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Stormwater Management Report

April 28, 2023
Revised November 20, 2023

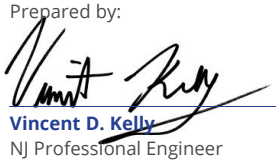
Prestige Commerce Center

Block 4.46, Lots 1.04 & 1.07
Township of North Brunswick, Middlesex County, New Jersey

Prepared for:

Commerce Center NB, LLC c/o Prestige
Properties & Development, Co., Inc.
546 Fifth Avenue, 15th Floor
New York, New York 10036

Prepared by:



Vincent D. Kelly
NJ Professional Engineer
License No. GE55812

Colliers Engineering & Design
101 Crawfords Corner Road
Suite 3400
Holmdel, NJ 07733
Main: 877 627 3772
Colliersengineering.com

Project No. 22001068A

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Introduction

This stormwater management statement is being submitted as part of the development application known as Preliminary & Final Minor Site Plans for Prestige located on Lot 1.07, Block 4.46, as shown on Sheet 19 of the Official Tax Map of North Brunswick Township, Middlesex County, New Jersey. This statement was prepared in accordance with the New Jersey Department of Environmental Protection (NJDEP), Township of North Brunswick, Freehold Soil Conservation District (FSCD) and current industry standards and practices for stormwater management. Improvements will also take place on Lot 1.04 & 1.07, Block 4.46. The project will disturb approximately 1.1 acres (47,916 SF) and will decrease both overall impervious surfaces by approximately 0.032 acres (1,401 SF) and vehicle surface area by 0.33 acres (14,563 SF). The purpose of this report is to summarize the stormwater management requirements and how the proposed development complies.

Lot 1.07 is currently developed as an overflow parking lot associated with the Regal Cinema. The proposed development proposes modifying existing site conditions to remove ninety-five (95) parking spaces to construct two (2) pad sites. These pad sites include a Freddy's quick service restaurant, a building with two restaurant tenants, as well as associated parking. Additional site improvements include, but are not limited to, pavement, curb, sidewalk, utility relocation, landscaping, and lighting.

Soil Characteristics

The existing soil classifications for the site are based on the USDA NRCS Web Soil Survey prepared by United States Department of Agriculture, Natural Resources Conservation Service. The survey is useful at the planning level to draw general conclusions about the suitability of a site for certain land uses. Based on the Web Soil Survey, the site and its surrounding area consist of the following soil type:

Soil Name		Hydrologic Group
EkaAr -	Elkton Loam, rarely flooded, 0-2% slopes	C/D
NkrA -	Nixon moderately well drained variant loam, 0-2% slopes	C
RepwA -	Reaville poorly drained variant silt loam, 0-2% slopes	D

Flood Plains

Based on the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency for the Middlesex County, New Jersey, Map No. 34023C0109F effective date July 6, 2010, the entire lease area is located outside of the 100-year flood plain.

Riparian Zones

The project site is located more than 300 feet from a water body. Therefore, there are no riparian zones associated with the development.

Wetland Areas

In accordance with NJ-GeoWeb, no freshwater wetlands are known to exist on-site.

Compliance Statement

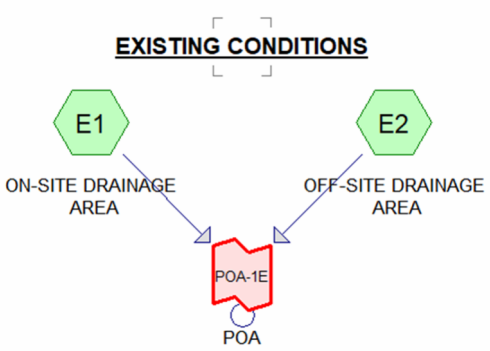
In accordance with N.J.A.C. 7:8-1.2, a major development is considered an individual development or multiple developments that individually or collectively result in the disturbance of one (1) or more acres of land since February 2, 2004, the creation of one-quarter acre or more of "regulated impervious surface" since February 2, 2004, the creation of one-quarter acre or more of "regulated motor vehicle surface" since March 2, 2021, or the combined creation of one-quarter acre or more of "regulated impervious surface" and "regulated motor vehicle surface". Although the proposed development will result in a reduction of both "regulated impervious surface" and "regulated motor vehicle surface", it will disturb more than one (1) acre of land. As such, the proposed development is considered a major development.

The proposed development will comply with the requirements of N.J.A.C. 7:8 by demonstrating that, at each point of analysis, the post-construction runoff hydrographs for the 2-, 10-, and 100-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events. This is achieved by decreasing the number of impervious surfaces (including motor vehicle surfaces) from existing to proposed conditions.

Study Areas

The drainage areas utilized to analyze and calculate the stormwater attenuation requirements for this development were established based on the proposed hydrologic limits of disturbance and the existing and proposed topography. The areas were delineated based upon the direction of runoff, and the overall design was calculated using one drainage analysis point. The point of analysis is the existing stormwater conveyance system that leads to above ground basins off-site, which is currently maintained by the owner. Under the existing conditions, E-1, stormwater drains to the middle of the site to two (2) E-inlets then flows in a north-easterly direction connecting to the point of analysis. The proposed conditions, P-1, similarly, flows to relocated inlets which tie into the exiting stormwater conveyance system and basins.

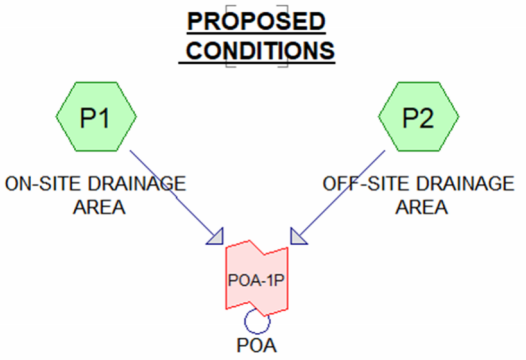
Existing Conditions



Existing On-site Drainage Area E-1. Existing Drainage Area E-1 represents the disturbance area of the proposed project. The area is presently developed as an overflow parking lot associated with the existing cinema. Runoff from the area is conveyed via overland flow towards an existing storm water conveyance system, and drains via overland flow will end up in the existing basin off-site.

Existing Off-site Drainage Area E-2. Existing Drainage Area E-2 represents the portion of South Center Drive that contributes flow to the Analysis Point. Runoff from the area is conveyed via overland flow towards an existing storm water conveyance system to an existing basin off-site.

Proposed Conditions



Proposed On-site Drainage Area P-1. Proposed Drainage Area P-1 represents the disturbance area of the proposed project. This consists of two (2) pad sites, including a Freddy's quick service restaurant, and a spec building with two (2) restaurant tenants. The remaining site area consists of driveways, parking, and landscaped islands and buffers which will be conveyed via overland flow before being collected by inlets throughout the site which tie into the existing storm sewer system. The existing storm sewer system connects to the existing basin off-site.

Proposed Off-site Drainage Area P-2. Proposed Drainage Area P-2 represents the portion of South Center Drive that contributes flow to the Analysis Point. Runoff from the area is conveyed via

overland flow towards an existing storm water conveyance system, and drains via overland flow will end up in the existing basin off-site.

Stormwater Management Methodology

The proposed development is designed to mimic the existing drainage patterns onsite, while providing additional stormwater management benefits. The proposed development results in a reduction in overall impervious surfaces (including motor vehicle surfaces) onsite. Therefore, there will be a reduction in the peak runoff rates at both analysis points. Below is a table with pre- and post-development peak runoff rates for the 2-year, 10-year, and 100-year storm events.

To evaluate the proposed site for compliance with the above standards, the Soil Conservation Service's Unit Hydrograph method and the HydroCAD v10.10-3a hydrologic/hydraulic model were utilized. The Standard Unit Hydrograph was utilized for modeling both the existing and proposed conditions. A summary of the results is presented in the following tables:

Table 1: POA Peak Runoff Analysis Results

Storm (Year)	Existing (POA-1E) (cfs)	Proposed (POA-1P) (cfs)
2	5.009	4.965
10	7.792	7.748
100	13.308	13.270

Comparison hydrographs are provided in the Appendix, indicating the post-construction hydrographs are at or under the pre-construction hydrographs at all points for all drainage areas, to demonstrate compliance with the Stormwater Management Rules at N.J.A.C. 7:8.

Water Quality N.J.A.C. 7:8-5.5

The proposed overall development is exempt from the Water Quality requirements impervious surfaces will not be increased by more than 0.25 acres.

Storm Sewer Design

Under existing conditions, there is a 15" RCP storm sewer pipe running through the site that is to be relocated in the proposed design. The proposed stormwater structures and pipes will connect to this existing stormwater conveyance system and the drainage patterns will generally stay the same. The storm sewer has been designed in accordance with the Township and NJDEP requirements. The proposed storm sewer was designed to pass the 25-year storm. Using the SCS Method with a minimum time of concentration of 6 minutes and the Trenton Intensity-Duration-Frequency Table, the proposed conveyance pipes were analyzed. Manning's formula, with a coefficient of 0.013 for RCP pipe and 0.012 for HDPE pipe was utilized for sizing stormwater pipes. When modeling the storm sewers, a conservative "C" coefficient of 0.99 was assumed for all surfaces contributing runoff

to the stormwater conveyance system. The "C" value is conservative because it generates a greater volume of runoff than actual conditions by assuming it is all impervious surfaces. The proposed redevelopment will decrease impervious coverage (0.032 acres), so there should be minimal effect on the relocated conveyance system even though there is a slight decrease in slope.

Groundwater Recharge N.J.A.C. 7:8-5.4(A)2

The subject site is located in the Metropolitan Planning Area, which is classified as Urban Redevelopment Area. Per N.J.A.C. 7:8-5.4 Urban Redevelopment Areas are exempt from groundwater recharge requirement.

Soil Erosion and Sediment Control

In accordance with the Soil Erosion and Sediment Control Act, soil erosion measures will be incorporated into the design and graphically depicted on the Soil Erosion and Sediment Control Plans. These measures consist of, but are not limited to:

- Silt Fences
- Stabilized Construction Access
- Topsoil Stockpiles
- Storm Sewer Inlet Protection
- Temporary and Permanent Stabilization

Per the Standards for Soil Erosion and Sediment Control in New Jersey, off-site stability must be met both at the point of discharge and downstream of the point of discharge. Point discharge is met by connecting the outfall from the proposed stormwater conveyance system to an existing conveyance system, which is considered a stable discharge point. As the proposed development will decrease impervious coverage, it should not have a negative impact downstream of the discharge point.

Conclusion

The proposed development will lead to a decrease in impervious surfaces (including motor vehicle surface), which will decrease the runoff rates for the site. The stormwater design is in compliance with the Town, County, SCD and NJDEP regulations and will result in a reduction in peak discharge to the analysis point and complies with water quality and groundwater discharge requirements.

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Appendix A

Tax Map
Aerial Map
Soils Map
FEMA map

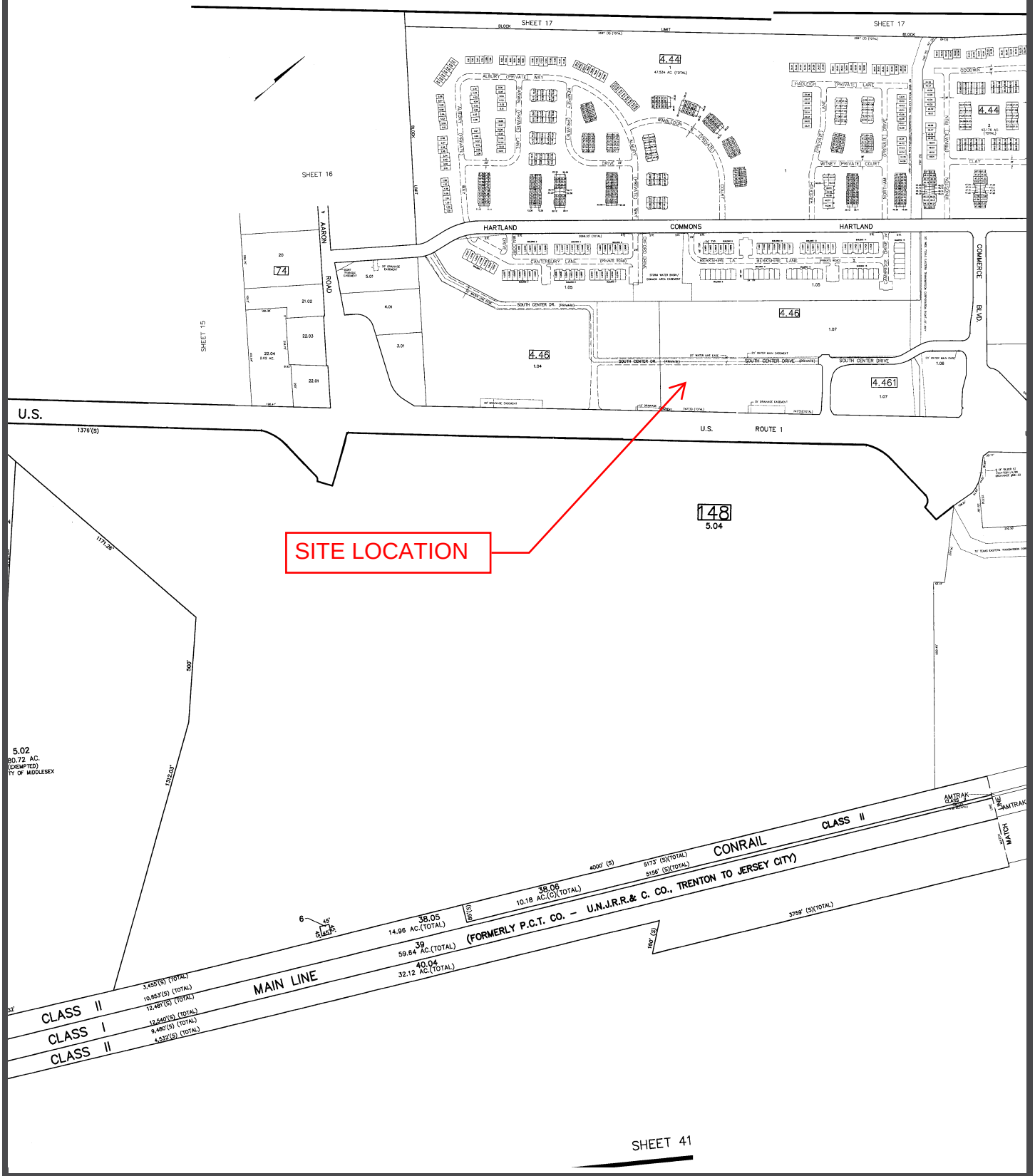

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Figure 1: Tax Map

Township of North Brunswick – Freddy's

Scale: NTS

Date: April 28, 2023

Project No. 21000124A

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Figure 2: Aerial Map

Township of North Brunswick – Freddy's

Source: Google Earth

Scale: NTS

Date: April 28, 2023

Project No. 21000124A

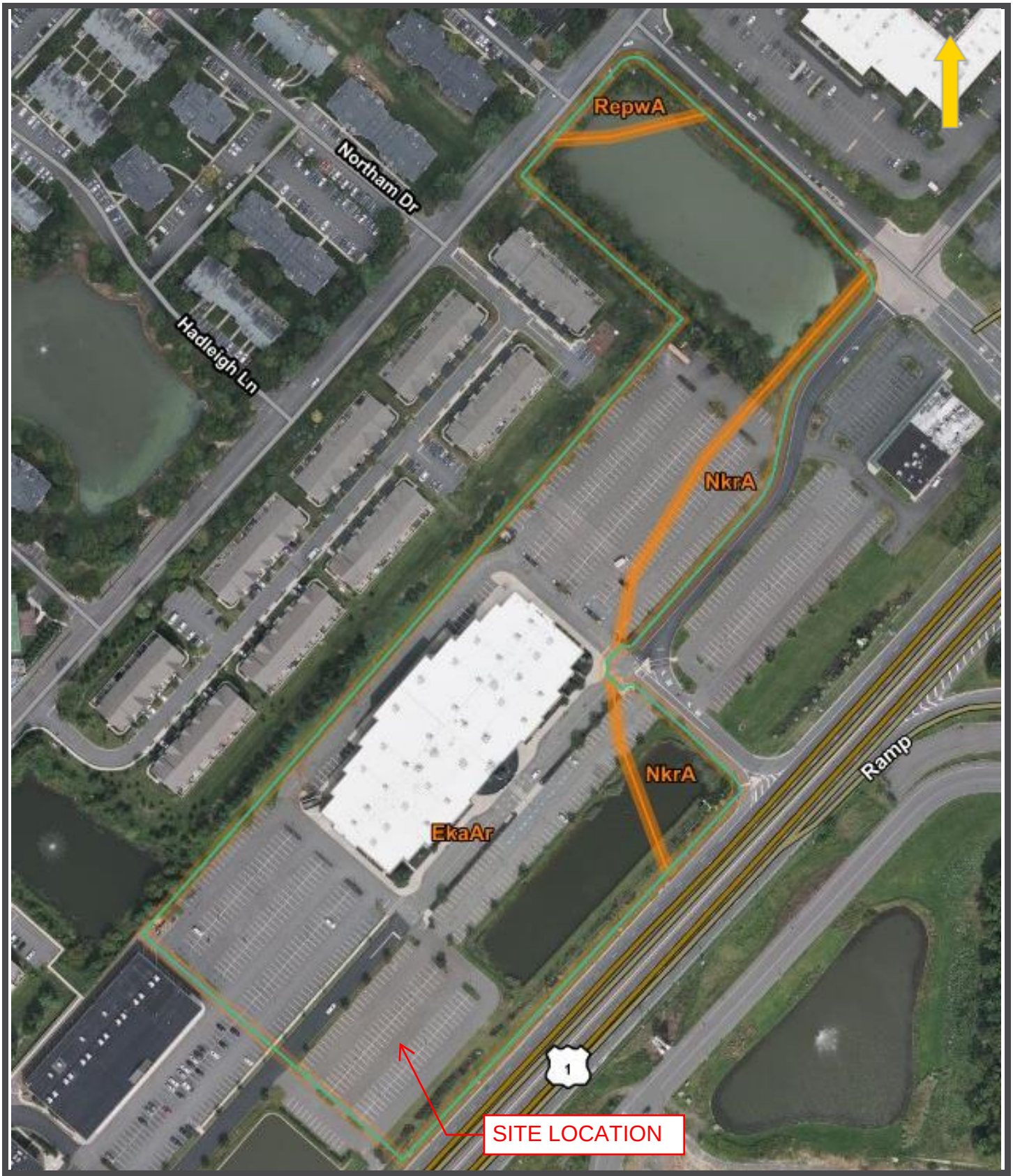

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Figure 3: Soils Map

Township of North Brunswick – Freddy's

Source: Web Soil Survey

Scale: NTS

Date: April 28, 2023

Project No. 21000124A

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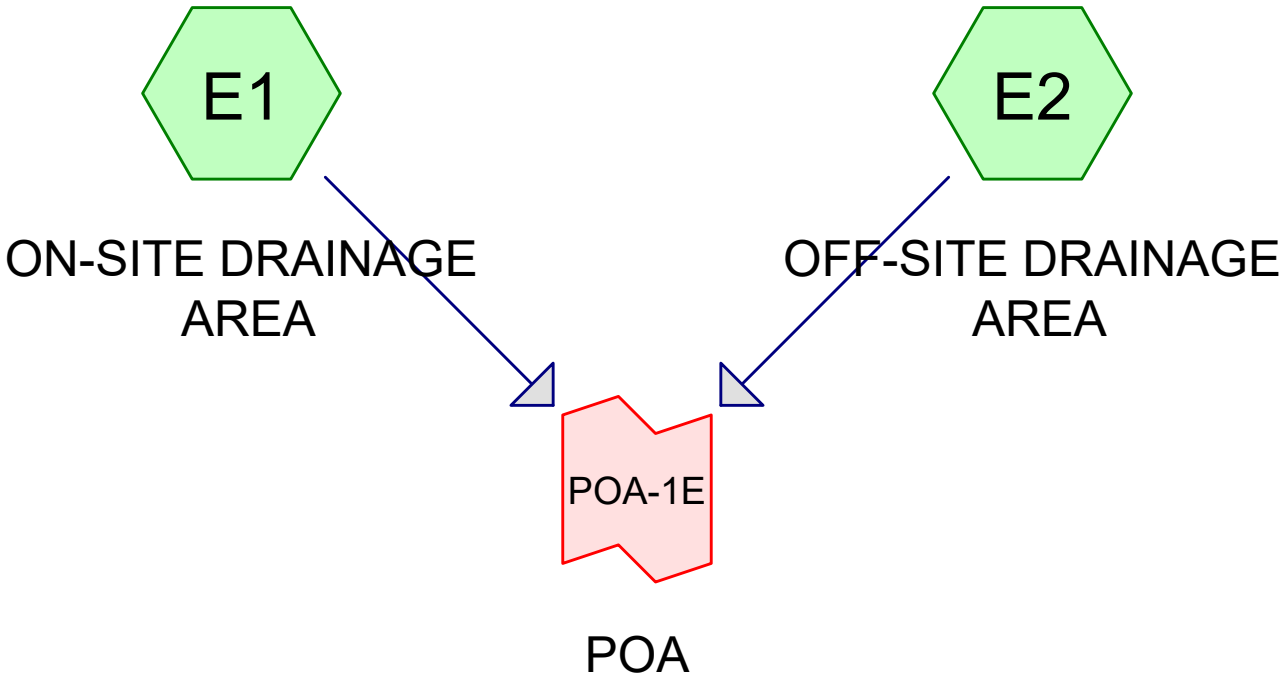
Appendix B

