



Engineering
& Design

Stormwater Management Report

October 18, 2024

Last Revised: December 3, 2025

Proposed Residential Improvements

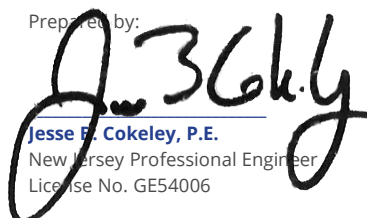
Block 106, Lot 24.01

Town of West Orange, Essex County, New Jersey

Prepared for:

Waystone Realty, LLC
40 Eagle Ridge Way
West Orange, NJ 07052

Prepared by:


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Project No. 24006174A

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Limitation

The sole purpose of this report and the associated services performed by Colliers Engineering & Design, Inc., is to undertake a hydrologic assessment for the proposed residential development in accordance with the scope of services set out in the contract between Colliers Engineering & Design and Waystone Realty, LLC.

Colliers Engineering & Design derived the data in this report from a variety of sources. The sources are identified at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations, and conclusions expressed in this report. Colliers Engineering & Design has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose of the project and by reference to applicable standards, procedures, and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report.

This report should be read in full, and no excerpts are to be taken as representative of the findings. No responsibility is accepted by Colliers Engineering & Design for use of any part of this report in any other context.

This report has been prepared on behalf of, and for the exclusive use of Waystone Realty, LLC and is subject to, and issued in connection with, the provisions of the agreement between Colliers Engineering & Design and Waystone Realty, LLC.

Introduction

This Stormwater Management Report for the proposed project has been prepared by Colliers Engineering & Design for Waystone Realty, LLC. Colliers Engineering & Design performed a hydrological assessment for the property located at 42 Eagle Ridge Way, West Orange, New Jersey, also defined as Block 106, Lot 24.01. The site is currently ± 3.09 -acres in size and was previously occupied by a single-family home and associated driveways and site improvements. The house was recently demolished and the property was cleared, and is currently occupied by stockpiles of gravel and other materials. The proposed development consists of the construction of a single-family home and a barn and indoor arena for the keeping of horses. There will also be an outdoor arena, grass paddocks, and associated driveways and pathways. The proposed development results in a total disturbance of approximately 3.07 acres and a total impervious area of approximately 0.85 acres (0.53-acre increase) within the proposed development area.

Purpose

This report assesses the hydrologic aspects, and the stormwater drainage conditions as a result of the proposed construction, including the house, barn, arenas, paddocks, landscaping areas, stormwater management facilities, associated utilities, and related site improvements.

The focus of the study is the identification of the existing drainage characteristics prior to the demolition of the house in comparison to post-development conditions. Calculations documenting the design of the stormwater management system are illustrated on the Site Plan drawing documents, prepared by Colliers Engineering & Design.

Method

Generally, stormwater runoff from the site flows overland from west to east and discharges to an existing drainage channel located at the northeastern corner of the site (Design Point 1). The remainder of the site drains overland to the south (Design Point 2). The area, curve number, and time of concentration for each existing watershed can be seen on the Existing Drainage Area Map included in the appendix. For the purposes of this analysis the existing conditions include the previously demolished house and site improvements.

Under proposed conditions, the site will generally mimic the existing drainage pattern; however, the majority of the proposed development will be captured and routed through a subsurface infiltration basin to attenuate peak flows. New inlets and pipes will be installed to convey the stormwater runoff from certain areas to the infiltration basins. Tributary areas to the infiltration basin are outlined on the Proposed Drainage Area Map and include the house, barn, arenas, and the majority of the proposed pathways and paddocks. The area, curve number, and time of concentration for each proposed watershed can be found on the Proposed Drainage Area Map and HydroCAD output included in the appendix.

Stormwater Quantity

1.1 Stormwater Management

As mentioned above, a subsurface infiltration basin has been designed to provide water quantity mitigation for the runoff discharging to the existing drainage channel. Initial geotechnical investigations on the site found bedrock in the area of the proposed basin at an approximate elevation of 611.00, and infiltration rates of 2.2 in/hr and 30 in/hr. A design infiltration rate of 1.0 in/hr was used for the proposed infiltration basin sizing. The Geotechnical Data Report for 42 Eagle Ridge Way is included as an appendix to this report. Full HydroCAD output calculations are provided in the appendix. The results are summarized in the table below.

1.2 Summary Table

<i>Description</i>	<i>2 Year Storm</i>	<i>10 Year Storm</i>	<i>100 Year Storm</i>
A. Existing Conditions			
Design Point 1	3.95 cfs	8.17 cfs	18.32 cfs
Required Reductions (50%, 75%, 80%)	1.98 cfs	6.13 cfs	14.66 cfs
Design Point 2	0.77 cfs	1.63 cfs	3.70 cfs
Required Reductions (50%, 75%, 80%)	0.39 cfs	1.22 cfs	2.96 cfs
B. Proposed Conditions			
Design Point 1	1.75 cfs	5.37 cfs	14.42 cfs
Design Point 2	0.37 cfs	0.74 cfs	1.64 cfs

According to §25-29.4.r of the Township of West Orange, stormwater management measures shall be designed so that the post-construction peak runoff rates for the 2-, 10-, and 100-year storm events are 50%, 75%, and 80%, respectively, of the preconstruction peak runoff rates. As can be seen in the Summary Table above, the post-construction peak runoff rates for the 2-, 10-, and 100-year storm events have been reduced below the required peak runoff rates.

1.3 Stormwater Management Facility Operations and Maintenance

The long-term operations and maintenance of the proposed stormwater management facilities shall be performed in accordance with the Stormwater Management Facility Operations & Maintenance Manual, which will be prepared prior to construction. This Manual will explain how often maintenance should be performed and how long it should take for the proposed on-site stormwater management systems to drain to ensure proper operation.

1.4 Conveyance System

Pipe sizing calculations are included in the appendix of this report. Pipe sizing calculations were performed using the Rational Method and 25-year design storm for capacity verification.

1.5 Downstream Stability

The 25-year frequency discharge from the proposed infiltration basin is 5.27 cfs under failure conditions. This corresponds to a velocity of 3.52 fps discharging from the 18" diameter outflow pipe. The existing soils on site are Yalesville loam, 0 to 8 percent slopes, extremely stony, which have an allowable velocity of 5.0 fps. A 7.5 ft by 9 ft scour hole with a d50 of 4 in is proposed at the outflow of the proposed basin to provide additional conduit outlet protection and point of discharge stability. Scour hole sizing calculations are included in the appendix of this report.

In accordance with the Standard for Off-Site Stability, the proposed peak flows are reduced to 50% and 75% of the predeveloped peak rates for 2 and 10 year storms, providing downstream stability.

Stormwater Quality

As per NJDEP Regulations, stormwater management measures shall only be required for water quality control if an additional ¼ acre of regulated motor vehicle surface is being proposed on a development site. For this project, the existing motor vehicle surface area totals approximately 0.13 acres and the proposed motor vehicle surface area totals approximately 0.35 acres, which results in an increase of 0.22 acres. Therefore, as the proposed improvements result in less than ¼ acre of new regulated motor vehicle surfaces, water quality treatment is not required.

Groundwater Recharge (N.J.A.C. 7:8-5.4)

To meet Township and NJDEP requirements for groundwater recharge, the proposed development is designed to maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site. As the entire subject property falls within one (1) HUC-14 sub-watershed, compliance with the groundwater recharge standard is met by analyzing the site as a whole. The site is within the Passaic River Lower (Nwk Bay to Saddle) HUC-14 drainage area.

The New Jersey Groundwater Recharge Spreadsheet, Version 2.0, November 2003 is utilized to calculate the post-development annual recharge deficit for the project site and annual recharge volume for each proposed BMP. The following table provides a summary of the post-development deficit and proposed recharge volume. Full calculation spreadsheets and a summary of the proposed recharge volume for each BMP are provided in the Appendix.

Groundwater Recharge Summary

HUC-14 Drainage Area	Pre-Development Total Annual Recharge (cubic feet)	Proposed Annual Recharge Volume (cubic feet)	Percentage of Average Annual Pre-Construction Groundwater Recharge Volume
Passaic River Lower (Nwk Bay to Saddle)	150,467	200,794	133.45%

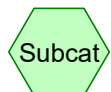
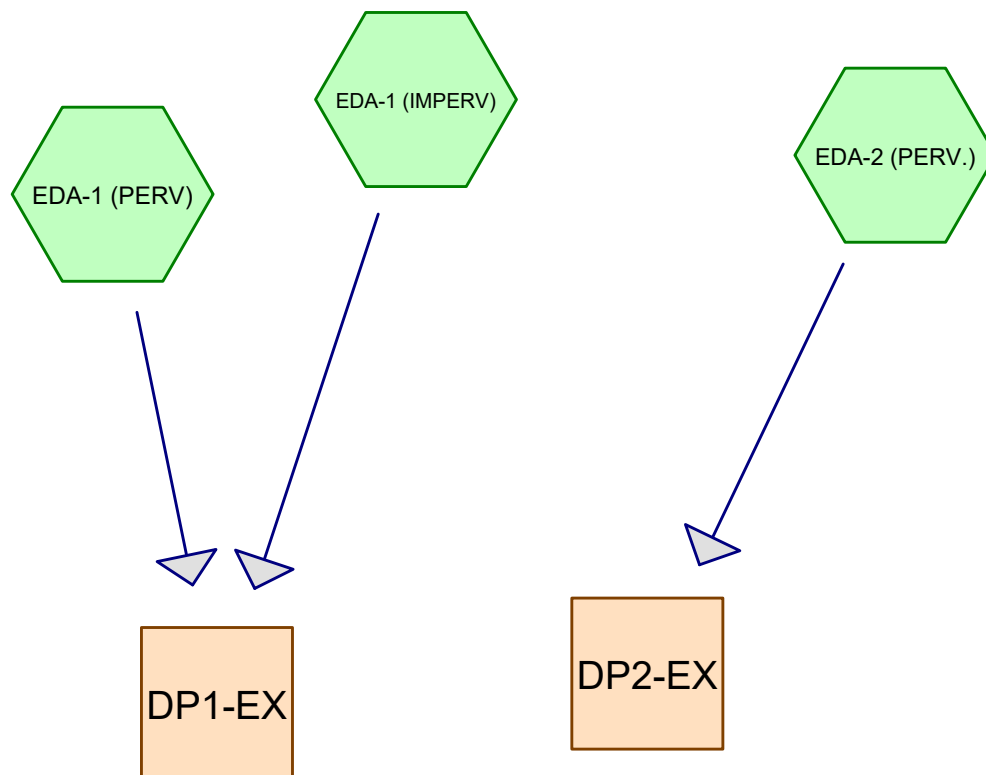
As shown in the above table, the proposed development is designed to maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site.

Conclusion

As discussed above, water quantity mitigation is provided for all watersheds for all storm events studied in accordance with NJDEP and Township of West Orange regulations. A subsurface infiltration basin was utilized to achieve the required reductions for all Design Points. Furthermore, water quality treatment is not required for this project site. As such, there should be no adverse impacts due to stormwater, on-site or off-site, as a result of the proposed development. Included in the appendix of this report is the HydroCAD output for back-up on both the existing and proposed conditions. Additionally, the aforementioned Existing and Proposed Drainage Area Maps, an Inlet Area Map, Pipe Capacity Report, and Scour Hole Sizing Calculations are provided in the appendix of this report.

Appendix A

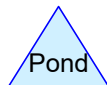
HydroCAD Output



Subcat



Reach



Pond



Link

Routing Diagram for 250903_42 ERW Waystone - Future Rainfall

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250903_42 ERW Waystone - Future Rainfall

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.773	74	>75% Grass cover, Good, HSG C (EDA-1 (PERV), EDA-2 (PERV.))
0.187	98	Paved parking, HSG C (EDA-1 (IMPERV))
0.133	98	Roofs, HSG C (EDA-1 (IMPERV))
3.092	76	TOTAL AREA

250903_42 ERW Waystone - Future Rainfall

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Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
3.092	HSG C	EDA-1 (IMPERV), EDA-1 (PERV), EDA-2 (PERV.)
0.000	HSG D	
0.000	Other	
3.092		TOTAL AREA

250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

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

SubcatchmentEDA-1 (IMPERV):Runoff Area=13,913 sf 100.00% Impervious Runoff Depth=3.85"
Flow Length=275' Tc=2.8 min CN=98 Runoff=1.36 cfs 0.103 af**SubcatchmentEDA-1 (PERV):**Runoff Area=102,351 sf 0.00% Impervious Runoff Depth=1.66"
Flow Length=501' Tc=13.1 min CN=74 Runoff=3.48 cfs 0.326 af**SubcatchmentEDA-2 (PERV.):**Runoff Area=0.423 ac 0.00% Impervious Runoff Depth=1.66"
Flow Length=121' Tc=7.2 min CN=74 Runoff=0.77 cfs 0.059 af**Reach DP1-EX:**Inflow=3.95 cfs 0.428 af
Outflow=3.95 cfs 0.428 af**Reach DP2-EX:**Inflow=0.77 cfs 0.059 af
Outflow=0.77 cfs 0.059 af**Total Runoff Area = 3.092 ac Runoff Volume = 0.487 af Average Runoff Depth = 1.89"**
89.67% Pervious = 2.773 ac 10.33% Impervious = 0.319 ac

250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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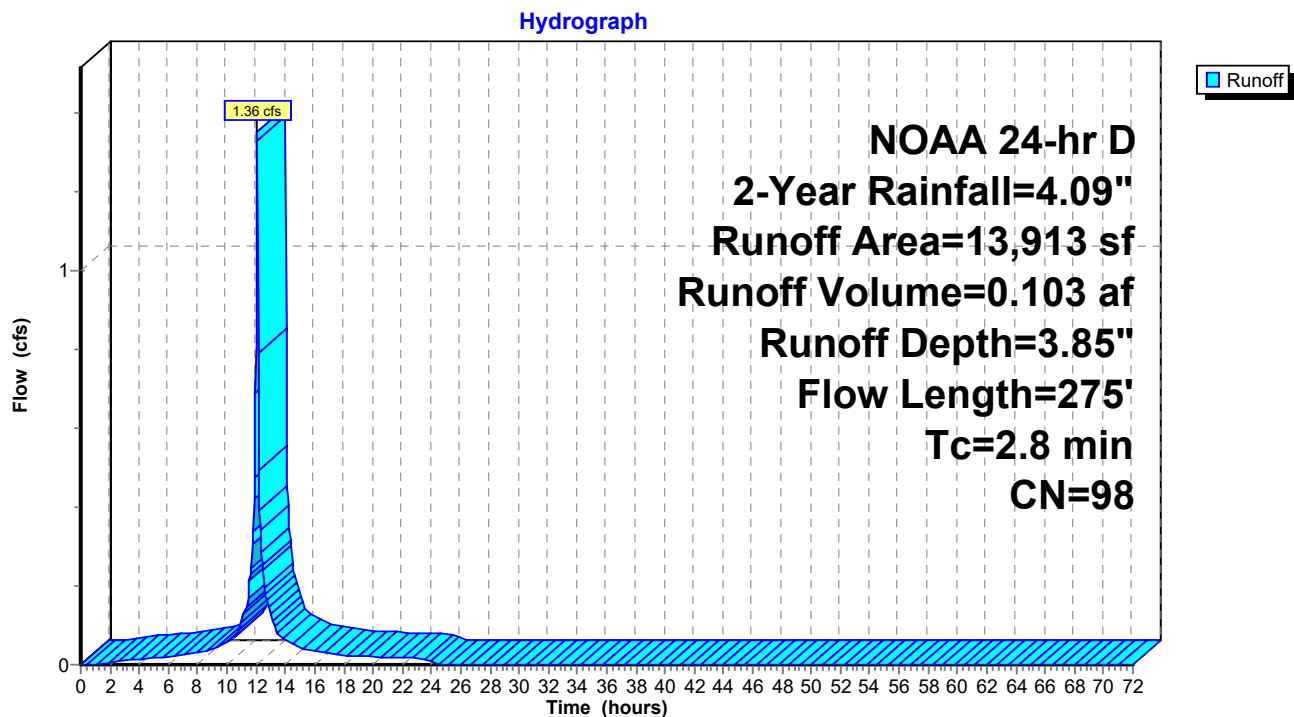
Summary for Subcatchment EDA-1 (IMPERV):

Runoff = 1.36 cfs @ 12.09 hrs, Volume= 0.103 af, Depth= 3.85"
Routed to Reach DP1-EX :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=4.09"

Area (sf)	CN	Description
8,137	98	Paved parking, HSG C
5,776	98	Roofs, HSG C
13,913	98	Weighted Average
13,913		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	78	0.0150	1.21		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.44"
1.0	12	0.0800	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.7	185	0.0830	4.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.8	275	Total			

Subcatchment EDA-1 (IMPERV):

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NOAA 24-hr D 2-Year Rainfall=4.09"

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Hydrograph for Subcatchment EDA-1 (IMPERV):

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.09	3.85	0.00
1.00	0.05	0.00	0.00	53.00	4.09	3.85	0.00
2.00	0.10	0.01	0.01	54.00	4.09	3.85	0.00
3.00	0.15	0.04	0.01	55.00	4.09	3.85	0.00
4.00	0.21	0.08	0.01	56.00	4.09	3.85	0.00
5.00	0.28	0.13	0.02	57.00	4.09	3.85	0.00
6.00	0.35	0.19	0.02	58.00	4.09	3.85	0.00
7.00	0.43	0.26	0.03	59.00	4.09	3.85	0.00
8.00	0.53	0.35	0.03	60.00	4.09	3.85	0.00
9.00	0.65	0.46	0.04	61.00	4.09	3.85	0.00
10.00	0.81	0.61	0.06	62.00	4.09	3.85	0.00
11.00	1.06	0.85	0.11	63.00	4.09	3.85	0.00
12.00	1.96	1.73	0.82	64.00	4.09	3.85	0.00
13.00	3.03	2.79	0.12	65.00	4.09	3.85	0.00
14.00	3.28	3.05	0.06	66.00	4.09	3.85	0.00
15.00	3.44	3.21	0.04	67.00	4.09	3.85	0.00
16.00	3.56	3.33	0.04	68.00	4.09	3.85	0.00
17.00	3.66	3.43	0.03	69.00	4.09	3.85	0.00
18.00	3.74	3.51	0.02	70.00	4.09	3.85	0.00
19.00	3.81	3.58	0.02	71.00	4.09	3.85	0.00
20.00	3.88	3.64	0.02	72.00	4.09	3.85	0.00
21.00	3.94	3.70	0.02				
22.00	3.99	3.76	0.02				
23.00	4.04	3.81	0.02				
24.00	4.09	3.85	0.01				
25.00	4.09	3.85	0.00				
26.00	4.09	3.85	0.00				
27.00	4.09	3.85	0.00				
28.00	4.09	3.85	0.00				
29.00	4.09	3.85	0.00				
30.00	4.09	3.85	0.00				
31.00	4.09	3.85	0.00				
32.00	4.09	3.85	0.00				
33.00	4.09	3.85	0.00				
34.00	4.09	3.85	0.00				
35.00	4.09	3.85	0.00				
36.00	4.09	3.85	0.00				
37.00	4.09	3.85	0.00				
38.00	4.09	3.85	0.00				
39.00	4.09	3.85	0.00				
40.00	4.09	3.85	0.00				
41.00	4.09	3.85	0.00				
42.00	4.09	3.85	0.00				
43.00	4.09	3.85	0.00				
44.00	4.09	3.85	0.00				
45.00	4.09	3.85	0.00				
46.00	4.09	3.85	0.00				
47.00	4.09	3.85	0.00				
48.00	4.09	3.85	0.00				
49.00	4.09	3.85	0.00				
50.00	4.09	3.85	0.00				
51.00	4.09	3.85	0.00				

250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Summary for Subcatchment EDA-1 (PERV):

Runoff = 3.48 cfs @ 12.22 hrs, Volume= 0.326 af, Depth= 1.66"
Routed to Reach DP1-EX :

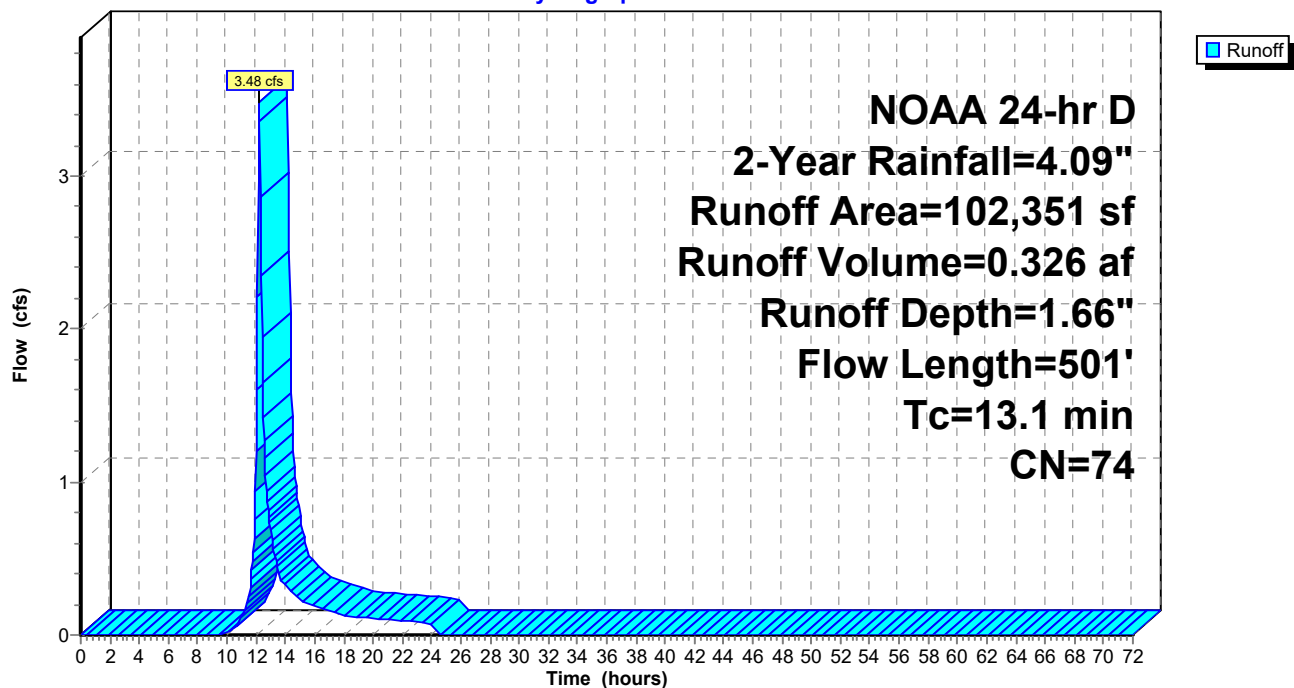
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=4.09"

Area (sf)	CN	Description
102,351	74	>75% Grass cover, Good, HSG C
102,351		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0140	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
2.2	401	0.0350	3.01		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.1	501	Total			

Subcatchment EDA-1 (PERV):

Hydrograph



250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Hydrograph for Subcatchment EDA-1 (PERV):

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.09	1.66	0.00
1.00	0.05	0.00	0.00	53.00	4.09	1.66	0.00
2.00	0.10	0.00	0.00	54.00	4.09	1.66	0.00
3.00	0.15	0.00	0.00	55.00	4.09	1.66	0.00
4.00	0.21	0.00	0.00	56.00	4.09	1.66	0.00
5.00	0.28	0.00	0.00	57.00	4.09	1.66	0.00
6.00	0.35	0.00	0.00	58.00	4.09	1.66	0.00
7.00	0.43	0.00	0.00	59.00	4.09	1.66	0.00
8.00	0.53	0.00	0.00	60.00	4.09	1.66	0.00
9.00	0.65	0.00	0.00	61.00	4.09	1.66	0.00
10.00	0.81	0.00	0.02	62.00	4.09	1.66	0.00
11.00	1.06	0.03	0.11	63.00	4.09	1.66	0.00
12.00	1.96	0.33	1.20	64.00	4.09	1.66	0.00
13.00	3.03	0.93	0.67	65.00	4.09	1.66	0.00
14.00	3.28	1.09	0.33	66.00	4.09	1.66	0.00
15.00	3.44	1.20	0.23	67.00	4.09	1.66	0.00
16.00	3.56	1.28	0.19	68.00	4.09	1.66	0.00
17.00	3.66	1.35	0.16	69.00	4.09	1.66	0.00
18.00	3.74	1.41	0.13	70.00	4.09	1.66	0.00
19.00	3.81	1.46	0.12	71.00	4.09	1.66	0.00
20.00	3.88	1.51	0.11	72.00	4.09	1.66	0.00
21.00	3.94	1.55	0.10				
22.00	3.99	1.59	0.09				
23.00	4.04	1.63	0.09				
24.00	4.09	1.66	0.08				
25.00	4.09	1.66	0.00				
26.00	4.09	1.66	0.00				
27.00	4.09	1.66	0.00				
28.00	4.09	1.66	0.00				
29.00	4.09	1.66	0.00				
30.00	4.09	1.66	0.00				
31.00	4.09	1.66	0.00				
32.00	4.09	1.66	0.00				
33.00	4.09	1.66	0.00				
34.00	4.09	1.66	0.00				
35.00	4.09	1.66	0.00				
36.00	4.09	1.66	0.00				
37.00	4.09	1.66	0.00				
38.00	4.09	1.66	0.00				
39.00	4.09	1.66	0.00				
40.00	4.09	1.66	0.00				
41.00	4.09	1.66	0.00				
42.00	4.09	1.66	0.00				
43.00	4.09	1.66	0.00				
44.00	4.09	1.66	0.00				
45.00	4.09	1.66	0.00				
46.00	4.09	1.66	0.00				
47.00	4.09	1.66	0.00				
48.00	4.09	1.66	0.00				
49.00	4.09	1.66	0.00				
50.00	4.09	1.66	0.00				
51.00	4.09	1.66	0.00				

250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Summary for Subcatchment EDA-2 (PERV.):

Runoff = 0.77 cfs @ 12.15 hrs, Volume= 0.059 af, Depth= 1.66"
Routed to Reach DP2-EX :

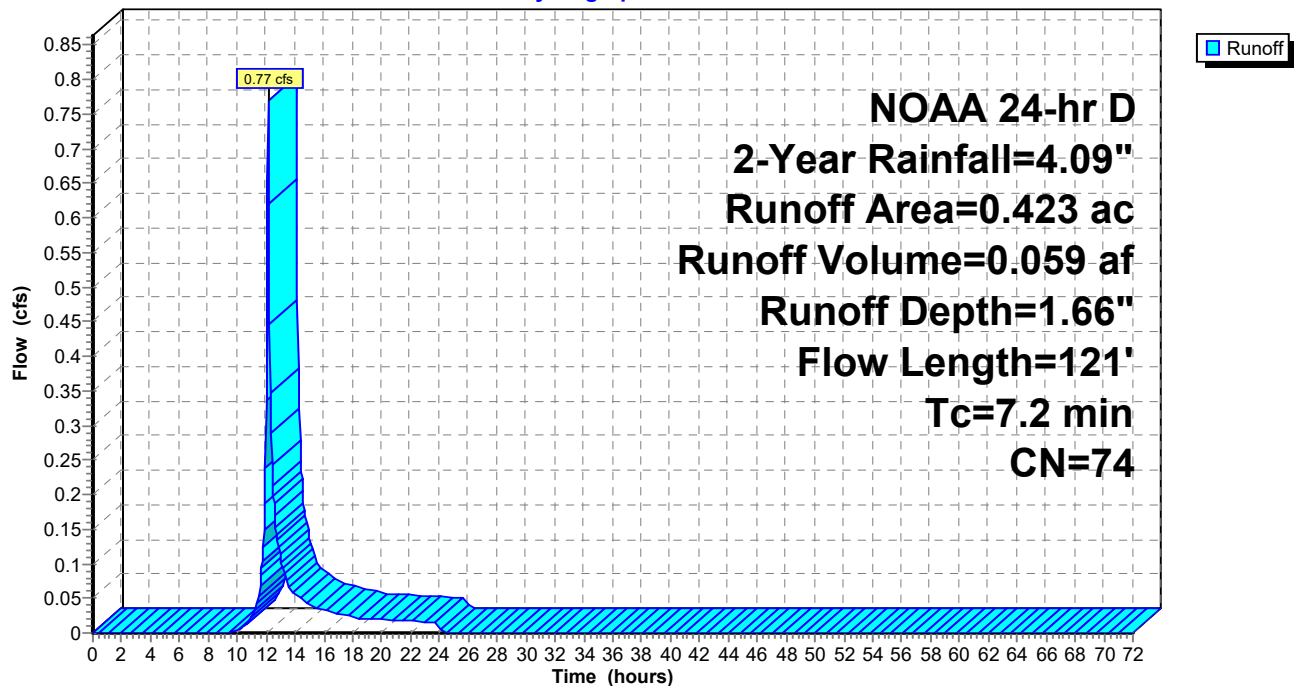
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=4.09"

Area (ac)	CN	Description
0.423	74	>75% Grass cover, Good, HSG C
0.423		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	100	0.0410	0.24		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.1	21	0.1050	5.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.2	121	Total			

Subcatchment EDA-2 (PERV.):

Hydrograph



250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Hydrograph for Subcatchment EDA-2 (PERV.):

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.09	1.66	0.00
1.00	0.05	0.00	0.00	53.00	4.09	1.66	0.00
2.00	0.10	0.00	0.00	54.00	4.09	1.66	0.00
3.00	0.15	0.00	0.00	55.00	4.09	1.66	0.00
4.00	0.21	0.00	0.00	56.00	4.09	1.66	0.00
5.00	0.28	0.00	0.00	57.00	4.09	1.66	0.00
6.00	0.35	0.00	0.00	58.00	4.09	1.66	0.00
7.00	0.43	0.00	0.00	59.00	4.09	1.66	0.00
8.00	0.53	0.00	0.00	60.00	4.09	1.66	0.00
9.00	0.65	0.00	0.00	61.00	4.09	1.66	0.00
10.00	0.81	0.00	0.00	62.00	4.09	1.66	0.00
11.00	1.06	0.03	0.02	63.00	4.09	1.66	0.00
12.00	1.96	0.33	0.34	64.00	4.09	1.66	0.00
13.00	3.03	0.93	0.11	65.00	4.09	1.66	0.00
14.00	3.28	1.09	0.06	66.00	4.09	1.66	0.00
15.00	3.44	1.20	0.04	67.00	4.09	1.66	0.00
16.00	3.56	1.28	0.03	68.00	4.09	1.66	0.00
17.00	3.66	1.35	0.03	69.00	4.09	1.66	0.00
18.00	3.74	1.41	0.02	70.00	4.09	1.66	0.00
19.00	3.81	1.46	0.02	71.00	4.09	1.66	0.00
20.00	3.88	1.51	0.02	72.00	4.09	1.66	0.00
21.00	3.94	1.55	0.02				
22.00	3.99	1.59	0.02				
23.00	4.04	1.63	0.02				
24.00	4.09	1.66	0.01				
25.00	4.09	1.66	0.00				
26.00	4.09	1.66	0.00				
27.00	4.09	1.66	0.00				
28.00	4.09	1.66	0.00				
29.00	4.09	1.66	0.00				
30.00	4.09	1.66	0.00				
31.00	4.09	1.66	0.00				
32.00	4.09	1.66	0.00				
33.00	4.09	1.66	0.00				
34.00	4.09	1.66	0.00				
35.00	4.09	1.66	0.00				
36.00	4.09	1.66	0.00				
37.00	4.09	1.66	0.00				
38.00	4.09	1.66	0.00				
39.00	4.09	1.66	0.00				
40.00	4.09	1.66	0.00				
41.00	4.09	1.66	0.00				
42.00	4.09	1.66	0.00				
43.00	4.09	1.66	0.00				
44.00	4.09	1.66	0.00				
45.00	4.09	1.66	0.00				
46.00	4.09	1.66	0.00				
47.00	4.09	1.66	0.00				
48.00	4.09	1.66	0.00				
49.00	4.09	1.66	0.00				
50.00	4.09	1.66	0.00				
51.00	4.09	1.66	0.00				

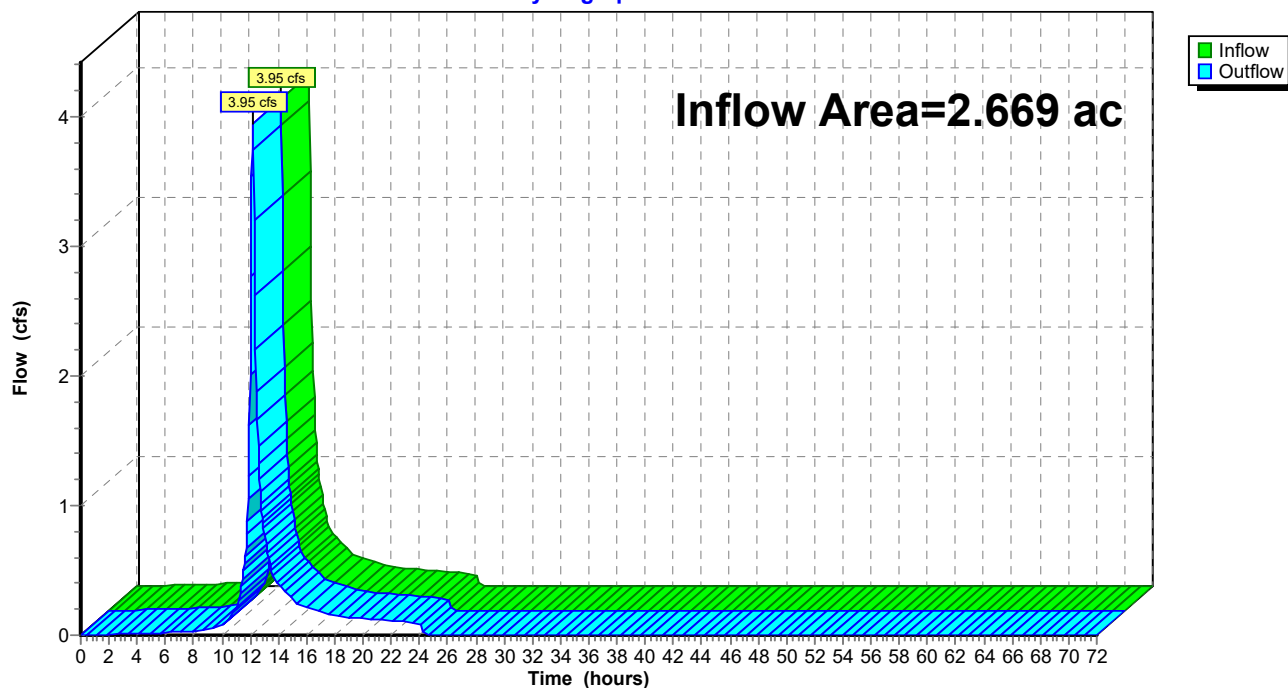
Summary for Reach DP1-EX:

Inflow Area = 2.669 ac, 11.97% Impervious, Inflow Depth = 1.93" for 2-Year event
Inflow = 3.95 cfs @ 12.20 hrs, Volume= 0.428 af
Outflow = 3.95 cfs @ 12.20 hrs, Volume= 0.428 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP1-EX:

Hydrograph



250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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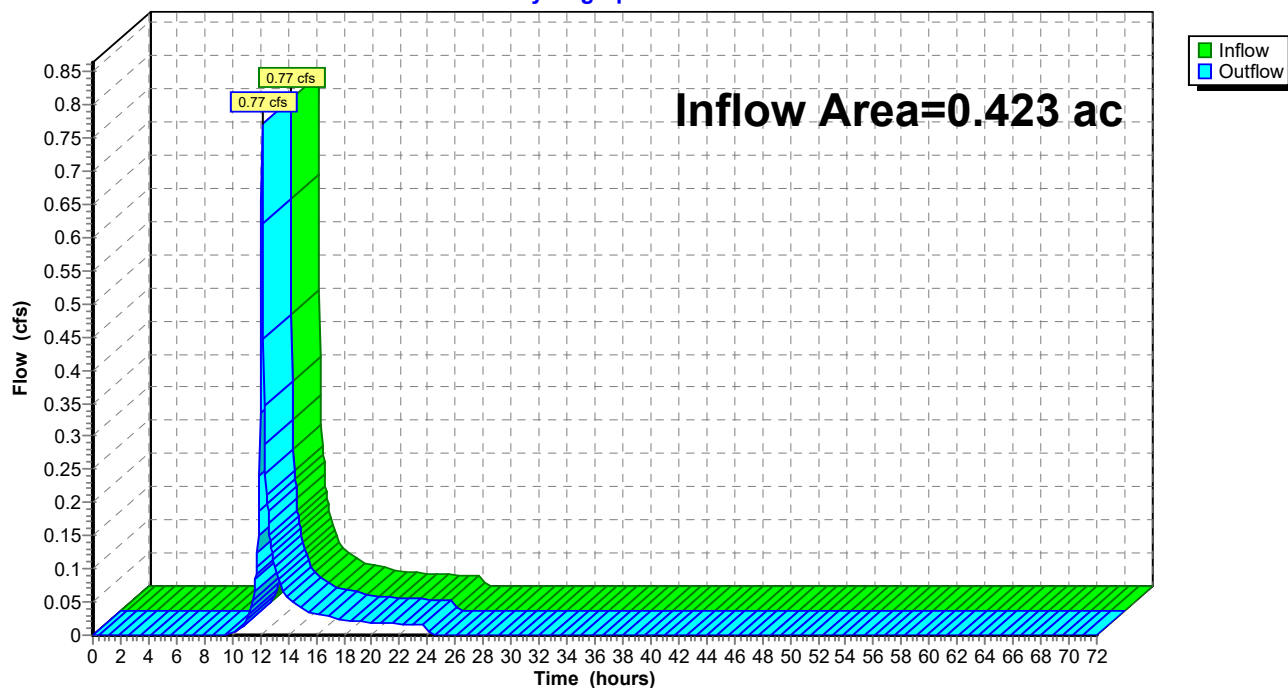
Hydrograph for Reach DP1-EX:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.01		0.01	55.00	0.00		0.00
4.00	0.01		0.01	56.00	0.00		0.00
5.00	0.02		0.02	57.00	0.00		0.00
6.00	0.02		0.02	58.00	0.00		0.00
7.00	0.03		0.03	59.00	0.00		0.00
8.00	0.03		0.03	60.00	0.00		0.00
9.00	0.04		0.04	61.00	0.00		0.00
10.00	0.08		0.08	62.00	0.00		0.00
11.00	0.22		0.22	63.00	0.00		0.00
12.00	2.02		2.02	64.00	0.00		0.00
13.00	0.79		0.79	65.00	0.00		0.00
14.00	0.39		0.39	66.00	0.00		0.00
15.00	0.27		0.27	67.00	0.00		0.00
16.00	0.22		0.22	68.00	0.00		0.00
17.00	0.19		0.19	69.00	0.00		0.00
18.00	0.15		0.15	70.00	0.00		0.00
19.00	0.14		0.14	71.00	0.00		0.00
20.00	0.13		0.13	72.00	0.00		0.00
21.00	0.12		0.12				
22.00	0.11		0.11				
23.00	0.10		0.10				
24.00	0.09		0.09				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Reach DP2-EX:

Inflow Area = 0.423 ac, 0.00% Impervious, Inflow Depth = 1.66" for 2-Year event
Inflow = 0.77 cfs @ 12.15 hrs, Volume= 0.059 af
Outflow = 0.77 cfs @ 12.15 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP2-EX:**Hydrograph**

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NOAA 24-hr D 2-Year Rainfall=4.09"

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Hydrograph for Reach DP2-EX:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.02		0.02	63.00	0.00		0.00
12.00	0.34		0.34	64.00	0.00		0.00
13.00	0.11		0.11	65.00	0.00		0.00
14.00	0.06		0.06	66.00	0.00		0.00
15.00	0.04		0.04	67.00	0.00		0.00
16.00	0.03		0.03	68.00	0.00		0.00
17.00	0.03		0.03	69.00	0.00		0.00
18.00	0.02		0.02	70.00	0.00		0.00
19.00	0.02		0.02	71.00	0.00		0.00
20.00	0.02		0.02	72.00	0.00		0.00
21.00	0.02		0.02				
22.00	0.02		0.02				
23.00	0.02		0.02				
24.00	0.01		0.01				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 10-Year Rainfall=6.37"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

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

SubcatchmentEDA-1 (IMPERV):Runoff Area=13,913 sf 100.00% Impervious Runoff Depth=6.13"
Flow Length=275' Tc=2.8 min CN=98 Runoff=2.12 cfs 0.163 af**SubcatchmentEDA-1 (PERV):**Runoff Area=102,351 sf 0.00% Impervious Runoff Depth=3.50"
Flow Length=501' Tc=13.1 min CN=74 Runoff=7.42 cfs 0.685 af**SubcatchmentEDA-2 (PERV.):**Runoff Area=0.423 ac 0.00% Impervious Runoff Depth=3.50"
Flow Length=121' Tc=7.2 min CN=74 Runoff=1.63 cfs 0.123 af**Reach DP1-EX:**Inflow=8.17 cfs 0.848 af
Outflow=8.17 cfs 0.848 af**Reach DP2-EX:**Inflow=1.63 cfs 0.123 af
Outflow=1.63 cfs 0.123 af**Total Runoff Area = 3.092 ac Runoff Volume = 0.972 af Average Runoff Depth = 3.77"**
89.67% Pervious = 2.773 ac 10.33% Impervious = 0.319 ac

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NOAA 24-hr D 10-Year Rainfall=6.37"

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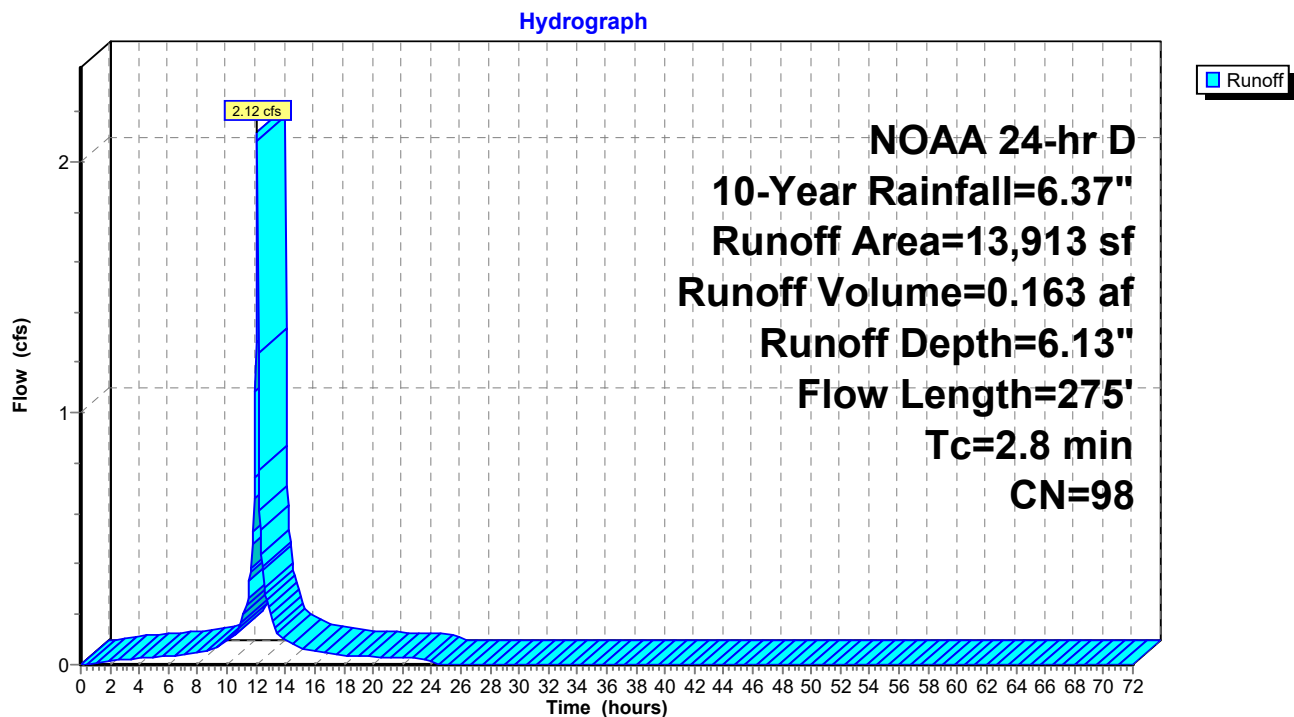
Summary for Subcatchment EDA-1 (IMPERV):

Runoff = 2.12 cfs @ 12.09 hrs, Volume= 0.163 af, Depth= 6.13"
Routed to Reach DP1-EX :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=6.37"

Area (sf)	CN	Description
8,137	98	Paved parking, HSG C
5,776	98	Roofs, HSG C
13,913	98	Weighted Average
13,913		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	78	0.0150	1.21		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.44"
1.0	12	0.0800	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.7	185	0.0830	4.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.8	275	Total			

Subcatchment EDA-1 (IMPERV):

250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 10-Year Rainfall=6.37"

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Hydrograph for Subcatchment EDA-1 (IMPERV):

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.37	6.13	0.00
1.00	0.07	0.00	0.01	53.00	6.37	6.13	0.00
2.00	0.15	0.04	0.02	54.00	6.37	6.13	0.00
3.00	0.24	0.10	0.02	55.00	6.37	6.13	0.00
4.00	0.33	0.17	0.03	56.00	6.37	6.13	0.00
5.00	0.44	0.26	0.03	57.00	6.37	6.13	0.00
6.00	0.54	0.36	0.03	58.00	6.37	6.13	0.00
7.00	0.67	0.48	0.04	59.00	6.37	6.13	0.00
8.00	0.83	0.62	0.05	60.00	6.37	6.13	0.00
9.00	1.01	0.80	0.06	61.00	6.37	6.13	0.00
10.00	1.26	1.05	0.09	62.00	6.37	6.13	0.00
11.00	1.66	1.43	0.17	63.00	6.37	6.13	0.00
12.00	3.05	2.82	1.28	64.00	6.37	6.13	0.00
13.00	4.71	4.48	0.19	65.00	6.37	6.13	0.00
14.00	5.11	4.87	0.10	66.00	6.37	6.13	0.00
15.00	5.36	5.12	0.07	67.00	6.37	6.13	0.00
16.00	5.54	5.31	0.06	68.00	6.37	6.13	0.00
17.00	5.70	5.46	0.05	69.00	6.37	6.13	0.00
18.00	5.83	5.59	0.04	70.00	6.37	6.13	0.00
19.00	5.93	5.70	0.03	71.00	6.37	6.13	0.00
20.00	6.04	5.80	0.03	72.00	6.37	6.13	0.00
21.00	6.13	5.89	0.03				
22.00	6.22	5.98	0.03				
23.00	6.30	6.06	0.02				
24.00	6.37	6.13	0.02				
25.00	6.37	6.13	0.00				
26.00	6.37	6.13	0.00				
27.00	6.37	6.13	0.00				
28.00	6.37	6.13	0.00				
29.00	6.37	6.13	0.00				
30.00	6.37	6.13	0.00				
31.00	6.37	6.13	0.00				
32.00	6.37	6.13	0.00				
33.00	6.37	6.13	0.00				
34.00	6.37	6.13	0.00				
35.00	6.37	6.13	0.00				
36.00	6.37	6.13	0.00				
37.00	6.37	6.13	0.00				
38.00	6.37	6.13	0.00				
39.00	6.37	6.13	0.00				
40.00	6.37	6.13	0.00				
41.00	6.37	6.13	0.00				
42.00	6.37	6.13	0.00				
43.00	6.37	6.13	0.00				
44.00	6.37	6.13	0.00				
45.00	6.37	6.13	0.00				
46.00	6.37	6.13	0.00				
47.00	6.37	6.13	0.00				
48.00	6.37	6.13	0.00				
49.00	6.37	6.13	0.00				
50.00	6.37	6.13	0.00				
51.00	6.37	6.13	0.00				

250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 10-Year Rainfall=6.37"

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Summary for Subcatchment EDA-1 (PERV):

Runoff = 7.42 cfs @ 12.21 hrs, Volume= 0.685 af, Depth= 3.50"
Routed to Reach DP1-EX :

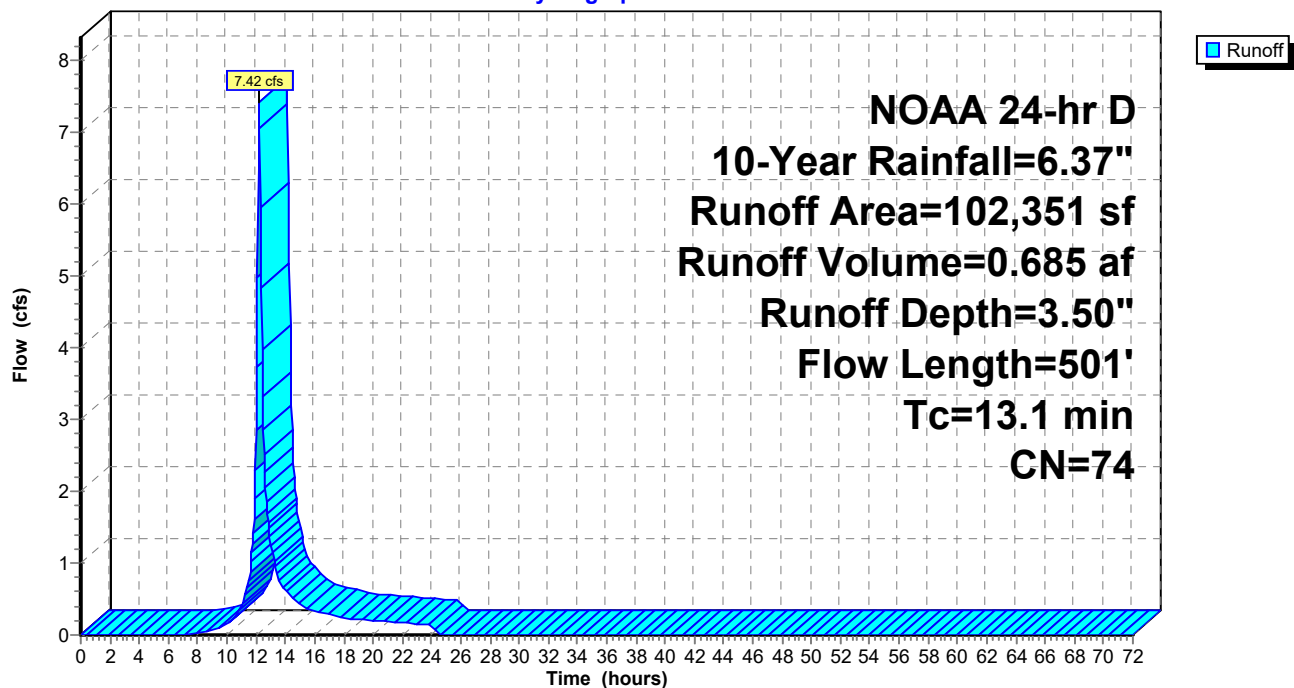
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=6.37"

Area (sf)	CN	Description
102,351	74	>75% Grass cover, Good, HSG C
102,351		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0140	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
2.2	401	0.0350	3.01		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.1	501	Total			

Subcatchment EDA-1 (PERV):

Hydrograph



250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 10-Year Rainfall=6.37"

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Hydrograph for Subcatchment EDA-1 (PERV):

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.37	3.50	0.00
1.00	0.07	0.00	0.00	53.00	6.37	3.50	0.00
2.00	0.15	0.00	0.00	54.00	6.37	3.50	0.00
3.00	0.24	0.00	0.00	55.00	6.37	3.50	0.00
4.00	0.33	0.00	0.00	56.00	6.37	3.50	0.00
5.00	0.44	0.00	0.00	57.00	6.37	3.50	0.00
6.00	0.54	0.00	0.00	58.00	6.37	3.50	0.00
7.00	0.67	0.00	0.00	59.00	6.37	3.50	0.00
8.00	0.83	0.00	0.02	60.00	6.37	3.50	0.00
9.00	1.01	0.02	0.06	61.00	6.37	3.50	0.00
10.00	1.26	0.08	0.16	62.00	6.37	3.50	0.00
11.00	1.66	0.20	0.40	63.00	6.37	3.50	0.00
12.00	3.05	0.94	2.86	64.00	6.37	3.50	0.00
13.00	4.71	2.14	1.28	65.00	6.37	3.50	0.00
14.00	5.11	2.45	0.61	66.00	6.37	3.50	0.00
15.00	5.36	2.65	0.43	67.00	6.37	3.50	0.00
16.00	5.54	2.80	0.34	68.00	6.37	3.50	0.00
17.00	5.70	2.93	0.29	69.00	6.37	3.50	0.00
18.00	5.83	3.04	0.23	70.00	6.37	3.50	0.00
19.00	5.93	3.13	0.21	71.00	6.37	3.50	0.00
20.00	6.04	3.22	0.20	72.00	6.37	3.50	0.00
21.00	6.13	3.29	0.18				
22.00	6.22	3.37	0.17				
23.00	6.30	3.44	0.16				
24.00	6.37	3.50	0.14				
25.00	6.37	3.50	0.00				
26.00	6.37	3.50	0.00				
27.00	6.37	3.50	0.00				
28.00	6.37	3.50	0.00				
29.00	6.37	3.50	0.00				
30.00	6.37	3.50	0.00				
31.00	6.37	3.50	0.00				
32.00	6.37	3.50	0.00				
33.00	6.37	3.50	0.00				
34.00	6.37	3.50	0.00				
35.00	6.37	3.50	0.00				
36.00	6.37	3.50	0.00				
37.00	6.37	3.50	0.00				
38.00	6.37	3.50	0.00				
39.00	6.37	3.50	0.00				
40.00	6.37	3.50	0.00				
41.00	6.37	3.50	0.00				
42.00	6.37	3.50	0.00				
43.00	6.37	3.50	0.00				
44.00	6.37	3.50	0.00				
45.00	6.37	3.50	0.00				
46.00	6.37	3.50	0.00				
47.00	6.37	3.50	0.00				
48.00	6.37	3.50	0.00				
49.00	6.37	3.50	0.00				
50.00	6.37	3.50	0.00				
51.00	6.37	3.50	0.00				

250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 10-Year Rainfall=6.37"

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Summary for Subcatchment EDA-2 (PERV.):

Runoff = 1.63 cfs @ 12.14 hrs, Volume= 0.123 af, Depth= 3.50"
Routed to Reach DP2-EX :

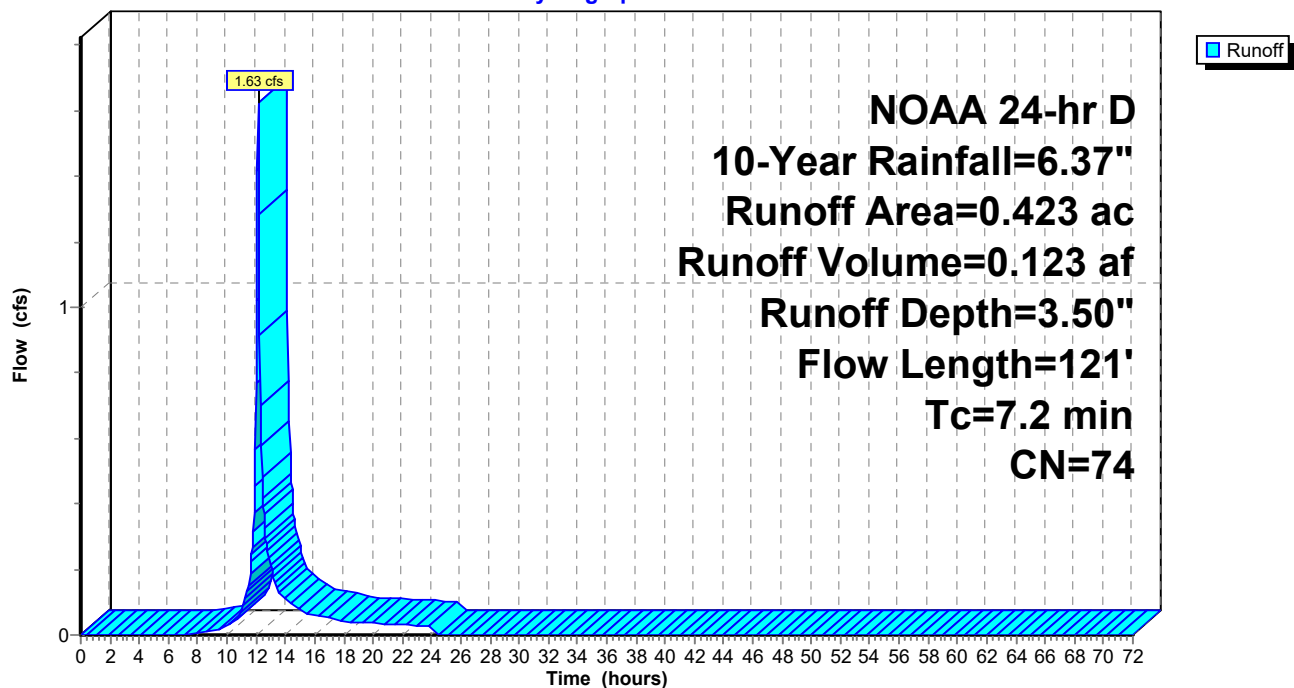
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=6.37"

Area (ac)	CN	Description
0.423	74	>75% Grass cover, Good, HSG C
0.423		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	100	0.0410	0.24		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.1	21	0.1050	5.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.2	121	Total			

Subcatchment EDA-2 (PERV.):

Hydrograph



250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 10-Year Rainfall=6.37"

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Hydrograph for Subcatchment EDA-2 (PERV.):

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.37	3.50	0.00
1.00	0.07	0.00	0.00	53.00	6.37	3.50	0.00
2.00	0.15	0.00	0.00	54.00	6.37	3.50	0.00
3.00	0.24	0.00	0.00	55.00	6.37	3.50	0.00
4.00	0.33	0.00	0.00	56.00	6.37	3.50	0.00
5.00	0.44	0.00	0.00	57.00	6.37	3.50	0.00
6.00	0.54	0.00	0.00	58.00	6.37	3.50	0.00
7.00	0.67	0.00	0.00	59.00	6.37	3.50	0.00
8.00	0.83	0.00	0.00	60.00	6.37	3.50	0.00
9.00	1.01	0.02	0.01	61.00	6.37	3.50	0.00
10.00	1.26	0.08	0.03	62.00	6.37	3.50	0.00
11.00	1.66	0.20	0.08	63.00	6.37	3.50	0.00
12.00	3.05	0.94	0.77	64.00	6.37	3.50	0.00
13.00	4.71	2.14	0.21	65.00	6.37	3.50	0.00
14.00	5.11	2.45	0.11	66.00	6.37	3.50	0.00
15.00	5.36	2.65	0.07	67.00	6.37	3.50	0.00
16.00	5.54	2.80	0.06	68.00	6.37	3.50	0.00
17.00	5.70	2.93	0.05	69.00	6.37	3.50	0.00
18.00	5.83	3.04	0.04	70.00	6.37	3.50	0.00
19.00	5.93	3.13	0.04	71.00	6.37	3.50	0.00
20.00	6.04	3.22	0.04	72.00	6.37	3.50	0.00
21.00	6.13	3.29	0.03				
22.00	6.22	3.37	0.03				
23.00	6.30	3.44	0.03				
24.00	6.37	3.50	0.03				
25.00	6.37	3.50	0.00				
26.00	6.37	3.50	0.00				
27.00	6.37	3.50	0.00				
28.00	6.37	3.50	0.00				
29.00	6.37	3.50	0.00				
30.00	6.37	3.50	0.00				
31.00	6.37	3.50	0.00				
32.00	6.37	3.50	0.00				
33.00	6.37	3.50	0.00				
34.00	6.37	3.50	0.00				
35.00	6.37	3.50	0.00				
36.00	6.37	3.50	0.00				
37.00	6.37	3.50	0.00				
38.00	6.37	3.50	0.00				
39.00	6.37	3.50	0.00				
40.00	6.37	3.50	0.00				
41.00	6.37	3.50	0.00				
42.00	6.37	3.50	0.00				
43.00	6.37	3.50	0.00				
44.00	6.37	3.50	0.00				
45.00	6.37	3.50	0.00				
46.00	6.37	3.50	0.00				
47.00	6.37	3.50	0.00				
48.00	6.37	3.50	0.00				
49.00	6.37	3.50	0.00				
50.00	6.37	3.50	0.00				
51.00	6.37	3.50	0.00				

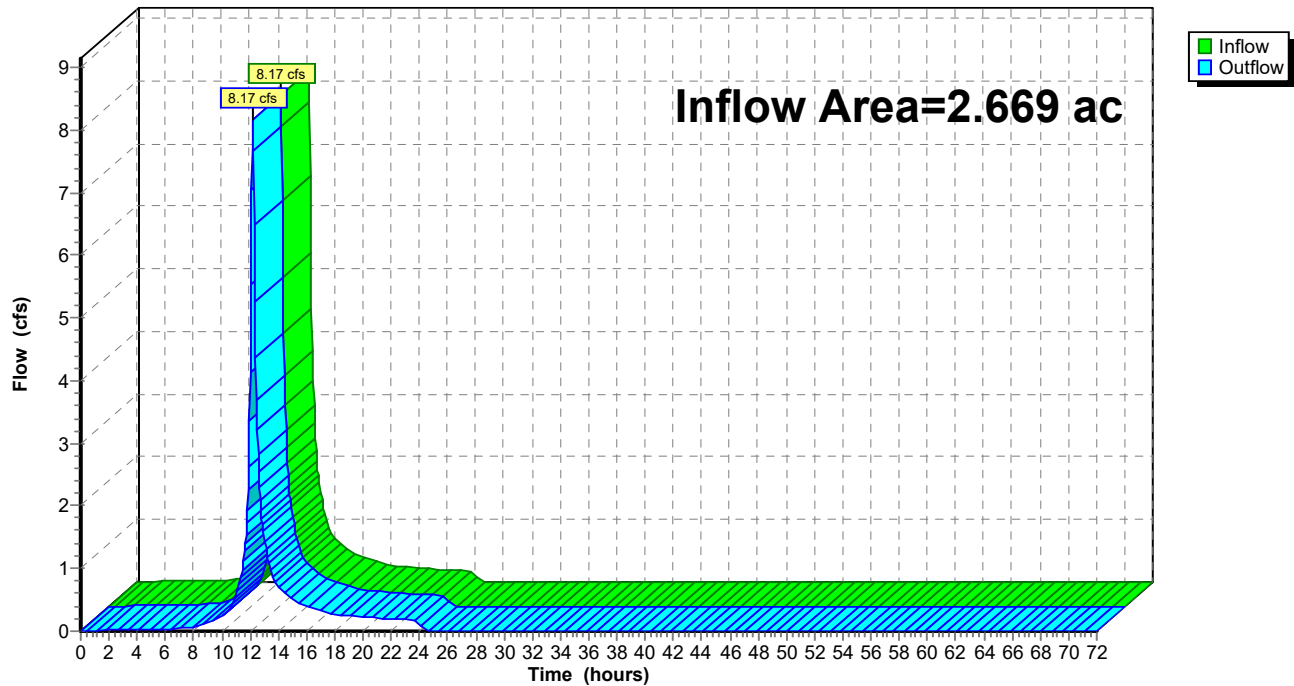
Summary for Reach DP1-EX:

