STORMWATER MANAGEMENT REPORT

for the:

Americana Place

Township of East Windsor – Block 57, Lots 9, 10 & 11 Borough of Hightstown – Block 7, Lots 40.02 & 41 Mercer County, New Jersey

Prepared By:

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MEA # 2005.109.02

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INTRODUCTION

This report analyzes the stormwater drainage conditions that will occur as a result of the new development at proposed Americana Center property, divided between the Township of East Windsor (H-3 district) and the Borough of Hightstown (R-3 district), Mercer County, New Jersey. The subject site is more specifically defined as Block 57, Lots 9, 10, 11 (East Windsor) and Block 7, Lots 40.02 & 41 (Hightstown). Said existing lots are shown on the USGS and Site Location maps provided within this report and shall hereby be referenced as "the Site". The site consists of approximately 6.46 acres and is bounded by NJ State Highway US Route 130 to the north, Rocky Brook to the east, a single-family residential development to the south and a single-story furniture store to the west. Access to/from the site is handled by seven separate curb cuts along Route 130. Currently on site resides a single-story furniture store, motel, diner and two small retail buildings. The applicant proposes demolishing all the buildings onsite except for the diner and one of the retail buildings.

The applicant, Americana Hospitality Group, proposes redeveloping a 6.46-acre tract within the central portion of East Windsor Township as a commercial development. The project anticipates constructing two (2) new buildings, while expanding the existing medical office building along Route 130. Three (3) structures are single users: 10,933 SF existing diner, proposed 43,384 SF Hotel, proposed 2,225 SF Starbucks Restaurant, and the existing 5,791 SF medical office building with 2,448 SF building addition. Additional improvements include driveways, sidewalks, parking and landscaped areas, stormwater management facilities, associated utilities, and related site improvements. The scope of this report includes analysis of runoff generated by the proposed buildings, paved areas, landscaped areas, as well as an analysis of the proposed bioretention and infiltration systems, and resulting stormwater collection system, as shown on the accompanying Site Plan documents.

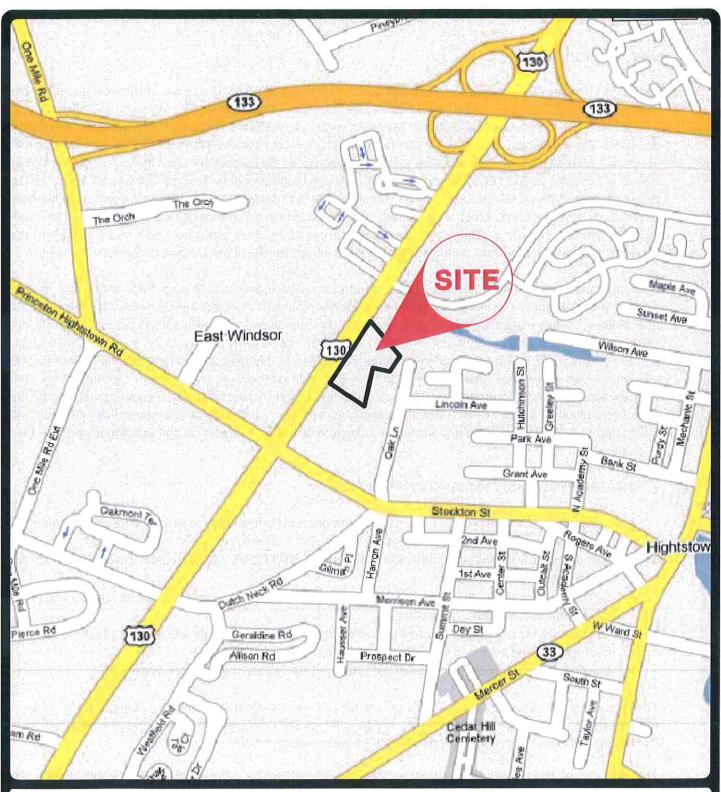
The following items shall be addressed within this report:

- Narrative of pre- and post-development conditions with calculations to substantiate derived runoff coefficients and time of concentration;
- Calculations for the water quality storm utilizing the NJDEP 1.25"/2 hours water quality design storm;
- Storm pollutant (TSS) removal;
- Calculations for the 2-, 10-, and 100- year storm peak runoff rates for entire site under pre- and postdevelopment conditions, respectively;
- Calculations for the proposed small scale bioretention systems include inflow hydrographs, outflow hydrographs and a storage volume versus depth table.
- Calculations to verify the capacity of the proposed stormwater conveyance system.

The primary design constraints for this project are based on the standards of the Township of East Windsor, the Borough of Hightstown, Mercer County, the New Jersey Soil Conservation Service, and the New Jersey Department of Environmental Protection (NJDEP) Rules and Regulations.

The purpose of this report is to demonstrate that the proposed stormwater management system will mitigate stormwater runoff while providing water quality, and to assist Engineer at the Municipal level in evaluating the drainage calculations and considerations incorporated in the design as shown on the plans submitted. The report supplements, and should be reviewed in conjunction with, the project development plans prepared by Menlo Engineering Associates, Inc.

This office will readily respond to questions and requests for additional calculations or verification of the proposed design by Municipal Engineers and will be responsive to his suggestions and modifications to the



ROAD MAP

Township of East Windsor & Borough of Highstown Mercer County

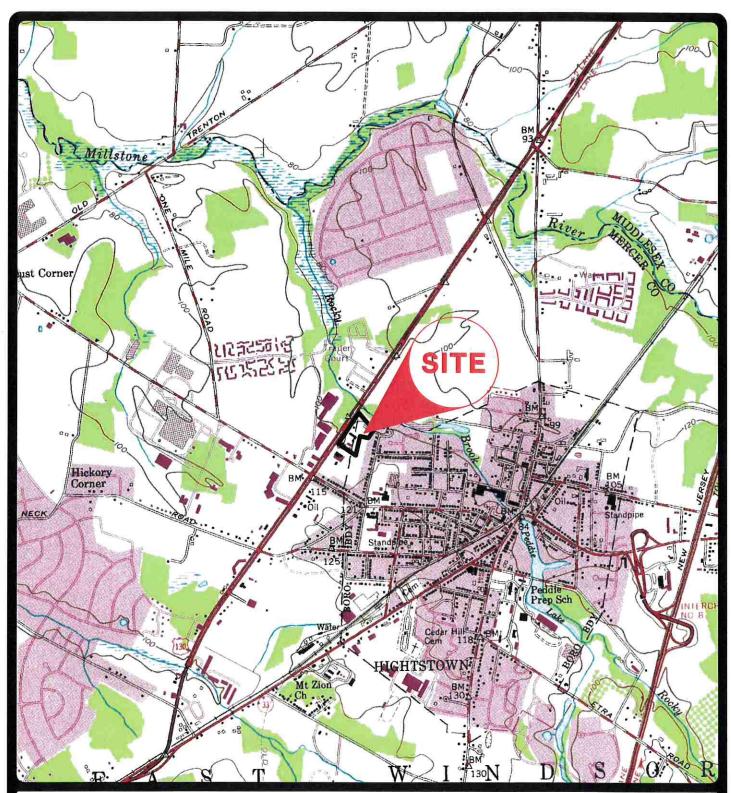
East Windsor
BLOCK
57
LOTS
9, 10
& 11

Scale: 1"=1,000±ft Job # 2005.109.02

Hightstown
BLOCK
7
LOTS
40.02
& 41

MENLO ENGINEERING ASSOCIATES, INC. 261 CLEVELAND AVENUE HIGHLAND PARK, NJ 08904 (732) 846-8585

250' 750' 1,000'



U.S.G.S. MAP

Quad Name: Highstown Township of East Windsor & Borough of Highstown Mercer County

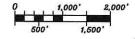
State Plane Coordinates:

N: 525,022.20 ft. E: 482,250.12 ft. East Windsor BLOCK

57 <u>LOTS</u> 9, 10 & 11

Job # 2005.109.02 Scale: 1"=2,000±ft Hightstown
BLOCK
7
LOTS
40.02

40.02 & 41



design in conformance to the applicable codes in the interest of land use control consistent with environmental protection.

CRITERIA

In the hydraulic designs involved in this project, the drainage areas have been determined by electronic digitizer from the U.S.G.S. Quadrangle map, Legal and Topographic survey prepared by Control Layouts, Inc. and field observations to determine off-site and on-site areas. The Soil Conservation Service Soil Survey maps are used for hydrological soil group classification. Existing and proposed conditions are calculated for the 2, 10 and 100-year design storms. On-site storm sewer collection systems were sized for the 25-year storm and employed the Rational Method for design calculations.

STORMWATER MANAGEMENT PLAN & DESIGN

The guidelines for hydraulic design, as prepared by the Soil Conservation District, the Township of East Windsor and the Borough of Hightstown, Mercer County, and the New Jersey Department of Environmental Protection have been utilized for the drainage design of this project.

Additional stormwater detention systems are required on-site to attenuate flows from proposed impervious and pervious surfaces on the property. Calculations of runoff values, peak rates of discharge, and hydrographs were generated using the runoff control measures listed in the Soil Conservation Services TR-55 Method. This methodology was used to calculate both existing and proposed stormwater runoff generated from the site.

Existing Conditions:

The existing drainage pattern of the site drains from a South to North direction to existing drainage systems located within Route 130. These drainage systems eventually convey runoff down to Rocky Brook. Today, the drainage is broken into two separate systems, each of approximately equal area with the remaining drainage at the southern end of the site drains to an isolated wetland and ditch. This report demonstrates that the use of two separate underground detention basins provides the required rate of reduction to each of the points of analysis.

Under existing conditions, the entire site consists of two (2) drainage areas: EX-1 (3.07 ac), draining to the P.O.I. "A" at US Route 130 and EX-2 (0.49 ac), draining to the P.O.I. "B" at the main entrance drive of the property, and discharging all runoffs to Rocky Brook at upper corner of this site, as depicted on the accompanying Existing Drainage Area Map (see Fig. 1).

This site is depicted by the Mercer County Soils Manual as a combination of SacB (Sassafras sandy loam), MBYB (Mattapex and Bertie loams), and UdstB (Udorthents, stratified substratum) soils. Per the Soil Conservation System Urban Hydrology for Small Watersheds, these soils belong to Hydrologic Soil Groups (HSG) "B, "C" and "D" respectively. Additional information on these soil types is contained in Appendix E of this report.

Proposed Conditions:

The stormwater management facilities for the proposed development have been designed to maintain the natural, existing drainage patterns to the fullest extent possible, and to meet the governing agencies' requirements with respect to groundwater recharge, water quality and pick flow reductions.

Under post-development conditions, nine (9) main drainage areas are delineated, as depicted on the accompanying Proposed Drainage Area Map (see Fig. 2). Six (5) of them will be directed for water quality treatment and detention to achieve required reductions in rate of runoff, to proposed small-scale Bioretention systems.

```
PR-1 (0.16 AC) – Drainage area to Small-scale Bioretention system #1
PR-2 (0.29 AC) – Drainage area to Small-scale Bioretention system #2
PR-3 (0.23 AC) – Drainage area to Small-scale Bioretention system #3
PR-4 (0.71 AC) – Drainage area to Small-scale Bioretention system #4
PR-5 (0.30 AC) – Drainage area to Small-scale Bioretention system #5
PR-6 (1.45 AC) – Drainage area to Small-scale Bioretention system #6
PR-7 (0.17 AC) – Drainage area of untreated runoffs via proposed conveyance system to P.O.I. "A"
PR-8 (0.15 AC) – Drainage area of untreated runoffs overland to P.O.I. "A"
PR-9 (0.10 AC) – Drainage area of untreated runoffs overland to P.O.I. "B"
```

Proposed Small-scale Bioretention systems routing calculations can be found in Appendix D of this report.

Proposed pick rate of runoff from site during and after development to Point of Interest (P.O.I.) "A" will be increased, and the use of six (6) Small-scale Bioretention systems will allow runoff rates for the 100, 10 and 2-year design storms to be reduced in accordance with current NJDEP standards. Based on the comparison of the peak discharge rates between the existing and proposed conditions, the outlet control structures have been designed to reduce peak flows leaving the Site to P.O.I. "A" after development. See Appendix D for detention system routing calculations.

Proposed pick rates of runoff from site during and after development to Point of Interest (P.O.I.) "B" will be reduced, and for stormwater leaving the site to P.O.I. "B", post-construction runoff hydrographs for the 2, 10 and 100-year storm events will not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm event, which complies with requirements for stormwater runoff quantity control. Comparison tables and hydrographs for Existing and Proposed rates of runoff to P.O.I. "B" can be found at Appendix C of this report.

The time of concentration and travel time (Tc) calculations have been completed in accordance with Chapter 3 of the SCS Technical Release 55 Manual.

Pipe sizing calculations have been made using a 25-year design storm for capacity verification. Conveyance calculations and an Inlet Drainage Area Map (see Fig. 5) supporting pipe sizing results are included in Appendix F of this report.

Some runoffs will be leaving the proposed paved parking area at the eastern border of the site through seven (7) wall cuts (see Fig. 6). Since proposed stormwater velocities at these openings (see channel reports for curb cuts C5 – C11 in the Appendix F of this report) are lower than maximum allowable for sandy loams found in this area (2.5 ft./sec. maximum allowable velocity for sandy loam), outlet protections behind these wall cuts are not required.

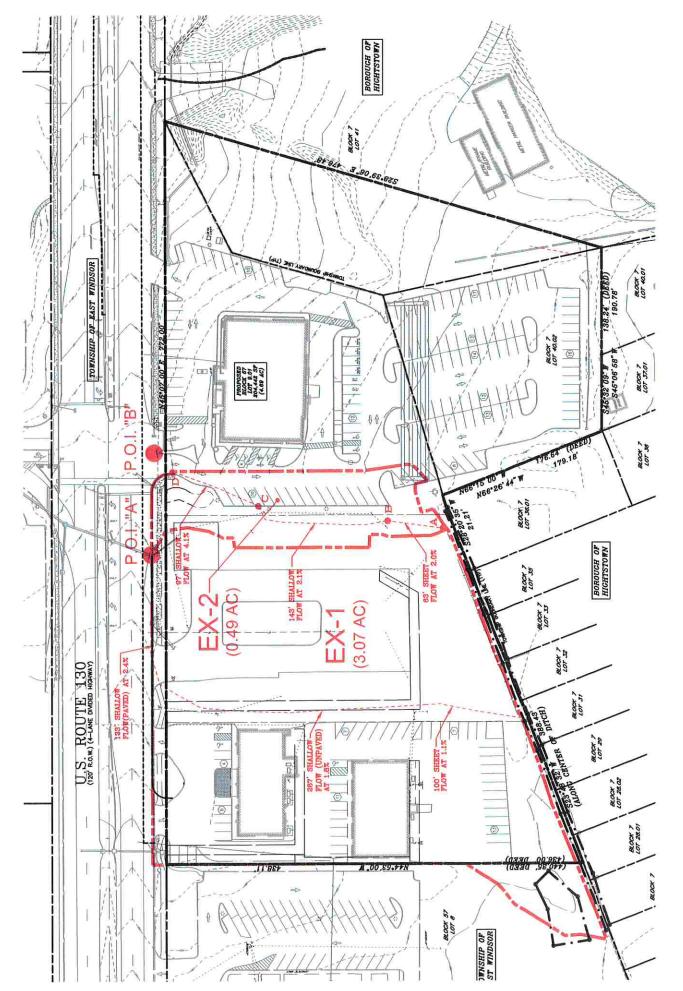


Figure 1. EXISTING DRAINAGE AREA MAP.

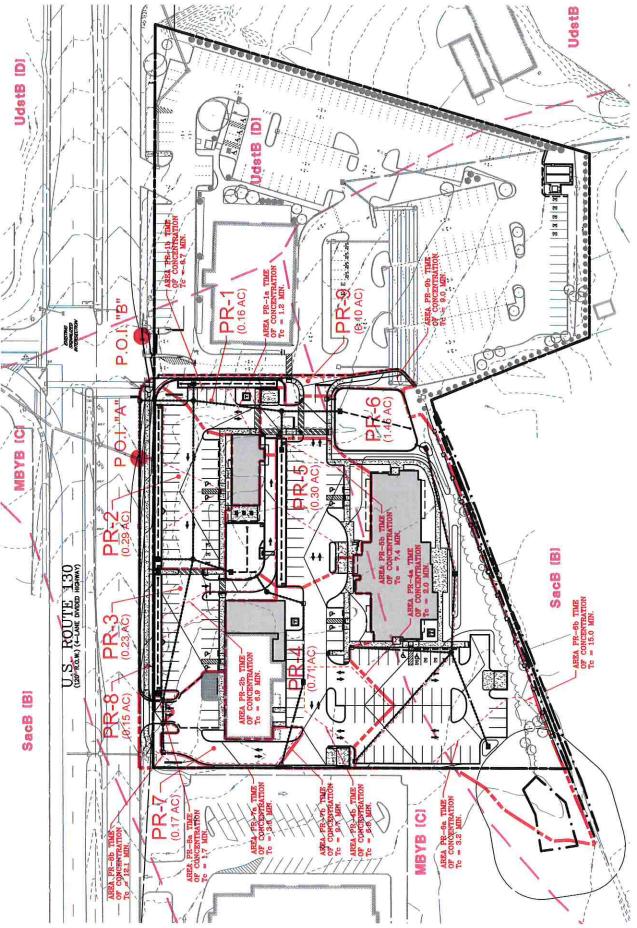


Figure 2. PROPOSED DRAINAGE AREA MAP.

Summary of the Rate of Runoff:

As demonstrated in the tables below, the proposed development will comply with the required rate or reductions for the 100, 10 and 2-year storm events, in accordance with NJDEP Stormwater Management Rules.

SUMMARY OF SITE RUNOFF TO P.O.I. "A"

STORM	EXISTING RUNOFF FROM SITE TO P.O.I. "A" (CFS)	REQUIRED NJDEP REDUCTIONS	ALLOWABLE RUNOFF FROM SITE TO P.O.I. "A" (CFS)	PROPOSED RUNOFF FROM SITE TO P.O.I. "A" (CFS)
2	3,78	50%	1.89	1.36
10	6.50	25%	4.88	3.70
100	12.28	20%	9.82	9.68

SUMMARY OF SITE RUNOFF TO P.O.I. "B"

STORM	EXISTING RUNOFF FROM SITE TO P.O.I. "B" (CFS)	PROPOSED RUNOFF FROM SITE TO P.O.I. "B" (CFS)
2	0.70	0.21
10	1.28	0.34
100	2.52	0.62

Result: The rate of runoff leaving the site complies with all Municipal and State requirements and reductions up to and including the 100-year storm event.

Pipe calculations for Run C were not completed because the outfall from the existing underground basin was not modeled. The proposed outfall pipes have the same size pipe and steeper slopes than the existing pipes. Based on our site inspections, the existing stormwater collection line has sufficient capacity for outfall flows and runoff from the site has been reduced per the summary table above. The pipe calculations sheet showing capacity of existing outfall pipes based on their sizes and slopes can be found in Appendix F.

Summary of the Groundwater Recharge Analysis:

The onsite testing concludes that the permeability rates throughout the site are less than 0.20 inches per hour. Per the NJDEP standards, groundwater recharge is not possible and/or required for sites with little to no permeability.

Summary of the Water Quality Analysis:

Proposed six (6) small-scale Bioretention Systems will allow us to meet TSS removal requirement for the entire site. As can be seen on Required and Achieved TSS removal exhibits (see Fig. 3 and Fig. 4), this site provides a weighted TSS removal rate of 78.83%, where 77.83% is required. See Appendix G of this report for related documents.

Nonstructural Stormwater Management Strategies

The NJDEP Nonstructural Strategies Point System (NSPS) has been utilized (see Appendix H for supporting tables) in order to provide proof that the proposed nonstructural measures are adequate and have been used to the maximum extent practicable at this development, as required by NJDEP, the Township of East Windsor and the Borough of Hightstown Standards. Some of them are:

- Impervious coverage was minimized to the maximum extent practicable.
- Existing vegetation was preserved to the maximum extent possible.
- Disturbed areas were stabilized with non-lawn grass mixes.
- Low maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides were provided.
- Clearing and grading was minimized in order to minimize land disturbance.

Conclusions:

The proposed stormwater management system for a proposed development at Americana Center has been designed with provisions for safe and efficient control of stormwater runoff in a manner which will not adversely affect the existing drainage patterns found in the surrounding areas and consists of an underground detention basin and two stormwater treatment devices, designed to reduce the rate of runoff and enhance the runoff water quality.

It is the opinion of this office that the proposed development will not have any negative impacts on the drainage characteristics of the site, or the immediately surrounding areas. Further, it is the opinion of this office, that the proposed development will be in compliance with all applicable stormwater management regulations as established by the NJDEP, the Township of East Windsor and the Borough of Hightstown Standards.

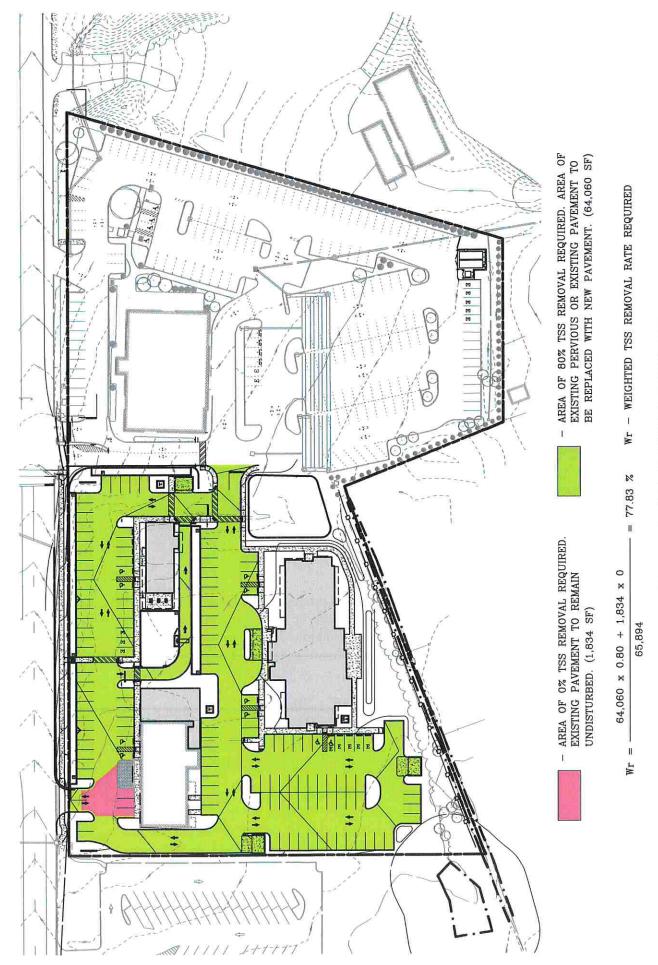


Figure 3. TSS REMOVAL REQUIRED.

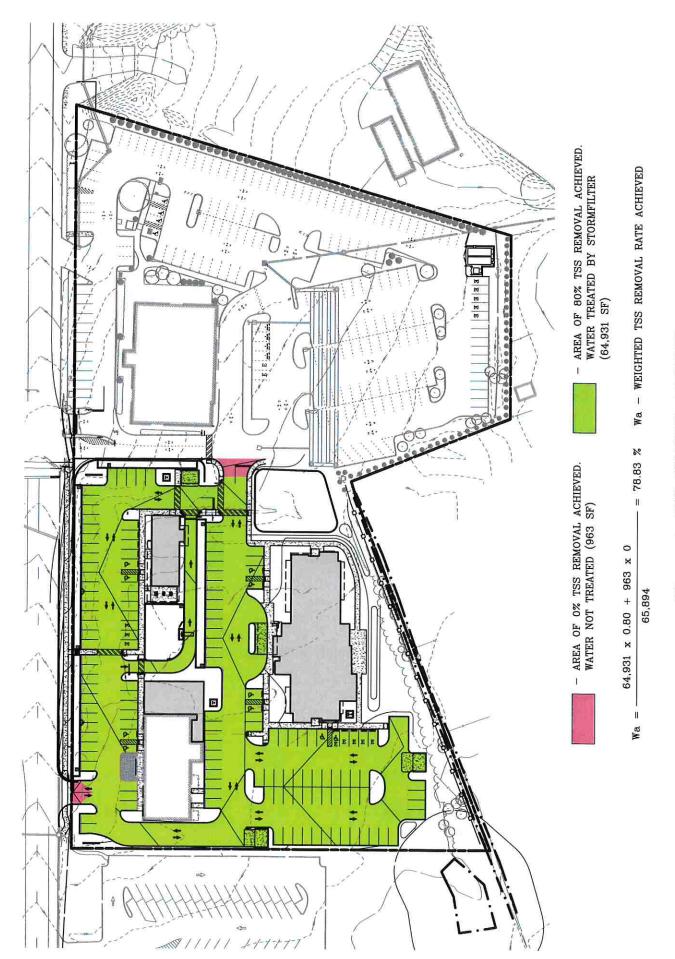


Figure 4. TSS REMOVAL ACHIEVED.

Drain Time Calculation

Bioretention Basin #1

Minimum Percolation Rate of soil bed mix (established Information:	timated): 2 in/hr
Weir Elevation: Bottom of Basin:	$\begin{array}{r} 98.70 \text{ ft} \\ 98.00 \text{ ft} \\ \hline \text{Depth} = 0.70 \text{ ft} \end{array}$
	Depth (in inches) = 8.4 in
Factor of Safety: Percolation Time (Tp) Calculation: Depth / Perc. Rate=	2 8.4 hours
Water Quality design storm storage volume: Underdrain pipe flow capacity: Conveyence Time (Tc) via underdrain pipe	479.0 cf 0.1 cfs 1.3 hours
Maximum Design storm Drain Time (Td): Td = Tp + Tc	9.7 hours
Bioretention Basin #2	
Minimum Percolation Rate of soil bed mix (es	timated): 2 in/hr
Basin Information: Weir Elevation: Bottom of Basin:	98.90 ft $98.00 ft$ Depth = 0.90 ft Depth (in inches) = 10.8 in
Factor of Safety:	2
Percolation Time (Tp) Calculation: Depth / Perc. Rate=	10.8 hours
Water Quality design storm storage volume: Underdrain pipe flow capacity: Conveyence Time (Tc) via underdrain pipe	958.0 cf 0.1 cfs 2.7 hours
Maximum Design storm Drain Time (Td): $Td = Tp + Tc$	13.5 hours

Note: As-built testing must be conducted to validate the estimated permeability rate of the soil bed

Drain Time Calculation

Bioretention Basin #3

Minimum Percolation Rate of soil bed mix (es Basin Information:	timated):	2 in/hr
Weir Elevation: Bottom of Basin:		98.00 ft 97.00 ft
	Depth =	= 1.00 ft
	Depth (in inches) =	=12 in
Factor of Safety:		2
Percolation Time (Tp) Calculation: Depth / Perc. Rate=		12.0 hours
Water Quality design storm storage volume:		784.0 cf
Underdrain pipe flow capacity: Conveyence Time (Tc) via underdrain pipe		0.1 cfs 2.2 hours
Maximum Design storm Drain Time (Td): Td = Tp + Tc		14.2 hours
10 = 1p + 10		14.2
Bioretention Basin #4		
Minimum Percolation Rate of soil bed mix (es Basin Information:	timated):	2 in/hr
Weir Elevation: Bottom of Basin:		99.00 ft 98.00 ft
Bottom of Basin.	Depth =	= 1.00 ft
	Depth (in inches) =	=12]in
Factor of Safety: Percolation Time (Tp) Calculation:		2
Depth / Perc. Rate=		12.0 hours
Water Quality design storm storage volume:		2134.0 cf
Underdrain pipe flow capacity: Conveyence Time (Tc) via underdrain pipe		0.1 cfs 5.9 hours
, ,		
Maximum Design storm Drain Time (Td) : Td = Tp + Tc		17.9 hours

Note: As-built testing must be conducted to validate the estimated permeability rate of the soil bed

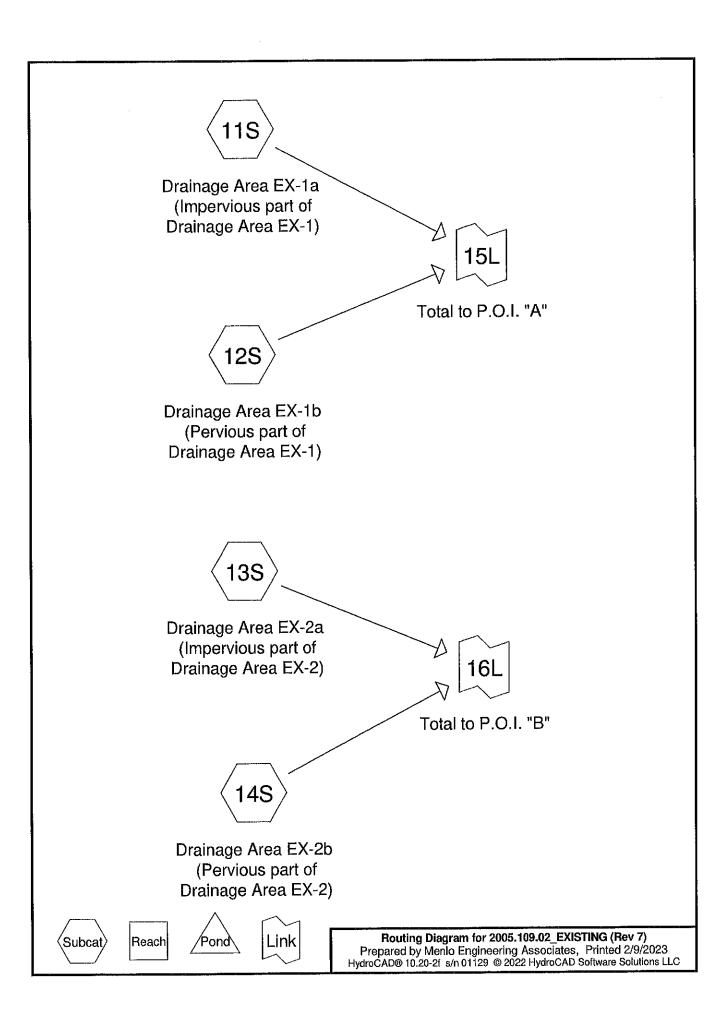
Drain Time Calculation

Bioretention Basin #5

Minimum Percolation Rate of soil bed mix (es Basin Information: Weir Elevation: Bottom of Basin:	1 1 2 in/hr 98.70 ft 98.00 ft Depth = 0.70 ft Depth (in inches) = 8.4 in
Factor of Safety: Percolation Time (Tp) Calculation: Depth / Perc. Rate=	2 8.4 hours
Water Quality design storm storage volume: Underdrain pipe flow capacity: Conveyence Time (Tc) via underdrain pipe	827.0 cf 0.1 cfs 2.3 hours
Maximum Design storm Drain Time (Td): Td = Tp + Tc	10.7 hours
Bioretention Basin #6	
Minimum Percolation Rate of soil bed mix (es Basin Information: Weir Elevation: Bottom of Basin:	timated): 2 in/hr 97.60 ft 97.00 ft Depth = 0.60 ft Depth (in inches) = 7.2 in
Factor of Safety: Percolation Time (Tp) Calculation: Depth / Perc. Rate=	2 7.2 hours
Water Quality design storm storage volume: Underdrain pipe flow capacity: Conveyence Time (Tc) via underdrain pipe	2095.0 cf 0.1 cfs 7.8 hours
Maximum Design storm Drain Time (Td) : Td = Tp + Tc	15.0 hours

Note: As-built testing must be conducted to validate the estimated permeability rate of the soil bed

APPENDIX A: EXISTING CONDITIONS



2 YEAR STORM

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Summary for Subcatchment 11S: Drainage Area EX-1a (Impervious part of Drainage Area EX-1)

Runoff = 3.29 cfs @ 12.25 hrs, Volume=

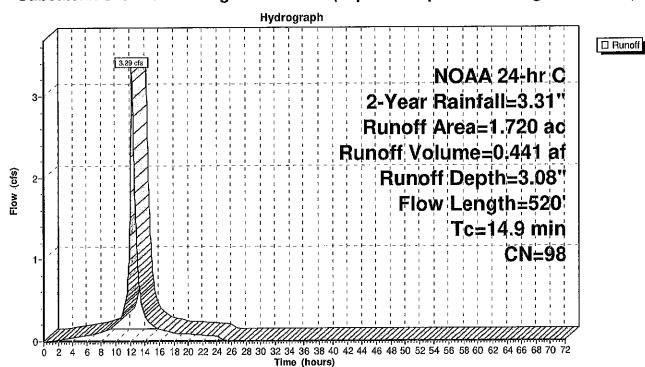
0.441 af, Depth= 3.08"

Routed to Link 15L: Total to P.O.I. "A"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

	Area	(ac) C	N Des	cription		
*	1.	720 9	8 Pave	ed parking		
	1.	720 9	98 100.	00% Impe	rvious Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	12.0	100	0.0115	0.14		Sheet Flow,
						Grass: Short n= 0.150 P2= 3.30"
	2.2	287	0.0188	2.21		Shallow Concentrated Flow,
	0.7	133	0.0240	3.14		Unpaved Kv= 16.1 fps Shallow Concentrated Flow,
						Paved Kv= 20.3 fps
	14.9	520	Total			

Subcatchment 11S: Drainage Area EX-1a (Impervious part of Drainage Area EX-1)



Runoff

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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Hydrograph for Subcatchment 11S: Drainage Area EX-1a (Impervious part of Drainage Area EX-1)

•	-			_		_
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)
0.00	0.00	0.00	0.00	51.00	3.31	3.08
1.00	0.04	0.00	0.00	52.00	3.31	3.08
2.00	0.07	0.00	0.01	53.00	3.31	3.08
3.00	0.07	0.02	0.03	54.00	3.31	3.08
4.00	0.12	0.02	0.04	55.00	3.31	3.08
5.00	0.10	0.03	0.04	56.00	3.31	3.08
6.00	0.26	0.12	0.07	57.00	3.31	3.08
7.00	0.32	0.16	0.09	58.00	3.31	3.08
8.00	0.40	0.23	0.11	59.00	3.31	3.08
9.00	0.48	0.30	0.14	60.00	3.31	3.08
10.00	0.60	0.41	0.20	61.00	3.31	3.08
11.00	0.79	0.59	0.34	62.00	3.31	3.08
12.00	1.58	1.36	1.51	63.00	3.31	3.08
13.00		2.29	0.98	64.00	3.31	3.08
14.00	2.71	2.48	0.30	65.00	3.31	3.08
15.00	2.83	2.60	0.20	66.00	3.31	3.08
16.00	2.91	2.68	0.15	67.00	3.31	3.08
17.00	2.99	2.76	0.12	68.00	3.31	3.08
18.00	3.05	2.82	0.10	69.00	3.31	3.08
19.00	3.10	2.87	0.09	70.00	3.31	3.08
20.00	3.15	2.92	0.08	71.00	3.31	3.08
21.00	3.19	2.96	0.08	72.00	3.31	3.08
22.00	3.24	3.00	0.07			
23.00	3.27	3.04	0.07			
24.00	3.31	3.08	0.06			
25.00	3.31	3.08	0.00			
26.00	3.31	3.08	0.00			
27.00	3.31	3.08	0.00			
28.00	3.31	3.08	0.00			
29.00	3.31	3.08	0.00			
30.00	3.31	3.08	0.00			
31.00	3.31	3.08	0.00			
32.00	3.31	3.08	0.00			
33.00	3.31	3.08	0.00			
34.00	3.31	3.08	0.00			
35.00	3.31	3.08	0.00			
36.00	3.31	3.08	0.00			
37.00	3.31	3.08	0.00			
38.00	3.31	3.08	0.00			
39.00	3.31	3.08	0.00			
40.00	3.31	3.08	0.00			
41.00	3.31	3.08	0.00			
42.00	3.31	3.08	0.00			
43.00	3.31	3.08	0.00			
44.00	3.31	3.08	0.00			
45.00	3.31	3.08	0.00			
46.00	3.31	3.08	0.00			
47.00	3.31	3.08 3.08	0.00 0.00			
48.00 49.00	3.31 3.31	3.08	0.00			
50.00	3.31	3.08	0.00			
30.00	ا ډ.د	3.00	0.00			
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Summary for Subcatchment 12S: Drainage Area EX-1b (Pervious part of Drainage Area EX-1)

Runoff =

0.51 cfs @ 12.31 hrs, Volume=

3.14

0.079 af, Depth= 0.70"

Routed to Link 15L: Total to P.O.I. "A"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

 Area	(ac)	CN	Desc	ription		
0.	220	55	Woo	ds, Good,	HSG B	
0.	490	61	>75%	6 Grass co	over, Good,	, HSG B
 0.	640	74	>75%	6 Grass co	over, Good	, HSG C
1.	350	66	Weig	hted Aver	age	
1.	350	66	100.	00% Pervi	ous Area	
Tc	Length		Slope	Velocity	Capacity (cfs)	Description
 (min)	(feet		(ft/ft)	(ft/sec)	(CIS)	Chast Flow
12.0	100) U	.0115	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.30"
2.2	287	7 0	.0188	2.21		Shallow Concentrated Flow,

14.9 520 Total

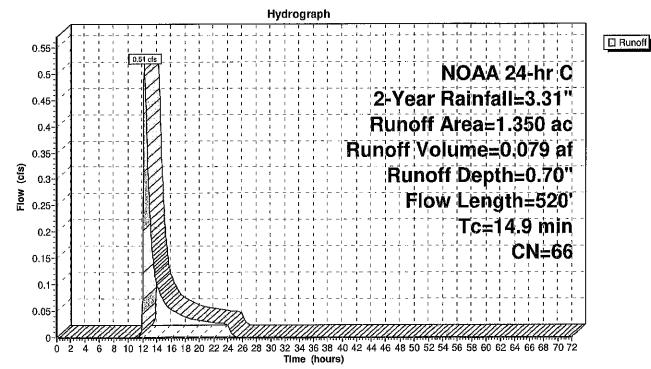
133 0.0240

0.7

Subcatchment 12S: Drainage Area EX-1b (Pervious part of Drainage Area EX-1)

Unpaved Kv= 16.1 fps Shallow Concentrated Flow.

Paved Kv= 20.3 fps



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Hydrograph for Subcatchment 12S: Drainage Area EX-1b (Pervious part of Drainage Area EX-1)

Precip. Excess

(inches) (inches)

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

0.70

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

Runoff

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

	-			_
Time	Precip.	Excess	Runoff	Time
(hours)	(inches)	(inches)	(cfs)	(hours) (
0.00	0.00	0.00	0.00	51.00
1.00	0.04	0.00	0.00	52.00
2.00	0.07	0.00	0.00	53.00
3.00	0.12	0.00	0.00	54.00
4.00	0.16	0.00	0.00	55.00
5.00	0.21	0.00	0.00	56.00
6.00	0.26	0.00	0.00	57.00
7.00	0.32	0.00	0.00	58.00
8.00	0.40	0.00	0.00	59.00
9.00	0.48	0.00	0.00	60.00
10.00	0.60	0.00	0.00	61.00
11.00	0.79	0.00	0.00	62.00
12.00	1.58	0.05	0.07	63.00
13.00	2.52	0.33	0.25	64.00
14.00	2.71	0.41	0.10	65.00
15.00	2.83	0.46	0.07	66.00
16.00	2.91	0.50	0.05	67.00
17.00	2.99	0.54	0.05	68.00
18.00	3.05	0.57	0.04	69.00
19.00	3.10	0.59	0.03	70.00
20.00	3.15	0.62	0.03	71.00
21.00	3.19	0.64	0.03	72.00
22.00	3.24	0.66	0.03	
23.00	3.27	0.68	0.03	
24.00	3.31	0.70	0.02	
25.00	3.31	0.70	0.00	
26.00	3.31	0.70	0.00	
27.00	3.31	0.70	0.00	
28.00	3.31	0.70	0.00	
29.00	3.31 3.31	0.70	0.00 0.00	
30.00 31.00	3.31	0.70 0.70	0.00	
32.00	3.31	0.70	0.00	
33.00	3.31	0.70	0.00	
34.00	3.31	0.70	0.00	
35.00	3.31	0.70	0.00	
36.00	3.31	0.70	0.00	
			0.00	
37.00 38.00	3.31 3.31	0.70 0.70	0.00	
39.00	3.31	0.70	0.00	
40.00	3.31	0.70	0.00	
41.00	3.31	0.70	0.00	
42.00	3.31	0.70	0.00	
43.00	3.31	0.70	0.00	
44.00	3.31	0.70	0.00	
45.00	3.31	0.70	0.00	
46.00	3.31	0.70	0.00	
47.00	3.31	0.70	0.00	
48.00	3.31	0.70	0.00	
49.00	3.31	0.70	0.00	
50.00	3.31	0.70	0.00	

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Summary for Subcatchment 13S: Drainage Area EX-2a (Imervious part of Drainage Area EX-2)

Runoff = 0.48 cfs @ 12.16 hrs, Volume=

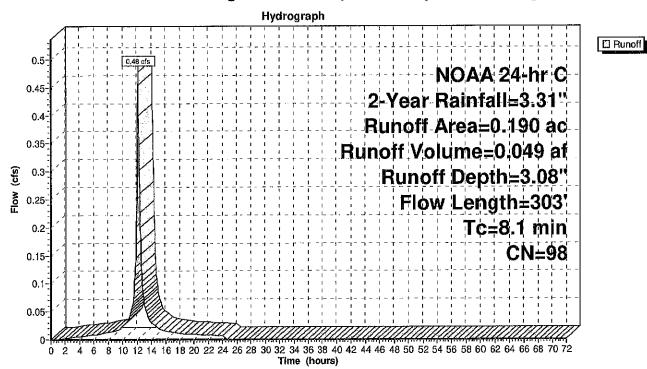
0.049 af, Depth= 3.08"

Routed to Link 16L: Total to P.O.I. "B"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

	Area	(ac) C	N Desc	cription		
	0.	190 9	8 Pave	ed parking,	, HSG C	
-	0.	190 9	8 100.	00% Impe	rvious Area	•
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	6.7	63	0.0200	0.16		Sheet Flow,
						Grass: Short n= 0.150 P2= 3.30"
	1.0	143	0.0210	2.33		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
	0.4	97	0.0410	4.11		Shallow Concentrated Flow,
_						Paved Kv= 20.3 fps
	81	303	Total			

Subcatchment 13S: Drainage Area EX-2a (Imervious part of Drainage Area EX-2)



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Hydrograph for Subcatchment 13S: Drainage Area EX-2a (Imervious part of Drainage Area EX-2)

1194109	i apii ioi	Qubout		
Time	Precip.	Excess	Runoff	
(hours)	(inches)	(inches)	(cfs)	<u>(</u>
0.00	0.00	0.00	0.00	
1.00	0.04	0.00	0.00	
2.00	0.07	0.00	0.00	
3.00	0.12	0.02	0.00	
4.00	0.16	0.05	0.01	
5.00	0.21	0.08	0.01	
6.00	0.26	0.12	0.01	
7.00	0.32	0.16	0.01	
8.00	0.40	0.23	0.01	
9.00	0.48	0.30	0.02	
10.00	0.60	0.41	0.02	
11.00	0.79	0.59	0.04	
12.00	1.58	1.36	0.25	
13.00	2.52	2.29	0.07	
14.00	2.71	2.48	0.03	
15.00	2.83	2.60	0.02	
16.00 17.00	2.91 2.99	2.68 2.76	0.02 0.01	
18.00	3.05	2.76	0.01	
19.00	3.10	2.87	0.01	
20.00	3.15	2.92	0.01	
21.00	3.19	2.96	0.01	
22.00	3.24	3.00	0.01	
23.00	3.27	3.04	0.01	
24.00	3.31	3.08	0.01	
25.00	3.31	3.08	0.00	
26.00	3.31	3.08	0.00	
27.00	3.31	3.08	0.00	
28.00	3.31	3.08	0.00	
29.00	3.31	3.08	0.00	
30.00	3.31	3.08	0.00	
31.00	3.31	3.08	0.00	
32.00	3.31	3.08	0.00	
33.00	3.31	3.08	0.00	
34.00	3.31	3.08	0.00	
35.00	3.31	3.08	0.00	
36.00	3.31	3.08	0.00	
37.00	3.31	3.08	0.00	
38.00	3.31	3.08	0.00	
39.00	3.31	3.08	0.00	
40.00	3.31	3.08	0.00	
41.00	3.31	3.08	0.00	
42.00	3.31	3.08	0.00	
43.00	3.31	3.08	0.00	
44.00	3.31	3.08	0.00	
45.00	3.31	3.08	0.00	
46.00	3.31	3.08	0.00	
47.00	3.31	3.08	0.00	
48.00	3.31	3.08	0.00	
49.00	3.31	3.08	0.00	
50.00	3.31	3.08	0.00	

Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)
51.00	3.31	3.08	0.00
52.00	3.31	3.08	0.00
53.00	3.31	3.08	0.00
54.00	3.31	3.08	0.00
55.00	3.31	3.08	0.00
56.00	3.31	3.08	0.00
57.00	3.31	3.08	0.00
58.00	3.31	3.08	0.00
59.00	3.31	3.08	0.00
60.00	3.31	3.08	0.00
61.00	3.31	3.08	0.00
62.00	3.31	3.08	0.00
63.00	3.31	3.08	0.00
64.00	3.31	3.08	0.00
65.00	3.31	3.08	0.00
66.00	3.31	3.08	0.00
67.00	3.31	3.08	0.00
68.00	3.31	3.08	0.00
69.00	3.31	3.08	0.00
70.00	3.31	3.08	0.00
			+ - + -
71.00	3.31	3.08	0.00
72.00	3.31	3.08	0.00

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Summary for Subcatchment 14S: Drainage Area EX-2b (Pervious part of Drainage Area EX-2)

Runoff = 0.22 cfs @ 12.19 hrs, Volume=

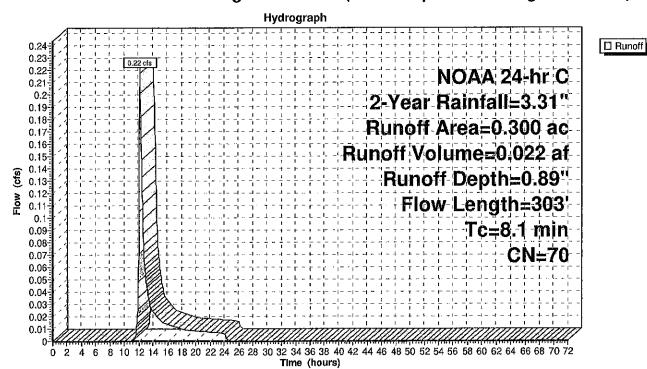
0.022 af, Depth= 0.89"

Routed to Link 16L: Total to P.O.I. "B"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

	Area	(ac) C	N Desc	cription			
	0.	100 6			over, Good		
	0.	200 7	⁷ 4 >759	% Grass co	over, Good	, HSG C	_
	0.	300 7	'0 Weig	hted Aver	age		
	0.	300 7	'0 100.	00% Pervi	ous Area		
					_		
	Tc	Length	Slope	Velocity	Capacity	Description	
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)		
	6.7	63	0.0200	0.16		Sheet Flow,	
						Grass: Short n= 0.150 P2= 3.30"	
	1.0	143	0.0210	2.33		Shallow Concentrated Flow,	
						Unpaved Kv= 16.1 fps	
	0.4	97	0.0410	4.11		Shallow Concentrated Flow,	
						Paved Kv= 20.3 fps	
*****	8.1	303	Total				

Subcatchment 14S: Drainage Area EX-2b (Pervious part of Drainage Area EX-2)



Runoff (cfs) 0.00

3.31

50.00

0.89

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Hydrograph for Subcatchment 14S: Drainage Area EX-2b (Pervious part of Drainage Area EX-2)

	•			· ·	-	,	
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours) ((inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	3.31	0.89	
1.00	0.04	0.00	0.00	52.00	3.31	0.89	
2.00	0.07	0.00	0.00	53.00	3.31	0.89	
3.00	0.12	0.00	0.00	54.00	3.31	0.89	
4.00	0.16	0.00	0.00	55.00	3.31	0.89	
5.00	0.21	0.00	0.00	56.00	3.31	0.89	
6.00	0.26	0.00	0.00	57.00	3.31	0.89	
7.00	0.32	0.00	0.00	58.00	3.31	0.89	
8.00	0.40	0.00	0.00	59.00	3.31	0.89	
9.00	0.48	0.00	0.00	60.00	3.31	0.89	
10.00	0.60	0.00	0.00	61.00	3.31	0.89	
11.00	0.79	0.00	0.00	62.00	3.31	0.89	
12.00	1.58	0.10	0.07	63.00	3.31	0.89	
13.00	2.52	0.46	0.05	64.00	3.31	0.89	
14.00	2.71	0.56	0.02	65.00	3.31	0.89	
15.00	2.83	0.62	0.02	66.00	3.31	0.89	
16.00	2.91	0.67	0.01	67.00	3.31	0.89	
17.00	2.99	0.71	0.01	68.00	3.31	0.89	
18.00	3.05	0.74	0.01	69.00	3.31	0.89	
19.00	3.10	0.77	0.01	70.00	3.31	0.89	
20.00	3.15	0.80	0.01	71.00	3.31	0.89	
21.00	3.19	0.82	0.01	72.00	3.31	0.89	
22.00	3.24	0.85	0.01				
23.00	3.27	0.87	0.01				
24.00	3.31	0.89	0.01				
25.00	3.31	0.89	0.00				
26.00	3.31	0.89	0.00				
27.00	3.31	0.89	0.00				
28.00	3.31	0.89	0.00				
29.00	3.31	0.89	0.00				
30.00	3.31	0.89	0.00				
31.00	3.31	0.89	0.00				
32.00	3.31	0.89	0.00				
33.00	3.31	0.89	0.00				
34.00	3.31	0.89	0.00				
35.00 36.00	3.31	0.89 0.89	0.00 0.00				
	3.31						
37.00 38.00	3.31 3.31	0.89 0.89	0.00				
39.00	3.31	0.89	0.00				
40.00	3.31	0.89	0.00				
41.00	3.31	0.89	0.00				
42.00	3.31	0.89	0.00				
43.00	3.31	0.89	0.00				
44.00	3.31	0.89	0.00				
45.00	3.31	0.89	0.00				
46.00	3.31	0.89	0.00				
47.00	3.31	0.89	0.00				
48.00	3.31	0.89	0.00				
49.00	3.31	0.89	0.00				
43.00	3.31	0.09	0.00				

0.00

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Summary for Link 15L: Total to P.O.I. "A"

Inflow Area =

3.070 ac, 56.03% Impervious, Inflow Depth = 2.03" for 2-Year event

Inflow =

3.78 cfs @ 12.26 hrs, Volume=

0.520 af

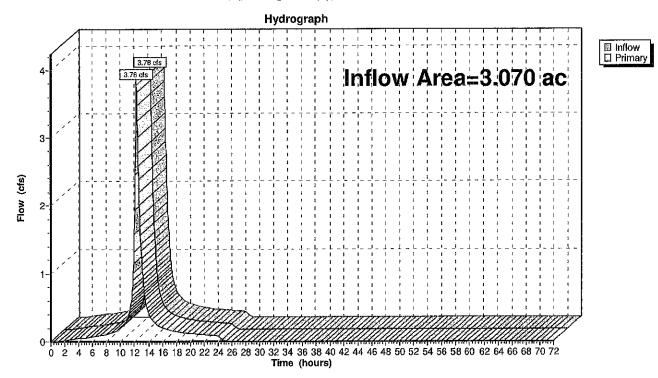
Primary =

3.78 cfs @ 12.26 hrs, Volume=

0.520 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 15L: Total to P.O.I. "A"



Primary (cfs) 0.00

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Hydrograph for Link 15L: Total to P.O.I. "A"

			, o gp			9 1 19111
Time	Inflow	Elevation	Primary	Time	Inflow	Elevation
(hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)	(feet)
0.00	0.00	0.00	0.00	51.00	0.00	0.00
1.00	0.00	0.00	0.00	52.00	0.00	0.00
2.00	0.01	0.00	0.01	53.00	0.00	0.00
3.00	0.03	0.00	0.03	54.00	0.00	0.00
4.00	0.04	0.00	0.04	55.00	0.00	0.00
5.00	0.06	0.00	0.06	56.00	0.00	0.00
6.00	0.07	0.00	0.07	57.00	0.00	0.00
7.00	0.09	0.00	0.09	58.00	0.00	0.00
8.00	0.11	0.00	0.11	59.00	0.00	0.00
9.00	0.14	0.00	0.14	60.00	0.00	0.00
10.00	0.20	0.00	0.20	61.00	0.00	0.00
11.00	0.34	0.00	0.34	62.00	0.00	0.00
12.00	1.58	0.00	1.58	63.00	0.00	0.00
13.00	1.23	0.00	1.23	64.00	0.00	0.00
14.00	0.40	0.00	0.40	65.00	0.00	0.00
15.00	0.27	0.00	0.27	66.00	0.00	0.00
16.00	0.20	0.00	0.20	67.00	0.00	0.00
17.00	0.17	0.00	0.17	68.00	0.00	0.00
18.00	0.14	0.00	0.14	69.00	0.00	0.00
19.00	0.12	0.00	0.12	70.00	0.00	0.00
20.00	0.12	0.00	0.12	71.00	0.00	0.00
21.00	0.11	0.00	0.11	72.00	0.00	0.00
22.00	0.10	0.00	0.10			
23.00	0.09	0.00	0.09			
24.00	0.09	0.00	0.09			
25.00	0.00	0.00	0.00			
26.00	0.00	0.00	0.00			
27.00	0.00	0.00	0.00			
28.00	0.00	0.00	0.00			
29.00	0.00	0.00	0.00			
30.00	0.00	0.00	0.00			
31.00	0.00	0.00	0.00			
32.00	0.00	0.00	0.00			
33.00	0.00	0.00	0.00			
34.00	0.00	0.00	0.00	•		
35.00	0.00	0.00	0.00			
36.00	0.00	0.00	0.00			
37.00	0.00	0.00	0.00			
38.00	0.00	0.00	0.00			
39.00	0.00	0.00	0.00			
40.00	0.00	0.00	0.00			
41.00	0.00	0.00	0.00			
42.00	0.00	0.00	0.00	l		
43.00	0.00	0.00	0.00			
44.00	0.00	0.00	0.00			
45.00	0.00	0.00	0.00			
46.00	0.00	0.00	0.00			
47.00	0.00	0.00	0.00	•		
48.00	0.00	0.00	0.00			
49.00	0.00	0.00	0.00			
50.00	0.00	0.00	0.00			

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Summary for Link 16L: Total to P.O.I. "B"

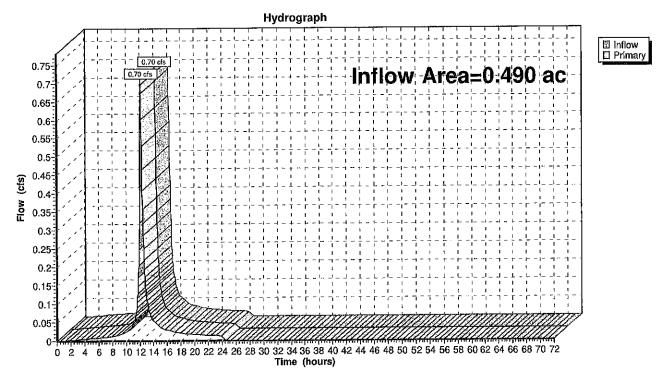
Inflow Area = 0.490 ac, 38.78% Impervious, Inflow Depth = 1.74" for 2-Year event

Inflow = 0.70 cfs @ 12.17 hrs, Volume= 0.071 af

Primary = 0.70 cfs @ 12.17 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 16L: Total to P.O.I. "B"



Primary (cfs) 0.00

Page 12

0.00

50.00

0.00

0.00

2005.109.02_EXISTING (Rev 7) NOA
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Hydrograph for Link 16L: Total to P.O.I. "B"

			I	l ====		prod
Time	Inflow	Elevation	Primary	Time	Inflow	Elevation
(hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)	(feet)
0.00	0.00	0.00	0.00	51.00	0.00	0.00
1.00	0.00	0.00	0.00	52.00	0.00	0.00
2.00	0.00	0.00	0.00	53.00	0.00	0.00
3.00	0.00	0.00	0.00	54.00	0.00	0.00
4.00	0.01	0.00	0.01	55.00	0.00	0.00
5.00	0.01	0.00	0.01	56.00	0.00	0.00
6.00	0.01	0.00	0.01	57.00	0.00	0.00
7.00	0.01	0.00	0.01	58.00	0.00	0.00
8.00	0.01	0.00	0.01	59.00	0.00	0.00 0.00
9.00	0.02	0.00	0.02	60.00	0.00	
10.00	0.02	0.00	0.02	61.00	0.00	0.00
11.00	0.04	0.00	0.04	62.00	0.00	0.00
12.00	0.32	0.00	0.32	63.00	0.00	0.00
13.00	0.12	0.00	0.12	64.00	0.00	0.00
14.00	0.05	0.00	0.05	65.00	0.00	0.00
15.00	0.04	0.00	0.04	66.00	0.00	0.00
16.00	0.03	0.00	0.03	67.00	0.00	0.00 0.00
17.00	0.02	0.00	0.02	68.00	0.00	
18.00	0.02	0.00	0.02	69.00	0.00	0.00
19.00	0.02	0.00	0.02	70.00	0.00	0.00
20.00	0.02	0.00	0.02	71.00	0.00	0.00
21.00	0.02	0.00	0.02	72.00	0.00	0.00
22.00	0.02	0.00	0.02			
23.00	0.01	0.00	0.01			
24.00	0.01	0.00	0.01			
25.00	0.00	0.00	0.00			
26.00	0.00	0.00	0.00			
27.00	0.00	0.00	0.00			
28.00	0.00	0.00	0.00			
29.00	0.00	0.00	0.00			
30.00	0.00	0.00	0.00			
31.00	0.00	0.00	0.00 0.00			
32.00	0.00	0.00				
33.00	0.00	0.00	0.00 0.00			
34.00	0.00	0.00 0.00	0.00			
35.00	0.00		0.00			
36.00		0.00				
37.00	0.00	0.00	0.00			
38.00	0.00	0.00 0.00	0.00 0.00			
39.00			0.00			
40.00	0.00	0.00	0.00			
41.00	0.00	0.00	0.00			
42.00 43.00	0.00	0.00 0.00	0.00			
	0.00	0.00	0.00			
44.00 45.00			0.00			
45.00	0.00	0.00	0.00			
46.00	0.00	0.00	0.00			
47.00 48.00	0.00	0.00 0.00	0.00			
	0.00					
49.00	0.00	0.00	0.00	1		

10 YEAR STORM

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Summary for Subcatchment 11S: Drainage Area EX-1a (Impervious part of Drainage Area EX-1)

Runoff

= 5.01 cfs @ 12.25 hrs, Volume=

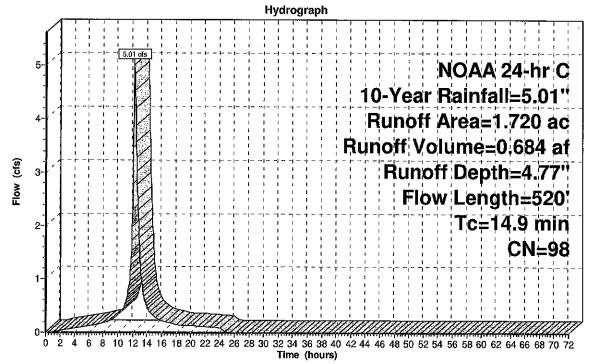
0.684 af, Depth= 4.77"

Routed to Link 15L: Total to P.O.I. "A"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

_	Area	(ac) C	N Des	cription			
*	1	.720	98 Pav	ed parking			
	1	.720	98 100.	.00% Impe	rvious Area		
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
	12.0	100	0.0115	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.30"	
	2.2	287	0.0188	2.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps	
	0.7	133	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps	
	14.9	520	Total			• • • • • • • • • • • • • • • • • • • •	

Subcatchment 11S: Drainage Area EX-1a (Impervious part of Drainage Area EX-1)



■ Runoff

Runoff (cfs) 0.00

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50.00

5.01

4.77

0.00

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Hydrograph for Subcatchment 11S: Drainage Area EX-1a (Impervious part of Drainage Area EX-1)

.ya.og.	. шр					•	•
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	5.01	4.77	
1.00	0.05	0.00	0.00	52.00	5.01	4.77	
2.00	0.11	0.02	0.04	53.00	5.01	4.77	
3.00		0.05	0.06	54.00	5.01	4.77	
4.00	0.25	0.10	0.09	55.00	5.01	4.77	
5.00	0.32	0.16	0.10	56.00	5.01	4.77	
6.00	0.40	0.23	0.12	57.00	5.01	4.77	
7.00	0.49	0.31	0.15	58.00	5.01	4.77	
8.00	0.60	0.41	0.18	59.00	5.01	4.77	
9.00	0.73	0.53	0.22	60.00	5.01	4.77	
10.00	0.91	0.71	0.32	61.00	5.01	4.77	
11.00	1.20	0.99	0.53	62.00	5.01	4.77	
12.00	2.39	2.16	2.31	63.00	5.01	4.77	
13.00	3.81	3.57	1.49	64.00	5.01	4.77	
14.00	4.10	3.86	0.46	65.00	5.01	4.77	
15.00	4.28	4.04	0.30	66.00	5.01	4.77	
16.00	4.41	4.17	0.22	67.00	5.01	4.77	
17.00	4.52	4.29	0.19	68.00	5.01	4.77	
18.00	4.61	4.38	0.15	69.00	5.01	4.77	
19.00	4.69	4.46	0.13	70.00	5.01	4.77	
20.00	4.76	4.53	0.13	71.00	5.01	4.77	
21.00	4.83	4.60	0.12	72.00	5.01	4.77	
22.00	4.90	4.66	0.11				
23.00	4.96	4.72	0.10				
24.00	5.01	4.77	0.09				
25.00	5.01	4.77	0.00				
26.00	5.01	4.77	0.00				
27.00	5.01	4.77	0.00				
28.00	5.01	4.77	0.00				
29.00	5.01	4.77	0.00				
30.00	5.01	4.77	0.00				
31.00	5.01	4.77	0.00				
32.00	5.01	4.77	0.00 0.00				
33.00	5.01	4.77 4.77	0.00				
34.00	5.01 5.01	4.77	0.00				
35.00 36.00	5.01	4.77	0.00				
37.00	5.01	4.77	0.00				
38.00	5.01	4.77	0.00				
39.00	5.01	4.77	0.00				
40.00	5.01	4.77	0.00				
41.00	5.01	4.77	0.00				
42.00		4.77	0.00				
43.00		4.77	0.00				
44.00	5.01	4.77	0.00				
44.00 45.00		4.77	0.00				
46.00		4.77	0.00	Ì			
47.00		4.77	0.00				
48.00		4.77	0.00				
49.00		4.77	0.00				
49.00	5.01	4.77	0.00	Ì			

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NOAA 24-hr C 10-Year Rainfall=5.01"

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Summary for Subcatchment 12S: Drainage Area EX-1b (Pervious part of Drainage Area EX-1)

Runoff

1.49 cfs @ 12.28 hrs, Volume=

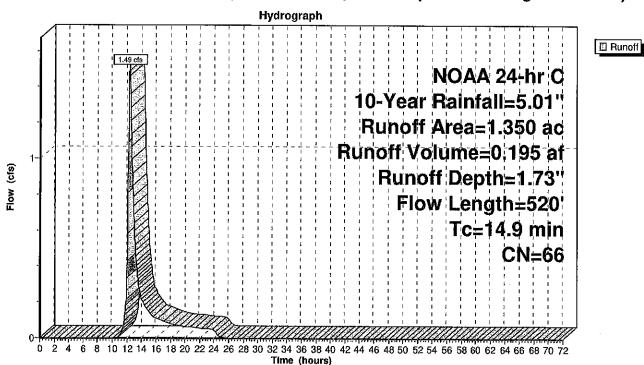
0.195 af, Depth= 1.73"

Routed to Link 15L: Total to P.O.I. "A"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

	Area	(ac) C	N Des	cription			
				ds, Good,			
					over, Good		
_	0.	640	<u>74 >759</u>	<u>% Grass c</u>	over, Good	, HSG C	
	1.	350 6	36 Wei	hted Aver	age		
	1.	350 6		00% Pervi			
	Tc	Length	Slope	Velocity	Capacity	Description	
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)		
	12.0	100	0.0115	0.14		Sheet Flow,	****
						Grass: Short n= 0.150 P2= 3.30"	
	2.2	287	0.0188	2.21		Shallow Concentrated Flow,	
						Unpaved Kv= 16.1 fps	
	0.7	133	0.0240	3.14		Shallow Concentrated Flow,	
	3.7	, 00	3.32.10	3.11		Paved Kv= 20.3 fps	
_	14.9	520	Total			1 4 7 4 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	
	17.0	J2.U	i Ulai				

Subcatchment 12S: Drainage Area EX-1b (Pervious part of Drainage Area EX-1)



Runoff

(cfs)

0.00

0.00

0.00 0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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Hydrograph for Subcatchment 12S: Drainage Area EX-1b (Pervious part of Drainage Area EX-1)

Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	5.01	1.73
1.00	0.05	0.00	0.00	52.00	5.01	1.73
2.00	0.11	0.00	0.00	53.00	5.01	1.73
3.00	0.18	0.00	0.00	54.00	5.01	1.73
4.00	0.25	0.00	0.00	55.00	5.01	1.73
5.00	0.32	0.00	0.00	56.00	5.01	1.73
6.00	0.40	0.00	0.00	57.00	5.01	1.73
7.00	0.49	0.00	0.00	58.00	5.01	1.73
8.00	0.60	0.00	0.00	59.00	5.01	1.73
9.00	0.73	0.00	0.00	60.00	5.01	1.73
10.00	0.91	0.00	0.00	61.00	5.01	1.73
11.00	1.20	0.01	0.01	62.00	5.01	1.73
12.00	2.39	0.28	0.43	63.00	5.01	1.73
13.00	3.81	0.97	0.60	64.00	5.01	1.73
14.00	4.10	1.14	0.22	65.00	5.01	1.73
15.00	4.28	1.26	0.15	66.00	5.01	1.73
16.00	4.41	1.34	0.11	67.00	5.01 5.01	1.73 1.73
17.00	4.52	1.41	0.10	68.00 69.00	5.01	1.73
18.00	4.61	1.47	0.08 0.07	70.00	5.01	1.73
19.00 20.00	4.69 4.76	1.52 1.57	0.07	71.00	5.01	1.73
21.00	4.70	1.62	0.06	72.00	5.01	1.73
22.00	4.90	1.66	0.06	72.00	0.01	1.70
23.00	4.96	1.70	0.05			
24.00	5.01	1.73	0.05			
25.00	5.01	1.73	0.00			
26.00	5.01	1.73	0.00			
27.00	5.01	1.73	0.00			
28.00	5.01	1.73	0.00			
29.00	5.01	1.73	0.00			
30.00	5.01	1.73	0.00			
31.00	5.01	1.73	0.00			
32.00	5.01	1.73	0.00			
33.00	5.01	1.73	0.00			
34.00	5.01	1.73	0.00			
35.00	5.01	1.73	0.00			
36.00	5.01	1.73	0.00			
37.00	5.01	1.73	0.00			
38.00	5.01	1.73	0.00			
39.00	5.01	1.73	0.00			
40.00	5.01	1.73	0.00			
41.00	5.01	1.73	0.00 0.00			
42.00	5.01 5.01	1.73 1.73	0.00			
43.00	5.01	1.73	0.00			
44.00 45.00	5.01	1.73	0.00			
46.00	5.01	1.73	0.00			
47.00	5.01	1.73	0.00	ļ		
48.00	5.01	1.73	0.00	1		
49.00	5.01	1.73	0.00			
50.00	5.01	1.73	0.00			
-0.00	0.01	0		l		

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NOAA 24-hr C 10-Year Rainfall=5.01" Printed 2/9/2023

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Summary for Subcatchment 13S: Drainage Area EX-2a (Imervious part of Drainage Area EX-2)

Runoff

0.73 cfs @ 12.16 hrs, Volume=

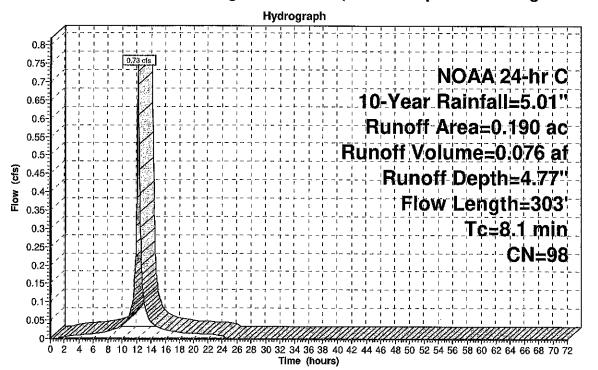
0.076 af, Depth= 4.77"

Routed to Link 16L: Total to P.O.I. "B"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

_	Area	(ac) C	N Desc	cription		
	0.	190 9	8 Pave	ed parking	, HSG C	
0.190 98 100.00% Impervious Area						l
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	6.7	63	0.0200	0.16	·	Sheet Flow,
	1.0	143	0.0210	2.33		Grass: Short n= 0.150 P2= 3.30" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
	0.4	97	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
_	8.1	303	Total	•		

Subcatchment 13S: Drainage Area EX-2a (Imervious part of Drainage Area EX-2)





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Hydrograph for Subcatchment 13S: Drainage Area EX-2a (Imervious part of Drainage Area EX-2)

Time	Precip.	Excess	Runoff	Т
(hours)	(inches)	(inches)	(cfs)	(ho
0.00	0.00	0.00	0.00	5
1.00	0.05	0.00	0.00	5
2.00	0.11	0.02	0.00	5
3.00	0.18	0.05	0.01	5
4.00	0.25	0.10	0.01	5
5.00	0.32	0.16	0.01	5
6.00	0.40	0.23	0.01	5
7.00	0.49	0.31	0.02	5
8.00	0.60	0.41	0.02	5
9.00	0.73	0.53	0.02	6
10.00	0.91	0.71	0.04	6
11.00	1.20	0.99	0.07	6
12.00	2.39	2.16	0.38	6
13.00	3.81	3.57	0.11	6
14.00	4.10	3.86	0.05	6
15.00	4.28	4.04	0.03	6
16.00	4.41	4.17	0.02	6
17.00	4.52	4.29	0.02	6
18.00	4.61	4.38	0.02	6
19.00	4.69	4.46	0.01	7
20.00	4.76	4.53	0.01	7
21.00	4.83	4.60	0.01	′
22.00	4.90	4.66 4.72	0.01 0.01	
23.00	4.96 5.01	4.72 4.77	0.01	
24.00 25.00	5.01 5.01	4.77	0.00	
26.00	5.01	4.77	0.00	
27.00	5.01	4.77	0.00	
28.00	5.01	4.77	0.00	
29.00	5.01	4.77	0.00	
30.00	5.01	4.77	0.00	
31.00	5.01	4.77	0.00	
32.00	5.01	4.77	0.00	
33.00	5.01	4.77	0.00	
34.00	5.01	4.77	0.00	
35.00	5.01	4.77	0.00	
36.00	5.01	4.77	0.00	
37.00	5.01	4.77	0.00	
38.00	5.01	4.77	0.00	
39.00	5.01	4.77	0.00	l
40.00	5.01	4.77	0.00	
41.00	5.01	4.77	0.00	
42.00	5.01	4.77	0.00	
43.00	5.01	4.77	0.00	
44.00	5.01	4.77	0.00	
45.00	5.01	4.77	0.00	
46.00	5.01	4.77	0.00	
47.00	5.01	4.77	0.00]
48.00	5.01	4.77	0.00	
49.00	5.01	4.77	0.00	
50.00	5.01	4.77	0.00	I

Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)
51.00	5.01	4.77	0.00
52.00	5.01	4.77	0.00
53.00	5.01	4.77	0.00
54.00	5.01	4.77	0.00
55.00	5.01	4.77	0.00
56.00	5.01	4.77	0.00
57.00	5.01	4.77	0.00
58.00	5.01	4.77	0.00
59.00	5.01	4.77	0.00
60.00	5.01	4.77	0.00
61.00	5.01	4.77	0.00
62.00	5.01	4.77	0.00
63.00	5.01	4.77	0.00
64.00	5.01	4.77	0.00
65.00	5.01	4.77	0.00
66.00	5.01	4.77	0.00
67.00	5.01	4.77	0.00
68.00	5.01	4.77	0.00
69.00	5.01	4.77	0.00
70.00	5.01	4.77	0.00
71.00	5.01	4.77	0.00
72.00	5.01	4.77	0.00

NOAA 24-hr C 10-Year Rainfall=5.01"

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Summary for Subcatchment 14S: Drainage Area EX-2b (Pervious part of Drainage Area EX-2)

Runoff

0.55 cfs @ 12.17 hrs, Volume=

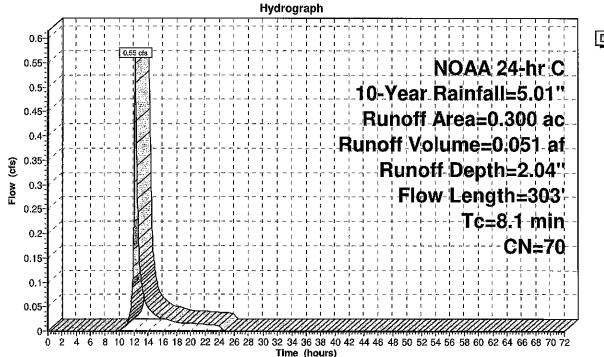
0.051 af, Depth= 2.04"

Routed to Link 16L: Total to P.O.I. "B"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

	Area	(ac) C	N Des	cription			
					over, Good	,	
·_		<u> 200 7</u>	74 >75°	<u>% Grass co</u>	over, Good	, HSG C	
	0.	300 7	70 Wei	ghted Aver	age		
	0.	300 7	70 100.	00% Pervi	ous Area		
	Тс	Length	Slope	Velocity	Capacity	Description	
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	-	
	6.7	63	0.0200	0.16	-	Sheet Flow,	
						Grass: Short n= 0.150 P2= 3.30"	
	1.0	143	0.0210	2.33		Shallow Concentrated Flow,	
						Unpaved Kv= 16.1 fps	
	0.4	97	0.0410	4.11		Shallow Concentrated Flow,	
						Paved Kv= 20.3 fps	
_	8.1	303	Total				

Subcatchment 14S: Drainage Area EX-2b (Pervious part of Drainage Area EX-2)



El Runoff

Runoff (cfs) 0.00

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Hydrograph for Subcatchment 14S: Drainage Area EX-2b (Pervious part of Drainage Area EX-2)

•	•				_	_	
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	5.01	2.04	
1.00	0.05	0.00	0.00	52.00	5.01	2.04	
2.00	0.11	0.00	0.00	53.00	5.01	2.04	
3.00	0.18	0.00	0.00	54.00	5.01	2.04	
4.00	0.25	0.00	0.00	55.00	5.01	2.04	
5.00	0.32	0.00	0.00	56.00	5.01	2.04	
6.00	0.40	0.00	0.00	57.00	5.01	2.04	
7.00	0.49	0.00	0.00	58.00	5.01	2.04	
8.00	0.60	0.00	0.00	59.00	5.01	2.04	
9.00	0.73	0.00	0.00	60.00	5.01	2.04	
10.00	0.91	0.00	0.00	61.00	5.01	2.04	
11.00	1.20	0.03	0.01	62.00	5.01	2.04	
12.00	2.39	0.40	0.22	63.00	5.01	2.04	
13.00	3.81	1.20	0.11	64.00	5.01	2.04	
14.00	4.10	1.39	0.05	65.00	5.01	2.04	
15.00	4.28	1.52	0.03	66.00	5.01	2.04	
16.00	4.41	1.61	0.03	67.00	5.01	2.04	
17.00	4.52	1.69	0.02	68.00	5.01	2.04	
18.00	4.61	1.75	0.02	69.00	5.01	2.04	
19.00	4.69	1.81	0.02	70.00	5.01	2.04	
20.00	4.76	1.86	0.02	71.00	5.01	2.04	
21.00	4.83	1.91	0.01	72.00	5.01	2.04	
22.00	4.90	1.96	0.01				
23.00	4.96	2.00	0.01				
24.00	5.01	2.04	0.01				
25.00	5.01	2.04	0.00				
26.00	5.01	2.04	0.00				
27.00 28.00	5.01 5.01	2.04 2.04	0.00 0.00				
29.00	5.01	2.04	0.00				
30.00	5.01	2.04	0.00				
31.00	5.01	2.04	0.00				
32.00	5.01	2.04	0.00				
33.00	5.01	2.04	0.00				
34.00	5.01	2.04	0.00				
35.00	5.01	2.04	0.00				
36.00	5.01	2.04	0.00				
37.00	5.01	2.04	0.00				
38.00	5.01	2.04	0.00				
39.00	5.01	2.04	0.00				
40.00	5.01	2.04	0.00				
41.00	5.01	2.04	0.00				
42.00	5.01	2.04	0.00				
43.00	5.01	2.04	0.00				
44.00	5.01	2.04	0.00				
45.00	5.01	2.04	0.00				
46.00	5.01	2.04	0.00				
47.00	5.01	2.04	0.00				
48.00	5.01	2.04	0.00				
49.00	5.01	2.04	0.00				
50.00	5.01	2.04	0.00				

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Summary for Link 15L: Total to P.O.I. "A"

Inflow Area =

3.070 ac, 56.03% Impervious, Inflow Depth = 3.44" for 10-Year event

Inflow

6.50 cfs @ 12.26 hrs, Volume=

0.879 af

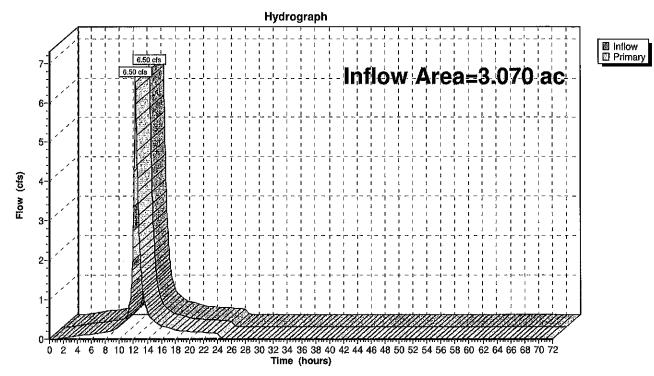
Primary

6.50 cfs @ 12.26 hrs, Volume=

0.879 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 15L: Total to P.O.I. "A"



Primary

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

 $0.00 \\ 0.00$

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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Hydrograph for Link 15L: Total to P.O.I. "A"

Elevation

(feet)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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0.00

		• • •	, ar ograpi.		
Time	Inflow	Elevation	Primary	Time	Inflow
(hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)
0.00	0.00	0.00	0.00	51.00	0.00
1.00	0.00	0.00	0.00	52.00	0.00
2.00	0.04	0.00	0.04	53.00	0.00
3.00	0.06	0.00	0.06	54.00	0.00
4.00	0.09	0.00	0.09	55.00	0.00
5.00	0.10	0.00	0.10	56.00	0.00
6.00	0.12	0.00	0.12	57.00	0.00
7.00	0.15	0.00	0.15	58.00	0.00
8.00	0.18	0.00	0.18	59.00	0.00
9.00	0.22	0.00	0.22	60.00	0.00
10.00	0.32	0.00	0.32	61.00	0.00
11.00	0.54	0.00	0.54	62.00	0.00
12.00	2.74	0.00	2.74	63.00	0.00
13.00	2.08	0.00	2.08	64.00	0.00
14.00	0.68	0.00	0.68	65.00	0.00
15.00	0.44	0.00	0.44	66.00 67.00	0.00 0.00
16.00	0.34 0.28	0.00	0.34 0.28	68.00	0.00
17.00 18.00	0.28	0.00 0.00	0.23	69.00	0.00
19.00	0.23	0.00	0.23	70.00	0.00
20.00	0.20	0.00	0.20	70.00	0.00
21.00	0.13	0.00	0.13	72.00	0.00
22.00	0.17	0.00	0.17	72.00	0.00
23.00	0.17	0.00	0.15		
24.00	0.14	0.00	0.14		
25.00	0.00	0.00	0.00		
26.00	0.00	0.00	0.00		
27.00	0.00	0.00	0.00		
28.00	0.00	0.00	0.00	ļ	
29.00	0.00	0.00	0.00		
30.00	0.00	0.00	0.00	1	
31.00	0.00	0.00	0.00		
32.00	0.00	0.00	0.00	i	
33.00	0.00	0.00	0.00		
34.00	0.00	0.00	0.00		
35.00	0.00	0.00	0.00		
36.00	0.00	0.00	0.00		
37.00	0.00	0.00	0.00		
38.00	0.00	0.00	0.00		
39.00	0.00	0.00	0.00		
40.00	0.00	0.00	0.00		
41.00	0.00	0.00	0.00		
42.00	0.00	0.00	0.00		
43.00	0.00	0.00	0.00 0.00		
44.00 45.00	0.00 0.00	0.00 0.00	0.00	1	
45.00 46.00	0.00	0.00	0.00		
46.00 47.00	0.00	0.00	0.00		
48.00	0.00	0.00	0.00		
49.00	0.00	0.00	0.00		
50.00	0.00	0.00	0.00		
00.00	0.00	0.00	0.00	1	

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Summary for Link 16L: Total to P.O.I. "B"

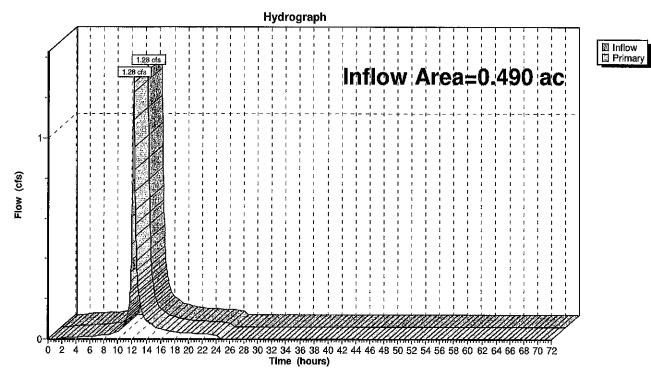
Inflow Area = 0.490 ac, 38.78% Impervious, Inflow Depth = 3.10" for 10-Year event

Inflow = 1.28 cfs @ 12.17 hrs, Volume= 0.127 af

Primary = 1.28 cfs @ 12.17 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 16L: Total to P.O.I. "B"



Primary (cfs) 0.00

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Hydrograph for Link 16L: Total to P.O.I. "B"

Time	Inflow	Elevation	Primary	Time	Inflow	Elevation
(hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)	(feet)
0.00	0.00	0.00	0.00	51.00	0.00	0.00
1.00	0.00	0.00	0.00	52.00	0.00	0.00
2.00	0.00	0.00	0.00	53.00	0.00	0.00
3.00	0.01	0.00	0.01	54.00	0.00	0.00
4.00	0.01	0.00	0.01	55.00	0.00	0.00
5.00	0.01	0.00	0.01	56.00	0.00	0.00
6.00	0.01	0.00	0.01	57.00	0.00	0.00
7.00	0.02	0.00	0.02	58.00	0.00	0.00
8.00	0.02	0.00	0.02	59.00	0.00	0.00
9.00	0.02	0.00	0.02	60.00	0.00	0.00
10.00	0.04	0.00	0.04	61.00	0.00	0.00
11.00	0.08	0.00	0.08	62.00	0.00	0.00
12.00	0.61	0.00	0.61	63.00	0.00	0.00
13.00	0.21	0.00	0.21	64.00	0.00	0.00
14.00	0.09	0.00	0.09	65.00	0.00	0.00
15.00	0.06	0.00	0.06	66.00	0.00	0.00
16.00	0.05	0.00	0.05	67.00	0.00	0.00
17.00	0.04	0.00	0.04	68.00	0.00	0.00
18.00	0.03	0.00	0.03	69.00	0.00	0.00
19.00	0.03	0.00	0.03	70.00	0.00	0.00
20.00	0.03	0.00	0.03	71.00	0.00	0.00
21.00	0.03	0.00	0.03	72.00	0.00	0.00
22.00	0.03	0.00	0.03			
23.00	0.02	0.00	0.02			
24.00	0.02	0.00	0.02			
25.00	0.00	0.00	0.00			
26.00	0.00	0.00	0.00			
27.00	0.00	0.00	0.00			
28.00	0.00	0.00	0.00			
29.00	0.00	0.00	0.00			
30.00	0.00	0.00	0.00			
31.00	0.00	0.00	0.00			
32.00	0.00	0.00	0.00			
33.00	0.00	0.00	0.00			
34.00	0.00	0.00	0.00			
35.00	0.00	0.00	0.00	-		
36.00	0.00	0.00	0.00			
37.00	0.00	0.00	0.00			
38.00	0.00	0.00	0.00			
39.00	0.00	0.00	0.00			
40.00	0.00	0.00	0.00			
41.00	0.00	0.00	0.00			
42.00	0.00	0.00	0.00			
43.00	0.00	0.00	0.00			
44.00	0.00	0.00	0.00			
45.00	0.00	0.00	0.00			
46.00	0.00	0.00	0.00			
47.00	0.00	0.00	0.00			
48.00	0.00	0.00	0.00			
49.00	0.00	0.00	0.00			
50.00	0.00	0.00	0.00			

100 YEAR STORM

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Summary for Subcatchment 11S: Drainage Area EX-1a (Impervious part of Drainage Area EX-1)

Runoff

8.37 cfs @ 12.25 hrs, Volume=

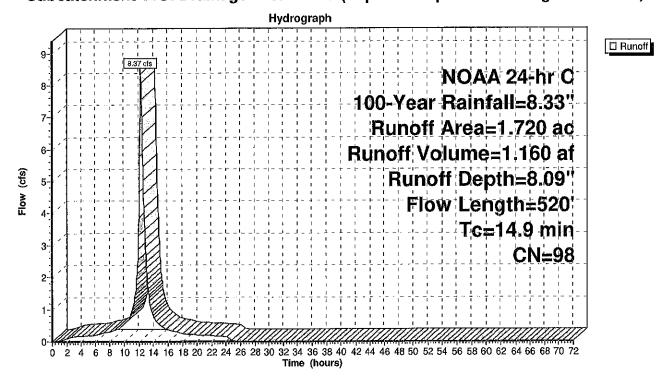
1.160 af, Depth= 8.09"

Routed to Link 15L: Total to P.O.I. "A"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

_	Area	(ac) C	N Des	cription		
*	1.	.720 9	8 Pave	ed parking		
	1.	.720 9	98 100.	00% Impe	vious Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	12.0	100	0.0115	0.14		Sheet Flow,
				201		Grass: Short n= 0.150 P2= 3.30"
	2.2	287	0.0188	2.21		Shallow Concentrated Flow,
	0.7	133	0.0240	3.14		Unpaved Kv= 16.1 fps Shallow Concentrated Flow,
_	14.9		Talal			Paved Kv= 20.3 fps
	14.9	520	Total			

Subcatchment 11S: Drainage Area EX-1a (Impervious part of Drainage Area EX-1)



Runoff

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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Hydrograph for Subcatchment 11S: Drainage Area EX-1a (Impervious part of Drainage Area EX-1)

, ,	•			•		
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	8.33	8.09
1.00	0.09	0.01	0.03	52.00	8.33	8.09
2.00	0.19	0.06	0.10	53.00	8.33	8.09
3.00	0.29	0.14	0.14	54.00	8.33	8.09
4.00	0.41	0.24	0.17	55.00	8.33	8.09
5.00	0.53	0.34	0.19	56.00	8.33	8.09
6.00	0.66	0.47	0.21	57.00	8.33	8.09
7.00	0.81	0.61	0.26	58.00	8.33	8.09
8.00	1.00	0.79	0.32	59.00	8.33	8.09
9.00	1.22	1.00	0.38	60.00	8.33	8.09
10.00	1.52	1.30	0.54	61.00	8.33	8.09
11.00	2.00	1.77	0.89	62.00	8.33	8.09
12.00	3.97	3.74	3.87	63.00	8.33	8.09
13.00	6.33	6.09	2.48	64.00	8.33	8.09
14.00	6.81	6.57	0.77	65.00	8.33	8.09
15.00	7.11	6.87	0.50	66.00	8.33	8.09
16.00	7.33	7.09	0.37	67.00	8.33	8.09
17.00	7.52	7.28	0.31	68.00	8.33	8.09
18.00	7.67	7.43	0.26	69.00	8.33	8.09
19.00	7.80	7.56	0.22	70.00	8.33	8.09
20.00	7.92	7.68	0.21	71.00	8.33	8.09
21.00	8.04	7.80	0.20	72.00	8.33	8.09
22.00	8.14	7.90	0.18			
23.00	8.24	8.00	0.17			
24.00	8.33	8.09	0.15			
25.00	8.33	8.09	0.01			
26.00	8.33	8.09	0.00			
27.00	8.33	8.09	0.00			
28.00	8.33	8.09	0.00			
29.00	8.33	8.09	0.00			
30.00	8.33	8.09	0.00			
31.00	8.33	8.09	0.00			
32.00	8.33	8.09	0.00			
33.00	8.33	8.09	0.00			
34.00	8.33	8.09	0.00			
35.00	8.33	8.09	0.00			
36.00	8.33	8.09	0.00			
37.00	8.33	8.09	0.00			
38.00	8.33	8.09	0.00			
39.00	8.33	8.09	0.00			
40.00	8.33	8.09	0.00			
41.00	8.33	8.09	0.00			
42.00	8.33	8.09	0.00			
43.00	8.33	8.09	0.00			
44.00	8.33	8.09	0.00			
45.00	8.33	8.09	0.00			
46.00	8.33	8.09	0.00			
47.00	8.33	8.09	0.00			
48.00	8.33	8.09	0.00			
49.00	8.33	8.09	0.00			
50.00	8.33	8.09	0.00			
				I		

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Summary for Subcatchment 12S: Drainage Area EX-1b (Pervious part of Drainage Area EX-1)

Runoff =

3.92 cfs @ 12.26 hrs, Volume=

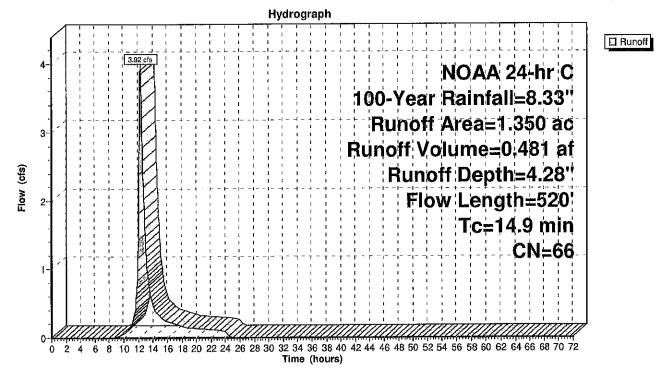
0.481 af, Depth= 4.28"

Routed to Link 15L: Total to P.O.I. "A"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

	Area	(ac) C	N Des	cription			
_				ds, Good,	HSG B		
	0.	490 (over, Good		
_	0.	640	74 >75°	% Grass co	over, Good	, HSG C	
-	1.	350	66 Wei	ghted Aver	age		
	1.	350	66 100.	00% Pervi	ous Area		
					_		
	Tc	Length	Slope	Velocity	Capacity	Description	
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)		
	12.0	100	0.0115	0.14		Sheet Flow,	
						Grass: Short n= 0.150 P2= 3.30"	
	2.2	287	0.0188	2.21		Shallow Concentrated Flow,	
						Unpaved Kv= 16.1 fps	
	0.7	133	0.0240	3.14		Shallow Concentrated Flow,	
						Paved Kv= 20.3 fps	
_	14.9	520	Total				

Subcatchment 12S: Drainage Area EX-1b (Pervious part of Drainage Area EX-1)



NOAA 24-hr C 100-Year Rainfall=8.33" Printed 2/9/2023

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Hydrograph for Subcatchment 12S: Drainage Area EX-1b (Pervious part of Drainage Area EX-1)

	•		
Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cts)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.19	0.00	0.00
3.00	0.29	0.00	0.00
4.00	0.41	0.00	0.00
5.00	0.53	0.00	0.00
6.00	0.66	0.00	0.00
7.00	0.81	0.00	0.00
8.00	1.00	0.00	0.00
9.00	1.22	0.01	0.01
10.00	1.52	0.04	0.06
11.00	2.00	0.15	0.17
12.00	3.97	1.07	1.43
13.00	6.33	2.69	1.37
14.00	6.81	3.06	0.46
15.00	7.11	3.29	0.31
16.00	7.33	3.47	0.23
17.00	7.52	3.62	0.20
18.00	7.67	3.74	0.16
19.00	7.80	3.84	0.14
20.00	7.92	3.94	0.13
21.00	8.04	4.04	0.13
22.00	8.14	4.12	0.12
23.00	8.24	4.20	0.11
24.00	8.33	4.28	0.10
25.00	8.33	4.28	0.00
26.00	8.33	4.28	0.00
27.00	8.33	4.28	0.00
28.00	8.33	4.28	0.00
29.00	8.33	4.28	0.00
30.00	8.33	4.28	0.00
31.00	8.33	4.28	0.00
32.00	8.33	4.28	0.00
33.00	8.33	4.28	0.00
34.00	8.33	4.28	0.00
35.00	8.33	4.28	0.00
36.00	8.33	4.28	0.00
37.00	8.33	4.28	0.00
38.00	8.33	4.28	0.00
39.00	8.33	4.28	0.00
40.00	8.33	4.28	0.00
41.00	8.33	4.28	0.00
42.00	8.33	4.28	0.00
43.00	8.33	4.28	0.00
44.00	8.33	4.28	0.00
45.00	8.33	4.28	0.00
46.00	8.33	4.28	0.00
47.00	8.33	4.28	0.00
48.00	8.33	4.28	0.00
49.00	8.33	4.28 4.28	0.00
50.00	8.33	4.28	0.00
50.00	0.00	4.20	0.00

Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)
51.00	8.33	4.28	0.00
52.00	8.33	4.28	0.00
53.00	8.33	4.28	0.00
54.00	8.33	4.28	0.00
55.00	8.33	4.28	0.00
56.00	8.33	4.28	0.00
57.00	8.33	4.28	0.00
58.00	8.33	4.28	0.00
59.00	8.33	4.28	0.00
60.00	8.33	4.28	0.00
61.00	8.33	4.28	0.00
62.00	8.33	4.28	0.00
63.00	8.33	4.28	0.00
64.00	8.33	4.28	0.00
65.00	8.33	4.28	0.00
66.00	8.33	4.28	0.00
67.00	8.33	4.28	0.00
68.00	8.33	4.28	0.00
69.00	8.33	4.28	0.00
70.00	8.33	4.28	0.00
71.00	8.33	4.28	0.00
72.00	8.33	4.28	0.00

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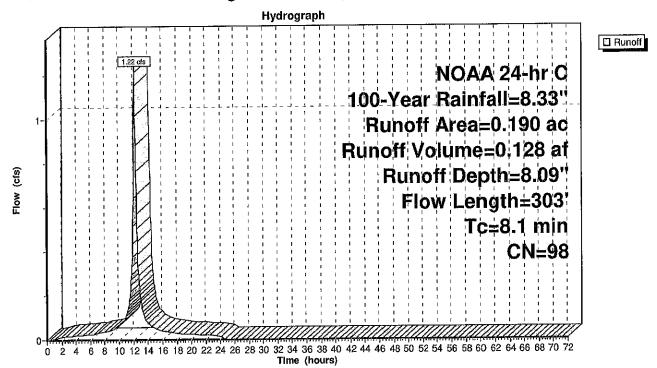
Summary for Subcatchment 13S: Drainage Area EX-2a (Imervious part of Drainage Area EX-2)

Runoff = 1.22 cfs @ 12.16 hrs, Volume= Routed to Link 16L : Total to P.O.I. "B" 0.128 af, Depth= 8.09"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

	Area	(ac) C	N Desc	cription		
	0.	190 9	8 Pave	ed parking.	, HSG C	
	0.	190 9	8 100.	00% Impe	rvious Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)_	Description
-	6.7	63	0.0200	0.16		Sheet Flow,
	1.0	143	0.0210	2.33		Grass: Short n= 0.150 P2= 3.30" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
	0.4	97	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
_	8.1	303	Total			

Subcatchment 13S: Drainage Area EX-2a (Imervious part of Drainage Area EX-2)



Runoff

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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0.00

0.00

0.00

0.00

0.00

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Hydrograph for Subcatchment 13S: Drainage Area EX-2a (Imervious part of Drainage Area EX-2)

	<u>-</u>				-	•
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	8.33	8.09
1.00	0.09	0.01	0.00	52.00	8.33	8.09
2.00	0.19	0.06	0.01	53.00	8.33	8.09
3.00	0.29	0.14	0.02	54.00	8.33	8.09
4.00	0.41	0.24	0.02	55.00	8.33	8.09
5.00	0.53	0.34	0.02	56.00	8.33	8.09
6.00	0.66	0.47	0.02	57.00	8.33	8.09
7.00	0.81	0.61	0.03	58.00	8.33	8.09
8.00	1.00	0.79	0.04	59.00	8.33	8.09
9.00	1.22	1.00	0.04	60.00	8.33	8.09
10.00	1.52	1.30	0.06	61.00	8.33	8.09
11.00	2.00	1.77	0.11	62.00	8.33	8.09
12.00	3.97	3.74	0.64	63.00	8.33	8.09
13.00	6.33	6.09	0.18	64.00	8.33	8.09
14.00	6.81	6.57	0.08	65.00	8.33	8.09
15.00	7.11	6.87	0.05	66.00	8.33	8.09
16.00	7.33	7.09	0.04	67.00	8.33	8.09
17.00	7.52	7.28	0.03	68.00	8.33	8.09
18.00	7.67	7.43	0.03	69.00	8.33	8.09
19.00 20.00	7.80 7.92	7.56	0.02	70.00	8.33	8.09
21.00	8.04	7.68 7.80	0.02 0.02	71.00	8.33	8.09
22.00	8.14	7.90	0.02	72.00	8.33	8.09
23.00	8.24	8.00	0.02			
24.00	8.33	8.09	0.02			
25.00	8.33	8.09	0.02			
26.00	8.33	8.09	0.00			
27.00	8.33	8.09	0.00			
28.00	8.33	8.09	0.00			
29.00	8.33	8.09	0.00			
30.00	8.33	8.09	0.00			
31.00	8.33	8.09	0.00			
32.00	8.33	8.09	0.00			
33.00	8.33	8.09	0.00			
34.00	8.33	8.09	0.00			
35.00	8.33	8.09	0.00			
36.00	8.33	8.09	0.00			
37.00	8.33	8.09	0.00			
38.00	8.33	8.09	0.00			
39.00	8.33	8.09	0.00			
40.00	8.33	8.09	0.00			
41.00	8.33	8.09	0.00			
42.00	8.33	8.09	0.00			
43.00	8.33	8.09	, 0.00			
44.00	8.33	8.09	0.00			
45.00	8.33	8.09	0.00			
46.00	8.33	8.09	0.00			
47.00	8.33	8.09	0.00			
48.00	8.33	8.09	0.00			
49.00	8.33	8.09	0.00			
50.00	8.33	8.09	0.00			

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Summary for Subcatchment 14S: Drainage Area EX-2b (Pervious part of Drainage Area EX-2)

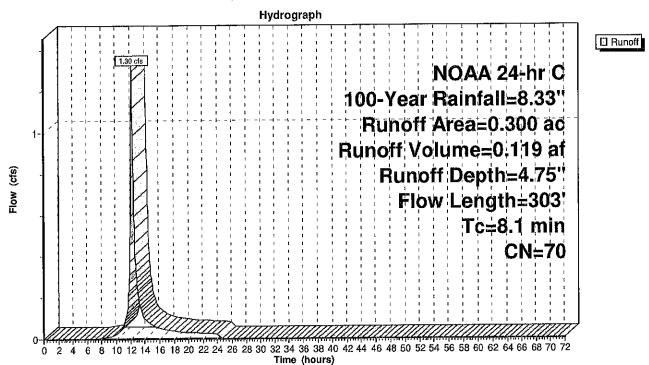
Runoff = 1.30 cfs @ 12.17 hrs, Volume= Routed to Link 16L : Total to P.O.I. "B"

0.119 af, Depth= 4.75"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

Area	(ac) C	N Desc	cription						
0	.100 6			over, Good					
0	.2007	'4 <u>>75</u> 9	<u>% Grass co</u>	over, Good	, HSG C				
0.300 70 Weighted Average									
0.300 70 100.00% Pervious Area									
Tc	Length	Slope	Velocity	Capacity	Description				
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
6.7	63	0.0200	0.16		Sheet Flow,				
					Grass: Short n= 0.150 P2= 3.30"				
1.0	143	0.0210	2.33		Shallow Concentrated Flow,				
					Unpaved Kv= 16.1 fps				
0.4	97	0.0410	4.11		Shallow Concentrated Flow,				
-	-				Paved Kv= 20.3 fps				
8.1	303	Total							

Subcatchment 14S: Drainage Area EX-2b (Pervious part of Drainage Area EX-2)



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Runoff

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00 0.00

0.00

0.00

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Hydrograph for Subcatchment 14S: Drainage Area EX-2b (Pervious part of Drainage Area EX-2)

	9				901-00	
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	8.33	4.75
1.00	0.09	0.00	0.00	52.00	8.33	4.75
2.00	0.19	0.00	0.00	53.00	8.33	4.75
3.00	0.29	0.00	0.00	54.00	8.33	4.75
4.00	0.41	0.00	0.00	55.00	8.33	4.75
5.00	0.53	0.00	0.00	56.00	8.33	4.75
6.00	0.66	0.00	0.00	57.00	8.33	4.75
7.00	0.81	0.00	0.00	58.00	8.33	4.75
8.00	1.00	0.00	0.00	59.00	8.33	4.75
9.00	1.22	0.03	0.01	60.00	8.33	4.75
10.00	1.52	0.09	0.02	61.00	8.33	4.75
11.00	2.00	0.24	0.06	62.00	8.33	4.75
12.00	3.97	1.31	0.60	63.00	8.33	4.75
13.00	6.33	3.07	0.22	64.00	8.33	4.75
14.00	6.81	3.46	0.10	65.00	8.33	4.75
15.00	7.11	3.71	0.07	66.00	8.33	4.75
16.00	7.33	3.90	0.05	67.00	8.33	4.75
17.00	7.52	4.05	0.04	68.00	8.33	4.75
18.00	7.67	4.18	0.04	69.00	8.33	4.75
19.00	7.80	4.29	0.03	70.00	8.33	4.75
20.00	7.92	4.40	0.03	71.00	8.33	4.75
21.00	8.04	4.50	0.03	72.00	8.33	4.75
22.00	8.14	4.59	0.03			
23.00	8.24	4.67	0.02			
24.00	8.33	4.75	0.02			
25.00	8.33	4.75	0.00			
26.00	8.33	4.75	0.00			
27.00	8.33	4.75	0.00			
28.00	8.33	4.75	0.00			
29.00	8.33	4.75	0.00			
30.00	8.33	4.75	0.00			
31.00	8.33	4.75	0.00			
32.00	8.33	4.75	0.00			
33.00	8.33	4.75	0.00			
34.00	8.33	4.75	0.00			
35.00	8.33	4.75	0.00			
36.00	8.33	4.75	0.00			
37.00	8.33	4.75	0.00			
38.00	8.33	4.75	0.00			
39.00	8.33	4.75	0.00			
40.00	8.33	4.75	0.00			
41.00	8.33	4.75	0.00			
42.00	8.33	4.75	0.00			
43.00	8.33	4.75	0.00			
44.00	8.33	4.75	0.00			
45.00	8.33	4.75	0.00			
46.00	8.33	4.75	0.00			
47.00	8.33	4.75	0.00			
48.00	8.33	4.75	0.00			
49.00	8.33	4.75	0.00			
50.00	8.33	4.75	0.00			

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Summary for Link 15L: Total to P.O.I. "A"

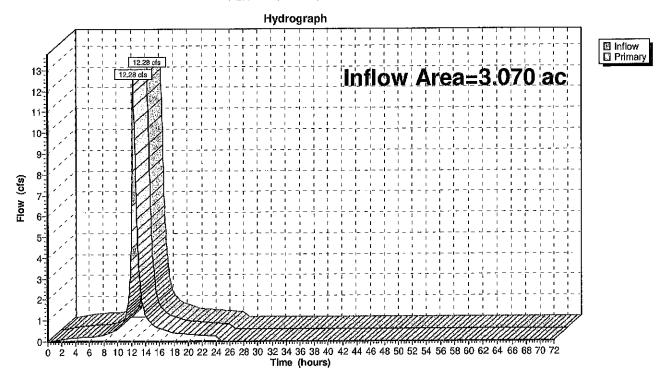
Inflow Area = 3.070 ac, 56.03% Impervious, Inflow Depth = 6.41" for 100-Year event

Inflow = 12.28 cfs @ 12.26 hrs, Volume= 1.641 af

Primary = 12.28 cfs @ 12.26 hrs, Volume= 1.641 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 15L: Total to P.O.I. "A"



Primary (cfs) 0.00

0.00

50.00

0.00

0.00

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Hydrograph for Link 15L: Total to P.O.I. "A"

	,									
Time	Inflow	Elevation	Primary	Time	Inflow	Elevation				
(hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)	(feet)				
0.00	0.00	0.00	0.00	51.00	0.00	0.00				
1.00	0.03	0.00	0.03	52.00	0.00	0.00				
2.00	0.10	0.00	0.10	53.00	0.00	0.00				
3.00	0.14	0.00	0.14	54.00	0.00	0.00				
4.00	0.17	0.00	0.17	55.00	0.00	0.00				
5.00	0.19	0.00	0.19	56.00	0.00	0.00				
6.00	0.21	0.00	0.21	57.00	0.00	0.00				
7.00	0.26	0.00	0.26	58.00	0.00	0.00				
8.00	0.32	0.00	0.32	59.00	0.00	0.00				
9.00	0.39	0.00	0.39	60.00	0.00	0.00				
10.00	0.60	0.00	0.60	61.00	0.00	0.00				
11.00	1.06	0.00	1.06	62.00	0.00	0.00				
12.00	5.29	0.00	5.29	63.00	0.00	0.00				
13.00	3.85	0.00	3.85	64.00	0.00	0.00				
14.00	1.23	0.00	1.23	65.00	0.00	0.00				
15.00	0.81	0.00	0.81	66.00	0.00	0.00				
16.00	0.61	0.00	0.61	67.00	0.00	0.00				
17.00	0.51	0.00	0.51	68.00	0.00	0.00				
18.00	0.42	0.00	0.42	69.00	0.00	0.00				
19.00	0.37	0.00	0.37	70.00	0.00	0.00				
20.00	0.34	0.00	0.34	71.00	0.00	0.00				
21.00	0.32	0.00	0.32	72.00	0.00	0.00				
22.00	0.30	0.00	0.30							
23.00	0.27	0.00	0.27							
24.00	0.25	0.00	0.25							
25.00	0.01	0.00	0.01							
26.00	0.00	0.00	0.00							
27.00	0.00	0.00	0.00							
28.00	0.00	0.00	0.00							
29.00	0.00	0.00	0.00							
30.00	0.00	0.00	0.00							
31.00	0.00	0.00	0.00							
32.00	0.00	0.00	0.00							
33.00	0.00	0.00	0.00							
34.00	0.00	0.00	0.00							
35.00	0.00	0.00	0.00							
36.00	0.00	0.00	0.00							
37.00	0.00	0.00 0.00	0.00 0.00							
38.00 39.00	0.00 0.00	0.00	0.00							
40.00	0.00	0.00	0.00							
40.00	0.00	0.00	0.00							
41.00	0.00	0.00	0.00							
42.00 43.00	0.00	0.00	0.00							
43.00 44.00	0.00	0.00	0.00							
44.00 45.00	0.00	0.00	0.00							
45.00 46.00	0.00	0.00	0.00							
46.00 47.00	0.00	0.00	0.00							
47.00 48.00	0.00	0.00	0.00							
49.00	0.00	0.00	0.00							
49.00	0.00	0.00	0.00							

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Summary for Link 16L: Total to P.O.I. "B"

Inflow Area =

0.490 ac, 38.78% Impervious, Inflow Depth = 6.04" for 100-Year event

Inflow =

2.52 cfs @ 12.17 hrs, Volume=

0.247 af

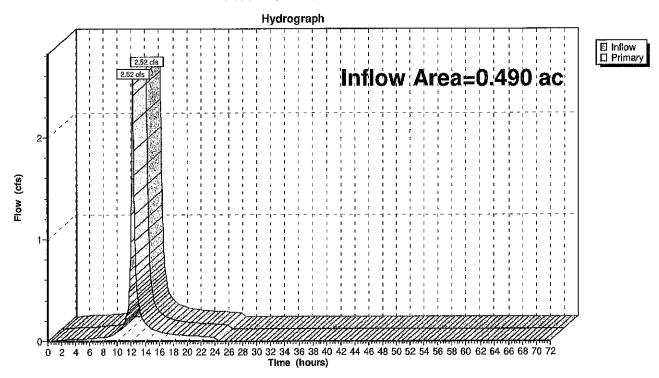
Primary =

2.52 cfs @ 12.17 hrs, Volume=

0.247 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 16L: Total to P.O.I. "B"



Primary (cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

Elevation

(feet)

0.00 0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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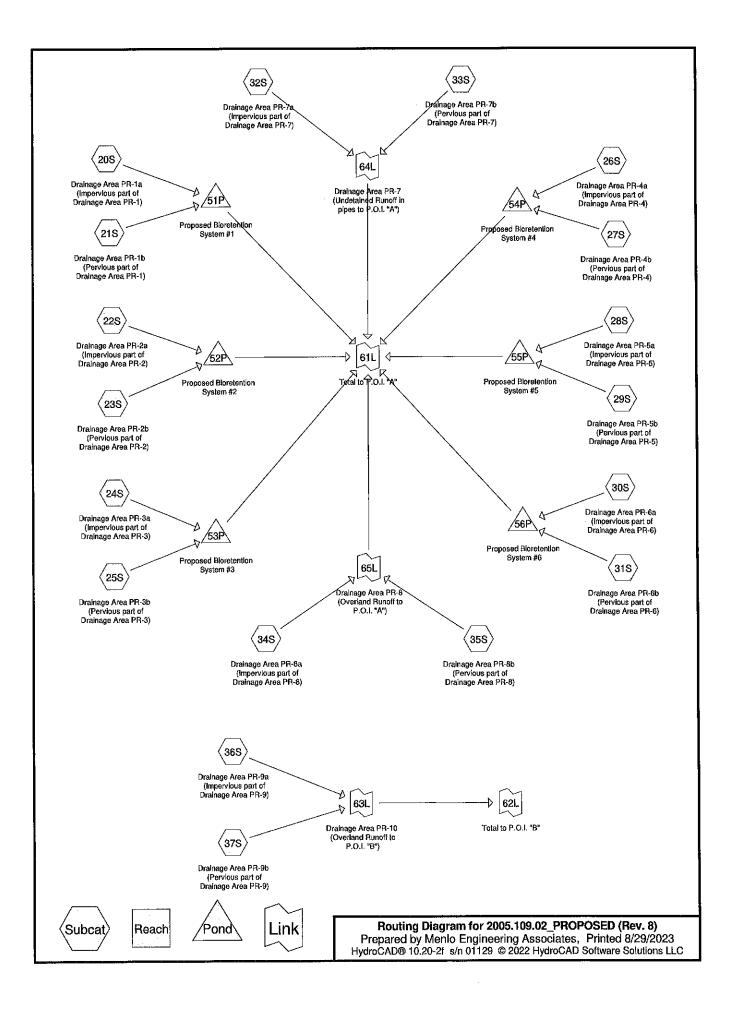
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Hydrograph for Link 16L: Total to P.O.I. "B"

Time	Inflow	Elevation	Primary	Time	Inflow
(hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)
0.00	0.00	0.00	0.00	51.00	0.00
1.00	0.00	0.00	0.00	52.00	0.00
2.00	0.01	0.00	0.01	53.00	0.00
3.00	0.02	0.00	0.02	54.00	0.00
4.00	0.02	0.00	0.02	55.00	0.00
5.00	0.02	0.00	0.02	56.00	0.00
6.00	0.02	0.00	0.02	57.00	0.00
7.00	0.03	0.00	0.03	58.00	0.00
8.00	0.04	0.00	0.04	59.00	0.00
9.00	0.05	0.00	0.05	60.00	0.00
10.00	0.09	0.00	0.09	61.00	0.00
11.00	0.17	0.00	0.17	62.00	0.00
12.00	1.24	0.00	1.24	63.00	0.00
13.00	0.40	0.00	0.40	64.00	0.00
14.00	0.17	0.00	0.17	65.00	0.00
15.00	0.12	0.00	0.12	66.00	0.00
16.00	0.09	0.00	0.09	67.00	0.00
17.00	80.0	0.00	0.08	68.00	0.00
18.00	0.06	0.00	0.06	69.00	0.00
19.00	0.06	0.00	0.06	70.00	0.00
20.00	0.05	0.00	0.05	71.00	0.00
21.00	0.05	0.00	0.05	72.00	0.00
22.00	0.05	0.00	0.05		
23.00 24.00	0.04	0.00	0.04		
24.00 25.00	0.04 0.00	0.00 0.00	0.04 0.00		
26.00	0.00	0.00	0.00		
27.00	0.00	0.00	0.00		
28.00	0.00	0.00	0.00		
29.00	0.00	0.00	0.00		
30.00	0.00	0.00	0.00		
31.00	0.00	0.00	0.00		
32.00	0.00	0.00	0.00		
33.00	0.00	0.00	0.00		
34.00	0.00	0.00	0.00		
35.00	0.00	0.00	0.00		
36.00	0.00	0.00	0.00		
37.00	0.00	0.00	0.00		
38.00	0.00	0.00	0.00	-	
39.00	0.00	0.00	0.00		
40.00	0.00	0.00	0.00		
41.00	0.00	0.00	0.00		
42.00	0.00	0.00	0.00		
43.00	0.00	0.00	0.00		
44.00	0.00	0.00	0.00		
45.00	0.00	0.00	0.00		
46.00	0.00	0.00	0.00		
47.00	0.00	0.00	0.00		
48.00	0.00	0.00	0.00		
49.00	0.00	0.00	0.00		
50.00	0.00	0.00	0.00		

APPENDIX B: PROPOSED CONDITIONS



2 YEAR STORM

Page 1

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Summary for Subcatchment 20S: Drainage Area PR-1a (Impervious part of Drainage Area PR-1)

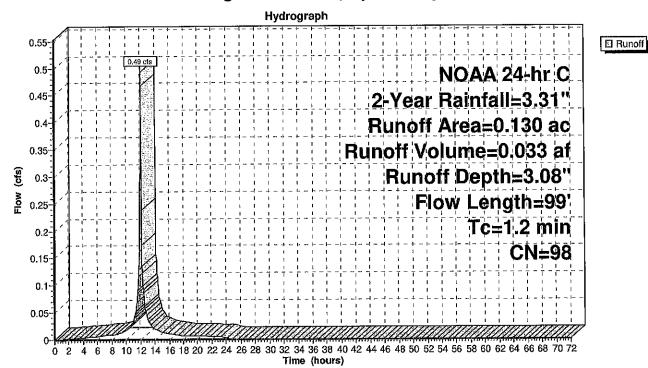
Runoff = 0.49 cfs @ 12.08 hrs, Volume= 0.03 Routed to Pond 51P : Proposed Bioretention System #1

0.033 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

	Area	(ac)(CN Des	cription	2-15	
	0.	080	98 Pav	ed parking	, HSG C	
	0.	050	98 Roc	fs, HSG C		
_	0.	130	98 Wei	ighted Ave	rage	
	0.	130	98 100	.00% Impe	rvious Area	
	Tc (min)	Length (feet)		Velocity (ft/sec)	Capacity (cfs)	Description
	0.8	54	0.0150	1.11		Sheet Flow,
	0.4	45	0.0100	2.03		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
_	12	90	Total			

Subcatchment 20S: Drainage Area PR-1a (Impervious part of Drainage Area PR-1)



Runoff

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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0.00

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Hydrograph for Subcatchment 20S: Drainage Area PR-1a (Impervious part of Drainage Area PR-1)

, ,	•			•		
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	3.31	3.08
1.00	0.04	0.00	0.00	52.00	3.31	3.08
2.00	0.07	0.00	0.00	53.00	3.31	3.08
3.00	0.12	0.02	0.00	54.00	3.31	3.08
4.00	0.16	0.05	0.00	55.00	3.31	3.08
5.00	0.21	0.08	0.00	56.00	3.31	3.08
6.00	0.26	0.12	0.01	57.00	3.31	3.08
7.00	0.32	0.16	0.01	58.00	3.31	3.08
8.00	0.40	0.23	0.01	59.00	3.31	3.08
9.00	0.48	0.30	0.01	60.00	3.31	3.08
10.00	0.60	0.41	0.02	61.00	3.31	3.08
11.00	0.79	0.59	0.03	62.00	3.31	3.08
12.00	1.58	1.36	0.32	63.00	3.31	3.08
13.00	2.52	2.29	0.04	64.00	3.31	3.08
14.00	2.71	2.48	0.02	65.00	3.31	3.08
15.00	2.83	2.60	0.01	66.00	3.31	3.08
16.00	2.91	2.68	0.01	67.00	3.31	3.08
17.00	2.99	2.76	0.01	68.00	3.31	3.08
18.00	3.05	2.82	0.01	69.00	3.31	3.08
19.00	3.10	2.87	0.01	70.00	3.31	3.08
20.00	3.15	2.92	0.01	71.00	3.31	3.08
21.00	3.19	2.96	0.01	72.00	3.31	3.08
22.00	3.24	3.00	0.01			
23.00	3.27	3.04	0.00			
24.00	3.31	3.08	0.00	ŀ		
25.00	3.31	3.08	0.00			
26.00	3.31	3.08	0.00			
27.00	3.31	3.08	0.00			
28.00	3.31	3.08	0.00			
29.00	3.31	3.08	0.00			
30.00	3.31	3.08	0.00			
31.00	3.31	3.08	0.00			
32.00	3.31	3.08	0.00			
33.00	3.31	3.08	0.00			
34.00	3.31	3.08	0.00			
35.00	3.31	3.08	0.00			
36.00	3.31	3.08	0.00			
37.00	3.31	3.08	0.00			
38.00 39.00	3.31 3.31	3.08	0.00			
	3.31	3.08	0.00			
40.00		3.08	0.00			
41.00 42.00	3.31	3.08	0.00			
43.00	3.31	3.08	0.00			
43.00 44.00	3.31 3.31	3.08	0.00			
44.00 45.00	3.31	3.08 3.08	0.00			
46.00	3.31	3.08 3.08	0.00			
46.00 47.00	3.31	3.08	0.00 0.00			
47.00	3.31	3.08	0.00			
46.00 49.00	3.31	3.08	0.00			
49.00 50.00	3.31	3.08				
50.00	0.01	ა.სზ	0.00			

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Summary for Subcatchment 21S: Drainage Area PR-1b (Pervious part of Drainage Area PR-1)

0.03 cfs @ 12.16 hrs, Volume=

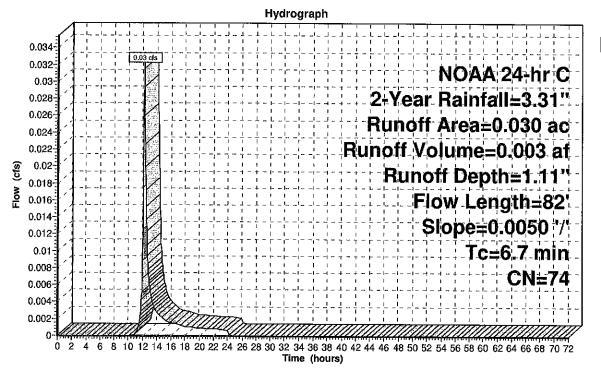
0.003 af, Depth= 1.11"

Routed to Pond 51P: Proposed Bioretention System #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

_	Area	(ac) C	N Des	cription						
	0.	030 7	⁷ 4 >75°	% Grass c	over, Good,	HSG C				
0.030 74 100.00% Pervious Area										
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
	5.9	17	0.0050	0.05		Sheet Flow,	7.00			
	0.2	13	0.0050	1.14		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow,				
	0.6	52	0.0050	1.44		Unpaved Kv= 16.1 fps Shallow Concentrated Flow, Paved Kv= 20.3 fps				
	6.7	82	Total							

Subcatchment 21S: Drainage Area PR-1b (Pervious part of Drainage Area PR-1)



☐ Runoff

Runoff (cfs) 0.00

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Hydrograph for Subcatchment 21S: Drainage Area PR-1b (Pervious part of Drainage Area PR-1)

Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	3.31	1.11
1.00	0.04	0.00	0.00	52.00	3.31	1.11
2.00	0.07	0.00	0.00	53.00	3.31	1.11
3.00	0.12	0.00	0.00	54.00	3.31	1.11
4.00	0.16	0.00	0.00	55.00	3.31	1.11
5.00	0.21	0.00	0.00	56.00	3.31	1.11
6.00	0.26	0.00	0.00	57.00	3.31	1.11
7.00	0.32	0.00	0.00	58.00	3.31	1.11
8.00	0.40	0.00	0.00	59.00	3.31	1.11
9.00	0.48	0.00	0.00	60.00	3.31	1.11
10.00	0.60	0.00	0.00	61.00	3.31	1.11
11.00	0.79	0.00	0.00	62.00	3.31	1.11
12.00	1.58	0.17	0.01	63.00	3.31	1.11
13.00	2.52	0.62	0.01	64.00	3.31	1.11
14.00	2.71	0.73	0.00	65.00	3.31	1.11
15.00	2.83	0.80	0.00	66.00	3.31	1.11
16.00	2.91	0.85	0.00	67.00	3.31	1.11
17.00	2.99	0.90	0.00	68.00	3.31	1.11
18.00	3.05	0.94	0.00	69.00	3.31	1.11
19.00	3.10	0.97	0.00	70.00	3.31	1.11
20.00	3.15	1.00	0.00	71.00	3.31	1.11
21.00	3.19	1.03	0.00	72.00	3.31	1.11
22.00	3.24	1.06	0.00			
23.00	3.27	1.09	0.00			
24.00	3.31	1.11	0.00			
25.00	3.31	1.11	0.00			
26.00	3.31	1.11	0.00			
27.00	3.31	1.11	0.00			
28.00	3.31	1.11	0.00			
29.00	3.31	1.11	0.00			
30.00	3.31	1.11	0.00			
31.00	3.31	1.11	0.00			
32.00	3.31	1.11	0.00			
33.00	3.31	1.11	0.00			
34.00	3.31	1.11	0.00			
35.00	3.31	1.11	0.00			
36.00	3.31	1.11	0.00			
37.00	3.31	1.11	0.00			
38.00	3.31	1.11	0.00			
39.00	3.31	1.11	0.00			
40.00	3.31	1.11	0.00			
41.00	3.31	1.11	0.00			
42.00	3.31	1.11	0.00			
43.00	3.31	1.11	0.00			
44.00	3.31	1.11	0.00	}		
45.00	3.31	1.11	0.00			
46.00	3.31	1.11	0.00			
47.00	3.31	1.11	0.00			
48.00		1.11	0.00			
49.00	3.31	1.11	0.00			

1.11

3.31

50.00

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Summary for Subcatchment 22S: Drainage Area PR-2a (Impervious part of Drainage Area PR-2)

Runoff = 0.94 cfs @ 12.08 hrs, Volume=

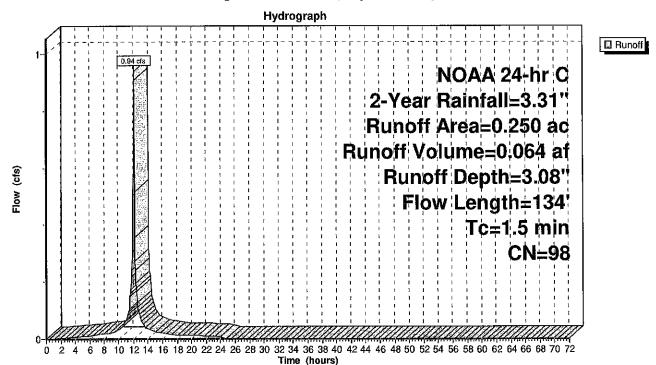
0.064 af, Depth= 3.08"

Routed to Pond 52P: Proposed Bioretention System #2

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

	Area	<u>(ac) C</u>	N Des	cription		
	0.	250 9	98 Pave	ed parking	, HSG C	
	0.	250 9	38 100.	00% Impe	rvious Area	
	Tc	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
_	1.0	72	0.0150	1.17		Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.35"
	0.5	62	0.0100	2.03		Shallow Concentrated Flow,
_						Paved Kv= 20.3 fps
_	1.5	134	Total			

Subcatchment 22S: Drainage Area PR-2a (Impervious part of Drainage Area PR-2)



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Hydrograph for Subcatchment 22S: Drainage Area PR-2a (Impervious part of Drainage Area PR-2)

, ,	•			•		•	
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.00	51.00	3.31	3.08	0.00
1.00	0.04	0.00	0.00	52.00	3.31	3.08	0.00
2.00	0.07	0.00	0.00	53.00	3.31	3.08	0.00
3.00	0.12	0.02	0.01	54.00	3.31	3.08	0.00
4.00	0.16	0.05	0.01	55.00	3.31	3.08	0.00
5.00	0.21	0.08	0.01	56.00	3.31	3.08	0.00
6.00	0.26	0.12	0.01	57.00	3.31	3.08	0.00
7.00	0.32	0.16	0.01	58.00	3.31	3.08	0.00
8.00	0.40	0.23	0.02	59.00	3.31	3.08	0.00
9.00	0.48	0.30	0.02	60.00	3.31	3.08	0.00
10.00	0.60	0.41	0.03	61.00	3.31	3.08	0.00
11.00	0.79	0.59	0.06	62.00	3.31	3.08	0.00
12.00	1.58	1.36	0.59	63.00	3.31	3.08	0.00
13.00	2.52	2.29	0.07	64.00	3.31	3.08	0.00
14.00	2.71	2.48	0.04	65.00	3.31	3.08	0.00
15.00	2.83	2.60	0.02	66.00	3.31	3.08	0.00
16.00	2.91	2.68	0.02	67.00	3.31	3.08	0.00
17.00	2.99	2.76	0.02	68.00	3.31	3.08	0.00
18.00	3.05	2.82	0.01	69.00	3.31	3.08	0.00
19.00	3.10	2.87	0.01	70.00	3.31	3.08	0.00
20.00	3.15	2.92	0.01	71.00	3.31	3.08	0.00
21.00	3.19	2.96	0.01	72.00	3.31	3.08	0.00
22.00	3.24	3.00	0.01				
23.00	3.27	3.04	0.01				
24.00	3.31	3.08	0.01				
25.00 26.00	3.31	3.08	0.00				
27.00	3.31 3.31	3.08 3.08	0.00 0.00				
28.00	3.31	3.08	0.00				
29.00	3.31	3.08	0.00				
30.00	3.31	3.08	0.00				
31.00	3.31	3.08	0.00				
32.00	3.31	3.08	0.00				
33.00	3.31	3.08	0.00				
34.00	3.31	3.08	0.00				
35.00	3.31	3.08	0.00				
36.00	3.31	3.08	0.00				
37.00	3.31	3.08	0.00				
38.00	3.31	3.08	0.00				
39.00	3.31	3.08	0.00				
40.00	3.31	3.08	0.00				
41.00	3.31	3.08	0.00				
42.00	3.31	3.08	0.00				
43.00	3.31	3.08	0.00				
44.00	3.31	3.08	0.00				
45.00	3.31	3.08	0.00				
46.00	3.31	3.08	0.00				
47.00	3.31	3.08	0.00				
48.00	3.31	3.08	0.00				
49.00	3.31	3.08	0.00				
50.00	3.31	3.08	0.00				

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Summary for Subcatchment 23S: Drainage Area PR-2b (Pervious part of Drainage Area PR-2)

Runoff =

0.05 cfs @ 12.12 hrs, Volume=

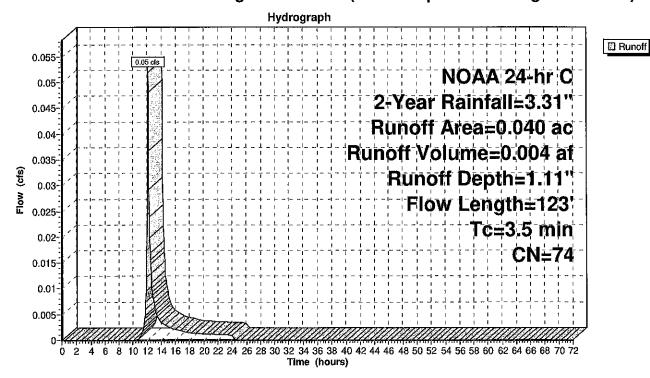
0.004 af, Depth= 1.11"

Routed to Pond 52P: Proposed Bioretention System #2

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

	Area	(ac) C	N Des	cription		
	0.	040 7	74 >75°	% Grass c	over, Good	, HSG C
_	0.	040 7	'4 100.	00% Pervi	ous Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	2.6	6	0.0050	0.04		Sheet Flow, Grass: Dense n= 0.240 P2= 3.35"
	0.2	6	0.0050	0.46		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.35"
	0.7	111	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
-	3.5	123	Total			

Subcatchment 23S: Drainage Area PR-2b (Pervious part of Drainage Area PR-2)



Runoff

(cfs)

0.00

0.00

0.00

0.00 0.00

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0.00 0.00

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Hydrograph for Subcatchment 23S: Drainage Area PR-2b (Pervious part of Drainage Area PR-2)

Time Precip Excess Runoff Circles (Inches) (I	T:	Di.	-	D	Time	Drasin	Evenes
0.00 0.00 0.00 0.00 51.00 3.31 1.11 1.00 0.04 0.00 0.00 52.00 3.31 1.11 2.00 0.07 0.00 0.00 53.00 3.31 1.11 3.00 0.12 0.00 0.00 54.00 3.31 1.11 5.00 0.21 0.00 0.00 55.00 3.31 1.11 5.00 0.21 0.00 0.00 56.00 3.31 1.11 6.00 0.26 0.00 0.00 57.00 3.31 1.11 8.00 0.40 0.00 0.00 58.00 3.31 1.11 10.00 0.40 0.00 0.00 59.00 3.31 1.11 10.00 0.60 0.00 0.00 60.00 3.31 1.11 10.00 0.60 0.00 0.00 62.00 3.31 1.11 11.00 0.79 0.00 0.00 63.00							
1.00							
2.00							
3.00							
4.00 0.16 0.00 0.00 55.00 3.31 1.11 5.00 0.21 0.00 0.00 56.00 3.31 1.11 6.00 0.26 0.00 0.00 57.00 3.31 1.11 7.00 0.32 0.00 0.00 58.00 3.31 1.11 9.00 0.48 0.00 0.00 69.00 3.31 1.11 10.00 0.60 0.00 0.00 60.00 3.31 1.11 11.00 0.79 0.00 0.00 60.00 3.31 1.11 11.00 0.79 0.00 0.00 62.00 3.31 1.11 11.00 1.58 0.17 0.02 63.00 3.31 1.11 11.00 2.71 0.73 0.00 65.00 3.31 1.11 14.00 2.271 0.73 0.00 66.00 3.31 1.11 15.00 2.83 0.80 0.00 67.00							
5.00 0.21 0.00 0.00 56.00 3.31 1.11 6.00 0.26 0.00 0.00 57.00 3.31 1.11 7.00 0.32 0.00 0.00 58.00 3.31 1.11 8.00 0.48 0.00 0.00 60.00 3.31 1.11 10.00 0.60 0.00 0.00 60.00 3.31 1.11 11.00 0.79 0.00 0.00 62.00 3.31 1.11 12.00 1.58 0.17 0.02 63.00 3.31 1.11 12.00 1.58 0.17 0.02 63.00 3.31 1.11 14.00 2.71 0.73 0.00 66.00 3.31 1.11 15.00 2.83 0.80 0.00 66.00 3.31 1.11 15.00 2.91 0.85 0.00 67.00 3.31 1.11 19.00 3.15 1.00 0.00 69.00							
7.00 0.32 0.00 0.00 58.00 3.31 1.11 8.00 0.40 0.00 0.00 59.00 3.31 1.11 9.00 0.48 0.00 0.00 60.00 3.31 1.11 10.00 0.60 0.00 0.00 60.00 3.31 1.11 11.00 0.79 0.00 0.00 62.00 3.31 1.11 12.00 1.58 0.17 0.02 63.00 3.31 1.11 13.00 2.52 0.62 0.01 64.00 3.31 1.11 14.00 2.71 0.73 0.00 65.00 3.31 1.11 15.00 2.83 0.80 0.00 66.00 3.31 1.11 15.00 2.83 0.80 0.00 66.00 3.31 1.11 16.00 2.91 0.85 0.00 67.00 3.31 1.11 18.00 3.10 0.97 0.00 68.00					56.00	3.31	1.11
8.00	6.00	0.26	0.00	0.00			
9.00	7.00						
10.00							
11.00 0.79 0.00 0.00 62.00 3.31 1.11 12.00 1.58 0.17 0.02 63.00 3.31 1.11 13.00 2.52 0.62 0.01 64.00 3.31 1.11 14.00 2.71 0.73 0.00 65.00 3.31 1.11 15.00 2.83 0.80 0.00 66.00 3.31 1.11 16.00 2.91 0.85 0.00 67.00 3.31 1.11 17.00 2.99 0.90 0.00 68.00 3.31 1.11 18.00 3.05 0.94 0.00 69.00 3.31 1.11 19.00 3.15 1.00 0.00 70.00 3.31 1.11 20.00 3.24 1.06 0.00 72.00 3.31 1.11 22.00 3.31 1.11 0.00 29.00 3.31 1.11 0.00 33.00 3.31 1.11 0.00							
12.00							
13.00 2.52 0.62 0.01 64.00 3.31 1.11 14.00 2.71 0.73 0.00 65.00 3.31 1.11 15.00 2.83 0.80 0.00 66.00 3.31 1.11 16.00 2.91 0.85 0.00 67.00 3.31 1.11 17.00 2.99 0.90 0.00 68.00 3.31 1.11 18.00 3.05 0.94 0.00 69.00 3.31 1.11 19.00 3.10 0.97 0.00 70.00 3.31 1.11 20.00 3.15 1.03 0.00 70.00 3.31 1.11 21.00 3.24 1.06 0.00 23.00 3.27 1.09 0.00 24.00 3.31 1.11 0.00 3.31 1.11 0.00 25.00 3.31 1.11 0.00 3.30 3.31 1.11 0.00 30.00 3.31 1.11							
14.00 2.71 0.73 0.00 65.00 3.31 1.11 15.00 2.83 0.80 0.00 66.00 3.31 1.11 16.00 2.91 0.85 0.00 67.00 3.31 1.11 17.00 2.99 0.90 0.00 68.00 3.31 1.11 18.00 3.05 0.94 0.00 69.00 3.31 1.11 19.00 3.10 0.97 0.00 70.00 3.31 1.11 20.00 3.15 1.00 0.00 71.00 3.31 1.11 21.00 3.19 1.03 0.00 72.00 3.31 1.11 22.00 3.24 1.09 0.00 24.00 3.31 1.11 0.00 25.00 3.31 1.11 0.00 25.00 3.31 1.11 0.00 28.00 3.31 1.11 0.00 3.30 3.31 1.11 0.00 32.00 3.31 1.11 0.00 3.30 3.31 1.11 0.00 35.00							
15.00 2.83 0.80 0.00 66.00 3.31 1.11 16.00 2.91 0.85 0.00 67.00 3.31 1.11 17.00 2.99 0.90 0.00 68.00 3.31 1.11 18.00 3.05 0.94 0.00 69.00 3.31 1.11 19.00 3.10 0.97 0.00 70.00 3.31 1.11 20.00 3.15 1.00 0.00 71.00 3.31 1.11 21.00 3.19 1.03 0.00 72.00 3.31 1.11 22.00 3.24 1.06 0.00 72.00 3.31 1.11 22.00 3.31 1.11 0.00 0.00 25.00 3.31 1.11 0.00 25.00 3.31 1.11 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
16.00 2.91 0.85 0.00 67.00 3.31 1.11 17.00 2.99 0.90 0.00 68.00 3.31 1.11 18.00 3.05 0.94 0.00 69.00 3.31 1.11 19.00 3.10 0.97 0.00 70.00 3.31 1.11 20.00 3.15 1.00 0.00 71.00 3.31 1.11 21.00 3.19 1.03 0.00 72.00 3.31 1.11 22.00 3.24 1.06 0.00 72.00 3.31 1.11 23.00 3.27 1.09 0.00 72.00 3.31 1.11 25.00 3.31 1.11 0.00 72.00 3.31 1.11 0.00 28.00 3.31 1.11 0.00 0.00 33.00 3.31 1.11 0.00 33.00 3.31 1.11 0.00 0.00 33.00 3.31 1.11 0.00 35.00 3.31 1.11 0.00 0.00 0.00 0.00 0.0							
17.00 2.99 0.90 0.00 68.00 3.31 1.11 18.00 3.05 0.94 0.00 69.00 3.31 1.11 19.00 3.10 0.97 0.00 70.00 3.31 1.11 20.00 3.15 1.00 0.00 71.00 3.31 1.11 21.00 3.19 1.03 0.00 72.00 3.31 1.11 22.00 3.24 1.06 0.00 72.00 3.31 1.11 23.00 3.27 1.09 0.00 72.00 3.31 1.11 25.00 3.31 1.11 0.00 72.00 3.31 1.11 27.00 3.31 1.11 0.00 72.00 3.31 1.11 0.00 72.00 3.31 1.11 0.00 72.00 3.31 1.11 0.00 72.00 3.31 1.11 0.00 72.00 3.31 1.11 0.00 72.00 3.31 1.11 0.00 72.00 3.31 1.11 0.00 72.00 3.31 1.11 0.00 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>							
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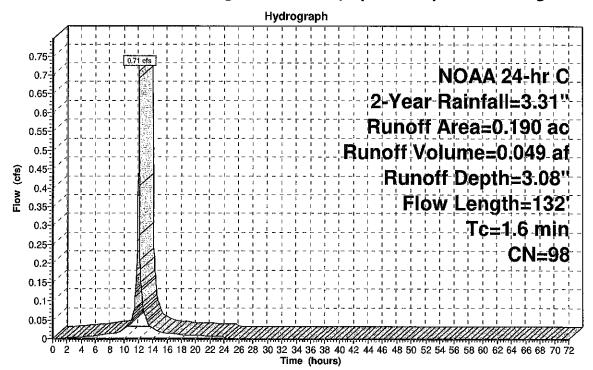
Summary for Subcatchment 24S: Drainage Area PR-3a (Impervious part of Drainage Area PR-3)

Runoff = 0.71 cfs @ 12.08 hrs, Volume= 0.049 af, Depth= 3.08" Routed to Pond 53P : Proposed Bioretention System #3

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

_	Area	(ac) C	N Des	cription		
	0.	.190 9	98 Pav	ed parking	, HSG C	
	0.	.190 9	8 100.	.00% Impe	rvious Area	l
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	1.1	76	0.0150	1.19	•	Sheet Flow,
	0.5	56	0.0100	2.03		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
	1.6	132	Total			

Subcatchment 24S: Drainage Area PR-3a (Impervious part of Drainage Area PR-3)



☑ Runoff

Runoff (cfs)

0.00

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Hydrograph for Subcatchment 24S: Drainage Area PR-3a (Impervious part of Drainage Area PR-3)

(inches)

3.31

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Precip. Excess

(inches)

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_	-			
Time	Precip.	Excess	Runoff	Time
(hours)	(inches)	(inches)	(cfs)	(hours)
0.00	0.00	0.00	0.00	51.00
1.00	0.04	0.00	0.00	52.00
2.00	0.07	0.00	0.00	53.00
3.00	0.12	0.02	0.00	54.00
4.00	0.16	0.05	0.01	55.00
5.00	0.21	0.08	0.01	56.00
6.00	0.26	0.12	0.01	57.00
7.00	0.32	0.16	0.01	58.00
8.00	0.40	0.23	0.01	59.00
9.00	0.48	0.30	0.02 0.03	60.00 61.00
10.00 11.00	0.60 0.79	0.41 0.59	0.03	62.00
12.00	1.58	1.36	0.44	63.00
13.00	2.52	2.29	0.06	64.00
14.00	2.71	2.48	0.03	65.00
15.00	2.83	2.60	0.02	66.00
16.00	2.91	2.68	0.02	67.00
17.00	2.99	2.76	0.01	68.00
18.00	3.05	2.82	0.01	69.00
19.00	3.10	2.87	0.01	70.00
20.00	3.15	2.92	0.01	71.00
21.00	3.19	2.96	0.01	72.00
22.00	3.24	3.00	0.01	
23.00	3.27	3.04	0.01	
24.00	3.31	3.08	0.01	
25.00	3.31	3.08	0.00	
26.00	3.31	3.08	0.00	
27.00	3.31	3.08	0.00	
28.00	3.31	3.08	0.00 0.00	
29.00	3.31 3.31	3.08 3.08	0.00	
30.00 31.00	3.31	3.08	0.00	
32.00	3.31	3.08	0.00	
33.00	3.31	3.08	0.00	
34.00	3.31	3.08	0.00	
35.00	3.31	3.08	0.00	
36.00	3.31	3.08	0.00	
37.00	3.31	3.08	0.00	
38.00	3.31	3.08	0.00	
39.00	3.31	3.08	0.00	
40.00	3.31	3.08	0.00	
41.00	3.31	3.08	0.00	
42.00	3.31	3.08	0.00	ļ
43.00	3.31	3.08	0.00	1
44.00	3.31	3.08	0.00	
45.00	3.31	3.08	0.00	
46.00	3.31	3.08	0.00	
47.00	3.31 3.31	3.08 3.08	0.00 0.00	
48.00 49.00	3.31	3.08	0.00	
50.00	3.31	3.08	0.00	[
00.00	৩.৩1	3.00	0.00	1

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Summary for Subcatchment 25S: Drainage Area PR-3b (Pervious part of Drainage Area PR-3)

Runoff =

0.04 cfs @ 12.16 hrs, Volume=

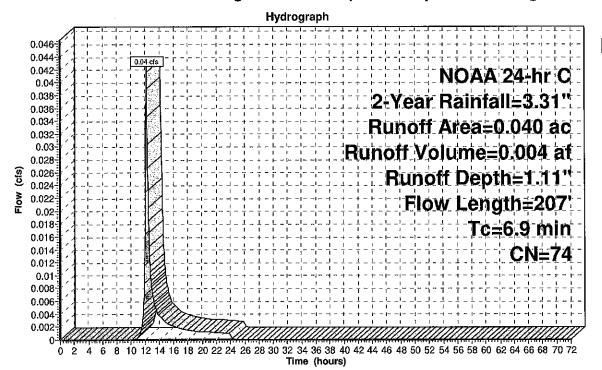
0.004 af, Depth= 1.11"

Routed to Pond 53P: Proposed Bioretention System #3

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

Area	(ac) C	N Desc	cription		
0.	.040 7	74 >75°	% Grass c	over, Good	, HSG C
0.	.040 7	74 100.	00% Pervi	ous Area	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	16	0.0050	0.05		Sheet Flow,
1.3	191	0.0140	2.40		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.9	207	Total			

Subcatchment 25S: Drainage Area PR-3b (Pervious part of Drainage Area PR-3)



■ Runoff

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Hydrograph for Subcatchment 25S: Drainage Area PR-3b (Pervious part of Drainage Area PR-3)

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff	
(hours)	(inches)	(inches)	<u>(cfs)</u>	(hours)	(inches)	(inches)	(cfs)	
0.00	0.00	0.00	0.00	51.00	3.31	1.11	0.00	
1.00	0.04	0.00	0.00	52.00	3.31	1.11	0.00	
2.00	0.07	0.00	0.00	53.00	3.31	1.11	0.00	
3.00	0.12	0.00	0.00	54.00	3.31	1.11	0.00	
4.00	0.16	0.00	0.00	55.00	3.31	1.11	0.00	
5.00	0.21	0.00	0.00	56.00	3.31	1.11	0.00	
6.00	0.26	0.00	0.00	57.00	3.31	1.11	0.00	
7.00	0.32	0.00	0.00	58.00	3.31	1.11	0.00	
8.00	0.40	0.00	0.00	59.00	3.31	1.11	0.00	
9.00	0.48	0.00	0.00	60.00	3.31	1.11	0.00	
10.00	0.60	0.00	0.00	61.00	3.31	1.11	0.00	
11.00	0.79	0.00	0.00	62.00	3.31	1.11	0.00	
12.00	1.58	0.17	0.02	63.00	3.31	1.11	0.00	
13.00	2.52	0.62	0.01	64.00	3.31	1.11	0.00	
14.00	2.71	0.73	0.00	65.00	3.31	1.11	0.00	
15.00	2.83	0.80	0.00	66.00	3.31	1.11	0.00	
16.00	2.91	0.85	0.00	67.00	3.31	1.11	0.00	
17.00	2.99	0.90	0.00	68.00	3.31	1.11	0.00	
18.00	3.05	0.94	0.00	69.00	3.31	1.11	0.00	
19.00	3.10	0.97	0.00	70.00	3.31	1.11	0.00	
20.00	3.15	1.00	0.00	71.00	3.31	1.11	0.00	
21.00	3.19	1.03	0.00	72.00	3.31	1.11	0.00	
22.00	3.24	1.06	0.00					
23.00	3.27	1.09	0.00					
24.00	3.31	1.11	0.00					
25.00	3.31	1.11	0.00					
26.00	3.31	1.11	0.00					
27.00	3.31	1.11	0.00					
28.00	3.31	1.11	0.00					
29.00	3.31	1.11	0.00					
30.00	3.31	1.11	0.00					
31.00	3.31	1.11	0.00					
32.00	3.31	1.11	0.00					
33.00	3.31	1.11	0.00					
34.00	3.31	1.11	0.00					
35.00	3.31	1.11	0.00					
36.00	3.31	1.11	0.00					
37.00	3.31	1.11	0.00					
38.00	3.31	1.11	0.00					
39.00	3.31	1.11	0.00	1				
40.00	3.31	1.11	0.00					
41.00	3.31	1.11	0.00					
42.00	3.31	1.11	0.00					
43.00	3.31	1.11	0.00					
44.00	3.31	1.11	0.00					
45.00	3.31	1.11	0.00					
46.00	3.31	1.11	0.00					
47.00	3.31	1.11	0.00					
48.00	3.31	1.11	0.00					
49.00	3.31	1.11	0.00					
50.00	3.31	1.11	0.00					

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Summary for Subcatchment 26S: Drainage Area PR-4a (Impervious part of Drainage Area PR-4)

Runoff = 2.04 cfs @ 12.09 hrs, Volume=

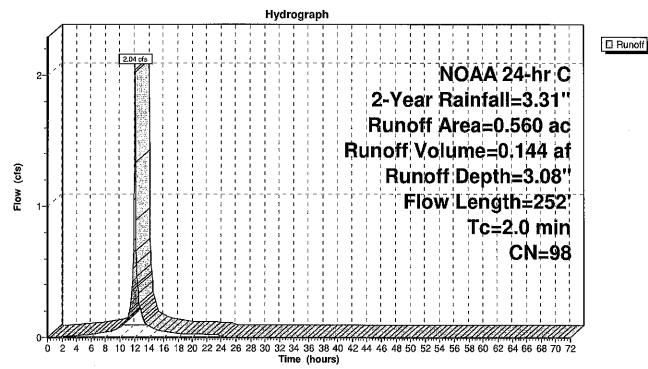
0.144 af, Depth= 3.08"

Routed to Pond 54P: Proposed Bioretention System #4

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

_	Area	(ac) (N Des	cription		
				ed parking		
_				ofs, HSG C		
				ighted Aver		
	0.	560	98 100	.00% Impe	rvious Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	0.9	61	0.0150	1.14	·	Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.35"
	0.4	59	0.0150	2.49		Shallow Concentrated Flow,
						Paved Kv= 20.3 fps
	0.7	132	0.0030	3.12	3.83	Pipe Channel,
						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
_						n= 0.012
	2.0	252	Total			

Subcatchment 26S: Drainage Area PR-4a (Impervious part of Drainage Area PR-4)



Runoff

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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0.00

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Hydrograph for Subcatchment 26S: Drainage Area PR-4a (Impervious part of Drainage Area PR-4)

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

3.31

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3.31

3.31

3.31

3.31

3.31

3.31

Precip. Excess

3.08

3.08 3.08

3.08

3.08

3.08

3.08

3.08

3.08

3.08

3.08

3.08

3.08

3.08

3.08

3.08

3.08

3.08

3.08

3.08

3.08

3.08

(inches) (inches)

		_		١
Time	Precip.	Excess	Runoff	Time
(hours)	(inches)	(inches)	(cfs)	(hours)
0.00	0.00	0.00	0.00	51.00
1.00	0.04	0.00	0.00	52.00
2.00	0.07	0.00	0.01	53.00
3.00	0.12	0.02	0.01	54.00
4.00	0.16	0.05	0.02	55.00
5.00	0.21	0.08	0.02	56.00
6.00	0.26	0.12	0.02	57.00
7.00	0.32	0.16	0.03	58.00
8.00	0.40	0.23	0.04	59.00
9.00	0.48	0.30	0.05	60.00
10.00	0.60	0.41	0.07	61.00
11.00	0.79	0.59	0.14	62.00
12.00	1.58	1.36	1.26	63.00 64.00
13.00	2.52 2.71	2.29	0.17 0.08	65.00
14.00		2.48	0.06	66.00
15.00	2.83	2.60 2.68		67.00
16.00	2.91 2.99	2.76	0.05 0.04	68.00
17.00		2.76	0.04	69.00
18.00	3.05	2.87	0.03	70.00
19.00	3.10 3.15	2.92	0.03	70.00
20.00 21.00	3.19	2.92	0.03	72.00
22.00	3.19	3.00	0.02	72.00
23.00	3.24	3.04	0.02	
24.00	3.27 3.31	3.04	0.02	
25.00	3.31	3.08	0.02	
26.00	3.31	3.08	0.00	
27.00	3.31	3.08	0.00	
28.00	3.31	3.08	0.00	
29.00	3.31	3.08	0.00	
30.00	3.31	3.08	0.00	
31.00	3.31	3.08	0.00	
32.00	3.31	3.08	0.00	
33.00	3.31	3.08	0.00	
34.00	3.31	3.08	0.00	
35.00	3.31	3.08	0.00	
36.00	3.31	3.08	0.00	
37.00	3.31	3.08	0.00	
38.00	3.31	3.08	0.00	
39.00	3.31	3.08	0.00	
40.00	3.31	3.08	0.00	
41.00	3.31	3.08	0.00	
42.00	3.31	3.08	0.00	
43.00	3.31	3.08	0.00	
44.00	3.31	3.08	0.00	
45.00	3.31	3.08	0.00	
46.00	3.31	3.08	0.00	
47.00	3.31	3.08	0.00	
48.00	3.31	3.08	0.00	
49.00	3.31	3.08	0.00	
50.00	3.31	3.08	0.00	
	,	0.00		!

