DRAINAGE STATEMENT

For

Crash Champions, LLC

Proposed Building Expansion

Block 514, Lots 1.01 & 3
NJSH 35 & Huntington Avenue & Fisher Avenue
Township of Neptune, Monmouth County, NJ

Prepared by:

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I. Drainage Summary

This drainage statement has been prepared to define and analyze the stormwater drainage conditions that would occur as a result of the redevelopment of Block 514, Lots 1-3 as shown on the Township of Neptune Tax Map Sheet No. 5, located in the Township of Neptune, Monmouth County, New Jersey. The subject site consists of 0.497 acres (21,640 SF) and is located at 1704 Huntington Avenue.

Under existing conditions, the subject parcel is currently developed as an automotive body repair shop, with associated parking areas, drive aisles, and a single family home. The previously existing conditions of the tract have been verified by the Engineering Design Survey, prepared by Clark Land Services, dated 06/13/2023, last revised 07/11/2024. The previously existing conditions of the off-tract portion has been verified by the Roadway Survey, prepared by Dynamic Survey, dated 09/09/2024.

The proposed redevelopment involves expanding the existing automotive body and repair shop and demolishing the existing residential house. Additional improvements include lighting, landscaping, grading, walkways, driveways, utilities, parking and other associated items. The project proposes to increase the total impervious coverage. Under existing conditions, the subject site contains 14,807 SF (68.4%) of impervious coverage. The development proposes 17,120 SF (79.1%) of impervious surfaces. Therefore, there is a net increase of 2,313 SF (0.053 acres) impervious area.

The project consists of less than one (1) acre of disturbance and less than 0.25 acres of new impervious surfaces. The project proposes to increase the impervious coverage from existing conditions. Therefore, the proposed project does not meet the definition of a 'major development' and is not subject to the NJDEP Stormwater Management Rules and Regulations for water quantity, quality, and groundwater recharge set forth in NJAC 7:8, nor the Stormwater Management Rules and Regulations set forth in the Township of Neptune Stormwater Management Ordinance Chapter §LDO-528.02. As the project proposes to increase the impervious coverage on site, the proposed development is subject to the Freehold Soil Conservation District runoff rate reduction requirements for the 2- & 10-year storms.

II. Design methodology

Under existing site conditions, the tract has been evaluated with the following proposed sub-watershed area:

Study Area Un-Disturbed: The existing un-detained study area drains northeast onto Huntington Avenue via overland flow as well as the existing building to remain. This drainage area consists of Hydrologic Soil Group D. Ultimately, the rainwater runoff discharges into the existing stormwater conveyance system within Myrtle Avenue, approximately 555 LF east of the subject site.

Based on the NRCS Soils Survey Information, the soil types native to the site include:

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
KkhB	Klej loamy sand-Urban land complex, 0 to 5 percent slopes	A/D	0.0	0.2%
UR	Urban land		3.7	99.8%
Totals for Area of Interest			**3.7**	**100.0%**

Under proposed site conditions, the tract has been evaluated with the following proposed sub-watershed areas:

Study Area Basin A: This study area consists of the western most proposed parking lot. Additionally, this study area includes a portion of the proposed building roof. This drainage area consists mostly of impervious surfaces.

Study Area Basin B: This study area consists of the eastern most proposed parking lot. Additionally, this study area includes the remaining area of the proposed building roof. This drainage area consists mostly of impervious surfaces.

Study Area Un-Detained: This study area consists of the entire proposed driveway area as well as the proposed landscape area to the eastern most side of the site.

II. Runoff Rate Reduction Performance

Most of the stormwater runoff from the proposed development will be collected and detained on site via the proposed pipe network conveyance system and underground storage tanks. As stated above,

the stormwater runoff will be collected from the proposed study areas and detained within the respective underground storage tanks. The attenuated runoff will be released at a controlled rate, ultimately discharging to the existing inlet with Myrtle Avenue. We anticipate the total runoff discharging to this existing stormwater conveyance system will not adversely affect the existing system. Furthermore, as shown in the table below, the proposed stormwater runoff rate achieves the required reductions per the Soil Conservation District Standards.

Design Storm	Existing Disturbed Area Runoff Rate (CFS)	Runoff Rate Required Reduction	Existing Undisturbed Area Runoff Rate (CFS)	Maximum Allowable Runoff Rate (CFS)	Proposed Runoff Rate (CFS)
2 Year Current	0.62 CFS	50%	0.39 CFS	0.70 CFS	0.67 CFS
10 Year Current	0.98 CFS	25%	0.61 CFS	1.35 CFS	1.01 CFS

In the case of the proposed stormwater conveyance system failing, we anticipate that the stormwater runoff will discharge along the proposed driveways, directly onto Huntington Avenue; effectively mimicking the existing drainage patterns. As this drainage pattern consists of mostly impervious coverage, we do not anticipate any soil erosion as the result.

III. Conclusion

The proposed project has been designed to ensure safe and efficient control of the stormwater runoff in a manner that will not adversely impact the existing drainage patterns and systems, adjacent roadways, or adjacent parcels. Furthermore, the proposed development does not propose more than an acre of disturbance however proposes an increase of impervious area. Therefore, the subject project has been designed to conform with the Freehold Soil Conservation District rules and regulations for pre and post development runoff rates. We anticipate that the proposed development will not significantly impact the existing drainage infrastructure located within and around the subject property.

APPENDIX

NRCS WEB SOIL SURVEY

74° 1' 40" W
74° 1' 32" W
582720
582740
582760
582780
582800
582820
582840
582860
582880
582900
40° 12' 38" N
40° 12' 34" N
4451580
4451560
4451540
4451520
4451500
4451480
4451460
35
Huntington Ave
UR
State Route 35 N
Fisher Ave
KkhB
Soil Map may not be valid at this scale.
Map Scale: 1:886 if printed on A landscape (11" x 8.5") sheet.
Meters
0
10
20
40
60
Feet
0
40
80
160
240
N
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

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 1:24,000.

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: Monmouth County, New Jersey
Survey Area Data: Version 17, Aug 29, 2023

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

Date(s) aerial images were photographed: Jun 4, 2022—Jul 22, 2022

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
KkhB	Klej loamy sand-Urban land complex, 0 to 5 percent slopes	A/D	0.0	0.2%
UR	Urban land		3.7	99.8%
Totals for Area of Interest			**3.7**	**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

HYDROCAD SUMMARY REPORTS – EXISTING AND PROPOSED 2 & 10 YR.

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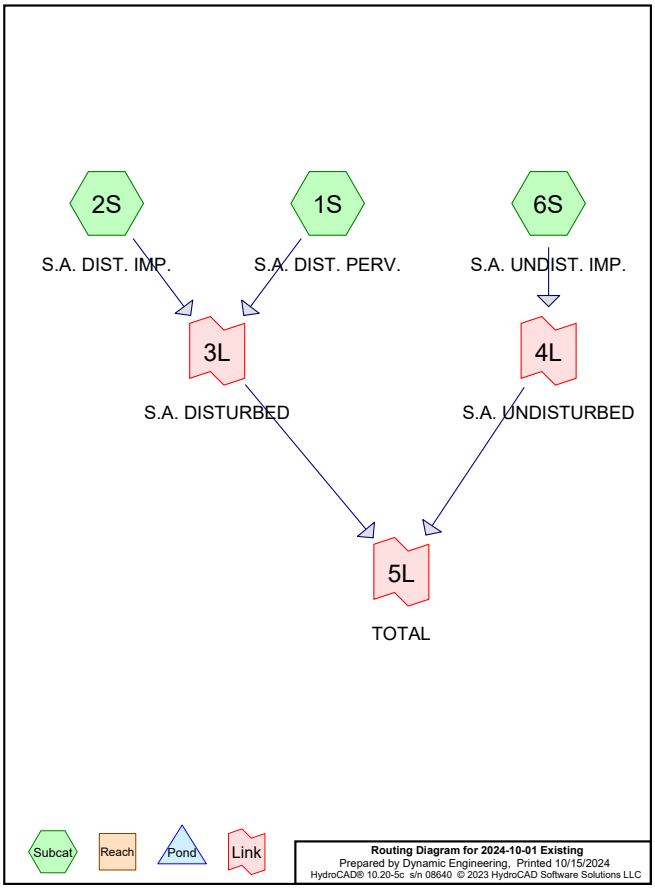
30 Link 4L: S.A. UNDISTURBED
32 Link 5L: TOTAL



Project Notes

Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC	P2 (inches)
1	2-Year-Current	NOAA 24-hr	D	Default	24.00	1	3.38	2	3.38
2	10-Year-Current	NOAA 24-hr	D	Default	24.00	1	5.28	2	3.38

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
6,941	39	>75% Grass cover, Good, HSG A (1S)
4,890	98	Impervious Area (6S)
12,588	98	Paved parking, HSG A (2S)
24,419	**81**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
19,529	HSG A	1S, 2S
0	HSG B	
0	HSG C	
0	HSG D	
4,890	Other	6S
24,419		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Su Nu
6,941	0	0	0	0	6,941	>75% Grass cover, Good	
0	0	0	0	4,890	4,890	Impervious Area	
12,588	0	0	0	0	12,588	Paved parking	
19,529	**0**	**0**	**0**	**4,890**	**24,419**	**TOTAL AREA**	

Notes Listing (all nodes)

Line#	Node Number	Notes
1	Project	Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
2		Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
3		Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
4		Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
5		Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D

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

Subcatchment1S: S.A. DIST. PERV. Runoff Area=6,941 sf 0.00% Impervious Runoff Depth=0.00"
Tc=0.0 min CN=39 Runoff=0.00 cfs 2 cf

Subcatchment2S: S.A. DIST. IMP. Runoff Area=12,588 sf 100.00% Impervious Runoff Depth=3.15"
Flow Length=74' Tc=9.5 min CN=98 Runoff=0.62 cfs 3,301 cf

Subcatchment6S: S.A. UNDIST. IMP. Runoff Area=4,890 sf 100.00% Impervious Runoff Depth=3.15"
Flow Length=52' Tc=0.9 min CN=98 Runoff=0.39 cfs 1,282 cf

Link 3L: S.A. DISTURBED Inflow=0.62 cfs 3,303 cf
Primary=0.62 cfs 3,303 cf

Link 4L: S.A. UNDISTURBED Inflow=0.39 cfs 1,282 cf
Primary=0.39 cfs 1,282 cf

Link 5L: TOTAL Inflow=0.86 cfs 4,586 cf
Primary=0.86 cfs 4,586 cf

Total Runoff Area = 24,419 sf Runoff Volume = 4,586 cf Average Runoff Depth = 2.25"
28.42% Pervious = 6,941 sf 71.58% Impervious = 17,478 sf

Summary for Subcatchment 1S: S.A. DIST. PERV.

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

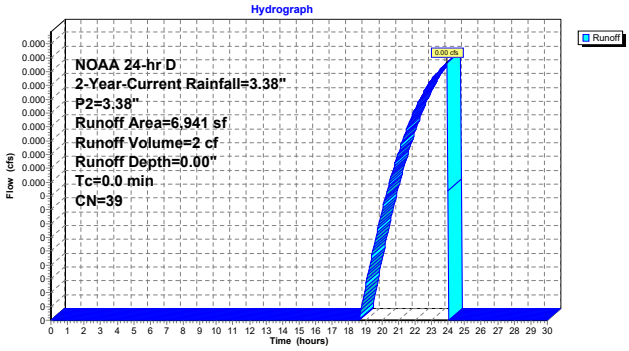
Runoff = 0.00 cfs @ 23.95 hrs, Volume= 2 cf, Depth= 0.00"
Routed to Link 3L : S.A. DISTURBED

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year-Current Rainfall=3.38", P2=3.38"

Area (sf)	CN	Description
6,941	39	>75% Grass cover, Good, HSG A
6,941		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry, 9.50**

Subcatchment 1S: S.A. DIST. PERV.



Hydrograph for Subcatchment 1S: S.A. DIST. PERV.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	3.38	0.00	0.00
0.50	0.02	0.00	0.00	26.50	3.38	0.00	0.00
1.00	0.04	0.00	0.00	27.00	3.38	0.00	0.00
1.50	0.06	0.00	0.00	27.50	3.38	0.00	0.00
2.00	0.08	0.00	0.00	28.00	3.38	0.00	0.00
2.50	0.10	0.00	0.00	28.50	3.38	0.00	0.00
3.00	0.13	0.00	0.00	29.00	3.38	0.00	0.00
3.50	0.15	0.00	0.00	29.50	3.38	0.00	0.00
4.00	0.18	0.00	0.00	30.00	3.38	0.00	0.00
4.50	0.20	0.00	0.00				
5.00	0.23	0.00	0.00				
5.50	0.26	0.00	0.00				
6.00	0.29	0.00	0.00				
6.50	0.32	0.00	0.00				
7.00	0.36	0.00	0.00				
7.50	0.40	0.00	0.00				
8.00	0.44	0.00	0.00				
8.50	0.49	0.00	0.00				
9.00	0.54	0.00	0.00				
9.50	0.60	0.00	0.00				
10.00	0.67	0.00	0.00				
10.50	0.76	0.00	0.00				
11.00	0.88	0.00	0.00				
11.50	1.07	0.00	0.00				
12.00	1.62	0.00	0.00				
12.50	2.31	0.00	0.00				
13.00	2.50	0.00	0.00				
13.50	2.62	0.00	0.00				
14.00	2.71	0.00	0.00				
14.50	2.78	0.00	0.00				
15.00	2.84	0.00	0.00				
15.50	2.89	0.00	0.00				
16.00	2.94	0.00	0.00				
16.50	2.98	0.00	0.00				
17.00	3.02	0.00	0.00				
17.50	3.06	0.00	0.00				
18.00	3.09	0.00	0.00				
18.50	3.12	0.00	0.00				
19.00	3.15	0.00	0.00				
19.50	3.18	0.00	0.00				
20.00	3.20	0.00	0.00				
20.50	3.23	0.00	0.00				
21.00	3.25	0.00	0.00				
21.50	3.28	0.00	0.00				
22.00	3.30	0.00	0.00				
22.50	3.32	0.00	0.00				
23.00	3.34	0.00	0.00				
23.50	3.36	0.00	**0.00**				
24.00	**3.38**	**0.00**	**0.00**				
24.50	3.38	0.00	0.00				
25.00	3.38	0.00	0.00				
25.50	3.38	0.00	0.00				

Summary for Subcatchment 2S: S.A. DIST. IMP.

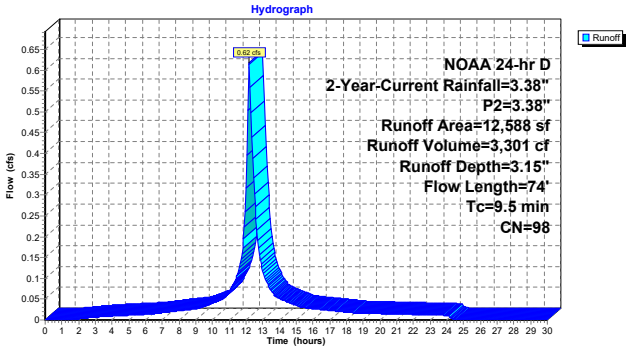
Runoff = 0.62 cfs @ 12.18 hrs, Volume= 3,301 cf, Depth= 3.15"
Routed to Link 3L : S.A. DISTURBED

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year-Current Rainfall=3.38", P2=3.38"

Area (sf)	CN	Description
12,588	98	Paved parking, HSG A
12,588		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0100	0.68		**Sheet Flow, SF-DRIVEWAY** Smooth surfaces n= 0.011 P2= 3.38"
9.0	49	0.0142	0.09		**Sheet Flow, SF-GRASS** Grass: Dense n= 0.240 P2= 3.38"
0.3	15	0.0100	0.73		**Sheet Flow, SF-SMOOTH** Smooth surfaces n= 0.011 P2= 3.38"
9.5	74	Total			

Subcatchment 2S: S.A. DIST. IMP.



Hydrograph for Subcatchment 2S: S.A. DIST. IMP.

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	3.38	3.15	0.00
0.50	0.02	0.00	0.00	26.50	3.38	3.15	0.00
1.00	0.04	0.00	0.00	27.00	3.38	3.15	0.00
1.50	0.06	0.00	0.00	27.50	3.38	3.15	0.00
2.00	0.08	0.01	0.00	28.00	3.38	3.15	0.00
2.50	0.10	0.01	0.00	28.50	3.38	3.15	0.00
3.00	0.13	0.03	0.01	29.00	3.38	3.15	0.00
3.50	0.15	0.04	0.01	29.50	3.38	3.15	0.00
4.00	0.18	0.05	0.01	30.00	3.38	3.15	0.00
4.50	0.20	0.07	0.01				
5.00	0.23	0.09	0.01				
5.50	0.26	0.11	0.01				
6.00	0.29	0.14	0.01				
6.50	0.32	0.16	0.02				
7.00	0.36	0.19	0.02				
7.50	0.40	0.23	0.02				
8.00	0.44	0.26	0.02				
8.50	0.49	0.30	0.02				
9.00	0.54	0.35	0.03				
9.50	0.60	0.41	0.03				
10.00	0.67	0.48	0.04				
10.50	0.76	0.56	0.05				
11.00	0.88	0.67	0.07				
11.50	1.07	0.86	0.11				
12.00	1.62	1.40	**0.32**				
12.50	2.31	2.08	**0.30**				
13.00	2.50	2.27	0.12				
13.50	2.62	2.39	0.07				
14.00	2.71	2.48	0.05				
14.50	2.78	2.55	0.04				
15.00	2.84	2.61	0.03				
15.50	2.89	2.66	0.03				
16.00	2.94	2.71	0.03				
16.50	2.98	2.75	0.03				
17.00	3.02	2.79	0.02				
17.50	3.06	2.83	0.02				
18.00	3.09	2.86	0.02				
18.50	3.12	2.89	0.02				
19.00	3.15	2.92	0.02				
19.50	3.18	2.94	0.02				
20.00	3.20	2.97	0.02				
20.50	3.23	3.00	0.01				
21.00	3.25	3.02	0.01				
21.50	3.28	3.04	0.01				
22.00	3.30	3.07	0.01				
22.50	3.32	3.09	0.01				
23.00	3.34	3.11	0.01				
23.50	3.36	3.13	0.01				
24.00	**3.38**	**3.15**	0.01				
24.50	3.38	3.15	0.00				
25.00	3.38	3.15	0.00				
25.50	3.38	3.15	0.00				

Summary for Subcatchment 6S: S.A. UNDIST. IMP.

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

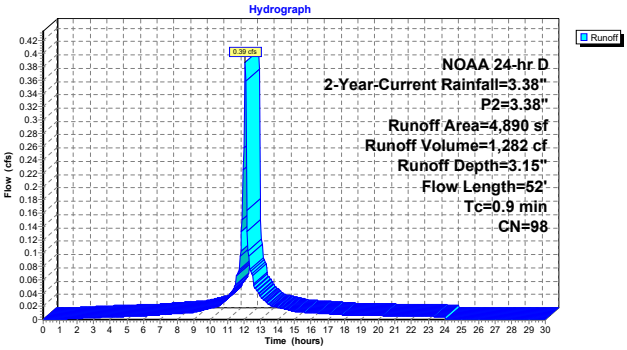
Runoff = 0.39 cfs @ 12.07 hrs, Volume= 1,282 cf, Depth= 3.15"
Routed to Link 4L : S.A. UNDISTURBED

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year-Current Rainfall=3.38", P2=3.38"

	Area (sf)	CN	Description
*	4,890	98	Impervious Area
	4,890		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	37	0.0100	0.88		**Sheet Flow, SF-ROOF** Smooth surfaces n= 0.011 P2= 3.38"
0.2	15	0.0660	1.56		**Sheet Flow, SF - CONC.** Smooth surfaces n= 0.011 P2= 3.38"
0.9	52	Total			

Subcatchment 6S: S.A. UNDIST. IMP.



Hydrograph for Subcatchment 6S: S.A. UNDIST. IMP.

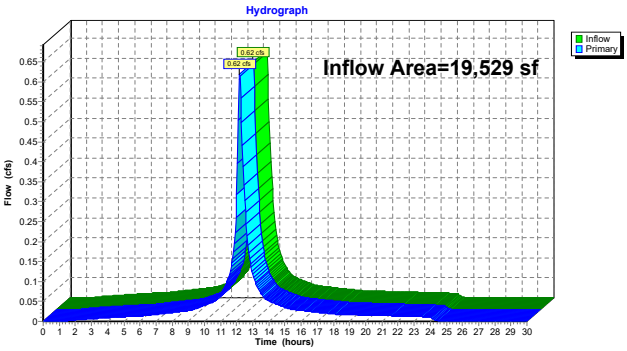
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	3.38	3.15	0.00
0.50	0.02	0.00	0.00	26.50	3.38	3.15	0.00
1.00	0.04	0.00	0.00	27.00	3.38	3.15	0.00
1.50	0.06	0.00	0.00	27.50	3.38	3.15	0.00
2.00	0.08	0.01	0.00	28.00	3.38	3.15	0.00
2.50	0.10	0.01	0.00	28.50	3.38	3.15	0.00
3.00	0.13	0.03	0.00	29.00	3.38	3.15	0.00
3.50	0.15	0.04	0.00	29.50	3.38	3.15	0.00
4.00	0.18	0.05	0.00	30.00	3.38	3.15	0.00
4.50	0.20	0.07	0.00				
5.00	0.23	0.09	0.00				
5.50	0.26	0.11	0.00				
6.00	0.29	0.14	0.01				
6.50	0.32	0.16	0.01				
7.00	0.36	0.19	0.01				
7.50	0.40	0.23	0.01				
8.00	0.44	0.26	0.01				
8.50	0.49	0.30	0.01				
9.00	0.54	0.35	0.01				
9.50	0.60	0.41	0.01				
10.00	0.67	0.48	0.02				
10.50	0.76	0.56	0.02				
11.00	0.88	0.67	0.03				
11.50	1.07	0.86	0.05				
12.00	1.62	1.40	**0.26**				
12.50	2.31	2.08	**0.07**				
13.00	2.50	2.27	0.04				
13.50	2.62	2.39	0.02				
14.00	2.71	2.48	0.02				
14.50	2.78	2.55	0.02				
15.00	2.84	2.61	0.01				
15.50	2.89	2.66	0.01				
16.00	2.94	2.71	0.01				
16.50	2.98	2.75	0.01				
17.00	3.02	2.79	0.01				
17.50	3.06	2.83	0.01				
18.00	3.09	2.86	0.01				
18.50	3.12	2.89	0.01				
19.00	3.15	2.92	0.01				
19.50	3.18	2.94	0.01				
20.00	3.20	2.97	0.01				
20.50	3.23	3.00	0.01				
21.00	3.25	3.02	0.01				
21.50	3.28	3.04	0.01				
22.00	3.30	3.07	0.01				
22.50	3.32	3.09	0.00				
23.00	3.34	3.11	0.00				
23.50	3.36	3.13	0.00				
24.00	**3.38**	**3.15**	0.00				
24.50	3.38	3.15	0.00				
25.00	3.38	3.15	0.00				
25.50	3.38	3.15	0.00				

Summary for Link 3L: S.A. DISTURBED

Inflow Area = 19,529 sf, 64.46% Impervious, Inflow Depth = 2.03" for 2-Year-Current event
Inflow = 0.62 cfs @ 12.18 hrs, Volume= 3,303 cf
Primary = 0.62 cfs @ 12.18 hrs, Volume= 3,303 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : TOTAL