Existing & Proposed Hydrographs
Existing vs. Proposed Conditions Comparison Analysis

EXISTING CONDITIONS



Subcat Reach Pond Link

Routing Diagram for 231012- Freddys
Prepared by Colliers Engineering & Design, Printed 10/19/2023

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	A-2-YR	NOAA 24-hr	D	Default	24.00	1	3.35	2
2	B-10-YR	NOAA 24-hr	D	Default	24.00	1	5.12	2
3	C-100-YR	NOAA 24-hr	D	Default	24.00	1	8.63	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.116	80	>75% Grass cover, Good, HSG D (E1, E2)
1.511	98	Paved parking, HSG D (E1, E2)
1.627	**97**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.627	HSG D	E1, E2
0.000	Other	
1.627		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.116	0.000	0.116	>75% Grass cover, Good	E1, E2
0.000	0.000	0.000	1.511	0.000	1.511	Paved parking	E1, E2
0.000	**0.000**	**0.000**	**1.627**	**0.000**	**1.627**	**TOTAL AREA**	

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: ON-SITE DRAINAGE Runoff Area=1.327 ac 91.94% Impervious Runoff Depth=2.99"
Tc=6.0 min CN=80/98 Runoff=4.068 cfs 0.330 af

Subcatchment E2: OFF-SITE DRAINAGE Runoff Area=0.300 ac 97.00% Impervious Runoff Depth=3.07"
Tc=6.0 min CN=80/98 Runoff=0.941 cfs 0.077 af

Link POA-1E: POA Inflow=5.009 cfs 0.407 af
Primary=5.009 cfs 0.407 af

Total Runoff Area = 1.627 ac Runoff Volume = 0.407 af Average Runoff Depth = 3.00"
7.13% Pervious = 0.116 ac 92.87% Impervious = 1.511 ac

Summary for Subcatchment E1: ON-SITE DRAINAGE AREA

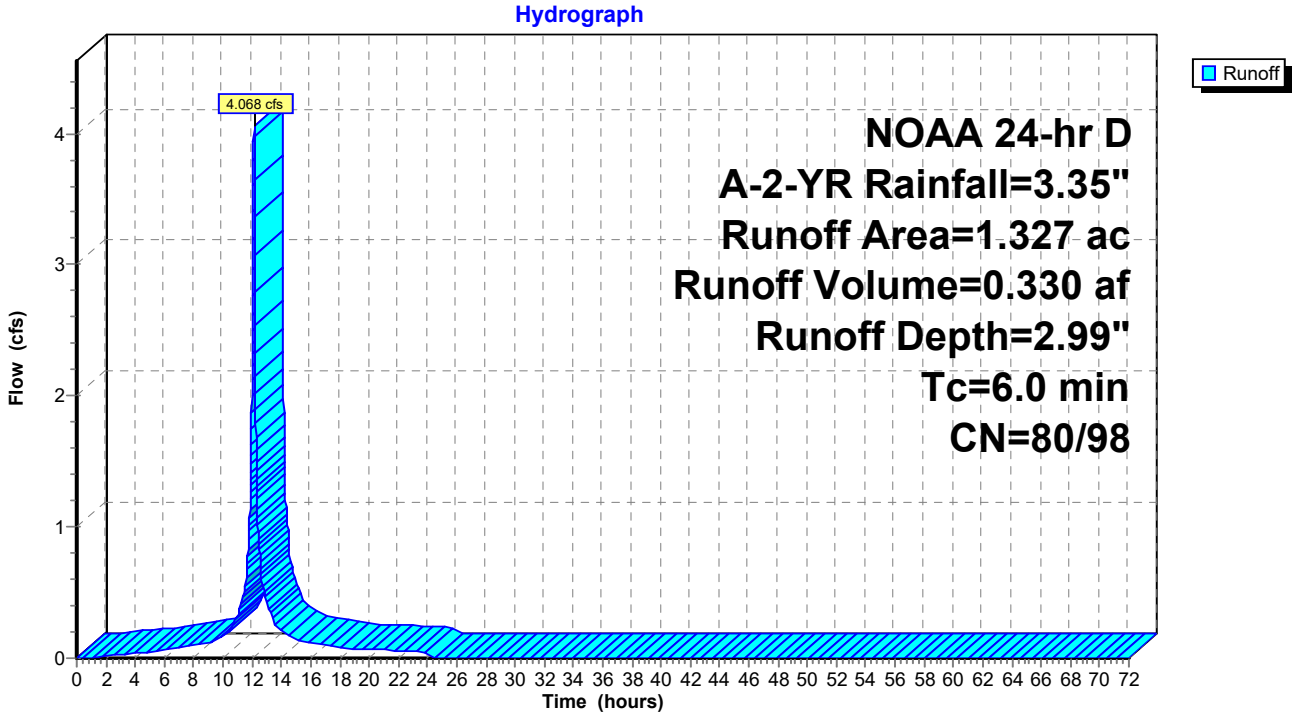
Runoff = 4.068 cfs @ 12.13 hrs, Volume= 0.330 af, Depth= 2.99"
Routed to Link POA-1E : POA

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D A-2-YR Rainfall=3.35"

Area (ac)	CN	Description
1.220	98	Paved parking, HSG D
0.107	80	>75% Grass cover, Good, HSG D
1.327	97	Weighted Average
0.107	80	8.06% Pervious Area
1.220	98	91.94% Impervious Area

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

Subcatchment E1: ON-SITE DRAINAGE AREA



Hydrograph for Subcatchment E1: ON-SITE DRAINAGE AREA

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.000
2.00	0.08	0.00	0.01	0.015
4.00	0.18	0.00	0.05	0.039
6.00	0.29	0.00	0.13	0.057
8.00	0.43	0.00	0.26	0.095
10.00	0.66	0.01	0.47	0.180
12.00	1.60	0.34	1.38	**2.236**
14.00	2.69	1.02	2.46	**0.213**
16.00	2.92	1.19	2.68	0.118
18.00	3.06	1.30	2.83	0.079
20.00	3.17	1.38	2.94	0.068
22.00	3.27	1.46	3.04	0.058
24.00	**3.35**	**1.52**	**3.12**	0.048
26.00	3.35	1.52	3.12	0.000
28.00	3.35	1.52	3.12	0.000
30.00	3.35	1.52	3.12	0.000
32.00	3.35	1.52	3.12	0.000
34.00	3.35	1.52	3.12	0.000
36.00	3.35	1.52	3.12	0.000
38.00	3.35	1.52	3.12	0.000
40.00	3.35	1.52	3.12	0.000
42.00	3.35	1.52	3.12	0.000
44.00	3.35	1.52	3.12	0.000
46.00	3.35	1.52	3.12	0.000
48.00	3.35	1.52	3.12	0.000
50.00	3.35	1.52	3.12	0.000
52.00	3.35	1.52	3.12	0.000
54.00	3.35	1.52	3.12	0.000
56.00	3.35	1.52	3.12	0.000
58.00	3.35	1.52	3.12	0.000
60.00	3.35	1.52	3.12	0.000
62.00	3.35	1.52	3.12	0.000
64.00	3.35	1.52	3.12	0.000
66.00	3.35	1.52	3.12	0.000
68.00	3.35	1.52	3.12	0.000
70.00	3.35	1.52	3.12	0.000
72.00	3.35	1.52	3.12	0.000

Summary for Subcatchment E2: OFF-SITE DRAINAGE AREA

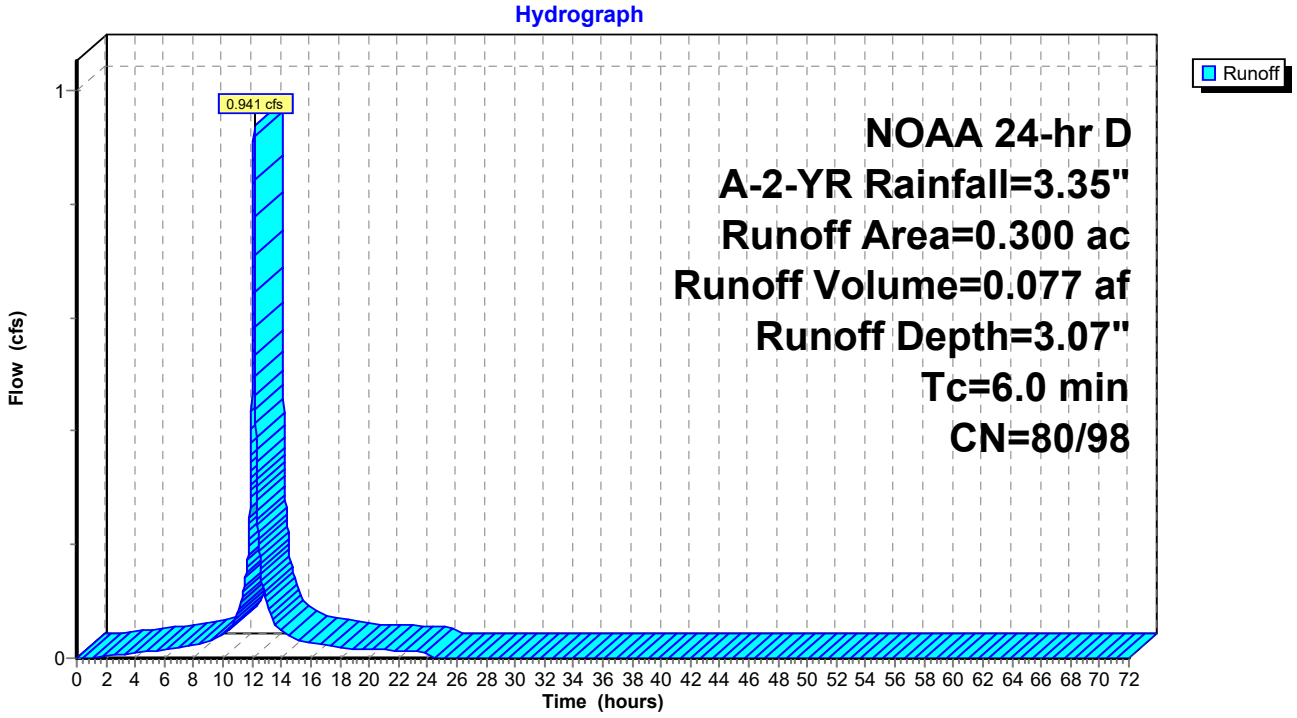
Runoff = 0.941 cfs @ 12.13 hrs, Volume= 0.077 af, Depth= 3.07"
Routed to Link POA-1E : POA

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D A-2-YR Rainfall=3.35"

Area (ac)	CN	Description
0.291	98	Paved parking, HSG D
0.009	80	>75% Grass cover, Good, HSG D
0.300	97	Weighted Average
0.009	80	3.00% Pervious Area
0.291	98	97.00% Impervious Area

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

Subcatchment E2: OFF-SITE DRAINAGE AREA



Hydrograph for Subcatchment E2: OFF-SITE DRAINAGE AREA

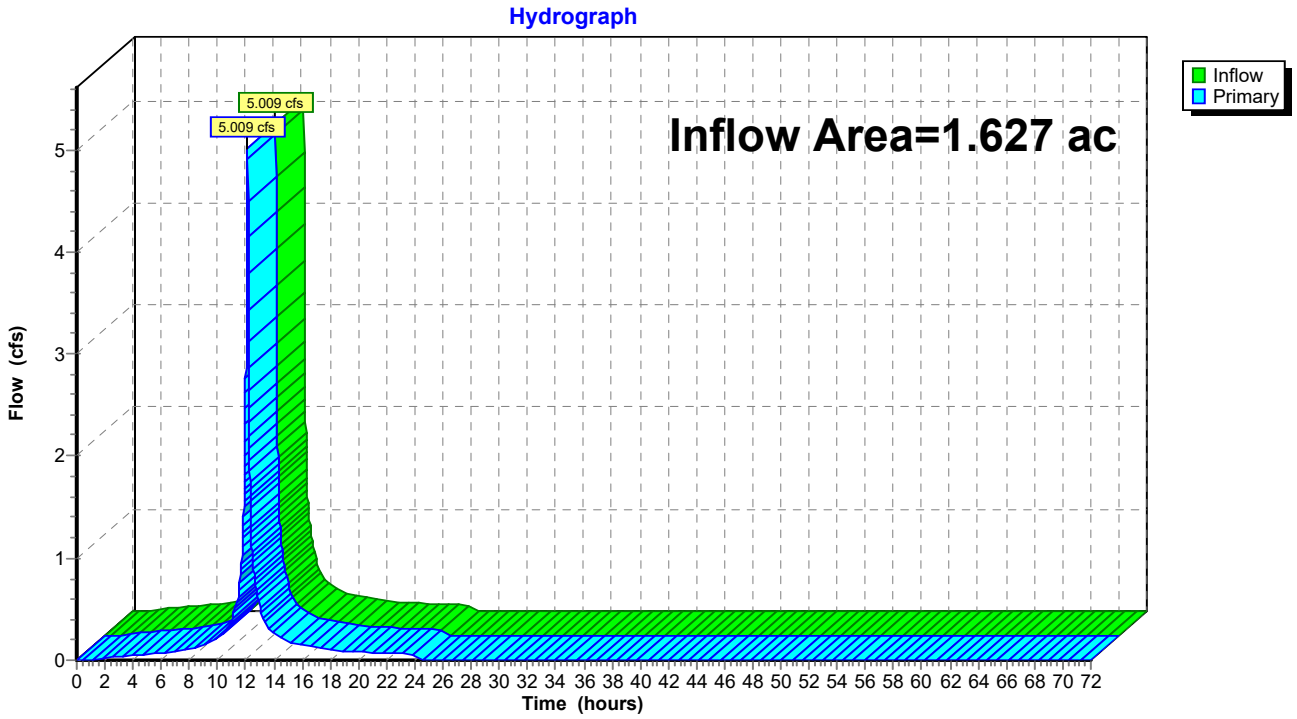
Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.000
2.00	0.08	0.00	0.01	0.004
4.00	0.18	0.00	0.05	0.009
6.00	0.29	0.00	0.13	0.014
8.00	0.43	0.00	0.26	0.023
10.00	0.66	0.01	0.47	0.043
12.00	1.60	0.34	1.38	**0.520**
14.00	2.69	1.02	2.46	**0.049**
16.00	2.92	1.19	2.68	0.027
18.00	3.06	1.30	2.83	0.018
20.00	3.17	1.38	2.94	0.015
22.00	3.27	1.46	3.04	0.013
24.00	**3.35**	**1.52**	**3.12**	0.011
26.00	3.35	1.52	3.12	0.000
28.00	3.35	1.52	3.12	0.000
30.00	3.35	1.52	3.12	0.000
32.00	3.35	1.52	3.12	0.000
34.00	3.35	1.52	3.12	0.000
36.00	3.35	1.52	3.12	0.000
38.00	3.35	1.52	3.12	0.000
40.00	3.35	1.52	3.12	0.000
42.00	3.35	1.52	3.12	0.000
44.00	3.35	1.52	3.12	0.000
46.00	3.35	1.52	3.12	0.000
48.00	3.35	1.52	3.12	0.000
50.00	3.35	1.52	3.12	0.000
52.00	3.35	1.52	3.12	0.000
54.00	3.35	1.52	3.12	0.000
56.00	3.35	1.52	3.12	0.000
58.00	3.35	1.52	3.12	0.000
60.00	3.35	1.52	3.12	0.000
62.00	3.35	1.52	3.12	0.000
64.00	3.35	1.52	3.12	0.000
66.00	3.35	1.52	3.12	0.000
68.00	3.35	1.52	3.12	0.000
70.00	3.35	1.52	3.12	0.000
72.00	3.35	1.52	3.12	0.000

Summary for Link POA-1E: POA

Inflow Area = 1.627 ac, 92.87% Impervious, Inflow Depth = 3.00" for A-2-YR event
Inflow = 5.009 cfs @ 12.13 hrs, Volume= 0.407 af
Primary = 5.009 cfs @ 12.13 hrs, Volume= 0.407 af, Atten= 0%, Lag= 0.0 min