Inflow Area = 2.669 ac, 11.97% Impervious, Inflow Depth = 3.81" for 10-Year event
 Inflow = 8.17 cfs @ 12.20 hrs, Volume= 0.848 af
 Outflow = 8.17 cfs @ 12.20 hrs, Volume= 0.848 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP1-EX:

Hydrograph



250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 10-Year Rainfall=6.37"

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Hydrograph for Reach DP1-EX:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.01		0.01	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.02		0.02	55.00	0.00		0.00
4.00	0.03		0.03	56.00	0.00		0.00
5.00	0.03		0.03	57.00	0.00		0.00
6.00	0.03		0.03	58.00	0.00		0.00
7.00	0.04		0.04	59.00	0.00		0.00
8.00	0.07		0.07	60.00	0.00		0.00
9.00	0.12		0.12	61.00	0.00		0.00
10.00	0.25		0.25	62.00	0.00		0.00
11.00	0.57		0.57	63.00	0.00		0.00
12.00	4.14		4.14	64.00	0.00		0.00
13.00	1.47		1.47	65.00	0.00		0.00
14.00	0.71		0.71	66.00	0.00		0.00
15.00	0.49		0.49	67.00	0.00		0.00
16.00	0.40		0.40	68.00	0.00		0.00
17.00	0.33		0.33	69.00	0.00		0.00
18.00	0.27		0.27	70.00	0.00		0.00
19.00	0.24		0.24	71.00	0.00		0.00
20.00	0.23		0.23	72.00	0.00		0.00
21.00	0.21		0.21				
22.00	0.20		0.20				
23.00	0.18		0.18				
24.00	0.17		0.17				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

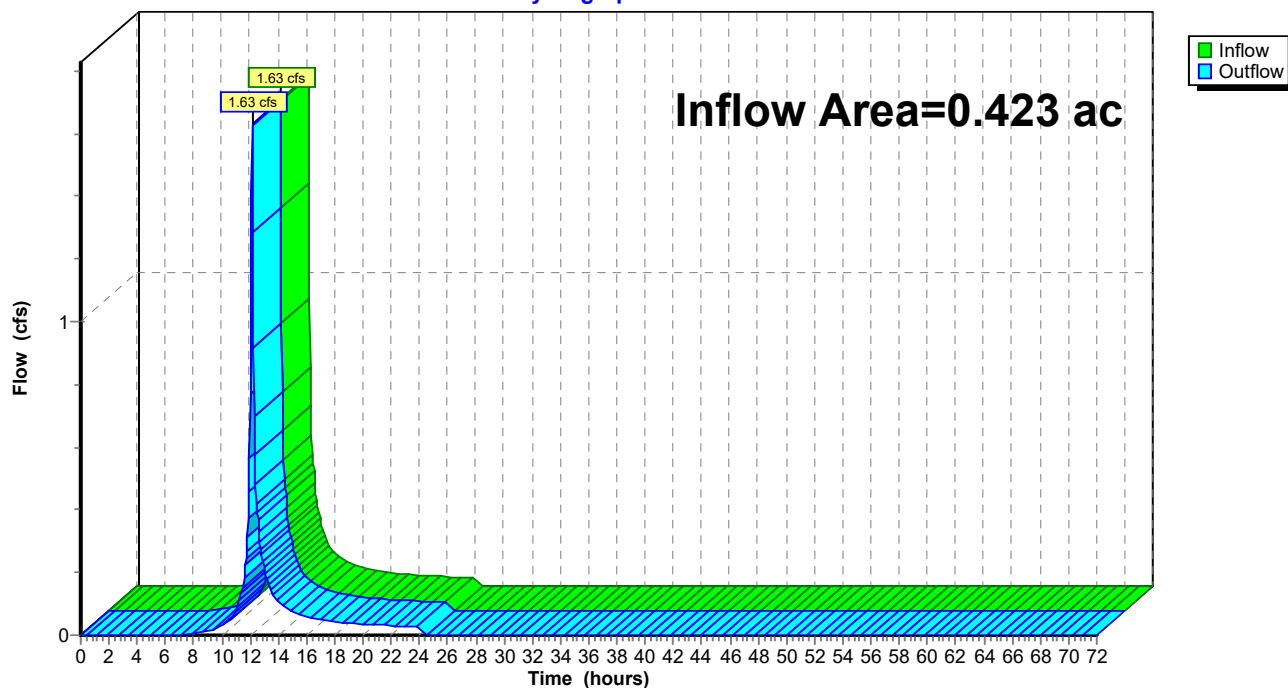
Summary for Reach DP2-EX:

Inflow Area = 0.423 ac, 0.00% Impervious, Inflow Depth = 3.50" for 10-Year event
Inflow = 1.63 cfs @ 12.14 hrs, Volume= 0.123 af
Outflow = 1.63 cfs @ 12.14 hrs, Volume= 0.123 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP2-EX:

Hydrograph



250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 10-Year Rainfall=6.37"

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Hydrograph for Reach DP2-EX:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.01		0.01	61.00	0.00		0.00
10.00	0.03		0.03	62.00	0.00		0.00
11.00	0.08		0.08	63.00	0.00		0.00
12.00	0.77		0.77	64.00	0.00		0.00
13.00	0.21		0.21	65.00	0.00		0.00
14.00	0.11		0.11	66.00	0.00		0.00
15.00	0.07		0.07	67.00	0.00		0.00
16.00	0.06		0.06	68.00	0.00		0.00
17.00	0.05		0.05	69.00	0.00		0.00
18.00	0.04		0.04	70.00	0.00		0.00
19.00	0.04		0.04	71.00	0.00		0.00
20.00	0.04		0.04	72.00	0.00		0.00
21.00	0.03		0.03				
22.00	0.03		0.03				
23.00	0.03		0.03				
24.00	0.03		0.03				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

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

SubcatchmentEDA-1 (IMPERV):Runoff Area=13,913 sf 100.00% Impervious Runoff Depth=11.28"
Flow Length=275' Tc=2.8 min CN=98 Runoff=3.85 cfs 0.300 af**SubcatchmentEDA-1 (PERV):**Runoff Area=102,351 sf 0.00% Impervious Runoff Depth=8.17"
Flow Length=501' Tc=13.1 min CN=74 Runoff=16.95 cfs 1.599 af**SubcatchmentEDA-2 (PERV.):**Runoff Area=0.423 ac 0.00% Impervious Runoff Depth=8.17"
Flow Length=121' Tc=7.2 min CN=74 Runoff=3.70 cfs 0.288 af**Reach DP1-EX:**Inflow=18.32 cfs 1.899 af
Outflow=18.32 cfs 1.899 af**Reach DP2-EX:**Inflow=3.70 cfs 0.288 af
Outflow=3.70 cfs 0.288 af**Total Runoff Area = 3.092 ac Runoff Volume = 2.187 af Average Runoff Depth = 8.49"**
89.67% Pervious = 2.773 ac 10.33% Impervious = 0.319 ac

250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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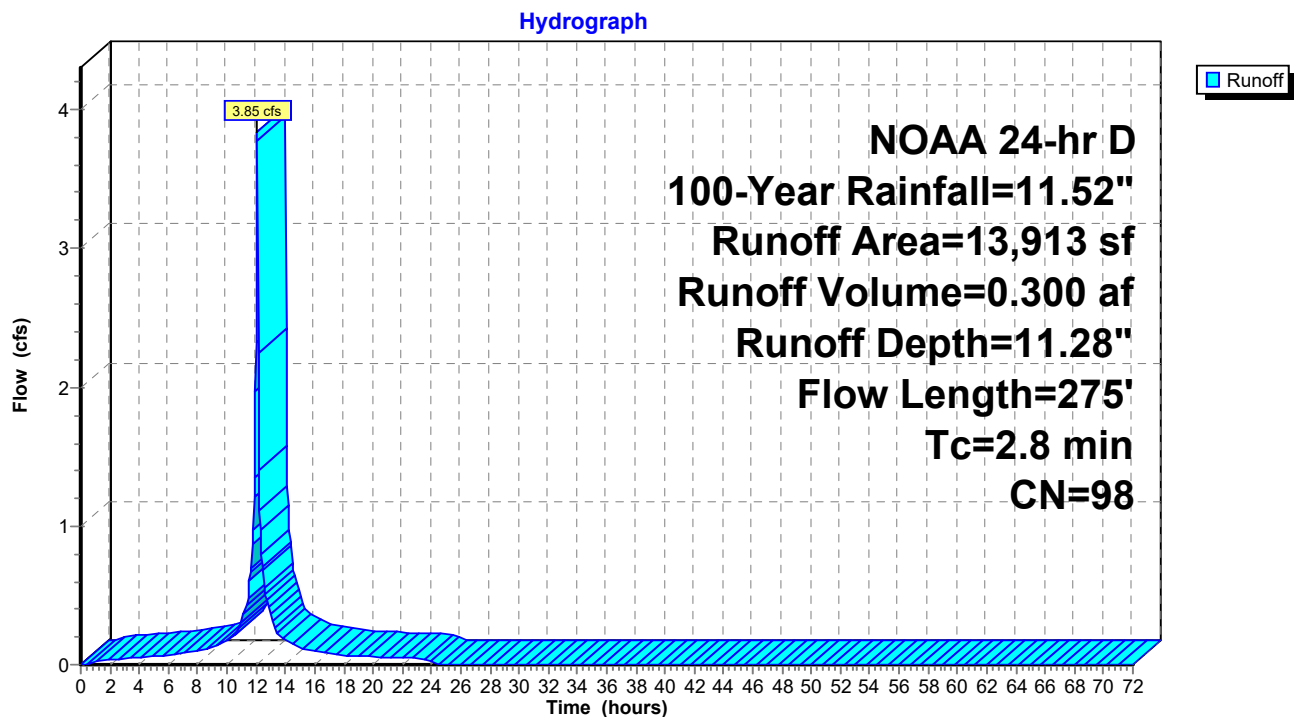
Summary for Subcatchment EDA-1 (IMPERV):

Runoff = 3.85 cfs @ 12.09 hrs, Volume= 0.300 af, Depth=11.28"
Routed to Reach DP1-EX :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=11.52"

Area (sf)	CN	Description
8,137	98	Paved parking, HSG C
5,776	98	Roofs, HSG C
13,913	98	Weighted Average
13,913		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	78	0.0150	1.21		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.44"
1.0	12	0.0800	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.7	185	0.0830	4.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.8	275	Total			

Subcatchment EDA-1 (IMPERV):

250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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Hydrograph for Subcatchment EDA-1 (IMPERV):

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	11.52	11.28	0.00
1.00	0.13	0.03	0.02	53.00	11.52	11.28	0.00
2.00	0.28	0.13	0.04	54.00	11.52	11.28	0.00
3.00	0.43	0.26	0.05	55.00	11.52	11.28	0.00
4.00	0.60	0.41	0.05	56.00	11.52	11.28	0.00
5.00	0.79	0.59	0.06	57.00	11.52	11.28	0.00
6.00	0.98	0.77	0.06	58.00	11.52	11.28	0.00
7.00	1.21	1.00	0.08	59.00	11.52	11.28	0.00
8.00	1.49	1.28	0.10	60.00	11.52	11.28	0.00
9.00	1.83	1.60	0.11	61.00	11.52	11.28	0.00
10.00	2.28	2.06	0.17	62.00	11.52	11.28	0.00
11.00	2.99	2.76	0.31	63.00	11.52	11.28	0.00
12.00	5.52	5.28	2.32	64.00	11.52	11.28	0.00
13.00	8.53	8.29	0.35	65.00	11.52	11.28	0.00
14.00	9.24	9.00	0.18	66.00	11.52	11.28	0.00
15.00	9.69	9.45	0.12	67.00	11.52	11.28	0.00
16.00	10.03	9.78	0.10	68.00	11.52	11.28	0.00
17.00	10.31	10.07	0.08	69.00	11.52	11.28	0.00
18.00	10.54	10.30	0.07	70.00	11.52	11.28	0.00
19.00	10.73	10.49	0.06	71.00	11.52	11.28	0.00
20.00	10.92	10.67	0.06	72.00	11.52	11.28	0.00
21.00	11.09	10.84	0.05				
22.00	11.24	11.00	0.05				
23.00	11.39	11.15	0.04				
24.00	11.52	11.28	0.04				
25.00	11.52	11.28	0.00				
26.00	11.52	11.28	0.00				
27.00	11.52	11.28	0.00				
28.00	11.52	11.28	0.00				
29.00	11.52	11.28	0.00				
30.00	11.52	11.28	0.00				
31.00	11.52	11.28	0.00				
32.00	11.52	11.28	0.00				
33.00	11.52	11.28	0.00				
34.00	11.52	11.28	0.00				
35.00	11.52	11.28	0.00				
36.00	11.52	11.28	0.00				
37.00	11.52	11.28	0.00				
38.00	11.52	11.28	0.00				
39.00	11.52	11.28	0.00				
40.00	11.52	11.28	0.00				
41.00	11.52	11.28	0.00				
42.00	11.52	11.28	0.00				
43.00	11.52	11.28	0.00				
44.00	11.52	11.28	0.00				
45.00	11.52	11.28	0.00				
46.00	11.52	11.28	0.00				
47.00	11.52	11.28	0.00				
48.00	11.52	11.28	0.00				
49.00	11.52	11.28	0.00				
50.00	11.52	11.28	0.00				
51.00	11.52	11.28	0.00				

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NOAA 24-hr D 100-Year Rainfall=11.52"

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Summary for Subcatchment EDA-1 (PERV):

Runoff = 16.95 cfs @ 12.21 hrs, Volume= 1.599 af, Depth= 8.17"
Routed to Reach DP1-EX :

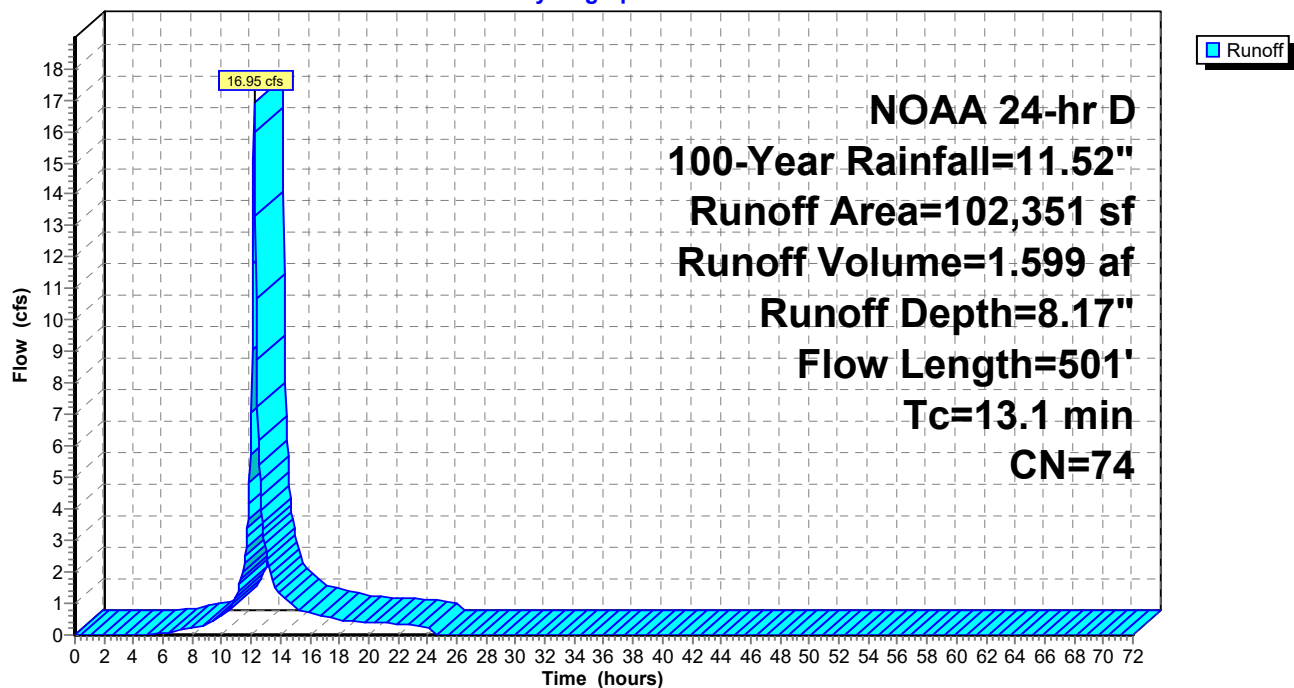
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=11.52"

Area (sf)	CN	Description
102,351	74	>75% Grass cover, Good, HSG C
102,351		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0140	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
2.2	401	0.0350	3.01		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.1	501	Total			

Subcatchment EDA-1 (PERV):

Hydrograph



250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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Hydrograph for Subcatchment EDA-1 (PERV):

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	11.52	8.17	0.00
1.00	0.13	0.00	0.00	53.00	11.52	8.17	0.00
2.00	0.28	0.00	0.00	54.00	11.52	8.17	0.00
3.00	0.43	0.00	0.00	55.00	11.52	8.17	0.00
4.00	0.60	0.00	0.00	56.00	11.52	8.17	0.00
5.00	0.79	0.00	0.01	57.00	11.52	8.17	0.00
6.00	0.98	0.02	0.06	58.00	11.52	8.17	0.00
7.00	1.21	0.06	0.13	59.00	11.52	8.17	0.00
8.00	1.49	0.15	0.22	60.00	11.52	8.17	0.00
9.00	1.83	0.27	0.34	61.00	11.52	8.17	0.00
10.00	2.28	0.49	0.61	62.00	11.52	8.17	0.00
11.00	2.99	0.90	1.24	63.00	11.52	8.17	0.00
12.00	5.52	2.78	7.07	64.00	11.52	8.17	0.00
13.00	8.53	5.40	2.70	65.00	11.52	8.17	0.00
14.00	9.24	6.04	1.27	66.00	11.52	8.17	0.00
15.00	9.69	6.46	0.88	67.00	11.52	8.17	0.00
16.00	10.03	6.77	0.69	68.00	11.52	8.17	0.00
17.00	10.31	7.03	0.59	69.00	11.52	8.17	0.00
18.00	10.54	7.25	0.47	70.00	11.52	8.17	0.00
19.00	10.73	7.43	0.42	71.00	11.52	8.17	0.00
20.00	10.92	7.60	0.40	72.00	11.52	8.17	0.00
21.00	11.09	7.76	0.37				
22.00	11.24	7.91	0.34				
23.00	11.39	8.04	0.31				
24.00	11.52	8.17	0.29				
25.00	11.52	8.17	0.00				
26.00	11.52	8.17	0.00				
27.00	11.52	8.17	0.00				
28.00	11.52	8.17	0.00				
29.00	11.52	8.17	0.00				
30.00	11.52	8.17	0.00				
31.00	11.52	8.17	0.00				
32.00	11.52	8.17	0.00				
33.00	11.52	8.17	0.00				
34.00	11.52	8.17	0.00				
35.00	11.52	8.17	0.00				
36.00	11.52	8.17	0.00				
37.00	11.52	8.17	0.00				
38.00	11.52	8.17	0.00				
39.00	11.52	8.17	0.00				
40.00	11.52	8.17	0.00				
41.00	11.52	8.17	0.00				
42.00	11.52	8.17	0.00				
43.00	11.52	8.17	0.00				
44.00	11.52	8.17	0.00				
45.00	11.52	8.17	0.00				
46.00	11.52	8.17	0.00				
47.00	11.52	8.17	0.00				
48.00	11.52	8.17	0.00				
49.00	11.52	8.17	0.00				
50.00	11.52	8.17	0.00				
51.00	11.52	8.17	0.00				

250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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Summary for Subcatchment EDA-2 (PERV.):

Runoff = 3.70 cfs @ 12.14 hrs, Volume= 0.288 af, Depth= 8.17"
Routed to Reach DP2-EX :

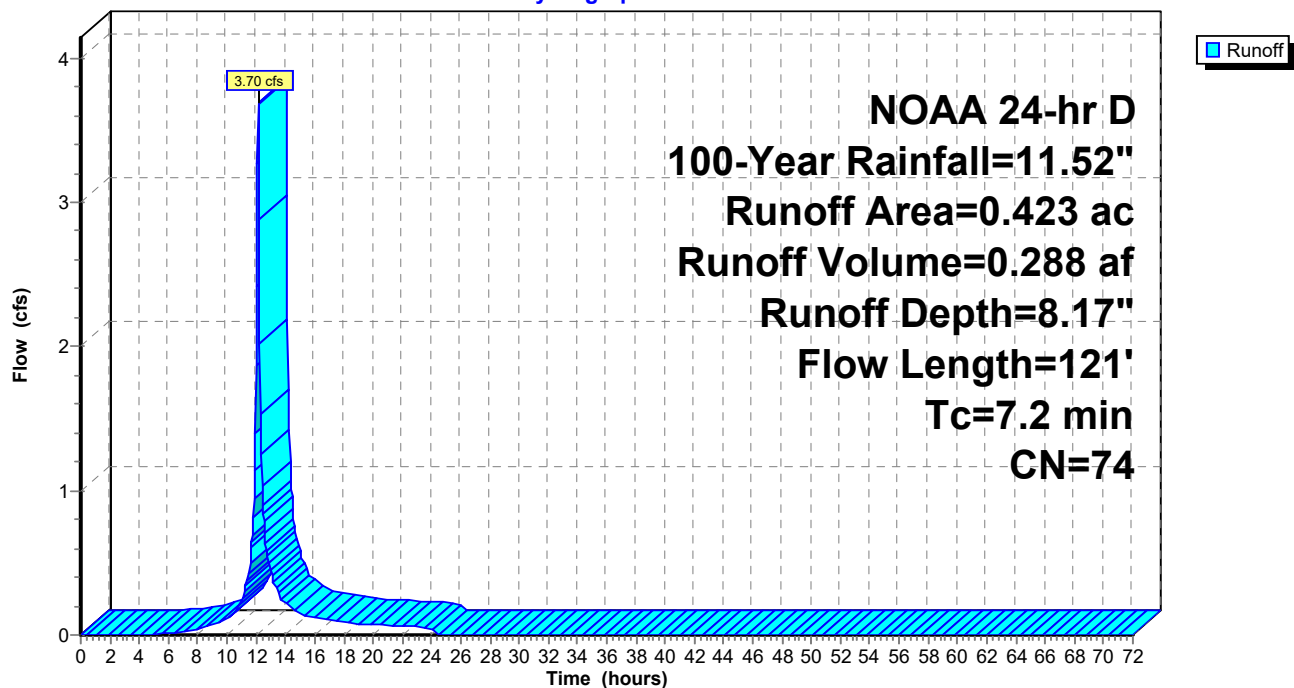
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=11.52"

Area (ac)	CN	Description
0.423	74	>75% Grass cover, Good, HSG C
0.423		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	100	0.0410	0.24		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.1	21	0.1050	5.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.2	121	Total			

Subcatchment EDA-2 (PERV.):

Hydrograph



250903_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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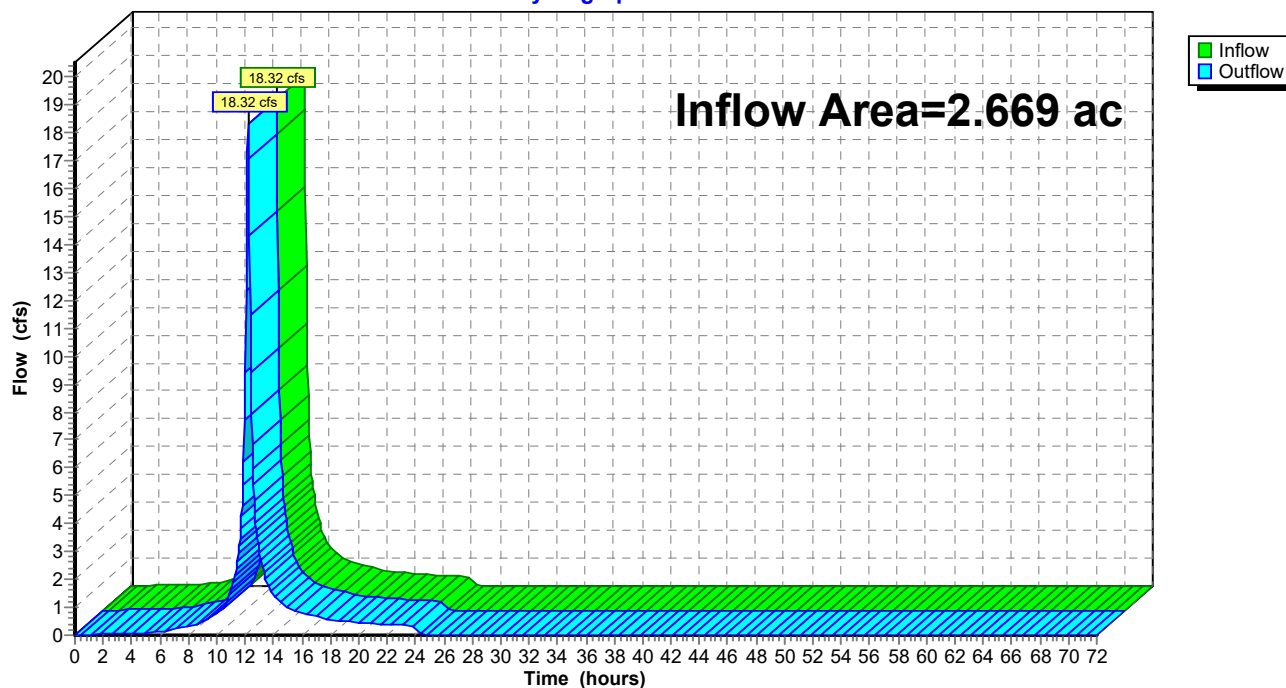
Hydrograph for Subcatchment EDA-2 (PERV.):

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	11.52	8.17	0.00
1.00	0.13	0.00	0.00	53.00	11.52	8.17	0.00
2.00	0.28	0.00	0.00	54.00	11.52	8.17	0.00
3.00	0.43	0.00	0.00	55.00	11.52	8.17	0.00
4.00	0.60	0.00	0.00	56.00	11.52	8.17	0.00
5.00	0.79	0.00	0.00	57.00	11.52	8.17	0.00
6.00	0.98	0.02	0.01	58.00	11.52	8.17	0.00
7.00	1.21	0.06	0.02	59.00	11.52	8.17	0.00
8.00	1.49	0.15	0.04	60.00	11.52	8.17	0.00
9.00	1.83	0.27	0.06	61.00	11.52	8.17	0.00
10.00	2.28	0.49	0.12	62.00	11.52	8.17	0.00
11.00	2.99	0.90	0.24	63.00	11.52	8.17	0.00
12.00	5.52	2.78	1.87	64.00	11.52	8.17	0.00
13.00	8.53	5.40	0.44	65.00	11.52	8.17	0.00
14.00	9.24	6.04	0.22	66.00	11.52	8.17	0.00
15.00	9.69	6.46	0.15	67.00	11.52	8.17	0.00
16.00	10.03	6.77	0.12	68.00	11.52	8.17	0.00
17.00	10.31	7.03	0.10	69.00	11.52	8.17	0.00
18.00	10.54	7.25	0.08	70.00	11.52	8.17	0.00
19.00	10.73	7.43	0.08	71.00	11.52	8.17	0.00
20.00	10.92	7.60	0.07	72.00	11.52	8.17	0.00
21.00	11.09	7.76	0.07				
22.00	11.24	7.91	0.06				
23.00	11.39	8.04	0.06				
24.00	11.52	8.17	0.05				
25.00	11.52	8.17	0.00				
26.00	11.52	8.17	0.00				
27.00	11.52	8.17	0.00				
28.00	11.52	8.17	0.00				
29.00	11.52	8.17	0.00				
30.00	11.52	8.17	0.00				
31.00	11.52	8.17	0.00				
32.00	11.52	8.17	0.00				
33.00	11.52	8.17	0.00				
34.00	11.52	8.17	0.00				
35.00	11.52	8.17	0.00				
36.00	11.52	8.17	0.00				
37.00	11.52	8.17	0.00				
38.00	11.52	8.17	0.00				
39.00	11.52	8.17	0.00				
40.00	11.52	8.17	0.00				
41.00	11.52	8.17	0.00				
42.00	11.52	8.17	0.00				
43.00	11.52	8.17	0.00				
44.00	11.52	8.17	0.00				
45.00	11.52	8.17	0.00				
46.00	11.52	8.17	0.00				
47.00	11.52	8.17	0.00				
48.00	11.52	8.17	0.00				
49.00	11.52	8.17	0.00				
50.00	11.52	8.17	0.00				
51.00	11.52	8.17	0.00				

Summary for Reach DP1-EX:

Inflow Area = 2.669 ac, 11.97% Impervious, Inflow Depth = 8.54" for 100-Year event
Inflow = 18.32 cfs @ 12.20 hrs, Volume= 1.899 af
Outflow = 18.32 cfs @ 12.20 hrs, Volume= 1.899 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP1-EX:**Hydrograph**

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NOAA 24-hr D 100-Year Rainfall=11.52"

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Hydrograph for Reach DP1-EX:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.02		0.02	53.00	0.00		0.00
2.00	0.04		0.04	54.00	0.00		0.00
3.00	0.05		0.05	55.00	0.00		0.00
4.00	0.05		0.05	56.00	0.00		0.00
5.00	0.07		0.07	57.00	0.00		0.00
6.00	0.12		0.12	58.00	0.00		0.00
7.00	0.21		0.21	59.00	0.00		0.00
8.00	0.32		0.32	60.00	0.00		0.00
9.00	0.45		0.45	61.00	0.00		0.00
10.00	0.78		0.78	62.00	0.00		0.00
11.00	1.55		1.55	63.00	0.00		0.00
12.00	9.40		9.40	64.00	0.00		0.00
13.00	3.04		3.04	65.00	0.00		0.00
14.00	1.44		1.44	66.00	0.00		0.00
15.00	1.00		1.00	67.00	0.00		0.00
16.00	0.79		0.79	68.00	0.00		0.00
17.00	0.67		0.67	69.00	0.00		0.00
18.00	0.54		0.54	70.00	0.00		0.00
19.00	0.49		0.49	71.00	0.00		0.00
20.00	0.45		0.45	72.00	0.00		0.00
21.00	0.42		0.42				
22.00	0.39		0.39				
23.00	0.36		0.36				
24.00	0.33		0.33				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

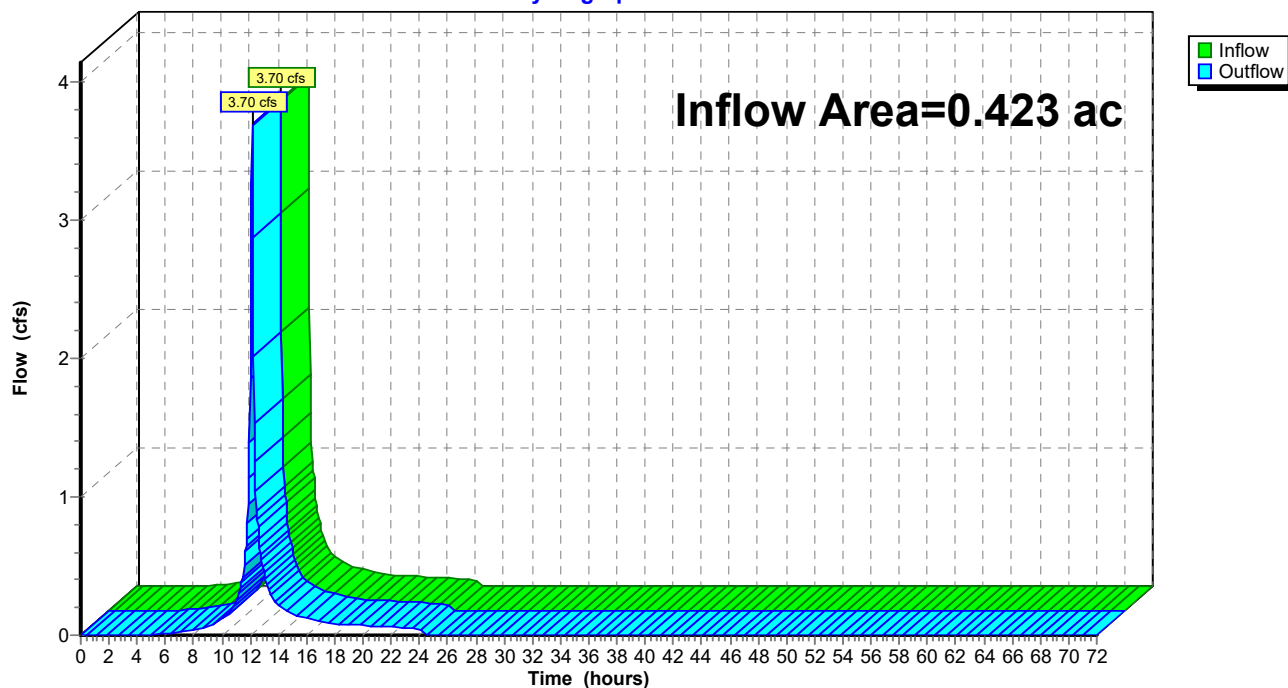
Summary for Reach DP2-EX:

Inflow Area = 0.423 ac, 0.00% Impervious, Inflow Depth = 8.17" for 100-Year event
Inflow = 3.70 cfs @ 12.14 hrs, Volume= 0.288 af
Outflow = 3.70 cfs @ 12.14 hrs, Volume= 0.288 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP2-EX:

Hydrograph



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NOAA 24-hr D 100-Year Rainfall=11.52"

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Hydrograph for Reach DP2-EX:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.02		0.02	59.00	0.00		0.00
8.00	0.04		0.04	60.00	0.00		0.00
9.00	0.06		0.06	61.00	0.00		0.00
10.00	0.12		0.12	62.00	0.00		0.00
11.00	0.24		0.24	63.00	0.00		0.00
12.00	1.87		1.87	64.00	0.00		0.00
13.00	0.44		0.44	65.00	0.00		0.00
14.00	0.22		0.22	66.00	0.00		0.00
15.00	0.15		0.15	67.00	0.00		0.00
16.00	0.12		0.12	68.00	0.00		0.00
17.00	0.10		0.10	69.00	0.00		0.00
18.00	0.08		0.08	70.00	0.00		0.00
19.00	0.08		0.08	71.00	0.00		0.00
20.00	0.07		0.07	72.00	0.00		0.00
21.00	0.07		0.07				
22.00	0.06		0.06				
23.00	0.06		0.06				
24.00	0.05		0.05				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

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NJ DEP 2-hr WQ Rainfall=1.25"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

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

SubcatchmentEDA-1 (IMPERV):Runoff Area=13,913 sf 100.00% Impervious Runoff Depth=1.03"
Flow Length=275' Tc=2.8 min CN=98 Runoff=0.96 cfs 0.028 af**SubcatchmentEDA-1 (PERV):**Runoff Area=102,351 sf 0.00% Impervious Runoff Depth=0.07"
Flow Length=501' Tc=13.1 min CN=74 Runoff=0.28 cfs 0.014 af**SubcatchmentEDA-2 (PERV.):**Runoff Area=0.423 ac 0.00% Impervious Runoff Depth=0.07"
Flow Length=121' Tc=7.2 min CN=74 Runoff=0.06 cfs 0.003 af**Reach DP1-EX:**Inflow=0.96 cfs 0.042 af
Outflow=0.96 cfs 0.042 af**Reach DP2-EX:**Inflow=0.06 cfs 0.003 af
Outflow=0.06 cfs 0.003 af**Total Runoff Area = 3.092 ac Runoff Volume = 0.045 af Average Runoff Depth = 0.17"**
89.67% Pervious = 2.773 ac 10.33% Impervious = 0.319 ac

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NJ DEP 2-hr WQ Rainfall=1.25"

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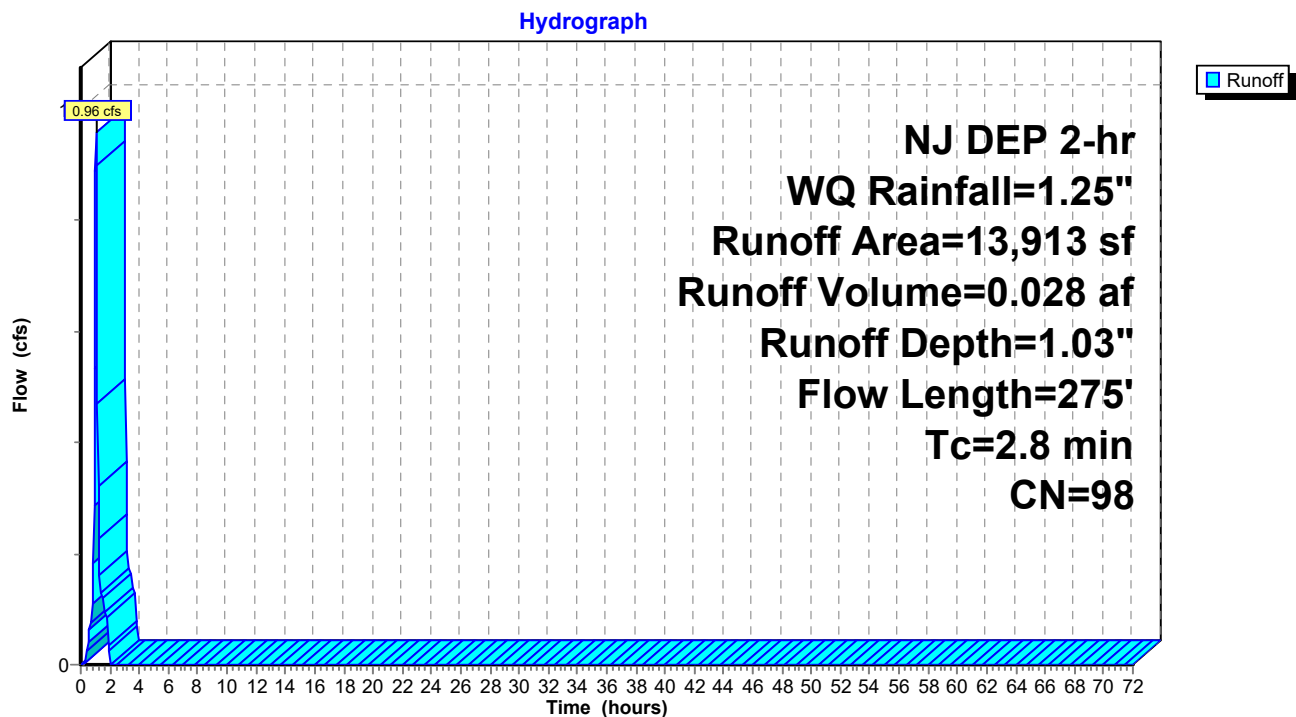
Summary for Subcatchment EDA-1 (IMPERV):

Runoff = 0.96 cfs @ 1.05 hrs, Volume= 0.028 af, Depth= 1.03"
Routed to Reach DP1-EX :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
8,137	98	Paved parking, HSG C
5,776	98	Roofs, HSG C
13,913	98	Weighted Average
13,913		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	78	0.0150	1.21		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.44"
1.0	12	0.0800	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.7	185	0.0830	4.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.8	275	Total			

Subcatchment EDA-1 (IMPERV):

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment EDA-1 (IMPERV):

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	1.03	0.00
1.00	0.63	0.43	0.89	53.00	1.25	1.03	0.00
2.00	1.25	1.03	0.03	54.00	1.25	1.03	0.00
3.00	1.25	1.03	0.00	55.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00	56.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00	57.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00	58.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00	59.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00	60.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00	61.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00	62.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00	63.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00	64.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00	65.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00	66.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00	67.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00	68.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00	69.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00	70.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00	71.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00	72.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00				
22.00	1.25	1.03	0.00				
23.00	1.25	1.03	0.00				
24.00	1.25	1.03	0.00				
25.00	1.25	1.03	0.00				
26.00	1.25	1.03	0.00				
27.00	1.25	1.03	0.00				
28.00	1.25	1.03	0.00				
29.00	1.25	1.03	0.00				
30.00	1.25	1.03	0.00				
31.00	1.25	1.03	0.00				
32.00	1.25	1.03	0.00				
33.00	1.25	1.03	0.00				
34.00	1.25	1.03	0.00				
35.00	1.25	1.03	0.00				
36.00	1.25	1.03	0.00				
37.00	1.25	1.03	0.00				
38.00	1.25	1.03	0.00				
39.00	1.25	1.03	0.00				
40.00	1.25	1.03	0.00				
41.00	1.25	1.03	0.00				
42.00	1.25	1.03	0.00				
43.00	1.25	1.03	0.00				
44.00	1.25	1.03	0.00				
45.00	1.25	1.03	0.00				
46.00	1.25	1.03	0.00				
47.00	1.25	1.03	0.00				
48.00	1.25	1.03	0.00				
49.00	1.25	1.03	0.00				
50.00	1.25	1.03	0.00				
51.00	1.25	1.03	0.00				

250903_42 ERW Waystone - Future Rainfall

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Subcatchment EDA-1 (PERV):

Runoff = 0.28 cfs @ 1.32 hrs, Volume= 0.014 af, Depth= 0.07"
Routed to Reach DP1-EX :

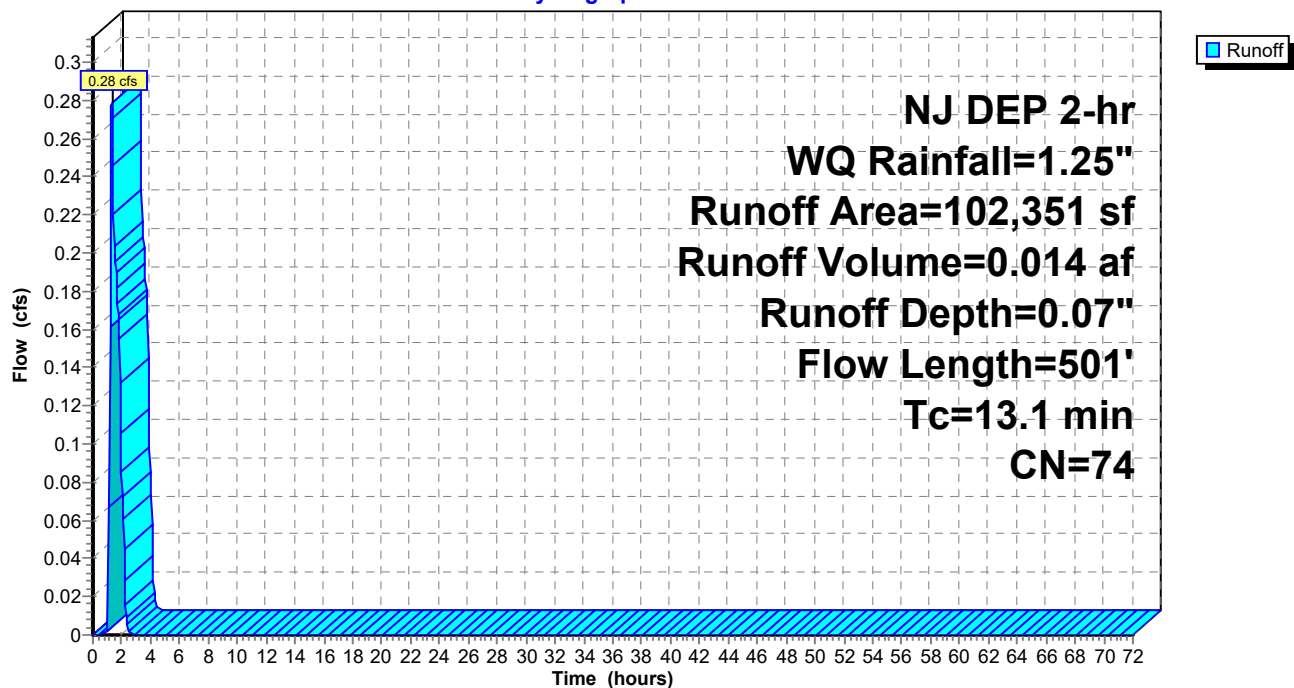
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
102,351	74	>75% Grass cover, Good, HSG C
102,351		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.0140	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
2.2	401	0.0350	3.01		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.1	501	Total			

Subcatchment EDA-1 (PERV):

Hydrograph



250903_42 ERW Waystone - Future Rainfall

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment EDA-1 (PERV):

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.07	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.07	0.00
2.00	1.25	0.07	0.09	54.00	1.25	0.07	0.00
3.00	1.25	0.07	0.00	55.00	1.25	0.07	0.00
4.00	1.25	0.07	0.00	56.00	1.25	0.07	0.00
5.00	1.25	0.07	0.00	57.00	1.25	0.07	0.00
6.00	1.25	0.07	0.00	58.00	1.25	0.07	0.00
7.00	1.25	0.07	0.00	59.00	1.25	0.07	0.00
8.00	1.25	0.07	0.00	60.00	1.25	0.07	0.00
9.00	1.25	0.07	0.00	61.00	1.25	0.07	0.00
10.00	1.25	0.07	0.00	62.00	1.25	0.07	0.00
11.00	1.25	0.07	0.00	63.00	1.25	0.07	0.00
12.00	1.25	0.07	0.00	64.00	1.25	0.07	0.00
13.00	1.25	0.07	0.00	65.00	1.25	0.07	0.00
14.00	1.25	0.07	0.00	66.00	1.25	0.07	0.00
15.00	1.25	0.07	0.00	67.00	1.25	0.07	0.00
16.00	1.25	0.07	0.00	68.00	1.25	0.07	0.00
17.00	1.25	0.07	0.00	69.00	1.25	0.07	0.00
18.00	1.25	0.07	0.00	70.00	1.25	0.07	0.00
19.00	1.25	0.07	0.00	71.00	1.25	0.07	0.00
20.00	1.25	0.07	0.00	72.00	1.25	0.07	0.00
21.00	1.25	0.07	0.00				
22.00	1.25	0.07	0.00				
23.00	1.25	0.07	0.00				
24.00	1.25	0.07	0.00				
25.00	1.25	0.07	0.00				
26.00	1.25	0.07	0.00				
27.00	1.25	0.07	0.00				
28.00	1.25	0.07	0.00				
29.00	1.25	0.07	0.00				
30.00	1.25	0.07	0.00				
31.00	1.25	0.07	0.00				
32.00	1.25	0.07	0.00				
33.00	1.25	0.07	0.00				
34.00	1.25	0.07	0.00				
35.00	1.25	0.07	0.00				
36.00	1.25	0.07	0.00				
37.00	1.25	0.07	0.00				
38.00	1.25	0.07	0.00				
39.00	1.25	0.07	0.00				
40.00	1.25	0.07	0.00				
41.00	1.25	0.07	0.00				
42.00	1.25	0.07	0.00				
43.00	1.25	0.07	0.00				
44.00	1.25	0.07	0.00				
45.00	1.25	0.07	0.00				
46.00	1.25	0.07	0.00				
47.00	1.25	0.07	0.00				
48.00	1.25	0.07	0.00				
49.00	1.25	0.07	0.00				
50.00	1.25	0.07	0.00				
51.00	1.25	0.07	0.00				

250903_42 ERW Waystone - Future Rainfall

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Subcatchment EDA-2 (PERV.):

Runoff = 0.06 cfs @ 1.22 hrs, Volume= 0.003 af, Depth= 0.07"
Routed to Reach DP2-EX :

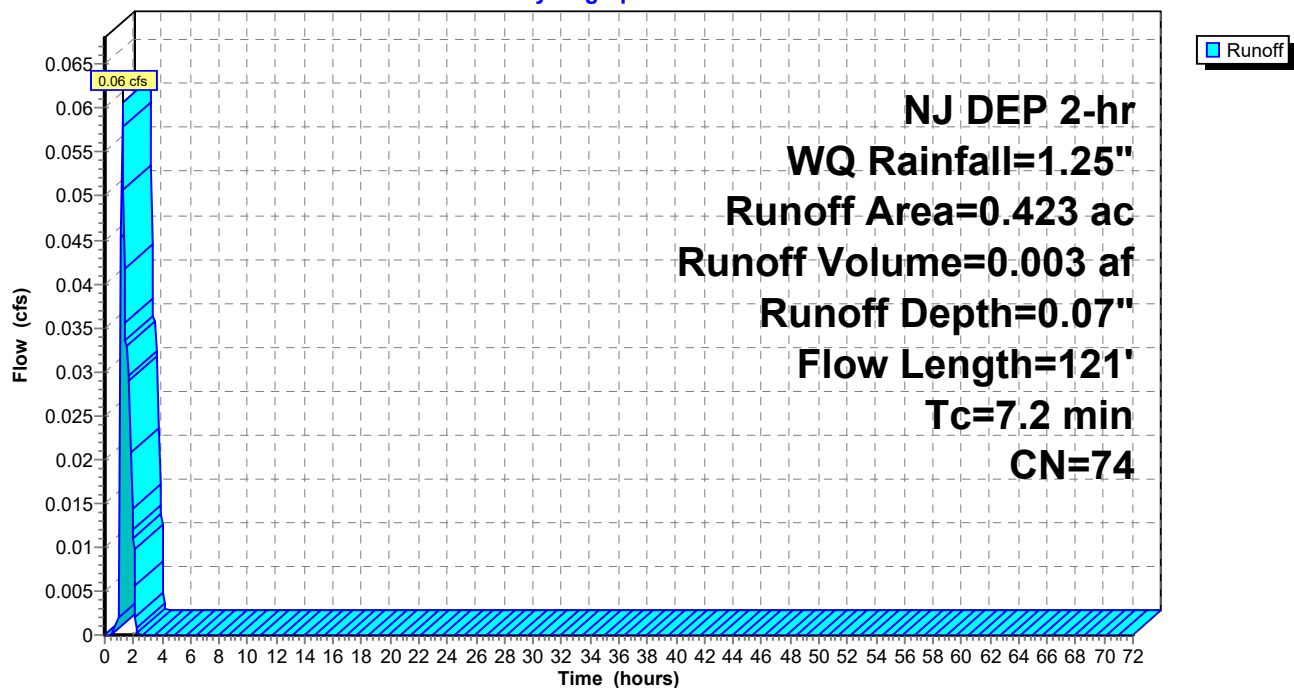
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.423	74	>75% Grass cover, Good, HSG C
0.423		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	100	0.0410	0.24		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.1	21	0.1050	5.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.2	121	Total			

Subcatchment EDA-2 (PERV.):

Hydrograph



250903_42 ERW Waystone - Future Rainfall

NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment EDA-2 (PERV.):

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.07	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.07	0.00
2.00	1.25	0.07	0.01	54.00	1.25	0.07	0.00
3.00	1.25	0.07	0.00	55.00	1.25	0.07	0.00
4.00	1.25	0.07	0.00	56.00	1.25	0.07	0.00
5.00	1.25	0.07	0.00	57.00	1.25	0.07	0.00
6.00	1.25	0.07	0.00	58.00	1.25	0.07	0.00
7.00	1.25	0.07	0.00	59.00	1.25	0.07	0.00
8.00	1.25	0.07	0.00	60.00	1.25	0.07	0.00
9.00	1.25	0.07	0.00	61.00	1.25	0.07	0.00
10.00	1.25	0.07	0.00	62.00	1.25	0.07	0.00
11.00	1.25	0.07	0.00	63.00	1.25	0.07	0.00
12.00	1.25	0.07	0.00	64.00	1.25	0.07	0.00
13.00	1.25	0.07	0.00	65.00	1.25	0.07	0.00
14.00	1.25	0.07	0.00	66.00	1.25	0.07	0.00
15.00	1.25	0.07	0.00	67.00	1.25	0.07	0.00
16.00	1.25	0.07	0.00	68.00	1.25	0.07	0.00
17.00	1.25	0.07	0.00	69.00	1.25	0.07	0.00
18.00	1.25	0.07	0.00	70.00	1.25	0.07	0.00
19.00	1.25	0.07	0.00	71.00	1.25	0.07	0.00
20.00	1.25	0.07	0.00	72.00	1.25	0.07	0.00
21.00	1.25	0.07	0.00				
22.00	1.25	0.07	0.00				
23.00	1.25	0.07	0.00				
24.00	1.25	0.07	0.00				
25.00	1.25	0.07	0.00				
26.00	1.25	0.07	0.00				
27.00	1.25	0.07	0.00				
28.00	1.25	0.07	0.00				
29.00	1.25	0.07	0.00				
30.00	1.25	0.07	0.00				
31.00	1.25	0.07	0.00				
32.00	1.25	0.07	0.00				
33.00	1.25	0.07	0.00				
34.00	1.25	0.07	0.00				
35.00	1.25	0.07	0.00				
36.00	1.25	0.07	0.00				
37.00	1.25	0.07	0.00				
38.00	1.25	0.07	0.00				
39.00	1.25	0.07	0.00				
40.00	1.25	0.07	0.00				
41.00	1.25	0.07	0.00				
42.00	1.25	0.07	0.00				
43.00	1.25	0.07	0.00				
44.00	1.25	0.07	0.00				
45.00	1.25	0.07	0.00				
46.00	1.25	0.07	0.00				
47.00	1.25	0.07	0.00				
48.00	1.25	0.07	0.00				
49.00	1.25	0.07	0.00				
50.00	1.25	0.07	0.00				
51.00	1.25	0.07	0.00				

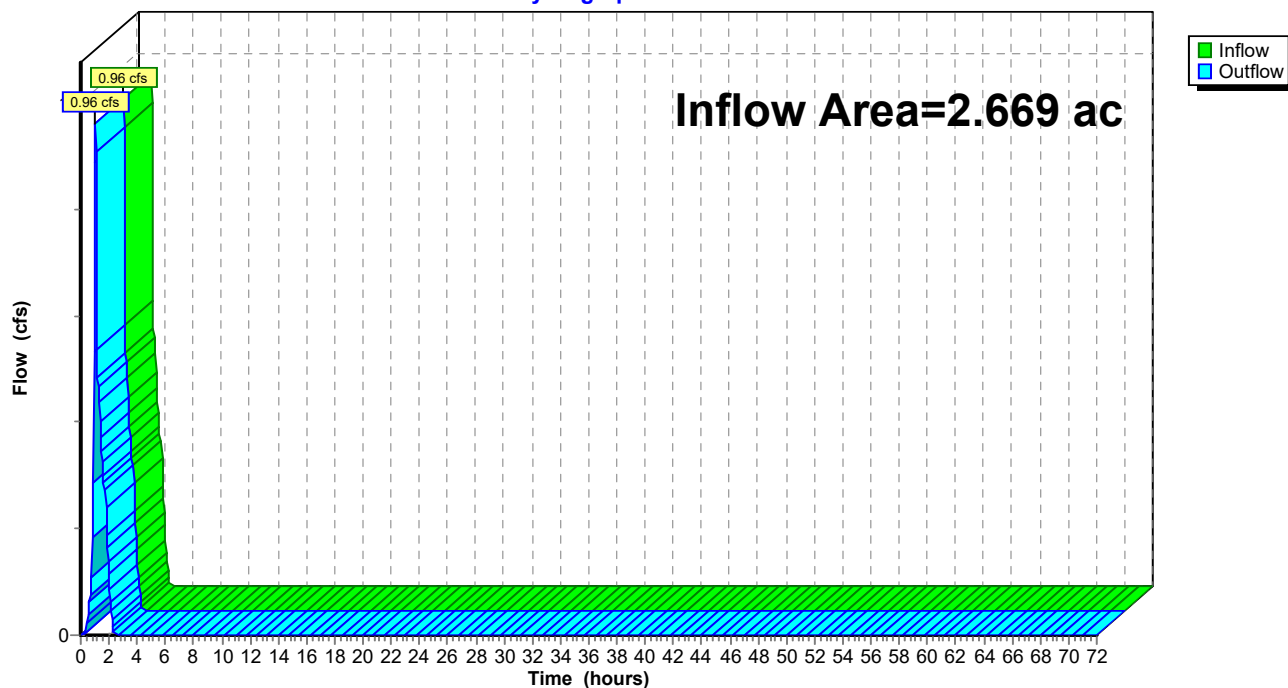
Summary for Reach DP1-EX:

Inflow Area = 2.669 ac, 11.97% Impervious, Inflow Depth = 0.19" for WQ event
 Inflow = 0.96 cfs @ 1.05 hrs, Volume= 0.042 af
 Outflow = 0.96 cfs @ 1.05 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP1-EX:

Hydrograph



250903_42 ERW Waystone - Future Rainfall

NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Reach DP1-EX:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.89		0.89	53.00	0.00		0.00
2.00	0.12		0.12	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	0.00		0.00	64.00	0.00		0.00
13.00	0.00		0.00	65.00	0.00		0.00
14.00	0.00		0.00	66.00	0.00		0.00
15.00	0.00		0.00	67.00	0.00		0.00
16.00	0.00		0.00	68.00	0.00		0.00
17.00	0.00		0.00	69.00	0.00		0.00
18.00	0.00		0.00	70.00	0.00		0.00
19.00	0.00		0.00	71.00	0.00		0.00
20.00	0.00		0.00	72.00	0.00		0.00
21.00	0.00		0.00				
22.00	0.00		0.00				
23.00	0.00		0.00				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

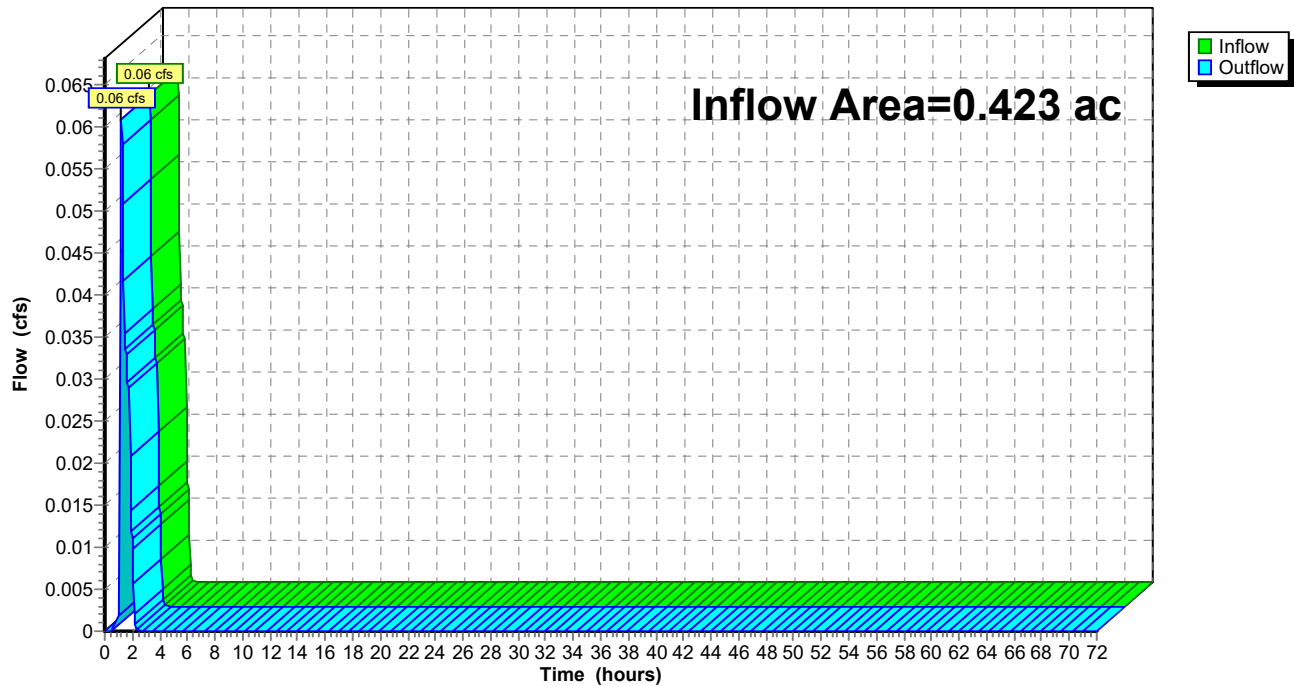
Summary for Reach DP2-EX:

Inflow Area = 0.423 ac, 0.00% Impervious, Inflow Depth = 0.07" for WQ event
 Inflow = 0.06 cfs @ 1.22 hrs, Volume= 0.003 af
 Outflow = 0.06 cfs @ 1.22 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP2-EX:

Hydrograph



250903_42 ERW Waystone - Future Rainfall

NJ DEP 2-hr WQ Rainfall=1.25"