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: S.A. DISTURBED



Hydrograph for Link 3L: S.A. DISTURBED

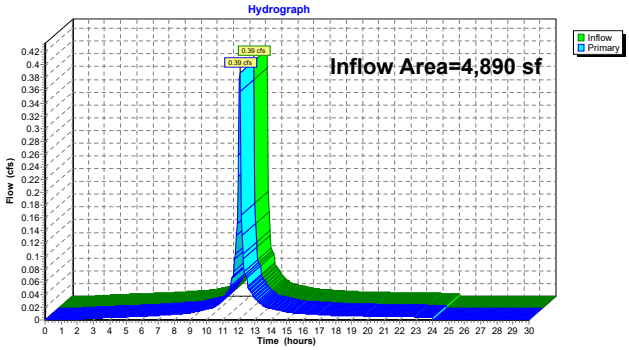
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.01	0.00	0.01	29.00	0.00	0.00	0.00
3.50	0.01	0.00	0.01	29.50	0.00	0.00	0.00
4.00	0.01	0.00	0.01	30.00	0.00	0.00	0.00
4.50	0.01	0.00	0.01				
5.00	0.01	0.00	0.01				
5.50	0.01	0.00	0.01				
6.00	0.01	0.00	0.01				
6.50	0.02	0.00	0.02				
7.00	0.02	0.00	0.02				
7.50	0.02	0.00	0.02				
8.00	0.02	0.00	0.02				
8.50	0.02	0.00	0.02				
9.00	0.03	0.00	0.03				
9.50	0.03	0.00	0.03				
10.00	0.04	0.00	0.04				
10.50	0.05	0.00	0.05				
11.00	0.07	0.00	0.07				
11.50	0.11	0.00	0.11				
12.00	**0.32**	0.00	**0.32**				
12.50	**0.30**	0.00	**0.30**				
13.00	0.12	0.00	0.12				
13.50	0.07	0.00	0.07				
14.00	0.05	0.00	0.05				
14.50	0.04	0.00	0.04				
15.00	0.03	0.00	0.03				
15.50	0.03	0.00	0.03				
16.00	0.03	0.00	0.03				
16.50	0.03	0.00	0.03				
17.00	0.02	0.00	0.02				
17.50	0.02	0.00	0.02				
18.00	0.02	0.00	0.02				
18.50	0.02	0.00	0.02				
19.00	0.02	0.00	0.02				
19.50	0.02	0.00	0.02				
20.00	0.02	0.00	0.02				
20.50	0.01	0.00	0.01				
21.00	0.01	0.00	0.01				
21.50	0.01	0.00	0.01				
22.00	0.01	0.00	0.01				
22.50	0.01	0.00	0.01				
23.00	0.01	0.00	0.01				
23.50	0.01	0.00	0.01				
24.00	0.01	0.00	0.01				
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 4L: S.A. UNDISTURBED

Inflow Area = 4,890 sf,100.00% Impervious, Inflow Depth = 3.15" for 2-Year-Current event
Inflow = 0.39 cfs @ 12.07 hrs, Volume= 1,282 cf
Primary = 0.39 cfs @ 12.07 hrs, Volume= 1,282 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : TOTAL

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4L: S.A. UNDISTURBED



Hydrograph for Link 4L: S.A. UNDISTURBED

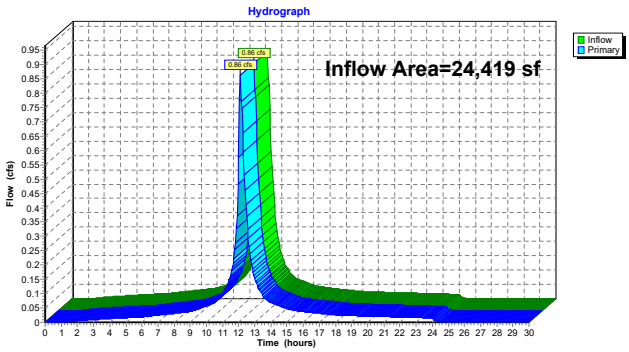
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00	29.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	29.50	0.00	0.00	0.00
4.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00				
5.00	0.00	0.00	0.00				
5.50	0.00	0.00	0.00				
6.00	0.01	0.00	0.01				
6.50	0.01	0.00	0.01				
7.00	0.01	0.00	0.01				
7.50	0.01	0.00	0.01				
8.00	0.01	0.00	0.01				
8.50	0.01	0.00	0.01				
9.00	0.01	0.00	0.01				
9.50	0.01	0.00	0.01				
10.00	0.02	0.00	0.02				
10.50	0.02	0.00	0.02				
11.00	0.03	0.00	0.03				
11.50	0.05	0.00	0.05				
12.00	**0.26**	0.00	**0.26**				
12.50	**0.07**	0.00	**0.07**				
13.00	0.04	0.00	0.04				
13.50	0.02	0.00	0.02				
14.00	0.02	0.00	0.02				
14.50	0.02	0.00	0.02				
15.00	0.01	0.00	0.01				
15.50	0.01	0.00	0.01				
16.00	0.01	0.00	0.01				
16.50	0.01	0.00	0.01				
17.00	0.01	0.00	0.01				
17.50	0.01	0.00	0.01				
18.00	0.01	0.00	0.01				
18.50	0.01	0.00	0.01				
19.00	0.01	0.00	0.01				
19.50	0.01	0.00	0.01				
20.00	0.01	0.00	0.01				
20.50	0.01	0.00	0.01				
21.00	0.01	0.00	0.01				
21.50	0.01	0.00	0.01				
22.00	0.01	0.00	0.01				
22.50	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
23.50	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
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 5L: TOTAL

Inflow Area = 24,419 sf, 71.58% Impervious, Inflow Depth = 2.25" for 2-Year-Current event
Inflow = 0.86 cfs @ 12.10 hrs, Volume= 4,586 cf
Primary = 0.86 cfs @ 12.10 hrs, Volume= 4,586 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5L: TOTAL



Hydrograph for Link 5L: 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	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.01	0.00	0.01	28.50	0.00	0.00	0.00
3.00	0.01	0.00	0.01	29.00	0.00	0.00	0.00
3.50	0.01	0.00	0.01	29.50	0.00	0.00	0.00
4.00	0.01	0.00	0.01	30.00	0.00	0.00	0.00
4.50	0.01	0.00	0.01				
5.00	0.02	0.00	0.02				
5.50	0.02	0.00	0.02				
6.00	0.02	0.00	0.02				
6.50	0.02	0.00	0.02				
7.00	0.02	0.00	0.02				
7.50	0.03	0.00	0.03				
8.00	0.03	0.00	0.03				
8.50	0.03	0.00	0.03				
9.00	0.04	0.00	0.04				
9.50	0.05	0.00	0.05				
10.00	0.06	0.00	0.06				
10.50	0.07	0.00	0.07				
11.00	0.10	0.00	0.10				
11.50	0.16	0.00	0.16				
12.00	**0.58**	0.00	**0.58**				
12.50	**0.37**	0.00	**0.37**				
13.00	0.15	0.00	0.15				
13.50	0.09	0.00	0.09				
14.00	0.07	0.00	0.07				
14.50	0.06	0.00	0.06				
15.00	0.05	0.00	0.05				
15.50	0.04	0.00	0.04				
16.00	0.04	0.00	0.04				
16.50	0.03	0.00	0.03				
17.00	0.03	0.00	0.03				
17.50	0.03	0.00	0.03				
18.00	0.03	0.00	0.03				
18.50	0.02	0.00	0.02				
19.00	0.02	0.00	0.02				
19.50	0.02	0.00	0.02				
20.00	0.02	0.00	0.02				
20.50	0.02	0.00	0.02				
21.00	0.02	0.00	0.02				
21.50	0.02	0.00	0.02				
22.00	0.02	0.00	0.02				
22.50	0.02	0.00	0.02				
23.00	0.02	0.00	0.02				
23.50	0.02	0.00	0.02				
24.00	0.01	0.00	0.01				
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=Delmarva, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: S.A. DIST. PERV. Runoff Area=6,941 sf 0.00% Impervious Runoff Depth=0.26"
Tc=0.0 min CN=39 Runoff=0.01 cfs 151 cf

Subcatchment2S: S.A. DIST. IMP. Runoff Area=12,588 sf 100.00% Impervious Runoff Depth=5.04"
Flow Length=74' Tc=9.5 min CN=98 Runoff=0.97 cfs 5,290 cf

Subcatchment6S: S.A. UNDIST. IMP. Runoff Area=4,890 sf 100.00% Impervious Runoff Depth=5.04"
Flow Length=52' Tc=0.9 min CN=98 Runoff=0.61 cfs 2,055 cf

Link 3L: S.A. DISTURBED Inflow=0.98 cfs 5,440 cf
Primary=0.98 cfs 5,440 cf

Link 4L: S.A. UNDISTURBED Inflow=0.61 cfs 2,055 cf
Primary=0.61 cfs 2,055 cf

Link 5L: TOTAL Inflow=1.36 cfs 7,495 cf
Primary=1.36 cfs 7,495 cf

Total Runoff Area = 24,419 sf Runoff Volume = 7,495 cf Average Runoff Depth = 3.68"
28.42% Pervious = 6,941 sf 71.58% Impervious = 17,478 sf

Summary for Subcatchment 1S: S.A. DIST. PERV.

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

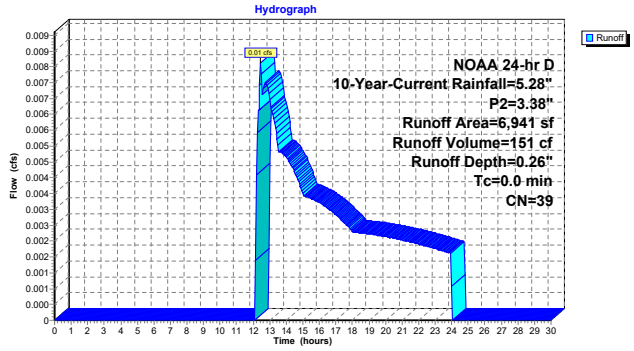
Runoff = 0.01 cfs @ 12.46 hrs, Volume= 151 cf, Depth= 0.26"
Routed to Link 3L : S.A. DISTURBED

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year-Current Rainfall=5.28", P2=3.38"

Area (sf)	CN	Description
6,941	39	>75% Grass cover, Good, HSG A
6,941		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry, 9.50**

Subcatchment 1S: S.A. DIST. PERV.



Hydrograph for Subcatchment 1S: S.A. DIST. PERV.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	5.28	0.26	0.00
0.50	0.03	0.00	0.00	26.50	5.28	0.26	0.00
1.00	0.06	0.00	0.00	27.00	5.28	0.26	0.00
1.50	0.09	0.00	0.00	27.50	5.28	0.26	0.00
2.00	0.13	0.00	0.00	28.00	5.28	0.26	0.00
2.50	0.16	0.00	0.00	28.50	5.28	0.26	0.00
3.00	0.20	0.00	0.00	29.00	5.28	0.26	0.00
3.50	0.24	0.00	0.00	29.50	5.28	0.26	0.00
4.00	0.28	0.00	0.00	30.00	5.28	0.26	0.00
4.50	0.32	0.00	0.00				
5.00	0.36	0.00	0.00				
5.50	0.41	0.00	0.00				
6.00	0.45	0.00	0.00				
6.50	0.50	0.00	0.00				
7.00	0.56	0.00	0.00				
7.50	0.62	0.00	0.00				
8.00	0.69	0.00	0.00				
8.50	0.76	0.00	0.00				
9.00	0.84	0.00	0.00				
9.50	0.93	0.00	0.00				
10.00	1.05	0.00	0.00				
10.50	1.18	0.00	0.00				
11.00	1.37	0.00	0.00				
11.50	1.67	0.00	0.00				
12.00	2.53	0.00	**0.00**				
12.50	3.61	0.01	**0.01**				
13.00	3.91	0.04	0.01				
13.50	4.10	0.06	0.01				
14.00	4.23	0.07	0.01				
14.50	4.35	0.09	0.00				
15.00	4.44	0.10	0.00				
15.50	4.52	0.11	0.00				
16.00	4.59	0.13	0.00				
16.50	4.66	0.14	0.00				
17.00	4.72	0.15	0.00				
17.50	4.78	0.16	0.00				
18.00	4.83	0.17	0.00				
18.50	4.87	0.18	0.00				
19.00	4.92	0.18	0.00				
19.50	4.96	0.19	0.00				
20.00	5.00	0.20	0.00				
20.50	5.04	0.21	0.00				
21.00	5.08	0.22	0.00				
21.50	5.12	0.22	0.00				
22.00	5.15	0.23	0.00				
22.50	5.19	0.24	0.00				
23.00	5.22	0.25	0.00				
23.50	5.25	0.25	0.00				
24.00	**5.28**	**0.26**	0.00				
24.50	5.28	0.26	0.00				
25.00	5.28	0.26	0.00				
25.50	5.28	0.26	0.00				

Summary for Subcatchment 2S: S.A. DIST. IMP.

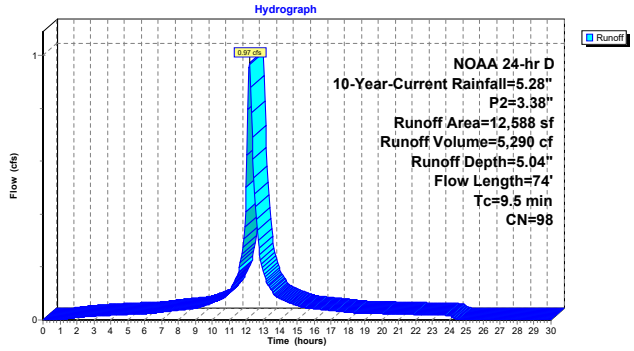
Runoff = 0.97 cfs @ 12.18 hrs, Volume= 5,290 cf, Depth= 5.04"
Routed to Link 3L : S.A. DISTURBED

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year-Current Rainfall=5.28", P2=3.38"

Area (sf)	CN	Description
12,588	98	Paved parking, HSG A
12,588		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0100	0.68		**Sheet Flow, SF-DRIVEWAY** Smooth surfaces n= 0.011 P2= 3.38"
9.0	49	0.0142	0.09		**Sheet Flow, SF-GRASS** Grass: Dense n= 0.240 P2= 3.38"
0.3	15	0.0100	0.73		**Sheet Flow, SF-SMOOTH** Smooth surfaces n= 0.011 P2= 3.38"
9.5	74	Total			

Subcatchment 2S: S.A. DIST. IMP.



Hydrograph for Subcatchment 2S: S.A. DIST. IMP.

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	5.28	5.04	0.00
0.50	0.03	0.00	0.00	26.50	5.28	5.04	0.00
1.00	0.06	0.00	0.00	27.00	5.28	5.04	0.00
1.50	0.09	0.01	0.01	27.50	5.28	5.04	0.00
2.00	0.13	0.03	0.01	28.00	5.28	5.04	0.00
2.50	0.16	0.05	0.01	28.50	5.28	5.04	0.00
3.00	0.20	0.07	0.01	29.00	5.28	5.04	0.00
3.50	0.24	0.10	0.02	29.50	5.28	5.04	0.00
4.00	0.28	0.13	0.02	30.00	5.28	5.04	0.00
4.50	0.32	0.16	0.02				
5.00	0.36	0.20	0.02				
5.50	0.41	0.23	0.02				
6.00	0.45	0.27	0.02				
6.50	0.50	0.32	0.03				
7.00	0.56	0.37	0.03				
7.50	0.62	0.43	0.03				
8.00	0.69	0.49	0.04				
8.50	0.76	0.56	0.04				
9.00	0.84	0.63	0.04				
9.50	0.93	0.72	0.05				
10.00	1.05	0.84	0.07				
10.50	1.18	0.97	0.08				
11.00	1.37	1.15	0.11				
11.50	1.67	1.45	0.17				
12.00	2.53	2.30	**0.50**				
12.50	3.61	3.37	**0.48**				
13.00	3.91	3.67	0.18				
13.50	4.10	3.86	0.11				
14.00	4.23	4.00	0.08				
14.50	4.35	4.11	0.07				
15.00	4.44	4.21	0.05				
15.50	4.52	4.29	0.05				
16.00	4.59	4.36	0.04				
16.50	4.66	4.43	0.04				
17.00	4.72	4.49	0.04				
17.50	4.78	4.54	0.03				
18.00	4.83	4.59	0.03				
18.50	4.87	4.64	0.03				
19.00	4.92	4.68	0.03				
19.50	4.96	4.73	0.02				
20.00	5.00	4.77	0.02				
20.50	5.04	4.81	0.02				
21.00	5.08	4.84	0.02				
21.50	5.12	4.88	0.02				
22.00	5.15	4.92	0.02				
22.50	5.19	4.95	0.02				
23.00	5.22	4.98	0.02				
23.50	5.25	5.01	0.02				
24.00	**5.28**	**5.04**	0.02				
24.50	5.28	5.04	0.00				
25.00	5.28	5.04	0.00				
25.50	5.28	5.04	0.00				

Summary for Subcatchment 6S: S.A. UNDIST. IMP.

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

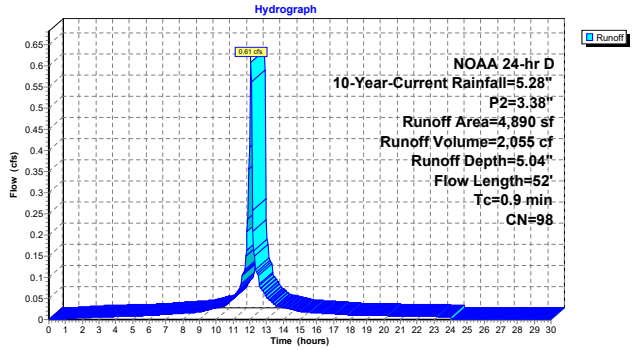
Runoff = 0.61 cfs @ 12.07 hrs, Volume= 2,055 cf, Depth= 5.04"
Routed to Link 4L : S.A. UNDISTURBED

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year-Current Rainfall=5.28", P2=3.38"

	Area (sf)	CN	Description
*	4,890	98	Impervious Area
	4,890		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	37	0.0100	0.88		**Sheet Flow, SF-ROOF** Smooth surfaces n= 0.011 P2= 3.38"
0.2	15	0.0660	1.56		**Sheet Flow, SF - CONC.** Smooth surfaces n= 0.011 P2= 3.38"
0.9	52	Total			

Subcatchment 6S: S.A. UNDIST. IMP.



Hydrograph for Subcatchment 6S: S.A. UNDIST. IMP.

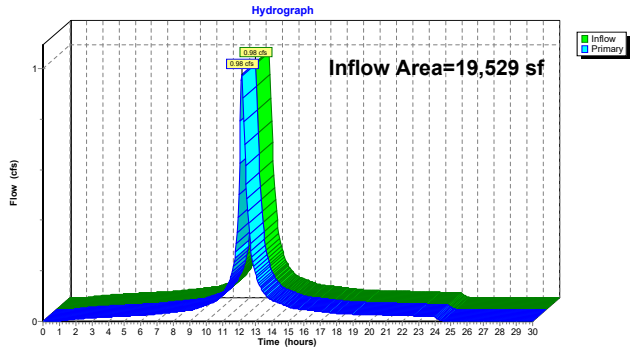
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	5.28	5.04	0.00
0.50	0.03	0.00	0.00	26.50	5.28	5.04	0.00
1.00	0.06	0.00	0.00	27.00	5.28	5.04	0.00
1.50	0.09	0.01	0.00	27.50	5.28	5.04	0.00
2.00	0.13	0.03	0.00	28.00	5.28	5.04	0.00
2.50	0.16	0.05	0.00	28.50	5.28	5.04	0.00
3.00	0.20	0.07	0.01	29.00	5.28	5.04	0.00
3.50	0.24	0.10	0.01	29.50	5.28	5.04	0.00
4.00	0.28	0.13	0.01	30.00	5.28	5.04	0.00
4.50	0.32	0.16	0.01				
5.00	0.36	0.20	0.01				
5.50	0.41	0.23	0.01				
6.00	0.45	0.27	0.01				
6.50	0.50	0.32	0.01				
7.00	0.56	0.37	0.01				
7.50	0.62	0.43	0.01				
8.00	0.69	0.49	0.01				
8.50	0.76	0.56	0.02				
9.00	0.84	0.63	0.02				
9.50	0.93	0.72	0.02				
10.00	1.05	0.84	0.03				
10.50	1.18	0.97	0.03				
11.00	1.37	1.15	0.05				
11.50	1.67	1.45	0.08				
12.00	2.53	2.30	**0.41**				
12.50	3.61	3.37	**0.10**				
13.00	3.91	3.67	0.06				
13.50	4.10	3.86	0.04				
14.00	4.23	4.00	0.03				
14.50	4.35	4.11	0.02				
15.00	4.44	4.21	0.02				
15.50	4.52	4.29	0.02				
16.00	4.59	4.36	0.02				
16.50	4.66	4.43	0.01				
17.00	4.72	4.49	0.01				
17.50	4.78	4.54	0.01				
18.00	4.83	4.59	0.01				
18.50	4.87	4.64	0.01				
19.00	4.92	4.68	0.01				
19.50	4.96	4.73	0.01				
20.00	5.00	4.77	0.01				
20.50	5.04	4.81	0.01				
21.00	5.08	4.84	0.01				
21.50	5.12	4.88	0.01				
22.00	5.15	4.92	0.01				
22.50	5.19	4.95	0.01				
23.00	5.22	4.98	0.01				
23.50	5.25	5.01	0.01				
24.00	**5.28**	**5.04**	0.01				
24.50	5.28	5.04	0.00				
25.00	5.28	5.04	0.00				
25.50	5.28	5.04	0.00				

Summary for Link 3L: S.A. DISTURBED

Inflow Area = 19,529 sf, 64.46% Impervious, Inflow Depth = 3.34" for 10-Year-Current event
Inflow = 0.98 cfs @ 12.18 hrs, Volume= 5,440 cf
Primary = 0.98 cfs @ 12.18 hrs, Volume= 5,440 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : TOTAL

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: S.A. DISTURBED



Hydrograph for Link 3L: S.A. DISTURBED

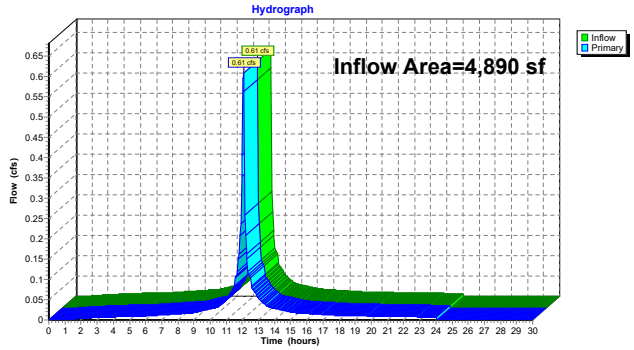
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00	27.00	0.00	0.00	0.00
1.50	0.01	0.00	0.01	27.50	0.00	0.00	0.00
2.00	0.01	0.00	0.01	28.00	0.00	0.00	0.00
2.50	0.01	0.00	0.01	28.50	0.00	0.00	0.00
3.00	0.01	0.00	0.01	29.00	0.00	0.00	0.00
3.50	0.02	0.00	0.02	29.50	0.00	0.00	0.00
4.00	0.02	0.00	0.02	30.00	0.00	0.00	0.00
4.50	0.02	0.00	0.02				
5.00	0.02	0.00	0.02				
5.50	0.02	0.00	0.02				
6.00	0.02	0.00	0.02				
6.50	0.03	0.00	0.03				
7.00	0.03	0.00	0.03				
7.50	0.03	0.00	0.03				
8.00	0.04	0.00	0.04				
8.50	0.04	0.00	0.04				
9.00	0.04	0.00	0.04				
9.50	0.05	0.00	0.05				
10.00	0.07	0.00	0.07				
10.50	0.08	0.00	0.08				
11.00	0.11	0.00	0.11				
11.50	0.17	0.00	0.17				
12.00	**0.50**	0.00	**0.50**				
12.50	**0.48**	0.00	**0.48**				
13.00	0.19	0.00	0.19				
13.50	0.12	0.00	0.12				
14.00	0.08	0.00	0.08				
14.50	0.07	0.00	0.07				
15.00	0.06	0.00	0.06				
15.50	0.05	0.00	0.05				
16.00	0.05	0.00	0.05				
16.50	0.04	0.00	0.04				
17.00	0.04	0.00	0.04				
17.50	0.04	0.00	0.04				
18.00	0.03	0.00	0.03				
18.50	0.03	0.00	0.03				
19.00	0.03	0.00	0.03				
19.50	0.03	0.00	0.03				
20.00	0.03	0.00	0.03				
20.50	0.03	0.00	0.03				
21.00	0.02	0.00	0.02				
21.50	0.02	0.00	0.02				
22.00	0.02	0.00	0.02				
22.50	0.02	0.00	0.02				
23.00	0.02	0.00	0.02				
23.50	0.02	0.00	0.02				
24.00	0.02	0.00	0.02				
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 4L: S.A. UNDISTURBED

