

DRAINAGE STATEMENT

for

MPB Realty, LLC

Proposed Popeyes & IHOP Restaurant

470 Eagle Rock Avenue (CR 611)

Block 153, Lot 38

Township of West Orange

Essex County, NJ

Prepared by:



**DYNAMIC
ENGINEERING**

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A handwritten signature in dark ink, appearing to read 'MB', is positioned above a horizontal line.

Matthew J. Bersch, PE
NJ Professional Engineer License #54522

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DEC# 1021-99-025

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I. Introduction

This Drainage Statement has been prepared to define and analyze the stormwater drainage conditions that would occur as a result of the improvements to Block 153, Lot 38, as shown on the Township of West Orange Tax Map Sheet No. 84, located in the Township of West Orange, Essex County, New Jersey. In existing conditions, the subject site consists of 1.05 acres (45,713 SF) and is located at 470 Eagle Rock Avenue.

Under existing conditions, the site is developed as a restaurant with associated parking, landscaping, and lighting. The existing development has an impervious coverage of approximately 80.9% (36,974 SF) and is located in the B-2 – General Business Zone. The proposed development consists of retrofitting the existing building for the occupancy of a 2,391 SF Popeyes restaurant with a drive-thru and a 3,797 SF IHOP restaurant. Additional site improvements include parking, landscaping, lighting, and a trash enclosure. The proposed development will provide on-site impervious coverage of approximately 75.7% (34,591 SF), resulting in an approximately 2,383 SF (5.2%) reduction. In addition, the project will result in a decrease in motor vehicle surface area of approximately 2,289 SF from 28,325 SF to 26,036 SF. Per the Natural Resources Conservation Service Web Soil Survey, a portion of the property is located within unclassified Urban Land soil. To be conservative, the analysis utilized HSG B in existing conditions and HSG D in proposed for disturbed areas within the Urban Land soil.

Based upon the fact that the proposed improvements will result in more than one (1) acre of land disturbance, this project is classified as a “major development” and is subject to compliance with the Stormwater Regulations set forth in NJAC 7:8. However, the project will result in a decrease in motor vehicle surface area and impervious coverage from existing to proposed conditions. As such, the project does not increase regulated motor vehicle surface by more than one-quarter acre and is therefore not required to meet the stormwater runoff quality standards under NJAC 7:8-5.5 and Township of West Orange Ordinance §25-29.4.q.

A hydrological evaluation is provided for the 2-, 10-, and 100-year storm events utilizing the Urban Hydrology for Small Watersheds TR55 Method to confirm compliance with the stormwater runoff quantity and groundwater recharge standards set forth by the Township of West Orange Land Development Ordinance and NJAC 7:8.

Based upon the Essex County Soil Survey, the soil types native to the site include:

Soil Type	Soil Type Name	Hydrologic Soil Group
BouC	Boonton – Urban Land	C
URBONB	Urban Land	--*

*Please note the NRCS Web Soil Survey did not have a hydrologic soil group rating for the Urban Land portion of the site. Therefore, per NJ BMP Manual Chapter 12 Subsection 1b – Table 12-1, hydrologic soil group B was assumed in the existing condition and hydrologic soil group D was assumed for the increase in pervious surface in the proposed condition. HSG B was maintained from the existing to proposed condition for all other onsite areas.

II. Existing Drainage Conditions

In existing conditions, a majority of the stormwater runoff from the area to be disturbed is conveyed via overland flow to the proposed onsite inlets which connect to the existing stormwater infrastructure within Rosney Terrace. Stormwater runoff from Rosney Terrace ultimately discharges into the existing stormwater infrastructure within Eagle Rock Avenue. The remaining stormwater runoff from the site discharges directly to the existing inlet along Eagle Rock Avenue via overland flow. As such, one point of analysis can be considered for the overall development.

III. Proposed Drainage Conditions

In proposed conditions, stormwater runoff from the project area has been designed to maintain existing drainage patterns. The project proposes to remove the existing onsite inlets and provide ten (10) new inlets within the site to assist in collecting stormwater runoff. The proposed inlets are connected via an underground conveyance system consisting of 12" and 15" reinforced concrete pipes discharging to the existing inlet within Rosney Terrace. Stormwater runoff from the building roof is collected and conveyed underground via 6" PVC roof leaders to the proposed inlets.

IV. Runoff Rate Reduction Performance

Due to the reduction in impervious coverage, the volume and peak discharge runoff rates for the 2-, 10- & 100-year design storms have been reduced. As such, there shall be no adverse impacts to the properties located upstream and downstream of the site.

Study Area Site		
Design Storm	Ex. Peak Flow (cfs)	Prop. Peak Flow (cfs)
2	3.22	3.17
10	5.16	5.12
100	9.01	8.97

Per NJAC 7:8-5.6(b).1, the stormwater runoff quantity requirements are met through demonstration that 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. Appended are the superimposed hydrographs for reference.

V. Groundwater Recharge

Per NJAC 7:8-5.4(b).2, the project is not subject to the groundwater recharge requirement as it is within the Metropolitan Planning Area (PA1) which is classified as an Urban Redevelopment Area.

VI. Water Quality

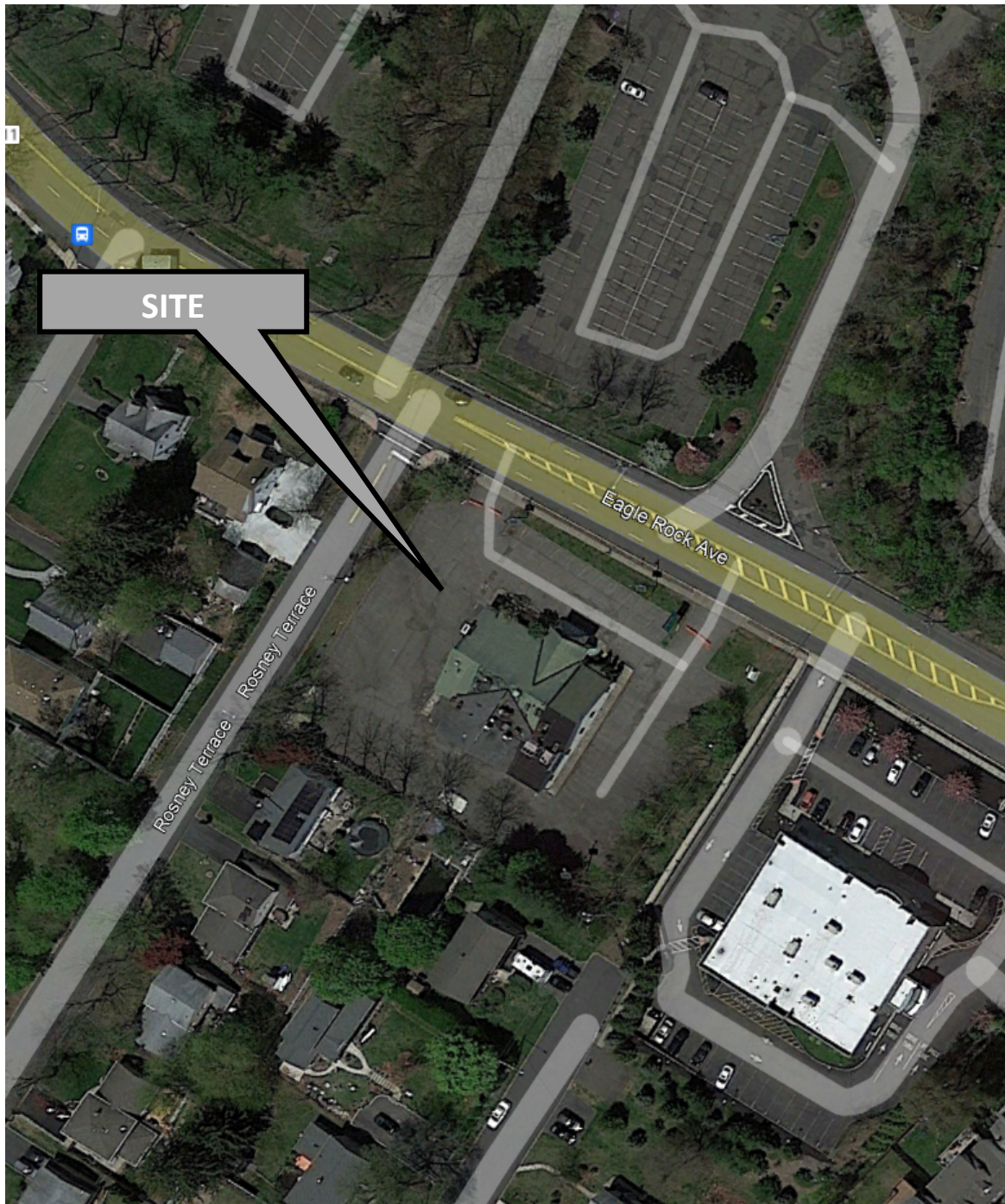
Per NJAC 7:8-5.5(a), the project is not required to meet the stormwater runoff quality standards as the project results in a decrease in motor vehicle surface area. This reduction provides a decrease in total suspended solid (TSS) generation for the site, improving the quality of stormwater runoff leaving the site.

VII. Conclusion

In conclusion, the proposed project has been designed to ensure the safe and efficient control of stormwater runoff in a manner that will not adversely impact the existing drainage patterns or adjacent properties. The project is designed to comply with the stormwater runoff quantity and groundwater recharge requirements set forth under NJAC 7:8 and the Township of West Orange Land Use Ordinance. With this stated, it is evident that the proposed development will not have a negative impact on or within the vicinity of the site, and the increase in pervious coverage will benefit the area.

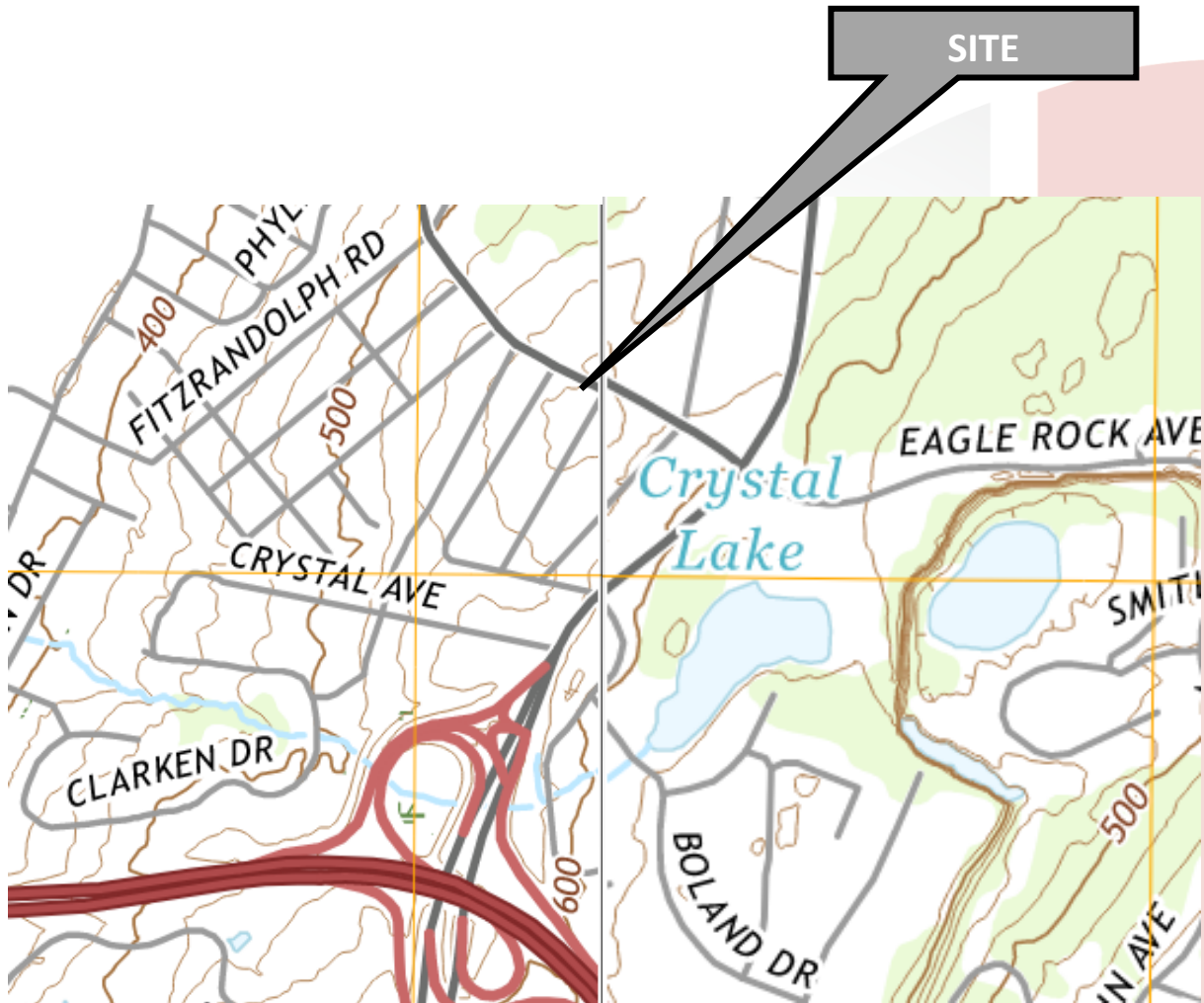
APPENDIX

LOCATION MAP



Location Map

USGS MAP



USGS Map

NRCS WEB SOIL SURVEY

Hydrologic Soil Group—Essex County, New Jersey



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 17, Aug 30, 2021

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

Date(s) aerial images were photographed: May 9, 2020—Oct 15, 2020

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
BouC	Boonton - Urban land, Boonton substratum complex, 8 to 15 percent slopes	C	1.3	61.0%
URBONB	Urban land, Boonton substratum, 0 to 8 percent slopes		0.8	39.0%
Totals for Area of Interest			2.1	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

**HYDROGRAPH SUMMARY REPORTS – EXISTING
AND PROPOSED CONDITIONS
2-, 10- & 100-YR.**

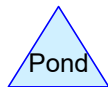
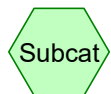
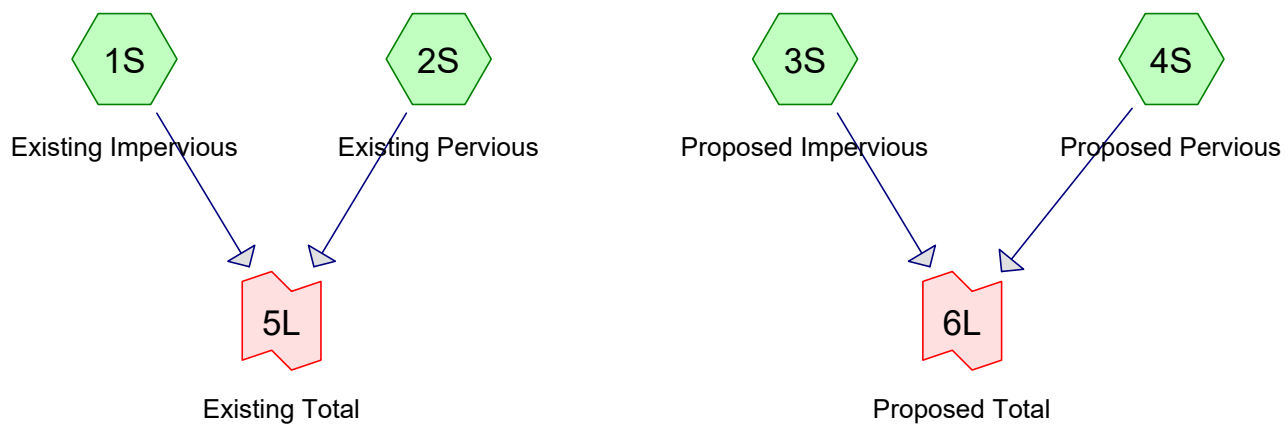


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- 48 Subcat 4S: Proposed Pervious
- 51 Link 5L: Existing Total
- 53 Link 6L: Proposed Total