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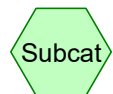
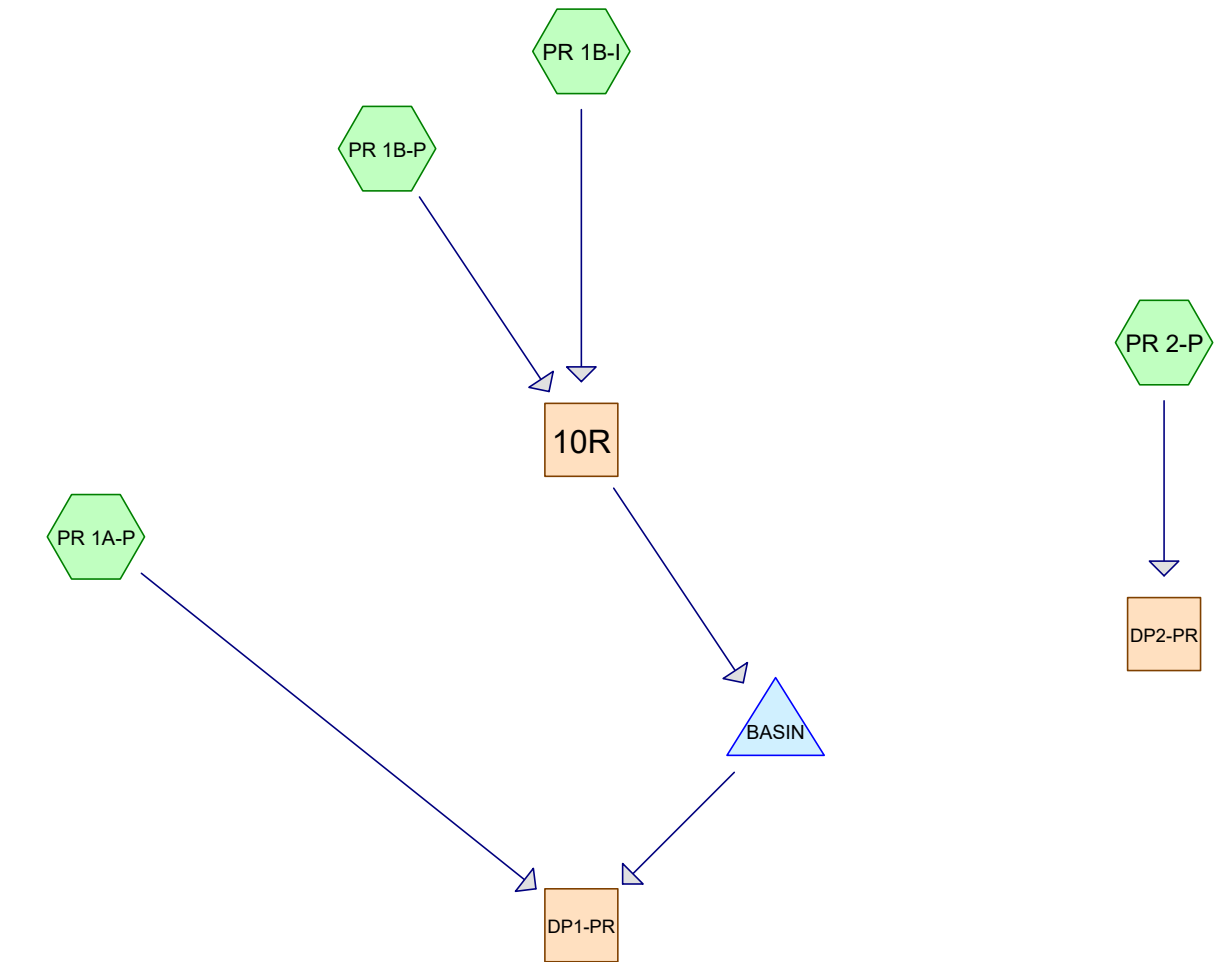
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Hydrograph for Reach DP2-EX:

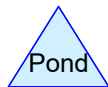
Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	0.00		0.00	64.00	0.00		0.00
13.00	0.00		0.00	65.00	0.00		0.00
14.00	0.00		0.00	66.00	0.00		0.00
15.00	0.00		0.00	67.00	0.00		0.00
16.00	0.00		0.00	68.00	0.00		0.00
17.00	0.00		0.00	69.00	0.00		0.00
18.00	0.00		0.00	70.00	0.00		0.00
19.00	0.00		0.00	71.00	0.00		0.00
20.00	0.00		0.00	72.00	0.00		0.00
21.00	0.00		0.00				
22.00	0.00		0.00				
23.00	0.00		0.00				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				



Subcat



Reach



Pond



Link

Routing Diagram for 251202_42 ERW Waystone - Future Rainfall

Prepared by Colliers Engineering & Design, Printed 12/3/2025

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.539	74	>75% Grass cover, Good, HSG C (PR 1A-P, PR 1B-P, PR 2-P)
0.705	89	Gravel roads, HSG C (PR 1A-P, PR 1B-P, PR 2-P)
0.355	98	Paved parking, HSG C (PR 1B-I)
0.492	98	Roofs, HSG C (PR 1B-I)
3.092	84	TOTAL AREA

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Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
3.092	HSG C	PR 1A-P, PR 1B-I, PR 1B-P, PR 2-P
0.000	HSG D	
0.000	Other	
3.092		TOTAL AREA

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

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

SubcatchmentPR 1A-P: Runoff Area=13,167 sf 0.00% Impervious Runoff Depth=1.96"
Flow Length=203' Tc=5.9 min CN=78 Runoff=0.68 cfs 0.049 af

SubcatchmentPR 1B-I: Runoff Area=36,906 sf 100.00% Impervious Runoff Depth=3.85"
Flow Length=136' Tc=1.5 min CN=98 Runoff=3.62 cfs 0.272 af

SubcatchmentPR 1B-P: Runoff Area=77,195 sf 0.00% Impervious Runoff Depth=2.04"
Flow Length=195' Tc=7.7 min CN=79 Runoff=3.92 cfs 0.301 af

SubcatchmentPR 2-P: Runoff Area=7,405 sf 0.00% Impervious Runoff Depth=1.81"
Flow Length=84' Slope=0.0833 '/' Tc=4.6 min CN=76 Runoff=0.37 cfs 0.026 af

Reach 10R: Inflow=6.68 cfs 0.573 af
Outflow=6.68 cfs 0.573 af

Reach DP1-PR: Inflow=1.75 cfs 0.278 af
Outflow=1.75 cfs 0.278 af

Reach DP2-PR: Inflow=0.37 cfs 0.026 af
Outflow=0.37 cfs 0.026 af

Pond BASIN: Peak Elev=16.73' Storage=0.189 af Inflow=6.68 cfs 0.573 af
Discarded=0.31 cfs 0.345 af Primary=1.36 cfs 0.228 af Outflow=1.68 cfs 0.573 af

Total Runoff Area = 3.092 ac Runoff Volume = 0.648 af Average Runoff Depth = 2.51"
72.60% Pervious = 2.244 ac 27.40% Impervious = 0.847 ac

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Page 5

Summary for Subcatchment PR 1A-P:

Runoff = 0.68 cfs @ 12.13 hrs, Volume= 0.049 af, Depth= 1.96"
Routed to Reach DP1-PR :

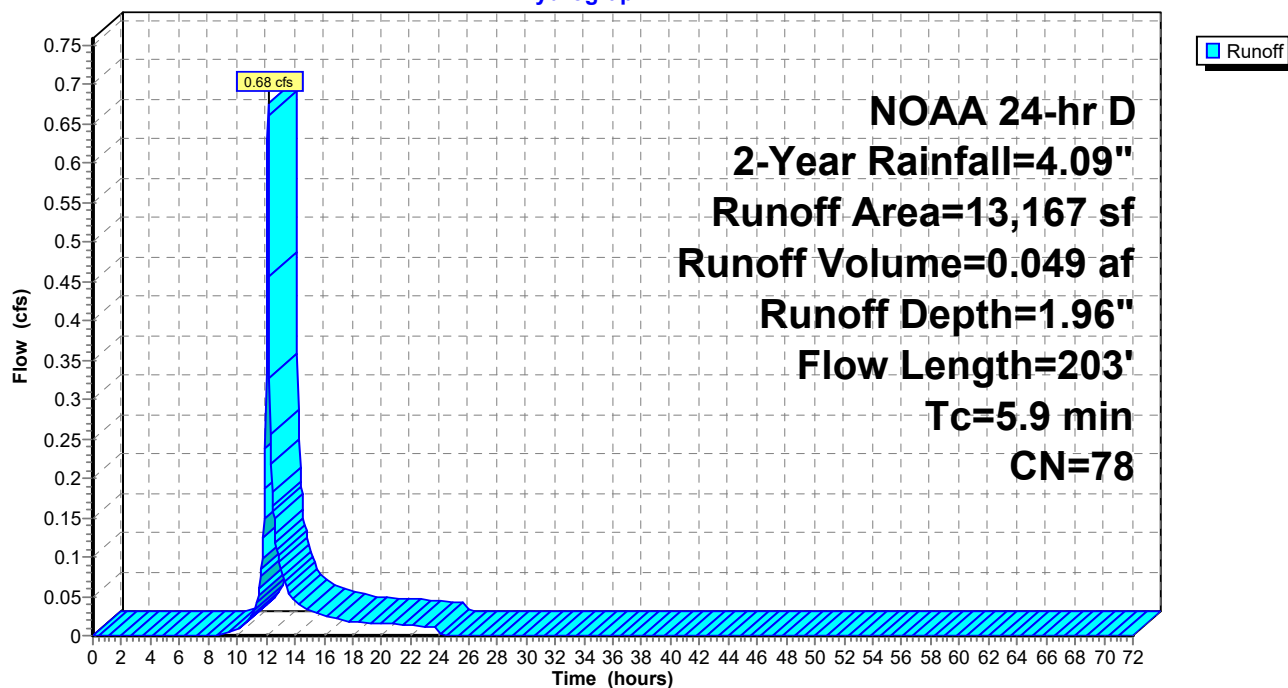
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=4.09"

Area (sf)	CN	Description
9,975	74	>75% Grass cover, Good, HSG C
3,192	89	Gravel roads, HSG C
13,167	78	Weighted Average
13,167		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	100	0.0725	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.3	103	0.1090	5.32		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.9	203	Total			

Subcatchment PR 1A-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Hydrograph for Subcatchment PR 1A-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.09	1.96	0.00
1.00	0.05	0.00	0.00	53.00	4.09	1.96	0.00
2.00	0.10	0.00	0.00	54.00	4.09	1.96	0.00
3.00	0.15	0.00	0.00	55.00	4.09	1.96	0.00
4.00	0.21	0.00	0.00	56.00	4.09	1.96	0.00
5.00	0.28	0.00	0.00	57.00	4.09	1.96	0.00
6.00	0.35	0.00	0.00	58.00	4.09	1.96	0.00
7.00	0.43	0.00	0.00	59.00	4.09	1.96	0.00
8.00	0.53	0.00	0.00	60.00	4.09	1.96	0.00
9.00	0.65	0.00	0.00	61.00	4.09	1.96	0.00
10.00	0.81	0.02	0.01	62.00	4.09	1.96	0.00
11.00	1.06	0.08	0.03	63.00	4.09	1.96	0.00
12.00	1.96	0.46	0.33	64.00	4.09	1.96	0.00
13.00	3.03	1.15	0.09	65.00	4.09	1.96	0.00
14.00	3.28	1.33	0.05	66.00	4.09	1.96	0.00
15.00	3.44	1.45	0.03	67.00	4.09	1.96	0.00
16.00	3.56	1.54	0.03	68.00	4.09	1.96	0.00
17.00	3.66	1.62	0.02	69.00	4.09	1.96	0.00
18.00	3.74	1.68	0.02	70.00	4.09	1.96	0.00
19.00	3.81	1.74	0.02	71.00	4.09	1.96	0.00
20.00	3.88	1.79	0.02	72.00	4.09	1.96	0.00
21.00	3.94	1.84	0.01				
22.00	3.99	1.88	0.01				
23.00	4.04	1.92	0.01				
24.00	4.09	1.96	0.01				
25.00	4.09	1.96	0.00				
26.00	4.09	1.96	0.00				
27.00	4.09	1.96	0.00				
28.00	4.09	1.96	0.00				
29.00	4.09	1.96	0.00				
30.00	4.09	1.96	0.00				
31.00	4.09	1.96	0.00				
32.00	4.09	1.96	0.00				
33.00	4.09	1.96	0.00				
34.00	4.09	1.96	0.00				
35.00	4.09	1.96	0.00				
36.00	4.09	1.96	0.00				
37.00	4.09	1.96	0.00				
38.00	4.09	1.96	0.00				
39.00	4.09	1.96	0.00				
40.00	4.09	1.96	0.00				
41.00	4.09	1.96	0.00				
42.00	4.09	1.96	0.00				
43.00	4.09	1.96	0.00				
44.00	4.09	1.96	0.00				
45.00	4.09	1.96	0.00				
46.00	4.09	1.96	0.00				
47.00	4.09	1.96	0.00				
48.00	4.09	1.96	0.00				
49.00	4.09	1.96	0.00				
50.00	4.09	1.96	0.00				
51.00	4.09	1.96	0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Summary for Subcatchment PR 1B-I:

Runoff = 3.62 cfs @ 12.07 hrs, Volume= 0.272 af, Depth= 3.85"
Routed to Reach 10R :

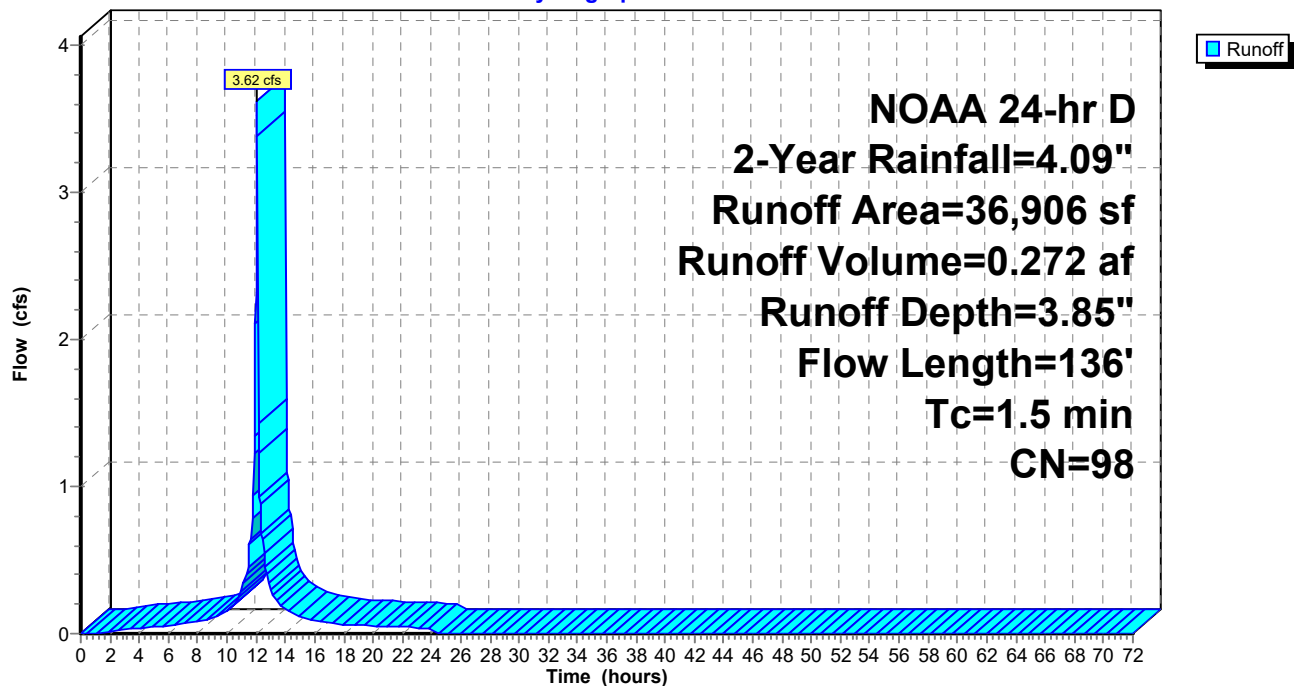
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=4.09"

Area (sf)	CN	Description
21,449	98	Roofs, HSG C
15,457	98	Paved parking, HSG C
36,906	98	Weighted Average
36,906		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.44"
0.3	36	0.0097	2.00		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	136	Total			

Subcatchment PR 1B-I:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Hydrograph for Subcatchment PR 1B-I:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.09	3.85	0.00
1.00	0.05	0.00	0.00	53.00	4.09	3.85	0.00
2.00	0.10	0.01	0.02	54.00	4.09	3.85	0.00
3.00	0.15	0.04	0.03	55.00	4.09	3.85	0.00
4.00	0.21	0.08	0.04	56.00	4.09	3.85	0.00
5.00	0.28	0.13	0.05	57.00	4.09	3.85	0.00
6.00	0.35	0.19	0.05	58.00	4.09	3.85	0.00
7.00	0.43	0.26	0.07	59.00	4.09	3.85	0.00
8.00	0.53	0.35	0.08	60.00	4.09	3.85	0.00
9.00	0.65	0.46	0.10	61.00	4.09	3.85	0.00
10.00	0.81	0.61	0.16	62.00	4.09	3.85	0.00
11.00	1.06	0.85	0.29	63.00	4.09	3.85	0.00
12.00	1.96	1.73	2.32	64.00	4.09	3.85	0.00
13.00	3.03	2.79	0.32	65.00	4.09	3.85	0.00
14.00	3.28	3.05	0.17	66.00	4.09	3.85	0.00
15.00	3.44	3.21	0.11	67.00	4.09	3.85	0.00
16.00	3.56	3.33	0.09	68.00	4.09	3.85	0.00
17.00	3.66	3.43	0.08	69.00	4.09	3.85	0.00
18.00	3.74	3.51	0.06	70.00	4.09	3.85	0.00
19.00	3.81	3.58	0.06	71.00	4.09	3.85	0.00
20.00	3.88	3.64	0.05	72.00	4.09	3.85	0.00
21.00	3.94	3.70	0.05				
22.00	3.99	3.76	0.05				
23.00	4.04	3.81	0.04				
24.00	4.09	3.85	0.03				
25.00	4.09	3.85	0.00				
26.00	4.09	3.85	0.00				
27.00	4.09	3.85	0.00				
28.00	4.09	3.85	0.00				
29.00	4.09	3.85	0.00				
30.00	4.09	3.85	0.00				
31.00	4.09	3.85	0.00				
32.00	4.09	3.85	0.00				
33.00	4.09	3.85	0.00				
34.00	4.09	3.85	0.00				
35.00	4.09	3.85	0.00				
36.00	4.09	3.85	0.00				
37.00	4.09	3.85	0.00				
38.00	4.09	3.85	0.00				
39.00	4.09	3.85	0.00				
40.00	4.09	3.85	0.00				
41.00	4.09	3.85	0.00				
42.00	4.09	3.85	0.00				
43.00	4.09	3.85	0.00				
44.00	4.09	3.85	0.00				
45.00	4.09	3.85	0.00				
46.00	4.09	3.85	0.00				
47.00	4.09	3.85	0.00				
48.00	4.09	3.85	0.00				
49.00	4.09	3.85	0.00				
50.00	4.09	3.85	0.00				
51.00	4.09	3.85	0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Summary for Subcatchment PR 1B-P:

Runoff = 3.92 cfs @ 12.15 hrs, Volume= 0.301 af, Depth= 2.04"
Routed to Reach 10R :

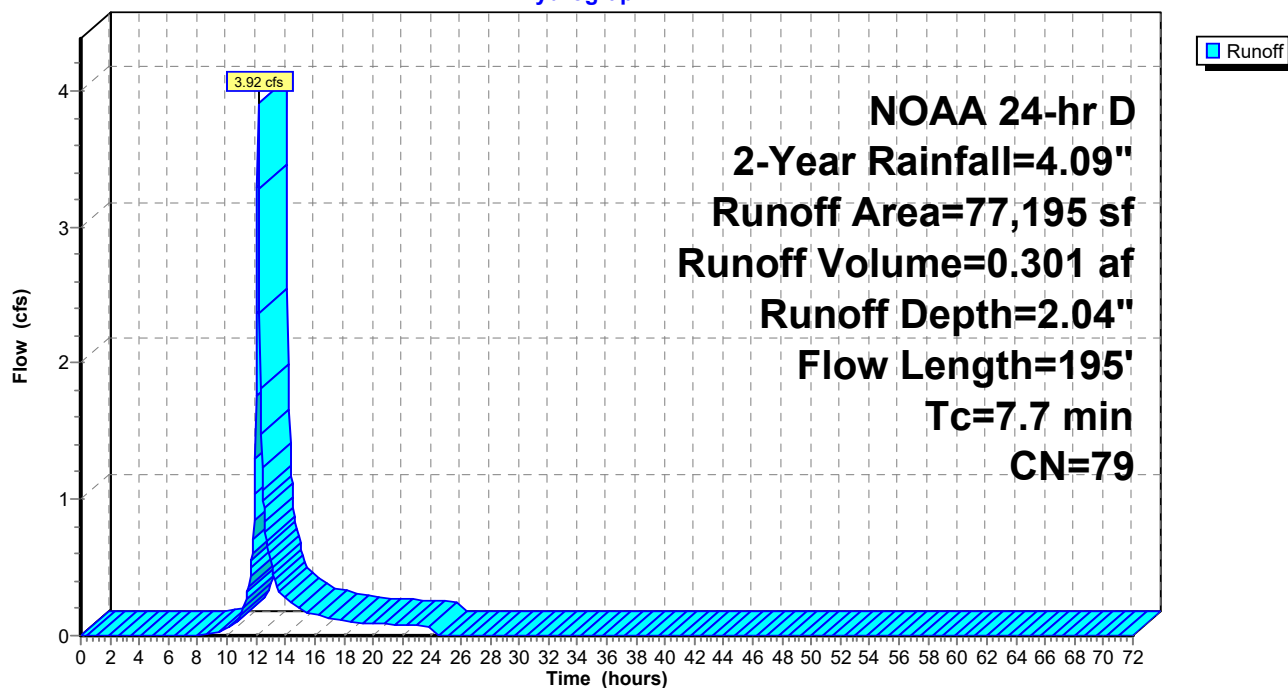
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=4.09"

Area (sf)	CN	Description
50,619	74	>75% Grass cover, Good, HSG C
26,576	89	Gravel roads, HSG C
77,195	79	Weighted Average
77,195		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.5	95	0.0361	3.06		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	195	Total			

Subcatchment PR 1B-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Hydrograph for Subcatchment PR 1B-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.09	2.04	0.00
1.00	0.05	0.00	0.00	53.00	4.09	2.04	0.00
2.00	0.10	0.00	0.00	54.00	4.09	2.04	0.00
3.00	0.15	0.00	0.00	55.00	4.09	2.04	0.00
4.00	0.21	0.00	0.00	56.00	4.09	2.04	0.00
5.00	0.28	0.00	0.00	57.00	4.09	2.04	0.00
6.00	0.35	0.00	0.00	58.00	4.09	2.04	0.00
7.00	0.43	0.00	0.00	59.00	4.09	2.04	0.00
8.00	0.53	0.00	0.00	60.00	4.09	2.04	0.00
9.00	0.65	0.00	0.02	61.00	4.09	2.04	0.00
10.00	0.81	0.03	0.06	62.00	4.09	2.04	0.00
11.00	1.06	0.09	0.17	63.00	4.09	2.04	0.00
12.00	1.96	0.50	1.77	64.00	4.09	2.04	0.00
13.00	3.03	1.21	0.54	65.00	4.09	2.04	0.00
14.00	3.28	1.40	0.27	66.00	4.09	2.04	0.00
15.00	3.44	1.52	0.19	67.00	4.09	2.04	0.00
16.00	3.56	1.61	0.15	68.00	4.09	2.04	0.00
17.00	3.66	1.69	0.13	69.00	4.09	2.04	0.00
18.00	3.74	1.76	0.11	70.00	4.09	2.04	0.00
19.00	3.81	1.81	0.10	71.00	4.09	2.04	0.00
20.00	3.88	1.86	0.09	72.00	4.09	2.04	0.00
21.00	3.94	1.91	0.08				
22.00	3.99	1.96	0.08				
23.00	4.04	2.00	0.07				
24.00	4.09	2.04	0.07				
25.00	4.09	2.04	0.00				
26.00	4.09	2.04	0.00				
27.00	4.09	2.04	0.00				
28.00	4.09	2.04	0.00				
29.00	4.09	2.04	0.00				
30.00	4.09	2.04	0.00				
31.00	4.09	2.04	0.00				
32.00	4.09	2.04	0.00				
33.00	4.09	2.04	0.00				
34.00	4.09	2.04	0.00				
35.00	4.09	2.04	0.00				
36.00	4.09	2.04	0.00				
37.00	4.09	2.04	0.00				
38.00	4.09	2.04	0.00				
39.00	4.09	2.04	0.00				
40.00	4.09	2.04	0.00				
41.00	4.09	2.04	0.00				
42.00	4.09	2.04	0.00				
43.00	4.09	2.04	0.00				
44.00	4.09	2.04	0.00				
45.00	4.09	2.04	0.00				
46.00	4.09	2.04	0.00				
47.00	4.09	2.04	0.00				
48.00	4.09	2.04	0.00				
49.00	4.09	2.04	0.00				
50.00	4.09	2.04	0.00				
51.00	4.09	2.04	0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Summary for Subcatchment PR 2-P:

Runoff = 0.37 cfs @ 12.11 hrs, Volume= 0.026 af, Depth= 1.81"
Routed to Reach DP2-PR :

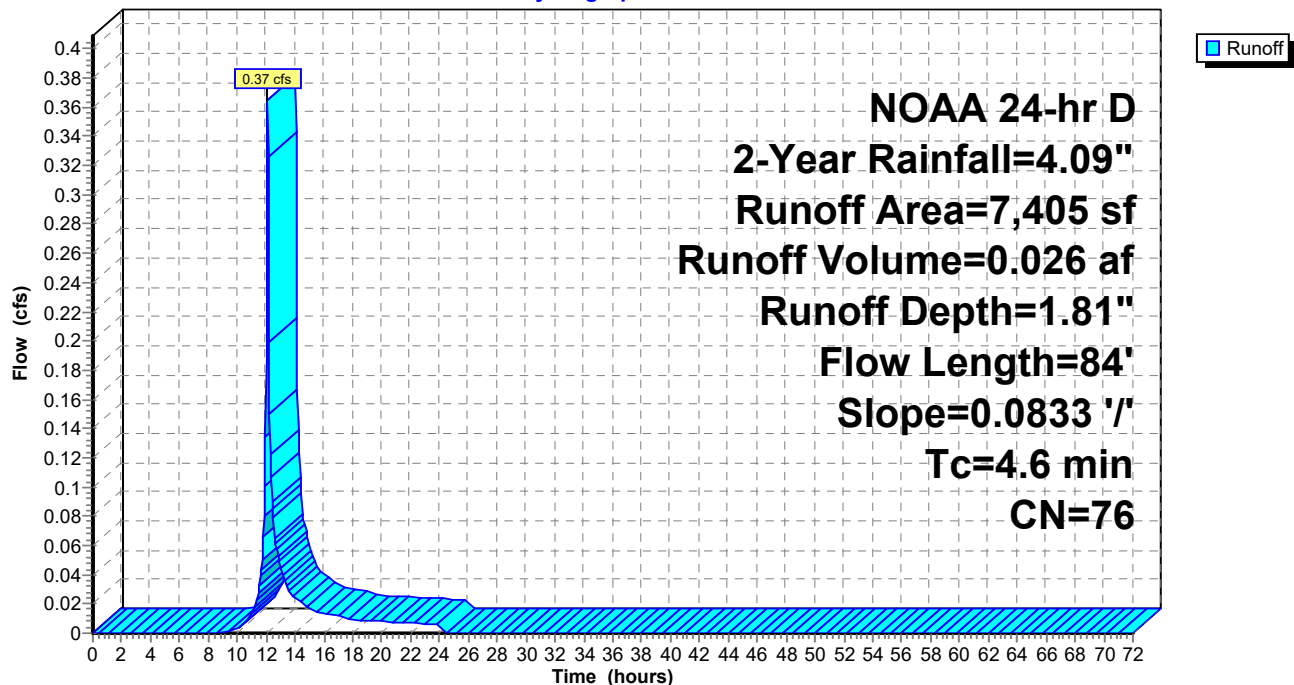
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=4.09"

Area (sf)	CN	Description
6,447	74	>75% Grass cover, Good, HSG C
958	89	Gravel roads, HSG C
7,405	76	Weighted Average
7,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	84	0.0833	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"

Subcatchment PR 2-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Hydrograph for Subcatchment PR 2-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.09	1.81	0.00
1.00	0.05	0.00	0.00	53.00	4.09	1.81	0.00
2.00	0.10	0.00	0.00	54.00	4.09	1.81	0.00
3.00	0.15	0.00	0.00	55.00	4.09	1.81	0.00
4.00	0.21	0.00	0.00	56.00	4.09	1.81	0.00
5.00	0.28	0.00	0.00	57.00	4.09	1.81	0.00
6.00	0.35	0.00	0.00	58.00	4.09	1.81	0.00
7.00	0.43	0.00	0.00	59.00	4.09	1.81	0.00
8.00	0.53	0.00	0.00	60.00	4.09	1.81	0.00
9.00	0.65	0.00	0.00	61.00	4.09	1.81	0.00
10.00	0.81	0.01	0.00	62.00	4.09	1.81	0.00
11.00	1.06	0.05	0.01	63.00	4.09	1.81	0.00
12.00	1.96	0.39	0.19	64.00	4.09	1.81	0.00
13.00	3.03	1.03	0.05	65.00	4.09	1.81	0.00
14.00	3.28	1.21	0.02	66.00	4.09	1.81	0.00
15.00	3.44	1.32	0.02	67.00	4.09	1.81	0.00
16.00	3.56	1.41	0.01	68.00	4.09	1.81	0.00
17.00	3.66	1.48	0.01	69.00	4.09	1.81	0.00
18.00	3.74	1.54	0.01	70.00	4.09	1.81	0.00
19.00	3.81	1.59	0.01	71.00	4.09	1.81	0.00
20.00	3.88	1.64	0.01	72.00	4.09	1.81	0.00
21.00	3.94	1.69	0.01				
22.00	3.99	1.73	0.01				
23.00	4.04	1.77	0.01				
24.00	4.09	1.81	0.01				
25.00	4.09	1.81	0.00				
26.00	4.09	1.81	0.00				
27.00	4.09	1.81	0.00				
28.00	4.09	1.81	0.00				
29.00	4.09	1.81	0.00				
30.00	4.09	1.81	0.00				
31.00	4.09	1.81	0.00				
32.00	4.09	1.81	0.00				
33.00	4.09	1.81	0.00				
34.00	4.09	1.81	0.00				
35.00	4.09	1.81	0.00				
36.00	4.09	1.81	0.00				
37.00	4.09	1.81	0.00				
38.00	4.09	1.81	0.00				
39.00	4.09	1.81	0.00				
40.00	4.09	1.81	0.00				
41.00	4.09	1.81	0.00				
42.00	4.09	1.81	0.00				
43.00	4.09	1.81	0.00				
44.00	4.09	1.81	0.00				
45.00	4.09	1.81	0.00				
46.00	4.09	1.81	0.00				
47.00	4.09	1.81	0.00				
48.00	4.09	1.81	0.00				
49.00	4.09	1.81	0.00				
50.00	4.09	1.81	0.00				
51.00	4.09	1.81	0.00				

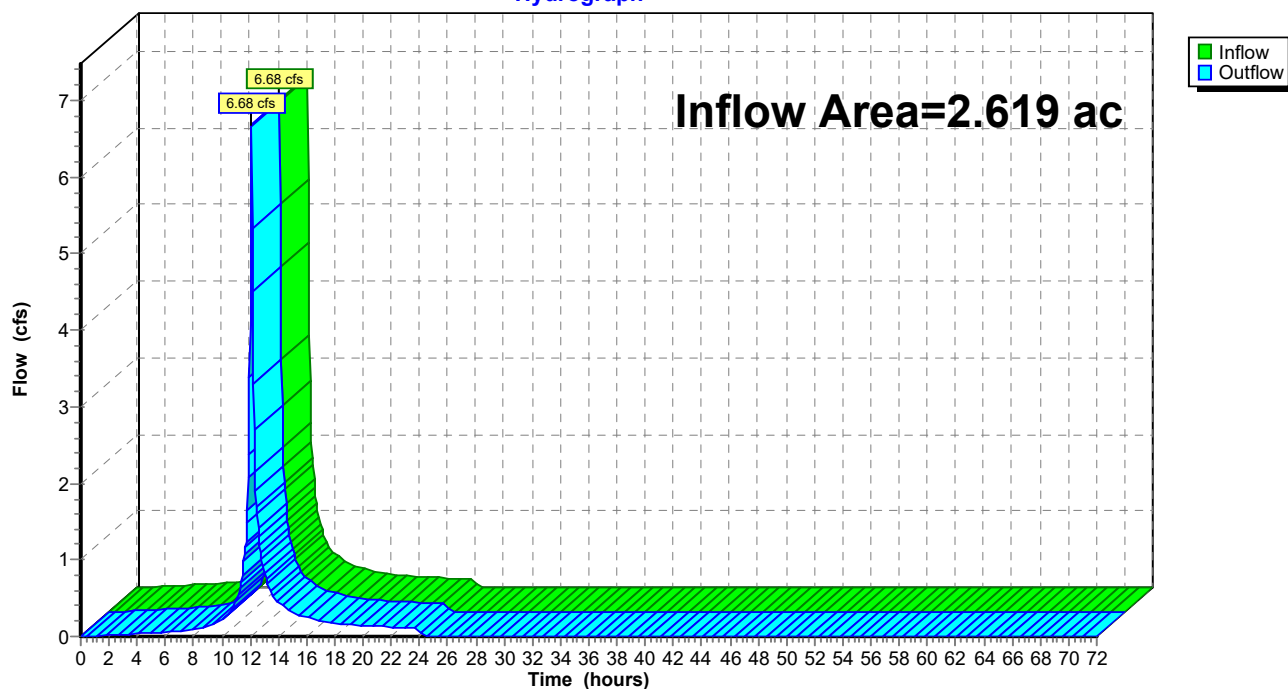
Summary for Reach 10R:

Inflow Area = 2.619 ac, 32.35% Impervious, Inflow Depth = 2.62" for 2-Year event
Inflow = 6.68 cfs @ 12.09 hrs, Volume= 0.573 af
Outflow = 6.68 cfs @ 12.09 hrs, Volume= 0.573 af, Atten= 0%, Lag= 0.0 min
Routed to Pond BASIN :

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach 10R:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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Hydrograph for Reach 10R:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.02		0.02	54.00	0.00		0.00
3.00	0.03		0.03	55.00	0.00		0.00
4.00	0.04		0.04	56.00	0.00		0.00
5.00	0.05		0.05	57.00	0.00		0.00
6.00	0.05		0.05	58.00	0.00		0.00
7.00	0.07		0.07	59.00	0.00		0.00
8.00	0.08		0.08	60.00	0.00		0.00
9.00	0.12		0.12	61.00	0.00		0.00
10.00	0.21		0.21	62.00	0.00		0.00
11.00	0.45		0.45	63.00	0.00		0.00
12.00	4.08		4.08	64.00	0.00		0.00
13.00	0.86		0.86	65.00	0.00		0.00
14.00	0.44		0.44	66.00	0.00		0.00
15.00	0.30		0.30	67.00	0.00		0.00
16.00	0.25		0.25	68.00	0.00		0.00
17.00	0.21		0.21	69.00	0.00		0.00
18.00	0.17		0.17	70.00	0.00		0.00
19.00	0.15		0.15	71.00	0.00		0.00
20.00	0.14		0.14	72.00	0.00		0.00
21.00	0.13		0.13				
22.00	0.12		0.12				
23.00	0.11		0.11				
24.00	0.10		0.10				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

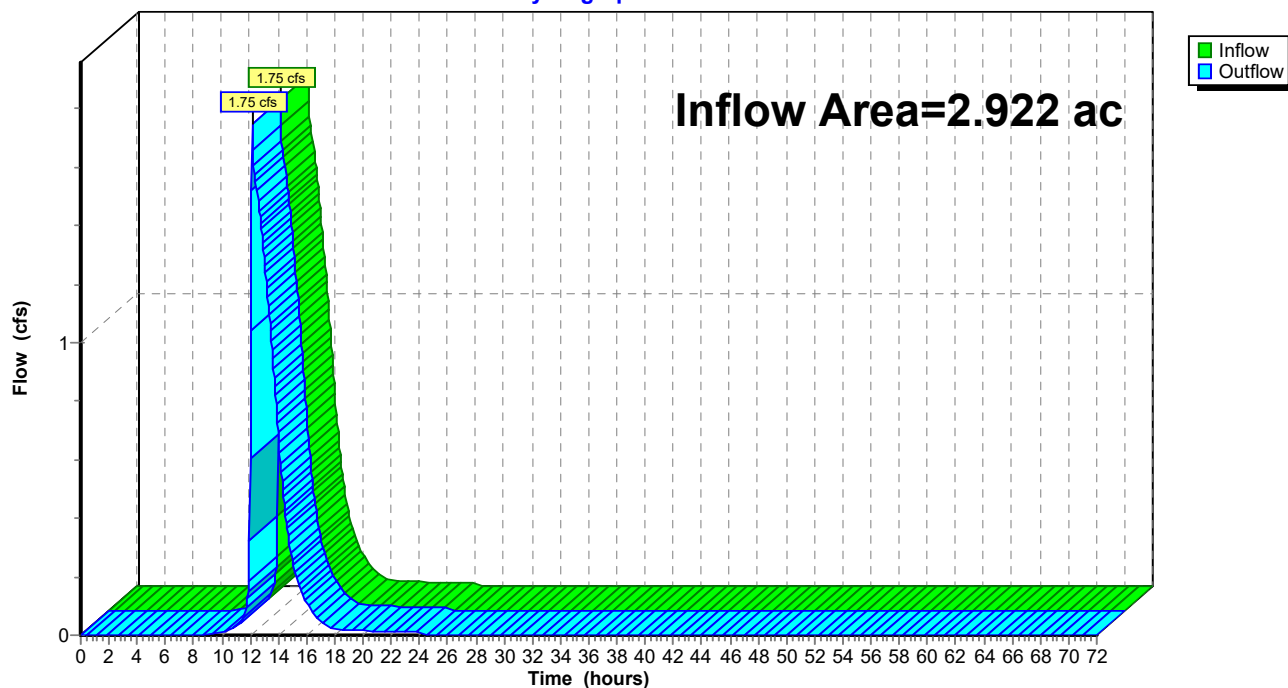
Summary for Reach DP1-PR:

Inflow Area = 2.922 ac, 29.00% Impervious, Inflow Depth = 1.14" for 2-Year event
Inflow = 1.75 cfs @ 12.16 hrs, Volume= 0.278 af
Outflow = 1.75 cfs @ 12.16 hrs, Volume= 0.278 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP1-PR:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 2-Year Rainfall=4.09"

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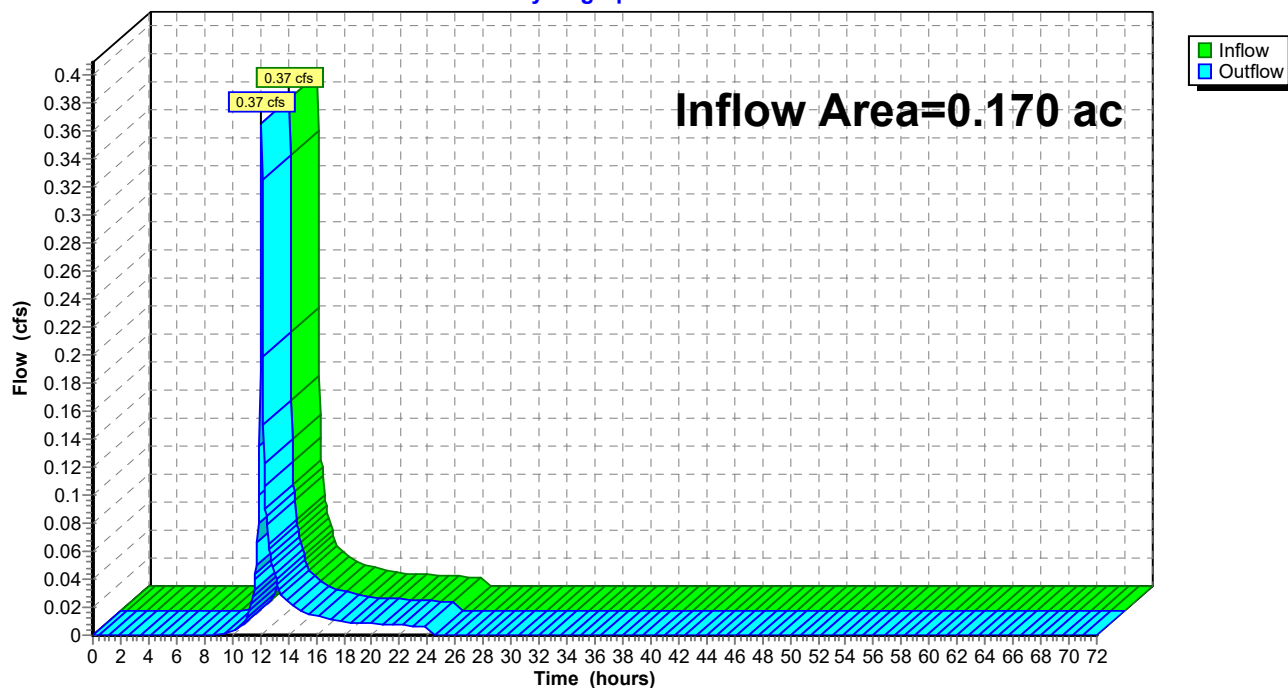
Hydrograph for Reach DP1-PR:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.01		0.01	62.00	0.00		0.00
11.00	0.03		0.03	63.00	0.00		0.00
12.00	0.60		0.60	64.00	0.00		0.00
13.00	1.29		1.29	65.00	0.00		0.00
14.00	0.69		0.69	66.00	0.00		0.00
15.00	0.25		0.25	67.00	0.00		0.00
16.00	0.11		0.11	68.00	0.00		0.00
17.00	0.05		0.05	69.00	0.00		0.00
18.00	0.02		0.02	70.00	0.00		0.00
19.00	0.02		0.02	71.00	0.00		0.00
20.00	0.02		0.02	72.00	0.00		0.00
21.00	0.01		0.01				
22.00	0.01		0.01				
23.00	0.01		0.01				
24.00	0.01		0.01				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Reach DP2-PR:

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 1.81" for 2-Year event
Inflow = 0.37 cfs @ 12.11 hrs, Volume= 0.026 af
Outflow = 0.37 cfs @ 12.11 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP2-PR:**Hydrograph**

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Hydrograph for Reach DP2-PR:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.01		0.01	63.00	0.00		0.00
12.00	0.19		0.19	64.00	0.00		0.00
13.00	0.05		0.05	65.00	0.00		0.00
14.00	0.02		0.02	66.00	0.00		0.00
15.00	0.02		0.02	67.00	0.00		0.00
16.00	0.01		0.01	68.00	0.00		0.00
17.00	0.01		0.01	69.00	0.00		0.00
18.00	0.01		0.01	70.00	0.00		0.00
19.00	0.01		0.01	71.00	0.00		0.00
20.00	0.01		0.01	72.00	0.00		0.00
21.00	0.01		0.01				
22.00	0.01		0.01				
23.00	0.01		0.01				
24.00	0.01		0.01				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

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Summary for Pond BASIN:

Inflow Area = 2.619 ac, 32.35% Impervious, Inflow Depth = 2.62" for 2-Year event
 Inflow = 6.68 cfs @ 12.09 hrs, Volume= 0.573 af
 Outflow = 1.68 cfs @ 12.47 hrs, Volume= 0.573 af, Atten= 75%, Lag= 22.5 min
 Discarded = 0.31 cfs @ 12.47 hrs, Volume= 0.345 af
 Primary = 1.36 cfs @ 12.47 hrs, Volume= 0.228 af
 Routed to Reach DP1-PR :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 16.73' @ 12.47 hrs Surf.Area= 0.168 ac Storage= 0.189 af

Plug-Flow detention time= 106.8 min calculated for 0.573 af (100% of inflow)
 Center-of-Mass det. time= 106.7 min (906.3 - 799.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.00'	0.199 af	51.42'W x 141.93'L x 5.00'H Field A 0.838 af Overall - 0.341 af Embedded = 0.497 af x 40.0% Voids
#2A	15.75'	0.341 af	ADS_StormTech MC-3500 d +Capx 133 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 133 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		0.539 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	15.89'	14.0" W x 3.5" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	16.73'	20.0" W x 5.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	18.75'	1.0' 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
#4	Discarded	15.00'	1.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.31 cfs @ 12.47 hrs HW=16.73' (Free Discharge)↑ **4=Exfiltration** (Controls 0.31 cfs)**Primary OutFlow** Max=1.36 cfs @ 12.47 hrs HW=16.73' (Free Discharge)↑ **1=Orifice/Grate** (Orifice Controls 1.36 cfs @ 4.00 fps)↑ **2=Orifice/Grate** (Controls 0.00 cfs)↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond BASIN: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

19 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 139.93' Row Length +12.0" End Stone x 2 = 141.93' Base Length

7 Rows x 77.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 51.42' Base Width

9.0" Stone Base + 45.0" Chamber Height + 6.0" Stone Cover = 5.00' Field Height

133 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 7 Rows = 14,832.2 cf Chamber Storage

36,487.8 cf Field - 14,832.2 cf Chambers = 21,655.6 cf Stone x 40.0% Voids = 8,662.3 cf Stone Storage

Chamber Storage + Stone Storage = 23,494.5 cf = 0.539 af

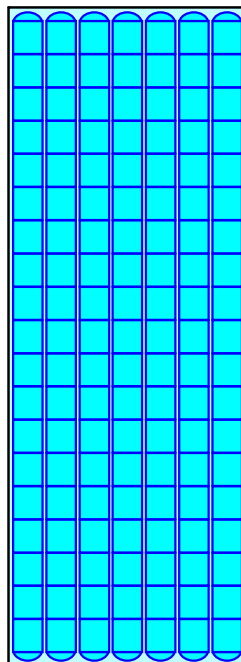
Overall Storage Efficiency = 64.4%

Overall System Size = 141.93' x 51.42' x 5.00'

133 Chambers

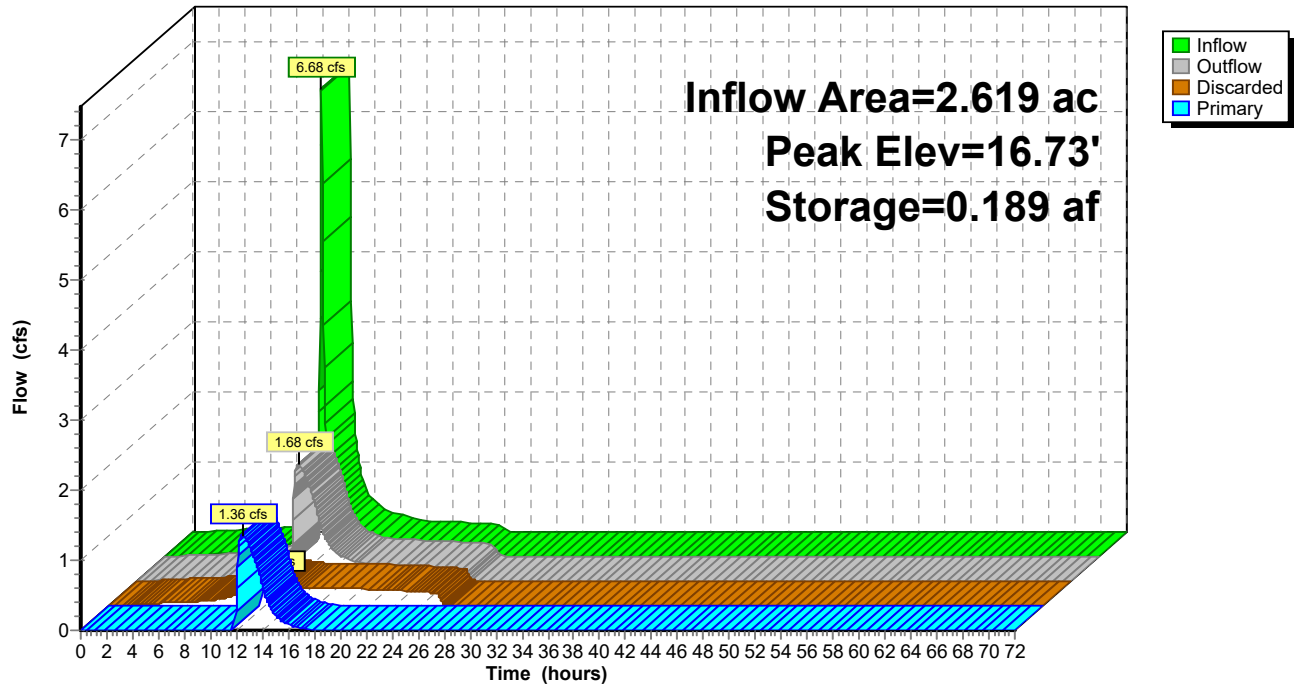
1,351.4 cy Field

802.1 cy Stone



Pond BASIN:

Hydrograph



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Hydrograph for Pond BASIN:

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	15.00	0.00	0.00	0.00
2.50	0.02	0.000	15.01	0.02	0.02	0.00
5.00	0.05	0.001	15.01	0.04	0.04	0.00
7.50	0.08	0.001	15.02	0.07	0.07	0.00
10.00	0.21	0.004	15.06	0.17	0.17	0.00
12.50	1.60	0.189	16.73	1.67	0.31	1.36
15.00	0.30	0.092	16.04	0.48	0.26	0.22
17.50	0.19	0.073	15.91	0.26	0.25	0.01
20.00	0.14	0.056	15.79	0.24	0.24	0.00
22.50	0.12	0.037	15.54	0.21	0.21	0.00
25.00	0.00	0.010	15.14	0.18	0.18	0.00
27.50	0.00	0.000	15.00	0.00	0.00	0.00
30.00	0.00	0.000	15.00	0.00	0.00	0.00
32.50	0.00	0.000	15.00	0.00	0.00	0.00
35.00	0.00	0.000	15.00	0.00	0.00	0.00
37.50	0.00	0.000	15.00	0.00	0.00	0.00
40.00	0.00	0.000	15.00	0.00	0.00	0.00
42.50	0.00	0.000	15.00	0.00	0.00	0.00
45.00	0.00	0.000	15.00	0.00	0.00	0.00
47.50	0.00	0.000	15.00	0.00	0.00	0.00
50.00	0.00	0.000	15.00	0.00	0.00	0.00
52.50	0.00	0.000	15.00	0.00	0.00	0.00
55.00	0.00	0.000	15.00	0.00	0.00	0.00
57.50	0.00	0.000	15.00	0.00	0.00	0.00
60.00	0.00	0.000	15.00	0.00	0.00	0.00
62.50	0.00	0.000	15.00	0.00	0.00	0.00
65.00	0.00	0.000	15.00	0.00	0.00	0.00
67.50	0.00	0.000	15.00	0.00	0.00	0.00
70.00	0.00	0.000	15.00	0.00	0.00	0.00

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Stage-Discharge for Pond BASIN:

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
15.00	0.00	0.00	0.00	17.60	5.15	0.39	4.76
15.05	0.17	0.17	0.00	17.65	5.28	0.39	4.89
15.10	0.18	0.18	0.00	17.70	5.42	0.40	5.02
15.15	0.18	0.18	0.00	17.75	5.55	0.40	5.15
15.20	0.19	0.19	0.00	17.80	5.68	0.41	5.27
15.25	0.19	0.19	0.00	17.85	5.80	0.41	5.39
15.30	0.19	0.19	0.00	17.90	5.92	0.41	5.51
15.35	0.20	0.20	0.00	17.95	6.04	0.42	5.62
15.40	0.20	0.20	0.00	18.00	6.16	0.42	5.74
15.45	0.21	0.21	0.00	18.05	6.27	0.43	5.85
15.50	0.21	0.21	0.00	18.10	6.38	0.43	5.95
15.55	0.22	0.22	0.00	18.15	6.49	0.43	6.06
15.60	0.22	0.22	0.00	18.20	6.60	0.44	6.16
15.65	0.22	0.22	0.00	18.25	6.71	0.44	6.26
15.70	0.23	0.23	0.00	18.30	6.81	0.45	6.36
15.75	0.23	0.23	0.00	18.35	6.91	0.45	6.46
15.80	0.24	0.24	0.00	18.40	7.01	0.46	6.56
15.85	0.24	0.24	0.00	18.45	7.11	0.46	6.65
15.90	0.25	0.24	0.00	18.50	7.21	0.46	6.75
15.95	0.30	0.25	0.06	18.55	7.31	0.47	6.84
16.00	0.39	0.25	0.14	18.60	7.40	0.47	6.93
16.05	0.50	0.26	0.24	18.65	7.50	0.48	7.02
16.10	0.62	0.26	0.36	18.70	7.59	0.48	7.11
16.15	0.76	0.27	0.50	18.75	7.68	0.49	7.20
16.20	0.91	0.27	0.64	18.80	7.80	0.49	7.31
16.25	1.02	0.27	0.74	18.85	7.95	0.49	7.46
16.30	1.11	0.28	0.83	18.90	8.11	0.50	7.62
16.35	1.19	0.28	0.91	18.95	8.29	0.50	7.79
16.40	1.27	0.29	0.98	19.00	8.48	0.51	7.97
16.45	1.34	0.29	1.05	19.05	8.68	0.51	8.17
16.50	1.41	0.30	1.11	19.10	8.90	0.52	8.38
16.55	1.47	0.30	1.17	19.15	9.12	0.52	8.60
16.60	1.53	0.30	1.23	19.20	9.36	0.52	8.83
16.65	1.59	0.31	1.28	19.25	9.61	0.53	9.08
16.70	1.65	0.31	1.33	19.30	9.87	0.53	9.34
16.75	1.71	0.32	1.40	19.35	10.14	0.54	9.60
16.80	1.85	0.32	1.53	19.40	10.43	0.54	9.89
16.85	2.02	0.33	1.70	19.45	10.74	0.54	10.19
16.90	2.23	0.33	1.90	19.50	11.06	0.55	10.51
16.95	2.45	0.33	2.12	19.55	11.39	0.55	10.83
17.00	2.70	0.34	2.36	19.60	11.69	0.56	11.14
17.05	2.96	0.34	2.62	19.65	12.01	0.56	11.45
17.10	3.24	0.35	2.89	19.70	12.33	0.57	11.76
17.15	3.53	0.35	3.18	19.75	12.65	0.57	12.08
17.20	3.78	0.35	3.42	19.80	12.98	0.57	12.41
17.25	3.99	0.36	3.63	19.85	13.31	0.58	12.73
17.30	4.19	0.36	3.82	19.90	13.65	0.58	13.07
17.35	4.37	0.37	4.00	19.95	13.99	0.59	13.41
17.40	4.54	0.37	4.16	20.00	14.34	0.59	13.75
17.45	4.70	0.38	4.32				
17.50	4.85	0.38	4.47				
17.55	5.00	0.38	4.62				

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Stage-Area-Storage for Pond BASIN:

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
15.00	0.168	0.000	17.60	0.168	0.307
15.05	0.168	0.003	17.65	0.168	0.313
15.10	0.168	0.007	17.70	0.168	0.320
15.15	0.168	0.010	17.75	0.168	0.326
15.20	0.168	0.013	17.80	0.168	0.332
15.25	0.168	0.017	17.85	0.168	0.339
15.30	0.168	0.020	17.90	0.168	0.345
15.35	0.168	0.023	17.95	0.168	0.351
15.40	0.168	0.027	18.00	0.168	0.357
15.45	0.168	0.030	18.05	0.168	0.363
15.50	0.168	0.034	18.10	0.168	0.369
15.55	0.168	0.037	18.15	0.168	0.375
15.60	0.168	0.040	18.20	0.168	0.381
15.65	0.168	0.044	18.25	0.168	0.387
15.70	0.168	0.047	18.30	0.168	0.393
15.75	0.168	0.050	18.35	0.168	0.399
15.80	0.168	0.058	18.40	0.168	0.405
15.85	0.168	0.065	18.45	0.168	0.410
15.90	0.168	0.072	18.50	0.168	0.416
15.95	0.168	0.079	18.55	0.168	0.421
16.00	0.168	0.086	18.60	0.168	0.427
16.05	0.168	0.094	18.65	0.168	0.432
16.10	0.168	0.101	18.70	0.168	0.438
16.15	0.168	0.108	18.75	0.168	0.443
16.20	0.168	0.115	18.80	0.168	0.448
16.25	0.168	0.122	18.85	0.168	0.453
16.30	0.168	0.129	18.90	0.168	0.458
16.35	0.168	0.136	18.95	0.168	0.463
16.40	0.168	0.143	19.00	0.168	0.467
16.45	0.168	0.151	19.05	0.168	0.472
16.50	0.168	0.158	19.10	0.168	0.476
16.55	0.168	0.165	19.15	0.168	0.480
16.60	0.168	0.172	19.20	0.168	0.484
16.65	0.168	0.179	19.25	0.168	0.488
16.70	0.168	0.186	19.30	0.168	0.492
16.75	0.168	0.193	19.35	0.168	0.495
16.80	0.168	0.199	19.40	0.168	0.499
16.85	0.168	0.206	19.45	0.168	0.502
16.90	0.168	0.213	19.50	0.168	0.506
16.95	0.168	0.220	19.55	0.168	0.509
17.00	0.168	0.227	19.60	0.168	0.513
17.05	0.168	0.234	19.65	0.168	0.516
17.10	0.168	0.241	19.70	0.168	0.519
17.15	0.168	0.247	19.75	0.168	0.523
17.20	0.168	0.254	19.80	0.168	0.526
17.25	0.168	0.261	19.85	0.168	0.529
17.30	0.168	0.267	19.90	0.168	0.533
17.35	0.168	0.274	19.95	0.168	0.536
17.40	0.168	0.281	20.00	0.168	0.539
17.45	0.168	0.287			
17.50	0.168	0.294			
17.55	0.168	0.300			

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 10-Year Rainfall=6.37"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

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

SubcatchmentPR 1A-P:Runoff Area=13,167 sf 0.00% Impervious Runoff Depth=3.91"
Flow Length=203' Tc=5.9 min CN=78 Runoff=1.33 cfs 0.098 af**SubcatchmentPR 1B-I:**Runoff Area=36,906 sf 100.00% Impervious Runoff Depth=6.13"
Flow Length=136' Tc=1.5 min CN=98 Runoff=5.66 cfs 0.433 af**SubcatchmentPR 1B-P:**Runoff Area=77,195 sf 0.00% Impervious Runoff Depth=4.01"
Flow Length=195' Tc=7.7 min CN=79 Runoff=7.62 cfs 0.592 af**SubcatchmentPR 2-P:**Runoff Area=7,405 sf 0.00% Impervious Runoff Depth=3.70"
Flow Length=84' Slope=0.0833 '/' Tc=4.6 min CN=76 Runoff=0.74 cfs 0.052 af**Reach 10R:**Inflow=11.81 cfs 1.025 af
Outflow=11.81 cfs 1.025 af**Reach DP1-PR:**Inflow=5.37 cfs 0.683 af
Outflow=5.37 cfs 0.683 af**Reach DP2-PR:**Inflow=0.74 cfs 0.052 af
Outflow=0.74 cfs 0.052 af**Pond BASIN:**Peak Elev=17.58' Storage=0.304 af Inflow=11.81 cfs 1.025 af
Discarded=0.39 cfs 0.440 af Primary=4.70 cfs 0.585 af Outflow=5.09 cfs 1.025 af**Total Runoff Area = 3.092 ac Runoff Volume = 1.176 af Average Runoff Depth = 4.57"**
72.60% Pervious = 2.244 ac 27.40% Impervious = 0.847 ac

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Summary for Subcatchment PR 1A-P:

Runoff = 1.33 cfs @ 12.13 hrs, Volume= 0.098 af, Depth= 3.91"
Routed to Reach DP1-PR :

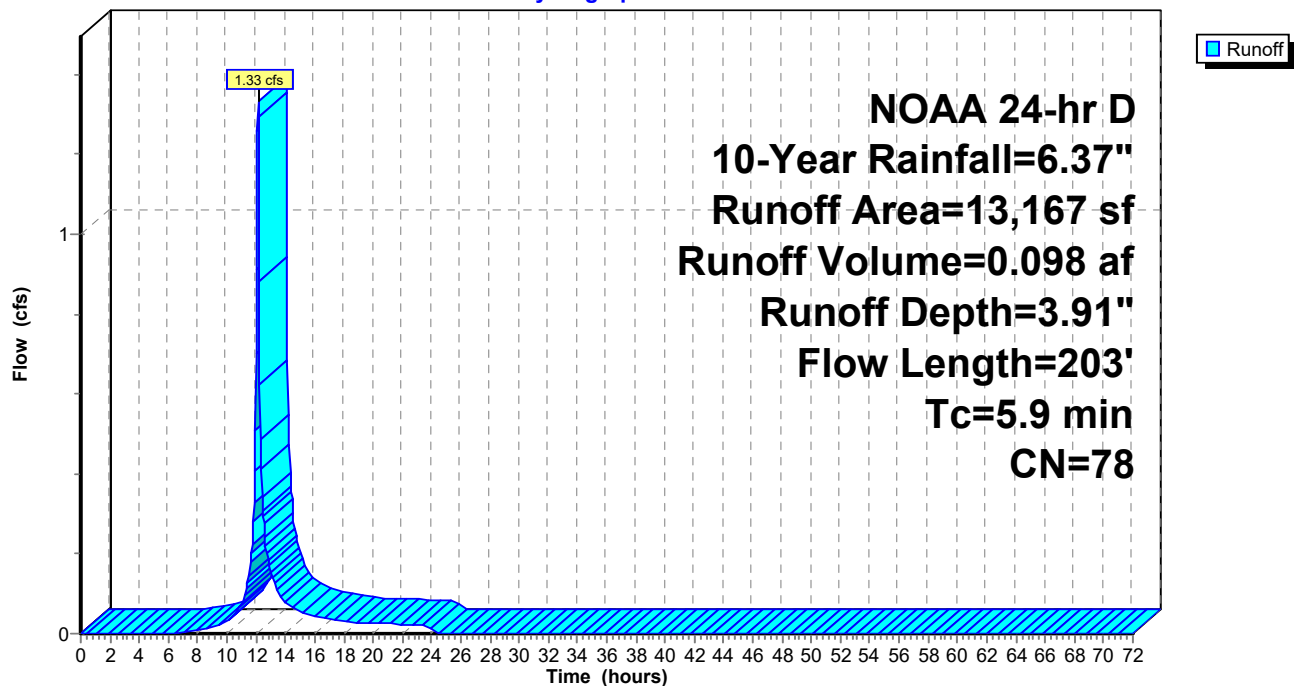
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=6.37"