Inflow Area = 4,890 sf,100.00% Impervious, Inflow Depth = 5.04" for 10-Year-Current event
Inflow = 0.61 cfs @ 12.07 hrs, Volume= 2,055 cf
Primary = 0.61 cfs @ 12.07 hrs, Volume= 2,055 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : TOTAL

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4L: S.A. UNDISTURBED



Hydrograph for Link 4L: S.A. UNDISTURBED

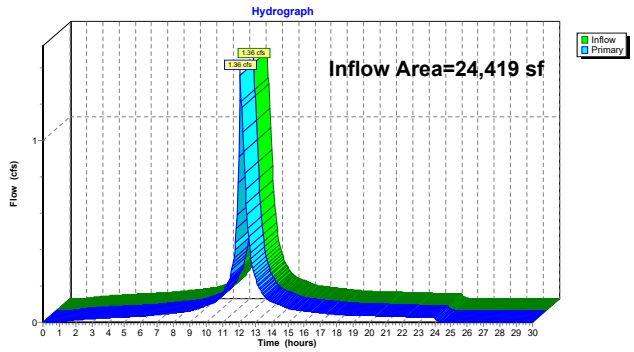
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.01	0.00	0.01	29.00	0.00	0.00	0.00
3.50	0.01	0.00	0.01	29.50	0.00	0.00	0.00
4.00	0.01	0.00	0.01	30.00	0.00	0.00	0.00
4.50	0.01	0.00	0.01				
5.00	0.01	0.00	0.01				
5.50	0.01	0.00	0.01				
6.00	0.01	0.00	0.01				
6.50	0.01	0.00	0.01				
7.00	0.01	0.00	0.01				
7.50	0.01	0.00	0.01				
8.00	0.01	0.00	0.01				
8.50	0.02	0.00	0.02				
9.00	0.02	0.00	0.02				
9.50	0.02	0.00	0.02				
10.00	0.03	0.00	0.03				
10.50	0.03	0.00	0.03				
11.00	0.05	0.00	0.05				
11.50	0.08	0.00	0.08				
12.00	**0.41**	0.00	**0.41**				
12.50	**0.10**	0.00	**0.10**				
13.00	0.06	0.00	0.06				
13.50	0.04	0.00	0.04				
14.00	0.03	0.00	0.03				
14.50	0.02	0.00	0.02				
15.00	0.02	0.00	0.02				
15.50	0.02	0.00	0.02				
16.00	0.02	0.00	0.02				
16.50	0.01	0.00	0.01				
17.00	0.01	0.00	0.01				
17.50	0.01	0.00	0.01				
18.00	0.01	0.00	0.01				
18.50	0.01	0.00	0.01				
19.00	0.01	0.00	0.01				
19.50	0.01	0.00	0.01				
20.00	0.01	0.00	0.01				
20.50	0.01	0.00	0.01				
21.00	0.01	0.00	0.01				
21.50	0.01	0.00	0.01				
22.00	0.01	0.00	0.01				
22.50	0.01	0.00	0.01				
23.00	0.01	0.00	0.01				
23.50	0.01	0.00	0.01				
24.00	0.01	0.00	0.01				
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 5L: TOTAL

Inflow Area = 24,419 sf, 71.58% Impervious, Inflow Depth = 3.68" for 10-Year-Current event
Inflow = 1.36 cfs @ 12.10 hrs, Volume= 7,495 cf
Primary = 1.36 cfs @ 12.10 hrs, Volume= 7,495 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5L: TOTAL



Hydrograph for Link 5L: 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	0.02	0.00	0.02	29.50	0.00	0.00	0.00
4.00	0.02	0.00	0.02	30.00	0.00	0.00	0.00
4.50	0.03	0.00	0.03				
5.00	0.03	0.00	0.03				
5.50	0.03	0.00	0.03				
6.00	0.03	0.00	0.03				
6.50	0.04	0.00	0.04				
7.00	0.04	0.00	0.04				
7.50	0.05	0.00	0.05				
8.00	0.05	0.00	0.05				
8.50	0.06	0.00	0.06				
9.00	0.06	0.00	0.06				
9.50	0.08	0.00	0.08				
10.00	0.09	0.00	0.09				
10.50	0.11	0.00	0.11				
11.00	0.16	0.00	0.16				
11.50	0.26	0.00	0.26				
12.00	**0.91**	0.00	**0.91**				
12.50	**0.59**	0.00	**0.59**				
13.00	0.25	0.00	0.25				
13.50	0.15	0.00	0.15				
14.00	0.11	0.00	0.11				
14.50	0.10	0.00	0.10				
15.00	0.08	0.00	0.08				
15.50	0.07	0.00	0.07				
16.00	0.06	0.00	0.06				
16.50	0.06	0.00	0.06				
17.00	0.05	0.00	0.05				
17.50	0.05	0.00	0.05				
18.00	0.04	0.00	0.04				
18.50	0.04	0.00	0.04				
19.00	0.04	0.00	0.04				
19.50	0.04	0.00	0.04				
20.00	0.04	0.00	0.04				
20.50	0.03	0.00	0.03				
21.00	0.03	0.00	0.03				
21.50	0.03	0.00	0.03				
22.00	0.03	0.00	0.03				
22.50	0.03	0.00	0.03				
23.00	0.03	0.00	0.03				
23.50	0.03	0.00	0.03				
24.00	0.02	0.00	0.02				
24.50	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
25.50	0.00	0.00	0.00				

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71 Link 9L: UG BASIN A (TOTAL)
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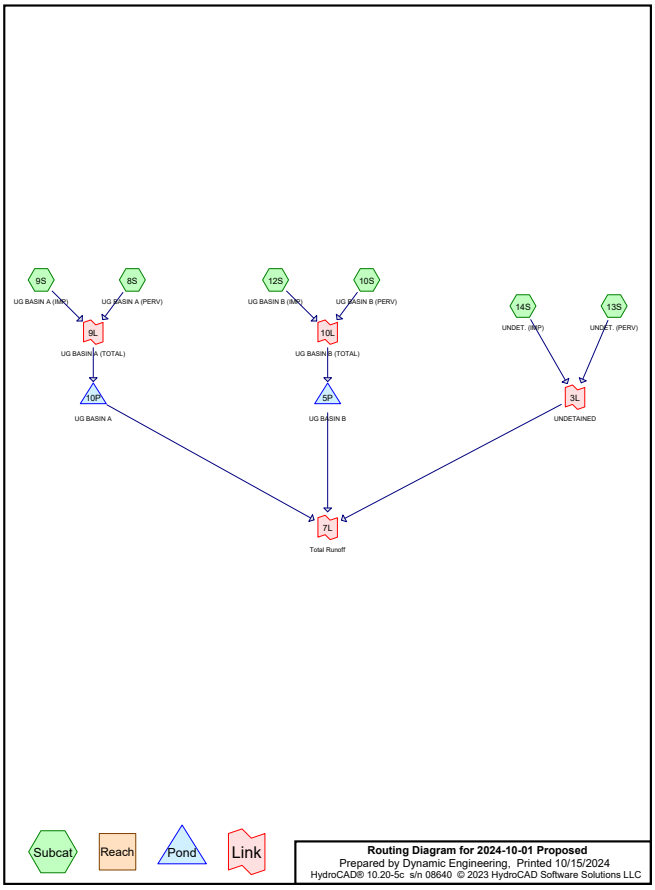


Project Notes

Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC	P2 (inches)
1	2-Year-Current	NOAA 24-hr	D	Default	24.00	1	3.38	2	3.38
2	10-Year-Current	NOAA 24-hr	D	Default	24.00	1	5.28	2	3.38

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
4,388	80	>75% Grass cover, Good, HSG D (8S, 10S, 13S)
20,031	98	Paved parking, HSG A (9S, 12S, 14S)
24,419	**95**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
20,031	HSG A	9S, 12S, 14S
0	HSG B	
0	HSG C	
4,388	HSG D	8S, 10S, 13S
0	Other	
24,419		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Su Nu
0	0	0	4,388	0	4,388	>75% Grass cover, Good	
20,031	0	0	0	0	20,031	Paved parking	
20,031	**0**	**0**	**4,388**	**0**	**24,419**	**TOTAL AREA**	

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	12S	0.00	0.00	47.0	0.0050	0.013	0.0	15.0	0.0	
2	5P	12.55	12.20	10.0	0.0350	0.013	0.0	15.0	0.0	
3	10P	13.13	13.03	20.0	0.0050	0.013	0.0	15.0	0.0	

Notes Listing (all nodes)

Line#	Node Number	Notes
1	Project	Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
2		Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
3		Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
4		Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D
5		Rainfall events imported from "NJ-Rain.txt" for 6612 NJ Monmouth-D

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

Subcatchment8S: UG BASIN A (PERV) Runoff Area=978 sf 0.00% Impervious Runoff Depth=1.54"
Tc=1.0 min CN=80 Runoff=0.04 cfs 126 cf

Subcatchment9S: UG BASIN A (IMP) Runoff Area=6,904 sf 100.00% Impervious Runoff Depth=3.15"
Flow Length=70' Slope=0.0142 '/' Tc=1.0 min CN=98 Runoff=0.54 cfs 1,810 cf

Subcatchment10S: UG BASIN B (PERV) Runoff Area=1,677 sf 0.00% Impervious Runoff Depth=1.54"
Tc=1.1 min CN=80 Runoff=0.08 cfs 215 cf

Subcatchment12S: UG BASIN B (IMP) Runoff Area=8,679 sf 100.00% Impervious Runoff Depth=3.15"
Flow Length=118' Tc=1.1 min CN=98 Runoff=0.68 cfs 2,276 cf

Subcatchment13S: UNDET. (PERV) Runoff Area=1,733 sf 0.00% Impervious Runoff Depth=1.54"
Tc=3.2 min CN=80 Runoff=0.07 cfs 223 cf

Subcatchment14S: UNDET. (IMP) Runoff Area=4,448 sf 100.00% Impervious Runoff Depth=3.15"
Flow Length=34' Tc=3.2 min CN=98 Runoff=0.31 cfs 1,166 cf

Pond 5P: UG BASIN B Peak Elev=13.73' Storage=705 cf Inflow=0.75 cfs 2,491 cf
Outflow=0.17 cfs 2,469 cf

Pond 10P: UG BASIN A Peak Elev=14.01' Storage=516 cf Inflow=0.59 cfs 1,936 cf
Outflow=0.14 cfs 1,931 cf

Link 3L: UNDETAINED Inflow=0.38 cfs 1,389 cf
Primary=0.38 cfs 1,389 cf

Link 7L: Total Runoff Inflow=0.67 cfs 5,789 cf
Primary=0.67 cfs 5,789 cf

Link 9L: UG BASIN A (TOTAL) Inflow=0.59 cfs 1,936 cf
Primary=0.59 cfs 1,936 cf

Link 10L: UG BASIN B (TOTAL) Inflow=0.75 cfs 2,491 cf
Primary=0.75 cfs 2,491 cf

Total Runoff Area = 24,419 sf Runoff Volume = 5,817 cf Average Runoff Depth = 2.86"
17.97% Pervious = 4,388 sf 82.03% Impervious = 20,031 sf

Summary for Subcatchment 8S: UG BASIN A (PERV)

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

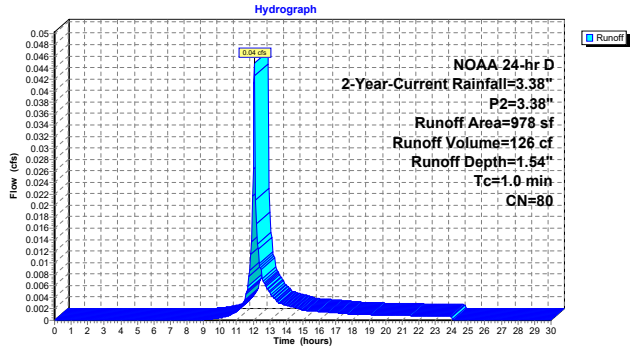
Runoff = 0.04 cfs @ 12.08 hrs, Volume= 126 cf, Depth= 1.54"
Routed to Link 9L : UG BASIN A (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year-Current Rainfall=3.38", P2=3.38"

Area (sf)	CN	Description
978	80	>75% Grass cover, Good, HSG D
978		100.00% Pervious Area

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

Subcatchment 8S: UG BASIN A (PERV)



Hydrograph for Subcatchment 8S: UG BASIN A (PERV)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	3.38	1.54	0.00
0.50	0.02	0.00	0.00	26.50	3.38	1.54	0.00
1.00	0.04	0.00	0.00	27.00	3.38	1.54	0.00
1.50	0.06	0.00	0.00	27.50	3.38	1.54	0.00
2.00	0.08	0.00	0.00	28.00	3.38	1.54	0.00
2.50	0.10	0.00	0.00	28.50	3.38	1.54	0.00
3.00	0.13	0.00	0.00	29.00	3.38	1.54	0.00
3.50	0.15	0.00	0.00	29.50	3.38	1.54	0.00
4.00	0.18	0.00	0.00	30.00	3.38	1.54	0.00
4.50	0.20	0.00	0.00				
5.00	0.23	0.00	0.00				
5.50	0.26	0.00	0.00				
6.00	0.29	0.00	0.00				
6.50	0.32	0.00	0.00				
7.00	0.36	0.00	0.00				
7.50	0.40	0.00	0.00				
8.00	0.44	0.00	0.00				
8.50	0.49	0.00	0.00				
9.00	0.54	0.00	0.00				
9.50	0.60	0.00	0.00				
10.00	0.67	0.01	0.00				
10.50	0.76	0.02	0.00				
11.00	0.88	0.05	0.00				
11.50	1.07	0.11	0.00				
12.00	1.62	0.35	**0.03**				
12.50	2.31	0.76	**0.01**				
13.00	2.50	0.89	0.00				
13.50	2.62	0.97	0.00				
14.00	2.71	1.04	0.00				
14.50	2.78	1.09	0.00				
15.00	2.84	1.13	0.00				
15.50	2.89	1.17	0.00				
16.00	2.94	1.21	0.00				
16.50	2.98	1.24	0.00				
17.00	3.02	1.27	0.00				
17.50	3.06	1.29	0.00				
18.00	3.09	1.32	0.00				
18.50	3.12	1.34	0.00				
19.00	3.15	1.36	0.00				
19.50	3.18	1.38	0.00				
20.00	3.20	1.40	0.00				
20.50	3.23	1.42	0.00				
21.00	3.25	1.44	0.00				
21.50	3.28	1.46	0.00				
22.00	3.30	1.48	0.00				
22.50	3.32	1.50	0.00				
23.00	3.34	1.51	0.00				
23.50	3.36	1.53	0.00				
24.00	**3.38**	**1.54**	0.00				
24.50	3.38	1.54	0.00				
25.00	3.38	1.54	0.00				
25.50	3.38	1.54	0.00				

Summary for Subcatchment 9S: UG BASIN A (IMP)

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

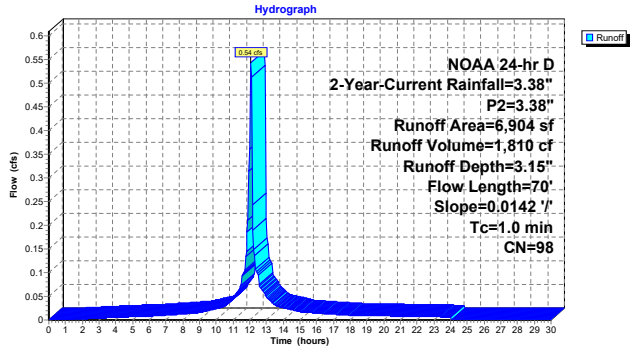
Runoff = 0.54 cfs @ 12.07 hrs, Volume= 1,810 cf, Depth= 3.15"
Routed to Link 9L : UG BASIN A (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year-Current Rainfall=3.38", P2=3.38"

Area (sf)	CN	Description
6,904	98	Paved parking, HSG A
6,904		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	70	0.0142	1.15		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 9S: UG BASIN A (IMP)



Hydrograph for Subcatchment 9S: UG BASIN A (IMP)

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	3.38	3.15	0.00
0.50	0.02	0.00	0.00	26.50	3.38	3.15	0.00
1.00	0.04	0.00	0.00	27.00	3.38	3.15	0.00
1.50	0.06	0.00	0.00	27.50	3.38	3.15	0.00
2.00	0.08	0.01	0.00	28.00	3.38	3.15	0.00
2.50	0.10	0.01	0.00	28.50	3.38	3.15	0.00
3.00	0.13	0.03	0.00	29.00	3.38	3.15	0.00
3.50	0.15	0.04	0.00	29.50	3.38	3.15	0.00
4.00	0.18	0.05	0.01	30.00	3.38	3.15	0.00
4.50	0.20	0.07	0.01				
5.00	0.23	0.09	0.01				
5.50	0.26	0.11	0.01				
6.00	0.29	0.14	0.01				
6.50	0.32	0.16	0.01				
7.00	0.36	0.19	0.01				
7.50	0.40	0.23	0.01				
8.00	0.44	0.26	0.01				
8.50	0.49	0.30	0.01				
9.00	0.54	0.35	0.02				
9.50	0.60	0.41	0.02				
10.00	0.67	0.48	0.02				
10.50	0.76	0.56	0.03				
11.00	0.88	0.67	0.04				
11.50	1.07	0.86	0.07				
12.00	1.62	1.40	**0.36**				
12.50	2.31	2.08	**0.09**				
13.00	2.50	2.27	0.05				
13.50	2.62	2.39	0.03				
14.00	2.71	2.48	0.03				
14.50	2.78	2.55	0.02				
15.00	2.84	2.61	0.02				
15.50	2.89	2.66	0.02				
16.00	2.94	2.71	0.01				
16.50	2.98	2.75	0.01				
17.00	3.02	2.79	0.01				
17.50	3.06	2.83	0.01				
18.00	3.09	2.86	0.01				
18.50	3.12	2.89	0.01				
19.00	3.15	2.92	0.01				
19.50	3.18	2.94	0.01				
20.00	3.20	2.97	0.01				
20.50	3.23	3.00	0.01				
21.00	3.25	3.02	0.01				
21.50	3.28	3.04	0.01				
22.00	3.30	3.07	0.01				
22.50	3.32	3.09	0.01				
23.00	3.34	3.11	0.01				
23.50	3.36	3.13	0.01				
24.00	**3.38**	**3.15**	0.01				
24.50	3.38	3.15	0.00				
25.00	3.38	3.15	0.00				
25.50	3.38	3.15	0.00				

Summary for Subcatchment 10S: UG BASIN B (PERV)

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

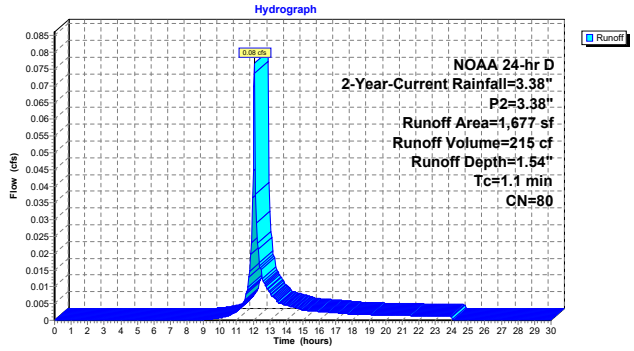
Runoff = 0.08 cfs @ 12.08 hrs, Volume= 215 cf, Depth= 1.54"
Routed to Link 10L : UG BASIN B (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year-Current Rainfall=3.38", P2=3.38"

Area (sf)	CN	Description
1,677	80	>75% Grass cover, Good, HSG D
1,677		100.00% Pervious Area

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

Subcatchment 10S: UG BASIN B (PERV)



Hydrograph for Subcatchment 10S: UG BASIN B (PERV)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	3.38	1.54	0.00
0.50	0.02	0.00	0.00	26.50	3.38	1.54	0.00
1.00	0.04	0.00	0.00	27.00	3.38	1.54	0.00
1.50	0.06	0.00	0.00	27.50	3.38	1.54	0.00
2.00	0.08	0.00	0.00	28.00	3.38	1.54	0.00
2.50	0.10	0.00	0.00	28.50	3.38	1.54	0.00
3.00	0.13	0.00	0.00	29.00	3.38	1.54	0.00
3.50	0.15	0.00	0.00	29.50	3.38	1.54	0.00
4.00	0.18	0.00	0.00	30.00	3.38	1.54	0.00
4.50	0.20	0.00	0.00				
5.00	0.23	0.00	0.00				
5.50	0.26	0.00	0.00				
6.00	0.29	0.00	0.00				
6.50	0.32	0.00	0.00				
7.00	0.36	0.00	0.00				
7.50	0.40	0.00	0.00				
8.00	0.44	0.00	0.00				
8.50	0.49	0.00	0.00				
9.00	0.54	0.00	0.00				
9.50	0.60	0.00	0.00				
10.00	0.67	0.01	0.00				
10.50	0.76	0.02	0.00				
11.00	0.88	0.05	0.00				
11.50	1.07	0.11	0.01				
12.00	1.62	0.35	**0.04**				
12.50	2.31	0.76	**0.02**				
13.00	2.50	0.89	0.01				
13.50	2.62	0.97	0.01				
14.00	2.71	1.04	0.00				
14.50	2.78	1.09	0.00				
15.00	2.84	1.13	0.00				
15.50	2.89	1.17	0.00				
16.00	2.94	1.21	0.00				
16.50	2.98	1.24	0.00				
17.00	3.02	1.27	0.00				
17.50	3.06	1.29	0.00				
18.00	3.09	1.32	0.00				
18.50	3.12	1.34	0.00				
19.00	3.15	1.36	0.00				
19.50	3.18	1.38	0.00				
20.00	3.20	1.40	0.00				
20.50	3.23	1.42	0.00				
21.00	3.25	1.44	0.00				
21.50	3.28	1.46	0.00				
22.00	3.30	1.48	0.00				
22.50	3.32	1.50	0.00				
23.00	3.34	1.51	0.00				
23.50	3.36	1.53	0.00				
24.00	**3.38**	**1.54**	0.00				
24.50	3.38	1.54	0.00				
25.00	3.38	1.54	0.00				
25.50	3.38	1.54	0.00				