2025-01 HydroCAD

Rainfall Events Listing								
Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NOAA 24-hr	D	Default	24.00	1	3.44	2
2	10-Year	NOAA 24-hr	D	Default	24.00	1	5.22	2
3	100-Year	NOAA 24-hr	D	Default	24.00	1	8.66	2

2025-01 HydroCAD

Area Listing (all nodes)		
Area (acres)	CN	Description (subcatchment-numbers)
0.118	61	>75% Grass cover, Good, HSG B (2S, 4S)
0.413	74	>75% Grass cover, Good, HSG C (2S, 4S)
0.019	80	>75% Grass cover, Good, HSG D (4S)
1.716	98	Unconnected pavement, HSG B (1S, 3S)
2.266	92	TOTAL AREA

2025-01 HydroCAD

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.834	HSG B	1S, 2S, 3S, 4S
0.413	HSG C	2S, 4S
0.019	HSG D	4S
0.000	Other	
2.266		TOTAL AREA

2025-01 HydroCAD

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.118	0.413	0.019	0.000	0.551	>75% Grass cover, Good	2S, 4S
0.000	1.716	0.000	0.000	0.000	1.716	Unconnected pavement	1S, 3S
0.000	1.834	0.413	0.019	0.000	2.266	TOTAL AREA	

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Pipe Listing (all nodes)										
Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	1S	0.00	0.00	50.0	0.0370	0.010	0.0	4.0	0.0	
2	1S	0.00	0.00	21.0	0.1380	0.010	0.0	10.0	0.0	
3	3S	0.00	0.00	59.0	0.0252	0.011	0.0	12.0	0.0	
4	3S	0.00	0.00	111.0	0.0300	0.011	0.0	12.0	0.0	
5	3S	0.00	0.00	48.0	0.0200	0.011	0.0	12.0	0.0	
6	3S	0.00	0.00	26.0	0.0200	0.011	0.0	12.0	0.0	
7	3S	0.00	0.00	27.0	0.0300	0.011	0.0	15.0	0.0	
8	4S	0.00	0.00	59.0	0.0252	0.011	0.0	12.0	0.0	
9	4S	0.00	0.00	111.0	0.0300	0.011	0.0	12.0	0.0	
10	4S	0.00	0.00	48.0	0.0200	0.011	0.0	12.0	0.0	
11	4S	0.00	0.00	26.0	0.0200	0.011	0.0	12.0	0.0	
12	4S	0.00	0.00	27.0	0.0300	0.011	0.0	15.0	0.0	

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points	
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN	
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method	
Subcatchment1S: Existing Impervious	Runoff Area=38,060 sf 100.00% Impervious Runoff Depth=3.21" Flow Length=267' Tc=4.3 min CN=98 Runoff=2.93 cfs 0.233 af
Subcatchment2S: Existing Pervious	Runoff Area=11,289 sf 0.00% Impervious Runoff Depth=0.97" Tc=4.3 min CN=70 Runoff=0.29 cfs 0.021 af
Subcatchment3S: Proposed Impervious	Runoff Area=36,670 sf 100.00% Impervious Runoff Depth=3.21" Flow Length=370' Tc=4.4 min CN=98 Runoff=2.81 cfs 0.225 af
Subcatchment4S: Proposed Pervious	Runoff Area=12,691 sf 0.00% Impervious Runoff Depth=1.08" Flow Length=370' Tc=4.4 min CN=72 Runoff=0.37 cfs 0.026 af
Link 5L: Existing Total	Inflow=3.22 cfs 0.254 af Primary=3.22 cfs 0.254 af
Link 6L: Proposed Total	Inflow=3.17 cfs 0.251 af Primary=3.17 cfs 0.251 af
Total Runoff Area = 2.266 ac Runoff Volume = 0.506 af Average Runoff Depth = 2.68" 24.29% Pervious = 0.551 ac 75.71% Impervious = 1.716 ac	

Summary for Subcatchment 1S: Existing Impervious

[49] Hint: Tc<2dt may require smaller dt
[47] Hint: Peak is 616% of capacity of segment #4

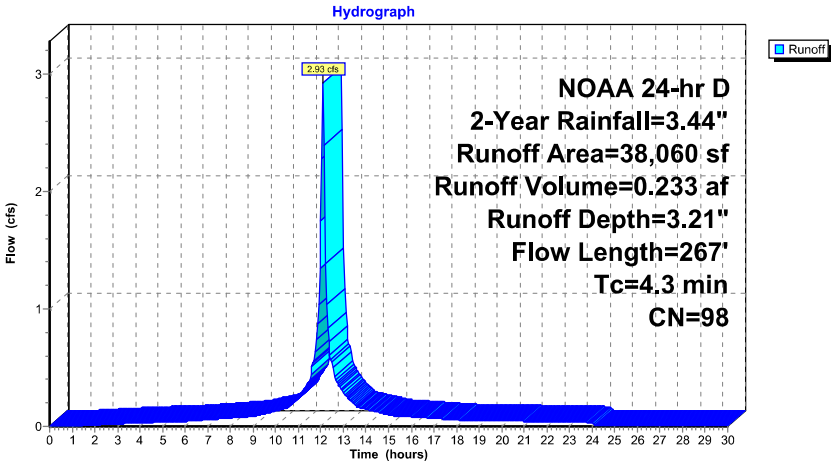
Runoff = 2.93 cfs @ 12.10 hrs, Volume= 0.233 af, Depth= 3.21"
Routed to Link 5L : Existing Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

Area (sf)	CN	Description
38,060	98	Unconnected pavement, HSG B
38,060		100.00% Impervious Area
38,060		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	27	0.0700	0.15		Sheet Flow, Sheet Flow - AB Grass: Dense n= 0.240 P2= 3.35"
0.7	73	0.0410	1.76		Sheet Flow, Sheet Flow - BC Smooth surfaces n= 0.011 P2= 3.35"
0.4	96	0.0470	4.40		Shallow Concentrated Flow, SCF - CD Paved Kv= 20.3 fps
0.2	50	0.0370	5.45	0.48	Pipe Channel, Pipe Flow - DE 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.010 PVC, smooth interior
0.0	21	0.1380	19.40	10.58	Pipe Channel, Pipe Flow - EF 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.010 PVC, smooth interior
4.3	267	Total			

Subcatchment 1S: Existing Impervious



Hydrograph for Subcatchment 1S: Existing Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	3.44	3.21	0.00
0.50	0.02	0.00	0.00	26.50	3.44	3.21	0.00
1.00	0.04	0.00	0.00	27.00	3.44	3.21	0.00
1.50	0.06	0.00	0.01	27.50	3.44	3.21	0.00
2.00	0.08	0.01	0.01	28.00	3.44	3.21	0.00
2.50	0.11	0.02	0.02	28.50	3.44	3.21	0.00
3.00	0.13	0.03	0.02	29.00	3.44	3.21	0.00
3.50	0.15	0.04	0.03	29.50	3.44	3.21	0.00
4.00	0.18	0.06	0.03	30.00	3.44	3.21	0.00
4.50	0.21	0.07	0.03				
5.00	0.24	0.09	0.04				
5.50	0.26	0.12	0.04				
6.00	0.29	0.14	0.04				
6.50	0.33	0.17	0.05				
7.00	0.36	0.20	0.06				
7.50	0.40	0.23	0.06				
8.00	0.45	0.27	0.07				
8.50	0.49	0.31	0.08				
9.00	0.55	0.36	0.09				
9.50	0.61	0.42	0.11				
10.00	0.68	0.49	0.13				
10.50	0.77	0.57	0.16				
11.00	0.89	0.69	0.24				
11.50	1.09	0.88	0.39				
12.00	1.65	1.43	1.76				
12.50	2.35	2.12	0.55				
13.00	2.55	2.32	0.29				
13.50	2.67	2.44	0.18				
14.00	2.76	2.53	0.15				
14.50	2.83	2.60	0.12				
15.00	2.89	2.66	0.10				
15.50	2.95	2.71	0.09				
16.00	2.99	2.76	0.08				
16.50	3.04	2.81	0.07				
17.00	3.08	2.85	0.07				
17.50	3.11	2.88	0.06				
18.00	3.15	2.91	0.05				
18.50	3.18	2.94	0.05				
19.00	3.20	2.97	0.05				
19.50	3.23	3.00	0.05				
20.00	3.26	3.03	0.05				
20.50	3.29	3.05	0.04				
21.00	3.31	3.08	0.04				
21.50	3.33	3.10	0.04				
22.00	3.36	3.12	0.04				
22.50	3.38	3.15	0.04				
23.00	3.40	3.17	0.04				
23.50	3.42	3.19	0.03				
24.00	3.44	3.21	0.03				
24.50	3.44	3.21	0.00				
25.00	3.44	3.21	0.00				
25.50	3.44	3.21	0.00				

Summary for Subcatchment 2S: Existing Pervious

[49] Hint: Tc<2dt may require smaller dt

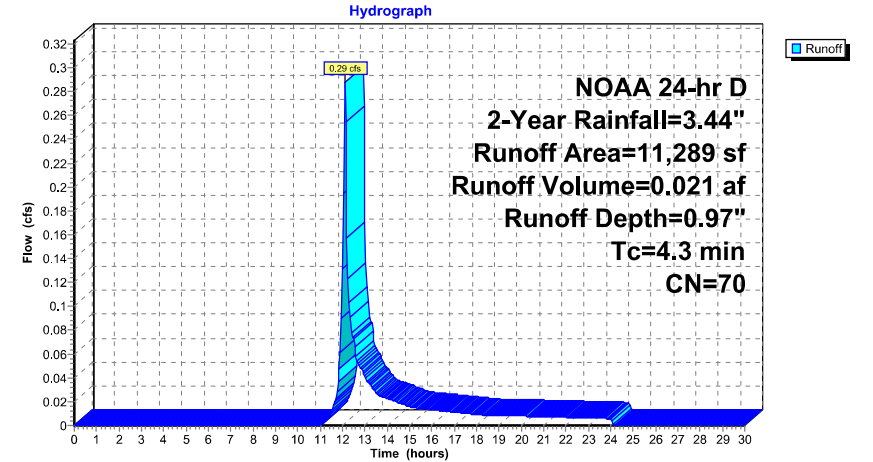
Runoff = 0.29 cfs @ 12.11 hrs, Volume= 0.021 af, Depth= 0.97"
Routed to Link 5L : Existing Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

Area (sf)	CN	Description
3,045	61	>75% Grass cover, Good, HSG B
8,244	74	>75% Grass cover, Good, HSG C
11,289	70	Weighted Average
11,289		100.00% Pervious Area

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

Subcatchment 2S: Existing Pervious



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NOAA 24-hr D 2-Year Rainfall=3.44"

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Hydrograph for Subcatchment 2S: Existing Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	3.44	0.97	0.00
0.50	0.02	0.00	0.00	26.50	3.44	0.97	0.00
1.00	0.04	0.00	0.00	27.00	3.44	0.97	0.00
1.50	0.06	0.00	0.00	27.50	3.44	0.97	0.00
2.00	0.08	0.00	0.00	28.00	3.44	0.97	0.00
2.50	0.11	0.00	0.00	28.50	3.44	0.97	0.00
3.00	0.13	0.00	0.00	29.00	3.44	0.97	0.00
3.50	0.15	0.00	0.00	29.50	3.44	0.97	0.00
4.00	0.18	0.00	0.00	30.00	3.44	0.97	0.00
4.50	0.21	0.00	0.00				
5.00	0.24	0.00	0.00				
5.50	0.26	0.00	0.00				
6.00	0.29	0.00	0.00				
6.50	0.33	0.00	0.00				
7.00	0.36	0.00	0.00				
7.50	0.40	0.00	0.00				
8.00	0.45	0.00	0.00				
8.50	0.49	0.00	0.00				
9.00	0.55	0.00	0.00				
9.50	0.61	0.00	0.00				
10.00	0.68	0.00	0.00				
10.50	0.77	0.00	0.00				
11.00	0.89	0.00	0.00				
11.50	1.09	0.01	0.01				
12.00	1.65	0.12	0.13				
12.50	2.35	0.39	0.07				
13.00	2.55	0.48	0.04				
13.50	2.67	0.54	0.03				
14.00	2.76	0.58	0.02				
14.50	2.83	0.62	0.02				
15.00	2.89	0.66	0.02				
15.50	2.95	0.68	0.01				
16.00	2.99	0.71	0.01				
16.50	3.04	0.74	0.01				
17.00	3.08	0.76	0.01				
17.50	3.11	0.78	0.01				
18.00	3.15	0.80	0.01				
18.50	3.18	0.81	0.01				
19.00	3.20	0.83	0.01				
19.50	3.23	0.85	0.01				
20.00	3.26	0.86	0.01				
20.50	3.29	0.88	0.01				
21.00	3.31	0.89	0.01				
21.50	3.33	0.91	0.01				
22.00	3.36	0.92	0.01				
22.50	3.38	0.93	0.01				
23.00	3.40	0.95	0.01				
23.50	3.42	0.96	0.01				
24.00	3.44	0.97	0.01				
24.50	3.44	0.97	0.00				
25.00	3.44	0.97	0.00				
25.50	3.44	0.97	0.00				

2025-01 HydroCAD

Prepared by Dynamic Engineering

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NOAA 24-hr D 2-Year Rainfall=3.44"

Printed 2/21/2025

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Summary for Subcatchment 3S: Proposed Impervious

[49] Hint: Tc<2dt may require smaller dt

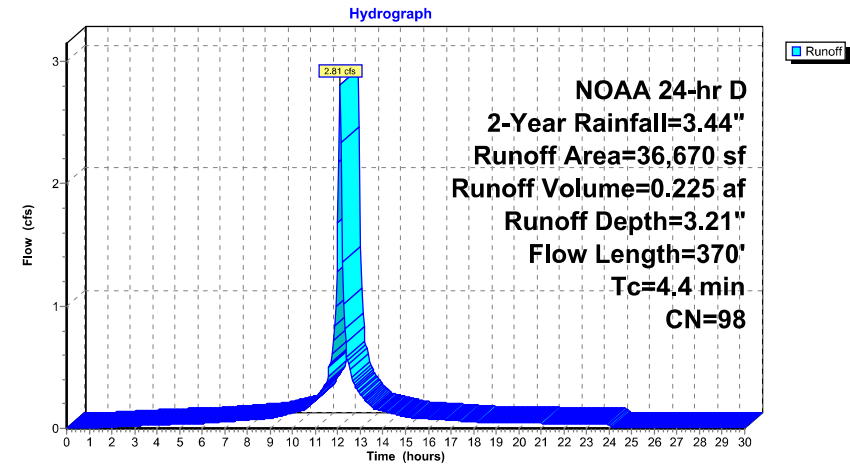
Runoff = 2.81 cfs @ 12.10 hrs, Volume= 0.225 af, Depth= 3.21"
Routed to Link 6L : Proposed Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

Area (sf)	CN	Description
36,670	98	Unconnected pavement, HSG B
36,670		100.00% Impervious Area
36,670		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	21	0.0150	0.11		Sheet Flow, Sheet Flow - AB Grass: Short n= 0.150 P2= 3.35"
0.5	43	0.0300	1.40		Sheet Flow, Sheet Flow - BC Smooth surfaces n= 0.011 P2= 3.35"
0.3	35	0.0082	1.84		Shallow Concentrated Flow, SCF - Paved - CD Paved Kv= 20.3 fps
0.1	59	0.0252	8.51	6.68	Pipe Channel, Pipe Flow - DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.2	111	0.0300	9.29	7.29	Pipe Channel, Pipe Flow - EF 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	48	0.0200	7.58	5.95	Pipe Channel, Pipe Flow - FG 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	26	0.0200	7.58	5.95	Pipe Channel, Pipe Flow - GH 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.0	27	0.0300	10.78	13.22	Pipe Channel, Pipe Flow - HI 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
4.4	370	Total			