Area (sf)	CN	Description
9,975	74	>75% Grass cover, Good, HSG C
3,192	89	Gravel roads, HSG C
13,167	78	Weighted Average
13,167		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	100	0.0725	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.3	103	0.1090	5.32		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.9	203	Total			

Subcatchment PR 1A-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 10-Year Rainfall=6.37"

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Hydrograph for Subcatchment PR 1A-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.37	3.91	0.00
1.00	0.07	0.00	0.00	53.00	6.37	3.91	0.00
2.00	0.15	0.00	0.00	54.00	6.37	3.91	0.00
3.00	0.24	0.00	0.00	55.00	6.37	3.91	0.00
4.00	0.33	0.00	0.00	56.00	6.37	3.91	0.00
5.00	0.44	0.00	0.00	57.00	6.37	3.91	0.00
6.00	0.54	0.00	0.00	58.00	6.37	3.91	0.00
7.00	0.67	0.00	0.00	59.00	6.37	3.91	0.00
8.00	0.83	0.02	0.01	60.00	6.37	3.91	0.00
9.00	1.01	0.06	0.01	61.00	6.37	3.91	0.00
10.00	1.26	0.14	0.03	62.00	6.37	3.91	0.00
11.00	1.66	0.30	0.07	63.00	6.37	3.91	0.00
12.00	3.05	1.17	0.70	64.00	6.37	3.91	0.00
13.00	4.71	2.47	0.16	65.00	6.37	3.91	0.00
14.00	5.11	2.80	0.08	66.00	6.37	3.91	0.00
15.00	5.36	3.02	0.06	67.00	6.37	3.91	0.00
16.00	5.54	3.18	0.05	68.00	6.37	3.91	0.00
17.00	5.70	3.31	0.04	69.00	6.37	3.91	0.00
18.00	5.83	3.43	0.03	70.00	6.37	3.91	0.00
19.00	5.93	3.52	0.03	71.00	6.37	3.91	0.00
20.00	6.04	3.61	0.03	72.00	6.37	3.91	0.00
21.00	6.13	3.69	0.02				
22.00	6.22	3.77	0.02				
23.00	6.30	3.84	0.02				
24.00	6.37	3.91	0.02				
25.00	6.37	3.91	0.00				
26.00	6.37	3.91	0.00				
27.00	6.37	3.91	0.00				
28.00	6.37	3.91	0.00				
29.00	6.37	3.91	0.00				
30.00	6.37	3.91	0.00				
31.00	6.37	3.91	0.00				
32.00	6.37	3.91	0.00				
33.00	6.37	3.91	0.00				
34.00	6.37	3.91	0.00				
35.00	6.37	3.91	0.00				
36.00	6.37	3.91	0.00				
37.00	6.37	3.91	0.00				
38.00	6.37	3.91	0.00				
39.00	6.37	3.91	0.00				
40.00	6.37	3.91	0.00				
41.00	6.37	3.91	0.00				
42.00	6.37	3.91	0.00				
43.00	6.37	3.91	0.00				
44.00	6.37	3.91	0.00				
45.00	6.37	3.91	0.00				
46.00	6.37	3.91	0.00				
47.00	6.37	3.91	0.00				
48.00	6.37	3.91	0.00				
49.00	6.37	3.91	0.00				
50.00	6.37	3.91	0.00				
51.00	6.37	3.91	0.00				

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NOAA 24-hr D 10-Year Rainfall=6.37"

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Summary for Subcatchment PR 1B-I:

Runoff = 5.66 cfs @ 12.07 hrs, Volume= 0.433 af, Depth= 6.13"
Routed to Reach 10R :

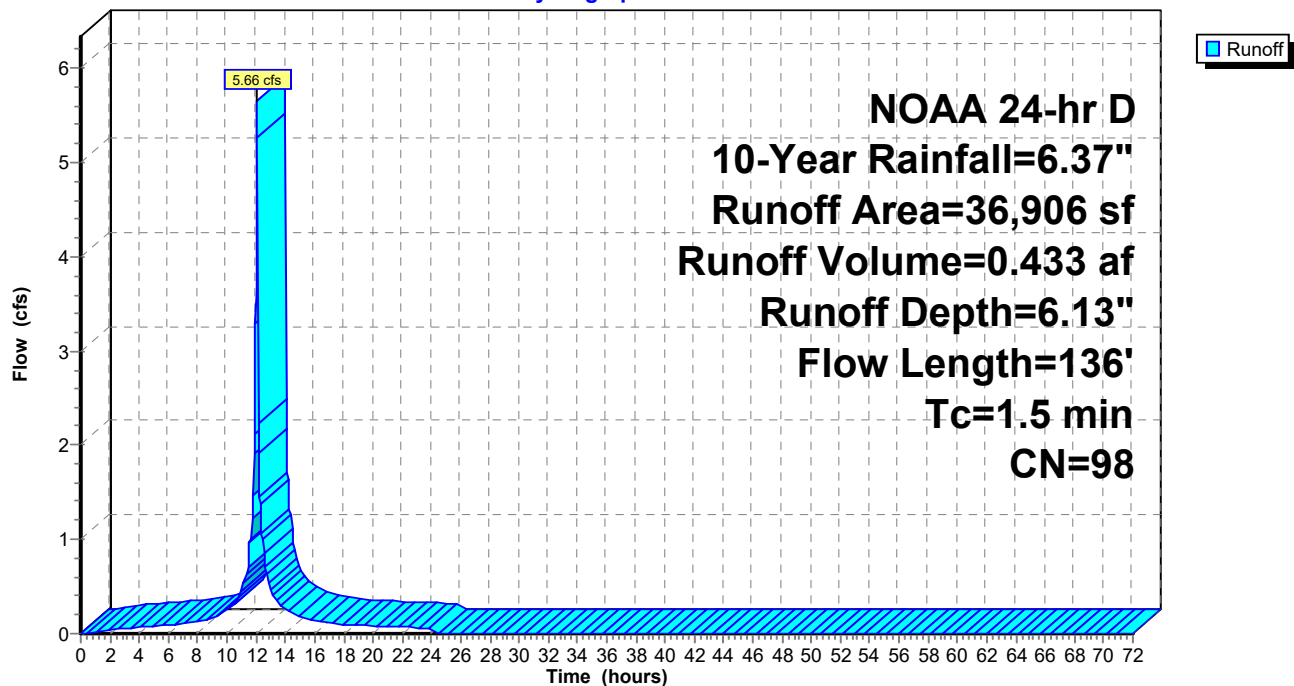
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=6.37"

Area (sf)	CN	Description
21,449	98	Roofs, HSG C
15,457	98	Paved parking, HSG C
36,906	98	Weighted Average
36,906		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.44"
0.3	36	0.0097	2.00		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	136	Total			

Subcatchment PR 1B-I:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 10-Year Rainfall=6.37"

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Hydrograph for Subcatchment PR 1B-I:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.37	6.13	0.00
1.00	0.07	0.00	0.02	53.00	6.37	6.13	0.00
2.00	0.15	0.04	0.04	54.00	6.37	6.13	0.00
3.00	0.24	0.10	0.06	55.00	6.37	6.13	0.00
4.00	0.33	0.17	0.07	56.00	6.37	6.13	0.00
5.00	0.44	0.26	0.08	57.00	6.37	6.13	0.00
6.00	0.54	0.36	0.09	58.00	6.37	6.13	0.00
7.00	0.67	0.48	0.11	59.00	6.37	6.13	0.00
8.00	0.83	0.62	0.14	60.00	6.37	6.13	0.00
9.00	1.01	0.80	0.16	61.00	6.37	6.13	0.00
10.00	1.26	1.05	0.25	62.00	6.37	6.13	0.00
11.00	1.66	1.43	0.45	63.00	6.37	6.13	0.00
12.00	3.05	2.82	3.63	64.00	6.37	6.13	0.00
13.00	4.71	4.48	0.50	65.00	6.37	6.13	0.00
14.00	5.11	4.87	0.26	66.00	6.37	6.13	0.00
15.00	5.36	5.12	0.18	67.00	6.37	6.13	0.00
16.00	5.54	5.31	0.15	68.00	6.37	6.13	0.00
17.00	5.70	5.46	0.12	69.00	6.37	6.13	0.00
18.00	5.83	5.59	0.10	70.00	6.37	6.13	0.00
19.00	5.93	5.70	0.09	71.00	6.37	6.13	0.00
20.00	6.04	5.80	0.08	72.00	6.37	6.13	0.00
21.00	6.13	5.89	0.08				
22.00	6.22	5.98	0.07				
23.00	6.30	6.06	0.07				
24.00	6.37	6.13	0.05				
25.00	6.37	6.13	0.00				
26.00	6.37	6.13	0.00				
27.00	6.37	6.13	0.00				
28.00	6.37	6.13	0.00				
29.00	6.37	6.13	0.00				
30.00	6.37	6.13	0.00				
31.00	6.37	6.13	0.00				
32.00	6.37	6.13	0.00				
33.00	6.37	6.13	0.00				
34.00	6.37	6.13	0.00				
35.00	6.37	6.13	0.00				
36.00	6.37	6.13	0.00				
37.00	6.37	6.13	0.00				
38.00	6.37	6.13	0.00				
39.00	6.37	6.13	0.00				
40.00	6.37	6.13	0.00				
41.00	6.37	6.13	0.00				
42.00	6.37	6.13	0.00				
43.00	6.37	6.13	0.00				
44.00	6.37	6.13	0.00				
45.00	6.37	6.13	0.00				
46.00	6.37	6.13	0.00				
47.00	6.37	6.13	0.00				
48.00	6.37	6.13	0.00				
49.00	6.37	6.13	0.00				
50.00	6.37	6.13	0.00				
51.00	6.37	6.13	0.00				

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NOAA 24-hr D 10-Year Rainfall=6.37"

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Summary for Subcatchment PR 1B-P:

Runoff = 7.62 cfs @ 12.15 hrs, Volume= 0.592 af, Depth= 4.01"
Routed to Reach 10R :

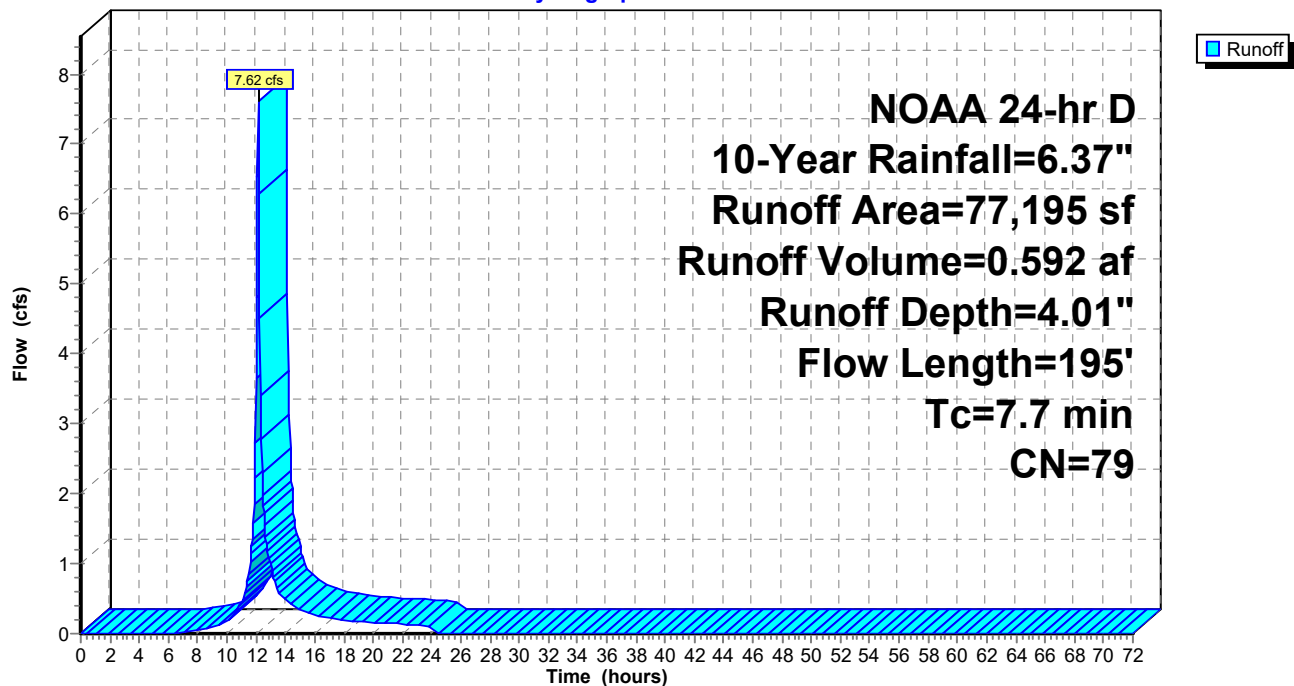
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=6.37"

Area (sf)	CN	Description
50,619	74	>75% Grass cover, Good, HSG C
26,576	89	Gravel roads, HSG C
77,195	79	Weighted Average
77,195		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.5	95	0.0361	3.06		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	195	Total			

Subcatchment PR 1B-P:

Hydrograph



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Hydrograph for Subcatchment PR 1B-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.37	4.01	0.00
1.00	0.07	0.00	0.00	53.00	6.37	4.01	0.00
2.00	0.15	0.00	0.00	54.00	6.37	4.01	0.00
3.00	0.24	0.00	0.00	55.00	6.37	4.01	0.00
4.00	0.33	0.00	0.00	56.00	6.37	4.01	0.00
5.00	0.44	0.00	0.00	57.00	6.37	4.01	0.00
6.00	0.54	0.00	0.00	58.00	6.37	4.01	0.00
7.00	0.67	0.01	0.02	59.00	6.37	4.01	0.00
8.00	0.83	0.03	0.05	60.00	6.37	4.01	0.00
9.00	1.01	0.07	0.09	61.00	6.37	4.01	0.00
10.00	1.26	0.16	0.19	62.00	6.37	4.01	0.00
11.00	1.66	0.33	0.44	63.00	6.37	4.01	0.00
12.00	3.05	1.23	3.66	64.00	6.37	4.01	0.00
13.00	4.71	2.56	0.97	65.00	6.37	4.01	0.00
14.00	5.11	2.89	0.48	66.00	6.37	4.01	0.00
15.00	5.36	3.11	0.33	67.00	6.37	4.01	0.00
16.00	5.54	3.27	0.27	68.00	6.37	4.01	0.00
17.00	5.70	3.41	0.23	69.00	6.37	4.01	0.00
18.00	5.83	3.52	0.18	70.00	6.37	4.01	0.00
19.00	5.93	3.62	0.17	71.00	6.37	4.01	0.00
20.00	6.04	3.71	0.16	72.00	6.37	4.01	0.00
21.00	6.13	3.80	0.15				
22.00	6.22	3.87	0.14				
23.00	6.30	3.95	0.12				
24.00	6.37	4.01	0.11				
25.00	6.37	4.01	0.00				
26.00	6.37	4.01	0.00				
27.00	6.37	4.01	0.00				
28.00	6.37	4.01	0.00				
29.00	6.37	4.01	0.00				
30.00	6.37	4.01	0.00				
31.00	6.37	4.01	0.00				
32.00	6.37	4.01	0.00				
33.00	6.37	4.01	0.00				
34.00	6.37	4.01	0.00				
35.00	6.37	4.01	0.00				
36.00	6.37	4.01	0.00				
37.00	6.37	4.01	0.00				
38.00	6.37	4.01	0.00				
39.00	6.37	4.01	0.00				
40.00	6.37	4.01	0.00				
41.00	6.37	4.01	0.00				
42.00	6.37	4.01	0.00				
43.00	6.37	4.01	0.00				
44.00	6.37	4.01	0.00				
45.00	6.37	4.01	0.00				
46.00	6.37	4.01	0.00				
47.00	6.37	4.01	0.00				
48.00	6.37	4.01	0.00				
49.00	6.37	4.01	0.00				
50.00	6.37	4.01	0.00				
51.00	6.37	4.01	0.00				

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Summary for Subcatchment PR 2-P:

Runoff = 0.74 cfs @ 12.11 hrs, Volume= 0.052 af, Depth= 3.70"
Routed to Reach DP2-PR :

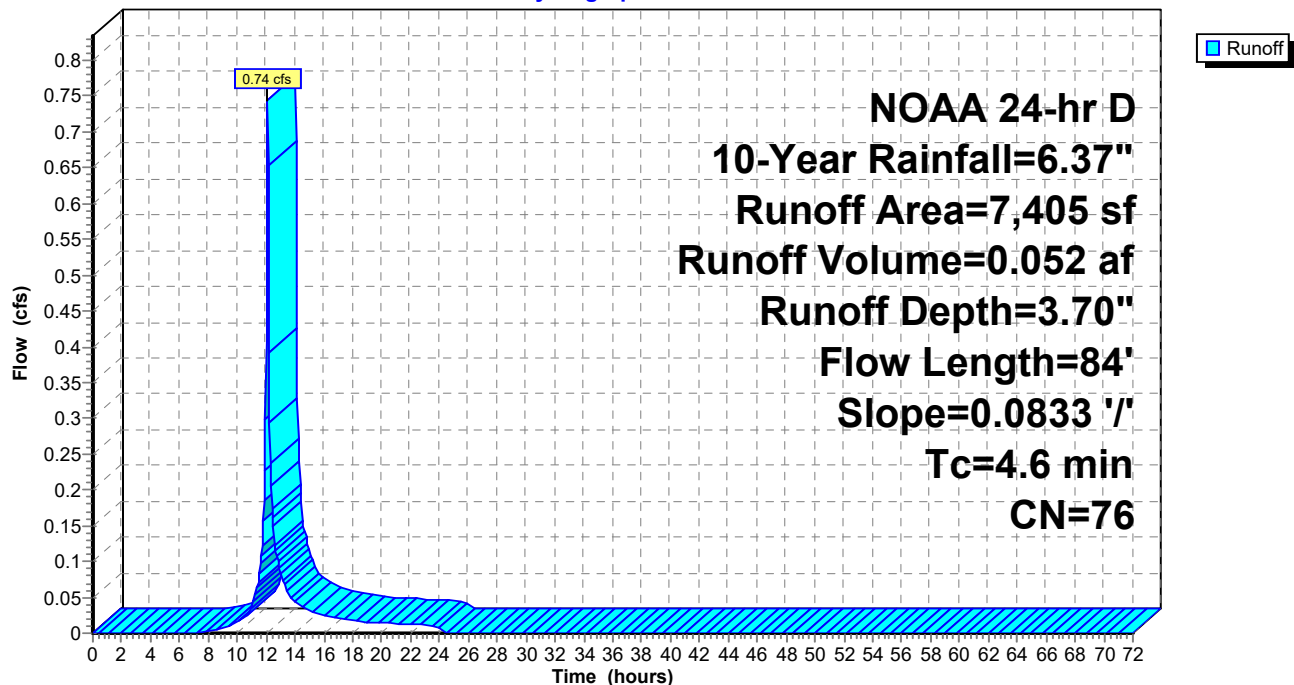
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=6.37"

Area (sf)	CN	Description
6,447	74	>75% Grass cover, Good, HSG C
958	89	Gravel roads, HSG C
7,405	76	Weighted Average
7,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	84	0.0833	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"

Subcatchment PR 2-P:

Hydrograph



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Hydrograph for Subcatchment PR 2-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.37	3.70	0.00
1.00	0.07	0.00	0.00	53.00	6.37	3.70	0.00
2.00	0.15	0.00	0.00	54.00	6.37	3.70	0.00
3.00	0.24	0.00	0.00	55.00	6.37	3.70	0.00
4.00	0.33	0.00	0.00	56.00	6.37	3.70	0.00
5.00	0.44	0.00	0.00	57.00	6.37	3.70	0.00
6.00	0.54	0.00	0.00	58.00	6.37	3.70	0.00
7.00	0.67	0.00	0.00	59.00	6.37	3.70	0.00
8.00	0.83	0.01	0.00	60.00	6.37	3.70	0.00
9.00	1.01	0.04	0.01	61.00	6.37	3.70	0.00
10.00	1.26	0.11	0.02	62.00	6.37	3.70	0.00
11.00	1.66	0.25	0.04	63.00	6.37	3.70	0.00
12.00	3.05	1.05	0.41	64.00	6.37	3.70	0.00
13.00	4.71	2.30	0.08	65.00	6.37	3.70	0.00
14.00	5.11	2.62	0.04	66.00	6.37	3.70	0.00
15.00	5.36	2.83	0.03	67.00	6.37	3.70	0.00
16.00	5.54	2.99	0.02	68.00	6.37	3.70	0.00
17.00	5.70	3.12	0.02	69.00	6.37	3.70	0.00
18.00	5.83	3.23	0.02	70.00	6.37	3.70	0.00
19.00	5.93	3.32	0.02	71.00	6.37	3.70	0.00
20.00	6.04	3.41	0.01	72.00	6.37	3.70	0.00
21.00	6.13	3.49	0.01				
22.00	6.22	3.57	0.01				
23.00	6.30	3.64	0.01				
24.00	6.37	3.70	0.01				
25.00	6.37	3.70	0.00				
26.00	6.37	3.70	0.00				
27.00	6.37	3.70	0.00				
28.00	6.37	3.70	0.00				
29.00	6.37	3.70	0.00				
30.00	6.37	3.70	0.00				
31.00	6.37	3.70	0.00				
32.00	6.37	3.70	0.00				
33.00	6.37	3.70	0.00				
34.00	6.37	3.70	0.00				
35.00	6.37	3.70	0.00				
36.00	6.37	3.70	0.00				
37.00	6.37	3.70	0.00				
38.00	6.37	3.70	0.00				
39.00	6.37	3.70	0.00				
40.00	6.37	3.70	0.00				
41.00	6.37	3.70	0.00				
42.00	6.37	3.70	0.00				
43.00	6.37	3.70	0.00				
44.00	6.37	3.70	0.00				
45.00	6.37	3.70	0.00				
46.00	6.37	3.70	0.00				
47.00	6.37	3.70	0.00				
48.00	6.37	3.70	0.00				
49.00	6.37	3.70	0.00				
50.00	6.37	3.70	0.00				
51.00	6.37	3.70	0.00				

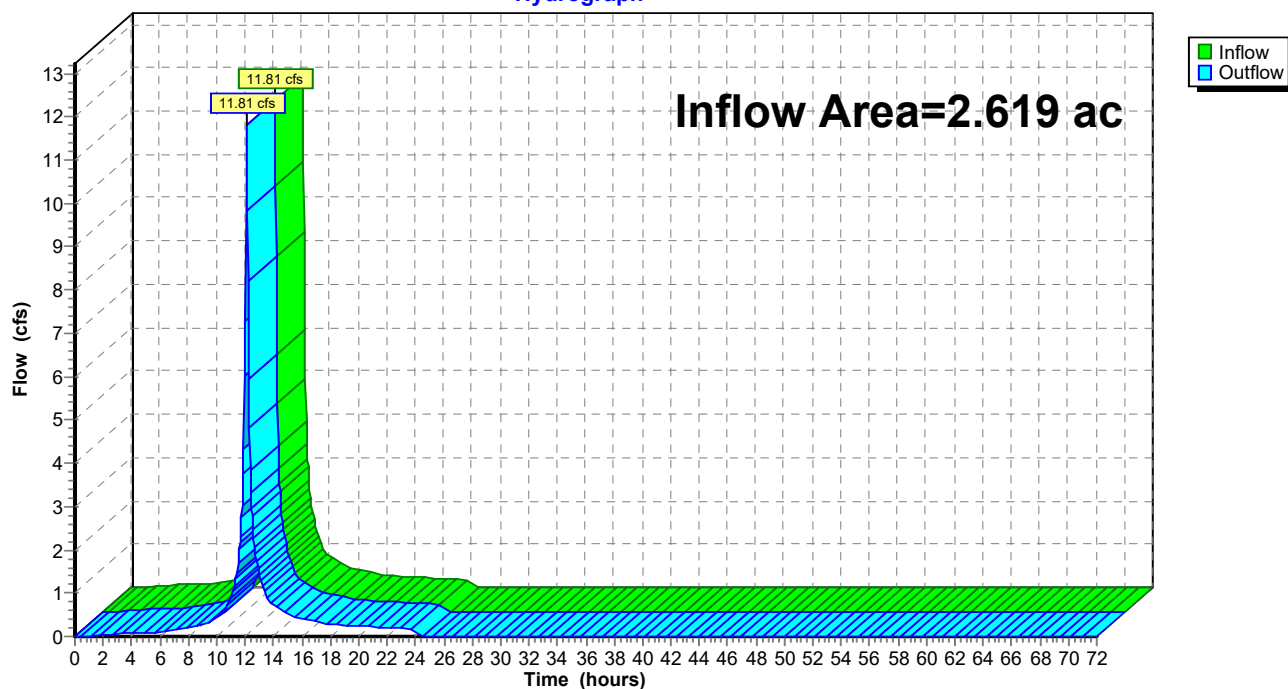
Summary for Reach 10R:

Inflow Area = 2.619 ac, 32.35% Impervious, Inflow Depth = 4.70" for 10-Year event
Inflow = 11.81 cfs @ 12.10 hrs, Volume= 1.025 af
Outflow = 11.81 cfs @ 12.10 hrs, Volume= 1.025 af, Atten= 0%, Lag= 0.0 min
Routed to Pond BASIN :

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach 10R:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

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Hydrograph for Reach 10R:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.02		0.02	53.00	0.00		0.00
2.00	0.04		0.04	54.00	0.00		0.00
3.00	0.06		0.06	55.00	0.00		0.00
4.00	0.07		0.07	56.00	0.00		0.00
5.00	0.08		0.08	57.00	0.00		0.00
6.00	0.09		0.09	58.00	0.00		0.00
7.00	0.13		0.13	59.00	0.00		0.00
8.00	0.19		0.19	60.00	0.00		0.00
9.00	0.26		0.26	61.00	0.00		0.00
10.00	0.44		0.44	62.00	0.00		0.00
11.00	0.90		0.90	63.00	0.00		0.00
12.00	7.29		7.29	64.00	0.00		0.00
13.00	1.47		1.47	65.00	0.00		0.00
14.00	0.75		0.75	66.00	0.00		0.00
15.00	0.51		0.51	67.00	0.00		0.00
16.00	0.42		0.42	68.00	0.00		0.00
17.00	0.35		0.35	69.00	0.00		0.00
18.00	0.28		0.28	70.00	0.00		0.00
19.00	0.26		0.26	71.00	0.00		0.00
20.00	0.24		0.24	72.00	0.00		0.00
21.00	0.22		0.22				
22.00	0.21		0.21				
23.00	0.19		0.19				
24.00	0.17		0.17				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

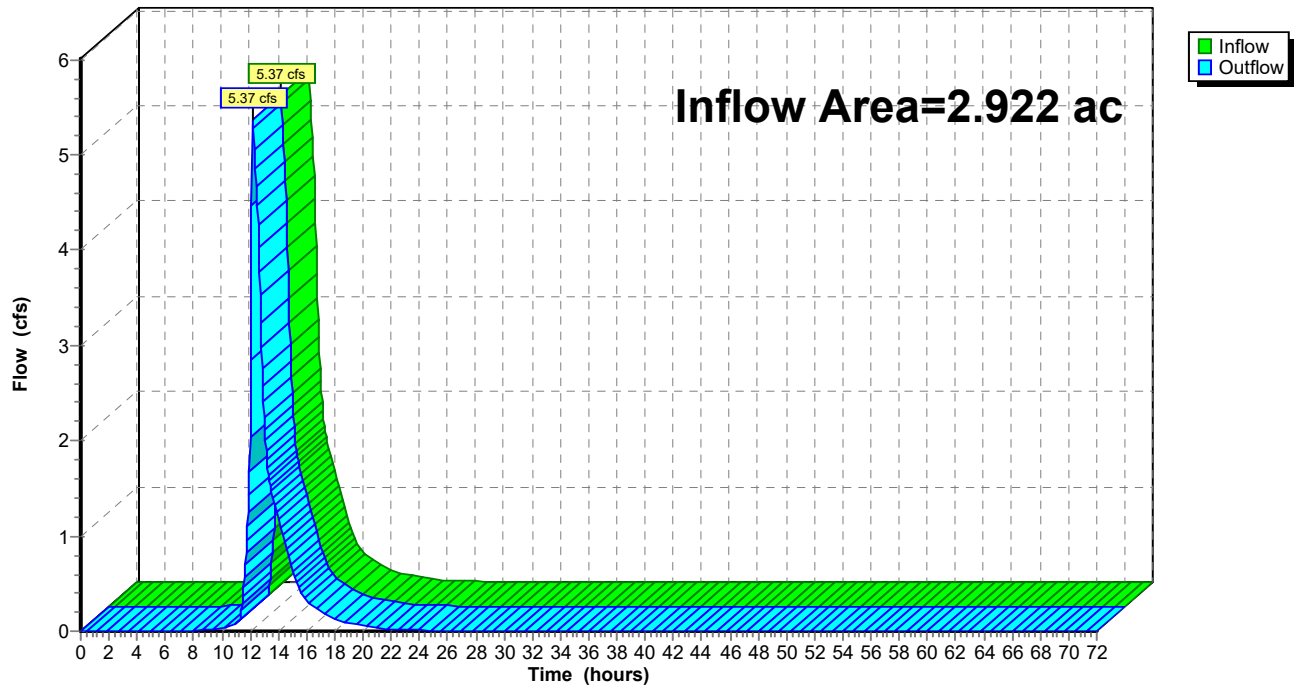
Summary for Reach DP1-PR:

Inflow Area = 2.922 ac, 29.00% Impervious, Inflow Depth = 2.81" for 10-Year event
Inflow = 5.37 cfs @ 12.19 hrs, Volume= 0.683 af
Outflow = 5.37 cfs @ 12.19 hrs, Volume= 0.683 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP1-PR:

Hydrograph



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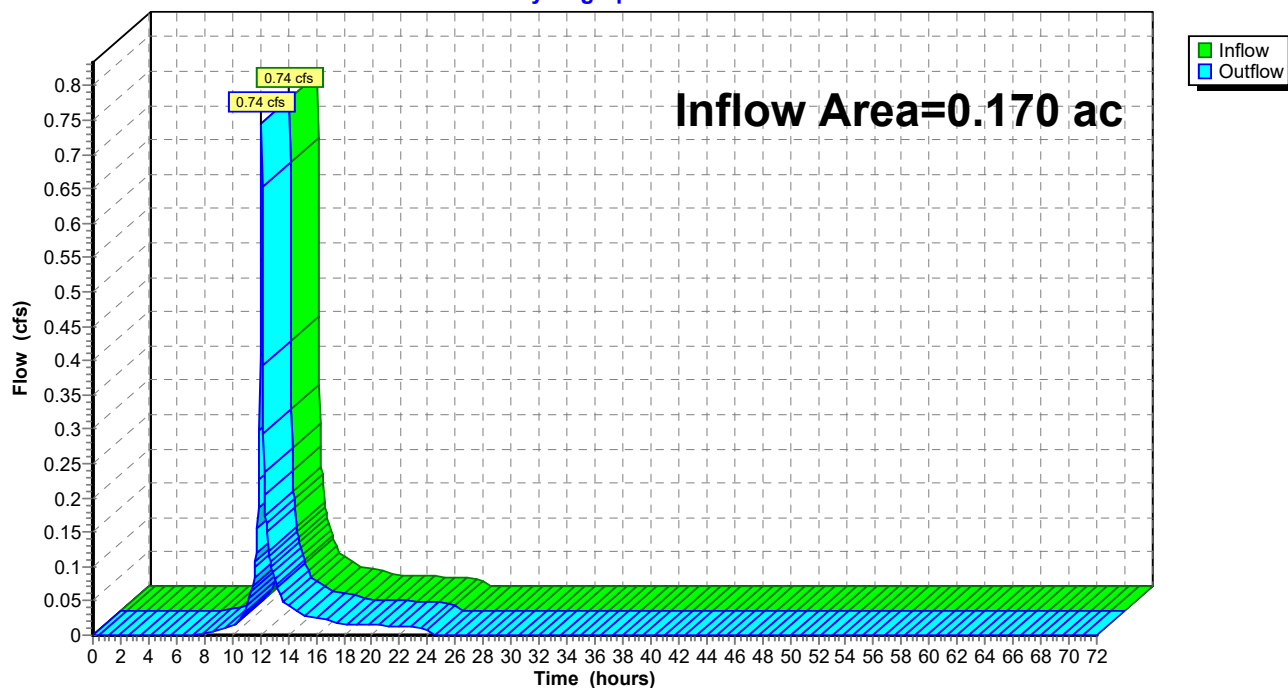
Hydrograph for Reach DP1-PR:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.01		0.01	60.00	0.00		0.00
9.00	0.01		0.01	61.00	0.00		0.00
10.00	0.03		0.03	62.00	0.00		0.00
11.00	0.07		0.07	63.00	0.00		0.00
12.00	2.04		2.04	64.00	0.00		0.00
13.00	2.25		2.25	65.00	0.00		0.00
14.00	1.19		1.19	66.00	0.00		0.00
15.00	0.68		0.68	67.00	0.00		0.00
16.00	0.32		0.32	68.00	0.00		0.00
17.00	0.21		0.21	69.00	0.00		0.00
18.00	0.13		0.13	70.00	0.00		0.00
19.00	0.08		0.08	71.00	0.00		0.00
20.00	0.05		0.05	72.00	0.00		0.00
21.00	0.03		0.03				
22.00	0.02		0.02				
23.00	0.02		0.02				
24.00	0.02		0.02				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Reach DP2-PR:

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 3.70" for 10-Year event
Inflow = 0.74 cfs @ 12.11 hrs, Volume= 0.052 af
Outflow = 0.74 cfs @ 12.11 hrs, Volume= 0.052 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP2-PR:**Hydrograph**

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Hydrograph for Reach DP2-PR:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.01		0.01	61.00	0.00		0.00
10.00	0.02		0.02	62.00	0.00		0.00
11.00	0.04		0.04	63.00	0.00		0.00
12.00	0.41		0.41	64.00	0.00		0.00
13.00	0.08		0.08	65.00	0.00		0.00
14.00	0.04		0.04	66.00	0.00		0.00
15.00	0.03		0.03	67.00	0.00		0.00
16.00	0.02		0.02	68.00	0.00		0.00
17.00	0.02		0.02	69.00	0.00		0.00
18.00	0.02		0.02	70.00	0.00		0.00
19.00	0.02		0.02	71.00	0.00		0.00
20.00	0.01		0.01	72.00	0.00		0.00
21.00	0.01		0.01				
22.00	0.01		0.01				
23.00	0.01		0.01				
24.00	0.01		0.01				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

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Summary for Pond BASIN:

Inflow Area = 2.619 ac, 32.35% Impervious, Inflow Depth = 4.70" for 10-Year event
 Inflow = 11.81 cfs @ 12.10 hrs, Volume= 1.025 af
 Outflow = 5.09 cfs @ 12.29 hrs, Volume= 1.025 af, Atten= 57%, Lag= 11.6 min
 Discarded = 0.39 cfs @ 12.29 hrs, Volume= 0.440 af
 Primary = 4.70 cfs @ 12.29 hrs, Volume= 0.585 af
 Routed to Reach DP1-PR :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 17.58' @ 12.29 hrs Surf.Area= 0.168 ac Storage= 0.304 af

Plug-Flow detention time= 91.9 min calculated for 1.025 af (100% of inflow)
 Center-of-Mass det. time= 92.0 min (880.9 - 789.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.00'	0.199 af	51.42'W x 141.93'L x 5.00'H Field A 0.838 af Overall - 0.341 af Embedded = 0.497 af x 40.0% Voids
#2A	15.75'	0.341 af	ADS_StormTech MC-3500 d +Capx 133 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 133 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		0.539 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	15.89'	14.0" W x 3.5" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	16.73'	20.0" W x 5.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	18.75'	1.0' 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
#4	Discarded	15.00'	1.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.39 cfs @ 12.29 hrs HW=17.58' (Free Discharge)
 ↑ **4=Exfiltration** (Controls 0.39 cfs)

Primary OutFlow Max=4.70 cfs @ 12.29 hrs HW=17.58' (Free Discharge)
 ↑ **1=Orifice/Grate** (Orifice Controls 2.03 cfs @ 5.98 fps)
 ↓ **2=Orifice/Grate** (Orifice Controls 2.66 cfs @ 3.83 fps)
 ↓ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond BASIN: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

19 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 139.93' Row Length +12.0" End Stone x 2 = 141.93' Base Length

7 Rows x 77.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 51.42' Base Width

9.0" Stone Base + 45.0" Chamber Height + 6.0" Stone Cover = 5.00' Field Height

133 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 7 Rows = 14,832.2 cf Chamber Storage

36,487.8 cf Field - 14,832.2 cf Chambers = 21,655.6 cf Stone x 40.0% Voids = 8,662.3 cf Stone Storage

Chamber Storage + Stone Storage = 23,494.5 cf = 0.539 af

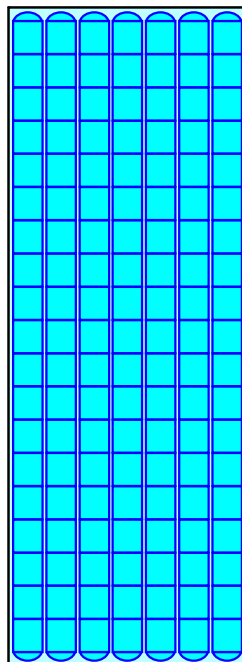
Overall Storage Efficiency = 64.4%

Overall System Size = 141.93' x 51.42' x 5.00'

133 Chambers

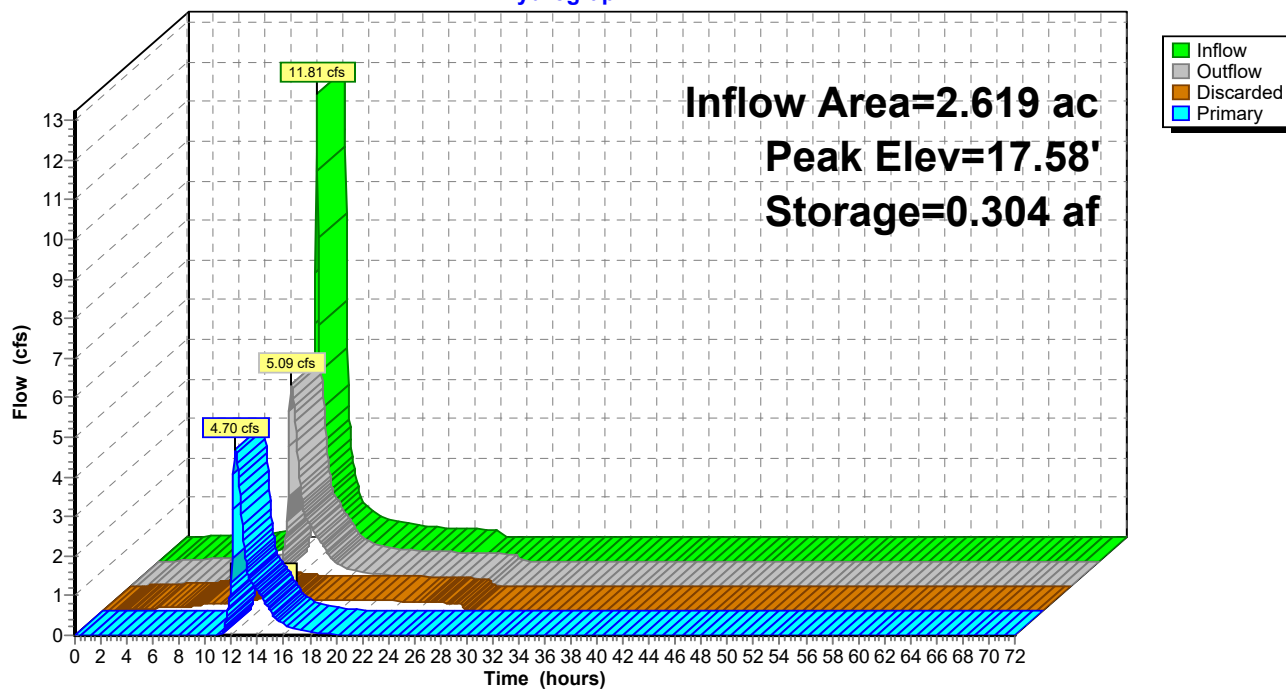
1,351.4 cy Field

802.1 cy Stone



Pond BASIN:

Hydrograph



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Hydrograph for Pond BASIN:

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	15.00	0.00	0.00	0.00
2.50	0.05	0.001	15.01	0.05	0.05	0.00
5.00	0.08	0.001	15.02	0.08	0.08	0.00
7.50	0.16	0.003	15.04	0.15	0.15	0.00
10.00	0.44	0.021	15.31	0.20	0.20	0.00
12.50	2.78	0.281	17.40	4.55	0.37	4.18
15.00	0.51	0.114	16.19	0.89	0.27	0.62
17.50	0.32	0.086	16.00	0.38	0.25	0.13
20.00	0.24	0.076	15.92	0.27	0.25	0.03
22.50	0.20	0.069	15.88	0.24	0.24	0.00
25.00	0.00	0.044	15.65	0.22	0.22	0.00
27.50	0.00	0.003	15.04	0.15	0.15	0.00
30.00	0.00	0.000	15.00	0.00	0.00	0.00
32.50	0.00	0.000	15.00	0.00	0.00	0.00
35.00	0.00	0.000	15.00	0.00	0.00	0.00
37.50	0.00	0.000	15.00	0.00	0.00	0.00
40.00	0.00	0.000	15.00	0.00	0.00	0.00
42.50	0.00	0.000	15.00	0.00	0.00	0.00
45.00	0.00	0.000	15.00	0.00	0.00	0.00
47.50	0.00	0.000	15.00	0.00	0.00	0.00
50.00	0.00	0.000	15.00	0.00	0.00	0.00
52.50	0.00	0.000	15.00	0.00	0.00	0.00
55.00	0.00	0.000	15.00	0.00	0.00	0.00
57.50	0.00	0.000	15.00	0.00	0.00	0.00
60.00	0.00	0.000	15.00	0.00	0.00	0.00
62.50	0.00	0.000	15.00	0.00	0.00	0.00
65.00	0.00	0.000	15.00	0.00	0.00	0.00
67.50	0.00	0.000	15.00	0.00	0.00	0.00
70.00	0.00	0.000	15.00	0.00	0.00	0.00

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Stage-Discharge for Pond BASIN:

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
15.00	0.00	0.00	0.00	17.60	5.15	0.39	4.76
15.05	0.17	0.17	0.00	17.65	5.28	0.39	4.89
15.10	0.18	0.18	0.00	17.70	5.42	0.40	5.02
15.15	0.18	0.18	0.00	17.75	5.55	0.40	5.15
15.20	0.19	0.19	0.00	17.80	5.68	0.41	5.27
15.25	0.19	0.19	0.00	17.85	5.80	0.41	5.39
15.30	0.19	0.19	0.00	17.90	5.92	0.41	5.51
15.35	0.20	0.20	0.00	17.95	6.04	0.42	5.62
15.40	0.20	0.20	0.00	18.00	6.16	0.42	5.74
15.45	0.21	0.21	0.00	18.05	6.27	0.43	5.85
15.50	0.21	0.21	0.00	18.10	6.38	0.43	5.95
15.55	0.22	0.22	0.00	18.15	6.49	0.43	6.06
15.60	0.22	0.22	0.00	18.20	6.60	0.44	6.16
15.65	0.22	0.22	0.00	18.25	6.71	0.44	6.26
15.70	0.23	0.23	0.00	18.30	6.81	0.45	6.36
15.75	0.23	0.23	0.00	18.35	6.91	0.45	6.46
15.80	0.24	0.24	0.00	18.40	7.01	0.46	6.56
15.85	0.24	0.24	0.00	18.45	7.11	0.46	6.65
15.90	0.25	0.24	0.00	18.50	7.21	0.46	6.75
15.95	0.30	0.25	0.06	18.55	7.31	0.47	6.84
16.00	0.39	0.25	0.14	18.60	7.40	0.47	6.93
16.05	0.50	0.26	0.24	18.65	7.50	0.48	7.02
16.10	0.62	0.26	0.36	18.70	7.59	0.48	7.11
16.15	0.76	0.27	0.50	18.75	7.68	0.49	7.20
16.20	0.91	0.27	0.64	18.80	7.80	0.49	7.31
16.25	1.02	0.27	0.74	18.85	7.95	0.49	7.46
16.30	1.11	0.28	0.83	18.90	8.11	0.50	7.62
16.35	1.19	0.28	0.91	18.95	8.29	0.50	7.79
16.40	1.27	0.29	0.98	19.00	8.48	0.51	7.97
16.45	1.34	0.29	1.05	19.05	8.68	0.51	8.17
16.50	1.41	0.30	1.11	19.10	8.90	0.52	8.38
16.55	1.47	0.30	1.17	19.15	9.12	0.52	8.60
16.60	1.53	0.30	1.23	19.20	9.36	0.52	8.83
16.65	1.59	0.31	1.28	19.25	9.61	0.53	9.08
16.70	1.65	0.31	1.33	19.30	9.87	0.53	9.34
16.75	1.71	0.32	1.40	19.35	10.14	0.54	9.60
16.80	1.85	0.32	1.53	19.40	10.43	0.54	9.89
16.85	2.02	0.33	1.70	19.45	10.74	0.54	10.19
16.90	2.23	0.33	1.90	19.50	11.06	0.55	10.51
16.95	2.45	0.33	2.12	19.55	11.39	0.55	10.83
17.00	2.70	0.34	2.36	19.60	11.69	0.56	11.14
17.05	2.96	0.34	2.62	19.65	12.01	0.56	11.45
17.10	3.24	0.35	2.89	19.70	12.33	0.57	11.76
17.15	3.53	0.35	3.18	19.75	12.65	0.57	12.08
17.20	3.78	0.35	3.42	19.80	12.98	0.57	12.41
17.25	3.99	0.36	3.63	19.85	13.31	0.58	12.73
17.30	4.19	0.36	3.82	19.90	13.65	0.58	13.07
17.35	4.37	0.37	4.00	19.95	13.99	0.59	13.41
17.40	4.54	0.37	4.16	20.00	14.34	0.59	13.75
17.45	4.70	0.38	4.32				
17.50	4.85	0.38	4.47				
17.55	5.00	0.38	4.62				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 10-Year Rainfall=6.37"

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Stage-Area-Storage for Pond BASIN:

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
15.00	0.168	0.000	17.60	0.168	0.307
15.05	0.168	0.003	17.65	0.168	0.313
15.10	0.168	0.007	17.70	0.168	0.320
15.15	0.168	0.010	17.75	0.168	0.326
15.20	0.168	0.013	17.80	0.168	0.332
15.25	0.168	0.017	17.85	0.168	0.339
15.30	0.168	0.020	17.90	0.168	0.345
15.35	0.168	0.023	17.95	0.168	0.351
15.40	0.168	0.027	18.00	0.168	0.357
15.45	0.168	0.030	18.05	0.168	0.363
15.50	0.168	0.034	18.10	0.168	0.369
15.55	0.168	0.037	18.15	0.168	0.375
15.60	0.168	0.040	18.20	0.168	0.381
15.65	0.168	0.044	18.25	0.168	0.387
15.70	0.168	0.047	18.30	0.168	0.393
15.75	0.168	0.050	18.35	0.168	0.399
15.80	0.168	0.058	18.40	0.168	0.405
15.85	0.168	0.065	18.45	0.168	0.410
15.90	0.168	0.072	18.50	0.168	0.416
15.95	0.168	0.079	18.55	0.168	0.421
16.00	0.168	0.086	18.60	0.168	0.427
16.05	0.168	0.094	18.65	0.168	0.432
16.10	0.168	0.101	18.70	0.168	0.438
16.15	0.168	0.108	18.75	0.168	0.443
16.20	0.168	0.115	18.80	0.168	0.448
16.25	0.168	0.122	18.85	0.168	0.453
16.30	0.168	0.129	18.90	0.168	0.458
16.35	0.168	0.136	18.95	0.168	0.463
16.40	0.168	0.143	19.00	0.168	0.467
16.45	0.168	0.151	19.05	0.168	0.472
16.50	0.168	0.158	19.10	0.168	0.476
16.55	0.168	0.165	19.15	0.168	0.480
16.60	0.168	0.172	19.20	0.168	0.484
16.65	0.168	0.179	19.25	0.168	0.488
16.70	0.168	0.186	19.30	0.168	0.492
16.75	0.168	0.193	19.35	0.168	0.495
16.80	0.168	0.199	19.40	0.168	0.499
16.85	0.168	0.206	19.45	0.168	0.502
16.90	0.168	0.213	19.50	0.168	0.506
16.95	0.168	0.220	19.55	0.168	0.509
17.00	0.168	0.227	19.60	0.168	0.513
17.05	0.168	0.234	19.65	0.168	0.516
17.10	0.168	0.241	19.70	0.168	0.519
17.15	0.168	0.247	19.75	0.168	0.523
17.20	0.168	0.254	19.80	0.168	0.526
17.25	0.168	0.261	19.85	0.168	0.529
17.30	0.168	0.267	19.90	0.168	0.533
17.35	0.168	0.274	19.95	0.168	0.536
17.40	0.168	0.281	20.00	0.168	0.539
17.45	0.168	0.287			
17.50	0.168	0.294			
17.55	0.168	0.300			

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

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

SubcatchmentPR 1A-P:Runoff Area=13,167 sf 0.00% Impervious Runoff Depth=3.97"
Flow Length=203' Tc=5.9 min CN=78 Runoff=1.36 cfs 0.100 af**SubcatchmentPR 1B-I:**Runoff Area=36,906 sf 100.00% Impervious Runoff Depth=6.20"
Flow Length=136' Tc=1.5 min CN=98 Runoff=5.73 cfs 0.438 af**SubcatchmentPR 1B-P:**Runoff Area=77,195 sf 0.00% Impervious Runoff Depth=4.07"
Flow Length=195' Tc=7.7 min CN=79 Runoff=7.74 cfs 0.602 af**SubcatchmentPR 2-P:**Runoff Area=7,405 sf 0.00% Impervious Runoff Depth=3.76"
Flow Length=84' Slope=0.0833 '/' Tc=4.6 min CN=76 Runoff=0.76 cfs 0.053 af**Reach 10R:**Inflow=11.97 cfs 1.040 af
Outflow=11.97 cfs 1.040 af**Reach DP1-PR:**Inflow=5.46 cfs 0.697 af
Outflow=5.46 cfs 0.697 af**Reach DP2-PR:**Inflow=0.76 cfs 0.053 af
Outflow=0.76 cfs 0.053 af**Pond BASIN:**Peak Elev=17.61' Storage=0.308 af Inflow=11.97 cfs 1.040 af
Discarded=0.39 cfs 0.443 af Primary=4.78 cfs 0.597 af Outflow=5.17 cfs 1.040 af**Total Runoff Area = 3.092 ac Runoff Volume = 1.193 af Average Runoff Depth = 4.63"**
72.60% Pervious = 2.244 ac 27.40% Impervious = 0.847 ac

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Summary for Subcatchment PR 1A-P:

Runoff = 1.36 cfs @ 12.13 hrs, Volume= 0.100 af, Depth= 3.97"
Routed to Reach DP1-PR :

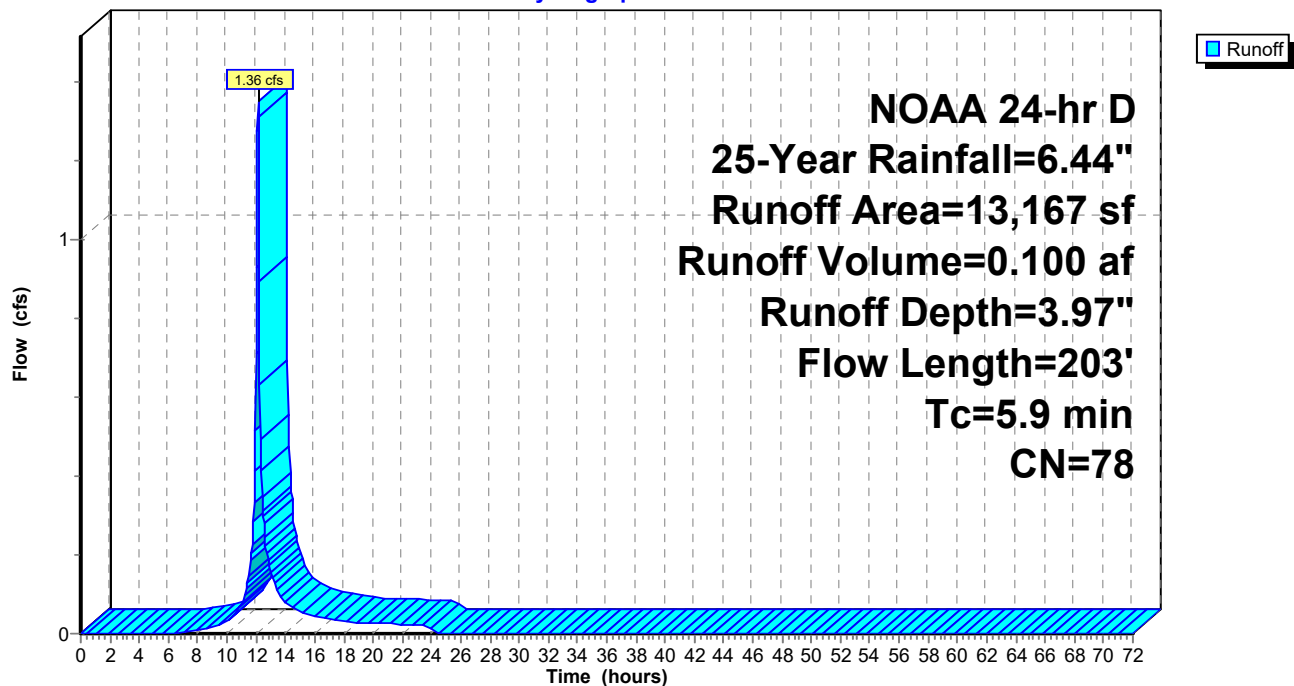
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Year Rainfall=6.44"

Area (sf)	CN	Description
9,975	74	>75% Grass cover, Good, HSG C
3,192	89	Gravel roads, HSG C
13,167	78	Weighted Average
13,167		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	100	0.0725	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.3	103	0.1090	5.32		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.9	203	Total			

Subcatchment PR 1A-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Subcatchment PR 1A-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	3.97	0.00
1.00	0.07	0.00	0.00	53.00	6.44	3.97	0.00
2.00	0.15	0.00	0.00	54.00	6.44	3.97	0.00
3.00	0.24	0.00	0.00	55.00	6.44	3.97	0.00
4.00	0.34	0.00	0.00	56.00	6.44	3.97	0.00
5.00	0.44	0.00	0.00	57.00	6.44	3.97	0.00
6.00	0.55	0.00	0.00	58.00	6.44	3.97	0.00
7.00	0.68	0.00	0.00	59.00	6.44	3.97	0.00
8.00	0.84	0.02	0.01	60.00	6.44	3.97	0.00
9.00	1.02	0.06	0.02	61.00	6.44	3.97	0.00
10.00	1.28	0.14	0.03	62.00	6.44	3.97	0.00
11.00	1.67	0.31	0.08	63.00	6.44	3.97	0.00
12.00	3.09	1.19	0.71	64.00	6.44	3.97	0.00
13.00	4.77	2.51	0.16	65.00	6.44	3.97	0.00
14.00	5.16	2.85	0.08	66.00	6.44	3.97	0.00
15.00	5.42	3.07	0.06	67.00	6.44	3.97	0.00
16.00	5.60	3.23	0.05	68.00	6.44	3.97	0.00
17.00	5.76	3.37	0.04	69.00	6.44	3.97	0.00
18.00	5.89	3.48	0.03	70.00	6.44	3.97	0.00
19.00	6.00	3.58	0.03	71.00	6.44	3.97	0.00
20.00	6.10	3.67	0.03	72.00	6.44	3.97	0.00
21.00	6.20	3.75	0.03				
22.00	6.29	3.83	0.02				
23.00	6.37	3.90	0.02				
24.00	6.44	3.97	0.02				
25.00	6.44	3.97	0.00				
26.00	6.44	3.97	0.00				
27.00	6.44	3.97	0.00				
28.00	6.44	3.97	0.00				
29.00	6.44	3.97	0.00				
30.00	6.44	3.97	0.00				
31.00	6.44	3.97	0.00				
32.00	6.44	3.97	0.00				
33.00	6.44	3.97	0.00				
34.00	6.44	3.97	0.00				
35.00	6.44	3.97	0.00				
36.00	6.44	3.97	0.00				
37.00	6.44	3.97	0.00				
38.00	6.44	3.97	0.00				
39.00	6.44	3.97	0.00				
40.00	6.44	3.97	0.00				
41.00	6.44	3.97	0.00				
42.00	6.44	3.97	0.00				
43.00	6.44	3.97	0.00				
44.00	6.44	3.97	0.00				
45.00	6.44	3.97	0.00				
46.00	6.44	3.97	0.00				
47.00	6.44	3.97	0.00				
48.00	6.44	3.97	0.00				
49.00	6.44	3.97	0.00				
50.00	6.44	3.97	0.00				
51.00	6.44	3.97	0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Summary for Subcatchment PR 1B-I:

Runoff = 5.73 cfs @ 12.07 hrs, Volume= 0.438 af, Depth= 6.20"
Routed to Reach 10R :

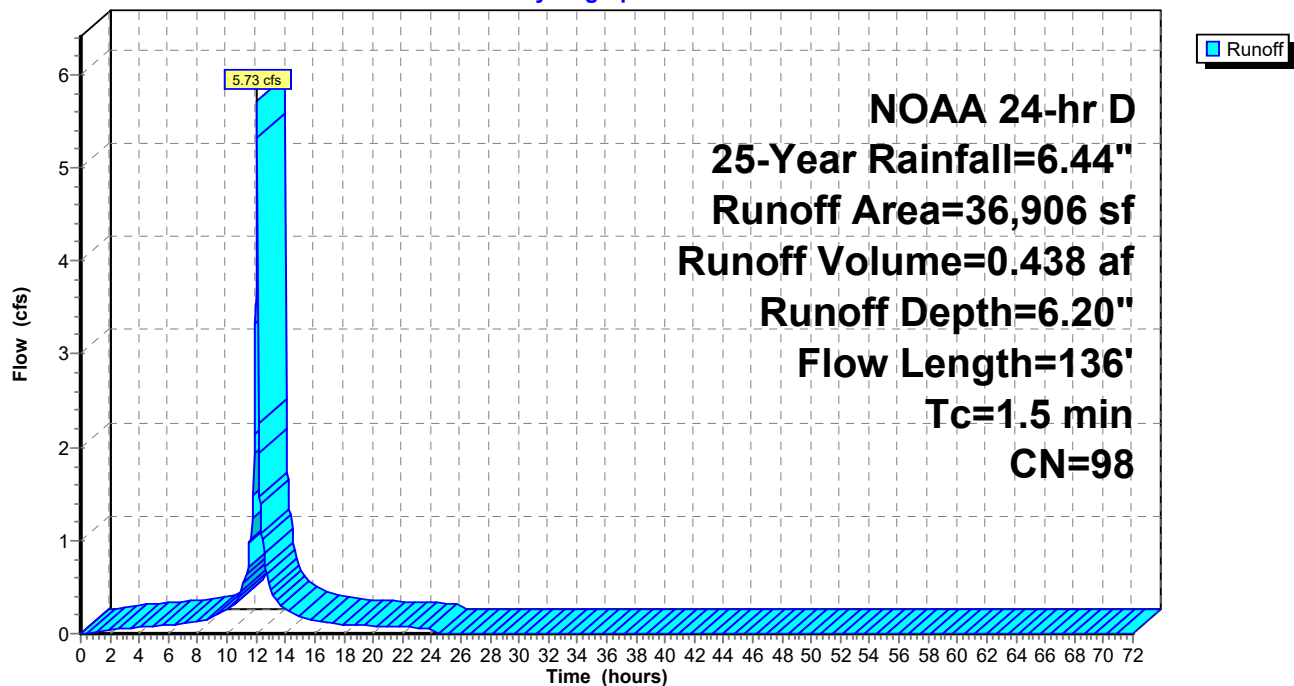
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Year Rainfall=6.44"

Area (sf)	CN	Description
21,449	98	Roofs, HSG C
15,457	98	Paved parking, HSG C
36,906	98	Weighted Average
36,906		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.44"
0.3	36	0.0097	2.00		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	136	Total			

