average
33,590		100.00% Impervious Area
18,384		54.73% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0160	1.26		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.7	49	0.0030	1.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.8	851	Total, Increased to minimum Tc = 6.0 min			

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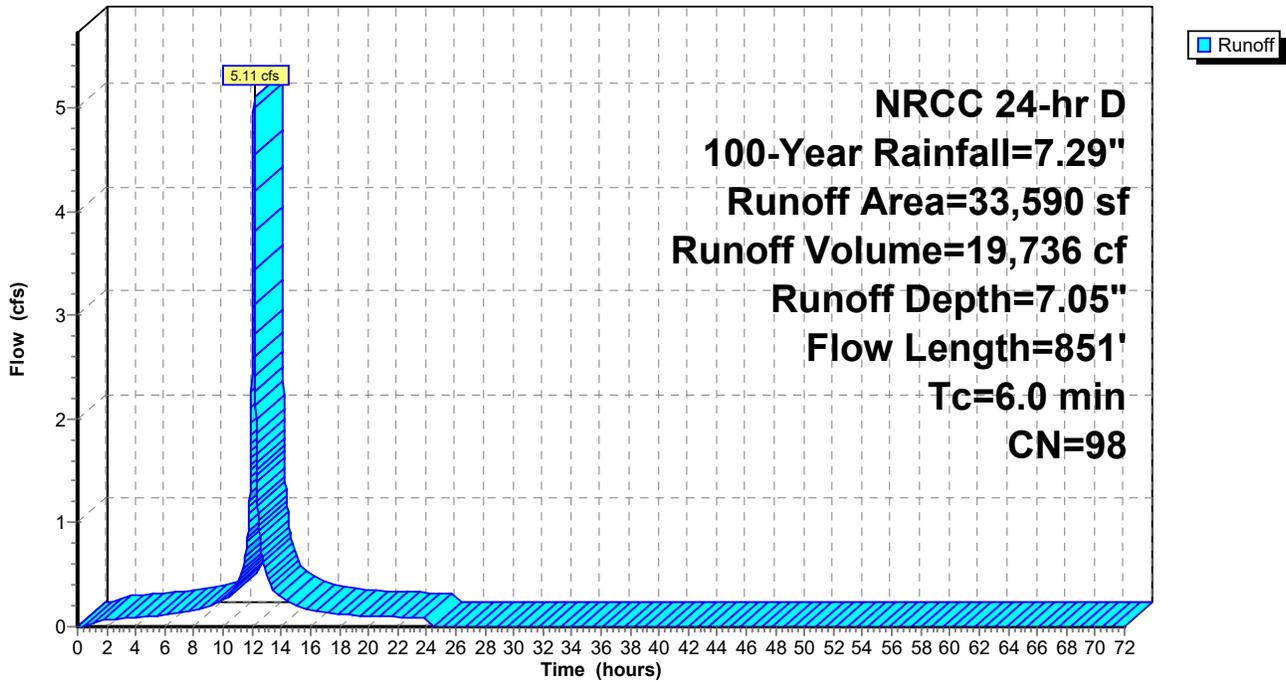
NRCC 24-hr D 100-Year Rainfall=7.29"

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Subcatchment 1: Sub-catchment 1

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Summary for Subcatchment 2: Sub-catchment 2

[47] Hint: Peak is 151% of capacity of segment #2

Runoff = 1.14 cfs @ 12.13 hrs, Volume= 4,387 cf, Depth= 7.05"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
2,936	98	Roofs, HSG B
4,531	98	Unconnected pavement, HSG B
7,467	98	Weighted Average
7,467		100.00% Impervious Area
4,531		60.68% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	41	0.0140	1.00		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
1.0	80	0.0010	1.38	0.75	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	76	0.0120	4.77	2.60	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished

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NRCC 24-hr D 100-Year Rainfall=7.29"

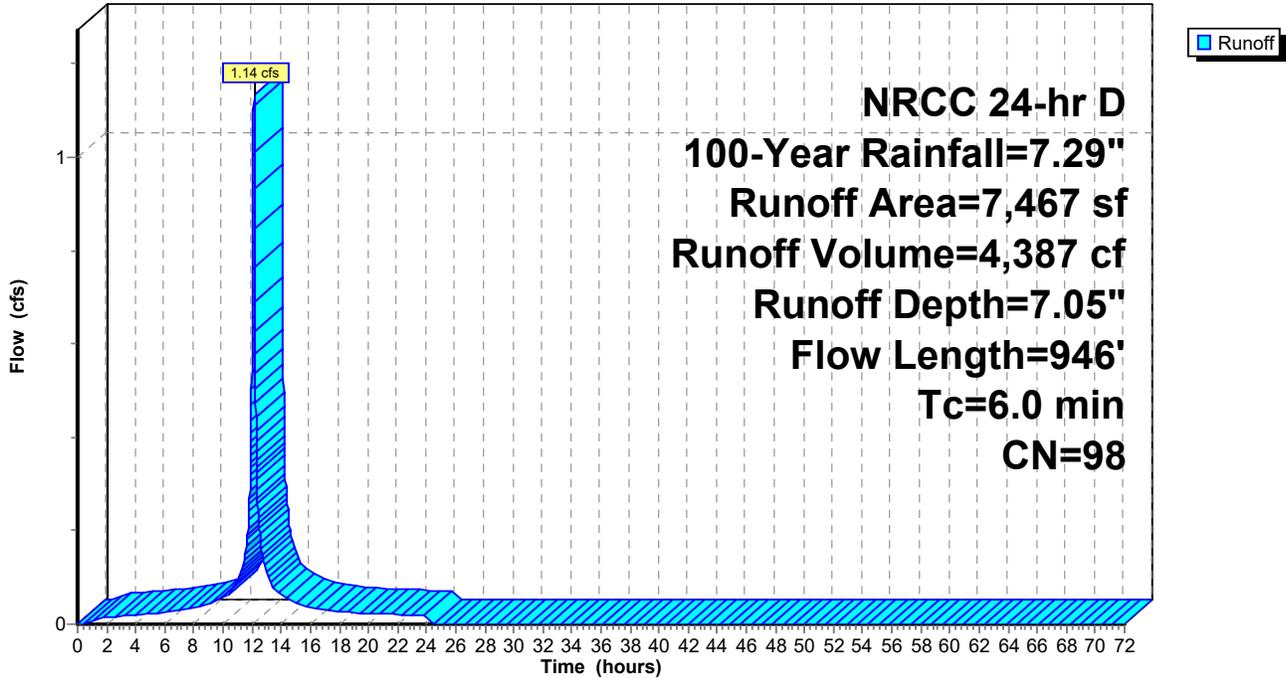
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0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
5.1	946	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2: Sub-catchment 2

Hydrograph



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Summary for Subcatchment 3: Sub-catchment 3

[47] Hint: Peak is 132% of capacity of segment #2

Runoff = 1.08 cfs @ 12.13 hrs, Volume= 4,183 cf, Depth= 7.05"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
2,543	98	Roofs, HSG B
4,577	98	Unconnected pavement, HSG B
7,120	98	Weighted Average
7,120		100.00% Impervious Area
4,577		64.28% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	62	0.0030	0.59		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.1	10	0.0012	1.51	0.82	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	76	0.0120	4.77	2.60	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished

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NRCC 24-hr D 100-Year Rainfall=7.29"

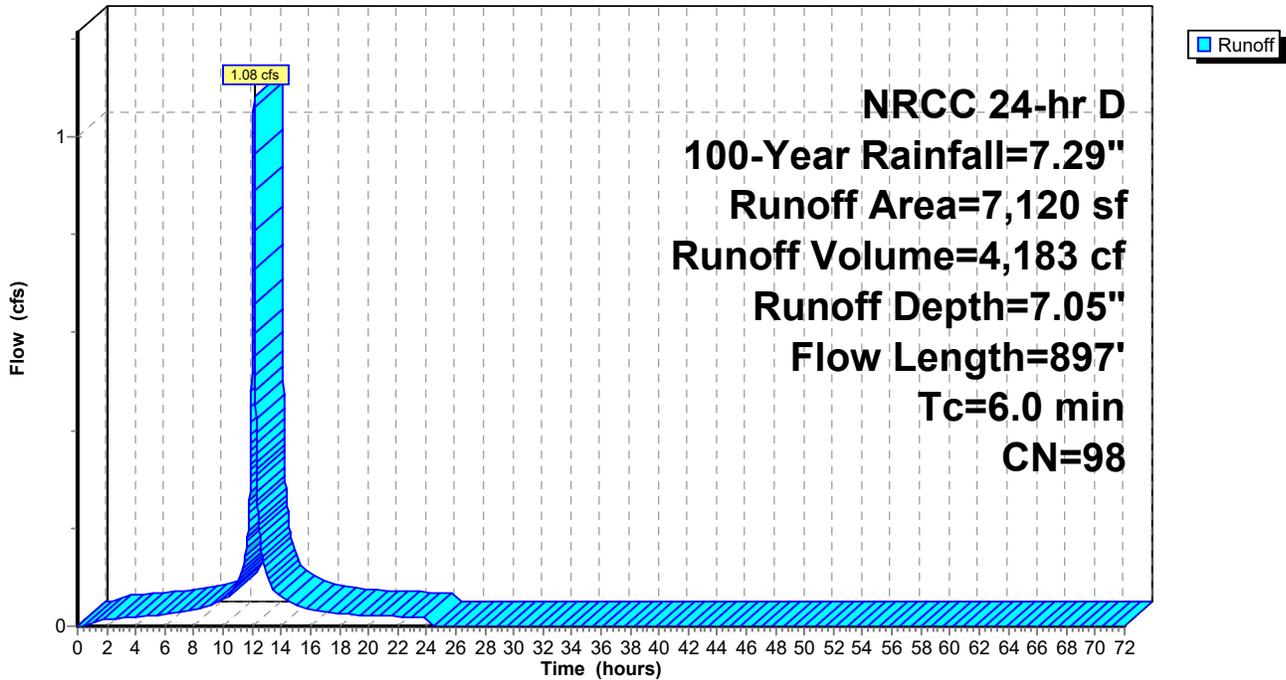
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0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
5.3	897	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3: Sub-catchment 3