Subcatchment 3S: Proposed Impervious



Hydrograph for Subcatchment 3S: Proposed Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.04	0.00	0.00
1.50	0.06	0.00	0.01
2.00	0.08	0.01	0.01
2.50	0.11	0.02	0.02
3.00	0.13	0.03	0.02
3.50	0.15	0.04	0.02
4.00	0.18	0.06	0.03
4.50	0.21	0.07	0.03
5.00	0.24	0.09	0.04
5.50	0.26	0.12	0.04
6.00	0.29	0.14	0.04
6.50	0.33	0.17	0.05
7.00	0.36	0.20	0.05
7.50	0.40	0.23	0.06
8.00	0.45	0.27	0.07
8.50	0.49	0.31	0.08
9.00	0.55	0.36	0.08
9.50	0.61	0.42	0.10
10.00	0.68	0.49	0.13
10.50	0.77	0.57	0.15
11.00	0.89	0.69	0.23
11.50	1.09	0.88	0.38
12.00	1.65	1.43	1.68
12.50	2.35	2.12	0.53
13.00	2.55	2.32	0.28
13.50	2.67	2.44	0.18
14.00	2.76	2.53	0.14
14.50	2.83	2.60	0.12
15.00	2.89	2.66	0.10
15.50	2.95	2.71	0.08
16.00	2.99	2.76	0.08
16.50	3.04	2.81	0.07
17.00	3.08	2.85	0.07
17.50	3.11	2.88	0.06
18.00	3.15	2.91	0.05
18.50	3.18	2.94	0.05
19.00	3.20	2.97	0.05
19.50	3.23	3.00	0.05
20.00	3.26	3.03	0.04
20.50	3.29	3.05	0.04
21.00	3.31	3.08	0.04
21.50	3.33	3.10	0.04
22.00	3.36	3.12	0.04
22.50	3.38	3.15	0.04
23.00	3.40	3.17	0.04
23.50	3.42	3.19	0.03
24.00	3.44	3.21	0.03
24.50	3.44	3.21	0.00
25.00	3.44	3.21	0.00
25.50	3.44	3.21	0.00

Summary for Subcatchment 4S: Proposed Pervious

[49] Hint: Tc<2dt may require smaller dt

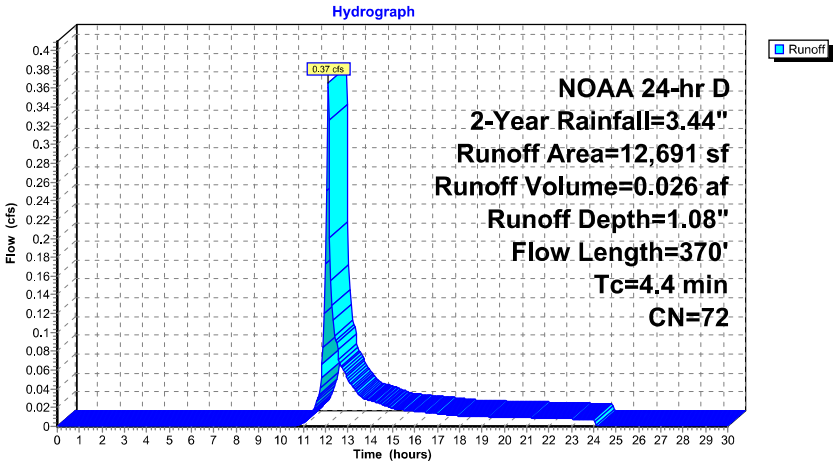
Runoff = 0.37 cfs @ 12.11 hrs, Volume= 0.026 af, Depth= 1.08"
Routed to Link 6L : Proposed Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

Area (sf)	CN	Description
2,096	61	>75% Grass cover, Good, HSG B
9,762	74	>75% Grass cover, Good, HSG C
833	80	>75% Grass cover, Good, HSG D
12,691	72	Weighted Average
12,691		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	21	0.0150	0.11		Sheet Flow, Sheet Flow - AB Grass: Short n= 0.150 P2= 3.35"
0.5	43	0.0300	1.40		Sheet Flow, Sheet Flow - BC Smooth surfaces n= 0.011 P2= 3.35"
0.3	35	0.0082	1.84		Shallow Concentrated Flow, SCF - CD Paved Kv= 20.3 fps
0.1	59	0.0252	8.51	6.68	Pipe Channel, Pipe Flow - DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.2	111	0.0300	9.29	7.29	Pipe Channel, Pipe Flow - EF 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	48	0.0200	7.58	5.95	Pipe Channel, Pipe Flow - FG 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	26	0.0200	7.58	5.95	Pipe Channel, Pipe Flow - GH 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.0	27	0.0300	10.78	13.22	Pipe Channel, Pipe Flow - HI 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
4.4	370	Total			

Subcatchment 4S: Proposed Pervious

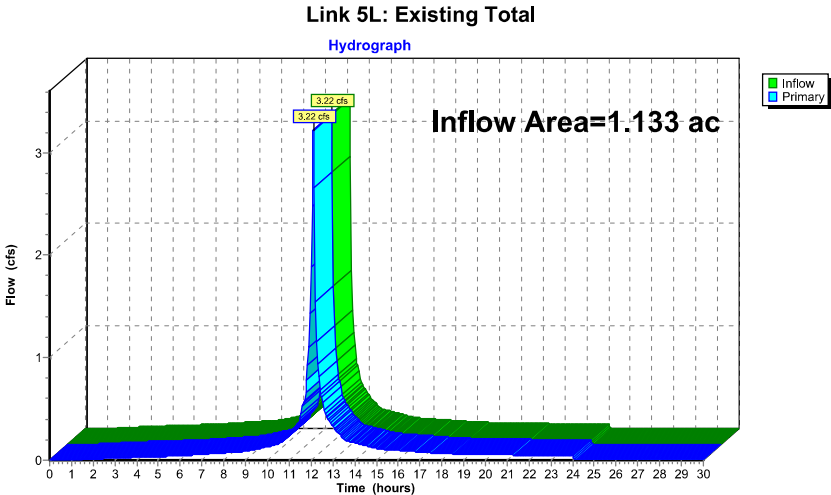


Hydrograph for Subcatchment 4S: Proposed Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	3.44	1.08	0.00
0.50	0.02	0.00	0.00	26.50	3.44	1.08	0.00
1.00	0.04	0.00	0.00	27.00	3.44	1.08	0.00
1.50	0.06	0.00	0.00	27.50	3.44	1.08	0.00
2.00	0.08	0.00	0.00	28.00	3.44	1.08	0.00
2.50	0.11	0.00	0.00	28.50	3.44	1.08	0.00
3.00	0.13	0.00	0.00	29.00	3.44	1.08	0.00
3.50	0.15	0.00	0.00	29.50	3.44	1.08	0.00
4.00	0.18	0.00	0.00	30.00	3.44	1.08	0.00
4.50	0.21	0.00	0.00				
5.00	0.24	0.00	0.00				
5.50	0.26	0.00	0.00				
6.00	0.29	0.00	0.00				
6.50	0.33	0.00	0.00				
7.00	0.36	0.00	0.00				
7.50	0.40	0.00	0.00				
8.00	0.45	0.00	0.00				
8.50	0.49	0.00	0.00				
9.00	0.55	0.00	0.00				
9.50	0.61	0.00	0.00				
10.00	0.68	0.00	0.00				
10.50	0.77	0.00	0.00				
11.00	0.89	0.00	0.00				
11.50	1.09	0.02	0.02				
12.00	1.65	0.16	0.17				
12.50	2.35	0.45	0.09				
13.00	2.55	0.55	0.05				
13.50	2.67	0.62	0.03				
14.00	2.76	0.67	0.03				
14.50	2.83	0.71	0.02				
15.00	2.89	0.75	0.02				
15.50	2.95	0.78	0.02				
16.00	2.99	0.80	0.02				
16.50	3.04	0.83	0.01				
17.00	3.08	0.85	0.01				
17.50	3.11	0.88	0.01				
18.00	3.15	0.90	0.01				
18.50	3.18	0.91	0.01				
19.00	3.20	0.93	0.01				
19.50	3.23	0.95	0.01				
20.00	3.26	0.97	0.01				
20.50	3.29	0.98	0.01				
21.00	3.31	1.00	0.01				
21.50	3.33	1.01	0.01				
22.00	3.36	1.03	0.01				
22.50	3.38	1.04	0.01				
23.00	3.40	1.06	0.01				
23.50	3.42	1.07	0.01				
24.00	3.44	1.08	0.01				
24.50	3.44	1.08	0.00				
25.00	3.44	1.08	0.00				
25.50	3.44	1.08	0.00				

Summary for Link 5L: Existing Total

Inflow Area = 1.133 ac, 77.12% Impervious, Inflow Depth = 2.70" for 2-Year event
Inflow = 3.22 cfs @ 12.10 hrs, Volume= 0.254 af
Primary = 3.22 cfs @ 12.10 hrs, Volume= 0.254 af, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

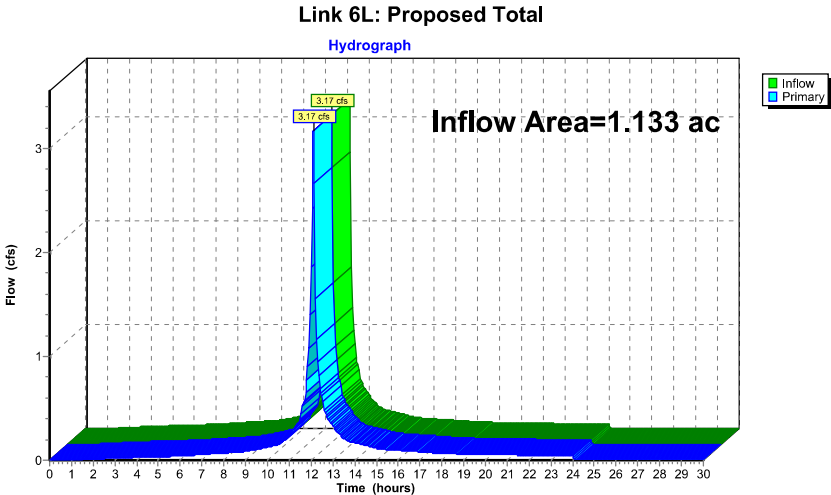


Hydrograph for Link 5L: Existing Total

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00	27.00	0.00	0.00	0.00
1.50	0.01	0.00	0.01	27.50	0.00	0.00	0.00
2.00	0.01	0.00	0.01	28.00	0.00	0.00	0.00
2.50	0.02	0.00	0.02	28.50	0.00	0.00	0.00
3.00	0.02	0.00	0.02	29.00	0.00	0.00	0.00
3.50	0.03	0.00	0.03	29.50	0.00	0.00	0.00
4.00	0.03	0.00	0.03	30.00	0.00	0.00	0.00
4.50	0.03	0.00	0.03				
5.00	0.04	0.00	0.04				
5.50	0.04	0.00	0.04				
6.00	0.04	0.00	0.04				
6.50	0.05	0.00	0.05				
7.00	0.06	0.00	0.06				
7.50	0.06	0.00	0.06				
8.00	0.07	0.00	0.07				
8.50	0.08	0.00	0.08				
9.00	0.09	0.00	0.09				
9.50	0.11	0.00	0.11				
10.00	0.13	0.00	0.13				
10.50	0.16	0.00	0.16				
11.00	0.24	0.00	0.24				
11.50	0.40	0.00	0.40				
12.00	1.89	0.00	1.89				
12.50	0.62	0.00	0.62				
13.00	0.33	0.00	0.33				
13.50	0.21	0.00	0.21				
14.00	0.17	0.00	0.17				
14.50	0.14	0.00	0.14				
15.00	0.11	0.00	0.11				
15.50	0.10	0.00	0.10				
16.00	0.09	0.00	0.09				
16.50	0.09	0.00	0.09				
17.00	0.08	0.00	0.08				
17.50	0.07	0.00	0.07				
18.00	0.06	0.00	0.06				
18.50	0.06	0.00	0.06				
19.00	0.06	0.00	0.06				
19.50	0.06	0.00	0.06				
20.00	0.05	0.00	0.05				
20.50	0.05	0.00	0.05				
21.00	0.05	0.00	0.05				
21.50	0.05	0.00	0.05				
22.00	0.05	0.00	0.05				
22.50	0.04	0.00	0.04				
23.00	0.04	0.00	0.04				
23.50	0.04	0.00	0.04				
24.00	0.04	0.00	0.04				
24.50	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
25.50	0.00	0.00	0.00				

Summary for Link 6L: Proposed Total

Inflow Area = 1.133 ac, 74.29% Impervious, Inflow Depth = 2.66" for 2-Year event
Inflow = 3.17 cfs @ 12.10 hrs, Volume= 0.251 af
Primary = 3.17 cfs @ 12.10 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs



Hydrograph for Link 6L: Proposed Total

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.01	0.00	0.01
2.00	0.01	0.00	0.01
2.50	0.02	0.00	0.02
3.00	0.02	0.00	0.02
3.50	0.02	0.00	0.02
4.00	0.03	0.00	0.03
4.50	0.03	0.00	0.03
5.00	0.04	0.00	0.04
5.50	0.04	0.00	0.04
6.00	0.04	0.00	0.04
6.50	0.05	0.00	0.05
7.00	0.05	0.00	0.05
7.50	0.06	0.00	0.06
8.00	0.07	0.00	0.07
8.50	0.08	0.00	0.08
9.00	0.08	0.00	0.08
9.50	0.10	0.00	0.10
10.00	0.13	0.00	0.13
10.50	0.15	0.00	0.15
11.00	0.24	0.00	0.24
11.50	0.39	0.00	0.39
12.00	1.86	0.00	1.86
12.50	0.62	0.00	0.62
13.00	0.33	0.00	0.33
13.50	0.21	0.00	0.21
14.00	0.17	0.00	0.17
14.50	0.14	0.00	0.14
15.00	0.11	0.00	0.11
15.50	0.10	0.00	0.10
16.00	0.09	0.00	0.09
16.50	0.09	0.00	0.09
17.00	0.08	0.00	0.08
17.50	0.07	0.00	0.07
18.00	0.06	0.00	0.06
18.50	0.06	0.00	0.06
19.00	0.06	0.00	0.06
19.50	0.06	0.00	0.06
20.00	0.05	0.00	0.05
20.50	0.05	0.00	0.05
21.00	0.05	0.00	0.05
21.50	0.05	0.00	0.05
22.00	0.05	0.00	0.05
22.50	0.04	0.00	0.04
23.00	0.04	0.00	0.04
23.50	0.04	0.00	0.04
24.00	0.04	0.00	0.04
24.50	0.00	0.00	0.00
25.00	0.00	0.00	0.00
25.50	0.00	0.00	0.00

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

Subcatchment1S: Existing Impervious	Runoff Area=38,060 sf 100.00% Impervious Runoff Depth=4.98" Flow Length=267' Tc=4.3 min CN=98 Runoff=4.47 cfs 0.363 af
Subcatchment2S: Existing Pervious	Runoff Area=11,289 sf 0.00% Impervious Runoff Depth=2.20" Tc=4.3 min CN=70 Runoff=0.69 cfs 0.048 af
Subcatchment3S: Proposed Impervious	Runoff Area=36,670 sf 100.00% Impervious Runoff Depth=4.98" Flow Length=370' Tc=4.4 min CN=98 Runoff=4.29 cfs 0.350 af
Subcatchment4S: Proposed Pervious	Runoff Area=12,691 sf 0.00% Impervious Runoff Depth=2.37" Flow Length=370' Tc=4.4 min CN=72 Runoff=0.83 cfs 0.058 af
Link 5L: Existing Total	Inflow=5.16 cfs 0.410 af Primary=5.16 cfs 0.410 af
Link 6L: Proposed Total	Inflow=5.12 cfs 0.407 af Primary=5.12 cfs 0.407 af
Total Runoff Area = 2.266 ac Runoff Volume = 0.817 af Average Runoff Depth = 4.33" 24.29% Pervious = 0.551 ac 75.71% Impervious = 1.716 ac	

Summary for Subcatchment 1S: Existing Impervious

[49] Hint: Tc<2dt may require smaller dt
[47] Hint: Peak is 940% of capacity of segment #4