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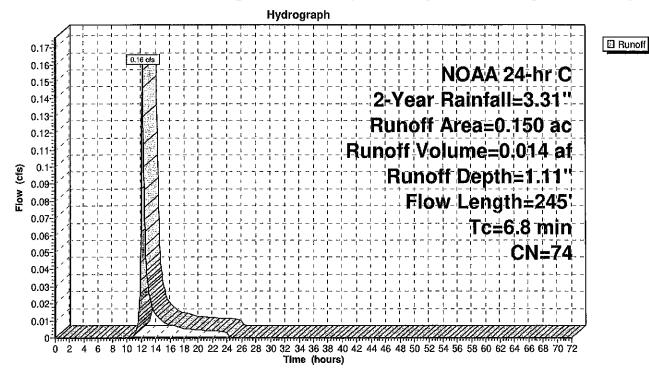
Summary for Subcatchment 27S: Drainage Area PR-4b (Pervious part of Drainage Area PR-4)

Runoff = 0.16 cfs @ 12.16 hrs, Volume= 0.014 af, Depth= 1.11" Routed to Pond 54P: Proposed Bioretention System #4

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

	Area	(ac) C	N Des	cription		
	0.	150 7	⁷ 4 >75°	% Grass c	over, Good	, HSG C
	0.	150 7	⁷ 4 100.	00% Pervi	ous Area	
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	5.3	21	0.0100	0.07		Sheet Flow,
	8.0	92	0.0100	2.03		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
	0.7	132	0.0030	3.12	3.83	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
	6.8	245	Total			

Subcatchment 27S: Drainage Area PR-4b (Pervious part of Drainage Area PR-4)



Runoff (cfs) 0.00

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Hydrograph for Subcatchment 27S: Drainage Area PR-4b (Pervious part of Drainage Area PR-4)

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	3.31	1.11	
1.00	0.04	0.00	0.00	52.00	3.31	1.11	
2.00	0.07	0.00	0.00	53.00	3.31	1.11	
3.00	0.12	0.00	0.00	54.00	3.31	1.11	
4.00	0.16	0.00	0.00	55.00	3.31	1.11	
5.00	0.21	0.00	0.00	56.00	3.31	1.11	
6.00	0.26	0.00	0.00	57.00	3.31	1.11	
7.00	0.32	0.00	0.00	58.00	3.31	1.11	
8.00	0.40	0.00	0.00	59.00	3.31	1.11	
9.00	0.48	0.00	0.00	60.00	3.31	1.11	
10.00	0.60	0.00	0.00	61.00	3.31	1.11	
11.00	0.79	0.00	0.00	62.00	3.31	1.11	
12.00	1.58	0.17	0.06	63.00	3.31	1.11	
13.00	2.52	0.62	0.03	64.00	3.31	1.11	
14.00	2.71	0.73	0.01	65.00	3.31	1,11	
15.00	2.83	0.80	0.01	66.00	3.31	1.11	
16.00	2.91	0.85	0.01	67.00	3.31	1.11	
17.00	2.99	0.90	0.01	68.00	3.31	1.11	
18.00	3.05	0.94	0.01	69.00	3.31	1.11	
19.00	3.10	0.97	0.00	70.00	3.31	1.11	
20.00	3.15	1.00	0.00	71.00	3.31	1.11	
21.00	3.19	1.03	0.00	72.00	3.31	1.11	
22.00	3.24	1.06	0.00				
23.00	3.27	1.09	0.00				
24.00	3.31	1.11	0.00				
25.00	3.31	1.11	0.00				
26.00	3.31	1.11	0.00				
27.00	3.31	1.11	0.00				
28.00	3.31	1.11	0.00				
29.00	3.31	1.11	0.00				
30.00	3.31	1.11	0.00				
31.00	3.31	1.11	0.00				
32.00	3.31	1.11	0.00				
33.00	3.31	1.11	0.00	l			
34.00	3.31	1.11	0.00				
35.00	3.31	1.11	0.00				
36.00	3.31 3.31	1.11 1.11	0.00 0.00				
37.00 38.00	3.31	1.11	0.00				
39.00	3.31	1.11	0.00				
40.00	3.31	1.11	0.00				
41.00	3.31	1.11	0.00				
42.00	3.31	1.11	0.00				
43.00	3.31	1.11	0.00				
44.00	3.31	1.11	0.00				
45.00	3.31	1.11	0.00				
46.00	3.31	1.11	0.00				
47.00	3.31	1.11	0.00				
48.00	3.31	1.11	0.00				
49.00	3.31	1.11	0.00				
50.00	3.31	1.11	0.00				
•	·						

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Summary for Subcatchment 28S: Drainage Area PR-5a (Impervious part of Drainage Area PR-5)

0.78 cfs @ 12.09 hrs, Volume=

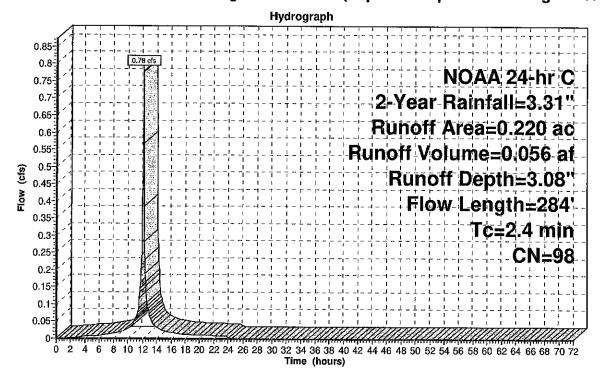
0.056 af, Depth= 3.08"

Routed to Pond 55P: Proposed Bioretention System #5

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

Area	(ac) C	N Des	cription		
0.	.220	98 Pav	ed parking	, HSG C	
0.	.220	98 100.	.00% Impe	rvious Area	l
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	79	0.0150	1.20		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.35"
0.6	73	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.7	132	0.0030	3.12	3.83	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
2.4	284	Total			

Subcatchment 28S: Drainage Area PR-5a (Impervious part of Drainage Area PR-5)





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Hydrograph for Subcatchment 28S: Drainage Area PR-5a (Impervious part of Drainage Area PR-5)

_	_			
Time	Precip.	Excess	Runoff	Time F
(hours)	(inches)	(inches)	(cfs)	(hours) (ir
0.00	0.00	0.00	0.00	51.00
1.00	0.04	0.00	0.00	52.00
2.00	0.07	0.00	0.00	53.00
3.00	0.12	0.02	0.00	54.00
4.00	0.16	0.05	0.01	55.00 56.00
5.00	0.21	0.08	0.01 0.01	57.00
6.00	0.26 0.32	0.12 0.16	0.01	58.00
7.00 8.00	0.32	0.16	0.01	59.00
9.00	0.48	0.23	0.02	60.00
10.00	0.48	0.30	0.02	61.00
11.00	0.79	0.59	0.05	62.00
12.00	1.58	1.36	0.47	63.00
13.00	2.52	2.29	0.07	64.00
14.00	2.71	2.48	0.03	65.00
15.00	2.83	2.60	0.02	66.00
16.00	2.91	2.68	0.02	67.00
17.00	2.99	2.76	0.02	68.00
18.00	3.05	2.82	0.01	69.00
19.00	3.10	2.87	0.01	70.00
20.00	3.15	2.92	0.01	71.00
21.00	3.19	2.96	0.01	72.00
22.00	3.24	3.00	0.01	
23.00	3.27	3.04	0.01	
24.00	3.31	3.08	0.01	
25.00	3.31	3.08	0.00	
26.00	3.31	3.08	0.00 0.00	
27.00	3.31 3.31	3.08 3.08	0.00	
28.00 29.00	3.31	3.08	0.00	
30.00	3.31	3.08	0.00	
31.00	3.31	3.08	0.00	
32.00	3.31	3.08	0.00	
33.00	3.31	3.08	0.00	
34.00	3.31	3.08	0.00	
35.00	3.31	3.08	0.00	
36.00	3.31	3.08	0.00	
37.00	3.31	3.08	0.00	
38.00	3.31	3.08	0.00	
39.00	3.31	3.08	0.00	
40.00	3.31	3.08	0.00	
41.00	3.31	3.08	0.00	
42.00	3.31	3.08	0.00	
43.00	3.31	3.08	0.00	
44.00	3.31	3.08	0.00	
45.00	3.31	3.08	0.00 0.00	
46.00	3.31	3.08 3.08	0.00	
47.00 48.00	3.31 3.31	3.08	0.00	
49.00	3,31	3.08	0.00	
50.00	3.31	3.08	0.00	
30.00	J.J I	0.00	0.00	I

Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)
51.00	3.31	3.08	0.00
52.00	3.31	3.08	0.00
53.00	3.31	3.08	0.00
54.00	3.31	3.08	0.00
55.00	3.31	3.08	0.00
56.00	3.31	3.08	0.00
57.00	3.31	3.08	0.00
58.00	3.31	3.08	0.00
59.00	3.31	3.08	0.00
60.00	3.31	3.08	0.00
61.00	3.31	3.08	0.00
62.00	3.31	3.08	0.00
63.00	3.31	3.08	0.00
64.00	3.31	3.08	0.00
65.00	3.31	3.08	0.00
66.00	3.31	3.08	0.00
67.00	3.31	3.08	. 0.00
68.00	3.31	3.08	0.00
69.00	3.31	3.08	0.00
70.00	3.31	3.08	0.00
71.00	3.31	3.08	0.00
72.00	3.31	3.08	0.00

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Summary for Subcatchment 29S: Drainage Area PR-5b (Pervious part of Drainage Area PR-5)

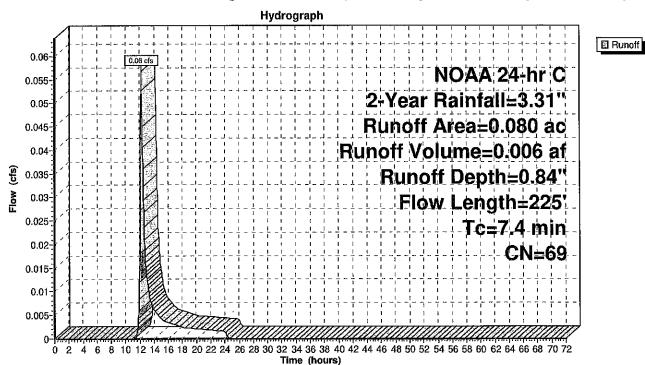
Runoff 0.06 cfs @ 12.17 hrs, Volume= 0.006 af, Depth= 0.84"

Routed to Pond 55P: Proposed Bioretention System #5

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

	Area	(ac) C	N Des	cription		
	0.	030 (61 >75°	% Grass co	over, Good	, HSG B
	0.	050	74 >75°	% Grass co	over, Good	, HSG C
0.080 69 Weighted Average						
	0.	080 €	39 100.	00% Pervi	ous Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	6.3	26	0.0100	0.07		Sheet Flow,
	0.4	67	0.0150	2.49		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow,
	0.7	132	0.0030	3.12	3.83	Paved Kv= 20.3 fps Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
	7.4	225	Total		•	

Subcatchment 29S: Drainage Area PR-5b (Pervious part of Drainage Area PR-5)



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Hydrograph for Subcatchment 29S: Drainage Area PR-5b (Pervious part of Drainage Area PR-5)

•	•				_	_	-
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.00	51.00	3.31	0.84	0.00
1.00	0.04	0.00	0.00	52.00	3.31	0.84	0.00
2.00	0.07	0.00	0.00	53.00	3.31	0.84	0.00
3.00	0.12	0.00	0.00	54.00	3.31	0.84	0.00
4.00	0.16	0.00	0.00	55.00	3.31	0.84	0.00
5.00	0.21	0.00	0.00	56.00	3.31	0.84	0.00
6.00	0.26	0.00	0.00	57.00	3.31	0.84	0.00
7.00	0.32	0.00	0.00	58.00	3.31	0.84	0.00
8.00	0.40	0.00	0.00	59.00	3.31	0.84	0.00
9.00	0.48	0.00	0.00	60.00	3.31	0.84	0.00
10.00	0.60	0.00	0.00	61.00	3.31	0.84	0.00
11.00	0.79	0.00	0.00	62.00	3.31	0.84	0.00
12.00	1.58	0.09	0.02	63.00	3.31	0.84	0.00
13.00	2.52	0.43	0.01	64.00	3.31	0.84	0.00
14.00	2.71	0.52	0.01	65.00	3.31	0.84	0.00
15.00	2.83	0.58	0.00	66.00	3.31	0.84	0.00
16.00	2.91	0.62	0.00	67.00	3.31	0.84	0.00
17.00	2.99	0.66	0.00	68.00	3.31	0.84	0.00
18.00	3.05	0.70	0.00	69.00	3.31	0.84	0.00
19.00	3.10	0.72	0.00	70.00	3.31	0.84	0.00
20.00	3.15	0.75	0.00	71.00	3.31	0.84	0.00
21.00	3.19	0.78	0.00	72.00	3.31	0.84	0.00
22.00	3.24	0.80	0.00				
23.00	3.27	0.82	0.00				
24.00	3.31	0.84	0.00				
25.00 26.00	3.31 3.31	0.84 0.84	0.00 0.00				
27.00	3.31	0.84	0.00				
28.00	3.31	0.84	0.00				
29.00	3.31	0.84	0.00				
30.00	3.31	0.84	0.00				
31.00	3.31	0.84	0.00				
32.00	3.31	0.84	0.00				
33.00	3.31	0.84	0.00				
34.00	3.31	0.84	0.00				
35.00	3.31	0.84	0.00				
36.00	3.31	0.84	0.00				
37.00	3.31	0.84	0.00				
38.00	3.31	0.84	0.00				
39.00	3.31	0.84	0.00				
40.00	3.31	0.84	0.00				
41.00	3.31	0.84	0.00				
42.00	3.31	0.84	0.00				
43.00	3.31	0.84	0.00				
44.00	3.31	0.84	0.00				
45.00	3.31	0.84	0.00				
46.00	3.31	0.84	0.00				
47.00	3.31	0.84	0.00				
48.00	3.31	0.84	0.00				
49.00	3.31	0.84	0.00				
50.00	3.31	0.84	0.00				

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Summary for Subcatchment 30S: Drainage Area PR-6a (Impervious part of Drainage Area PR-6)

Runoff

2.49 cfs @ 12.10 hrs, Volume=

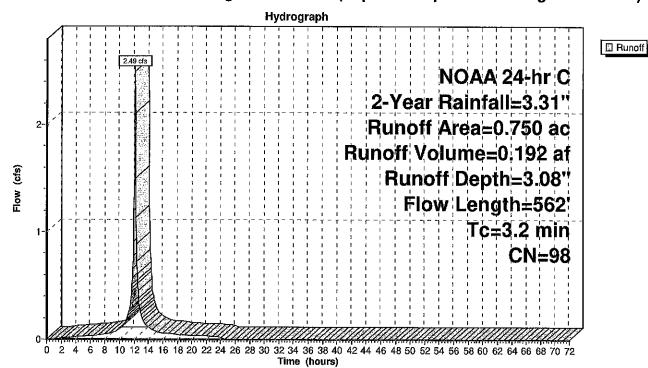
0.192 af, Depth= 3.08"

Routed to Pond 56P: Proposed Bioretention System #6

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

	Area	(ac) C	N Des	cription		
	0.	500 9	98 Pave	ed parking	, HSG B	
-	0.	250 9				
	0.	750 9	98 Wei	ghted Aver	age	
	0.	750 9	98 100.	00% Impe	rvious Area	
	_					
	Tc	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	1.3	100	0.0150	1.25		Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.35"
	0.5	79	0.0150	2.49		Shallow Concentrated Flow,
						Paved Kv= 20.3 fps
	1.4	383	0.0050	4.55	8.05	Pipe Channel,
						18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38'
						n= 0.012
	3.2	562	Total			

Subcatchment 30S: Drainage Area PR-6a (Impervious part of Drainage Area PR-6)



Runoff (cfs) 0.00

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Hydrograph for Subcatchment 30S: Drainage Area PR-6a (Impervious part of Drainage Area PR-6)

,				J		•
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	3.31	3.08
1.00	0.04	0.00	0.00	52.00	3.31	3.08
2.00	0.07	0.00	0.01	53.00	3.31	3.08
3.00	0.12	0.02	0.01	54.00	3.31	3.08
4.00	0.16	0.05	0.02	55.00	3.31	3.08
5.00	0.21	0.08	0.03	56.00	3.31	3.08
6.00	0.26	0.12	0.03	57.00	3.31	3.08
7.00	0.32	0.16	0.04	58.00	3.31	3.08
8.00	0.40	0.23	0.05	59.00	3.31	3.08
9.00	0.48	0.30	0.06	60.00	3.31	3.08
10.00	0.60	0.41	0.10	61.00	3.31	3.08
11.00	0.79	0.59	0.18	62.00	3.31	3.08
12.00	1.58	1.36	1.51	63.00	3.31	3.08
13.00	2.52	2.29	0.23	64.00	3.31	3.08
14.00	2.71	2.48	0.11	65.00	3.31	3.08
15.00	2.83	2.60	0.07	66.00	3.31	3.08
16.00	2.91	2.68	0.06	67.00	3.31	3.08
17.00	2.99	2.76	0.05	68.00	3.31	3.08
18.00	3.05	2.82	0.04	69.00	3.31	3.08
19.00	3.10	2.87	0.04	70.00	3.31	3.08
20.00	3.15	2.92	0.04	71.00	3.31	3.08
21.00	3.19	2.96	0.03	72.00	3.31	3.08
22.00	3.24	3.00	0.03			
23.00	3.27	3.04	0.03			
24.00	3.31	3.08	0.03			
25.00	3.31	3.08	0.00			
26.00	3.31	3.08	0.00			
27.00	3.31	3.08	0.00			
28.00	3.31	3.08	0.00			
29.00	3.31	3.08	0.00			
30.00	3.31	3.08	0.00			
31.00	3.31	3.08	0.00			
32.00	3.31	3.08	0.00			
33.00	3.31	3.08	0.00			
34.00	3.31	3.08	0.00			
35.00	3.31	3.08	0.00			
36.00	3.31	3.08	0.00			
37.00	3.31	3.08	0.00			
38.00	3.31	3.08	0.00			
39.00	3.31	3.08	0.00			
40.00	3.31	3.08	0.00			
41.00	3.31	3.08	0.00			
42.00	3.31	3.08	0.00			
43.00	3.31	3.08	0.00			
44.00	3.31	3.08	0.00			
45.00	3.31	3.08	0.00			
46.00	3.31	3.08	0.00			
47.00	3.31	3.08	0.00			
48.00	3.31	3.08	0.00			
49.00	3.31	3.08	0.00			

50.00

3.31

3.08

0.00

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Summary for Subcatchment 31S: Drainage Area PR-6b (Pervious part of Drainage Area PR-6)

0.11 cfs @ 12.43 hrs, Volume=

0.024 af, Depth= 0.42"

Routed to Pond 56P: Proposed Bioretention System #6

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

Area	(ac) C	N Desc	cription						
0.	.020 7	⁷ 4 >75%	% Grass co	over, Good	, HSG C				
0.	.460 6	31 >759	% Grass co	over, Good	, HSG B				
0.	.220 5	55 Woo	ds, Good,	HSG B					
0.	0.700 59 Weighted Average								
0.	.700 5	9 100.	00% Pervi	ous Area					
		01	M-14-	0	Description				
Tc	Length	Slope	Velocity	Capacity	Description				
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)					
11.3	23	0.0050	0.03		Sheet Flow,				
					Woods: Light underbrush n= 0.400 P2= 3.35"				
0.2	12	0.0300	1.21		Shallow Concentrated Flow,				
					Short Grass Pasture Kv= 7.0 fps				
2.1	179	0.0050	1.44		Shallow Concentrated Flow,				
					Paved Kv= 20.3 fps				
1.4	383	0.0050	4.55	8.05	Pipe Channel,				
					18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38'				
					n= 0.012				
15.0	597	Total							

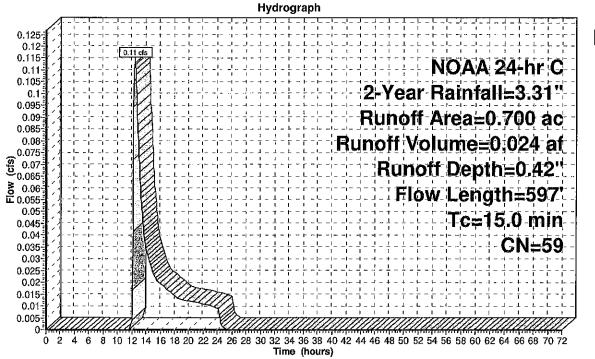
2005.109.02_PROPOSED (Rev. 8)NOAA 24-hr C 2-Year Rainfall=3.31"

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Subcatchment 31S: Drainage Area PR-6b (Pervious part of Drainage Area PR-6)



□ Runoff

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Hydrograph for Subcatchment 31S: Drainage Area PR-6b (Pervious part of Drainage Area PR-6)

Precip.	Excess	Runoff	(ho
			5
			5
			5
			5
0.16	0.00	0.00	5
0.21	0.00	0.00	5
0.26	0.00	0.00	5
0.32	0.00	0.00	5
0.40	0.00	0.00	59
			60
			6
			6
			6
			64
2.02			6
2.71			6
			6
			6
			69
			70
			7
			72
			ŀ
3.31			
3.31			
			i
			ŀ
3.31			
		0.00	
		0.00	
3.31	0.42	0.00	
3.31	0.42	0.00	
3.31	0.42	0.00	!
3.31	0.42	0.00	
3.31	0.42	0.00	
3.31	0.42	0.00	
3.31	0.42	0.00	
3.31			
0.01	V.4∠	0.00	
	(inches) 0.00 0.04 0.07 0.12 0.16 0.21 0.26 0.32 0.40 0.48 0.60 0.79 1.58 2.52 2.71 2.83 2.91 2.99 3.05 3.10 3.15 3.19 3.24 3.27 3.31 3.31 3.31 3.31 3.31 3.31 3.31 3.3	(inches) (inches) 0.00	(inches) (inches) (cfs) 0.00 0.00 0.00 0.04 0.00 0.00 0.07 0.00 0.00 0.12 0.00 0.00 0.16 0.00 0.00 0.21 0.00 0.00 0.26 0.00 0.00 0.40 0.00 0.00 0.40 0.00 0.00 0.40 0.00 0.00 0.40 0.00 0.00 0.40 0.00 0.00 0.40 0.00 0.00 0.40 0.00 0.00 0.41 0.00 0.00 0.42 0.00 0.00 0.52 0.16 0.08 2.71 0.21 0.03 2.83 0.25 0.02 2.99 0.30 0.02 2.99 0.30 0.02 2.99 0.30 0.02 3.15 0.36 0.01 <

Precip.	Excess	Runoff
(inches)	(inches)	(cfs)
3.31	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
3.31		0.00
3.31		0.00
3.31	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
	0.42	0.00
3.31	0.42	0.00
3.31	0.42	0.00
	(inches) 3.31 3.31 3.31 3.31 3.31 3.31 3.31 3.3	(inches) (inches) 3.31 0.42

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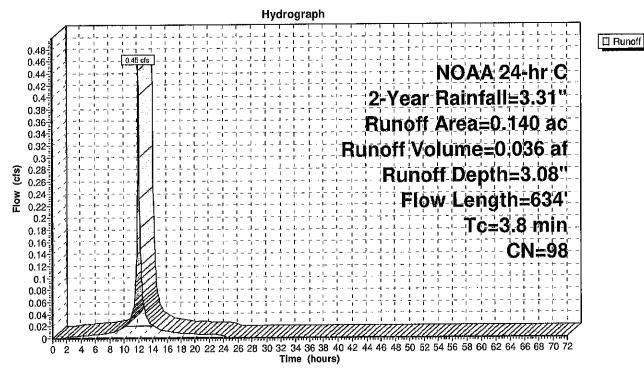
Summary for Subcatchment 32S: Drainage Area PR-7a (Impervious part of Drainage Area PR-7)

Runoff = 0.45 cfs @ 12.11 hrs, Volume= 0.036 af, Depth= 3.08" Routed to Link 64L: Drainage Area PR-7 (Undetained Runoff in pipes to P.O.I. "A")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

	Area	(ac) C	N Desc	cription		
_	0.	140	98 Pave	ed parking,	HSG C	
-	0.	140	98 100.	00% Impe	rvious Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	0.8	30	0.0050	0.64		Sheet Flow,
	1.0	122	0.0100	2.03		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
	2.0	482	0.0050	4.03	4.95	Pipe Channel, CMP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
-	3.8	634	Total			

Subcatchment 32S: Drainage Area PR-7a (Impervious part of Drainage Area PR-7)



Runoff

(cfs)

0.00

0.00

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Hydrograph for Subcatchment 32S: Drainage Area PR-7a (Impervious part of Drainage Area PR-7)

,	F			Ū		•
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	3.31	3.08
1.00	0.04	0.00	0.00	52.00	3.31	3.08
2.00	0.07	0.00	0.00	53.00	3.31	3.08
3.00	0.12	0.02	0.00	54.00	3.31	3.08
4.00	0.16	0.05	0.00	55.00	3.31	3.08
5.00	0.21	0.08	0.00	56.00	3.31	3.08
6.00	0.26	0.12	0.01	57.00	3.31	3.08
7.00	0.20	0.16	0.01	58.00	3.31	3.08
8.00	0.40	0.23	0.01	59.00	3.31	3.08
9.00	0.48	0.30	0.01	60.00	3.31	3.08
10.00	0.60	0.41	0.02	61.00	3.31	3.08
11.00	0.79	0.59	0.03	62.00	3.31	3.08
12.00	1.58	1.36	0.27	63.00	3.31	3.08
13.00	2.52	2.29	0.04	64.00	3.31	3.08
14.00	2.71	2.48	0.02	65.00	3.31	3.08
15.00	2.83	2.60	0.01	66.00	3.31	3.08
16.00	2.91	2.68	0.01	67.00	3.31	3.08
17.00	2.99	2.76	0.01	68.00	3.31	3.08
18.00	3.05	2.82	0.01	69.00	3.31	3.08
19.00	3.10	2.87	0.01	70.00	3.31	3.08
20.00	3.15	2.92	0.01	71.00	3.31	3.08
21.00	3.19	2.96	0.01	72.00	3.31	3.08
22.00	3.19	3.00	0.01	72.00	0.01	0.00
23.00	3.27	3.04	0.01			
24.00	3.31	3.04	0.01			
25.00	3.31	3.08	0.00			
26.00	3.31	3.08	0.00			
27.00	3.31	3.08	0.00			
28.00	3.31	3.08	0.00			
29.00	3.31	3.08	0.00			
30.00	3.31	3.08	0.00			
31.00	3.31	3.08	0.00			
32.00	3.31	3.08	0.00			
33.00	3.31	3.08	0.00			
34.00	3.31	3.08	0.00			
35.00	3.31	3.08	0.00			
36.00	3.31	3.08	0.00			
37.00	3.31	3.08	0.00			
38.00	3.31	3.08	0.00			
39.00	3.31	3.08	0.00			
40.00	3.31	3.08	0.00			
41.00	3.31	3.08	0.00			
	3.31	3.08	0.00			
42.00 43.00	3.31	3.08	0.00			
44.00	3.31	3.08	0.00			
45.00	3.31	3.08	0.00]		
46.00	3.31	3.08	0.00	1		
46.00	3.31	3.08	0.00			
	3.31	3.08	0.00			
48.00		3.08	0.00			
49.00	3.31	3.08	0.00	į.		

3.08

3.31

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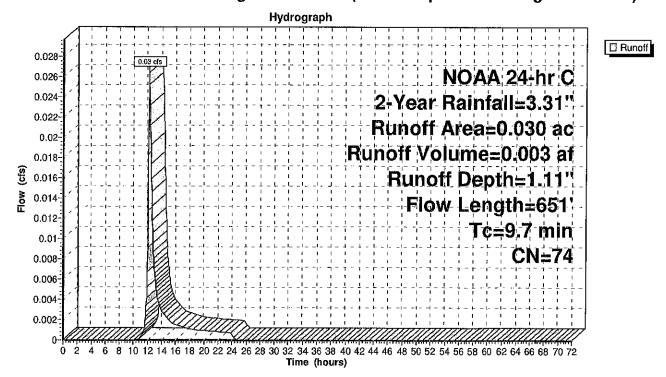
Summary for Subcatchment 33S: Drainage Area PR-7b (Pervious part of Drainage Area PR-7)

Runoff = 0.03 cfs @ 12.21 hrs, Volume= 0.003 af, Depth= 1.11" Routed to Link 64L: Drainage Area PR-7 (Undetained Runoff in pipes to P.O.I. "A")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

_	Area	(ac) C	N Des	cription		
	0.	030 7	74 >759	% Grass c	over, Good	, HSG C
	0.	030 7	⁷ 4 100.	00% Pervi	ous Area	
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	5.9	17	0.0050	0.05		Sheet Flow,
	0.8	30	0.0050	0.64		Grass: Dense n= 0.240 P2= 3.35" Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.35"
	1.0	122	0.0100	2.03		Shallow Concentrated Flow,
	2.0	482	0.0050	4.03	4.95	Paved Kv= 20.3 fps Pipe Channel, CMP_Round 15"
_						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
	97	651	Total			

Subcatchment 33S: Drainage Area PR-7b (Pervious part of Drainage Area PR-7)



NOAA 24-hr C 2-Year Rainfall=3.31"

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Hydrograph for Subcatchment 33S: Drainage Area PR-7b (Pervious part of Drainage Area PR-7)

Excess

1.11 1.11

1.11

1.11

1.11

1.11

1.11

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1.11 1.11

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1.11

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1.11

1.11

(inches)

Runoff

(cfs) 0.00

0.00

0.00

0.00

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0.00

0.00 0.00

0.00

0.00 0.00

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	-				
Time	Precip.	Excess	Runoff	Time	Precip.
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)
0.00	0.00	0.00	0.00	51.00	3.31
1.00	0.04	0.00	0.00	52.00	3.31
2.00	0.07	0.00	0.00	53.00	3.31
3.00	0.12	0.00	0.00	54.00	3.31
4.00	0.16	0.00	0.00	55.00	3.31
5.00	0.21	0.00	0.00	56.00	3.31
6.00	0.26	0.00	0.00	57.00	3.31
7.00	0.32	0.00	0.00	58.00	3.31
8.00	0.40	0.00	0.00	59.00	3.31
9.00	0.48	0.00	0.00	60.00	3.31
10.00	0.60	0.00	0.00	61.00	3.31
11.00	0.79	0.00	0.00	62.00	3.31
12.00	1.58	0.17	0.01	63.00	3.31
13.00	2.52	0.62	0.01	64.00	3.31
14.00	2.71	0.73	0.00	65.00	3.31
15.00	2.83	0.80	0.00	66.00	3.31
16.00	2.91	0.85	0.00	67.00	3.31
17.00	2.99	0.90	0.00	68.00	3.31
18.00	3.05	0.94	0.00	69.00	3.31
19.00	3.10	0.97	0.00	70.00	3.31
20.00	3.15	1.00	0.00	71.00	3.31
21.00	3.19	1.03	0.00	72.00	3.31
22.00	3.24	1.06	0.00		
23.00	3.27	1.09	0.00		
24.00	3.31	1.11	0.00		
25.00	3.31	1.11	0.00		
26.00	3.31	1.11	0.00		
27.00 28.00	3.31 3.31	1.11 1.11	0.00 0.00		
29.00	3.31	1,11	0.00		
30.00	3.31	1.11	0.00		
31.00	3.31	1.11	0.00		
32.00	3.31	1.11	0.00		
33.00	3.31	1.11	0.00		
34.00	3.31	1.11	0.00		
35.00	3.31	1.11	0.00		
36.00	3.31	1.11	0.00		
37.00	3.31	1.11	0.00		
38.00	3.31	1.11	0.00		
39.00	3.31	1.11	0.00		
40.00	3.31	1.11	0.00		
41.00	3.31	1.11	0.00		
42.00	3.31	1.11	0.00		
43.00	3.31	1.11	0.00		
44.00	3.31	1.11	0.00		
45.00	3.31	1.11	0.00		
46.00	3.31	1.11	0.00		
47.00	3.31	1.11	0.00		
48.00	3.31	1.11	0.00		
49.00	3.31	1.11	0.00		
50.00	3.31	1.11	0.00		
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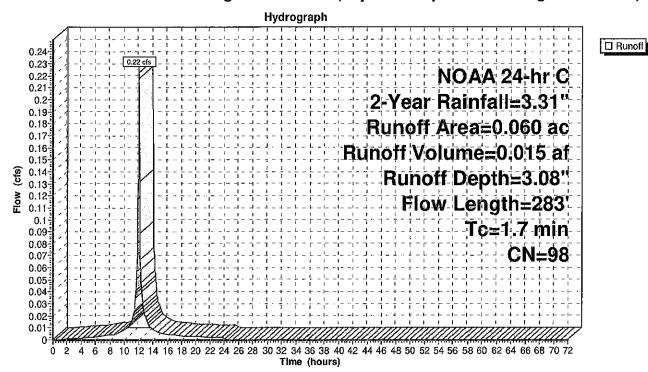
Summary for Subcatchment 34S: Drainage Area PR-8a (Impervious part of Drainage Area PR-8)

Runoff = 0.22 cfs @ 12.08 hrs, Volume= 0.015 af, Depth= 3.08" Routed to Link 65L: Drainage Area PR-8 (Overland Runoff to P.O.I. "A")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

	Area	(ac) C	N Des	cription		
	0.	060 9	8 Pave	ed parking	HSG C	
	0.	060 9	98 100.	00% Impe	rvious Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	0.2	17	0.0400	1.30		Sheet Flow,
	1.5	266	0.0200	2.87		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
	1.7	283	Total			

Subcatchment 34S: Drainage Area PR-8a (Impervious part of Drainage Area PR-8)



Runoff

(cfs)

0.00

0.00

0.00

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Printed 8/29/2023

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Hydrograph for Subcatchment 34S: Drainage Area PR-8a (Impervious part of Drainage Area PR-8)

, 5						
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	3.31	3.08
1.00	0.04	0.00	0.00	52.00	3.31	3.08
2.00	0.07	0.00	0.00	53.00	3.31	3.08
3.00	0.12	0.02	0.00	54.00	3.31	3.08
4.00	0.16	0.05	0.00	55.00	3.31	3.08
5.00	0.21	0.08	0.00	56.00	3.31	3.08
6.00	0.26	0.12	0.00	57.00	3.31	3.08
7.00	0.32	0.16	0.00	58.00	3.31	3.08
8.00	0.40	0.23	0.00	59.00	3.31	3.08
9.00	0.48	0.30	0.01	60.00	3.31	3.08
10.00	0.60	0.41	0.01	61.00	3.31	3.08
11.00	0.79	0.59	0.02	62.00	3.31	3.08
12.00	1.58	1.36	0.14	63.00	3.31	3.08
13.00	2.52	2.29	0.02	64.00	3.31	3.08
14.00	2.71	2.48	0.01	65.00	3.31	3.08
15.00	2.83	2.60	0.01	66.00		3.08
16.00	2.91	2.68	0.00	67.00	3.31	3.08
17.00	2.99	2.76	0.00	68.00	3.31	3.08
18.00	3.05	2.82	0.00	69.00	3.31	3.08
19.00	3.10	2.87	0.00	70.00	3.31	3.08
20.00	3.15	2.92	0.00	71.00	3.31	3.08
21.00	3.19	2.96	0.00	72.00	3.31	3.08
22.00	3.24	3.00	0.00			
23.00	3.27	3.04	0.00			
24.00	3.31	3.08	0.00			
25.00	3.31	3.08	0.00			
26.00	3.31	3.08	0.00			
27.00	3.31	3.08	0.00	F		
28.00	3.31	3.08	0.00			
29.00	3.31	3.08	0.00			
30.00	3.31	3.08	0.00			
31.00	3.31	3.08	0.00			
32.00	3.31	3.08	0.00			
33.00	3.31	3.08	0.00			
34.00	3.31	3.08	0.00			
35.00	3.31	3.08	0.00			
36.00	3.31	3.08	0.00			
37.00	3.31	3.08	0.00			
38.00	3.31	3.08	0.00			
39.00	3.31	3.08	0.00			
40.00	3.31	3.08	0.00			
41.00	3.31	3.08	0.00			
42.00	3.31	3.08	. 0.00			
43.00	3.31	3.08	0.00			
44.00	3.31	3.08	0.00			
45.00	3.31	3.08	0.00			
46.00	3.31	3.08	0.00			
47.00	3.31	3.08	0.00			
48.00	3.31	3.08	0.00			
49.00	3.31	3.08	0.00			
50.00	3.31	3.08	0.00			

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2005.109.02 PROPOSED (Rev. 8)

Prepared by Menlo Engineering Associates

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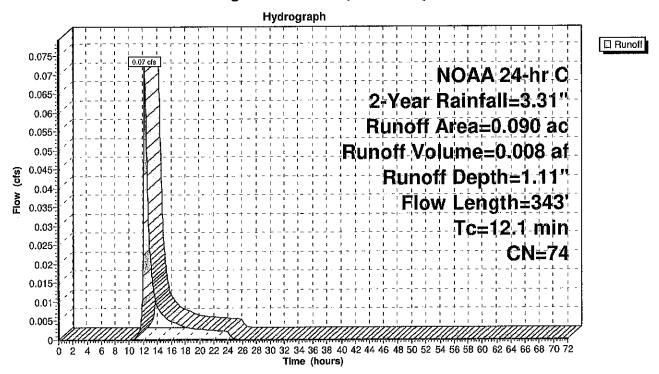
Summary for Subcatchment 35S: Drainage Area PR-8b (Pervious part of Drainage Area PR-8)

Runoff = 0.07 cfs @ 12.24 hrs, Volume= 0.008 af, Depth= 1.11" Routed to Link 65L: Drainage Area PR-8 (Overland Runoff to P.O.I. "A")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

Area	(ac) C	N Desc	cription		
0.	.090 7	⁷ 4 >759	% Grass co	over, Good,	, HSG C
0.	.090 7	⁷ 4 100.	00% Pervi	ous Area	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	49	0.0100	0.08		Sheet Flow,
1.7	294	0.0200	2.87		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
12.1	343	Total			

Subcatchment 35S: Drainage Area PR-8b (Pervious part of Drainage Area PR-8)



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Hydrograph for Subcatchment 35S: Drainage Area PR-8b (Pervious part of Drainage Area PR-8)

Time (hours) (inches) (inches) (inches) (inches) Runoff (cfs) 0.00 0.00 0.00 0.00 1.00 0.04 0.00 0.00 2.00 0.07 0.00 0.00 3.00 0.12 0.00 0.00 4.00 0.16 0.00 0.00 5.00 0.21 0.00 0.00 6.00 0.26 0.00 0.00 7.00 0.32 0.00 0.00 8.00 0.40 0.00 0.00 9.00 0.48 0.00 0.00 11.00 0.79 0.00 0.00 11.00 0.79 0.00 0.00 11.00 0.79 0.00 0.00 12.00 1.58 0.17 0.02 13.00 2.52 0.62 0.02 14.00 2.71 0.73 0.01 15.00 2.83 0.80 0.01 16.00 2.91 0.85 0.00 <		
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46.00 3.31 1.11 0.00 47.00 3.31 1.11 0.00		
47.00 3.31 1.11 0.00		
49.00 3.31 1.11 0.00		
50.00 3.31 1.11 0.00		

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
51.00 52.00	3.31 3.31	1.11 1.11	0.00
53.00	3.31	1.11	0.00
54.00 55.00	3.31 3.31	1.11 1.11	0.00
56.00	3.31	1.11	0.00 0.00
57.00	3.31	1.11	0.00
58.00	3.31	1.11	0.00
59.00	3.31	1.11	0.00
60.00 61.00	3.31 3.31	1.11 1.11	0.00 0.00
62.00	3.31	1.11	0.00
63.00	3.31	1.11	0.00
64.00	3.31	1.11	0.00
65.00 66.00	3.31 3.31	1.11 1.11	0.00
67.00	3.31	1.11	0.00
68.00	3.31	1.11	0.00
69.00	3.31	1.11	0.00
70.00 71.00	3.31 3.31	1.11 1.11	0.00
72.00	3.31	1.11	0.00

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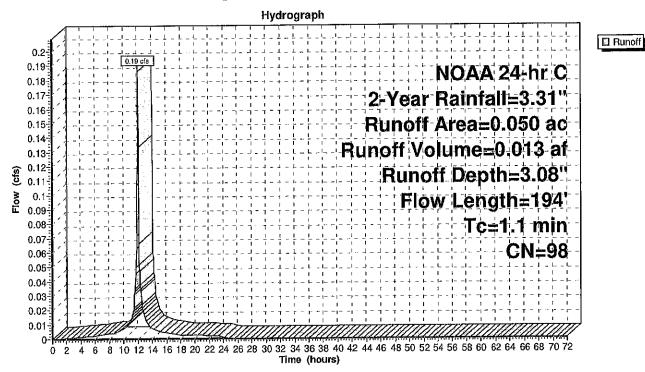
Summary for Subcatchment 36S: Drainage Area PR-9a (Impervious part of Drainage Area PR-9)

Runoff = 0.19 cfs @ 12.07 hrs, Volume= 0.013 af, Depth= 3.08" Routed to Link 63L: Drainage Area PR-10 (Overland Runoff to P.O.I. "B")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

Area	ı (ac) Cl	V Des	cription		
(0.050 9	8 Pave	ed parking,	HSG C	
	0.050 9	8 100.	00% Impe	rvious Area	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3		0.0250	1.09		Sheet Flow,
0.8	176	0.0340	3.74		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
1 1	194	Total			

Subcatchment 36S: Drainage Area PR-9a (Impervious part of Drainage Area PR-9)



Runoff

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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Printed 8/29/2023

Hydrograph for Subcatchment 36S: Drainage Area PR-9a (Impervious part of Drainage Area PR-9)

•	•			•		•
Time		Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00		0.00	0.00	51.00	3.31	3.08
1.00		0.00	0.00	52.00	3.31	3.08
2.00		0.00	0.00	53.00	3.31	3.08
3.00		0.02	0.00	54.00	3.31	3.08
4.00	0.16	0.05	0.00	55.00	3.31	3.08
5.00		0.08	0.00	56.00	3.31	3.08
6.00		0.12	0.00	57.00	3.31	3.08
7.00		0.16	0.00	58.00	3.31	3.08
8.00	0.40	0.23	0.00	59.00	3.31	3.08
9.00	0.48	0.30	0.00	60.00	3.31	3.08
10.00		0.41	0.01	61.00	3.31	3.08
11.00		0.59	0.01	62.00	3.31	3.08
12.00		1.36	0.12	63.00	3.31	3.08
13.00		2.29	0.01	64.00	3.31	3.08
14.00	2.71	2.48	0.01	65.00	3.31	3.08
15.00	2.83	2.60	0.00	66.00	3.31	3.08
16.00	2.91	2.68	0.00	67.00	3.31	3.08
17.00	2.99	2.76	0.00	68.00	3.31	3.08
18.00	3.05	2.82	0.00	69.00	3.31	3.08
19.00 20.00	3.10 3.15	2.87 2.92	0.00	70.00	3.31	3.08
20.00	3.19	2.92	0.00 0.00	71.00 72.00	3.31	3.08
22.00	3.19	3.00	0.00	/2.00	3.31	3.08
23.00	3.24	3.04	0.00]		
24.00	3.27 3.31	3.04	0.00			
25.00	3.31	3.08	0.00			
26.00	3.31	3.08	0.00	ŀ		
27.00	3.31	3.08	0.00			
28.00	3.31	3.08	0.00			
29.00	3.31	3.08	0.00			
30.00	3.31	3.08	0.00			
31.00	3.31	3.08	0.00			
32.00	3.31	3.08	0.00			
33.00	3.31	3.08	0.00			
34.00	3.31	3.08	0.00			
35.00	3.31	3.08	0.00			
36.00	3.31	3.08	0.00			
37.00	3.31	3.08	0.00	1		
38.00	3.31	3.08	0.00			
39.00	3.31	3.08	0.00	[
40.00	3.31	3.08	0.00			
41.00	3.31	3.08	0.00			
42.00	3.31	3.08	0.00			
43.00	3.31	3.08	0.00			
44.00	3.31	3.08	0.00			
45.00	3.31	3.08	0.00			
46.00	3.31	3.08	0.00			
47.00	3.31	3.08	0.00			
48.00	3.31	3.08	0.00			
49.00	3.31	3.08	0.00			
50.00	3.31	3.08	0.00			

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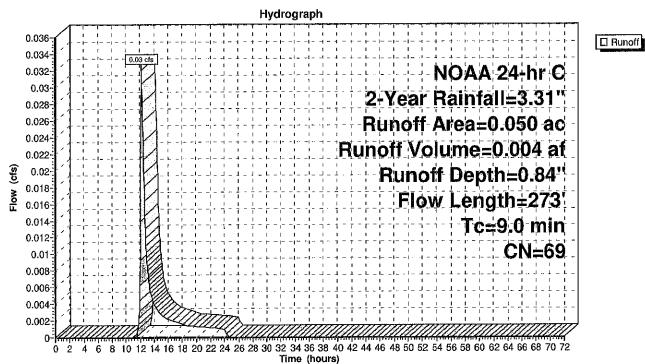
Summary for Subcatchment 37S: Drainage Area PR-9b (Pervious part of Drainage Area PR-9)

Runoff = 0.03 cfs @ 12.20 hrs, Volume= 0.004 af, Depth= 0.84" Routed to Link 63L : Drainage Area PR-10 (Overland Runoff to P.O.I. "B")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 2-Year Rainfall=3.31"

Area	(ac) C	N Des	cription		
_				over, Good	
0	.030	74 >75°	<u>% Grass co</u>	over, Good	, HSG C
			ghted Aver		
U.	.050	69 100.	00% Pervi	ous Area	
Тс	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
7.6	18	0.0030	0.04		Sheet Flow,
					Grass: Dense n= 0.240 P2= 3.35"
0.2	6	0.0050	0.46		Sheet Flow,
					Smooth surfaces n= 0.011 P2= 3.35"
1.2	249	0.0280	3.40		Shallow Concentrated Flow,
					Paved Kv= 20.3 fps
9.0	273	Total		·	

Subcatchment 37S: Drainage Area PR-9b (Pervious part of Drainage Area PR-9)



Runoff (cfs) 0.00

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Hydrograph for Subcatchment 37S: Drainage Area PR-9b (Pervious part of Drainage Area PR-9)

,	9. 0. 0				y	•	_
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	3.31	0.84	
1.00	0.04	0.00	0.00	52.00	3.31	0.84	
2.00	0.07	0.00	0.00	53.00	3.31	0.84	
3.00	0.12	0.00	0.00	54.00	3.31	0.84	
4.00	0.16	0.00	0.00	55.00	3.31	0.84	
5.00	0.21	0.00	0.00	56.00	3.31	0.84	
6.00	0.26	0.00	0.00	57.00	3.31	0.84	
7.00	0.32	0.00	0.00	58.00	3.31	0.84	
8.00	0.40	0.00	0.00	59.00	3.31	0.84	
9.00	0.48	0.00	0.00	60.00	3.31	0.84	
10.00	0.60	0.00	0.00	61.00	3.31	0.84	
11.00	0.79	0.00	0.00	62.00	3.31	0.84	
12.00	1.58	0.09	0.01	63.00	3.31	0.84	
13.00	2.52	0.43	0.01	64.00	3.31	0.84	
14.00	2.71	0.52	0.00	65.00	3.31	0.84	
15.00	2.83	0.58	0.00	66.00	3.31	0.84	
16.00	2.91	0.62	0.00	67.00	3.31	0.84	
17.00	2.99	0.66	0.00	68.00	3.31	0.84	
18.00	3.05	0.70	0.00	69.00	3.31	0.84	
19.00	3.10	0.72	0.00	70.00	3.31	0.84	
20.00	3.15	0.75	0.00	71.00	3.31	0.84	
21.00	3.19	0.78	0.00	72.00	3.31	0.84	
22.00	3.24	0.80	0.00				
23.00	3.27	0.82	0.00				
24.00	3.31	0.84	0.00				
25.00	3.31	0.84	0.00				
26.00	3.31	0.84	0.00				
27.00	3.31	0.84	0.00				
28.00	3.31	0.84	0.00				
29.00	3.31	0.84	0.00				
30.00	3.31	0.84	0.00				
31.00	3.31	0.84	0.00				
32.00	3.31	0.84	0.00				
33.00	3.31	0.84	0.00				
34.00	3.31	0.84	0.00				
35.00	3.31	0.84	0.00				
36.00	3.31	0.84	0.00				
37.00	3.31	0.84	0.00				
38.00	3.31	0.84	0.00				
39.00	3.31	0.84	0.00				
40.00	3.31	0.84 0.84	0.00				
41.00 42.00	3.31 3.31		0.00 0.00				
	3.31	0.84 0.84	0.00				
43.00	3.31	0.84	0.00				
44.00	3.31	0.84	0.00				
45.00 46.00	3.31	0.84	0.00				
46.00	3.31	0.84	0.00				
	3.31	0.84	0.00				
48.00	3.31	0.84	0.00				
49.00	3.31 2.21	0.84	0.00				

0.00

50.00

3.31

0.84

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Summary for Link 61L: Total to P.O.I. "A"

Inflow Area =

3.460 ac, 66.47% Impervious, Inflow Depth > 1.60" for 2-Year event

Inflow =

1.36 cfs @ 12.15 hrs, Volume=

0.461 af

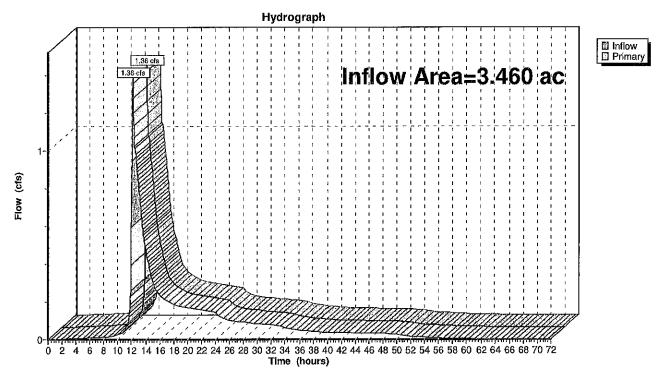
Primary =

1.36 cfs @ 12.15 hrs, Volume=

0.461 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 61L: Total to P.O.I. "A"



Primary

(cfs)

0.02

0.02

0.01

0.01

0.01

0.01

0.01

0.00

0.00

0.00

0.00

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0.00

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Hydrograph for Link 61L: Total to P.O.I. "A"

Inflow

(cts)

0.02

0.02

0.01

0.01

0.01

0.01

0.01

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

Elevation

(feet)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

Time

51.00

52.00

53.00

54.00

55.00

56.00

57.00

58.00

59.00

60.00

61.00

62.00

63.00

64.00

65.00

66.00

67.00

68.00

69.00

70.00

71.00

72.00

(hours)

T!	1 0		ъ. I
Time	Inflow	Elevation	Primary
(hours)	(cfs)	(feet)	(cfs)
0.00 1.00	0.00	0.00	0.00
2.00	0.00 0.00	0.00 0.00	0.00 0.00
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01
6.00	0.01	0.00	0.01
7.00	0.01	0.00	0.01
8.00	0.01	0.00	0.01
9.00	0.02	0.00	0.02
10.00	0.03	0.00	0.03
11.00	0.05	0.00	0.05
12.00	0.59	0.00	0.59
13.00	0.83	0.00	0.83
14.00	0.48	0.00	0.48
15.00	0.31	0.00	0.31
16.00	0.23	0.00	0.23
17.00	0.20	0.00	0.20
18.00	0.19	0.00	0.19
19.00	0.17	0.00	0.17
20.00	0.17	0.00	0.17
21.00	0.16	0.00	0.16
22.00	0.16	0.00	0.16
23.00	0.15	0.00	0.15
24.00	0.15	0.00	0.15
25.00	0.11	0.00	0.11
26.00	0.10	0.00	0.10
27.00	0.10	0.00	0.10
28.00	0.09	0.00	0.09
29.00	0.09	0.00	0.09
30.00	0.08	0.00	0.08
31.00	0.08	0.00	0.08
32.00	0.08	0.00	0.08
33.00	0.07	0.00	0.07
34.00	0.06	0.00	0.06
35.00	0.05	0.00	0.05
36.00	0.05	0.00	0.05
37.00	0.04	0.00	0.04
38.00	0.04	0.00	0.04
39.00	0.04	0.00	0.04
40.00	0.04	0.00	0.04
41.00	0.04	0.00	0.04
42.00	0.04	0.00	0.04
43.00	0.04	0.00	0.04
44.00	0.03	0.00	0.03
45.00	0.03	0.00	0.03
46.00	0.03	0.00	0.03
47.00	0.03	0.00	0.03
48.00	0.03	0.00	0.03
49.00	0.03	0.00	0.03
50.00	0.03	0.00	0.03

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2005.109.02_PROPOSED (Rev. 8)

Prepared by Menlo Engineering Associates
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Summary for Link 62L: Total to P.O.I. "B"

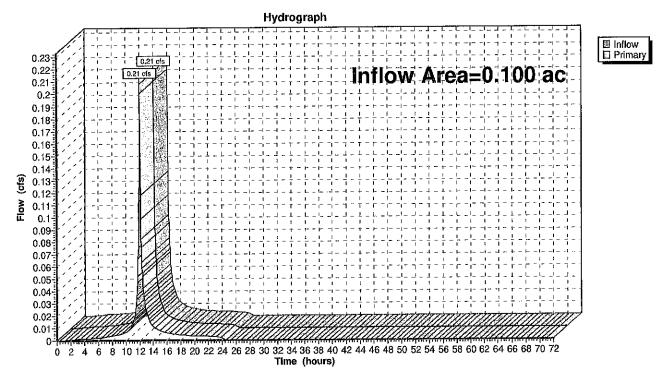
Inflow Area = 0.100 ac, 50.00% Impervious, Inflow Depth = 1.96" for 2-Year event

Inflow = 0.21 cfs @ 12.08 hrs, Volume= 0.016 af

Primary = 0.21 cfs @ 12.08 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 62L: Total to P.O.I. "B"



Primary (cfs) 0.00

Printed 8/29/2023

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Hydrograph for Link 62L: Total to P.O.I. "B"

Time Inflow Elevation Primary (fours) (rise) (feet) (rise) (feet) (feet)			-				
0.00 0.00 0.00 0.00 51.00 0.00 0.00 1.00 0.00 0.00 0.00 52.00 0.00 0.00 2.00 0.00 0.00 0.00 53.00 0.00 0.00 3.00 0.00 0.00 0.00 55.00 0.00 0.00 4.00 0.00 0.00 0.00 55.00 0.00 0.00 5.00 0.00 0.00 0.00 56.00 0.00 0.00 6.00 0.00 0.00 0.00 56.00 0.00 0.00 7.00 0.00 0.00 0.00 59.00 0.00 0.00 8.00 0.00 0.00 0.00 59.00 0.00 0.00 9.00 0.00 0.00 0.00 60.00 0.00 0.00 10.00 0.01 0.00 0.01 61.00 0.00 0.00 11.00 0.01 0.00 0.01 62.00	Time	Inflow	Elevation	Primary	Time	Inflow	Elevation
1,00 0.00 0.00 0.00 52.00 0.00 0.00 2,00 0.00 0.00 0.00 53.00 0.00 0.00 3,00 0.00 0.00 0.00 54.00 0.00 0.00 4,00 0.00 0.00 0.00 55.00 0.00 0.00 5,00 0.00 0.00 0.00 56.00 0.00 0.00 6,00 0.00 0.00 0.00 57.00 0.00 0.00 8,00 0.00 0.00 0.00 59.00 0.00 0.00 9,00 0.00 0.00 0.00 59.00 0.00 0.00 10,00 0.01 0.00 0.01 61.00 0.00 0.00 11,00 0.01 0.00 0.01 62.00 0.00 0.00 12,00 0.13 0.00 0.01 65.00 0.00 0.00 14,00 0.01 0.00 0.01 65.00	(hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)	(feet)
2.00	0.00	0.00	0.00		51.00	0.00	0.00
3.00	1.00	0.00	0.00	0.00	52.00	0.00	0.00
4.00	2.00	0.00	0.00	0.00	53.00	0.00	0.00
5.00 0.00 0.00 0.00 56.00 0.00 0.00 6.00 0.00 0.00 0.00 57.00 0.00 0.00 7.00 0.00 0.00 0.00 58.00 0.00 0.00 8.00 0.00 0.00 0.00 59.00 0.00 0.00 9.00 0.01 0.00 0.01 61.00 0.00 0.00 10.00 0.01 0.00 0.01 61.00 0.00 0.00 11.00 0.01 0.00 0.01 62.00 0.00 0.00 12.00 0.13 0.00 0.02 64.00 0.00 0.00 13.00 0.02 0.00 0.02 64.00 0.00 0.00 14.00 0.01 0.00 0.01 65.00 0.00 0.00 15.00 0.01 0.00 0.01 66.00 0.00 0.00 17.00 0.01 0.00 0.01 68.00	3.00	0.00	0.00	0.00	54.00	0.00	0.00
6.00	4.00	0.00	0.00	0.00	55.00	0.00	0.00
7.00 0.00 0.00 0.00 58.00 0.00 0.00 8.00 0.00 0.00 0.00 59.00 0.00 0.00 9.00 0.00 0.00 0.00 60.00 0.00 0.00 10.00 0.01 0.00 0.01 61.00 0.00 0.00 12.00 0.13 0.00 0.13 63.00 0.00 0.00 13.00 0.02 0.00 0.02 64.00 0.00 0.00 14.00 0.01 0.00 0.01 65.00 0.00 0.00 15.00 0.01 0.00 0.01 66.00 0.00 0.00 15.00 0.01 0.00 0.01 66.00 0.00 0.00 16.00 0.01 0.00 0.01 68.00 0.00 0.00 18.00 0.01 0.00 0.01 68.00 0.00 0.00 19.00 0.00 0.00 0.00 70.00	5.00	0.00	0.00	0.00	56.00	0.00	0.00
8.00 0.00 <td< td=""><td>6.00</td><td>0.00</td><td>0.00</td><td>0.00</td><td>57.00</td><td>0.00</td><td>0.00</td></td<>	6.00	0.00	0.00	0.00	57.00	0.00	0.00
9.00	7.00	0.00	0.00	0.00	58.00	0.00	0.00
10.00 0.01 0.00 0.01 61.00 0.00 0.00 11.00 0.01 0.00 0.01 62.00 0.00 0.00 12.00 0.13 0.00 0.13 63.00 0.00 0.00 13.00 0.02 0.00 0.02 64.00 0.00 0.00 14.00 0.01 0.00 0.01 65.00 0.00 0.00 15.00 0.01 0.00 0.01 66.00 0.00 0.00 16.00 0.01 0.00 0.01 66.00 0.00 0.00 17.00 0.01 0.00 0.01 68.00 0.00 0.00 17.00 0.01 0.00 </td <td>8.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>59.00</td> <td>0.00</td> <td>0.00</td>	8.00	0.00	0.00	0.00	59.00	0.00	0.00
11.00 0.01 0.00 0.13 62.00 0.00 0.00 12.00 0.13 0.00 0.02 64.00 0.00 0.00 13.00 0.02 0.00 0.02 64.00 0.00 0.00 14.00 0.01 0.00 0.01 65.00 0.00 0.00 15.00 0.01 0.00 0.01 66.00 0.00 0.00 15.00 0.01 0.00 0.01 66.00 0.00 0.00 17.00 0.01 0.00 0.01 66.00 0.00 0.00 17.00 0.01 0.00 0.01 66.00 0.00 0.00 18.00 0.00 0.00 0.01 68.00 0.00 0.00 19.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 21.00 0.00 0.00 0.00 71.00 0.00 0.00 23.00 0.00 0.00 0.00	9.00	0.00	0.00	0.00	60.00	0.00	0.00
12.00 0.13 0.00 0.02 63.00 0.00 0.00 13.00 0.02 0.00 0.02 64.00 0.00 0.00 14.00 0.01 0.00 0.01 65.00 0.00 0.00 15.00 0.01 0.00 0.01 66.00 0.00 0.00 16.00 0.01 0.00 0.01 67.00 0.00 0.00 17.00 0.01 0.00 0.01 68.00 0.00 0.00 18.00 0.00 0.00 0.00 69.00 0.00 0.00 19.00 0.00 0.00 0.00 69.00 0.00 0.00 20.00 0.00 0.00 0.00 71.00 0.00 0.00 21.00 0.00 0.00 0.00 72.00 0.00 0.00 23.00 0.00 0.00 0.00 2.00 0.00 0.00 25.00 0.00 0.00 0.00 0.00		0.01	0.00	0.01	61.00	0.00	0.00
13.00 0.02 0.00 0.02 64.00 0.00 0.00 14.00 0.01 0.00 0.01 65.00 0.00 0.00 15.00 0.01 0.00 0.01 66.00 0.00 0.00 16.00 0.01 0.00 0.01 67.00 0.00 0.00 17.00 0.01 0.00 0.01 68.00 0.00 0.00 18.00 0.00 0.00 0.00 69.00 0.00 0.00 19.00 0.00 0.00 0.00 70.00 0.00 0.00 20.00 0.00 0.00 0.00 70.00 0.00 0.00 21.00 0.00 0.00 0.00 72.00 0.00 0.00 23.00 0.00 0.00 0.00 22.00 0.00 0.00 24.00 0.00 0.00 0.00 0.00 22.00 0.00 0.00 28.00 0.00 0.00 0.00	11.00	0.01	0.00	0.01	62.00	0.00	0.00
14.00 0.01 0.00 0.01 65.00 0.00 0.00 15.00 0.01 0.00 0.01 66.00 0.00 0.00 16.00 0.01 0.00 0.01 67.00 0.00 0.00 17.00 0.01 0.00 0.01 68.00 0.00 0.00 18.00 0.00 0.00 0.00 69.00 0.00 0.00 19.00 0.00 0.00 0.00 70.00 0.00 0.00 20.00 0.00 0.00 0.00 71.00 0.00 0.00 21.00 0.00 0.00 0.00 72.00 0.00 0.00 22.00 0.00 0.00 0.00 72.00 0.00 0.00 23.00 0.00 0.00 0.00 20.00 0.00	12.00	0.13	0.00	0.13	63.00	0.00	0.00
15.00 0.01 0.00 0.01 66.00 0.00 0.00 16.00 0.01 0.00 0.01 67.00 0.00 0.00 17.00 0.01 0.00 0.01 68.00 0.00 0.00 18.00 0.00 0.00 0.00 69.00 0.00 0.00 19.00 0.00 0.00 0.00 70.00 0.00 0.00 20.00 0.00 0.00 0.00 70.00 0.00 0.00 21.00 0.00 0.00 0.00 72.00 0.00 0.00 22.00 0.00 0.00 0.00 72.00 0.00 0.00 23.00 0.00 0.00 0.00 20.00 0.00<	13.00	0.02	0.00	0.02	64.00	0.00	0.00
16.00 0.01 0.00 0.01 67.00 0.00 0.00 17.00 0.01 0.00 0.01 68.00 0.00 0.00 18.00 0.00 0.00 0.00 69.00 0.00 0.00 19.00 0.00 0.00 0.00 70.00 0.00 0.00 20.00 0.00 0.00 0.00 71.00 0.00 0.00 21.00 0.00 0.00 0.00 72.00 0.00 0.00 22.00 0.00 0.00 0.00 72.00 0.00 0.00 23.00 0.00 0.00 0.00 2.00 0.00 0.00 0.00 0.00 2.00 0.00 0.00 0.00 0.00 2.00 0.00<	14.00	0.01	0.00	0.01	65.00	0.00	0.00
17.00 0.01 0.00 0.01 68.00 0.00 0.00 18.00 0.00 0.00 0.00 69.00 0.00 0.00 19.00 0.00 0.00 0.00 70.00 0.00 0.00 20.00 0.00 0.00 0.00 71.00 0.00 0.00 21.00 0.00 0.00 0.00 72.00 0.00 0.00 22.00 0.00 0.00 0.00 72.00 0.00 0.00 23.00 0.00 0.00 0.00 0.00 72.00 0.00 0.00 24.00 0.00 0.00 0.00 0.00 27.00 0.00 0.00 0.00 0.00 27.00 0.00 0.00 0.00 0.00 0.00 0.00 28.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	15.00	0.01	0.00	0.01	66.00	0.00	0.00
18.00 0.00 0.00 0.00 69.00 0.00 0.00 19.00 0.00 0.00 0.00 70.00 0.00 0.00 20.00 0.00 0.00 0.00 71.00 0.00 0.00 21.00 0.00 0.00 0.00 72.00 0.00 0.00 22.00 0.00 0.00 0.00 72.00 0.00 0.00 23.00 0.00 0.00 0.00 0.00 22.00 0.00 <td>16.00</td> <td>0.01</td> <td>0.00</td> <td>0.01</td> <td>67.00</td> <td>0.00</td> <td>0.00</td>	16.00	0.01	0.00	0.01	67.00	0.00	0.00
19.00 0.00 0.00 0.00 70.00 0.00 0.00 20.00 0.00 0.00 0.00 71.00 0.00 0.00 21.00 0.00 0.00 0.00 72.00 0.00 0.00 22.00 0.00 0.00 0.00 22.00 0.00 0.00 0.00 23.00 0.00 0.00 0.00 0.00 0.00 24.00 0.00 0.00 0.00 25.00 0.00 0.00 0.00 0.00 25.00 0.00 0.00 0.00 0.00 25.00 0.00 0.00 0.00 0.00 27.00 0.00 0.00 0.00 28.00 0.00 0.00 0.00 28.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 0.00	17.00	0.01	0.00	0.01	68.00	0.00	0.00
20.00 0.00 0.00 71.00 0.00 0.00 21.00 0.00 0.00 0.00 72.00 0.00 0.00 22.00 0.00 0.00 0.00 72.00 0.00 0.00 23.00 0	18.00	0.00	0.00	0.00	69.00	0.00	0.00
21.00 0.00	19.00	0.00	0.00	0.00	70.00	0.00	0.00
22.00 0.00 0.00 0.00 23.00 0.00 0.00 0.00 24.00 0.00 0.00 0.00 25.00 0.00 0.00 0.00 26.00 0.00 0.00 0.00 27.00 0.00 0.00 0.00 28.00 0.00 0.00 0.00 29.00 0.00 0.00 0.00 30.00 0.00 0.00 0.00 31.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 34.00 0.00 0.00 0.00 35.00 0.00 0.00 0.00 36.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 39.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 45.00	20.00	0.00	0.00	0.00	71.00	0.00	0.00
23.00 0.00 0.00 0.00 24.00 0.00 0.00 0.00 25.00 0.00 0.00 0.00 26.00 0.00 0.00 0.00 27.00 0.00 0.00 0.00 28.00 0.00 0.00 0.00 29.00 0.00 0.00 0.00 30.00 0.00 0.00 0.00 31.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 34.00 0.00 0.00 0.00 35.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00	21.00	0.00	0.00	0.00	72.00	0.00	0.00
24.00 0.00 0.00 0.00 25.00 0.00 0.00 0.00 26.00 0.00 0.00 0.00 27.00 0.00 0.00 0.00 28.00 0.00 0.00 0.00 29.00 0.00 0.00 0.00 30.00 0.00 0.00 0.00 31.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 34.00 0.00 0.00 0.00 35.00 0.00 0.00 0.00 36.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 39.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00	22.00	0.00	0.00	0.00			
25.00 0.00 0.00 0.00 26.00 0.00 0.00 0.00 27.00 0.00 0.00 0.00 28.00 0.00 0.00 0.00 29.00 0.00 0.00 0.00 30.00 0.00 0.00 0.00 31.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 34.00 0.00 0.00 0.00 35.00 0.00 0.00 0.00 36.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 39.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 47.00	23.00	0.00	0.00	0.00			
26.00 0.00 0.00 0.00 27.00 0.00 0.00 0.00 28.00 0.00 0.00 0.00 29.00 0.00 0.00 0.00 30.00 0.00 0.00 0.00 31.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 34.00 0.00 0.00 0.00 35.00 0.00 0.00 0.00 36.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	24.00	0.00	0.00	0.00			
27.00 0.00 0.00 0.00 28.00 0.00 0.00 0.00 29.00 0.00 0.00 0.00 30.00 0.00 0.00 0.00 31.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 34.00 0.00 0.00 0.00 35.00 0.00 0.00 0.00 36.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 39.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	25.00	0.00	0.00	0.00			
28.00 0.00 0.00 0.00 29.00 0.00 0.00 0.00 30.00 0.00 0.00 0.00 31.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 34.00 0.00 0.00 0.00 35.00 0.00 0.00 0.00 36.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 43.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	26.00	0.00	0.00	0.00			
29.00 0.00 0.00 0.00 30.00 0.00 0.00 0.00 31.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 34.00 0.00 0.00 0.00 35.00 0.00 0.00 0.00 36.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 43.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	27.00	0.00	0.00	0.00			
30.00 0.00 0.00 0.00 31.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 34.00 0.00 0.00 0.00 35.00 0.00 0.00 0.00 36.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	28.00	0.00	0.00	0.00			
31.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 34.00 0.00 0.00 0.00 35.00 0.00 0.00 0.00 36.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 39.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	29.00	0.00	0.00	0.00			
32.00 0.00 0.00 0.00 33.00 0.00 0.00 0.00 34.00 0.00 0.00 0.00 35.00 0.00 0.00 0.00 36.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 39.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 43.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	30.00	0.00	0.00	0.00			
33.00 0.00 0.00 0.00 34.00 0.00 0.00 0.00 35.00 0.00 0.00 0.00 36.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 39.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 43.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	31.00	0.00	0.00	0.00			
34.00 0.00 0.00 0.00 35.00 0.00 0.00 0.00 36.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 39.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 43.00 0.00 0.00 0.00 44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	32.00	0.00	0.00	0.00			
35.00 0.00 0.00 0.00 36.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 39.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 43.00 0.00 0.00 0.00 44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	33.00	0.00	0.00	0.00			
36.00 0.00 0.00 0.00 37.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 39.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 43.00 0.00 0.00 0.00 44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	34.00	0.00	0.00	0.00			
37.00 0.00 0.00 0.00 38.00 0.00 0.00 0.00 39.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 43.00 0.00 0.00 0.00 44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	35.00		0.00				
38.00 0.00 0.00 0.00 39.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 43.00 0.00 0.00 0.00 44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	36.00						
39.00 0.00 0.00 0.00 40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 43.00 0.00 0.00 0.00 44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	37.00	0.00	0.00	0.00			
40.00 0.00 0.00 0.00 41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 43.00 0.00 0.00 0.00 44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	38.00	0.00	0.00	0.00			
41.00 0.00 0.00 0.00 42.00 0.00 0.00 0.00 43.00 0.00 0.00 0.00 44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	39.00	0.00	0.00	0.00			
42.00 0.00 0.00 0.00 43.00 0.00 0.00 0.00 44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	40.00	0.00	0.00	0.00			
43.00 0.00 0.00 0.00 44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	41.00	0.00	0.00	0.00			
44.00 0.00 0.00 0.00 45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	42.00						
45.00 0.00 0.00 0.00 46.00 0.00 0.00 0.00 47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00							
46.00 0.00 0.00 47.00 0.00 0.00 48.00 0.00 0.00							
47.00 0.00 0.00 0.00 48.00 0.00 0.00 0.00	45.00						
48.00 0.00 0.00 0.00							
49.00 0.00 0.00 0.00	48.00	0.00	0.00	0.00			
	49.00	0.00	0.00	0.00			