Hydrograph



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Summary for Subcatchment 4: Sub-catchment 4

[47] Hint: Peak is 172% of capacity of segment #3

Runoff = 8.76 cfs @ 12.13 hrs, Volume= 33,846 cf, Depth= 7.05"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
5,329	98	Roofs, HSG B
51,087	98	Unconnected pavement, HSG B
1,189	79	<50% Grass cover, Poor, HSG B
57,605	98	Weighted Average
1,189		2.06% Pervious Area
56,416		97.94% Impervious Area
51,087		90.55% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0120	1.12		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.4	77	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	10	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
3.3	632	Total, Increased to minimum Tc = 6.0 min			

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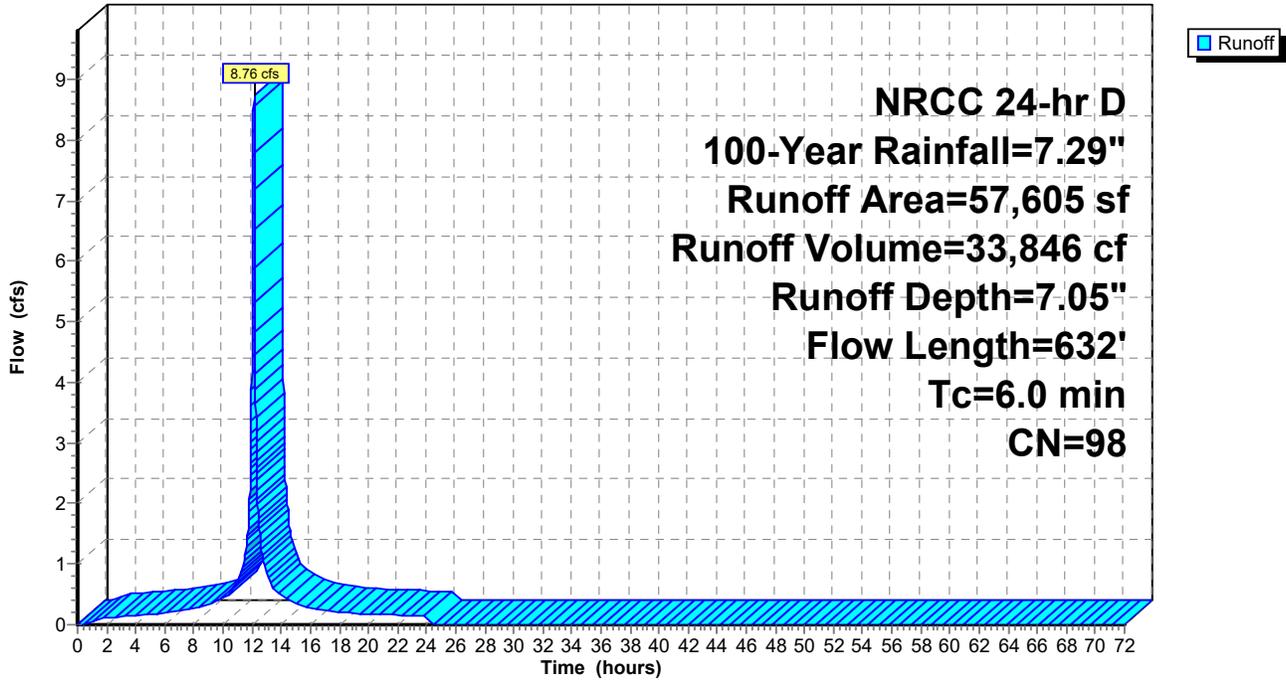
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Subcatchment 4: Sub-catchment 4

Hydrograph



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Summary for Subcatchment 5: Sub-catchment 5

[47] Hint: Peak is 126% of capacity of segment #2

Runoff = 2.18 cfs @ 12.13 hrs, Volume= 8,410 cf, Depth= 7.05"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
5,500	98	Roofs, HSG B
8,814	98	Unconnected pavement, HSG B
14,314	98	Weighted Average
14,314		100.00% Impervious Area
8,814		61.58% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	55	0.0550	1.83		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	85	0.0020	2.20	1.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.1	500	Total, Increased to minimum Tc = 6.0 min			

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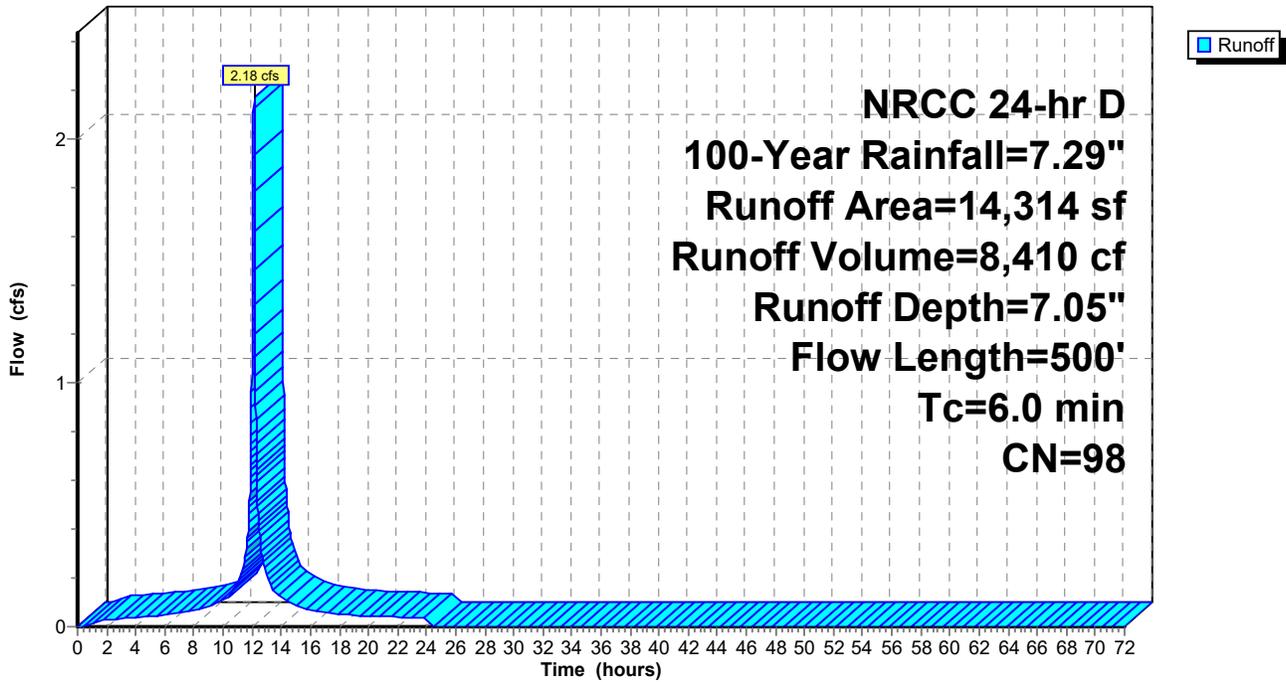
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Subcatchment 5: Sub-catchment 5

Hydrograph



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Summary for Subcatchment 6: Sub-catchment 6

[47] Hint: Peak is 184% of capacity of segment #3

Runoff = 3.09 cfs @ 12.13 hrs, Volume= 11,947 cf, Depth= 7.05"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
20,333	98	Unconnected pavement, HSG B
20,333		100.00% Impervious Area
20,333		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.5	55	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	10	0.0050	3.08	1.68	Pipe Channel, RCP_Round 10" 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
3.1	490	Total, Increased to minimum Tc = 6.0 min			

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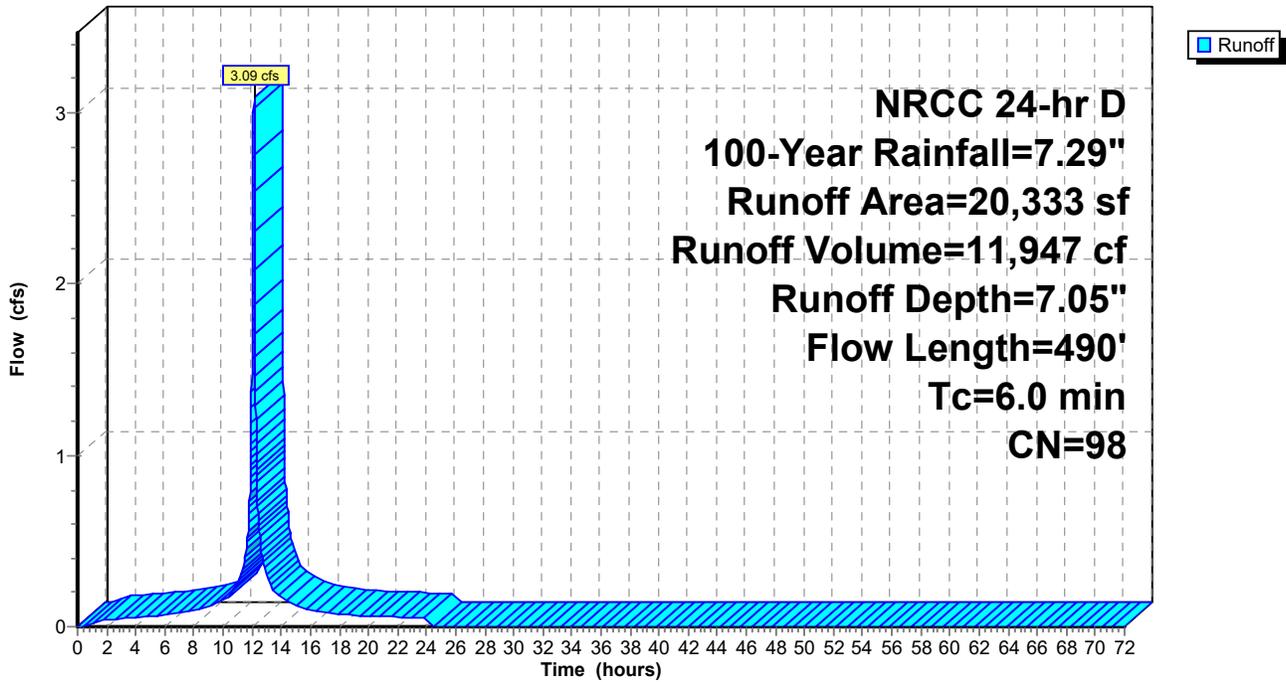
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Subcatchment 6: Sub-catchment 6