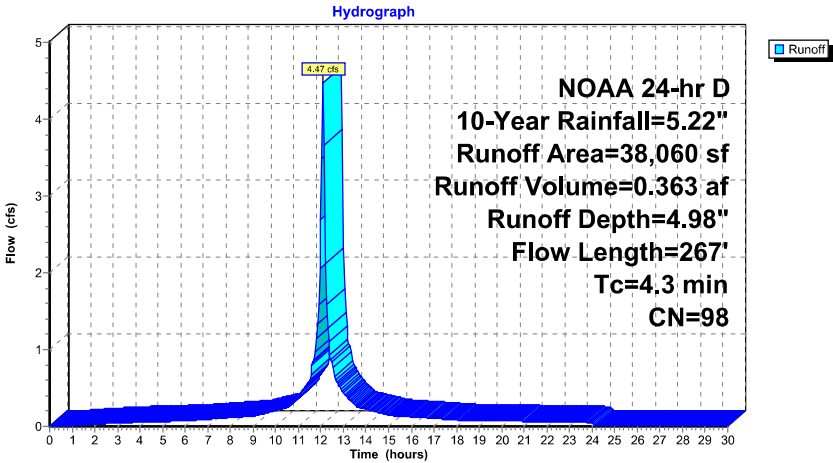
Runoff = 4.47 cfs @ 12.10 hrs, Volume= 0.363 af, Depth= 4.98"
Routed to Link 5L : Existing Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

Area (sf)	CN	Description
38,060	98	Unconnected pavement, HSG B
38,060		100.00% Impervious Area
38,060		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	27	0.0700	0.15		Sheet Flow, Sheet Flow - AB Grass: Dense n= 0.240 P2= 3.35"
0.7	73	0.0410	1.76		Sheet Flow, Sheet Flow - BC Smooth surfaces n= 0.011 P2= 3.35"
0.4	96	0.0470	4.40		Shallow Concentrated Flow, SCF - CD Paved Kv= 20.3 fps
0.2	50	0.0370	5.45	0.48	Pipe Channel, Pipe Flow - DE 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.010 PVC, smooth interior
0.0	21	0.1380	19.40	10.58	Pipe Channel, Pipe Flow - EF 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.010 PVC, smooth interior
4.3	267	Total			

Subcatchment 1S: Existing Impervious



Hydrograph for Subcatchment 1S: Existing Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	5.22	4.98	0.00
0.50	0.03	0.00	0.00	26.50	5.22	4.98	0.00
1.00	0.06	0.00	0.01	27.00	5.22	4.98	0.00
1.50	0.09	0.01	0.02	27.50	5.22	4.98	0.00
2.00	0.13	0.02	0.03	28.00	5.22	4.98	0.00
2.50	0.16	0.04	0.04	28.50	5.22	4.98	0.00
3.00	0.20	0.07	0.04	29.00	5.22	4.98	0.00
3.50	0.23	0.09	0.05	29.50	5.22	4.98	0.00
4.00	0.27	0.12	0.05	30.00	5.22	4.98	0.00
4.50	0.31	0.16	0.06				
5.00	0.36	0.19	0.06				
5.50	0.40	0.23	0.07				
6.00	0.45	0.27	0.07				
6.50	0.49	0.31	0.08				
7.00	0.55	0.36	0.09				
7.50	0.61	0.42	0.10				
8.00	0.68	0.48	0.11				
8.50	0.75	0.55	0.12				
9.00	0.83	0.63	0.14				
9.50	0.92	0.71	0.17				
10.00	1.03	0.82	0.21				
10.50	1.17	0.96	0.24				
11.00	1.36	1.14	0.37				
11.50	1.65	1.43	0.60				
12.00	2.50	2.27	2.69				
12.50	3.57	3.33	0.84				
13.00	3.86	3.63	0.44				
13.50	4.05	3.82	0.28				
14.00	4.19	3.95	0.22				
14.50	4.30	4.06	0.19				
15.00	4.39	4.16	0.15				
15.50	4.47	4.23	0.13				
16.00	4.54	4.31	0.12				
16.50	4.61	4.37	0.11				
17.00	4.67	4.43	0.10				
17.50	4.73	4.49	0.09				
18.00	4.77	4.54	0.08				
18.50	4.82	4.58	0.08				
19.00	4.86	4.63	0.08				
19.50	4.91	4.67	0.07				
20.00	4.95	4.71	0.07				
20.50	4.99	4.75	0.07				
21.00	5.02	4.79	0.07				
21.50	5.06	4.82	0.06				
22.00	5.09	4.86	0.06				
22.50	5.13	4.89	0.06				
23.00	5.16	4.92	0.06				
23.50	5.19	4.95	0.05				
24.00	5.22	4.98	0.05				
24.50	5.22	4.98	0.00				
25.00	5.22	4.98	0.00				
25.50	5.22	4.98	0.00				

Summary for Subcatchment 2S: Existing Pervious

[49] Hint: Tc<2dt may require smaller dt

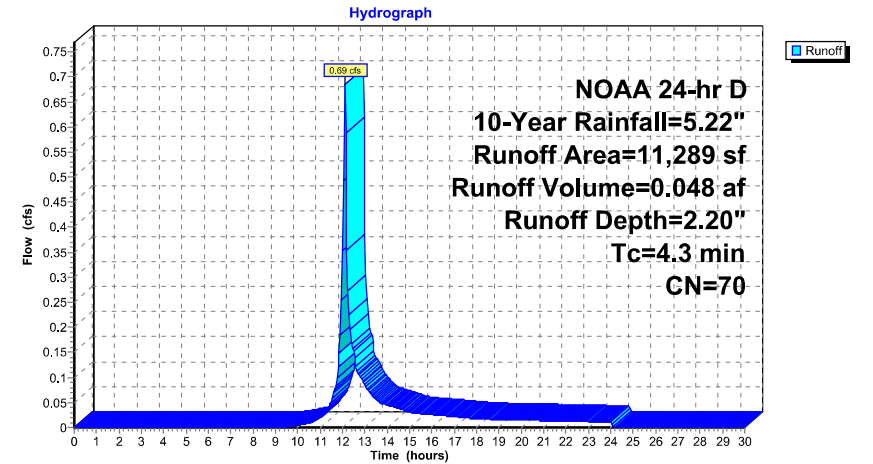
Runoff = 0.69 cfs @ 12.11 hrs, Volume= 0.048 af, Depth= 2.20"
Routed to Link 5L : Existing Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

Area (sf)	CN	Description
3,045	61	>75% Grass cover, Good, HSG B
8,244	74	>75% Grass cover, Good, HSG C
11,289	70	Weighted Average
11,289		100.00% Pervious Area

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

Subcatchment 2S: Existing Pervious



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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Subcatchment 2S: Existing Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	5.22	2.20	0.00
0.50	0.03	0.00	0.00	26.50	5.22	2.20	0.00
1.00	0.06	0.00	0.00	27.00	5.22	2.20	0.00
1.50	0.09	0.00	0.00	27.50	5.22	2.20	0.00
2.00	0.13	0.00	0.00	28.00	5.22	2.20	0.00
2.50	0.16	0.00	0.00	28.50	5.22	2.20	0.00
3.00	0.20	0.00	0.00	29.00	5.22	2.20	0.00
3.50	0.23	0.00	0.00	29.50	5.22	2.20	0.00
4.00	0.27	0.00	0.00	30.00	5.22	2.20	0.00
4.50	0.31	0.00	0.00				
5.00	0.36	0.00	0.00				
5.50	0.40	0.00	0.00				
6.00	0.45	0.00	0.00				
6.50	0.49	0.00	0.00				
7.00	0.55	0.00	0.00				
7.50	0.61	0.00	0.00				
8.00	0.68	0.00	0.00				
8.50	0.75	0.00	0.00				
9.00	0.83	0.00	0.00				
9.50	0.92	0.00	0.00				
10.00	1.03	0.01	0.00				
10.50	1.17	0.02	0.01				
11.00	1.36	0.05	0.02				
11.50	1.65	0.13	0.05				
12.00	2.50	0.46	0.35				
12.50	3.57	1.05	0.15				
13.00	3.86	1.24	0.08				
13.50	4.05	1.36	0.06				
14.00	4.19	1.45	0.05				
14.50	4.30	1.53	0.04				
15.00	4.39	1.60	0.03				
15.50	4.47	1.65	0.03				
16.00	4.54	1.70	0.03				
16.50	4.61	1.75	0.02				
17.00	4.67	1.80	0.02				
17.50	4.73	1.83	0.02				
18.00	4.77	1.87	0.02				
18.50	4.82	1.90	0.02				
19.00	4.86	1.94	0.02				
19.50	4.91	1.97	0.02				
20.00	4.95	2.00	0.02				
20.50	4.99	2.03	0.01				
21.00	5.02	2.05	0.01				
21.50	5.06	2.08	0.01				
22.00	5.09	2.11	0.01				
22.50	5.13	2.13	0.01				
23.00	5.16	2.16	0.01				
23.50	5.19	2.18	0.01				
24.00	5.22	2.20	0.01				
24.50	5.22	2.20	0.00				
25.00	5.22	2.20	0.00				
25.50	5.22	2.20	0.00				

2025-01 HydroCAD

Prepared by Dynamic Engineering

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Summary for Subcatchment 3S: Proposed Impervious

[49] Hint: Tc<2dt may require smaller dt

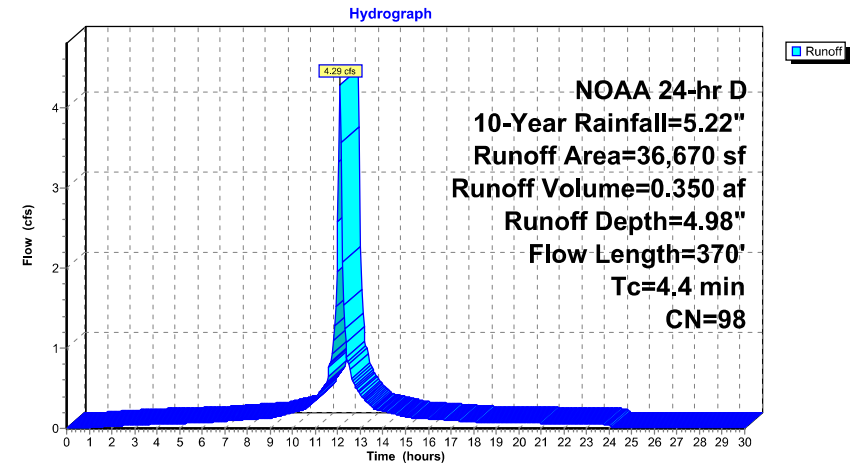
Runoff = 4.29 cfs @ 12.10 hrs, Volume= 0.350 af, Depth= 4.98"
Routed to Link 6L : Proposed Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

Area (sf)	CN	Description
36,670	98	Unconnected pavement, HSG B
36,670		100.00% Impervious Area
36,670		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	21	0.0150	0.11		Sheet Flow, Sheet Flow - AB Grass: Short n= 0.150 P2= 3.35"
0.5	43	0.0300	1.40		Sheet Flow, Sheet Flow - BC Smooth surfaces n= 0.011 P2= 3.35"
0.3	35	0.0082	1.84		Shallow Concentrated Flow, SCF - Paved - CD Paved Kv= 20.3 fps
0.1	59	0.0252	8.51	6.68	Pipe Channel, Pipe Flow - DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.2	111	0.0300	9.29	7.29	Pipe Channel, Pipe Flow - EF 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	48	0.0200	7.58	5.95	Pipe Channel, Pipe Flow - FG 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	26	0.0200	7.58	5.95	Pipe Channel, Pipe Flow - GH 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.0	27	0.0300	10.78	13.22	Pipe Channel, Pipe Flow - HI 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
4.4	370	Total			

Subcatchment 3S: Proposed Impervious



Hydrograph for Subcatchment 3S: Proposed Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	5.22	4.98	0.00
0.50	0.03	0.00	0.00	26.50	5.22	4.98	0.00
1.00	0.06	0.00	0.01	27.00	5.22	4.98	0.00
1.50	0.09	0.01	0.02	27.50	5.22	4.98	0.00
2.00	0.13	0.02	0.03	28.00	5.22	4.98	0.00
2.50	0.16	0.04	0.04	28.50	5.22	4.98	0.00
3.00	0.20	0.07	0.04	29.00	5.22	4.98	0.00
3.50	0.23	0.09	0.05	29.50	5.22	4.98	0.00
4.00	0.27	0.12	0.05	30.00	5.22	4.98	0.00
4.50	0.31	0.16	0.06				
5.00	0.36	0.19	0.06				
5.50	0.40	0.23	0.07				
6.00	0.45	0.27	0.07				
6.50	0.49	0.31	0.08				
7.00	0.55	0.36	0.09				
7.50	0.61	0.42	0.10				
8.00	0.68	0.48	0.11				
8.50	0.75	0.55	0.12				
9.00	0.83	0.63	0.13				
9.50	0.92	0.71	0.16				
10.00	1.03	0.82	0.20				
10.50	1.17	0.96	0.24				
11.00	1.36	1.14	0.36				
11.50	1.65	1.43	0.58				
12.00	2.50	2.27	2.58				
12.50	3.57	3.33	0.81				
13.00	3.86	3.63	0.42				
13.50	4.05	3.82	0.27				
14.00	4.19	3.95	0.21				
14.50	4.30	4.06	0.18				
15.00	4.39	4.16	0.14				
15.50	4.47	4.23	0.13				
16.00	4.54	4.31	0.12				
16.50	4.61	4.37	0.11				
17.00	4.67	4.43	0.10				
17.50	4.73	4.49	0.09				
18.00	4.77	4.54	0.08				
18.50	4.82	4.58	0.08				
19.00	4.86	4.63	0.07				
19.50	4.91	4.67	0.07				
20.00	4.95	4.71	0.07				
20.50	4.99	4.75	0.07				
21.00	5.02	4.79	0.06				
21.50	5.06	4.82	0.06				
22.00	5.09	4.86	0.06				
22.50	5.13	4.89	0.06				
23.00	5.16	4.92	0.05				
23.50	5.19	4.95	0.05				
24.00	5.22	4.98	0.05				
24.50	5.22	4.98	0.00				
25.00	5.22	4.98	0.00				
25.50	5.22	4.98	0.00				

Summary for Subcatchment 4S: Proposed Pervious

[49] Hint: Tc<2dt may require smaller dt

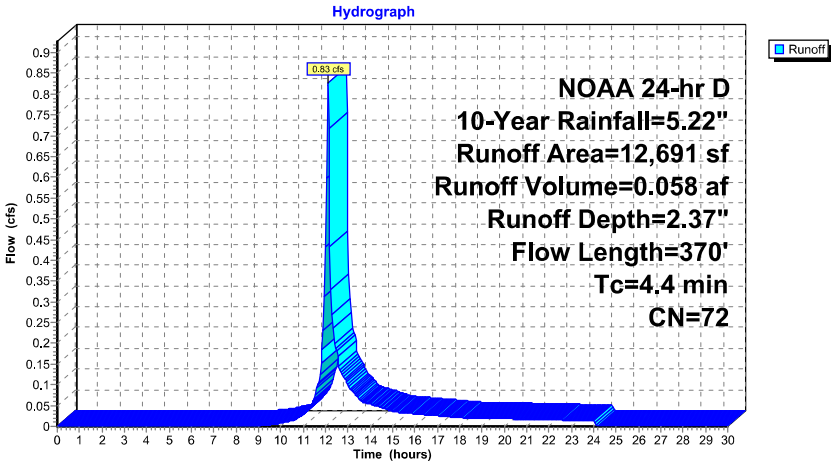
Runoff = 0.83 cfs @ 12.11 hrs, Volume= 0.058 af, Depth= 2.37"
Routed to Link 6L : Proposed Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

Area (sf)	CN	Description
2,096	61	>75% Grass cover, Good, HSG B
9,762	74	>75% Grass cover, Good, HSG C
833	80	>75% Grass cover, Good, HSG D
12,691	72	Weighted Average
12,691		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	21	0.0150	0.11		Sheet Flow, Sheet Flow - AB Grass: Short n= 0.150 P2= 3.35"
0.5	43	0.0300	1.40		Sheet Flow, Sheet Flow - BC Smooth surfaces n= 0.011 P2= 3.35"
0.3	35	0.0082	1.84		Shallow Concentrated Flow, SCF - CD Paved Kv= 20.3 fps
0.1	59	0.0252	8.51	6.68	Pipe Channel, Pipe Flow - DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.2	111	0.0300	9.29	7.29	Pipe Channel, Pipe Flow - EF 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	48	0.0200	7.58	5.95	Pipe Channel, Pipe Flow - FG 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	26	0.0200	7.58	5.95	Pipe Channel, Pipe Flow - GH 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.0	27	0.0300	10.78	13.22	Pipe Channel, Pipe Flow - HI 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
4.4	370	Total			