0.00

0.00

50.00

0.00

10 YEAR STORM

Prepared by Menlo Engineering Associates

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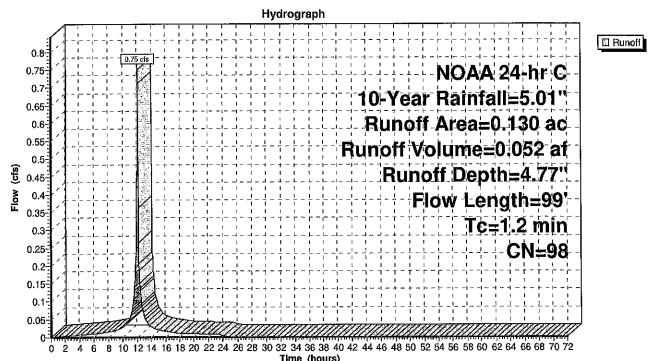
Summary for Subcatchment 20S: Drainage Area PR-1a (Impervious part of Drainage Area PR-1)

Runoff = 0.75 cfs @ 12.08 hrs, Volume= 0.052 af, Depth= 4.77" Routed to Pond 51P: Proposed Bioretention System #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

Area	(ac) C	N Des	cription		
			ed parking		
0.	.050	<u>98 Root</u>	fs, HSG C		
0	.130	98 Weig	ghted Aver	age	
0.	.130	98 100.	00% Impe	rvious Area	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	54	0.0150	1.11		Sheet Flow,
0.4	45	0.0100	2.03		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.2	99	Total			

Subcatchment 20S: Drainage Area PR-1a (Impervious part of Drainage Area PR-1)



Runoff (cfs) 0.00

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Hydrograph for Subcatchment 20S: Drainage Area PR-1a (Impervious part of Drainage Area PR-1)

, 5							-1
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	5.01	4.77	
1.00	0.05	0.00	0.00	52.00	5.01	4.77	
2.00	0.11	0.02	0.00	53.00	5.01	4.77	
3.00	0.18	0.05	0.01	54.00	5.01	4.77	
4.00	0.25	0.10	0.01	55.00	5.01	4.77	
5.00	0.32	0.16	0.01	56.00	5.01	4.77	
6.00	0.40	0.23	0.01	57.00	5.01	4.77	
7.00	0.49	0.31	0.01	58.00	5.01	4.77	
8.00	0.60	0.41	0.01	59.00	5.01	4.77	
9.00	0.73	0.53	0.02	60.00	5.01	4.77	
10.00	0.91	0.71	0.03	61.00	5.01	4.77	
11.00	1.20	0.99	0.05	62.00	5.01	4.77	
12.00	2.39	2.16	0.48	63.00	5.01	4.77	
13.00	3.81	3.57	0.06	64.00	5.01	4.77	
14.00	4.10	3.86	0.03	65.00	5.01	4.77	
15.00	4.28	4.04	0.02	66.00	5.01	4.77	
16.00	4.41	4.17	0.02	67.00	5.01	4.77	
17.00	4.52	4.29	0.01	68.00	5.01	4.77	
18.00	4.61	4.38	0.01	69.00	5.01	4.77	
19.00	4.69	4.46	0.01	70.00	5.01	4.77	
20.00	4.76	4.53	0.01	71.00	5.01	4.77	
21.00	4.83	4.60	0.01	72.00	5.01	4.77	
22.00	4.90	4.66	0.01				
23.00	4.96	4.72	0.01				
24.00	5.01	4.77	0.01				
25.00	5.01	4.77	0.00				
26.00	5.01	4.77	0.00				
27.00	5.01	4.77	0.00				
28.00	5.01	4.77	0.00				
29.00	5.01	4.77	0.00				
30.00	5.01	4.77	0.00				
31.00	5.01	4.77	0.00				
32.00	5.01	4.77	0.00				
33.00	5.01	4.77	0.00				
34.00	5.01	4.77	0.00				
35.00	5.01	4.77	0.00				
36.00	5.01	4.77	0.00				
37.00	5.01	4.77	0.00				
38.00	5.01	4.77	0.00				
39.00	5.01	4.77	0.00				
40.00	5.01	4.77	0.00				
41.00	5.01	4.77	0.00				
42.00	5.01	4.77	0.00				
43.00	5.01	4.77	0.00				
44.00	5.01	4.77	0.00				
45.00	5.01	4.77	0.00				
46.00	5.01	4.77	0.00				
47.00	5.01	4.77	0.00				
48.00	5.01	4.77	0.00				
49.00	5.01	4.77	0.00				
E0 00	C 04	4 77	0.00				

50.00

5.01

4.77

0.00

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NOAA 24-hr C 10-Year Rainfall=5.01" Printed 8/29/2023

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Summary for Subcatchment 21S: Drainage Area PR-1b (Pervious part of Drainage Area PR-1)

Runoff = 0.07 cfs @ 12.16 hrs, Volume=

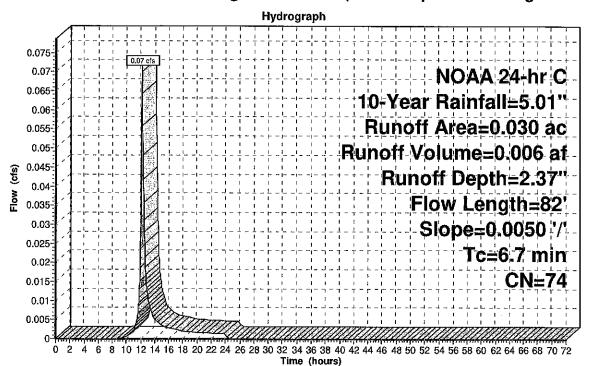
0.006 af, Depth= 2.37"

Routed to Pond 51P: Proposed Bioretention System #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

	Area	<u>(ac)</u> C	<u> Des</u>	cription			
_	0.	030	74 >75	% Grass co	over, Good	, HSG C	
	0.	030 7	74 100.	00% Pervi	ous Area		
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
Ī	5.9	17	0.0050	0.05		Sheet Flow,	
	0.2	13	0.0050	1.14		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps	
	0.6	52	0.0050	1.44		Shallow Concentrated Flow, Paved Kv= 20.3 fps	
_	6.7	82	Total				

Subcatchment 21S: Drainage Area PR-1b (Pervious part of Drainage Area PR-1)





Runoff

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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Hydrograph for Subcatchment 21S: Drainage Area PR-1b (Pervious part of Drainage Area PR-1)

, ,	,			`		•
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	5.01	2.37
1.00	0.05	0.00	0.00	52.00	5.01	2.37
2.00	0.11	0.00	0.00	53.00	5.01	2.37
3.00	0.18	0.00	0.00	54.00	5.01	2.37
4.00	0.25	0.00	0.00	55.00	5.01	2.37
5.00	0.32	0.00	0.00	56.00	5.01	2.37
6.00	0.40	0.00	0.00	57.00	5.01	2.37
7.00	0.49	0.00	0.00	58.00	5.01	2.37
8.00	0.60	0.00	0.00	59.00	5.01	2.37
9.00	0.73	0.00	0.00	60.00	5.01	2.37
10.00	0.91	0.01	0.00	61.00	5.01	2.37
11.00	1.20	0.06	0.00	62.00	5.01	2.37
12.00	2.39	0.55	0.03	63.00	5.01	2.37
13.00	3.81	1.46	0.01	64.00	5.01	2.37
14.00	4.10	1.67	0.01	65.00	5.01	2.37
15.00	4.28	1.80	0.00	66.00	5.01	2.37
16.00	4.41	1.90	0.00	67.00	5.01	2.37
17.00	4.52	1.99	0.00	68.00	5.01	2.37
18.00	4.61	2.06	0.00	69.00	5.01	2.37
19.00	4.69	2.12	0.00	70.00	5.01	2.37
20.00	4.76	2.18	0.00	71.00	5.01	2.37
21.00	4.83	2.23	0.00	72.00	5.01	2.37
22.00	4.90	2.28	0.00	72,00	0.01	
23.00	4.96	2.33	0.00			
24.00	5.01	2.37	0.00			
25.00	5.01	2.37	0.00			
26.00	5.01	2.37	0.00			
27.00	5.01	2.37	0.00			
28.00	5.01	2.37	0.00			
29.00	5.01	2.37	0.00			
30.00	5.01	2.37	0.00			
31.00	5.01	2.37	0.00			
32.00	5.01	2.37	0.00			
33.00	5.01	2.37	0.00			
34.00	5.01	2.37	0.00			
35.00	5.01	2.37	0.00			
36.00	5.01	2.37	0.00			
37.00	5.01	2.37	0.00			
38.00	5.01	2.37	0.00			
39.00	5.01	2.37	0.00			
40.00	5.01	2.37	0.00			
41.00	5.01	2.37	0.00			
42.00	5.01	2.37	0.00			
43.00	5.01	2.37	0.00			
44.00	5.01	2.37	0.00			
45.00	5.01	2.37	0.00			
46.00	5.01	2.37	0.00			
47.00	5.01	2.37	0.00			
48.00	5.01	2.37	0.00			
49.00	5.01	2.37	0.00			
50.00	5.01	2.37	0.00			
30.00	0.01	2.31	0.00			

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Summary for Subcatchment 22S: Drainage Area PR-2a (Impervious part of Drainage Area PR-2)

1.43 cfs @ 12.08 hrs, Volume= Runoff

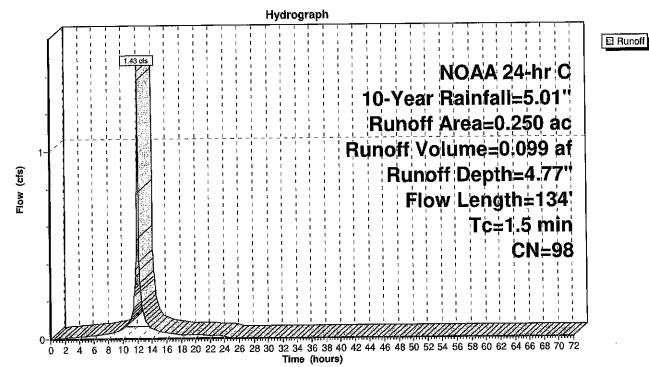
0.099 af, Depth= 4.77"

Routed to Pond 52P: Proposed Bioretention System #2

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

Area	(ac) C	N Desc	cription		A Marie
0	250 9	8 Pave	ed parking,	HSG C	
0.	250 9	8 100.	00% Impe	rvious Area	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0		0.0150	1.17	N	Sheet Flow,
0.5	62	0.0100	2.03		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	134	Total			

Subcatchment 22S: Drainage Area PR-2a (Impervious part of Drainage Area PR-2)



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Hydrograph for Subcatchment 22S: Drainage Area PR-2a (Impervious part of Drainage Area PR-2)

Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00 3.00	0.11	0.02	0.01
4.00	0.18 0.25	0.05	0.01
5.00	0.25	0.10 0.16	0.01
6.00	0.40	0.18	0.02 0.02
7.00	0.49	0.23	0.02
8.00	0.60	0.41	0.02
9.00	0.73	0.53	0.03
10.00	0.91	0.71	0.05
11.00	1.20	0.99	0.10
12.00	2.39	2.16	0.90
13.00	3.81	3.57	0.11
14.00	4.10	3.86	0.06
15.00	4.28	4.04	0.04
16.00	4.41	4.17	0.03
17.00	4.52	4.29	0.03
18.00 19.00	4.61	4.38	0.02
20.00	4.69 4.76	4.46 4.53	0.02
21.00	4.76	4.53 4.60	0.02 0.02
22.00	4.90	4.66	0.02
23.00	4.96	4.72	0.02
24.00	5.01	4.77	0.02
25.00	5.01	4.77	0.00
26.00	5.01	4.77	0.00
27.00	5.01	4.77	0.00
28.00	5.01	4.77	0.00
29.00	5.01	4.77	0.00
30.00	5.01	4.77	0.00
31.00	5.01	4.77	0.00
32.00	5.01	4.77	0.00
33.00	5.01	4.77	0.00
34.00 35.00	5.01	4.77	0.00
36.00	5.01 5.01	4.77 4.77	0.00 0.00
37.00	5.01	4.77	0.00
38.00	5.01	4.77	0.00
39.00	5.01	4.77	0.00
40.00	5.01	4.77	0.00
41.00	5.01	4.77	0.00
42.00	5.01	4.77	0.00
43.00	5.01	4.77	0.00
44.00	5.01	4.77	0.00
45.00	5.01	4.77	0.00
46.00	5.01	4.77	0.00
47.00	5.01	4.77	0.00
48.00	5.01	4.77	0.00
49.00 50.00	5.01 5.01	4.77	0.00
30.00	0.01	4.77	0.00
			ļ

	Time	Precip.	Excess	Runoff
ı	(hours)	(inches)	(inches)	(cfs)
I	51.00	5.01	4.77	0.00
I	52.00	5.01	4.77	0.00
I	53.00	5.01	4.77	0.00
I	54.00	5.01	4.77	0.00
l	55.00	5.01	4.77	0.00
l	56.00	5.01	4.77	0.00
Ì	57.00	5.01	4.77	0.00
l	58.00	5.01	4.77	0.00
l	59.00	5.01	4.77	0.00
l	60.00	5.01	4.77	0.00
l	61.00	5.01	4.77	0.00
l	62.00	5.01	4.77	0.00
l	63.00	5.01	4.77	0.00
ı	64.00	5.01	4.77	0.00
l	65.00	5.01	4.77	0.00
l	66.00	5.01	4.77	0.00
l	67.00	5.01	4.77	0.00
l	68.00	5.01	4.77	0.00
	69.00	5.01	4.77	0.00
	70.00	5.01	4.77	0.00
	71.00	5.01	4.77	0.00
	72.00	5.01	4.77	0.00

Prepared by Menlo Engineering Associates

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Summary for Subcatchment 23S: Drainage Area PR-2b (Pervious part of Drainage Area PR-2)

Runoff = 0.11 cfs @ 12.11 hrs, Volume=

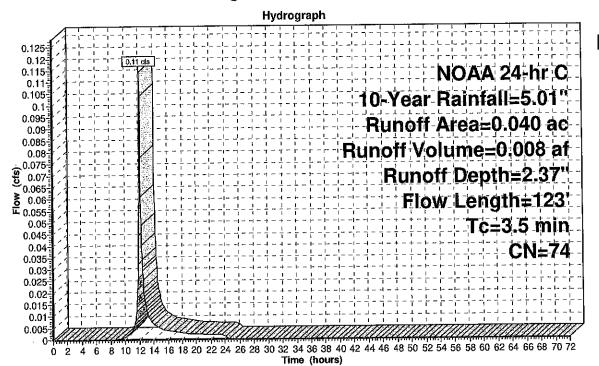
0.008 af, Depth= 2.37"

Routed to Pond 52P: Proposed Bioretention System #2

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

	Area	(ac) C	N Desc	cription		
_	0.	040 7	4 >759	% Grass co	over, Good	, HSG C
	0.	040 7	'4 100.	00% Pervi	ous Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
-	2.6	6	0.0050	0.04		Sheet Flow,
						Grass: Dense n= 0.240 P2= 3.35"
	0.2	6	0.0050	0.46		Sheet Flow,
	0.7	111	0.0150	2.49		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow,
_	0.5	400	Tatal			Paved Kv= 20.3 fps
	25	123	Total			

Subcatchment 23S: Drainage Area PR-2b (Pervious part of Drainage Area PR-2)



Runoff

Page 7

Runoff (cfs) 0.00

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Hydrograph for Subcatchment 23S: Drainage Area PR-2b (Pervious part of Drainage Area PR-2)

	J. 4. 10		Commont 200	or with the	ge Alea	1 11-20 (1	CI (
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	5.01	2.37	
1.00	0.05	0.00	0.00	52.00	5.01	2.37	
2.00	0.11	0.00	0.00	53.00	5.01	2.37	
3.00	0.18	0.00	0.00	54.00	5.01	2.37	
4.00	0.25	0.00	0.00	55.00	5.01	2.37	
5.00	0.32	0.00	0.00	56.00	5.01	2.37	
6.00	0.40	0.00	0.00	57.00	5.01	2.37	
7.00	0.49	0.00	0.00	58.00	5.01	2.37	
8.00	0.60	0.00	0.00	59.00	5.01	2.37	
9.00	0.73	0.00	0.00	60.00	5.01	2.37	
10.00	0.91	0.01	0.00	61.00	5.01	2.37	
11.00	1.20	0.06	0.00	62.00	5.01	2.37	
12.00	2.39	0.55	0.06	63.00	5.01	2.37	
13.00	3.81	1.46	0.01	64.00	5.01	2.37	
14.00	4.10	1.67	0.01	65.00	5.01	2.37	
15.00	4.28	1.80	0.00	66.00	5.01	2.37	
16.00	4.41	1.90	0.00	67.00	5.01	2.37	
17.00	4.52	1.99	0.00	68.00	5.01	2.37	
18.00	4.61	2.06	0.00	69.00	5.01	2.37	
19.00	4.69	2.12	0.00	70.00	5.01	2.37	
20.00	4.76	2.18	0.00	71.00	5.01	2.37	
21.00	4.83	2.23	0.00	72.00	5.01	2.37	
22.00 23.00	4.90	2.28	0.00				
24.00	4.96	2.33	0.00				
25.00 25.00	5.01	2.37	0.00				
26.00	5.01 5.01	2.37 2.37	0.00				
27.00	5.01	2.37 2.37	0.00 0.00				
28.00	5.01	2.37	0.00				
29.00	5.01	2.37	0.00				
30.00	5.01	2.37	0.00				
31.00	5.01	2.37	0.00				
32.00	5.01	2.37	0.00				
33.00	5.01	2.37	0.00				
34.00	5.01	2.37	0.00				
35.00	5.01	2.37	0.00				
36.00	5.01	2.37	0.00				
37.00	5.01	2.37	0.00				
38.00	5.01	2.37	0.00				
39.00	5.01	2.37	0.00				
40.00	5.01	2.37	0.00				
41.00	5.01	2.37	0.00				
42.00	5.01	2.37	0.00				
43.00	5.01	2.37	0.00				
44.00	5.01	2.37	0.00				
45.00	5.01	2.37	0.00				
46.00	5.01	2.37	0.00				
47.00	5.01	2.37	0.00				
48.00	5.01	2.37	0.00				
49.00	5.01	2.37	0.00				
50.00	5.01	2.37	0.00				

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Summary for Subcatchment 24S: Drainage Area PR-3a (Impervious part of Drainage Area PR-3)

Runoff

1.08 cfs @ 12.08 hrs, Volume=

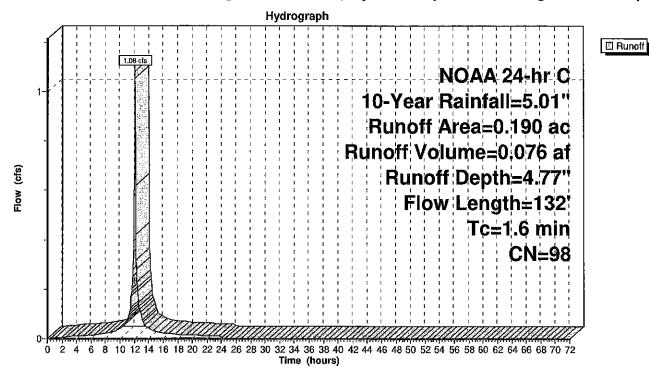
0.076 af, Depth= 4.77"

Routed to Pond 53P: Proposed Bioretention System #3

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

_	Area	(ac) C	N Des	cription					
	0.190 98 Paved parking, HSG C								
	0.	.190 9	98 100.	00% Impe	rvious Area				
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
-	1.1		0.0150	1.19	\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-	Sheet Flow,			
	0.5	56	0.0100	2.03		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps			
_	1.6	132	Total						

Subcatchment 24S: Drainage Area PR-3a (Impervious part of Drainage Area PR-3)



Runoff (cfs) 0.00

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Hydrograph for Subcatchment 24S: Drainage Area PR-3a (Impervious part of Drainage Area PR-3)

Time Precip. Excess Chours (inches) (inches) (inches) (cfs)								
0.00 0.00 0.00 51.00 5.01 4.77 2.00 0.11 0.02 0.01 53.00 5.01 4.77 3.00 0.18 0.05 0.01 54.00 5.01 4.77 3.00 0.18 0.05 0.01 55.00 5.01 4.77 5.00 0.32 0.16 0.01 56.00 5.01 4.77 6.00 0.40 0.23 0.01 57.00 5.01 4.77 6.00 0.49 0.31 0.02 58.00 5.01 4.77 7.00 0.49 0.31 0.02 58.00 5.01 4.77 9.00 0.73 0.53 0.03 60.00 5.01 4.77 10.00 0.91 0.71 0.04 61.00 5.01 4.77 11.00 1.20 0.99 0.07 62.00 5.01 4.77 12.00 2.39 2.16 0.68 63.00 5.01	Time	Precip.			Time			
1.00	(hours)			(cfs)				
2.00 0.11 0.02 0.01 53.00 5.01 4.77 3.00 0.18 0.05 0.01 54.00 5.01 4.77 4.00 0.25 0.10 0.01 55.00 5.01 4.77 5.00 0.32 0.16 0.01 55.00 5.01 4.77 6.00 0.40 0.23 0.01 57.00 5.01 4.77 7.00 0.49 0.31 0.02 58.00 5.01 4.77 9.00 0.60 0.41 0.02 59.00 5.01 4.77 10.00 0.91 0.71 0.04 61.00 5.01 4.77 11.00 1.20 0.99 0.07 62.00 5.01 4.77 12.00 2.39 2.16 0.68 63.00 5.01 4.77 13.00 3.81 3.57 0.09 64.00 5.01 4.77 14.00 4.10 3.86 0.04 65.00 5.01 4.77 15.00 4.28 4.04 0.03 66.00 5.01 4.77 17.00 4.52 4.29 0.02 67.00 5.01 4.77 18.00 4.61 4.38 0.02 69.00 5.01 4.77 19.00 4.69 4.46 0.01 70.00 5.01 4.77 21.00 4.83 4.60 0.01 70.00 5.01 4.77 22.00 4.90 4.66 0.01 72.00 5.01 4.77 22.00 4.90 4.66 0.01 72.00 5.01 4.77 22.00 4.77 0.00 3.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77 0.00 4.00 5.01 4.77								
3.00								
4.00 0.25 0.10 0.01 55.00 5.01 4.77 5.00 0.32 0.16 0.01 56.00 5.01 4.77 6.00 0.40 0.23 0.01 57.00 5.01 4.77 7.00 0.49 0.31 0.02 58.00 5.01 4.77 9.00 0.73 0.53 0.03 60.00 5.01 4.77 10.00 0.91 0.71 0.04 61.00 5.01 4.77 11.00 1.20 0.99 0.07 62.00 5.01 4.77 12.00 2.39 2.16 0.68 63.00 5.01 4.77 13.00 3.81 3.57 0.09 64.00 5.01 4.77 14.00 4.10 3.86 0.04 65.00 5.01 4.77 15.00 4.28 4.04 0.03 66.00 5.01 4.77 17.00 4.52 4.29 0.02 68.00 5.01 4.77 17.00 4.52 4.29 0.02 68.00 5.01 4.77 19.00 4.66 4.61 4.38 0.02 69.00 5.01 4.77 19.00 4.69 4.46 0.01 70.00 5.01 4.77 12.00 4.83 4.60 0.01 70.00 5.01 4.77 12.00 4.83 4.60 0.01 72.00 5.01 4.77 0.00 28.00 5.01 4.77 0.00 28.00 5.01 4.77 0.00 29.00								
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24.00 5.01 4.77 0.01 25.00 5.01 4.77 0.00 26.00 5.01 4.77 0.00 27.00 5.01 4.77 0.00 28.00 5.01 4.77 0.00 30.00 5.01 4.77 0.00 31.00 5.01 4.77 0.00 32.00 5.01 4.77 0.00 33.00 5.01 4.77 0.00 34.00 5.01 4.77 0.00 35.00 5.01 4.77 0.00 37.00 5.01 4.77 0.00 38.00 5.01 4.77 0.00 39.00 5.01 4.77 0.00 40.00 5.01 4.77 0.00 41.00 5.01 4.77 0.00 42.00 5.01 4.77 0.00 45.00 5.01 4.77 0.00 45.00 5.01 4.77 0.00 45.00 5.01 4.77 0.00 45.00	22.00	4.90						
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49.00 5.01 4.77 0.00								
50.00 5.01 4.77 0.00								
	50.00	5.01	4.77	0.00				

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Summary for Subcatchment 25S: Drainage Area PR-3b (Pervious part of Drainage Area PR-3)

Runoff = 0.09 cfs @ 1

0.09 cfs @ 12.16 hrs, Volume=

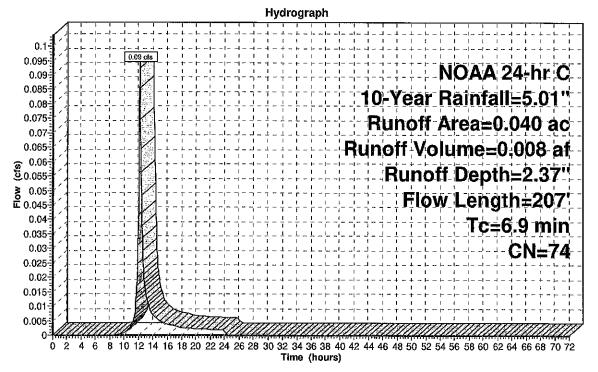
0.008 af, Depth= 2.37"

Routed to Pond 53P: Proposed Bioretention System #3

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

_	<u> Area</u>	<u>(ac) C</u>	N Des	cription			
	0.	040 7	74 >75°	% Grass c	over, Good	, HSG C	
_	0.	040 7	74 100.	00% Pervi	ous Area		
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
-	5.6	16	0.0050	0.05	(0.0)	Sheet Flow,	*****
	1.3	191	0.0140	2.40		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps	
-	6.9	207	Total				1941

Subcatchment 25S: Drainage Area PR-3b (Pervious part of Drainage Area PR-3)



■ Runoff

Runoff (cfs)

0.00

0.00

0.00 0.00

0.00

0.00

0.00

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0.00 0.00

0.00 0.00 Page 12

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Hydrograph for Subcatchment 25S: Drainage Area PR-3b (Pervious part of Drainage Area PR-3)

	•					
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	5.01	2.37
1.00	0.05	0.00	0.00	52.00	5.01	2.37
2.00	0.11	0.00	0.00	53.00	5.01	2.37
3.00	0.18	0.00	0.00	54.00	5.01	2.37
4.00	0.25	0.00	0.00	55.00	5.01	2.37
5.00	0.32	0.00	0.00	56.00	5.01	2.37
6.00	0.40	0.00	0.00	57.00	5.01	2.37
7.00	0.49	0.00	0.00	58.00	5.01	2.37
8.00	0.60	0.00	0.00	59.00	5.01	2.37
9.00	0.73	0.00	0.00	60.00	5.01	2.37
10.00	0.91	0.01	0.00	61.00	5.01	2.37
11.00	1.20	0.06	0.00	62.00	5.01	2.37
12.00	2.39	0.55	0.04	63.00	5.01	2.37
13.00	3.81	1.46	0.02	64.00	5.01	2.37
14.00	4.10	1.67	0.01	65.00	5.01	2.37
15.00	4.28	1.80	0.00	66.00	5.01	2.37
16.00	4.41	1.90	0.00	67.00	5.01	2.37
17.00	4.52	1.99	0.00	68.00	5.01	2.37
18.00	4.61	2.06	0.00	69.00	5.01	2.37
19.00	4.69	2.12	0.00	70.00	5.01	2.37
20.00	4.76	2.18	0.00	71.00	5.01	2.37
21.00	4.83	2.23	0.00	72.00	5.01	2.37
22.00	4.90	2.28	0.00			
23.00	4.96	2.33	0.00			
24.00	5.01	2.37	0.00			
25.00	5.01	2.37	0.00			
26.00	5.01	2.37	0.00			
27.00	5.01	2.37	0.00			
28.00	5.01	2.37	0.00			
29.00	5.01	2.37	0.00			
30.00	5.01	2.37	0.00			
31.00	5.01	2.37	0.00			
32.00	5.01	2.37	0.00			
33.00	5.01	2.37	0.00			
34.00	5.01	2.37	0.00			
35.00	5.01	2.37	0.00			
36.00	5.01	2.37	0.00			
37.00	5.01	2.37	0.00			
38.00	5.01	2.37	0.00			
39.00	5.01	2.37	0.00			
40.00	5.01	2.37	0.00			
41.00	5.01	2.37	0.00			
42.00	5.01	2.37	0.00			
43.00	5.01	2.37	0.00			
44.00	5.01	2.37	0.00			
45.00	5.01	2.37	0.00			
46.00	5.01	2.37	0.00			
47.00	5.01	2.37	0.00			
48.00	5.01	2.37	0.00			
49.00	5.01	2.37	0.00			
50.00	5.01	2.37	0.00			
				1		

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Summary for Subcatchment 26S: Drainage Area PR-4a (Impervious part of Drainage Area PR-4)

Runoff = 3.11 cfs @ 12.09 hrs, Volume=

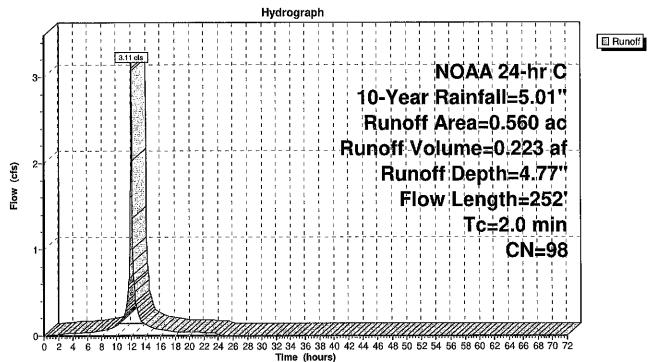
0.223 af, Depth= 4.77"

Routed to Pond 54P: Proposed Bioretention System #4

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

	Area	(ac) (N Des	cription				
				ed parking ofs, HSG C				
_	0.560 98 Weighted Average 0.560 98 100.00% Impervious Area							
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
	0.9	61	0.0150	1.14		Sheet Flow,		
	0.4	59	0.0150	2.49		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps		
	0.7	132	0.0030	3.12	3.83	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'		
_	20	252	Total			n= 0.012		

Subcatchment 26S: Drainage Area PR-4a (Impervious part of Drainage Area PR-4)



Runoff (cfs) 0.00 Page 14

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Hydrograph for Subcatchment 26S: Drainage Area PR-4a (Impervious part of Drainage Area PR-4)

				1		_	
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	5.01	4.77	
1.00	0.05	0.00	0.00	52.00	5.01	4.77	
2.00	0.11	0.02	0.02	53.00	5.01	4.77	
3.00	0.18	0.05	0.02	54.00	5.01	4.77	
4.00	0.25	0.10	0.03	55.00	5.01	4.77	
5.00	0.32	0.16	0.03	56.00	5.01	4.77	
6.00	0.40	0.23	0.04	57.00	5.01	4.77	
7.00	0.49	0.31	0.05	58.00	5.01	4.77	
8.00	0.60	0.41	0.06	59.00	5.01	4.77	
9.00	0.73	0.53	0.08	60.00	5.01	4.77	
10.00	0.91	0.71	0.12	61.00	5.01	4.77	
11.00	1.20	0.99	0.22	62.00	5.01	4.77	
12.00	2.39	2.16	1.92	63.00	5.01	4.77	
13.00	3.81	3.57	0.26	64.00	5.01	4.77	
14.00	4.10 4.28	3.86	0.13	65.00	5.01 5.01	4.77	
15.00		4.04	0.08	66.00	5.01	4.77 4.77	
16.00	4.41 4.52	4.17	0.07	67.00 68.00	5.01	4.77	
17.00 18.00	4.52 4.61	4.29 4.38	0.06 0.05	69.00	5.01	4.77	
19.00	4.69	4.36 4.46	0.03	70.00	5.01	4.77	
20.00	4.09	4.46	0.04	70.00	5.01	4.77	
21.00	4.70	4.60	0.04	71.00	5.01	4.77	
22.00	4.90	4.66	0.04	12.00	5.01	4.77	
23.00	4.96	4.72	0.03				
24.00	5.01	4.72	0.03				
25.00	5.01	4.77	0.00				
26.00	5.01	4.77	0.00				
27.00	5.01	4.77	0.00				
28.00	5.01	4.77	0.00				
29.00	5.01	4.77	0.00				
30.00	5.01	4.77	0.00				
31.00	5.01	4.77	0.00				
32.00	5.01	4.77	0.00				
33.00	5.01	4.77	0.00				
34.00	5.01	4.77	0.00				
35.00	5.01	4.77	0.00				
36.00	5.01	4.77	0.00	ı			
37.00	5.01	4.77	0.00				
38.00	5.01	4.77	0.00				
39.00	5.01	4.77	0.00	•			
40.00	5.01	4.77	0.00				
41.00	5.01	4.77	0.00				
42.00	5.01	4.77	0.00				
43.00	5.01	4.77	0.00				
44.00	5.01	4.77	0.00				
45.00	5.01	4.77	0.00				
46.00	5.01	4.77	0.00				
47.00	5.01	4.77	0.00				
48.00	5.01	4.77	0.00				
49.00	5.01	4.77	0.00				
50.00	5.01	4.77	0.00				

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Summary for Subcatchment 27S: Drainage Area PR-4b (Pervious part of Drainage Area PR-4)

Runoff =

0.35 cfs @ 12.16 hrs, Volume=

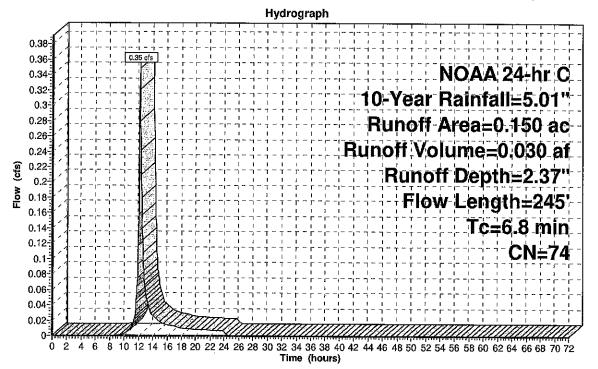
0.030 af, Depth= 2.37"

Routed to Pond 54P: Proposed Bioretention System #4

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

Area	(ac) C	N Des	cription		
0.	150	74 >75°	% Grass c	over, Good	, HSG C
0.	150	74 100.	00% Pervi	ous Area	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	21	0.0100	0.07		Sheet Flow,
0.8	92	0.0100	2.03		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.7	132	0.0030	3.12	3.83	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
6.8	245	Total	· · · · · · · · · · · · · · · · · · ·		n= 0.012

Subcatchment 27S: Drainage Area PR-4b (Pervious part of Drainage Area PR-4)





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Hydrograph for Subcatchment 27S: Drainage Area PR-4b (Pervious part of Drainage Area PR-4)

,	,			
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	<u>(</u> h
	0.00	0.00	0.00	7.
0.00			0.00	
1.00	0.05	0.00		
2.00	0.11	0.00	0.00	
3.00	0.18	0.00	0.00	
4.00	0.25	0.00	0.00	
5.00	0.32	0.00	0.00	
6.00	0.40	0.00	0.00	
7.00	0.49	0.00	0.00	
8.00	0.60	0.00	0.00	
9.00	0.73	0.00	0.00	
10.00	0.91	0.01	0.00	
11.00	1.20	0.06	0.01	
12.00	2.39	0.55	0.16	
13.00	3.81	1.46	0.06	
	4.10	1.67	0.03	
14.00		1.80	0.03	
15.00	4.28			
16.00	4.41	1.90	0.01	
17.00	4.52	1.99	0.01	
18.00	4.61	2.06	0.01	
19.00	4.69	2.12	0.01	
20.00	4.76	2.18	0.01	
21.00	4.83	2.23	0.01	
22.00	4.90	2.28	0.01	
23.00	4.96	2.33	0.01	
24.00	5.01	2.37	0.01	
25.00	5.01	2.37	0.00	
26.00	5.01	2.37	0.00	
27.00	5.01	2.37	0.00	
28.00	5.01	2.37	0.00	
29.00	5.01	2.37	0.00	
30.00	5.01	2.37	0.00	
31.00	5.01	2.37	0.00	
32.00	5.01	2.37	0.00	
	5.01	2.37	0.00	
33.00		2.37	0.00	
34.00	5.01	2.37		
35.00	5.01	2.37	0.00	
36.00	5.01	2.37	0.00	
37.00	5.01	2.37	0.00	
38.00	5.01	2.37	0.00	
39.00	5.01	2.37	0.00	
40.00	5.01	2.37	0.00	
41.00	5.01	2.37	0.00	
42.00	5.01	2.37	0.00	
43.00	5.01	2.37	0.00	
44.00	5.01	2.37	0.00	
45.00	5.01	2.37	0.00	
46.00	5.01	2.37	0.00	
47.00	5.01	2.37	0.00	
48.00	5.01	2.37	0.00	
	5.01	2.37	0.00	
49.00				
50.00	5.01	2.37	0.00	

	Donata	T	Dunaff
Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)
51.00	5.01	2.37	0.00
52.00	5.01	2.37	0.00
53.00	5.01	2.37	0.00
54.00	5.01	2.37	0.00
55.00	5.01	2.37	0.00
56.00	5.01	2.37	0.00
57.00	5.01	2.37	0.00
58.00	5.01	2.37	0.00
59.00	5.01	2.37	0.00
60.00	5.01	2.37	0.00
61.00	5.01	2.37	0.00
62.00	5.01	2.37	0.00
63.00	5.01	2.37	0.00
64.00	5.01	2.37	0.00
65.00	5.01	2.37	0.00
66.00	5.01	2.37	0.00
67.00	5.01	2.37	0.00
68.00	5.01	2.37	0.00
69.00	5.01	2.37	0.00
70.00	5.01	2.37	0.00
71.00	5.01	2.37	0.00
72.00	5.01	2.37	0.00
12.00	3.01	2.01	0.00

NOAA 24-hr C 10-Year Rainfall=5.01"

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Summary for Subcatchment 28S: Drainage Area PR-5a (Impervious part of Drainage Area PR-5)

Runoff =

1.19 cfs @ 12.09 hrs, Volume=

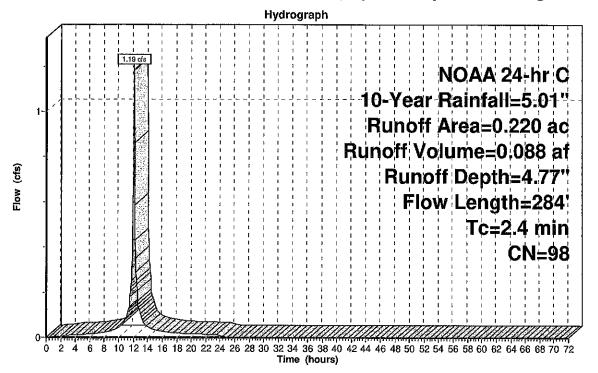
0.088 af, Depth= 4.77"

Routed to Pond 55P: Proposed Bioretention System #5

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

_	Area	(ac) C	N Des	cription		
_	0.	220 9	98 Pave	ed parking	, HSG C	
	0.	220	98 100.	00% Impe	rvious Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	1.1	79	0.0150	1.20		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.35"
	0.6	73	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
	0.7	132	0.0030	3.12	3.83	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
	2.4	284	Total			

Subcatchment 28S: Drainage Area PR-5a (Impervious part of Drainage Area PR-5)



□ Runoff

Runoff

(cfs)

0.00

0.00

0.00 0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00 0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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Hydrograph for Subcatchment 28S: Drainage Area PR-5a (Impervious part of Drainage Area PR-5)

,	- -			J		•
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	5.01	4.77
1.00	0.05	0.00	0.00	52.00	5.01	4.77
2.00	0.11	0.02	0.01	53.00	5.01	4.77
3.00	0.18	0.05	0.01	54.00	5.01	4.77
4.00	0.25	0.10	0.01	55.00	5.01	4.77
5.00	0.32	0.16	0.01	56.00	5.01	4.77
6.00	0.40	0.23	0.02	57.00	5.01	4.77
7.00	0.49	0.31	0.02	58.00	5.01	4.77
8.00	0.60	0.41	0.02	59.00	5.01	4.77
9.00	0.73	0.53	0.03	60.00	5.01	4.77
10.00	0.91	0.71	0.05	61.00	5.01	4.77
11.00	1.20	0.99	0.09	62.00	5.01	4.77
12.00	2.39	2.16	0.72	63.00	5.01	4.77
13.00	3.81	3.57	0.10	64.00	5.01	4.77
14.00	4.10	3.86	0.05	65.00	5.01	4.77
15.00	4.28	4.04	0.03	66.00	5.01	4.77
16.00	4.41	4.17	0.03	67.00	5.01	4.77
17.00	4.52	4.29	0.02	68.00	5.01	4.77
18.00	4.61	4.38	0.02	69.00	5.01	4.77
19.00	4.69	4.46	0.02	70.00	5.01	4.77
20.00	4.76	4.53	0.02	71.00	5.01	4.77
21.00	4.83	4.60	0.01	72.00	5.01	4.77
22.00	4.90	4.66	0.01			
23.00	4.96	4.72	0.01			
24.00	5.01	4.77	0.01			
25.00	5.01	4.77	0.00			
26.00	5.01	4.77	0.00			
27.00	5.01	4.77	0.00			
28.00	5.01	4.77	0.00			
29.00	5.01	4.77	0.00			
30.00	5.01	4.77	0.00			
31.00	5.01	4.77	0.00			
32.00	5.01	4.77	0.00			
33.00	5.01	4.77	0.00			
34.00	5.01	4.77	0.00			
35.00	5.01	4.77	0.00			
36.00	5.01	4.77	0.00			
37.00	5.01	4.77	0.00			
38.00	5.01	4.77	0.00			
39.00	5.01	4.77	0.00			
40.00	5.01	4.77	0.00			
41.00	5.01	4.77	0.00			
42.00	5.01	4.77	0.00			
43.00	5.01	4.77	0.00			
44.00	5.01	4.77	0.00			
45.00	5.01	4.77	0.00			
46.00	5.01	4.77	0.00			
47.00	5.01	4.77	0.00			
48.00	5.01	4.77	0.00			
49.00	5.01	4.77	0.00			
50.00	5.01	4.77	0.00			

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Summary for Subcatchment 29S: Drainage Area PR-5b (Pervious part of Drainage Area PR-5)

Runoff = 0.15 cfs @ 12.17 hrs, Volume=

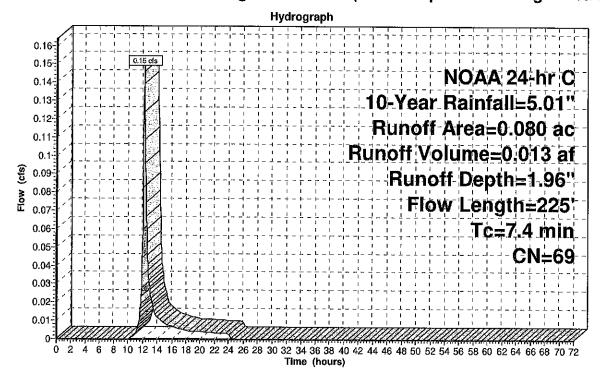
0.013 af, Depth= 1.96"

Routed to Pond 55P: Proposed Bioretention System #5

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

Area	(ac) (CN Des	cription		
				over, Good,	
0.	050	<u>74 >75</u>	% Grass co	over, Good,	HSG C
	080 080		ghted Aver .00% Pervi		
Tc (min)	Length (feet)	,	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	26	0.0100	0.07		Sheet Flow,
0.4	67	0.0150	2.49		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.7	132	0.0030	3.12	3.83	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
7.4	225	Total			

Subcatchment 29S: Drainage Area PR-5b (Pervious part of Drainage Area PR-5)



■ Runoff

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Hydrograph for Subcatchment 29S: Drainage Area PR-5b (Pervious part of Drainage Area PR-5)

	•			
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	<u>(</u> h
	0.00	0.00	0.00	7.
0.00			0.00	
1.00	0.05	0.00		
2.00	0.11	0.00	0.00	
3.00	0.18	0.00	0.00	
4.00	0.25	0.00	0.00	
5.00	0.32	0.00	0.00	
6.00	0.40	0.00	0.00	
7.00	0.49	0.00	0.00	
8.00	0.60	0.00	0.00	
9.00	0.73	0.00	0.00	
10.00	0.91	0.00	0.00	
11.00	1.20	0.02	0.00	
12.00	2.39	0.37	0.06	
	3.81	1.14	0.03	
13.00		1.33	0.01	
14.00	4.10		0.01	
15.00	4.28	1.45		
16.00	4.41	1.54	0.01	
17.00	4.52	1.62	0.01	
18.00	4.61	1.68	0.00	
19.00	4.69	1.74	0.00	
20.00	4.76	1.79	0.00	
21.00	4.83	1.84	0.00	
22.00	4.90	1.88	0.00	
23.00	4.96	1.92	0.00	
24.00	5.01	1.96	0.00	
25.00	5.01	1.96	0.00	
26.00	5.01	1.96	0.00	
27.00	5.01	1.96	0.00	
28.00	5.01	1.96	0.00	
29.00	5.01	1.96	0.00	
30.00	5.01	1.96	0.00	
31.00	5.01	1.96	0.00	
32.00		1.96	0.00	
	5.01	1.96	0.00	
33.00	5.01			
34.00	5.01	1.96	0.00	
35.00	5.01	1.96	0.00	
36.00	5.01	1.96	0.00	
37.00	5.01	1.96	0.00	
38.00	5.01	1.96	0.00	
39.00	5.01	1.96	0.00	
40.00	5.01	1.96	0.00	
41.00	5.01	1.96	0.00	
42.00	5.01	1.96	0.00	
43.00	5.01	1.96	0.00	
44.00	5.01	1.96	0.00	
45.00	5.01	1.96	0.00	
46.00	5.01	1.96	0.00	
47.00	5.01	1.96	0.00	
48.00	5.01	1.96	0.00	
49.00	5.01	1.96	0.00	
50.00	5.01	1.96	0.00	

Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)
51.00	5.01	1.96	0.00
52.00	5.01	1.96	0.00
53.00	5.01	1.96	0.00
54.00	5.01	1.96	0.00
55.00	5.01	1.96	0.00
56.00	5.01	1.96	0.00
57.00	5.01	1.96	0.00
58.00	5.01	1.96	0.00
59.00	5.01	1.96	0.00
60.00	5.01	1.96	0.00
61.00	5.01	1.96	0.00
62.00	5.01	1.96	0.00
63.00	5.01	1.96	0.00
64.00	5.01	1.96	0.00
65.00	5.01	1.96	0.00
66.00	5.01	1.96	0.00
67.00	5.01	1.96	0.00
68.00	5.01	1.96	0.00
69.00	5.01	1.96	0.00
70.00	5.01	1.96	0.00
71.00	5.01	1.96	0.00
72.00	5.01	1.96	0.00

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Summary for Subcatchment 30S: Drainage Area PR-6a (Impervious part of Drainage Area PR-6)

Runoff

3.2

562 Total

3.80 cfs @ 12.10 hrs, Volume=

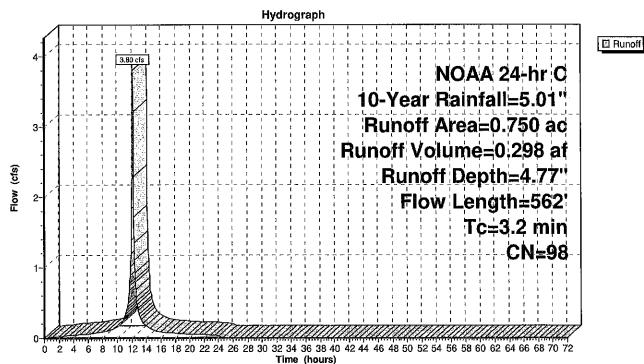
0.298 af, Depth= 4.77"

Routed to Pond 56P: Proposed Bioretention System #6

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

Area	(ac) C	N Des	cription		
 0.	500 9	8 Pave	ed parking,	HSG B	
0.	250 9	8 Roof	s, HSG B		
0.	750 9	8 Wei	hted Aver	age	
0.				vious Area	
Tc	Length	Slope	Velocity	Capacity	Description
 (min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	•
1.3	100	0.0150	1.25		Sheet Flow,
					Smooth surfaces n= 0.011 P2= 3.35"
0.5	79	0.0150	2.49		Shallow Concentrated Flow,
					Paved Kv= 20.3 fps
1.4	383	0.0050	4.55	8.05	Pipe Channel,
					18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38'
					n= 0.012

Subcatchment 30S: Drainage Area PR-6a (Impervious part of Drainage Area PR-6)



Runoff (cfs) 0.00

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Hydrograph for Subcatchment 30S: Drainage Area PR-6a (Impervious part of Drainage Area PR-6)

, ,	-			_		` •	
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	5.01	4.77	_
1.00	0.05	0.00	0.00	52.00	5.01	4.77	
2.00	0.11	0.02	0.02	53.00	5.01	4.77	
3.00	0.18	0.05	0.03	54.00	5.01	4.77	
4.00	0.25	0.10	0.04	55.00	5.01	4.77	
5.00	0.32	0.16	0.05	56.00	5.01	4.77	
6.00	0.40	0.23	0.05	57.00	5.01	4.77	
7.00	0.49	0.31	0.07	58.00	5.01	4.77	
8.00	0.60	0.41	80.0	59.00	5.01	4.77	
9.00	0.73	0.53	0.10	60.00	5.01	4.77	
10.00	0.91	0.71	0.16	61.00	5.01	4.77	
11.00	1.20	0.99	0.29	62.00	5.01	4.77	
12.00	2.39	2.16	2.30	63.00	5.01	4.77	
13.00	3.81	3.57	0.35	64.00	5.01	4.77	
14.00	4.10	3.86	0.17	65.00	5.01	4.77	
15.00	4.28	4.04	0.11	66.00	5.01	4.77	
16.00	4.41	4.17	0.09	67.00	5.01	4.77	
17.00	4.52	4.29	0.08	68.00	5.01	4.77	
18.00	4.61	4.38	0.06	69.00	5.01	4.77	
19.00	4.69	4.46	0.06	70.00	5.01	4.77	
20.00	4.76	4.53	0.05	71.00	5.01	4.77	
21.00	4.83	4.60	0.05	72.00	5.01	4.77	
22.00	4.90	4.66	0.05				
23.00	4.96	4.72	0.04				
24.00	5.01	4.77	0.05				
25.00	5.01	4.77	0.00				
26.00	5.01	4.77	0.00				
27.00	5.01	4.77	0.00				
28.00	5.01	4.77	0.00				
29.00 30.00	5.01 5.01	4.77 4.77	0.00 0.00				
31.00	5.01	4.77	0.00				
32.00	5.01	4.77	0.00				
33.00	5.01	4.77	0.00				
34.00	5.01	4.77	0.00				
35.00	5.01	4.77	0.00				
36.00	5.01	4.77	0.00				
37.00	5.01	4.77	0.00				
38.00	5.01	4.77	0.00				
39.00	5.01	4.77	0.00				
40.00	5.01	4.77	0.00				
41.00	5.01	4.77	0.00				
42.00	5.01	4.77	0.00				
43.00	5.01	4.77	0.00				
44.00	5.01	4.77	0.00				
45.00	5.01	4.77	0.00				
46.00	5.01	4.77	0.00				
47.00	5.01	4.77	0.00				
48.00	5.01	4.77	0.00				
49.00	5.01	4.77	0.00				
50.00	5.01	4.77	0.00				
				:			

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NOAA 24-hr C 10-Year Rainfall=5.01" Printed 8/29/2023

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Summary for Subcatchment 31S: Drainage Area PR-6b (Pervious part of Drainage Area PR-6)

Runoff =

0.50 cfs @ 12.30 hrs, Volume=

0.072 af, Depth= 1.24"

Routed to Pond 56P: Proposed Bioretention System #6

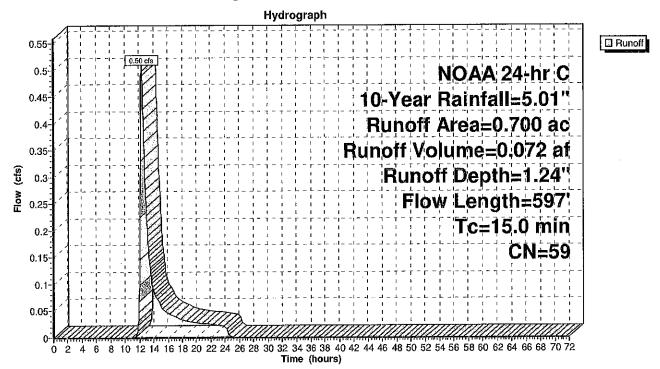
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

Area	(ac) C	N Desc	cription		
0	.020	74 >759	% Grass c	over, Good	, HSG C
				over, Good	, HSG B
0	.220	55 Woo	ds, Good,	HSG B	
			ghted Aver		
0	.700 !	59 100.	00% Pervi	ous Area	
Τ'n	Longth	Clana	Volocity	Consolty	Depositation
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	23	0.0050	0.03	(013)	Sheet Flow,
11.0	20	0.0050	0.03		Woods: Light underbrush n= 0.400 P2= 3.35"
0.2	12	0.0300	1.21		Shallow Concentrated Flow,
V.L	1	0.0000			Short Grass Pasture Kv= 7.0 fps
2.1	179	0.0050	1.44		Shallow Concentrated Flow,
•					Paved Kv= 20.3 fps
1.4	383	0.0050	4.55	8.05	Pipe Channel,
					18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38'
					n= 0.012
15.0	597	Total			

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Subcatchment 31S: Drainage Area PR-6b (Pervious part of Drainage Area PR-6)



Runoff (cfs) 0.00

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Hydrograph for Subcatchment 31S: Drainage Area PR-6b (Pervious part of Drainage Area PR-6)

	9				9		
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	5.01	1.24	
1.00	0.05	0.00	0.00	52.00	5.01	1.24	
2.00	0.11	0.00	0.00	53.00	5.01	1.24	
3.00	0.18	0.00	0.00	54.00	5.01	1.24	
4.00	0.25	0.00	0.00	55.00	5.01	1.24	
5.00	0.32	0.00	0.00	56.00	5.01	1.24	
6.00	0.40	0.00	0.00	57.00	5.01	1.24	
7.00	0.49	0.00	0.00	58.00	5.01	1.24	
8.00	0.60	0.00	0.00	59.00	5.01	1.24	
9.00	0.73	0.00	0.00	60.00	5.01	1.24	
10.00	0.91	0.00	0.00	61.00	5.01	1.24	
11.00	1.20	0.00	0.00	62.00	5.01	1.24	
12.00	2.39	0.13	0.10	63.00	5.01	1.24	
13.00	3.81	0.62	0.23	64.00	5.01	1.24	
14.00	4.10	0.76	0.09	65.00	5.01	1.24	
15.00	4.28	0.85	0.06	66.00	5.01	1.24	
16.00	4.41	0.91	0.05	67.00	5.01	1.24	
17.00	4.52	0.97	0.04	68.00	5.01	1.24	
18.00	4.61	1.02	0.03	69.00	5.01	1.24	
19.00	4.69	1.06	0.03	70.00	5.01	1.24	
20.00	4.76	1.10	0.03 0.03	71.00 72.00	5.01 5.01	1.24 1.24	
21.00 22.00	4.83 4.90	1.14 1.18	0.03	12.00	5.01	1.24	
23.00	4.96	1.18	0.02				
24.00	5.01	1.21 1.24	0.02	ı			
25.00	5.01	1.24	0.02				
26.00	5.01	1.24	0.00				
27.00	5.01	1.24	0.00				
28.00	5.01	1.24	0.00				
29.00	5.01	1,24	0.00				
30.00	5.01	1.24	0.00				
31.00	5.01	1.24	0.00				
32.00	5.01	1.24	0.00				
33.00	5.01	1.24	0.00				
34.00	5.01	1.24	0.00				
35.00	5.01	1.24	0.00				
36.00	5.01	1.24	0.00				
37.00	5.01	1.24	0.00				
38.00	5.01	1.24	0.00				
39.00	5.01	1.24	0.00				
40.00	5.01	1.24	0.00				
41.00	5.01	1.24	0.00				
42.00	5.01	1.24	0.00				
43.00	5.01	1.24	0.00				
44.00	5.01	1.24	0.00				
45.00	5.01	1.24	0.00				
46.00	5.01	1.24	0.00				
47.00	5.01	1.24	0.00				
48.00	5.01	1.24	0.00	•			
49.00	5.01	1.24	0.00				

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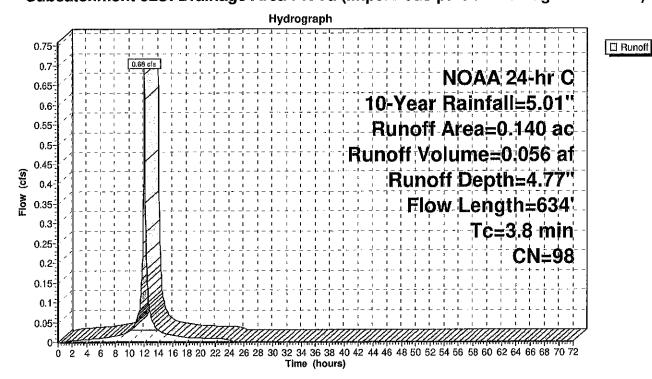
Summary for Subcatchment 32S: Drainage Area PR-7a (Impervious part of Drainage Area PR-7)

0.056 af, Depth= 4.77" 0.68 cfs @ 12.11 hrs, Volume= Runoff Routed to Link 64L: Drainage Area PR-7 (Undetained Runoff in pipes to P.O.I. "A")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

	Area	(ac) C	N Des	cription		
	0.	140 9	98 Pave	ed parking	, HSG C	
	0.	140 9	98 100.	00% Impe	rvious Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	0.8	30	0.0050	0.64		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.35"
	1.0	122	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
	2.0	482	0.0050	4.03	4.95	Pipe Channel, CMP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
_	3.8	634	Total			

Subcatchment 32S: Drainage Area PR-7a (Impervious part of Drainage Area PR-7)



Runoff

(cfs) 0.00

0.00

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Hydrograph for Subcatchment 32S: Drainage Area PR-7a (Impervious part of Drainage Area PR-7)

riyurogi	apri ioi	Subcate	illiscrit 525.	Dramay	e Alea i	ווייז גע קווו
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	5.01	4.77
1.00	0.05	0.00	0.00	52.00	5.01	4.77
2.00	0.11	0.02	0.00	53.00	5.01	4.77
3.00	0.18	0.05	0.01	54.00	5.01	4.77
4.00	0.25	0.10	0.01	55.00	5.01	4.77
5.00	0.32	0.16	0.01	56.00	5.01	4.77
6.00	0.40	0.23	0.01	57.00	5.01	4.77
7.00	0.49	0.31	0.01	58.00	5.01	4.77
8.00	0.60	0.41	0.02	59.00	5.01	4.77
9.00	0.73	0.53	0.02	60.00	5.01	4.77
10.00	0.91	0.71	0.03	61.00	5.01	4.77
11.00	1.20	0.99	0.05	62.00	5.01	4.77
12.00	2.39	2.16	0.41	63.00	5.01	4.77
13.00	3.81	3.57	0.07	64.00	5.01	4.77
14.00	4.10	3.86	0.03	65.00	5.01	4.77
15.00	4.28	4.04	0.02	66.00	5.01	4.77
16.00	4.41	4.17	0.02	67.00	5.01	4.77
17.00	4.52	4.29	0.01	68.00	5.01	4.77
18.00	4.61	4.38	0.01	69.00	5.01	4.77
19.00	4.69	4.46	0.01	70.00	5.01	4.77
20.00	4.76	4.53	0.01	71.00	5.01	4.77
21.00	4.83	4.60	0.01	72.00	5.01	4.77
22.00	4.90	4.66	0.01	i		
23.00	4.96	4.72	0.01			
24.00	5.01	4.77	0.01			
25.00	5.01	4.77	0.00			
26.00	5.01	4.77	0.00			
27.00	5.01	4.77	0.00			
28.00	5.01	4.77	0.00			
29.00	5.01	4.77	0.00			
30.00	5.01	4.77	0.00			
31.00	5.01	4.77	0.00			
32.00	5.01	4.77	0.00			
33.00	5.01 5.01	4.77 4.77	0.00 0.00			
34.00	5.01		0.00			
35.00		4.77 4.77	0.00			
36.00 37.00	5.01 5.01	4.77	0.00			
38.00	5.01	4.77	0.00			
39.00	5.01	4.77	0.00			
40.00	5.01	4.77	0.00			
41.00	5.01	4.77	0.00			
42.00	5.01	4.77	0.00			
43.00	5.01	4.77	0.00			
44.00	5.01	4.77	0.00			
45.00	5.01	4.77	0.00			
46.00	5.01	4.77	0.00			
47.00	5.01	4.77	0.00			
48.00	5.01	4.77	0.00			
49.00	5.01	4.77	0.00			
50.00	E 01	4.77	0.00	I		

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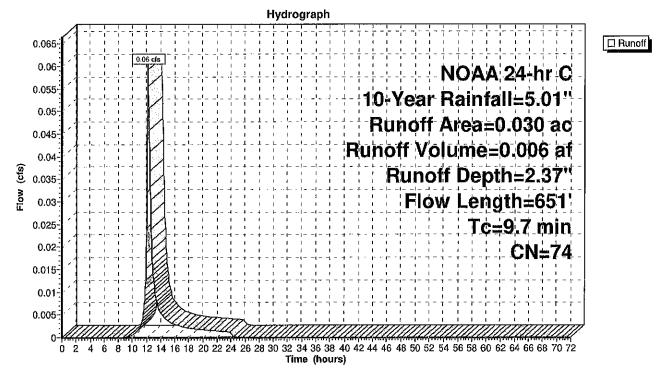
Summary for Subcatchment 33S: Drainage Area PR-7b (Pervious part of Drainage Area PR-7)

Runoff = 0.06 cfs @ 12.20 hrs, Volume= 0.006 af, Depth= 2.37" Routed to Link 64L: Drainage Area PR-7 (Undetained Runoff in pipes to P.O.I. "A")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

	Area	(ac) C	N Des	cription		
	0.	030 7	74 >75°	% Grass c	over, Good	, HSG C
	0.	030 7	⁷ 4 100.	00% Pervi	ous Area	
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	5.9	17	0.0050	0.05		Sheet Flow,
						Grass: Dense n= 0.240 P2= 3.35"
	8.0	30	0.0050	0.64		Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.35"
	1.0	122	0.0100	2.03		Shallow Concentrated Flow,
	2.0	482	0.0050	4.03	4.95	Paved Kv= 20.3 fps Pipe Channel, CMP_Round 15"
_						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
	97	651	Total			

Subcatchment 33S: Drainage Area PR-7b (Pervious part of Drainage Area PR-7)



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Hydrograph for Subcatchment 33S: Drainage Area PR-7b (Pervious part of Drainage Area PR-7)

	•		
Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.11	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.32	0.00	0.00
6.00	0.40	0.00	0.00
7.00	0.49	0.00	0.00
8.00	0.60	0.00	0.00
9.00	0.73	0.00	0.00
10.00	0.91	0.01	0.00
11.00	1.20	0.06	0.00
12.00	2.39	0.55	0.02
13.00	3.81	1.46	0.01
14.00	4.10	1.67	0.01
15.00	4.28	1.80	0.00
16.00	4.41	1.90	0.00
17.00	4.52	1.99	0.00
18.00	4.61	2.06	0.00
19.00	4.69	2.12	0.00
20.00	4.76	2.12	0.00
21.00	4.83	2.18	0.00
22.00	4.03	2.23	0.00
23.00	4.96	2.20	0.00
24.00	4.96 5.01		
		2.37	0.00
25.00 26.00	5.01	2.37	0.00
27.00	5.01 5.01	2.37 2.37	0.00 0.00
28.00		2.37 2.37	
	5.01		0.00
29.00	5.01	2.37	0.00
30.00	5.01	2.37	0.00
31.00	5.01	2.37	0.00
32.00	5.01	2.37	0.00
33.00	5.01	2.37	0.00
34.00	5.01	2.37	0.00
35.00	5.01	2.37	0.00
36.00	5.01	2.37	0.00
37.00	5.01	2.37	0.00
38.00	5.01	2.37	0.00
39.00	5.01	2.37	0.00
40.00	5.01	2.37	0.00
41.00	5.01	2.37	0.00
42.00	5.01	2.37	0.00
43.00	5.01	2.37	0.00
44.00	5.01	2.37	0.00
45.00	5.01	2.37	0.00
46.00	5.01	2.37	0.00
47.00	5.01	2.37	0.00
48.00	5.01	2.37	0.00
49.00	5.01	2.37	0.00
50.00	5.01	2.37	0.00
			l