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

Link POA-1E: POA



Hydrograph for Link POA-1E: POA

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.000	**0.00**	0.000
1.00	0.000	0.00	0.000
2.00	0.018	0.00	0.018
3.00	0.035	0.00	0.035
4.00	0.049	0.00	0.049
5.00	0.060	0.00	0.060
6.00	0.070	0.00	0.070
7.00	0.093	0.00	0.093
8.00	0.118	0.00	0.118
9.00	0.143	0.00	0.143
10.00	0.222	0.00	0.222
11.00	0.405	0.00	0.405
12.00	**2.756**	0.00	**2.756**
13.00	**0.522**	0.00	**0.522**
14.00	0.262	0.00	0.262
15.00	0.177	0.00	0.177
16.00	0.145	0.00	0.145
17.00	0.121	0.00	0.121
18.00	0.098	0.00	0.098
19.00	0.089	0.00	0.089
20.00	0.083	0.00	0.083
21.00	0.077	0.00	0.077
22.00	0.071	0.00	0.071
23.00	0.065	0.00	0.065
24.00	0.060	0.00	0.060
25.00	0.000	0.00	0.000
26.00	0.000	0.00	0.000
27.00	0.000	0.00	0.000
28.00	0.000	0.00	0.000
29.00	0.000	0.00	0.000
30.00	0.000	0.00	0.000
31.00	0.000	0.00	0.000
32.00	0.000	0.00	0.000
33.00	0.000	0.00	0.000
34.00	0.000	0.00	0.000
35.00	0.000	0.00	0.000
36.00	0.000	0.00	0.000
37.00	0.000	0.00	0.000
38.00	0.000	0.00	0.000
39.00	0.000	0.00	0.000
40.00	0.000	0.00	0.000
41.00	0.000	0.00	0.000
42.00	0.000	0.00	0.000
43.00	0.000	0.00	0.000
44.00	0.000	0.00	0.000
45.00	0.000	0.00	0.000
46.00	0.000	0.00	0.000
47.00	0.000	0.00	0.000
48.00	0.000	0.00	0.000
49.00	0.000	0.00	0.000
50.00	0.000	0.00	0.000
51.00	0.000	0.00	0.000
52.00	0.000	0.00	0.000
53.00	0.000	0.00	0.000
54.00	0.000	0.00	0.000
55.00	0.000	0.00	0.000
56.00	0.000	0.00	0.000
57.00	0.000	0.00	0.000
58.00	0.000	0.00	0.000
59.00	0.000	0.00	0.000
60.00	0.000	0.00	0.000
61.00	0.000	0.00	0.000
62.00	0.000	0.00	0.000
63.00	0.000	0.00	0.000
64.00	0.000	0.00	0.000
65.00	0.000	0.00	0.000
66.00	0.000	0.00	0.000
67.00	0.000	0.00	0.000
68.00	0.000	0.00	0.000
69.00	0.000	0.00	0.000
70.00	0.000	0.00	0.000
71.00	0.000	0.00	0.000
72.00	0.000	0.00	0.000

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: ON-SITE DRAINAGE Runoff Area=1.327 ac 91.94% Impervious Runoff Depth=4.73"
Tc=6.0 min CN=80/98 Runoff=6.338 cfs 0.523 af

Subcatchment E2: OFF-SITE DRAINAGE Runoff Area=0.300 ac 97.00% Impervious Runoff Depth=4.83"
Tc=6.0 min CN=80/98 Runoff=1.454 cfs 0.121 af

Link POA-1E: POA Inflow=7.792 cfs 0.644 af
Primary=7.792 cfs 0.644 af

Total Runoff Area = 1.627 ac Runoff Volume = 0.644 af Average Runoff Depth = 4.75"
7.13% Pervious = 0.116 ac 92.87% Impervious = 1.511 ac

Summary for Subcatchment E1: ON-SITE DRAINAGE AREA

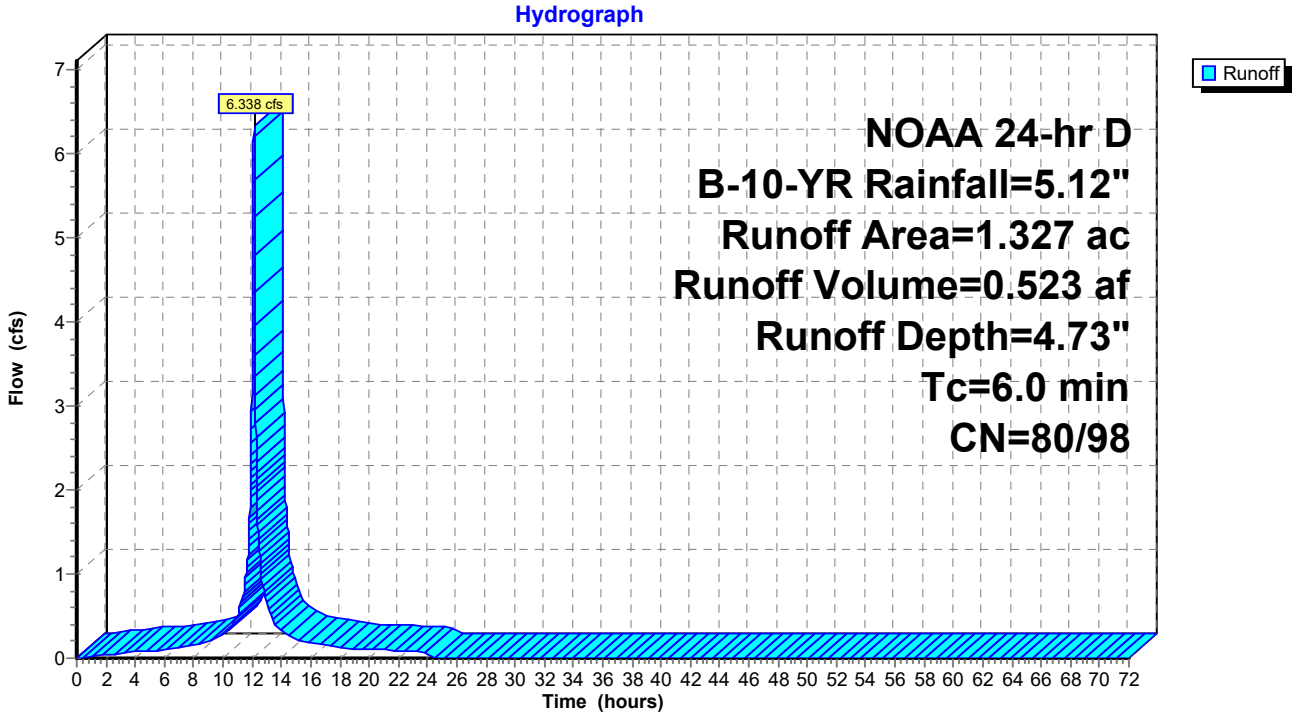
Runoff = 6.338 cfs @ 12.13 hrs, Volume= 0.523 af, Depth= 4.73"
Routed to Link POA-1E : POA

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D B-10-YR Rainfall=5.12"

Area (ac)	CN	Description
1.220	98	Paved parking, HSG D
0.107	80	>75% Grass cover, Good, HSG D
1.327	97	Weighted Average
0.107	80	8.06% Pervious Area
1.220	98	91.94% Impervious Area

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

Subcatchment E1: ON-SITE DRAINAGE AREA



Hydrograph for Subcatchment E1: ON-SITE DRAINAGE AREA

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.000
2.00	0.12	0.00	0.02	0.038
4.00	0.27	0.00	0.12	0.074
6.00	0.44	0.00	0.26	0.097
8.00	0.66	0.01	0.47	0.157
10.00	1.01	0.09	0.81	0.289
12.00	2.45	0.86	2.22	**3.498**
14.00	4.11	2.13	3.87	**0.330**
16.00	4.46	2.42	4.22	0.183
18.00	4.68	2.62	4.45	0.123
20.00	4.85	2.76	4.61	0.104
22.00	5.00	2.89	4.76	0.090
24.00	**5.12**	**3.00**	**4.88**	0.075
26.00	5.12	3.00	4.88	0.000
28.00	5.12	3.00	4.88	0.000
30.00	5.12	3.00	4.88	0.000
32.00	5.12	3.00	4.88	0.000
34.00	5.12	3.00	4.88	0.000
36.00	5.12	3.00	4.88	0.000
38.00	5.12	3.00	4.88	0.000
40.00	5.12	3.00	4.88	0.000
42.00	5.12	3.00	4.88	0.000
44.00	5.12	3.00	4.88	0.000
46.00	5.12	3.00	4.88	0.000
48.00	5.12	3.00	4.88	0.000
50.00	5.12	3.00	4.88	0.000
52.00	5.12	3.00	4.88	0.000
54.00	5.12	3.00	4.88	0.000
56.00	5.12	3.00	4.88	0.000
58.00	5.12	3.00	4.88	0.000
60.00	5.12	3.00	4.88	0.000
62.00	5.12	3.00	4.88	0.000
64.00	5.12	3.00	4.88	0.000
66.00	5.12	3.00	4.88	0.000
68.00	5.12	3.00	4.88	0.000
70.00	5.12	3.00	4.88	0.000
72.00	5.12	3.00	4.88	0.000

Summary for Subcatchment E2: OFF-SITE DRAINAGE AREA

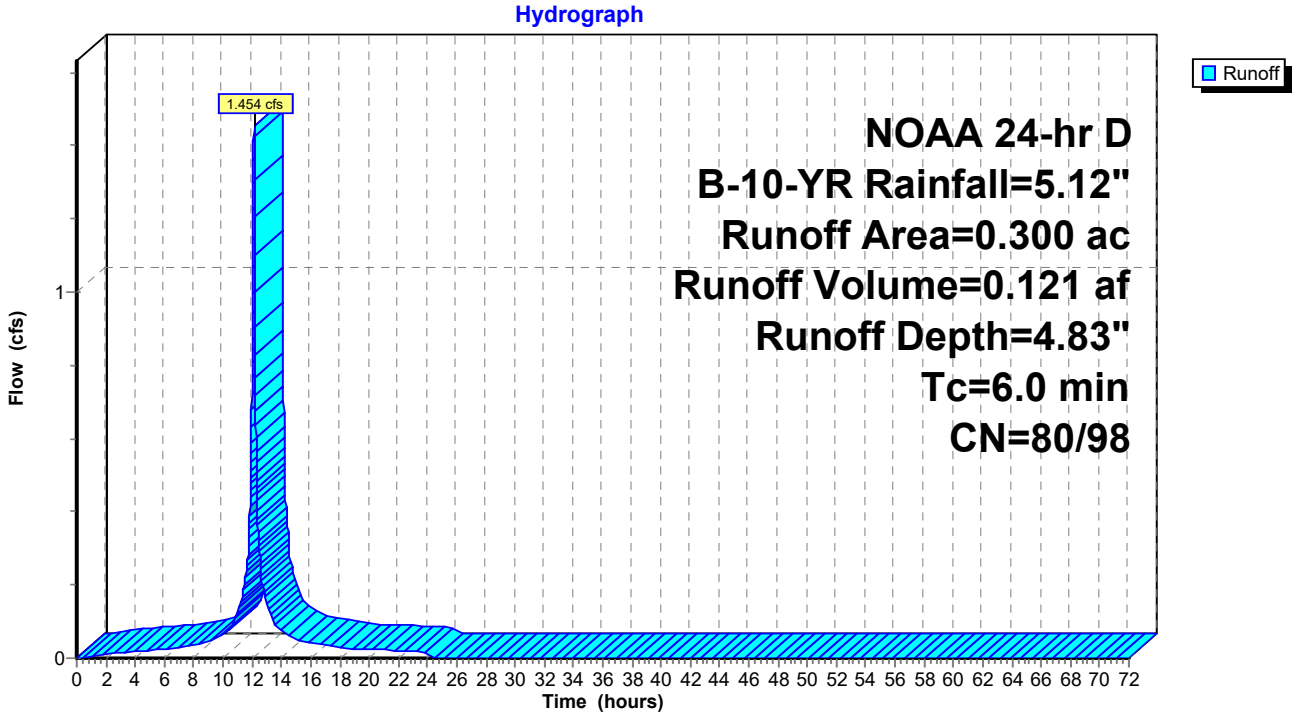
Runoff = 1.454 cfs @ 12.13 hrs, Volume= 0.121 af, Depth= 4.83"
Routed to Link POA-1E : POA

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D B-10-YR Rainfall=5.12"

Area (ac)	CN	Description
0.291	98	Paved parking, HSG D
0.009	80	>75% Grass cover, Good, HSG D
0.300	97	Weighted Average
0.009	80	3.00% Pervious Area
0.291	98	97.00% Impervious Area

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

Subcatchment E2: OFF-SITE DRAINAGE AREA



Hydrograph for Subcatchment E2: OFF-SITE DRAINAGE AREA

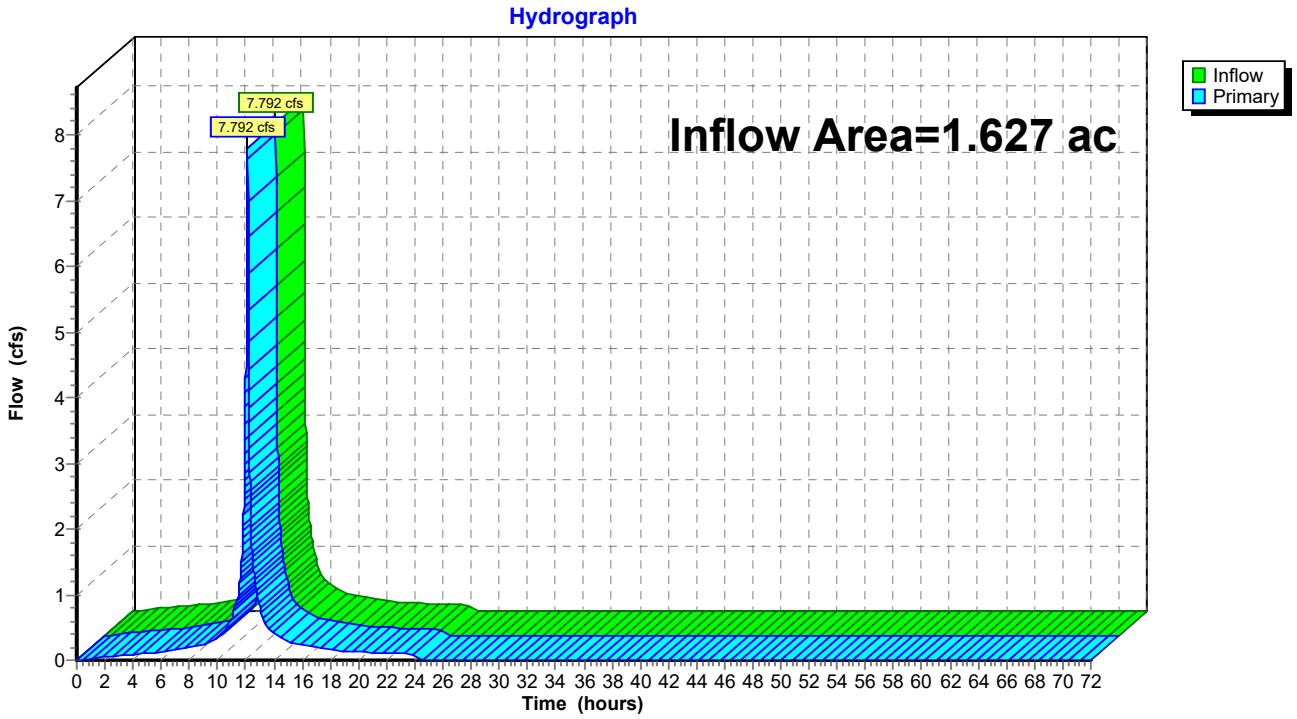
Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.000
2.00	0.12	0.00	0.02	0.009
4.00	0.27	0.00	0.12	0.018
6.00	0.44	0.00	0.26	0.023
8.00	0.66	0.01	0.47	0.037
10.00	1.01	0.09	0.81	0.068
12.00	2.45	0.86	2.22	**0.805**
14.00	4.11	2.13	3.87	**0.075**
16.00	4.46	2.42	4.22	0.042
18.00	4.68	2.62	4.45	0.028
20.00	4.85	2.76	4.61	0.024
22.00	5.00	2.89	4.76	0.020
24.00	**5.12**	**3.00**	**4.88**	0.017
26.00	5.12	3.00	4.88	0.000
28.00	5.12	3.00	4.88	0.000
30.00	5.12	3.00	4.88	0.000
32.00	5.12	3.00	4.88	0.000
34.00	5.12	3.00	4.88	0.000
36.00	5.12	3.00	4.88	0.000
38.00	5.12	3.00	4.88	0.000
40.00	5.12	3.00	4.88	0.000
42.00	5.12	3.00	4.88	0.000
44.00	5.12	3.00	4.88	0.000
46.00	5.12	3.00	4.88	0.000
48.00	5.12	3.00	4.88	0.000
50.00	5.12	3.00	4.88	0.000
52.00	5.12	3.00	4.88	0.000
54.00	5.12	3.00	4.88	0.000
56.00	5.12	3.00	4.88	0.000
58.00	5.12	3.00	4.88	0.000
60.00	5.12	3.00	4.88	0.000
62.00	5.12	3.00	4.88	0.000
64.00	5.12	3.00	4.88	0.000
66.00	5.12	3.00	4.88	0.000
68.00	5.12	3.00	4.88	0.000
70.00	5.12	3.00	4.88	0.000
72.00	5.12	3.00	4.88	0.000

Summary for Link POA-1E: POA

Inflow Area = 1.627 ac, 92.87% Impervious, Inflow Depth = 4.75" for B-10-YR event
Inflow = 7.792 cfs @ 12.13 hrs, Volume= 0.644 af
Primary = 7.792 cfs @ 12.13 hrs, Volume= 0.644 af, Atten= 0%, Lag= 0.0 min

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

Link POA-1E: POA



Hydrograph for Link POA-1E: POA

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.000	**0.00**	0.000
1.00	0.010	0.00	0.010
2.00	0.047	0.00	0.047
3.00	0.072	0.00	0.072
4.00	0.092	0.00	0.092
5.00	0.107	0.00	0.107
6.00	0.120	0.00	0.120
7.00	0.156	0.00	0.156
8.00	0.194	0.00	0.194
9.00	0.232	0.00	0.232
10.00	0.357	0.00	0.357
11.00	0.642	0.00	0.642
12.00	**4.303**	0.00	**4.303**
13.00	**0.807**	0.00	**0.807**
14.00	0.405	0.00	0.405
15.00	0.274	0.00	0.274
16.00	0.224	0.00	0.224
17.00	0.187	0.00	0.187
18.00	0.151	0.00	0.151
19.00	0.137	0.00	0.137
20.00	0.128	0.00	0.128
21.00	0.119	0.00	0.119
22.00	0.110	0.00	0.110
23.00	0.100	0.00	0.100
24.00	0.092	0.00	0.092
25.00	0.000	0.00	0.000
26.00	0.000	0.00	0.000
27.00	0.000	0.00	0.000
28.00	0.000	0.00	0.000
29.00	0.000	0.00	0.000
30.00	0.000	0.00	0.000
31.00	0.000	0.00	0.000
32.00	0.000	0.00	0.000
33.00	0.000	0.00	0.000
34.00	0.000	0.00	0.000
35.00	0.000	0.00	0.000
36.00	0.000	0.00	0.000
37.00	0.000	0.00	0.000
38.00	0.000	0.00	0.000
39.00	0.000	0.00	0.000
40.00	0.000	0.00	0.000
41.00	0.000	0.00	0.000
42.00	0.000	0.00	0.000
43.00	0.000	0.00	0.000
44.00	0.000	0.00	0.000
45.00	0.000	0.00	0.000
46.00	0.000	0.00	0.000
47.00	0.000	0.00	0.000
48.00	0.000	0.00	0.000
49.00	0.000	0.00	0.000
50.00	0.000	0.00	0.000
51.00	0.000	0.00	0.000
52.00	0.000	0.00	0.000
53.00	0.000	0.00	0.000
54.00	0.000	0.00	0.000
55.00	0.000	0.00	0.000
56.00	0.000	0.00	0.000
57.00	0.000	0.00	0.000
58.00	0.000	0.00	0.000
59.00	0.000	0.00	0.000
60.00	0.000	0.00	0.000
61.00	0.000	0.00	0.000
62.00	0.000	0.00	0.000
63.00	0.000	0.00	0.000
64.00	0.000	0.00	0.000
65.00	0.000	0.00	0.000
66.00	0.000	0.00	0.000
67.00	0.000	0.00	0.000
68.00	0.000	0.00	0.000
69.00	0.000	0.00	0.000
70.00	0.000	0.00	0.000
71.00	0.000	0.00	0.000
72.00	0.000	0.00	0.000