Subcatchment 4S: Proposed Pervious

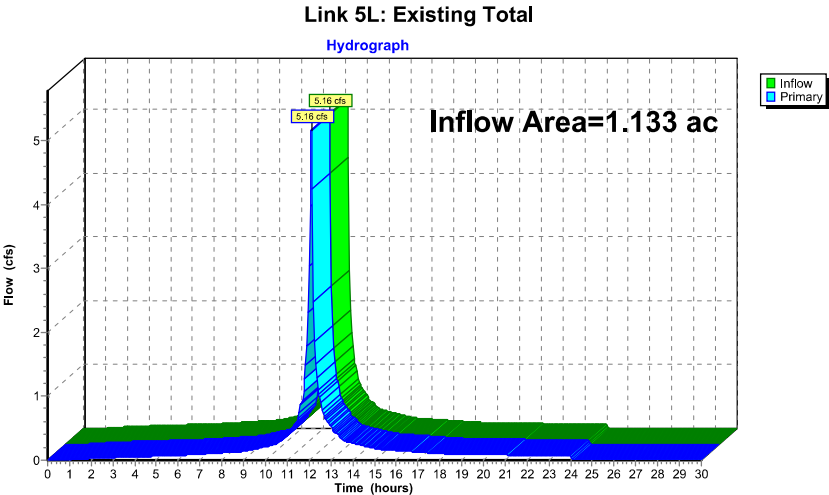


Hydrograph for Subcatchment 4S: Proposed Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	5.22	2.37	0.00
0.50	0.03	0.00	0.00	26.50	5.22	2.37	0.00
1.00	0.06	0.00	0.00	27.00	5.22	2.37	0.00
1.50	0.09	0.00	0.00	27.50	5.22	2.37	0.00
2.00	0.13	0.00	0.00	28.00	5.22	2.37	0.00
2.50	0.16	0.00	0.00	28.50	5.22	2.37	0.00
3.00	0.20	0.00	0.00	29.00	5.22	2.37	0.00
3.50	0.23	0.00	0.00	29.50	5.22	2.37	0.00
4.00	0.27	0.00	0.00	30.00	5.22	2.37	0.00
4.50	0.31	0.00	0.00				
5.00	0.36	0.00	0.00				
5.50	0.40	0.00	0.00				
6.00	0.45	0.00	0.00				
6.50	0.49	0.00	0.00				
7.00	0.55	0.00	0.00				
7.50	0.61	0.00	0.00				
8.00	0.68	0.00	0.00				
8.50	0.75	0.00	0.00				
9.00	0.83	0.00	0.00				
9.50	0.92	0.01	0.00				
10.00	1.03	0.02	0.01				
10.50	1.17	0.04	0.01				
11.00	1.36	0.08	0.03				
11.50	1.65	0.16	0.07				
12.00	2.50	0.53	0.43				
12.50	3.57	1.16	0.18				
13.00	3.86	1.36	0.10				
13.50	4.05	1.50	0.07				
14.00	4.19	1.59	0.05				
14.50	4.30	1.67	0.05				
15.00	4.39	1.74	0.04				
15.50	4.47	1.80	0.03				
16.00	4.54	1.85	0.03				
16.50	4.61	1.90	0.03				
17.00	4.67	1.95	0.03				
17.50	4.73	1.99	0.02				
18.00	4.77	2.03	0.02				
18.50	4.82	2.06	0.02				
19.00	4.86	2.09	0.02				
19.50	4.91	2.13	0.02				
20.00	4.95	2.16	0.02				
20.50	4.99	2.19	0.02				
21.00	5.02	2.22	0.02				
21.50	5.06	2.24	0.02				
22.00	5.09	2.27	0.02				
22.50	5.13	2.30	0.02				
23.00	5.16	2.32	0.01				
23.50	5.19	2.35	0.01				
24.00	5.22	2.37	0.01				
24.50	5.22	2.37	0.00				
25.00	5.22	2.37	0.00				
25.50	5.22	2.37	0.00				

Summary for Link 5L: Existing Total

Inflow Area = 1.133 ac, 77.12% Impervious, Inflow Depth = 4.35" for 10-Year event
Inflow = 5.16 cfs @ 12.10 hrs, Volume= 0.410 af
Primary = 5.16 cfs @ 12.10 hrs, Volume= 0.410 af, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

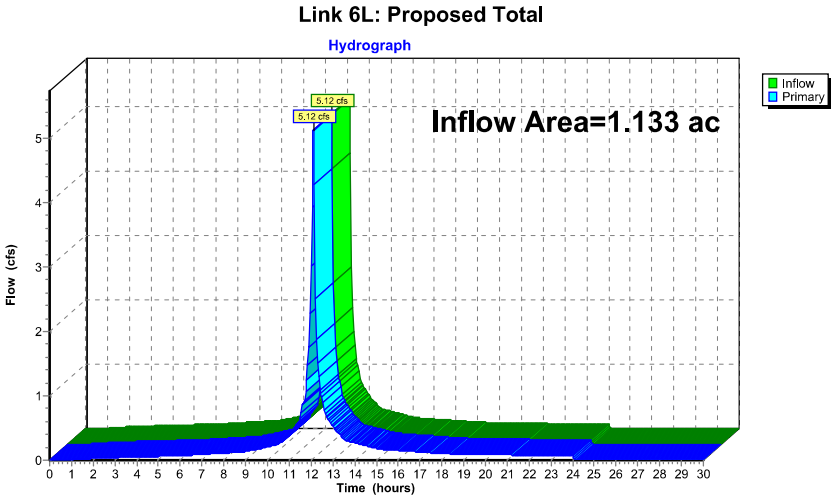


Hydrograph for Link 5L: Existing Total

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.01	0.00	0.01	27.00	0.00	0.00	0.00
1.50	0.02	0.00	0.02	27.50	0.00	0.00	0.00
2.00	0.03	0.00	0.03	28.00	0.00	0.00	0.00
2.50	0.04	0.00	0.04	28.50	0.00	0.00	0.00
3.00	0.04	0.00	0.04	29.00	0.00	0.00	0.00
3.50	0.05	0.00	0.05	29.50	0.00	0.00	0.00
4.00	0.05	0.00	0.05	30.00	0.00	0.00	0.00
4.50	0.06	0.00	0.06				
5.00	0.06	0.00	0.06				
5.50	0.07	0.00	0.07				
6.00	0.07	0.00	0.07				
6.50	0.08	0.00	0.08				
7.00	0.09	0.00	0.09				
7.50	0.10	0.00	0.10				
8.00	0.11	0.00	0.11				
8.50	0.12	0.00	0.12				
9.00	0.14	0.00	0.14				
9.50	0.17	0.00	0.17				
10.00	0.21	0.00	0.21				
10.50	0.25	0.00	0.25				
11.00	0.39	0.00	0.39				
11.50	0.65	0.00	0.65				
12.00	3.04	0.00	3.04				
12.50	0.99	0.00	0.99				
13.00	0.52	0.00	0.52				
13.50	0.34	0.00	0.34				
14.00	0.27	0.00	0.27				
14.50	0.22	0.00	0.22				
15.00	0.18	0.00	0.18				
15.50	0.16	0.00	0.16				
16.00	0.15	0.00	0.15				
16.50	0.14	0.00	0.14				
17.00	0.13	0.00	0.13				
17.50	0.11	0.00	0.11				
18.00	0.10	0.00	0.10				
18.50	0.10	0.00	0.10				
19.00	0.09	0.00	0.09				
19.50	0.09	0.00	0.09				
20.00	0.09	0.00	0.09				
20.50	0.08	0.00	0.08				
21.00	0.08	0.00	0.08				
21.50	0.08	0.00	0.08				
22.00	0.07	0.00	0.07				
22.50	0.07	0.00	0.07				
23.00	0.07	0.00	0.07				
23.50	0.06	0.00	0.06				
24.00	0.06	0.00	0.06				
24.50	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
25.50	0.00	0.00	0.00				

Summary for Link 6L: Proposed Total

Inflow Area = 1.133 ac, 74.29% Impervious, Inflow Depth = 4.31" for 10-Year event
Inflow = 5.12 cfs @ 12.10 hrs, Volume= 0.407 af
Primary = 5.12 cfs @ 12.10 hrs, Volume= 0.407 af, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs



Hydrograph for Link 6L: Proposed Total

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
1.00	0.01	0.00	0.01
1.50	0.02	0.00	0.02
2.00	0.03	0.00	0.03
2.50	0.04	0.00	0.04
3.00	0.04	0.00	0.04
3.50	0.05	0.00	0.05
4.00	0.05	0.00	0.05
4.50	0.06	0.00	0.06
5.00	0.06	0.00	0.06
5.50	0.07	0.00	0.07
6.00	0.07	0.00	0.07
6.50	0.08	0.00	0.08
7.00	0.09	0.00	0.09
7.50	0.10	0.00	0.10
8.00	0.11	0.00	0.11
8.50	0.12	0.00	0.12
9.00	0.13	0.00	0.13
9.50	0.17	0.00	0.17
10.00	0.21	0.00	0.21
10.50	0.25	0.00	0.25
11.00	0.39	0.00	0.39
11.50	0.65	0.00	0.65
12.00	3.01	0.00	3.01
12.50	0.99	0.00	0.99
13.00	0.52	0.00	0.52
13.50	0.34	0.00	0.34
14.00	0.27	0.00	0.27
14.50	0.22	0.00	0.22
15.00	0.18	0.00	0.18
15.50	0.16	0.00	0.16
16.00	0.15	0.00	0.15
16.50	0.14	0.00	0.14
17.00	0.13	0.00	0.13
17.50	0.11	0.00	0.11
18.00	0.10	0.00	0.10
18.50	0.10	0.00	0.10
19.00	0.09	0.00	0.09
19.50	0.09	0.00	0.09
20.00	0.09	0.00	0.09
20.50	0.08	0.00	0.08
21.00	0.08	0.00	0.08
21.50	0.08	0.00	0.08
22.00	0.07	0.00	0.07
22.50	0.07	0.00	0.07
23.00	0.07	0.00	0.07
23.50	0.06	0.00	0.06
24.00	0.06	0.00	0.06
24.50	0.00	0.00	0.00
25.00	0.00	0.00	0.00
25.50	0.00	0.00	0.00

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

Subcatchment1S: Existing Impervious Runoff Area=38,060 sf 100.00% Impervious Runoff Depth=8.42"
Flow Length=267' Tc=4.3 min CN=98 Runoff=7.45 cfs 0.613 af

Subcatchment2S: Existing Pervious Runoff Area=11,289 sf 0.00% Impervious Runoff Depth=5.04"
Tc=4.3 min CN=70 Runoff=1.57 cfs 0.109 af

Subcatchment3S: Proposed Impervious Runoff Area=36,670 sf 100.00% Impervious Runoff Depth=8.42"
Flow Length=370' Tc=4.4 min CN=98 Runoff=7.14 cfs 0.591 af

Subcatchment4S: Proposed Pervious Runoff Area=12,691 sf 0.00% Impervious Runoff Depth=5.28"
Flow Length=370' Tc=4.4 min CN=72 Runoff=1.83 cfs 0.128 af

Link 5L: Existing Total Inflow=9.01 cfs 0.722 af
Primary=9.01 cfs 0.722 af

Link 6L: Proposed Total Inflow=8.97 cfs 0.719 af
Primary=8.97 cfs 0.719 af

Total Runoff Area = 2.266 ac Runoff Volume = 1.441 af Average Runoff Depth = 7.63"
24.29% Pervious = 0.551 ac 75.71% Impervious = 1.716 ac

Summary for Subcatchment 1S: Existing Impervious

[49] Hint: Tc<2dt may require smaller dt
[47] Hint: Peak is 1564% of capacity of segment #4

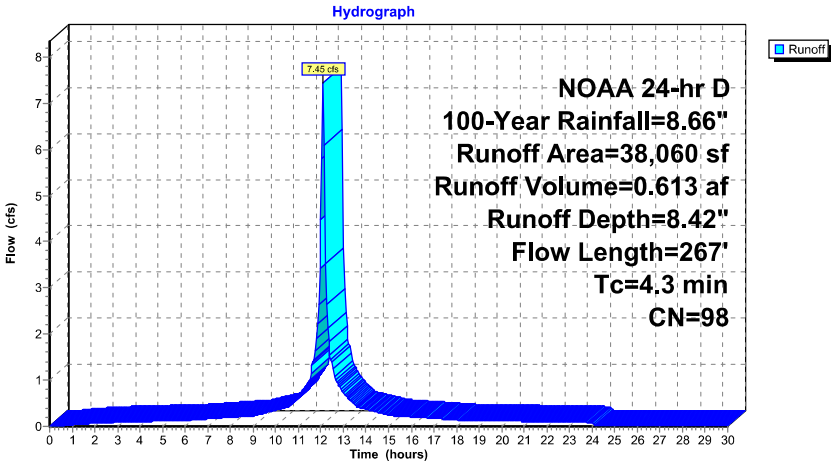
Runoff = 7.45 cfs @ 12.10 hrs, Volume= 0.613 af, Depth= 8.42"
Routed to Link 5L : Existing Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (sf)	CN	Description
38,060	98	Unconnected pavement, HSG B
38,060		100.00% Impervious Area
38,060		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	27	0.0700	0.15		Sheet Flow, Sheet Flow - AB Grass: Dense n= 0.240 P2= 3.35"
0.7	73	0.0410	1.76		Sheet Flow, Sheet Flow - BC Smooth surfaces n= 0.011 P2= 3.35"
0.4	96	0.0470	4.40		Shallow Concentrated Flow, SCF - CD Paved Kv= 20.3 fps
0.2	50	0.0370	5.45	0.48	Pipe Channel, Pipe Flow - DE 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.010 PVC, smooth interior
0.0	21	0.1380	19.40	10.58	Pipe Channel, Pipe Flow - EF 10.0" Round Area= 0.5 sf Perim= 2.6' r= 0.21' n= 0.010 PVC, smooth interior
4.3	267	Total			

Subcatchment 1S: Existing Impervious



Hydrograph for Subcatchment 1S: Existing Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.05	0.00	0.00
1.00	0.10	0.01	0.03
1.50	0.15	0.04	0.05
2.00	0.21	0.08	0.07
2.50	0.27	0.12	0.08
3.00	0.33	0.17	0.09
3.50	0.39	0.22	0.10
4.00	0.45	0.28	0.10
4.50	0.52	0.34	0.11
5.00	0.59	0.40	0.12
5.50	0.66	0.47	0.12
6.00	0.74	0.54	0.13
6.50	0.82	0.62	0.14
7.00	0.91	0.71	0.16
7.50	1.01	0.80	0.18
8.00	1.12	0.91	0.20
8.50	1.24	1.03	0.21
9.00	1.37	1.16	0.23
9.50	1.53	1.31	0.29
10.00	1.72	1.49	0.35
10.50	1.94	1.71	0.41
11.00	2.25	2.02	0.63
11.50	2.75	2.51	1.01
12.00	4.15	3.91	4.48
12.50	5.91	5.68	1.39
13.00	6.41	6.17	0.73
13.50	6.72	6.48	0.47
14.00	6.94	6.70	0.37
14.50	7.13	6.89	0.31
15.00	7.29	7.05	0.25
15.50	7.42	7.18	0.22
16.00	7.54	7.30	0.21
16.50	7.65	7.41	0.19
17.00	7.75	7.51	0.17
17.50	7.84	7.60	0.15
18.00	7.92	7.68	0.14
18.50	8.00	7.76	0.13
19.00	8.07	7.83	0.13
19.50	8.14	7.90	0.12
20.00	8.21	7.97	0.12
20.50	8.27	8.03	0.11
21.00	8.33	8.09	0.11
21.50	8.39	8.15	0.10
22.00	8.45	8.21	0.10
22.50	8.51	8.27	0.10
23.00	8.56	8.32	0.09
23.50	8.61	8.37	0.09
24.00	8.66	8.42	0.08
24.50	8.66	8.42	0.00
25.00	8.66	8.42	0.00
25.50	8.66	8.42	0.00