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
51.00	5.01	2.37	0.00
52.00	5.01	2.37	0.00
53.00	5.01	2.37	0.00
54.00	5.01	2.37	0.00
55.00	5.01	2.37	0.00
56.00	5.01	2.37	0.00
57.00	5.01	2.37	0.00
58.00	5.01	2.37	0.00
59.00	5.01	2.37	0.00
60.00	5.01	2.37	0.00
61.00	5.01	2.37	0.00
62.00	5.01	2.37	0.00
63.00	5.01	2.37	0.00
64.00	5.01	2.37	0.00
65.00	5.01	2.37	0.00
66.00	5.01	2.37	0.00
67.00	5.01	2.37	0.00
68.00	5.01	2.37	0.00
69.00	5.01	2.37	0.00
70.00	5.01	2.37	0.00
71.00	5.01	2.37	0.00
72.00	5.01	2.37	0.00

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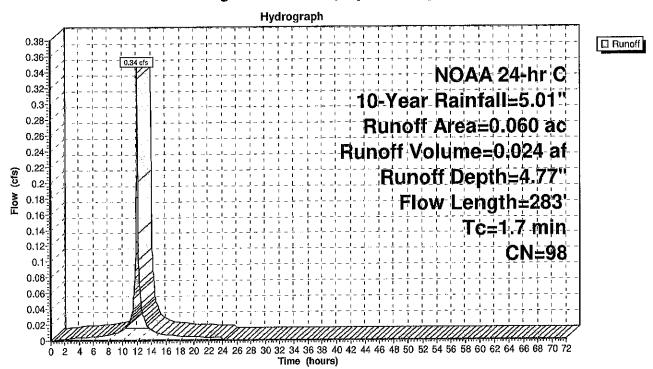
Summary for Subcatchment 34S: Drainage Area PR-8a (Impervious part of Drainage Area PR-8)

Runoff = 0.34 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 4.77" Routed to Link 65L: Drainage Area PR-8 (Overland Runoff to P.O.I. "A")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

Area	(ac) C	N Desc	cription	 *	
. 0.	060 9	8 Pave	d parking,	HSG C	
0.	060 9	8 100.	00% Impe	rvious Area	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	17	0.0400	1.30		Sheet Flow,
1.5	266	0.0200	2.87		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.7	283	Total			

Subcatchment 34S: Drainage Area PR-8a (Impervious part of Drainage Area PR-8)



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Hydrograph for Subcatchment 34S: Drainage Area PR-8a (Impervious part of Drainage Area PR-8)

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Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.11	0.02	0.00
3.00	0.18	0.05	0.00
4.00	0.25	0.10	0.00
5.00	0.32	0.16	0.00
6.00	0.40	0.23	0.00
7.00	0.49	0.31	0.01
8.00	0.60	0.41	0.01
9.00	0.73	0.53	0.01
10.00	0.91	0.71	0.01
11.00	1.20	0.99	0.02
12.00	2.39	2.16	0.21
13.00	3.81	3.57	0.03
14.00	4.10	3.86	0.01
15.00	4.28	4.04	0.01
16.00	4.41	4.17	0.01
17.00	4.52	4.29	0.01
18.00	4.61	4.38	0.00
19.00	4.69	4.46	0.00
20.00	4.76	4.53	0.00
21.00	4.83	4.60	0.00
22.00	4.90	4.66	0.00
23.00	4.96	4.72	0.00
24.00	5.01	4.77	0.00
25.00	5.01	4.77	0.00
26.00	5.01	4.77	0.00
27.00	5.01	4.77	0.00
28.00	5.01	4.77	0.00
29.00	5.01	4.77	0.00
30.00	5.01	4.77	0.00
31.00	5.01	4.77	0.00
32.00	5.01	4.77	0.00
33.00	5.01	4.77	0.00
34.00	5.01	4.77	0.00
35.00	5.01	4.77	0.00
36.00	5.01	4.77	0.00
37.00	5.01	4.77	0.00
38.00	5.01	4.77	0.00
39.00	5.01	4.77	0.00
40.00	5.01	4.77	0.00
41.00	5.01	4.77	0.00
42.00	5.01	4.77	0.00
43.00	5.01	4.77	0.00
44.00	5.01	4.77	0.00
45.00	5.01	4.77	0.00
46.00	5.01	4.77	0.00
47.00	5.01	4.77	0.00
48.00	5.01	4.77	0.00
49.00	5.01	4.77	0.00
50.00	5.01	4.77	0.00

Time (hours) 51.00 52.00 53.00 54.00 55.00	Precip. (inches) 5.01 5.01 5.01 5.01 5.01	Excess (inches) 4.77 4.77 4.77 4.77 4.77	Runoff (cfs) 0.00 0.00 0.00 0.00 0.00
57.00 58.00 59.00 60.00 61.00 62.00 63.00 64.00 65.00 66.00	5.01 5.01 5.01 5.01 5.01 5.01 5.01 5.01	4.77 4.77 4.77 4.77 4.77 4.77 4.77 4.77	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0
67.00 68.00 69.00 70.00 71.00 72.00	5.01 5.01 5.01 5.01 5.01 5.01	4.77 4.77 4.77 4.77 4.77 4.77	0.00 0.00 0.00 0.00 0.00 0.00

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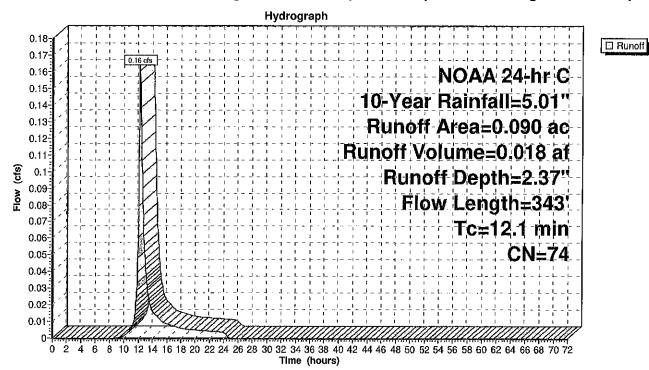
Summary for Subcatchment 35S: Drainage Area PR-8b (Pervious part of Drainage Area PR-8)

Runoff = 0.16 cfs @ 12.22 hrs, Volume= 0.018 af, Depth= 2.37" Routed to Link 65L: Drainage Area PR-8 (Overland Runoff to P.O.I. "A")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

	Area	(ac) C	N Des	cription			
	0.	.090 7	⁷ 4 >75°	% Grass c	over, Good	, HSG C	
•	0.	.090 7	⁷ 4 100.	00% Pervi	ous Area		
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
	10.4	49	0.0100	0.08	, ,	Sheet Flow,	-
	1.7	294	0.0200	2.87		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps	
•	12.1	343	Total				

Subcatchment 35S: Drainage Area PR-8b (Pervious part of Drainage Area PR-8)



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Hydrograph for Subcatchment 35S: Drainage Area PR-8b (Pervious part of Drainage Area PR-8)

Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.11	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.32	0.00	0.00
6.00	0.40	0.00	0.00
7.00	0.49 0.60	0.00	0.00
8.00 9.00	0.80	0.00 0.00	0.00 0.00
10.00	0.73	0.00	0.00
11.00	1.20	0.06	0.00
12.00	2.39	0.55	0.06
13.00	3.81	1.46	0.04
14.00	4.10	1.67	0.02
15.00	4.28	1.80	0.02
16.00	4.41	1.90	0.01
17.00	4.52	1.99	0.01
18.00	4.61	2.06	0.01
19.00	4.69	2.12	0.01
20.00	4.76	2.18	0.01
21.00	4.83	2.23	0.00
22.00	4.90	2.28	0.00
23.00	4.96	2.33	0.00
24.00	5.01	2.37	0.00
25.00	5.01	2.37	0.00
26.00	5.01	2.37	0.00
27.00	5.01	2.37	0.00
28.00	5.01	2.37	0.00
29.00	5.01	2.37	0.00
30.00	5.01	2.37	0.00
31.00	5.01	2.37	0.00
32.00	5.01	2.37	0.00
33.00	5.01	2.37	0.00
34.00	5.01	2.37	0.00
35.00	5.01	2.37	0.00
36.00	5.01	2.37	0.00
37.00	5.01	2.37	0.00
38.00	5.01	2.37	0.00
39.00	5.01	2.37	0.00
40.00 41.00	5.01 5.01	2.37	0.00
42.00	5.01 5.01	2.37 2.37	0.00
43.00	5.01	2.37 2.37	0.00
44.00	5.01	2.37	0.00
45.00	5.01	2.37	0.00
46.00	5.01	2.37	0.00
47.00	5.01	2.37	0.00
48.00	5.01	2.37	0.00
49.00	5.01	2.37	0.00
50.00	5.01	2.37	0.00

Time (hours) 51.00 52.00 53.00 54.00 55.00	Precip. (inches) 5.01 5.01 5.01 5.01 5.01	Excess (inches) 2.37 2.37 2.37 2.37 2.37 2.37	Runoff (cfs) 0.00 0.00 0.00 0.00 0.00
59.00 60.00 61.00 62.00 63.00 64.00 65.00 67.00 68.00 70.00 71.00 72.00	5.01 5.01 5.01 5.01 5.01 5.01 5.01 5.01	2.37 2.37 2.37 2.37 2.37 2.37 2.37 2.37	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0

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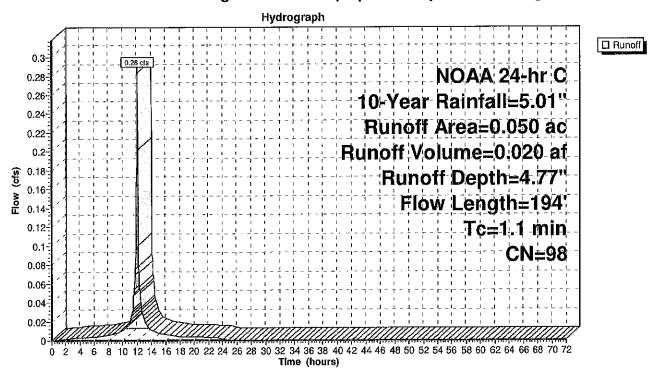
Summary for Subcatchment 36S: Drainage Area PR-9a (Impervious part of Drainage Area PR-9)

Runoff = 0.28 cfs @ 12.07 hrs, Volume= 0.020 af, Depth= 4.77" Routed to Link 63L: Drainage Area PR-10 (Overland Runoff to P.O.I. "B")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

Area	(ac) C	N Desc	cription		
0.	.050 9	8 Pave	ed parking	HSG C	
0.	.050 9	8 100.	00% Impe	rvious Area	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	18	0.0250	1.09		Sheet Flow,
8.0	176	0.0340	3.74		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
11	194	Total			

Subcatchment 36S: Drainage Area PR-9a (Impervious part of Drainage Area PR-9)



Runoff

(cfs)

0.00

0.00

0.00

0.00

0.00 0.00

0.00 0.00

0.00

0.00

0.00

0.00 0.00

0.00

0.00 0.00

0.00

0.00

0.00

0.00

0.00

0.00

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Hydrograph for Subcatchment 36S: Drainage Area PR-9a (Impervious part of Drainage Area PR-9)

,						
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	5.01	4.77
1.00	0.05	0.00	0.00	52.00	5.01	4.77
2.00	0.11	0.02	0.00	53.00	5.01	4.77
3.00	0.18	0.05	0.00	54.00	5.01	4.77
4.00	0.25	0.10	0.00	55.00	5.01	4.77
5.00	0.32	0.16	0.00	56.00	5.01	4.77
6.00	0.40	0.23	0.00	57.00	5.01	4.77
7.00	0.49	0.31	0.00	58.00	5.01	4.77
8.00	0.60	0.41	0.01	59.00	5.01	4.77
9.00	0.73	0.53	0.01	60.00	5.01	4.77
10.00	0.91	0.71	0.01	61.00	5.01	4.77
11.00	1.20	0.99	0.02	62.00	5.01	4.77
12.00	2.39	2.16	0.19	63.00	5.01	4.77
13.00	3.81	3.57	0.02	64.00	5.01	4.77
14.00	4.10	3.86	0.01	65.00	5.01	4.77
15.00	4.28	4.04	0.01	66.00	5.01	4.77
16.00	4.41	4.17	0.01	67.00	5.01	4.77
17.00	4.52	4.29	0.01	68.00	5.01	4.77
18.00	4.61	4.38	0.00	69.00	5.01	4.77
19.00	4.69	4.46	0.00	70.00	5.01	4.77
20.00	4.76	4.53	0.00	71.00	5.01	4.77
21.00	4.83	4.60	0.00	72.00	5.01	4.77
22.00	4.90	4.66	0.00			
23.00	4.96	4.72	0.00			
24.00	5.01	4.77	0.00			
25.00	5.01	4.77	0.00			
26.00	5.01	4.77	0.00			
27.00	5.01	4.77	0.00			
28.00	5.01	4.77	0.00			
29.00	5.01	4.77	0.00			
30.00	5.01	4.77	0.00			
31.00	5.01	4.77	0.00			
32.00	5.01	4.77	0.00			
33.00	5.01	4.77	0.00			
34.00	5.01	4.77	0.00			
35.00	5.01	4.77	0.00			
36.00	5.01	4.77	0.00			
37.00	5.01	4.77	0.00			
38.00	5.01	4.77	0.00			
39.00	5.01	4.77	0.00			
40.00	5.01	4.77	0.00			
41.00	5.01	4.77	0.00			
42.00	5.01	4.77	0.00			
43.00	5.01	4.77	0.00			
44.00	5.01	4.77	0.00			
45.00	5.01	4.77	0.00			
46.00	5.01	4.77	0.00			
47.00	5.01	4.77	0.00			
48.00	5.01	4.77	0.00			
49.00	5.01	4.77	0.00			
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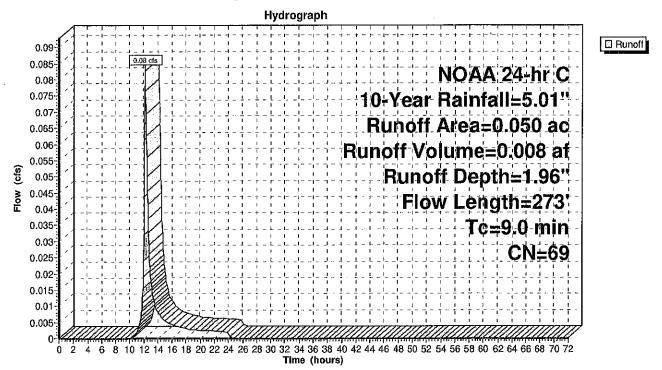
Summary for Subcatchment 37S: Drainage Area PR-9b (Pervious part of Drainage Area PR-9)

Runoff = 0.08 cfs @ 12.19 hrs, Volume= 0.008 af, Depth= 1.96" Routed to Link 63L: Drainage Area PR-10 (Overland Runoff to P.O.I. "B")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 10-Year Rainfall=5.01"

	Area	(ac) C	ON Des	cription		
•	0.	020	61 >75°	% Grass c	over, Good,	HSG B
	0.	030	74 >75°	% Grass c	over, Good,	HSG C
	0.	050	69 Wei	ghted Aver	age	
	0.	050	69 100.	00% Pervi	ous Area	
	Tc	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	7.6	18	0.0030	0.04		Sheet Flow,
						Grass: Dense n= 0.240 P2= 3.35"
	0.2	6	0.0050	0.46		Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.35"
	1.2	249	0.0280	3.40		Shallow Concentrated Flow,
						Paved Kv= 20.3 fps
-	9.0	273	Total			

Subcatchment 37S: Drainage Area PR-9b (Pervious part of Drainage Area PR-9)



Runoff

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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Hydrograph for Subcatchment 37S: Drainage Area PR-9b (Pervious part of Drainage Area PR-9)

,	9. 5.				9	
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	5.01	1.96
1.00	0.05	0.00	0.00	52.00	5.01	1.96
2.00	0.11	0.00	0.00	53.00	5.01	1.96
3.00	0.18	0.00	0.00	54.00	5.01	1.96
4.00	0.25	0.00	0.00	55.00	5.01	1.96
5.00	0.32	0.00	0.00	56.00	5.01	1.96
6.00	0.40	0.00	0.00	57.00	5.01	1.96
7.00	0.49	0.00	0.00	58.00	5.01	1.96
8.00	0.60	0.00	0.00	59.00	5.01	1.96
9.00	0.73	0.00	0.00	60.00	5.01	1.96
10.00	0.91	0.00	0.00	61.00	5.01	1.96
11.00	1.20	0.02	0.00	62.00	5.01	1.96
12.00	2.39	0.37	0.03	63.00	5.01	1.96
13.00	3.81	1.14	0.02	64.00	5.01	1.96
14.00	4.10	1.33	0.01	65.00	5.01	1.96
15.00	4.28	1.45	0.01	66.00	5.01	1.96
16.00	4.41	1.54	0.00	67.00	5.01	1.96
17.00	4.52	1.62	0.00	68.00	5.01	1.96
18.00	4.61	1.68	0.00	69.00	5.01	1.96
19.00	4.69	1.74	0.00	70.00	5.01	1.96
20.00	4.76	1.79	0.00	71.00	5.01	1.96
21.00	4.83	1.84	0.00	72.00	5.01	1.96
22.00	4.90	1.88	0.00			
23.00	4.96	1.92	0.00			
24.00	5.01	1.96	0.00			
25.00	5.01	1.96	0.00			
26.00	5.01	1.96	0.00			
27.00	5.01	1.96	0.00			
28.00	5.01	1.96	0.00			
29.00	5.01	1.96	0.00			
30.00	5.01	1.96	0.00			
31.00	5.01	1.96	0.00			
32.00	5.01	1.96	0.00			
33.00	5.01	1.96	0.00			
34.00	5.01	1.96	0.00			
35.00	5.01	1.96	0.00			
36.00	5.01	1.96	0.00			
37.00	5.01	1.96	0.00			
38.00	5.01	1.96	0.00			
39.00	5.01	1.96	0.00			
40.00	5.01	1.96	0.00			
41.00	5.01	1.96	0.00			
42.00	5.01	1.96	0.00			
43.00	5.01	1.96	0.00			
44.00	5.01	1.96	0.00			
45.00	5.01	1.96	0.00			
46.00	5.01	1.96	0.00			
47.00	5.01	1.96	0.00			
48.00	5.01	1.96	0.00			
49.00	5.01	1.96	0.00			

50.00

5.01

1.96

0.00

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Summary for Link 61L: Total to P.O.I. "A"

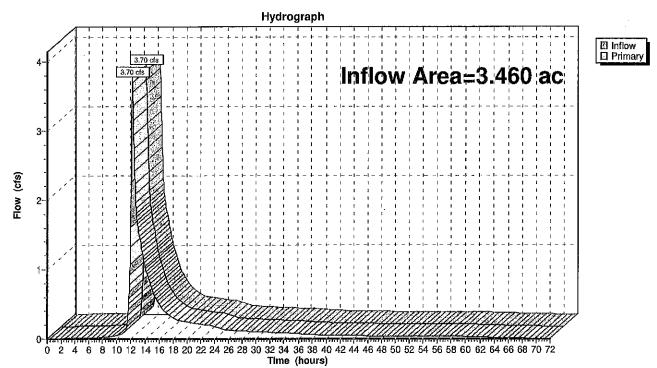
Inflow Area = 3.460 ac, 66.47% Impervious, Inflow Depth > 3.05" for 10-Year event

Inflow = 3.70 cfs @ 12.19 hrs, Volume= 0.880 af

Primary = 3.70 cfs @ 12.19 hrs, Volume= 0.880 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 61L: Total to P.O.I. "A"



Primary (cfs) 0.04 0.04 0.04 0.04 0.04 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.02 0.02 0.01 0.01 0.01 0.01 0.01 0.00 0.00 0.00

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Hydrograph for Link 61L: Total to P.O.I. "A"

			9			· · · · · · · · · · · · · · · · · · ·
Time	Inflow	Elevation	Primary	Time	Inflow	Elevation
(hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)	(feet)
0.00	0.00	0.00	0.00	51.00	0.04	0.00
1.00	0.00	0.00	0.00	52.00	0.04	0.00
2.00	0.01	0.00	0.01	53.00	0.04	0.00
3.00	0.01	0.00	0.01	54.00	0.04	0.00
4.00	0.01	0.00	0.01	55.00	0.04	0.00
5.00	0.01	0.00	0.01	56.00	0.03	0.00
6.00	0.01	0.00	0.01	57.00	0.03	0.00
7.00	0.02	0.00	0.02	58.00	0.03	0.00
8.00	0.02	0.00	0.02	59.00	0.03	0.00
9.00	0.03	0.00	0.03	60.00	0.03	0.00
10.00	0.04	0.00	0.04	61.00	0.03	0.00
11.00	0.08	0.00	0.08	62.00	0.03	0.00
12.00	1.61	0.00	1.61	63.00	0.02	0.00
13.00	1.63	0.00	1.63	64.00	0.02	0.00
14.00	1.07	0.00	1.07	65.00	0.01	0.00
15.00	0.72	0.00	0.72	66.00	0.01	0.00
16.00	0.50	0.00	0.50	67.00	0.01	0.00
17.00	0.38	0.00	0.38	68.00	0.01	0.00
18.00	0.31	0.00	0.31	69.00	0.01	0.00
19.00	0.26	0.00	0.26	70.00	0.00	0.00
20.00	0.24	0.00	0.24	71.00	0.00	0.00
21.00	0.23	0.00	0.23	72.00	0.00	0.00
22.00	0.22	0.00	0.22			0.00
23.00	0.20	0.00	0.20			
24.00	0.20	0.00	0.20			
25.00	0.14	0.00	0.14			
26.00	0.13	0.00	0.13			
27.00	0.12	0.00	0.12			
28.00	0.11	0.00	0.11			
29.00	0.11	0.00	0.11			
30.00	0.10	0.00	0.10			
31.00	0.10	0.00	0.10			
32.00	0.10	0.00	0.10			
33.00	0.09	0.00	0.09			
34.00	0.09	0.00	0.09			
35.00	0.09	0.00	0.09			
36.00	0.07	0.00	0.07			
37.00	0.06	0.00	0.06			
38.00	0.06	0.00	0.06			
39.00	0.06	0.00	0.06			
40.00	0.05	0.00	0.05			
41.00	0.05	0.00	0.05			
42.00	0.05	0.00	0.05			
43.00	0.05	0.00	0.05			
44.00	0.05	0.00	0.05			
45.00	0.04	0.00	0.04			
46.00	0.04	0.00	0.04			
47.00	0.04	0.00	0.04			
48.00	0.04	0.00	0.04			
49.00	0.04	0.00	0.04			
50.00	0.04	0.00	0.04			

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Summary for Link 62L: Total to P.O.I. "B"

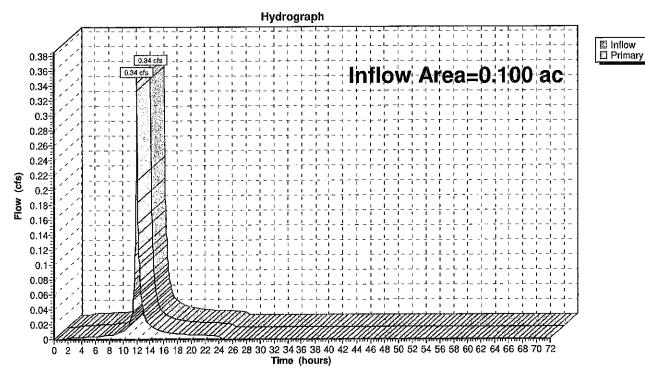
Inflow Area = 0.100 ac, 50.00% Impervious, Inflow Depth = 3.37" for 10-Year event

Inflow = 0.34 cfs @ 12.08 hrs, Volume= 0.028 af

Primary = 0.34 cfs @ 12.08 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 62L: Total to P.O.I. "B"



Primary

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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0.00

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Hydrograph for Link 62L: Total to P.O.I. "B"

Elevation

(feet)

0.00

0.00

0.00

0.00

0.00

0.00

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0.00

0.00

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0.00

			, u. o g. u.p		
Time	Inflow	Elevation	Primary	Time	Inflow
(hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)
0.00	0.00	0.00	0.00	51.00	0.00
1.00	0.00	0.00	0.00	52.00	0.00
2.00	0.00	0.00	0.00	53.00	0.00
3.00	0.00	0.00	0.00	54.00	0.00
4.00	0.00	0.00	0.00	55.00	0.00
5.00	0.00	0.00	0.00	56.00	0.00
6.00	0.00	0.00	0.00	57.00	0.00
7.00	0.00	0.00	0.00	58.00	0.00
8.00	0.01	0.00	0.01	59.00	0.00
9.00	0.01	0.00	0.01	60.00	0.00
10.00	0.01	0.00	0.01	61.00	0.00
11.00	0.02	0.00	0.02	62.00	0.00
12.00	0.22	0.00	0.22	63.00	0.00
13.00	0.04	0.00	0.04	64.00	0.00
14.00	0.02	0.00	0.02	65.00	0.00
15.00	0.01	0.00	0.01	66.00	0.00
16.00	0.01	0.00	0.01	67.00	0.00
17.00	0.01	0.00	0.01	68.00	0.00
18.00	0.01	0.00	0.01	69.00	0.00
19.00	0.01	0.00	0.01	70.00	0.00
20.00	0.01	0.00	0.01	71.00	0.00
21.00	0.01	0.00	0.01	72.00	0.00
22.00	0.01	0.00	0.01 0.00		
23.00 24.00	0.00	0.00 0.00	0.00		
25.00	0.00	0.00	0.00		
26.00	0.00	0.00	0.00		
27.00	0.00	0.00	0.00		
28.00	0.00	0.00	0.00		
29.00	0.00	0.00	0.00		
30.00	0.00	0.00	0.00		
31.00	0.00	0.00	0.00		
32.00	0.00	0.00	0.00		
33.00	0.00	0.00	0.00		
34.00	0.00	0.00	0.00		
35.00	0.00	0.00	0.00		
36.00	0.00	0.00	0.00		
37.00	0.00	0.00	0.00		
38.00	0.00	0.00	0.00		
39.00	0.00	0.00	0.00		
40.00	0.00	0.00	0.00		
41.00	0.00	0.00	0.00		
42.00	0.00	0.00	0.00		
43.00	0.00	0.00	0.00		
44.00	0.00	0.00	0.00		
45.00	0.00	0.00	0.00		
46.00	0.00	0.00	0.00		
47.00	0.00	0.00	0.00		
48.00	0.00	0.00	0.00		
49.00	0.00	0.00	0.00		
EU 00	0.00	ለ ለለ	20 00		

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100 YEAR STORM

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"28.33" | DAA 24-nr C 100-Year Haintail=8 | Printed 8/29/2023

Page 1

Summary for Subcatchment 20S: Drainage Area PR-1a (Impervious part of Drainage Area PR-1)

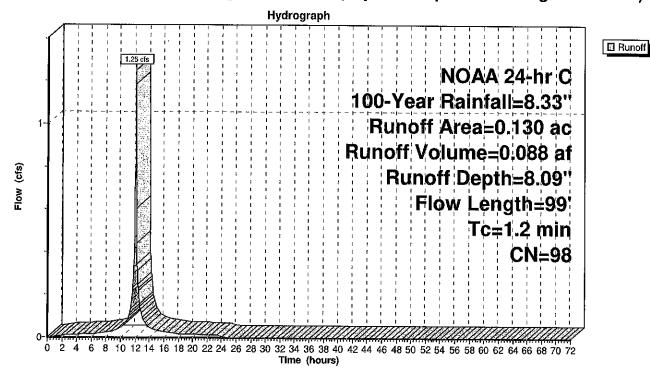
Runoff = 1.25 cfs @ 12.08 hrs, Volume= Routed to Pond 51P : Proposed Bioretention System #1

0.088 af, Depth= 8.09"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

_	Area	(ac) C	N Des	cription						
				ed parking						
0.050 98 Roofs, HSG C 0.130 98 Weighted Average										
	0.130 98 100.00% Impervious Area									
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
	0.8	54	0.0150	1.11		Sheet Flow,				
_	0.4	45	0.0100	2.03		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps				
	1.2	99	Total							

Subcatchment 20S: Drainage Area PR-1a (Impervious part of Drainage Area PR-1)



Runoff

(cfs)

0.00

0.00 0.00

0.00

0.00

0.00

0.00

0.00

0.00

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Hydrograph for Subcatchment 20S: Drainage Area PR-1a (Impervious part of Drainage Area PR-1)

Time Precip Excess (hours) (inches) (inches) (cfs) (cfs) (0.00 0.00 0.00 0.00 1.00 0.00 0.00 1.00 0.29 0.14 0.01 53.00 8.33 8.09 3.00 0.29 0.14 0.01 55.00 8.33 8.09 55.00 8.33 8.09 55.00 8.33 8.09 55.00 8.33 8.09 55.00 8.33 8.09 3.00 0.29 0.14 0.01 55.00 8.33 8.09 3.00 0.29 0.01 0.00 55.00 8.33 8.09 3.00 0.29 0.01 0.00 55.00 8.33 8.09 3.00 0.29 0.00 8.30 0.29 0.00 8.30 8.09 3.00 0.20 56.00 8.33 8.09 3.00 3.00 8.33 8.09 3.00 3.00 3.00 8.33 8.09 3.00 3.00 3.00 8.33 8.09 3.00 3.00 3.00 8.33 8.09 3.00 3.00 3.00 8.33 8.09 3.00 3.00 3.00 8.33 8.09 3.00 3.00 3.00 8.3							
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Printed 8/29/2023

NOAA 24-hr C 100-Year Rainfall=8.33"

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Summary for Subcatchment 21S: Drainage Area PR-1b (Pervious part of Drainage Area PR-1)

Runoff

0.15 cfs @ 12.15 hrs, Volume=

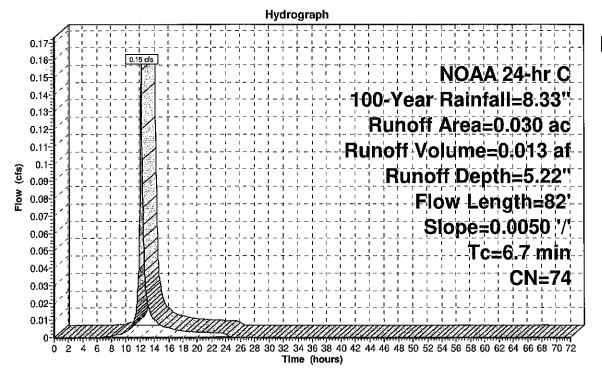
0.013 af, Depth= 5.22"

Routed to Pond 51P: Proposed Bioretention System #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

	Area	(ac) C	N Des	cription		
_	0.	.030 7	74 >75°	% Grass c	over, Good	, HSG C
	0.	.030 7	74 100.	.00% Pervi	ous Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
Ī	5.9	17	0.0050	0.05		Sheet Flow,
	0.2	13	0.0050	1.14		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
	0.6	52	0.0050	1.44		Shallow Concentrated Flow, Paved Kv= 20.3 fps
	6.7	82	Total			

Subcatchment 21S: Drainage Area PR-1b (Pervious part of Drainage Area PR-1)



□ Runoff

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Hydrograph for Subcatchment 21S: Drainage Area PR-1b (Pervious part of Drainage Area PR-1)

y	, ,				•	•	•
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.00	51.00	8.33	5.22	0.00
1.00	0.09	0.00	0.00	52.00	8.33	5.22	0.00
2.00	0.19	0.00	0.00	53.00	8.33	5.22	0.00
3.00	0.29	0.00	0.00	54.00	8.33	5.22	0.00
4.00	0.41	0.00	0.00	55.00	8.33	5.22	0.00
5.00	0.53	0.00	0.00	56.00	8.33	5.22	0.00
6.00	0.66	0.00	0.00	57.00	8.33	5.22	0.00
7.00	0.81	0.00	0.00	58.00	8.33	5.22	0.00
8.00	1.00	0.02	0.00	59.00	8.33	5.22	0.00
9.00	1.22	0.02	0.00	60.00	8.33	5.22	0.00
10.00	1.52	0.15	0.00	61.00	8.33	5.22	0.00
11.00	2.00	0.15	0.00	62.00	8.33	5.22	0.00
12.00	3.97	1.57	0.01	63.00	8.33	5.22	0.00
13.00	6.33	3.47	0.02	64.00	8.33	5.22	0.00
		3.47 3.88	0.02	65.00	8.33	5.22	0.00
14.00	6.81 7.11	3.66 4.14	0.01	66.00	8.33	5.22	0.00
15.00				67.00	8.33	5.22	0.00
16.00	7.33	4.33	0.01	68.00	8.33	5.22	0.00
17.00	7.52	4.50	0.00			5.22	0.00
18.00	7.67	4.63	0.00	69.00 70.00	8.33	5.22	0.00
19.00	7.80	4.75	0.00		8.33	5.22	0.00
20.00	7.92	4.86	0.00	71.00	8.33		
21.00	8.04	4.96	0.00	72.00	8.33	5.22	0.00
22.00	8.14	5.05	0.00				
23.00	8.24	5.14	0.00				
24.00	8.33	5.22	0.00				
25.00	8.33	5.22	0.00				
26.00	8.33	5.22	0.00				
27.00	8.33	5.22	0.00				
28.00	8.33	5.22	0.00				
29.00	8.33	5.22	0.00				
30.00	8.33	5.22	0.00				
31.00	8.33	5.22	0.00				
32.00	8.33	5.22	0.00				
33.00	8.33	5.22	0.00				
34.00	8.33	5.22	0.00				
35.00	8.33	5.22	0.00				
36.00	8.33	5.22	0.00				
37.00	8.33	5.22	0.00				
38.00	8.33	5.22	0.00				
39.00	8.33	5.22	0.00				
40.00	8.33	5.22	0.00				
41.00	8.33	5.22	0.00				
42.00	8.33	5.22	0.00				
43.00	8.33	5.22	0.00				
44.00	8.33	5.22	0.00				
45.00	8.33	5.22	0.00				
46.00	8.33	5.22	0.00				
47.00	8.33	5.22	0.00				
48.00	8.33	5.22	0.00				
49.00	8.33	5.22	0.00				
50.00	8.33	5.22	0.00				
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Summary for Subcatchment 22S: Drainage Area PR-2a (Impervious part of Drainage Area PR-2)

2.39 cfs @ 12.08 hrs, Volume=

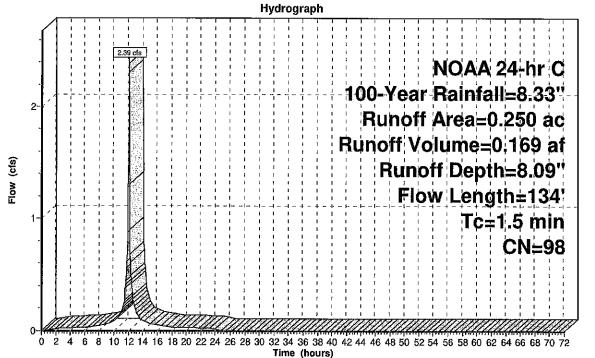
0.169 af, Depth= 8.09"

Routed to Pond 52P: Proposed Bioretention System #2

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

_	Area	(ac) C	N Des	cription		
	0.	.250 9	8 Pav	ed parking	, HSG C	
-	0.	.250 9	98 100.	.00% Impe	rvious Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	1.0		0.0150	1.17	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Sheet Flow,
	0.5	62	0.0100	2.03		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
_	1.5	134	Total			

Subcatchment 22S: Drainage Area PR-2a (Impervious part of Drainage Area PR-2)





Runoff

(cfs) 0.00

0.00

0.00

0.00 0.00

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Hydrograph for Subcatchment 22S: Drainage Area PR-2a (Impervious part of Drainage Area PR-2)

, ,	•			_		
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	8.33	8.09
1.00	0.09	0.01	0.01	52.00	8.33	8.09
2.00	0.19	0.06	0.02	53.00	8.33	8.09
3.00	0.29	0.14	0.02	54.00	8.33	8.09
4.00	0.41	0.24	0.03	55.00	8.33	8.09
5.00	0.53	0.34	0.03	56.00	8.33	8.09
6.00	0.66	0.47	0.03	57.00	8.33	8.09
7.00	0.81	0.61	0.04	58.00	8.33	8.09
8.00	1.00	0.79	0.05	59.00	8.33	8.09
9.00	1.22	1.00	0.06	60.00	8.33	8.09
10.00	1.52	1.30	0.09	61.00	8.33	8.09
11.00	2.00	1.77	0.17	62.00	8.33	8.09
12.00	3.97	3.74	1.50	63.00	8.33	8.09
13.00	6.33	6.09	0.19	64.00	8.33	8.09
14.00	6.81	6.57	0.09	65.00	8.33	8.09
15.00	7.11	6.87	0.06	66.00	8.33	8.09
16.00	7.33	7.09	0.05	67.00	8.33	8.09
17.00	7.52	7.28	0.04	68.00	8.33	8.09
18.00	7.67	7.43	0.03	69.00	8.33	8.09
19.00	7.80	7.56	0.03	70.00	8.33	8.09
20.00	7.92	7.68	0.03	71.00	8.33	8.09
21.00	8.04	7.80	0.03	72.00	8.33	8.09
22.00	8.14	7.90	0.03			
23.00	8.24	8.00	0.02			
24.00	8.33	8.09	0.02			
25.00	8.33	8.09	0.00			
26.00	8.33	8.09	0.00			
27.00	8.33	8.09	0.00			
28.00	8.33	8.09	0.00			
29.00	8.33	8.09	0.00			
30.00	8.33	8.09	0.00			
31.00	8.33	8.09	0.00			
32.00	8.33	8.09	0.00			
33.00	8.33	8.09	0.00			
34.00	8.33	8.09	0.00			
35.00	8.33	8.09	0.00			
36.00	8.33	8.09	0.00			
37.00	8.33	8.09	0.00			
38.00	8.33	8.09	0.00			
39.00	8.33	8.09	0.00			
40.00	8.33	8.09	0.00			
41.00	8.33	8.09	0.00			
42.00	8.33	8.09	0.00			
43.00	8.33	8.09	0.00			
44.00	8.33		0.00			
45.00	8.33		0.00			
46.00	8.33		0.00			
47.00	8.33		0.00			
48.00	8.33		0.00			
49.00	8.33		0.00	ļ		
50.00	8.33	8.09	0.00	ĺ		
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NOAA 24-hr C 100-Year Rainfall=8.33" Printed 8/29/2023

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Summary for Subcatchment 23S: Drainage Area PR-2b (Pervious part of Drainage Area PR-2)

Runoff

0.25 cfs @ 12.11 hrs. Volume=

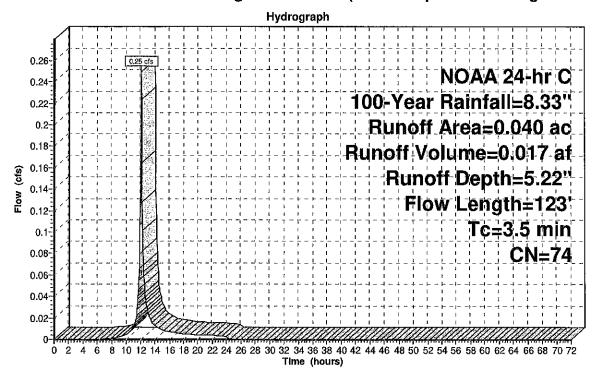
0.017 af, Depth= 5.22"

Routed to Pond 52P: Proposed Bioretention System #2

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

 Area	(ac) C	N Des	cription			
0.	040 7	74 >75°	% Grass co	over, Good	, HSG C	_
 0.	040 7	74 100.	00% Pervi	ous Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
2.6	6	0.0050	0.04		Sheet Flow,	_
0.2	6	0.0050	0.46		Grass: Dense n= 0.240 P2= 3.35" Sheet Flow,	
0.7	111	0.0150	2.49		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps	
3.5	123	Total				_

Subcatchment 23S: Drainage Area PR-2b (Pervious part of Drainage Area PR-2)





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Hydrograph for Subcatchment 23S: Drainage Area PR-2b (Pervious part of Drainage Area PR-2)

, ;	9. 0. 0				3	V -	-
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	8.33	5.22	
1.00	0.09	0.00	0.00	52.00	8.33	5.22	
2.00	0.03	0.00	0.00	53.00	8.33	5.22	
3.00	0.19	0.00	0.00	54.00	8.33	5.22	
4.00	0.23	0.00	0.00	55.00	8.33	5.22	
5.00	0.53	0.00	0.00	56.00	8.33	5.22	
6.00	0.53	0.00	0.00	57.00	8.33	5.22	
7.00	0.81	0.00	0.00	58.00	8.33	5.22	
8.00	1.00	0.00	0.00	59.00	8.33	5.22	
9.00	1.22	0.02	0.00	60.00	8.33	5.22	
10.00	1.52	0.07	0.00	61.00	8.33	5.22	
11.00	2.00	0.15	0.00	62.00	8.33	5.22	
12.00	3.97	1.57	0.14	63.00	8.33	5.22	
13.00	6.33	3.47	0.03	64.00	8.33	5.22	
14.00	6.81	3.88	0.03	65.00	8.33	5.22	
15.00	7.11	4.14	0.01	66.00	8.33	5.22	
16.00	7.11	4.33	0.01	67.00	8.33	5.22	
17.00	7.52	4.50	0.01	68.00	8.33	5.22	
18.00	7.52	4.63	0.00	69.00	8.33	5.22	
	7.87	4.03	0.00	70.00	8.33	5.22	
19.00		4.75	0.00	71.00	8.33	5.22	
20.00 21.00	7.92	4.06	0.00	72.00	8.33	5.22	
	8.04	5.05	0.00	12.00	0.33	5.22	
22.00	8.14		0.00				
23.00	8.24	5.14					
24.00	8.33	5.22	0.00				
25.00	8.33	5.22	0.00				
26.00	8.33	5.22	0.00				
27.00	8.33	5.22	0.00				
28.00	8.33	5.22	0.00				
29.00	8.33	5.22	0.00				
30.00	8.33	5.22	0.00				
31.00	8.33	5.22	0.00				
32.00	8.33	5.22	0.00				
33.00	8.33	5.22	0.00				
34.00	8.33	5.22	0.00				
35.00	8.33	5.22	0.00				
36.00	8.33	5.22	0.00				
37.00	8.33	5.22	0.00				
38.00	8.33	5.22	0.00				
39.00	8.33	5.22	0.00				
40.00	8.33	5.22	0.00				
41.00	8.33	5.22	0.00				
42.00	8.33	5.22	0.00				
43.00	8.33	5.22	0.00				
44.00	8.33	5.22	0.00				
45.00	8.33	5.22	0.00				
46.00	8.33	5.22	0.00				
47.00	8.33	5.22	0.00				
48.00	8.33	5.22	0.00				
49.00	8.33	5.22	0.00				
50.00	8.33	5.22	0.00				

NOAA 24-hr C 100-Year Rainfall=8.33" Printed 8/29/2023

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Summary for Subcatchment 24S: Drainage Area PR-3a (Impervious part of Drainage Area PR-3)

Runoff

1.80 cfs @ 12.08 hrs, Volume=

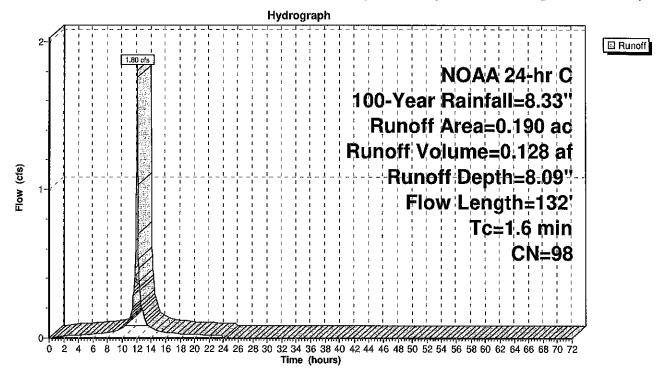
0.128 af, Depth= 8.09"

Routed to Pond 53P: Proposed Bioretention System #3

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

	Area	<u>(ac) C</u>	N Desc	cription		
	0.	190 9	8 Pave	ed parking.	, HSG C	
_	0.	190 9	8 100.	00% Impe	rvious Area	
				•		
	Тс	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	•
	1.1	76	0.0150	1.19		Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.35"
	0.5	56	0.0100	2.03		Shallow Concentrated Flow,
						Paved Kv= 20.3 fps
	1.6	132	Total			

Subcatchment 24S: Drainage Area PR-3a (Impervious part of Drainage Area PR-3)



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Hydrograph for Subcatchment 24S: Drainage Area PR-3a (Impervious part of Drainage Area PR-3)

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	8.33	8.09	
1.00	0.09	0.01	0.01	52.00	8.33	8.09	
2.00	0.19	0.06	0.01	53.00	8.33	8.09	
3.00	0.29	0.14	0.02	54.00	8.33	8.09	
4.00	0.41	0.24	0.02	55.00	8.33	8.09	
5.00	0.53	0.34	0.02	56.00	8.33	8.09	
6.00	0.66	0.47	0.02	57.00	8.33	8.09	
7.00	0.81	0.61	0.03	58.00	8.33	8.09	
8.00	1.00	0.79	0.04	59.00	8.33	8.09	
9.00	1.22	1.00	0.04	60.00	8.33	8.09	
10.00	1.52	1.30	0.07	61.00	8.33	8.09	
11.00	2.00	1.77	0.13	62.00	8.33	8.09	
12.00	3.97	3.74	1.13	63.00	8.33	8.09	
13.00	6.33	6.09	0.14	64.00	8.33	8.09	
14.00	6.81	6.57	0.07	65.00	8.33	8.09	
15.00	7.11	6.87	0.05	66.00	8.33	8.09	
16.00	7.33	7.09	0.04	67.00	8.33	8.09	
17.00	7.52	7.28	0.03	68.00	8.33	8.09	
18.00	7.67	7.43	0.03	69.00	8.33	8.09	
19.00	7.80	7.56	0.02	70.00	8.33	8.09	
20.00	7.92	7.68	0.02	71.00	8.33	8.09	
21.00	8.04	7.80	0.02	72.00	8.33	8.09	
22.00	8.14	7.90	0.02				
23.00	8.24	8.00	0.02				
24.00	8.33	8.09	0.02				
25.00	8.33	8.09	0.00				
26.00	8.33	8.09	0.00				
27.00	8.33	8.09	0.00				
28.00	8.33	8.09	0.00				
29.00	8.33	8.09	0.00				
30.00	8.33	8.09	0.00				
31.00	8.33	8.09	0.00				
32.00	8.33	8.09	0.00				
33.00	8.33	8.09	0.00 0.00				
34.00	8.33 8.33	8.09 8.09	0.00				
35.00	8.33	8.09	0.00				
36.00 37.00	8.33	8.09	0.00				
38.00	8.33	8.09	0.00				
39.00	8.33	8.09	0.00				
40.00	8.33	8.09	0.00				
41.00	8.33	8.09	0.00				
42.00	8.33	8.09	0.00				
43.00	8.33	8.09	0.00				
44.00	8.33	8.09	0.00				
45.00	8.33	8.09	0.00				
46.00	8.33	8.09	0.00				
47.00	8.33	8.09	0.00				
48.00	8.33	8.09	0.00				
49.00	8.33	8.09	0.00				
.5.00	0.00	0.00	0.00				

0.00

50.00

8.33

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Summary for Subcatchment 25S: Drainage Area PR-3b (Pervious part of Drainage Area PR-3)

Runoff =

0.20 cfs @ 12.16 hrs, Volume=

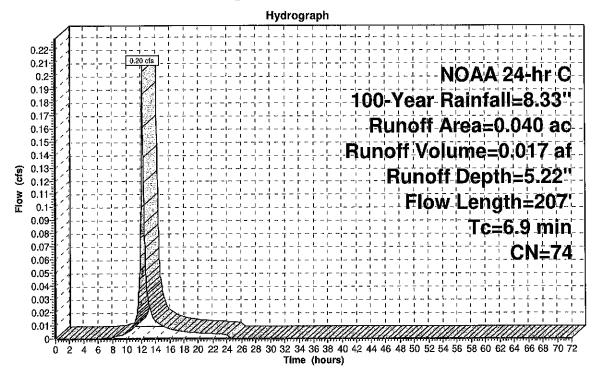
0.017 af, Depth= 5.22"

Routed to Pond 53P: Proposed Bioretention System #3

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

	Area	(ac) C	N Desc	cription								
_	0.	040 7	74 >75°	% Grass co	over, Good	, HSG C						
_	0.040 74 100.00% Pervious Area											
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description						
-	5.6	16	0.0050	0.05	(0.07	Sheet Flow,						
	1.3	191	0.0140	2.40		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps						
_	6.9	207	Total	·								

Subcatchment 25S: Drainage Area PR-3b (Pervious part of Drainage Area PR-3)



□ Runoff

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Hydrograph for Subcatchment 25S: Drainage Area PR-3b (Pervious part of Drainage Area PR-3)

•	•			•		
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	8.33	5.22
1.00	0.09	0.00	0.00	52.00	8,33	5.22
2.00	0.19	0.00	0.00	53.00	8.33	5.22
3.00	0.29	0.00	0.00	54.00	8.33	5.22
4.00	0.41	0.00	0.00	55.00	8.33	5.22
5.00	0.53	0.00	0.00	56.00	8.33	5.22
6.00	0.66	0.00	0.00	57.00	8.33	5.22
7.00	0.81	0.00	0.00	58.00	8.33	5.22
8.00	1.00	0.02	0.00	59.00	8.33	5.22
9.00	1.22	0.07	0.00	60.00	8.33	5.22
10.00	1.52	0.15	0.00	61.00	8.33	5.22
11.00	2.00	0.35	0.01	62.00	8.33	5.22
12.00	3.97	1.57	0.10	63.00	8.33	5.22
13.00	6.33	3.47	0.03	64.00	8.33	5.22
14.00	6.81	3.88	0.01	65.00	8.33	5.22
15.00	7.11	4.14	0.01	66.00	8.33	5.22
16.00	7.33	4.33	0.01	67.00	8.33	5.22
17.00	7.52	4.50	0.01	68.00	8.33	5.22
18.00	7.67	4.63	0.01	69.00	8.33	5.22
19.00	7.80	4.75	0.00	70.00	8.33	5.22
20.00	7.92	4.86	0.00	71.00	8.33	5.22
21.00	8.04	4.96	0.00	72.00	8.33	5.22
22.00	8.14	5.05	0.00	, 2.00	0.00	0.22
23.00	8.24	5.14	0.00			
24.00	8.33	5.22	0.00			
25.00	8.33	5.22	0.00			
26.00	8.33	5.22	0.00			
27.00	8.33	5.22	0.00			
28.00	8.33	5.22	0.00			
29.00	8.33	5.22	0.00			
30.00	8.33	5.22	0.00			
31.00	8.33	5.22	0.00			
32.00	8.33	5.22	0.00			
33.00	8.33	5.22	0.00			
34.00	8.33	5.22	0.00			
35.00	8.33	5,22	0.00			
36.00	8.33	5.22	0.00			
37.00	8.33	5.22	0.00			
38.00	8.33	5.22	0.00			
39.00	8.33	5.22	0.00			
40.00	8.33	5.22	0.00			
41.00	8.33	5.22	0.00			
42.00	8.33	5.22	0.00			
43.00	8.33	5.22	0.00			
44.00	8.33	5.22	0.00			
45.00	8.33	5.22	0.00			
46.00	8.33	5.22	0.00			
47.00	8.33	5.22	0.00			
48.00	8.33	5.22	0.00			
49.00	8.33	5.22	0.00			
E0 00	0.00	E 00	0.00			

50.00

8.33

5.22

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☑ Runoff

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Summary for Subcatchment 26S: Drainage Area PR-4a (Impervious part of Drainage Area PR-4)

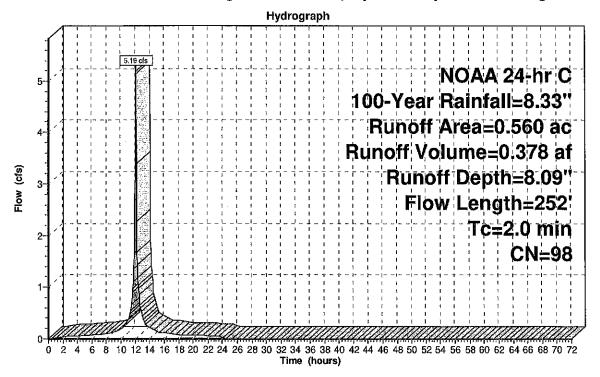
Runoff = 5.19 cfs @ 12.09 hrs, Volume= Routed to Pond 54P : Proposed Bioretention System #4

0.378 af, Depth= 8.09"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

Aı	rea ((ac) C	N Desc	cription		
				ed parking,		
				s, HSG C		
				ghted Aver 00% Impe	rvious Area	
(m	Tc in)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
- ().9	61	0.0150	1.14		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.35"
C).4	59	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
().7	132	0.0030	3.12	3.83	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
	2.0	252	Total			n= 0.012

Subcatchment 26S: Drainage Area PR-4a (Impervious part of Drainage Area PR-4)



Runoff (cfs) 0.00 0.00

 $0.00\\0.00$

 $0.00\\0.00$

0.00 0.00 0.00 0.00

 $0.00\\0.00$

0.00

0.00

0.00

0.00

0.00

 $0.00\\0.00$

0.00

 $0.00\\0.00$

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Hydrograph for Subcatchment 26S: Drainage Area PR-4a (Impervious part of Drainage Area PR-4)

	•			Ū		•
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	8.33	8.09
1.00	0.09	0.01	0.02	52.00	8.33	8.09
2.00	0.19	0.06	0.04	53.00	8.33	8.09
3.00	0.29	0.14	0.05	54.00	8.33	8.09
4.00	0.41	0.24	0.06	55.00	8.33	8.09
5.00	0.53	0.34	0.06	56.00	8.33	8.09
6.00	0.66	0.47	0.07	57.00	8.33	8.09
7.00	0.81	0.61	0.09	58.00	8.33	8.09
8.00	1.00	0.79	0.11	59.00	8.33	8.09
9.00	1.22	1.00	0.13	60.00	8.33	8.09
10.00	1.52	1.30	0.20	61.00	8.33	8.09
11.00	2.00	1.77	0.37	62.00	8.33	8.09
12.00	3.97	3.74	3.20	63.00	8.33	8.09
13.00	6.33	6.09	0.43	64.00	8.33	8.09
14.00	6.81	6.57	0.21	65.00	8.33	8.09
15.00	7.11	6.87	0.14	66.00	8.33	8.09
16.00	7.33	7.09	0.11	67.00	8.33	8.09
17.00	7.52	7.28	0.10	68.00	8.33	8.09
18.00	7.67	7.43	0.08	69.00	8.33	8.09
19.00	7.80	7.56	0.07	70.00	8.33	8.09
20.00	7.92	7.68	0.07	71.00	8.33	8.09
21.00	8.04	7.80	0.06	72.00	8.33	8.09
22.00	8.14	7.90	0.06			
23.00	8.24	8.00	0.05			
24.00	8.33	8.09	0.06			
25.00	8.33	8.09	0.00			
26.00	8.33	8.09	0.00			
27.00	8.33	8.09	0.00			
28.00	8.33	8.09	0.00			
29.00	8.33	8.09	0.00			
30.00	8.33	8.09	0.00			
31.00	8.33	8.09	0.00			
32.00	8.33	8.09	0.00			
33.00	8.33	8.09	0.00			
34.00	8.33	8.09	0.00			
35.00	8.33	8.09	0.00			
36.00	8.33	8.09	0.00			
37.00	8.33	8.09	0.00			
38.00	8.33	8.09	0.00			
39.00	8.33	8.09	0.00			
40.00	8.33	8.09	0.00			
41.00	8.33	8.09	0.00			
42.00	8.33	8.09	0.00			
43.00	8.33	8.09	0.00			
44.00	8.33	8.09	0.00			
45.00	8.33	8.09	0.00			
46.00	8.33	8.09	0.00			
47.00	8.33	8.09	0.00			
48.00	8.33	8.09	0.00			
49.00	8.33	8.09	0.00			
50.00	8.33	8.09	0.00			

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Summary for Subcatchment 27S: Drainage Area PR-4b (Pervious part of Drainage Area PR-4)

Runoff

0.77 cfs @ 12.16 hrs, Volume=

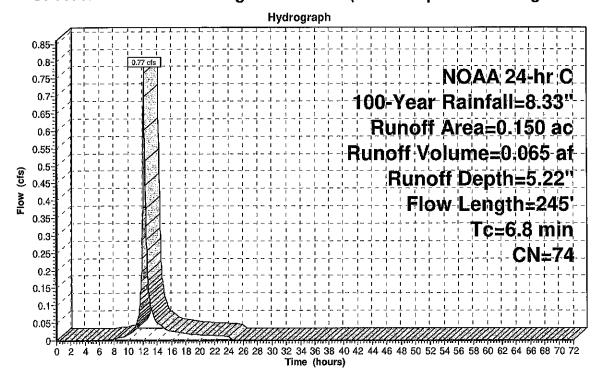
0.065 af, Depth= 5.22"

Routed to Pond 54P: Proposed Bioretention System #4

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

Area	(ac) C	N Desc	cription		
0	.150	74 >759	% Grass c	over, Good	, HSG C
0	.150	74 100.	00% Pervi	ous Area	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	21	0.0100	0.07		Sheet Flow,
0.8	92	0.0100	2.03		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.7	132	0.0030	3.12	3.83	Pipe Channel,
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
6.8	245	Total			

Subcatchment 27S: Drainage Area PR-4b (Pervious part of Drainage Area PR-4)



Runoff

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Hydrograph for Subcatchment 27S: Drainage Area PR-4b (Pervious part of Drainage Area PR-4)

Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	8.33	5.22	
1.00	0.09	0.00	0.00	52.00	8.33	5.22	
2.00	0.19	0.00	0.00	53.00	8.33	5.22	
3.00	0.29	0.00	0.00	54.00	8.33	5.22	
4.00	0.41	0.00	0.00	55.00	8.33	5.22	
5.00	0.53	0.00	0.00	56.00	8.33	5.22	
6.00	0.66	0.00	0.00	57.00	8.33	5.22	
7.00	0.81	0.00	0.00	58.00	8.33	5.22	
8.00	1.00	0.02	0.00	59.00	8.33	5.22	
9.00	1.22	0.07	0.01	60.00	8.33	5.22	
10.00	1.52	0.15	0.02	61.00	8.33	5.22	
11.00	2.00	0.35	0.04	62.00	8.33	5.22	
12.00	3.97	1.57	0.38	63.00	8.33	5.22	
13.00	6.33	3.47	0.11	64.00	8.33	5.22	
14.00	6.81	3.88	0.05	65.00	8.33	5.22	
15.00	7.11	4.14	0.03	66.00	8.33	5.22	
16.00	7.33	4.33	0.03	67.00	8.33	5.22	
17.00	7.52	4.50	0.02	68.00	8.33	5.22	
18.00	7.67	4.63	0.02	69.00	8.33	5.22	
19.00	7.80	4.75	0.02	70.00	8.33	5.22	
20.00	7.92	4.86	0.02	71.00	8.33	5.22	
21.00	8.04	4.96	0.02	72.00	8.33	5.22	
22.00	8.14	5.05	0.01				
23.00	8.24	5.14	0.01				
24.00	8.33	5.22	0.01				
25.00	8.33	5.22	0.00				
26.00	8.33 8.33	5.22 5.22	0.00 0.00				
27.00 28.00	8.33	5.22 5.22	0.00				
29.00	8.33	5.22	0.00				
30.00	8.33	5.22	0.00				
31.00	8.33	5.22	0.00				
32.00	8.33	5.22	0.00				
33.00	8.33	5.22	0.00				
34.00	8.33	5.22	0.00				
35.00	8.33	5.22	0.00				
36.00	8.33	5.22	0.00				
37.00	8.33	5.22	0.00				
38.00	8.33	5.22	0.00				
39.00	8.33	5.22	0.00				
40.00	8.33	5.22	0.00				
41.00	8.33	5.22	0.00				
42.00	8.33	5.22	0.00				
43.00	8.33	5.22	0.00				
44.00	8.33	5.22	0.00				
45.00	8.33	5.22	0.00				
46.00	8.33	5.22	0.00				
47.00	8.33	5.22	0.00				
48.00	8.33	5.22	0.00				
49.00	8.33	5.22	0.00				
50.00	8.33	5.22	0.00				

NOAA 24-hr C 100-Year Rainfall=8.33" Printed 8/29/2023

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Summary for Subcatchment 28S: Drainage Area PR-5a (Impervious part of Drainage Area PR-5)

Runoff = 1.98 cfs @ 12.09 hrs, Volume=

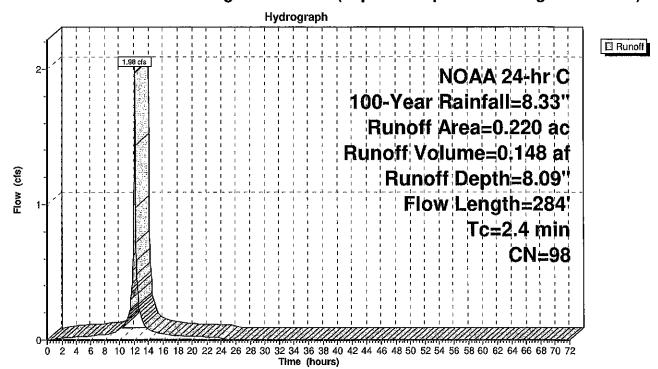
0.148 af, Depth= 8.09"

Routed to Pond 55P: Proposed Bioretention System #5

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

Area	(ac) C	N Des	cription		
0.	.220 9	98 Pave	ed parking	, HSG C	· · · · · · · · · · · · · · · · · · ·
0.	.220	98 100.	00% Impe	rvious Area	L
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	79	0.0150	1.20		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.35"
0.6	73	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.7	132	0.0030	3.12	3.83	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
24	284	Total			

Subcatchment 28S: Drainage Area PR-5a (Impervious part of Drainage Area PR-5)



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Hydrograph for Subcatchment 28S: Drainage Area PR-5a (Impervious part of Drainage Area PR-5)

•	iyarogi	αριι ισι	Juncalci	iiiiGiit 205.	Diamag	C Alcai	11-5a (IIII	bei vious b
	Time	Precip.	Excess	Runoff	Time	Precip.	Excess	Runoff
	(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	(cfs)
	0.00	0.00	0.00	0.00	51.00	8.33	8.09	0.00
	1.00	0.09	0.01	0.01	52.00	8.33	8.09	0.00
	2.00	0.19	0.06	0.01	53.00	8.33	8.09	0.00
	3.00	0.29	0.14	0.02	54.00	8.33	8.09	0.00
	4.00	0.41	0.24	0.02	55.00	8.33	8.09	0.00
	5.00	0.53	0.34	0.03	56.00	8.33	8.09	0.00
	6.00	0.66	0.47	0.03	57.00	8.33	8.09	0.00
	7.00	0.81	0.61	0.04	58.00	8.33	8.09	0.00
	8.00	1.00	0.79	0.04	59.00	8.33	8.09	0.00
	9.00	1.22	1.00	0.05	60.00	8.33	8.09	0.00
	10.00	1.52	1.30	0.08	61.00	8.33	8.09	0.00
	11.00	2.00	1.77	0.14	62.00	8.33	8.09	0.00
	12.00	3.97	3.74	1.21	63.00	8.33	8.09	0.00
	13.00	6.33	6.09	0.17	64.00	8.33	8.09	0.00
	14.00	6.81	6.57	0.08	65.00	8.33	8.09	0.00
	15.00	7,11	6.87	0.05	66.00	8.33	8.09	0.00
	16.00	7.33	7.09	0.05	67.00	8.33	8.09	0.00
	17.00	7.52	7.28	0.04	68.00 69.00	8.33 8.33	8.09 8.09	0.00 0.00
	18.00	7.67 7.80	7.43 7.56	0.03	70.00	8.33	8.09	0.00
	19.00 20.00	7.80	7.56 7.68	0.03 0.03	71.00	8.33	8.09	0.00
	21.00	8.04	7.80	0.03	72.00	8.33	8.09	0.00
	22.00	8.14	7.80 7.90	0.02	12.00	0.00	0.03	0.00
	23.00	8.24	8.00	0.02				
	24.00	8.33	8.09	0.02				
	25.00	8.33	8.09	0.00				
	26.00	8.33	8.09	0.00				
	27.00	8.33	8.09	0.00				
	28.00	8.33	8.09	0.00				
	29.00	8.33	8.09	0.00				
	30.00	8.33	8.09	0.00				
	31.00	8.33	8.09	0.00				
	32.00	8.33	8.09	0.00				
	33.00	8.33	8.09	0.00				
	34.00	8.33	8.09	0.00				
	35.00	8.33	8.09	0.00				
	36.00	8.33	8.09	0.00				
	37.00	8.33	8.09	0.00				
	38.00	8.33	8.09	0.00				
	39.00 40.00	8.33	8.09	0.00				
	41.00	8.33 8.33	8.09 8.09	0.00 0.00				
	42.00	8.33	8.09	0.00				
	43.00	8.33	8.09	0.00				
	44.00	8.33	8.09	0.00				
	45.00	8.33	8.09	0.00				
	46.00	8.33	8.09	0.00				
	47.00	8.33	8.09	0.00				
	48.00	8.33	8.09	0.00				
	49.00	8.33	8.09	0.00				
	50.00	8.33	8.09	0.00				

■ Runoff

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Summary for Subcatchment 29S: Drainage Area PR-5b (Pervious part of Drainage Area PR-5)

Runoff

0.35 cfs @ 12.16 hrs. Volume=

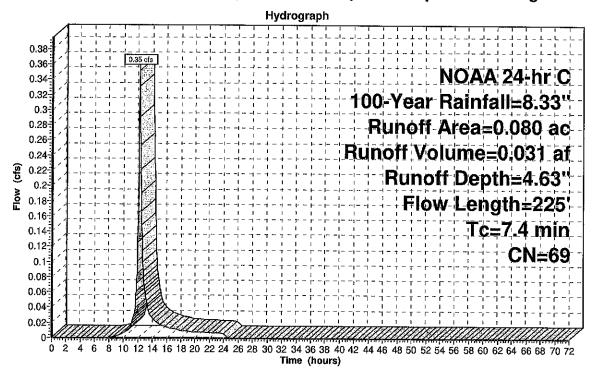
0.031 af, Depth= 4.63"

Routed to Pond 55P: Proposed Bioretention System #5

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

Area	(ac) C	CN Des	cription		
_				over, Good over, Good	
0.	.080	69 Wei	ghted Aver 00% Pervi	age	, riod 0
Tc (min)	Length (feet)		Velocity (ft/sec)	Capacity (cfs)	Description
6.3	26	0.0100	0.07	1,000	Sheet Flow,
0.4	67	0.0150	2.49		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.7	132	0.0030	3.12	3.83	Pipe Channel,
				***	15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
74	225	Total			

Subcatchment 29S: Drainage Area PR-5b (Pervious part of Drainage Area PR-5)



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Hydrograph for Subcatchment 29S: Drainage Area PR-5b (Pervious part of Drainage Area PR-5)

,	•					
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)_	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	8.33	4.63
1.00	0.09	0.00	0.00	52.00	8.33	4.63
2.00	0.19	0.00	0.00	53.00	8.33	4.63
3.00	0.29	0.00	0.00	54.00	8.33	4.63
4.00	0.41	0.00	0.00	55.00	8.33	4.63
5.00	0.53	0.00	0.00	56.00	8.33	4.63
6.00	0.66	0.00	0.00	57.00	8.33	4.63
7.00	0.81	0.00	0.00	58.00	8.33	4.63
8.00	1.00	0.00	0.00	59.00	8.33	4.63
9.00	1.22	0.02	0.00	60.00	8.33	4.63
10.00	1.52	0.08	0.01	61.00	8.33	4.63
11.00	2.00	0.22	0.02	62.00	8.33 8.33	4.63 4.63
12.00	3.97	1.25	0.16	63.00	8.33	4.63
13.00	6.33	2.97	0.06	64.00	8.33	4.63
14.00	6.81	3.36	0.03	65.00	8.33	4.63
15.00	7.11	3.61	0.02 0.01	66.00 67.00	8.33	4.63
16.00	7.33	3.79	0.01	68.00	8.33	4.63
17.00	7.52	3.94 4.07	0.01	69.00	8.33	4.63
18.00	7.67 7.80	4.07	0.01	70.00	8.33	4.63
19.00 20.00	7.80 7.92	4.18	0.01	71.00	8.33	4.63
21.00	8.04	4.28	0.01	72.00	8.33	4.63
22.00	8.14	4.47	0.01	72.00	0,00	,,,,,
23.00	8.24	4.55	0.01			
24.00	8.33		0.01			
25.00	8.33	4.63	0.00			
26.00	8.33		0.00			
27.00	8.33		0.00			
28.00	8.33		0.00			
29.00	8.33		0.00			
30.00	8.33		0.00			
31.00	8.33		0.00			
32.00			0.00			
33.00	8.33	4.63	0.00			
34.00	8.33	4.63	0.00			
35.00	8.33		0.00			
36.00	8.33	4.63	0.00			
37.00	8.33		0.00			
38.00			0.00			
39.00			0.00			
40.00			0.00			
41.00			0.00			
42.00			0.00			
43.00			0.00			
44.00			0.00	}		
45.00			0.00			
46.00			0.00 0.00			
47.00			0.00			
48.00			0.00			
49.00			0.00			
50.00	0.33	4.03	0.00	}		

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Summary for Subcatchment 30S: Drainage Area PR-6a (Impervious part of Drainage Area PR-6)

6.34 cfs @ 12.10 hrs, Volume=

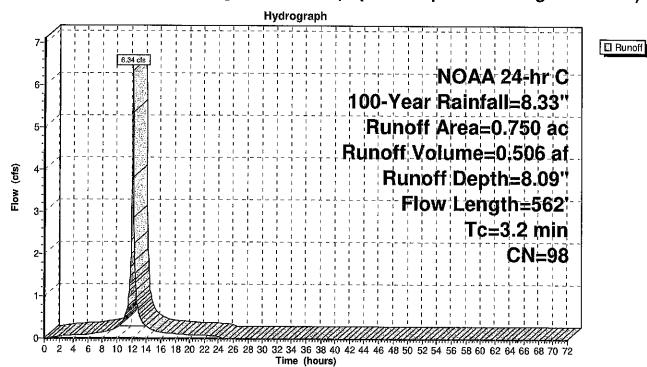
0.506 af, Depth= 8.09"

Routed to Pond 56P: Proposed Bioretention System #6

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

	Area	(ac) C	N Desc	cription		
				ed parking fs, HSG B	, HSG B	
	0.	750 9	8 Wei	ghted Aver	age rvious Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
•	1.3	100	0.0150	1.25		Sheet Flow,
	0.5	79	0.0150	2.49		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
	1.4	383	0.0050	4.55	8.05	Pipe Channel,
						18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
	3.2	562	Total			

Subcatchment 30S: Drainage Area PR-6a (Impervious part of Drainage Area PR-6)



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Hydrograph for Subcatchment 30S: Drainage Area PR-6a (Impervious part of Drainage Area PR-6)

-,			
Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	<u>(cfs)</u>
0.00	0.00	0.00	0.00
1.00	0.09	0.01	0.02
2.00	0.19	0.06	0.05
3.00	0.29	0.14	0.07
4.00	0.41	0.24	0.08
5.00	0.53	0.34	0.09
6.00	0.66	0.47	0.09
7.00	0.81	0.61	0.12
8.00	1.00	0.79	0.15
9.00	1.22	1.00	0.17
10.00	1.52	1.30	0.26
11.00	2.00	1.77	0.48
12.00	3.97	3.74	3.84
13.00	6.33	6.09	0.59
14.00	6.81	6.57	0.28
15.00	7.11	6.87	0.19
16.00	7.33	7.09	0.15
17.00	7.52	7.28	0.13
18.00	7.67	7.43	0.10
19.00	7.80	7.56	0.10
20.00	7.92	7.68	0.09
21.00	8.04	7.80	0.08
			0.08
22.00	8.14	7.90	
23.00	8.24	8.00	0.07
24.00	8.33	8.09	0.08
25.00	8.33	8.09	0.00
26.00	8.33	8.09	0.00
27.00	8.33	8.09	0.00
28.00	8.33	8.09	0.00
29.00	8.33	8.09	0.00
30.00	8.33	8.09	0.00
31.00	8.33	8.09	0.00
32.00	8.33	8.09	0.00
33.00	8.33	8.09	0.00
34.00	8.33	8.09	0.00
35.00	8.33	8.09	0.00
36.00	8.33	8.09	0.00
37.00	8.33	8.09	0.00
38.00	8.33	8.09	0.00
39.00	8.33	8.09	0.00
40.00	8.33	8.09	0.00
41.00	8.33	8.09	0.00
42.00	8.33	8.09	0.00
43.00	8.33	8.09	0.00
44.00	8.33	8.09	0.00
45.00	8.33	8.09	0.00
46.00	8.33	8.09	0.00
47.00	8.33	8.09	0.00
48.00	8.33	8.09	0.00
49.00	8.33	8.09	0.00
50.00	8.33	8.09	0.00
			I

Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)
51.00	8.33	8.09	0.00
52.00	8.33	8.09	0.00
53.00	8.33	8.09	0.00
54.00	8.33	8.09	0.00
55.00	8.33	8.09	0.00
56.00	8.33	8.09	0.00
57.00	8.33	8.09	0.00
58.00	8.33	8.09	0.00
59.00	8.33	8.09	0.00
60.00	8.33	8.09	0.00
61.00	8.33	8.09	0.00
62.00	8.33	8.09	0.00
63.00	8.33	8.09	0.00
64.00	8.33	8.09	0.00
65.00	8.33	8.09	0.00
66.00	8.33	8.09	0.00
67.00	8.33	8.09	0.00
68.00	8.33	8.09	0.00
69.00	8.33	8.09	0.00
70.00	8.33	8.09	0.00
71.00	8.33	8.09	0.00
72.00	8.33	8.09	0.00

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100 Year Storm NOAA 24-hr C 100-Year Rainfall=8.33"

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Summary for Subcatchment 31S: Drainage Area PR-6b (Pervious part of Drainage Area PR-6)

Runoff = 1.61 cfs @ 12.27 hrs, Volume=

0.202 af, Depth= 3.47"

Routed to Pond 56P: Proposed Bioretention System #6

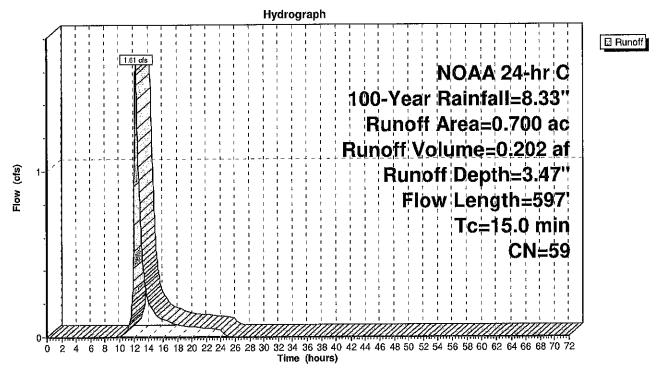
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfali=8.33"

Area	(ac) C	N Des	cription				
0.	.020	74 >75°	% Grass c	over, Good,	HSG C		
				over, Good,	HSG B		
0.	.220	55 Woo	ds, Good,	HSG B			
_	0.700 59 Weighted Average						
0.	.700	59 100.	00% Pervi	ous Area			
То	Longth	Clana	Volocity	Conneitu	Departuation		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
11.3	23	0.0050	0.03	(013)	Sheet Flow,		
11.0	20	0.0000	0.00		Woods: Light underbrush n= 0.400 P2= 3.35"		
0.2	12	0.0300	1,21		Shallow Concentrated Flow,		
		******			Short Grass Pasture Kv= 7.0 fps		
2.1	179	0.0050	1.44		Shallow Concentrated Flow,		
					Paved Kv= 20.3 fps		
1.4	383	0.0050	4.55	8.05	Pipe Channel,		
					18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38'		
					n= 0.012		
15.0	597	Total					

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Subcatchment 31S: Drainage Area PR-6b (Pervious part of Drainage Area PR-6)



Runoff

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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Hydrograph for Subcatchment 31S: Drainage Area PR-6b (Pervious part of Drainage Area PR-6)

	•			·	•	•
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	<u>(cfs)</u>	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	8.33	3.47
1.00	0.09	0.00	0.00	52.00	8.33	3.47
2.00	0.19	0.00	0.00	53.00	8.33	3.47
3.00	0.29	0.00	0.00	54.00	8.33	3.47
4.00	0.41	0.00	0.00	55.00	8.33	3.47
5.00	0.53	0.00	0.00	56.00	8.33	3.47
6.00	0.66	0.00	0.00	57.00	8.33	3.47
7.00	0.81	0.00	0.00	58.00	8.33	3.47
8.00	1.00	0.00	0.00	59.00	8.33	3.47
9.00	1.22	0.00	0.00	60.00	8.33	3.47
10.00	1.52	0.00	0.00	61.00	8.33	3.47
11.00	2.00	0.05	0.04	62.00	8.33	3.47
12.00	3.97	0.70	0.52	63.00	8.33	3.47
13.00	6.33	2.05	0.60	64.00	8.33	3.47
14.00	6.81	2.38	0.21	65.00	8.33	3.47
15.00	7.11	2.59	0.14	66.00	8.33	3.47
16.00	7.33	2.74	0.11	67.00	8.33	3.47
17.00	7.52	2.87	0.09	68.00	8.33	3.47
18.00 19.00	7.67	2.98	0.08	69.00	8.33	3.47
20.00	7.80 7.92	3.08	0.07	70.00	8.33	3.47
21.00	8.04	3.17 3.25	0.06	71.00	8.33	3.47
22.00	8.14	3.23	0.06 0.05	72.00	8.33	3.47
23.00	8.24	3.40	0.05			
24.00	8.33	3.40 3.47	0.05			
25.00	8.33	3.47 3.47	0.00			
26.00	8.33	3.47	0.00			
27.00	8.33	3.47	0.00			
28.00	8.33	3.47	0.00			
29.00	8.33	3.47	0.00			
30.00	8.33	3.47	0.00			
31.00	8.33	3.47	0.00			
32.00	8.33	3.47	0.00			
33.00	8.33	3.47	0.00			
34.00	8.33	3.47	0.00			
35.00	8.33	3.47	0.00			
36.00	8.33	3.47	0.00			
37.00	8.33	3.47	0.00			
38.00	8.33	3.47	0.00			
39.00	8.33	3.47	0.00			
40.00	8.33	3.47	0.00			
41.00	8.33	3.47	0.00			
42.00	8.33	3.47	0.00			
43.00	8.33	3.47	0.00			
44.00	8.33	3.47	0.00			
45.00	8.33	3.47	0.00			
46.00	8.33	3.47	0.00			
47.00	8.33	3.47	0.00			
48.00	8.33	3.47	0.00			
49.00	8.33	3.47	0.00			
50.00	8.33	3.47	0.00			

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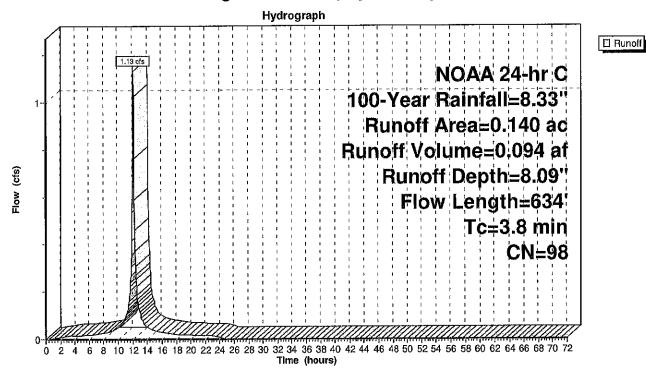
Summary for Subcatchment 32S: Drainage Area PR-7a (Impervious part of Drainage Area PR-7)

Runoff = 1.13 cfs @ 12.11 hrs, Volume= 0.094 af, Depth= 8.09" Routed to Link 64L: Drainage Area PR-7 (Undetained Runoff in pipes to P.O.I. "A")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

Area	(ac) C	N Des	<u>cription</u>		
0.	140 9	8 Pave	ed parking	, HSG C	
0.	140 9	98 100.	00% Impe	rvious Area	l
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	30	0.0050	0.64		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.35"
1.0	122	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
2.0	482	0.0050	4.03	4.95	Pipe Channel, CMP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
3.8	634	Total			

Subcatchment 32S: Drainage Area PR-7a (Impervious part of Drainage Area PR-7)



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Hydrograph for Subcatchment 32S: Drainage Area PR-7a (Impervious part of Drainage Area PR-7)

Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	8.33	8.09
1.00	0.09	0.01	0.00	52.00	8.33	8.09
2.00	0.19	0.06	0.01	53.00	8.33	8.09
3.00	0.29	0.14	0.01	54.00	8.33	8.09
4.00	0.41	0.24	0.01	55.00	8.33	8.09
5.00	0.53	0.34	0.02	56.00	8.33	8.09
6.00	0.66	0.47	0.02	57.00	8.33	8.09
7.00	0.81	0.61	0.02	58.00	8.33	8.09
8.00	1.00	0.79	0.03	59.00	8.33	8.09
9.00	1.22	1.00	0.03	60.00	8.33	8.09
10.00	1.52	1.30	0.05	61.00	8.33	8.09
11.00	2.00	1.77	0.09	62.00	8.33	8.09
12.00	3.97	3.74	0.68	63.00	8.33	8.09
13.00	6.33	6.09	0.11	64.00	8.33	8.09
14.00	6.81	6.57	0.05	65.00	8.33	8.09
15.00	7.11	6.87	0.04	66.00	8.33	8.09
16.00	7.33	7.09	0.03	67.00	8.33	8.09
17.00	7.52	7.28	0.02	68.00	8.33	8.09
18.00	7.67	7.43	0.02	69.00	8.33	8.09
19.00	7.80	7.56	0.02	70.00	8.33	8.09
20.00	7.92	7.68	0.02	71.00	8.33	8.09
21.00	8.04	7.80	0.02	72.00	8.33	8.09
22.00	8.14	7.90	0.01			
23.00	8.24	8.00	0.01			
24.00	8.33	8.09	0.01			
25.00 26.00	8.33 8.33	8.09	0.00 0.00			
27.00	8.33	8.09 8.09	0.00			
28.00	8.33	8.09	0.00			
29.00	8.33	8.09	0.00			
30.00	8.33	8.09	0.00			
31.00	8.33	8.09	0.00			
32.00	8.33	8.09	0.00			
33.00	8.33	8.09	0.00			
34.00	8.33	8.09	0.00			
35.00	8.33	8.09	0.00			
36.00	8.33	8.09	0.00			
37.00	8.33	8.09	0.00			
38.00	8.33	8.09	0.00			
39.00	8.33	8.09	0.00			
40.00	8.33	8.09	0.00			
41.00	8.33	8.09	0.00			
42.00	8.33	8.09	0.00			
43.00	8.33	8.09	0.00			
44.00	8.33	8.09	0.00			
45.00	8.33	8.09	0.00			
46.00	8.33	8.09	0.00			
47.00	8.33	8.09	0.00			
48.00	8.33	8.09	0.00			
49.00	8.33	8.09	0.00			

0.00

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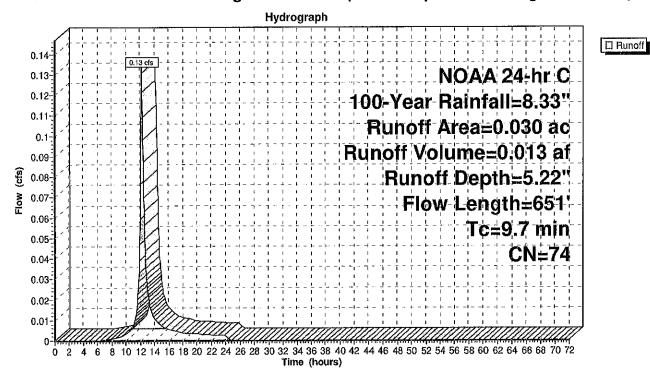
Summary for Subcatchment 33S: Drainage Area PR-7b (Pervious part of Drainage Area PR-7)

0.013 af, Depth= 5.22" 0.13 cfs @ 12.19 hrs, Volume= Runoff Routed to Link 64L: Drainage Area PR-7 (Undetained Runoff in pipes to P.O.I. "A")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

	Area	(ac) C	N Desi	cription		
	0.	030 7	⁷ 4 >75 ⁹	% Grass c	over, Good	, HSG C
-	0.	030 7	'4 100.	00% Pervi	ous Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
•	5.9	17	0.0050	0.05		Sheet Flow,
						Grass: Dense n= 0.240 P2= 3.35"
	0.8	30	0.0050	0.64		Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.35"
	1.0	122	0.0100	2.03		Shallow Concentrated Flow,
						Paved Kv= 20.3 fps
	2.0	482	0.0050	4.03	4.95	Pipe Channel, CMP_Round_15"
						15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
_			·			n= 0.012
	9.7	651	Total			

Subcatchment 33S: Drainage Area PR-7b (Pervious part of Drainage Area PR-7)



Runoff

(cfs)

0.00

0.00

0.00

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Hydrograph for Subcatchment 33S: Drainage Area PR-7b (Pervious part of Drainage Area PR-7)

Time Precip. Excess

8.33

8.33

8.33

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(hours) (inches) (inches)

51.00

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53.00

54.00

55.00

56.00

57.00

58.00

59.00

60.00

61.00

62.00

63.00

64.00

65.00

66.00

67.00

68.00

69.00

70.00

71.00

,			
Time	Precip.	Excess	Runoff
(hours)	(inches)	(inches)	(cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.19	0.00	0.00
3.00	0.29	0.00	0.00
4.00	0.41	0.00	0.00
5.00	0.53	0.00	0.00
6.00	0.66	0.00	0.00
7.00	0.81	0.00	0.00
8.00	1.00	0.02	0.00
9.00	1.22	0.07	0.00
10.00	1.52	0.15	0.00
11.00	2.00	0.35	0.01
12.00	3.97	1.57	0.06
13.00	6.33	3.47	0.03
14.00	6.81	3.88	0.01
15.00	7.11	4.14	0.01
16.00	7.33	4.33	0.01
17.00	7.52	4.50	0.00
18.00	7.67	4.63	0.00
19.00	7.80	4.75	0.00
20.00	7.92	4.86	0.00
21.00	8.04	4.96	0.00
22.00	8.14	5.05	0.00
23.00	8.24	5.14	0.00
24.00	8.33	5.22	0.00
25.00	8.33	5.22	0.00
26.00	8.33	5.22	0.00
27.00	8.33	5.22	0.00
28.00	8.33	5.22	0.00
29.00	8.33	5.22	0.00
30.00	8.33	5.22 5.22	0.00
31.00	8.33	5.22 5.22	0.00
32.00	8.33	5.22 5.22	0.00
33.00	8.33	5.22 5.22	0.00
34.00	8.33	5.22 5.22	
35.00	8.33	5.22 5.22	0.00
36.00	8.33		0.00
		5.22	0.00
37.00	8.33	5.22	0.00
38.00 39.00	8.33	5.22	0.00
	8.33	5.22	0.00
40.00	8.33	5.22	0.00
41.00	8.33	5.22	0.00
42.00	8.33	5.22	0.00
43.00	8.33	5.22	0.00
44.00	8.33	5.22	0.00
45.00	8.33	5.22	0.00
46.00	8.33	5.22	0.00
47.00	8.33	5.22	0.00
48.00	8.33	5.22	0.00
49.00	8.33	5.22	0.00
50.00	8.33	5.22	0.00
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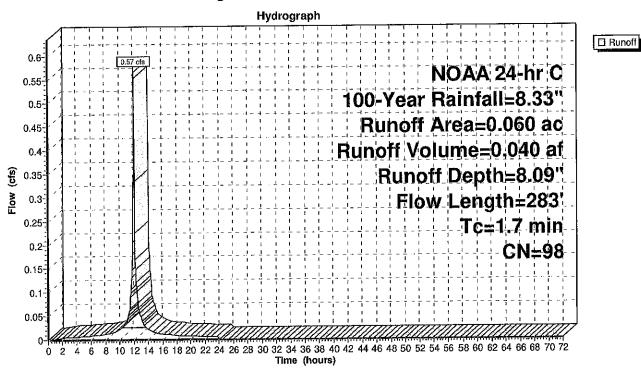
Summary for Subcatchment 34S: Drainage Area PR-8a (Impervious part of Drainage Area PR-8)

Runoff = 0.57 cfs @ 12.08 hrs, Volume= 0.040 af, Depth= 8.09" Routed to Link 65L: Drainage Area PR-8 (Overland Runoff to P.O.I. "A")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

Area	(ac) C	N Desc	cription		
0.	060 9	8 Pave	ed parking	, HSG C	
0.	.060 9	8 100.	00% Impe	rvious Area	l
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	17	0.0400	1.30		Sheet Flow,
1.5	266	0.0200	2.87		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.7	283	Total	·		

Subcatchment 34S: Drainage Area PR-8a (Impervious part of Drainage Area PR-8)



Runoff

(cfs) 0.00

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Hydrograph for Subcatchment 34S: Drainage Area PR-8a (Impervious part of Drainage Area PR-8)

,	4-p					
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	8.33	8.09
1.00	0.09	0.01	0.00	52.00	8.33	8.09
2.00	0.19	0.06	0.00	53.00	8.33	8.09
3.00	0.29	0.14	0.01	54.00	8.33	8.09
4.00	0.41	0.24	0.01	55.00	8.33	8.09
5.00	0.53	0.34	0.01	56.00	8.33	8.09
6.00	0.66	0.47	0.01	57.00	8.33	8.09
7.00	0.81	0.61	0.01	58.00	8.33	8.09
8.00	1.00	0.79	0.01	59.00	8.33	8.09
9.00	1.22	1.00	0.01	60.00	8.33	8.09
10.00	1.52	1.30	0.02	61.00	8.33	8.09
11.00	2.00	1.77	0.04	62.00	8.33	8.09
12.00	3.97	3.74	0.35	63.00	8.33	8.09
13.00	6.33	6.09	0.05	64.00	8.33	8.09
14.00	6.81	6.57	0.02	65.00	8.33	8.09
15.00	7.11	6.87	0.01	66.00	8.33	8.09
16.00	7.33	7.09	0.01	67.00	8.33	8.09
17.00	7.52	7.28	0.01	68.00	8.33	8.09
18.00	7.67	7.43	0.01	69.00	8.33	8.09
19.00	7.80	7.56	0.01	70.00	8.33	8.09
20.00	7.92	7.68	0.01	71.00	8.33	8.09
21.00	8.04	7.80	0.01	72.00	8.33	8.09
22.00	8.14	7.90	0.01			
23.00	8.24	8.00	0.01			
24.00	8.33	8.09	0.01			
25.00	8.33	8.09	0.00			
26.00	8.33	8.09	0.00			
27.00	8.33	8.09	0.00			
28.00	8.33	8.09	0.00			
29.00	8.33	8.09	0.00			
30.00	8.33	8.09	0.00			
31.00	8.33	8.09	0.00			
32.00	8.33	8.09	0.00			
33.00	8.33	8.09	0.00			
34.00	8.33	8.09	0.00			
35.00	8.33	8.09	0.00			
36.00	8.33	8.09	0.00			
37.00	8.33	8.09	0.00			
38.00	8.33	8.09	0.00			
39.00	8.33	8.09	0.00	•		
40.00	8.33	8.09	0.00	·		
41.00	8.33	8.09	0.00			
42.00	8.33	8.09 8.09	0.00 0.00			
43.00 44.00	8.33 8.33	8.09	0.00			
45.00	8.33	8.09	0.00			
46.00	8.33	8.09	0.00			
47.00	8.33	8.09	0.00			
48.00	8.33	8.09	0.00			
49.00	8.33	8.09	0.00			
73,00	0.00	0.00	0.00			

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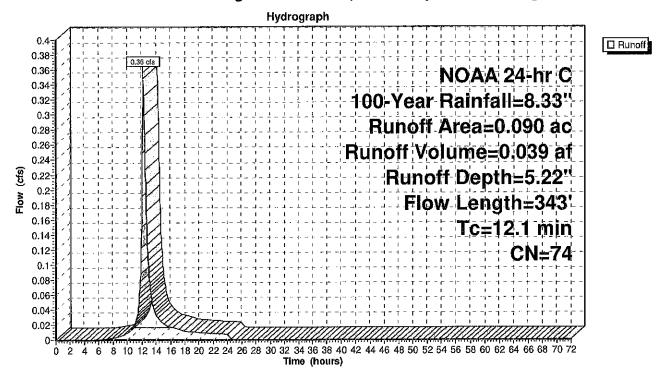
Summary for Subcatchment 35S: Drainage Area PR-8b (Pervious part of Drainage Area PR-8)

Runoff = 0.36 cfs @ 12.22 hrs, Volume= 0.039 af, Depth= 5.22" Routed to Link 65L: Drainage Area PR-8 (Overland Runoff to P.O.I. "A")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

Area	(ac) C	N Des	cription				
0.090 74 >75% Grass cover, Good, HSG C							
0.090 74 100.00% Pervious Area							
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
10.4	49	0.0100	0.08		Sheet Flow,		
1.7	294	0.0200	2.87		Grass: Dense n= 0.240 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps		
12 1	343	Total					

Subcatchment 35S: Drainage Area PR-8b (Pervious part of Drainage Area PR-8)



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Hydrograph for Subcatchment 35S: Drainage Area PR-8b (Pervious part of Drainage Area PR-8)

Trydrograph for cabatterment occi Diamage / Lea 111 oc 1							
Time	Precip.	Excess	Runoff	Time	Precip.	Excess	
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)	
0.00	0.00	0.00	0.00	51.00	8.33	5.22	
1.00	0.09	0.00	0.00	52.00	8.33	5.22	
2.00	0.19	0.00	0.00	53.00	8.33	5.22	
3.00	0.29	0.00	0.00	54.00	8.33	5.22	
4.00	0.41	0.00	0.00	55.00	8.33	5.22	
5.00	0.53	0.00	0.00	56.00	8.33	5.22	
6.00	0.66	0.00	0.00	57.00	8.33	5.22	
7.00	0.81	0.00	0.00	58.00	8.33	5.22	
8.00	1.00	0.02	0.00	59.00	8.33	5.22	
9.00	1.22	0.07	0.00	60.00	8.33	5.22	
10.00	1.52	0.15	0.01	61.00	8.33	5.22	
11.00	2.00	0.35	0.02	62.00	8.33	5.22	
12.00	3.97	1.57	0.15	63.00	8.33	5.22	
13.00	6.33	3.47	0.09	64.00	8.33	5.22	
14.00	6.81	3.88	0.03	65.00	8.33	5.22	
15.00	7.11	4.14	0.02	66.00	8.33	5.22	
16.00	7.33	4.33	0.02	67.00	8.33	5.22	
17.00	7.52	4.50	0.01	68.00	8.33	5.22	
18.00	7.67	4.63	0.01	69.00	8.33	5.22	
19.00	7.80	4.75	0.01	70.00	8.33	5.22	
20.00	7.92	4.86	0.01	71.00	8.33	5.22	
21.00	8.04	4.96	0.01	72.00	8.33	5.22	
22.00	8.14	5.05	0.01				
23.00	8.24	5.14	0.01				
24.00	8.33	5.22	0.01				
25.00	8.33	5.22 5.22	0.00 0.00				
26.00	8.33	5.22	0.00				
27.00	8.33 8.33	5.22	0.00				
28.00 29.00	8.33	5.22	0.00				
30.00	8.33	5.22	0.00				
31.00	8.33	5.22	0.00				
32.00	8.33	5.22	0.00				
33.00	8.33	5.22	0.00				
34.00	8.33	5.22	0.00				
35.00	8.33	5.22	0.00				
36.00	8.33	5.22	0.00				
37.00	8.33	5.22	0.00				
38.00	8.33	5.22	0.00				
39.00	8.33	5.22	0.00				
40.00		5.22	0.00				
41.00		5.22	0.00				
42.00	8.33	5.22	0.00]			
43.00		5.22	0.00				
44.00		5.22	0.00				
45.00		5.22	0.00	1			
46.00		5.22	0.00				
47.00			0.00				
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49.00		5.22	0.00				
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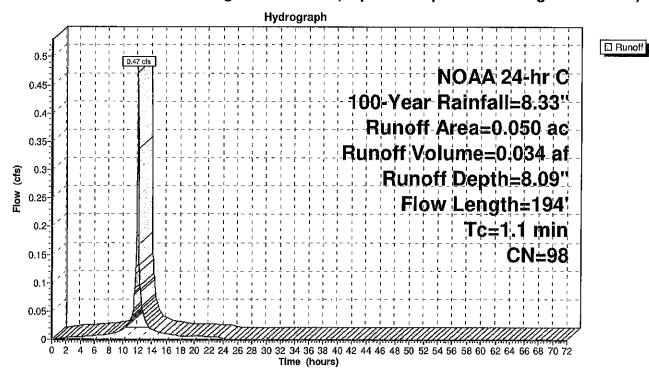
Summary for Subcatchment 36S: Drainage Area PR-9a (Impervious part of Drainage Area PR-9)

0.47 cfs @ 12.07 hrs, Volume= Runoff 0.034 af, Depth= 8.09" Routed to Link 63L: Drainage Area PR-10 (Overland Runoff to P.O.I. "B")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

Area	(ac) C	N Des	cription		
0.	.050 9	98 Pave	ed parking	, HSG C	
0.	.050 9	98 100.	00% Impe	rvious Area	l .
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	18	0.0250	1.09		Sheet Flow,
0.8	176	0.0340	3.74		Smooth surfaces n= 0.011 P2= 3.35" Shallow Concentrated Flow, Paved Kv= 20.3 fps
11	194	Total			

Subcatchment 36S: Drainage Area PR-9a (Impervious part of Drainage Area PR-9)



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Hydrograph for Subcatchment 36S: Drainage Area PR-9a (Impervious part of Drainage Area PR-9)

, 5						
Time	Precip.	Excess	Runoff	Time	Precip.	Excess
(hours)	(inches)	(inches)	(cfs)	(hours)	(inches)	(inches)
0.00	0.00	0.00	0.00	51.00	8.33	8.09
1.00	0.09	0.01	0.00	52.00	8.33	8.09
2.00	0.19	0.06	0.00	53.00	8.33	8.09
3.00	0.29	0.14	0.00	54.00	8.33	8.09
4.00	0.41	0.24	0.01	55.00	8.33	8.09
5.00	0.53	0.34	0.01	56.00	8.33	8.09
6.00	0.66	0.47	0.01	57.00	8.33	8.09
7.00	0.81	0.61	0.01	58.00	8.33	8.09
8.00	1.00	0.79	0.01	59.00	8.33	8.09
9.00	1.22	1.00	0.01	60.00	8.33	8.09
10.00	1.52	1.30	0.02	61.00	8.33	8.09
11.00	2.00	1.77	0.03	62.00	8.33	8.09
12.00	3.97	3.74	0.31	63.00	8.33	8.09
13.00	6.33	6.09	0.04	64.00	8.33	8.09
14.00	6.81	6.57	0.02	65.00	8.33	8.09
15.00	7.11	6.87	0.01	66.00	8.33	8.09
16.00	7.33	7.09	0.01	67.00	8.33	8.09
17.00	7.52	7.28	0.01	68.00	8.33	8.09
18.00	7.67	7.43	0.01	69.00	8.33	8.09
19.00	7.80	7.56	0.01	70.00	8.33	8.09
20.00	7.92	7.68	0.01	71.00	8.33	8.09
21.00	8.04	7.80	0.01	72.00	8.33	8.09
22.00	8.14	7.90	0.01			
23.00	8.24	8.00	0.00			
24.00	8.33	8.09	0.00			
25.00	8.33	8.09	0.00			
26.00	8.33	8.09	0.00			
27.00	8.33	8.09	0.00			
28.00	8.33	8.09	0.00			
29.00	8.33	8.09	0.00			
30.00	8.33	8.09	0.00			
31.00	8.33	8.09	0.00			
32.00	8.33	8.09	0.00			
33.00	8.33	8.09	0.00			
34.00	8.33	8.09	0.00			
35.00	8.33	8.09	0.00			
36.00	8.33	8.09	0.00			
37.00	8.33	8.09	0.00			
38.00	8.33	8.09	0.00			
39.00	8.33	8.09	0.00			
40.00	8.33	8.09	0.00			
41.00	8.33	8.09	0.00			
42.00	8.33	8.09	0.00			
43.00	8.33	8.09	0.00			
44.00	8.33	8.09	0.00			
45.00	8.33	8.09	0.00			
46.00	8.33	8.09	0.00			
47.00	8.33	8.09	0.00			
48.00	8.33	8.09	0.00			
49.00	8.33	8.09	0.00			

50.00

8.09

8.33

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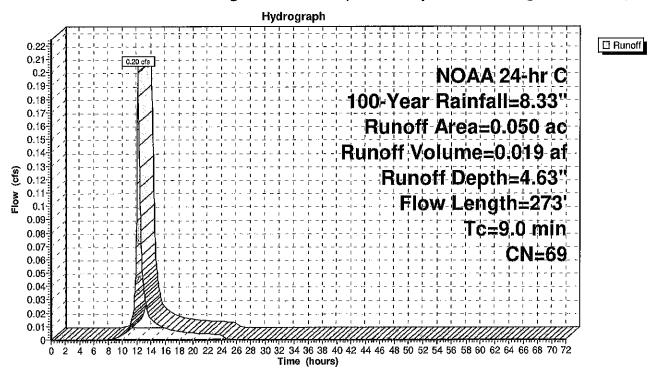
Summary for Subcatchment 37S: Drainage Area PR-9b (Pervious part of Drainage Area PR-9)

Runoff = 0.20 cfs @ 12.18 hrs, Volume= 0.019 af, Depth= 4.63" Routed to Link 63L: Drainage Area PR-10 (Overland Runoff to P.O.I. "B")

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs NOAA 24-hr C 100-Year Rainfall=8.33"

_	Area	(ac) C	N Des	cription			
					over, Good		
0.030 74 >75% Grass cover, Good, HSG C							
	0.050 69 Weighted Average						
	0.	050	69 100.	00% Pervi	ous Area		
	Tc	Length	Slope	Velocity	Capacity	Description	
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)		
	7.6	18	0.0030	0.04		Sheet Flow,	
						Grass: Dense n= 0.240 P2= 3.35"	
	0.2	6	0.0050	0.46		Sheet Flow,	
						Smooth surfaces n= 0.011 P2= 3.35"	
	1.2	249	0.0280	3.40		Shallow Concentrated Flow,	
						Paved Kv= 20.3 fps	
	9.0	273	Total				

Subcatchment 37S: Drainage Area PR-9b (Pervious part of Drainage Area PR-9)



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NOAA 24-hr C 100-Year Rainfall=8.33"

Runoff

(cfs)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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Hydrograph for Subcatchment 37S: Drainage Area PR-9b (Pervious part of Drainage Area PR-9)

- `	•			`	•	`
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)
0.00	0.00	0.00	0.00	51.00	8.33	4.63
1.00	0.09	0.00	0.00	52.00	8.33	4.63
2.00	0.19	0.00	0.00	53.00	8.33	4.63
3.00	0.13	0.00	0.00	54.00	8.33	4.63
4.00	0.23	0.00	0.00	55.00	8.33	4.63
5.00	0.53	0.00	0.00	56.00	8.33	4.63
6.00	0.66	0.00	0.00	57.00	8.33	4.63
7.00	0.81	0.00	0.00	58.00	8.33	4.63
8.00	1.00	0.00	0.00	59.00	8.33	4.63
9.00	1.22	0.02	0.00	60.00	8.33	4.63
10.00	1.52	0.08	0.00	61.00	8.33	4.63
11.00	2.00	0.22	0.01	62.00	8.33	4.63
12.00	3.97	1.25	0.09	63.00	8.33	4.63
13.00	6.33	2.97	0.04	64.00	8.33	4.63
14.00	6.81	3.36	0.02	65.00	8.33	4.63
15.00	7.11	3.61	0.01	66.00	8.33	4.63
16.00	7.33	3.79	0.01	67.00	8.33	4.63
17.00	7.52	3.94	0.01	68.00	8.33	4.63
18.00	7.67	4.07	0.01	69.00	8.33	4.63
19.00	7.80	4.18	0.01	70.00	8.33	4.63
20.00	7.92	4.28	0.01	71.00	8.33	4.63
21.00	8.04	4.38	0.00	72.00	8.33	4.63
22.00	8.14	4.47	0.00			
23.00	8.24	4.55	0.00			
24.00	8.33	4.63	0.00			
25.00	8.33	4.63	0.00			
26.00	8.33	4.63	0.00			
27.00	8.33	4.63	0.00			
28.00	8.33	4.63	0.00			
29.00	8.33	4.63	0.00			
30.00	8.33	4.63	0.00			
31.00	8.33	4.63	0.00			
32.00	8.33	4.63	0.00			
33.00	8.33	4.63	0.00			
34.00	8.33 8.33	4.63	0.00			
35.00 36.00	8.33	4.63 4.63	0.00 0.00			
37.00						
38.00	8.33 8.33	4.63 4.63	0.00 0.00			
39.00	8.33	4.63	0.00			
40.00	8.33	4.63	0.00			
41.00	8.33	4.63	0.00			
42.00	8.33	4.63	0.00			
43.00	8.33	4.63	0.00			
44.00	8.33	4.63	0.00			
45.00	8.33	4.63	0.00			
46.00	8.33	4.63	0.00			
47.00	8.33	4.63	0.00			
48.00	8.33	4.63	0.00			
49.00	8.33	4.63	0.00			
50.00	8.33	4.63	0.00			

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Summary for Link 61L: Total to P.O.I. "A"

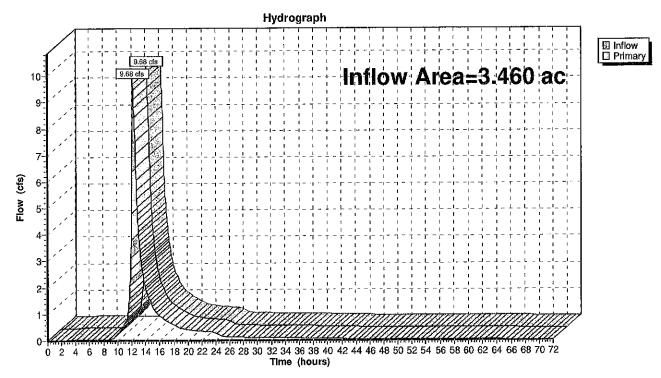
Inflow Area = 3.460 ac, 66.47% Impervious, Inflow Depth > 6.08" for 100-Year event

Inflow = 9.68 cfs @ 12.20 hrs, Volume= 1.754 af

Primary = 9.68 cfs @ 12.20 hrs, Volume= 1.754 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 61L: Total to P.O.I. "A"



Primary (cfs) 0.04 0.04 0.04 0.04 0.04 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.02 0.02 0.01 0.01 0.01 0.01 0.01 0.00 0.00

50.00

0.04

0.00

0.04

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Hydrograph for Link 61L: Total to P.O.I. "A"

			, 			
Time	Inflow	Elevation	Primary	Time	Inflow	Elevation
(hours)	(cfs)	(feet)	<u>(cfs)</u>	(hours)	(cfs)	(feet)
0.00	0.00	0.00	0.00	51.00	0.04	0.00
1.00	0.01	0.00	0.01	52.00	0.04	0.00
2.00	0.01	0.00	0.01	53.00	0.04	0.00
3.00	0.02	0.00	0.02	54.00	0.04	0.00
4.00	0.02	0.00	0.02	55.00	0.04	0.00
5.00	0.02	0.00	0.02	56.00	0.03	0.00
6.00	0.03	0.00	0.03	57.00	0.03	0.00
7.00	0.03	0.00	0.03	58.00	0.03	0.00
8.00	0.04	0.00	0.04	59.00	0.03	0.00
9.00	0.05	0.00	0.05	60.00	0.03	0.00
10.00	0.25	0.00	0.25	61.00	0.03	0.00
11.00	0.60	0.00	0.60	62.00	0.03	0.00
12.00	4.81	0.00	4.81	63.00	0.03	0.00
13.00	4.12	0.00	4.12	64.00	0.02	0.00
14.00	1.98	0.00	1.98	65.00	0.02	0.00
15.00	1.29	0.00	1.29	66.00	0.01	0.00
16.00	0.92	0.00	0.92	67.00	0.01	0.00
17.00	0.72	0.00 0.00	0.72	68.00	0.01	0.00
18.00 19.00	0.57 0.46	0.00	0.57	69.00	0.01	0.00
20.00	0.40	0.00	0.46 0.41	70.00 71.00	0.01 0.00	0.00
21.00	0.41	0.00	0.41	71.00	0.00	0.00 0.00
22.00	0.35	0.00	0.35	72.00	0.00	0.00
23.00	0.33	0.00	0.33			
24.00	0.31	0.00	0.31			
25.00	0.16	0.00	0.16			
26.00	0.13	0.00	0.13			
27.00	0.12	0.00	0.12			
28.00	0.12	0.00	0.12			
29.00	0.11	0.00	0.11			
30.00	0.11	0.00	0.11			
31.00	0.10	0.00	0.10			
32.00	0.10	0.00	0.10			
33.00	0.10	0.00	0.10			
34.00	0.09	0.00	0.09			
35.00	0.09	0.00	0.09			
36.00	0.09	0.00	0.09			
37.00	0.07	0.00	0.07			
38.00	0.06	0.00	0.06			
39.00	0.06	0.00	0.06			
40.00	0.06	0.00	0.06			
41.00	0.05	0.00	0.05			
42.00	0.05	0.00	0.05			
43.00	0.05	0.00	0.05			
44.00	0.05	0.00	0.05			
45.00	0.05	0.00	0.05			
46.00	0.04	0.00	0.04			
47.00	0.04	0.00	0.04			
48.00	0.04	0.00	0.04			
49.00	0.04	0.00	0.04			

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Summary for Link 62L: Total to P.O.I. "B"

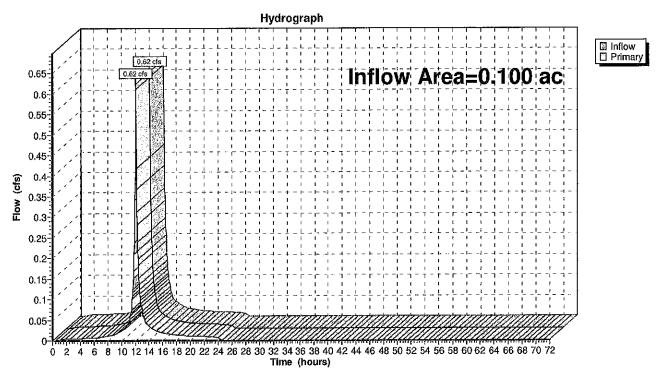
0.100 ac, 50.00% Impervious, Inflow Depth = 6.36" for 100-Year event Inflow Area =

0.053 af Inflow

0.62 cfs @ 12.08 hrs, Volume= 0.62 cfs @ 12.08 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min Primary

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 62L: Total to P.O.I. "B"



Primary (cfs) 0.00

0.00

50.00

0.00

0.00

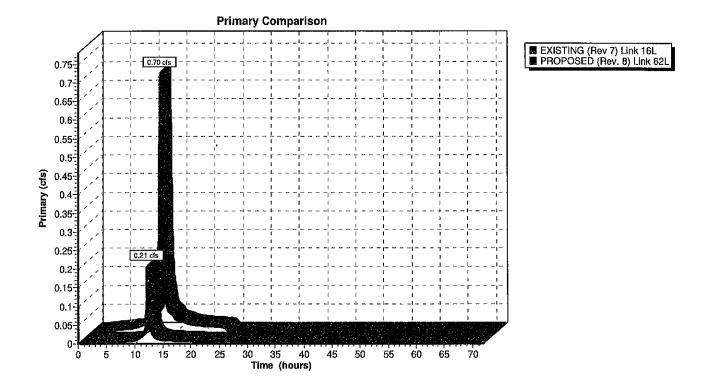
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Hydrograph for Link 62L: Total to P.O.I. "B"

			o g p			
Time	Inflow	Elevation	Primary	Time	Inflow	Elevation
(hours)	(cfs)	(feet)	(cfs)	(hours)	(cfs)	(feet)
0.00	0.00	0.00	0.00	51.00	0.00	0.00
1.00	0.00	0.00	0.00	52.00	0.00	0.00
2.00	0.00	0.00	0.00	53.00	0.00	0.00
3.00	0.00	0.00	0.00	54.00	0.00	0.00
4.00	0.01	0.00	0.01	55.00	0.00	0.00
5.00	0.01	0.00	0.01	56.00	0.00	0.00
6.00	0.01	0.00	0.01	57.00	0.00	0.00
7.00	0.01	0.00	0.01	58.00	0.00	0.00
8.00	0.01	0.00	0.01	59.00	0.00	0.00
9.00	0.01	0.00	0.01	60.00	0.00	0.00
10.00	0.02	0.00	0.02	61.00	0.00	0.00
11.00	0.04	0.00	0.04	62.00	0.00	0.00
12.00	0.40	0.00	0.40	63.00	0.00	0.00
13.00	0.08	0.00	0.08	64.00	0.00	0.00
14.00	0.03	0.00	0.03	65.00	0.00	0.00
15.00	0.02	0.00	0.02	66.00	0.00	0.00
16.00	0.02	0.00	0.02	67.00	0.00	0.00
17.00	0.02	0.00	0.02	68.00	0.00	0.00
18.00	0.01	0.00	0.01	69.00	0.00	0.00
19.00	0.01	0.00	0.01	70.00	0.00	0.00
20.00	0.01	0.00	0.01	71.00	0.00	0.00
21.00	0.01	0.00	0.01	72.00	0.00	0.00
22.00	0.01	0.00	0.01			
23.00	0.01	0.00	0.01			
24.00	0.01	0.00	0.01			
25.00	0.00	0.00	0.00			
26.00	0.00	0.00	0.00			
27.00	0.00	0.00	0.00			
28.00	0.00	0.00	0.00			
29.00	0.00	0.00	0.00			
30.00	0.00	0.00	0.00			
31.00	0.00	0.00	0.00			
32.00	0.00	0.00	0.00			
33.00	0.00	0.00	0.00			
34.00	0.00	0.00	0.00			
35.00	0.00	0.00	0.00			
36.00	0.00	0.00	0.00 0.00			
37.00	0.00 0.00	0.00 0.00	0.00			
38.00 39.00	0.00	0.00	0.00			
40.00	0.00	0.00	0.00			
41.00	0.00	0.00	0.00			
42.00	0.00	0.00	0.00			
42.00 43.00	0.00	0.00	0.00			
44.00	0.00	0.00	0.00			
44.00 45.00	0.00	0.00	0.00			
46.00	0.00	0.00	0.00			
4 0 .00 47.00	0.00	0.00	0.00			
48.00	0.00	0.00	0.00			
49.00	0.00	0.00	0.00			
43.00 50.00	0.00	0.00	0.00			

APPENDIX C: COMPARISON FOR EXISTING AND PROPOSED RATES OF RUNOFF TO P.O.I. 'B'

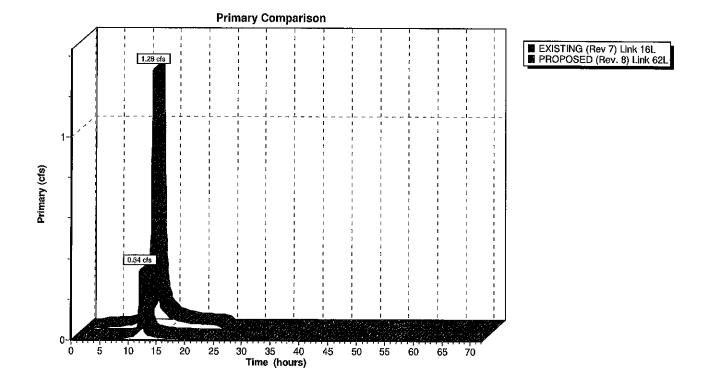


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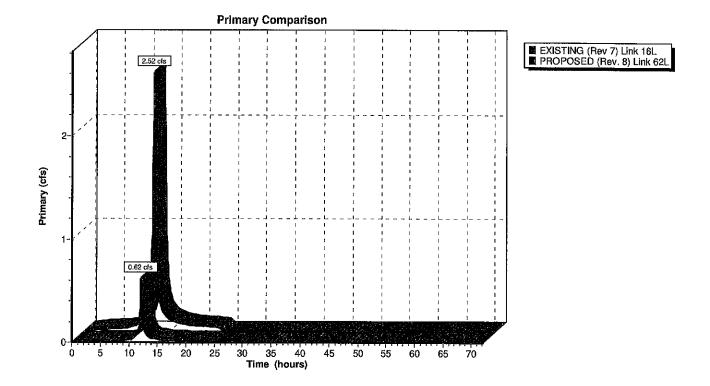
Primary Comparison

Time	EXISTING (Rev 7) Link 16L	PROPOSED (Rev. 8) Link 62L
(hours)	(cfs)	(cf <u>s)</u>
0.00	0.00	0.00
2.50	0.00	0.00
5.00	0.01	0.00
7.50	0.01	0.00
10.00	0.02	0.01
12.50	0.32	0.05
15.00	0.04	0.01
17.50	0.02	0.00
20.00	0.02	0.00
22.50	0.01	0.00
25.00	0.00	0.00
27.50	0.00	0.00
30.00	0.00	0.00
32.50	0.00	0.00
35.00	0.00	0.00
37.50	0.00	0.00
40.00	0.00	0.00
42.50	0.00	0.00
45.00	0.00	0.00
47.50	0.00	0.00
50.00	0.00	0.00
52.50	0.00	0.00
55.00	0.00	0.00
57.50	0.00	0.00
60.00	0.00	0.00
62.50	0.00	0.00
65.00	0.00	0.00
67.50	0.00	0.00
70.00	0.00	0.00



Primary Comparison

Time	EXISTING /Bey 7\ Link 16L	PROPOSED (Rev. 8) Link 62L
(hours)	(cfs)	(cfs)
0.00	0.00	0.00
2.50	0.01	0.00
5.00	0.01	0.00
7.50	0.02	0.01
10.00	0.04	0.01
12.50	0.57	0.09
15.00	0.06	0.01
17.50	0.04	0.01
20.00	0.03	0.01
22.50	0.02	0.01
25.00	0.00	0.00
27.50	0.00	0.00
30.00	0.00	0.00
32.50	0.00	0.00
35.00	0.00	0.00
37.50	0.00	0.00
40.00	0.00	0.00
42.50	0.00	0.00
45.00	0.00	0.00
47.50	0.00	0.00
50.00	0.00	0.00
52.50	0.00	0.00
55.00	0.00	0.00
57.50	0.00	0.00
60.00	0.00	0.00
62.50	0.00	0.00
65.00	0.00	0.00 0.00
67.50	0.00	0.00
70.00	0.00	0.00



Primary Comparison

Time	EXISTING (Rev 7) Link 16L	PROPOSED (Rev. 8) Link 62L
(hours)	(cfs)	(cfs)
0.00	0.00	0.00
2.50	0.01	0.00
5.00	0.02	0.01
7.50	0.03	0.01
10.00	0.09	0.02
12.50	1.10	0.18
15.00	0.12	0.02
17.50	0.07	0.01
20.00	0.05	0.01
22.50	0.04	0.01
25.00	0.00	0.00
27.50	0.00	0.00
30.00	0.00	0.00
32.50	0.00	0.00
35.00	0.00	0.00
37.50	0.00	0.00
40.00	0.00	0.00
42.50	0.00	0.00
45.00	0.00	0.00
47.50	0.00	0.00
50.00	0.00	0.00
52.50	0.00	0.00
55.00	0.00	0.00
57.50	0.00	0.00
60.00	0.00	0.00
62.50	0.00	0.00
65.00	0.00	0.00
67.50	0.00	0.00
70.00	0.00	0.00

APPENDIX D: PROPOSED BIORETENTION SYSTEMS ROUTING

2 YEAR STORM

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Summary for Pond 51P: Proposed Bioretention System #1

Inflow Area =

0.160 ac, 81.25% Impervious, Inflow Depth = 2.71" for 2-Year event

Inflow

0.52 cfs @ 12.08 hrs, Volume=

0.036 af

Outflow

0.13 cfs @ 12.33 hrs, Volume=

0.024 af, Atten= 75%, Lag= 15.2 min

Primary

0.024 af

0.13 cfs @ 12.33 hrs, Volume=

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.13' @ 12.33 hrs Surf.Area= 0.017 ac Storage= 0.019 af

Plug-Flow detention time= 248.5 min calculated for 0.024 af (67% of inflow)

Center-of-Mass det. time= 147.8 min (909.8 - 762.0)

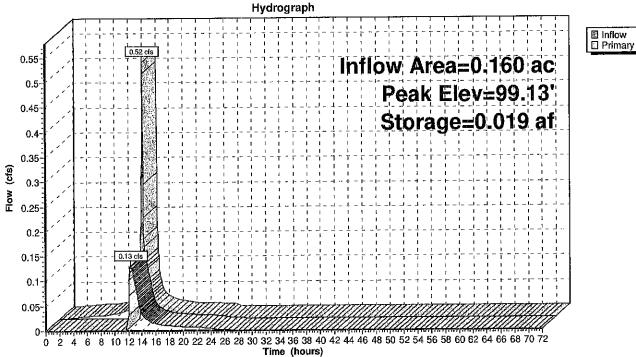
Volume	ln'	<u>vert A</u>	<u>vail.Stora</u>	<u>.ge St</u>	Storage Description
#1	98	.00'	0.051	af Cu	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (fee		urf.Area (acres)		c.Store re-feet)	
98.0		0.017		0.000	
99.0		0.017		0.017	0.017
100.0 101.0		0.017 0.017		0.017 0.017	
Device	Routing	1	Invert	Outlet	t Devices
#1	Primary	1	94.50'	15.0"	Round HDPE Round 15"
				L= 28. Inlet /	6.0' RCP, square edge headwall, Ke= 0.500 Outlet Invert= 94.50' / 94.36' S= 0.0050 '/' Cc= 0.900 012, Flow Area= 1.23 sf
#2	Device	1	98.70'	3.0" V	/ert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device	1	100.50'		x 48.0" Horiz. Grate C= 0.600 ed to weir flow at low heads

Primary OutFlow Max=0.13 cfs @ 12.33 hrs HW=99.13' TW=0.00' (Dynamic Tailwater) 1=HDPE_Round 15" (Passes 0.13 cfs of 11.82 cfs potential flow)

-2=Orifice/Grate (Orifice Controls 0.13 cfs @ 2.64 fps)

-3=Grate (Controls 0.00 cfs)

Pond 51P: Proposed Bioretention System #1





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Hydrograph for Pond 51P: Proposed Bioretention System #1

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.00	0.000	98.01	0.00
5.00	0.00	0.001	98.05	0.00
7.50	0.01	0.002	98.12	0.00
10.00	0.02	0.004	98.26	0.00
12.50	0.10	0.019	99.11	0.13
15.00	0.01	0.014	98.80	0.02
17.50	0.01	0.013	98.77	0.01
20.00	0.01	0.013	98.76	0.01
22.50	0.01	0.013	98.75	0.01
25.00	0.00	0.012	98.73	0.00
27.50	0.00	0.012	98.72	0.00
30.00	0.00	0.012	98.71	0.00
32.50	0.00	0.012	98.71	0.00
35.00	0.00	0.012	98.71	0.00
37.50	0.00	0.012	98.71	0.00
40.00	0.00	0.012	98.71	0.00
42.50	0.00	0.012	98.70	0.00
45.00	0.00	0.012	98.70	0.00
47.50	0.00	0.012	98.70	0.00
50.00	0.00	0.012	98.70	0.00
52.50	0.00	0.012	98.70	0.00
55.00	0.00	0.012	98.70	0.00
57.50	0.00	0.012	98.70	0.00
60.00	0.00	0.012	98.70	0.00
62.50	0.00	0.012	98.70	0.00
65.00	0.00	0.012	98.70	0.00
67.50	0.00	0.012	98.70	0.00
70.00	0.00	0.012	98.70	0.00

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Summary for Pond 52P: Proposed Bioretention System #2

Inflow Area = 0.290 ac, 86.21% Impervious, Inflow Depth = 2.81" for 2-Year event

Inflow = 0.99 cfs @ 12.08 hrs, Volume= 0.068 af

Outflow = 0.17 cfs @ 12.50 hrs, Volume= 0.045 af, Atten= 83%, Lag= 25.0 min

Primary = 0.17 cfs @ 12.50 hrs, Volume= 0.045 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.55' @ 12.50 hrs Surf.Area= 0.025 ac Storage= 0.039 af

Plug-Flow detention time= 267.5 min calculated for 0.045 af (67% of inflow)

Center-of-Mass det. time= 165.3 min (924.8 - 759.6)

Volume	Inve	ert Av	/ail.Stora	ge Sto	rage Description	
#1	98.0	10'	0.075	af Cus	stom Stage Data	(Prismatic) Listed below (Recalc)
Elevatio	et)	rf.Area (acres)		c.Store re-feet)	Cum.Store (acre-feet)	
98.0	00	0.025		0.000	0.000	
99.0	00	0.025		0.025	0.025	
100.0	00	0.025		0.025	0.050	
101.0	00	0.025		0.025	0.075	
Device	Routing		Invert	Outlet D	Devices	
#1	Primary		94.50'	L= 37.0 Inlet / C		dge headwall, Ke= 0.500 60' / 94.31' S= 0.0051 '/' Cc= 0.900
#2	Primary		98.90'	3.0" Ve	rt. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#3	Device 1		100.00'	0.5' lon	g Sharp-Crested	Rectangular Weir 2 End Contraction(s)
#4	Device 1		100.95'	42.0" x	48.0" Horiz. Grat to weir flow at lov	te C= 0.600

Primary OutFlow Max=0.17 cfs @ 12.50 hrs HW=99.55' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 0.00 cfs of 12.42 cfs potential flow)

-3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

-4**=Grate** (Controls 0.00 cfs)

-2=Orifice/Grate (Orifice Controls 0.17 cfs @ 3.47 fps)

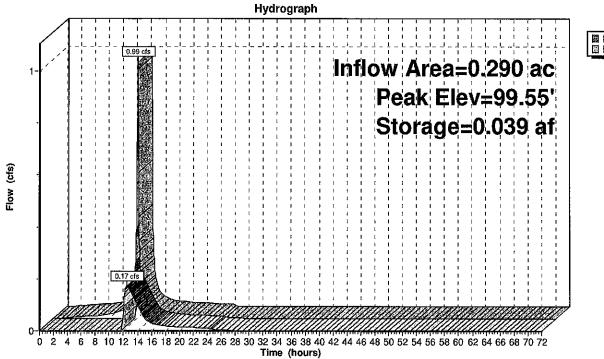
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Pond 52P: Proposed Bioretention System #2





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Hydrograph for Pond 52P: Proposed Bioretention System #2

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.00	0.000	98.01	0.00
5.00	0.01	0.002	98.06	0.00
7.50	0.02	0.004	98.16	0.00
10.00	0.03	0.008	98.34	0.00
12.50	0.18	0.039	99.55	0.17
15.00	0.03	0.027	99.07	0.05
17.50	0.02	0.025	99.00	0.02
20.00	0.01	0.025	98.98	0.01
22.50	0.01	0.024	98.98	0.01
25.00	0.00	0.024	98.95	0.01
27.50	0.00	0.023	98.93	0.00
30.00	0.00	0.023	98.92	0.00
32.50	0.00	0.023	98.91	0.00
35.00	0.00	0.023	98.91	0.00
37.50	0.00	0.023	98.91	0.00
40.00	0.00	0.023	98.91	0.00
42.50	0.00	0.023	98.91	0.00
45.00	0.00	0.023	98.91	0.00
47.50	0.00	0.023	98.91	0.00
50.00	0.00	0.023	98.90	0.00
52.50	0.00	0.023	98.90	0.00
55.00	0.00	0.023	98.90	0.00
57.50	0.00	0.023	98.90	0.00
60.00	0.00	0.023	98.90	0.00
62.50	0.00	0.023	98.90	0.00
65.00	0.00	0.023	98.90	0.00
67.50	0.00	0.023	98.90	0.00
70.00	0.00	0.023	98.90	0.00

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Summary for Pond 53P: Proposed Bioretention System #3

Inflow Area = 0.230 ac, 82.61% Impervious, Inflow Depth = 2.74" for 2-Year event

Inflow = 0.74 cfs @ 12.08 hrs, Volume= 0.052 af

Outflow = 0.32 cfs @ 12.21 hrs, Volume= 0.033 af, Atten= 57%, Lag= 7.4 min

Primary = 0.32 cfs @ 12.21 hrs, Volume= 0.033 af

Routed to Link 61L: Total to P.O.I. "A"

Invert

97.00'

Volume

#1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 98.37' @ 12.21 hrs Surf.Area= 0.019 ac Storage= 0.026 af

Plug-Flow detention time= 228.9 min calculated for 0.033 af (64% of inflow)

Avail.Storage Storage Description

Center-of-Mass det. time= 121.3 min (883.1 - 761.8)

Elevation	on Surf	.Area	Inc.Store	Cum.Store
(fee	et) (a	acres)	(acre-feet)	(acre-feet)
97.0	00	0.019	0.000	0.000
98.0	00	0.019	0.019	0.019
99.(00	0.019	0.019	0.038
100.0	00	0.019	0.019	0.057
Device	Routing	Inv	ert Outlet De	evices
#1	Primary	93.	50' 15.0" Ro	ound HDPE_Round 15"
			L= 11.0'	RCP, square edge headwall, Ke= 0.500
			Inlet / Out	utlet Invert= 93.50' / 93.44' S= 0.0055 '/' Cc= 0.900
			n=0.012,	, Flow Area= 1.23 sf
#2	Device 1	98.	00' 0.5' long	Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Device 1	99.	50' 42.0'' x 4 8	18.0" Horiz. Grate C= 0.600
			Limited to	o weir flow at low heads

0.057 af Custom Stage Data (Prismatic) Listed below (Recalc)

Primary OutFlow Max=0.32 cfs @ 12.21 hrs HW=98.37' TW=0.00' (Dynamic Tailwater)

1=HDPE_Round 15" (Passes 0.32 cfs of 12.18 cfs potential flow)

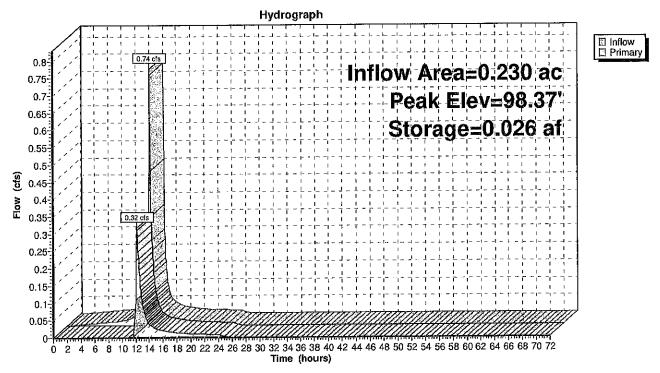
2=Sharp-Crested Rectangular Weir (Weir Controls 0.32 cfs @ 2.00 fps)

-3=Grate (Controls 0.00 cfs)

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Pond 53P: Proposed Bioretention System #3



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Hydrograph for Pond 53P: Proposed Bioretention System #3

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	97.00	0.00
2.50	0.00	0.000	97.01	0.00
5.00	0.01	0.001	97.06	0.00
7.50	0.01	0.003	97.16	0.00
10.00	0.03	0.006	97.34	0.00
12.50	0.14	0.024	98.28	0.21
15.00	0.02	0.020	98.06	0.03
17.50	0.01	0.020	98.04	0.01
20.00	0.01	0.020	98.04	0.01
22.50	0.01	0.020	98.03	0.01
25.00	0.00	0.019	98.01	0.00
27.50	0.00	0.019	98.00	0.00
30.00	0.00	0.019	98.00	0.00
32.50	0.00	0.019	98.00	0.00
35.00	0.00	0.019	98.00	0.00
37.50	0.00	0.019	98.00	0.00
40.00	0.00	0.019	98.00	0.00
42.50	0.00	0.019	98.00	0.00
45.00	0.00	0.019	98.00	0.00
47.50	0.00	0.019	98.00	0.00
50.00	0.00	0.019	98.00	0.00
52.50	0.00	0.019	98.00	0.00
55.00	0.00	0.019	98.00	0.00
57.50	0.00	0.019	98.00	0.00
60.00	0.00	0.019	98.00	0.00
62.50	0.00	0.019	98.00	0.00
65.00	0.00	0.019	98.00	0.00
67.50	0.00	0.019	98.00	0.00
70.00	0.00	0.019	98.00	0.00

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Summary for Pond 54P: Proposed Bioretention System #4

0.710 ac, 78.87% Impervious, Inflow Depth = 2.66" for 2-Year event Inflow Area =

0.157 af 2.16 cfs @ 12.09 hrs, Volume= Inflow

0.22 cfs @ 12.89 hrs, Volume= 0.107 af, Atten= 90%, Lag= 48.1 min Outflow

0.22 cfs @ 12.89 hrs, Volume= 0.107 af Primary

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.04' @ 12.89 hrs Surf.Area= 0.050 ac Storage= 0.103 af

Plug-Flow detention time= 569.3 min calculated for 0.107 af (68% of inflow)

Center-of-Mass det. time= 467.4 min (1,231.8 - 764.4)

Volume	Invert A	vail.Storage	Stora	age Description
#1	98.00'	0.201 a	f Custo	tom Stage Data (Prismatic) Listed below (Recalc)
Elevatio	on Surf.Area		Store	Cum.Store
(fee	t) (acres)	(acre	-feet)	(acre-feet)
98.0	0.050	(0.000	0.000
99.0		(0.050	0.050
100.0	0.050	(0.050	0.101
101.0	0.050	(0.050	0.151
102.0	0.050		0.050	0.201
Device	Routing	Inve <u>rt</u>	Outlet De	evices
#1	Primary			ound HDPE_Round 15"
	•	L	.= 40.0'	RCP, square edge headwall, Ke= 0.500
				itlet Invert= 94.50' / 94.30' S= 0.0050 '/' Cc= 0.900
				2, Flow Area= 1.23 sf
#2	Device 1	99.00' (Chicago	3-in VFR

1.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 99.90 #3 Device 1 **42.0"** x **48.0"** Horiz. Grate C= 0.600 Device 1 101.40 #4 Limited to weir flow at low heads

Primary OutFlow Max=0.22 cfs @ 12.89 hrs HW=100.04' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 0.22 cfs of 13.10 cfs potential flow)

-2=Chicago 3-in VFR (Custom Controls 0.06 cfs)

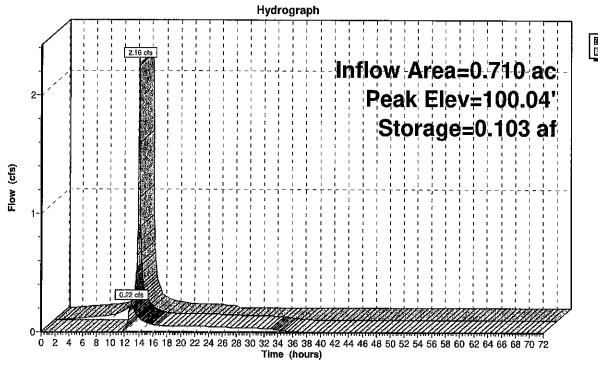
-3=Sharp-Crested Rectangular Weir (Weir Controls 0.16 cfs @ 1.21 fps)

-4=Grate (Controls 0.00 cfs)

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Pond 54P: Proposed Bioretention System #4





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Hydrograph for Pond 54P: Proposed Bioretention System #4

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.01	0.001	98.01	0.00
5.00	0.02	0.004	98.07	0.00
7.50	0.03	0.009	98.18	0.00
10.00	0.07	0.019	98.38	0.00
12.50	0.44	0.100	99.98	0.13
15.00	0.06	0.098	99.94	0.08
17.50	0.04	0.095	99.89	0.05
20.00	0.03	0.091	99.81	0.05
22.50	0.03	0.086	99.72	0.05
25.00	0.00	0.080	99.59	0.05
27.50	0.00	0.071	99.41	0.04
30.00	0.00	0.063	99.26	0.03
32.50	0.00	0.057	99.12	0.03
35.00	0.00	0.052	99.04	0.01
37.50	0.00	0.051	99.01	0.00
40.00	0.00	0.050	99.00	0.00
42.50	0.00	0.050	99.00	0.00
45.00	0.00	0.050	99.00	0.00
47.50	0.00	0.050	99.00	0.00
50.00	0.00	0.050	99.00	0.00
52.50	0.00	0.050	99.00	0.00
55.00	0.00	0.050	99.00	0.00
57.50	0.00	0.050	99.00	0.00
60.00	0.00	0.050	99.00	0.00
62.50	0.00	0.050	99.00	0.00
65.00	0.00	0.050	99.00	0.00
67.50	0.00	0.050	99.00	0.00
70.00	0.00	0.050	99.00	0.00

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Summary for Pond 55P: Proposed Bioretention System #5

Inflow Area = 0.300 ac, 73.33% Impervious, Inflow Depth = 2.48" for 2-Year event

Inflow = 0.82 cfs @ 12.10 hrs, Volume= 0.062 af

Outflow = 0.13 cfs @ 12.60 hrs, Volume= 0.040 af, Atten= 84%, Lag= 30.4 min

Primary = 0.13 cfs @ 12.60 hrs, Volume= 0.040 af

Routed to Link 61L: Total to P.O.I. "A"

Invert

Volume

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.13' @ 12.60 hrs Surf.Area= 0.032 ac Storage= 0.036 af

Plug-Flow detention time= 301.4 min calculated for 0.039 af (64% of inflow)

Avail.Storage Storage Description

Center-of-Mass det. time= 194.6 min (961.5 - 766.9)

7 0 1011110	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			Old - Total District
#1	98.00'	0.096	af Cust	tom Stage Data (Prismatic) Listed below (Recalc)
Elevation	on Surf.Area		c.Store	Cum.Store
(fee	et) (acres)	(ac	re-feet)	<u>(acre-feet)</u>
98.0	0.032		0.000	0.000
99.0	0.032		0.032	0.032
100.0	0.032		0.032	0.064
101.0	0.032		0.032	0.096
Device	Routing	Invert	Outlet De	evices
#1	Primary	94.50'	15.0" Ro	ound HDPE Round 15"
	•		L = 35.0	RCP, square edge headwall, Ke= 0.500
			Inlet / Ou	utlet Invert= 94.50' / 94.33' S= 0.0049 '/' Cc= 0.900
			n = 0.012	2, Flow Area= 1.23 sf
#2	Device 1	98.70'	3.0" Vert	t. Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	100.70'	42.0" x 4	48.0" Horiz. Grate C= 0.600
			Limited to	to weir flow at low heads

Primary OutFlow Max=0.13 cfs @ 12.60 hrs HW=99.13' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 0.13 cfs of 11.82 cfs potential flow)

-2=Orifice (Orifice Controls 0.13 cfs @ 2.64 fps)

-3=Grate (Controls 0.00 cfs)

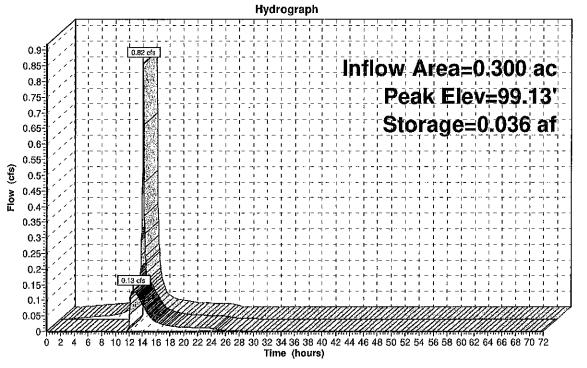
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Pond 55P: Proposed Bioretention System #5





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Hydrograph for Pond 55P: Proposed Bioretention System #5

	,	0 1	= 1	D
Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.00	0.000	98.01	0.00
5.00	0.01	0.001	98.04	0.00
7.50	0.01	0.003	98.11	0.00
10.00	0.03	0.007	98.23	0.00
12.50	0.18	0.036	99.12	0.13
15.00	0.03	0.028	98.87	0.05
17.50	0.02	0.026	98.80	0.02
20.00	0.01	0.025	98.78	0.01
22.50	0.01	0.025	98.78	0.01
25.00	0.00	0.024	98.75	0.01
27.50	0.00	0.023	98.73	0.00
30.00	0.00	0.023	98.72	0.00
32.50	0.00	0.023	98.72	0.00
35.00	0.00	0.023	98.71	0.00
37.50	0.00	0.023	98.71	0.00
40.00	0.00	0.023	98.71	0.00
42.50	0.00	0.023	98.71	0.00
45.00	0.00	0.023	98.71	0.00
47.50	0.00	0.023	98.71	0.00
50.00	0.00	0.023	98.71	0.00
52.50	0.00	0.023	98.71	0.00
55.00	0.00	0.023	98.71	0.00
57.50	0.00	0.023	98.70	0.00
60.00	0.00	0.023	98.70	0.00
62.50	0.00	0.023	98.70	0.00
65.00	0.00	0.023	98.70	0.00
67.50	0.00	0.023	98.70	0.00
70.00	0.00	0.023	98.70	0.00
	2.30			

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Summary for Pond 56P: Proposed Bioretention System #6

Inflow Area = 1.450 ac, 51.72% Impervious, Inflow Depth = 1.79" for 2-Year event

Inflow = 2.51 cfs @ 12.10 hrs, Volume= 0.217 af

Outflow = 0.06 cfs @ 18.06 hrs, Volume= 0.149 af, Atten= 98%, Lag= 357.5 min

Primary = 0.06 cfs @ 18.06 hrs, Volume= 0.149 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 98.49' @ 18.06 hrs Surf.Area= 4,912 sf Storage= 7,331 cf

Plug-Flow detention time= 1,168.3 min calculated for 0.149 af (69% of inflow)

Center-of-Mass det. time= 1,062.7 min (1,839.9 - 777.2)

Volume	Inve	ert Avail.Sto	rage Storage	Description			
#1	97.0	00' 19,64	48 cf Custom	Stage Data (Pr	ismatic) Listed below (Recalc)		
Elevatio		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
97.0 98.0 99.0 100.0	00 00 00 00	4,912 4,912 4,912 4,912 4,912	0 4,912 4,912 4,912 4,912	0 4,912 9,824 14,736 19,648			
Device	Routing	Invert	Outlet Device	98			
#1	Primary	93.50'	L= 50.0' RC Inlet / Outlet I		headwall, Ke= 0.500 3.25' S= 0.0050 '/' Cc= 0.900		
#2 #3 #4	Device 1 Device 1 Device 1		Chicago 3-in VFR 1.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 42.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads				

Primary OutFlow Max=0.06 cfs @ 18.06 hrs HW=98.49' TW=0.00' (Dynamic Tailwater) 1=HDPE_Round 15" (Passes 0.06 cfs of 12.35 cfs potential flow)

-2=Chicago 3-in VFR (Custom Controls 0.06 cfs)

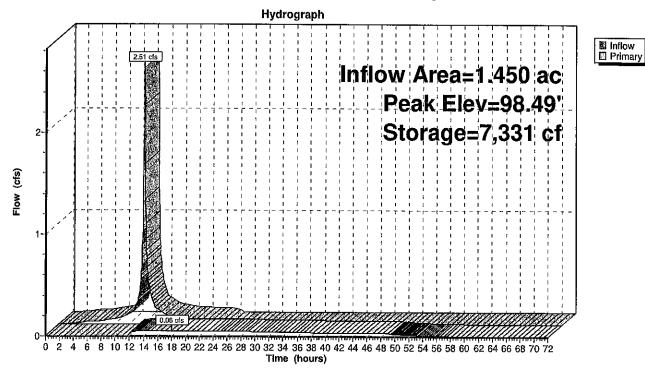
-3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