Hydrograph



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Summary for Subcatchment 7: Sub-catchment 7

Runoff = 3.56 cfs @ 12.13 hrs, Volume= 13,738 cf, Depth= 7.05"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
19,985	98	Unconnected pavement, HSG B
3,396	98	Roofs, HSG B
23,381	98	Weighted Average
23,381		100.00% Impervious Area
19,985		85.48% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.5	55	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	10	0.0050	4.55	8.05	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	393	Total, Increased to minimum Tc = 6.0 min			

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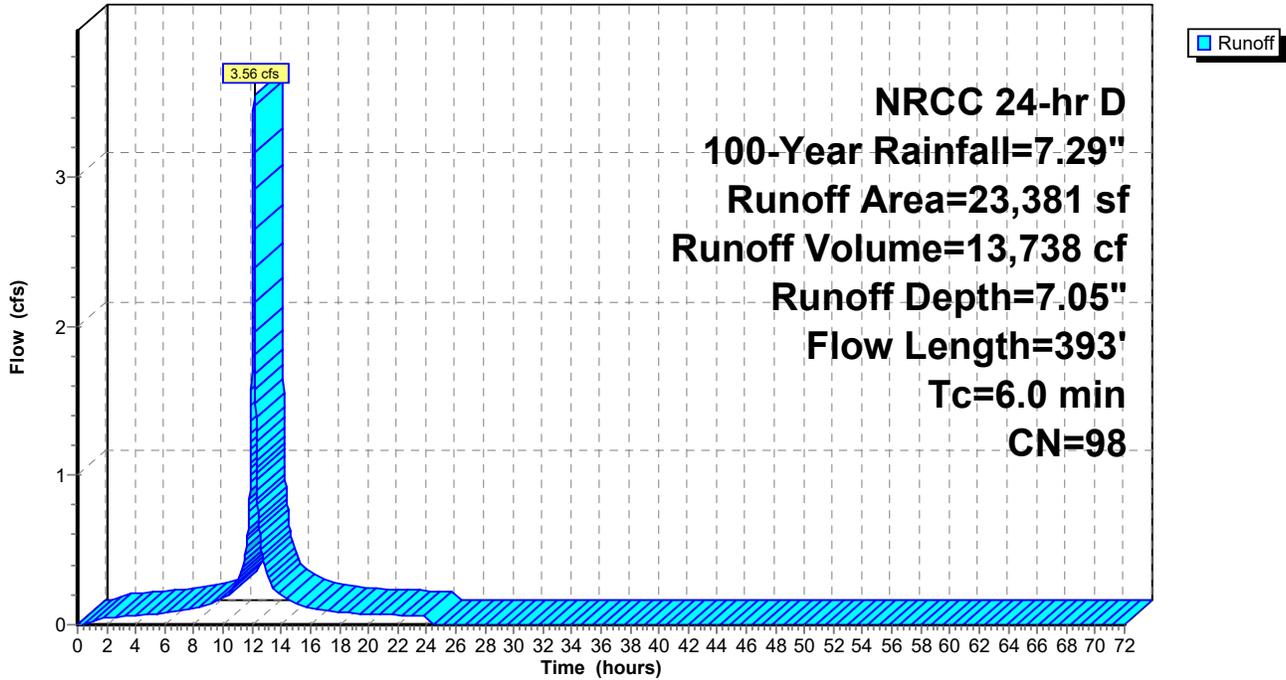
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Subcatchment 7: Sub-catchment 7

Hydrograph



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Summary for Subcatchment 8: Sub-catchment 8

Runoff = 3.88 cfs @ 12.13 hrs, Volume= 15,001 cf, Depth= 7.05"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
23,413	98	Unconnected pavement, HSG B
2,118	98	Roofs, HSG B
25,531	98	Weighted Average
25,531		100.00% Impervious Area
23,413		91.70% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	100	0.0070	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	85	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.0	10	0.0050	4.55	8.05	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	359	Total, Increased to minimum Tc = 6.0 min			

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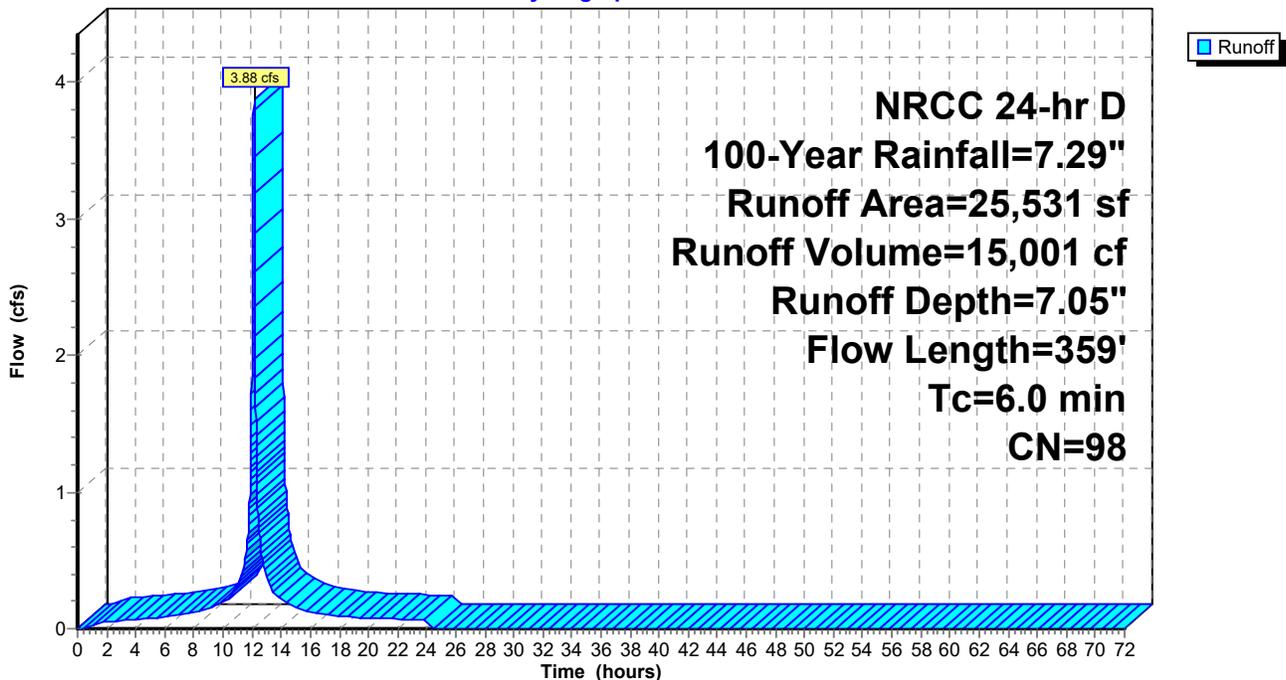
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Subcatchment 8: Sub-catchment 8

Hydrograph



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Summary for Subcatchment 9: Sub-catchment 9

Runoff = 1.16 cfs @ 12.13 hrs, Volume= 4,478 cf, Depth= 7.05"
 Routed to Pond 1P : Diversion Structure

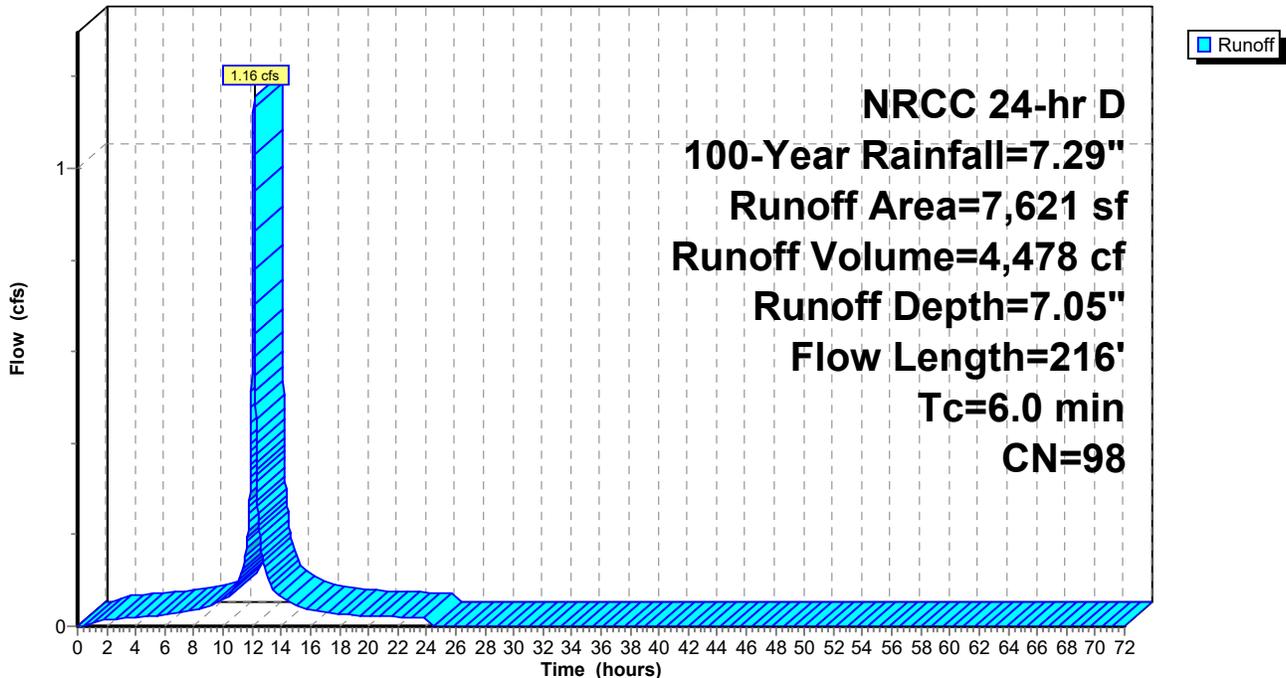
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
7,621	98	Unconnected pavement, HSG B
7,621		100.00% Impervious Area
7,621		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0090	1.00		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.7	62	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	45	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.6	216	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 9: Sub-catchment 9