Summary for Subcatchment 2S: Existing Pervious

[49] Hint: Tc<2dt may require smaller dt

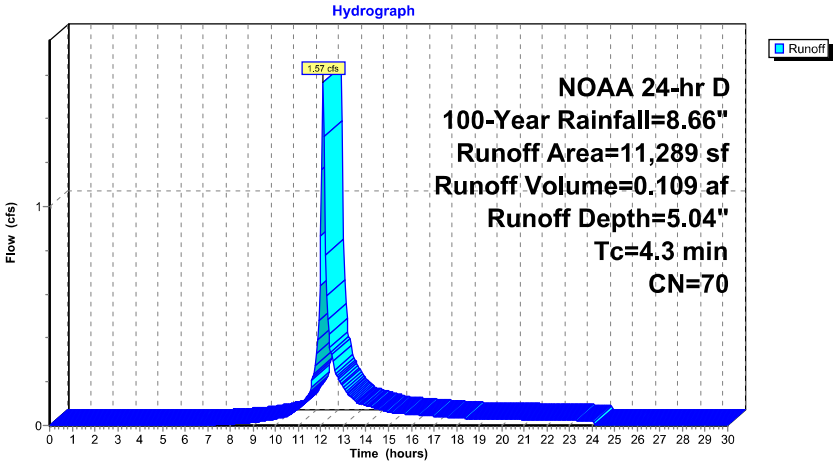
Runoff = 1.57 cfs @ 12.11 hrs, Volume= 0.109 af, Depth= 5.04"
Routed to Link 5L : Existing Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (sf)	CN	Description
3,045	61	>75% Grass cover, Good, HSG B
8,244	74	>75% Grass cover, Good, HSG C
11,289	70	Weighted Average
11,289		100.00% Pervious Area

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

Subcatchment 2S: Existing Pervious



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NOAA 24-hr D 100-Year Rainfall=8.66"

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Hydrograph for Subcatchment 2S: Existing Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	8.66	5.04	0.00
0.50	0.05	0.00	0.00	26.50	8.66	5.04	0.00
1.00	0.10	0.00	0.00	27.00	8.66	5.04	0.00
1.50	0.15	0.00	0.00	27.50	8.66	5.04	0.00
2.00	0.21	0.00	0.00	28.00	8.66	5.04	0.00
2.50	0.27	0.00	0.00	28.50	8.66	5.04	0.00
3.00	0.33	0.00	0.00	29.00	8.66	5.04	0.00
3.50	0.39	0.00	0.00	29.50	8.66	5.04	0.00
4.00	0.45	0.00	0.00	30.00	8.66	5.04	0.00
4.50	0.52	0.00	0.00				
5.00	0.59	0.00	0.00				
5.50	0.66	0.00	0.00				
6.00	0.74	0.00	0.00				
6.50	0.82	0.00	0.00				
7.00	0.91	0.00	0.00				
7.50	1.01	0.01	0.00				
8.00	1.12	0.02	0.01				
8.50	1.24	0.03	0.01				
9.00	1.37	0.06	0.01				
9.50	1.53	0.09	0.02				
10.00	1.72	0.14	0.03				
10.50	1.94	0.22	0.04				
11.00	2.25	0.34	0.08				
11.50	2.75	0.58	0.15				
12.00	4.15	1.43	0.86				
12.50	5.91	2.74	0.32				
13.00	6.41	3.13	0.17				
13.50	6.72	3.39	0.11				
14.00	6.94	3.57	0.09				
14.50	7.13	3.73	0.08				
15.00	7.29	3.86	0.06				
15.50	7.42	3.97	0.06				
16.00	7.54	4.07	0.05				
16.50	7.65	4.16	0.05				
17.00	7.75	4.25	0.04				
17.50	7.84	4.33	0.04				
18.00	7.92	4.40	0.04				
18.50	8.00	4.46	0.03				
19.00	8.07	4.52	0.03				
19.50	8.14	4.58	0.03				
20.00	8.21	4.64	0.03				
20.50	8.27	4.70	0.03				
21.00	8.33	4.75	0.03				
21.50	8.39	4.80	0.03				
22.00	8.45	4.86	0.03				
22.50	8.51	4.90	0.02				
23.00	8.56	4.95	0.02				
23.50	8.61	4.99	0.02				
24.00	8.66	5.04	0.02				
24.50	8.66	5.04	0.00				
25.00	8.66	5.04	0.00				
25.50	8.66	5.04	0.00				

2025-01 HydroCAD

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NOAA 24-hr D 100-Year Rainfall=8.66"

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Summary for Subcatchment 3S: Proposed Impervious

[49] Hint: Tc<2dt may require smaller dt

[47] Hint: Peak is 107% of capacity of segment #4

[47] Hint: Peak is 120% of capacity of segment #6

[47] Hint: Peak is 120% of capacity of segment #7

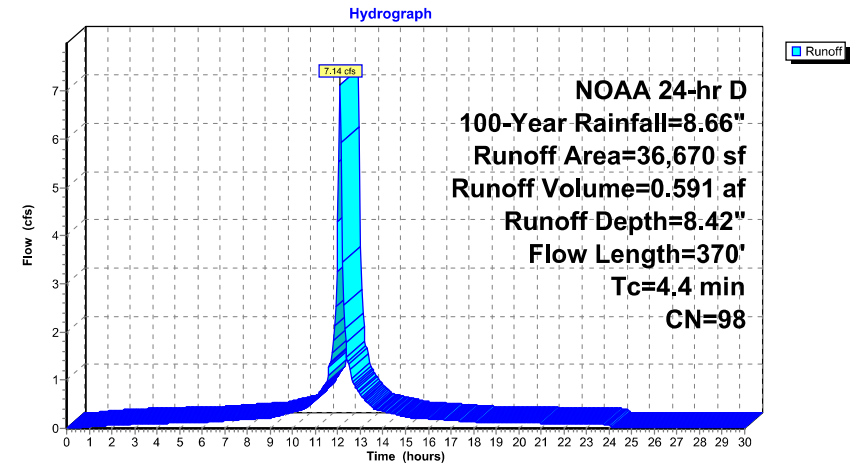
Runoff = 7.14 cfs @ 12.10 hrs, Volume= 0.591 af, Depth= 8.42"
 Routed to Link 6L : Proposed Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 100-Year Rainfall=8.66"

Area (sf)	CN	Description
36,670	98	Unconnected pavement, HSG B
36,670		100.00% Impervious Area
36,670		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	21	0.0150	0.11		Sheet Flow, Sheet Flow - AB Grass: Short n= 0.150 P2= 3.35"
0.5	43	0.0300	1.40		Sheet Flow, Sheet Flow - BC Smooth surfaces n= 0.011 P2= 3.35"
0.3	35	0.0082	1.84		Shallow Concentrated Flow, SCF - Paved - CD Paved Kv= 20.3 fps
0.1	59	0.0252	8.51	6.68	Pipe Channel, Pipe Flow - DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.2	111	0.0300	9.29	7.29	Pipe Channel, Pipe Flow - EF 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	48	0.0200	7.58	5.95	Pipe Channel, Pipe Flow - FG 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	26	0.0200	7.58	5.95	Pipe Channel, Pipe Flow - GH 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.0	27	0.0300	10.78	13.22	Pipe Channel, Pipe Flow - HI 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
4.4	370	Total			

Subcatchment 3S: Proposed Impervious



Hydrograph for Subcatchment 3S: Proposed Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	8.66	8.42	0.00
0.50	0.05	0.00	0.00	26.50	8.66	8.42	0.00
1.00	0.10	0.01	0.03	27.00	8.66	8.42	0.00
1.50	0.15	0.04	0.05	27.50	8.66	8.42	0.00
2.00	0.21	0.08	0.07	28.00	8.66	8.42	0.00
2.50	0.27	0.12	0.08	28.50	8.66	8.42	0.00
3.00	0.33	0.17	0.09	29.00	8.66	8.42	0.00
3.50	0.39	0.22	0.09	29.50	8.66	8.42	0.00
4.00	0.45	0.28	0.10	30.00	8.66	8.42	0.00
4.50	0.52	0.34	0.11				
5.00	0.59	0.40	0.11				
5.50	0.66	0.47	0.12				
6.00	0.74	0.54	0.12				
6.50	0.82	0.62	0.14				
7.00	0.91	0.71	0.16				
7.50	1.01	0.80	0.17				
8.00	1.12	0.91	0.19				
8.50	1.24	1.03	0.21				
9.00	1.37	1.16	0.22				
9.50	1.53	1.31	0.28				
10.00	1.72	1.49	0.34				
10.50	1.94	1.71	0.40				
11.00	2.25	2.02	0.60				
11.50	2.75	2.51	0.97				
12.00	4.15	3.91	4.29				
12.50	5.91	5.68	1.34				
13.00	6.41	6.17	0.70				
13.50	6.72	6.48	0.45				
14.00	6.94	6.70	0.36				
14.50	7.13	6.89	0.30				
15.00	7.29	7.05	0.24				
15.50	7.42	7.18	0.21				
16.00	7.54	7.30	0.20				
16.50	7.65	7.41	0.18				
17.00	7.75	7.51	0.17				
17.50	7.84	7.60	0.15				
18.00	7.92	7.68	0.13				
18.50	8.00	7.76	0.13				
19.00	8.07	7.83	0.12				
19.50	8.14	7.90	0.12				
20.00	8.21	7.97	0.11				
20.50	8.27	8.03	0.11				
21.00	8.33	8.09	0.11				
21.50	8.39	8.15	0.10				
22.00	8.45	8.21	0.10				
22.50	8.51	8.27	0.09				
23.00	8.56	8.32	0.09				
23.50	8.61	8.37	0.08				
24.00	8.66	8.42	0.08				
24.50	8.66	8.42	0.00				
25.00	8.66	8.42	0.00				
25.50	8.66	8.42	0.00				

Summary for Subcatchment 4S: Proposed Pervious

[49] Hint: Tc<2dt may require smaller dt

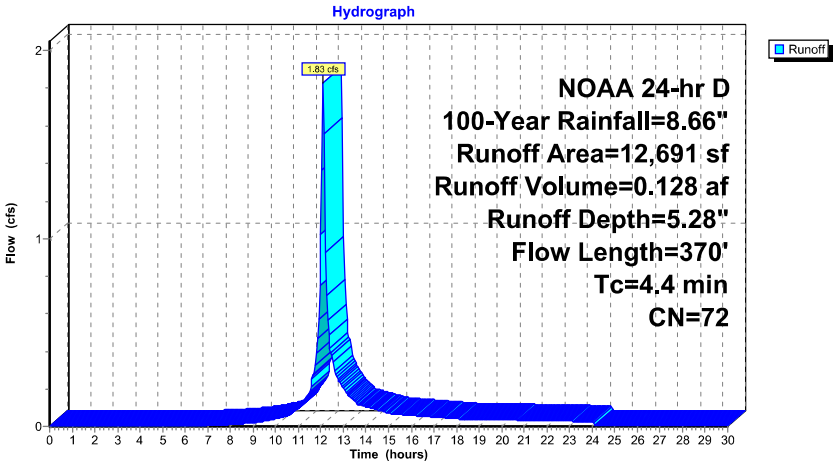
Runoff = 1.83 cfs @ 12.11 hrs, Volume= 0.128 af, Depth= 5.28"
Routed to Link 6L : Proposed Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (sf)	CN	Description
2,096	61	>75% Grass cover, Good, HSG B
9,762	74	>75% Grass cover, Good, HSG C
833	80	>75% Grass cover, Good, HSG D
12,691	72	Weighted Average
12,691		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	21	0.0150	0.11		Sheet Flow, Sheet Flow - AB Grass: Short n= 0.150 P2= 3.35"
0.5	43	0.0300	1.40		Sheet Flow, Sheet Flow - BC Smooth surfaces n= 0.011 P2= 3.35"
0.3	35	0.0082	1.84		Shallow Concentrated Flow, SCF - CD Paved Kv= 20.3 fps
0.1	59	0.0252	8.51	6.68	Pipe Channel, Pipe Flow - DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.2	111	0.0300	9.29	7.29	Pipe Channel, Pipe Flow - EF 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	48	0.0200	7.58	5.95	Pipe Channel, Pipe Flow - FG 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	26	0.0200	7.58	5.95	Pipe Channel, Pipe Flow - GH 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.0	27	0.0300	10.78	13.22	Pipe Channel, Pipe Flow - HI 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
4.4	370	Total			

Subcatchment 4S: Proposed Pervious

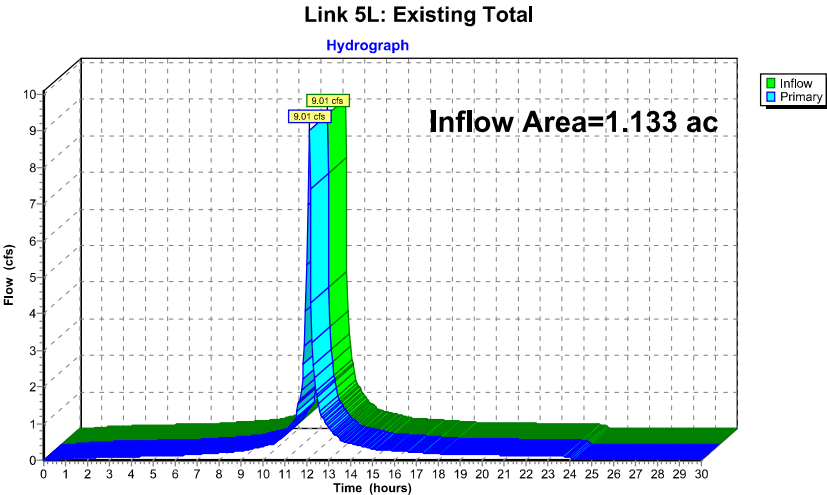


Hydrograph for Subcatchment 4S: Proposed Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	8.66	5.28	0.00
0.50	0.05	0.00	0.00	26.50	8.66	5.28	0.00
1.00	0.10	0.00	0.00	27.00	8.66	5.28	0.00
1.50	0.15	0.00	0.00	27.50	8.66	5.28	0.00
2.00	0.21	0.00	0.00	28.00	8.66	5.28	0.00
2.50	0.27	0.00	0.00	28.50	8.66	5.28	0.00
3.00	0.33	0.00	0.00	29.00	8.66	5.28	0.00
3.50	0.39	0.00	0.00	29.50	8.66	5.28	0.00
4.00	0.45	0.00	0.00	30.00	8.66	5.28	0.00
4.50	0.52	0.00	0.00				
5.00	0.59	0.00	0.00				
5.50	0.66	0.00	0.00				
6.00	0.74	0.00	0.00				
6.50	0.82	0.00	0.00				
7.00	0.91	0.00	0.00				
7.50	1.01	0.01	0.01				
8.00	1.12	0.03	0.01				
8.50	1.24	0.05	0.01				
9.00	1.37	0.08	0.02				
9.50	1.53	0.12	0.03				
10.00	1.72	0.18	0.04				
10.50	1.94	0.27	0.06				
11.00	2.25	0.40	0.10				
11.50	2.75	0.66	0.19				
12.00	4.15	1.57	1.02				
12.50	5.91	2.92	0.38				
13.00	6.41	3.33	0.20				
13.50	6.72	3.59	0.13				
14.00	6.94	3.78	0.10				
14.50	7.13	3.94	0.09				
15.00	7.29	4.07	0.07				
15.50	7.42	4.19	0.06				
16.00	7.54	4.29	0.06				
16.50	7.65	4.39	0.05				
17.00	7.75	4.47	0.05				
17.50	7.84	4.55	0.05				
18.00	7.92	4.62	0.04				
18.50	8.00	4.69	0.04				
19.00	8.07	4.75	0.04				
19.50	8.14	4.82	0.04				
20.00	8.21	4.88	0.03				
20.50	8.27	4.93	0.03				
21.00	8.33	4.99	0.03				
21.50	8.39	5.04	0.03				
22.00	8.45	5.09	0.03				
22.50	8.51	5.14	0.03				
23.00	8.56	5.19	0.03				
23.50	8.61	5.24	0.03				
24.00	8.66	5.28	0.02				
24.50	8.66	5.28	0.00				
25.00	8.66	5.28	0.00				
25.50	8.66	5.28	0.00				