Subcatchment PR 1B-I:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Subcatchment PR 1B-I:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	6.20	0.00
1.00	0.07	0.00	0.02	53.00	6.44	6.20	0.00
2.00	0.15	0.04	0.04	54.00	6.44	6.20	0.00
3.00	0.24	0.10	0.06	55.00	6.44	6.20	0.00
4.00	0.34	0.18	0.07	56.00	6.44	6.20	0.00
5.00	0.44	0.26	0.08	57.00	6.44	6.20	0.00
6.00	0.55	0.36	0.09	58.00	6.44	6.20	0.00
7.00	0.68	0.48	0.11	59.00	6.44	6.20	0.00
8.00	0.84	0.63	0.14	60.00	6.44	6.20	0.00
9.00	1.02	0.81	0.17	61.00	6.44	6.20	0.00
10.00	1.28	1.06	0.25	62.00	6.44	6.20	0.00
11.00	1.67	1.45	0.46	63.00	6.44	6.20	0.00
12.00	3.09	2.85	3.67	64.00	6.44	6.20	0.00
13.00	4.77	4.53	0.51	65.00	6.44	6.20	0.00
14.00	5.16	4.93	0.26	66.00	6.44	6.20	0.00
15.00	5.42	5.18	0.18	67.00	6.44	6.20	0.00
16.00	5.60	5.37	0.15	68.00	6.44	6.20	0.00
17.00	5.76	5.52	0.12	69.00	6.44	6.20	0.00
18.00	5.89	5.65	0.10	70.00	6.44	6.20	0.00
19.00	6.00	5.76	0.09	71.00	6.44	6.20	0.00
20.00	6.10	5.86	0.08	72.00	6.44	6.20	0.00
21.00	6.20	5.96	0.08				
22.00	6.29	6.05	0.07				
23.00	6.37	6.13	0.07				
24.00	6.44	6.20	0.05				
25.00	6.44	6.20	0.00				
26.00	6.44	6.20	0.00				
27.00	6.44	6.20	0.00				
28.00	6.44	6.20	0.00				
29.00	6.44	6.20	0.00				
30.00	6.44	6.20	0.00				
31.00	6.44	6.20	0.00				
32.00	6.44	6.20	0.00				
33.00	6.44	6.20	0.00				
34.00	6.44	6.20	0.00				
35.00	6.44	6.20	0.00				
36.00	6.44	6.20	0.00				
37.00	6.44	6.20	0.00				
38.00	6.44	6.20	0.00				
39.00	6.44	6.20	0.00				
40.00	6.44	6.20	0.00				
41.00	6.44	6.20	0.00				
42.00	6.44	6.20	0.00				
43.00	6.44	6.20	0.00				
44.00	6.44	6.20	0.00				
45.00	6.44	6.20	0.00				
46.00	6.44	6.20	0.00				
47.00	6.44	6.20	0.00				
48.00	6.44	6.20	0.00				
49.00	6.44	6.20	0.00				
50.00	6.44	6.20	0.00				
51.00	6.44	6.20	0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Summary for Subcatchment PR 1B-P:

Runoff = 7.74 cfs @ 12.15 hrs, Volume= 0.602 af, Depth= 4.07"
Routed to Reach 10R :

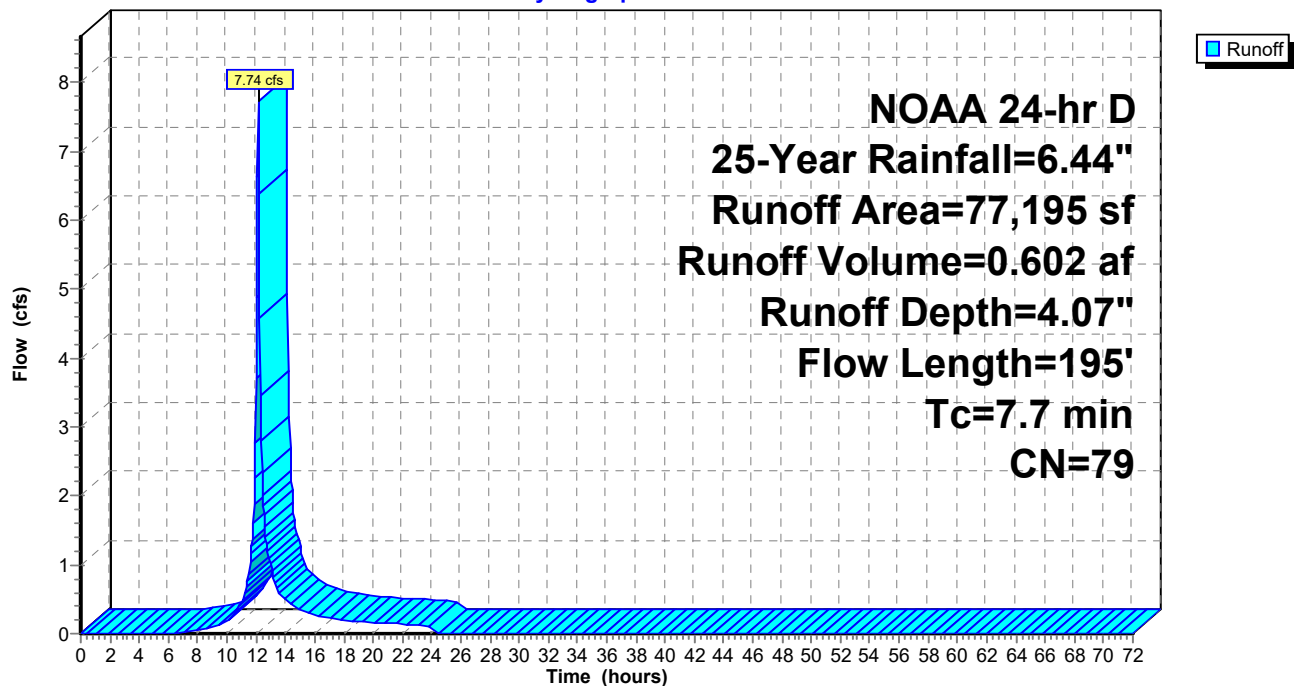
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Year Rainfall=6.44"

Area (sf)	CN	Description
50,619	74	>75% Grass cover, Good, HSG C
26,576	89	Gravel roads, HSG C
77,195	79	Weighted Average
77,195		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.5	95	0.0361	3.06		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	195	Total			

Subcatchment PR 1B-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Subcatchment PR 1B-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	4.07	0.00
1.00	0.07	0.00	0.00	53.00	6.44	4.07	0.00
2.00	0.15	0.00	0.00	54.00	6.44	4.07	0.00
3.00	0.24	0.00	0.00	55.00	6.44	4.07	0.00
4.00	0.34	0.00	0.00	56.00	6.44	4.07	0.00
5.00	0.44	0.00	0.00	57.00	6.44	4.07	0.00
6.00	0.55	0.00	0.00	58.00	6.44	4.07	0.00
7.00	0.68	0.01	0.02	59.00	6.44	4.07	0.00
8.00	0.84	0.03	0.06	60.00	6.44	4.07	0.00
9.00	1.02	0.08	0.10	61.00	6.44	4.07	0.00
10.00	1.28	0.16	0.20	62.00	6.44	4.07	0.00
11.00	1.67	0.34	0.45	63.00	6.44	4.07	0.00
12.00	3.09	1.25	3.72	64.00	6.44	4.07	0.00
13.00	4.77	2.60	0.98	65.00	6.44	4.07	0.00
14.00	5.16	2.94	0.49	66.00	6.44	4.07	0.00
15.00	5.42	3.16	0.34	67.00	6.44	4.07	0.00
16.00	5.60	3.33	0.28	68.00	6.44	4.07	0.00
17.00	5.76	3.47	0.23	69.00	6.44	4.07	0.00
18.00	5.89	3.58	0.19	70.00	6.44	4.07	0.00
19.00	6.00	3.68	0.17	71.00	6.44	4.07	0.00
20.00	6.10	3.77	0.16	72.00	6.44	4.07	0.00
21.00	6.20	3.86	0.15				
22.00	6.29	3.94	0.14				
23.00	6.37	4.01	0.13				
24.00	6.44	4.07	0.11				
25.00	6.44	4.07	0.00				
26.00	6.44	4.07	0.00				
27.00	6.44	4.07	0.00				
28.00	6.44	4.07	0.00				
29.00	6.44	4.07	0.00				
30.00	6.44	4.07	0.00				
31.00	6.44	4.07	0.00				
32.00	6.44	4.07	0.00				
33.00	6.44	4.07	0.00				
34.00	6.44	4.07	0.00				
35.00	6.44	4.07	0.00				
36.00	6.44	4.07	0.00				
37.00	6.44	4.07	0.00				
38.00	6.44	4.07	0.00				
39.00	6.44	4.07	0.00				
40.00	6.44	4.07	0.00				
41.00	6.44	4.07	0.00				
42.00	6.44	4.07	0.00				
43.00	6.44	4.07	0.00				
44.00	6.44	4.07	0.00				
45.00	6.44	4.07	0.00				
46.00	6.44	4.07	0.00				
47.00	6.44	4.07	0.00				
48.00	6.44	4.07	0.00				
49.00	6.44	4.07	0.00				
50.00	6.44	4.07	0.00				
51.00	6.44	4.07	0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Summary for Subcatchment PR 2-P:

Runoff = 0.76 cfs @ 12.11 hrs, Volume= 0.053 af, Depth= 3.76"
Routed to Reach DP2-PR :

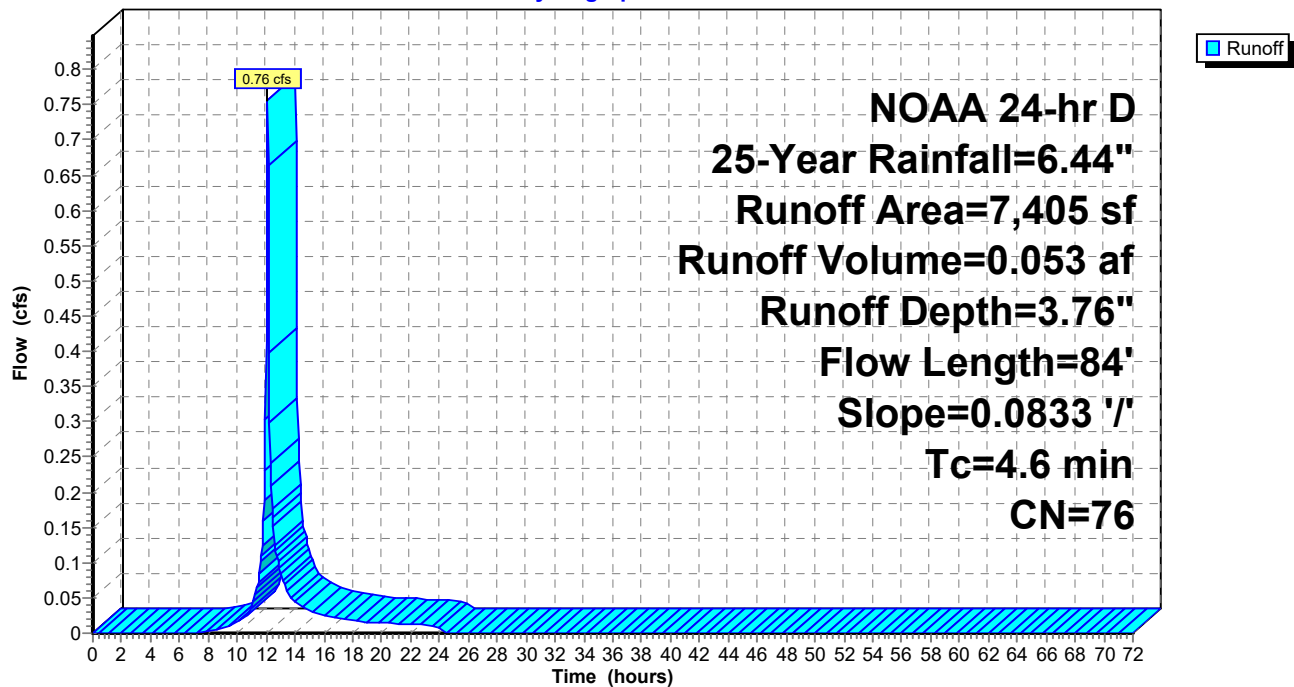
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Year Rainfall=6.44"

Area (sf)	CN	Description
6,447	74	>75% Grass cover, Good, HSG C
958	89	Gravel roads, HSG C
7,405	76	Weighted Average
7,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	84	0.0833	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"

Subcatchment PR 2-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Subcatchment PR 2-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	3.76	0.00
1.00	0.07	0.00	0.00	53.00	6.44	3.76	0.00
2.00	0.15	0.00	0.00	54.00	6.44	3.76	0.00
3.00	0.24	0.00	0.00	55.00	6.44	3.76	0.00
4.00	0.34	0.00	0.00	56.00	6.44	3.76	0.00
5.00	0.44	0.00	0.00	57.00	6.44	3.76	0.00
6.00	0.55	0.00	0.00	58.00	6.44	3.76	0.00
7.00	0.68	0.00	0.00	59.00	6.44	3.76	0.00
8.00	0.84	0.01	0.00	60.00	6.44	3.76	0.00
9.00	1.02	0.04	0.01	61.00	6.44	3.76	0.00
10.00	1.28	0.11	0.02	62.00	6.44	3.76	0.00
11.00	1.67	0.26	0.04	63.00	6.44	3.76	0.00
12.00	3.09	1.07	0.42	64.00	6.44	3.76	0.00
13.00	4.77	2.34	0.09	65.00	6.44	3.76	0.00
14.00	5.16	2.67	0.04	66.00	6.44	3.76	0.00
15.00	5.42	2.88	0.03	67.00	6.44	3.76	0.00
16.00	5.60	3.04	0.03	68.00	6.44	3.76	0.00
17.00	5.76	3.18	0.02	69.00	6.44	3.76	0.00
18.00	5.89	3.29	0.02	70.00	6.44	3.76	0.00
19.00	6.00	3.38	0.02	71.00	6.44	3.76	0.00
20.00	6.10	3.47	0.01	72.00	6.44	3.76	0.00
21.00	6.20	3.55	0.01				
22.00	6.29	3.63	0.01				
23.00	6.37	3.70	0.01				
24.00	6.44	3.76	0.01				
25.00	6.44	3.76	0.00				
26.00	6.44	3.76	0.00				
27.00	6.44	3.76	0.00				
28.00	6.44	3.76	0.00				
29.00	6.44	3.76	0.00				
30.00	6.44	3.76	0.00				
31.00	6.44	3.76	0.00				
32.00	6.44	3.76	0.00				
33.00	6.44	3.76	0.00				
34.00	6.44	3.76	0.00				
35.00	6.44	3.76	0.00				
36.00	6.44	3.76	0.00				
37.00	6.44	3.76	0.00				
38.00	6.44	3.76	0.00				
39.00	6.44	3.76	0.00				
40.00	6.44	3.76	0.00				
41.00	6.44	3.76	0.00				
42.00	6.44	3.76	0.00				
43.00	6.44	3.76	0.00				
44.00	6.44	3.76	0.00				
45.00	6.44	3.76	0.00				
46.00	6.44	3.76	0.00				
47.00	6.44	3.76	0.00				
48.00	6.44	3.76	0.00				
49.00	6.44	3.76	0.00				
50.00	6.44	3.76	0.00				
51.00	6.44	3.76	0.00				

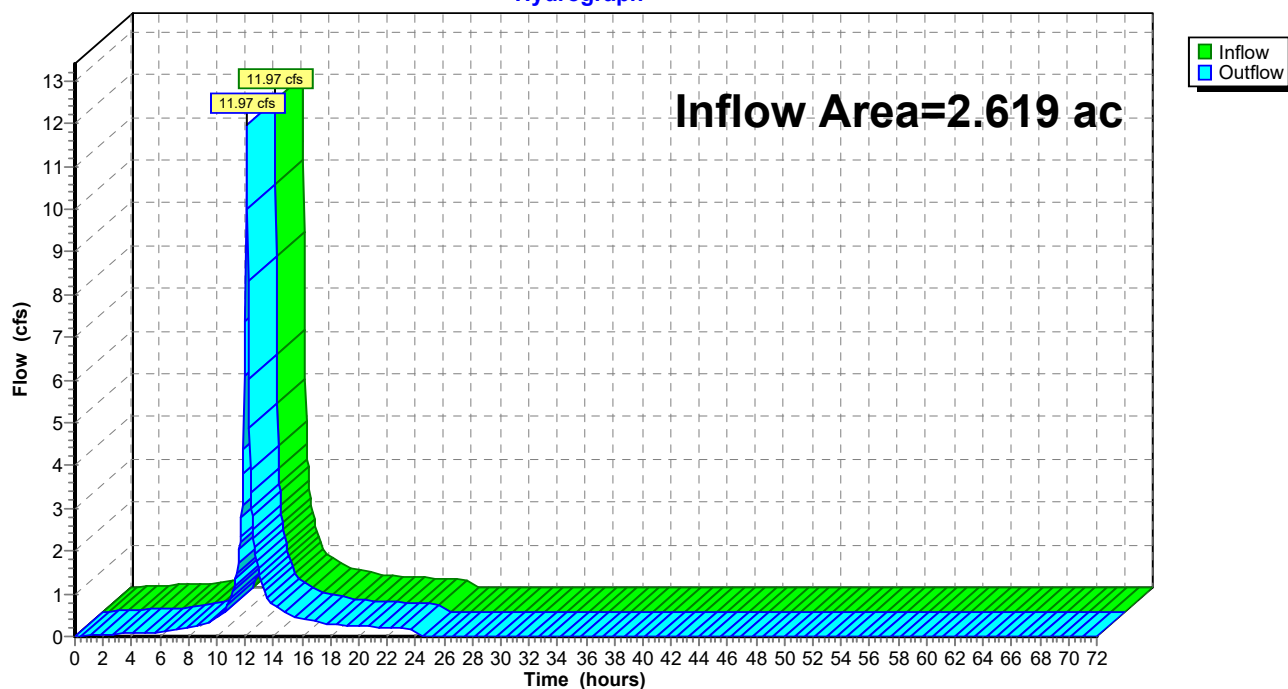
Summary for Reach 10R:

Inflow Area = 2.619 ac, 32.35% Impervious, Inflow Depth = 4.76" for 25-Year event
Inflow = 11.97 cfs @ 12.10 hrs, Volume= 1.040 af
Outflow = 11.97 cfs @ 12.10 hrs, Volume= 1.040 af, Atten= 0%, Lag= 0.0 min
Routed to Pond BASIN :

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach 10R:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Reach 10R:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.02		0.02	53.00	0.00		0.00
2.00	0.04		0.04	54.00	0.00		0.00
3.00	0.06		0.06	55.00	0.00		0.00
4.00	0.07		0.07	56.00	0.00		0.00
5.00	0.08		0.08	57.00	0.00		0.00
6.00	0.09		0.09	58.00	0.00		0.00
7.00	0.14		0.14	59.00	0.00		0.00
8.00	0.20		0.20	60.00	0.00		0.00
9.00	0.26		0.26	61.00	0.00		0.00
10.00	0.45		0.45	62.00	0.00		0.00
11.00	0.91		0.91	63.00	0.00		0.00
12.00	7.39		7.39	64.00	0.00		0.00
13.00	1.49		1.49	65.00	0.00		0.00
14.00	0.76		0.76	66.00	0.00		0.00
15.00	0.52		0.52	67.00	0.00		0.00
16.00	0.42		0.42	68.00	0.00		0.00
17.00	0.35		0.35	69.00	0.00		0.00
18.00	0.29		0.29	70.00	0.00		0.00
19.00	0.26		0.26	71.00	0.00		0.00
20.00	0.24		0.24	72.00	0.00		0.00
21.00	0.23		0.23				
22.00	0.21		0.21				
23.00	0.19		0.19				
24.00	0.17		0.17				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

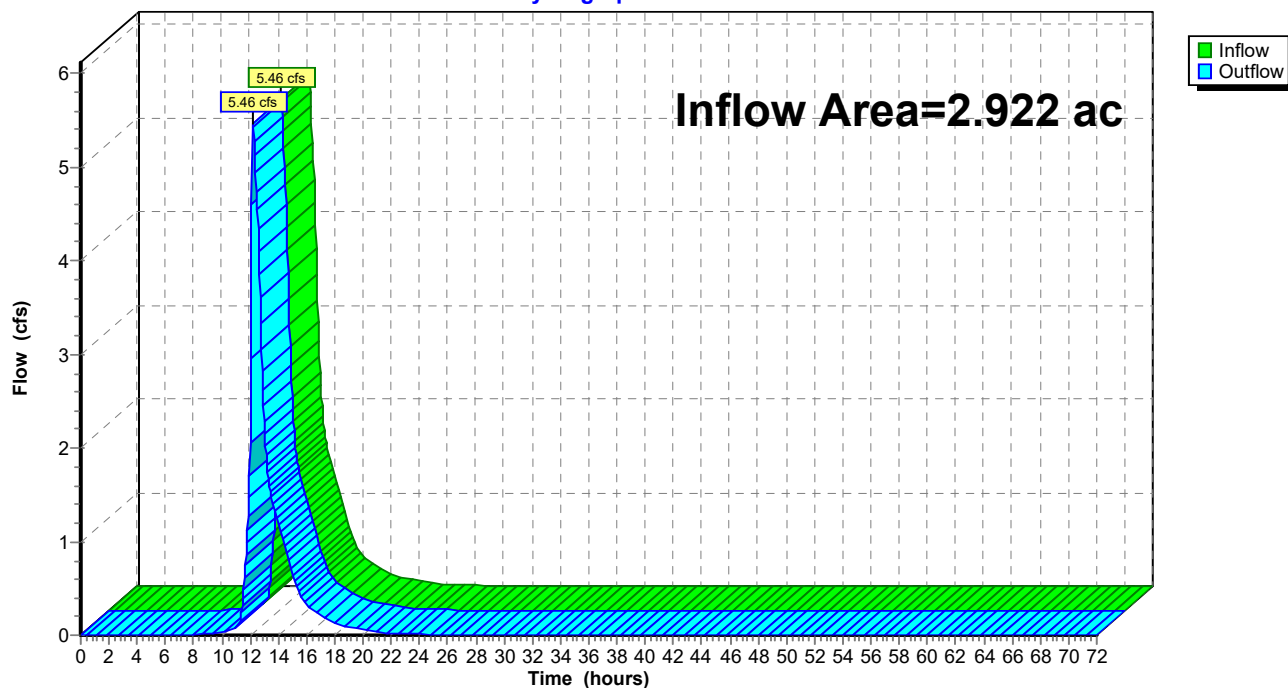
Summary for Reach DP1-PR:

Inflow Area = 2.922 ac, 29.00% Impervious, Inflow Depth = 2.86" for 25-Year event
Inflow = 5.46 cfs @ 12.18 hrs, Volume= 0.697 af
Outflow = 5.46 cfs @ 12.18 hrs, Volume= 0.697 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP1-PR:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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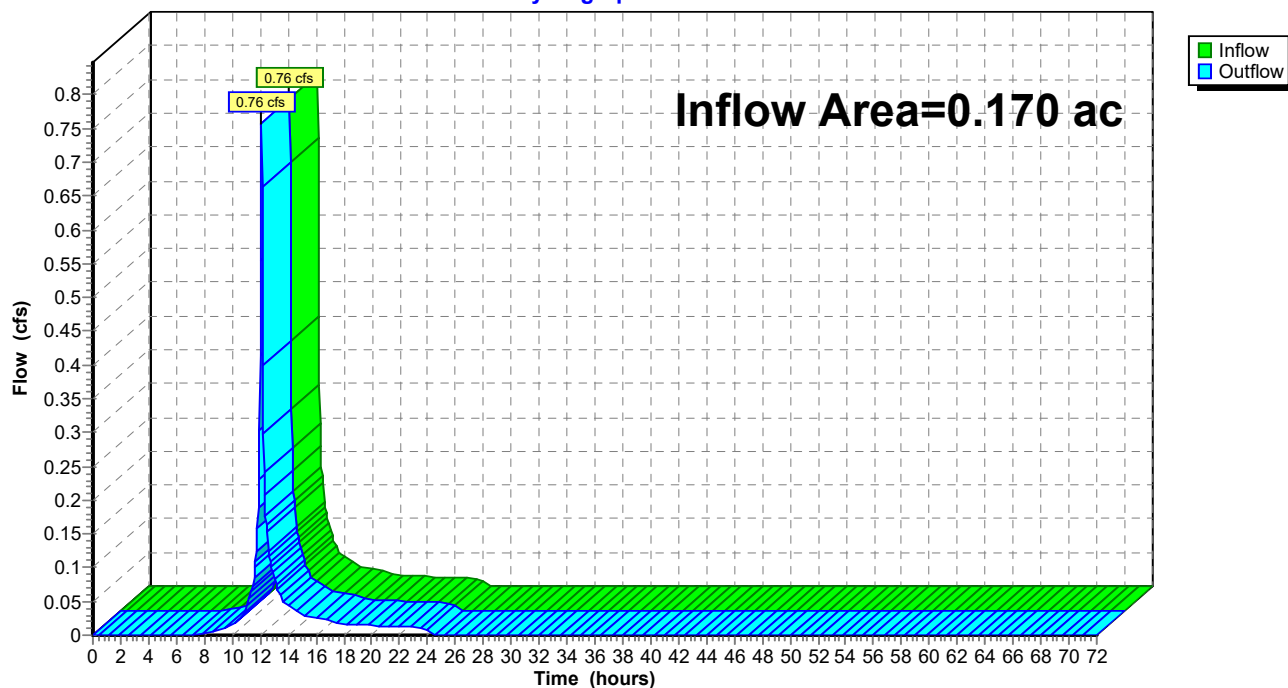
Hydrograph for Reach DP1-PR:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.01		0.01	60.00	0.00		0.00
9.00	0.02		0.02	61.00	0.00		0.00
10.00	0.03		0.03	62.00	0.00		0.00
11.00	0.08		0.08	63.00	0.00		0.00
12.00	2.07		2.07	64.00	0.00		0.00
13.00	2.29		2.29	65.00	0.00		0.00
14.00	1.20		1.20	66.00	0.00		0.00
15.00	0.69		0.69	67.00	0.00		0.00
16.00	0.33		0.33	68.00	0.00		0.00
17.00	0.21		0.21	69.00	0.00		0.00
18.00	0.13		0.13	70.00	0.00		0.00
19.00	0.08		0.08	71.00	0.00		0.00
20.00	0.06		0.06	72.00	0.00		0.00
21.00	0.04		0.04				
22.00	0.02		0.02				
23.00	0.02		0.02				
24.00	0.02		0.02				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Reach DP2-PR:

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 3.76" for 25-Year event
Inflow = 0.76 cfs @ 12.11 hrs, Volume= 0.053 af
Outflow = 0.76 cfs @ 12.11 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP2-PR:**Hydrograph**

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NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Reach DP2-PR:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.01		0.01	61.00	0.00		0.00
10.00	0.02		0.02	62.00	0.00		0.00
11.00	0.04		0.04	63.00	0.00		0.00
12.00	0.42		0.42	64.00	0.00		0.00
13.00	0.09		0.09	65.00	0.00		0.00
14.00	0.04		0.04	66.00	0.00		0.00
15.00	0.03		0.03	67.00	0.00		0.00
16.00	0.03		0.03	68.00	0.00		0.00
17.00	0.02		0.02	69.00	0.00		0.00
18.00	0.02		0.02	70.00	0.00		0.00
19.00	0.02		0.02	71.00	0.00		0.00
20.00	0.01		0.01	72.00	0.00		0.00
21.00	0.01		0.01				
22.00	0.01		0.01				
23.00	0.01		0.01				
24.00	0.01		0.01				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Summary for Pond BASIN:

Inflow Area = 2.619 ac, 32.35% Impervious, Inflow Depth = 4.76" for 25-Year event
 Inflow = 11.97 cfs @ 12.10 hrs, Volume= 1.040 af
 Outflow = 5.17 cfs @ 12.29 hrs, Volume= 1.040 af, Atten= 57%, Lag= 11.5 min
 Discarded = 0.39 cfs @ 12.29 hrs, Volume= 0.443 af
 Primary = 4.78 cfs @ 12.29 hrs, Volume= 0.597 af
 Routed to Reach DP1-PR :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 17.61' @ 12.29 hrs Surf.Area= 0.168 ac Storage= 0.308 af

Plug-Flow detention time= 91.4 min calculated for 1.039 af (100% of inflow)
 Center-of-Mass det. time= 91.6 min (880.3 - 788.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.00'	0.199 af	51.42'W x 141.93'L x 5.00'H Field A 0.838 af Overall - 0.341 af Embedded = 0.497 af x 40.0% Voids
#2A	15.75'	0.341 af	ADS_StormTech MC-3500 d +Capx 133 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 133 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		0.539 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	15.89'	14.0" W x 3.5" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	16.73'	20.0" W x 5.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	18.75'	1.0' 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
#4	Discarded	15.00'	1.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.39 cfs @ 12.29 hrs HW=17.61' (Free Discharge)↑ **4=Exfiltration** (Controls 0.39 cfs)**Primary OutFlow** Max=4.77 cfs @ 12.29 hrs HW=17.61' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 2.05 cfs @ 6.03 fps)
 ↓ **2=Orifice/Grate** (Orifice Controls 2.72 cfs @ 3.92 fps)
 ↓ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond BASIN: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

19 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 139.93' Row Length +12.0" End Stone x 2 = 141.93' Base Length

7 Rows x 77.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 51.42' Base Width

9.0" Stone Base + 45.0" Chamber Height + 6.0" Stone Cover = 5.00' Field Height

133 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 7 Rows = 14,832.2 cf Chamber Storage

36,487.8 cf Field - 14,832.2 cf Chambers = 21,655.6 cf Stone x 40.0% Voids = 8,662.3 cf Stone Storage

Chamber Storage + Stone Storage = 23,494.5 cf = 0.539 af

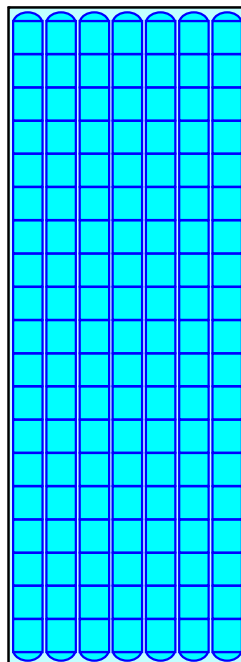
Overall Storage Efficiency = 64.4%

Overall System Size = 141.93' x 51.42' x 5.00'

133 Chambers

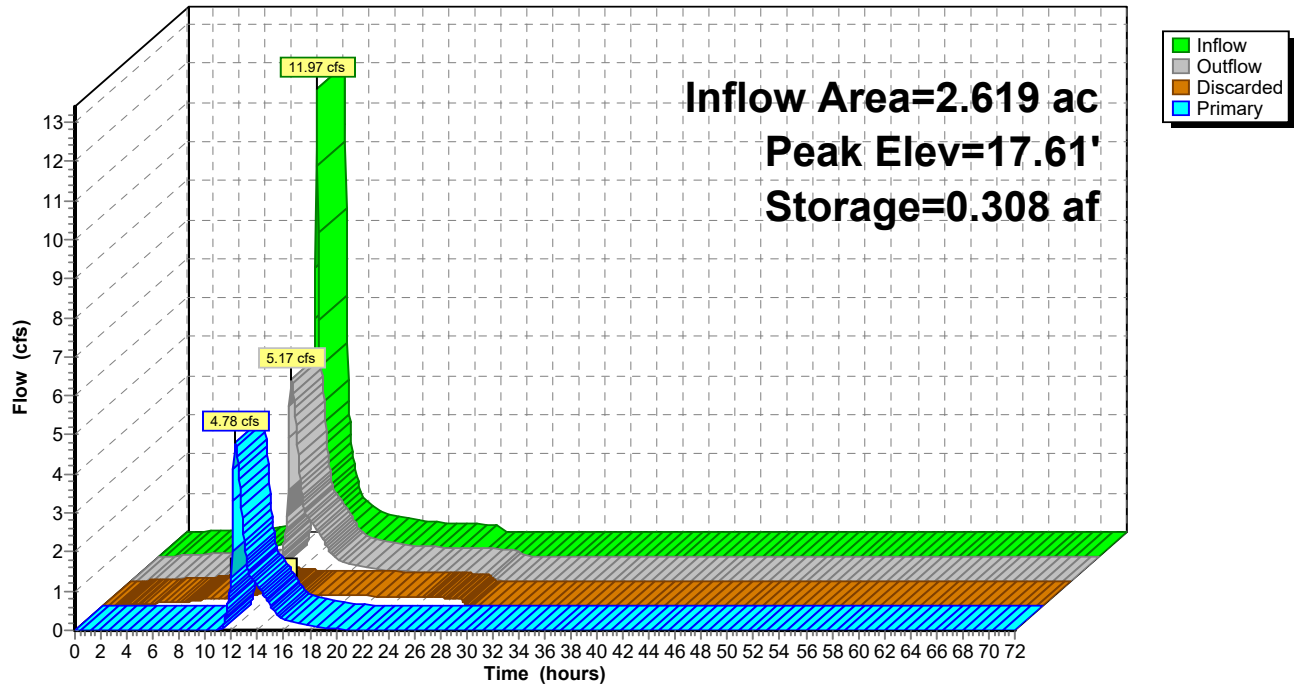
1,351.4 cy Field

802.1 cy Stone



Pond BASIN:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Pond BASIN:

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	15.00	0.00	0.00	0.00
2.50	0.05	0.001	15.01	0.05	0.05	0.00
5.00	0.08	0.002	15.02	0.08	0.08	0.00
7.50	0.16	0.003	15.04	0.15	0.15	0.00
10.00	0.45	0.022	15.32	0.20	0.20	0.00
12.50	2.82	0.284	17.43	4.63	0.37	4.25
15.00	0.52	0.115	16.20	0.90	0.27	0.63
17.50	0.32	0.086	16.00	0.39	0.25	0.13
20.00	0.24	0.076	15.93	0.28	0.25	0.03
22.50	0.20	0.069	15.88	0.24	0.24	0.00
25.00	0.00	0.044	15.66	0.22	0.22	0.00
27.50	0.00	0.004	15.05	0.17	0.17	0.00
30.00	0.00	0.000	15.00	0.00	0.00	0.00
32.50	0.00	0.000	15.00	0.00	0.00	0.00
35.00	0.00	0.000	15.00	0.00	0.00	0.00
37.50	0.00	0.000	15.00	0.00	0.00	0.00
40.00	0.00	0.000	15.00	0.00	0.00	0.00
42.50	0.00	0.000	15.00	0.00	0.00	0.00
45.00	0.00	0.000	15.00	0.00	0.00	0.00
47.50	0.00	0.000	15.00	0.00	0.00	0.00
50.00	0.00	0.000	15.00	0.00	0.00	0.00
52.50	0.00	0.000	15.00	0.00	0.00	0.00
55.00	0.00	0.000	15.00	0.00	0.00	0.00
57.50	0.00	0.000	15.00	0.00	0.00	0.00
60.00	0.00	0.000	15.00	0.00	0.00	0.00
62.50	0.00	0.000	15.00	0.00	0.00	0.00
65.00	0.00	0.000	15.00	0.00	0.00	0.00
67.50	0.00	0.000	15.00	0.00	0.00	0.00
70.00	0.00	0.000	15.00	0.00	0.00	0.00

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Stage-Discharge for Pond BASIN:

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
15.00	0.00	0.00	0.00	17.60	5.15	0.39	4.76
15.05	0.17	0.17	0.00	17.65	5.28	0.39	4.89
15.10	0.18	0.18	0.00	17.70	5.42	0.40	5.02
15.15	0.18	0.18	0.00	17.75	5.55	0.40	5.15
15.20	0.19	0.19	0.00	17.80	5.68	0.41	5.27
15.25	0.19	0.19	0.00	17.85	5.80	0.41	5.39
15.30	0.19	0.19	0.00	17.90	5.92	0.41	5.51
15.35	0.20	0.20	0.00	17.95	6.04	0.42	5.62
15.40	0.20	0.20	0.00	18.00	6.16	0.42	5.74
15.45	0.21	0.21	0.00	18.05	6.27	0.43	5.85
15.50	0.21	0.21	0.00	18.10	6.38	0.43	5.95
15.55	0.22	0.22	0.00	18.15	6.49	0.43	6.06
15.60	0.22	0.22	0.00	18.20	6.60	0.44	6.16
15.65	0.22	0.22	0.00	18.25	6.71	0.44	6.26
15.70	0.23	0.23	0.00	18.30	6.81	0.45	6.36
15.75	0.23	0.23	0.00	18.35	6.91	0.45	6.46
15.80	0.24	0.24	0.00	18.40	7.01	0.46	6.56
15.85	0.24	0.24	0.00	18.45	7.11	0.46	6.65
15.90	0.25	0.24	0.00	18.50	7.21	0.46	6.75
15.95	0.30	0.25	0.06	18.55	7.31	0.47	6.84
16.00	0.39	0.25	0.14	18.60	7.40	0.47	6.93
16.05	0.50	0.26	0.24	18.65	7.50	0.48	7.02
16.10	0.62	0.26	0.36	18.70	7.59	0.48	7.11
16.15	0.76	0.27	0.50	18.75	7.68	0.49	7.20
16.20	0.91	0.27	0.64	18.80	7.80	0.49	7.31
16.25	1.02	0.27	0.74	18.85	7.95	0.49	7.46
16.30	1.11	0.28	0.83	18.90	8.11	0.50	7.62
16.35	1.19	0.28	0.91	18.95	8.29	0.50	7.79
16.40	1.27	0.29	0.98	19.00	8.48	0.51	7.97
16.45	1.34	0.29	1.05	19.05	8.68	0.51	8.17
16.50	1.41	0.30	1.11	19.10	8.90	0.52	8.38
16.55	1.47	0.30	1.17	19.15	9.12	0.52	8.60
16.60	1.53	0.30	1.23	19.20	9.36	0.52	8.83
16.65	1.59	0.31	1.28	19.25	9.61	0.53	9.08
16.70	1.65	0.31	1.33	19.30	9.87	0.53	9.34
16.75	1.71	0.32	1.40	19.35	10.14	0.54	9.60
16.80	1.85	0.32	1.53	19.40	10.43	0.54	9.89
16.85	2.02	0.33	1.70	19.45	10.74	0.54	10.19
16.90	2.23	0.33	1.90	19.50	11.06	0.55	10.51
16.95	2.45	0.33	2.12	19.55	11.39	0.55	10.83
17.00	2.70	0.34	2.36	19.60	11.69	0.56	11.14
17.05	2.96	0.34	2.62	19.65	12.01	0.56	11.45
17.10	3.24	0.35	2.89	19.70	12.33	0.57	11.76
17.15	3.53	0.35	3.18	19.75	12.65	0.57	12.08
17.20	3.78	0.35	3.42	19.80	12.98	0.57	12.41
17.25	3.99	0.36	3.63	19.85	13.31	0.58	12.73
17.30	4.19	0.36	3.82	19.90	13.65	0.58	13.07
17.35	4.37	0.37	4.00	19.95	13.99	0.59	13.41
17.40	4.54	0.37	4.16	20.00	14.34	0.59	13.75
17.45	4.70	0.38	4.32				
17.50	4.85	0.38	4.47				
17.55	5.00	0.38	4.62				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Stage-Area-Storage for Pond BASIN:

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
15.00	0.168	0.000	17.60	0.168	0.307
15.05	0.168	0.003	17.65	0.168	0.313
15.10	0.168	0.007	17.70	0.168	0.320
15.15	0.168	0.010	17.75	0.168	0.326
15.20	0.168	0.013	17.80	0.168	0.332
15.25	0.168	0.017	17.85	0.168	0.339
15.30	0.168	0.020	17.90	0.168	0.345
15.35	0.168	0.023	17.95	0.168	0.351
15.40	0.168	0.027	18.00	0.168	0.357
15.45	0.168	0.030	18.05	0.168	0.363
15.50	0.168	0.034	18.10	0.168	0.369
15.55	0.168	0.037	18.15	0.168	0.375
15.60	0.168	0.040	18.20	0.168	0.381
15.65	0.168	0.044	18.25	0.168	0.387
15.70	0.168	0.047	18.30	0.168	0.393
15.75	0.168	0.050	18.35	0.168	0.399
15.80	0.168	0.058	18.40	0.168	0.405
15.85	0.168	0.065	18.45	0.168	0.410
15.90	0.168	0.072	18.50	0.168	0.416
15.95	0.168	0.079	18.55	0.168	0.421
16.00	0.168	0.086	18.60	0.168	0.427
16.05	0.168	0.094	18.65	0.168	0.432
16.10	0.168	0.101	18.70	0.168	0.438
16.15	0.168	0.108	18.75	0.168	0.443
16.20	0.168	0.115	18.80	0.168	0.448
16.25	0.168	0.122	18.85	0.168	0.453
16.30	0.168	0.129	18.90	0.168	0.458
16.35	0.168	0.136	18.95	0.168	0.463
16.40	0.168	0.143	19.00	0.168	0.467
16.45	0.168	0.151	19.05	0.168	0.472
16.50	0.168	0.158	19.10	0.168	0.476
16.55	0.168	0.165	19.15	0.168	0.480
16.60	0.168	0.172	19.20	0.168	0.484
16.65	0.168	0.179	19.25	0.168	0.488
16.70	0.168	0.186	19.30	0.168	0.492
16.75	0.168	0.193	19.35	0.168	0.495
16.80	0.168	0.199	19.40	0.168	0.499
16.85	0.168	0.206	19.45	0.168	0.502
16.90	0.168	0.213	19.50	0.168	0.506
16.95	0.168	0.220	19.55	0.168	0.509
17.00	0.168	0.227	19.60	0.168	0.513
17.05	0.168	0.234	19.65	0.168	0.516
17.10	0.168	0.241	19.70	0.168	0.519
17.15	0.168	0.247	19.75	0.168	0.523
17.20	0.168	0.254	19.80	0.168	0.526
17.25	0.168	0.261	19.85	0.168	0.529
17.30	0.168	0.267	19.90	0.168	0.533
17.35	0.168	0.274	19.95	0.168	0.536
17.40	0.168	0.281	20.00	0.168	0.539
17.45	0.168	0.287			
17.50	0.168	0.294			
17.55	0.168	0.300			

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPR 1A-P: Runoff Area=13,167 sf 0.00% Impervious Runoff Depth=8.71"
Flow Length=203' Tc=5.9 min CN=78 Runoff=2.86 cfs 0.219 af

SubcatchmentPR 1B-I: Runoff Area=36,906 sf 100.00% Impervious Runoff Depth=11.28"
Flow Length=136' Tc=1.5 min CN=98 Runoff=10.27 cfs 0.796 af

SubcatchmentPR 1B-P: Runoff Area=77,195 sf 0.00% Impervious Runoff Depth=8.85"
Flow Length=195' Tc=7.7 min CN=79 Runoff=16.19 cfs 1.307 af

SubcatchmentPR 2-P: Runoff Area=7,405 sf 0.00% Impervious Runoff Depth=8.44"
Flow Length=84' Slope=0.0833 '/' Tc=4.6 min CN=76 Runoff=1.64 cfs 0.120 af

Reach 10R: Inflow=23.63 cfs 2.103 af
Outflow=23.63 cfs 2.103 af

Reach DP1-PR: Inflow=14.42 cfs 1.772 af
Outflow=14.42 cfs 1.772 af

Reach DP2-PR: Inflow=1.64 cfs 0.120 af
Outflow=1.64 cfs 0.120 af

Pond BASIN: Peak Elev=19.87' Storage=0.531 af Inflow=23.63 cfs 2.103 af
Discarded=0.58 cfs 0.550 af Primary=12.86 cfs 1.553 af Outflow=13.44 cfs 2.103 af

Total Runoff Area = 3.092 ac Runoff Volume = 2.442 af Average Runoff Depth = 9.48"
72.60% Pervious = 2.244 ac 27.40% Impervious = 0.847 ac

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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Summary for Subcatchment PR 1A-P:

Runoff = 2.86 cfs @ 12.13 hrs, Volume= 0.219 af, Depth= 8.71"
Routed to Reach DP1-PR :

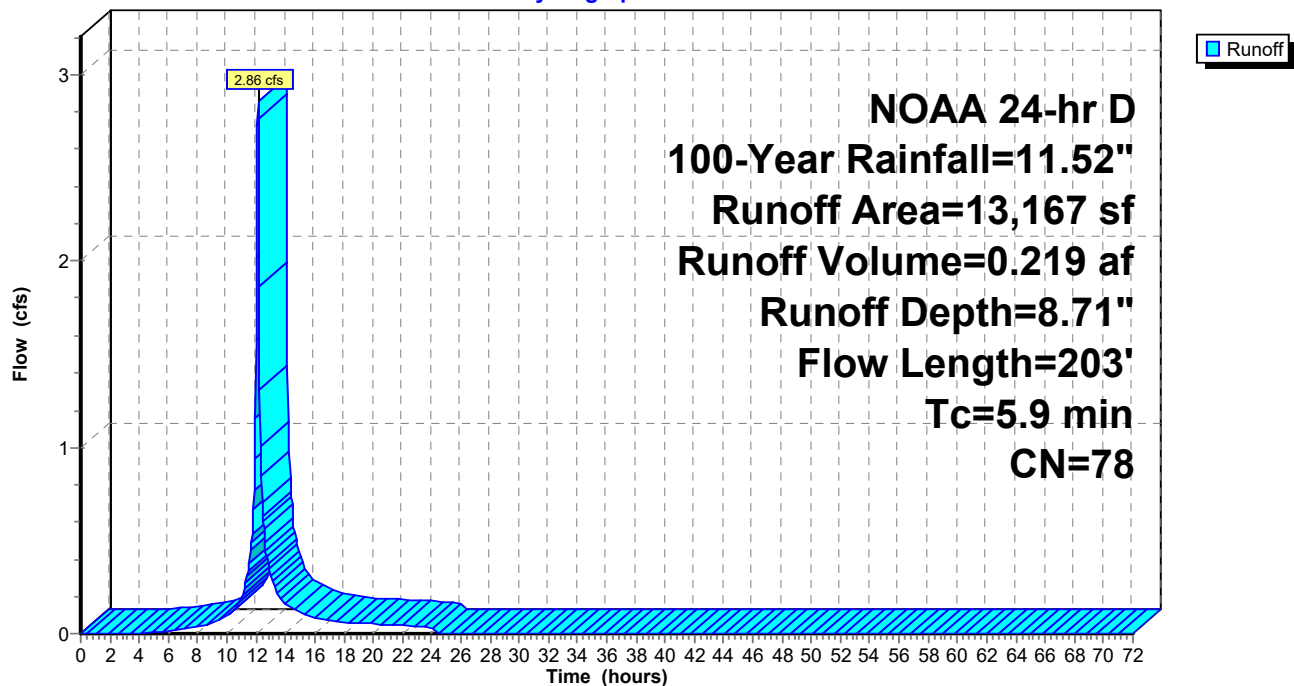
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=11.52"

Area (sf)	CN	Description
9,975	74	>75% Grass cover, Good, HSG C
3,192	89	Gravel roads, HSG C
13,167	78	Weighted Average
13,167		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	100	0.0725	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.3	103	0.1090	5.32		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.9	203	Total			

Subcatchment PR 1A-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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Hydrograph for Subcatchment PR 1A-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	11.52	8.71	0.00
1.00	0.13	0.00	0.00	53.00	11.52	8.71	0.00
2.00	0.28	0.00	0.00	54.00	11.52	8.71	0.00
3.00	0.43	0.00	0.00	55.00	11.52	8.71	0.00
4.00	0.60	0.00	0.00	56.00	11.52	8.71	0.00
5.00	0.79	0.02	0.01	57.00	11.52	8.71	0.00
6.00	0.98	0.05	0.01	58.00	11.52	8.71	0.00
7.00	1.21	0.12	0.03	59.00	11.52	8.71	0.00
8.00	1.49	0.23	0.04	60.00	11.52	8.71	0.00
9.00	1.83	0.39	0.06	61.00	11.52	8.71	0.00
10.00	2.28	0.65	0.10	62.00	11.52	8.71	0.00
11.00	2.99	1.13	0.20	63.00	11.52	8.71	0.00
12.00	5.52	3.16	1.58	64.00	11.52	8.71	0.00
13.00	8.53	5.88	0.32	65.00	11.52	8.71	0.00
14.00	9.24	6.54	0.16	66.00	11.52	8.71	0.00
15.00	9.69	6.97	0.11	67.00	11.52	8.71	0.00
16.00	10.03	7.29	0.09	68.00	11.52	8.71	0.00
17.00	10.31	7.56	0.08	69.00	11.52	8.71	0.00
18.00	10.54	7.77	0.06	70.00	11.52	8.71	0.00
19.00	10.73	7.96	0.06	71.00	11.52	8.71	0.00
20.00	10.92	8.13	0.05	72.00	11.52	8.71	0.00
21.00	11.09	8.30	0.05				
22.00	11.24	8.45	0.04				
23.00	11.39	8.59	0.04				
24.00	11.52	8.71	0.04				
25.00	11.52	8.71	0.00				
26.00	11.52	8.71	0.00				
27.00	11.52	8.71	0.00				
28.00	11.52	8.71	0.00				
29.00	11.52	8.71	0.00				
30.00	11.52	8.71	0.00				
31.00	11.52	8.71	0.00				
32.00	11.52	8.71	0.00				
33.00	11.52	8.71	0.00				
34.00	11.52	8.71	0.00				
35.00	11.52	8.71	0.00				
36.00	11.52	8.71	0.00				
37.00	11.52	8.71	0.00				
38.00	11.52	8.71	0.00				
39.00	11.52	8.71	0.00				
40.00	11.52	8.71	0.00				
41.00	11.52	8.71	0.00				
42.00	11.52	8.71	0.00				
43.00	11.52	8.71	0.00				
44.00	11.52	8.71	0.00				
45.00	11.52	8.71	0.00				
46.00	11.52	8.71	0.00				
47.00	11.52	8.71	0.00				
48.00	11.52	8.71	0.00				
49.00	11.52	8.71	0.00				
50.00	11.52	8.71	0.00				
51.00	11.52	8.71	0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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Summary for Subcatchment PR 1B-I:

Runoff = 10.27 cfs @ 12.07 hrs, Volume= 0.796 af, Depth=11.28"
Routed to Reach 10R :

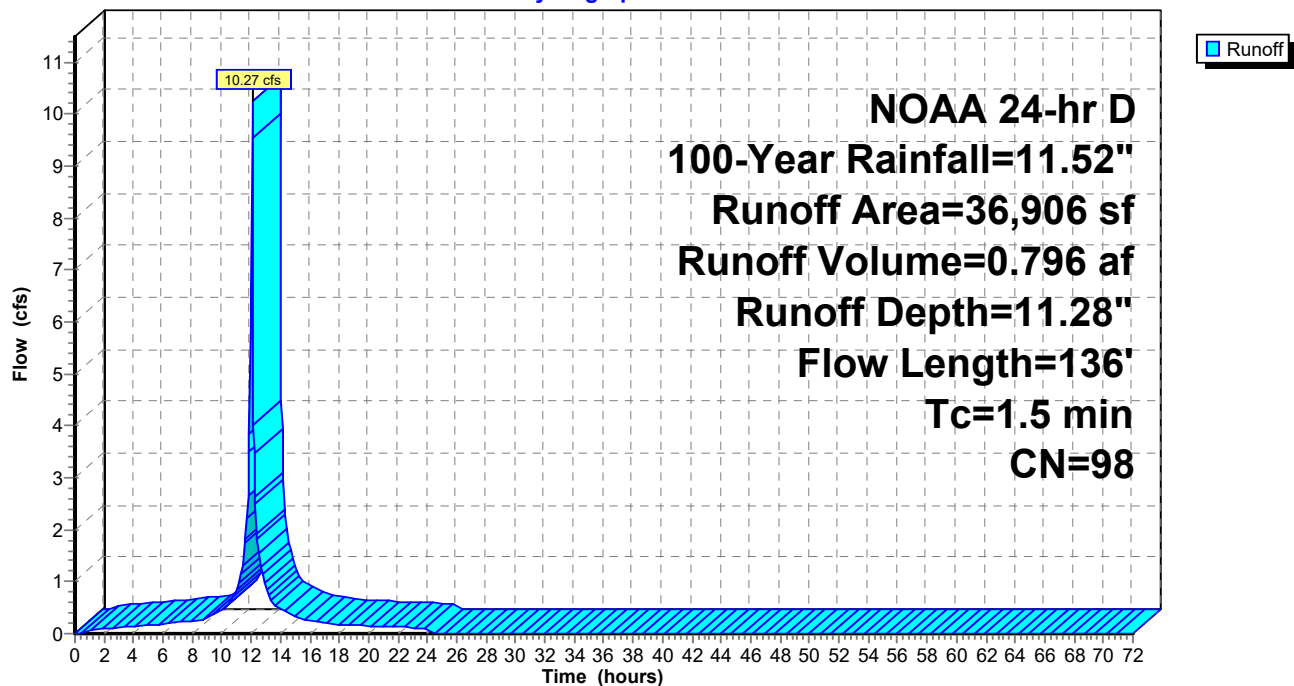
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=11.52"

Area (sf)	CN	Description
21,449	98	Roofs, HSG C
15,457	98	Paved parking, HSG C
36,906	98	Weighted Average
36,906		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.44"
0.3	36	0.0097	2.00		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	136	Total			

Subcatchment PR 1B-I:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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Hydrograph for Subcatchment PR 1B-I:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	11.52	11.28	0.00
1.00	0.13	0.03	0.06	53.00	11.52	11.28	0.00
2.00	0.28	0.13	0.10	54.00	11.52	11.28	0.00
3.00	0.43	0.26	0.12	55.00	11.52	11.28	0.00
4.00	0.60	0.41	0.14	56.00	11.52	11.28	0.00
5.00	0.79	0.59	0.15	57.00	11.52	11.28	0.00
6.00	0.98	0.77	0.17	58.00	11.52	11.28	0.00
7.00	1.21	1.00	0.21	59.00	11.52	11.28	0.00
8.00	1.49	1.28	0.26	60.00	11.52	11.28	0.00
9.00	1.83	1.60	0.30	61.00	11.52	11.28	0.00
10.00	2.28	2.06	0.46	62.00	11.52	11.28	0.00
11.00	2.99	2.76	0.83	63.00	11.52	11.28	0.00
12.00	5.52	5.28	6.58	64.00	11.52	11.28	0.00
13.00	8.53	8.29	0.91	65.00	11.52	11.28	0.00
14.00	9.24	9.00	0.47	66.00	11.52	11.28	0.00
15.00	9.69	9.45	0.32	67.00	11.52	11.28	0.00
16.00	10.03	9.78	0.26	68.00	11.52	11.28	0.00
17.00	10.31	10.07	0.22	69.00	11.52	11.28	0.00
18.00	10.54	10.30	0.18	70.00	11.52	11.28	0.00
19.00	10.73	10.49	0.16	71.00	11.52	11.28	0.00
20.00	10.92	10.67	0.15	72.00	11.52	11.28	0.00
21.00	11.09	10.84	0.14				
22.00	11.24	11.00	0.13				
23.00	11.39	11.15	0.12				
24.00	11.52	11.28	0.10				
25.00	11.52	11.28	0.00				
26.00	11.52	11.28	0.00				
27.00	11.52	11.28	0.00				
28.00	11.52	11.28	0.00				
29.00	11.52	11.28	0.00				
30.00	11.52	11.28	0.00				
31.00	11.52	11.28	0.00				
32.00	11.52	11.28	0.00				
33.00	11.52	11.28	0.00				
34.00	11.52	11.28	0.00				
35.00	11.52	11.28	0.00				
36.00	11.52	11.28	0.00				
37.00	11.52	11.28	0.00				
38.00	11.52	11.28	0.00				
39.00	11.52	11.28	0.00				
40.00	11.52	11.28	0.00				
41.00	11.52	11.28	0.00				
42.00	11.52	11.28	0.00				
43.00	11.52	11.28	0.00				
44.00	11.52	11.28	0.00				
45.00	11.52	11.28	0.00				
46.00	11.52	11.28	0.00				
47.00	11.52	11.28	0.00				
48.00	11.52	11.28	0.00				
49.00	11.52	11.28	0.00				
50.00	11.52	11.28	0.00				
51.00	11.52	11.28	0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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Summary for Subcatchment PR 1B-P:

Runoff = 16.19 cfs @ 12.15 hrs, Volume= 1.307 af, Depth= 8.85"
Routed to Reach 10R :

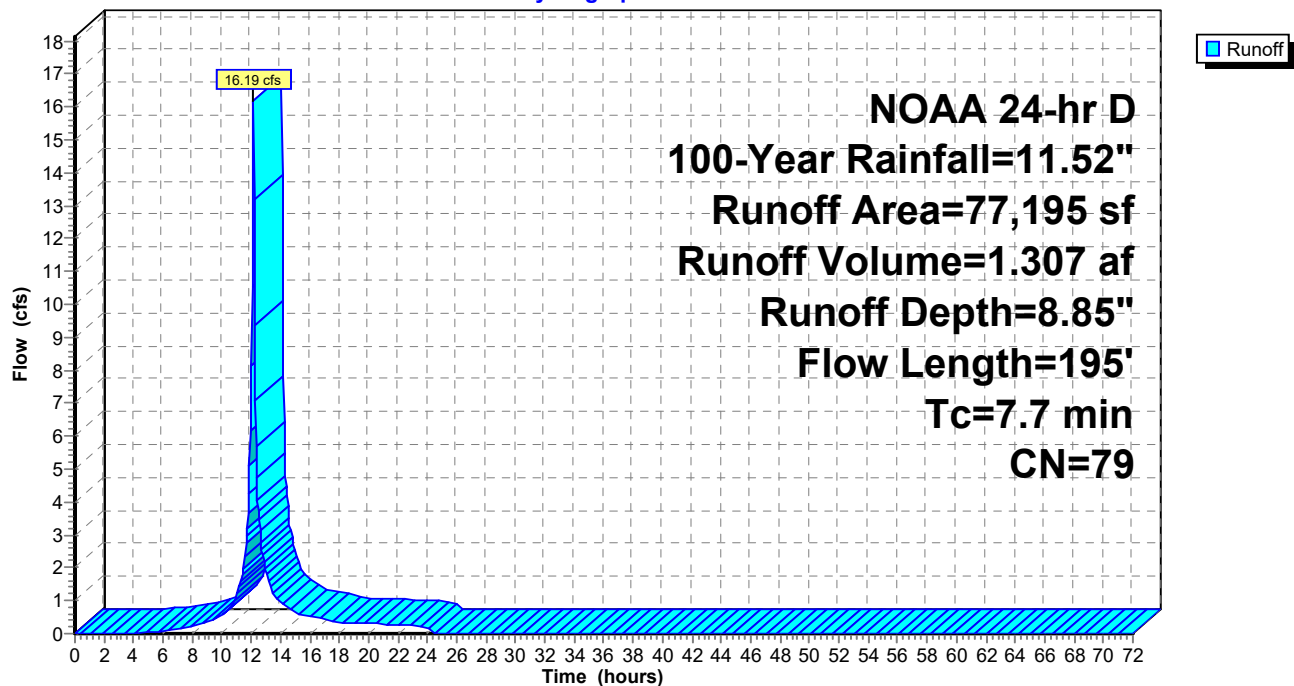
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=11.52"

Area (sf)	CN	Description
50,619	74	>75% Grass cover, Good, HSG C
26,576	89	Gravel roads, HSG C
77,195	79	Weighted Average
77,195		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.5	95	0.0361	3.06		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	195	Total			

Subcatchment PR 1B-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

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Hydrograph for Subcatchment PR 1B-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	11.52	8.85	0.00
1.00	0.13	0.00	0.00	53.00	11.52	8.85	0.00
2.00	0.28	0.00	0.00	54.00	11.52	8.85	0.00
3.00	0.43	0.00	0.00	55.00	11.52	8.85	0.00
4.00	0.60	0.00	0.01	56.00	11.52	8.85	0.00
5.00	0.79	0.02	0.05	57.00	11.52	8.85	0.00
6.00	0.98	0.07	0.09	58.00	11.52	8.85	0.00
7.00	1.21	0.14	0.16	59.00	11.52	8.85	0.00
8.00	1.49	0.26	0.24	60.00	11.52	8.85	0.00
9.00	1.83	0.42	0.34	61.00	11.52	8.85	0.00
10.00	2.28	0.70	0.59	62.00	11.52	8.85	0.00
11.00	2.99	1.18	1.18	63.00	11.52	8.85	0.00
12.00	5.52	3.25	8.15	64.00	11.52	8.85	0.00
13.00	8.53	6.00	1.94	65.00	11.52	8.85	0.00
14.00	9.24	6.67	0.96	66.00	11.52	8.85	0.00
15.00	9.69	7.10	0.66	67.00	11.52	8.85	0.00
16.00	10.03	7.42	0.53	68.00	11.52	8.85	0.00
17.00	10.31	7.68	0.45	69.00	11.52	8.85	0.00
18.00	10.54	7.90	0.36	70.00	11.52	8.85	0.00
19.00	10.73	8.09	0.33	71.00	11.52	8.85	0.00
20.00	10.92	8.27	0.31	72.00	11.52	8.85	0.00
21.00	11.09	8.43	0.28				
22.00	11.24	8.58	0.26				
23.00	11.39	8.72	0.24				
24.00	11.52	8.85	0.22				
25.00	11.52	8.85	0.00				
26.00	11.52	8.85	0.00				
27.00	11.52	8.85	0.00				
28.00	11.52	8.85	0.00				
29.00	11.52	8.85	0.00				
30.00	11.52	8.85	0.00				
31.00	11.52	8.85	0.00				
32.00	11.52	8.85	0.00				
33.00	11.52	8.85	0.00				
34.00	11.52	8.85	0.00				
35.00	11.52	8.85	0.00				
36.00	11.52	8.85	0.00				
37.00	11.52	8.85	0.00				
38.00	11.52	8.85	0.00				
39.00	11.52	8.85	0.00				
40.00	11.52	8.85	0.00				
41.00	11.52	8.85	0.00				
42.00	11.52	8.85	0.00				
43.00	11.52	8.85	0.00				
44.00	11.52	8.85	0.00				
45.00	11.52	8.85	0.00				
46.00	11.52	8.85	0.00				
47.00	11.52	8.85	0.00				
48.00	11.52	8.85	0.00				
49.00	11.52	8.85	0.00				
50.00	11.52	8.85	0.00				
51.00	11.52	8.85	0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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Summary for Subcatchment PR 2-P:

Runoff = 1.64 cfs @ 12.11 hrs, Volume= 0.120 af, Depth= 8.44"
Routed to Reach DP2-PR :