-4=Orifice/Grate (Controls 0.00 cfs)

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Pond 56P: Proposed Bioretention System #6



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Hydrograph for Pond 56P: Proposed Bioretention System #6

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(cubic-feet)	(feet)	(cfs)
0.00	0.00	0	97.00	0.00
2.50	0.01	28	97.01	0.00
5.00	0.03	202	97.04	0.00
7.50	0.05	512	97.10	0.00
10.00	0.10	1,095	97.22	0.00
12.50	0.63	5,637	98.15	0.04
15.00	0.10	7,111	98.45	0.05
17.50	0.06	7,323	98.49	0.05
20.00	0.05	7,302	98.49	0.05
22.50	0.04	7,206	98.47	0.05
25.00	0.00	6,949	98.41	0.05
27.50	0.00	6,489	98.32	0.05
30.00	0.00	6,056	98.23	0.05
32.50	0.00	5,646	98.15	0.04
35.00	0.00	5,260	98.07	0.04
37.50	0.00	4,895	98.00	0.04
40.00	0.00	4,551	97.93	0.04
42.50	0.00	4,226	97.86	0.04
45.00	0.00	3,919	97.80	0.03
47.50	0.00	3,630	97.74	0.03
50.00	0.00	3,363	97.68	0.03
52.50	0.00	3,187	97.65	0.01
55.00	0.00	3,086	97.63	0.01
57.50	0.00	3,027	97.62	0.00
60.00	0.00	2,993	97.61	0.00
62.50	0.00	2,974	97.61	0.00
65.00	0.00	2,963	97.60	0.00
67.50	0.00	2,956	97.60	0.00
70.00	0.00	2,952	97.60	0.00

10 YEAR STORM

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Summary for Pond 51P: Proposed Bioretention System #1

0.160 ac. 81.25% Impervious, Inflow Depth = 4.32" for 10-Year event Inflow Area =

0.80 cfs @ 12.08 hrs, Volume= Inflow 0.058 af

0.21 cfs @ 12.33 hrs, Volume= 0.046 af, Atten= 74%, Lag= 15.2 min Outflow

0.046 af Primary = 0.21 cfs @ 12.33 hrs, Volume=

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.61' @ 12.33 hrs Surf.Area= 0.017 ac Storage= 0.027 af

Plug-Flow detention time= 205.2 min calculated for 0.046 af (79% of inflow)

Center-of-Mass det. time= 122.5 min (877.9 - 755.4)

Volume	Inve	ert A	vail.Stora	ıge :	Storage De	escription					
#1	98.0	00'	0.051	af (Custom S	tage Data	(Prismatic) Listed be	low (Red	calc)	
Elevation		ırf.Area		c.Stor		m.Store					
(fee	et)	(acres)	(ac	<u>re-fee</u>	t) (ad	cre-feet)					
98.0	00	0.017		0.00	0	0.000					
99.0	00	0.017		0.01	7	0.017					
100.0	00	0.017		0.01	7	0.034					
101.0	00	0.017		0.01	7	0.051			•		
Device	Routing		Invert	Outle	t Devices		<u></u>				····
#1	Primary		94.50'	15.0	' Round l	HDPE_Ro	und 15"				
	•			L=2	3.0' RCP	, square e	dge headw	all, Ke=0	.500		
				Inlet	/ Outlet In	vert= 94.5	0' / 94.36'	S = 0.0056	0 '/' Cc=	= 0.900	
				n= 0	012, Flov	v Area= 1.	23 sf				
#2	Device 1		98.70'	3.0"	Vert. Orifi	ce/Grate	C = 0.600	Limited t	o weir flo	ow at low he	ads
#3	Device 1		100.50'			loriz. Grat flow at lov	t e C= 0.69 w heads	00			

Primary OutFlow Max=0.21 cfs @ 12.33 hrs HW=99.61' TW=0.00' (Dynamic Tailwater)

-1=HDPE Round 15" (Passes 0.21 cfs of 12.51 cfs potential flow)

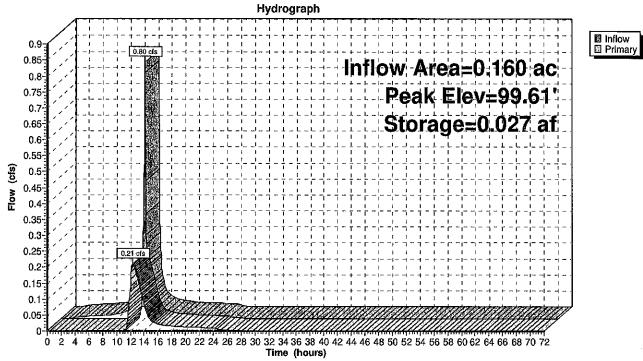
-2=Orifice/Grate (Orifice Controls 0.21 cfs @ 4.26 fps)

-3=Grate (Controls 0.00 cfs)

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Pond 51P: Proposed Bioretention System #1





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Hydrograph for Pond 51P: Proposed Bioretention System #1

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.00	0.000	98.02	0.00
5.00	0.01	0.002	98.10	0.00
7.50	0.01	0.004	98.22	0.00
10.00	0.03	0.008	98.45	0.00
12.50	0.16	0.027	99.58	0.21
15.00	0.02	0.014	98.83	0.03
17.50	0.01	0.013	98.79	0.02
20.00	0.01	0.013	98.78	0.01
22.50	0.01	0.013	98.77	0.01
25.00	0.00	0.013	98.74	0.00
27.50	0.00	0.012	98.72	0.00
30.00	0.00	0.012	98.71	0.00
32.50	0.00	0.012	98.71	0.00
35.00	0.00	0.012	98.71	0.00
37.50	0.00	0.012	98.71	0.00
40.00	0.00	0.012	98.71	0.00
42.50	0.00	0.012	98.70	0.00
45.00	0.00	0.012	98.70	0.00
47.50	0.00	0.012	98.70	0.00
50.00	0.00	0.012	98.70	0.00
52.50	0.00	0.012	98.70	0.00
55.00	0.00	0.012	98.70	0.00
57.50	0.00	0.012	98.70	0.00
60.00	0.00	0.012	98.70	0.00
62.50	0.00	0.012	98.70	0.00
65.00	0.00	0.012	98.70	0.00
67.50	0.00	0.012	98.70	0.00
70.00	0.00	0.012	98.70	0.00

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Summary for Pond 52P: Proposed Bioretention System #2

Inflow Area = 0.290 ac, 86.21% Impervious, Inflow Depth = 4.44" for 10-Year event

Inflow = 1.54 cfs @ 12.08 hrs, Volume= 0.107 af

Outflow = 0.39 cfs @ 12.32 hrs, Volume= 0.085 af, Atten= 75%, Lag= 14.0 min

Primary = 0.39 cfs @ 12.32 hrs, Volume= 0.085 af

Routed to Link 61L: Total to P.O.I. "A"

Valuma

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.20' @ 12.32 hrs Surf.Area= 0.025 ac Storage= 0.055 af

Plug-Flow detention time= 224.5 min calculated for 0.085 af (79% of inflow)

Avail Starons Starons Description

Center-of-Mass det. time= 143.3 min (895.9 - 752.5)

volume	Inve	ert A	<u>vali Stora</u>	ge S	torage Description
#1	98.0)0'	0.075	af C	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (fee		rf.Area (acres)		c.Store	
98.0	00	0.025	(au	0.000	0.000
99.0 100.0	00	0.025 0.025		0.025	5 0.050
101.0	00	0.025		0.025	5 0.075
Device	Routing		Invert	Outle	t Devices
#1	Primary		94.50'	15.0"	Round HDPE_Round 15"
				Inlet /	7.0' RCP, square edge headwall, Ke= 0.500 Outlet Invert= 94.50' / 94.31' S= 0.0051 '/' Cc= 0.900 012, Flow Area= 1.23 sf
#2	Primary		98.90'		/ert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1		100.00'		ong Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1		100.95'		x 48.0" Horiz. Grate C= 0.600 ed to weir flow at low heads

Primary OutFlow Max=0.39 cfs @ 12.32 hrs HW=100.20' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 0.13 cfs of 13.31 cfs potential flow)

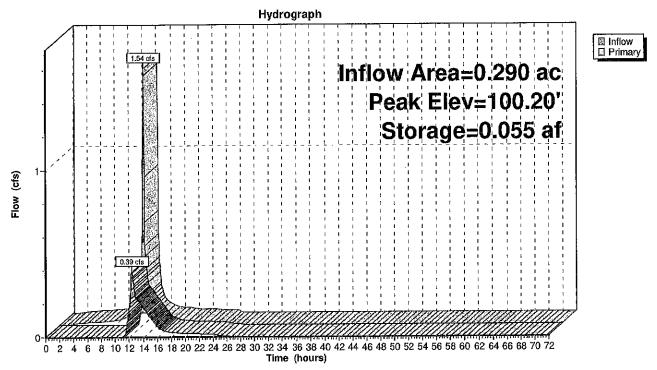
3=Sharp-Crested Rectangular Weir (Weir Controls 0.13 cfs @ 1.46 fps)

4=Grate (Controls 0.00 cfs)

⁻²⁼Orifice/Grate (Orifice Controls 0.26 cfs @ 5.22 fps)

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Pond 52P: Proposed Bioretention System #2



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Hydrograph for Pond 52P: Proposed Bioretention System #2

		_		
Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.01	0.001	98.03	0.00
5.00	0.02	0.003	98.13	0.00
7.50	0.03	0.007	98.29	0.00
10.00	0.05	0.015	98.58	0.00
12.50	0.28	0.054	100.16	0.35
15.00	0.04	0.032	99.27	0.12
17.50	0.03	0.026	99.03	0.03
20.00	0.02	0.025	99.01	0.02
22.50	0.02	0.025	98.99	0.02
25.00	0.00	0.024	98.96	0.01
27.50	0.00	0.023	98.93	0.00
30.00	0.00	0.023	98.92	0.00
32.50	0.00	0.023	98.91	0.00
35.00	0.00	0.023	98.91	0.00
37.50	0.00	0.023	98.91	0.00
40.00	0.00	0.023	98.91	0.00
42.50	0.00	0.023	98.91	0.00
45.00	0.00	0.023	98.91	0.00
47.50	0.00	0.023	98.91	0.00
50.00	0.00	0.023	98.90	0.00
52.50	0.00	0.023	98.90	0.00
55.00	0.00	0.023	98.90	0.00
57.50	0.00	0.023	98.90	0.00
60.00	0.00	0.023	98.90	0.00
62.50	0.00	0.023	98.90	0.00
65.00	0.00	0.023	98.90	0.00
67.50	0.00	0.023	98.90	0.00
70.00	0.00	0.023	98.90	0.00

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Summary for Pond 53P: Proposed Bioretention System #3

0.230 ac, 82.61% Impervious, Inflow Depth = 4.36" for 10-Year event Inflow Area =

Inflow 1.15 cfs @ 12.08 hrs, Volume= 0.083 af

0.69 cfs @ 12.17 hrs, Volume= Outflow 0.064 af, Atten= 41%, Lag= 4.8 min

0.69 cfs @ 12.17 hrs, Volume= 0.064 af Primary

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 98.70' @ 12.17 hrs Surf.Area= 0.019 ac Storage= 0.032 af

Plug-Flow detention time= 179.7 min calculated for 0.064 af (77% of inflow) Center-of-Mass det. time= 93.8 min (849.0 - 755.2)

Volume	Invert A	vail.Storage	e Storage Description
#1	97.00'	0.057 a	af Custom Stage Data (Prismatic) Listed below (Recalc)
Elevatio			Store Cum.Store e-feet) (acre-feet)
97.0			0.000 0.000
98.0			0.019 0.019
99.0	0.019	(0.019 0.038
100.0	0.019	(0.019 0.057
Device	Routing	Invert C	Outlet Devices
#1	Primary	93.50' 1	15.0" Round HDPE_Round 15"
	-		L= 11.0' RCP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 93.50' / 93.44' S= 0.0055 '/' Cc= 0.900
			n= 0.012, Flow Area= 1.23 sf
#2	Device 1		0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Device 1		42.0" x 48.0" Horiz. Grate C= 0.600
		L	Limited to weir flow at low heads

Primary OutFlow Max=0.68 cfs @ 12.17 hrs HW=98.69' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 0.68 cfs of 12.62 cfs potential flow) -2=Sharp-Crested Rectangular Weir (Weir Controls 0.68 cfs @ 2.71 fps)

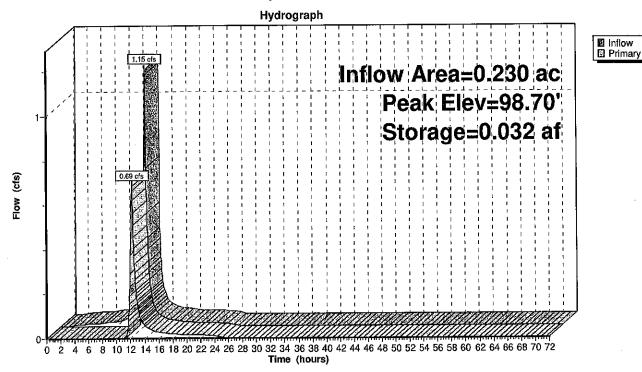
-3=Grate (Controls 0.00 cfs)

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Pond 53P: Proposed Bioretention System #3



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Hydrograph for Pond 53P: Proposed Bioretention System #3

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	97.00	0.00
2.50	0.01	0.001	97.03	0.00
5.00	0.01	0.002	97.13	0.00
7.50	0.02	0.006	97.29	0.00
10.00	0.04	0.011	97.58	0.00
12.50	0.23	0.027	98.42	0.37
15.00	0.03	0.021	98.08	0.04
17.50	0.02	0.020	98.06	0.02
20.00	0.02	0.020	98.05	0.02
22.50	0.01	0.020	98.04	0.01
25.00	0.00	0.019	98.01	0.00
27.50	0.00	0.019	98.00	0.00
30.00	0.00	0.019	98.00	0.00
32.50	0.00	0.019	98.00	0.00
35.00	0.00	0.019	98.00	0.00
37.50	0.00	0.019	98.00	0.00
40.00	0.00	0.019	98.00	0.00
42.50	0.00	0.019	98.00	0.00
45.00	0.00	0.019	98.00	0.00
47.50	0.00	0.019	98.00	0.00
50.00	0.00	0.019	98.00	0.00
52.50	0.00	0.019	98.00	0.00
55.00	0.00	0.019	98.00	0.00
57.50	0.00	0.019	98.00	0.00
60.00	0.00	0.019	98.00	0.00
62.50	0.00	0.019	98.00	0.00
65.00	0.00	0.019	98.00	0.00
67.50	0.00	0.019	98.00	0.00
70.00	0.00	0.019	98.00	0.00

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Summary for Pond 54P: Proposed Bioretention System #4

Inflow Area = 0.710 ac, 78.87% Impervious, Inflow Depth = 4.27" for 10-Year event

Inflow = 3.39 cfs @ 12.09 hrs, Volume= 0.252 af

Outflow = 1.42 cfs @ 12.24 hrs, Volume= 0.202 af, Atten= 58%, Lag= 8.8 min

Primary = 1.42 cfs @ 12.24 hrs, Volume= 0.202 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.50' @ 12.24 hrs Surf.Area= 0.050 ac Storage= 0.126 af

Plug-Flow detention time= 393.0 min calculated for 0.202 af (80% of inflow)

Center-of-Mass det. time= 313.0 min (1,071.0 - 758.0)

<u>Volume</u>	Inve	ert A	vail.Stora	ge Sto	torage Description
#1	98.0	90'	0.201	af Cu	ustom Stage Data (Prismatic) Listed below (Recalc)
Elevation		rf.Area		c.Store	T
(fee	et)	(acres)	(acr	<u>re-feet)</u>	(acre-feet)
98.0	00	0.050		0.000	0.000
99.0	00	0.050		0.050	0.050
100.0	00	0.050		0.050	0.101
101.0		0.050		0.050	0.151
102.0	00	0.050		0.050	0.201
Device	Routing		Invert	Outlet I	: Devices
#1	Primary		94.50'	15.0" I	Round HDPE Round 15"
	•				.0' RCP, square edge headwall, Ke= 0.500
					Outlet Invert= 94.50' / 94.30' S= 0.0050 '/' Cc= 0.900
				n = 0.01	012, Flow Area= 1.23 sf
#2	Device 1		99.00'	Chicag	go 3-in VFR
#3	Device 1		99.90'	1.0' lor	ng Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1		101.40'		x 48.0" Horiz. Grate C= 0.600
				Limited	d to weir flow at low heads

Primary OutFlow Max=1.42 cfs @ 12.24 hrs HW=100.50' TW=0.00' (Dynamic Tailwater)
1=HDPE Round 15" (Passes 1.42 cfs of 13.70 cfs potential flow)

2=Chicago 3-in VFR (Custom Controls 0.07 cfs)

-3=Sharp-Crested Rectangular Weir (Weir Controls 1.34 cfs @ 2.54 fps)

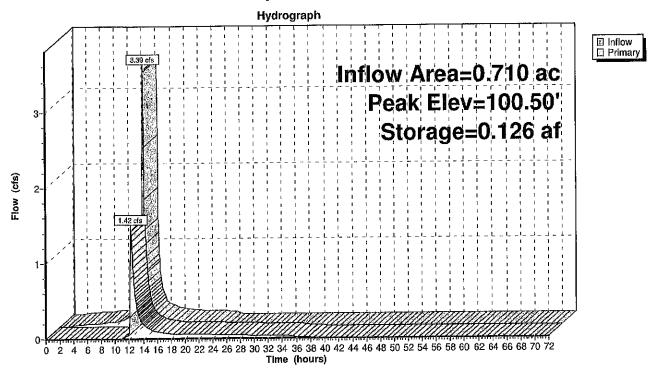
-4=Grate (Controls 0.00 cfs)

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Pond 54P: Proposed Bioretention System #4



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Hydrograph for Pond 54P: Proposed Bioretention System #4

Time a	ludlass	01-4-4-	□[Dui
Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.02	0.002	98.03	0.00
5.00	0.03	0.007	98.15	0.00
7.50	0.06	0.016	98.33	0.00
10.00	0.12	0.033	98.65	0.00
12.50	0.71	0.119	100.37	1.02
15.00	0.10	0.099	99.98	0.12
17.50	0.06	0.097	99.93	0.07
20.00	0.05	0.096	99.90	0.06
22.50	0.04	0.093	99.86	0.05
25.00	0.00	0.088	99.74	0.05
27.50	0.00	0.078	99.55	0.04
30.00	0.00	0.069	99.38	0.04
32.50	0.00	0.062	99.23	0.03
35.00	0.00	0.055	99.10	0.03
37.50	0.00	0.052	99.03	0.01
40.00	0.00	0.051	99.01	0.00
42.50	0.00	0.050	99.00	0.00
45.00	0.00	0.050	99.00	0.00
47.50	0.00	0.050	99.00	0.00
50.00	0.00	0.050	99.00	0.00
52.50	0.00	0.050	99.00	0.00
55.00	0.00	0.050	99.00	0.00
57.50	0.00	0.050	99.00	0.00
60.00	0.00	0.050	99.00	0.00
62.50	0.00	0.050	99.00	0.00
65.00	0.00	0.050	99.00	0.00
67.50	0.00	0.050	99.00	0.00
70.00	0.00	0.050	99.00	0.00
, 0.00	0,00	0.000	50.00	0.00

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Summary for Pond 55P: Proposed Bioretention System #5

Inflow Area = 0.300 ac, 73.33% Impervious, Inflow Depth = 4.02" for 10-Year event

Inflow = 1.30 cfs @ 12.10 hrs, Volume= 0.101 af

Outflow = 0.22 cfs @ 12.58 hrs, Volume= 0.078 af, Atten= 83%, Lag= 29.3 min

Primary = 0.22 cfs @ 12.58 hrs, Volume= 0.078 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.72' @ 12.58 hrs Surf.Area= 0.032 ac Storage= 0.055 af

Plug-Flow detention time= 254.9 min calculated for 0.078 af (78% of inflow) Center-of-Mass det. time= 167.9 min (929.5 - 761.6)

Volume	Invert	Avail.Storage	e Stora	rage Description	
#1	98.00'	0.096 a	f Cust	stom Stage Data (Prismatic) Listed below (Recalc)	
Elevation		77	Store	Cum.Store	
(fee	t) (acre:	s) (acre	-feet)	(acre-feet)	
98.0	0.03	2	0.000	0.000	
99.0	0.03	2	0.032	0.032	
100.0	0.03	32	0.032	0.064	
101.0	0.03	32	0.032	0.096	
Device	Routing	Invert (Outlet De	Devices	
#1	Primary	94.50' 1	5.0" Ro	Round HDPE_Round 15"	
	,			' RCP, square edge headwall, Ke= 0.500	
				Outlet Invert= 94.50' / 94.33' S= 0.0049 '/' Cc= 0.900	
		r	ı= 0.012	2, Flow Area= 1.23 sf	
#2	Device 1	98.70' 3	.0" Veri	rt. Orifice C= 0.600 Limited to weir flow at low heads	
#3	Device 1	100.70' 4	2.0" x 4	48.0" Horiz. Grate C= 0.600	
		Ĺ	imited to	to weir flow at low heads	

Primary OutFlow Max=0.22 cfs @ 12.58 hrs HW=99.72' TW=0.00' (Dynamic Tailwater)
1=HDPE Round 15" (Passes 0.22 cfs of 12.66 cfs potential flow)

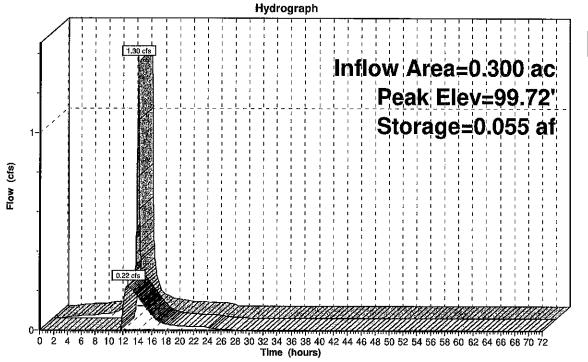
-2=Orifice (Orifice Controls 0.22 cfs @ 4.55 fps)

—2=Orifice (Orifice Controls 0.22 cfs @ —3=Grate (Controls 0.00 cfs)

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Pond 55P: Proposed Bioretention System #5





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Hydrograph for Pond 55P: Proposed Bioretention System #5

		01	E1 12	Dulana a un s
Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.01	0.001	98.02	0.00
5.00	0.01	0.003	98.09	0.00
7.50	0.02	0.006	98.20	0.00
10.00	0.05	0.013	98.40	0.00
12.50	0.29	0.055	99.71	0.22
15.00	0.04	0.036	99.11	0.13
17.50	0.03	0.027	98.84	0.04
20.00	0.02	0.026	98.81	0.02
22.50	0.02	0.025	98.80	0.02
25.00	0.00	0.024	98.76	0.01
27.50	0.00	0.023	98.73	0.00
30.00	0.00	0.023	98.72	0.00
32.50	0.00	0.023	98.72	0.00
35.00	0.00	0.023	98.71	0.00
37.50	0.00	0.023	98.71	0.00
40.00	0.00	0.023	98.71	0.00
42.50	0.00	0.023	98.71	0.00
45.00	0.00	0.023	98.71	0.00
47.50	0.00	0.023	98.71	0.00
50.00	0.00	0.023	98.71	0.00
52.50	0.00	0.023	98.71	0.00
55.00	0.00	0.023	98.71	0.00
57.50	0.00	0.023	98.70	0.00
60.00	0.00	0.023	98.70	0.00
62.50	0.00	0.023	98.70	0.00
65.00	0.00	0.023	98.70	0.00
67.50	0.00	0.023	98.70	0.00
70.00	0.00	0.023	98.70	0.00

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Summary for Pond 56P: Proposed Bioretention System #6

Inflow Area = 1.450 ac, 51.72% Impervious, Inflow Depth = 3.07" for 10-Year event

Inflow = 4.03 cfs @ 12.11 hrs, Volume= 0.371 af

Outflow = 0.35 cfs @ 13.52 hrs, Volume= 0.302 af, Atten= 91%, Lag= 84.7 min

Primary = 0.35 cfs @ 13.52 hrs, Volume= 0.302 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.19' @ 13.52 hrs Surf.Area= 4,912 sf Storage= 10,776 cf

Plug-Flow detention time= 1,088.1 min calculated for 0.302 af (81% of inflow)

Center-of-Mass det. time= 1,007.8 min (1,785.6 - 777.8)

Volume	Inv	ert Avail.Sto	rage Storage	Description				
#1	97.0	00' 19,6	48 cf Custom	Stage Data (Pri	smatic) Listed below (Recalc)			
Elevation	on	Surf.Area	Inc.Store	Cum.Store				
(fee	et)	(sq-ft)	(cubic-feet)	(cubic-feet)				
97.0	00	4,912	0	0				
98.0	00	4,912	4,912	4,912				
99.0	00	4,912	4,912	9,824				
100.0	00	4,912	4,912	14,736				
101.0	00	4,912	4,912	19,648				
Device	Routing	Invert	Outlet Device	es				
#1	Primary	93.50'	15.0" Round	HDPE_Round 1	15"			
			L= 50.0' RC	P, square edge h	eadwall, Ke= 0.500			
					3.25' S= 0.0050 '/' Cc= 0.900			
				ow Area= 1.23 sf				
#2	Device 1		Chicago 3-in VFR					
#3	Device 1		1.0' long Sha	1.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)				
#4	Device 1	100.00'	42.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads					

Primary OutFlow Max=0.35 cfs @ 13.52 hrs HW=99.19' TW=0.00' (Dynamic Tailwater) 1=HDPE_Round 15" (Passes 0.35 cfs of 13.30 cfs potential flow)

2=Chicago 3-in VFR (Custom Controls 0.08 cfs)

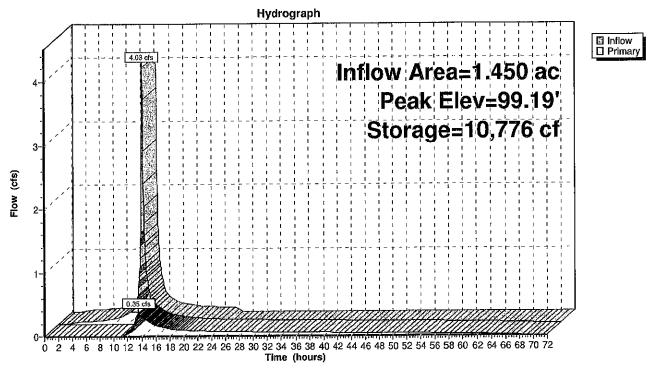
-3=Sharp-Crested Rectangular Weir (Weir Controls 0.27 cfs @ 1.44 fps)

-4=Orifice/Grate (Controls 0.00 cfs)

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Pond 56P: Proposed Bioretention System #6



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Hydrograph for Pond 56P: Proposed Bioretention System #6

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(cubic-feet)	(feet)	(cfs)
0.00	0.00	0	97.00	0.00
2.50	0.03	87	97.02	0.00
5.00	0.05	422	97.09	0.00
7.50	0.08	947	97.19	0.00
10.00	0.16	1,880	97.38	0.00
12.50	1.22	9,303	98.89	0.07
15.00	0.17	10,490	99.14	0.23
17.50	0.11	10,163	99.07	0.13
20.00	0.08	9,996	99.04	0.09
22.50	0.07	9,904	99.02	0.08
25.00	0.00	9,636	98.96	0.07
27.50	0.00	9,026	98.84	0.07
30.00	0.00	8,449	98.72	0.06
32.50	0.00	7,905	98.61	0.06
35.00	0.00	7,392	98.50	0.06
37.50	0.00	6,907	98.41	0.05
40.00	0.00	6,450	98.31	0.05
42.50	0.00	6,018	98.23	0.05
45.00	0.00	5,611	98.14	0.04
47.50	0.00	5,226	98.06	0.04
50.00	0.00	4,864	97.99	0.04
52.50	0.00	4,521	97.92	0.04
55.00	0.00	4,198	97.85	0.03
57.50	0.00	3,893	97.79	0.03
60.00	0.00	3,605	97.73	0.03
62.50	0.00	3,343	97.68	0.02
65.00	0.00	3,176	97.65	0.01
67.50	0.00	3,079	97.63	0.01
70.00	0.00	3,023	97.62	0.00

25 YEAR STORM

NOAA 24-hr C 25-Year Rainfall=6.19"

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Summary for Pond 51P: Proposed Bioretention System #1

Inflow Area = 0.160 ac, 81.25% Impervious, Inflow Depth = 5.46" for 25-Year event

Inflow = 1.01 cfs @ 12.08 hrs, Volume= 0.073 af

Outflow = 0.25 cfs @ 12.36 hrs, Volume= 0.061 af, Atten= 75%, Lag= 16.7 min

Primary = 0.25 cfs @ 12.36 hrs, Volume= 0.061 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.91' @ 12.36 hrs Surf.Area= 0.017 ac Storage= 0.033 af

Plug-Flow detention time= 186.7 min calculated for 0.061 af (84% of inflow)

Center-of-Mass det. time= 115.5 min (868.0 - 752.4)

Volume	Inve	ert Av	vail.Stora	ige St	torage Description
#1	98.0	10'	0.051	af C	custom Stage Data (Prismatic) Listed below (Recalc)
Elevatio	et) (rf.Area		c.Store) (acre-feet)
98.0 99.0	_	0.017		0.000	
100.0	-	0.017		0.017	***
101.0	00	0.017		0.017	7 0.051
Device	Routing		Invert	Outlet	t Devices
#1	Primary		94.50'		Round HDPE_Round 15"
					.0' RCP, square edge headwall, Ke= 0.500
					Outlet Invert= 94.50' / 94.36' S= 0.0050 '/' Cc= 0.900
					012, Flow Area= 1.23 sf
#2	Device 1		98.70'	3.0" V	/ert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1		100.50'	42.0"	x 48.0" Horiz. Grate C= 0.600

Limited to weir flow at low heads

Primary OutFlow Max=0.25 cfs @ 12.36 hrs HW=99.91' TW=0.00' (Dynamic Tailwater) 1=HDPE_Round 15" (Passes 0.25 cfs of 12.93 cfs potential flow)

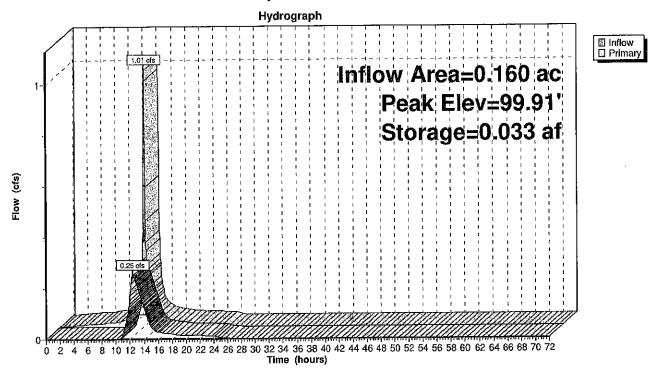
-2=Orifice/Grate (Orifice Controls 0.25 cfs @ 5.02 fps)

-3=Grate (Controls 0.00 cfs)

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Pond 51P: Proposed Bioretention System #1



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Hydrograph for Pond 51P: Proposed Bioretention System #1

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.01	0.001	98.03	0.00
5.00	0.01	0.002	98.14	0.00
7.50	0.02	0.005	98.30	0.00
10.00	0.04	0.010	98.58	0.00
12.50	0.20	0.032	99.89	0.24
15.00	0.03	0.015	98.87	0.05
17.50	0.02	0.014	98.80	0.02
20.00	0.01	0.013	98.78	0.01
22.50	0.01	0.013	98.78	0.01
25.00	0.00	0.013	98.74	0.00
27.50	0.00	0.012	98.72	0.00
30.00	0.00	0.012	98.71	0.00
32.50	0.00	0.012	98.71	0.00
35.00	0.00	0.012	98.71	0.00
37.50	0.00	0.012	98.71	0.00
40.00	0.00	0.012	98.71	0.00
42.50	0.00	0.012	98.70	0.00
45.00	0.00	0.012	98.70	0.00
47.50	0.00	0.012	98.70	0.00
50.00	0.00	0.012	98.70	0.00
52.50	0.00	0.012	98.70	0.00
55.00	0.00	0.012	98.70	0.00
57.50	0.00	0.012	98.70	0.00
60.00	0.00	0.012	98.70	0.00
62.50	0.00	0.012	98.70	0.00
65.00	0.00	0.012	98.70	0.00
67.50	0.00	0.012	98.70	0.00
70.00	0.00	0.012	98.70	0.00

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Summary for Pond 52P: Proposed Bioretention System #2

Inflow Area = 0.290 ac, 86.21% Impervious, Inflow Depth = 5.59" for 25-Year event

Inflow = 1.92 cfs @ 12.08 hrs, Volume= 0.135 af

Outflow = 0.72 cfs @ 12.22 hrs, Volume= 0.113 af, Atten= 62%, Lag= 8.2 min

Primary = 0.72 cfs @ 12.22 hrs, Volume= 0.113 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.48' @ 12.22 hrs Surf.Area= 0.025 ac Storage= 0.062 af

Plug-Flow detention time= 202.0 min calculated for 0.113 af (83% of inflow)

Center-of-Mass det. time= 128.6 min (878.0 - 749.4)

Volume	Invert	Avail.Stora		age Description	_
#1	98.00'	0.07!	af Cust	tom Stage Data (Prismatic) Listed below (Recalc)	
Elevatio	t) (ac	res) (ac	nc.Store cre-feet)	Cum.Store (acre-feet)	
98.0		.025	0.000	0.000	
99.0		.025	0.025	0.025	
100.0	0 (.025	0.025	0.050	
101.0	0 0	.025	0.025	0.075	
Device	Routing	Invert	Outlet De	evices	
#1	Primary	94.50'		ound HDPE_Round 15"	
			Inlet / Ou n= 0.012,	RCP, square edge headwall, Ke= 0.500 utlet Invert= 94.50' / 94.31' S= 0.0051 '/' Cc= 0.900 2, Flow Area= 1.23 sf	
#2	Primary	98.90'	3.0" Vert	t. Orifice/Grate C= 0.600 Limited to weir flow at low heads	3
#3	Device 1	100.00'	0.5' long	Sharp-Crested Rectangular Weir 2 End Contraction(s)	
#4	Device 1	100.95'		48.0" Horiz. Grate C= 0.600 to weir flow at low heads	

Primary OutFlow Max=0.72 cfs @ 12.22 hrs HW=100.47' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 0.43 cfs of 13.67 cfs potential flow)

1-3=Sharp-Crested Rectangular Weir (Weir Controls 0.43 cfs @ 2.25 fps)

4=Grate (Controls 0.00 cfs)

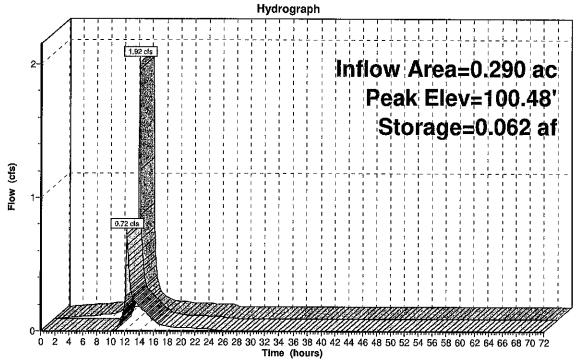
-2=Orifice/Grate (Orifice Controls 0.28 cfs @ 5.80 fps)

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Pond 52P: Proposed Bioretention System #2





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Hydrograph for Pond 52P: Proposed Bioretention System #2

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.01	0.001	98.04	0.00
5.00	0.02	0.005	98.18	0.00
7.50	0.03	0.010	98.39	0.00
10.00	0.07	0.019	98.76	0.00
12.50	0.35	0.058	100.32	0.52
15.00	0.05	0.034	99.35	0.14
17.50	0.03	0.026	99.05	0.04
20.00	0.03	0.025	99.02	0.03
22.50	0.02	0.025	99.01	0.02
25.00	0.00	0.024	98.96	0.01
27.50	0.00	0.023	98.93	0.00
30.00	0.00	0.023	98.92	0.00
32.50	0.00	0.023	98.91	0.00
35.00	0.00	0.023	98.91	0.00
37.50	0.00	0.023	98.91	0.00
40.00	0.00	0.023	98.91	0.00
42.50	0.00	0.023	98.91	0.00
45.00	0.00	0.023	98.91	0.00
47.50	0.00	0.023	98.91	0.00
50.00	0.00	0.023	98.90	0.00
52.50	0.00	0.023	98.90	0.00
55.00	0.00	0.023	98.90	0.00
57.50	0.00	0.023	98.90	0.00
60.00	0.00	0.023	98.90	0.00
62.50	0.00	0.023	98.90	0.00
65.00	0.00	0.023	98.90	0.00
67.50	0.00	0.023	98.90	0.00
70.00	0.00	0.023	98.90	0.00

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Summary for Pond 53P: Proposed Bioretention System #3

Inflow Area = 0.230 ac, 82.61% Impervious, Inflow Depth = 5.50" for 25-Year event

Inflow = 1.44 cfs @ 12.09 hrs, Volume= 0.105 af

Outflow = 0.86 cfs @ 12.17 hrs, Volume= 0.086 af, Atten= 41%, Lag= 4.8 min

Primary = 0.86 cfs @ 12.17 hrs, Volume= 0.086 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 98.86' @ 12.17 hrs Surf.Area= 0.019 ac Storage= 0.035 af

Plug-Flow detention time= 161.0 min calculated for 0.086 af (82% of inflow)

Center-of-Mass det. time= 85.0 min (837.1 - 752.2)

Volume	Invert A	vail.Storaç	ge Sto	orage Description
#1	97.00'	0.057	af Cu:	stom Stage Data (Prismatic) Listed below (Recalc)
Elevatio			Store e-feet)	Cum.Store (acre-feet)
97.0	, , , , , , , , , , , , , , , , , , , 	(40.	0.000	0.000
98.0			0.019	0.019
99.0	0.019		0.019	0.038
100.0	0.019		0.019	0.057
Device	Routing	Invert	Outlet E	Devices
#1	Primary	93.50'	15.0" F	Round HDPE_Round 15"
	,			0' RCP, square edge headwall, Ke= 0.500
			Inlet / C	Outlet Invert= 93.50' / 93.44' S= 0.0055 '/' Cc= 0.900
				12, Flow Area= 1.23 sf
#2	Device 1			ng Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Device 1			48.0" Horiz. Grate C= 0.600
			Limited	to weir flow at low heads

Primary OutFlow Max=0.85 cfs @ 12.17 hrs HW=98.85' TW=0.00' (Dynamic Tailwater)

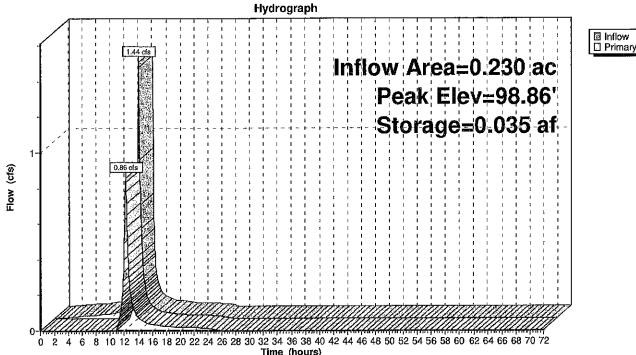
-1=HDPE_Round 15" (Passes 0.85 cfs of 12.85 cfs potential flow)

-2=Sharp-Crested Rectangular Weir (Weir Controls 0.85 cfs @ 3.02 fps)

-3=Grate (Controls 0.00 cfs)

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Pond 53P: Proposed Bioretention System #3





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Hydrograph for Pond 53P: Proposed Bioretention System #3

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	97.00	0.00
2.50	0.01	0.001	97.04	0.00
5.00	0.02	0.003	97.18	0.00
7.50	0.02	0.007	97.39	0.00
10.00	0.05	0.014	97.76	0.00
12.50	0.29	0.029	98.51	0.47
15.00	0.04	0.021	98.10	0.05
17.50	0.03	0.020	98.07	0.03
20.00	0.02	0.020	98.05	0.02
22.50	0.02	0.020	98.05	0.02
25.00	0.00	0.019	98.02	0.00
27.50	0.00	0.019	98.00	0.00
30.00	0.00	0.019	98.00	0.00
32.50	0.00	0.019	98.00	0.00
35.00	0.00	0.019	98.00	0.00
37.50	0.00	0.019	98.00	0.00
40.00	0.00	0.019	98.00	0.00
42.50	0.00	0.019	98.00	0.00
45.00	0.00	0.019	98.00	0.00
47.50	0.00	0.019	98.00	0.00
50.00	0.00	0.019	98.00	0.00
52.50	0.00	0.019	98.00	0.00
55.00	0.00	0.019	98.00	0.00
57.50	0.00	0.019	98.00	0.00
60.00	0.00	0.019	98.00	0.00
62.50	0.00	0.019	98.00	0.00
65.00	0.00	0.019	98.00	0.00
67.50	0.00	0.019	98.00	0.00
70.00	0.00	0.019	98.00	0.00

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Summary for Pond 54P: Proposed Bioretention System #4

Inflow Area = 0.710 ac, 78.87% Impervious, Inflow Depth = 5.40" for 25-Year event

Inflow = 4.25 cfs @ 12.09 hrs, Volume= 0.320 af

Outflow = 2.38 cfs @ 12.19 hrs, Volume= 0.269 af, Atten= 44%, Lag= 6.1 min

Primary = 2.38 cfs @ 12.19 hrs, Volume= 0.269 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.80' @ 12.19 hrs Surf.Area= 0.050 ac Storage= 0.141 af

Plug-Flow detention time= 330.6 min calculated for 0.269 af (84% of inflow)

Center-of-Mass det. time= 260.6 min (1,015.6 - 755.0)

Volume	Invert	Avail.Stora	ige Stor	rage Description
#1	98.00'	0.201	af Cus	stom Stage Data (Prismatic) Listed below (Recalc)
				
Elevation	n Surf.	Area in	c.Store	Cum.Store
(fee	t) (a	cres) (ac	re-feet)	(acre-feet)
98.0	00 0	0.050	0.000	0.000
99.0	00 C	0.050	0.050	0.050
100.0	0 C	0.050	0.050	0.101
101.0	0 0	0.050	0.050	0.151
102.0	0 C	.050	0.050	0.201
Device	Routing	Invert	Outlet D	Devices
#1	Primary	94.50'	15.0" R	Round HDPE_Round 15"
	•			' RCP, square edge headwall, Ke= 0.500
				Outlet Invert= 94.50' / 94.30' S= 0.0050 '/' Cc= 0.900
			n = 0.012	2, Flow Area= 1.23 sf
#2	Device 1	99.00'		o 3-in VFR
#3	Device 1	99.90'		g Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	101.40'		48.0" Horiz. Grate C= 0.600
				to weir flow at low heads

Primary OutFlow Max=2.36 cfs @ 12.19 hrs HW=100.80' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 2.36 cfs of 14.07 cfs potential flow)
-2=Chicago 3-in VFR (Custom Controls 0.08 cfs)

-3=Sharp-Crested Rectangular Weir (Weir Controls 2.28 cfs @ 3.10 fps)

-4=Grate (Controls 0.00 cfs)

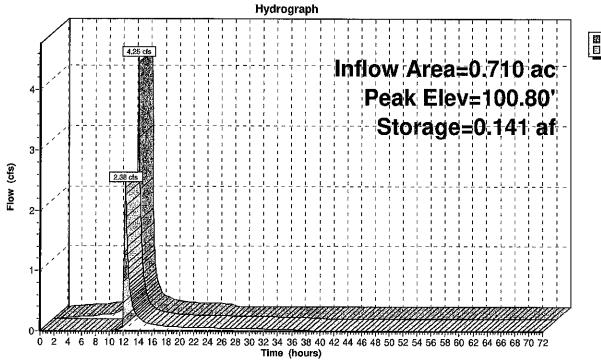
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Pond 54P: Proposed Bioretention System #4





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Hydrograph for Pond 54P: Proposed Bioretention System #4

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.03	0.002	98.05	0.00
5.00	0.05	0.010	98.20	0.00
7.50	0.07	0.022	98.43	0.00
10.00	0.15	0.043	98.85	0.00
12.50	0.89	0.126	100.50	1.40
15.00	0.13	0.100	100.00	0.15
17.50	0.08	0.098	99.95	0.09
20.00	0.06	0.097	99.92	0.06
22.50	0.05	0.096	99.90	0.06
25.00	0.00	0.091	99.80	0.05
27.50	0.00	0.081	99.60	0.05
30.00	0.00	0.072	99.42	0.04
32.50	0.00	0.064	99.27	0.04
35.00	0.00	0.057	99.13	0.03
37.50	0.00	0.052	99.04	0.01
40.00	0.00	0.051	99.01	0.00
42.50	0.00	0.050	99.00	0.00
45.00	0.00	0.050	99.00	0.00
47.50	0.00	0.050	99.00	0.00
50.00	0.00	0.050	99.00	0.00
52.50	0.00	0.050	99.00	0.00
55.00	0.00	0.050	99.00	0.00
57.50	0.00	0.050	99.00	0.00
60.00	0.00	0.050	99.00	0.00
62.50	0.00	0.050	99.00	0.00
65.00	0.00	0.050	99.00	0.00
67.50	0.00	0.050	99.00	0.00
70.00	0.00	0.050	99.00	0.00

NOAA 24-hr C 25-Year Rainfall=6.19"

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Summary for Pond 55P: Proposed Bioretention System #5

Inflow Area = 0.300 ac, 73.33% Impervious, Inflow Depth = 5.13" for 25-Year event

Inflow = 1.64 cfs @ 12.10 hrs, Volume= 0.128 af

Outflow = 0.27 cfs @ 12.61 hrs, Volume= 0.106 af, Atten= 84%, Lag= 30.6 min

Primary = 0.27 cfs @ 12.61 hrs, Volume= 0.106 af

Routed to Link 61L: Total to P.O.I. "A"

Invert

Volume

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.13' @ 12.61 hrs Surf.Area= 0.032 ac Storage= 0.068 af

Plug-Flow detention time= 239.4 min calculated for 0.106 af (82% of inflow)

Avail.Storage Storage Description

Center-of-Mass det. time= 164.9 min (924.0 - 759.1)

. 0101110	1111010	7 WIII O (O I C	90 0:0:0	ago pecanolon	
#1	98.00'	0.096	af Cust	tom Stage Data (Prismatic) Listed below (Recalc)	
Elevatio	on Surf.Area	Inc	c.Store	Cum.Store	
(fee	et) (acres)	(acr	e-feet)	(acre-feet)	
98.0	0.032		0.000	0.000	
99.0	0.032		0.032	0.032	
100.0	0.032		0.032	0.064	
101.0	0.032		0.032	0.096	
Device	Routing	Invert	Outlet De	evices	
#1	Primary	94.50'	15.0" Ro	ound HDPE Round 15"	
	•			RCP, square edge headwall, Ke= 0.500	
			Inlet / Ou	utlet Invert= 94.50' / 94.33' S= 0.0049 '/' Cc= 0.900	
			n = 0.012	, Flow Area= 1.23 sf	
#2	Device 1	98.70'	3.0" Vert. Orifice C= 0.600 Limited to weir flow at low heads		
#3	Device 1	100.70'	42.0" x 48.0" Horiz. Grate C= 0.600		
			Limited to	o weir flow at low heads	

Primary OutFlow Max=0.27 cfs @ 12.61 hrs HW=100.13' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 0.27 cfs of 13.22 cfs potential flow)

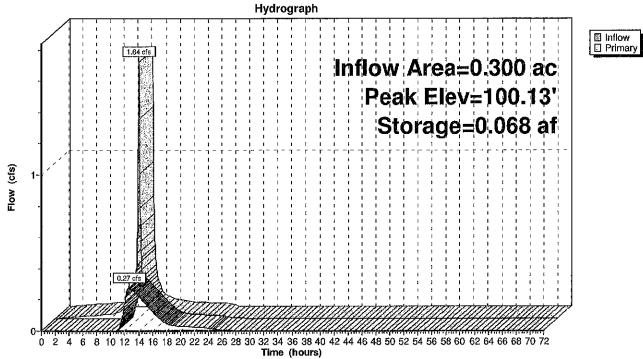
-2=Orifice (Orifice Controls 0.27 cfs @ 5.49 fps)

-3=Grate (Controls 0.00 cfs)

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Pond 55P: Proposed Bioretention System #5





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Hydrograph for Pond 55P: Proposed Bioretention System #5

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.01	0.001	98.03	0.00
5.00	0.02	0.004	98.13	0.00
7.50	0.03	0.009	98.27	0.00
10.00	0.06	0.017	98.52	0.00
12.50	0.37	0.068	100.11	0.27
15.00	0.05	0.044	99.37	0.17
17.50	0.03	0.029	98.89	0.06
20.00	0.03	0.026	98.82	0.03
22.50	0.02	0.026	98.81	0.02
25.00	0.00	0.025	98.77	0.01
27.50	0.00	0.024	98.74	0.00
30.00	0.00	0.023	98.72	0.00
32.50	0.00	0.023	98.72	0.00
35.00	0.00	0.023	98.71	0.00
37.50	0.00	0.023	98.71	0.00
40.00	0.00	0.023	98.71	0.00
42.50	0.00	0.023	98.71	0.00
45.00	0.00	0.023	98.71	0.00
47.50	0.00	0.023	98.71	0.00
50.00	0.00	0.023	98.71	0.00
52.50	0.00	0.023	98.71	0.00
55.00	0.00	0.023	98.71	0.00
57.50	0.00	0.023	98.70	0.00
60.00	0.00	0.023	98.70	0.00
62.50	0.00	0.023	98.70	0.00
65.00	0.00	0.023	98.70	0.00
67.50	0.00	0.023	98.70	0.00
70.00	0.00	0.023	98.70	0.00

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Summary for Pond 56P: Proposed Bioretention System #6

Inflow Area = 1.450 ac, 51.72% Impervious, Inflow Depth = 4.03" for 25-Year event

Inflow = 5.16 cfs @ 12.11 hrs, Volume= 0.486 af

Outflow = 0.99 cfs @ 12.81 hrs, Volume= 0.417 af, Atten= 81%, Lag= 42.4 min

Primary = 0.99 cfs @ 12.81 hrs, Volume= 0.417 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.45' @ 12.81 hrs Surf.Area= 4,912 sf Storage= 12,044 cf

Plug-Flow detention time= 831.1 min calculated for 0.417 af (86% of inflow)

Center-of-Mass det. time= 764.1 min (1,541.8 - 777.6)

Volume	Inv	ert Avail.Sto	orage Storage	Description	
#1	97.	00' 19,6	348 cf Custom	Stage Data (Pris	matic) Listed below (Recalc)
Elevatio		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
97.0		4,912	0	0	
98.0	· ·=	4,912	4,912	4,912	
99.0		4,912	4,912	9,824	
100.0	00	4,912	4,912	14,736	
101.0	00	4,912	4,912	19,648	
Device	Routing	Invert	Outlet Device	S	
#1	Primary	93.50'	15.0" Round	HDPE_Round 1	5"
	•		L= 50.0' RCi	P, square edge he	eadwall, Ke= 0.500
					.25' S= 0.0050 '/' Cc= 0.900
			•	w Area⊨ 1.23 sf	
#2	Device	1 97.60'	Chicago 3-in	VFR	

42.0" x **48.0"** Horiz. Orifice/Grate C= 0.600

1.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.99 cfs @ 12.81 hrs HW=99.45' TW=0.00' (Dynamic Tailwater)

Limited to weir flow at low heads

-1=HDPE_Round 15" (Passes 0.99 cfs of 13.64 cfs potential flow)
-2=Chicago 3-in VFR (Custom Controls 0.09 cfs)

99.00

100.00

-3=Sharp-Crested Rectangular Weir (Weir Controls 0.90 cfs @ 2.20 fps)

-4=Orifice/Grate (Controls 0.00 cfs)

#3

#4

Device 1

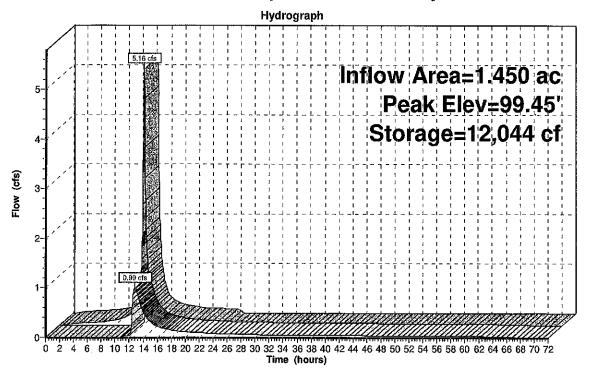
Device 1

NOAA 24-hr C 25-Year Rainfall=6.19"

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Pond 56P: Proposed Bioretention System #6





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Hydrograph for Pond 56P: Proposed Bioretention System #6

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(cubic-feet)	(feet)_	(cfs)
0.00	0.00	0	97.00	0.00
2.50	0.04	140	97.03	0.00
5.00	0.06	591	97.12	0.00
7.50	0.10	1,264	97.26	0.00
10.00	0.19	2,436	97.50	0.00
12.50	1.68	11,674	99.38	0.78
15.00	0.23	10,716	99.18	0.32
17.50	0.14	10,291	99.10	0.17
20.00	0.11	10,109	99.06	0.12
22.50	0.09	10,020	99.04	0.10
25.00	0.00	9,752	98.99	0.07
27.50	0.00	9,135	98.86	0.07
30.00	0.00	8,553	98.74	0.06
32.50	0.00	8,003	98.63	0.06
35.00	0.00	7,484	98.52	0.06
37.50	0.00	6,994	98.42	0.05
40.00	0.00	6,532	98.33	0.05
42.50	0.00	6,096	98.24	0.05
45.00	0.00	5,684	98.16	0.04
47.50	0.00	5,295	98.08	0.04
50.00	0.00	4,929	98.00	0.04
52.50	0.00	4,583	97.93	0.04
55.00	0.00	4,256	97.87	0.04
57.50	0.00	3,948	97.80	0.03
60.00	0.00	3,657	97.74	0.03
62.50	0.00	3,385	97.69	0.03
65.00	0.00	3,200	97.65	0.02
67.50	0.00	3,093	97.63	0.01
70.00	0.00	3,031	97.62	0.01

100 YEAR STORM

NOAA 24-hr C 100-Year Rainfall=8.33"

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Summary for Pond 51P: Proposed Bioretention System #1

Inflow Area = 0.160 ac, 81.25% Impervious, Inflow Depth = 7.55" for 100-Year event

Inflow = 1.37 cfs @ 12.08 hrs, Volume= 0.101 af

Outflow = 0.30 cfs @ 12.41 hrs, Volume= 0.089 af, Atten= 78%, Lag= 20.1 min

Primary = 0.30 cfs @ 12.41 hrs, Volume= 0.089 af

Routed to Link 61L: Total to P.O.I. "A"

Invert

Volume

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.47' @ 12.41 hrs Surf.Area= 0.017 ac Storage= 0.042 af

Plug-Flow detention time= 167.9 min calculated for 0.089 af (88% of inflow) Center-of-Mass det. time= 108.5 min (857.1 - 748.6)

Avail.Storage Storage Description

Center-or-wass det. [iiiie= 100.5 [filii (657.1 - 746.6)

#1	98.0	0'	0.051	af Custo	om Stage Data	(Prismatic) Listed below (Recalc)
Elevation (fee		rf.Area (acres)		c.Store 'e-feet)	Cum.Store (acre-feet)	
98.0		0.017		0.000	0.000	
99.0	00	0.017		0.017	0.017	
100.0	00	0.017		0.017	0.034	
101.0	00	0.017		0.017	0.051	
Device	Routing		Invert	Outlet De	vices	
#1	Primary		94.50'	15.0" Ro	und HDPE_Ro	und 15"
	·			L= 28.0' Inlet / Out	RCP, square e	dge headwall, Ke= 0.500 60' / 94.36' S= 0.0050 '/' Cc= 0.900
#2	Device 1		98.70'			C= 0.600 Limited to weir flow at low heads
#3	Device 1	•	100.50'	42.0" x 48	3.0" Horiz. Grat weir flow at lov	te C= 0.600

Primary OutFlow Max=0.30 cfs @ 12.41 hrs HW=100.47' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 0.30 cfs of 13.66 cfs potential flow)

-2=Orifice/Grate (Orifice Controls 0.30 cfs @ 6.18 fps)

3=Grate (Controls 0.00 cfs)

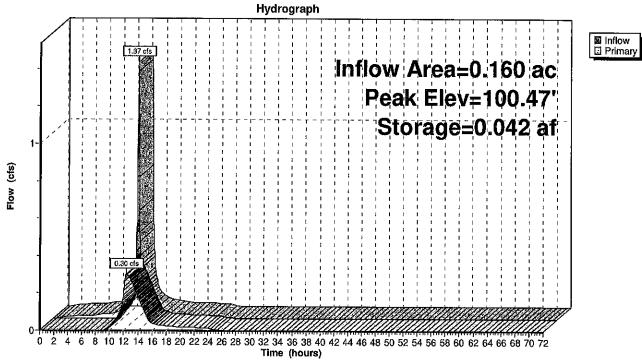
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Pond 51P: Proposed Bioretention System #1





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Hydrograph for Pond 51P: Proposed Bioretention System #1

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.00	0.001	98.06	0.00
5.00	0.02	0.004	98.22	0.00
7.50	0.02	0.007	98.44	0.00
10.00	0.05	0.014	98.81	0.02
12.50	0.27	0.042	100.46	0.30
15.00	0.04	0.017	98.99	0.10
17.50	0.02	0.014	98.82	0.03
20.00	0.02	0.014	98.80	0.02
22.50	0.02	0.013	98.79	0.02
25.00	0.00	0.013	98.75	0.00
27.50	0.00	0.012	98.72	0.00
30.00	0.00	0.012	98.71	0.00
32.50	0.00	0.012	98.71	0.00
35.00	0.00	0.012	98.71	0.00
37.50	0.00	0.012	98.71	0.00
40.00	0.00	0.012	98.71	0.00
42.50	0.00	0.012	98.70	0.00
45.00	0.00	0.012	98.70	0.00
47.50	0.00	0.012	98.70	0.00
50.00	0.00	0.012	98.70	0.00
52.50	0.00	0.012	98.70	0.00
55.00	0.00	0.012	98.70	0.00
57.50	0.00	0.012	98.70	0.00
60.00	0.00	0.012	98.70	0.00
62.50	0.00	0.012	98.70	0.00
65.00	0.00	0.012	98.70	0.00
67.50	0.00	0.012	98.70	0.00
70.00	0.00	0.012	98.70	0.00

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Summary for Pond 52P: Proposed Bioretention System #2

Inflow Area = 0.290 ac, 86.21% Impervious, Inflow Depth = 7.69" for 100-Year event

Inflow = 2.62 cfs @ 12.08 hrs, Volume= 0.186 af

Outflow = 1.24 cfs @ 12.18 hrs, Volume= 0.163 af, Atten= 53%, Lag= 6.1 min

Primary = 1.24 cfs @ 12.18 hrs, Volume= 0.163 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.92' @ 12.19 hrs Surf.Area= 0.025 ac Storage= 0.073 af

Plug-Flow detention time= 169.9 min calculated for 0.163 af (88% of inflow)

Center-of-Mass det. time= 111.1 min (856.6 - 745.5)

<u>Volume</u>	Invert	Avail.Storag	e Sto	Storage Description
#1	98.00'	0.075	af C u	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)			Store e-feet)	
98.00	0.02	<u>.</u> 5	0.000	0.000
99.00	0.02	.5 ·	0.025	5 0.025
100.00	0.02	25	0.025	5 0.050
101.00	0.02	25	0.025	5 0.075
Device	Routing	Invert	Outlet	t Devices
#1	Primary	94.50'		' Round HDPE_Round 15" 7.0' RCP, square edge headwall, Ke= 0.500

#1	Primary	94.50'	15.0" Round HDPE_Round 15"
	•		L= 37.0' RCP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 94.50' / 94.31' S= 0.0051 '/' Cc= 0.900
			n= 0.012, Flow Area= 1.23 sf
#2	Primary	98.90'	3.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	100.00'	0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	100.95'	42.0" x 48.0" Horiz. Grate C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=1.23 cfs @ 12.18 hrs HW=100.91' TW=0.00' (Dynamic Tailwater)

1=HDPE_Round 15" (Passes 0.91 cfs of 14.22 cfs potential flow)

3=Sharp-Crested Rectangular Weir (Weir Controls 0.91 cfs @ 3.12 fps)

-4=Grate (Controls 0.00 cfs)

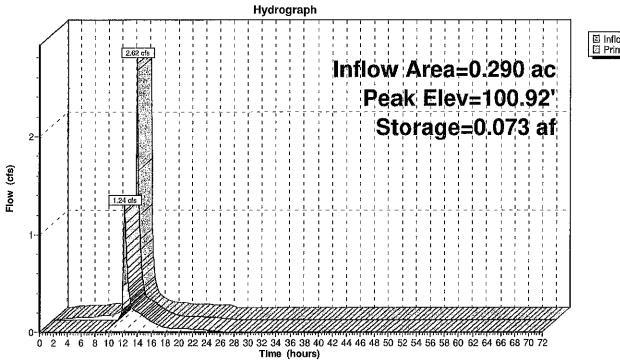
-2=Orifice/Grate (Orifice Controls 0.32 cfs @ 6.62 fps)

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Pond 52P: Proposed Bioretention System #2





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Hydrograph for Pond 52P: Proposed Bioretention System #2

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.02	0.002	98.08	0.00
5.00	0.03	0.007	98.28	0.00
7.50	0.05	0.014	98.58	0.00
10.00	0.09	0.026	99.05	0.04
12.50	0.47	0.063	100.54	0.80
15.00	0.07	0.037	99.49	0.16
17.50	0.04	0.027	99.09	0.06
20.00	0.03	0.026	99.04	0.04
22.50	0.03	0.026	99.03	0.03
25.00	0.00	0.024	98.97	0.01
27.50	0.00	0.023	98.93	0.00
30.00	0.00	0.023	98.92	0.00
32.50	0.00	0.023	98.91	0.00
35.00	0.00	0.023	98.91	0.00
37.50	0.00	0.023	98.91	0.00
40.00	0.00	0.023	98.91	0.00
42.50	0.00	0.023	98.91	0.00
45.00	0.00	0.023	98.91	0.00
47.50	0.00	0.023	98.91	0.00
50.00	0.00	0.023	98.90	0.00
52.50	0.00	0.023	98.90	0.00
55.00	0.00	0.023	98.90	0.00
57.50	0.00	0.023	98.90	0.00
60.00	0.00	0.023	98.90	0.00
62.50	0.00	0.023	98.90	0.00
65.00	0.00	0.023	98.90	0.00
67.50	0.00	0.023	98.90	0.00
70.00	0.00	0.023	98.90	0.00

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2005.109.02_PROPOSED (Rev. 8) NOAA 24-hr C 100-Year Rainfall=8.33"

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Summary for Pond 53P: Proposed Bioretention System #3

Inflow Area = 0.230 ac, 82.61% Impervious, Inflow Depth = 7.59" for 100-Year event

Inflow 1.97 cfs @ 12.09 hrs, Volume= 0.145 af

Outflow 1.10 cfs @ 12.17 hrs, Volume= 0.126 af, Atten= 44%, Lag= 5.2 min

Primary 1.10 cfs @ 12.17 hrs, Volume= 0.126 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.17' @ 12.17 hrs Surf.Area= 0.019 ac Storage= 0.041 af

Plug-Flow detention time= 136.9 min calculated for 0.126 af (87% of inflow) Center-of-Mass det. time= 74.3 min (822.6 - 748.3)

Volume	Invert	Avail.Storage	ge Stor	rage Description
#1	97.00'	0.057	af Cus	stom Stage Data (Prismatic) Listed below (Recalc)
Elevation		ea Inc	c.Store	Cum.Store
(fee	et) (acre	s) (acr	e-feet)	(acre-feet)
97.0	0.0	19	0.000	0.000
98.0	0.01	19	0.019	0.019
99.0	0.01	19	0.019	0.038
100.0	0.01	19	0.019	0.057
Device	Routing	Invert	Outlet De	Devices
#1	Primary	93.50'	15.0" Ro	Round HDPE_Round 15"
	-			' RCP, square edge headwall, Ke= 0.500
			Inlet / Ou	Outlet Invert= 93.50' / 93.44' S= 0.0055 '/' Cc= 0.900
			n = 0.012	2, Flow Area= 1.23 sf
#2	Device 1			g Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Device 1	99.50'	42.0" x 4	48.0" Horiz. Grate C= 0.600

Limited to weir flow at low heads

Primary OutFlow Max=1.09 cfs @ 12.17 hrs HW=99.16' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 1.09 cfs of 13.26 cfs potential flow) -2=Sharp-Crested Rectangular Weir (Weir Controls 1.09 cfs @ 3.52 fps)

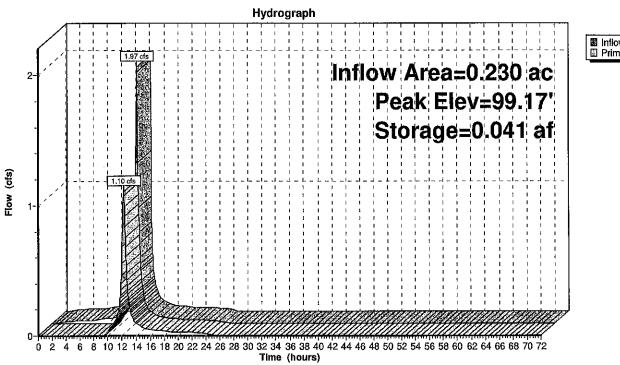
-3=Grate (Controls 0.00 cfs)

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Pond 53P: Proposed Bioretention System #3





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Hydrograph for Pond 53P: Proposed Bioretention System #3

T:	lan #1 =	04 - 11 - 11 -	Classatian	Dulmann
Time	Inflow	Storage	Elevation (feet)	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	97.00	0.00
2.50	0.01	0.002	97.08	0.00
5.00	0.02	0.005	97.28	0.00
7.50	0.03	0.011	97.57	0.00
10.00	0.07	0.020	98.07	0.03
12.50	0.39	0.032	98.69	0.68
15.00	0.06	0.021	98.12	0.06
17.50	0.04	0.021	98.08	0.04
20.00	0.03	0.020	98.07	0.03
22.50	0.02	0.020	98.06	0.02
25.00	0.00	0.019	98.02	0.00
27.50	0.00	0.019	98.00	0.00
30.00	0.00	0.019	98.00	0.00
32.50	0.00	0.019	98.00	0.00
35.00	0.00	0.019	98.00	0.00
37.50	0.00	0.019	98.00	0.00
40.00	0.00	0.019	98.00	0.00
42.50	0.00	0.019	98.00	0.00
45.00	0.00	0.019	98.00	0.00
47.50	0.00	0.019	98.00	0.00
50.00	0.00	0.019	98.00	0.00
52.50	0.00	0.019	98.00	0.00
55.00	0.00	0.019	98.00	0.00
57.50	0.00	0.019	98.00	0.00
60.00	0.00	0.019	98.00	0.00
62.50	0.00	0.019	98.00	0.00
65.00	0.00	0.019	98.00	0.00
67.50	0.00	0.019	98.00	0.00
70.00	0.00	0.019	98.00	0.00
, 0.00	0.00	0.010	55.50	5.50

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Summary for Pond 54P: Proposed Bioretention System #4

0.710 ac, 78.87% Impervious, Inflow Depth = 7.48" for 100-Year event Inflow Area =

5.82 cfs @ 12.09 hrs, Volume= Inflow 0.443 af

Outflow 3.65 cfs @ 12.17 hrs, Volume= 0.392 af, Atten= 37%, Lag= 5.0 min

Primary 3.65 cfs @ 12.17 hrs, Volume= 0.392 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs. dt= 0.05 hrs. Peak Elev= 101.19' @ 12.17 hrs Surf.Area= 0.050 ac Storage= 0.160 af

Plug-Flow detention time= 258.4 min calculated for 0.392 af (89% of inflow)

Center-of-Mass det. time= 201.8 min (953.0 - 751.2)

Volume	Invert A	vail.Storage	<u>je</u> Storage Description
#1	98.00'	0.201 a	af Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation	Surf.Area	Inc.s	.Store Cum.Store
(feet)	(acres)		e-feet) (acre-feet)
98.00	0.050	(0.000 0.000
99.00	0.050	(0.050 0.050
100.00	0.050	(0.050 0.101
101.00	0.050	C	0.050 0.151
102.00	0.050	C	0.050 0.201
Device R	outing	Invert C	Outlet Devices
#1 P	rimary	94.50' 1	15.0" Round HDPE_Round 15"
			L= 40.0' RCP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 94.50' / 94.30' S= 0.0050 '/' Cc= 0.900
			n= 0.012, Flow Area= 1.23 sf
	evice 1		Chicago 3-in VFR
#3 D	evice 1	99.90' 1	1.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

42.0" x **48.0"** Horiz. Grate C= 0.600

Limited to weir flow at low heads

Primary OutFlow Max=3.60 cfs @ 12.17 hrs HW=101.17' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 3.60 cfs of 14.53 cfs potential flow)

-2=Chicago 3-in VFR (Custom Controls 0.10 cfs)

101.40'

-3=Sharp-Crested Rectangular Weir (Weir Controls 3.50 cfs @ 3.69 fps)

-4=Grate (Controls 0.00 cfs)

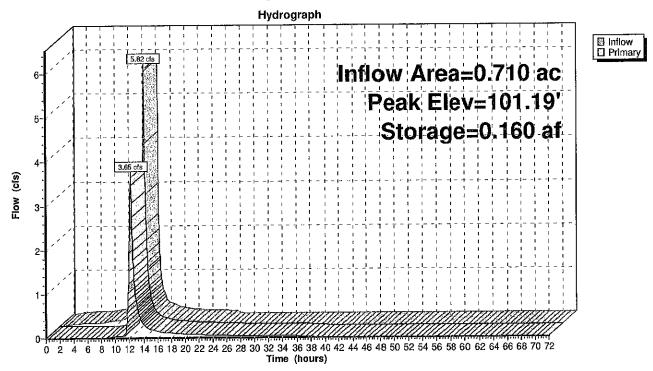
#4

Device 1

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Pond 54P: Proposed Bioretention System #4



NOAA 24-hr C 100-Year Rainfall=8.33" Printed 8/29/2023

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Hydrograph for Pond 54P: Proposed Bioretention System #4

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.04	0.004	98.09	0.00
5.00	0.06	0.016	98.31	0.00
7.50	0.10	0.032	98.64	0.00
10.00	0.22	0.060	99.19	0.03
12.50	1.23	0.135	100.68	1.98
15.00	0.17	0.102	100.03	0.20
17.50	0.11	0.099	99.97	0.12
20.00	0.08	0.098	99.94	0.09
22.50	0.07	0.097	99.93	0.07
25.00	0.00	0.092	99.84	0.05
27.50	0.00	0.082	99.63	0.05
30.00	0.00	0.073	99.45	0.04
32.50	0.00	0.065	99.29	0.04
35.00	0.00	0.058	99.15	0.03
37.50	0.00	0.053	99.05	0.01
40.00	0.00	0.051	99.01	0.00
42.50	0.00	0.051	99.00	0.00
45.00	0.00	0.050	99.00	0.00
47.50	0.00	0.050	99.00	0.00
50.00	0.00	0.050	99.00	0.00
52.50	0.00	0.050	99.00	0.00
55.00	0.00	0.050	99.00	0.00
57.50	0.00	0.050	99.00	0.00
60.00	0.00	0.050	99.00	0.00
62.50	0.00	0.050	99.00	0.00
65.00	0.00	0.050	99.00	0.00
67.50	0.00	0.050	99.00	0.00
70.00	0.00	0.050	99.00	0.00

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Summary for Pond 55P: Proposed Bioretention System #5

Inflow Area = 0.300 ac, 73.33% Impervious, Inflow Depth = 7.17" for 100-Year event