Hydrograph



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Summary for Subcatchment 10: Sub-catchment 10

[47] Hint: Peak is 159% of capacity of segment #3

Runoff = 4.33 cfs @ 12.13 hrs, Volume= 15,758 cf, Depth= 6.46"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
14,729	98	Unconnected pavement, HSG B
6,760	98	Roofs, HSG B
7,790	79	<50% Grass cover, Poor, HSG B
29,279	93	Weighted Average
7,790		26.61% Pervious Area
21,489		73.39% Impervious Area
14,729		68.54% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.6	75	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.5	114	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
2.8	350	Total, Increased to minimum Tc = 6.0 min			

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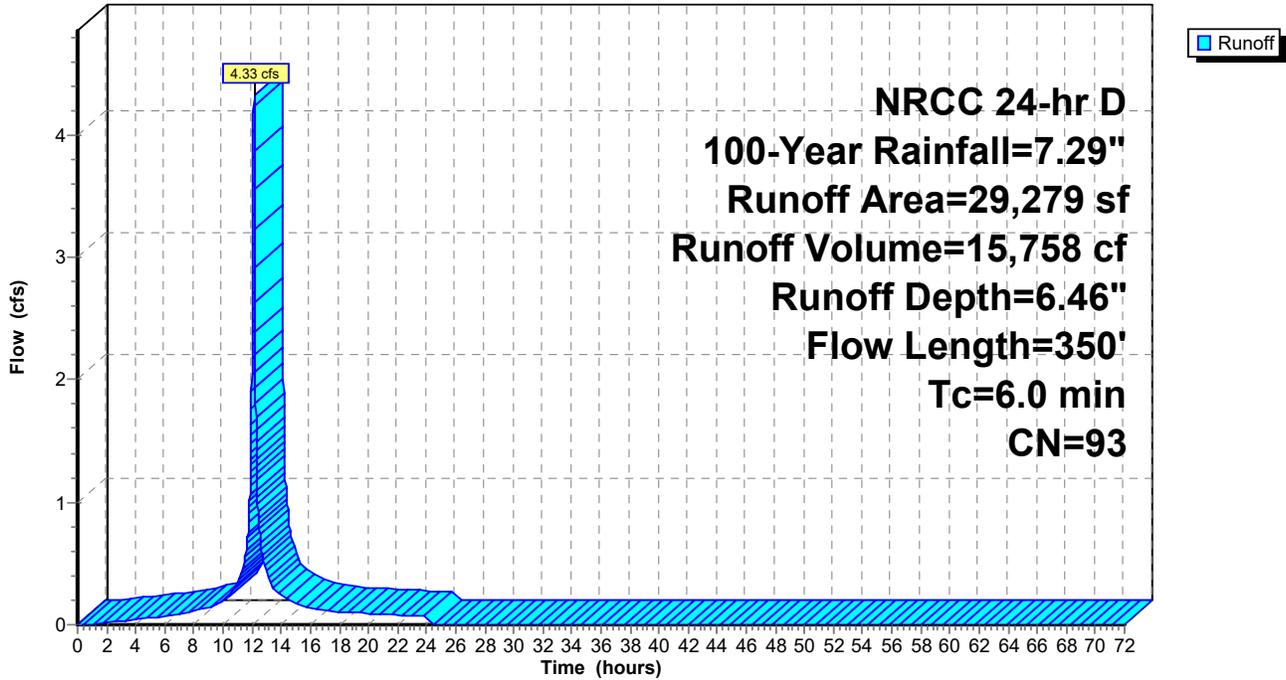
NRCC 24-hr D 100-Year Rainfall=7.29"

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Subcatchment 10: Sub-catchment 10

Hydrograph



Sandquist Proposed Conditions

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Summary for Subcatchment 11: Sub-catchment 11

Runoff = 0.28 cfs @ 12.13 hrs, Volume= 1,071 cf, Depth= 7.05"
 Routed to Pond 1P : Diversion Structure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
1,822	98	Unconnected pavement, HSG B
1,822		100.00% Impervious Area
1,822		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0690	1.99		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.4	59	0.0020	2.20	1.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
0.2	39	0.0050	4.03	4.95	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	47	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
1.5	257	0.0020	2.88	5.09	Pipe Channel, RCP_Round 18" 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	85	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	35	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.4	97	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.3	64	0.0020	4.05	19.87	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	103	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.1	52	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
0.0	9	0.0200	12.80	62.84	Pipe Channel, RCP_Round 30" 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.1	900	Total, Increased to minimum Tc = 6.0 min			

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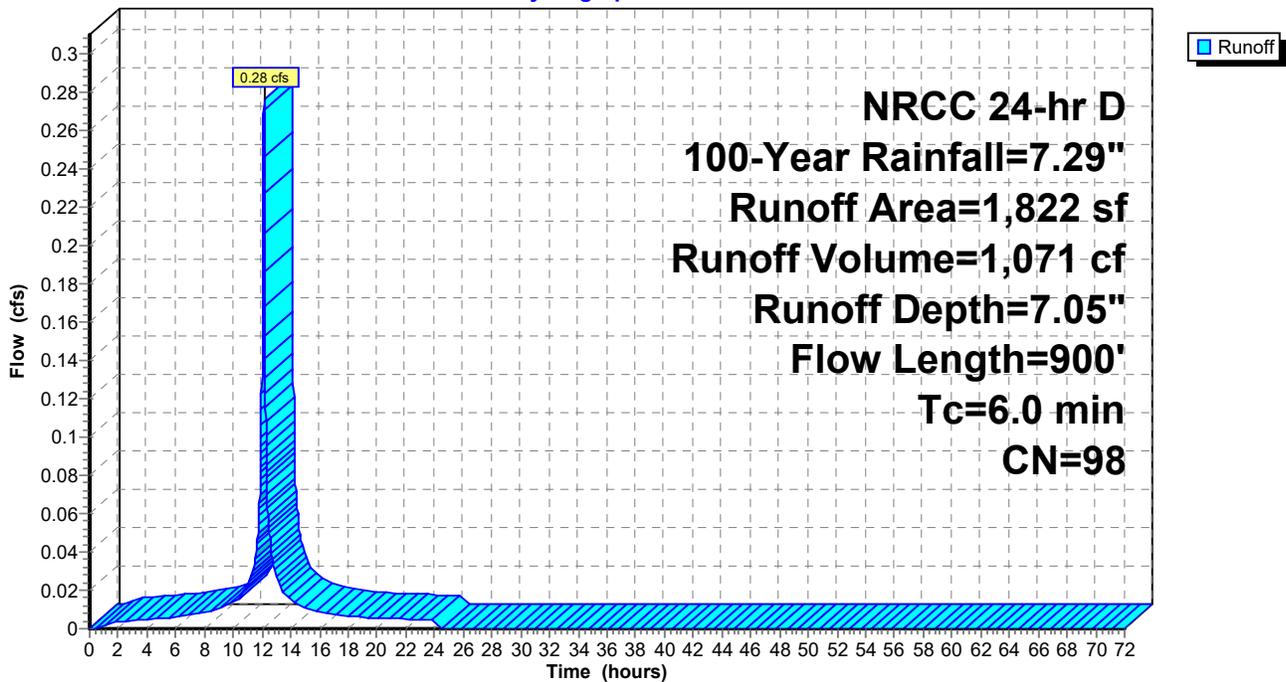
NRCC 24-hr D 100-Year Rainfall=7.29"

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Subcatchment 11: Sub-catchment 11

Hydrograph



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Summary for Subcatchment 12: Sub-catchment 12

Runoff = 1.90 cfs @ 12.13 hrs, Volume= 6,513 cf, Depth= 5.64"
 Routed to Pond 1P : Diversion Structure

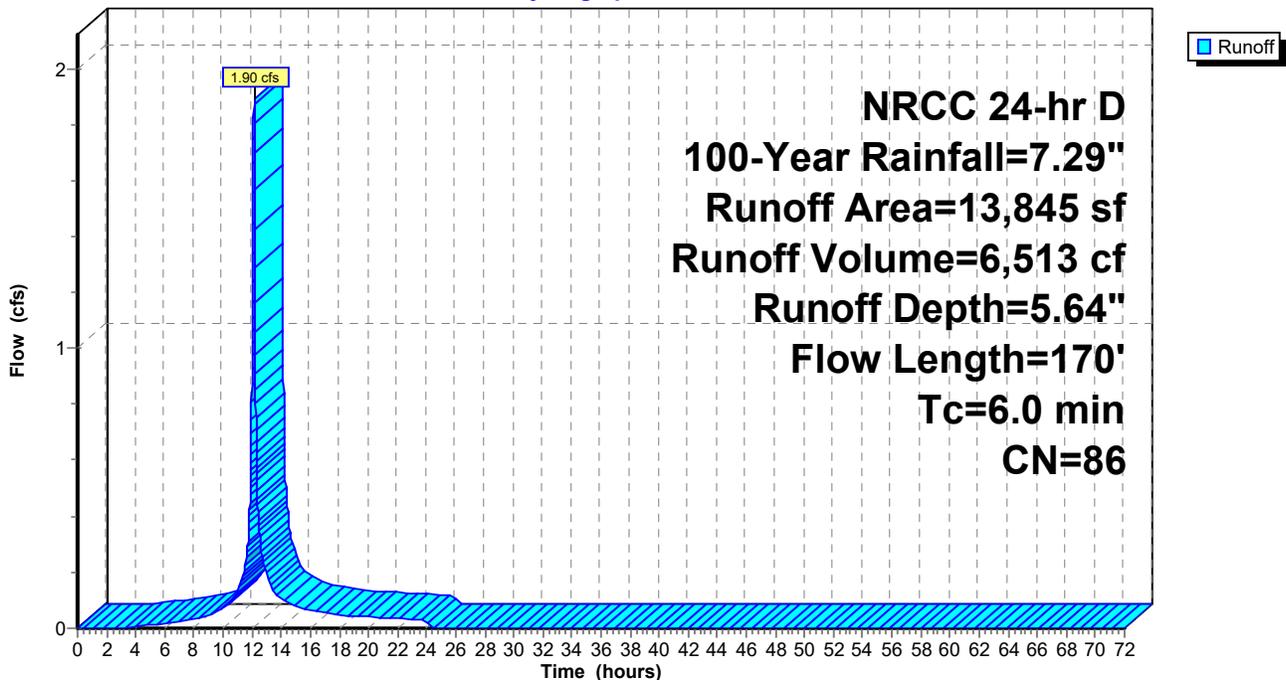
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
5,431	98	Unconnected pavement, HSG B
8,414	79	<50% Grass cover, Poor, HSG B
13,845	86	Weighted Average
8,414		60.77% Pervious Area
5,431		39.23% Impervious Area
5,431		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.04		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.20"
0.2	44	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	26	0.0050	3.47	2.73	Pipe Channel, RCP_Round 12" 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
1.9	170	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 12: Sub-catchment 12