Summary for Subcatchment 12S: UG BASIN B (IMP)

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

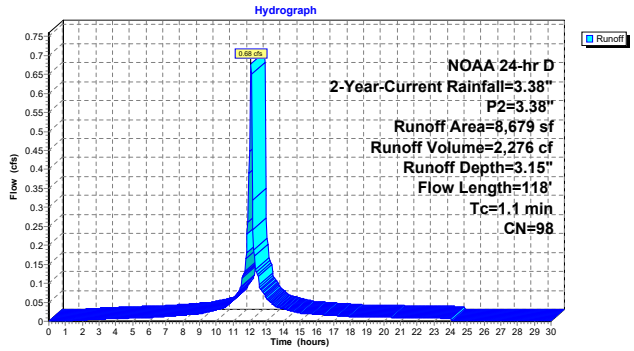
Runoff = 0.68 cfs @ 12.07 hrs, Volume= 2,276 cf, Depth= 3.15"
Routed to Link 10L : UG BASIN B (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year-Current Rainfall=3.38", P2=3.38"

Area (sf)	CN	Description
8,679	98	Paved parking, HSG A
8,679		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	71	0.0185	1.28		**Sheet Flow, SF - PARKING** Smooth surfaces n= 0.011 P2= 3.38"
0.2	47	0.0050	3.72	4.57	**Pipe Channel, RCP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.1	118	Total			

Subcatchment 12S: UG BASIN B (IMP)



Hydrograph for Subcatchment 12S: UG BASIN B (IMP)

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	3.38	3.15	0.00
0.50	0.02	0.00	0.00	26.50	3.38	3.15	0.00
1.00	0.04	0.00	0.00	27.00	3.38	3.15	0.00
1.50	0.06	0.00	0.00	27.50	3.38	3.15	0.00
2.00	0.08	0.01	0.00	28.00	3.38	3.15	0.00
2.50	0.10	0.01	0.00	28.50	3.38	3.15	0.00
3.00	0.13	0.03	0.00	29.00	3.38	3.15	0.00
3.50	0.15	0.04	0.01	29.50	3.38	3.15	0.00
4.00	0.18	0.05	0.01	30.00	3.38	3.15	0.00
4.50	0.20	0.07	0.01				
5.00	0.23	0.09	0.01				
5.50	0.26	0.11	0.01				
6.00	0.29	0.14	0.01				
6.50	0.32	0.16	0.01				
7.00	0.36	0.19	0.01				
7.50	0.40	0.23	0.01				
8.00	0.44	0.26	0.02				
8.50	0.49	0.30	0.02				
9.00	0.54	0.35	0.02				
9.50	0.60	0.41	0.02				
10.00	0.67	0.48	0.03				
10.50	0.76	0.56	0.04				
11.00	0.88	0.67	0.06				
11.50	1.07	0.86	0.09				
12.00	1.62	1.40	**0.45**				
12.50	2.31	2.08	**0.12**				
13.00	2.50	2.27	0.06				
13.50	2.62	2.39	0.04				
14.00	2.71	2.48	0.03				
14.50	2.78	2.55	0.03				
15.00	2.84	2.61	0.02				
15.50	2.89	2.66	0.02				
16.00	2.94	2.71	0.02				
16.50	2.98	2.75	0.02				
17.00	3.02	2.79	0.02				
17.50	3.06	2.83	0.01				
18.00	3.09	2.86	0.01				
18.50	3.12	2.89	0.01				
19.00	3.15	2.92	0.01				
19.50	3.18	2.94	0.01				
20.00	3.20	2.97	0.01				
20.50	3.23	3.00	0.01				
21.00	3.25	3.02	0.01				
21.50	3.28	3.04	0.01				
22.00	3.30	3.07	0.01				
22.50	3.32	3.09	0.01				
23.00	3.34	3.11	0.01				
23.50	3.36	3.13	0.01				
24.00	**3.38**	**3.15**	0.01				
24.50	3.38	3.15	0.00				
25.00	3.38	3.15	0.00				
25.50	3.38	3.15	0.00				

Summary for Subcatchment 13S: UNDET. (PERV)

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

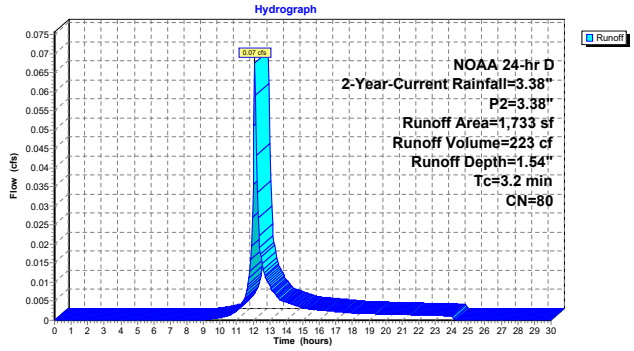
Runoff = 0.07 cfs @ 12.11 hrs, Volume= 223 cf, Depth= 1.54"
Routed to Link 3L : UNDETAINED

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year-Current Rainfall=3.38", P2=3.38"

Area (sf)	CN	Description
1,733	80	>75% Grass cover, Good, HSG D
1,733		100.00% Pervious Area

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

Subcatchment 13S: UNDET. (PERV)



Hydrograph for Subcatchment 13S: UNDET. (PERV)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	3.38	1.54	0.00
0.50	0.02	0.00	0.00	26.50	3.38	1.54	0.00
1.00	0.04	0.00	0.00	27.00	3.38	1.54	0.00
1.50	0.06	0.00	0.00	27.50	3.38	1.54	0.00
2.00	0.08	0.00	0.00	28.00	3.38	1.54	0.00
2.50	0.10	0.00	0.00	28.50	3.38	1.54	0.00
3.00	0.13	0.00	0.00	29.00	3.38	1.54	0.00
3.50	0.15	0.00	0.00	29.50	3.38	1.54	0.00
4.00	0.18	0.00	0.00	30.00	3.38	1.54	0.00
4.50	0.20	0.00	0.00				
5.00	0.23	0.00	0.00				
5.50	0.26	0.00	0.00				
6.00	0.29	0.00	0.00				
6.50	0.32	0.00	0.00				
7.00	0.36	0.00	0.00				
7.50	0.40	0.00	0.00				
8.00	0.44	0.00	0.00				
8.50	0.49	0.00	0.00				
9.00	0.54	0.00	0.00				
9.50	0.60	0.00	0.00				
10.00	0.67	0.01	0.00				
10.50	0.76	0.02	0.00				
11.00	0.88	0.05	0.00				
11.50	1.07	0.11	0.01				
12.00	1.62	0.35	**0.04**				
12.50	2.31	0.76	**0.02**				
13.00	2.50	0.89	0.01				
13.50	2.62	0.97	0.01				
14.00	2.71	1.04	0.00				
14.50	2.78	1.09	0.00				
15.00	2.84	1.13	0.00				
15.50	2.89	1.17	0.00				
16.00	2.94	1.21	0.00				
16.50	2.98	1.24	0.00				
17.00	3.02	1.27	0.00				
17.50	3.06	1.29	0.00				
18.00	3.09	1.32	0.00				
18.50	3.12	1.34	0.00				
19.00	3.15	1.36	0.00				
19.50	3.18	1.38	0.00				
20.00	3.20	1.40	0.00				
20.50	3.23	1.42	0.00				
21.00	3.25	1.44	0.00				
21.50	3.28	1.46	0.00				
22.00	3.30	1.48	0.00				
22.50	3.32	1.50	0.00				
23.00	3.34	1.51	0.00				
23.50	3.36	1.53	0.00				
24.00	**3.38**	**1.54**	0.00				
24.50	3.38	1.54	0.00				
25.00	3.38	1.54	0.00				
25.50	3.38	1.54	0.00				

Summary for Subcatchment 14S: UNDET. (IMP)

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

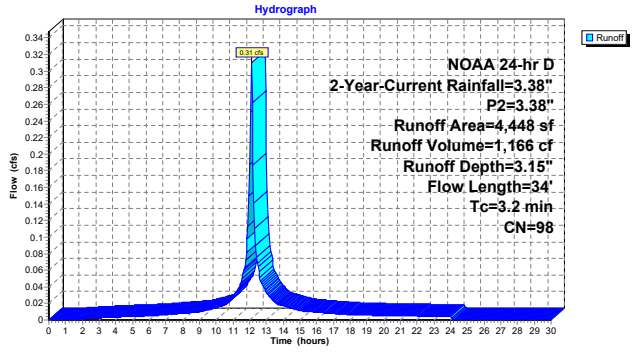
Runoff = 0.31 cfs @ 12.10 hrs, Volume= 1,166 cf, Depth= 3.15"
Routed to Link 3L : UNDETAINED

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year-Current Rainfall=3.38", P2=3.38"

Area (sf)	CN	Description
4,448	98	Paved parking, HSG A
4,448		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	18	0.0341	0.11		**Sheet Flow, Sheet Flow A-B** Grass: Dense n= 0.240 P2= 3.38"
0.4	16	0.0075	0.66		**Sheet Flow, Sheet Flow B-C** Smooth surfaces n= 0.011 P2= 3.38"
3.2	34	Total			

Subcatchment 14S: UNDET. (IMP)



Hydrograph for Subcatchment 14S: UNDET. (IMP)

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	3.38	3.15	0.00
0.50	0.02	0.00	0.00	26.50	3.38	3.15	0.00
1.00	0.04	0.00	0.00	27.00	3.38	3.15	0.00
1.50	0.06	0.00	0.00	27.50	3.38	3.15	0.00
2.00	0.08	0.01	0.00	28.00	3.38	3.15	0.00
2.50	0.10	0.01	0.00	28.50	3.38	3.15	0.00
3.00	0.13	0.03	0.00	29.00	3.38	3.15	0.00
3.50	0.15	0.04	0.00	29.50	3.38	3.15	0.00
4.00	0.18	0.05	0.00	30.00	3.38	3.15	0.00
4.50	0.20	0.07	0.00				
5.00	0.23	0.09	0.00				
5.50	0.26	0.11	0.00				
6.00	0.29	0.14	0.00				
6.50	0.32	0.16	0.01				
7.00	0.36	0.19	0.01				
7.50	0.40	0.23	0.01				
8.00	0.44	0.26	0.01				
8.50	0.49	0.30	0.01				
9.00	0.54	0.35	0.01				
9.50	0.60	0.41	0.01				
10.00	0.67	0.48	0.02				
10.50	0.76	0.56	0.02				
11.00	0.88	0.67	0.03				
11.50	1.07	0.86	0.04				
12.00	1.62	1.40	**0.19**				
12.50	2.31	2.08	**0.06**				
13.00	2.50	2.27	0.03				
13.50	2.62	2.39	0.02				
14.00	2.71	2.48	0.02				
14.50	2.78	2.55	0.01				
15.00	2.84	2.61	0.01				
15.50	2.89	2.66	0.01				
16.00	2.94	2.71	0.01				
16.50	2.98	2.75	0.01				
17.00	3.02	2.79	0.01				
17.50	3.06	2.83	0.01				
18.00	3.09	2.86	0.01				
18.50	3.12	2.89	0.01				
19.00	3.15	2.92	0.01				
19.50	3.18	2.94	0.01				
20.00	3.20	2.97	0.01				
20.50	3.23	3.00	0.01				
21.00	3.25	3.02	0.00				
21.50	3.28	3.04	0.00				
22.00	3.30	3.07	0.00				
22.50	3.32	3.09	0.00				
23.00	3.34	3.11	0.00				
23.50	3.36	3.13	0.00				
24.00	**3.38**	**3.15**	0.00				
24.50	3.38	3.15	0.00				
25.00	3.38	3.15	0.00				
25.50	3.38	3.15	0.00				

Summary for Pond 5P: UG BASIN B

Inflow Area = 10,356 sf, 83.81% Impervious, Inflow Depth = 2.89" for 2-Year-Current event
Inflow = 0.75 cfs @ 12.07 hrs, Volume= 2,491 cf
Outflow = 0.17 cfs @ 12.33 hrs, Volume= 2,469 cf, Atten= 77%, Lag= 15.4 min
Primary = 0.17 cfs @ 12.33 hrs, Volume= 2,469 cf
Routed to Link 7L : Total Runoff

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 13.73' @ 12.33 hrs Storage= 705 cf

Plug-Flow detention time= 64.3 min calculated for 2,465 cf (99% of inflow)
Center-of-Mass det. time= 58.9 min (820.3 - 761.4)

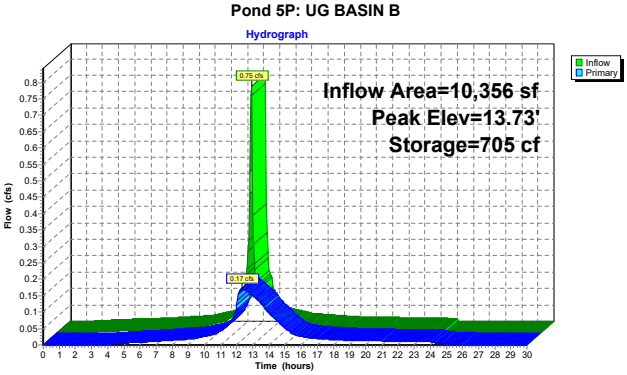
Volume	Invert	Avail.Storage	Storage Description
#1	12.52'	1,561 cf	**B-2-8 Storm Trap**Listed below

Elevation (feet)	Cum.Store (cubic-feet)
12.52	0
15.19	1,561

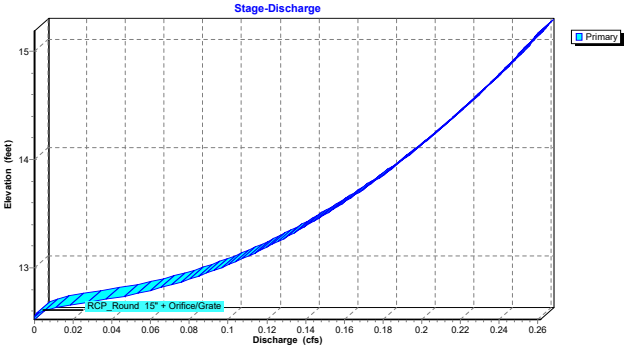
Device	Routing	Invert	Outlet Devices
#1	Primary	12.55'	**15.0" Round RCP_Round 15"** L= 10.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.55' / 12.20' S= 0.0350 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	12.55'	**2.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.17 cfs @ 12.33 hrs HW=13.73' (Free Discharge)
└─**1=RCP_Round 15"** (Passes 0.17 cfs of 5.06 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 0.17 cfs @ 4.98 fps)

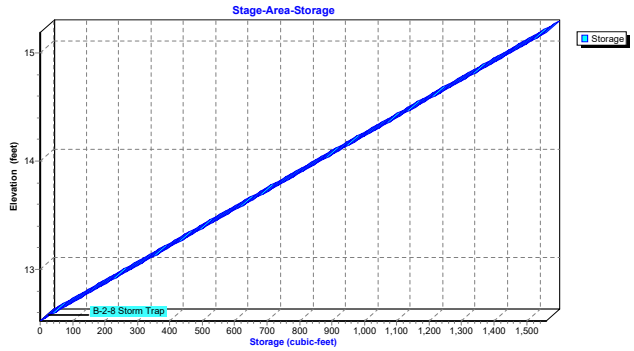
Pond 5P: UG BASIN B



Pond 5P: UG BASIN B



Pond 5P: UG BASIN B



Hydrograph for Pond 5P: UG BASIN B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	12.52	0.00
1.00	0.00	0	12.52	0.00
2.00	0.00	5	12.53	0.00
3.00	0.00	18	12.55	0.00
4.00	0.01	36	12.58	0.00
5.00	0.01	49	12.60	0.01
6.00	0.01	55	12.61	0.01
7.00	0.01	62	12.63	0.01
8.00	0.02	69	12.64	0.01
9.00	0.02	76	12.65	0.02
10.00	0.03	90	12.67	0.03
11.00	0.06	120	12.72	0.04
12.00	**0.49**	**400**	**13.20**	**0.12**
13.00	**0.07**	**567**	**13.49**	**0.15**
14.00	0.04	291	13.02	0.10
15.00	0.02	135	12.75	0.05
16.00	0.02	90	12.67	0.03
17.00	0.02	79	12.66	0.02
18.00	0.01	73	12.64	0.02
19.00	0.01	68	12.64	0.01
20.00	0.01	66	12.63	0.01
21.00	0.01	64	12.63	0.01
22.00	0.01	62	12.63	0.01
23.00	0.01	60	12.62	0.01
24.00	0.01	58	12.62	0.01
25.00	0.00	40	12.59	0.00
26.00	0.00	32	12.58	0.00
27.00	0.00	28	12.57	0.00
28.00	0.00	26	12.56	0.00
29.00	0.00	24	12.56	0.00
30.00	0.00	22	12.56	0.00

Stage-Discharge for Pond 5P: UG BASIN B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
12.52	0.00	13.56	0.16	14.60	0.23
12.54	0.00	13.58	0.16	14.62	0.23
12.56	0.00	13.60	0.16	14.64	0.23
12.58	0.00	13.62	0.16	14.66	0.23
12.60	0.00	13.64	0.16	14.68	0.23
12.62	0.01	13.66	0.16	14.70	0.23
12.64	0.01	13.68	0.17	14.72	0.24
12.66	0.02	13.70	0.17	14.74	0.24
12.68	0.03	13.72	0.17	14.76	0.24
12.70	0.03	13.74	0.17	14.78	0.24
12.72	0.04	13.76	0.17	14.80	0.24
12.74	0.05	13.78	0.17	14.82	0.24
12.76	0.05	13.80	0.18	14.84	0.24
12.78	0.06	13.82	0.18	14.86	0.24
12.80	0.06	13.84	0.18	14.88	0.24
12.82	0.07	13.86	0.18	14.90	0.25
12.84	0.07	13.88	0.18	14.92	0.25
12.86	0.07	13.90	0.18	14.94	0.25
12.88	0.08	13.92	0.18	14.96	0.25
12.90	0.08	13.94	0.19	14.98	0.25
12.92	0.08	13.96	0.19	15.00	0.25
12.94	0.09	13.98	0.19	15.02	0.25
12.96	0.09	14.00	0.19	15.04	0.25
12.98	0.09	14.02	0.19	15.06	0.25
13.00	0.10	14.04	0.19	15.08	0.26
13.02	0.10	14.06	0.19	15.10	0.26
13.04	0.10	14.08	0.20	15.12	0.26
13.06	0.10	14.10	0.20	15.14	0.26
13.08	0.11	14.12	0.20	15.16	0.26
13.10	0.11	14.14	0.20	15.18	**0.26**
13.12	0.11	14.16	0.20		
13.14	0.11	14.18	0.20		
13.16	0.12	14.20	0.20		
13.18	0.12	14.22	0.21		
13.20	0.12	14.24	0.21		
13.22	0.12	14.26	0.21		
13.24	0.13	14.28	0.21		
13.26	0.13	14.30	0.21		
13.28	0.13	14.32	0.21		
13.30	0.13	14.34	0.21		
13.32	0.13	14.36	0.21		
13.34	0.14	14.38	0.22		
13.36	0.14	14.40	0.22		
13.38	0.14	14.42	0.22		
13.40	0.14	14.44	0.22		
13.42	0.14	14.46	0.22		
13.44	0.15	14.48	0.22		
13.46	0.15	14.50	0.22		
13.48	0.15	14.52	0.22		
13.50	0.15	14.54	0.23		
13.52	0.15	14.56	0.23		
13.54	0.15	14.58	0.23		

Stage-Area-Storage for Pond 5P: UG BASIN B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
12.52	0	13.56	608	14.60	1,216
12.54	12	13.58	620	14.62	1,228
12.56	23	13.60	631	14.64	1,239
12.58	35	13.62	643	14.66	1,251
12.60	47	13.64	655	14.68	1,263
12.62	58	13.66	666	14.70	1,275
12.64	70	13.68	678	14.72	1,286
12.66	82	13.70	690	14.74	1,298
12.68	94	13.72	702	14.76	1,310
12.70	105	13.74	713	14.78	1,321
12.72	117	13.76	725	14.80	1,333
12.74	129	13.78	737	14.82	1,345
12.76	140	13.80	748	14.84	1,356
12.78	152	13.82	760	14.86	1,368
12.80	164	13.84	772	14.88	1,380
12.82	175	13.86	783	14.90	1,391
12.84	187	13.88	795	14.92	1,403
12.86	199	13.90	807	14.94	1,415
12.88	210	13.92	819	14.96	1,427
12.90	222	13.94	830	14.98	1,438
12.92	234	13.96	842	15.00	1,450
12.94	246	13.98	854	15.02	1,462
12.96	257	14.00	865	15.04	1,473
12.98	269	14.02	877	15.06	1,485
13.00	281	14.04	889	15.08	1,497
13.02	292	14.06	900	15.10	1,508
13.04	304	14.08	912	15.12	1,520
13.06	316	14.10	924	15.14	1,532
13.08	327	14.12	935	15.16	1,543
13.10	339	14.14	947	15.18	**1,555**
13.12	351	14.16	959		
13.14	362	14.18	971		
13.16	374	14.20	982		
13.18	386	14.22	994		
13.20	398	14.24	1,006		
13.22	409	14.26	1,017		
13.24	421	14.28	1,029		
13.26	433	14.30	1,041		
13.28	444	14.32	1,052		
13.30	456	14.34	1,064		
13.32	468	14.36	1,076		
13.34	479	14.38	1,087		
13.36	491	14.40	1,099		
13.38	503	14.42	1,111		
13.40	514	14.44	1,123		
13.42	526	14.46	1,134		
13.44	538	14.48	1,146		
13.46	550	14.50	1,158		
13.48	561	14.52	1,169		
13.50	573	14.54	1,181		
13.52	585	14.56	1,193		
13.54	596	14.58	1,204		

Summary for Pond 10P: UG BASIN A

Inflow Area = 7,882 sf, 87.59% Impervious, Inflow Depth = 2.95" for 2-Year-Current event
Inflow = 0.59 cfs @ 12.07 hrs, Volume= 1,936 cf
Outflow = 0.14 cfs @ 12.30 hrs, Volume= 1,931 cf, Atten= 75%, Lag= 13.5 min
Primary = 0.14 cfs @ 12.30 hrs, Volume= 1,931 cf
Routed to Link 7L : Total Runoff

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 14.01' @ 12.30 hrs Storage= 516 cf

Plug-Flow detention time= 55.5 min calculated for 1,931 cf (100% of inflow)
Center-of-Mass det. time= 53.7 min (812.9 - 759.2)

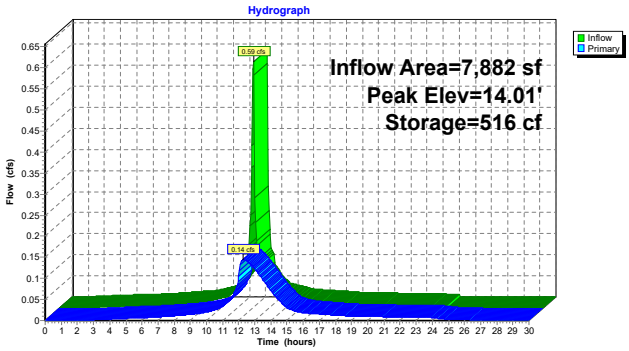
Volume	Invert	Avail.Storage	Storage Description
#1	13.13'	1,169 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
13.13	0
15.13	1,169