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: ON-SITE DRAINAGE Runoff Area=1.327 ac 91.94% Impervious Runoff Depth=8.21"
Tc=6.0 min CN=80/98 Runoff=10.840 cfs 0.908 af

Subcatchment E2: OFF-SITE DRAINAGE Runoff Area=0.300 ac 97.00% Impervious Runoff Depth=8.32"
Tc=6.0 min CN=80/98 Runoff=2.469 cfs 0.208 af

Link POA-1E: POA Inflow=13.308 cfs 1.117 af
Primary=13.308 cfs 1.117 af

Total Runoff Area = 1.627 ac Runoff Volume = 1.117 af Average Runoff Depth = 8.23"
7.13% Pervious = 0.116 ac 92.87% Impervious = 1.511 ac

Summary for Subcatchment E1: ON-SITE DRAINAGE AREA

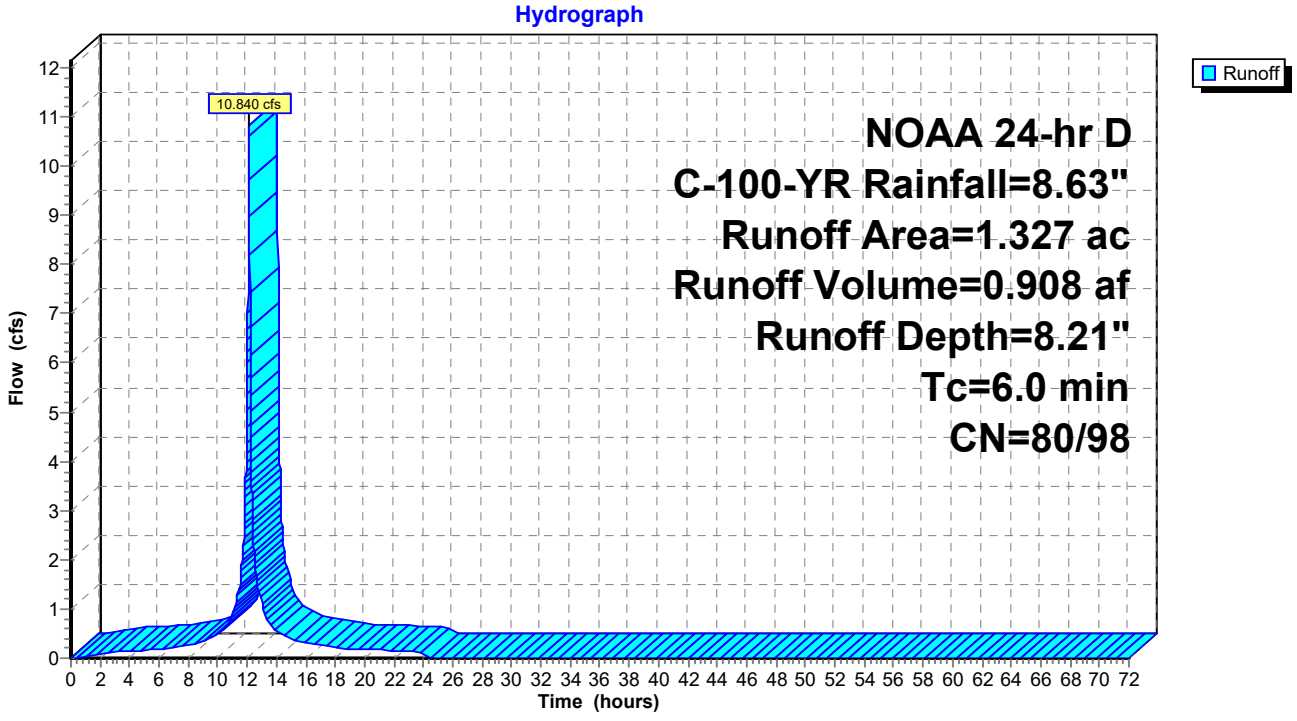
Runoff = 10.840 cfs @ 12.13 hrs, Volume= 0.908 af, Depth= 8.21"
Routed to Link POA-1E : POA

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D C-100-YR Rainfall=8.63"

Area (ac)	CN	Description
1.220	98	Paved parking, HSG D
0.107	80	>75% Grass cover, Good, HSG D
1.327	97	Weighted Average
0.107	80	8.06% Pervious Area
1.220	98	91.94% Impervious Area

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

Subcatchment E1: ON-SITE DRAINAGE AREA



Hydrograph for Subcatchment E1: ON-SITE DRAINAGE AREA

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.000
2.00	0.21	0.00	0.07	0.094
4.00	0.45	0.00	0.28	0.143
6.00	0.74	0.02	0.54	0.178
8.00	1.12	0.12	0.91	0.280
10.00	1.71	0.40	1.49	0.506
12.00	4.13	2.15	3.90	**6.003**
14.00	6.92	4.62	6.68	**0.560**
16.00	7.51	5.17	7.27	0.310
18.00	7.89	5.53	7.65	0.208
20.00	8.18	5.79	7.94	0.177
22.00	8.42	6.02	8.18	0.152
24.00	**8.63**	**6.22**	**8.39**	0.127
26.00	8.63	6.22	8.39	0.000
28.00	8.63	6.22	8.39	0.000
30.00	8.63	6.22	8.39	0.000
32.00	8.63	6.22	8.39	0.000
34.00	8.63	6.22	8.39	0.000
36.00	8.63	6.22	8.39	0.000
38.00	8.63	6.22	8.39	0.000
40.00	8.63	6.22	8.39	0.000
42.00	8.63	6.22	8.39	0.000
44.00	8.63	6.22	8.39	0.000
46.00	8.63	6.22	8.39	0.000
48.00	8.63	6.22	8.39	0.000
50.00	8.63	6.22	8.39	0.000
52.00	8.63	6.22	8.39	0.000
54.00	8.63	6.22	8.39	0.000
56.00	8.63	6.22	8.39	0.000
58.00	8.63	6.22	8.39	0.000
60.00	8.63	6.22	8.39	0.000
62.00	8.63	6.22	8.39	0.000
64.00	8.63	6.22	8.39	0.000
66.00	8.63	6.22	8.39	0.000
68.00	8.63	6.22	8.39	0.000
70.00	8.63	6.22	8.39	0.000
72.00	8.63	6.22	8.39	0.000

Summary for Subcatchment E2: OFF-SITE DRAINAGE AREA

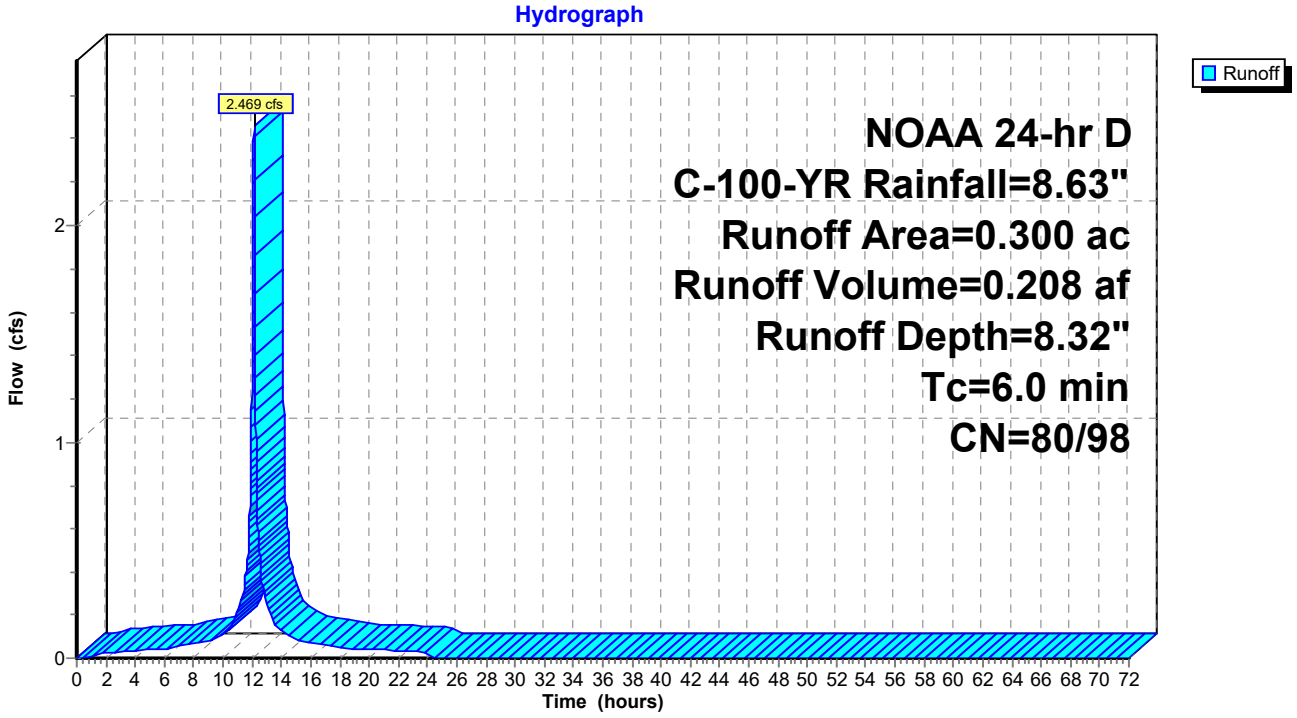
Runoff = 2.469 cfs @ 12.13 hrs, Volume= 0.208 af, Depth= 8.32"
Routed to Link POA-1E : POA

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D C-100-YR Rainfall=8.63"

Area (ac)	CN	Description
0.291	98	Paved parking, HSG D
0.009	80	>75% Grass cover, Good, HSG D
0.300	97	Weighted Average
0.009	80	3.00% Pervious Area
0.291	98	97.00% Impervious Area

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

Subcatchment E2: OFF-SITE DRAINAGE AREA



Hydrograph for Subcatchment E2: OFF-SITE DRAINAGE AREA

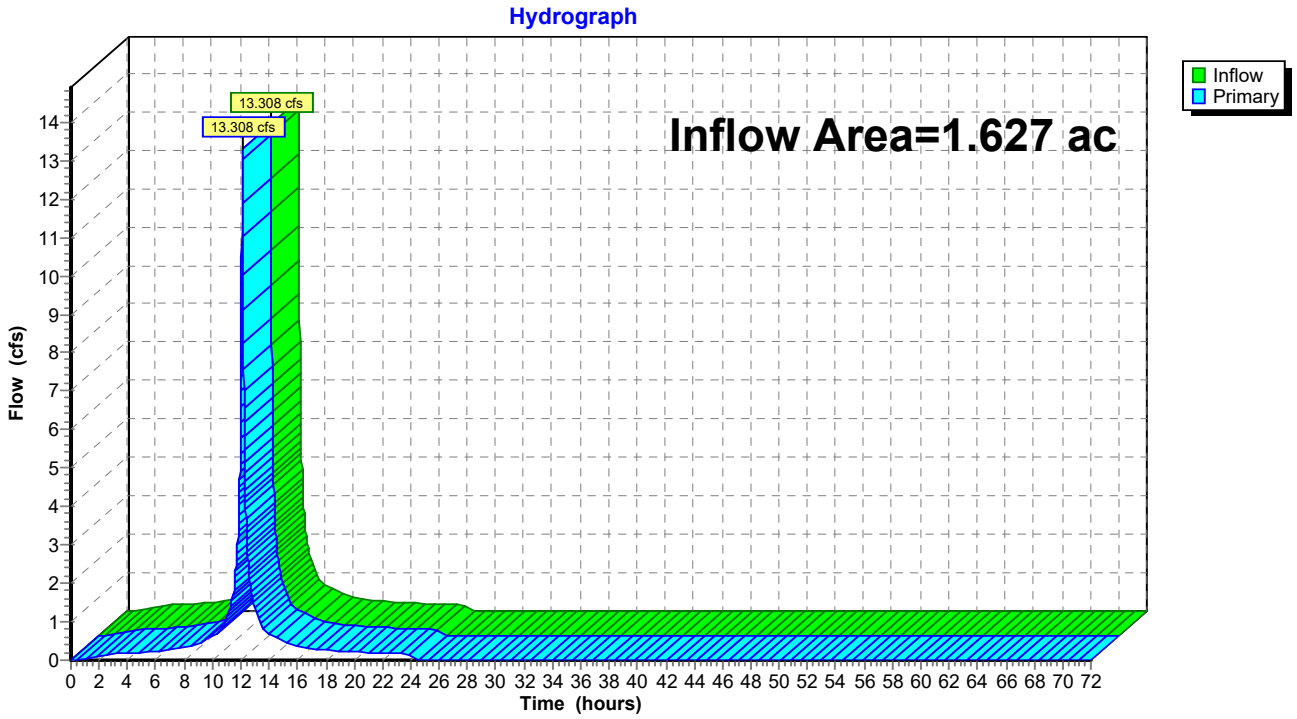
Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.000
2.00	0.21	0.00	0.07	0.022
4.00	0.45	0.00	0.28	0.034
6.00	0.74	0.02	0.54	0.042
8.00	1.12	0.12	0.91	0.066
10.00	1.71	0.40	1.49	0.117
12.00	4.13	2.15	3.90	**1.370**
14.00	6.92	4.62	6.68	**0.127**
16.00	7.51	5.17	7.27	0.070
18.00	7.89	5.53	7.65	0.047
20.00	8.18	5.79	7.94	0.040
22.00	8.42	6.02	8.18	0.034
24.00	**8.63**	**6.22**	**8.39**	0.029
26.00	8.63	6.22	8.39	0.000
28.00	8.63	6.22	8.39	0.000
30.00	8.63	6.22	8.39	0.000
32.00	8.63	6.22	8.39	0.000
34.00	8.63	6.22	8.39	0.000
36.00	8.63	6.22	8.39	0.000
38.00	8.63	6.22	8.39	0.000
40.00	8.63	6.22	8.39	0.000
42.00	8.63	6.22	8.39	0.000
44.00	8.63	6.22	8.39	0.000
46.00	8.63	6.22	8.39	0.000
48.00	8.63	6.22	8.39	0.000
50.00	8.63	6.22	8.39	0.000
52.00	8.63	6.22	8.39	0.000
54.00	8.63	6.22	8.39	0.000
56.00	8.63	6.22	8.39	0.000
58.00	8.63	6.22	8.39	0.000
60.00	8.63	6.22	8.39	0.000
62.00	8.63	6.22	8.39	0.000
64.00	8.63	6.22	8.39	0.000
66.00	8.63	6.22	8.39	0.000
68.00	8.63	6.22	8.39	0.000
70.00	8.63	6.22	8.39	0.000
72.00	8.63	6.22	8.39	0.000

Summary for Link POA-1E: POA

Inflow Area = 1.627 ac, 92.87% Impervious, Inflow Depth = 8.23" for C-100-YR event
Inflow = 13.308 cfs @ 12.13 hrs, Volume= 1.117 af
Primary = 13.308 cfs @ 12.13 hrs, Volume= 1.117 af, Atten= 0%, Lag= 0.0 min

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

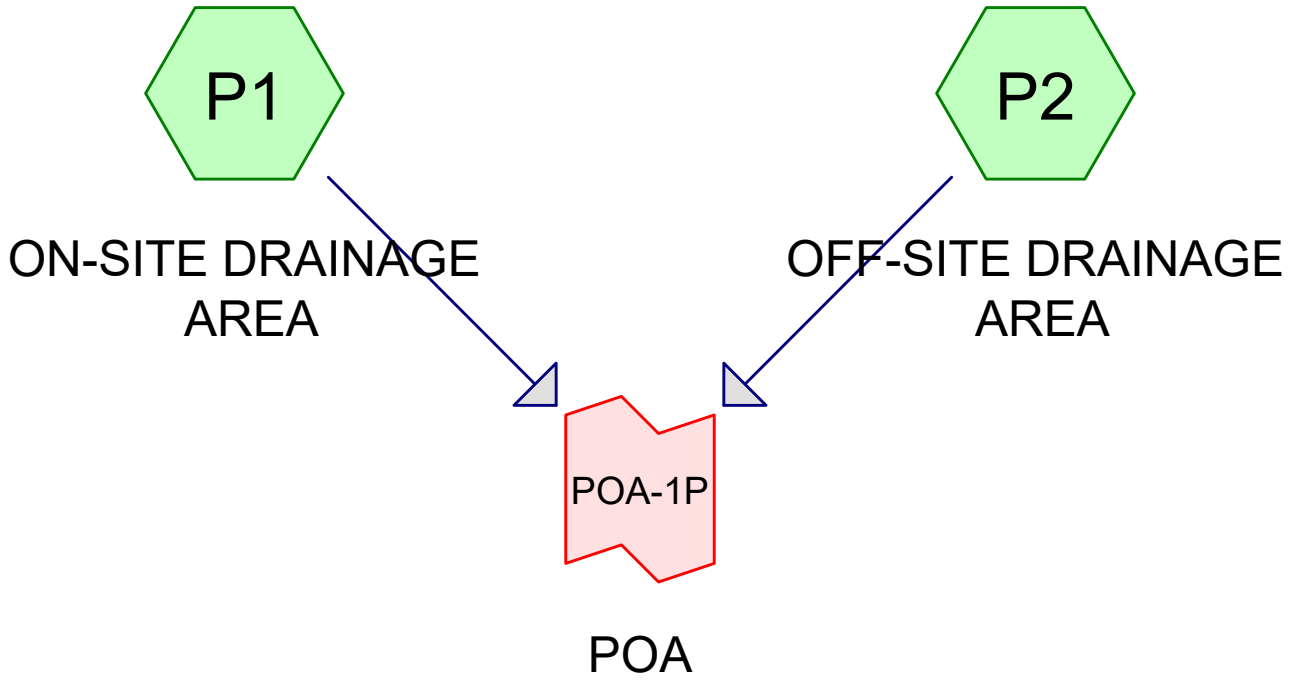
Link POA-1E: POA



Hydrograph for Link POA-1E: POA

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.000	**0.00**	0.000
1.00	0.054	0.00	0.054
2.00	0.116	0.00	0.116
3.00	0.151	0.00	0.151
4.00	0.178	0.00	0.178
5.00	0.200	0.00	0.200
6.00	0.220	0.00	0.220
7.00	0.282	0.00	0.282
8.00	0.346	0.00	0.346
9.00	0.410	0.00	0.410
10.00	0.623	0.00	0.623
11.00	1.113	0.00	1.113
12.00	**7.373**	0.00	**7.373**
13.00	**1.372**	0.00	**1.372**
14.00	0.687	0.00	0.687
15.00	0.465	0.00	0.465
16.00	0.381	0.00	0.381
17.00	0.318	0.00	0.318
18.00	0.256	0.00	0.256
19.00	0.233	0.00	0.233
20.00	0.217	0.00	0.217
21.00	0.202	0.00	0.202
22.00	0.187	0.00	0.187
23.00	0.170	0.00	0.170
24.00	0.156	0.00	0.156
25.00	0.000	0.00	0.000
26.00	0.000	0.00	0.000
27.00	0.000	0.00	0.000
28.00	0.000	0.00	0.000
29.00	0.000	0.00	0.000
30.00	0.000	0.00	0.000
31.00	0.000	0.00	0.000
32.00	0.000	0.00	0.000
33.00	0.000	0.00	0.000
34.00	0.000	0.00	0.000
35.00	0.000	0.00	0.000
36.00	0.000	0.00	0.000
37.00	0.000	0.00	0.000
38.00	0.000	0.00	0.000
39.00	0.000	0.00	0.000
40.00	0.000	0.00	0.000
41.00	0.000	0.00	0.000
42.00	0.000	0.00	0.000
43.00	0.000	0.00	0.000
44.00	0.000	0.00	0.000
45.00	0.000	0.00	0.000
46.00	0.000	0.00	0.000
47.00	0.000	0.00	0.000
48.00	0.000	0.00	0.000
49.00	0.000	0.00	0.000
50.00	0.000	0.00	0.000
51.00	0.000	0.00	0.000
52.00	0.000	0.00	0.000
53.00	0.000	0.00	0.000
54.00	0.000	0.00	0.000
55.00	0.000	0.00	0.000
56.00	0.000	0.00	0.000
57.00	0.000	0.00	0.000
58.00	0.000	0.00	0.000
59.00	0.000	0.00	0.000
60.00	0.000	0.00	0.000
61.00	0.000	0.00	0.000
62.00	0.000	0.00	0.000
63.00	0.000	0.00	0.000
64.00	0.000	0.00	0.000
65.00	0.000	0.00	0.000
66.00	0.000	0.00	0.000
67.00	0.000	0.00	0.000
68.00	0.000	0.00	0.000
69.00	0.000	0.00	0.000
70.00	0.000	0.00	0.000
71.00	0.000	0.00	0.000
72.00	0.000	0.00	0.000