Hydrograph



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Summary for Subcatchment 13: Sub-catchment 13

Runoff = 0.18 cfs @ 12.37 hrs, Volume= 1,027 cf, Depth= 2.91"
Routed to Link DP-2 : DP-2

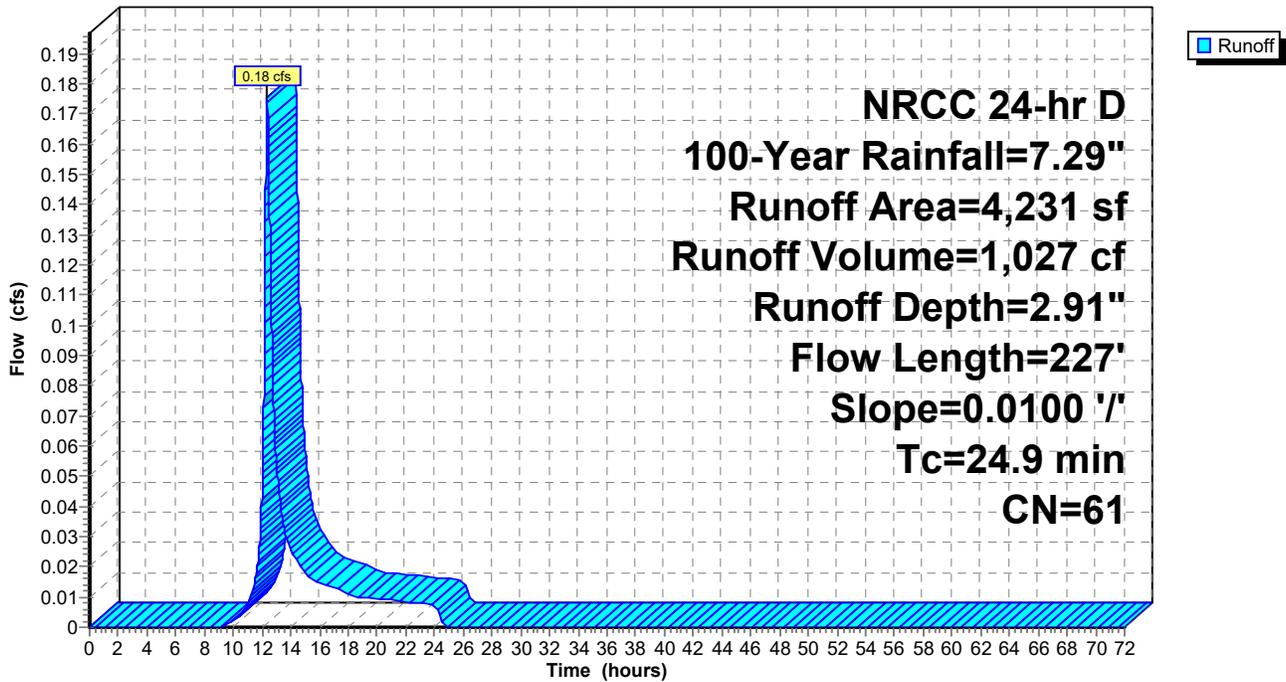
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 100-Year Rainfall=7.29"

Area (sf)	CN	Description
4,231	61	>75% Grass cover, Good, HSG B
4,231		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.9	227	0.0100	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"

Subcatchment 13: Sub-catchment 13

Hydrograph



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Summary for Pond 1P: Diversion Structure

[57] Hint: Peaked at 230.51' (Flood elevation advised)

Inflow = 42.18 cfs @ 12.13 hrs, Volume= 1,387,364 cf
 Outflow = 42.18 cfs @ 12.14 hrs, Volume= 1,387,364 cf, Atten= 0%, Lag= 0.6 min
 Primary = 5.73 cfs @ 11.49 hrs, Volume= 1,288,708 cf
 Routed to Link 1L : Pump Shutoff Control
 Secondary = 36.45 cfs @ 12.14 hrs, Volume= 98,656 cf
 Routed to Link DP-1 : DP-1

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 230.51' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	226.32'	24.0" Round Culvert L= 5.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 226.32' / 226.28' S= 0.0080 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Secondary	226.38'	30.0" Round Culvert L= 27.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 226.38' / 226.20' S= 0.0067 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 4.91 sf
#3	Device 2	228.99'	6.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#4	Device 1	225.00'	Special & User-Defined Elev. (feet) 225.00 226.32 240.00 Disch. (cfs) 0.000 5.730 5.730

Primary OutFlow Max=5.73 cfs @ 11.49 hrs HW=229.29' TW=0.00' (Dynamic Tailwater)

- ↑1=Culvert (Passes 5.73 cfs of 20.34 cfs potential flow)
- ↑4=Special & User-Defined (Custom Controls 5.73 cfs)

Secondary OutFlow Max=36.41 cfs @ 12.14 hrs HW=230.51' TW=0.00' (Dynamic Tailwater)

- ↑2=Culvert (Passes 36.41 cfs of 40.09 cfs potential flow)
- ↑3=Broad-Crested Rectangular Weir(Weir Controls 36.41 cfs @ 4.00 fps)

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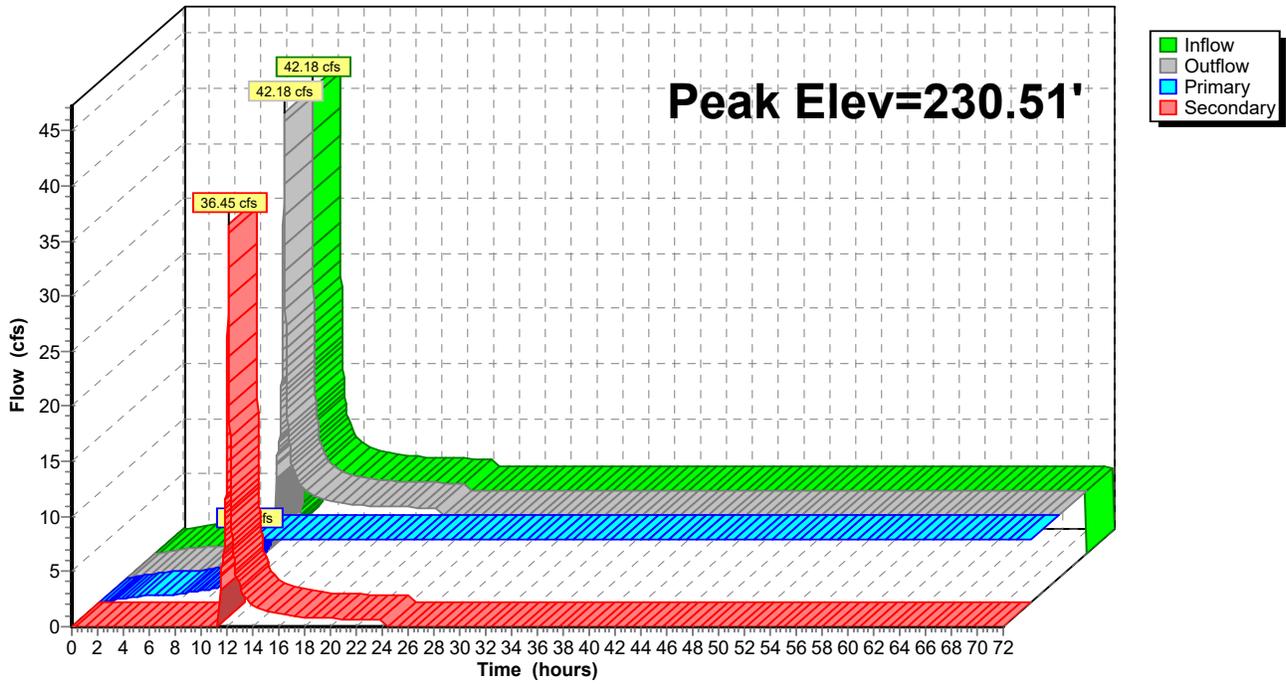
NRCC 24-hr D 100-Year Rainfall=7.29"

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Pond 1P: Diversion Structure

Hydrograph



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Summary for Pond 2P: Pump

[99] Warning: Min. Lift of 10.69' is below pump rating

Inflow = 4.38 cfs @ 11.47 hrs, Volume= 40,000 cf
 Outflow = 5.57 cfs @ 1.39 hrs, Volume= 40,088 cf, Atten= 0%, Lag= 0.0 min
 Primary = 5.57 cfs @ 1.39 hrs, Volume= 40,088 cf
 Routed to Pond 3P : AGST