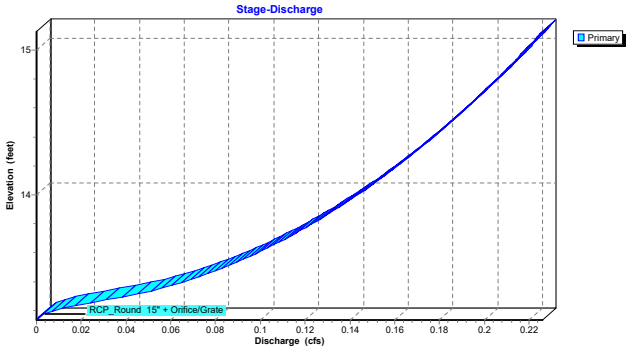
Device	Routing	Invert	Outlet Devices
#1	Primary	13.13'	**15.0" Round RCP_Round 15"** L= 20.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 13.13' / 13.03' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	13.13'	**2.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.14 cfs @ 12.30 hrs HW=14.01' (Free Discharge)
└─**1=RCP_Round 15"** (Passes 0.14 cfs of 2.34 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 0.14 cfs @ 4.25 fps)

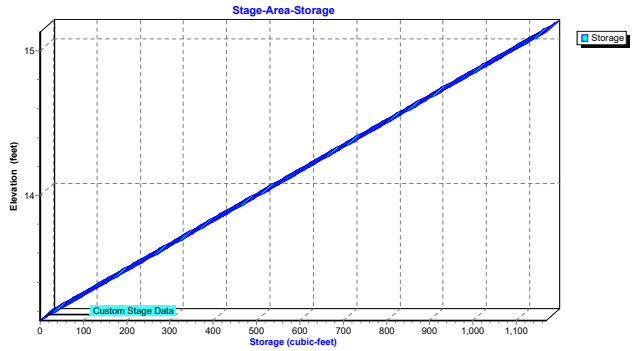
Pond 10P: UG BASIN A



Pond 10P: UG BASIN A



Pond 10P: UG BASIN A



Hydrograph for Pond 10P: UG BASIN A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	13.13	0.00
1.00	0.00	0	13.13	0.00
2.00	0.00	3	13.14	0.00
3.00	0.00	12	13.15	0.00
4.00	0.01	22	13.17	0.00
5.00	0.01	29	13.18	0.00
6.00	0.01	34	13.19	0.01
7.00	0.01	39	13.20	0.01
8.00	0.01	45	13.21	0.01
9.00	0.02	51	13.22	0.01
10.00	0.02	63	13.24	0.02
11.00	0.05	87	13.28	0.03
12.00	**0.39**	**297**	**13.64**	**0.10**
13.00	**0.05**	**383**	**13.79**	**0.12**
14.00	0.03	169	13.42	0.07
15.00	0.02	80	13.27	0.03
16.00	0.02	60	13.23	0.02
17.00	0.01	53	13.22	0.01
18.00	0.01	48	13.21	0.01
19.00	0.01	44	13.21	0.01
20.00	0.01	42	13.20	0.01
21.00	0.01	40	13.20	0.01
22.00	0.01	39	13.20	0.01
23.00	0.01	37	13.19	0.01
24.00	0.01	35	13.19	0.01
25.00	0.00	21	13.17	0.00
26.00	0.00	14	13.15	0.00
27.00	0.00	11	13.15	0.00
28.00	0.00	8	13.14	0.00
29.00	0.00	7	13.14	0.00
30.00	0.00	5	13.14	0.00

Stage-Discharge for Pond 10P: UG BASIN A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
13.13	0.00	13.65	0.11	14.17	0.16	14.69	0.20
13.14	0.00	13.66	0.11	14.18	0.16	14.70	0.20
13.15	0.00	13.67	0.11	14.19	0.16	14.71	0.20
13.16	0.00	13.68	0.11	14.20	0.16	14.72	0.20
13.17	0.00	13.69	0.11	14.21	0.16	14.73	0.20
13.18	0.00	13.70	0.11	14.22	0.16	14.74	0.20
13.19	0.01	13.71	0.11	14.23	0.16	14.75	0.20
13.20	0.01	13.72	0.11	14.24	0.16	14.76	0.20
13.21	0.01	13.73	0.12	14.25	0.17	14.77	0.20
13.22	0.01	13.74	0.12	14.26	0.17	14.78	0.20
13.23	0.02	13.75	0.12	14.27	0.17	14.79	0.20
13.24	0.02	13.76	0.12	14.28	0.17	14.80	0.21
13.25	0.02	13.77	0.12	14.29	0.17	14.81	0.21
13.26	0.03	13.78	0.12	14.30	0.17	14.82	0.21
13.27	0.03	13.79	0.12	14.31	0.17	14.83	0.21
13.28	0.03	13.80	0.12	14.32	0.17	14.84	0.21
13.29	0.04	13.81	0.12	14.33	0.17	14.85	0.21
13.30	0.04	13.82	0.13	14.34	0.17	14.86	0.21
13.31	0.05	13.83	0.13	14.35	0.17	14.87	0.21
13.32	0.05	13.84	0.13	14.36	0.17	14.88	0.21
13.33	0.05	13.85	0.13	14.37	0.17	14.89	0.21
13.34	0.05	13.86	0.13	14.38	0.18	14.90	0.21
13.35	0.06	13.87	0.13	14.39	0.18	14.91	0.21
13.36	0.06	13.88	0.13	14.40	0.18	14.92	0.21
13.37	0.06	13.89	0.13	14.41	0.18	14.93	0.21
13.38	0.06	13.90	0.13	14.42	0.18	14.94	0.21
13.39	0.06	13.91	0.13	14.43	0.18	14.95	0.22
13.40	0.07	13.92	0.14	14.44	0.18	14.96	0.22
13.41	0.07	13.93	0.14	14.45	0.18	14.97	0.22
13.42	0.07	13.94	0.14	14.46	0.18	14.98	0.22
13.43	0.07	13.95	0.14	14.47	0.18	14.99	0.22
13.44	0.07	13.96	0.14	14.48	0.18	15.00	0.22
13.45	0.08	13.97	0.14	14.49	0.18	15.01	0.22
13.46	0.08	13.98	0.14	14.50	0.18	15.02	0.22
13.47	0.08	13.99	0.14	14.51	0.19	15.03	0.22
13.48	0.08	14.00	0.14	14.52	0.19	15.04	0.22
13.49	0.08	14.01	0.14	14.53	0.19	15.05	0.22
13.50	0.08	14.02	0.15	14.54	0.19	15.06	0.22
13.51	0.09	14.03	0.15	14.55	0.19	15.07	0.22
13.52	0.09	14.04	0.15	14.56	0.19	15.08	0.22
13.53	0.09	14.05	0.15	14.57	0.19	15.09	0.22
13.54	0.09	14.06	0.15	14.58	0.19	15.10	0.22
13.55	0.09	14.07	0.15	14.59	0.19	15.11	0.22
13.56	0.09	14.08	0.15	14.60	0.19	15.12	0.23
13.57	0.10	14.09	0.15	14.61	0.19	15.13	**0.23**
13.58	0.10	14.10	0.15	14.62	0.19		
13.59	0.10	14.11	0.15	14.63	0.19		
13.60	0.10	14.12	0.15	14.64	0.19		
13.61	0.10	14.13	0.16	14.65	0.20		
13.62	0.10	14.14	0.16	14.66	0.20		
13.63	0.10	14.15	0.16	14.67	0.20		
13.64	0.10	14.16	0.16	14.68	0.20		

Stage-Area-Storage for Pond 10P: UG BASIN A

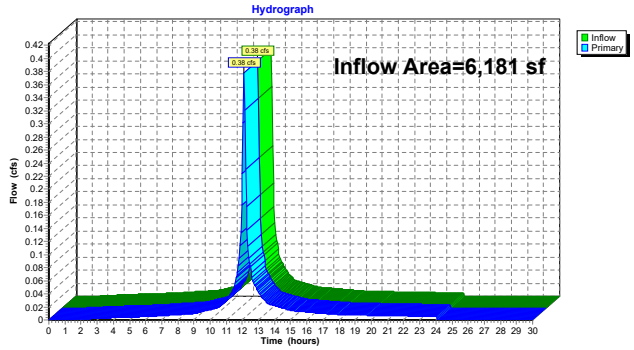
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
13.13	0	14.17	608
13.15	12	14.19	620
13.17	23	14.21	631
13.19	35	14.23	643
13.21	47	14.25	655
13.23	58	14.27	666
13.25	70	14.29	678
13.27	82	14.31	690
13.29	94	14.33	701
13.31	105	14.35	713
13.33	117	14.37	725
13.35	129	14.39	736
13.37	140	14.41	748
13.39	152	14.43	760
13.41	164	14.45	772
13.43	175	14.47	783
13.45	187	14.49	795
13.47	199	14.51	807
13.49	210	14.53	818
13.51	222	14.55	830
13.53	234	14.57	842
13.55	245	14.59	853
13.57	257	14.61	865
13.59	269	14.63	877
13.61	281	14.65	888
13.63	292	14.67	900
13.65	304	14.69	912
13.67	316	14.71	924
13.69	327	14.73	935
13.71	339	14.75	947
13.73	351	14.77	959
13.75	362	14.79	970
13.77	374	14.81	982
13.79	386	14.83	994
13.81	397	14.85	1,005
13.83	409	14.87	1,017
13.85	421	14.89	1,029
13.87	433	14.91	1,040
13.89	444	14.93	1,052
13.91	456	14.95	1,064
13.93	468	14.97	1,075
13.95	479	14.99	1,087
13.97	491	15.01	1,099
13.99	503	15.03	1,111
14.01	514	15.05	1,122
14.03	526	15.07	1,134
14.05	538	15.09	1,146
14.07	549	15.11	1,157
14.09	561	15.13	**1,169**
14.11	573		
14.13	585		
14.15	596		

Summary for Link 3L: UNDETAINED

Inflow Area = 6,181 sf, 71.96% Impervious, Inflow Depth = 2.70" for 2-Year-Current event
Inflow = 0.38 cfs @ 12.10 hrs, Volume= 1,389 cf
Primary = 0.38 cfs @ 12.10 hrs, Volume= 1,389 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 7L : Total Runoff

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: UNDETAINED



Hydrograph for Link 3L: UNDETAINED

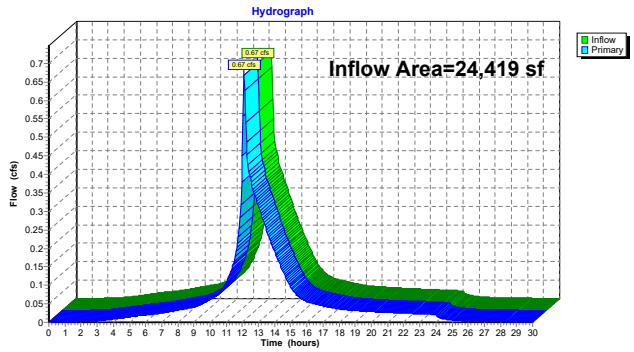
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00	29.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	29.50	0.00	0.00	0.00
4.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00				
5.00	0.00	0.00	0.00				
5.50	0.00	0.00	0.00				
6.00	0.00	0.00	0.00				
6.50	0.01	0.00	0.01				
7.00	0.01	0.00	0.01				
7.50	0.01	0.00	0.01				
8.00	0.01	0.00	0.01				
8.50	0.01	0.00	0.01				
9.00	0.01	0.00	0.01				
9.50	0.01	0.00	0.01				
10.00	0.02	0.00	0.02				
10.50	0.02	0.00	0.02				
11.00	0.03	0.00	0.03				
11.50	0.05	0.00	0.05				
12.00	**0.22**	0.00	**0.22**				
12.50	**0.08**	0.00	**0.08**				
13.00	0.04	0.00	0.04				
13.50	0.03	0.00	0.03				
14.00	0.02	0.00	0.02				
14.50	0.02	0.00	0.02				
15.00	0.01	0.00	0.01				
15.50	0.01	0.00	0.01				
16.00	0.01	0.00	0.01				
16.50	0.01	0.00	0.01				
17.00	0.01	0.00	0.01				
17.50	0.01	0.00	0.01				
18.00	0.01	0.00	0.01				
18.50	0.01	0.00	0.01				
19.00	0.01	0.00	0.01				
19.50	0.01	0.00	0.01				
20.00	0.01	0.00	0.01				
20.50	0.01	0.00	0.01				
21.00	0.01	0.00	0.01				
21.50	0.01	0.00	0.01				
22.00	0.01	0.00	0.01				
22.50	0.01	0.00	0.01				
23.00	0.01	0.00	0.01				
23.50	0.01	0.00	0.01				
24.00	0.00	0.00	0.00				
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 7L: Total Runoff

Inflow Area = 24,419 sf, 82.03% Impervious, Inflow Depth > 2.85" for 2-Year-Current event
Inflow = 0.67 cfs @ 12.11 hrs, Volume= 5,789 cf
Primary = 0.67 cfs @ 12.11 hrs, Volume= 5,789 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7L: Total Runoff



Hydrograph for Link 7L: Total Runoff

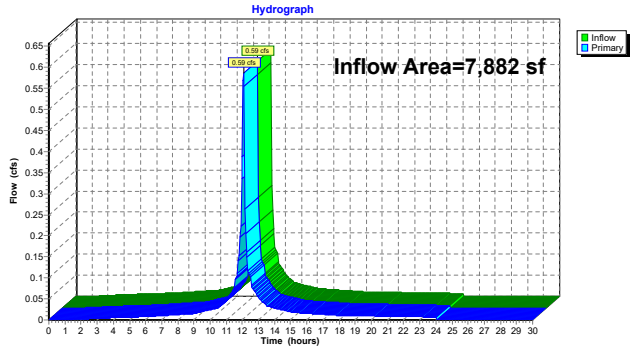
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00	29.00	0.00	0.00	0.00
3.50	0.01	0.00	0.01	29.50	0.00	0.00	0.00
4.00	0.01	0.00	0.01	30.00	0.00	0.00	0.00
4.50	0.01	0.00	0.01				
5.00	0.01	0.00	0.01				
5.50	0.02	0.00	0.02				
6.00	0.02	0.00	0.02				
6.50	0.02	0.00	0.02				
7.00	0.03	0.00	0.03				
7.50	0.03	0.00	0.03				
8.00	0.03	0.00	0.03				
8.50	0.04	0.00	0.04				
9.00	0.04	0.00	0.04				
9.50	0.05	0.00	0.05				
10.00	0.06	0.00	0.06				
10.50	0.08	0.00	0.08				
11.00	0.11	0.00	0.11				
11.50	0.17	0.00	0.17				
12.00	**0.45**	0.00	**0.45**				
12.50	**0.39**	0.00	**0.39**				
13.00	0.31	0.00	0.31				
13.50	0.25	0.00	0.25				
14.00	0.19	0.00	0.19				
14.50	0.14	0.00	0.14				
15.00	0.10	0.00	0.10				
15.50	0.07	0.00	0.07				
16.00	0.06	0.00	0.06				
16.50	0.05	0.00	0.05				
17.00	0.04	0.00	0.04				
17.50	0.04	0.00	0.04				
18.00	0.04	0.00	0.04				
18.50	0.03	0.00	0.03				
19.00	0.03	0.00	0.03				
19.50	0.03	0.00	0.03				
20.00	0.03	0.00	0.03				
20.50	0.03	0.00	0.03				
21.00	0.03	0.00	0.03				
21.50	0.03	0.00	0.03				
22.00	0.03	0.00	0.03				
22.50	0.02	0.00	0.02				
23.00	0.02	0.00	0.02				
23.50	0.02	0.00	0.02				
24.00	0.02	0.00	0.02				
24.50	0.01	0.00	0.01				
25.00	0.01	0.00	0.01				
25.50	0.00	0.00	0.00				

Summary for Link 9L: UG BASIN A (TOTAL)

Inflow Area = 7,882 sf, 87.59% Impervious, Inflow Depth = 2.95" for 2-Year-Current event
Inflow = 0.59 cfs @ 12.07 hrs, Volume= 1,936 cf
Primary = 0.59 cfs @ 12.07 hrs, Volume= 1,936 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond 10P : UG BASIN A

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 9L: UG BASIN A (TOTAL)



Hydrograph for Link 9L: UG BASIN A (TOTAL)

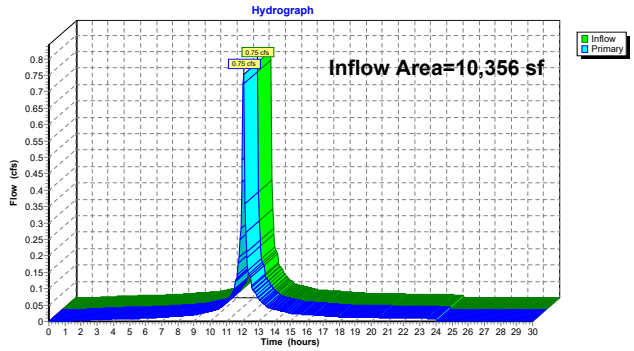
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00	29.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	29.50	0.00	0.00	0.00
4.00	0.01	0.00	0.01	30.00	0.00	0.00	0.00
4.50	0.01	0.00	0.01				
5.00	0.01	0.00	0.01				
5.50	0.01	0.00	0.01				
6.00	0.01	0.00	0.01				
6.50	0.01	0.00	0.01				
7.00	0.01	0.00	0.01				
7.50	0.01	0.00	0.01				
8.00	0.01	0.00	0.01				
8.50	0.01	0.00	0.01				
9.00	0.02	0.00	0.02				
9.50	0.02	0.00	0.02				
10.00	0.02	0.00	0.02				
10.50	0.03	0.00	0.03				
11.00	0.05	0.00	0.05				
11.50	0.08	0.00	0.08				
12.00	**0.39**	0.00	**0.39**				
12.50	**0.10**	0.00	**0.10**				
13.00	0.05	0.00	0.05				
13.50	0.04	0.00	0.04				
14.00	0.03	0.00	0.03				
14.50	0.02	0.00	0.02				
15.00	0.02	0.00	0.02				
15.50	0.02	0.00	0.02				
16.00	0.02	0.00	0.02				
16.50	0.01	0.00	0.01				
17.00	0.01	0.00	0.01				
17.50	0.01	0.00	0.01				
18.00	0.01	0.00	0.01				
18.50	0.01	0.00	0.01				
19.00	0.01	0.00	0.01				
19.50	0.01	0.00	0.01				
20.00	0.01	0.00	0.01				
20.50	0.01	0.00	0.01				
21.00	0.01	0.00	0.01				
21.50	0.01	0.00	0.01				
22.00	0.01	0.00	0.01				
22.50	0.01	0.00	0.01				
23.00	0.01	0.00	0.01				
23.50	0.01	0.00	0.01				
24.00	0.01	0.00	0.01				
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 10L: UG BASIN B (TOTAL)

Inflow Area = 10,356 sf, 83.81% Impervious, Inflow Depth = 2.89" for 2-Year-Current event
Inflow = 0.75 cfs @ 12.07 hrs, Volume= 2,491 cf
Primary = 0.75 cfs @ 12.07 hrs, Volume= 2,491 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond 5P : UG BASIN B

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 10L: UG BASIN B (TOTAL)



Hydrograph for Link 10L: UG BASIN B (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	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00	29.00	0.00	0.00	0.00
3.50	0.01	0.00	0.01	29.50	0.00	0.00	0.00
4.00	0.01	0.00	0.01	30.00	0.00	0.00	0.00
4.50	0.01	0.00	0.01				
5.00	0.01	0.00	0.01				
5.50	0.01	0.00	0.01				
6.00	0.01	0.00	0.01				
6.50	0.01	0.00	0.01				
7.00	0.01	0.00	0.01				
7.50	0.01	0.00	0.01				
8.00	0.02	0.00	0.02				
8.50	0.02	0.00	0.02				
9.00	0.02	0.00	0.02				
9.50	0.02	0.00	0.02				
10.00	0.03	0.00	0.03				
10.50	0.04	0.00	0.04				
11.00	0.06	0.00	0.06				
11.50	0.10	0.00	0.10				
12.00	**0.49**	0.00	**0.49**				
12.50	**0.13**	0.00	**0.13**				
13.00	0.07	0.00	0.07				
13.50	0.05	0.00	0.05				
14.00	0.04	0.00	0.04				
14.50	0.03	0.00	0.03				
15.00	0.02	0.00	0.02				
15.50	0.02	0.00	0.02				
16.00	0.02	0.00	0.02				
16.50	0.02	0.00	0.02				
17.00	0.02	0.00	0.02				
17.50	0.02	0.00	0.02				
18.00	0.01	0.00	0.01				
18.50	0.01	0.00	0.01				
19.00	0.01	0.00	0.01				
19.50	0.01	0.00	0.01				
20.00	0.01	0.00	0.01				
20.50	0.01	0.00	0.01				
21.00	0.01	0.00	0.01				
21.50	0.01	0.00	0.01				
22.00	0.01	0.00	0.01				
22.50	0.01	0.00	0.01				
23.00	0.01	0.00	0.01				
23.50	0.01	0.00	0.01				
24.00	0.01	0.00	0.01				
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=Delmarva, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment8S: UG BASIN A (PERV) Runoff Area=978 sf 0.00% Impervious Runoff Depth=3.14"
Tc=1.0 min CN=80 Runoff=0.09 cfs 256 cf

Subcatchment9S: UG BASIN A (IMP) Runoff Area=6,904 sf 100.00% Impervious Runoff Depth=5.04"
Flow Length=70' Slope=0.0142 '/' Tc=1.0 min CN=98 Runoff=0.85 cfs 2,901 cf

Subcatchment10S: UG BASIN B (PERV) Runoff Area=1,677 sf 0.00% Impervious Runoff Depth=3.14"
Tc=1.1 min CN=80 Runoff=0.15 cfs 439 cf

Subcatchment12S: UG BASIN B (IMP) Runoff Area=8,679 sf 100.00% Impervious Runoff Depth=5.04"
Flow Length=118' Tc=1.1 min CN=98 Runoff=1.07 cfs 3,647 cf

Subcatchment13S: UNDET. (PERV) Runoff Area=1,733 sf 0.00% Impervious Runoff Depth=3.14"
Tc=3.2 min CN=80 Runoff=0.14 cfs 453 cf

Subcatchment14S: UNDET. (IMP) Runoff Area=4,448 sf 100.00% Impervious Runoff Depth=5.04"
Flow Length=34' Tc=3.2 min CN=98 Runoff=0.49 cfs 1,869 cf

Pond 5P: UG BASIN B Peak Elev=14.62' Storage=1,227 cf Inflow=1.22 cfs 4,086 cf
Outflow=0.23 cfs 4,063 cf

Pond 10P: UG BASIN A Peak Elev=14.66' Storage=892 cf Inflow=0.94 cfs 3,157 cf
Outflow=0.20 cfs 3,152 cf

Link 3L: UNDETAINED Inflow=0.63 cfs 2,322 cf
Primary=0.63 cfs 2,322 cf

Link 7L: Total Runoff Inflow=1.01 cfs 9,537 cf
Primary=1.01 cfs 9,537 cf

Link 9L: UG BASIN A (TOTAL) Inflow=0.94 cfs 3,157 cf
Primary=0.94 cfs 3,157 cf

Link 10L: UG BASIN B (TOTAL) Inflow=1.22 cfs 4,086 cf
Primary=1.22 cfs 4,086 cf

Total Runoff Area = 24,419 sf Runoff Volume = 9,565 cf Average Runoff Depth = 4.70"
17.97% Pervious = 4,388 sf 82.03% Impervious = 20,031 sf

Summary for Subcatchment 8S: UG BASIN A (PERV)