PROPOSED CONDITIONS



Subcat Reach Pond Link

Routing Diagram for 231012- Freddys
Prepared by Colliers Engineering & Design, Printed 10/19/2023

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	A-2-YR	NOAA 24-hr	D	Default	24.00	1	3.35	2
2	B-10-YR	NOAA 24-hr	D	Default	24.00	1	5.12	2
3	C-100-YR	NOAA 24-hr	D	Default	24.00	1	8.63	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.148	80	>75% Grass cover, Good, HSG D (P1, P2)
1.479	98	Paved parking, HSG D (P1, P2)
1.627	**96**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.627	HSG D	P1, P2
0.000	Other	
1.627		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.148	0.000	0.148	>75% Grass cover, Good	P1, P2
0.000	0.000	0.000	1.479	0.000	1.479	Paved parking	P1, P2
0.000	**0.000**	**0.000**	**1.627**	**0.000**	**1.627**	**TOTAL AREA**	

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P1: ON-SITE DRAINAGE Runoff Area=1.327 ac 89.53% Impervious Runoff Depth=2.95"
Tc=6.0 min CN=80/98 Runoff=4.024 cfs 0.326 af

Subcatchment P2: OFF-SITE DRAINAGE Runoff Area=0.300 ac 97.00% Impervious Runoff Depth=3.07"
Tc=6.0 min CN=80/98 Runoff=0.941 cfs 0.077 af

Link POA-1P: POA Inflow=4.965 cfs 0.403 af
Primary=4.965 cfs 0.403 af

Total Runoff Area = 1.627 ac Runoff Volume = 0.403 af Average Runoff Depth = 2.97"
9.10% Pervious = 0.148 ac 90.90% Impervious = 1.479 ac

Summary for Subcatchment P1: ON-SITE DRAINAGE AREA

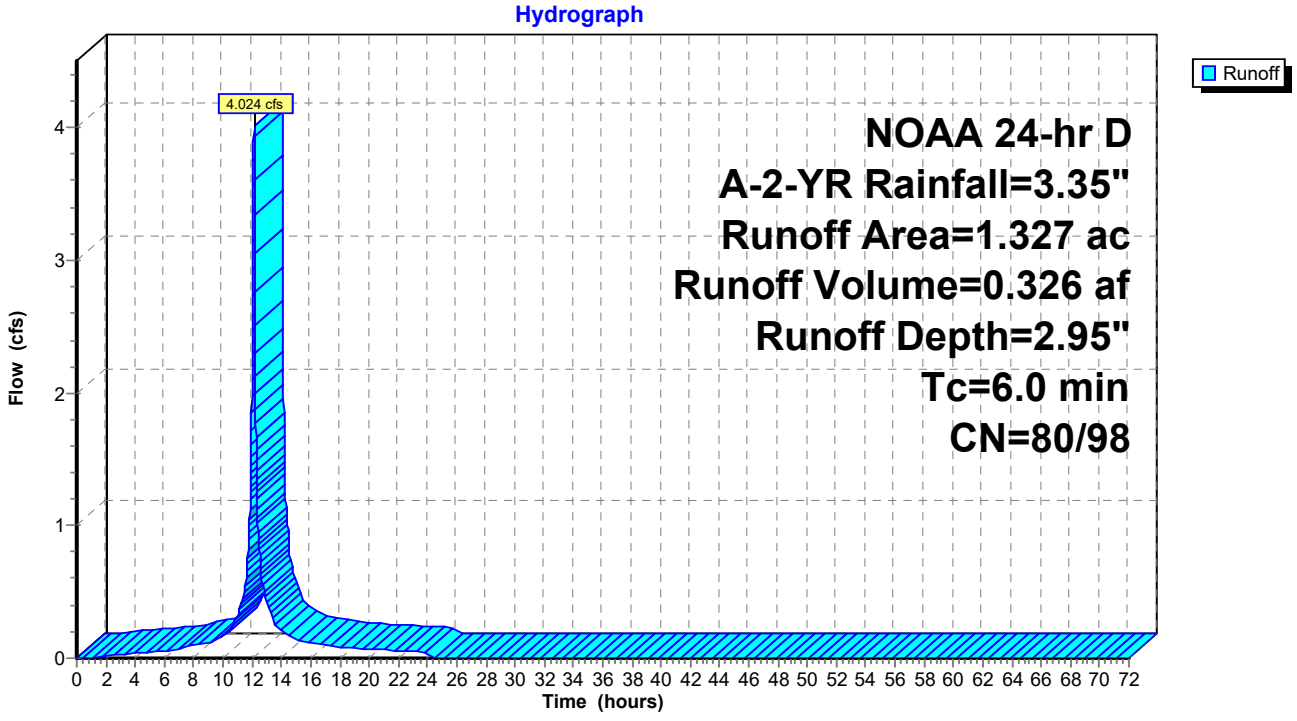
Runoff = 4.024 cfs @ 12.13 hrs, Volume= 0.326 af, Depth= 2.95"
Routed to Link POA-1P : POA

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D A-2-YR Rainfall=3.35"

Area (ac)	CN	Description
1.188	98	Paved parking, HSG D
0.139	80	>75% Grass cover, Good, HSG D
1.327	96	Weighted Average
0.139	80	10.47% Pervious Area
1.188	98	89.53% Impervious Area

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

Subcatchment P1: ON-SITE DRAINAGE AREA



Hydrograph for Subcatchment P1: ON-SITE DRAINAGE AREA

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.000
2.00	0.08	0.00	0.01	0.014
4.00	0.18	0.00	0.05	0.038
6.00	0.29	0.00	0.13	0.055
8.00	0.43	0.00	0.26	0.093
10.00	0.66	0.01	0.47	0.176
12.00	1.60	0.34	1.38	**2.207**
14.00	2.69	1.02	2.46	**0.211**
16.00	2.92	1.19	2.68	0.117
18.00	3.06	1.30	2.83	0.079
20.00	3.17	1.38	2.94	0.067
22.00	3.27	1.46	3.04	0.058
24.00	**3.35**	**1.52**	**3.12**	0.048
26.00	3.35	1.52	3.12	0.000
28.00	3.35	1.52	3.12	0.000
30.00	3.35	1.52	3.12	0.000
32.00	3.35	1.52	3.12	0.000
34.00	3.35	1.52	3.12	0.000
36.00	3.35	1.52	3.12	0.000
38.00	3.35	1.52	3.12	0.000
40.00	3.35	1.52	3.12	0.000
42.00	3.35	1.52	3.12	0.000
44.00	3.35	1.52	3.12	0.000
46.00	3.35	1.52	3.12	0.000
48.00	3.35	1.52	3.12	0.000
50.00	3.35	1.52	3.12	0.000
52.00	3.35	1.52	3.12	0.000
54.00	3.35	1.52	3.12	0.000
56.00	3.35	1.52	3.12	0.000
58.00	3.35	1.52	3.12	0.000
60.00	3.35	1.52	3.12	0.000
62.00	3.35	1.52	3.12	0.000
64.00	3.35	1.52	3.12	0.000
66.00	3.35	1.52	3.12	0.000
68.00	3.35	1.52	3.12	0.000
70.00	3.35	1.52	3.12	0.000
72.00	3.35	1.52	3.12	0.000

Summary for Subcatchment P2: OFF-SITE DRAINAGE AREA

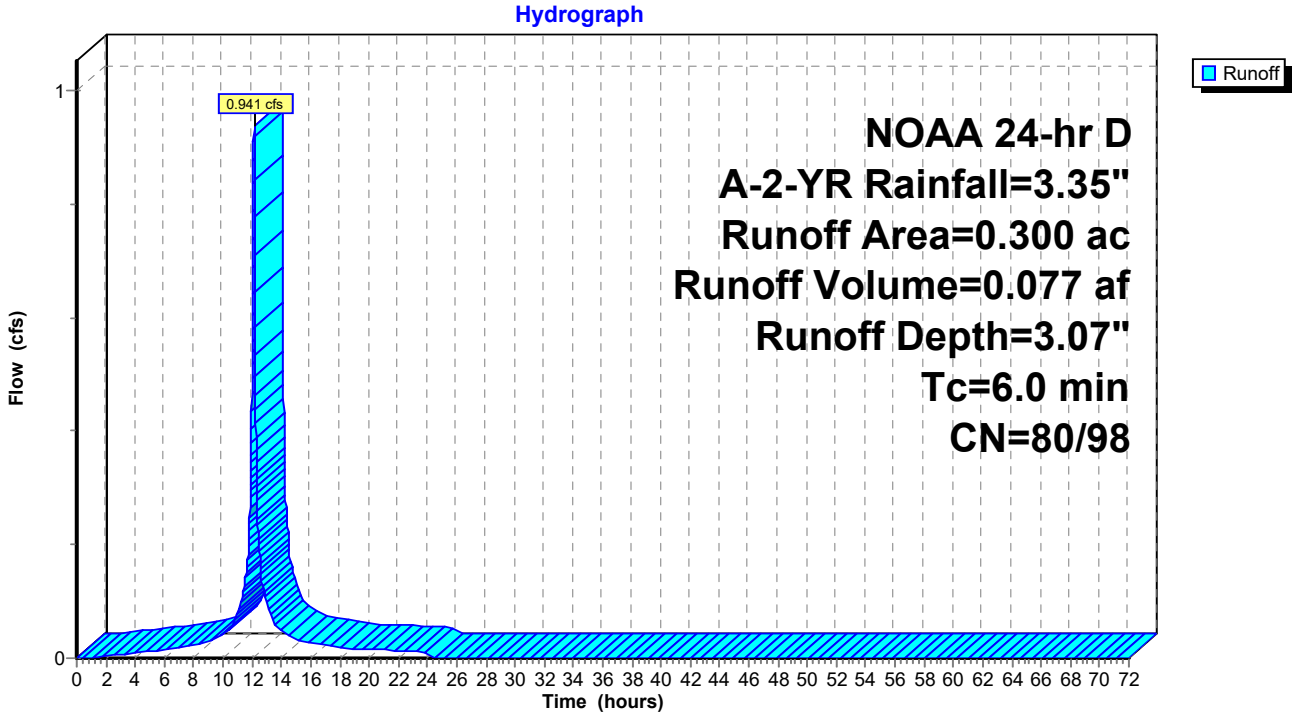
Runoff = 0.941 cfs @ 12.13 hrs, Volume= 0.077 af, Depth= 3.07"
Routed to Link POA-1P : POA

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D A-2-YR Rainfall=3.35"

Area (ac)	CN	Description
0.291	98	Paved parking, HSG D
0.009	80	>75% Grass cover, Good, HSG D
0.300	97	Weighted Average
0.009	80	3.00% Pervious Area
0.291	98	97.00% Impervious Area

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

Subcatchment P2: OFF-SITE DRAINAGE AREA



Hydrograph for Subcatchment P2: OFF-SITE DRAINAGE AREA

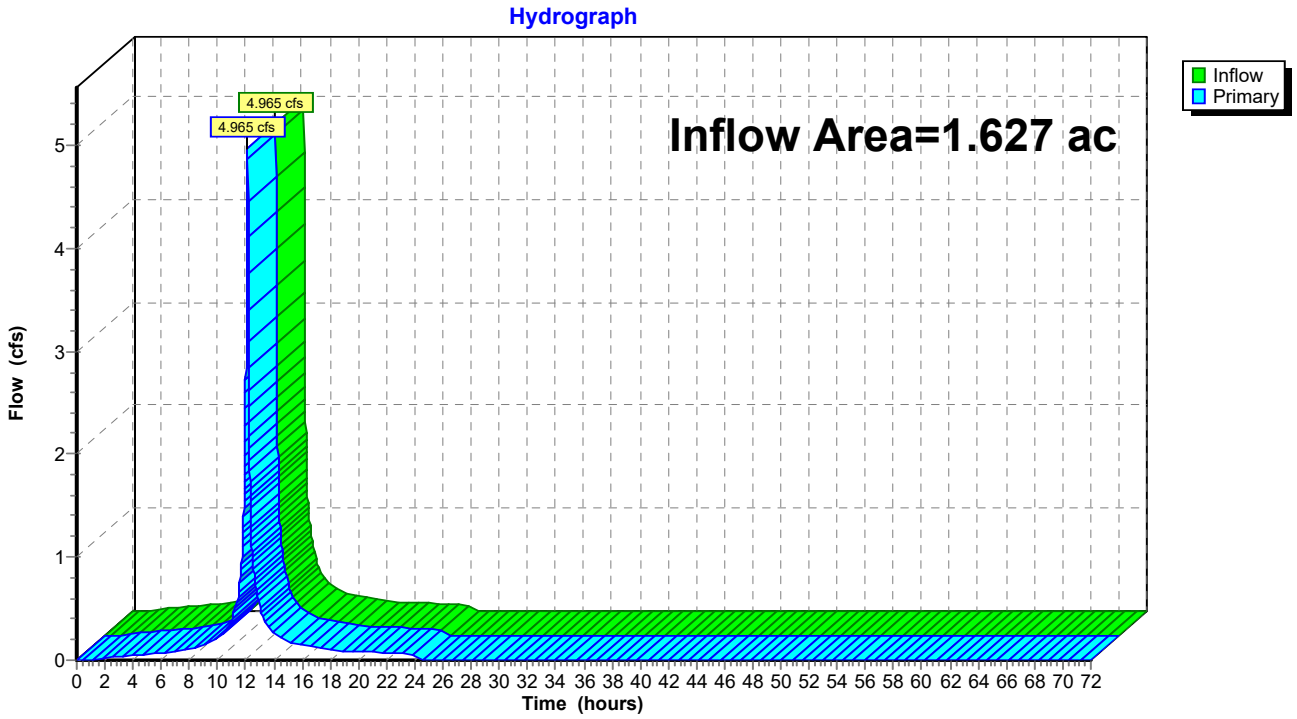
Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.000
2.00	0.08	0.00	0.01	0.004
4.00	0.18	0.00	0.05	0.009
6.00	0.29	0.00	0.13	0.014
8.00	0.43	0.00	0.26	0.023
10.00	0.66	0.01	0.47	0.043
12.00	1.60	0.34	1.38	**0.520**
14.00	2.69	1.02	2.46	**0.049**
16.00	2.92	1.19	2.68	0.027
18.00	3.06	1.30	2.83	0.018
20.00	3.17	1.38	2.94	0.015
22.00	3.27	1.46	3.04	0.013
24.00	**3.35**	**1.52**	**3.12**	0.011
26.00	3.35	1.52	3.12	0.000
28.00	3.35	1.52	3.12	0.000
30.00	3.35	1.52	3.12	0.000
32.00	3.35	1.52	3.12	0.000
34.00	3.35	1.52	3.12	0.000
36.00	3.35	1.52	3.12	0.000
38.00	3.35	1.52	3.12	0.000
40.00	3.35	1.52	3.12	0.000
42.00	3.35	1.52	3.12	0.000
44.00	3.35	1.52	3.12	0.000
46.00	3.35	1.52	3.12	0.000
48.00	3.35	1.52	3.12	0.000
50.00	3.35	1.52	3.12	0.000
52.00	3.35	1.52	3.12	0.000
54.00	3.35	1.52	3.12	0.000
56.00	3.35	1.52	3.12	0.000
58.00	3.35	1.52	3.12	0.000
60.00	3.35	1.52	3.12	0.000
62.00	3.35	1.52	3.12	0.000
64.00	3.35	1.52	3.12	0.000
66.00	3.35	1.52	3.12	0.000
68.00	3.35	1.52	3.12	0.000
70.00	3.35	1.52	3.12	0.000
72.00	3.35	1.52	3.12	0.000

Summary for Link POA-1P: POA

Inflow Area = 1.627 ac, 90.90% Impervious, Inflow Depth = 2.97" for A-2-YR event
Inflow = 4.965 cfs @ 12.13 hrs, Volume= 0.403 af
Primary = 4.965 cfs @ 12.13 hrs, Volume= 0.403 af, Atten= 0%, Lag= 0.0 min