Summary for Link 5L: Existing Total

Inflow Area = 1.133 ac, 77.12% Impervious, Inflow Depth = 7.65" for 100-Year event
Inflow = 9.01 cfs @ 12.10 hrs, Volume= 0.722 af
Primary = 9.01 cfs @ 12.10 hrs, Volume= 0.722 af, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs



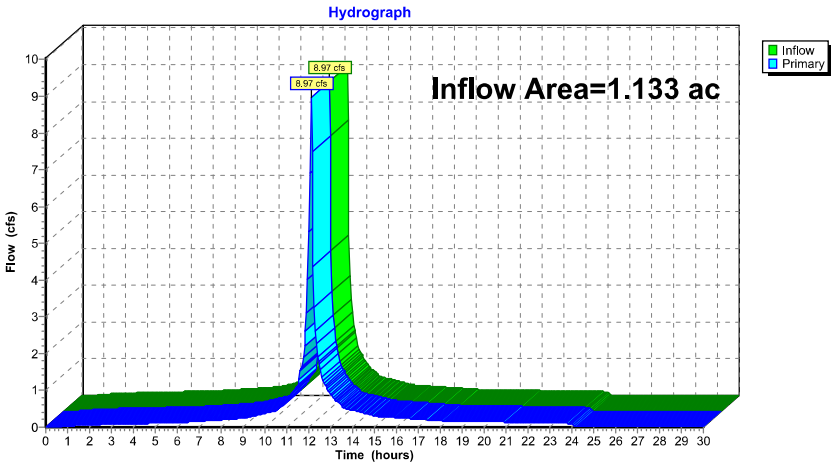
Hydrograph for Link 5L: Existing Total

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.03	0.00	0.03	27.00	0.00	0.00	0.00
1.50	0.05	0.00	0.05	27.50	0.00	0.00	0.00
2.00	0.07	0.00	0.07	28.00	0.00	0.00	0.00
2.50	0.08	0.00	0.08	28.50	0.00	0.00	0.00
3.00	0.09	0.00	0.09	29.00	0.00	0.00	0.00
3.50	0.10	0.00	0.10	29.50	0.00	0.00	0.00
4.00	0.10	0.00	0.10	30.00	0.00	0.00	0.00
4.50	0.11	0.00	0.11				
5.00	0.12	0.00	0.12				
5.50	0.12	0.00	0.12				
6.00	0.13	0.00	0.13				
6.50	0.14	0.00	0.14				
7.00	0.16	0.00	0.16				
7.50	0.18	0.00	0.18				
8.00	0.20	0.00	0.20				
8.50	0.22	0.00	0.22				
9.00	0.24	0.00	0.24				
9.50	0.31	0.00	0.31				
10.00	0.38	0.00	0.38				
10.50	0.45	0.00	0.45				
11.00	0.70	0.00	0.70				
11.50	1.16	0.00	1.16				
12.00	5.34	0.00	5.34				
12.50	1.71	0.00	1.71				
13.00	0.90	0.00	0.90				
13.50	0.58	0.00	0.58				
14.00	0.46	0.00	0.46				
14.50	0.39	0.00	0.39				
15.00	0.31	0.00	0.31				
15.50	0.28	0.00	0.28				
16.00	0.26	0.00	0.26				
16.50	0.24	0.00	0.24				
17.00	0.21	0.00	0.21				
17.50	0.19	0.00	0.19				
18.00	0.17	0.00	0.17				
18.50	0.16	0.00	0.16				
19.00	0.16	0.00	0.16				
19.50	0.15	0.00	0.15				
20.00	0.15	0.00	0.15				
20.50	0.14	0.00	0.14				
21.00	0.14	0.00	0.14				
21.50	0.13	0.00	0.13				
22.00	0.13	0.00	0.13				
22.50	0.12	0.00	0.12				
23.00	0.12	0.00	0.12				
23.50	0.11	0.00	0.11				
24.00	0.11	0.00	0.11				
24.50	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
25.50	0.00	0.00	0.00				

Summary for Link 6L: Proposed Total

Inflow Area = 1.133 ac, 74.29% Impervious, Inflow Depth = 7.61" for 100-Year event
Inflow = 8.97 cfs @ 12.10 hrs, Volume= 0.719 af
Primary = 8.97 cfs @ 12.10 hrs, Volume= 0.719 af, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

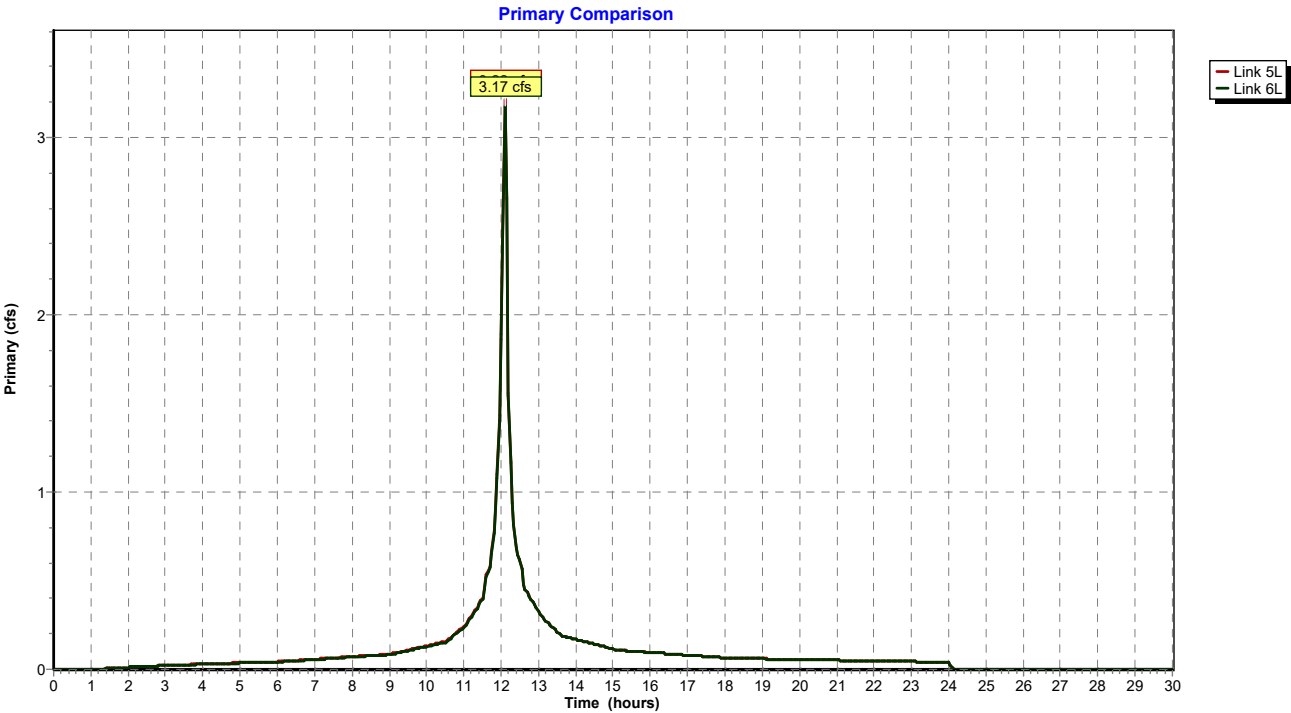
Link 6L: Proposed Total



Hydrograph for Link 6L: Proposed Total

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.03	0.00	0.03	27.00	0.00	0.00	0.00
1.50	0.05	0.00	0.05	27.50	0.00	0.00	0.00
2.00	0.07	0.00	0.07	28.00	0.00	0.00	0.00
2.50	0.08	0.00	0.08	28.50	0.00	0.00	0.00
3.00	0.09	0.00	0.09	29.00	0.00	0.00	0.00
3.50	0.09	0.00	0.09	29.50	0.00	0.00	0.00
4.00	0.10	0.00	0.10	30.00	0.00	0.00	0.00
4.50	0.11	0.00	0.11				
5.00	0.11	0.00	0.11				
5.50	0.12	0.00	0.12				
6.00	0.12	0.00	0.12				
6.50	0.14	0.00	0.14				
7.00	0.16	0.00	0.16				
7.50	0.18	0.00	0.18				
8.00	0.20	0.00	0.20				
8.50	0.22	0.00	0.22				
9.00	0.24	0.00	0.24				
9.50	0.31	0.00	0.31				
10.00	0.38	0.00	0.38				
10.50	0.45	0.00	0.45				
11.00	0.70	0.00	0.70				
11.50	1.16	0.00	1.16				
12.00	5.31	0.00	5.31				
12.50	1.72	0.00	1.72				
13.00	0.90	0.00	0.90				
13.50	0.58	0.00	0.58				
14.00	0.46	0.00	0.46				
14.50	0.39	0.00	0.39				
15.00	0.31	0.00	0.31				
15.50	0.28	0.00	0.28				
16.00	0.26	0.00	0.26				
16.50	0.24	0.00	0.24				
17.00	0.21	0.00	0.21				
17.50	0.19	0.00	0.19				
18.00	0.17	0.00	0.17				
18.50	0.16	0.00	0.16				
19.00	0.16	0.00	0.16				
19.50	0.15	0.00	0.15				
20.00	0.15	0.00	0.15				
20.50	0.14	0.00	0.14				
21.00	0.14	0.00	0.14				
21.50	0.13	0.00	0.13				
22.00	0.13	0.00	0.13				
22.50	0.12	0.00	0.12				
23.00	0.12	0.00	0.12				
23.50	0.11	0.00	0.11				
24.00	0.11	0.00	0.11				
24.50	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
25.50	0.00	0.00	0.00				

**MULTI-HYDROGRAPH PLOT – EXISTING AND
PROPOSED SUPERIMPOSED
2-, 10- & 100-YR**



Primary Comparison

Time (hours)	Link 5L (cfs)	Link 6L (cfs)
0.00	0.00	0.00
1.00	0.00	0.00
2.00	0.01	0.01
3.00	0.02	0.02
4.00	0.03	0.03
5.00	0.04	0.04
6.00	0.04	0.04
7.00	0.06	0.05
8.00	0.07	0.07
9.00	0.09	0.08
10.00	0.13	0.13
11.00	0.24	0.24
12.00	1.89	1.86
13.00	0.33	0.33
14.00	0.17	0.17
15.00	0.11	0.11
16.00	0.09	0.09
17.00	0.08	0.08
18.00	0.06	0.06
19.00	0.06	0.06
20.00	0.05	0.05
21.00	0.05	0.05
22.00	0.05	0.05
23.00	0.04	0.04
24.00	0.04	0.04
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

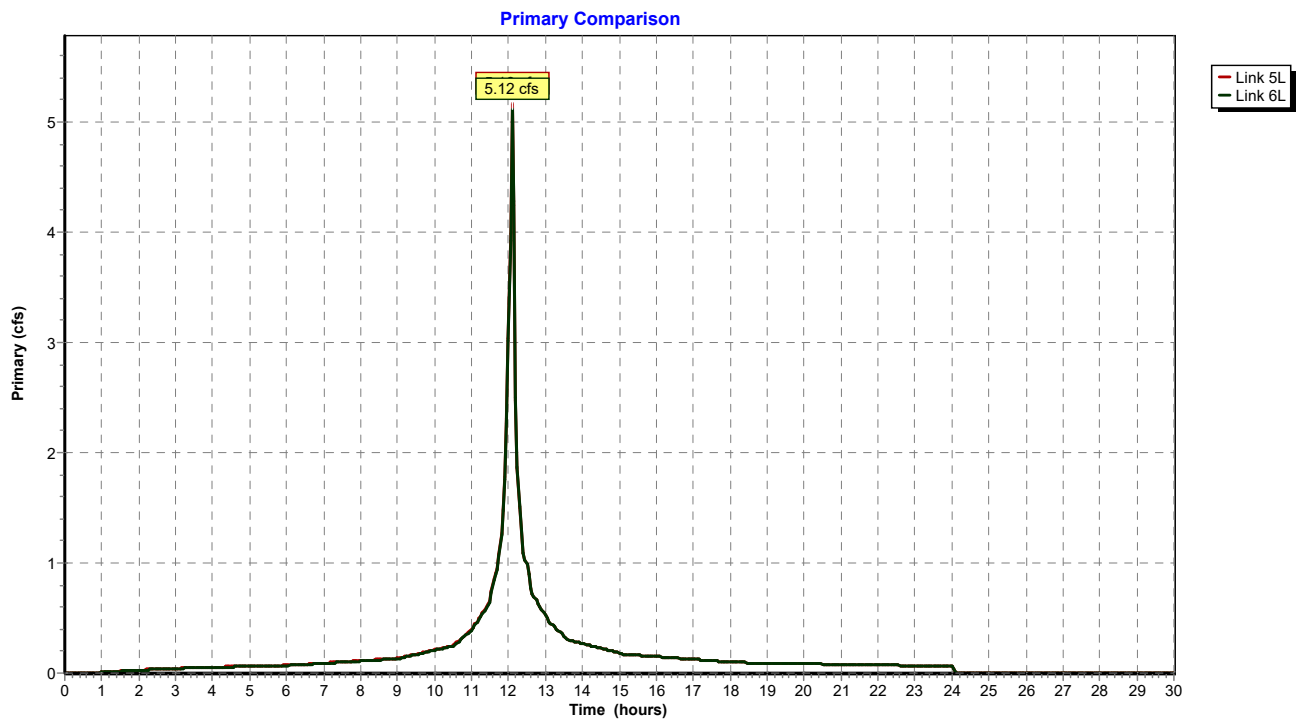
2025-01 HydroCAD

Prepared by Dynamic Engineering

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NOAA 24-hr D 10-Year Rainfall=5.22"

Printed 2/21/2025



Primary Comparison

Time (hours)	Link 5L (cfs)	Link 6L (cfs)
0.00	0.00	0.00
1.00	0.01	0.01
2.00	0.03	0.03
3.00	0.04	0.04
4.00	0.05	0.05
5.00	0.06	0.06
6.00	0.07	0.07
7.00	0.09	0.09
8.00	0.11	0.11
9.00	0.14	0.13
10.00	0.21	0.21
11.00	0.39	0.39
12.00	3.04	3.01
13.00	0.52	0.52
14.00	0.27	0.27
15.00	0.18	0.18
16.00	0.15	0.15
17.00	0.13	0.13
18.00	0.10	0.10
19.00	0.09	0.09
20.00	0.09	0.09
21.00	0.08	0.08
22.00	0.07	0.07
23.00	0.07	0.07
24.00	0.06	0.06
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