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

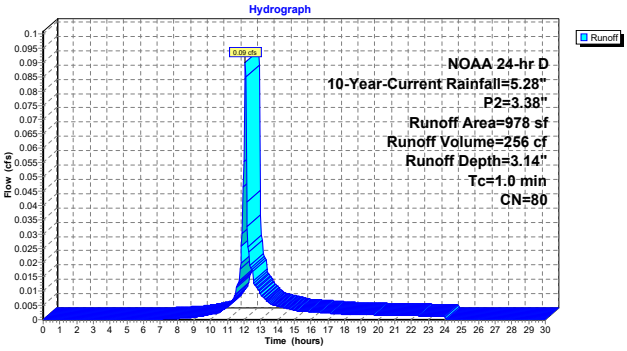
Runoff = 0.09 cfs @ 12.08 hrs, Volume= 256 cf, Depth= 3.14"
Routed to Link 9L : UG BASIN A (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year-Current Rainfall=5.28", P2=3.38"

Area (sf)	CN	Description
978	80	>75% Grass cover, Good, HSG D
978		100.00% Pervious Area

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

Subcatchment 8S: UG BASIN A (PERV)



Hydrograph for Subcatchment 8S: UG BASIN A (PERV)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	5.28	3.14	0.00
0.50	0.03	0.00	0.00	26.50	5.28	3.14	0.00
1.00	0.06	0.00	0.00	27.00	5.28	3.14	0.00
1.50	0.09	0.00	0.00	27.50	5.28	3.14	0.00
2.00	0.13	0.00	0.00	28.00	5.28	3.14	0.00
2.50	0.16	0.00	0.00	28.50	5.28	3.14	0.00
3.00	0.20	0.00	0.00	29.00	5.28	3.14	0.00
3.50	0.24	0.00	0.00	29.50	5.28	3.14	0.00
4.00	0.28	0.00	0.00	30.00	5.28	3.14	0.00
4.50	0.32	0.00	0.00				
5.00	0.36	0.00	0.00				
5.50	0.41	0.00	0.00				
6.00	0.45	0.00	0.00				
6.50	0.50	0.00	0.00				
7.00	0.56	0.00	0.00				
7.50	0.62	0.01	0.00				
8.00	0.69	0.01	0.00				
8.50	0.76	0.02	0.00				
9.00	0.84	0.04	0.00				
9.50	0.93	0.06	0.00				
10.00	1.05	0.10	0.00				
10.50	1.18	0.15	0.00				
11.00	1.37	0.23	0.00				
11.50	1.67	0.38	0.01				
12.00	2.53	0.91	**0.06**				
12.50	3.61	1.72	**0.02**				
13.00	3.91	1.97	0.01				
13.50	4.10	2.12	0.01				
14.00	4.23	2.24	0.00				
14.50	4.35	2.33	0.00				
15.00	4.44	2.41	0.00				
15.50	4.52	2.48	0.00				
16.00	4.59	2.54	0.00				
16.50	4.66	2.60	0.00				
17.00	4.72	2.65	0.00				
17.50	4.78	2.70	0.00				
18.00	4.83	2.74	0.00				
18.50	4.87	2.78	0.00				
19.00	4.92	2.82	0.00				
19.50	4.96	2.86	0.00				
20.00	5.00	2.90	0.00				
20.50	5.04	2.93	0.00				
21.00	5.08	2.96	0.00				
21.50	5.12	3.00	0.00				
22.00	5.15	3.03	0.00				
22.50	5.19	3.06	0.00				
23.00	5.22	3.09	0.00				
23.50	5.25	3.11	0.00				
24.00	**5.28**	**3.14**	0.00				
24.50	5.28	3.14	0.00				
25.00	5.28	3.14	0.00				
25.50	5.28	3.14	0.00				

Summary for Subcatchment 9S: UG BASIN A (IMP)

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

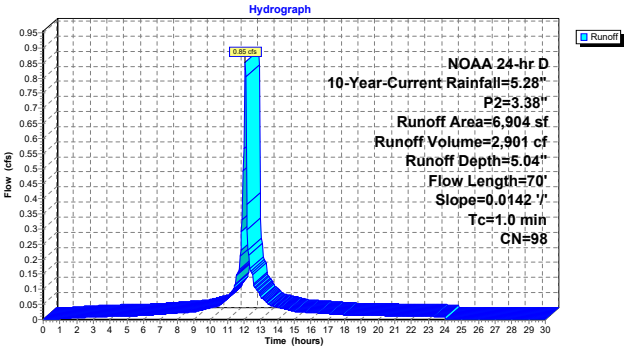
Runoff = 0.85 cfs @ 12.07 hrs, Volume= 2,901 cf, Depth= 5.04"
Routed to Link 9L : UG BASIN A (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year-Current Rainfall=5.28", P2=3.38"

Area (sf)	CN	Description
6,904	98	Paved parking, HSG A
6,904		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	70	0.0142	1.15		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.38"

Subcatchment 9S: UG BASIN A (IMP)



Hydrograph for Subcatchment 9S: UG BASIN A (IMP)

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	5.28	5.04	0.00
0.50	0.03	0.00	0.00	26.50	5.28	5.04	0.00
1.00	0.06	0.00	0.00	27.00	5.28	5.04	0.00
1.50	0.09	0.01	0.00	27.50	5.28	5.04	0.00
2.00	0.13	0.03	0.01	28.00	5.28	5.04	0.00
2.50	0.16	0.05	0.01	28.50	5.28	5.04	0.00
3.00	0.20	0.07	0.01	29.00	5.28	5.04	0.00
3.50	0.24	0.10	0.01	29.50	5.28	5.04	0.00
4.00	0.28	0.13	0.01	30.00	5.28	5.04	0.00
4.50	0.32	0.16	0.01				
5.00	0.36	0.20	0.01				
5.50	0.41	0.23	0.01				
6.00	0.45	0.27	0.01				
6.50	0.50	0.32	0.02				
7.00	0.56	0.37	0.02				
7.50	0.62	0.43	0.02				
8.00	0.69	0.49	0.02				
8.50	0.76	0.56	0.02				
9.00	0.84	0.63	0.03				
9.50	0.93	0.72	0.03				
10.00	1.05	0.84	0.04				
10.50	1.18	0.97	0.05				
11.00	1.37	1.15	0.07				
11.50	1.67	1.45	0.12				
12.00	2.53	2.30	**0.57**				
12.50	3.61	3.37	**0.15**				
13.00	3.91	3.67	0.08				
13.50	4.10	3.86	0.05				
14.00	4.23	4.00	0.04				
14.50	4.35	4.11	0.03				
15.00	4.44	4.21	0.03				
15.50	4.52	4.29	0.02				
16.00	4.59	4.36	0.02				
16.50	4.66	4.43	0.02				
17.00	4.72	4.49	0.02				
17.50	4.78	4.54	0.02				
18.00	4.83	4.59	0.02				
18.50	4.87	4.64	0.01				
19.00	4.92	4.68	0.01				
19.50	4.96	4.73	0.01				
20.00	5.00	4.77	0.01				
20.50	5.04	4.81	0.01				
21.00	5.08	4.84	0.01				
21.50	5.12	4.88	0.01				
22.00	5.15	4.92	0.01				
22.50	5.19	4.95	0.01				
23.00	5.22	4.98	0.01				
23.50	5.25	5.01	0.01				
24.00	**5.28**	**5.04**	0.01				
24.50	5.28	5.04	0.00				
25.00	5.28	5.04	0.00				
25.50	5.28	5.04	0.00				

Summary for Subcatchment 10S: UG BASIN B (PERV)

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

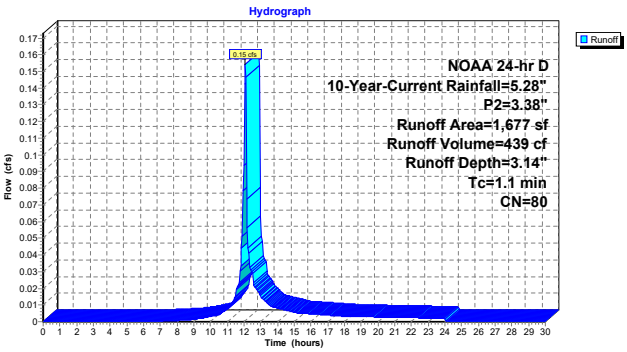
Runoff = 0.15 cfs @ 12.08 hrs, Volume= 439 cf, Depth= 3.14"
Routed to Link 10L : UG BASIN B (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year-Current Rainfall=5.28", P2=3.38"

Area (sf)	CN	Description
1,677	80	>75% Grass cover, Good, HSG D
1,677		100.00% Pervious Area

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

Subcatchment 10S: UG BASIN B (PERV)



Hydrograph for Subcatchment 10S: UG BASIN B (PERV)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	5.28	3.14	0.00
0.50	0.03	0.00	0.00	26.50	5.28	3.14	0.00
1.00	0.06	0.00	0.00	27.00	5.28	3.14	0.00
1.50	0.09	0.00	0.00	27.50	5.28	3.14	0.00
2.00	0.13	0.00	0.00	28.00	5.28	3.14	0.00
2.50	0.16	0.00	0.00	28.50	5.28	3.14	0.00
3.00	0.20	0.00	0.00	29.00	5.28	3.14	0.00
3.50	0.24	0.00	0.00	29.50	5.28	3.14	0.00
4.00	0.28	0.00	0.00	30.00	5.28	3.14	0.00
4.50	0.32	0.00	0.00				
5.00	0.36	0.00	0.00				
5.50	0.41	0.00	0.00				
6.00	0.45	0.00	0.00				
6.50	0.50	0.00	0.00				
7.00	0.56	0.00	0.00				
7.50	0.62	0.01	0.00				
8.00	0.69	0.01	0.00				
8.50	0.76	0.02	0.00				
9.00	0.84	0.04	0.00				
9.50	0.93	0.06	0.00				
10.00	1.05	0.10	0.00				
10.50	1.18	0.15	0.00				
11.00	1.37	0.23	0.01				
11.50	1.67	0.38	0.02				
12.00	2.53	0.91	**0.09**				
12.50	3.61	1.72	**0.03**				
13.00	3.91	1.97	0.02				
13.50	4.10	2.12	0.01				
14.00	4.23	2.24	0.01				
14.50	4.35	2.33	0.01				
15.00	4.44	2.41	0.01				
15.50	4.52	2.48	0.01				
16.00	4.59	2.54	0.00				
16.50	4.66	2.60	0.00				
17.00	4.72	2.65	0.00				
17.50	4.78	2.70	0.00				
18.00	4.83	2.74	0.00				
18.50	4.87	2.78	0.00				
19.00	4.92	2.82	0.00				
19.50	4.96	2.86	0.00				
20.00	5.00	2.90	0.00				
20.50	5.04	2.93	0.00				
21.00	5.08	2.96	0.00				
21.50	5.12	3.00	0.00				
22.00	5.15	3.03	0.00				
22.50	5.19	3.06	0.00				
23.00	5.22	3.09	0.00				
23.50	5.25	3.11	0.00				
24.00	**5.28**	**3.14**	0.00				
24.50	5.28	3.14	0.00				
25.00	5.28	3.14	0.00				
25.50	5.28	3.14	0.00				

Summary for Subcatchment 12S: UG BASIN B (IMP)

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

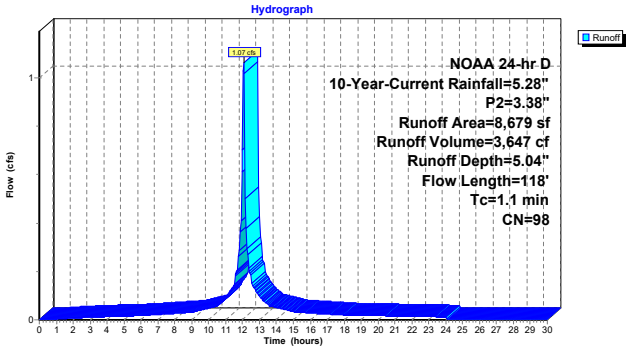
Runoff = 1.07 cfs @ 12.07 hrs, Volume= 3,647 cf, Depth= 5.04"
Routed to Link 10L : UG BASIN B (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year-Current Rainfall=5.28", P2=3.38"

Area (sf)	CN	Description
8,679	98	Paved parking, HSG A
8,679		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	71	0.0185	1.28		**Sheet Flow, SF - PARKING** Smooth surfaces n= 0.011 P2= 3.38"
0.2	47	0.0050	3.72	4.57	**Pipe Channel, RCP_Round 15"** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.1	118	Total			

Subcatchment 12S: UG BASIN B (IMP)



Hydrograph for Subcatchment 12S: UG BASIN B (IMP)

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	5.28	5.04	0.00
0.50	0.03	0.00	0.00	26.50	5.28	5.04	0.00
1.00	0.06	0.00	0.00	27.00	5.28	5.04	0.00
1.50	0.09	0.01	0.00	27.50	5.28	5.04	0.00
2.00	0.13	0.03	0.01	28.00	5.28	5.04	0.00
2.50	0.16	0.05	0.01	28.50	5.28	5.04	0.00
3.00	0.20	0.07	0.01	29.00	5.28	5.04	0.00
3.50	0.24	0.10	0.01	29.50	5.28	5.04	0.00
4.00	0.28	0.13	0.01	30.00	5.28	5.04	0.00
4.50	0.32	0.16	0.01				
5.00	0.36	0.20	0.01				
5.50	0.41	0.23	0.02				
6.00	0.45	0.27	0.02				
6.50	0.50	0.32	0.02				
7.00	0.56	0.37	0.02				
7.50	0.62	0.43	0.02				
8.00	0.69	0.49	0.03				
8.50	0.76	0.56	0.03				
9.00	0.84	0.63	0.03				
9.50	0.93	0.72	0.04				
10.00	1.05	0.84	0.05				
10.50	1.18	0.97	0.06				
11.00	1.37	1.15	0.09				
11.50	1.67	1.45	0.15				
12.00	2.53	2.30	**0.71**				
12.50	3.61	3.37	**0.19**				
13.00	3.91	3.67	0.10				
13.50	4.10	3.86	0.06				
14.00	4.23	4.00	0.05				
14.50	4.35	4.11	0.04				
15.00	4.44	4.21	0.03				
15.50	4.52	4.29	0.03				
16.00	4.59	4.36	0.03				
16.50	4.66	4.43	0.03				
17.00	4.72	4.49	0.02				
17.50	4.78	4.54	0.02				
18.00	4.83	4.59	0.02				
18.50	4.87	4.64	0.02				
19.00	4.92	4.68	0.02				
19.50	4.96	4.73	0.02				
20.00	5.00	4.77	0.02				
20.50	5.04	4.81	0.02				
21.00	5.08	4.84	0.02				
21.50	5.12	4.88	0.01				
22.00	5.15	4.92	0.01				
22.50	5.19	4.95	0.01				
23.00	5.22	4.98	0.01				
23.50	5.25	5.01	0.01				
24.00	**5.28**	**5.04**	0.01				
24.50	5.28	5.04	0.00				
25.00	5.28	5.04	0.00				
25.50	5.28	5.04	0.00				

Summary for Subcatchment 13S: UNDET. (PERV)

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

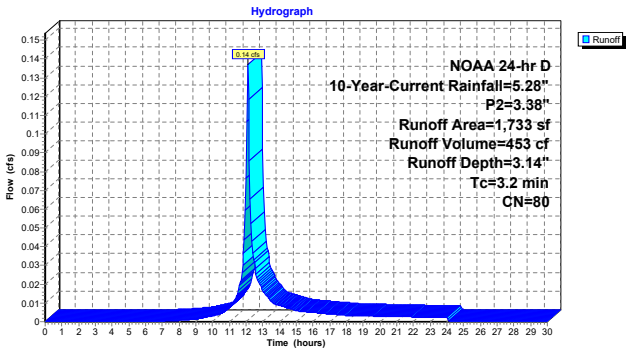
Runoff = 0.14 cfs @ 12.11 hrs, Volume= 453 cf, Depth= 3.14"
Routed to Link 3L : UNDETAINED

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year-Current Rainfall=5.28", P2=3.38"

Area (sf)	CN	Description
1,733	80	>75% Grass cover, Good, HSG D
1,733		100.00% Pervious Area

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

Subcatchment 13S: UNDET. (PERV)



Hydrograph for Subcatchment 13S: UNDET. (PERV)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	5.28	3.14	0.00
0.50	0.03	0.00	0.00	26.50	5.28	3.14	0.00
1.00	0.06	0.00	0.00	27.00	5.28	3.14	0.00
1.50	0.09	0.00	0.00	27.50	5.28	3.14	0.00
2.00	0.13	0.00	0.00	28.00	5.28	3.14	0.00
2.50	0.16	0.00	0.00	28.50	5.28	3.14	0.00
3.00	0.20	0.00	0.00	29.00	5.28	3.14	0.00
3.50	0.24	0.00	0.00	29.50	5.28	3.14	0.00
4.00	0.28	0.00	0.00	30.00	5.28	3.14	0.00
4.50	0.32	0.00	0.00				
5.00	0.36	0.00	0.00				
5.50	0.41	0.00	0.00				
6.00	0.45	0.00	0.00				
6.50	0.50	0.00	0.00				
7.00	0.56	0.00	0.00				
7.50	0.62	0.01	0.00				
8.00	0.69	0.01	0.00				
8.50	0.76	0.02	0.00				
9.00	0.84	0.04	0.00				
9.50	0.93	0.06	0.00				
10.00	1.05	0.10	0.00				
10.50	1.18	0.15	0.00				
11.00	1.37	0.23	0.01				
11.50	1.67	0.38	0.01				
12.00	2.53	0.91	**0.08**				
12.50	3.61	1.72	**0.03**				
13.00	3.91	1.97	0.02				
13.50	4.10	2.12	0.01				
14.00	4.23	2.24	0.01				
14.50	4.35	2.33	0.01				
15.00	4.44	2.41	0.01				
15.50	4.52	2.48	0.01				
16.00	4.59	2.54	0.00				
16.50	4.66	2.60	0.00				
17.00	4.72	2.65	0.00				
17.50	4.78	2.70	0.00				
18.00	4.83	2.74	0.00				
18.50	4.87	2.78	0.00				
19.00	4.92	2.82	0.00				
19.50	4.96	2.86	0.00				
20.00	5.00	2.90	0.00				
20.50	5.04	2.93	0.00				
21.00	5.08	2.96	0.00				
21.50	5.12	3.00	0.00				
22.00	5.15	3.03	0.00				
22.50	5.19	3.06	0.00				
23.00	5.22	3.09	0.00				
23.50	5.25	3.11	0.00				
24.00	**5.28**	**3.14**	0.00				
24.50	5.28	3.14	0.00				
25.00	5.28	3.14	0.00				
25.50	5.28	3.14	0.00				

Summary for Subcatchment 14S: UNDET. (IMP)

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

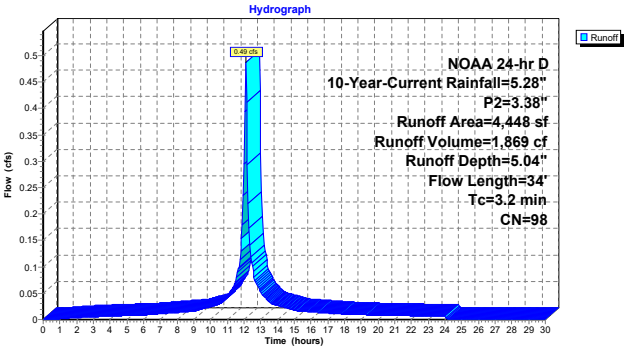
Runoff = 0.49 cfs @ 12.10 hrs, Volume= 1,869 cf, Depth= 5.04"
Routed to Link 3L : UNDETAINED

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year-Current Rainfall=5.28", P2=3.38"

Area (sf)	CN	Description
4,448	98	Paved parking, HSG A
4,448		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	18	0.0341	0.11		**Sheet Flow, Sheet Flow A-B** Grass: Dense n= 0.240 P2= 3.38"
0.4	16	0.0075	0.66		**Sheet Flow, Sheet Flow B-C** Smooth surfaces n= 0.011 P2= 3.38"
3.2	34	Total			

Subcatchment 14S: UNDET. (IMP)



Hydrograph for Subcatchment 14S: UNDET. (IMP)

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	5.28	5.04	0.00
0.50	0.03	0.00	0.00	26.50	5.28	5.04	0.00
1.00	0.06	0.00	0.00	27.00	5.28	5.04	0.00
1.50	0.09	0.01	0.00	27.50	5.28	5.04	0.00
2.00	0.13	0.03	0.00	28.00	5.28	5.04	0.00
2.50	0.16	0.05	0.00	28.50	5.28	5.04	0.00
3.00	0.20	0.07	0.01	29.00	5.28	5.04	0.00
3.50	0.24	0.10	0.01	29.50	5.28	5.04	0.00
4.00	0.28	0.13	0.01	30.00	5.28	5.04	0.00
4.50	0.32	0.16	0.01				
5.00	0.36	0.20	0.01				
5.50	0.41	0.23	0.01				
6.00	0.45	0.27	0.01				
6.50	0.50	0.32	0.01				
7.00	0.56	0.37	0.01				
7.50	0.62	0.43	0.01				
8.00	0.69	0.49	0.01				
8.50	0.76	0.56	0.01				
9.00	0.84	0.63	0.02				
9.50	0.93	0.72	0.02				
10.00	1.05	0.84	0.02				
10.50	1.18	0.97	0.03				
11.00	1.37	1.15	0.04				
11.50	1.67	1.45	0.07				
12.00	2.53	2.30	**0.30**				
12.50	3.61	3.37	**0.10**				
13.00	3.91	3.67	0.05				
13.50	4.10	3.86	0.03				
14.00	4.23	4.00	0.03				
14.50	4.35	4.11	0.02				
15.00	4.44	4.21	0.02				
15.50	4.52	4.29	0.02				
16.00	4.59	4.36	0.01				
16.50	4.66	4.43	0.01				
17.00	4.72	4.49	0.01				
17.50	4.78	4.54	0.01				
18.00	4.83	4.59	0.01				
18.50	4.87	4.64	0.01				
19.00	4.92	4.68	0.01				
19.50	4.96	4.73	0.01				
20.00	5.00	4.77	0.01				
20.50	5.04	4.81	0.01				
21.00	5.08	4.84	0.01				
21.50	5.12	4.88	0.01				
22.00	5.15	4.92	0.01				
22.50	5.19	4.95	0.01				
23.00	5.22	4.98	0.01				
23.50	5.25	5.01	0.01				
24.00	**5.28**	**5.04**	0.01				
24.50	5.28	5.04	0.00				
25.00	5.28	5.04	0.00				
25.50	5.28	5.04	0.00				

Summary for Pond 5P: UG BASIN B

Inflow Area = 10,356 sf, 83.81% Impervious, Inflow Depth = 4.73" for 10-Year-Current event
Inflow = 1.22 cfs @ 12.07 hrs, Volume= 4,086 cf
Outflow = 0.23 cfs @ 12.41 hrs, Volume= 4,063 cf, Atten= 81%, Lag= 20.3 min
Primary = 0.23 cfs @ 12.41 hrs, Volume= 4,063 cf
Routed to Link 7L : Total Runoff

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 14.62' @ 12.41 hrs Storage= 1,227 cf

Plug-Flow detention time= 67.2 min calculated for 4,063 cf (99% of inflow)
Center-of-Mass det. time= 63.5 min (816.5 - 753.0)