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

Link POA-1P: POA



Hydrograph for Link POA-1P: POA

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.000	**0.00**	0.000
1.00	0.000	0.00	0.000
2.00	0.018	0.00	0.018
3.00	0.034	0.00	0.034
4.00	0.048	0.00	0.048
5.00	0.059	0.00	0.059
6.00	0.069	0.00	0.069
7.00	0.091	0.00	0.091
8.00	0.116	0.00	0.116
9.00	0.140	0.00	0.140
10.00	0.218	0.00	0.218
11.00	0.399	0.00	0.399
12.00	**2.726**	0.00	**2.726**
13.00	**0.518**	0.00	**0.518**
14.00	0.260	0.00	0.260
15.00	0.177	0.00	0.177
16.00	0.145	0.00	0.145
17.00	0.121	0.00	0.121
18.00	0.097	0.00	0.097
19.00	0.089	0.00	0.089
20.00	0.083	0.00	0.083
21.00	0.077	0.00	0.077
22.00	0.071	0.00	0.071
23.00	0.065	0.00	0.065
24.00	0.059	0.00	0.059
25.00	0.000	0.00	0.000
26.00	0.000	0.00	0.000
27.00	0.000	0.00	0.000
28.00	0.000	0.00	0.000
29.00	0.000	0.00	0.000
30.00	0.000	0.00	0.000
31.00	0.000	0.00	0.000
32.00	0.000	0.00	0.000
33.00	0.000	0.00	0.000
34.00	0.000	0.00	0.000
35.00	0.000	0.00	0.000
36.00	0.000	0.00	0.000
37.00	0.000	0.00	0.000
38.00	0.000	0.00	0.000
39.00	0.000	0.00	0.000
40.00	0.000	0.00	0.000
41.00	0.000	0.00	0.000
42.00	0.000	0.00	0.000
43.00	0.000	0.00	0.000
44.00	0.000	0.00	0.000
45.00	0.000	0.00	0.000
46.00	0.000	0.00	0.000
47.00	0.000	0.00	0.000
48.00	0.000	0.00	0.000
49.00	0.000	0.00	0.000
50.00	0.000	0.00	0.000
51.00	0.000	0.00	0.000
52.00	0.000	0.00	0.000
53.00	0.000	0.00	0.000
54.00	0.000	0.00	0.000
55.00	0.000	0.00	0.000
56.00	0.000	0.00	0.000
57.00	0.000	0.00	0.000
58.00	0.000	0.00	0.000
59.00	0.000	0.00	0.000
60.00	0.000	0.00	0.000
61.00	0.000	0.00	0.000
62.00	0.000	0.00	0.000
63.00	0.000	0.00	0.000
64.00	0.000	0.00	0.000
65.00	0.000	0.00	0.000
66.00	0.000	0.00	0.000
67.00	0.000	0.00	0.000
68.00	0.000	0.00	0.000
69.00	0.000	0.00	0.000
70.00	0.000	0.00	0.000
71.00	0.000	0.00	0.000
72.00	0.000	0.00	0.000

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P1: ON-SITE DRAINAGE Runoff Area=1.327 ac 89.53% Impervious Runoff Depth=4.69"
Tc=6.0 min CN=80/98 Runoff=6.294 cfs 0.518 af

Subcatchment P2: OFF-SITE DRAINAGE Runoff Area=0.300 ac 97.00% Impervious Runoff Depth=4.83"
Tc=6.0 min CN=80/98 Runoff=1.454 cfs 0.121 af

Link POA-1P: POA Inflow=7.748 cfs 0.639 af
Primary=7.748 cfs 0.639 af

Total Runoff Area = 1.627 ac Runoff Volume = 0.639 af Average Runoff Depth = 4.71"
9.10% Pervious = 0.148 ac 90.90% Impervious = 1.479 ac

Summary for Subcatchment P1: ON-SITE DRAINAGE AREA

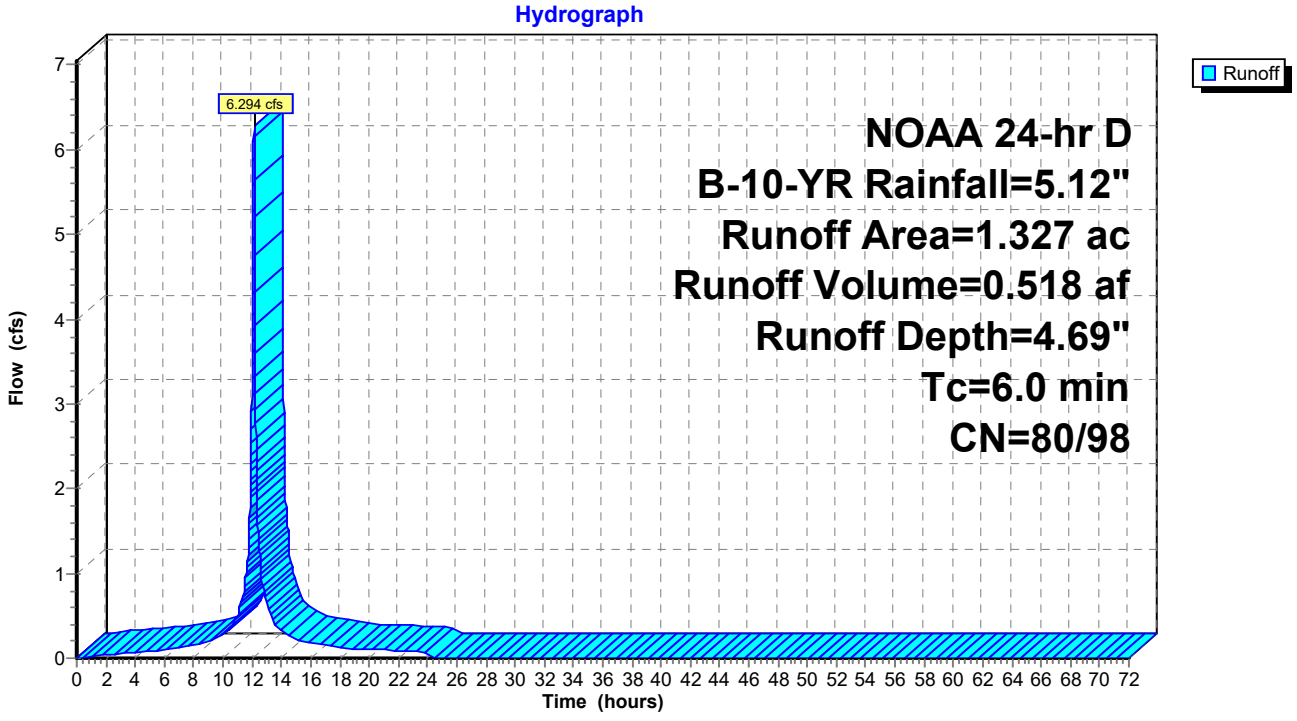
Runoff = 6.294 cfs @ 12.13 hrs, Volume= 0.518 af, Depth= 4.69"
Routed to Link POA-1P : POA

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D B-10-YR Rainfall=5.12"

Area (ac)	CN	Description
1.188	98	Paved parking, HSG D
0.139	80	>75% Grass cover, Good, HSG D
1.327	96	Weighted Average
0.139	80	10.47% Pervious Area
1.188	98	89.53% Impervious Area

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

Subcatchment P1: ON-SITE DRAINAGE AREA



Hydrograph for Subcatchment P1: ON-SITE DRAINAGE AREA

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.000
2.00	0.12	0.00	0.02	0.037
4.00	0.27	0.00	0.12	0.072
6.00	0.44	0.00	0.26	0.094
8.00	0.66	0.01	0.47	0.153
10.00	1.01	0.09	0.81	0.284
12.00	2.45	0.86	2.22	**3.468**
14.00	4.11	2.13	3.87	**0.328**
16.00	4.46	2.42	4.22	0.182
18.00	4.68	2.62	4.45	0.122
20.00	4.85	2.76	4.61	0.104
22.00	5.00	2.89	4.76	0.089
24.00	**5.12**	**3.00**	**4.88**	0.075
26.00	5.12	3.00	4.88	0.000
28.00	5.12	3.00	4.88	0.000
30.00	5.12	3.00	4.88	0.000
32.00	5.12	3.00	4.88	0.000
34.00	5.12	3.00	4.88	0.000
36.00	5.12	3.00	4.88	0.000
38.00	5.12	3.00	4.88	0.000
40.00	5.12	3.00	4.88	0.000
42.00	5.12	3.00	4.88	0.000
44.00	5.12	3.00	4.88	0.000
46.00	5.12	3.00	4.88	0.000
48.00	5.12	3.00	4.88	0.000
50.00	5.12	3.00	4.88	0.000
52.00	5.12	3.00	4.88	0.000
54.00	5.12	3.00	4.88	0.000
56.00	5.12	3.00	4.88	0.000
58.00	5.12	3.00	4.88	0.000
60.00	5.12	3.00	4.88	0.000
62.00	5.12	3.00	4.88	0.000
64.00	5.12	3.00	4.88	0.000
66.00	5.12	3.00	4.88	0.000
68.00	5.12	3.00	4.88	0.000
70.00	5.12	3.00	4.88	0.000
72.00	5.12	3.00	4.88	0.000

Summary for Subcatchment P2: OFF-SITE DRAINAGE AREA

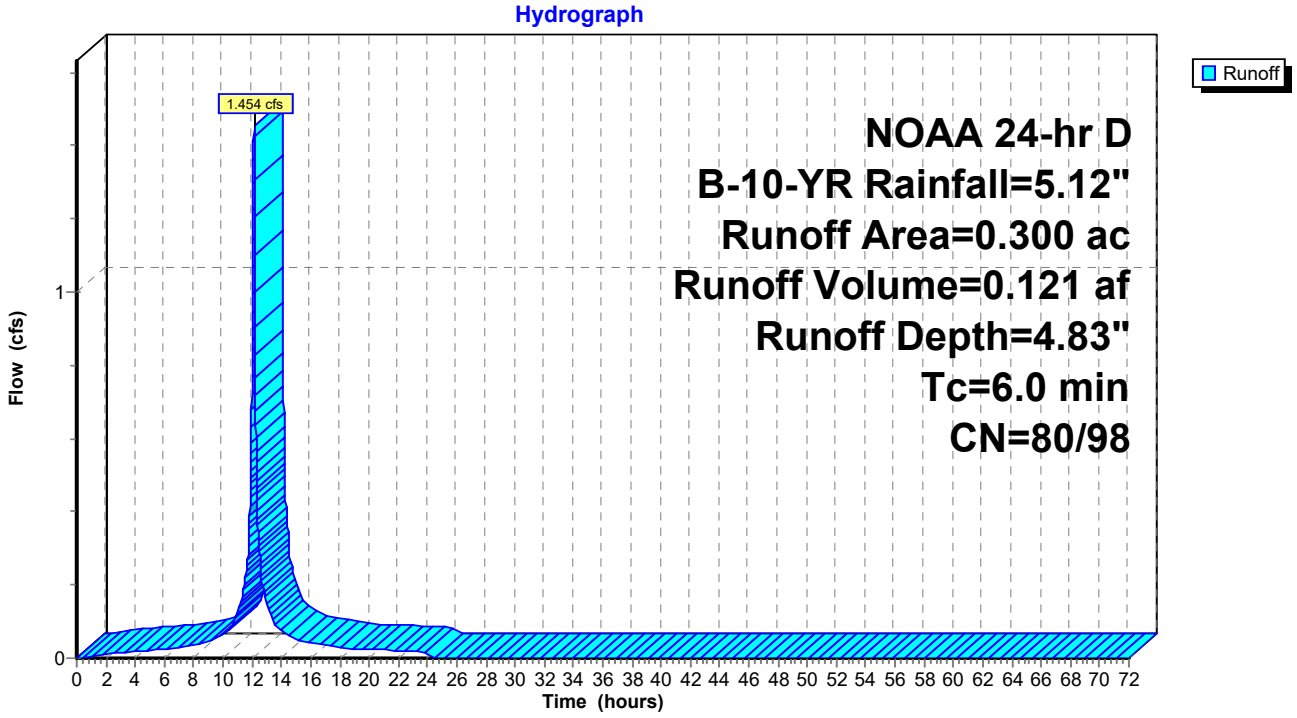
Runoff = 1.454 cfs @ 12.13 hrs, Volume= 0.121 af, Depth= 4.83"
Routed to Link POA-1P : POA

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D B-10-YR Rainfall=5.12"

Area (ac)	CN	Description
0.291	98	Paved parking, HSG D
0.009	80	>75% Grass cover, Good, HSG D
0.300	97	Weighted Average
0.009	80	3.00% Pervious Area
0.291	98	97.00% Impervious Area

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

Subcatchment P2: OFF-SITE DRAINAGE AREA



Hydrograph for Subcatchment P2: OFF-SITE DRAINAGE AREA

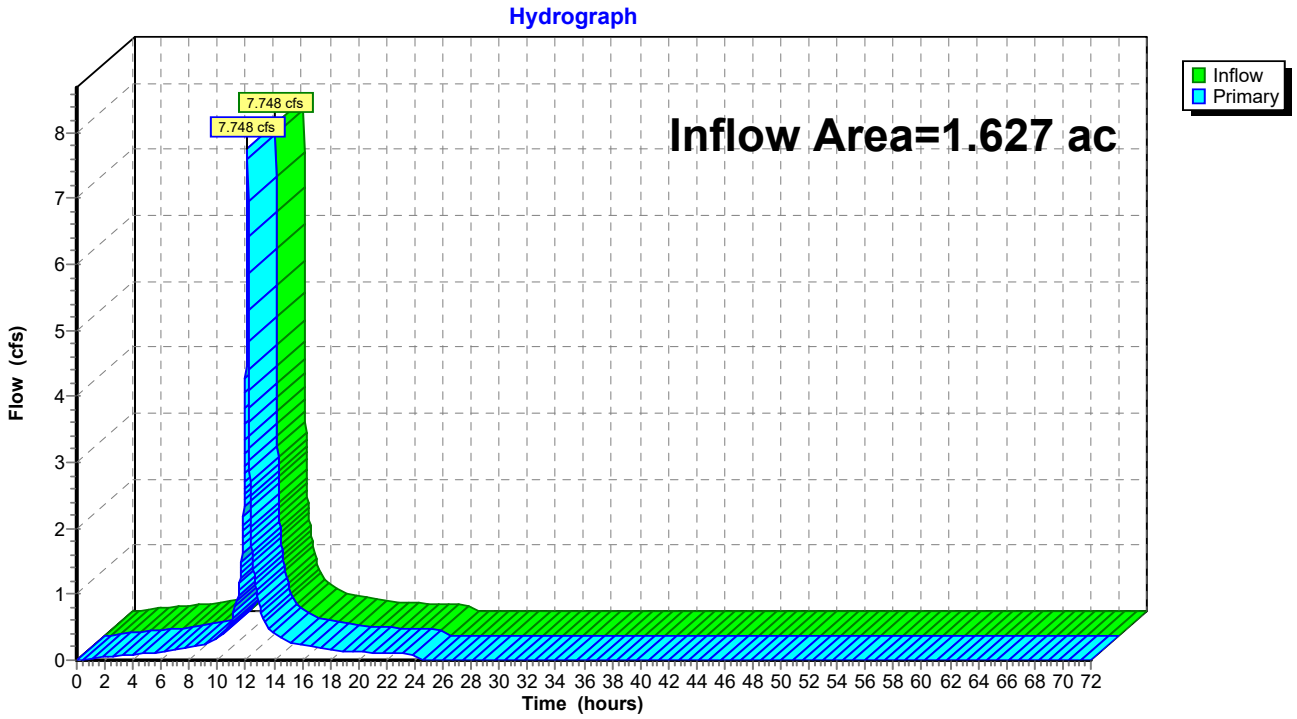
Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.000
2.00	0.12	0.00	0.02	0.009
4.00	0.27	0.00	0.12	0.018
6.00	0.44	0.00	0.26	0.023
8.00	0.66	0.01	0.47	0.037
10.00	1.01	0.09	0.81	0.068
12.00	2.45	0.86	2.22	**0.805**
14.00	4.11	2.13	3.87	**0.075**
16.00	4.46	2.42	4.22	0.042
18.00	4.68	2.62	4.45	0.028
20.00	4.85	2.76	4.61	0.024
22.00	5.00	2.89	4.76	0.020
24.00	**5.12**	**3.00**	**4.88**	0.017
26.00	5.12	3.00	4.88	0.000
28.00	5.12	3.00	4.88	0.000
30.00	5.12	3.00	4.88	0.000
32.00	5.12	3.00	4.88	0.000
34.00	5.12	3.00	4.88	0.000
36.00	5.12	3.00	4.88	0.000
38.00	5.12	3.00	4.88	0.000
40.00	5.12	3.00	4.88	0.000
42.00	5.12	3.00	4.88	0.000
44.00	5.12	3.00	4.88	0.000
46.00	5.12	3.00	4.88	0.000
48.00	5.12	3.00	4.88	0.000
50.00	5.12	3.00	4.88	0.000
52.00	5.12	3.00	4.88	0.000
54.00	5.12	3.00	4.88	0.000
56.00	5.12	3.00	4.88	0.000
58.00	5.12	3.00	4.88	0.000
60.00	5.12	3.00	4.88	0.000
62.00	5.12	3.00	4.88	0.000
64.00	5.12	3.00	4.88	0.000
66.00	5.12	3.00	4.88	0.000
68.00	5.12	3.00	4.88	0.000
70.00	5.12	3.00	4.88	0.000
72.00	5.12	3.00	4.88	0.000

Summary for Link POA-1P: POA

Inflow Area = 1.627 ac, 90.90% Impervious, Inflow Depth = 4.71" for B-10-YR event
Inflow = 7.748 cfs @ 12.13 hrs, Volume= 0.639 af
Primary = 7.748 cfs @ 12.13 hrs, Volume= 0.639 af, Atten= 0%, Lag= 0.0 min

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

Link POA-1P: POA



Hydrograph for Link POA-1P: POA

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.000	**0.00**	0.000
1.00	0.010	0.00	0.010
2.00	0.046	0.00	0.046
3.00	0.071	0.00	0.071
4.00	0.090	0.00	0.090
5.00	0.105	0.00	0.105
6.00	0.117	0.00	0.117
7.00	0.152	0.00	0.152
8.00	0.190	0.00	0.190
9.00	0.229	0.00	0.229
10.00	0.352	0.00	0.352
11.00	0.635	0.00	0.635
12.00	**4.273**	0.00	**4.273**
13.00	**0.804**	0.00	**0.804**
14.00	0.403	0.00	0.403
15.00	0.273	0.00	0.273
16.00	0.224	0.00	0.224
17.00	0.187	0.00	0.187
18.00	0.150	0.00	0.150
19.00	0.137	0.00	0.137
20.00	0.128	0.00	0.128
21.00	0.119	0.00	0.119
22.00	0.110	0.00	0.110
23.00	0.100	0.00	0.100
24.00	0.092	0.00	0.092
25.00	0.000	0.00	0.000
26.00	0.000	0.00	0.000
27.00	0.000	0.00	0.000
28.00	0.000	0.00	0.000
29.00	0.000	0.00	0.000
30.00	0.000	0.00	0.000
31.00	0.000	0.00	0.000
32.00	0.000	0.00	0.000
33.00	0.000	0.00	0.000
34.00	0.000	0.00	0.000
35.00	0.000	0.00	0.000
36.00	0.000	0.00	0.000
37.00	0.000	0.00	0.000
38.00	0.000	0.00	0.000
39.00	0.000	0.00	0.000
40.00	0.000	0.00	0.000
41.00	0.000	0.00	0.000
42.00	0.000	0.00	0.000
43.00	0.000	0.00	0.000
44.00	0.000	0.00	0.000
45.00	0.000	0.00	0.000
46.00	0.000	0.00	0.000
47.00	0.000	0.00	0.000
48.00	0.000	0.00	0.000
49.00	0.000	0.00	0.000
50.00	0.000	0.00	0.000
51.00	0.000	0.00	0.000
52.00	0.000	0.00	0.000
53.00	0.000	0.00	0.000
54.00	0.000	0.00	0.000
55.00	0.000	0.00	0.000
56.00	0.000	0.00	0.000
57.00	0.000	0.00	0.000
58.00	0.000	0.00	0.000
59.00	0.000	0.00	0.000
60.00	0.000	0.00	0.000
61.00	0.000	0.00	0.000
62.00	0.000	0.00	0.000
63.00	0.000	0.00	0.000
64.00	0.000	0.00	0.000
65.00	0.000	0.00	0.000
66.00	0.000	0.00	0.000
67.00	0.000	0.00	0.000
68.00	0.000	0.00	0.000
69.00	0.000	0.00	0.000
70.00	0.000	0.00	0.000
71.00	0.000	0.00	0.000
72.00	0.000	0.00	0.000