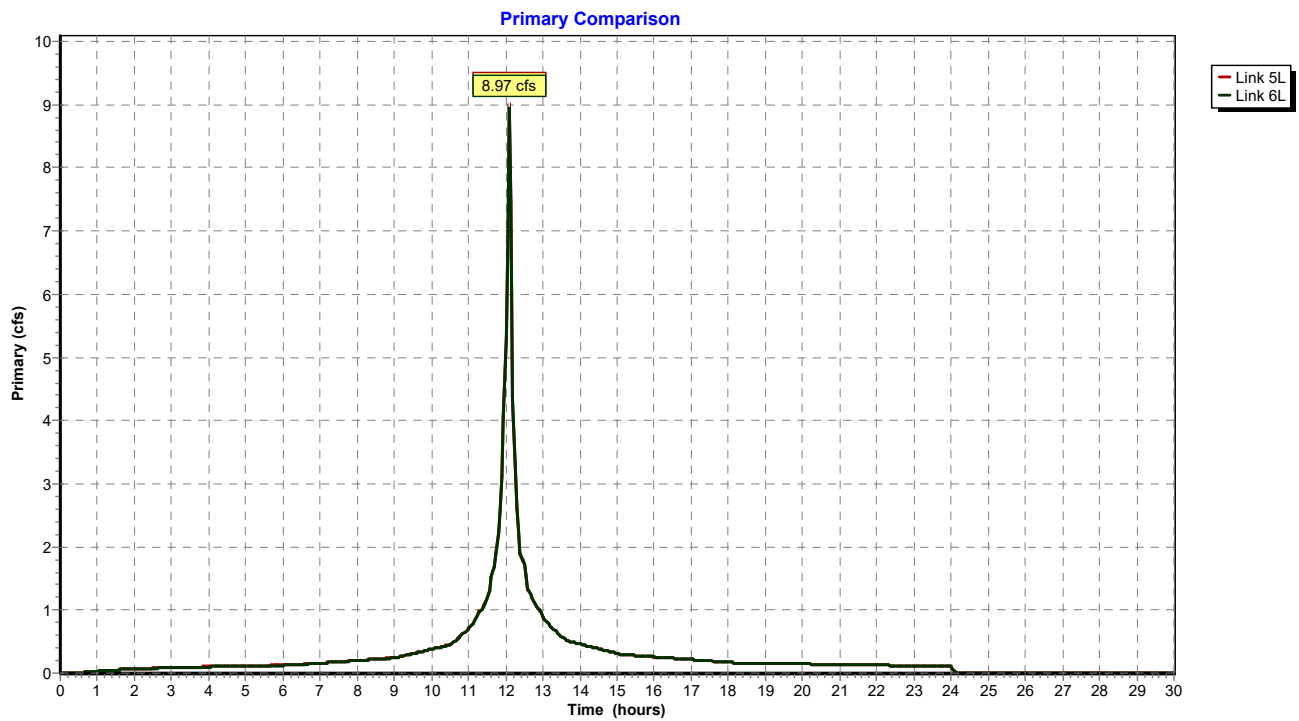
2025-01 HydroCAD

Prepared by Dynamic Engineering

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NOAA 24-hr D 100-Year Rainfall=8.66"

Printed 2/21/2025



Primary Comparison

Time (hours)	Link 5L (cfs)	Link 6L (cfs)
0.00	0.00	0.00
1.00	0.03	0.03
2.00	0.07	0.07
3.00	0.09	0.09
4.00	0.10	0.10
5.00	0.12	0.11
6.00	0.13	0.12
7.00	0.16	0.16
8.00	0.20	0.20
9.00	0.24	0.24
10.00	0.38	0.38
11.00	0.70	0.70
12.00	5.34	5.31
13.00	0.90	0.90
14.00	0.46	0.46
15.00	0.31	0.31
16.00	0.26	0.26
17.00	0.21	0.21
18.00	0.17	0.17
19.00	0.16	0.16
20.00	0.15	0.15
21.00	0.14	0.14
22.00	0.13	0.13
23.00	0.12	0.12
24.00	0.11	0.11
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

**STORMWATER COLLECTION SYSTEM
CLACULATIONS (PIPE SIZING)**



Inlet Area Summary and Average Coefficient (C) Calculations

Project: Proposed Popeyes & IHOP Restaurant
 Job #: 1021-99-025
 Location: West Orange, NJ

Computed By: DG
 Checked By: MJB
 Date: 2/21/2025

Drainage Area	Impervious Area (sf)	Coefficient (C) Used	Open Space (SF)	Coefficient (C) Used	Average Coefficient (C) Used	Total Area (SF)	Total Area (acres)
Inlet Area #2	1,354	0.95	950	0.35	0.70	2304	0.05
Inlet Area #3	2,016	0.95	352	0.35	0.86	2368	0.05
Inlet Area #4	2,778	0.95	1,635	0.35	0.73	4413	0.10
Inlet Area #5	1,546	0.95	1,218	0.35	0.69	2764	0.06
Inlet Area #6	6,972	0.95	105	0.35	0.94	7077	0.16
Inlet Area #9	500	0.95	176	0.35	0.79	676	0.02
Inlet Area #10	2,863	0.95	260	0.35	0.90	3123	0.07
Inlet Area #11	1,552	0.95	768	0.35	0.75	2320	0.05
Inlet Area #12	6,545	0.95	1,326	0.35	0.85	7871	0.18
Inlet Area #13	872	0.95	65	0.35	0.91	937	0.02
Roof Rear	3,358	0.95	-	0.35	0.95	3358	0.08
Roof Front	2,830	0.95	-	0.35	0.95	2830	0.06



DYNAMIC ENGINEERING

Stormwater Collection System Calculations

Project: Proposed Popeyes & IHOP Restaurant

Job #: 1021-99-025

Location: West Orange, NJ

Design Storm: 25 Year

Computed By: DG

Checked By: MJB

Date: 2/21/2025

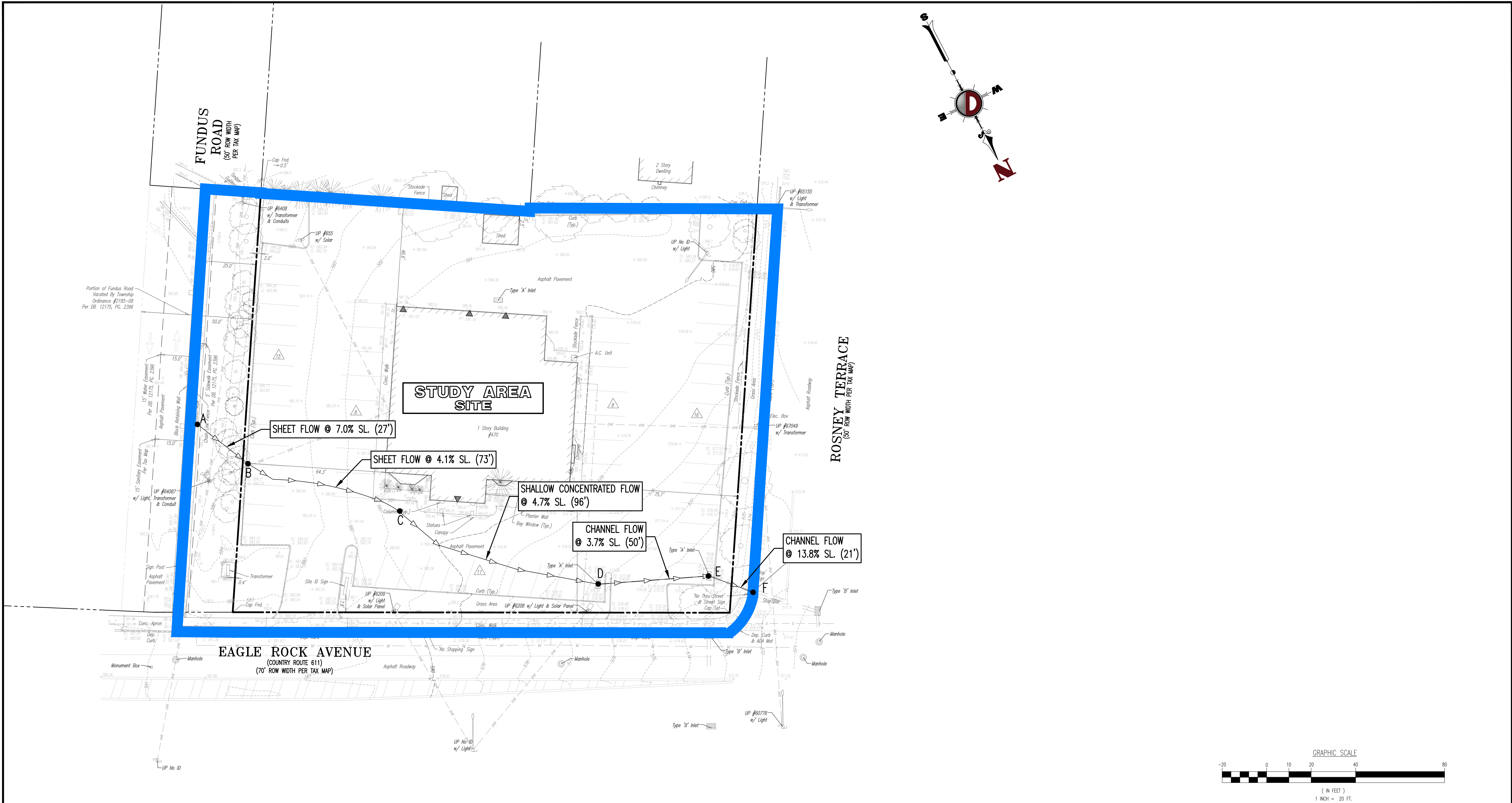
NOTES:

- 1) Design method used is Rational Method, unless otherwise noted.
- 2) Refer to Weighted Runoff Coefficient table for calculation of incremental areas and C values

PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA		
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man. "n"	Slope (ft/ft)	Pipe Capacity (cfs)	Pipe Velocity (fps)
Roof Rear	Inlet #2	0.08	0.95	0.08	0.08	10.00	0.03	10.00	6.80	0.54	0.54	6	6.0	0.010	0.0100	0.73	3.72
Inlet #2	Inlet #3	0.05	0.70	0.04	0.12	10.00	0.03	10.03	6.80	0.27	0.82	12	15.0	0.013	0.0300	6.17	7.86
Inlet #3	Inlet #4	0.05	0.86	0.04	0.16	10.00	0.14	10.06	6.80	0.27	1.09	12	64.0	0.013	0.0300	6.17	7.86
Inlet #4	Inlet #5	0.10	0.73	0.07	0.23	10.00	0.21	10.20	6.80	0.48	1.56	12	81.0	0.013	0.0200	5.04	6.42
Inlet #5	Inlet #6	0.06	0.69	0.04	0.27	10.00	0.37	10.41	6.80	0.27	1.84	12	144.0	0.013	0.0200	5.04	6.42
Roof Front	Inlet #9	0.06	0.95	0.06	0.06	10.00	0.03	10.00	6.80	0.41	0.41	6	6.0	0.010	0.0092	0.70	3.57
Inlet #9	Inlet #10	0.02	0.79	0.02	0.08	10.00	0.04	10.03	6.80	0.14	0.54	12	18.0	0.013	0.0250	5.63	7.17
Inlet #10	Inlet #11	0.07	0.90	0.06	0.14	10.00	0.14	10.07	6.80	0.41	0.95	12	59.0	0.013	0.0252	5.65	7.20
Inlet #11	Inlet #12	0.05	0.75	0.04	0.18	10.00	0.24	10.21	6.80	0.27	1.22	12	111.0	0.013	0.0300	6.17	7.86
Inlet #12	Inlet #13	0.18	0.85	0.15	0.33	10.00	0.12	10.45	6.80	1.02	2.24	12	48.0	0.013	0.0200	5.04	6.42
Inlet #13	Inlet #6	0.02	0.91	0.02	0.35	10.00	0.07	10.57	6.68	0.13	2.34	12	26.0	0.013	0.0200	5.04	6.42
Inlet #6	Ex. Inlet	0.16	0.94	0.15	0.77	10.00	0.05	10.78	6.68	1.00	5.14	15	27.0	0.013	0.0300	11.18	9.11

DRAINAGE & INLET AREA MAPS

Plotted: 02/19/25 - 10:08 AM, By: rezzimr, Product Ver: 24.3s (LMS Tech)
File: \\decpc.local\decfolders\Data\DEGPC PROJECTS\1021 Parikh Network, LLC\99-025 West Orange\Draw\Map\102199025EDM1.dwg, ---> 01 EXISTING DRAINAGE AREA MAP



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TITLE: **EXISTING DRAINAGE AREA MAP**

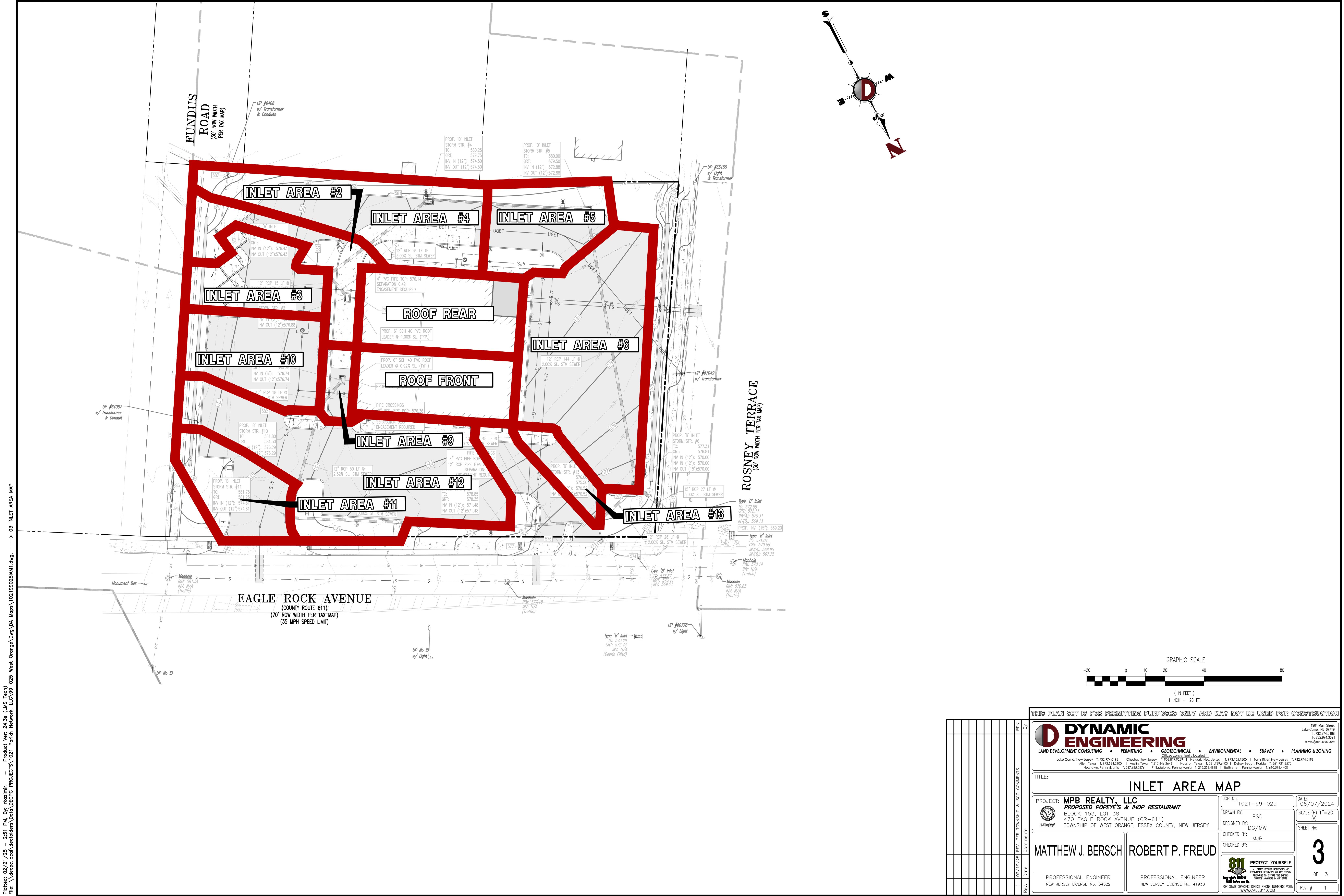
PROJECT: **MPB REALTY, LLC
PROPOSED POPEYE'S & IHOP RESTAURANT**
BLOCK 153, LOT 38
470 EAGLE ROCK AVENUE (CR-611)
TOWNSHIP OF WEST ORANGE, ESSEX COUNTY, NEW JERSEY

JOB No: 1021-99-025
DATE: 06/07/2024
DRAWN BY: PSD
DESIGNED BY: DG/MMW
CHECKED BY: MJB
CHECKED BY: -

MATTHEW J. BERSCH
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 54522

ROBERT P. FREUD
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 41938

SHEET No: 1
OF 3
Rev. # 1



Plotted: 02/21/25 - 2:51 PM, By: krazimir, Product Ver: 24.3a (LMS Tech)
File: \\decpc.local\decpc\Users\krazimir\Projects\1021_Parkway_Network_LC99-025_West Orange\Drawings\102199025\1021.dwg, --> 03 INLET AREA MAP

Rev.	Date	Comments	By
1	02/19/25	REV. PER TOWNSHIP & SCD COMMENTS	RPK

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CHECKED BY: -

TITLE: **INLET AREA MAP**

MATTHEW J. BERSCH
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