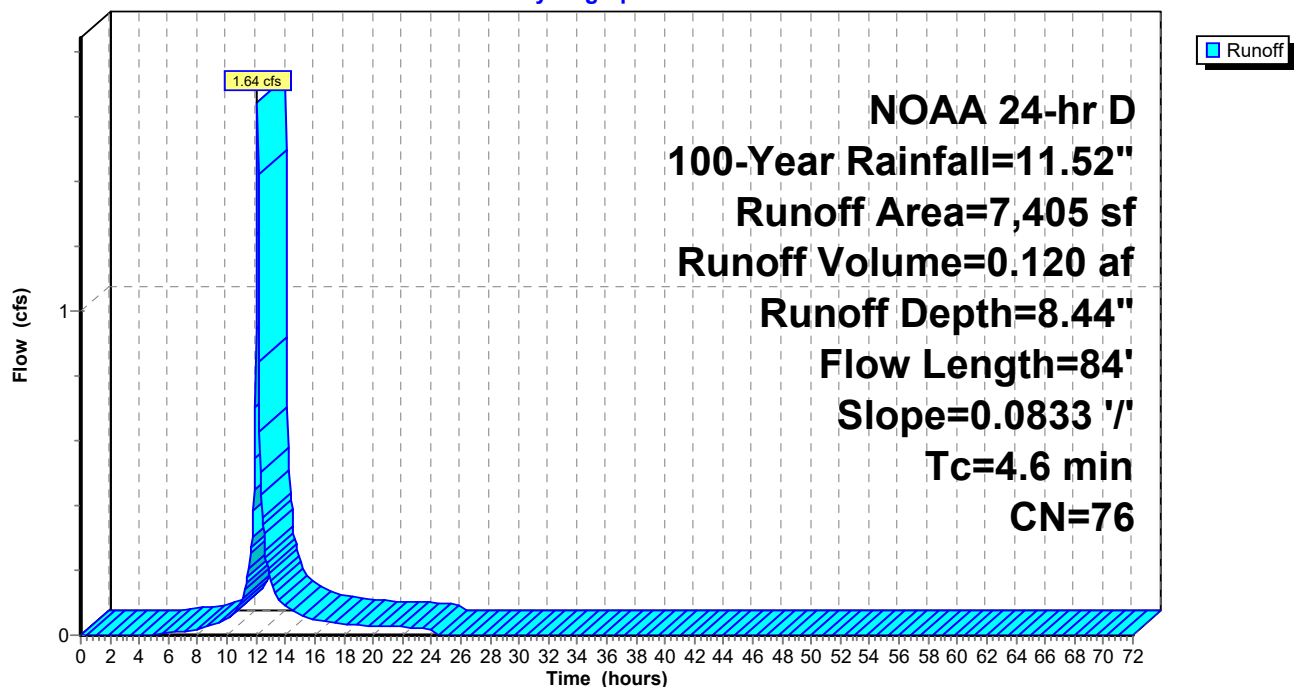
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=11.52"

Area (sf)	CN	Description
6,447	74	>75% Grass cover, Good, HSG C
958	89	Gravel roads, HSG C
7,405	76	Weighted Average
7,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	84	0.0833	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"

Subcatchment PR 2-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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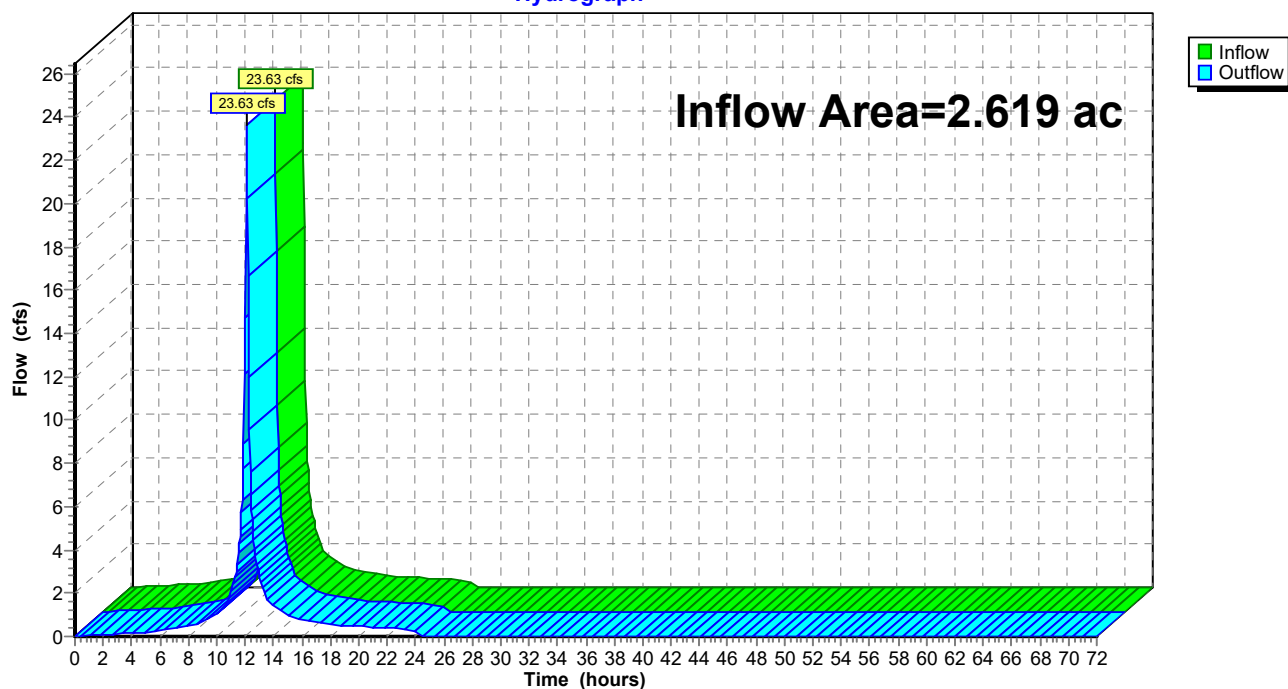
Hydrograph for Subcatchment PR 2-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	11.52	8.44	0.00
1.00	0.13	0.00	0.00	53.00	11.52	8.44	0.00
2.00	0.28	0.00	0.00	54.00	11.52	8.44	0.00
3.00	0.43	0.00	0.00	55.00	11.52	8.44	0.00
4.00	0.60	0.00	0.00	56.00	11.52	8.44	0.00
5.00	0.79	0.01	0.00	57.00	11.52	8.44	0.00
6.00	0.98	0.04	0.01	58.00	11.52	8.44	0.00
7.00	1.21	0.09	0.01	59.00	11.52	8.44	0.00
8.00	1.49	0.19	0.02	60.00	11.52	8.44	0.00
9.00	1.83	0.33	0.03	61.00	11.52	8.44	0.00
10.00	2.28	0.57	0.05	62.00	11.52	8.44	0.00
11.00	2.99	1.01	0.11	63.00	11.52	8.44	0.00
12.00	5.52	2.97	0.94	64.00	11.52	8.44	0.00
13.00	8.53	5.64	0.17	65.00	11.52	8.44	0.00
14.00	9.24	6.29	0.09	66.00	11.52	8.44	0.00
15.00	9.69	6.72	0.06	67.00	11.52	8.44	0.00
16.00	10.03	7.03	0.05	68.00	11.52	8.44	0.00
17.00	10.31	7.29	0.04	69.00	11.52	8.44	0.00
18.00	10.54	7.51	0.03	70.00	11.52	8.44	0.00
19.00	10.73	7.70	0.03	71.00	11.52	8.44	0.00
20.00	10.92	7.87	0.03	72.00	11.52	8.44	0.00
21.00	11.09	8.03	0.03				
22.00	11.24	8.18	0.02				
23.00	11.39	8.32	0.02				
24.00	11.52	8.44	0.02				
25.00	11.52	8.44	0.00				
26.00	11.52	8.44	0.00				
27.00	11.52	8.44	0.00				
28.00	11.52	8.44	0.00				
29.00	11.52	8.44	0.00				
30.00	11.52	8.44	0.00				
31.00	11.52	8.44	0.00				
32.00	11.52	8.44	0.00				
33.00	11.52	8.44	0.00				
34.00	11.52	8.44	0.00				
35.00	11.52	8.44	0.00				
36.00	11.52	8.44	0.00				
37.00	11.52	8.44	0.00				
38.00	11.52	8.44	0.00				
39.00	11.52	8.44	0.00				
40.00	11.52	8.44	0.00				
41.00	11.52	8.44	0.00				
42.00	11.52	8.44	0.00				
43.00	11.52	8.44	0.00				
44.00	11.52	8.44	0.00				
45.00	11.52	8.44	0.00				
46.00	11.52	8.44	0.00				
47.00	11.52	8.44	0.00				
48.00	11.52	8.44	0.00				
49.00	11.52	8.44	0.00				
50.00	11.52	8.44	0.00				
51.00	11.52	8.44	0.00				

Summary for Reach 10R:

Inflow Area = 2.619 ac, 32.35% Impervious, Inflow Depth = 9.63" for 100-Year event
Inflow = 23.63 cfs @ 12.10 hrs, Volume= 2.103 af
Outflow = 23.63 cfs @ 12.10 hrs, Volume= 2.103 af, Atten= 0%, Lag= 0.0 min
Routed to Pond BASIN :

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach 10R:**Hydrograph**

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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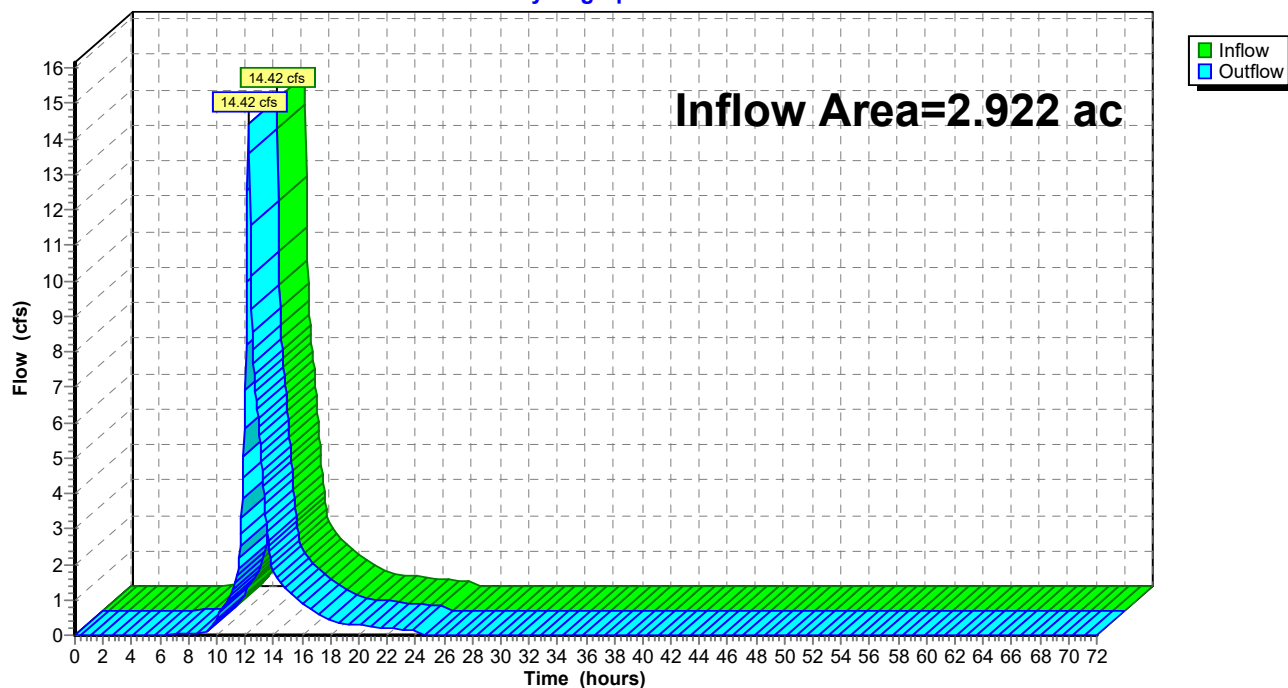
Hydrograph for Reach 10R:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.06		0.06	53.00	0.00		0.00
2.00	0.10		0.10	54.00	0.00		0.00
3.00	0.12		0.12	55.00	0.00		0.00
4.00	0.15		0.15	56.00	0.00		0.00
5.00	0.21		0.21	57.00	0.00		0.00
6.00	0.26		0.26	58.00	0.00		0.00
7.00	0.37		0.37	59.00	0.00		0.00
8.00	0.50		0.50	60.00	0.00		0.00
9.00	0.64		0.64	61.00	0.00		0.00
10.00	1.05		1.05	62.00	0.00		0.00
11.00	2.01		2.01	63.00	0.00		0.00
12.00	14.73		14.73	64.00	0.00		0.00
13.00	2.85		2.85	65.00	0.00		0.00
14.00	1.43		1.43	66.00	0.00		0.00
15.00	0.97		0.97	67.00	0.00		0.00
16.00	0.80		0.80	68.00	0.00		0.00
17.00	0.67		0.67	69.00	0.00		0.00
18.00	0.54		0.54	70.00	0.00		0.00
19.00	0.49		0.49	71.00	0.00		0.00
20.00	0.46		0.46	72.00	0.00		0.00
21.00	0.42		0.42				
22.00	0.39		0.39				
23.00	0.36		0.36				
24.00	0.32		0.32				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Reach DP1-PR:

Inflow Area = 2.922 ac, 29.00% Impervious, Inflow Depth = 7.28" for 100-Year event
Inflow = 14.42 cfs @ 12.22 hrs, Volume= 1.772 af
Outflow = 14.42 cfs @ 12.22 hrs, Volume= 1.772 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP1-PR:**Hydrograph**

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Hydrograph for Reach DP1-PR:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.01		0.01	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.03		0.03	59.00	0.00		0.00
8.00	0.04		0.04	60.00	0.00		0.00
9.00	0.06		0.06	61.00	0.00		0.00
10.00	0.49		0.49	62.00	0.00		0.00
11.00	1.15		1.15	63.00	0.00		0.00
12.00	6.91		6.91	64.00	0.00		0.00
13.00	5.64		5.64	65.00	0.00		0.00
14.00	1.81		1.81	66.00	0.00		0.00
15.00	1.29		1.29	67.00	0.00		0.00
16.00	0.93		0.93	68.00	0.00		0.00
17.00	0.63		0.63	69.00	0.00		0.00
18.00	0.43		0.43	70.00	0.00		0.00
19.00	0.33		0.33	71.00	0.00		0.00
20.00	0.28		0.28	72.00	0.00		0.00
21.00	0.24		0.24				
22.00	0.21		0.21				
23.00	0.17		0.17				
24.00	0.14		0.14				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

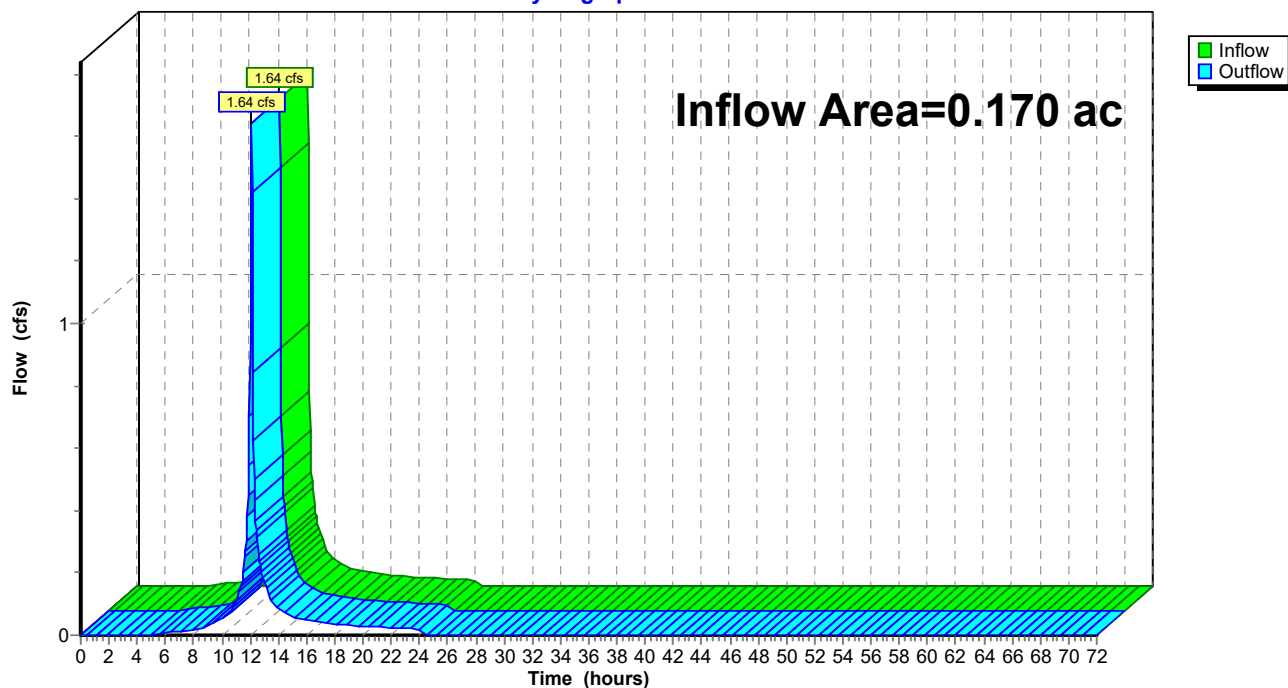
Summary for Reach DP2-PR:

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 8.44" for 100-Year event
Inflow = 1.64 cfs @ 12.11 hrs, Volume= 0.120 af
Outflow = 1.64 cfs @ 12.11 hrs, Volume= 0.120 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP2-PR:

Hydrograph



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Hydrograph for Reach DP2-PR:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.01		0.01	58.00	0.00		0.00
7.00	0.01		0.01	59.00	0.00		0.00
8.00	0.02		0.02	60.00	0.00		0.00
9.00	0.03		0.03	61.00	0.00		0.00
10.00	0.05		0.05	62.00	0.00		0.00
11.00	0.11		0.11	63.00	0.00		0.00
12.00	0.94		0.94	64.00	0.00		0.00
13.00	0.17		0.17	65.00	0.00		0.00
14.00	0.09		0.09	66.00	0.00		0.00
15.00	0.06		0.06	67.00	0.00		0.00
16.00	0.05		0.05	68.00	0.00		0.00
17.00	0.04		0.04	69.00	0.00		0.00
18.00	0.03		0.03	70.00	0.00		0.00
19.00	0.03		0.03	71.00	0.00		0.00
20.00	0.03		0.03	72.00	0.00		0.00
21.00	0.03		0.03				
22.00	0.02		0.02				
23.00	0.02		0.02				
24.00	0.02		0.02				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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Summary for Pond BASIN:

Inflow Area = 2.619 ac, 32.35% Impervious, Inflow Depth = 9.63" for 100-Year event
 Inflow = 23.63 cfs @ 12.10 hrs, Volume= 2.103 af
 Outflow = 13.44 cfs @ 12.24 hrs, Volume= 2.103 af, Atten= 43%, Lag= 8.6 min
 Discarded = 0.58 cfs @ 12.24 hrs, Volume= 0.550 af
 Primary = 12.86 cfs @ 12.24 hrs, Volume= 1.553 af
 Routed to Reach DP1-PR :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 19.87' @ 12.24 hrs Surf.Area= 0.168 ac Storage= 0.531 af

Plug-Flow detention time= 70.9 min calculated for 2.102 af (100% of inflow)
 Center-of-Mass det. time= 71.1 min (845.5 - 774.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.00'	0.199 af	51.42'W x 141.93'L x 5.00'H Field A 0.838 af Overall - 0.341 af Embedded = 0.497 af x 40.0% Voids
#2A	15.75'	0.341 af	ADS_StormTech MC-3500 d +Capx 133 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 133 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		0.539 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	15.89'	14.0" W x 3.5" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	16.73'	20.0" W x 5.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	18.75'	1.0' 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
#4	Discarded	15.00'	1.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.58 cfs @ 12.24 hrs HW=19.86' (Free Discharge)
 ↑ **4=Exfiltration** (Controls 0.58 cfs)

Primary OutFlow Max=12.77 cfs @ 12.24 hrs HW=19.86' (Free Discharge)
 ↑ **1=Orifice/Grate** (Orifice Controls 3.20 cfs @ 9.41 fps)
 ↓ **2=Orifice/Grate** (Orifice Controls 5.71 cfs @ 8.22 fps)
 ↓ **3=Broad-Crested Rectangular Weir** (Weir Controls 3.86 cfs @ 3.49 fps)

Pond BASIN: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

19 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 139.93' Row Length +12.0" End Stone x 2 = 141.93' Base Length

7 Rows x 77.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 51.42' Base Width

9.0" Stone Base + 45.0" Chamber Height + 6.0" Stone Cover = 5.00' Field Height

133 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 7 Rows = 14,832.2 cf Chamber Storage

36,487.8 cf Field - 14,832.2 cf Chambers = 21,655.6 cf Stone x 40.0% Voids = 8,662.3 cf Stone Storage

Chamber Storage + Stone Storage = 23,494.5 cf = 0.539 af

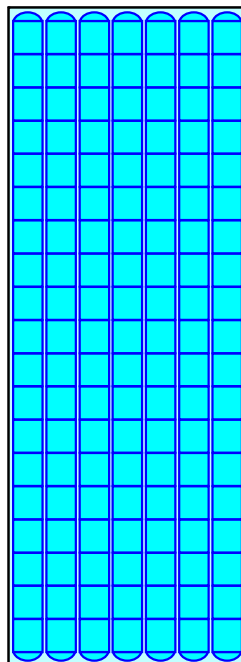
Overall Storage Efficiency = 64.4%

Overall System Size = 141.93' x 51.42' x 5.00'

133 Chambers

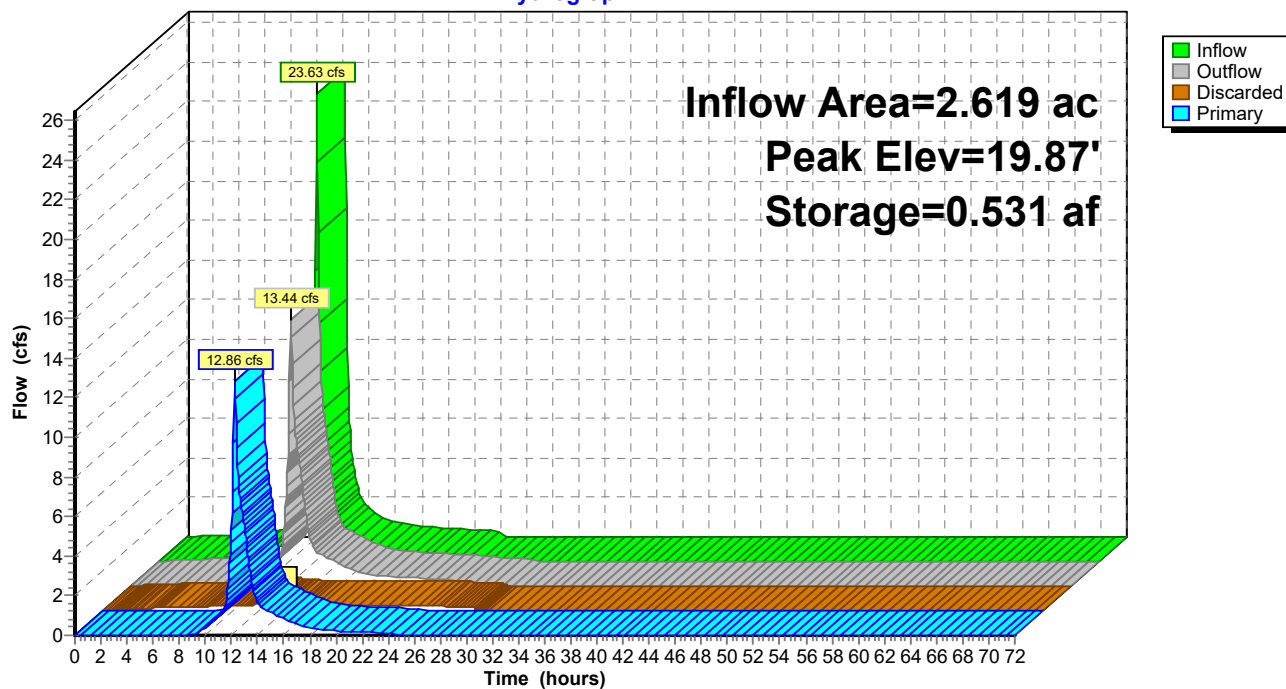
1,351.4 cy Field

802.1 cy Stone



Pond BASIN:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

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Hydrograph for Pond BASIN:

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	15.00	0.00	0.00	0.00
2.50	0.11	0.002	15.03	0.11	0.11	0.00
5.00	0.21	0.004	15.06	0.17	0.17	0.00
7.50	0.43	0.028	15.41	0.20	0.20	0.00
10.00	1.05	0.103	16.11	0.66	0.26	0.40
12.50	5.44	0.467	18.99	8.45	0.51	7.94
15.00	0.97	0.166	16.56	1.48	0.30	1.18
17.50	0.60	0.105	16.13	0.71	0.26	0.45
20.00	0.46	0.093	16.04	0.49	0.26	0.23
22.50	0.37	0.087	16.01	0.40	0.25	0.15
25.00	0.00	0.063	15.84	0.24	0.24	0.00
27.50	0.00	0.018	15.27	0.19	0.19	0.00
30.00	0.00	0.000	15.00	0.00	0.00	0.00
32.50	0.00	0.000	15.00	0.00	0.00	0.00
35.00	0.00	0.000	15.00	0.00	0.00	0.00
37.50	0.00	0.000	15.00	0.00	0.00	0.00
40.00	0.00	0.000	15.00	0.00	0.00	0.00
42.50	0.00	0.000	15.00	0.00	0.00	0.00
45.00	0.00	0.000	15.00	0.00	0.00	0.00
47.50	0.00	0.000	15.00	0.00	0.00	0.00
50.00	0.00	0.000	15.00	0.00	0.00	0.00
52.50	0.00	0.000	15.00	0.00	0.00	0.00
55.00	0.00	0.000	15.00	0.00	0.00	0.00
57.50	0.00	0.000	15.00	0.00	0.00	0.00
60.00	0.00	0.000	15.00	0.00	0.00	0.00
62.50	0.00	0.000	15.00	0.00	0.00	0.00
65.00	0.00	0.000	15.00	0.00	0.00	0.00
67.50	0.00	0.000	15.00	0.00	0.00	0.00
70.00	0.00	0.000	15.00	0.00	0.00	0.00

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Stage-Discharge for Pond BASIN:

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
15.00	0.00	0.00	0.00	17.60	5.15	0.39	4.76
15.05	0.17	0.17	0.00	17.65	5.28	0.39	4.89
15.10	0.18	0.18	0.00	17.70	5.42	0.40	5.02
15.15	0.18	0.18	0.00	17.75	5.55	0.40	5.15
15.20	0.19	0.19	0.00	17.80	5.68	0.41	5.27
15.25	0.19	0.19	0.00	17.85	5.80	0.41	5.39
15.30	0.19	0.19	0.00	17.90	5.92	0.41	5.51
15.35	0.20	0.20	0.00	17.95	6.04	0.42	5.62
15.40	0.20	0.20	0.00	18.00	6.16	0.42	5.74
15.45	0.21	0.21	0.00	18.05	6.27	0.43	5.85
15.50	0.21	0.21	0.00	18.10	6.38	0.43	5.95
15.55	0.22	0.22	0.00	18.15	6.49	0.43	6.06
15.60	0.22	0.22	0.00	18.20	6.60	0.44	6.16
15.65	0.22	0.22	0.00	18.25	6.71	0.44	6.26
15.70	0.23	0.23	0.00	18.30	6.81	0.45	6.36
15.75	0.23	0.23	0.00	18.35	6.91	0.45	6.46
15.80	0.24	0.24	0.00	18.40	7.01	0.46	6.56
15.85	0.24	0.24	0.00	18.45	7.11	0.46	6.65
15.90	0.25	0.24	0.00	18.50	7.21	0.46	6.75
15.95	0.30	0.25	0.06	18.55	7.31	0.47	6.84
16.00	0.39	0.25	0.14	18.60	7.40	0.47	6.93
16.05	0.50	0.26	0.24	18.65	7.50	0.48	7.02
16.10	0.62	0.26	0.36	18.70	7.59	0.48	7.11
16.15	0.76	0.27	0.50	18.75	7.68	0.49	7.20
16.20	0.91	0.27	0.64	18.80	7.80	0.49	7.31
16.25	1.02	0.27	0.74	18.85	7.95	0.49	7.46
16.30	1.11	0.28	0.83	18.90	8.11	0.50	7.62
16.35	1.19	0.28	0.91	18.95	8.29	0.50	7.79
16.40	1.27	0.29	0.98	19.00	8.48	0.51	7.97
16.45	1.34	0.29	1.05	19.05	8.68	0.51	8.17
16.50	1.41	0.30	1.11	19.10	8.90	0.52	8.38
16.55	1.47	0.30	1.17	19.15	9.12	0.52	8.60
16.60	1.53	0.30	1.23	19.20	9.36	0.52	8.83
16.65	1.59	0.31	1.28	19.25	9.61	0.53	9.08
16.70	1.65	0.31	1.33	19.30	9.87	0.53	9.34
16.75	1.71	0.32	1.40	19.35	10.14	0.54	9.60
16.80	1.85	0.32	1.53	19.40	10.43	0.54	9.89
16.85	2.02	0.33	1.70	19.45	10.74	0.54	10.19
16.90	2.23	0.33	1.90	19.50	11.06	0.55	10.51
16.95	2.45	0.33	2.12	19.55	11.39	0.55	10.83
17.00	2.70	0.34	2.36	19.60	11.69	0.56	11.14
17.05	2.96	0.34	2.62	19.65	12.01	0.56	11.45
17.10	3.24	0.35	2.89	19.70	12.33	0.57	11.76
17.15	3.53	0.35	3.18	19.75	12.65	0.57	12.08
17.20	3.78	0.35	3.42	19.80	12.98	0.57	12.41
17.25	3.99	0.36	3.63	19.85	13.31	0.58	12.73
17.30	4.19	0.36	3.82	19.90	13.65	0.58	13.07
17.35	4.37	0.37	4.00	19.95	13.99	0.59	13.41
17.40	4.54	0.37	4.16	20.00	14.34	0.59	13.75
17.45	4.70	0.38	4.32				
17.50	4.85	0.38	4.47				
17.55	5.00	0.38	4.62				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 100-Year Rainfall=11.52"

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Stage-Area-Storage for Pond BASIN:

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
15.00	0.168	0.000	17.60	0.168	0.307
15.05	0.168	0.003	17.65	0.168	0.313
15.10	0.168	0.007	17.70	0.168	0.320
15.15	0.168	0.010	17.75	0.168	0.326
15.20	0.168	0.013	17.80	0.168	0.332
15.25	0.168	0.017	17.85	0.168	0.339
15.30	0.168	0.020	17.90	0.168	0.345
15.35	0.168	0.023	17.95	0.168	0.351
15.40	0.168	0.027	18.00	0.168	0.357
15.45	0.168	0.030	18.05	0.168	0.363
15.50	0.168	0.034	18.10	0.168	0.369
15.55	0.168	0.037	18.15	0.168	0.375
15.60	0.168	0.040	18.20	0.168	0.381
15.65	0.168	0.044	18.25	0.168	0.387
15.70	0.168	0.047	18.30	0.168	0.393
15.75	0.168	0.050	18.35	0.168	0.399
15.80	0.168	0.058	18.40	0.168	0.405
15.85	0.168	0.065	18.45	0.168	0.410
15.90	0.168	0.072	18.50	0.168	0.416
15.95	0.168	0.079	18.55	0.168	0.421
16.00	0.168	0.086	18.60	0.168	0.427
16.05	0.168	0.094	18.65	0.168	0.432
16.10	0.168	0.101	18.70	0.168	0.438
16.15	0.168	0.108	18.75	0.168	0.443
16.20	0.168	0.115	18.80	0.168	0.448
16.25	0.168	0.122	18.85	0.168	0.453
16.30	0.168	0.129	18.90	0.168	0.458
16.35	0.168	0.136	18.95	0.168	0.463
16.40	0.168	0.143	19.00	0.168	0.467
16.45	0.168	0.151	19.05	0.168	0.472
16.50	0.168	0.158	19.10	0.168	0.476
16.55	0.168	0.165	19.15	0.168	0.480
16.60	0.168	0.172	19.20	0.168	0.484
16.65	0.168	0.179	19.25	0.168	0.488
16.70	0.168	0.186	19.30	0.168	0.492
16.75	0.168	0.193	19.35	0.168	0.495
16.80	0.168	0.199	19.40	0.168	0.499
16.85	0.168	0.206	19.45	0.168	0.502
16.90	0.168	0.213	19.50	0.168	0.506
16.95	0.168	0.220	19.55	0.168	0.509
17.00	0.168	0.227	19.60	0.168	0.513
17.05	0.168	0.234	19.65	0.168	0.516
17.10	0.168	0.241	19.70	0.168	0.519
17.15	0.168	0.247	19.75	0.168	0.523
17.20	0.168	0.254	19.80	0.168	0.526
17.25	0.168	0.261	19.85	0.168	0.529
17.30	0.168	0.267	19.90	0.168	0.533
17.35	0.168	0.274	19.95	0.168	0.536
17.40	0.168	0.281	20.00	0.168	0.539
17.45	0.168	0.287			
17.50	0.168	0.294			
17.55	0.168	0.300			

251202_42 ERW Waystone - Future Rainfall

NJ DEP 2-hr WQ Rainfall=1.25"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPR 1A-P: Runoff Area=13,167 sf 0.00% Impervious Runoff Depth=0.13"
Flow Length=203' Tc=5.9 min CN=78 Runoff=0.11 cfs 0.003 af

SubcatchmentPR 1B-I: Runoff Area=36,906 sf 100.00% Impervious Runoff Depth=1.03"
Flow Length=136' Tc=1.5 min CN=98 Runoff=2.63 cfs 0.073 af

SubcatchmentPR 1B-P: Runoff Area=77,195 sf 0.00% Impervious Runoff Depth=0.15"
Flow Length=195' Tc=7.7 min CN=79 Runoff=0.65 cfs 0.023 af

SubcatchmentPR 2-P: Runoff Area=7,405 sf 0.00% Impervious Runoff Depth=0.10"
Flow Length=84' Slope=0.0833 '/' Tc=4.6 min CN=76 Runoff=0.04 cfs 0.001 af

Reach 10R: Inflow=2.66 cfs 0.096 af
Outflow=2.66 cfs 0.096 af

Reach DP1-PR: Inflow=0.11 cfs 0.003 af
Outflow=0.11 cfs 0.003 af

Reach DP2-PR: Inflow=0.04 cfs 0.001 af
Outflow=0.04 cfs 0.001 af

Pond BASIN: Peak Elev=15.89' Storage=0.071 af Inflow=2.66 cfs 0.096 af
Discarded=0.24 cfs 0.096 af Primary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.096 af

Total Runoff Area = 3.092 ac Runoff Volume = 0.100 af Average Runoff Depth = 0.39"
72.60% Pervious = 2.244 ac 27.40% Impervious = 0.847 ac

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Subcatchment PR 1A-P:

Runoff = 0.11 cfs @ 1.16 hrs, Volume= 0.003 af, Depth= 0.13"
Routed to Reach DP1-PR :

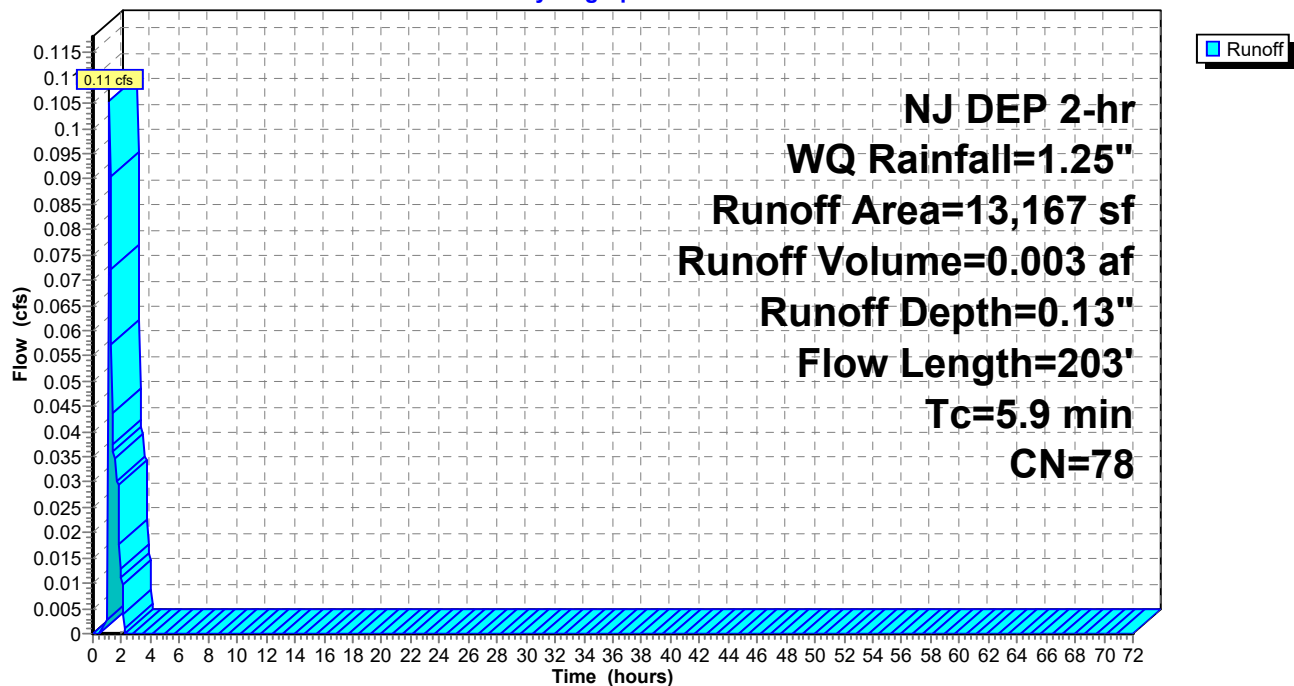
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
9,975	74	>75% Grass cover, Good, HSG C
3,192	89	Gravel roads, HSG C
13,167	78	Weighted Average
13,167		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	100	0.0725	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.3	103	0.1090	5.32		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.9	203	Total			

Subcatchment PR 1A-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment PR 1A-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.13	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.13	0.00
2.00	1.25	0.13	0.01	54.00	1.25	0.13	0.00
3.00	1.25	0.13	0.00	55.00	1.25	0.13	0.00
4.00	1.25	0.13	0.00	56.00	1.25	0.13	0.00
5.00	1.25	0.13	0.00	57.00	1.25	0.13	0.00
6.00	1.25	0.13	0.00	58.00	1.25	0.13	0.00
7.00	1.25	0.13	0.00	59.00	1.25	0.13	0.00
8.00	1.25	0.13	0.00	60.00	1.25	0.13	0.00
9.00	1.25	0.13	0.00	61.00	1.25	0.13	0.00
10.00	1.25	0.13	0.00	62.00	1.25	0.13	0.00
11.00	1.25	0.13	0.00	63.00	1.25	0.13	0.00
12.00	1.25	0.13	0.00	64.00	1.25	0.13	0.00
13.00	1.25	0.13	0.00	65.00	1.25	0.13	0.00
14.00	1.25	0.13	0.00	66.00	1.25	0.13	0.00
15.00	1.25	0.13	0.00	67.00	1.25	0.13	0.00
16.00	1.25	0.13	0.00	68.00	1.25	0.13	0.00
17.00	1.25	0.13	0.00	69.00	1.25	0.13	0.00
18.00	1.25	0.13	0.00	70.00	1.25	0.13	0.00
19.00	1.25	0.13	0.00	71.00	1.25	0.13	0.00
20.00	1.25	0.13	0.00	72.00	1.25	0.13	0.00
21.00	1.25	0.13	0.00				
22.00	1.25	0.13	0.00				
23.00	1.25	0.13	0.00				
24.00	1.25	0.13	0.00				
25.00	1.25	0.13	0.00				
26.00	1.25	0.13	0.00				
27.00	1.25	0.13	0.00				
28.00	1.25	0.13	0.00				
29.00	1.25	0.13	0.00				
30.00	1.25	0.13	0.00				
31.00	1.25	0.13	0.00				
32.00	1.25	0.13	0.00				
33.00	1.25	0.13	0.00				
34.00	1.25	0.13	0.00				
35.00	1.25	0.13	0.00				
36.00	1.25	0.13	0.00				
37.00	1.25	0.13	0.00				
38.00	1.25	0.13	0.00				
39.00	1.25	0.13	0.00				
40.00	1.25	0.13	0.00				
41.00	1.25	0.13	0.00				
42.00	1.25	0.13	0.00				
43.00	1.25	0.13	0.00				
44.00	1.25	0.13	0.00				
45.00	1.25	0.13	0.00				
46.00	1.25	0.13	0.00				
47.00	1.25	0.13	0.00				
48.00	1.25	0.13	0.00				
49.00	1.25	0.13	0.00				
50.00	1.25	0.13	0.00				
51.00	1.25	0.13	0.00				

251202_42 ERW Waystone - Future Rainfall

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Subcatchment PR 1B-I:

Runoff = 2.63 cfs @ 1.03 hrs, Volume= 0.073 af, Depth= 1.03"
Routed to Reach 10R :

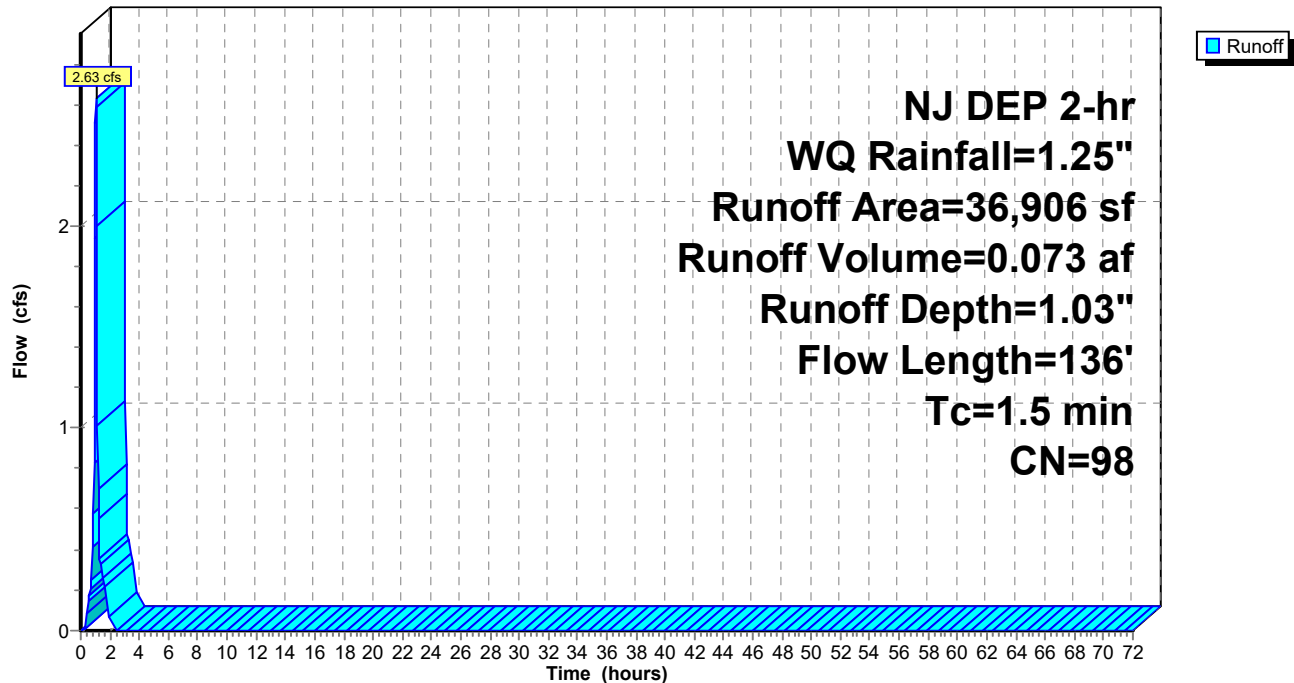
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
21,449	98	Roofs, HSG C
15,457	98	Paved parking, HSG C
36,906	98	Weighted Average
36,906		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.44"
0.3	36	0.0097	2.00		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	136	Total			

Subcatchment PR 1B-I:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment PR 1B-I:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	1.03	0.00
1.00	0.63	0.43	2.50	53.00	1.25	1.03	0.00
2.00	1.25	1.03	0.07	54.00	1.25	1.03	0.00
3.00	1.25	1.03	0.00	55.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00	56.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00	57.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00	58.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00	59.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00	60.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00	61.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00	62.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00	63.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00	64.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00	65.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00	66.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00	67.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00	68.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00	69.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00	70.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00	71.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00	72.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00				
22.00	1.25	1.03	0.00				
23.00	1.25	1.03	0.00				
24.00	1.25	1.03	0.00				
25.00	1.25	1.03	0.00				
26.00	1.25	1.03	0.00				
27.00	1.25	1.03	0.00				
28.00	1.25	1.03	0.00				
29.00	1.25	1.03	0.00				
30.00	1.25	1.03	0.00				
31.00	1.25	1.03	0.00				
32.00	1.25	1.03	0.00				
33.00	1.25	1.03	0.00				
34.00	1.25	1.03	0.00				
35.00	1.25	1.03	0.00				
36.00	1.25	1.03	0.00				
37.00	1.25	1.03	0.00				
38.00	1.25	1.03	0.00				
39.00	1.25	1.03	0.00				
40.00	1.25	1.03	0.00				
41.00	1.25	1.03	0.00				
42.00	1.25	1.03	0.00				
43.00	1.25	1.03	0.00				
44.00	1.25	1.03	0.00				
45.00	1.25	1.03	0.00				
46.00	1.25	1.03	0.00				
47.00	1.25	1.03	0.00				
48.00	1.25	1.03	0.00				
49.00	1.25	1.03	0.00				
50.00	1.25	1.03	0.00				
51.00	1.25	1.03	0.00				

251202_42 ERW Waystone - Future Rainfall

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Subcatchment PR 1B-P:

Runoff = 0.65 cfs @ 1.18 hrs, Volume= 0.023 af, Depth= 0.15"
Routed to Reach 10R :

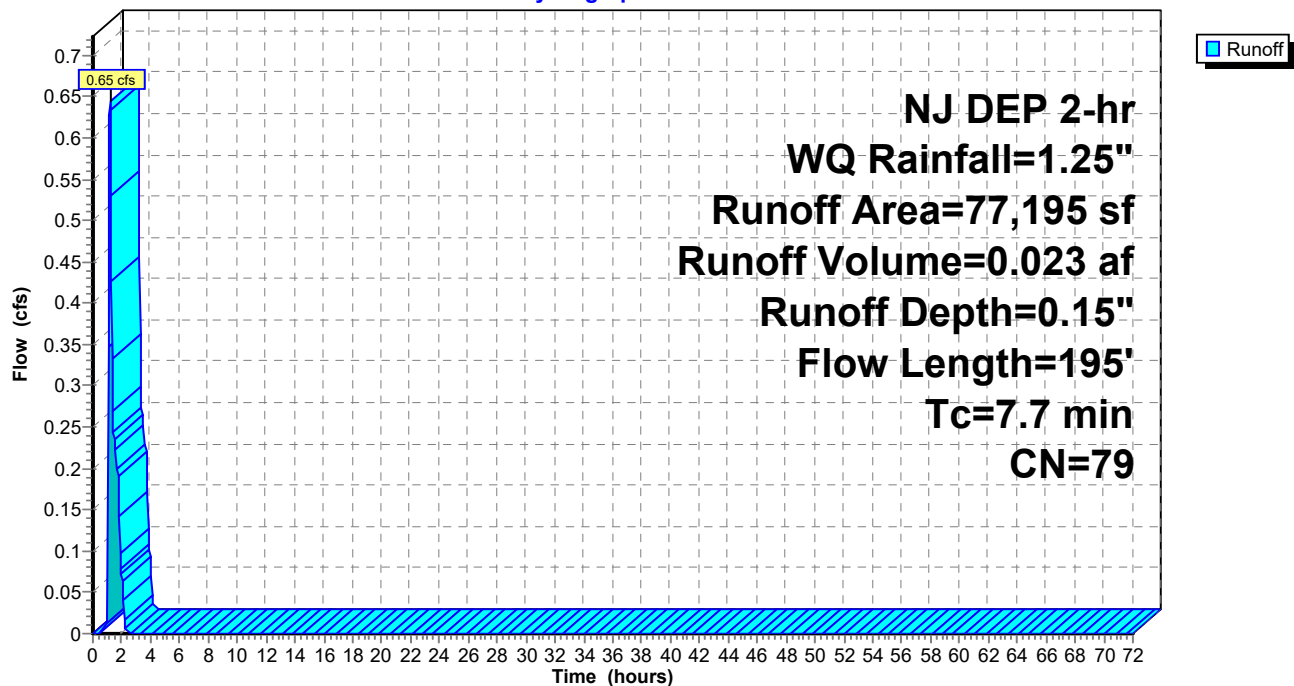
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
50,619	74	>75% Grass cover, Good, HSG C
26,576	89	Gravel roads, HSG C
77,195	79	Weighted Average
77,195		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.5	95	0.0361	3.06		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	195	Total			

Subcatchment PR 1B-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment PR 1B-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.15	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.15	0.00
2.00	1.25	0.15	0.07	54.00	1.25	0.15	0.00
3.00	1.25	0.15	0.00	55.00	1.25	0.15	0.00
4.00	1.25	0.15	0.00	56.00	1.25	0.15	0.00
5.00	1.25	0.15	0.00	57.00	1.25	0.15	0.00
6.00	1.25	0.15	0.00	58.00	1.25	0.15	0.00
7.00	1.25	0.15	0.00	59.00	1.25	0.15	0.00
8.00	1.25	0.15	0.00	60.00	1.25	0.15	0.00
9.00	1.25	0.15	0.00	61.00	1.25	0.15	0.00
10.00	1.25	0.15	0.00	62.00	1.25	0.15	0.00
11.00	1.25	0.15	0.00	63.00	1.25	0.15	0.00
12.00	1.25	0.15	0.00	64.00	1.25	0.15	0.00
13.00	1.25	0.15	0.00	65.00	1.25	0.15	0.00
14.00	1.25	0.15	0.00	66.00	1.25	0.15	0.00
15.00	1.25	0.15	0.00	67.00	1.25	0.15	0.00
16.00	1.25	0.15	0.00	68.00	1.25	0.15	0.00
17.00	1.25	0.15	0.00	69.00	1.25	0.15	0.00
18.00	1.25	0.15	0.00	70.00	1.25	0.15	0.00
19.00	1.25	0.15	0.00	71.00	1.25	0.15	0.00
20.00	1.25	0.15	0.00	72.00	1.25	0.15	0.00
21.00	1.25	0.15	0.00				
22.00	1.25	0.15	0.00				
23.00	1.25	0.15	0.00				
24.00	1.25	0.15	0.00				
25.00	1.25	0.15	0.00				
26.00	1.25	0.15	0.00				
27.00	1.25	0.15	0.00				
28.00	1.25	0.15	0.00				
29.00	1.25	0.15	0.00				
30.00	1.25	0.15	0.00				
31.00	1.25	0.15	0.00				
32.00	1.25	0.15	0.00				
33.00	1.25	0.15	0.00				
34.00	1.25	0.15	0.00				
35.00	1.25	0.15	0.00				
36.00	1.25	0.15	0.00				
37.00	1.25	0.15	0.00				
38.00	1.25	0.15	0.00				
39.00	1.25	0.15	0.00				
40.00	1.25	0.15	0.00				
41.00	1.25	0.15	0.00				
42.00	1.25	0.15	0.00				
43.00	1.25	0.15	0.00				
44.00	1.25	0.15	0.00				
45.00	1.25	0.15	0.00				
46.00	1.25	0.15	0.00				
47.00	1.25	0.15	0.00				
48.00	1.25	0.15	0.00				
49.00	1.25	0.15	0.00				
50.00	1.25	0.15	0.00				
51.00	1.25	0.15	0.00				

251202_42 ERW Waystone - Future Rainfall

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Subcatchment PR 2-P:

Runoff = 0.04 cfs @ 1.16 hrs, Volume= 0.001 af, Depth= 0.10"
Routed to Reach DP2-PR :

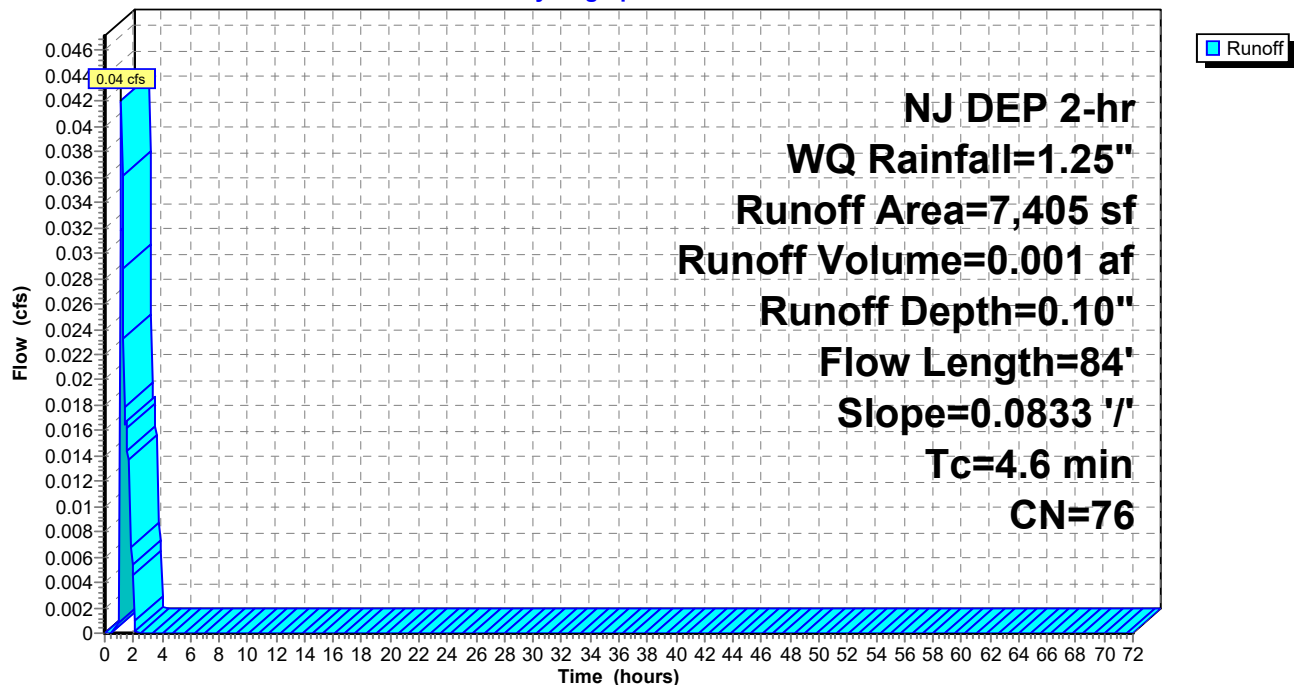
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
6,447	74	>75% Grass cover, Good, HSG C
958	89	Gravel roads, HSG C
7,405	76	Weighted Average
7,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	84	0.0833	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"

Subcatchment PR 2-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment PR 2-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.10	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.10	0.00
2.00	1.25	0.10	0.01	54.00	1.25	0.10	0.00
3.00	1.25	0.10	0.00	55.00	1.25	0.10	0.00
4.00	1.25	0.10	0.00	56.00	1.25	0.10	0.00
5.00	1.25	0.10	0.00	57.00	1.25	0.10	0.00
6.00	1.25	0.10	0.00	58.00	1.25	0.10	0.00
7.00	1.25	0.10	0.00	59.00	1.25	0.10	0.00
8.00	1.25	0.10	0.00	60.00	1.25	0.10	0.00
9.00	1.25	0.10	0.00	61.00	1.25	0.10	0.00
10.00	1.25	0.10	0.00	62.00	1.25	0.10	0.00
11.00	1.25	0.10	0.00	63.00	1.25	0.10	0.00
12.00	1.25	0.10	0.00	64.00	1.25	0.10	0.00
13.00	1.25	0.10	0.00	65.00	1.25	0.10	0.00
14.00	1.25	0.10	0.00	66.00	1.25	0.10	0.00
15.00	1.25	0.10	0.00	67.00	1.25	0.10	0.00
16.00	1.25	0.10	0.00	68.00	1.25	0.10	0.00
17.00	1.25	0.10	0.00	69.00	1.25	0.10	0.00
18.00	1.25	0.10	0.00	70.00	1.25	0.10	0.00
19.00	1.25	0.10	0.00	71.00	1.25	0.10	0.00
20.00	1.25	0.10	0.00	72.00	1.25	0.10	0.00
21.00	1.25	0.10	0.00				
22.00	1.25	0.10	0.00				
23.00	1.25	0.10	0.00				
24.00	1.25	0.10	0.00				
25.00	1.25	0.10	0.00				
26.00	1.25	0.10	0.00				
27.00	1.25	0.10	0.00				
28.00	1.25	0.10	0.00				
29.00	1.25	0.10	0.00				
30.00	1.25	0.10	0.00				
31.00	1.25	0.10	0.00				
32.00	1.25	0.10	0.00				
33.00	1.25	0.10	0.00				
34.00	1.25	0.10	0.00				
35.00	1.25	0.10	0.00				
36.00	1.25	0.10	0.00				
37.00	1.25	0.10	0.00				
38.00	1.25	0.10	0.00				
39.00	1.25	0.10	0.00				
40.00	1.25	0.10	0.00				
41.00	1.25	0.10	0.00				
42.00	1.25	0.10	0.00				
43.00	1.25	0.10	0.00				
44.00	1.25	0.10	0.00				
45.00	1.25	0.10	0.00				
46.00	1.25	0.10	0.00				
47.00	1.25	0.10	0.00				
48.00	1.25	0.10	0.00				
49.00	1.25	0.10	0.00				
50.00	1.25	0.10	0.00				
51.00	1.25	0.10	0.00				

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NJ DEP 2-hr WQ Rainfall=1.25"

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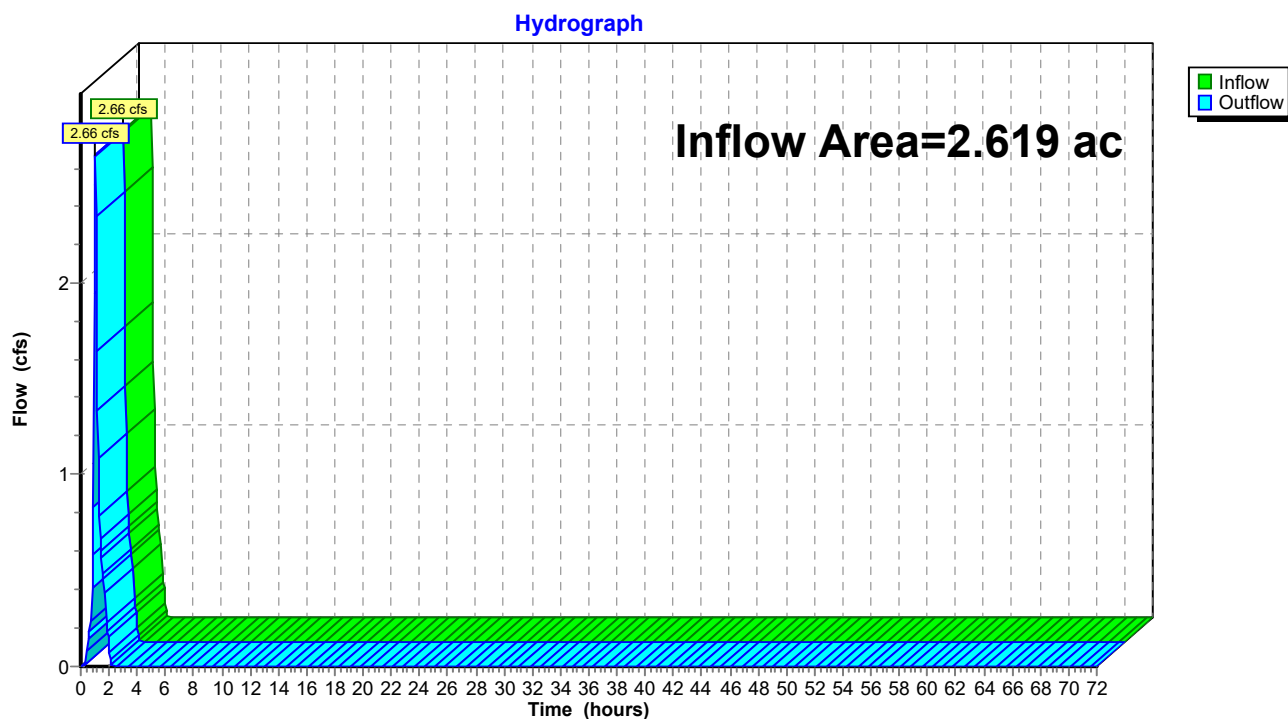
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Summary for Reach 10R:

Inflow Area = 2.619 ac, 32.35% Impervious, Inflow Depth = 0.44" for WQ event
Inflow = 2.66 cfs @ 1.04 hrs, Volume= 0.096 af
Outflow = 2.66 cfs @ 1.04 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.0 min
Routed to Pond BASIN :

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach 10R:



251202_42 ERW Waystone - Future Rainfall

NJ DEP 2-hr WQ Rainfall=1.25"