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P1: ON-SITE DRAINAGE Runoff Area=1.327 ac 89.53% Impervious Runoff Depth=8.16"
Tc=6.0 min CN=80/98 Runoff=10.801 cfs 0.903 af

Subcatchment P2: OFF-SITE DRAINAGE Runoff Area=0.300 ac 97.00% Impervious Runoff Depth=8.32"
Tc=6.0 min CN=80/98 Runoff=2.469 cfs 0.208 af

Link POA-1P: POA Inflow=13.270 cfs 1.111 af
Primary=13.270 cfs 1.111 af

Total Runoff Area = 1.627 ac Runoff Volume = 1.111 af Average Runoff Depth = 8.19"
9.10% Pervious = 0.148 ac 90.90% Impervious = 1.479 ac

Summary for Subcatchment P1: ON-SITE DRAINAGE AREA

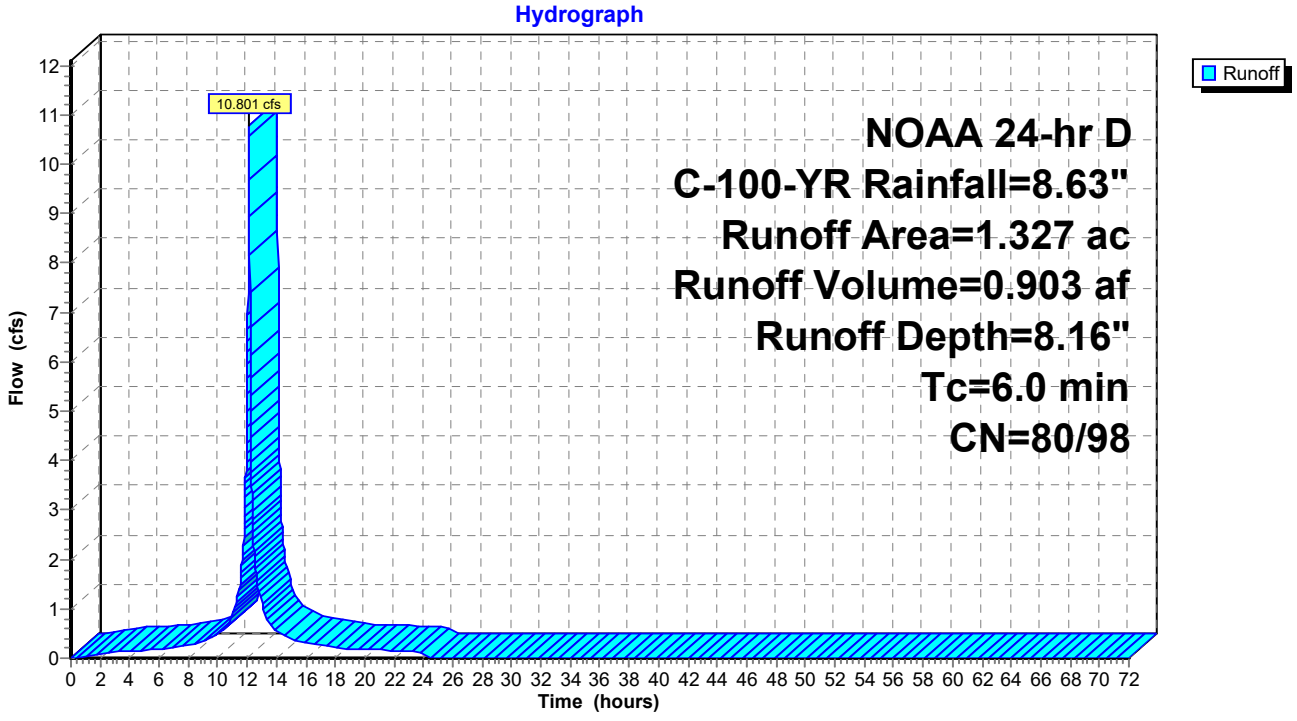
Runoff = 10.801 cfs @ 12.13 hrs, Volume= 0.903 af, Depth= 8.16"
Routed to Link POA-1P : POA

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D C-100-YR Rainfall=8.63"

Area (ac)	CN	Description
1.188	98	Paved parking, HSG D
0.139	80	>75% Grass cover, Good, HSG D
1.327	96	Weighted Average
0.139	80	10.47% Pervious Area
1.188	98	89.53% Impervious Area

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

Subcatchment P1: ON-SITE DRAINAGE AREA



Hydrograph for Subcatchment P1: ON-SITE DRAINAGE AREA

Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.000
2.00	0.21	0.00	0.07	0.091
4.00	0.45	0.00	0.28	0.140
6.00	0.74	0.02	0.54	0.174
8.00	1.12	0.12	0.91	0.276
10.00	1.71	0.40	1.49	0.500
12.00	4.13	2.15	3.90	**5.975**
14.00	6.92	4.62	6.68	**0.559**
16.00	7.51	5.17	7.27	0.310
18.00	7.89	5.53	7.65	0.208
20.00	8.18	5.79	7.94	0.177
22.00	8.42	6.02	8.18	0.152
24.00	**8.63**	**6.22**	**8.39**	0.127
26.00	8.63	6.22	8.39	0.000
28.00	8.63	6.22	8.39	0.000
30.00	8.63	6.22	8.39	0.000
32.00	8.63	6.22	8.39	0.000
34.00	8.63	6.22	8.39	0.000
36.00	8.63	6.22	8.39	0.000
38.00	8.63	6.22	8.39	0.000
40.00	8.63	6.22	8.39	0.000
42.00	8.63	6.22	8.39	0.000
44.00	8.63	6.22	8.39	0.000
46.00	8.63	6.22	8.39	0.000
48.00	8.63	6.22	8.39	0.000
50.00	8.63	6.22	8.39	0.000
52.00	8.63	6.22	8.39	0.000
54.00	8.63	6.22	8.39	0.000
56.00	8.63	6.22	8.39	0.000
58.00	8.63	6.22	8.39	0.000
60.00	8.63	6.22	8.39	0.000
62.00	8.63	6.22	8.39	0.000
64.00	8.63	6.22	8.39	0.000
66.00	8.63	6.22	8.39	0.000
68.00	8.63	6.22	8.39	0.000
70.00	8.63	6.22	8.39	0.000
72.00	8.63	6.22	8.39	0.000

Summary for Subcatchment P2: OFF-SITE DRAINAGE AREA

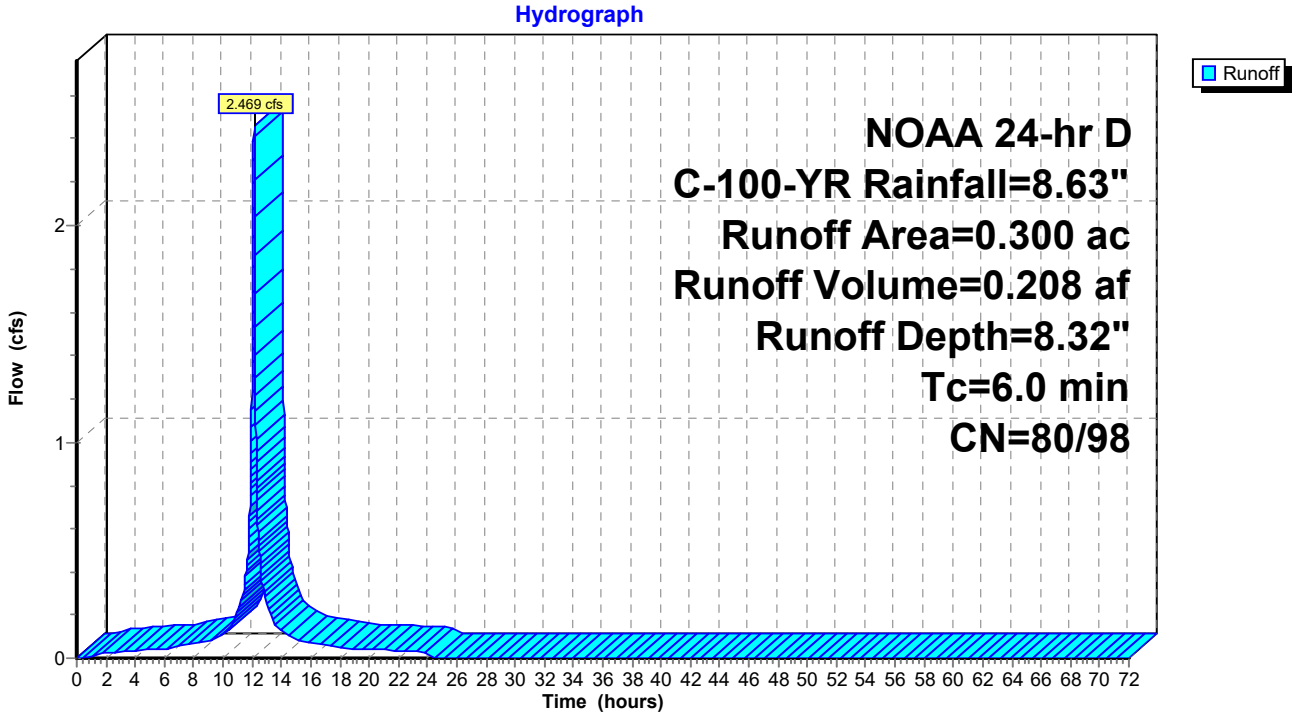
Runoff = 2.469 cfs @ 12.13 hrs, Volume= 0.208 af, Depth= 8.32"
Routed to Link POA-1P : POA

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D C-100-YR Rainfall=8.63"

Area (ac)	CN	Description
0.291	98	Paved parking, HSG D
0.009	80	>75% Grass cover, Good, HSG D
0.300	97	Weighted Average
0.009	80	3.00% Pervious Area
0.291	98	97.00% Impervious Area

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

Subcatchment P2: OFF-SITE DRAINAGE AREA



Hydrograph for Subcatchment P2: OFF-SITE DRAINAGE AREA

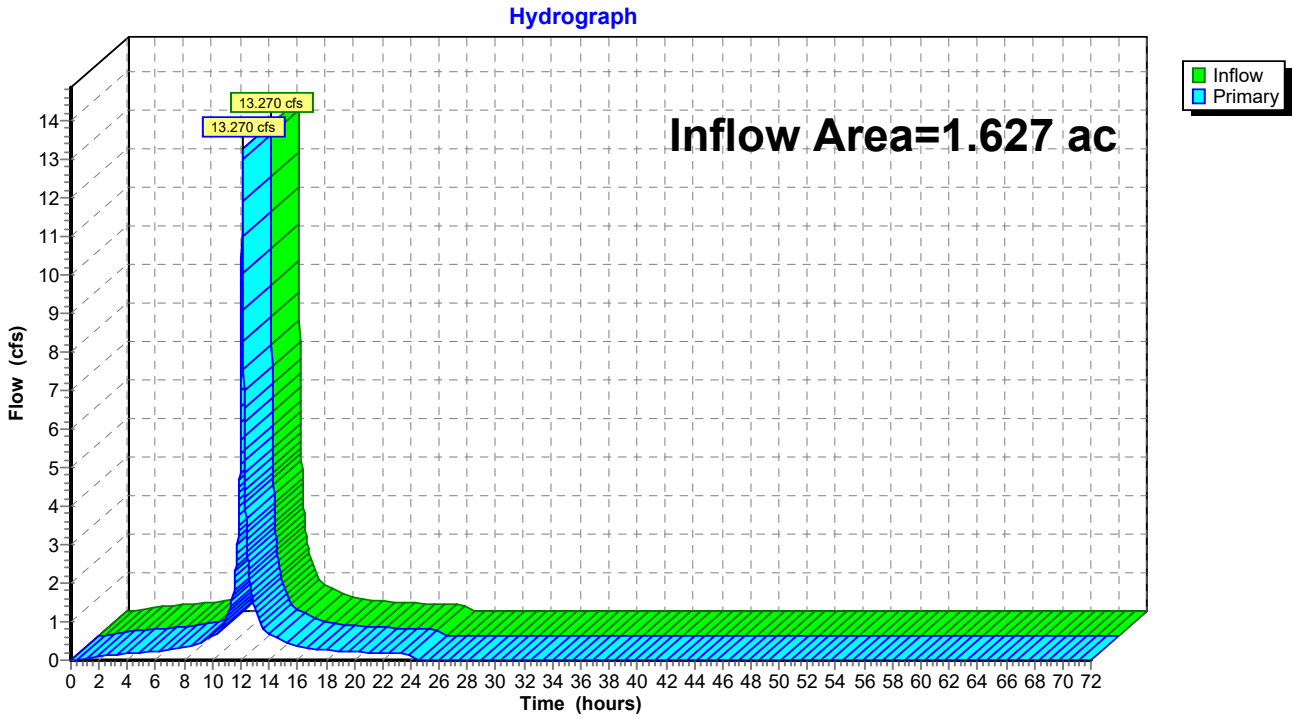
Time (hours)	Precip. (inches)	Perv.Excess (inches)	Imp.Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	0.000
2.00	0.21	0.00	0.07	0.022
4.00	0.45	0.00	0.28	0.034
6.00	0.74	0.02	0.54	0.042
8.00	1.12	0.12	0.91	0.066
10.00	1.71	0.40	1.49	0.117
12.00	4.13	2.15	3.90	**1.370**
14.00	6.92	4.62	6.68	**0.127**
16.00	7.51	5.17	7.27	0.070
18.00	7.89	5.53	7.65	0.047
20.00	8.18	5.79	7.94	0.040
22.00	8.42	6.02	8.18	0.034
24.00	**8.63**	**6.22**	**8.39**	0.029
26.00	8.63	6.22	8.39	0.000
28.00	8.63	6.22	8.39	0.000
30.00	8.63	6.22	8.39	0.000
32.00	8.63	6.22	8.39	0.000
34.00	8.63	6.22	8.39	0.000
36.00	8.63	6.22	8.39	0.000
38.00	8.63	6.22	8.39	0.000
40.00	8.63	6.22	8.39	0.000
42.00	8.63	6.22	8.39	0.000
44.00	8.63	6.22	8.39	0.000
46.00	8.63	6.22	8.39	0.000
48.00	8.63	6.22	8.39	0.000
50.00	8.63	6.22	8.39	0.000
52.00	8.63	6.22	8.39	0.000
54.00	8.63	6.22	8.39	0.000
56.00	8.63	6.22	8.39	0.000
58.00	8.63	6.22	8.39	0.000
60.00	8.63	6.22	8.39	0.000
62.00	8.63	6.22	8.39	0.000
64.00	8.63	6.22	8.39	0.000
66.00	8.63	6.22	8.39	0.000
68.00	8.63	6.22	8.39	0.000
70.00	8.63	6.22	8.39	0.000
72.00	8.63	6.22	8.39	0.000

Summary for Link POA-1P: POA

Inflow Area = 1.627 ac, 90.90% Impervious, Inflow Depth = 8.19" for C-100-YR event
Inflow = 13.270 cfs @ 12.13 hrs, Volume= 1.111 af
Primary = 13.270 cfs @ 12.13 hrs, Volume= 1.111 af, Atten= 0%, Lag= 0.0 min