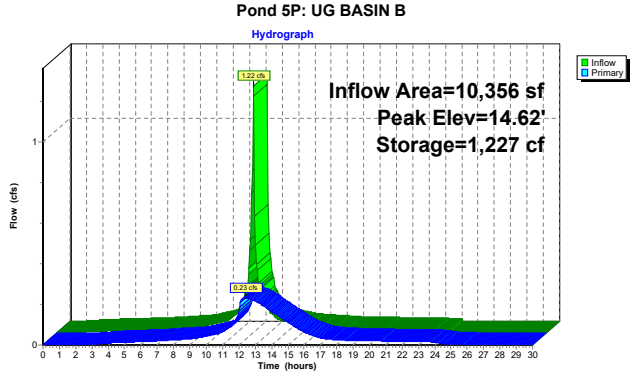
Volume	Invert	Avail.Storage	Storage Description
#1	12.52'	1,561 cf	**B-2-8 Storm Trap**Listed below

Elevation (feet)	Cum.Store (cubic-feet)
12.52	0
15.19	1,561

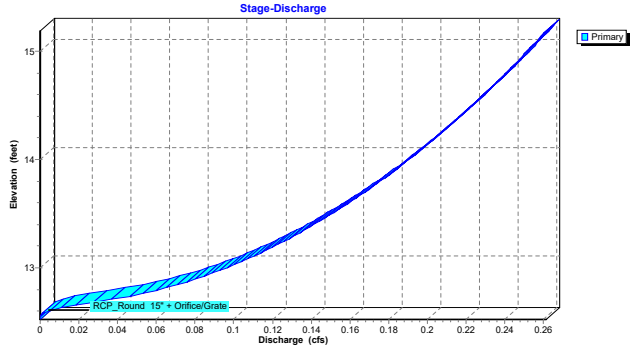
Device	Routing	Invert	Outlet Devices
#1	Primary	12.55'	**15.0" Round RCP_Round 15"** L= 10.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 12.55' / 12.20' S= 0.0350 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	12.55'	**2.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.23 cfs @ 12.41 hrs HW=14.62' (Free Discharge)
└─**1=RCP_Round 15"** (Passes 0.23 cfs of 8.87 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 0.23 cfs @ 6.75 fps)

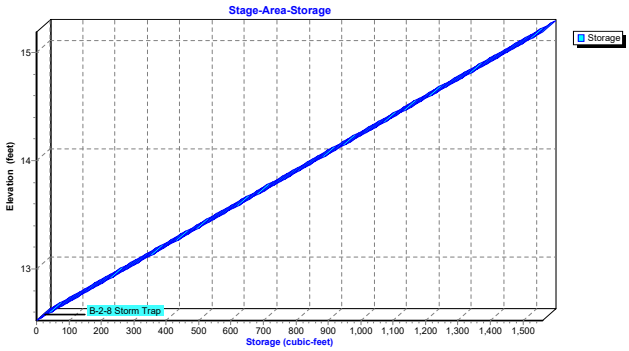
Pond 5P: UG BASIN B



Pond 5P: UG BASIN B



Pond 5P: UG BASIN B



Hydrograph for Pond 5P: UG BASIN B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	12.52	0.00
1.00	0.00	1	12.52	0.00
2.00	0.01	18	12.55	0.00
3.00	0.01	43	12.59	0.00
4.00	0.01	60	12.62	0.01
5.00	0.01	67	12.64	0.01
6.00	0.02	72	12.64	0.02
7.00	0.02	79	12.66	0.02
8.00	0.03	89	12.67	0.02
9.00	0.03	98	12.69	0.03
10.00	0.05	120	12.73	0.04
11.00	0.10	174	12.82	0.07
12.00	**0.80**	**680**	**13.68**	**0.17**
13.00	**0.11**	**1,085**	**14.38**	**0.22**
14.00	0.06	674	13.67	0.17
15.00	0.04	351	13.12	0.11
16.00	0.03	167	12.81	0.06
17.00	0.03	106	12.70	0.03
18.00	0.02	90	12.67	0.03
19.00	0.02	83	12.66	0.02
20.00	0.02	80	12.66	0.02
21.00	0.02	78	12.65	0.02
22.00	0.02	75	12.65	0.02
23.00	0.01	72	12.64	0.02
24.00	0.01	69	12.64	0.01
25.00	0.00	43	12.59	0.00
26.00	0.00	34	12.58	0.00
27.00	0.00	29	12.57	0.00
28.00	0.00	26	12.57	0.00
29.00	0.00	24	12.56	0.00
30.00	0.00	23	12.56	0.00

Stage-Discharge for Pond 5P: UG BASIN B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
12.52	0.00	13.56	0.16	14.60	0.23
12.54	0.00	13.58	0.16	14.62	0.23
12.56	0.00	13.60	0.16	14.64	0.23
12.58	0.00	13.62	0.16	14.66	0.23
12.60	0.00	13.64	0.16	14.68	0.23
12.62	0.01	13.66	0.16	14.70	0.23
12.64	0.01	13.68	0.17	14.72	0.24
12.66	0.02	13.70	0.17	14.74	0.24
12.68	0.03	13.72	0.17	14.76	0.24
12.70	0.03	13.74	0.17	14.78	0.24
12.72	0.04	13.76	0.17	14.80	0.24
12.74	0.05	13.78	0.17	14.82	0.24
12.76	0.05	13.80	0.18	14.84	0.24
12.78	0.06	13.82	0.18	14.86	0.24
12.80	0.06	13.84	0.18	14.88	0.24
12.82	0.07	13.86	0.18	14.90	0.25
12.84	0.07	13.88	0.18	14.92	0.25
12.86	0.07	13.90	0.18	14.94	0.25
12.88	0.08	13.92	0.18	14.96	0.25
12.90	0.08	13.94	0.19	14.98	0.25
12.92	0.08	13.96	0.19	15.00	0.25
12.94	0.09	13.98	0.19	15.02	0.25
12.96	0.09	14.00	0.19	15.04	0.25
12.98	0.09	14.02	0.19	15.06	0.25
13.00	0.10	14.04	0.19	15.08	0.26
13.02	0.10	14.06	0.19	15.10	0.26
13.04	0.10	14.08	0.20	15.12	0.26
13.06	0.10	14.10	0.20	15.14	0.26
13.08	0.11	14.12	0.20	15.16	0.26
13.10	0.11	14.14	0.20	15.18	**0.26**
13.12	0.11	14.16	0.20		
13.14	0.11	14.18	0.20		
13.16	0.12	14.20	0.20		
13.18	0.12	14.22	0.21		
13.20	0.12	14.24	0.21		
13.22	0.12	14.26	0.21		
13.24	0.13	14.28	0.21		
13.26	0.13	14.30	0.21		
13.28	0.13	14.32	0.21		
13.30	0.13	14.34	0.21		
13.32	0.13	14.36	0.21		
13.34	0.14	14.38	0.22		
13.36	0.14	14.40	0.22		
13.38	0.14	14.42	0.22		
13.40	0.14	14.44	0.22		
13.42	0.14	14.46	0.22		
13.44	0.15	14.48	0.22		
13.46	0.15	14.50	0.22		
13.48	0.15	14.52	0.22		
13.50	0.15	14.54	0.23		
13.52	0.15	14.56	0.23		
13.54	0.15	14.58	0.23		

Stage-Area-Storage for Pond 5P: UG BASIN B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
12.52	0	13.56	608	14.60	1,216
12.54	12	13.58	620	14.62	1,228
12.56	23	13.60	631	14.64	1,239
12.58	35	13.62	643	14.66	1,251
12.60	47	13.64	655	14.68	1,263
12.62	58	13.66	666	14.70	1,275
12.64	70	13.68	678	14.72	1,286
12.66	82	13.70	690	14.74	1,298
12.68	94	13.72	702	14.76	1,310
12.70	105	13.74	713	14.78	1,321
12.72	117	13.76	725	14.80	1,333
12.74	129	13.78	737	14.82	1,345
12.76	140	13.80	748	14.84	1,356
12.78	152	13.82	760	14.86	1,368
12.80	164	13.84	772	14.88	1,380
12.82	175	13.86	783	14.90	1,391
12.84	187	13.88	795	14.92	1,403
12.86	199	13.90	807	14.94	1,415
12.88	210	13.92	819	14.96	1,427
12.90	222	13.94	830	14.98	1,438
12.92	234	13.96	842	15.00	1,450
12.94	246	13.98	854	15.02	1,462
12.96	257	14.00	865	15.04	1,473
12.98	269	14.02	877	15.06	1,485
13.00	281	14.04	889	15.08	1,497
13.02	292	14.06	900	15.10	1,508
13.04	304	14.08	912	15.12	1,520
13.06	316	14.10	924	15.14	1,532
13.08	327	14.12	935	15.16	1,543
13.10	339	14.14	947	15.18	**1,555**
13.12	351	14.16	959		
13.14	362	14.18	971		
13.16	374	14.20	982		
13.18	386	14.22	994		
13.20	398	14.24	1,006		
13.22	409	14.26	1,017		
13.24	421	14.28	1,029		
13.26	433	14.30	1,041		
13.28	444	14.32	1,052		
13.30	456	14.34	1,064		
13.32	468	14.36	1,076		
13.34	479	14.38	1,087		
13.36	491	14.40	1,099		
13.38	503	14.42	1,111		
13.40	514	14.44	1,123		
13.42	526	14.46	1,134		
13.44	538	14.48	1,146		
13.46	550	14.50	1,158		
13.48	561	14.52	1,169		
13.50	573	14.54	1,181		
13.52	585	14.56	1,193		
13.54	596	14.58	1,204		

Summary for Pond 10P: UG BASIN A

Inflow Area = 7,882 sf, 87.59% Impervious, Inflow Depth = 4.81" for 10-Year-Current event
Inflow = 0.94 cfs @ 12.07 hrs, Volume= 3,157 cf
Outflow = 0.20 cfs @ 12.35 hrs, Volume= 3,152 cf, Atten= 79%, Lag= 16.9 min
Primary = 0.20 cfs @ 12.35 hrs, Volume= 3,152 cf
Routed to Link 7L : Total Runoff

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 14.66' @ 12.35 hrs Storage= 892 cf

Plug-Flow detention time= 57.3 min calculated for 3,146 cf (100% of inflow)
Center-of-Mass det. time= 56.5 min (807.3 - 750.8)

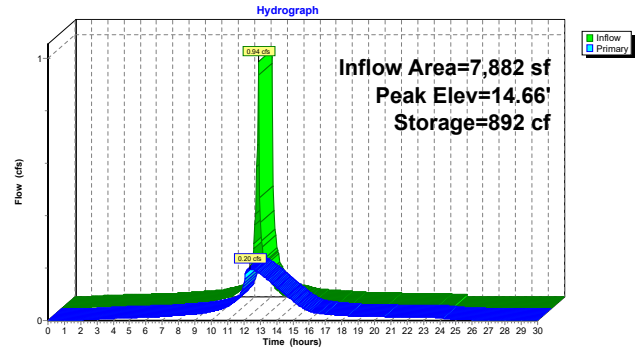
Volume	Invert	Avail.Storage	Storage Description
#1	13.13'	1,169 cf	**Custom Stage Data**Listed below

Elevation (feet)	Cum.Store (cubic-feet)
13.13	0
15.13	1,169

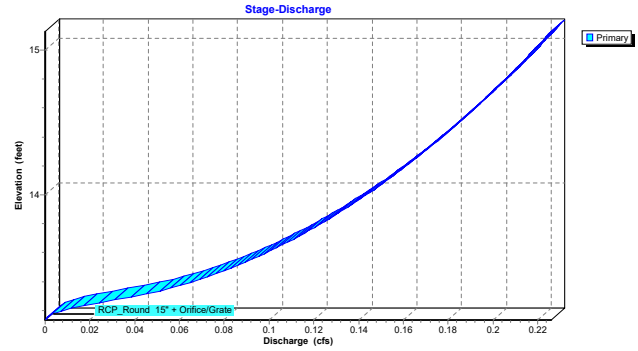
Device	Routing	Invert	Outlet Devices
#1	Primary	13.13'	**15.0" Round RCP_Round 15"** L= 20.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 13.13' / 13.03' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	13.13'	**2.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.20 cfs @ 12.35 hrs HW=14.66' (Free Discharge)
└─**1=RCP_Round 15"** (Passes 0.20 cfs of 5.23 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 0.20 cfs @ 5.74 fps)

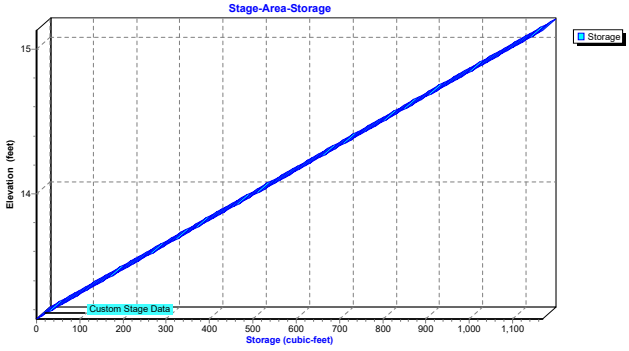
Pond 10P: UG BASIN A



Pond 10P: UG BASIN A



Pond 10P: UG BASIN A



Hydrograph for Pond 10P: UG BASIN A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	13.13	0.00
1.00	0.00	1	13.13	0.00
2.00	0.01	13	13.15	0.00
3.00	0.01	28	13.18	0.00
4.00	0.01	38	13.20	0.01
5.00	0.01	44	13.21	0.01
6.00	0.01	48	13.21	0.01
7.00	0.02	54	13.22	0.02
8.00	0.02	62	13.24	0.02
9.00	0.03	70	13.25	0.02
10.00	0.04	87	13.28	0.03
11.00	0.07	125	13.34	0.05
12.00	**0.62**	**500**	**13.99**	**0.14**
13.00	**0.09**	**745**	**14.40**	**0.18**
14.00	0.05	408	13.83	0.13
15.00	0.03	182	13.44	0.07
16.00	0.03	89	13.28	0.04
17.00	0.02	70	13.25	0.02
18.00	0.02	61	13.24	0.02
19.00	0.02	57	13.23	0.02
20.00	0.01	54	13.22	0.02
21.00	0.01	52	13.22	0.01
22.00	0.01	50	13.21	0.01
23.00	0.01	48	13.21	0.01
24.00	0.01	45	13.21	0.01
25.00	0.00	24	13.17	0.00
26.00	0.00	16	13.16	0.00
27.00	0.00	12	13.15	0.00
28.00	0.00	9	13.15	0.00
29.00	0.00	7	13.14	0.00
30.00	0.00	5	13.14	0.00

Stage-Discharge for Pond 10P: UG BASIN A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
13.13	0.00	13.65	0.11	14.17	0.16	14.69	0.20
13.14	0.00	13.66	0.11	14.18	0.16	14.70	0.20
13.15	0.00	13.67	0.11	14.19	0.16	14.71	0.20
13.16	0.00	13.68	0.11	14.20	0.16	14.72	0.20
13.17	0.00	13.69	0.11	14.21	0.16	14.73	0.20
13.18	0.00	13.70	0.11	14.22	0.16	14.74	0.20
13.19	0.01	13.71	0.11	14.23	0.16	14.75	0.20
13.20	0.01	13.72	0.11	14.24	0.16	14.76	0.20
13.21	0.01	13.73	0.12	14.25	0.17	14.77	0.20
13.22	0.01	13.74	0.12	14.26	0.17	14.78	0.20
13.23	0.02	13.75	0.12	14.27	0.17	14.79	0.20
13.24	0.02	13.76	0.12	14.28	0.17	14.80	0.21
13.25	0.02	13.77	0.12	14.29	0.17	14.81	0.21
13.26	0.03	13.78	0.12	14.30	0.17	14.82	0.21
13.27	0.03	13.79	0.12	14.31	0.17	14.83	0.21
13.28	0.03	13.80	0.12	14.32	0.17	14.84	0.21
13.29	0.04	13.81	0.12	14.33	0.17	14.85	0.21
13.30	0.04	13.82	0.13	14.34	0.17	14.86	0.21
13.31	0.05	13.83	0.13	14.35	0.17	14.87	0.21
13.32	0.05	13.84	0.13	14.36	0.17	14.88	0.21
13.33	0.05	13.85	0.13	14.37	0.17	14.89	0.21
13.34	0.05	13.86	0.13	14.38	0.18	14.90	0.21
13.35	0.06	13.87	0.13	14.39	0.18	14.91	0.21
13.36	0.06	13.88	0.13	14.40	0.18	14.92	0.21
13.37	0.06	13.89	0.13	14.41	0.18	14.93	0.21
13.38	0.06	13.90	0.13	14.42	0.18	14.94	0.21
13.39	0.06	13.91	0.13	14.43	0.18	14.95	0.22
13.40	0.07	13.92	0.14	14.44	0.18	14.96	0.22
13.41	0.07	13.93	0.14	14.45	0.18	14.97	0.22
13.42	0.07	13.94	0.14	14.46	0.18	14.98	0.22
13.43	0.07	13.95	0.14	14.47	0.18	14.99	0.22
13.44	0.07	13.96	0.14	14.48	0.18	15.00	0.22
13.45	0.08	13.97	0.14	14.49	0.18	15.01	0.22
13.46	0.08	13.98	0.14	14.50	0.18	15.02	0.22
13.47	0.08	13.99	0.14	14.51	0.19	15.03	0.22
13.48	0.08	14.00	0.14	14.52	0.19	15.04	0.22
13.49	0.08	14.01	0.14	14.53	0.19	15.05	0.22
13.50	0.08	14.02	0.15	14.54	0.19	15.06	0.22
13.51	0.09	14.03	0.15	14.55	0.19	15.07	0.22
13.52	0.09	14.04	0.15	14.56	0.19	15.08	0.22
13.53	0.09	14.05	0.15	14.57	0.19	15.09	0.22
13.54	0.09	14.06	0.15	14.58	0.19	15.10	0.22
13.55	0.09	14.07	0.15	14.59	0.19	15.11	0.22
13.56	0.09	14.08	0.15	14.60	0.19	15.12	0.23
13.57	0.10	14.09	0.15	14.61	0.19	15.13	**0.23**
13.58	0.10	14.10	0.15	14.62	0.19		
13.59	0.10	14.11	0.15	14.63	0.19		
13.60	0.10	14.12	0.15	14.64	0.19		
13.61	0.10	14.13	0.16	14.65	0.20		
13.62	0.10	14.14	0.16	14.66	0.20		
13.63	0.10	14.15	0.16	14.67	0.20		
13.64	0.10	14.16	0.16	14.68	0.20		

Stage-Area-Storage for Pond 10P: UG BASIN A

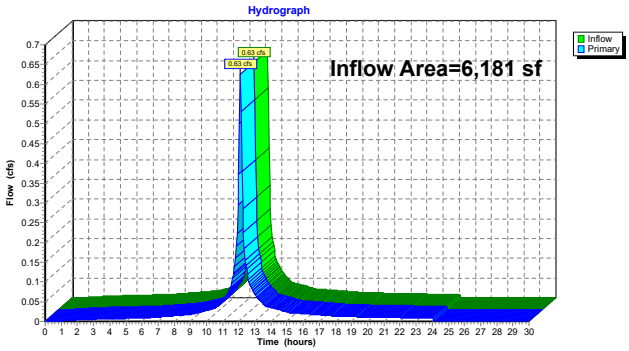
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
13.13	0	14.17	608
13.15	12	14.19	620
13.17	23	14.21	631
13.19	35	14.23	643
13.21	47	14.25	655
13.23	58	14.27	666
13.25	70	14.29	678
13.27	82	14.31	690
13.29	94	14.33	701
13.31	105	14.35	713
13.33	117	14.37	725
13.35	129	14.39	736
13.37	140	14.41	748
13.39	152	14.43	760
13.41	164	14.45	772
13.43	175	14.47	783
13.45	187	14.49	795
13.47	199	14.51	807
13.49	210	14.53	818
13.51	222	14.55	830
13.53	234	14.57	842
13.55	245	14.59	853
13.57	257	14.61	865
13.59	269	14.63	877
13.61	281	14.65	888
13.63	292	14.67	900
13.65	304	14.69	912
13.67	316	14.71	924
13.69	327	14.73	935
13.71	339	14.75	947
13.73	351	14.77	959
13.75	362	14.79	970
13.77	374	14.81	982
13.79	386	14.83	994
13.81	397	14.85	1,005
13.83	409	14.87	1,017
13.85	421	14.89	1,029
13.87	433	14.91	1,040
13.89	444	14.93	1,052
13.91	456	14.95	1,064
13.93	468	14.97	1,075
13.95	479	14.99	1,087
13.97	491	15.01	1,099
13.99	503	15.03	1,111
14.01	514	15.05	1,122
14.03	526	15.07	1,134
14.05	538	15.09	1,146
14.07	549	15.11	1,157
14.09	561	15.13	**1,169**
14.11	573		
14.13	585		
14.15	596		

Summary for Link 3L: UNDETAINED

Inflow Area = 6,181 sf, 71.96% Impervious, Inflow Depth = 4.51" for 10-Year-Current event
Inflow = 0.63 cfs @ 12.10 hrs, Volume= 2,322 cf
Primary = 0.63 cfs @ 12.10 hrs, Volume= 2,322 cf, Atten= 0%, Lag= 0.0 min
Routed to Link 7L : Total Runoff

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: UNDETAINED



Hydrograph for Link 3L: UNDETAINED

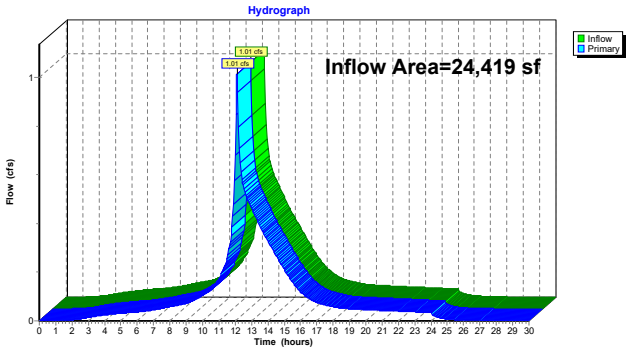
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.01	0.00	0.01	29.00	0.00	0.00	0.00
3.50	0.01	0.00	0.01	29.50	0.00	0.00	0.00
4.00	0.01	0.00	0.01	30.00	0.00	0.00	0.00
4.50	0.01	0.00	0.01				
5.00	0.01	0.00	0.01				
5.50	0.01	0.00	0.01				
6.00	0.01	0.00	0.01				
6.50	0.01	0.00	0.01				
7.00	0.01	0.00	0.01				
7.50	0.01	0.00	0.01				
8.00	0.01	0.00	0.01				
8.50	0.02	0.00	0.02				
9.00	0.02	0.00	0.02				
9.50	0.02	0.00	0.02				
10.00	0.03	0.00	0.03				
10.50	0.03	0.00	0.03				
11.00	0.05	0.00	0.05				
11.50	0.08	0.00	0.08				
12.00	**0.37**	0.00	**0.37**				
12.50	**0.13**	0.00	**0.13**				
13.00	0.07	0.00	0.07				
13.50	0.04	0.00	0.04				
14.00	0.04	0.00	0.04				
14.50	0.03	0.00	0.03				
15.00	0.02	0.00	0.02				
15.50	0.02	0.00	0.02				
16.00	0.02	0.00	0.02				
16.50	0.02	0.00	0.02				
17.00	0.02	0.00	0.02				
17.50	0.01	0.00	0.01				
18.00	0.01	0.00	0.01				
18.50	0.01	0.00	0.01				
19.00	0.01	0.00	0.01				
19.50	0.01	0.00	0.01				
20.00	0.01	0.00	0.01				
20.50	0.01	0.00	0.01				
21.00	0.01	0.00	0.01				
21.50	0.01	0.00	0.01				
22.00	0.01	0.00	0.01				
22.50	0.01	0.00	0.01				
23.00	0.01	0.00	0.01				
23.50	0.01	0.00	0.01				
24.00	0.01	0.00	0.01				
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 7L: Total Runoff