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Starting Elev= 220.30' Surf.Area= 126 sf Storage= 760 cf
 Peak Elev= 225.12' @ 11.21 hrs Surf.Area= 126 sf Storage= 1,367 cf (607 cf above start)

Plug-Flow detention time= 15.3 min calculated for 39,328 cf (98% of inflow)
 Center-of-Mass det. time= 4.2 min (492.1 - 487.9)

Volume	Invert	Avail.Storage	Storage Description
#1	214.27'	2,255 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
214.27	126	0	0
232.17	126	2,255	2,255

Device	Routing	Invert	Outlet Devices (Turned on 45 times)
#1	Primary	224.30'	Pump Discharges@225.32' Turns Off<220.30' 12.0" Diam. x 136.0' Long Discharge, Hazen-Williams C= 150 Flow (gpm)= 0.0 250.0 500.0 750.0 1,000.0 1,250.0 1,500.0 1,750.0 2,000.0 2,250.0 2,500.0 Head (feet)= 117.00 105.00 93.00 83.00 76.00 68.00 60.00 53.00 45.00 37.00 29.00 -Loss (feet)= 0.00 0.02 0.07 0.16 0.26 0.40 0.56 0.75 0.96 1.19 1.44 =Lift (feet)= 117.00 104.98 92.93 82.84 75.74 67.60 59.44 52.25 44.04 35.81 27.56

Primary OutFlow Max=5.57 cfs @ 1.39 hrs HW=224.31' TW=235.00' (Dynamic Tailwater)
 ↑1=Pump (Pump Controls 5.57 cfs)

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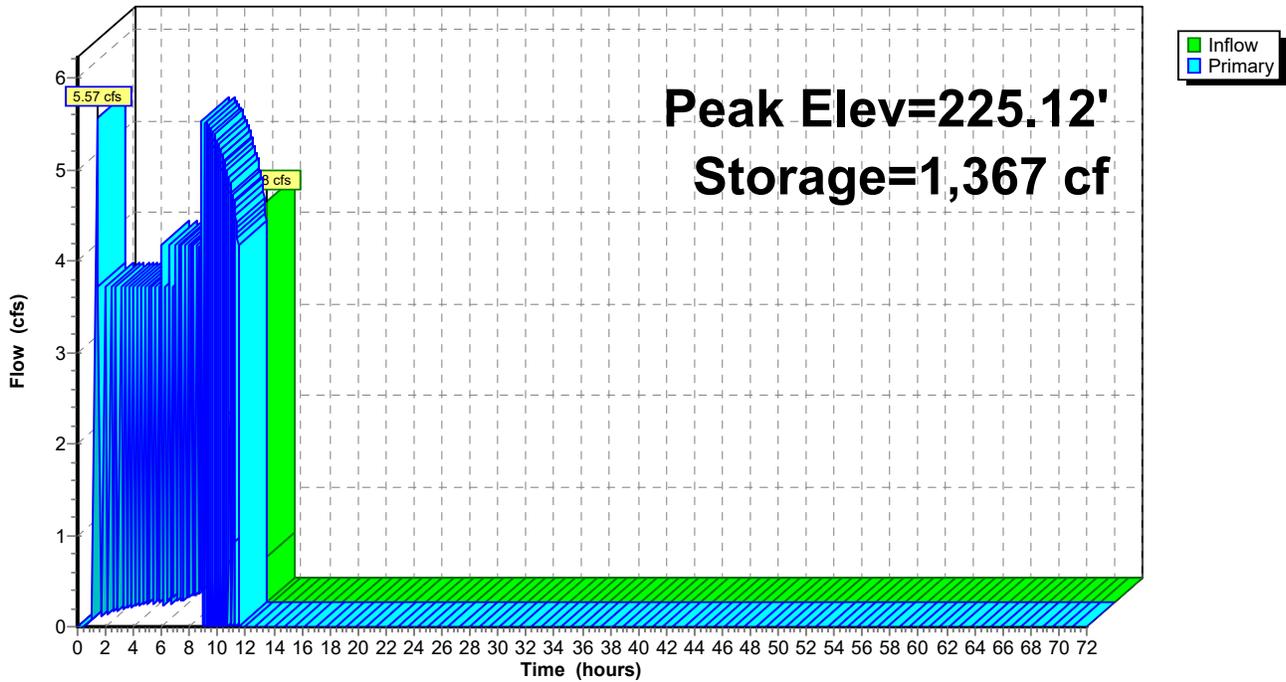
NRCC 24-hr D 100-Year Rainfall=7.29"

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Pond 2P: Pump

Hydrograph



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Summary for Pond 3P: AGST

Inflow = 5.57 cfs @ 1.39 hrs, Volume= 40,088 cf
 Outflow = 0.22 cfs @ 1.40 hrs, Volume= 40,092 cf, Atten= 96%, Lag= 0.6 min
 Primary = 0.22 cfs @ 1.40 hrs, Volume= 40,092 cf
 Routed to Link DP-1 : DP-1
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link DP-1 : DP-1

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 270.24' @ 11.50 hrs Surf.Area= 908 sf Storage= 31,995 cf

Plug-Flow detention time= 1,089.6 min calculated for 40,086 cf (100% of inflow)
 Center-of-Mass det. time= 1,089.8 min (1,581.9 - 492.1)

Volume	Invert	Avail.Storage	Storage Description
#1	235.00'	35,409 cf	34.00'D x 39.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	235.00'	0.223 cfs Constant Flow/Skimmer
#2	Secondary	271.49'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.22 cfs @ 1.40 hrs HW=235.22' TW=0.00' (Dynamic Tailwater)
 ↑1=**Constant Flow/Skimmer** (Constant Controls 0.22 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=235.00' TW=0.00' (Dynamic Tailwater)
 ↑2=**Orifice/Grate** (Controls 0.00 cfs)

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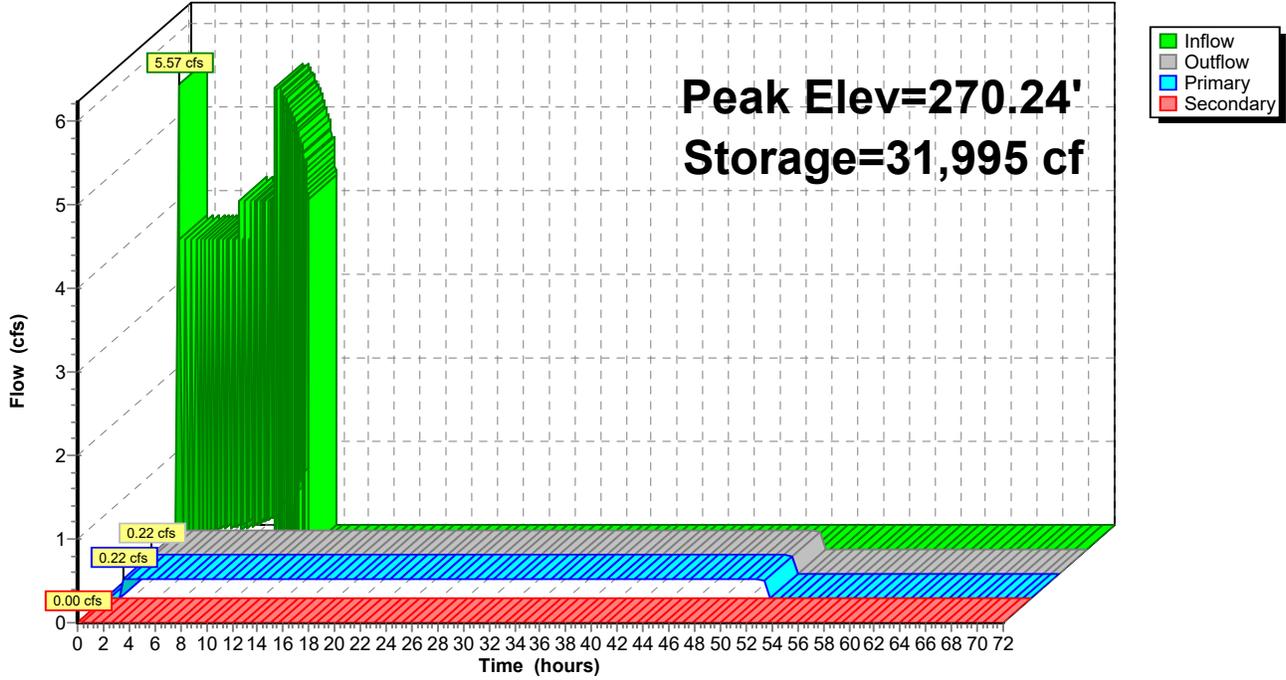
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Pond 3P: AGST