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

Link POA-1P: POA



Hydrograph for Link POA-1P: POA

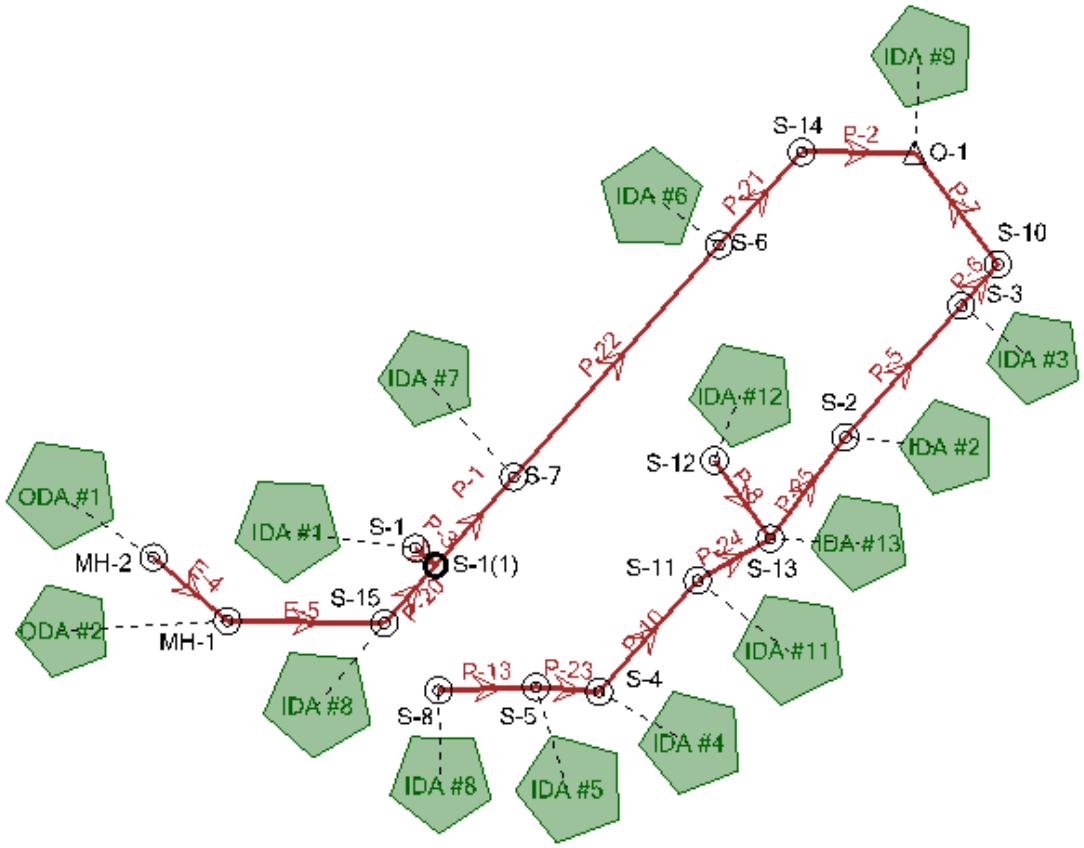
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.000	**0.00**	0.000
1.00	0.053	0.00	0.053
2.00	0.113	0.00	0.113
3.00	0.148	0.00	0.148
4.00	0.174	0.00	0.174
5.00	0.196	0.00	0.196
6.00	0.216	0.00	0.216
7.00	0.277	0.00	0.277
8.00	0.341	0.00	0.341
9.00	0.405	0.00	0.405
10.00	0.618	0.00	0.618
11.00	1.106	0.00	1.106
12.00	**7.345**	0.00	**7.345**
13.00	**1.370**	0.00	**1.370**
14.00	0.686	0.00	0.686
15.00	0.465	0.00	0.465
16.00	0.380	0.00	0.380
17.00	0.318	0.00	0.318
18.00	0.255	0.00	0.255
19.00	0.233	0.00	0.233
20.00	0.217	0.00	0.217
21.00	0.202	0.00	0.202
22.00	0.186	0.00	0.186
23.00	0.170	0.00	0.170
24.00	0.155	0.00	0.155
25.00	0.000	0.00	0.000
26.00	0.000	0.00	0.000
27.00	0.000	0.00	0.000
28.00	0.000	0.00	0.000
29.00	0.000	0.00	0.000
30.00	0.000	0.00	0.000
31.00	0.000	0.00	0.000
32.00	0.000	0.00	0.000
33.00	0.000	0.00	0.000
34.00	0.000	0.00	0.000
35.00	0.000	0.00	0.000
36.00	0.000	0.00	0.000
37.00	0.000	0.00	0.000
38.00	0.000	0.00	0.000
39.00	0.000	0.00	0.000
40.00	0.000	0.00	0.000
41.00	0.000	0.00	0.000
42.00	0.000	0.00	0.000
43.00	0.000	0.00	0.000
44.00	0.000	0.00	0.000
45.00	0.000	0.00	0.000
46.00	0.000	0.00	0.000
47.00	0.000	0.00	0.000
48.00	0.000	0.00	0.000
49.00	0.000	0.00	0.000
50.00	0.000	0.00	0.000
51.00	0.000	0.00	0.000
52.00	0.000	0.00	0.000
53.00	0.000	0.00	0.000
54.00	0.000	0.00	0.000
55.00	0.000	0.00	0.000
56.00	0.000	0.00	0.000
57.00	0.000	0.00	0.000
58.00	0.000	0.00	0.000
59.00	0.000	0.00	0.000
60.00	0.000	0.00	0.000
61.00	0.000	0.00	0.000
62.00	0.000	0.00	0.000
63.00	0.000	0.00	0.000
64.00	0.000	0.00	0.000
65.00	0.000	0.00	0.000
66.00	0.000	0.00	0.000
67.00	0.000	0.00	0.000
68.00	0.000	0.00	0.000
69.00	0.000	0.00	0.000
70.00	0.000	0.00	0.000
71.00	0.000	0.00	0.000
72.00	0.000	0.00	0.000

Colliers Engineering & Design

Appendix C

On-Site Conveyance System Design

Scenario: Base



FlexTable: Conduit Table

Label	Start Node	Stop Node	Length (Unified) (ft)	Invert (Start) (ft)	Invert (Stop) (ft)	Slope (Calculated) (ft/ft)	Diameter (in)	Manning's n	Upstream Inlet Area (acres)	Upstream Inlet Tc (hours)	Upstream Inlet C	Upstream Structure Flow (Total Surface) (cfs)	Velocity (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Flow / Capacity (Design) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
P-20	S-15	S-1(1)	34.6	113.50	113.38	0.003	15.0	0.012	0.060	0.100	0.990	0.47	3.57	2.67	4.12	64.7	114.59	114.56
P-6	S-3	S-10	24.8	112.90	112.70	0.008	15.0	0.012	0.140	0.100	0.990	1.09	5.01	6.14	6.29	97.7	114.31	114.12
P-7	S-10	O-1	62.6	112.70	112.20	0.008	15.0	0.012	(N/A)	0.000	(N/A)	0.00	5.81	6.12	6.25	97.8	113.70	113.20
P-5	S-2	S-3	78.5	113.53	112.90	0.008	15.0	0.012	0.130	0.100	0.990	1.01	4.25	5.22	6.27	83.3	114.94	114.51
P-23	S-5	S-4	28.4	114.47	114.33	0.005	15.0	0.012	0.050	0.100	0.990	0.39	3.00	0.85	4.91	17.2	115.55	115.55
P-8	S-12	S-13	43.1	114.13	113.91	0.005	15.0	0.012	0.240	0.100	0.990	1.87	1.52	1.87	5.00	37.4	115.45	115.41
P-24	S-11	S-13	37.6	114.00	113.81	0.005	15.0	0.012	0.100	0.100	0.990	0.78	1.97	2.42	4.98	48.6	115.46	115.41
P-25	S-13	S-2	56.6	113.81	113.53	0.005	15.0	0.012	0.020	0.100	0.990	0.16	3.52	4.33	4.92	87.9	115.30	115.08
P-10	S-4	S-11	66.6	114.33	114.00	0.005	15.0	0.012	0.110	0.100	0.990	0.86	3.64	1.68	4.93	34.2	115.53	115.50
P-3	S-1	S-1(1)	11.9	113.43	113.37	0.005	15.0	0.012	0.030	0.100	0.990	0.23	2.07	0.23	4.95	4.7	114.56	114.56
P-1	S-1(1)	S-7	52.9	113.38	113.19	0.004	15.0	0.012	(N/A)	0.000	(N/A)	0.00	3.68	2.87	4.19	68.3	114.50	114.43
P-22	S-7	S-6	138.8	113.19	112.66	0.004	15.0	0.012	0.190	0.100	0.990	1.48	4.01	4.21	4.32	97.3	114.33	113.90
P-21	S-6	S-14	55.7	112.66	112.38	0.005	15.0	0.012	0.110	0.100	0.900	0.78	4.61	4.80	4.96	96.7	113.77	113.56
P-2	S-14	O-1	50.6	112.38	112.13	0.005	15.0	0.012	(N/A)	0.000	(N/A)	0.00	4.57	4.77	4.92	97.0	113.36	113.02
E-4	MH-2	MH-1	43.7	113.99	113.75	0.005	15.0	0.013	0.140	0.100	0.990	1.09	0.89	1.09	4.79	22.8	115.32	115.31
E-5	MH-1	S-15	70.4	113.75	113.50	0.004	15.0	0.013	0.160	0.100	0.990	1.25	3.26	2.26	3.85	58.7	114.71	114.64
P-13	S-8	S-5	43.6	114.69	114.47	0.005	15.0	0.012	0.060	0.100	0.990	0.47	2.54	0.47	4.97	9.4	115.56	115.56

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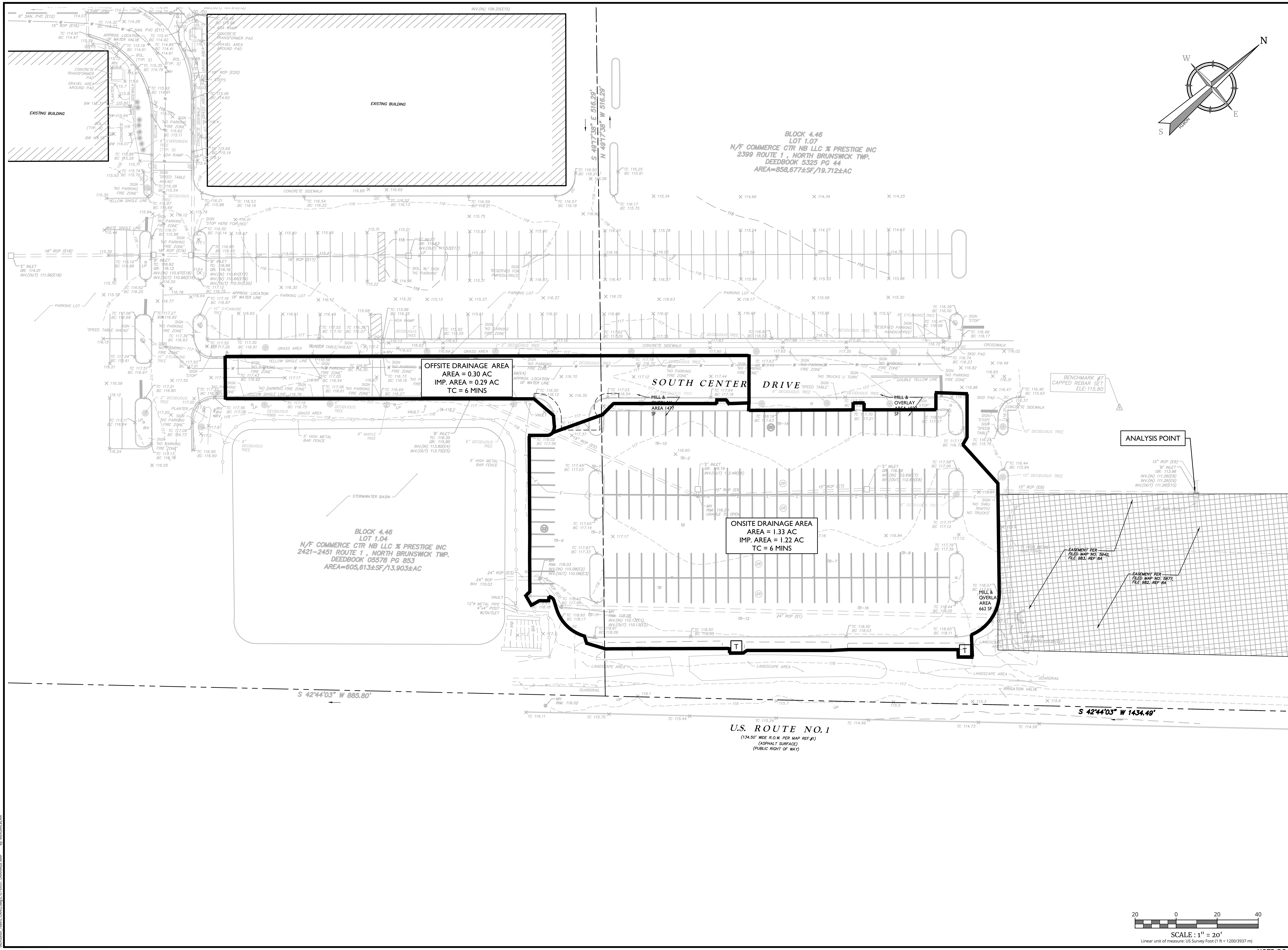
Appendix D

Drainage Area Maps



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FOR
PRESTIGE

BLOCK 4.46, LOT 1.07

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MIDDLESEX COUNTY
NEW JERSEY

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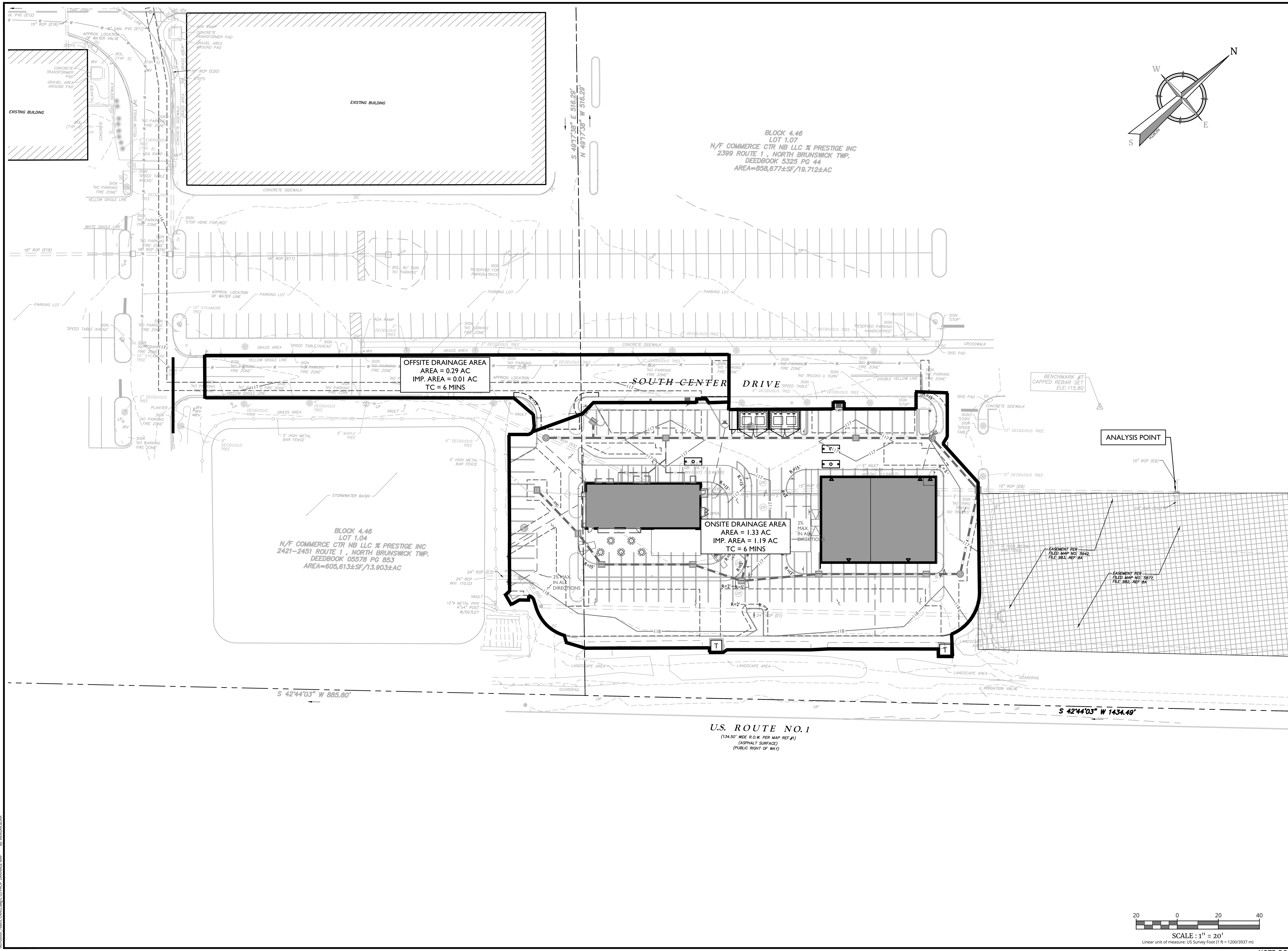
PROJECT NUMBER:	DRAWING NAME:
21000124A	C-DRNG

SHEET TITLE:
EXISTING DRAINAGE MAP

SHEET NUMBER:
1 of 3



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AS SHOWN	4/6/23	MB	VDK
PROJECT NUMBER:	DRAWING NAME:		
21000124A	C-DRNG		

SHEET TITLE:
PROPOSED DRAINAGE MAP

SHEET NUMBER:
2 of 3

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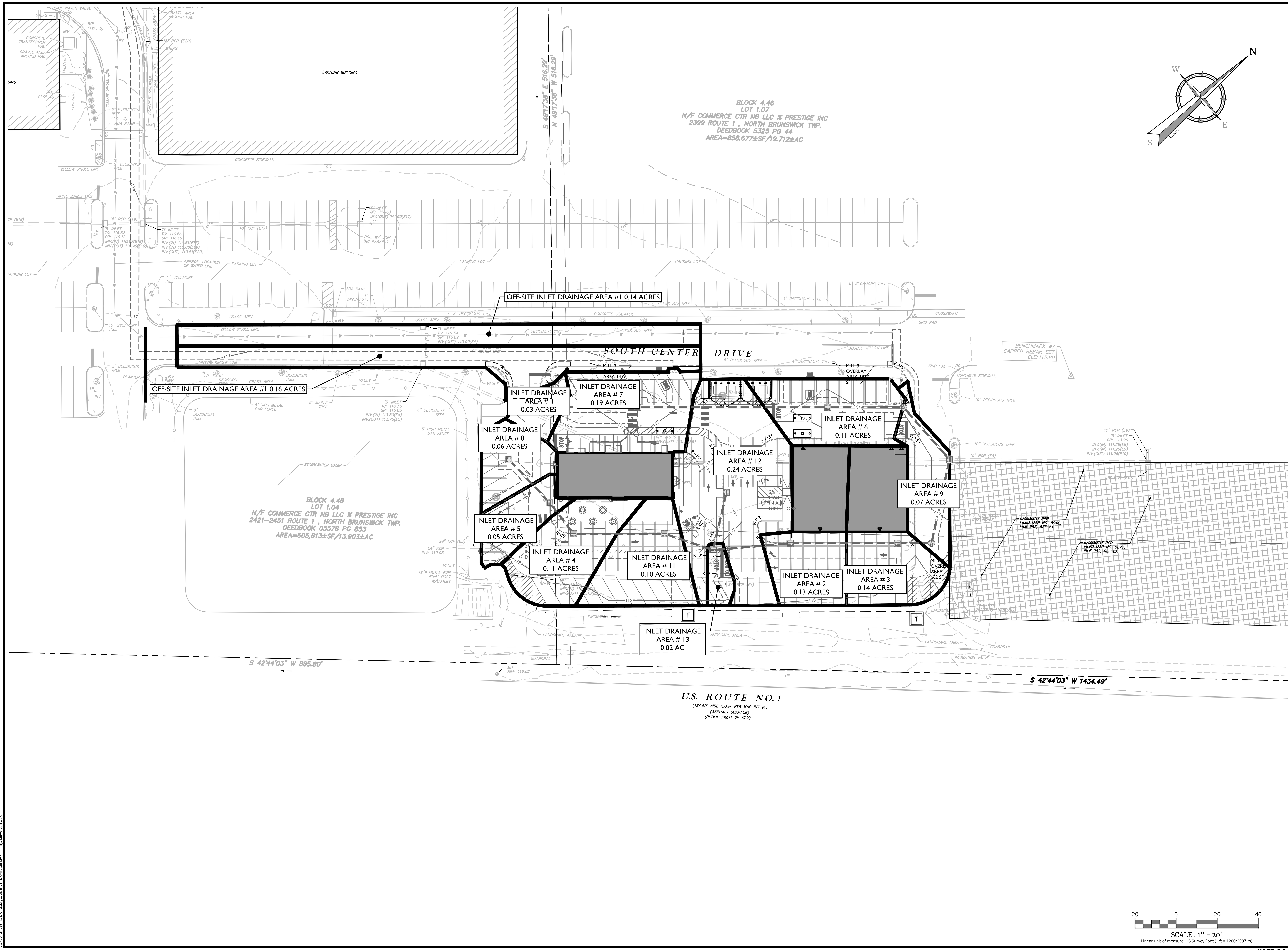

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AS SHOWN	4/6/23	MB	VDK
PROJECT NUMBER:	DRAWING NAME:		
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SHEET TITLE:
INLET DRAINAGE MAP

SHEET NUMBER:
3 of 3

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