Inflow Area = 24,419 sf, 82.03% Impervious, Inflow Depth > 4.69" for 10-Year-Current event
Inflow = 1.01 cfs @ 12.11 hrs, Volume= 9,537 cf
Primary = 1.01 cfs @ 12.11 hrs, Volume= 9,537 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 7L: Total Runoff



Hydrograph for Link 7L: Total Runoff

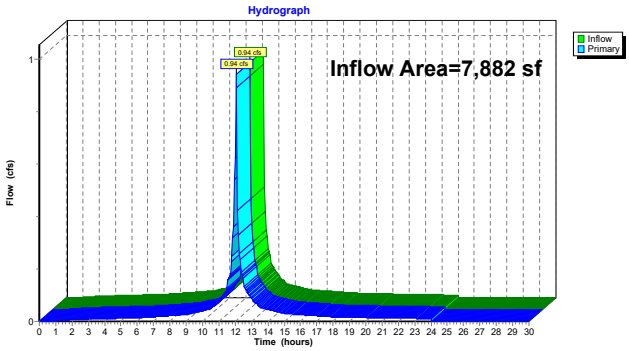
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.01	0.00	0.01	28.50	0.00	0.00	0.00
3.00	0.01	0.00	0.01	29.00	0.00	0.00	0.00
3.50	0.02	0.00	0.02	29.50	0.00	0.00	0.00
4.00	0.02	0.00	0.02	30.00	0.00	0.00	0.00
4.50	0.03	0.00	0.03				
5.00	0.03	0.00	0.03				
5.50	0.03	0.00	0.03				
6.00	0.04	0.00	0.04				
6.50	0.04	0.00	0.04				
7.00	0.05	0.00	0.05				
7.50	0.05	0.00	0.05				
8.00	0.06	0.00	0.06				
8.50	0.06	0.00	0.06				
9.00	0.07	0.00	0.07				
9.50	0.09	0.00	0.09				
10.00	0.11	0.00	0.11				
10.50	0.13	0.00	0.13				
11.00	0.17	0.00	0.17				
11.50	0.25	0.00	0.25				
12.00	**0.68**	0.00	**0.68**				
12.50	**0.56**	0.00	**0.56**				
13.00	0.46	0.00	0.46				
13.50	0.39	0.00	0.39				
14.00	0.33	0.00	0.33				
14.50	0.27	0.00	0.27				
15.00	0.21	0.00	0.21				
15.50	0.16	0.00	0.16				
16.00	0.12	0.00	0.12				
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	0.05	0.00	0.05				
19.00	0.05	0.00	0.05				
19.50	0.05	0.00	0.05				
20.00	0.05	0.00	0.05				
20.50	0.04	0.00	0.04				
21.00	0.04	0.00	0.04				
21.50	0.04	0.00	0.04				
22.00	0.04	0.00	0.04				
22.50	0.04	0.00	0.04				
23.00	0.04	0.00	0.04				
23.50	0.03	0.00	0.03				
24.00	0.03	0.00	0.03				
24.50	0.01	0.00	0.01				
25.00	0.01	0.00	0.01				
25.50	0.00	0.00	0.00				

Summary for Link 9L: UG BASIN A (TOTAL)

Inflow Area = 7,882 sf, 87.59% Impervious, Inflow Depth = 4.81" for 10-Year-Current event
Inflow = 0.94 cfs @ 12.07 hrs, Volume= 3,157 cf
Primary = 0.94 cfs @ 12.07 hrs, Volume= 3,157 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond 10P : UG BASIN A

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 9L: UG BASIN A (TOTAL)



Hydrograph for Link 9L: UG BASIN A (TOTAL)

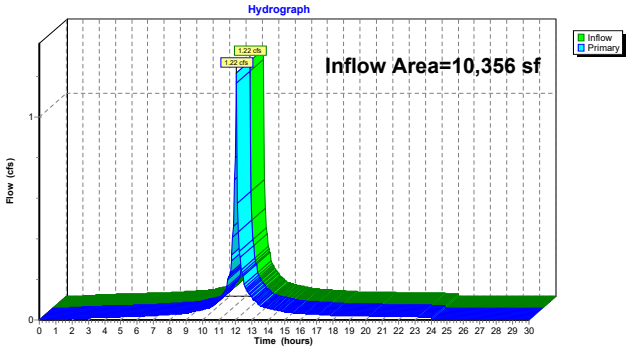
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	26.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	26.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.01	0.00	0.01	28.00	0.00	0.00	0.00
2.50	0.01	0.00	0.01	28.50	0.00	0.00	0.00
3.00	0.01	0.00	0.01	29.00	0.00	0.00	0.00
3.50	0.01	0.00	0.01	29.50	0.00	0.00	0.00
4.00	0.01	0.00	0.01	30.00	0.00	0.00	0.00
4.50	0.01	0.00	0.01				
5.00	0.01	0.00	0.01				
5.50	0.01	0.00	0.01				
6.00	0.01	0.00	0.01				
6.50	0.02	0.00	0.02				
7.00	0.02	0.00	0.02				
7.50	0.02	0.00	0.02				
8.00	0.02	0.00	0.02				
8.50	0.02	0.00	0.02				
9.00	0.03	0.00	0.03				
9.50	0.03	0.00	0.03				
10.00	0.04	0.00	0.04				
10.50	0.05	0.00	0.05				
11.00	0.07	0.00	0.07				
11.50	0.13	0.00	0.13				
12.00	**0.62**	0.00	**0.62**				
12.50	**0.16**	0.00	**0.16**				
13.00	0.09	0.00	0.09				
13.50	0.06	0.00	0.06				
14.00	0.05	0.00	0.05				
14.50	0.04	0.00	0.04				
15.00	0.03	0.00	0.03				
15.50	0.03	0.00	0.03				
16.00	0.03	0.00	0.03				
16.50	0.02	0.00	0.02				
17.00	0.02	0.00	0.02				
17.50	0.02	0.00	0.02				
18.00	0.02	0.00	0.02				
18.50	0.02	0.00	0.02				
19.00	0.02	0.00	0.02				
19.50	0.02	0.00	0.02				
20.00	0.01	0.00	0.01				
20.50	0.01	0.00	0.01				
21.00	0.01	0.00	0.01				
21.50	0.01	0.00	0.01				
22.00	0.01	0.00	0.01				
22.50	0.01	0.00	0.01				
23.00	0.01	0.00	0.01				
23.50	0.01	0.00	0.01				
24.00	0.01	0.00	0.01				
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 10L: UG BASIN B (TOTAL)

Inflow Area = 10,356 sf, 83.81% Impervious, Inflow Depth = 4.73" for 10-Year-Current event
Inflow = 1.22 cfs @ 12.07 hrs, Volume= 4,086 cf
Primary = 1.22 cfs @ 12.07 hrs, Volume= 4,086 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond 5P : UG BASIN B

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 10L: UG BASIN B (TOTAL)



Hydrograph for Link 10L: UG BASIN B (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	0.00	0.00	0.00	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	0.01	0.00	0.01	28.50	0.00	0.00	0.00
3.00	0.01	0.00	0.01	29.00	0.00	0.00	0.00
3.50	0.01	0.00	0.01	29.50	0.00	0.00	0.00
4.00	0.01	0.00	0.01	30.00	0.00	0.00	0.00
4.50	0.01	0.00	0.01				
5.00	0.01	0.00	0.01				
5.50	0.02	0.00	0.02				
6.00	0.02	0.00	0.02				
6.50	0.02	0.00	0.02				
7.00	0.02	0.00	0.02				
7.50	0.02	0.00	0.02				
8.00	0.03	0.00	0.03				
8.50	0.03	0.00	0.03				
9.00	0.03	0.00	0.03				
9.50	0.04	0.00	0.04				
10.00	0.05	0.00	0.05				
10.50	0.06	0.00	0.06				
11.00	0.10	0.00	0.10				
11.50	0.16	0.00	0.16				
12.00	**0.80**	0.00	**0.80**				
12.50	**0.21**	0.00	**0.21**				
13.00	0.11	0.00	0.11				
13.50	0.07	0.00	0.07				
14.00	0.06	0.00	0.06				
14.50	0.05	0.00	0.05				
15.00	0.04	0.00	0.04				
15.50	0.04	0.00	0.04				
16.00	0.03	0.00	0.03				
16.50	0.03	0.00	0.03				
17.00	0.03	0.00	0.03				
17.50	0.02	0.00	0.02				
18.00	0.02	0.00	0.02				
18.50	0.02	0.00	0.02				
19.00	0.02	0.00	0.02				
19.50	0.02	0.00	0.02				
20.00	0.02	0.00	0.02				
20.50	0.02	0.00	0.02				
21.00	0.02	0.00	0.02				
21.50	0.02	0.00	0.02				
22.00	0.02	0.00	0.02				
22.50	0.02	0.00	0.02				
23.00	0.01	0.00	0.01				
23.50	0.01	0.00	0.01				
24.00	0.01	0.00	0.01				
24.50	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
25.50	0.00	0.00	0.00				

STORMWATER COLLECTION SYSTEM CALCULATIONS (PIPE SIZING)

DYNAMIC ENGINEERING

Stormwater Collection System Calculations

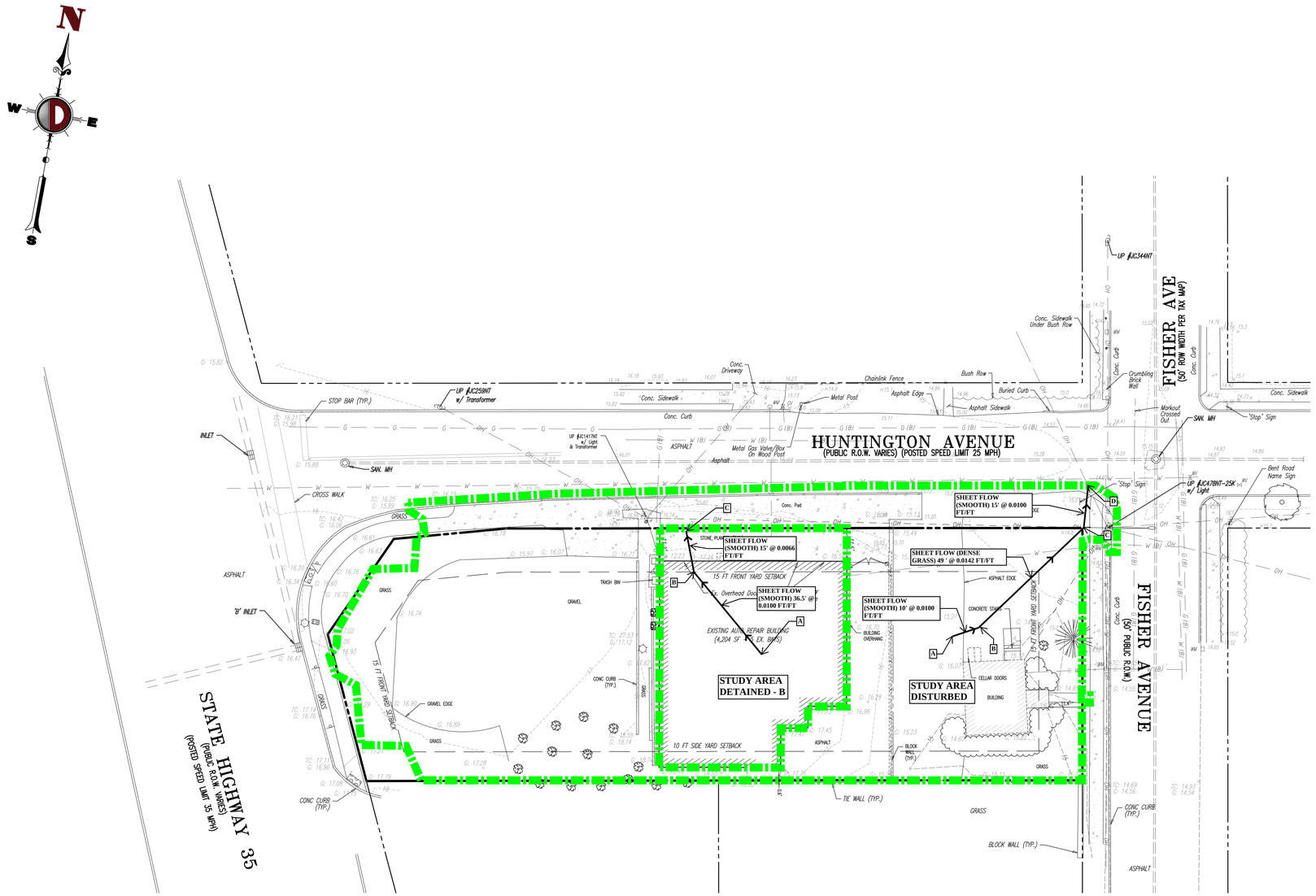
Project: Crash Champions
Job #: 4790 23-01225
Location: Township of Neptune
Design Storm: 25-YR

Computed By: PJR
Checked By:
Date: 10/1/2024

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)
INLET A-10	BASIN A	0.10	0.82	0.08	0.08	10.00	0.04	10.00	6.80	0.54	0.54	15	14.0	0.013	0.0100	6.46	5.27
INLET B-10	BASIN B	0.13	0.77	0.10	0.10	10.00	0.03	10.00	6.80	0.68	0.68	15	10.0	0.013	0.0100	6.46	5.27
ROOF - WEST	BASIN A	0.08	0.95	0.08	0.08	10.00	0.45	10.00	6.80	0.54	0.54	6	100.0	0.010	0.0100	0.73	3.72
ROOF - EAST	BASIN B	0.11	0.95	0.10	0.10	10.00	0.45	10.00	6.80	0.68	0.68	6	100.0	0.010	0.0100	0.73	3.72
INLET B-20	BASIN B	0.07	0.80	0.06	0.06	10.00	0.21	10.00	6.80	0.41	0.41	15	47.0	0.013	0.0050	4.57	3.73

DRAINAGE AREA MAPS



GRAPHIC SCALE

-20 0 10 20 40 80

(IN FEET)
1 INCH = 20 FT.

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Rev.	Date	Comments	By

TITLE: EXISTING DRAINAGE AREA MAP

PROJECT: **CRASH CHAMPIONS LLC**
PROPOSED BUILDING EXPANSION
BLOCK 514, LOTS 1-3
NJSH 35 & HUNTINGTON AVENUE & FISHER AVENUE
TOWNSHIP OF NEPTUNE, MONMOUTH COUNTY, NEW JERSEY

JOB No: 4790-23-01225	DATE: 10/04/2024
DRAWN BY: DJB	SCALE: (H) 1"=20' (V)
DESIGNED BY: PJR	SHEET No: 1 OF 3
CHECKED BY: JEH	
CHECKED BY: _	Rev. # 0

JAMES E. HENRY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 49266

JOSHUA M. SEWALD
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 52908

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File: P:\DECPC PROJECTS\4790 Crash Champions\23-01225 Neptune\Dwg\DA Maps\D4790230122 5DAMEO.dwg, ----> 01 EXISTING DRAINAGE AREA MAP

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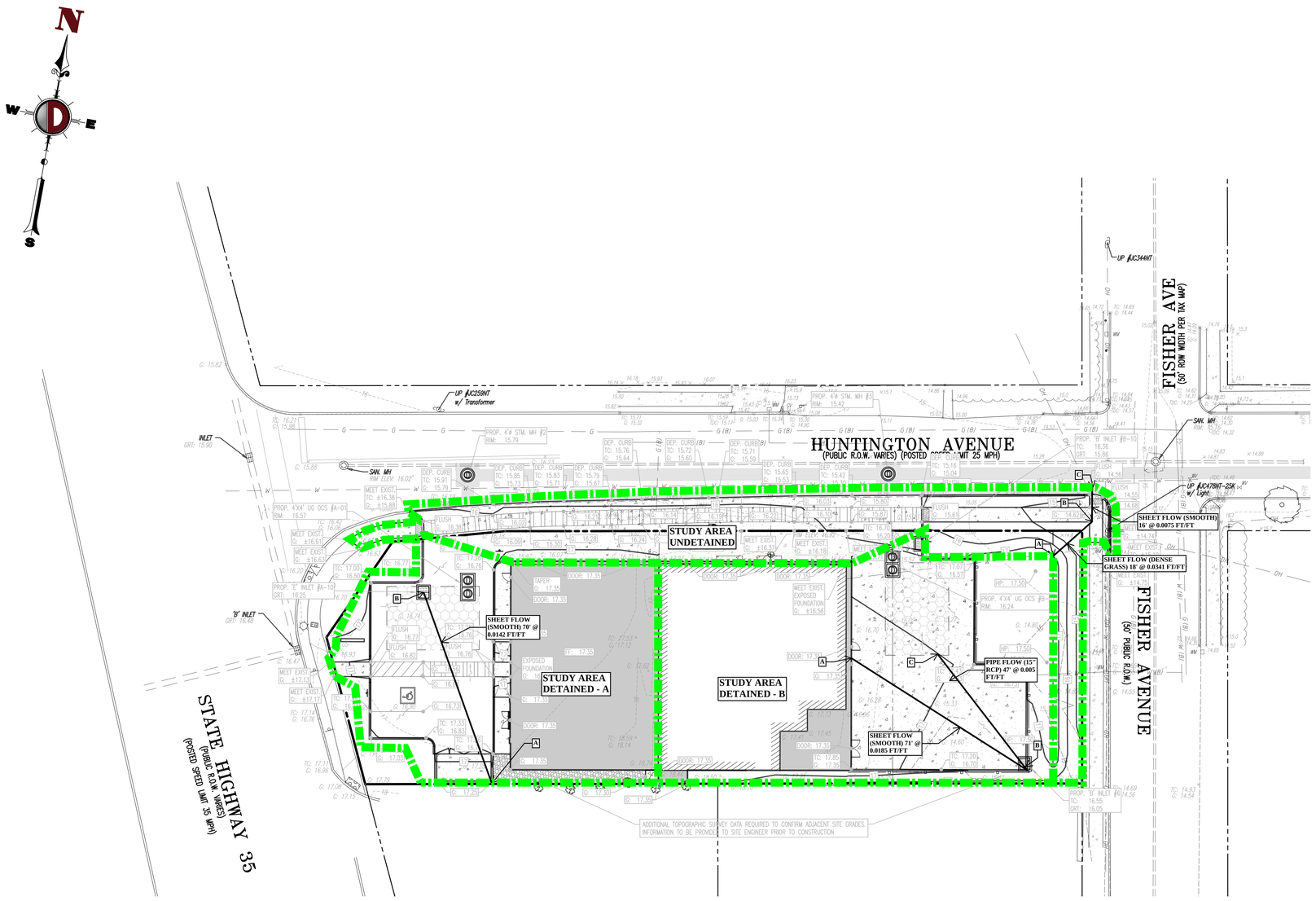

GRAPHIC SCALE

-20 0 10 20 40 80

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TITLE:
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TOWNSHIP OF NEPTUNE, MONMOUTH COUNTY, NEW JERSEY

JOB No: 4790-23-01225	DATE: 10/04/2024
DRAWN BY: DJB	SCALE: (H) 1"=20' (V)
DESIGNED BY: PJR	SHEET No: 2 OF 3
CHECKED BY: JEH	
CHECKED BY: _	Rev. # 0

JAMES E. HENRY
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JOSHUA M. SEWALD
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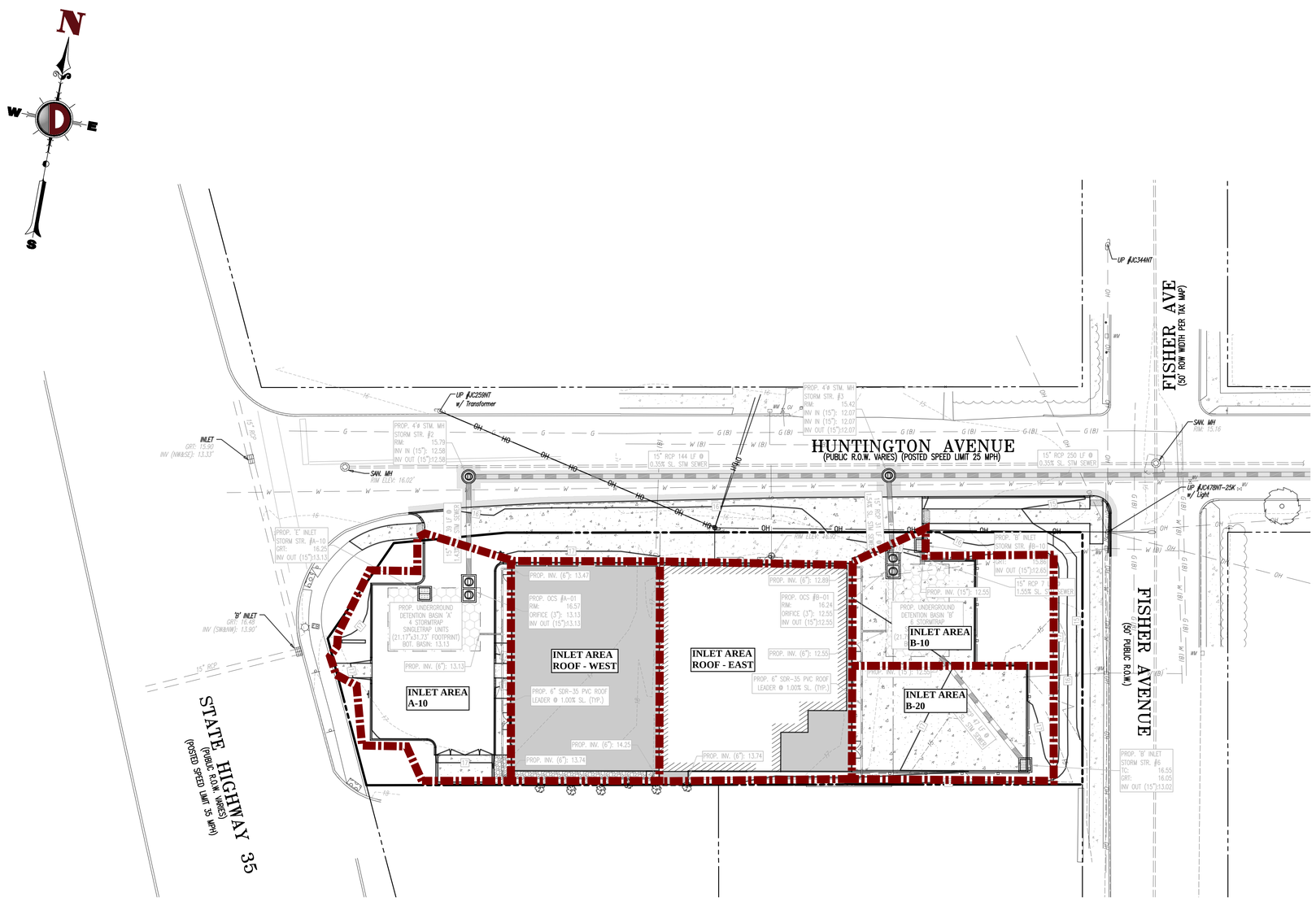
INLET AREA MAP



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DESIGNED BY:	PJR
CHECKED BY:	JEH
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