Hydrograph



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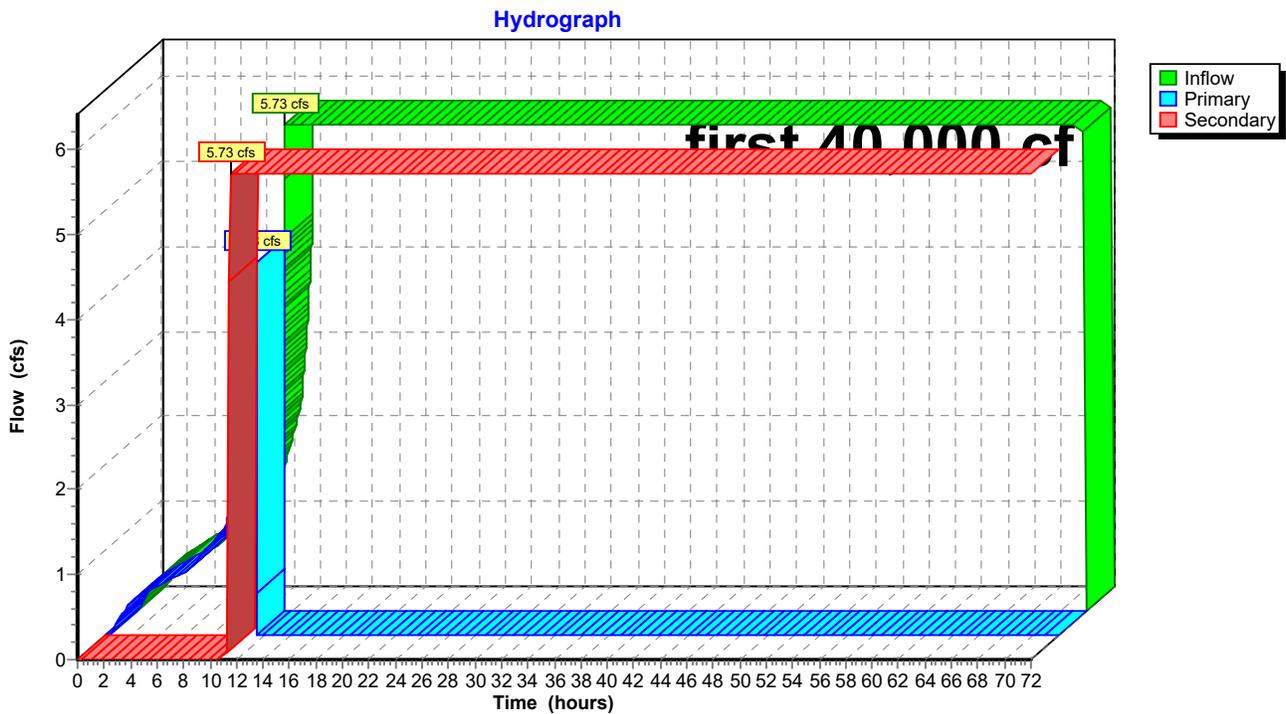
Page 174

Summary for Link 1L: Pump Shutoff Control

Inflow = 5.73 cfs @ 11.49 hrs, Volume= 1,288,502 cf
Primary = 4.38 cfs @ 11.47 hrs, Volume= 40,000 cf, Atten= 24%, Lag= 0.0 min
Routed to Pond 2P : Pump
Secondary = 5.73 cfs @ 11.50 hrs, Volume= 1,248,502 cf
Routed to Pond 1P : Diversion Structure

Primary outflow = Inflow first 40,000 cf, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1L: Pump Shutoff Control



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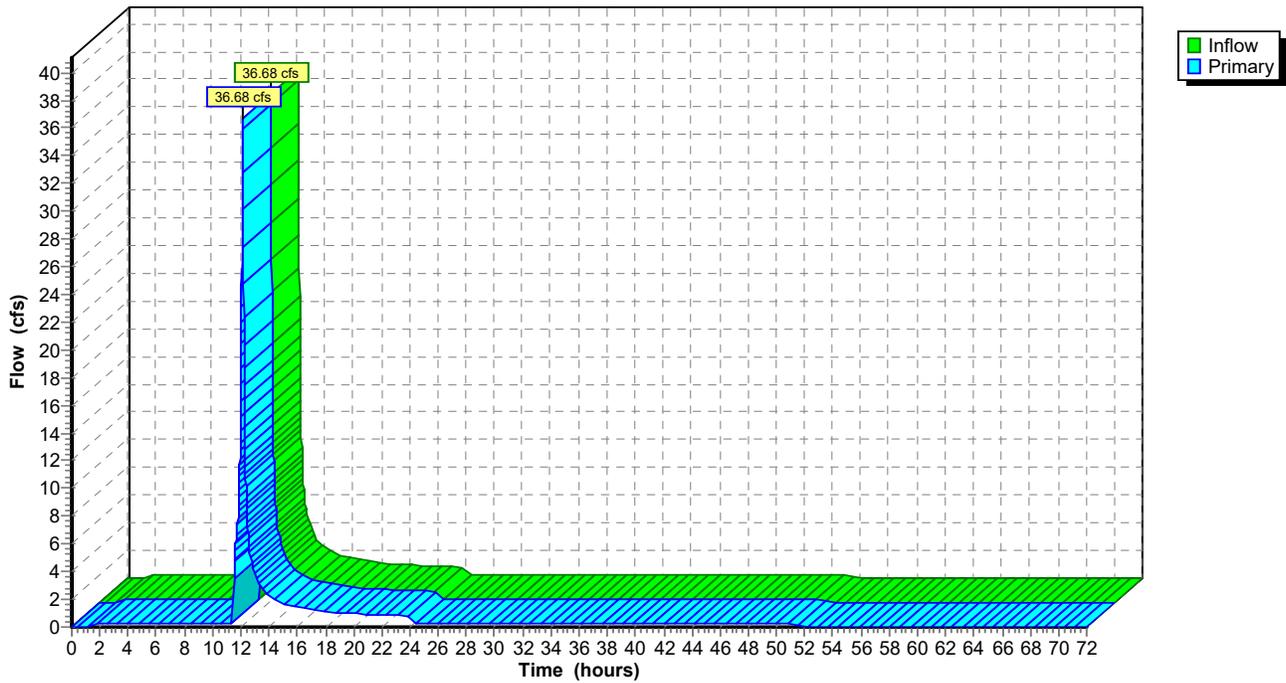
Summary for Link DP-1: DP-1

Inflow = 36.68 cfs @ 12.14 hrs, Volume= 138,747 cf
Primary = 36.68 cfs @ 12.15 hrs, Volume= 138,747 cf, Atten= 0%, Lag= 0.6 min
Routed to nonexistent node 3L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-1: DP-1

Hydrograph



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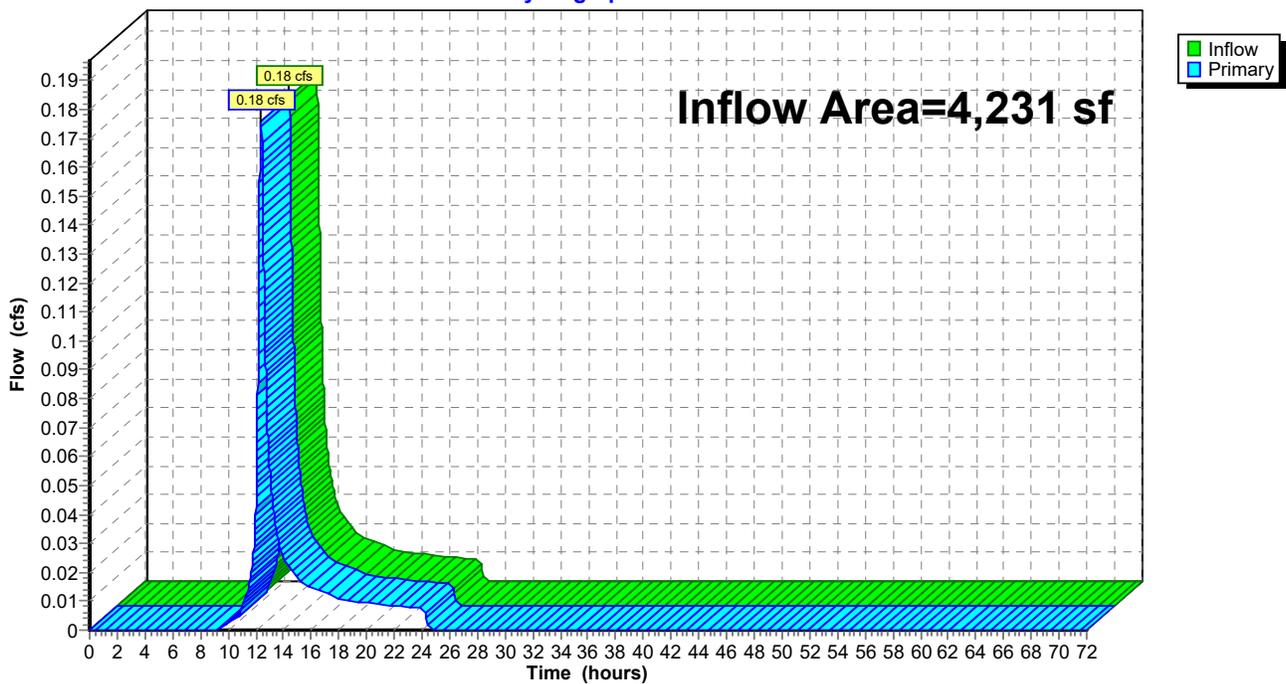
Summary for Link DP-2: DP-2

Inflow Area = 4,231 sf, 0.00% Impervious, Inflow Depth = 2.91" for 100-Year event
Inflow = 0.18 cfs @ 12.37 hrs, Volume= 1,027 cf
Primary = 0.18 cfs @ 12.38 hrs, Volume= 1,027 cf, Atten= 0%, Lag= 0.6 min
Routed to nonexistent node 3L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link DP-2: DP-2