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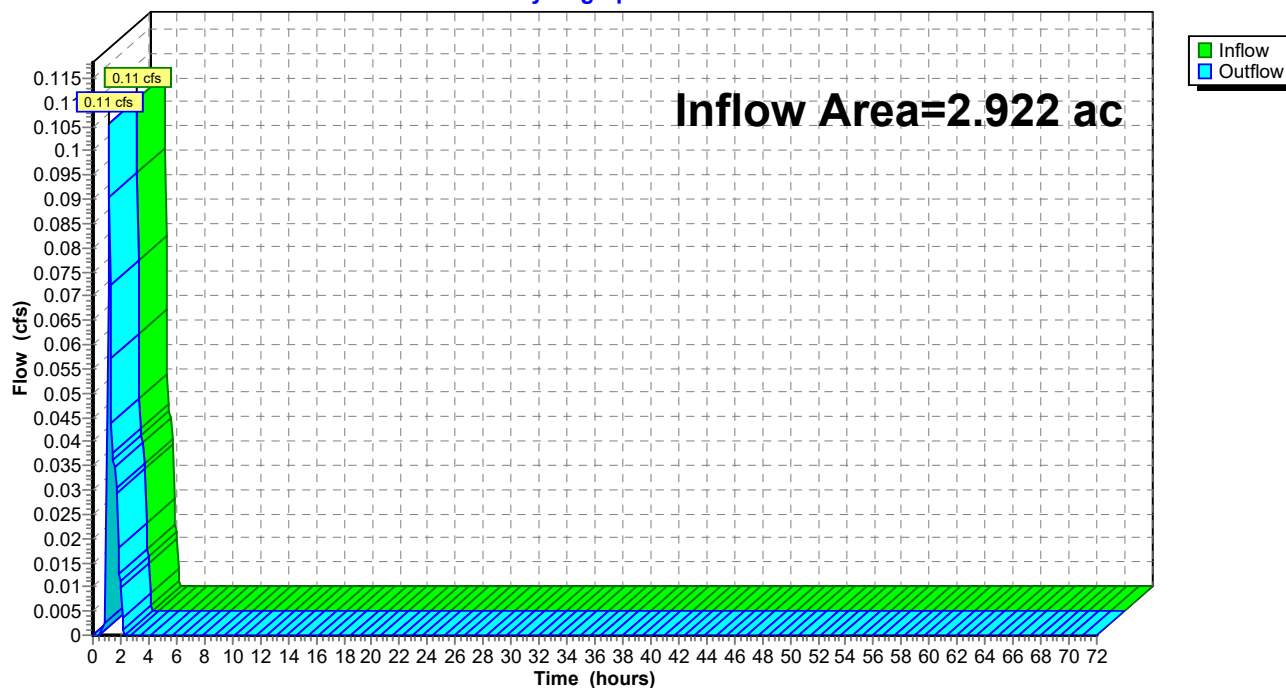
Hydrograph for Reach 10R:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	2.51		2.51	53.00	0.00		0.00
2.00	0.15		0.15	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	0.00		0.00	64.00	0.00		0.00
13.00	0.00		0.00	65.00	0.00		0.00
14.00	0.00		0.00	66.00	0.00		0.00
15.00	0.00		0.00	67.00	0.00		0.00
16.00	0.00		0.00	68.00	0.00		0.00
17.00	0.00		0.00	69.00	0.00		0.00
18.00	0.00		0.00	70.00	0.00		0.00
19.00	0.00		0.00	71.00	0.00		0.00
20.00	0.00		0.00	72.00	0.00		0.00
21.00	0.00		0.00				
22.00	0.00		0.00				
23.00	0.00		0.00				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Reach DP1-PR:

Inflow Area = 2.922 ac, 29.00% Impervious, Inflow Depth = 0.01" for WQ event
Inflow = 0.11 cfs @ 1.16 hrs, Volume= 0.003 af
Outflow = 0.11 cfs @ 1.16 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP1-PR:**Hydrograph**

251202_42 ERW Waystone - Future Rainfall

NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Reach DP1-PR:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	0.00		0.00	64.00	0.00		0.00
13.00	0.00		0.00	65.00	0.00		0.00
14.00	0.00		0.00	66.00	0.00		0.00
15.00	0.00		0.00	67.00	0.00		0.00
16.00	0.00		0.00	68.00	0.00		0.00
17.00	0.00		0.00	69.00	0.00		0.00
18.00	0.00		0.00	70.00	0.00		0.00
19.00	0.00		0.00	71.00	0.00		0.00
20.00	0.00		0.00	72.00	0.00		0.00
21.00	0.00		0.00				
22.00	0.00		0.00				
23.00	0.00		0.00				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

251202_42 ERW Waystone - Future Rainfall

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NJ DEP 2-hr WQ Rainfall=1.25"

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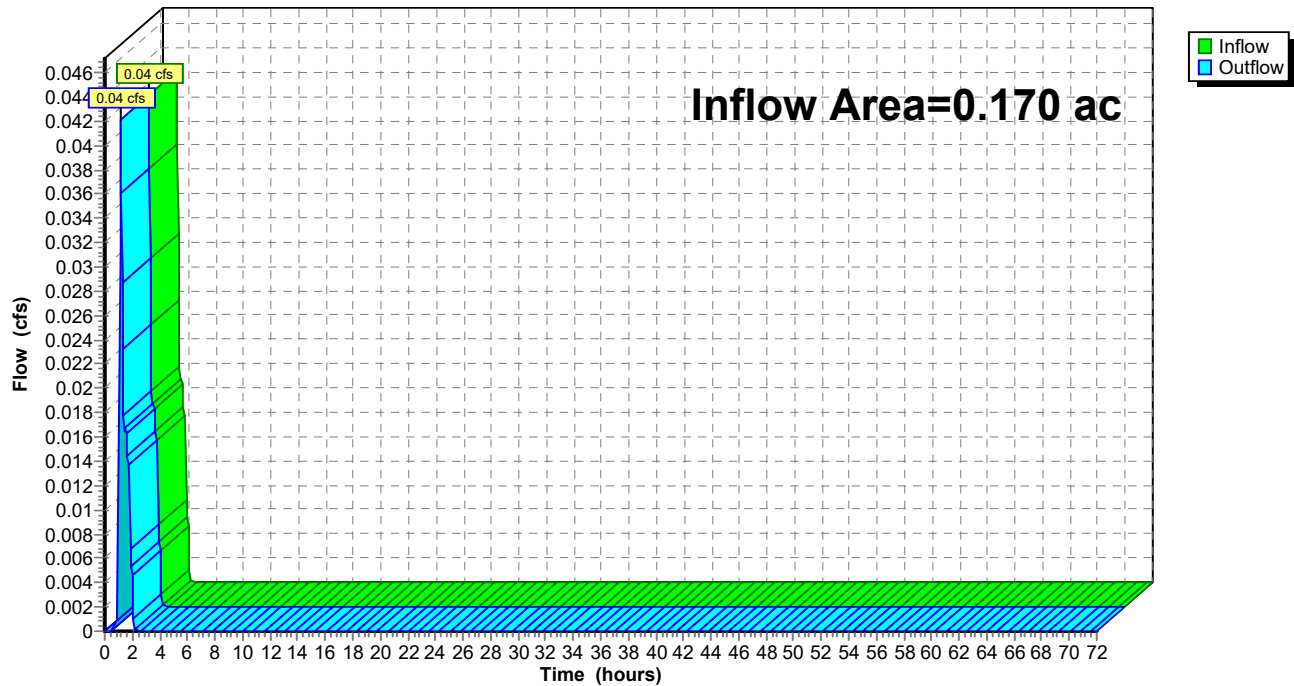
Summary for Reach DP2-PR:

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 0.10" for WQ event
Inflow = 0.04 cfs @ 1.16 hrs, Volume= 0.001 af
Outflow = 0.04 cfs @ 1.16 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP2-PR:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Reach DP2-PR:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.01		0.01	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.00		0.00	61.00	0.00		0.00
10.00	0.00		0.00	62.00	0.00		0.00
11.00	0.00		0.00	63.00	0.00		0.00
12.00	0.00		0.00	64.00	0.00		0.00
13.00	0.00		0.00	65.00	0.00		0.00
14.00	0.00		0.00	66.00	0.00		0.00
15.00	0.00		0.00	67.00	0.00		0.00
16.00	0.00		0.00	68.00	0.00		0.00
17.00	0.00		0.00	69.00	0.00		0.00
18.00	0.00		0.00	70.00	0.00		0.00
19.00	0.00		0.00	71.00	0.00		0.00
20.00	0.00		0.00	72.00	0.00		0.00
21.00	0.00		0.00				
22.00	0.00		0.00				
23.00	0.00		0.00				
24.00	0.00		0.00				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

251202_42 ERW Waystone - Future Rainfall

NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Pond BASIN:

Inflow Area = 2.619 ac, 32.35% Impervious, Inflow Depth = 0.44" for WQ event
 Inflow = 2.66 cfs @ 1.04 hrs, Volume= 0.096 af
 Outflow = 0.24 cfs @ 1.84 hrs, Volume= 0.096 af, Atten= 91%, Lag= 48.1 min
 Discarded = 0.24 cfs @ 1.83 hrs, Volume= 0.096 af
 Primary = 0.00 cfs @ 1.85 hrs, Volume= 0.000 af
 Routed to Reach DP1-PR :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 15.89' @ 1.83 hrs Surf.Area= 0.168 ac Storage= 0.071 af

Plug-Flow detention time= 124.4 min calculated for 0.096 af (100% of inflow)
 Center-of-Mass det. time= 124.3 min (194.9 - 70.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.00'	0.199 af	51.42'W x 141.93'L x 5.00'H Field A 0.838 af Overall - 0.341 af Embedded = 0.497 af x 40.0% Voids
#2A	15.75'	0.341 af	ADS_StormTech MC-3500 d +Capx 133 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 133 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		0.539 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	15.89'	14.0" W x 3.5" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	16.73'	20.0" W x 5.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	18.75'	1.0' 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
#4	Discarded	15.00'	1.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.24 cfs @ 1.83 hrs HW=15.89' (Free Discharge)
 ↑ **4=Exfiltration** (Controls 0.24 cfs)

Primary OutFlow Max=0.00 cfs @ 1.85 hrs HW=15.89' (Free Discharge)
 ↑ **1=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.04 fps)
 ↑ **2=Orifice/Grate** (Controls 0.00 cfs)
 ↑ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

251202_42 ERW Waystone - Future Rainfall

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NJ DEP 2-hr WQ Rainfall=1.25"

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Pond BASIN: - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

19 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 139.93' Row Length +12.0" End Stone x 2 = 141.93' Base Length

7 Rows x 77.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 51.42' Base Width

9.0" Stone Base + 45.0" Chamber Height + 6.0" Stone Cover = 5.00' Field Height

133 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 7 Rows = 14,832.2 cf Chamber Storage

36,487.8 cf Field - 14,832.2 cf Chambers = 21,655.6 cf Stone x 40.0% Voids = 8,662.3 cf Stone Storage

Chamber Storage + Stone Storage = 23,494.5 cf = 0.539 af

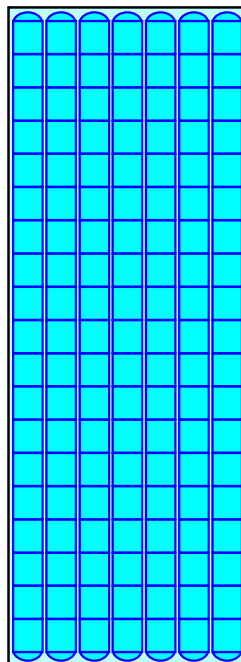
Overall Storage Efficiency = 64.4%

Overall System Size = 141.93' x 51.42' x 5.00'

133 Chambers

1,351.4 cy Field

802.1 cy Stone



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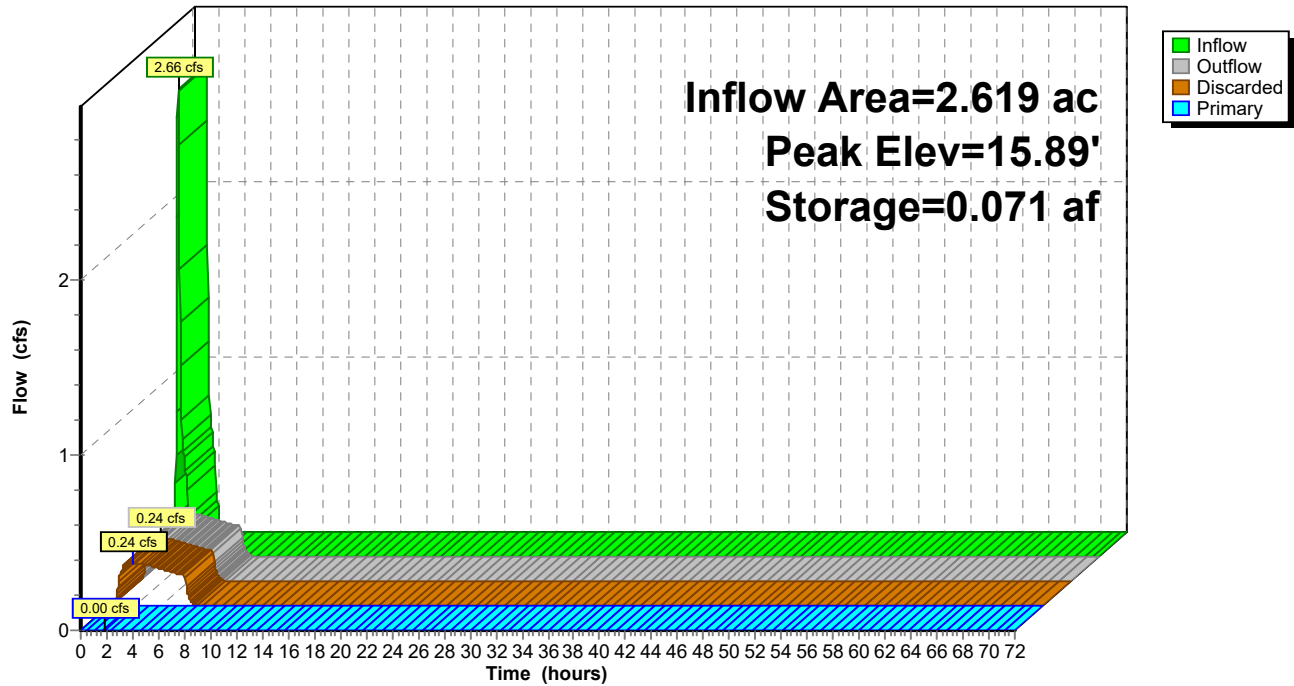
NJ DEP 2-hr WQ Rainfall=1.25"

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Pond BASIN:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Pond BASIN:

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.000	15.00	0.00	0.00	0.00
2.50	0.00	0.061	15.82	0.24	0.24	0.00
5.00	0.00	0.016	15.24	0.19	0.19	0.00
7.50	0.00	0.000	15.00	0.00	0.00	0.00
10.00	0.00	0.000	15.00	0.00	0.00	0.00
12.50	0.00	0.000	15.00	0.00	0.00	0.00
15.00	0.00	0.000	15.00	0.00	0.00	0.00
17.50	0.00	0.000	15.00	0.00	0.00	0.00
20.00	0.00	0.000	15.00	0.00	0.00	0.00
22.50	0.00	0.000	15.00	0.00	0.00	0.00
25.00	0.00	0.000	15.00	0.00	0.00	0.00
27.50	0.00	0.000	15.00	0.00	0.00	0.00
30.00	0.00	0.000	15.00	0.00	0.00	0.00
32.50	0.00	0.000	15.00	0.00	0.00	0.00
35.00	0.00	0.000	15.00	0.00	0.00	0.00
37.50	0.00	0.000	15.00	0.00	0.00	0.00
40.00	0.00	0.000	15.00	0.00	0.00	0.00
42.50	0.00	0.000	15.00	0.00	0.00	0.00
45.00	0.00	0.000	15.00	0.00	0.00	0.00
47.50	0.00	0.000	15.00	0.00	0.00	0.00
50.00	0.00	0.000	15.00	0.00	0.00	0.00
52.50	0.00	0.000	15.00	0.00	0.00	0.00
55.00	0.00	0.000	15.00	0.00	0.00	0.00
57.50	0.00	0.000	15.00	0.00	0.00	0.00
60.00	0.00	0.000	15.00	0.00	0.00	0.00
62.50	0.00	0.000	15.00	0.00	0.00	0.00
65.00	0.00	0.000	15.00	0.00	0.00	0.00
67.50	0.00	0.000	15.00	0.00	0.00	0.00
70.00	0.00	0.000	15.00	0.00	0.00	0.00

251202_42 ERW Waystone - Future Rainfall

NJ DEP 2-hr WQ Rainfall=1.25"

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Stage-Discharge for Pond BASIN:

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
15.00	0.00	0.00	0.00	17.60	5.15	0.39	4.76
15.05	0.17	0.17	0.00	17.65	5.28	0.39	4.89
15.10	0.18	0.18	0.00	17.70	5.42	0.40	5.02
15.15	0.18	0.18	0.00	17.75	5.55	0.40	5.15
15.20	0.19	0.19	0.00	17.80	5.68	0.41	5.27
15.25	0.19	0.19	0.00	17.85	5.80	0.41	5.39
15.30	0.19	0.19	0.00	17.90	5.92	0.41	5.51
15.35	0.20	0.20	0.00	17.95	6.04	0.42	5.62
15.40	0.20	0.20	0.00	18.00	6.16	0.42	5.74
15.45	0.21	0.21	0.00	18.05	6.27	0.43	5.85
15.50	0.21	0.21	0.00	18.10	6.38	0.43	5.95
15.55	0.22	0.22	0.00	18.15	6.49	0.43	6.06
15.60	0.22	0.22	0.00	18.20	6.60	0.44	6.16
15.65	0.22	0.22	0.00	18.25	6.71	0.44	6.26
15.70	0.23	0.23	0.00	18.30	6.81	0.45	6.36
15.75	0.23	0.23	0.00	18.35	6.91	0.45	6.46
15.80	0.24	0.24	0.00	18.40	7.01	0.46	6.56
15.85	0.24	0.24	0.00	18.45	7.11	0.46	6.65
15.90	0.25	0.24	0.00	18.50	7.21	0.46	6.75
15.95	0.30	0.25	0.06	18.55	7.31	0.47	6.84
16.00	0.39	0.25	0.14	18.60	7.40	0.47	6.93
16.05	0.50	0.26	0.24	18.65	7.50	0.48	7.02
16.10	0.62	0.26	0.36	18.70	7.59	0.48	7.11
16.15	0.76	0.27	0.50	18.75	7.68	0.49	7.20
16.20	0.91	0.27	0.64	18.80	7.80	0.49	7.31
16.25	1.02	0.27	0.74	18.85	7.95	0.49	7.46
16.30	1.11	0.28	0.83	18.90	8.11	0.50	7.62
16.35	1.19	0.28	0.91	18.95	8.29	0.50	7.79
16.40	1.27	0.29	0.98	19.00	8.48	0.51	7.97
16.45	1.34	0.29	1.05	19.05	8.68	0.51	8.17
16.50	1.41	0.30	1.11	19.10	8.90	0.52	8.38
16.55	1.47	0.30	1.17	19.15	9.12	0.52	8.60
16.60	1.53	0.30	1.23	19.20	9.36	0.52	8.83
16.65	1.59	0.31	1.28	19.25	9.61	0.53	9.08
16.70	1.65	0.31	1.33	19.30	9.87	0.53	9.34
16.75	1.71	0.32	1.40	19.35	10.14	0.54	9.60
16.80	1.85	0.32	1.53	19.40	10.43	0.54	9.89
16.85	2.02	0.33	1.70	19.45	10.74	0.54	10.19
16.90	2.23	0.33	1.90	19.50	11.06	0.55	10.51
16.95	2.45	0.33	2.12	19.55	11.39	0.55	10.83
17.00	2.70	0.34	2.36	19.60	11.69	0.56	11.14
17.05	2.96	0.34	2.62	19.65	12.01	0.56	11.45
17.10	3.24	0.35	2.89	19.70	12.33	0.57	11.76
17.15	3.53	0.35	3.18	19.75	12.65	0.57	12.08
17.20	3.78	0.35	3.42	19.80	12.98	0.57	12.41
17.25	3.99	0.36	3.63	19.85	13.31	0.58	12.73
17.30	4.19	0.36	3.82	19.90	13.65	0.58	13.07
17.35	4.37	0.37	4.00	19.95	13.99	0.59	13.41
17.40	4.54	0.37	4.16	20.00	14.34	0.59	13.75
17.45	4.70	0.38	4.32				
17.50	4.85	0.38	4.47				
17.55	5.00	0.38	4.62				

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NJ DEP 2-hr WQ Rainfall=1.25"

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Stage-Area-Storage for Pond BASIN:

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
15.00	0.168	0.000	17.60	0.168	0.307
15.05	0.168	0.003	17.65	0.168	0.313
15.10	0.168	0.007	17.70	0.168	0.320
15.15	0.168	0.010	17.75	0.168	0.326
15.20	0.168	0.013	17.80	0.168	0.332
15.25	0.168	0.017	17.85	0.168	0.339
15.30	0.168	0.020	17.90	0.168	0.345
15.35	0.168	0.023	17.95	0.168	0.351
15.40	0.168	0.027	18.00	0.168	0.357
15.45	0.168	0.030	18.05	0.168	0.363
15.50	0.168	0.034	18.10	0.168	0.369
15.55	0.168	0.037	18.15	0.168	0.375
15.60	0.168	0.040	18.20	0.168	0.381
15.65	0.168	0.044	18.25	0.168	0.387
15.70	0.168	0.047	18.30	0.168	0.393
15.75	0.168	0.050	18.35	0.168	0.399
15.80	0.168	0.058	18.40	0.168	0.405
15.85	0.168	0.065	18.45	0.168	0.410
15.90	0.168	0.072	18.50	0.168	0.416
15.95	0.168	0.079	18.55	0.168	0.421
16.00	0.168	0.086	18.60	0.168	0.427
16.05	0.168	0.094	18.65	0.168	0.432
16.10	0.168	0.101	18.70	0.168	0.438
16.15	0.168	0.108	18.75	0.168	0.443
16.20	0.168	0.115	18.80	0.168	0.448
16.25	0.168	0.122	18.85	0.168	0.453
16.30	0.168	0.129	18.90	0.168	0.458
16.35	0.168	0.136	18.95	0.168	0.463
16.40	0.168	0.143	19.00	0.168	0.467
16.45	0.168	0.151	19.05	0.168	0.472
16.50	0.168	0.158	19.10	0.168	0.476
16.55	0.168	0.165	19.15	0.168	0.480
16.60	0.168	0.172	19.20	0.168	0.484
16.65	0.168	0.179	19.25	0.168	0.488
16.70	0.168	0.186	19.30	0.168	0.492
16.75	0.168	0.193	19.35	0.168	0.495
16.80	0.168	0.199	19.40	0.168	0.499
16.85	0.168	0.206	19.45	0.168	0.502
16.90	0.168	0.213	19.50	0.168	0.506
16.95	0.168	0.220	19.55	0.168	0.509
17.00	0.168	0.227	19.60	0.168	0.513
17.05	0.168	0.234	19.65	0.168	0.516
17.10	0.168	0.241	19.70	0.168	0.519
17.15	0.168	0.247	19.75	0.168	0.523
17.20	0.168	0.254	19.80	0.168	0.526
17.25	0.168	0.261	19.85	0.168	0.529
17.30	0.168	0.267	19.90	0.168	0.533
17.35	0.168	0.274	19.95	0.168	0.536
17.40	0.168	0.281	20.00	0.168	0.539
17.45	0.168	0.287			
17.50	0.168	0.294			
17.55	0.168	0.300			

Appendix B

Recharge Worksheet

Annual Groundwater Recharge Analysis (based on GSR-32)

Select Township ↓	Average Annual P (in)	Climatic Factor
ESSEX CO., WEST ORANGE TOWN	49.0	1.67

Project Name:	42 ERW
Description:	Proposed Site Improvements
Analysis Date:	09/25/25

Pre-Developed Conditions

Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	0.319	Impervious areas	Boonton	0.0	-
2	2.773	Open space	Boonton	14.9	150,467
3					
4					
5					
6					
7					
8	0				
9	0				
10	0				
11	0				
12	0				
13	0				
14	0				
15	0				
Total =	3.1			Total Annual Recharge (in)	Total Annual Recharge (cu-ft)
				13.4	150,467

Post-Developed Conditions

Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	0.847	Impervious areas	Boonton	0.0	-
2	2.245	Open space	Boonton	14.9	121,817
3					
4					
5	0				
6	0				
7	0				
8	0				
9	0				
10	0				
11	0				
12	0				
13	0				
14	0				
15	0				
Total =	3.1			Total Annual Recharge (in)	Total Annual Recharge (cu.ft)
				10.9	121,817

Procedure to fill the Pre-Development and Post-Development Conditions Tables

For each land segment, first enter the area, then select TR-55 Land Cover, then select Soil. Start from the top of the table and proceed downward. Don't leave blank rows (with A=0) in between your segment entries. Rows with A=0 will not be displayed or used in calculations. For impervious areas outside of standard lots select "Impervious Areas" as the Land Cover. Soil type for impervious areas are only required if an infiltration facility will be built within these areas.

Annual Recharge Requirements Calculation ↓		10.9	121,817
% of Pre-Developed Annual Recharge to Preserve =	100%	Total Impervious Area (sq.ft)	36,895
Post-Development Annual Recharge Deficit=		28,650	(cubic feet)
Recharge Efficiency Parameters Calculations (area averages)			
RWC=	3.59	(in)	DRWC= 0.00 (in)
ERWC =	0.59	(in)	EDRWC= 0.00 (in)

Project Name	Description	Analysis Date	BMP or LID Type
42 ERW	Proposed Site Improvements	09/25/25	Subsurface Infiltration Basin

Recharge BMP Input Parameters				Root Zone Water capacity Calculated Parameters				Recharge Design Parameters			
Parameter	Symbol	Value	Unit	Parameter	Symbol	Value	Unit	Parameter	Symbol	Value	Unit
BMP Area	ABMP	5646.0	sq.ft	Empty Portion of RWC under Post-D Natural Recharge	ERWC	0.59	in	Inches of Runoff to capture	Qdesign	0.55	in
BMP Effective Depth, this is the design variable	dBMP	3.6	in	ERWC Modified to consider dEXC	EDRWC	0.00	in	Inches of Rainfall to capture	Pdesign	0.69	in
Upper level of the BMP surface (negative if above ground)	dBMPu	76.8	in	Empty Portion of RWC under Infil. BMP	RERWC	0.00	in	Recharge Provided Avg. over Imp. Area		25.7	in
Depth of lower surface of BMP, must be >= dBMPu	dEXC	85.8	in					Runoff Captured Avg. over imp. Area		25.7	in
Post-development Land Segment Location of BMP, Input Zero if Location is distributed or undetermined	SegBMP	0	unitless								

BMP Calculated Size Parameters				CALCULATION CHECK MESSAGES
ABMP/Aimp	Aratio	0.15	unitless	Volume Balance--> Solve Problem to satisfy Annual Recharge dBMP Check--> OK dEXC Check--> OK BMP Location--> Location is selected as distributed or undetermined
BMP Volume	VBMP	1,694	cu.ft	

Parameters from Annual Recharge Worksheet				System Performance Calculated Parameters			
Post-D Deficit Recharge (or desired recharge volume)	Vdef	28,650	cu.ft	Annual BMP Recharge Volume		78,977	cu.ft
Post-D Impervious Area (or target Impervious Area)	Aimp	36,895	sq.ft	Avg BMP Recharge Efficiency		100.0%	Represents % Infiltration Recharged
Root Zone Water Capacity	RWC	3.59	in	%Rainfall became Runoff		78.5%	%
RWC Modified to consider dEXC	DRWC	0.00	in	%Runoff Infiltrated		66.8%	%
Climatic Factor	C-factor	1.67	no units	%Runoff Recharged		66.8%	%
Average Annual P	Pavg	49.0	in	%Rainfall Recharged		52.4%	%
Recharge Requirement over Imp. Area	dr	9.3	in				

OTHER NOTES

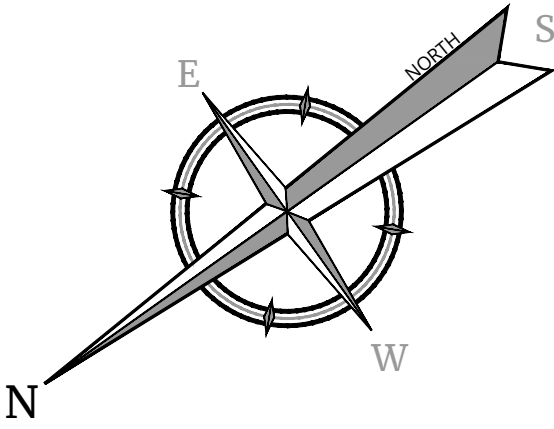
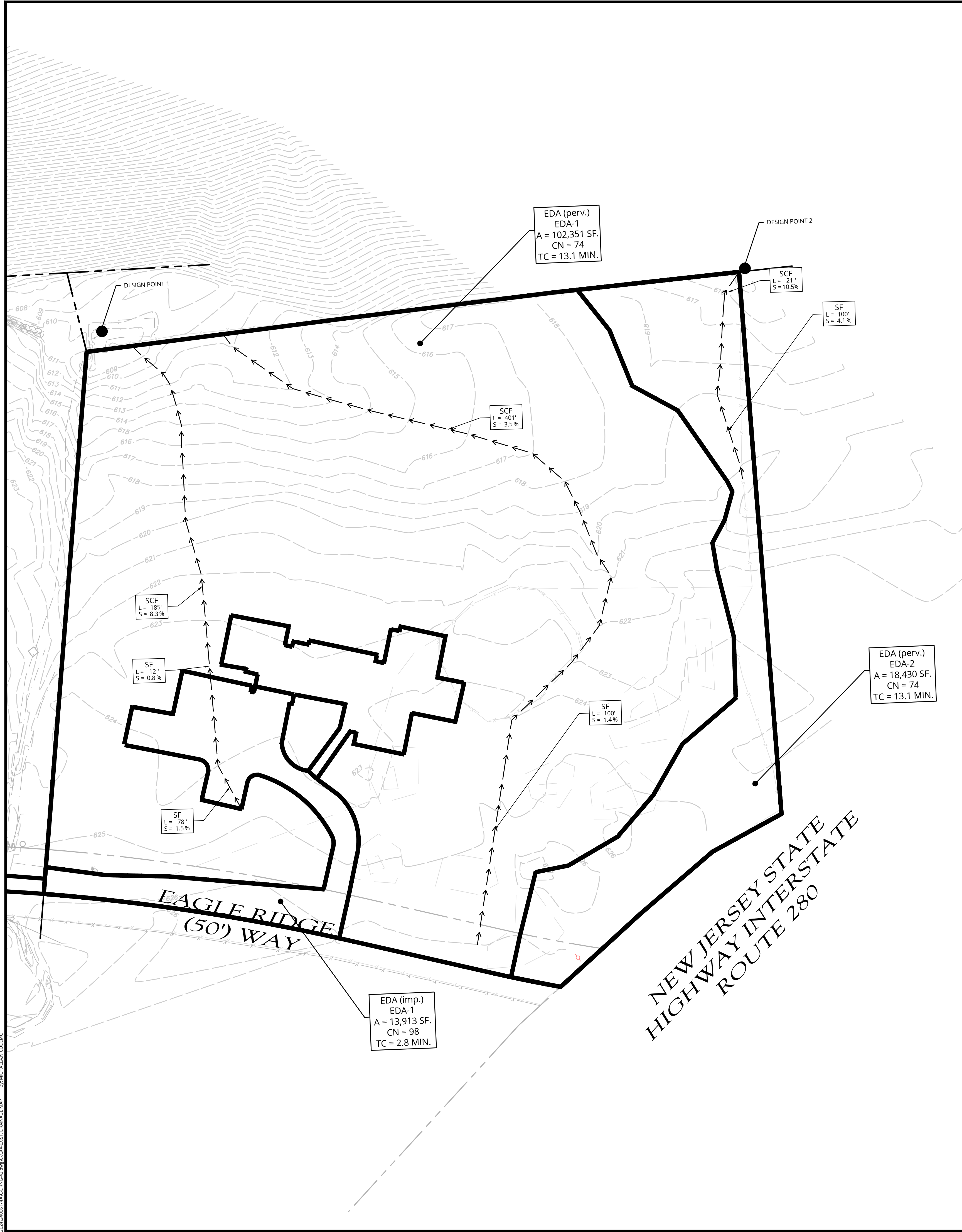
Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensitive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses.

How to solve for different recharge volumes: By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP.

To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & Aimp" button.

Appendix C

Existing and Proposed Drainage Area Map



SYMBOL

DESCRIPTION

→ →

TIME OF CONCENTRATION (T_c) PATH

SCF
L = 10'
S = 5.0%

T_c PATH TYPE IDENTIFIER:
SF = SHEET FLOW
SCF = SHALLOW CONCENTRATED FLOW
CF = CHANNEL/CONDUIT FLOW
LENGTH OF T_c PATH
SLOPE OF T_c PATH

EDA
A = 0.100 AC
CN = 76
TC = 4.8 MIN.

DRAINAGE AREA LABEL

DRAINAGE AREA
CURVE NUMBER
TIME OF CONCENTRATION

RehA
(HSG C)

SOIL TYPE (HYDROLOGIC SOIL GROUP)

SOIL TYPE BOUNDARY

300 0 30 60

SCALE : 1" = 30'

SELECT LINEAR UNIT OF MEASURE

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REV	DATE	DRAWN BY	DESCRIPTION
1	12/02/25	MM	PEELAWAY CHANGES

Jesse Cokeley

NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE54006
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 246A27986500

PRELIMINARY & FINAL
MAJOR SITE PLAN

FOR
WAYSTONE REALTY
LLC PROPOSED
RESIDENTIAL
IMPROVEMENTS

BLOCK 106
LOT 24.01

TOWNSHIP OF WEST
ORANGE
ESSEX COUNTY
NEW JERSEY

Colliers

Engineering & Design

WOODCLIFF LAKE
300 Tice Boulevard
Suite 101
Woodcliff Lake, NJ 07677
Phone: 845.352.0411
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	9/16/2024	MM	JF

PROJECT NUMBER:	DRAWING NAME:
24006174A	C-DRNG-42

SHEET TITLE:

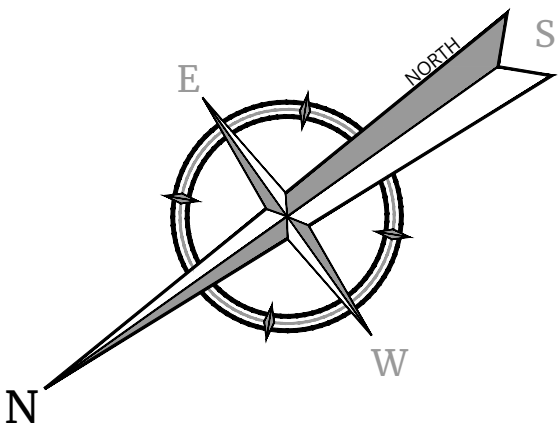
EXISTING
DRAINAGE MAP

SHEET NUMBER:

1 OF 3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



SYMBOL

DESCRIPTION

—

DRAINAGE AREA BOUNDARY

→

TIME OF CONCENTRATION (T_c) PATH

SCF

L = 10'

S = 5.0%

Tc PATH TYPE IDENTIFIER:
SF = SHEET FLOW
SCF = SHALLOW CONCENTRATED FLOW
CF = CHANNEL/CONDUIT FLOW

LENGTH OF TC PATH

SLOPE OF TC PATH

PDA
1-B-7
A = 0.100 AC.
CN = 76
TC = 4.8 MIN.

DRAINAGE AREA LABEL

POA-BASIN LABEL-DRAINAGE AREA NO.

DRAINAGE AREA

CURVE NUMBER

TIME OF CONCENTRATION

RehA
(HSG C)

SOIL TYPE (HYDROLOGIC SOIL GROUP)

SOIL TYPE BOUNDARY

20

0

20

40

SCALE : 1" = 20'

SELECT LINEAR UNIT OF MEASURE

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REV	DATE	DRAWN BY	DESCRIPTION
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AS SHOWN	9/16/2024	MMN	JF

PROJECT NUMBER:	DRAWING NAME:
24006174A	C-DRNG-42

SHEET TITLE:

INLET
DRAINAGE MAP

SHEET NUMBER:

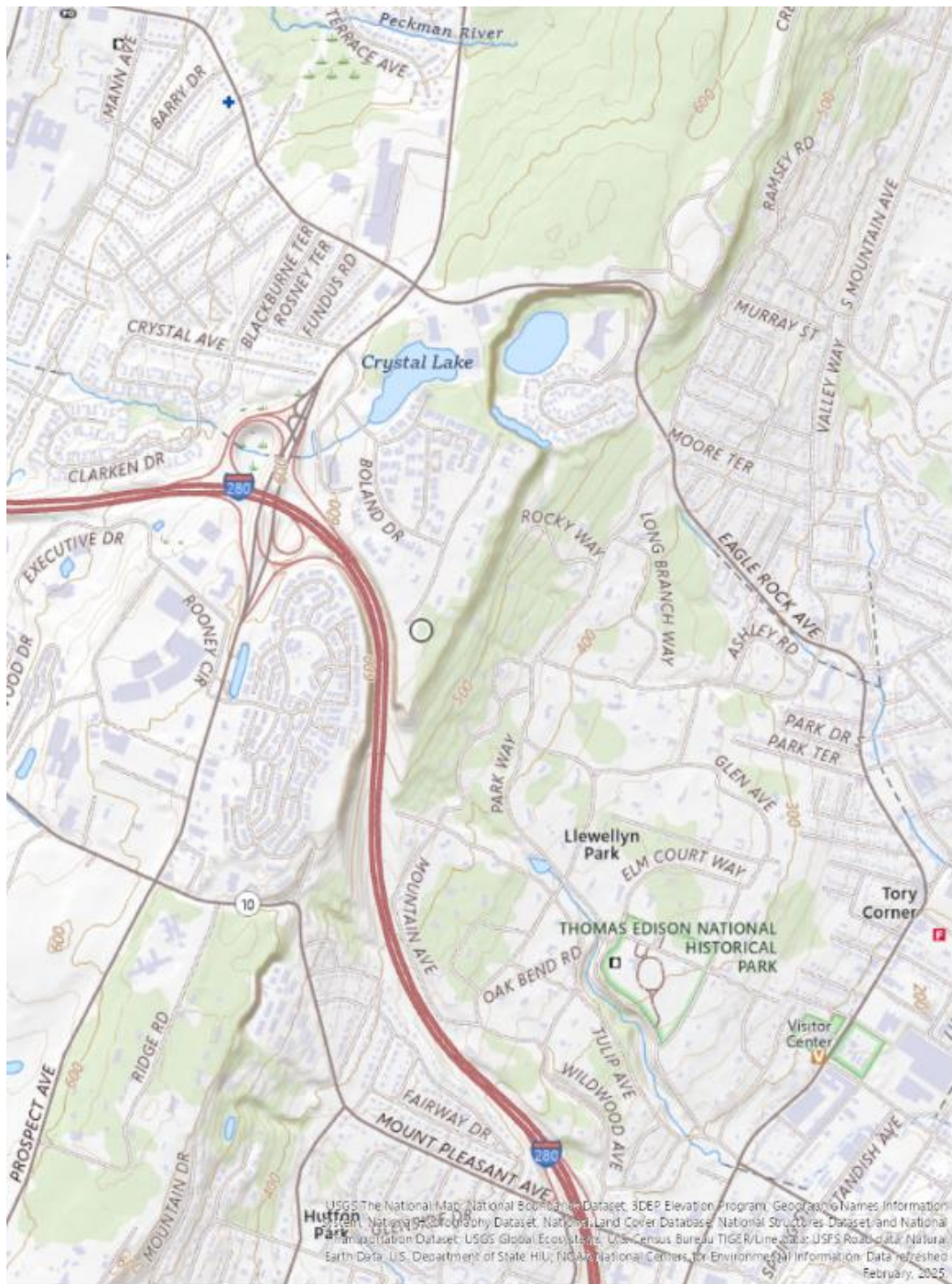
3 of 3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Appendix D

USGS

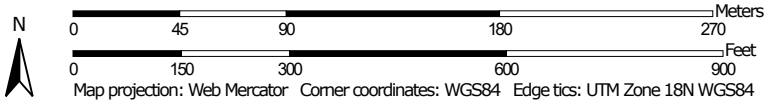
Soil Survey Location Map



Hydrologic Soil Group—Essex County, New Jersey



Map Scale: 1:3,190 if printed on A landscape (11" x 8.5") sheet.



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

6/24/2024
Page 1 of 4

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Essex County, New Jersey
 Survey Area Data: Version 19, Aug 29, 2023

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

Date(s) aerial images were photographed: Oct 10, 2022—Oct 16, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BooBc	Boonton silt loam, red sandstone lowland, 0 to 8 percent slopes, extremely stony	C	0.6	1.7%
BooCc	Boonton silt loam, red sandstone lowland, 8 to 15 percent slopes, extremely stony	C	8.1	22.1%
BouB	Boonton - Urban land, Boonton substratum complex, 0 to 8 percent slopes	C	1.4	3.8%
BowrB	Boonton - Urban land, Boonton substratum complex, red sandstone lowland, 0 to 8 percent slopes	C	1.6	4.4%
BowrC	Boonton - Urban land, Boonton substratum complex, red sandstone lowland, 8 to 15 percent slopes	C	5.6	15.1%
RNAAC	Rock outcrop		0.9	2.4%
USBONB	Urban land, Boonton substratum - Boonton complex, 0 to 8 percent slopes		3.2	8.7%
YamnBc	Yalesville loam, 0 to 8 percent slopes, extremely stony	C	10.2	27.7%
YaohEh	Yalesville - Holyoke complex, 35 to 60 percent slopes, very rocky	C	5.2	14.1%
Totals for Area of Interest			36.8	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix E - Geotechnical Data Report

GEOTECHNICAL DATA REPORT

(Stormwater Conditions)

November 25, 2025

42 Eagle Ridge Way
Block 106; Lot 24.01
Township of West Orange
Essex County, New Jersey

Prepared for:

Waystone Realty LLC
42 Eagle Ridge Way
West Orange, NJ 07052

Prepared by:



Francisco Sanchez-Dominici
New Jersey Professional Engineer
License No. GE061874



Ahmed Elmekati
New Jersey Professional Engineer
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Project No. 24006174A

Revisions

Revision	Date	Description	Prepared by	Checked by
1	11/25/25	Revised per Michaela Nicodemo comments	FSD	AHE
0	09/25/25	Initial release (signed)	FSD	AHE

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Subsurface Conditions	1
<i>Soil Stratification</i>	1
<i>General Groundwater Observations</i>	2
<i>Seasonal High Groundwater Table</i>	2
In-situ Infiltration Testing	2
<i>Proposed Stormwater Facilities</i>	2
<i>Measured Field Intake Rate</i>	2
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Table 2. Summary of In-Situ Infiltration Tests	3

Drawing

B-01-ELP.....	Exploration Location Plan
---------------	---------------------------

Appendix

Appendix A	Test Pit Logs
Appendix B.....	Test Pit Photographs
Appendix C	Single Ring Infiltration Logs

Introduction

In accordance with our proposal dated August 15, 2025, Colliers Engineering & Design, Inc. (CED), performed a subsurface exploration program for the proposed stormwater infiltration facilities in support of the proposed development located at 42 Eagle Ridge Way, Township of West Orange, Essex County, New Jersey. The program was undertaken to explore the infiltration characteristics of the soils at locations selected by the Site Civil Engineer.

This report presents a summary of the data collected during CED's field presence and the results of the performed in-situ infiltration tests.

Available Information

1. Drawing titled, "Preliminary and Final Major Site Plan for 42 Eagle Ridge Way", by Colliers Engineering & Design, dated October 18, 2024.

Site and Project Description

The project site is located at 42 Eagle Ridge Way, Township of West Orange, Essex County, New Jersey. The site is identified as Block 106, Lot 24.01 on the corresponding tax map. Eagle Ridge Way bounds the site towards Northwest. A residential development is located on the northeast side of the site. Wooded areas are located along the southeast and southwest sides of the site. The site is currently a vacant lot. Surface grades generally slope downward from El. 626± towards West to El. 612± towards East.

We understand stormwater management facilities are proposed on the east side of the site.

Stormwater Subsurface Exploration

CED performed a subsurface exploration program consisting of two test pits, TP-101 and TP-102, within the footprint of the proposed stormwater management facilities. The test pits were performed at locations selected by the Site Civil Engineer and extended up to 6 ft below existing surface grades where bedrock was encountered. Our representative located the test pits based on existing site features and handheld GPS equipment. Drawing B-01-ELP presents the locations of the test pits.

The test pits were performed by Grabowski Construction, Inc. of West Orange, New Jersey, on August 28, 2025, under a direct contract with the client. The test pits were performed under the continuous observation of CED representative, Mr. Francisco Sanchez-Dominici, PE. The test pits were backfilled upon completion.

Subsurface Conditions

Soil Stratification

The site soils were exposed at the surface at the test pit locations. Soils encountered within the test pits generally consist of silt loam/silt clay loam, varying amounts of sand/gravel/boulders. The test pits were terminated due to refusal encountered on bedrock at depths of up to 6 ft below existing grades.

The test pit logs are presented in Appendix A. Soils encountered were classified in the field in general accordance with the USDA Soil Classification System, a summary of which is presented in Appendix A. Photographs of the test pits are presented in Appendix B.

General Groundwater Observations

Groundwater conditions were not encountered within the test pits during the time of our onsite presence. Table 1 presents a summary of our observations.

Groundwater observations noted above reflect the conditions at the time of our onsite presence. Note that groundwater levels can fluctuate with locations, seasonal changes, precipitation, nearby construction activities, foreign influences such as leakage into and out of utilities, and other factors. Pockets or seams of gravels, sands, silts, or open fractures and joints can store and transmit “perched” groundwater flow or seepage.

Seasonal High Groundwater Table

Evidence of seasonal high groundwater table was not encountered within the test pits.

Table 1. Summary of Groundwater Observations

Location	Ground Elevation (ft)	Measured Groundwater Depth (ft)*	Measured SHGW Depth (ft)**
TP-101	613±	N.E.	N.D.
TP-102	615.5±	N.E.	N.D.

* N.E.: Not Encountered

** N.D.: Not Detected

In-situ Infiltration Testing

A total of two in-situ infiltration tests were performed within the test pits at a depth of 3 ft below existing grades. The single ring infiltrometer tests were performed in accordance with Chapter 12 of the New Jersey BMP Manual. A summary of the performed single ring infiltrometer tests is presented in Table 2.

Measured Field Intake Rate

Appendix C presents the details of the infiltration tests and corresponding results. Table 2 presents a summary of these results.

Table 2. Summary of In-Situ Infiltration Tests.

Location ID	Test Depth (ft)	Soil Description (see logs for full description)	Test Type	Measured Field Intake Rate (in/hr)
TP-101	3	Silt Loam	Single Ring	2.2 in/hr
TP-102	3	Silt Clay Loam	Single Ring	30 in/hr

Closing

The data presented in this report is based on field observations. The number, location, and depth of the explorations were completed as requested by the project team.

Limitations

This data report and all supporting documentation have been prepared exclusively for the use of **Waystone Realty LLC** pursuant to the Agreement between Colliers Engineering & Design (DBA Maser Consulting) and **Waystone Realty LLC**. All provisions set forth in the Agreement and the General Terms and Conditions attached thereto are incorporated herein by reference. No warranty, express or implied, is made herein.

The field observations and data contained in this report are based on limited exploration of the subsurface at the referenced project site, at the locations and depths indicated in this report. The explorations indicate subsurface conditions at the specific locations, depths, and times explored.

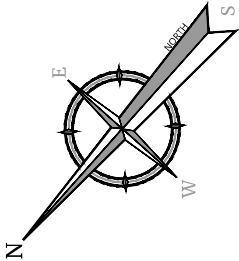
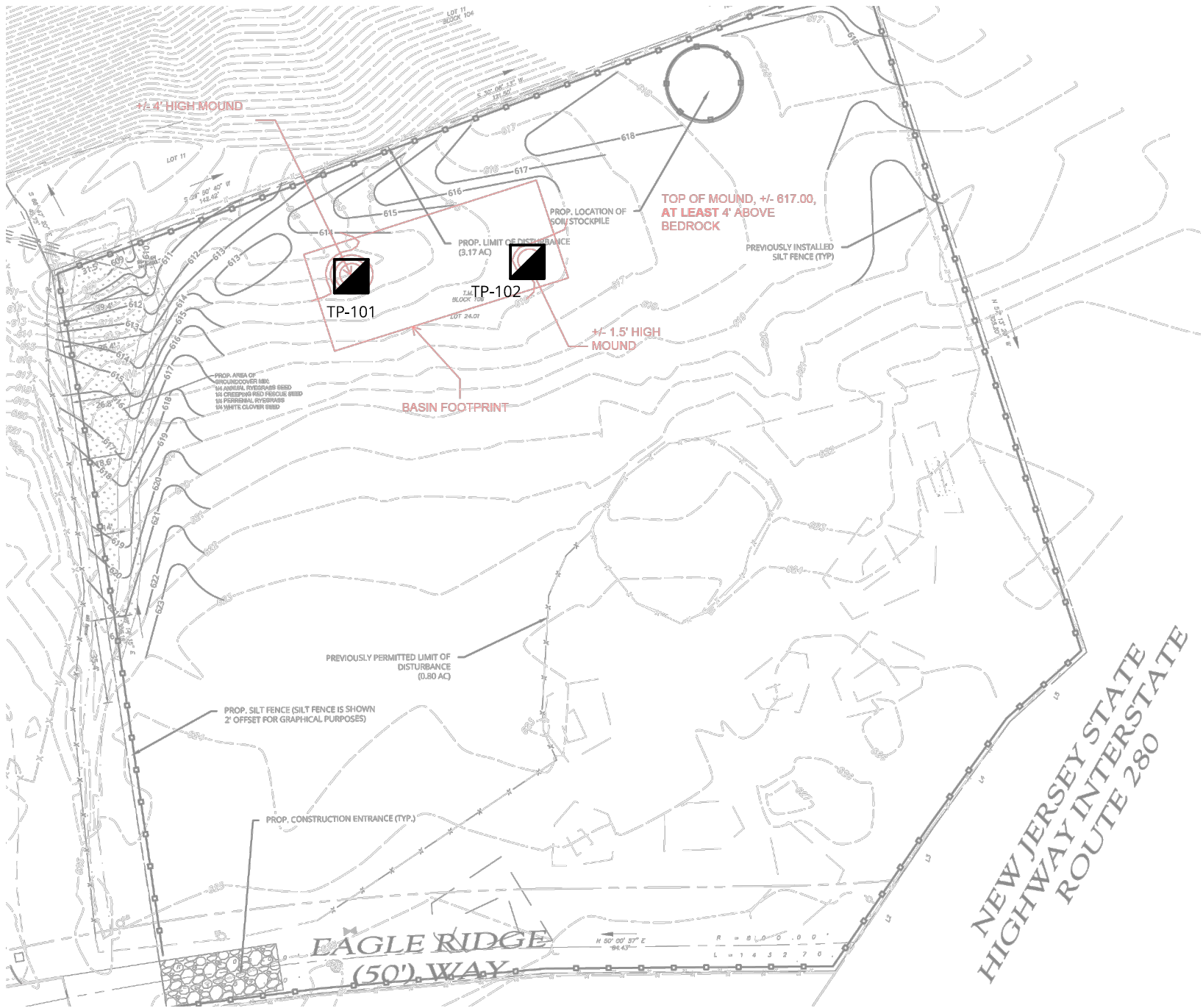
This report is intended to serve as a data report. CED is not responsible for any claims, damages, or liability associated with interpretation of subsurface data or reuse of the subsurface data or engineering analysis without the expressed written authorization of CED.

This data report and related documentation are instruments of service. The subject matter of this data report is limited to the facts and matters stated herein.

The scope of this subsurface exploration did not include geotechnical interpretation or evaluation of the findings, or investigation or evaluation of any environmental issues, such as wetlands, or hazardous or toxic materials on, below, or in the vicinity of the subject site. Any statements in this report or supporting documentation regarding odors or unusual or suspicious items or conditions observed are strictly for information only

Drawing

2024\24006174A\Geotechnical\Explorations\B-EXPL.dwg(B-01 (42ERW)) (2) By: NAJIB.ARSALAN



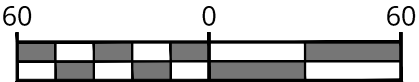
GENERAL NOTES:

1. BASE PLANS BASED ON DRAWING TITLED "SOIL EROSION & SEDIMENT CONTROL PLAN" DATED MAY 22, 2025, BY COLLIERS ENGINEERING & DESIGN.
2. THIS DRAWING IS PART OF COLLIERS ENGINEERING & DESIGN'S REPORT (PROJECT NO. 24006174A) AND SHOULD ONLY BE USED IN CONJUNCTION WITH THE REPORT.
3. TEST PIT SERIES TP-1XX PERFORMED BY GRABOWSKI CONSTRUCTION, INC. ON AUGUST 28, 2025, UNDER CONTINUOUS OBSERVATION OF CED.
4. TEST PITS BACKFILLED WITH CUTTINGS UPON COMPLETION.

LEGEND:



TEST PIT LOCATION
(AUGUST, 2025)



Engineering
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VISIT: WWW.CALL811.COM

DESCRIPTION

DRAWN BY

DATE

REV

EXPLORATION LOCATION
PLAN
FOR
WAYSTONE REALTY
LLC

BLOCK 106; LOT 20.03
42 EAGLE RIDGE WAY
TOWNSHIP OF WEST
ORANGE
ESSEX COUNTY, NEW JERSEY



Engineering
& Design

WOODCLIFF LAKE
300 Tice Boulevard
Suite 101
Woodcliff Lake, NJ 07677
Phone: 845.352.0411
COLLIERS ENGINEERING & DESIGN, INC.
DOING BUSINESS AS MASER CONSULTING

SCALE: AS SHOWN DATE: 11/25/25 DRAWN BY: NA CHECKED BY: FSD
PROJECT NUMBER: 24006174A DRAWING NAME: B-EXPL

SHEET TITLE: FIELD BOOK: XX PAGE: XX
EXPLORATION LOCATION
PLAN

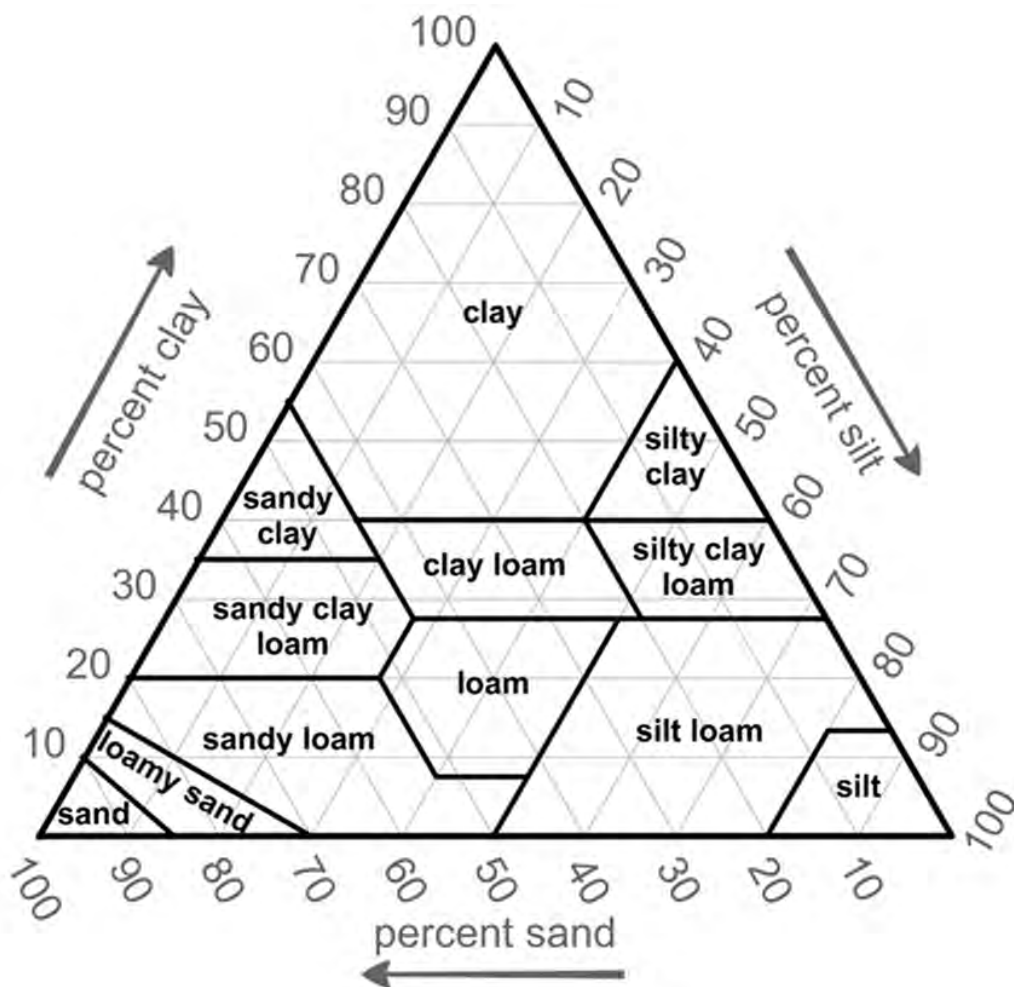
SHEET NUMBER:

B-01-ELP

Appendix A

Test Pit Logs

USDA Classification System





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PROJECT: 42 Eagle Ridge Way

LOCATION: West Orange, NJ

PROJECT NO. 24006174A

TEST PIT: TP-101

PAGE 1 OF 1

GROUND ELEVATION (ft): +/-613
ELEV. FROM: Survey

GROUNDWATER ELEV. (ft):

GROUNDWATER: DEPTH (ft) DATE
First Encountered  N.E. 08/28/25
At Completion (0 hrs.)  _____

CONTRACTOR: Grabowski Construction, Inc.
EQUIPMENT: Mini Excavator

FIELD OBSERVER: FSD
CHECKED BY: DP

DATE STARTED 08/28/25

DATE FINISHED 08/28/25

DEPTH (ft.)	WATER SYMBOL	DESCRIPTION
0		10YR 3/3 Silt Loam, 20% coarse fragments, subangular blocky, friable. (moist)
		54"
		72" 5YR 4/6 Silt Clay Loam, 20% coarse fragments, subangular blocky, friable. (moist)
6.5		-6 END OF TEST PIT AT 72 INCHES END OF TEST PIT AT 6 FT DUE TO REFUSAL ON BEDROCK
13		
19.5		
26		
32.5		
39		

NOTES: Infiltration test performed at 3 ft below existing grades.
Backfilled with soil cuttings upon completion.

Perched Water Conditions - Not Encountered
Est. Seasonal High Groundwater - Not Detected

TEST PIT: TP-101

PAGE 1 OF 1



Engineering
& Design

PROJECT: 42 Eagle Ridge Way

LOCATION: West Orange, NJ

PROJECT NO. 24006174A

TEST PIT: TP-102

PAGE 1 OF 1

GROUND ELEVATION (ft): +/-615
ELEV. FROM: Survey

GROUNDWATER ELEV. (ft):

GROUNDWATER: DEPTH (ft) DATE
First Encountered  N.E. 08/28/25
At Completion (0 hrs.)  _____

CONTRACTOR: Grabowski Construction, Inc.
EQUIPMENT: Mini Excavator

FIELD OBSERVER: FSD
CHECKED BY: DP

DATE STARTED 08/28/25

DATE FINISHED 08/28/25

DEPTH (ft.)	WATER SYMBOL	DESCRIPTION
0		10YR 3/3 Silt Loam, 20% coarse fragments, subangular blocky, friable. (moist)
24"		5YR 4/6 Silt Clay Loam, 20% coarse fragments, subangular blocky, friable. (moist)
60"		
6.5	-5	END OF TEST PIT AT 60 INCHES END OF TEST PIT AT 5 FT DUE TO REFUSAL ON BEDROCK
13		
19.5		
26		
32.5		
39		

NOTES: Infiltration test performed at 3 ft below existing grades.
Backfilled with soil cuttings upon completion.

Perched Water Conditions - Not Encountered
Est. Seasonal High Groundwater - Not Detected

TEST PIT: TP-102

PAGE 1 OF 1

Appendix B

Test Pit Photographs





Appendix C

Single Ring Infiltration Logs

Colliers Engineering & Design Project Number: 24006174A

Location: TP-101

Page: 1 of 1

Single Ring Infiltration Test Data:

Date: 8/28/2025

1. Test No.: TP-101

2. Depth: 36" (3.0 ft)

Soil Description:

Silt Loam

3. Presoak:

Time Elapsed to Drain Completely (3"):

15 min

4. Rate of Fall Data For 1" Drop:

(Min. of 3 Meas. & Elapsed Time has Stabilized; min. 2 consecutive meas. within 5 sec.)

Meas. #	Elapsed Time		Observed Field Intake Rate (in/hr)
	(min)	(sec)	
1	25	30	2.4
2	27	45	2.2
3	27	50	2.2
4	27	50	2.2

If 2 consecutive meas. are >60 min, the test is ended & Observed Field Intake Rate is <1 in/hr.

5. Conversion to Hydraulic Conductivity (per chart below):

a. Average Stabilized Observed Field Intake Rate (in/hr):

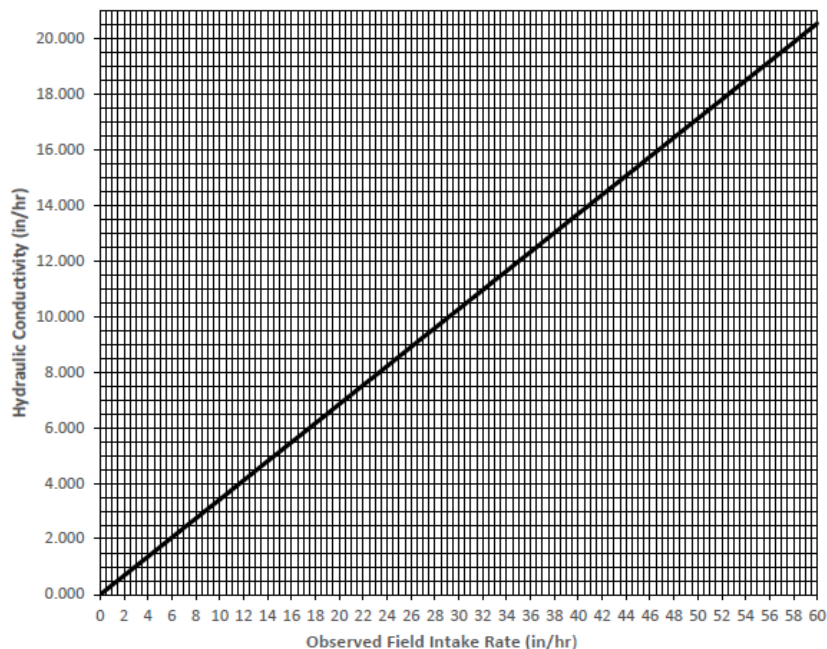
2.2

b. Soil Hydraulic Conductivity (in/hr):

0.8

(5a. x 0.3424 = 5b.)