Hydrograph



APPENDIX C: EXISTING CONDITIONS DRAINAGE AREA MAP

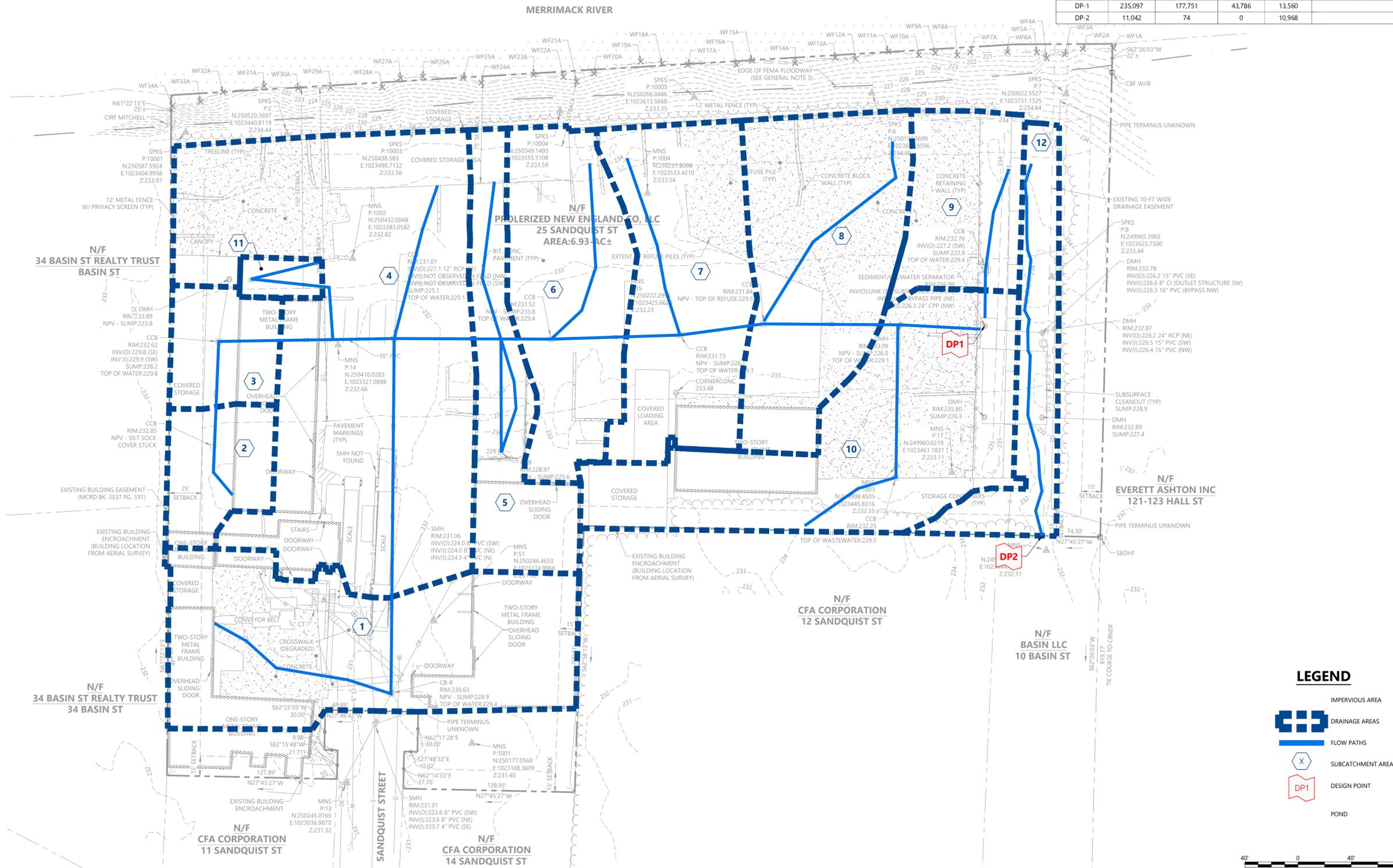


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EXISTING DRAINAGE AREA CALCULATIONS (TR-55)						
DRAINAGE AREA ID	TOTAL AREA (SF)	IMPERVIOUS AREA (CN=98)	ROOF AREA (CN=98)	GRASS AREA (CN=89)	CURVE NUMBER	Tc (MIN)
1	33,590	18,384	15,206	0	98	6.0
2	7,467	4,531	2,936	0	98	6.0
3	7,120	4,577	2,543	0	98	10.4
4	57,605	52,276	5,329	0	98	6.0
5	14,314	8,814	5,500	0	98	6.0
6	20,333	20,333	0	0	98	6.0
7	23,381	19,985	3,396	0	98	6.0
8	25,531	23,414	2,117	0	98	6.0
9	11,753	8,684	0	3,069	98	6.0
10	32,181	14,930	6,760	10,491	96	6.0
11	1,822	1,822	0	0	96	6.0
12	11,042	74	0	10,968	96	14.0
DP-1	235,097	177,751	43,786	13,560		
DP-2	11,042	74	0	10,968		



PE SEAL:

**60% DESIGN DEVELOPMENT
NOT FOR CONSTRUCTION**

CLIENT INFO:

RADIUS RECYCLING
CONCORD, NH
SANDQUIST FACILITY
STORMWATER IMPROVEMENTS

REV MM/DD/YY DESCRIPTION

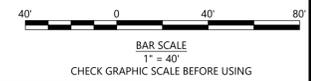
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 SCALE: 1" = 40'
 DESIGNED BY: YI
 DRAWN BY: HAO/OP
 CHECKED BY: YI/RT
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DRAWING TITLE:
**CIVIL
EXISTING CONDITIONS
WATERSHED DELINEATION**

DRAWING NO:
EX-1

LEGEND

- IMPERVIOUS AREA
- DRAINAGE AREAS
- FLOW PATHS
- SUBCATCHMENT AREAS
- DESIGN POINT
- POND



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APPENDIX D: PROPOSED CONDITIONS DRAINAGE AREA MAP

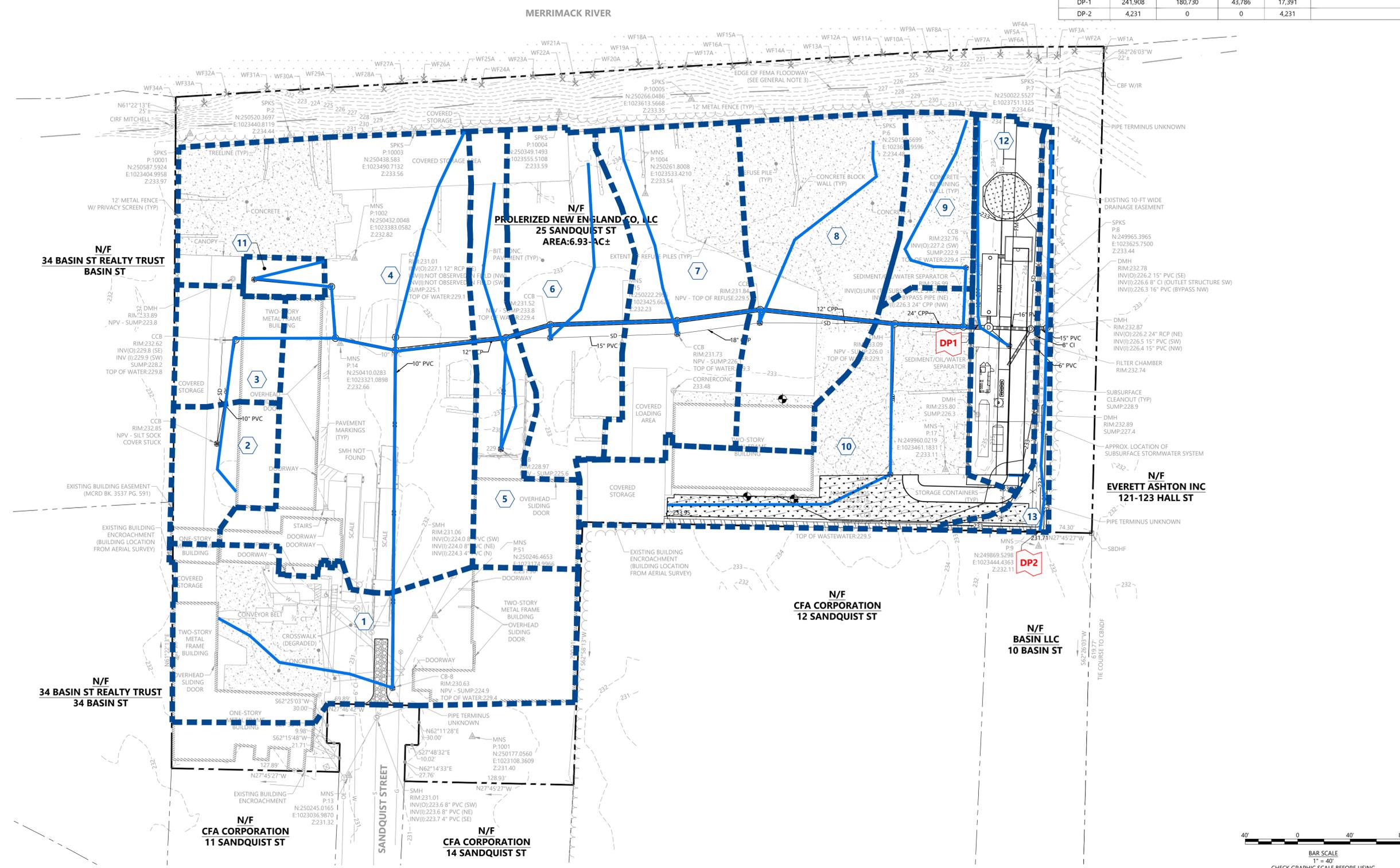


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PROPOSED DRAINAGE AREA CALCULATIONS (TR-55)						
DRAINAGE AREA ID	TOTAL AREA (SF)	IMPERVIOUS AREA (CN=98)	ROOF AREA (CN=98)	GRASS AREA (CN=89)	CURVE NUMBER	Tc (MIN)
1	33,590	18,384	15,206	0	98	6.0
2	7,467	4,531	2,936	0	98	6.0
3	7,120	4,577	2,543	0	98	10.4
4	57,605	51,575	5,329	701	98	6.0
5	14,314	8,814	5,500	0	98	6.0
6	20,333	20,333	0	0	98	6.0
7	23,381	19,985	3,396	0	98	6.0
8	25,531	23,413	2,117	0	98	6.0
9	7,621	7,621	0	0	98	6.0
10	29,279	14,729	6,760	7,790	96	6.0
11	1,822	1,822	0	0	98	6.0
12	13,845	4,945	0	8,900	91	6.0
13	4,231	0	0	4,231	91	6.0
DP-1	241,908	180,730	43,786	17,391		
DP-2	4,231	0	0	4,231		



PE SEAL:

**60% DESIGN DEVELOPMENT
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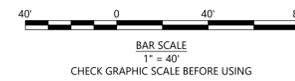
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CONCORD, NH
SANDQUIST FACILITY
STORMWATER IMPROVEMENTS

REV MM/DD/YY DESCRIPTION

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DRAWING TITLE:
**CIVIL
PROPOSED CONDITIONS
WATERSHED DELINEATION**

DRAWING NO:
PR-1



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