Single Ring Test Conversion of
Observed Field Intake Rate to Hydraulic Conductivity



Source: New Jersey
Stormwater Best
Management Practices
Manual, Chapter 12: Soil
Testing Criteria, pg. 47,
(April 2022).

Notes: Test performed in 6" dia. metal ring with height of 6", set 3" into undisturbed soil layer.

Colliers Engineering & Design Project Number: 24006174A
Location: TP-102

Page: 1 of 1

Single Ring Infiltration Test Data:

Date: 8/28/2025

1. Test No.: TP-102

2. Depth: 36" (3.0 ft) Soil Description:

Silt Clay Loam

3. Presoak: Time Elapsed to Drain Completely (3"):

1 min

4. Rate of Fall Data For 1" Drop:

(Min. of 3 Meas. & Elapsed Time has Stabilized; min. 2 consecutive meas. within 5 sec.)

Meas. #	Elapsed Time		Observed Field Intake Rate (in/hr)
	(min)	(sec)	
1	2	0	30.0
2	2	0	30.0
3	2	0	30.0

If 2 consecutive meas. are >60 min, the test is ended & Observed Field Intake Rate is <1 in/hr.

5. Conversion to Hydraulic Conductivity (per chart below):

a. Average Stabilized Observed Field Intake Rate (in/hr):

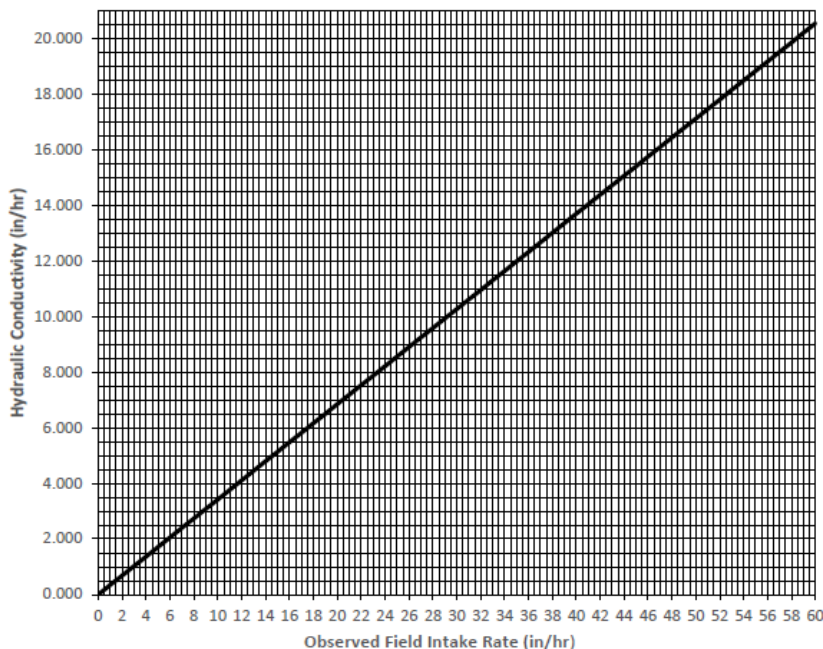
30.0

b. Soil Hydraulic Conductivity (in/hr):

10.3

(5a. x 0.3424 = 5b.)

Single Ring Test Conversion of
Observed Field Intake Rate to Hydraulic Conductivity



Source: New Jersey
Stormwater Best
Management Practices
Manual, Chapter 12: Soil
Testing Criteria, pg. 47,
(April 2022).

Notes: Test performed in 6" dia. metal ring with height of 6", set 3" into undisturbed soil layer.



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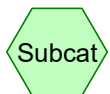
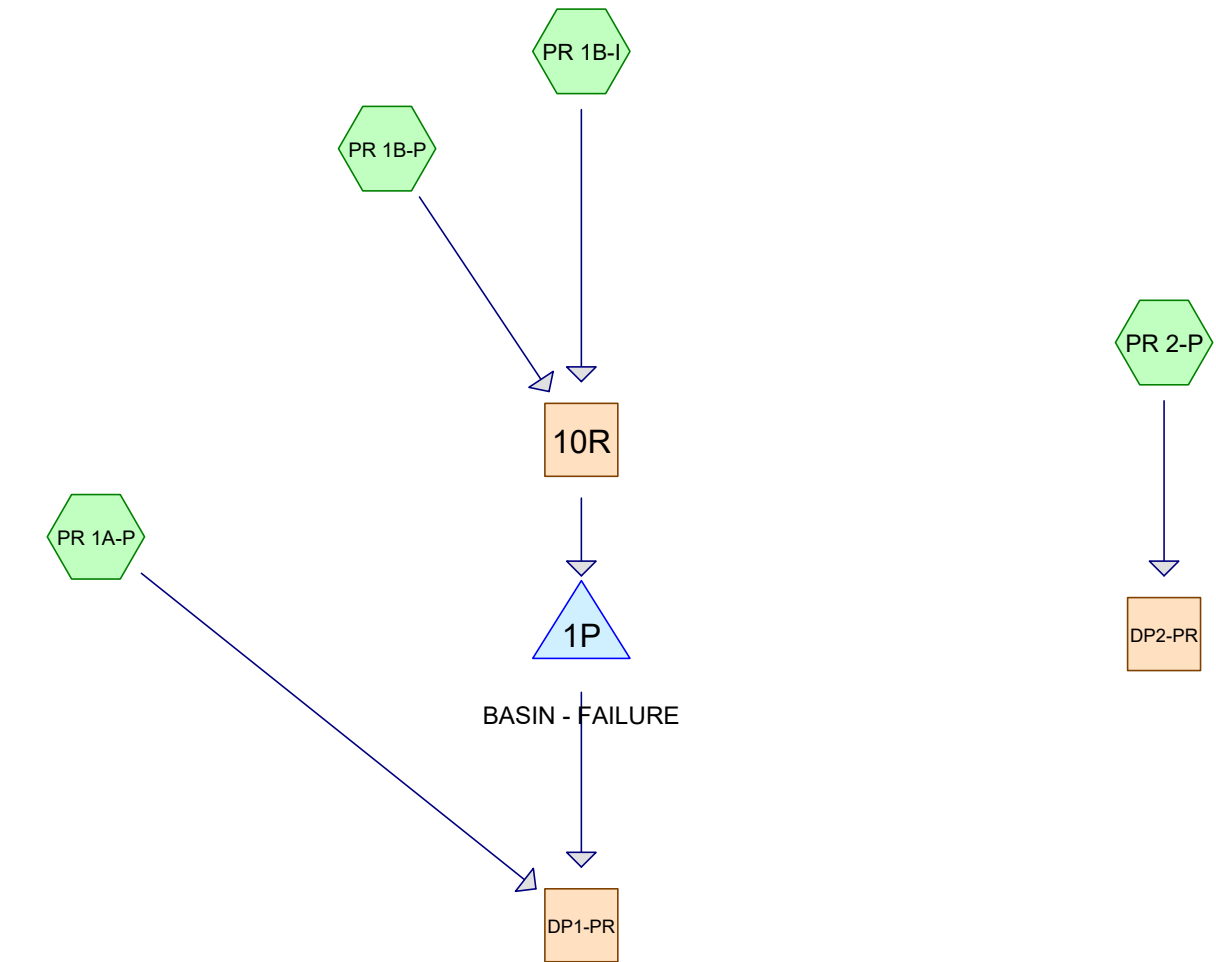
*Civil/Site • Traffic/Transportation • Governmental • Survey/Geospatial
Infrastructure • Geotechnical/Environmental • Telecommunications • Utilities/Energy*

Appendix F -

Stormwater Conveyance System

HydroCAD Output – Failure Condition

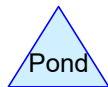
Conduit Outlet Protection Calculations



Subcat



Reach



Pond



Link

Routing Diagram for 251202_42 ERW Waystone - Future Rainfall

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251202_42 ERW Waystone - Future Rainfall

Prepared by Colliers Engineering & Design

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Page 2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.539	74	>75% Grass cover, Good, HSG C (PR 1A-P, PR 1B-P, PR 2-P)
0.705	89	Gravel roads, HSG C (PR 1A-P, PR 1B-P, PR 2-P)
0.355	98	Paved parking, HSG C (PR 1B-I)
0.492	98	Roofs, HSG C (PR 1B-I)
3.092	84	TOTAL AREA

251202_42 ERW Waystone - Future Rainfall

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Page 3

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
3.092	HSG C	PR 1A-P, PR 1B-I, PR 1B-P, PR 2-P
0.000	HSG D	
0.000	Other	
3.092		TOTAL AREA

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

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

SubcatchmentPR 1A-P:Runoff Area=13,167 sf 0.00% Impervious Runoff Depth=3.97"
Flow Length=203' Tc=5.9 min CN=78 Runoff=1.36 cfs 0.100 af**SubcatchmentPR 1B-I:**Runoff Area=36,906 sf 100.00% Impervious Runoff Depth=6.20"
Flow Length=136' Tc=1.5 min CN=98 Runoff=5.73 cfs 0.438 af**SubcatchmentPR 1B-P:**Runoff Area=77,195 sf 0.00% Impervious Runoff Depth=4.07"
Flow Length=195' Tc=7.7 min CN=79 Runoff=7.74 cfs 0.602 af**SubcatchmentPR 2-P:**Runoff Area=7,405 sf 0.00% Impervious Runoff Depth=3.76"
Flow Length=84' Slope=0.0833 '/' Tc=4.6 min CN=76 Runoff=0.76 cfs 0.053 af**Reach 10R:**Inflow=11.97 cfs 1.040 af
Outflow=11.97 cfs 1.040 af**Reach DP1-PR:**Inflow=6.11 cfs 1.069 af
Outflow=6.11 cfs 1.069 af**Reach DP2-PR:**Inflow=0.76 cfs 0.053 af
Outflow=0.76 cfs 0.053 af**Pond 1P: BASIN - FAILURE**Peak Elev=17.80' Storage=0.332 af Inflow=11.97 cfs 1.040 af
Outflow=5.27 cfs 0.969 af**Total Runoff Area = 3.092 ac Runoff Volume = 1.193 af Average Runoff Depth = 4.63"**
72.60% Pervious = 2.244 ac 27.40% Impervious = 0.847 ac

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Summary for Subcatchment PR 1A-P:

Runoff = 1.36 cfs @ 12.13 hrs, Volume= 0.100 af, Depth= 3.97"
Routed to Reach DP1-PR :

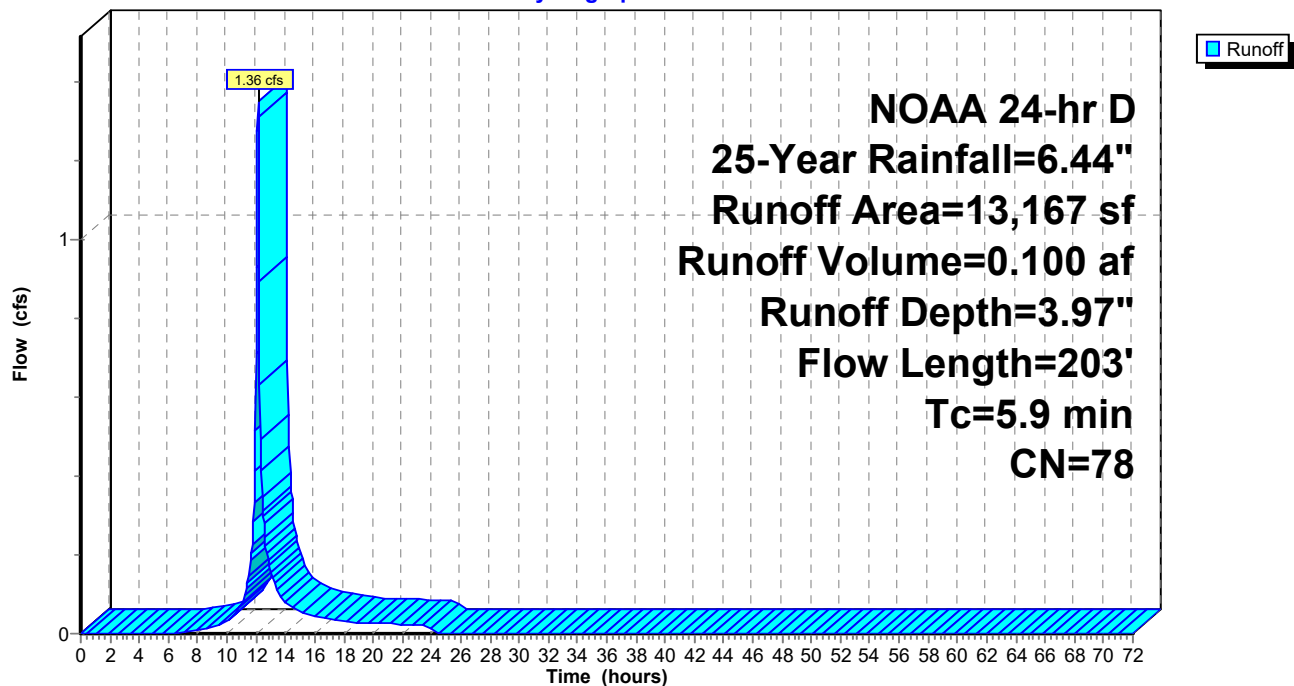
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Year Rainfall=6.44"

Area (sf)	CN	Description
9,975	74	>75% Grass cover, Good, HSG C
3,192	89	Gravel roads, HSG C
13,167	78	Weighted Average
13,167		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	100	0.0725	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.3	103	0.1090	5.32		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.9	203	Total			

Subcatchment PR 1A-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Subcatchment PR 1A-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	3.97	0.00
1.00	0.07	0.00	0.00	53.00	6.44	3.97	0.00
2.00	0.15	0.00	0.00	54.00	6.44	3.97	0.00
3.00	0.24	0.00	0.00	55.00	6.44	3.97	0.00
4.00	0.34	0.00	0.00	56.00	6.44	3.97	0.00
5.00	0.44	0.00	0.00	57.00	6.44	3.97	0.00
6.00	0.55	0.00	0.00	58.00	6.44	3.97	0.00
7.00	0.68	0.00	0.00	59.00	6.44	3.97	0.00
8.00	0.84	0.02	0.01	60.00	6.44	3.97	0.00
9.00	1.02	0.06	0.02	61.00	6.44	3.97	0.00
10.00	1.28	0.14	0.03	62.00	6.44	3.97	0.00
11.00	1.67	0.31	0.08	63.00	6.44	3.97	0.00
12.00	3.09	1.19	0.71	64.00	6.44	3.97	0.00
13.00	4.77	2.51	0.16	65.00	6.44	3.97	0.00
14.00	5.16	2.85	0.08	66.00	6.44	3.97	0.00
15.00	5.42	3.07	0.06	67.00	6.44	3.97	0.00
16.00	5.60	3.23	0.05	68.00	6.44	3.97	0.00
17.00	5.76	3.37	0.04	69.00	6.44	3.97	0.00
18.00	5.89	3.48	0.03	70.00	6.44	3.97	0.00
19.00	6.00	3.58	0.03	71.00	6.44	3.97	0.00
20.00	6.10	3.67	0.03	72.00	6.44	3.97	0.00
21.00	6.20	3.75	0.03				
22.00	6.29	3.83	0.02				
23.00	6.37	3.90	0.02				
24.00	6.44	3.97	0.02				
25.00	6.44	3.97	0.00				
26.00	6.44	3.97	0.00				
27.00	6.44	3.97	0.00				
28.00	6.44	3.97	0.00				
29.00	6.44	3.97	0.00				
30.00	6.44	3.97	0.00				
31.00	6.44	3.97	0.00				
32.00	6.44	3.97	0.00				
33.00	6.44	3.97	0.00				
34.00	6.44	3.97	0.00				
35.00	6.44	3.97	0.00				
36.00	6.44	3.97	0.00				
37.00	6.44	3.97	0.00				
38.00	6.44	3.97	0.00				
39.00	6.44	3.97	0.00				
40.00	6.44	3.97	0.00				
41.00	6.44	3.97	0.00				
42.00	6.44	3.97	0.00				
43.00	6.44	3.97	0.00				
44.00	6.44	3.97	0.00				
45.00	6.44	3.97	0.00				
46.00	6.44	3.97	0.00				
47.00	6.44	3.97	0.00				
48.00	6.44	3.97	0.00				
49.00	6.44	3.97	0.00				
50.00	6.44	3.97	0.00				
51.00	6.44	3.97	0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Summary for Subcatchment PR 1B-I:

Runoff = 5.73 cfs @ 12.07 hrs, Volume= 0.438 af, Depth= 6.20"
Routed to Reach 10R :

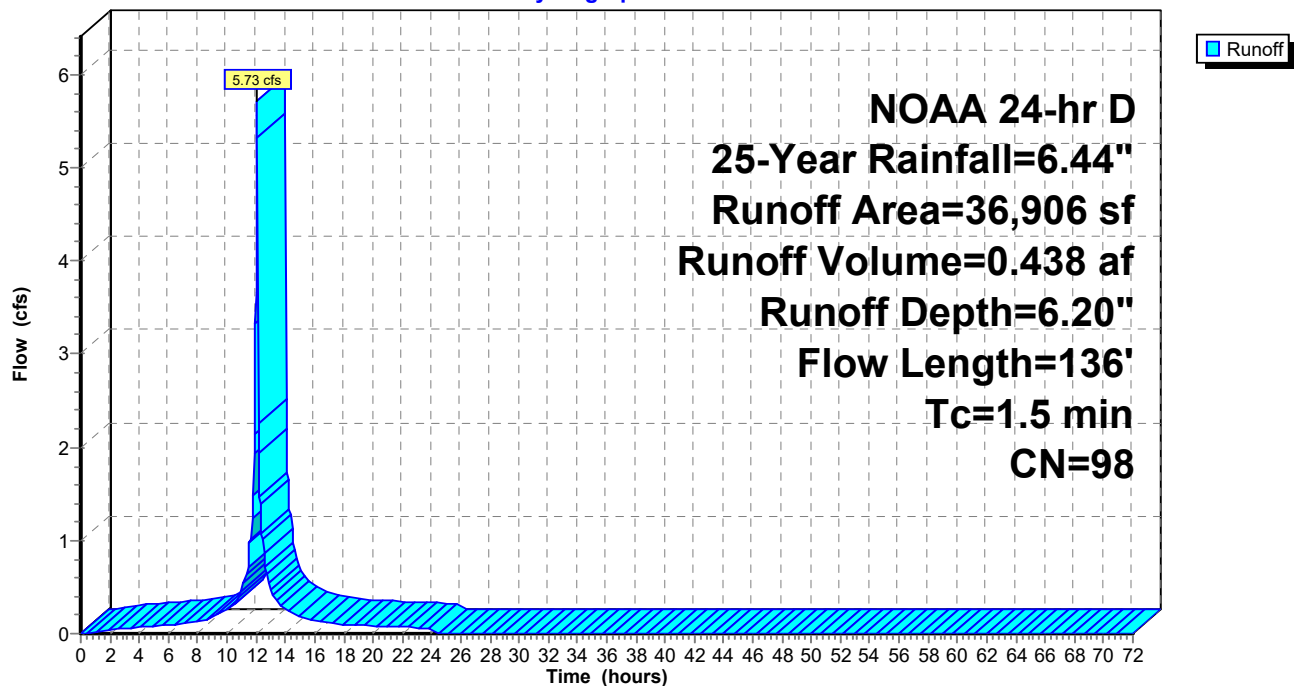
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Year Rainfall=6.44"

Area (sf)	CN	Description
21,449	98	Roofs, HSG C
15,457	98	Paved parking, HSG C
36,906	98	Weighted Average
36,906		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.43		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.44"
0.3	36	0.0097	2.00		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	136	Total			

Subcatchment PR 1B-I:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Subcatchment PR 1B-I:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	6.20	0.00
1.00	0.07	0.00	0.02	53.00	6.44	6.20	0.00
2.00	0.15	0.04	0.04	54.00	6.44	6.20	0.00
3.00	0.24	0.10	0.06	55.00	6.44	6.20	0.00
4.00	0.34	0.18	0.07	56.00	6.44	6.20	0.00
5.00	0.44	0.26	0.08	57.00	6.44	6.20	0.00
6.00	0.55	0.36	0.09	58.00	6.44	6.20	0.00
7.00	0.68	0.48	0.11	59.00	6.44	6.20	0.00
8.00	0.84	0.63	0.14	60.00	6.44	6.20	0.00
9.00	1.02	0.81	0.17	61.00	6.44	6.20	0.00
10.00	1.28	1.06	0.25	62.00	6.44	6.20	0.00
11.00	1.67	1.45	0.46	63.00	6.44	6.20	0.00
12.00	3.09	2.85	3.67	64.00	6.44	6.20	0.00
13.00	4.77	4.53	0.51	65.00	6.44	6.20	0.00
14.00	5.16	4.93	0.26	66.00	6.44	6.20	0.00
15.00	5.42	5.18	0.18	67.00	6.44	6.20	0.00
16.00	5.60	5.37	0.15	68.00	6.44	6.20	0.00
17.00	5.76	5.52	0.12	69.00	6.44	6.20	0.00
18.00	5.89	5.65	0.10	70.00	6.44	6.20	0.00
19.00	6.00	5.76	0.09	71.00	6.44	6.20	0.00
20.00	6.10	5.86	0.08	72.00	6.44	6.20	0.00
21.00	6.20	5.96	0.08				
22.00	6.29	6.05	0.07				
23.00	6.37	6.13	0.07				
24.00	6.44	6.20	0.05				
25.00	6.44	6.20	0.00				
26.00	6.44	6.20	0.00				
27.00	6.44	6.20	0.00				
28.00	6.44	6.20	0.00				
29.00	6.44	6.20	0.00				
30.00	6.44	6.20	0.00				
31.00	6.44	6.20	0.00				
32.00	6.44	6.20	0.00				
33.00	6.44	6.20	0.00				
34.00	6.44	6.20	0.00				
35.00	6.44	6.20	0.00				
36.00	6.44	6.20	0.00				
37.00	6.44	6.20	0.00				
38.00	6.44	6.20	0.00				
39.00	6.44	6.20	0.00				
40.00	6.44	6.20	0.00				
41.00	6.44	6.20	0.00				
42.00	6.44	6.20	0.00				
43.00	6.44	6.20	0.00				
44.00	6.44	6.20	0.00				
45.00	6.44	6.20	0.00				
46.00	6.44	6.20	0.00				
47.00	6.44	6.20	0.00				
48.00	6.44	6.20	0.00				
49.00	6.44	6.20	0.00				
50.00	6.44	6.20	0.00				
51.00	6.44	6.20	0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Summary for Subcatchment PR 1B-P:

Runoff = 7.74 cfs @ 12.15 hrs, Volume= 0.602 af, Depth= 4.07"
Routed to Reach 10R :

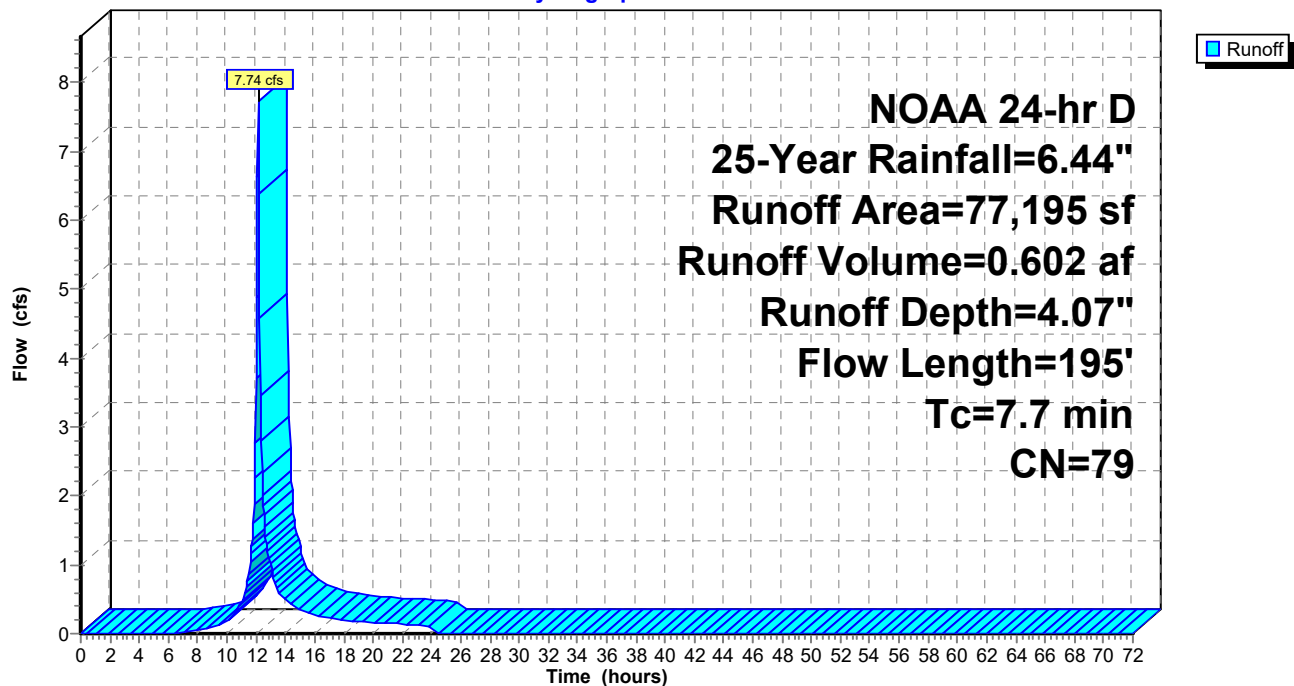
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Year Rainfall=6.44"

Area (sf)	CN	Description
50,619	74	>75% Grass cover, Good, HSG C
26,576	89	Gravel roads, HSG C
77,195	79	Weighted Average
77,195		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0400	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"
0.5	95	0.0361	3.06		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	195	Total			

Subcatchment PR 1B-P:

Hydrograph



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Hydrograph for Subcatchment PR 1B-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	4.07	0.00
1.00	0.07	0.00	0.00	53.00	6.44	4.07	0.00
2.00	0.15	0.00	0.00	54.00	6.44	4.07	0.00
3.00	0.24	0.00	0.00	55.00	6.44	4.07	0.00
4.00	0.34	0.00	0.00	56.00	6.44	4.07	0.00
5.00	0.44	0.00	0.00	57.00	6.44	4.07	0.00
6.00	0.55	0.00	0.00	58.00	6.44	4.07	0.00
7.00	0.68	0.01	0.02	59.00	6.44	4.07	0.00
8.00	0.84	0.03	0.06	60.00	6.44	4.07	0.00
9.00	1.02	0.08	0.10	61.00	6.44	4.07	0.00
10.00	1.28	0.16	0.20	62.00	6.44	4.07	0.00
11.00	1.67	0.34	0.45	63.00	6.44	4.07	0.00
12.00	3.09	1.25	3.72	64.00	6.44	4.07	0.00
13.00	4.77	2.60	0.98	65.00	6.44	4.07	0.00
14.00	5.16	2.94	0.49	66.00	6.44	4.07	0.00
15.00	5.42	3.16	0.34	67.00	6.44	4.07	0.00
16.00	5.60	3.33	0.28	68.00	6.44	4.07	0.00
17.00	5.76	3.47	0.23	69.00	6.44	4.07	0.00
18.00	5.89	3.58	0.19	70.00	6.44	4.07	0.00
19.00	6.00	3.68	0.17	71.00	6.44	4.07	0.00
20.00	6.10	3.77	0.16	72.00	6.44	4.07	0.00
21.00	6.20	3.86	0.15				
22.00	6.29	3.94	0.14				
23.00	6.37	4.01	0.13				
24.00	6.44	4.07	0.11				
25.00	6.44	4.07	0.00				
26.00	6.44	4.07	0.00				
27.00	6.44	4.07	0.00				
28.00	6.44	4.07	0.00				
29.00	6.44	4.07	0.00				
30.00	6.44	4.07	0.00				
31.00	6.44	4.07	0.00				
32.00	6.44	4.07	0.00				
33.00	6.44	4.07	0.00				
34.00	6.44	4.07	0.00				
35.00	6.44	4.07	0.00				
36.00	6.44	4.07	0.00				
37.00	6.44	4.07	0.00				
38.00	6.44	4.07	0.00				
39.00	6.44	4.07	0.00				
40.00	6.44	4.07	0.00				
41.00	6.44	4.07	0.00				
42.00	6.44	4.07	0.00				
43.00	6.44	4.07	0.00				
44.00	6.44	4.07	0.00				
45.00	6.44	4.07	0.00				
46.00	6.44	4.07	0.00				
47.00	6.44	4.07	0.00				
48.00	6.44	4.07	0.00				
49.00	6.44	4.07	0.00				
50.00	6.44	4.07	0.00				
51.00	6.44	4.07	0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Summary for Subcatchment PR 2-P:

Runoff = 0.76 cfs @ 12.11 hrs, Volume= 0.053 af, Depth= 3.76"
Routed to Reach DP2-PR :

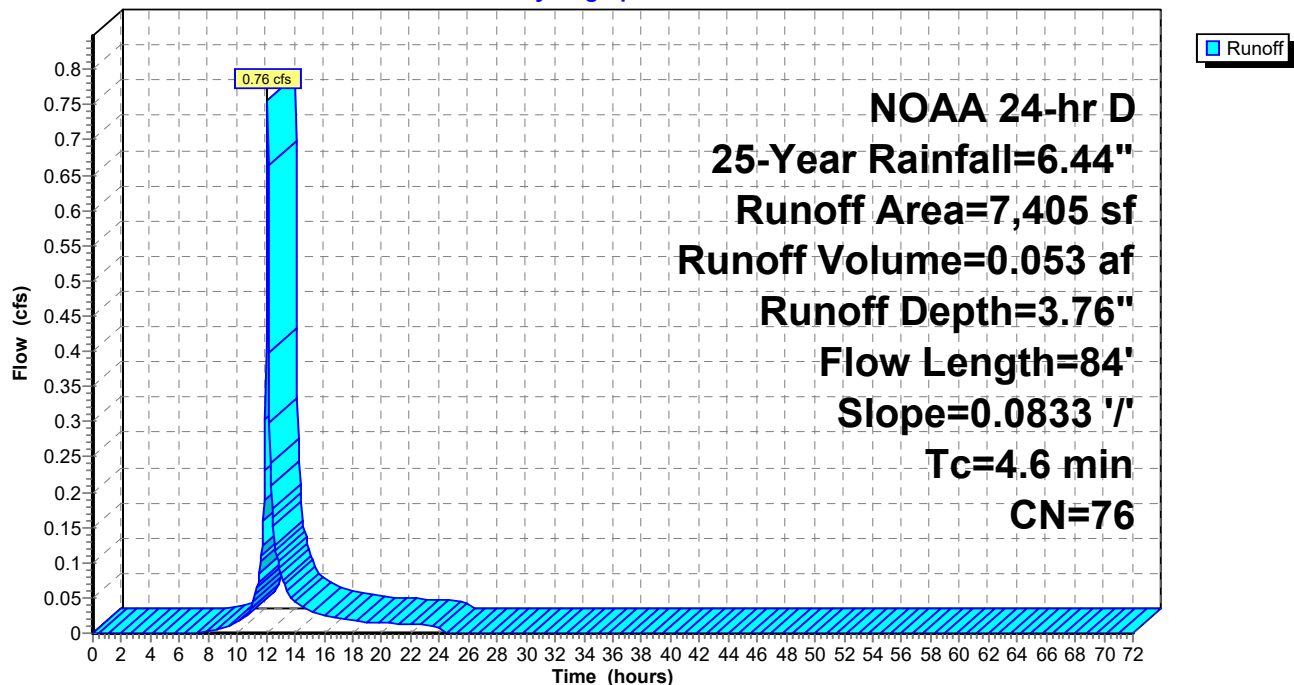
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Year Rainfall=6.44"

Area (sf)	CN	Description
6,447	74	>75% Grass cover, Good, HSG C
958	89	Gravel roads, HSG C
7,405	76	Weighted Average
7,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	84	0.0833	0.30		Sheet Flow, Grass: Short n= 0.150 P2= 3.44"

Subcatchment PR 2-P:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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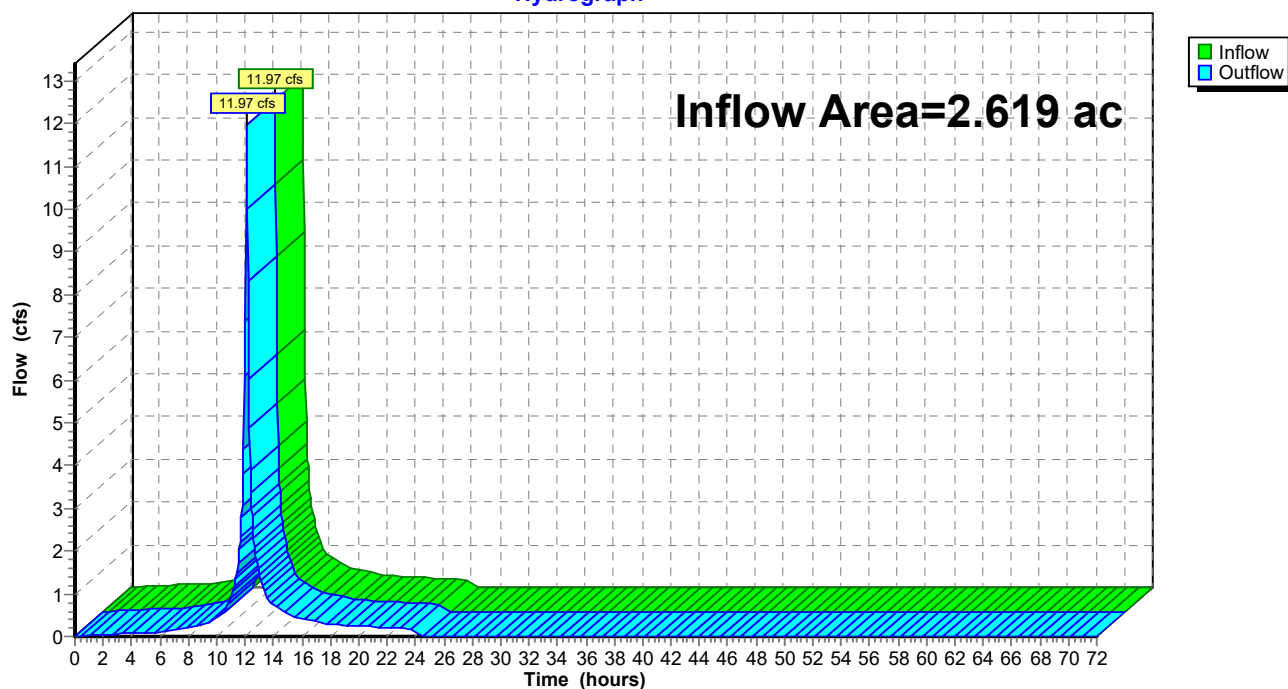
Hydrograph for Subcatchment PR 2-P:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	3.76	0.00
1.00	0.07	0.00	0.00	53.00	6.44	3.76	0.00
2.00	0.15	0.00	0.00	54.00	6.44	3.76	0.00
3.00	0.24	0.00	0.00	55.00	6.44	3.76	0.00
4.00	0.34	0.00	0.00	56.00	6.44	3.76	0.00
5.00	0.44	0.00	0.00	57.00	6.44	3.76	0.00
6.00	0.55	0.00	0.00	58.00	6.44	3.76	0.00
7.00	0.68	0.00	0.00	59.00	6.44	3.76	0.00
8.00	0.84	0.01	0.00	60.00	6.44	3.76	0.00
9.00	1.02	0.04	0.01	61.00	6.44	3.76	0.00
10.00	1.28	0.11	0.02	62.00	6.44	3.76	0.00
11.00	1.67	0.26	0.04	63.00	6.44	3.76	0.00
12.00	3.09	1.07	0.42	64.00	6.44	3.76	0.00
13.00	4.77	2.34	0.09	65.00	6.44	3.76	0.00
14.00	5.16	2.67	0.04	66.00	6.44	3.76	0.00
15.00	5.42	2.88	0.03	67.00	6.44	3.76	0.00
16.00	5.60	3.04	0.03	68.00	6.44	3.76	0.00
17.00	5.76	3.18	0.02	69.00	6.44	3.76	0.00
18.00	5.89	3.29	0.02	70.00	6.44	3.76	0.00
19.00	6.00	3.38	0.02	71.00	6.44	3.76	0.00
20.00	6.10	3.47	0.01	72.00	6.44	3.76	0.00
21.00	6.20	3.55	0.01				
22.00	6.29	3.63	0.01				
23.00	6.37	3.70	0.01				
24.00	6.44	3.76	0.01				
25.00	6.44	3.76	0.00				
26.00	6.44	3.76	0.00				
27.00	6.44	3.76	0.00				
28.00	6.44	3.76	0.00				
29.00	6.44	3.76	0.00				
30.00	6.44	3.76	0.00				
31.00	6.44	3.76	0.00				
32.00	6.44	3.76	0.00				
33.00	6.44	3.76	0.00				
34.00	6.44	3.76	0.00				
35.00	6.44	3.76	0.00				
36.00	6.44	3.76	0.00				
37.00	6.44	3.76	0.00				
38.00	6.44	3.76	0.00				
39.00	6.44	3.76	0.00				
40.00	6.44	3.76	0.00				
41.00	6.44	3.76	0.00				
42.00	6.44	3.76	0.00				
43.00	6.44	3.76	0.00				
44.00	6.44	3.76	0.00				
45.00	6.44	3.76	0.00				
46.00	6.44	3.76	0.00				
47.00	6.44	3.76	0.00				
48.00	6.44	3.76	0.00				
49.00	6.44	3.76	0.00				
50.00	6.44	3.76	0.00				
51.00	6.44	3.76	0.00				

Summary for Reach 10R:

Inflow Area = 2.619 ac, 32.35% Impervious, Inflow Depth = 4.76" for 25-Year event
Inflow = 11.97 cfs @ 12.10 hrs, Volume= 1.040 af
Outflow = 11.97 cfs @ 12.10 hrs, Volume= 1.040 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 1P : BASIN - FAILURE

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach 10R:**Hydrograph**

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Reach 10R:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.02		0.02	53.00	0.00		0.00
2.00	0.04		0.04	54.00	0.00		0.00
3.00	0.06		0.06	55.00	0.00		0.00
4.00	0.07		0.07	56.00	0.00		0.00
5.00	0.08		0.08	57.00	0.00		0.00
6.00	0.09		0.09	58.00	0.00		0.00
7.00	0.14		0.14	59.00	0.00		0.00
8.00	0.20		0.20	60.00	0.00		0.00
9.00	0.26		0.26	61.00	0.00		0.00
10.00	0.45		0.45	62.00	0.00		0.00
11.00	0.91		0.91	63.00	0.00		0.00
12.00	7.39		7.39	64.00	0.00		0.00
13.00	1.49		1.49	65.00	0.00		0.00
14.00	0.76		0.76	66.00	0.00		0.00
15.00	0.52		0.52	67.00	0.00		0.00
16.00	0.42		0.42	68.00	0.00		0.00
17.00	0.35		0.35	69.00	0.00		0.00
18.00	0.29		0.29	70.00	0.00		0.00
19.00	0.26		0.26	71.00	0.00		0.00
20.00	0.24		0.24	72.00	0.00		0.00
21.00	0.23		0.23				
22.00	0.21		0.21				
23.00	0.19		0.19				
24.00	0.17		0.17				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

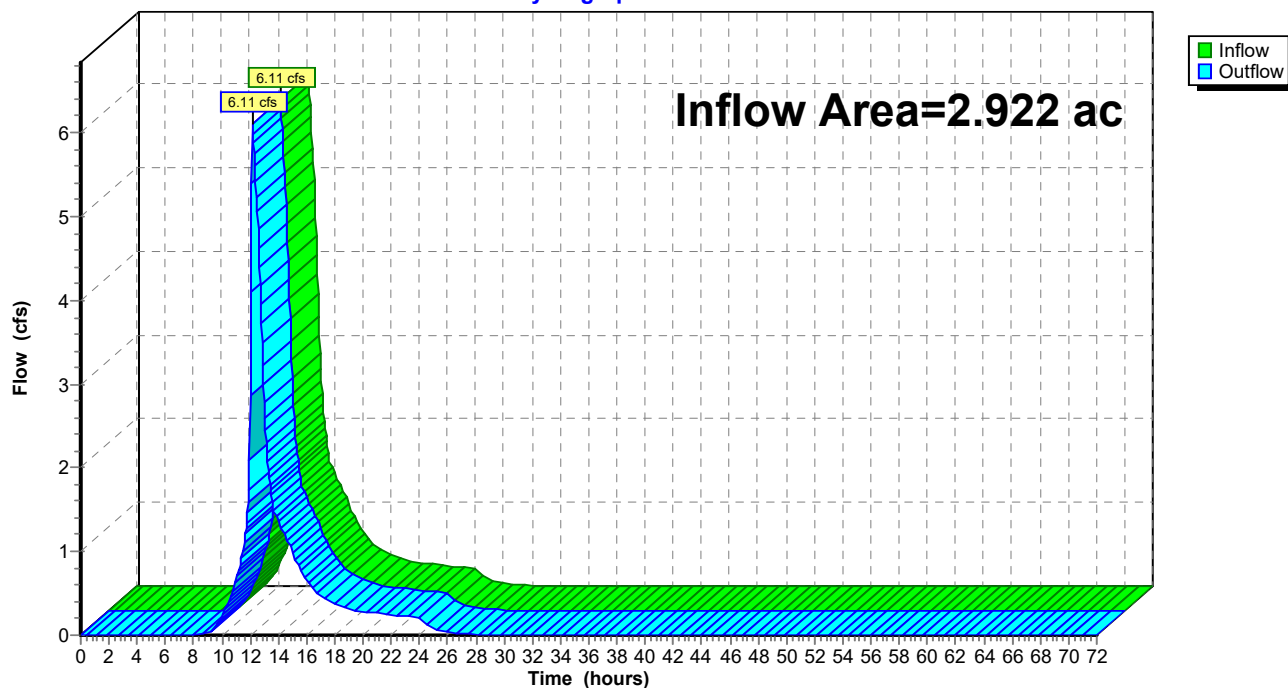
Summary for Reach DP1-PR:

Inflow Area = 2.922 ac, 29.00% Impervious, Inflow Depth = 4.39" for 25-Year event
Inflow = 6.11 cfs @ 12.17 hrs, Volume= 1.069 af
Outflow = 6.11 cfs @ 12.17 hrs, Volume= 1.069 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP1-PR:

Hydrograph



251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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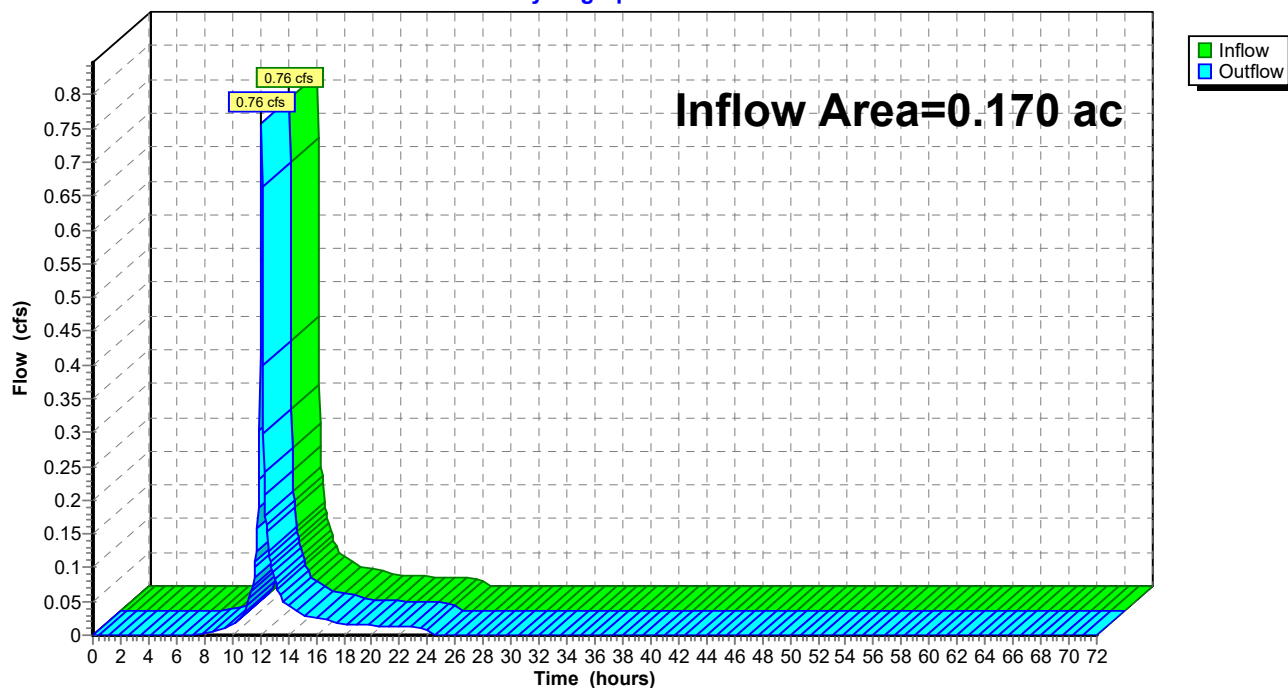
Hydrograph for Reach DP1-PR:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.01		0.01	60.00	0.00		0.00
9.00	0.02		0.02	61.00	0.00		0.00
10.00	0.23		0.23	62.00	0.00		0.00
11.00	0.65		0.65	63.00	0.00		0.00
12.00	2.87		2.87	64.00	0.00		0.00
13.00	2.78		2.78	65.00	0.00		0.00
14.00	1.36		1.36	66.00	0.00		0.00
15.00	0.99		0.99	67.00	0.00		0.00
16.00	0.65		0.65	68.00	0.00		0.00
17.00	0.46		0.46	69.00	0.00		0.00
18.00	0.37		0.37	70.00	0.00		0.00
19.00	0.31		0.31	71.00	0.00		0.00
20.00	0.29		0.29	72.00	0.00		0.00
21.00	0.27		0.27				
22.00	0.25		0.25				
23.00	0.23		0.23				
24.00	0.21		0.21				
25.00	0.07		0.07				
26.00	0.04		0.04				
27.00	0.02		0.02				
28.00	0.01		0.01				
29.00	0.01		0.01				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

Summary for Reach DP2-PR:

Inflow Area = 0.170 ac, 0.00% Impervious, Inflow Depth = 3.76" for 25-Year event
Inflow = 0.76 cfs @ 12.11 hrs, Volume= 0.053 af
Outflow = 0.76 cfs @ 12.11 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach DP2-PR:**Hydrograph**

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Reach DP2-PR:

Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Outflow (cfs)
0.00	0.00		0.00	52.00	0.00		0.00
1.00	0.00		0.00	53.00	0.00		0.00
2.00	0.00		0.00	54.00	0.00		0.00
3.00	0.00		0.00	55.00	0.00		0.00
4.00	0.00		0.00	56.00	0.00		0.00
5.00	0.00		0.00	57.00	0.00		0.00
6.00	0.00		0.00	58.00	0.00		0.00
7.00	0.00		0.00	59.00	0.00		0.00
8.00	0.00		0.00	60.00	0.00		0.00
9.00	0.01		0.01	61.00	0.00		0.00
10.00	0.02		0.02	62.00	0.00		0.00
11.00	0.04		0.04	63.00	0.00		0.00
12.00	0.42		0.42	64.00	0.00		0.00
13.00	0.09		0.09	65.00	0.00		0.00
14.00	0.04		0.04	66.00	0.00		0.00
15.00	0.03		0.03	67.00	0.00		0.00
16.00	0.03		0.03	68.00	0.00		0.00
17.00	0.02		0.02	69.00	0.00		0.00
18.00	0.02		0.02	70.00	0.00		0.00
19.00	0.02		0.02	71.00	0.00		0.00
20.00	0.01		0.01	72.00	0.00		0.00
21.00	0.01		0.01				
22.00	0.01		0.01				
23.00	0.01		0.01				
24.00	0.01		0.01				
25.00	0.00		0.00				
26.00	0.00		0.00				
27.00	0.00		0.00				
28.00	0.00		0.00				
29.00	0.00		0.00				
30.00	0.00		0.00				
31.00	0.00		0.00				
32.00	0.00		0.00				
33.00	0.00		0.00				
34.00	0.00		0.00				
35.00	0.00		0.00				
36.00	0.00		0.00				
37.00	0.00		0.00				
38.00	0.00		0.00				
39.00	0.00		0.00				
40.00	0.00		0.00				
41.00	0.00		0.00				
42.00	0.00		0.00				
43.00	0.00		0.00				
44.00	0.00		0.00				
45.00	0.00		0.00				
46.00	0.00		0.00				
47.00	0.00		0.00				
48.00	0.00		0.00				
49.00	0.00		0.00				
50.00	0.00		0.00				
51.00	0.00		0.00				

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Summary for Pond 1P: BASIN - FAILURE

Inflow Area = 2.619 ac, 32.35% Impervious, Inflow Depth = 4.76" for 25-Year event
 Inflow = 11.97 cfs @ 12.10 hrs, Volume= 1.040 af
 Outflow = 5.27 cfs @ 12.28 hrs, Volume= 0.969 af, Atten= 56%, Lag= 11.2 min
 Primary = 5.27 cfs @ 12.28 hrs, Volume= 0.969 af
 Routed to Reach DP1-PR :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 17.80' @ 12.28 hrs Surf.Area= 0.168 ac Storage= 0.332 af

Plug-Flow detention time= 120.8 min calculated for 0.969 af (93% of inflow)
 Center-of-Mass det. time= 82.0 min (870.7 - 788.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.00'	0.199 af	51.42'W x 141.93'L x 5.00'H Field A 0.838 af Overall - 0.341 af Embedded = 0.497 af x 40.0% Voids
#2A	15.75'	0.341 af	ADS_StormTech MC-3500 d +Capx 133 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 133 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		0.539 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	15.89'	14.0" W x 3.5" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	16.73'	20.0" W x 5.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	18.75'	1.0' 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=5.26 cfs @ 12.28 hrs HW=17.80' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 2.17 cfs @ 6.39 fps)
- 2=Orifice/Grate (Orifice Controls 3.09 cfs @ 4.45 fps)
- 3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: BASIN - FAILURE - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

19 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 139.93' Row Length +12.0" End Stone x 2 = 141.93' Base Length

7 Rows x 77.0" Wide + 9.0" Spacing x 6 + 12.0" Side Stone x 2 = 51.42' Base Width

9.0" Stone Base + 45.0" Chamber Height + 6.0" Stone Cover = 5.00' Field Height

133 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 7 Rows = 14,832.2 cf Chamber Storage

36,487.8 cf Field - 14,832.2 cf Chambers = 21,655.6 cf Stone x 40.0% Voids = 8,662.3 cf Stone Storage

Chamber Storage + Stone Storage = 23,494.5 cf = 0.539 af

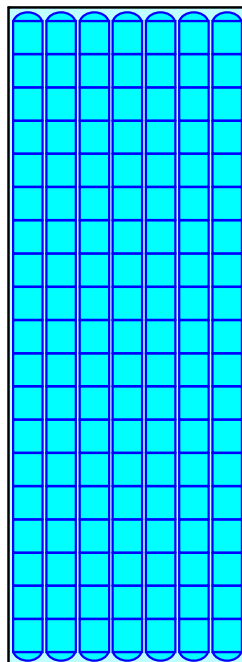
Overall Storage Efficiency = 64.4%

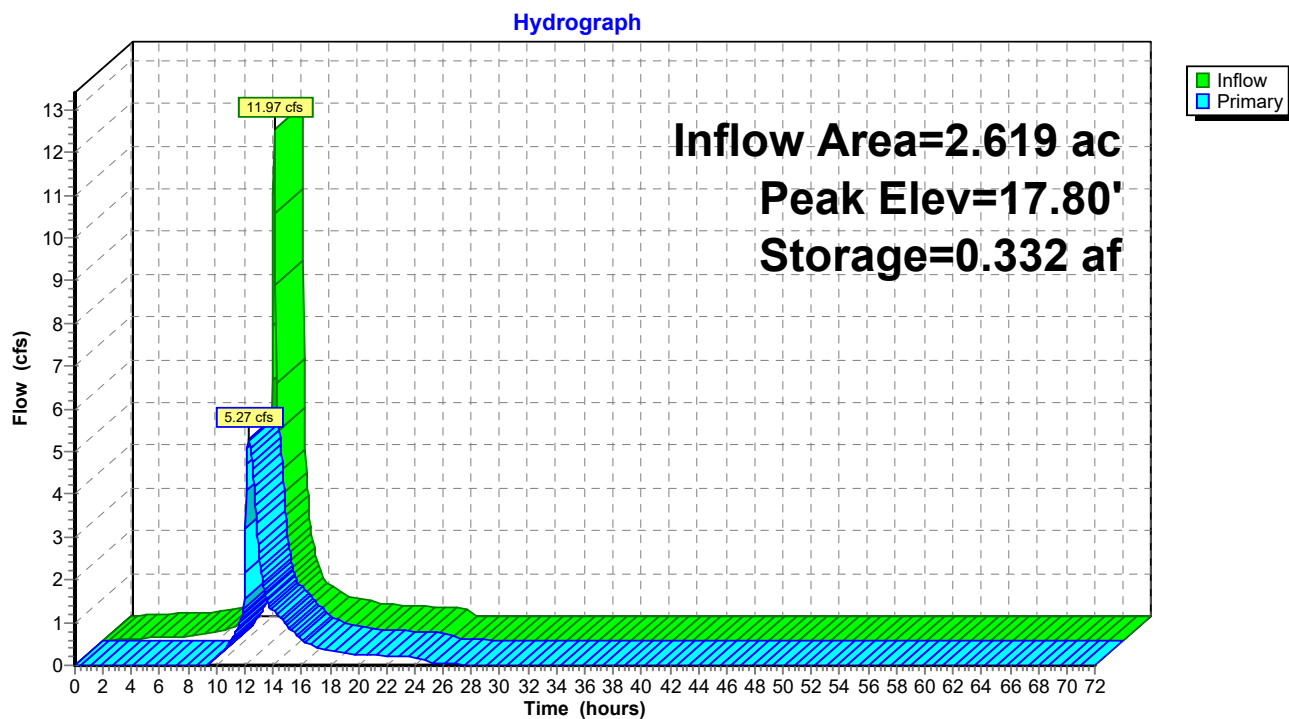
Overall System Size = 141.93' x 51.42' x 5.00'

133 Chambers

1,351.4 cy Field

802.1 cy Stone



Pond 1P: BASIN - FAILURE

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Pond 1P: BASIN - FAILURE

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	15.00	0.00
2.50	0.05	0.005	15.07	0.00
5.00	0.08	0.019	15.28	0.00
7.50	0.16	0.041	15.61	0.00
10.00	0.45	0.091	16.03	0.20
12.50	2.82	0.307	17.60	4.76
15.00	0.52	0.139	16.37	0.93
17.50	0.32	0.102	16.11	0.38
20.00	0.24	0.095	16.06	0.26
22.50	0.20	0.092	16.04	0.22
25.00	0.00	0.081	15.96	0.07
27.50	0.00	0.074	15.91	0.01
30.00	0.00	0.072	15.90	0.00
32.50	0.00	0.071	15.90	0.00
35.00	0.00	0.071	15.89	0.00
37.50	0.00	0.071	15.89	0.00
40.00	0.00	0.071	15.89	0.00
42.50	0.00	0.071	15.89	0.00
45.00	0.00	0.071	15.89	0.00
47.50	0.00	0.071	15.89	0.00
50.00	0.00	0.071	15.89	0.00
52.50	0.00	0.071	15.89	0.00
55.00	0.00	0.071	15.89	0.00
57.50	0.00	0.071	15.89	0.00
60.00	0.00	0.071	15.89	0.00
62.50	0.00	0.071	15.89	0.00
65.00	0.00	0.071	15.89	0.00
67.50	0.00	0.071	15.89	0.00
70.00	0.00	0.071	15.89	0.00

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Stage-Discharge for Pond 1P: BASIN - FAILURE

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
15.00	0.00	17.60	4.76
15.05	0.00	17.65	4.89
15.10	0.00	17.70	5.02
15.15	0.00	17.75	5.15
15.20	0.00	17.80	5.27
15.25	0.00	17.85	5.39
15.30	0.00	17.90	5.51
15.35	0.00	17.95	5.62
15.40	0.00	18.00	5.74
15.45	0.00	18.05	5.85
15.50	0.00	18.10	5.95
15.55	0.00	18.15	6.06
15.60	0.00	18.20	6.16
15.65	0.00	18.25	6.26
15.70	0.00	18.30	6.36
15.75	0.00	18.35	6.46
15.80	0.00	18.40	6.56
15.85	0.00	18.45	6.65
15.90	0.00	18.50	6.75
15.95	0.06	18.55	6.84
16.00	0.14	18.60	6.93
16.05	0.24	18.65	7.02
16.10	0.36	18.70	7.11
16.15	0.50	18.75	7.20
16.20	0.64	18.80	7.31
16.25	0.74	18.85	7.46
16.30	0.83	18.90	7.62
16.35	0.91	18.95	7.79
16.40	0.98	19.00	7.97
16.45	1.05	19.05	8.17
16.50	1.11	19.10	8.38
16.55	1.17	19.15	8.60
16.60	1.23	19.20	8.83
16.65	1.28	19.25	9.08
16.70	1.33	19.30	9.34
16.75	1.40	19.35	9.60
16.80	1.53	19.40	9.89
16.85	1.70	19.45	10.19
16.90	1.90	19.50	10.51
16.95	2.12	19.55	10.83
17.00	2.36	19.60	11.14
17.05	2.62	19.65	11.45
17.10	2.89	19.70	11.76
17.15	3.18	19.75	12.08
17.20	3.42	19.80	12.41
17.25	3.63	19.85	12.73
17.30	3.82	19.90	13.07
17.35	4.00	19.95	13.41
17.40	4.16	20.00	13.75
17.45	4.32		
17.50	4.47		
17.55	4.62		

251202_42 ERW Waystone - Future Rainfall

NOAA 24-hr D 25-Year Rainfall=6.44"

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Stage-Area-Storage for Pond 1P: BASIN - FAILURE

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
15.00	0.000	17.60	0.307
15.05	0.003	17.65	0.313
15.10	0.007	17.70	0.320
15.15	0.010	17.75	0.326
15.20	0.013	17.80	0.332
15.25	0.017	17.85	0.339
15.30	0.020	17.90	0.345
15.35	0.023	17.95	0.351
15.40	0.027	18.00	0.357
15.45	0.030	18.05	0.363
15.50	0.034	18.10	0.369
15.55	0.037	18.15	0.375
15.60	0.040	18.20	0.381
15.65	0.044	18.25	0.387
15.70	0.047	18.30	0.393
15.75	0.050	18.35	0.399
15.80	0.058	18.40	0.405
15.85	0.065	18.45	0.410
15.90	0.072	18.50	0.416
15.95	0.079	18.55	0.421
16.00	0.086	18.60	0.427
16.05	0.094	18.65	0.432
16.10	0.101	18.70	0.438
16.15	0.108	18.75	0.443
16.20	0.115	18.80	0.448
16.25	0.122	18.85	0.453
16.30	0.129	18.90	0.458
16.35	0.136	18.95	0.463
16.40	0.143	19.00	0.467
16.45	0.151	19.05	0.472
16.50	0.158	19.10	0.476
16.55	0.165	19.15	0.480
16.60	0.172	19.20	0.484
16.65	0.179	19.25	0.488
16.70	0.186	19.30	0.492
16.75	0.193	19.35	0.495
16.80	0.199	19.40	0.499
16.85	0.206	19.45	0.502
16.90	0.213	19.50	0.506
16.95	0.220	19.55	0.509
17.00	0.227	19.60	0.513
17.05	0.234	19.65	0.516
17.10	0.241	19.70	0.519
17.15	0.247	19.75	0.523
17.20	0.254	19.80	0.526
17.25	0.261	19.85	0.529
17.30	0.267	19.90	0.533
17.35	0.274	19.95	0.536
17.40	0.281	20.00	0.539
17.45	0.287		
17.50	0.294		
17.55	0.300		

Calcula
Chec

Scour Hole # S2

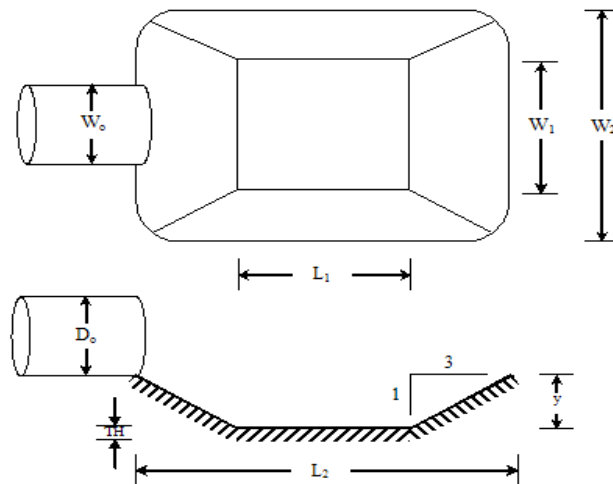
Design Storm Flow for 25 Year, Q
 Vertical Dimension of Outlet Pipe, D_o
 Horizontal Dimension of Outlet Pipe, W_o
 Tailwater Depth, TW
 Scour Hole Depth, y ($1/2 D_o$ or D_o)

Minimum Bottom Width, $W_1 = 2W_0$
 Minimum Bottom Length, $L_1 = 3D_0$
 Minimum Top Width (max side slope of 3:1), W_2
 Minimum Top Length (max side slope of 3:1), L_2

$$\begin{aligned} W_1 &= \\ L_1 &= \\ W_2 &= \\ L_2 &= \end{aligned}$$
Unit Discharge, $q = Q/D_o =$ 3.51 cfs per foot

Therefore, use

TH =

Apron Thickness, $TH = 2 \times d_{50}$ with filter fabric

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