Inflow = 2.27 cfs @ 12.10 hrs, Volume= 0.179 af

Outflow = 0.64 cfs @ 12.42 hrs, Volume= 0.157 af, Atten= 72%, Lag= 19.1 min

Primary = 0.64 cfs @ 12.42 hrs, Volume= 0.157 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.73' @ 12.42 hrs Surf.Area= 0.032 ac Storage= 0.088 af

Plug-Flow detention time= 220.2 min calculated for 0.157 af (87% of inflow)

Center-of-Mass det. time= 159.9 min (915.7 - 755.7)

Volume	Inve	t Avail.St	orage S	Storage Description	_
#1	98.00)' 0.0	096 af C	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevatio		.Area acres)	Inc.Store (acre-feet		
98.0	00	0.032	0.000	0.000	
99.0	00	0.032	· 0.03	32 0.032	
100.0	00	0.032	0.03	32 0.064	
101.0	00	0.032	0.032	32 0.096	
Device	Routing	Inve	rt Outle	et Devices	
#1	Primary	94.5	0' 15.0''	" Round HDPE Round 15"	
, ,	,		L≔ 35 Inlet /	35.0' RCP, square edge headwall, Ke= 0.500 t / Outlet Invert= 94.50' / 94.33' S= 0.0049 '/' Cc= 0.900 0.012, Flow Area= 1.23 sf	
#2	Device 1	98.7	0' 3.0" \	Vert. Orifice C= 0.600 Limited to weir flow at low heads	
#3	Device 1	100.7		"x 48.0" Horiz. Grate C= 0.600 ted to weir flow at low heads	

Primary OutFlow Max=0.62 cfs @ 12.42 hrs HW=100.73' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 0.62 cfs of 13.99 cfs potential flow)
-2=Orifice (Orifice Controls 0.33 cfs @ 6.65 fps)

—2=Orifice (Orifice Controls 0.33 cfs @ 6.65 fps) —3=Grate (Weir Controls 0.29 cfs @ 0.59 fps)

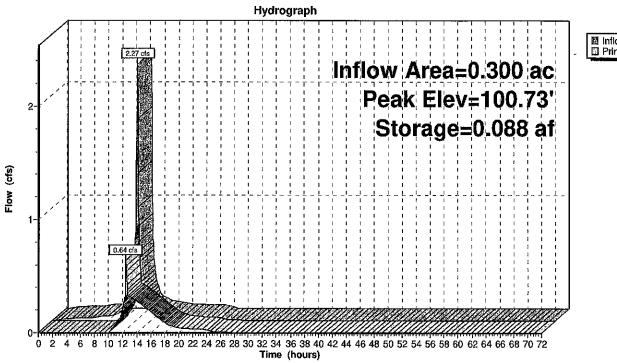
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Pond 55P: Proposed Bioretention System #5





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Hydrograph for Pond 55P: Proposed Bioretention System #5

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.02	0.002	98.05	0.00
5.00	0.03	0.006	98.19	0.00
7.50	0.04	0.013	98.39	0.00
10.00	0.08	0.024	98.74	0.00
12.50	0.52	0.087	100.73	0.55
15.00	0.07	0.058	99.82	0.24
17.50	0.04	0.034	99.06	0.12
20.00	0.03	0.027	98.85	0.04
22.50	0.03	0.027	98.83	0.03
25.00	0.00	0.025	98.78	0.01
27.50	0.00	0.024	98.74	0.00
30.00	0.00	0.023	98.72	0.00
32.50	0.00	0.023	98.72	0.00
35.00	0.00	0.023	98.71	0.00
37.50	0.00	0.023	98.71	0.00
40.00	0.00	0.023	98.71	0.00
42.50	0.00	0.023	98.71	0.00
45.00	0.00	0.023	98.71	0.00
47.50	0.00	0.023	98.71	0.00
50.00	0.00	0.023	98.71	0.00
52.50	0.00	0.023	98.71	0.00
55.00	0.00	0.023	98.71	0.00
57.50	0.00	0.023	98.70	0.00
60.00	0.00	0.023	98.70	0.00
62.50	0.00	0.023	98.70	0.00
65.00	0.00	0.023	98.70	0.00
67.50	0.00	0.023	98.70	0.00
70.00	0.00	0.023	98.70	0.00

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Summary for Pond 56P: Proposed Bioretention System #6

Inflow Area = 1.450 ac, 51.72% Impervious, Inflow Depth = 5.86" for 100-Year event

Inflow = 7.28 cfs @ 12.11 hrs, Volume= 0.708 af

Outflow = 2.56 cfs @ 12.50 hrs, Volume= 0.639 af, Atten= 65%, Lag= 23.4 min

Primary = 2.56 cfs @ 12.50 hrs, Volume= 0.639 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.95' @ 12.50 hrs Surf.Area= 4,912 sf Storage= 14,506 cf

Plug-Flow detention time= 583.9 min calculated for 0.639 af (90% of inflow)

Center-of-Mass det. time= 531.7 min (1,308.5 - 776.8)

Volume	Inv	ert Avail.Sto	rage Storage	Description	
#1	97.0	00' 19,6	48 cf Custom	Stage Data (Prisr	matic) Listed below (Recalc)
Elevatio		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
97.0 98.0	00	4,912 4,912	0 4,912	0 4,912	
99.0 100.0 101.0	00	4,912 4,912 4,912	4,912 4,912 4,912	9,824 14,736 19,648	
Device	Routing	Invert	Outlet Device	ŕ	
#1	Primary	93.50'	L= 50.0' RCF Inlet / Outlet In		s'' adwall, Ke= 0.500 25' S= 0.0050 '/' Cc= 0.900
#2 #3 #4	Device 1 Device 1 Device 1	99.00'	Chicago 3-in 1.0' long Sha 42.0" x 48.0"	VFR	

Primary OutFlow Max=2.56 cfs @ 12.50 hrs HW=99.95' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 2.56 cfs of 14.26 cfs potential flow)

2=Chicago 3-in VFR (Custom Controls 0.10 cfs)

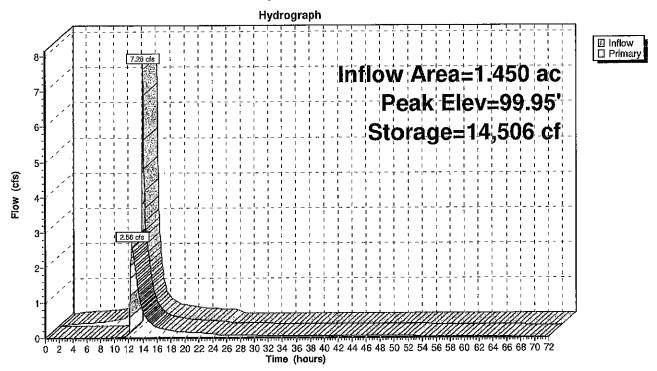
—3=Sharp-Crested Rectangular Weir (Weir Controls 2.46 cfs @ 3.19 fps)

-4=Orifice/Grate (Controls 0.00 cfs)

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Pond 56P: Proposed Bioretention System #6



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Hydrograph for Pond 56P: Proposed Bioretention System #6

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(cubic-feet)	(feet)	(cfs)
0.00	0.00	0	97.00	0.00
2.50	0.06	251	97.05	0.00
5.00	0.09	914	97.19	0.00
7.50	0.13	1,854	97.38	0.00
10.00	0.27	3,427	97.70	0.03
12.50	2.57	14,506	99.95	2.56
15.00	0.33	11,022	99.24	0.45
17.50	0.20	10,491	99.14	0.23
20.00	0.15	10,280	99.09	0.16
22.50	0.13	10,183	99.07	0.14
25.00	0.00	9,867	99.01	0.07
27.50	0.00	9,244	98.88	0.07
30.00	0.00	8,655	98.76	0.06
32.50	0.00	8,099	98.65	0.06
35.00	0.00	7,575	98.54	0.06
37.50	0.00	7,080	98.44	0.05
40.00	0.00	6,613	98.35	0.05
42.50	0.00	6,172	98.26	0.05
45.00	0.00	5,756	98.17	0.04
47.50	0.00	5,364	98.09	0.04
50.00	0.00	4,993	98.02	0.04
52.50	0.00	4,643	97.95	0.04
55.00	0.00	4,313	97.88	0.04
57.50	0.00	4,002	97.81	0.03
60.00	0.00	3,708	97.75	0.03
62.50	0.00	3,430	97.70	0.03
65.00	0.00	3,226	97.66	0.02
67.50	0.00	3,108	97.63	0.01
70.00	0.00	3,040	97.62	0.01

APPENDIX E: SOILS INFORMATION



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at

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

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

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)

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

AD

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

Soil Survey Area: Mercer County, New Jersey

Survey Area Data: Version 12, Sep 28, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger. Date(s) aerial images were photographed: Mar 26, 2011—May

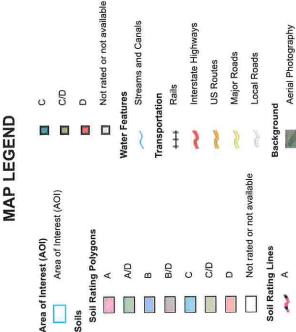
Not rated or not available

Soil Rating Points

=

SP

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

Hydrologic Soli Group— Summary by Map Unit — Mercer County, New Jersey (NJ021)								
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI				
МВҮВ	Mattapex and Bertie loams, 0 to 5 percent slopes	С	2.6	39.9%				
SacB	Sassafras sandy loam, 2 to 5 percent slopes, Northern Coastal Plain	В	2.6	39.7%				
UdstB	Udorthents, stratified substratum, 0 to 8 percent slopes	D	1.3	20.4%				
Totals for Area of Intere	est		6.6	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. Solls having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



APPENDIX F: PIPE CALCULATIONS

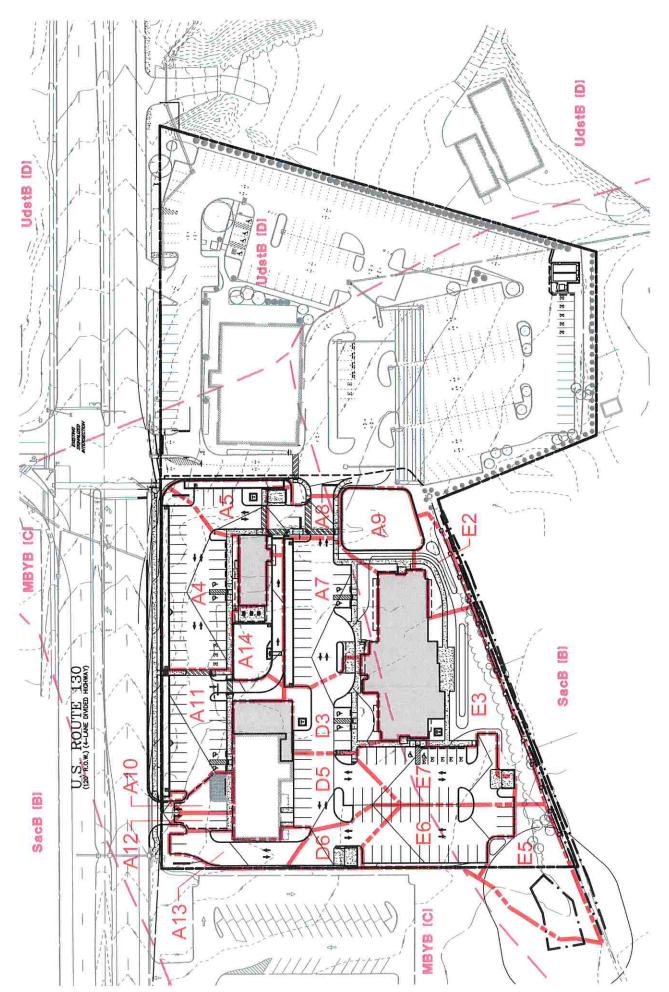


Figure 5. INLET DRAINAGE AREA MAP.

			TOTAL WEIGHTED)	0.94	0.99	0.99	0.89		0.84	0.96	0.94	0.28	0.64	0.10	0.93	0.85	
		'O' O'	0.59	%	%0	%0	%0	%0		%0	%0	%0	%0	%0	%0	%0	%0	%0
SE		WOOD 'D'	<u>ر</u> ت	AREA (acres)	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ALUI		DS 'C'	0.45	%	%0	%0	%0	%0		%0	%0	%0	%0	%0	%0	%0	%0	%0
2005.109.02 AMERICANA CENTER - WEIGHTED 'C' VALUES	(DE D)	O SOODS	ر <u>ر</u> ا	AREA (acres)	0.00	0.00	0.00	0.00	2.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TED	stB (TY	DS 'B'	0.01	%	%0	%0	%0	%0		%0	%0	%0	25%	12%	64%	%0	%0	11%
HEH	SacB (TYPE 'B'), MBYB (TYPE 'C'), UdstB (TYPE 'D')	WOODS 'B'	<u>ن</u> =	AREA (acres)	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.02	90.0	0.14	0.00	0.00	0.22
- W	(TYPE	SS 'D'	0.65	%	%0	0%	%0	%0		%0	%0	%0	%0	%0	%0	%0	%0	%0
TER	MBYB	GRASS 'D'	ر = رز =	AREA (acres)	0.00	0.00	0.00	0.00		0.00	0.00	0.00	00.00	00.00	0.00	0.00	0.00	0.00
A CEI	PE 'B'),	GRASS 'C'	0.51	%	11%	0%	%0	20%		31%	%9	11%	%0	%0	%0	5%	%0	%9
CAN	cB (TY)	GRA	,C'=	AREA (acres)	0.01	0.00	0.00	0.02		0.05	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.12
TERI	(S) : Sa	SS 'B'	0.25	%	%0	%0	0%	%0		%0	%0	%0	63%	32%	36%	5%	5%	15%
2 AN	SOIL TYPE(S):	GRASS 'B'	ر = را =	AREA (acres)	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.05	0.16	80.0	0.01	0.01	0.31
109.0	SOII	VIOUS	0.99	%	%68	100%	100%	%08		%69	94%	%68	13%	26%	%0	%06	95%	%89
2005.	Ę	IMPERVIOUS	<u>ر</u> =	AREA (acres)	0.08	0.04	0.02	80.0		0.11	0.33	80.0	0.01	0.28	0.00	0.18	0.20	1.41
			TOTAL	(acres)	0.09	0.04	0.02	0.10		0.16	0.35	0.09	0.08	0.50	0.22	0.20	0.21	2.06
			Э		A8	A10	A12	A13		D3	DS	D6	E2	E3	ES	E6	E7	TOTALS

Pipe Calc

- 1																	
	n-val Pipe		0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	
	Invert	£	87.50	87.81	91.63	92.70	95.73	95.85	94.32	94.30	94.36	92.72	94.33	93.45	93.19	97.00	
	Invert Up	£	87.81	90.62	92.45	93.45	95.85	96.00	94.50	94.50	94.50	93.19	94.50	93.50	93.50	97.04	3/2023
	Vel	(fl/s)	5.68	6.94	5.12	2.84	2.95	2.60	3.28	4.32	2.40	4.20	2.71	2.51	3.90	0.55	Date: 8/29/2023
	Line	(%)	0.51	5.01	0.50	0.50	0.50	0.49	0.49	0.47	0.80	0.50	0.49	0.46	0.51	0.46	
	Line Size	(ii)	24	18	8	15	5	15	15	15	15	18	5	15	15	15	
	Capac Full	(cfs)	17.43	25.46	8.02	4.95	4.95	4.92	4.90	4.82	6.25	8.06	4.88	4.75	4.98	4.73	4
	Flow Rate	(cfs)	10.53	10.53	7.06	2.22	0.84	0.71	1.24	3.65	0.30	3.20	0.64	1.10	2.56	0.68	Number of lines: 14
	Known	(cfs)	0.00	0.00	0.00	0.0	0.00	0.00	1.24	3.65	0.30	0.00	0.64	1.10	2.56	0.00	Number
-	Total Runoff	(cfs)	1.04	40.1	1.07	1.12	0.84	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	
	Sys	(in/hr)	66.9	7.03	7.20	7.57	7.74	8.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.02	
	2	(min)	13.6	13.5	12.8	11.4	10.9	10.0	10.0	10.0	10.0	11.1	10.0	10.0	10.0	10.0	
	Total Area	(ac)	0.16	0.16	0.16	0.16	0.12	0.10	0.00	0.00	00.0	0.0	0.00	0.00	0.00	0.09	
	ng O	(cfs)	0.00	00.00	0.00	0.32	0.16	0.71	1.24	3.65	0:30	0.00	0.64	1.10	2.56	0.68	
	i Inlet	(in/hr)	00:00	00.00	00:00	8.02	8.02	8.02	00.0	0.00	00.0	00.0	0.00	0.00	0.00	8.02	
	Inlet	(min)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
	Runoff	()	00.0	0.00	0.00	0.99	0.99	0.89	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.94	
	Drng Area	(ac)	0.00	0.00	0.00	0.04	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	E
	Line Length	£	61.239	56.116	164.983	149.629	24.000	30.347	36.675	42.164	17.517	93.580	35.000	10.824	61.267	8.760	A (Rev. 8).s
-	Gnd/Rim El Up	£	96.56	101.25	101.70	100.00	100.00	100.00	100.50	101.00	100.50	101.65	100.90	99.50	100.00	100.50	2005.109.02_STORM A (Rev. 8).stm
-	Line C		¥	82	A3	A10	A12	A13	A 4	A14	A5	A6	A7	A11	A9	A8	5.109.02
	Inlet ID		¥	\$	Ą	A10	A12	A13	4 4	A14	A5	A6	A7	A11	& &	A8	File: 200
 es	Line No.			8	ო	4	ιΩ	ဏ	7	80	თ	10	-	72	5	4	Project File:
L																	

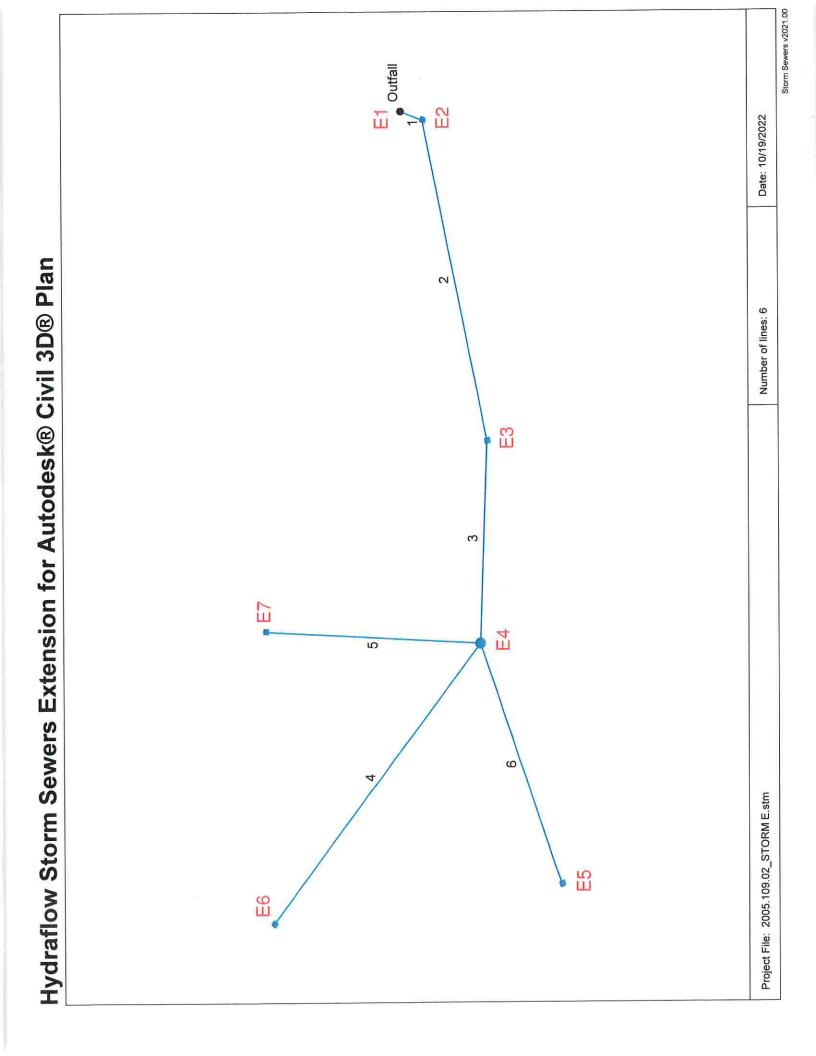
NOTES: Intensity = 63.72 / (Inlet time + 7.40) ^ 0.73 - Return period = 100 Yrs.; ** Critical depth

Storm Sewers v2021.00

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	n-val Pipe		0.012	0.012	0.012			:	
	invert Dn	(E)	98.00	98.06	98.18				
Ī	Invert Up	#	98.06	98.18	98.43			29/2023	
	Vel	(£/\s)	1.70	1.71	48.			Date: 8/29/2023	
	Line Slope	(%)	0.30	0.30	0.31				
	Line Size	(iii)	8	18	8	2			
	Capac Full	(cfs)	6.19	6.20	6.28			4	
	Flow	(cfs)	3.00	3.03	2.36			Number of lines: 4	
	Known Q	(cfs)	00.0	00.0	00.0			Numbe	
	Total Runoff	(cfs)	3.00	3.03	2.36				
	 Sys	(in/hr)	5.40	5.46	5.62				
	5	(min)	15.8	15.5	14.6				
	Total Area	(ac)	09'0	09:0	4.0				** Critical depth
	<u>ධ</u> ය	(cfs)	00.0	06.0	2.26				** Critic
	inlet	(in/hr)	0.00	6.73	6.73				5 Yrs. ;
	Inlet	(min)	10.0	10.0	10.0				eriod = 2
	Runoff Coeff	<u>©</u>	0.00	0.84	0.96				Return p
	Drng Area	(ac)	0.00	0.16	0.35			.stm	^ 0.68 –
	Line Length	£	20.254	40.383	81.915			(Rev. 8)	3 + 5.10)
-	Gnd/Rim El Up	(#)	102.63	101.20	101.30			Project File: 2005.109.02_STORM D (Rev. 8).stm	NOTES: Intensity = 42.39 / (Inlet time + 5.10) ^ 0.68 - Return period = 25 Yrs.;
	Line ID		02	23	52			05.109.0	ty = 42.3
	Inlet D		02	22	52		·	File: 20(: Intensit
	Line No.	-	τ-	7	ო			Project	NOTES
_									

Storm Sewe



Pipe Calc

										 						- 1	
n-val Pipe		0.012	0.012	0.012	0.012	0.012	0.012				·						
Invert	Æ	97.00	97.03	97.43	97.68	97.68	97.68		 					<u>-</u>			
Invert Up	Œ	97.03	97.43	97.68	98.44	98.20	98.20			 					·		24/2022
Vel	(ft/s)	1.73	1.84	1.24	2.30	2.20	0.21			 							Date: 10/24/2022
Line Slope	(%)	0.27	0.30	0.31	0.50	0.50	0.50		 								<u> </u>
Line	(Ē	18	\$	5	5	15	5	 ****					*				
Capac	(cfs)	5.95	6.22	6.28	4.96	4.95	4.93								<u></u>		6 0
Flow Rate	(cfs)	3.05	3.01	1.73	1.38	1.25	0.14										Number of lines: 6
Known	(cfs)	0.00	00.0	0.00	0.00	0.00	0.00							•			Number
Total Runoff	(cfs)	3.05	3.04	1.73	1.38	1.25	0.14										
. Sys	(in/hr)	4.04	4.12	4.20	6.73	6.73	6.73	 	-	 							
Tc	(min)	26.9	26.1	25.2	10.0	10.0	10.0										
Total	(ac)	1.21	1.13	0.63	0.22	0.20	0.21								-		
ng O	(cfs)	0.15	2.15	0.00	1.38	1.25	0.14										
i Inlet	(in/hr)	6.73	6.73	0.00	6.73	6.73	6.73				·	•					
Inlet	(min)	10.0	10.0	10.0	10.0	10.0	10.0										
Runoff	()	0.28	0.64	0.00	0.93	0.93	0.10							100			
Drng Area	(ac)	0.08	0.50	0.00	0.22	0.20	0.21										
Line Length	(£)	10.984	133.686	81.957	151.226	104.065	104.856										stm
Gnd/Rim El Up	£	100.50	101.00	103.50	102.15	102.15	103.00		 			<u></u>					Project File: 2005.109.02_STORM E.stm
Line		23	E3	F	9	£7	<u> </u>			 							5.109.02
Inlet ID		E	<u>ш</u>	E4	9 E	E7	E3		 							\dashv	⁻ile: 200
Line No.	-	7-	71	က	4	гO	ထ										Project F
L	1							 		 							-

NOTES: Intensity = 42.39 / (inlet time + 5.10) ^ 0.68 - Return period = 25 Yrs.; ** Critical depth

Storm Sewe

TYPICAL RIP-RAP CALCULATIONS

The following calculations are done in accordance with The Soil Conservation District's Standards for Conduit Outlet Protection.

Length of Pad:

$$La = \left(\frac{1.8q}{\sqrt{Do}}\right) + 7Do$$

$$TW < \frac{1}{2}Dc$$

$$La = \left(\frac{1.8q}{\sqrt{Do}}\right) + 7Do \qquad TW < \frac{1}{2}Do \qquad \text{Where } q = \frac{Q}{Wo} \text{ in cfs per foot}$$

$$La = \frac{3q}{\sqrt{Do}}$$

$$TW > \frac{1}{2}Do$$

Width of Pad:

$$W = 3Wo + La$$

$$TW < \frac{1}{2}Do$$

$$W = 3Wo + 0.4La$$

$$TW > \frac{1}{2}Do$$

* Rip-Rap to extend to top of banks of channel

d50 Stone Size:

$$d_{50} = \left(\frac{0.016}{Tw}\right) q^{1.33}$$

Where
$$q = \frac{Q}{Do}$$

Minimum = 6.00 inches

For areas where Tw cannot be computed, use Tw=0.2Do

Headwall #	Q(cfs)	Do(in)	Wo(in)	TW(ft)	La(ft)	W(ft)	<u>d50(in)</u>
A16	0.68	15	15	0.25	9.6	13.4	6.00
E1	3.05	18	18	0.30	13.5	18.0	6.00

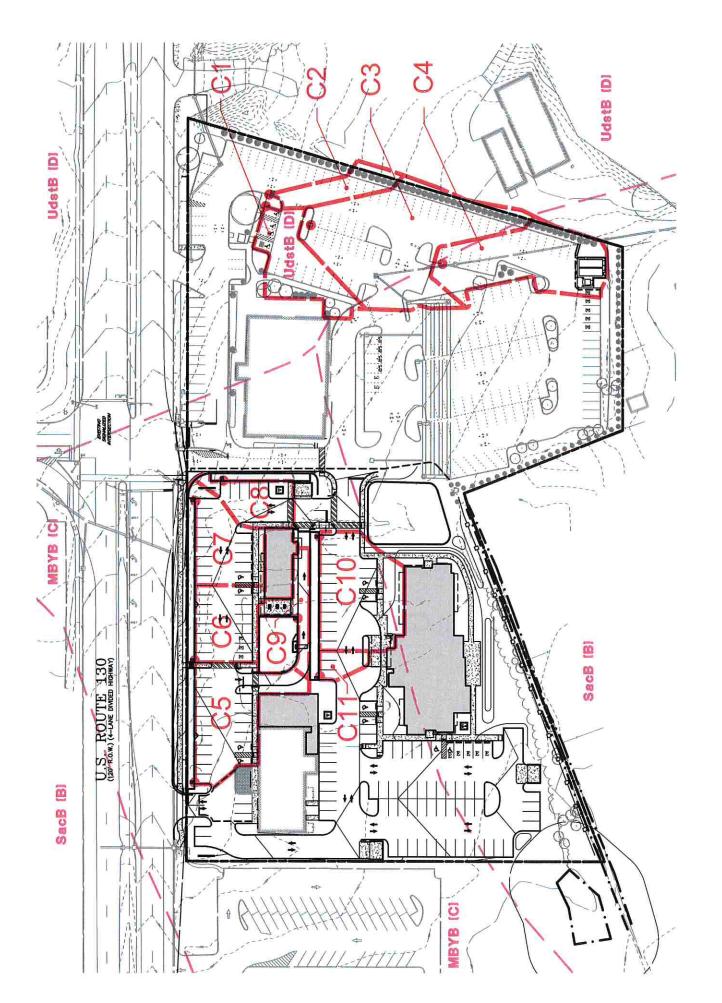


Figure 6. PROPOSED CURB AND WALL CUTS DRAINAGE AREA MAP.





Proposed Wall Cut C5

Proposed Wall Cut C09





Proposed Wall Cut C6

Proposed Wall Cut C10





Proposed Wall Cut C7

Proposed Wall Cut C11



Proposed Wall Cut C8









NOAA 24-hr C 25-Year Rainfall=6.19"

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Summary for Subcatchment C05: Proposed Wall Cut C5

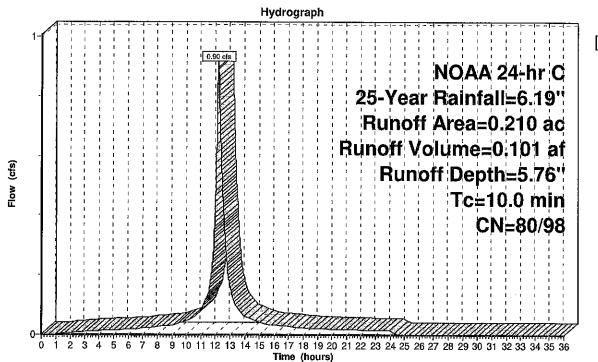
Runoff = 0.90 cfs @ 12.18 hrs, Volume=

0.101 af, Depth= 5.76"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.01 hrs NOAA 24-hr C 25-Year Rainfall=6.19"

_	Area	(ac)	CN	Desc	cription			
*	0.	190	98	Pave	ed parking			
_	0.	020	80	>759	% Grass co	over, Good	HSG D	
	0.	210	96	Weig	hted Aver	age		
	0.	020	80	9.52	% Perviou	s Ārea		
	0.	190	98	90.4	8% Imperv	ious Area		
	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
	10.0						Direct Entry,	

Subcatchment C05: Proposed Wall Cut C5





Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

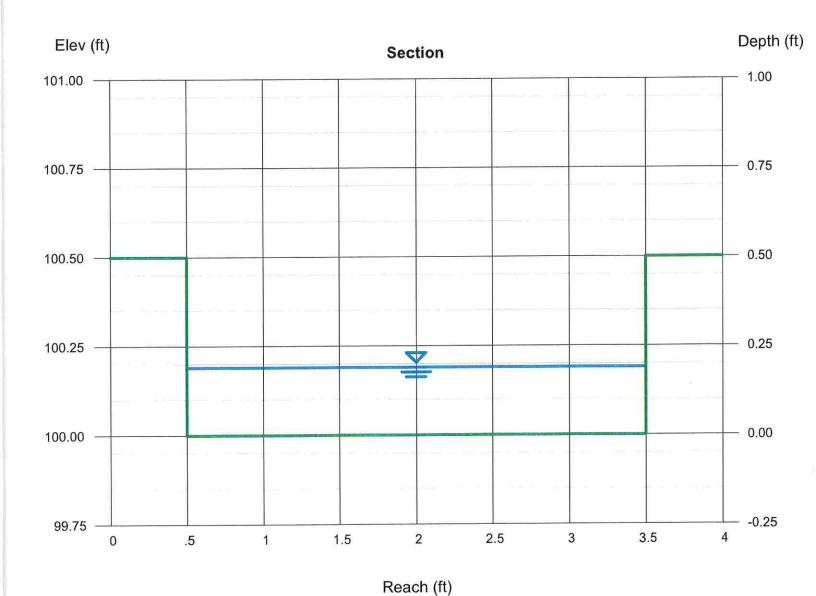
= 0.90

Tuesday, Aug 29 2023

Proposed wall cut C5

Known Q (cfs)

	Highlighted	
= 3.00	Depth (ft)	= 0.19
= 0.50	Q (cfs)	= 0.900
	Area (sqft)	= 0.57
= 100.00	Velocity (ft/s)	= 1.58
= 1.50	Wetted Perim (ft)	= 3.38
= 0.035	Crit Depth, Yc (ft)	= 0.15
	Top Width (ft)	= 3.00
	EGL (ft)	= 0.23
Known Q		
	= 0.50 = 100.00 = 1.50 = 0.035	= 3.00 Depth (ft) = 0.50 Q (cfs) Area (sqft) = 100.00 Velocity (ft/s) = 1.50 Wetted Perim (ft) = 0.035 Crit Depth, Yc (ft) Top Width (ft) EGL (ft)



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Summary for Subcatchment C06: Proposed Wall Cut C6

Runoff =

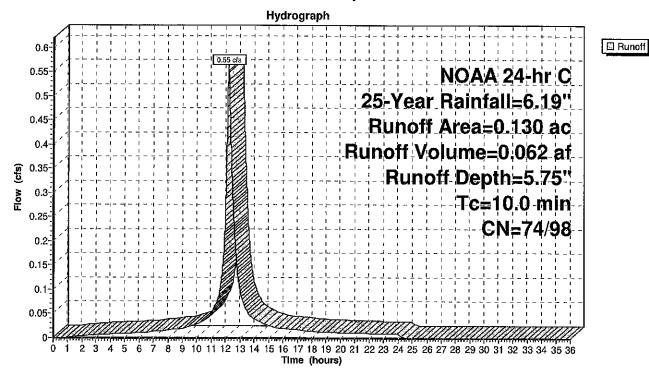
0.55 cfs @ 12.18 hrs, Volume=

0.062 af, Depth= 5.75"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.01 hrs NOAA 24-hr C 25-Year Rainfall=6.19"

-	Area ((ac)	CN	Desc	cription			
*	0.	120	98	Pave	ed parking			
	0.6	010	74	>759	<u>% Grass co</u>	over, Good	HSG C	
	0.	130	96	Weig	ghted Aver	age		
	0.010 74 7.69% Pervious Area					s Ārea		
	0.	120	98	92.3	1% Imperv	ious Area		
	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
	10.0						Direct Entry,	

Subcatchment C06: Proposed Wall Cut C6



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

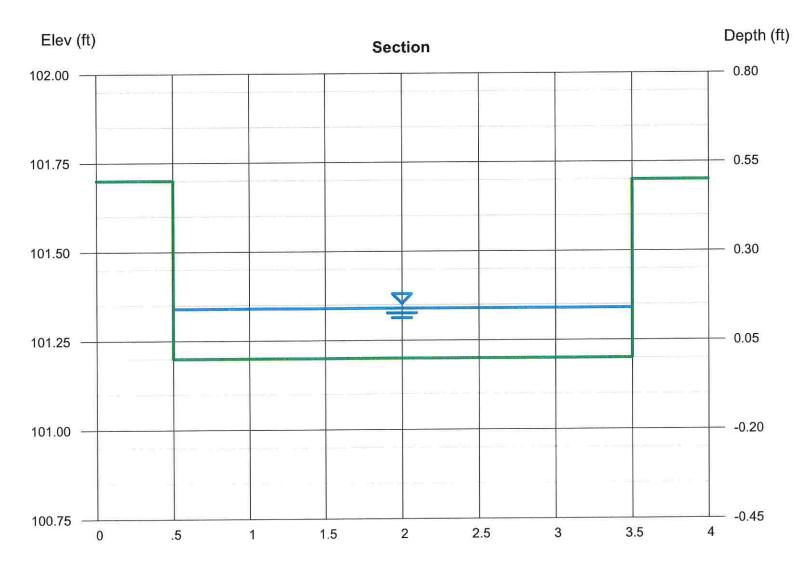
= 0.55

Monday, Oct 24 2022

Proposed wall cut C6

Known Q (cfs)

Rectangular		Highlighted	
Bottom Width (ft)	= 3.00	Depth (ft)	= 0.14
Total Depth (ft)	= 0.50	Q (cfs)	= 0.550
1 2 mm — 2 km / / / /		Area (sqft)	= 0.42
Invert Elev (ft)	= 101.20	Velocity (ft/s)	= 1.31
Slope (%)	= 1.50	Wetted Perim (ft)	= 3.28
N-Value	= 0.035	Crit Depth, Yc (ft)	= 0.11
		Top Width (ft)	= 3.00
Calculations		EGL (ft)	= 0.17
Compute by:	Known Q		



Reach (ft)

2005.109.02_CURB CUTS (Rev 7)

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NOAA 24-hr C 25-Year Rainfall=6.19" Printed 2/9/2023

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Summary for Subcatchment C07: Proposed Wall Cut C7

Runoff

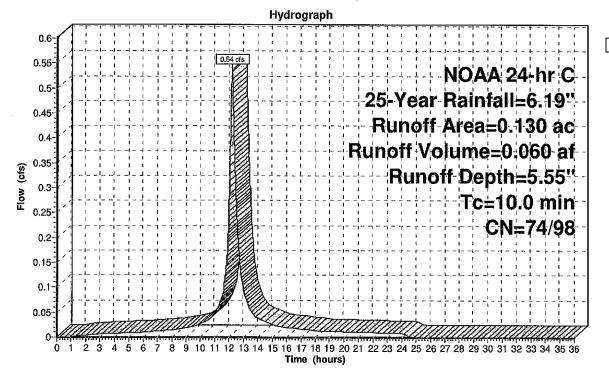
0.54 cfs @ 12.18 hrs, Volume=

0.060 af, Depth= 5.55"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.01 hrs NOAA 24-hr C 25-Year Rainfall=6.19"

	Area ((ac)	CN	Desc	cription			
*	0.	110	98	Pave	ed parking			
-	0.0	020	74	>75%	<u> 6 Grass co</u>	over, Good	, HSG C	
	0.	130	94	Weig	ghted Aver	age		
	0.6	020	74	15.3	8% Pervio	us Area		
	0.	110	98	84.6	2% Imperv	vious Area		
	Tc	Leng	jth :	Slope	Velocity	Capacity	Description	
_	(min)	(fee	et)	(ft/ft)	(ft/sec)	(cfs)		
	10.0						Direct Entry.	

Subcatchment C07: Proposed Wall Cut C7



□ Runoff

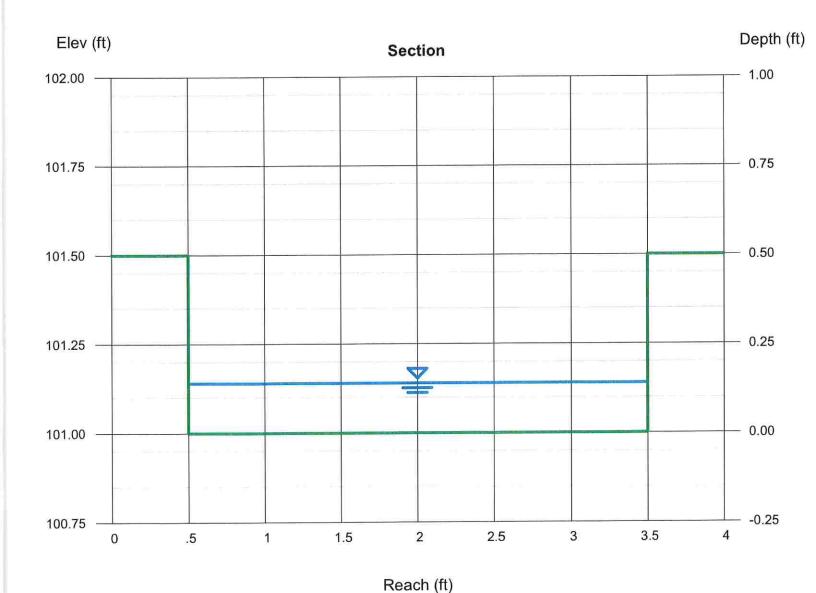
Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Monday, Oct 24 2022

Proposed wall cut C7

Rectangular		Highlighted	
Bottom Width (ft)	= 3.00	Depth (ft)	= 0.14
Total Depth (ft)	= 0.50	Q (cfs)	= 0.540
7. 2		Area (sqft)	= 0.42
Invert Elev (ft)	= 101.00	Velocity (ft/s)	= 1.29
Slope (%)	= 1.50	Wetted Perim (ft)	= 3.28
N-Value	= 0.035	Crit Depth, Yc (ft)	= 0.11
		Top Width (ft)	= 3.00
Calculations		EGL (ft)	= 0.17
Compute by:	Known Q		
Known Q (cfs)	= 0.54		



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Summary for Subcatchment C08: Proposed Wall Cut C8

Runoff =

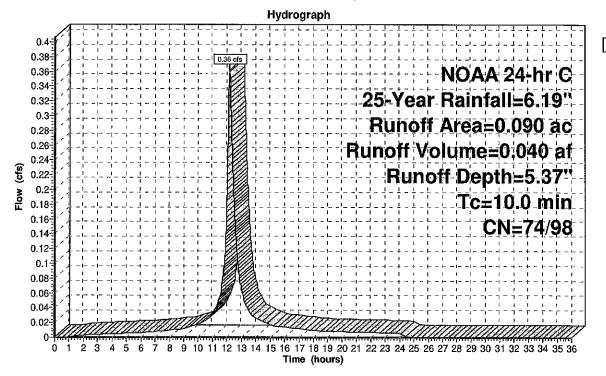
0.36 cfs @ 12.18 hrs, Volume=

0.040 af, Depth= 5.37"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.01 hrs NOAA 24-hr C 25-Year Rainfall=6.19"

	Area ((ac)	CN	Desc	cription			
*	0.0	070	98	Pave	ed parking			
	0.0	020	74	>75%	<u> 6 Grass co</u>	over, Good	HSG C	
	0.0	090	93	Weig	hted Aver	age		
	0.020 74 22.22% Pervious Area							
	0.0	070	98	77.7	8% Imperv	ious Area		
	Tc	Leng	th	Slope	Velocity	Capacity	Description	
_	(min)	(fee	et)	(ft/ft)	(ft/sec)	(cfs)		
	10.0						Direct Entry,	

Subcatchment C08: Proposed Wall Cut C8



□ Runoff

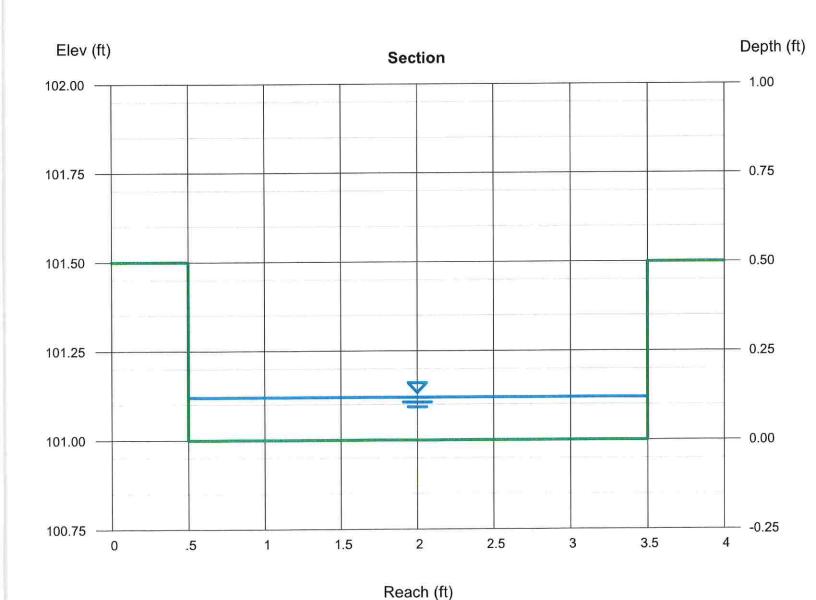
Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Thursday, Feb 9 2023

Proposed wall cut C8

Rectangular		Highlighted	
Bottom Width (ft)	= 3.00	Depth (ft)	= 0.12
Total Depth (ft)	= 0.50	Q (cfs)	= 0.380
2 3.6		Area (sqft)	= 0.36
Invert Elev (ft)	= 101.00	Velocity (ft/s)	= 1.06
Slope (%)	= 1.50	Wetted Perim (ft)	= 3.24
N-Value	= 0.035	Crit Depth, Yc (ft)	= 0.08
		Top Width (ft)	= 3.00
Calculations		EGL (ft)	= 0.14
Compute by:	Known Q		
Known Q (cfs)	= 0.38		



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NOAA 24-hr C 25-Year Rainfall=6.19" Printed 2/9/2023

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Summary for Subcatchment C09: Proposed Wall Cut C09

Runoff

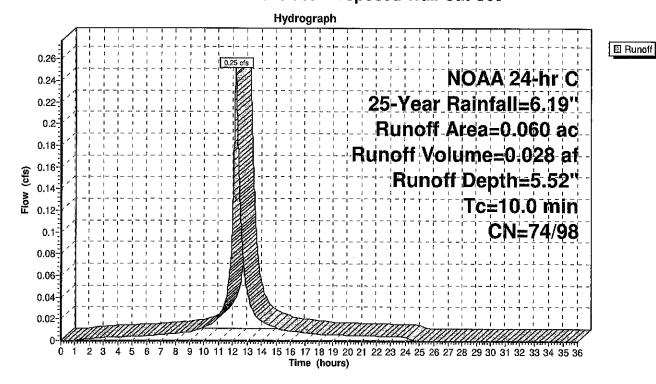
0.25 cfs @ 12.18 hrs, Volume=

0.028 af, Depth= 5.52"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.01 hrs NOAA 24-hr C 25-Year Rainfall=6.19"

_	Area	(ac)	CN	Desc	cription				
*	0.	.050	98	Pave	ed parking				_
_	0.	.010	74	>75%	<u> 6 Grass c</u>	over, Good	HSG C		
	0.	.060	94	Weig	hted Aver	age			_
	0.	.010	74	16.6	7% Pervio	us Area			
	0.	.050	98	83.3	3% Imperv	vious Area			
_	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
	10.0			•			Direct Entry		_

Subcatchment C09: Proposed Wall Cut C09



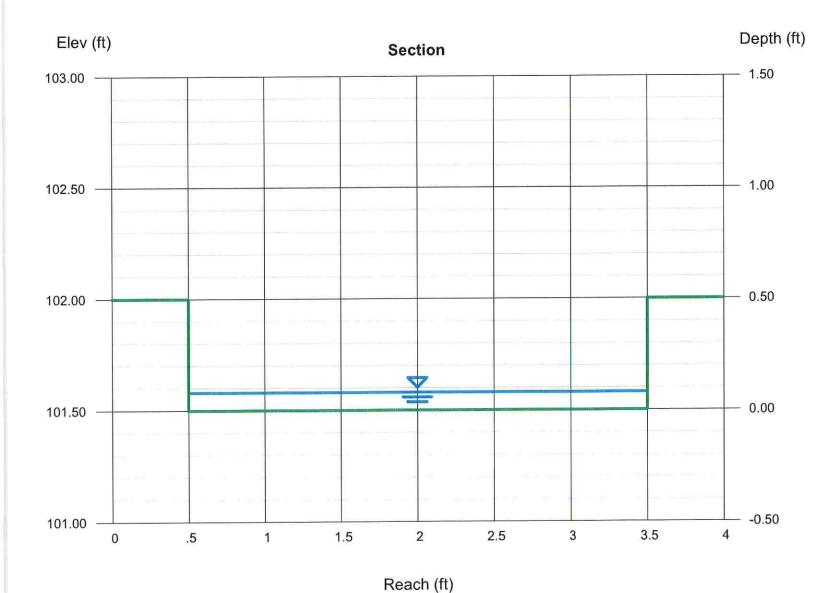
Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Monday, Oct 24 2022

Proposed wall cut C9

Rectangular		Highlighted	
Bottom Width (ft)	= 3.00	Depth (ft)	= 0.08
Total Depth (ft)	= 0.50	Q (cfs)	= 0.250
X. 4.		Area (sqft)	= 0.24
Invert Elev (ft)	= 101.50	Velocity (ft/s)	= 1.04
Slope (%)	= 2.00	Wetted Perim (ft)	= 3.16
N-Value	= 0.035	Crit Depth, Yc (ft)	= 0.06
		Top Width (ft)	= 3.00
Calculations		EGL (ft)	= 0.10
Compute by:	Known Q		
Known Q (cfs)	= 0.25		



2005.109.02_CURB CUTS (Rev 7)

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Summary for Subcatchment C10: Proposed Wall Cut C10

Runoff

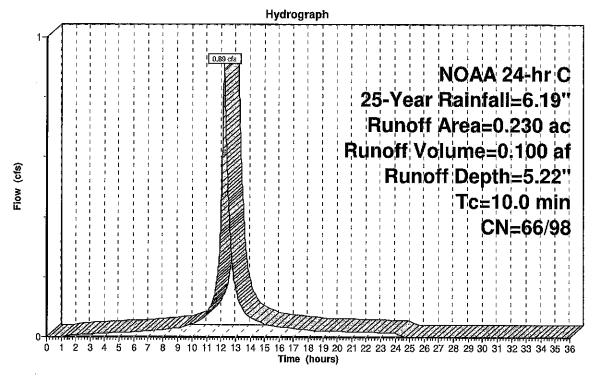
0.89 cfs @ 12.18 hrs, Volume=

0.100 af, Depth= 5.22"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.01 hrs NOAA 24-hr C 25-Year Rainfall=6.19"

	Area (a	(c) Cl	N Des	cription							
*	0.18	80 9	8 Pav	red parking							
	0.02	20 7	4 >75	% Ġrass c	over, Good	HSG C					
-	0.030 61 >75% Grass cover, Good, HSG B										
	0.23	30 9	1 Wei	ghted Aver	age						
	0.050 66 21.74% Pervious Area										
	0.180 98 78.26% Impervious Area				vious Area						
	Tc L	_ength	Slope	Velocity	Capacity	Description					
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	•					
	10.0					Direct Entry,					

Subcatchment C10: Proposed Wall Cut C10





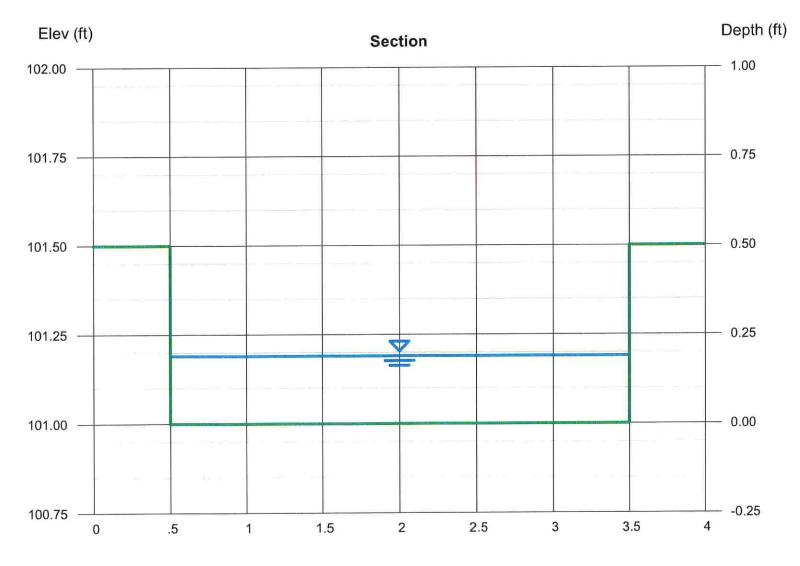
Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Monday, Oct 24 2022

Proposed wall cut C10

Rectangular		Highlighted	
Bottom Width (ft)	= 3.00	Depth (ft)	= 0.19
Total Depth (ft)	= 0.50	Q (cfs)	= 0.890
1. X X		Area (sqft)	= 0.57
Invert Elev (ft)	= 101.00	Velocity (ft/s)	= 1.56
Slope (%)	= 1.50	Wetted Perim (ft)	= 3.38
N-Value	= 0.035	Crit Depth, Yc (ft)	= 0.14
		Top Width (ft)	= 3.00
Calculations		EGL (ft)	= 0.23
Compute by:	Known Q		
Known Q (cfs)	= 0.89		



Reach (ft)

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NOAA 24-hr C 25-Year Rainfall=6.19" Printed 8/29/2023

Summary for Subcatchment C11: Proposed Wall Cut C11

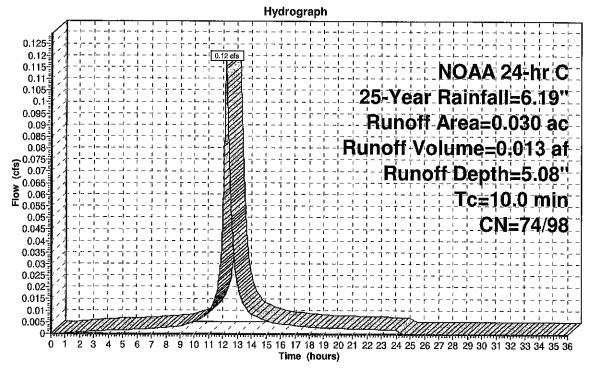
Runoff = 0.12 cfs @ 12.18 hrs, Volume=

0.013 af, Depth= 5.08"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.01 hrs NOAA 24-hr C 25-Year Rainfall=6.19"

_	Area	(ac)	CN	Desc	cription			
*	0.	.020	98	Pave	d parking			
_	0.	.010	_ 74	>75%	<u> 6 Grass c</u>	over, Good	HSG C	
	0.	.030	90	Weig	hted Ave	age	7-18	
	0.	.010	74		3% Pervio			
	0.	.020	98	66.6	7% Imperv	ious Area		
	Tc	Leng		Slope	Velocity	Capacity	Description	
_	(min)	(fee) []	(ft/ft)	(ft/sec)	(cfs)		
	10.0						Direct Entry.	

Subcatchment C11: Proposed Wall Cut C11



■ Runoff

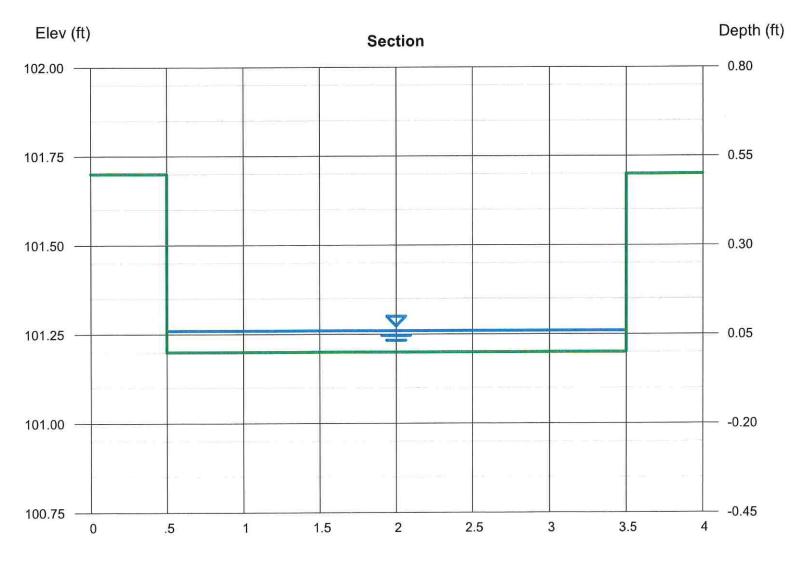
Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Tuesday, Aug 29 2023

Proposed wall cut C11

Rectangular		Highlighted	
Bottom Width (ft)	= 3.00	Depth (ft)	= 0.06
Total Depth (ft)	= 0.50	Q (cfs)	= 0.120
VIII		Area (sqft)	= 0.18
Invert Elev (ft)	= 101.20	Velocity (ft/s)	= 0.67
Slope (%)	= 1.50	Wetted Perim (ft)	= 3.12
N-Value	= 0.035	Crit Depth, Yc (ft)	= 0.04
		Top Width (ft)	= 3.00
Calculations		EGL (ft)	= 0.07
Compute by:	Known Q		
Known Q (cfs)	= 0.12		



Reach (ft)

APPENDIX G: WATER QUALITY CALCULATIONS

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Summary for Pond 51P: Proposed Bioretention System #1

0.160 ac, 81.25% Impervious, Inflow Depth = 0.85" for WQ event Inflow Area =

1.04 hrs, Volume= 0.011 af Inflow 0.40 cfs @

0.000 af, Atten= 100%, Lag= 0.0 min 0.00 cfs @ 0.00 hrs, Volume= Outflow

0.00 hrs, Volume= 0.000 af 0.00 cfs @ Primary =

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 98.67' @ 2.80 hrs Surf.Area= 0.017 ac Storage= 0.011 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storag		ge Description	
#1	98.00'	0.051	af Cust	m Stage Data (Prismatic) Listed b	elow (Recalc)
Elevatio (fee	. "	· · · · · · · · · · · · · · · · · ·	c.Store e-feet)	Cum.Store (acre-feet)	
98.0)17	0.000	0.000	
99.0	-)17	0.017	0.017	
100.0	0.0)17	0.017	0.034	
101.0	0.0)17	0.017	0.051	
Device	Routing	Invert	Outlet De	vices	
#1	Primary	94.50'	15.0" Ro	and HDPE_Round 15"	
			L=28.0'	RCP, square edge headwall, Ke= (0.500
			Inlet / Ou	let Invert= 94.50' / 94.36' S= 0.005	50 '/' Cc= 0.900
			n = 0.012	Flow Area= 1.23 sf	
#2	Device 1			Orifice/Grate C= 0.600 Limited	to weir flow at low heads
#3	Device 1	100.50'	42.0" x 4	6.0" Horiz. Grate C= 0.600	

Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.00' TW=0.00' (Dynamic Tailwater)

1=HDPE_Round 15" (Passes 0.00 cfs of 10.02 cfs potential flow)
2=Orifice/Grate (Controls 0.00 cfs)

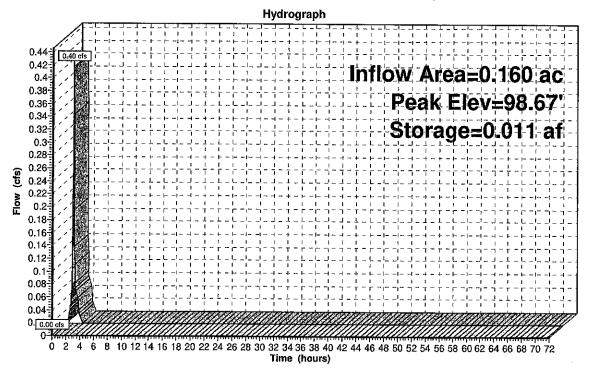
-3=Grate (Controls 0.00 cfs)

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Pond 51P: Proposed Bioretention System #1





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Hydrograph for Pond 51P: Proposed Bioretention System #1

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.00	0.011	98.67	0.00
5.00	0.00	0.011	98.67	0.00
7.50	0.00	0.011	98.67	0.00
10.00	0.00	0.011	98.67	0.00
12.50	0.00	0.011	98.67	0.00
15.00	0.00	0.011	98.67	0.00
17.50	0.00	0.011	98.67	0.00
20.00	0.00	0.011	98.67	0.00
22.50	0.00	0.011	98.67	0.00
25.00	0.00	0.011	98.67	0.00
27.50	0.00	0.011	98.67	0.00
30.00	0.00	0.011	98.67	0.00
32.50	0.00	0.011	98.67	0.00
35.00	0.00	0.011	98.67	0.00
37.50	0.00	0.011	98.67	0.00
40.00	0.00	0.011	98.67	0.00
42.50	0.00	0.011	98.67	0.00
45.00	0.00	0.011	98.67	0.00
47.50	0.00	0.011	98.67	0.00
50.00	0.00	0.011	98.67	0.00
52.50	0.00	0.011	98.67	0.00
55.00	0.00	0.011	98.67	0.00
57.50	0.00	0.011	98.67	0.00
60.00	0.00	0.011	98.67	0.00
62.50	0.00	0.011	98.67	0.00
65.00	0.00	0.011	98.67	0.00
67.50	0.00	0.011	98.67	0.00
70.00	0.00	0.011	98.67	0.00

Water Quality Storm NJ DEP 2-hr WQ Rainfall=1.25" Printed 8/29/2023

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Summary for Pond 52P: Proposed Bioretention System #2

Inflow Area = 0.290 ac, 86.21% Impervious, Inflow Depth = 0.90" for WQ event

Inflow 0.75 cfs @ 1.04 hrs, Volume= 0.022 af

Outflow 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Primary 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 98.87' @ 2.45 hrs Surf.Area= 0.025 ac Storage= 0.022 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Inve	rt Av	ail.Storag	je St	torage Description
#1	98.0	0'	0.075	af Cı	ustom Stage Data (Prismatic) Listed below (Recalc)
Elevatio		f.Area acres)		:.Store e-feet)	
98.0	00	0.025		0.000	0.000
99.0)0	0.025		0.025	0.025
100.0	00	0.025		0.025	0.050
101.0	00	0.025		0.025	0.075
Device	Routing		Invert	Outlet	: Devices
#1	Primary		94.50'	15.0"	Round HDPE Round 15"
	•				.0' RCP, square edge headwall, Ke= 0.500
				Inlet / 0	Outlet Invert= 94.50' / 94.31' S= 0.0051 '/' Cc= 0.900
				n = 0.0	012, Flow Area= 1.23 sf
#2	Primary		98.90'	3.0" Ve	ert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	•	100.00'	0.5' loi	ng Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Device 1	•	100.95'	42.0" >	x 48.0" Horiz. Grate C= 0.600

Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.00' TW=0.00' (Dynamic Tailwater)

-1=HDPE Round 15" (Passes 0.00 cfs of 10.02 cfs potential flow)

-3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

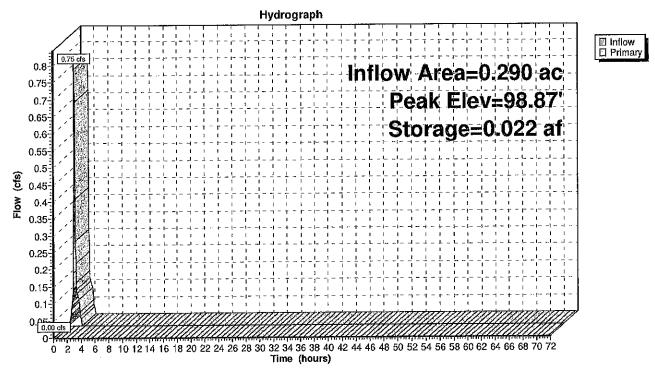
4=Grate (Controls 0.00 cfs)

2=Orifice/Grate (Controls 0.00 cfs)

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Pond 52P: Proposed Bioretention System #2



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Hydrograph for Pond 52P: Proposed Bioretention System #2

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.00	0.022	98.87	0.00
5.00	0.00	0.022	98.87	0.00
7.50	0.00	0.022	98.87	0.00
10.00	0.00	0.022	98.87	0.00
12.50	0.00	0.022	98.87	0.00
15.00	0.00	0.022	98.87	0.00
17.50	0.00	0.022	98.87	0.00
20.00	0.00	0.022	98.87	0.00
22.50	0.00	0.022	98.87	0.00
25.00	0.00	0.022	98.87	0.00
27.50	0.00	0.022	98.87	0.00
30.00	0.00	0.022	98.87	0.00
32.50	0.00	0.022	98.87	0.00
35.00	0.00	0.022	98.87	0.00
37.50	0.00	0.022	98.87	0.00
40.00	0.00	0.022	98.87	0.00
42.50	0.00	0.022	98.87	0.00
45.00	0.00	0.022	98.87	0.00
47.50	0.00	0.022	98.87	0.00
50.00	0.00	0.022	98.87	0.00
52.50	0.00	0.022	98.87	0.00
55.00	0.00	0.022	98.87	0.00
57.50	0.00	0.022	98.87	0.00
60.00	0.00	0.022	98.87	0.00
62.50	0.00	0.022	98.87	0.00
65.00	0.00	0.022	98.87	0.00
67.50	0.00	0.022	98.87	0.00
70.00	0.00	0.022	98.87	0.00

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Summary for Pond 53P: Proposed Bioretention System #3

Inflow Area = 0.230 ac, 82.61% Impervious, Inflow Depth = 0.87" for WQ event

Inflow = 0.57 cfs @ 1.05 hrs, Volume= 0.017 af

Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 97.88' @ 2.80 hrs Surf.Area= 0.019 ac Storage= 0.017 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Inve	ert Av	ail.Storag	ge Sto	orage Description
#1	97.0	0'	0.057	af Cus	ustom Stage Data (Prismatic) Listed below (Recalc)
Elevati	on Sui	rf.Area	Inc	.Store	
(fee	et) (acres)	(acr	e-feet)	(acre-feet)
97.	00	0.019		0.000	0.000
98.		0.019		0.019	0.019
99.		0.019		0.019	0.038
100.		0.019		0.019	0.057
Device	Routing		Invert	Outlet [Devices
#1	Primary		93.50'	15.0" F	Round HDPE Round 15"
,, ,			• • • • •		0' RCP, square edge headwall, Ke= 0.500
				Inlet / C	Outlet Invert= 93.50' / 93.44' S= 0.0055 '/' Cc= 0.900
					12, Flow Area= 1.23 sf
#2	Device 1		98.00'	0.5' lon	ng Sharp-Crested Rectangular Weir 2 End Contraction(s)
#3	Device 1		99.50'	42.0" x	x 48.0" Horiz. Grate C= 0.600
				Limited	d to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=97.00' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 0.00 cfs of 10.02 cfs potential flow)

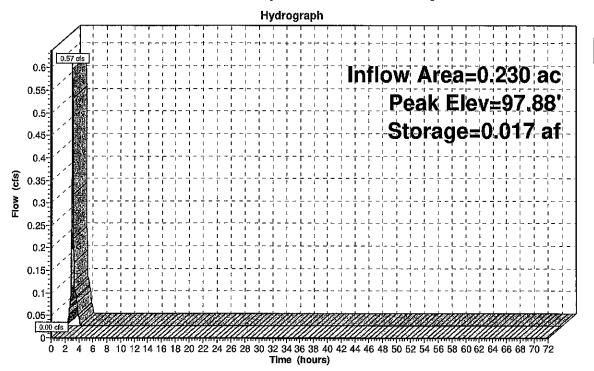
—2⊨Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

-3=Grate (Controls 0.00 cfs)

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Pond 53P: Proposed Bioretention System #3





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Hydrograph for Pond 53P: Proposed Bioretention System #3

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	97.00	0.00
2.50	0.00	0.017	97.88	0.00
5.00	0.00	0.017	97.88	0.00
7.50	0.00	0.017	97.88	0.00
10.00	0.00	0.017	97.88	0.00
12.50	0.00	0.017	97.88	0.00
15.00	0.00	0.017	97.88	0.00
17.50	0.00	0.017	97.88	0.00
20.00	0.00	0.017	97.88	0.00
22.50	0.00	0.017	97.88	0.00
25.00	0.00	0.017	97.88	0.00
27.50	0.00	0.017	97.88	0.00
30.00	0.00	0.017	97.88	0.00
32.50	0.00	0.017	97.88	0.00
35.00	0.00	0.017	97.88	0.00
37.50	0.00	0.017	97.88	0.00
40.00	0.00	0.017	97.88	0.00
42.50	0.00	0.017	97.88	0.00
45.00	0.00	0.017	97.88	0.00
47.50	0.00	0.017	97.88	0.00
50.00	0.00	0.017	97.88	0.00
52.50	0.00	0.017	97.88	0.00
55.00	0.00	0.017	97.88	0.00
57.50	0.00	0.017	97.88	0.00
60.00	0.00	0.017	97.88	0.00
62.50	0.00	0.017	97.88	0.00
65.00	0.00	0.017	97.88	0.00
67.50	0.00	0.017	97.88	0.00
70.00	0.00	0.017	97.88	0.00

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Summary for Pond 54P: Proposed Bioretention System #4

Inflow Area = 0.710 ac, 78.87% Impervious, Inflow Depth = 0.83" for WQ event

Inflow 1.06 hrs. Volume= 1.65 cfs @ 0.049 af

Outflow 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

0.00 hrs, Volume= 0.00 cfs @ 0.000 af Primary

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 98.98' @ 2.80 hrs Surf.Area= 0.050 ac Storage= 0.049 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert A	vail.Storage	Storage Description
#1	98.00'	0.201 af	f Custom Stage Data (Prismatic) Listed below (Recalc)
Elevatio	n Surf.Area	Inc.S	Store Cum.Store
(fee	t) (acres)	(acre-	-feet) (acre-feet)
98.0	0.050	0	0.000 0.000
99.0	0.050	0	0.050 0.050
100.0	0.050	0	0.050 0.101
101.0	0.050	0	0.050 0.151
102.0	0.050	0	0.050 0.201
Device	Routing	Invert O	Outlet Devices
#1	Primary	94.50' 1	5.0" Round HDPE Round 15"
	•	L.	= 40.0' RCP, square edge headwall, Ke= 0.500
		In	nlet / Outlet Invert= 94.50' / 94.30' S= 0.0050 '/' Cc= 0.900
		n=	= 0.012, Flow Area= 1.23 sf
#2	Device 1	99.00' C	Chicago 3-in VFR
#3	Device 1	99.90' 1.	.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

42.0" x **48.0"** Horiz. Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.00' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 0.00 cfs of 10.02 cfs potential flow)
-2=Chicago 3-in VFR (Controls 0.00 cfs)

101.40'

-3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

-4=Grate (Controls 0.00 cfs)

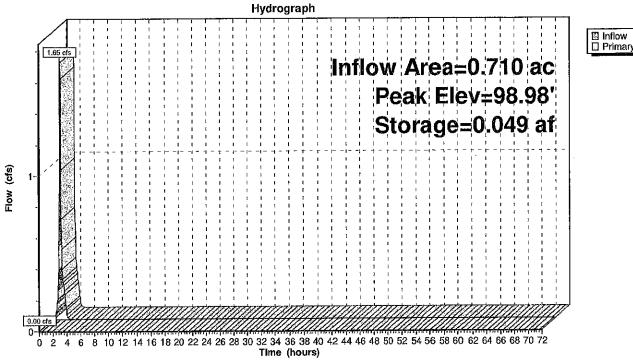
#4

Device 1

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Pond 54P: Proposed Bioretention System #4





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Hydrograph for Pond 54P: Proposed Bioretention System #4

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(c <u>fs</u>)
0.00	0.00	0.000	98.00	0.00
2.50	0.00	0.049	98.98	0.00
5.00	0.00	0.049	98.98	0.00
7.50	0.00	0.049	98.98	0.00
10.00	0.00	0.049	98.98	0.00
12.50	0.00	0.049	98.98	0.00
15.00	0.00	0.049	98.98	0.00
17.50	0.00	0.049	98.98	0.00
20.00	0.00	0.049	98.98	0.00
22.50	0.00	0.049	98.98	0.00
25.00	0.00	0.049	98.98	0.00
27.50	0.00	0.049	98.98	0.00
30.00	0.00	0.049	98.98	0.00
32.50	0.00	0.049	98.98	0.00
35.00	0.00	0.049	98.98	0.00
37.50	0.00	0.049	98.98	0.00
40.00	0.00	0.049	98.98	0.00
42.50	0.00	0.049	98.98	0.00
45.00	0.00	0.049	98.98	0.00
47.50	0.00	0.049	98.98	0.00
50.00	0.00	0.049	98.98	0.00
52.50	0.00	0.049	98.98	0.00
55.00	0.00	0.049	98.98	0.00
57.50	0.00	0.049	98.98	0.00
60.00	0.00	0.049	98.98	0.00
62.50	0.00	0.049	98.98	0.00
65.00	0.00	0.049	98.98	0.00
67.50	0.00	0.049	98.98	0.00
70.00	0.00	0.049	98.98	0.00

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Summary for Pond 55P: Proposed Bioretention System #5

Inflow Area = 0.300 ac, 73.33% Impervious, Inflow Depth = 0.77" for WQ event

Inflow = 0.63 cfs @ 1.07 hrs, Volume= 0.019 af

Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 98.60' @ 2.85 hrs Surf.Area= 0.032 ac Storage= 0.019 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Inv	ert A	vail.Stora	ige S	Storage Description
#1	98.	00'	0.096	af C	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevatio		ırf.Area (acres)		c.Store	
98.0		0.032		0.000	0.000
99.0	00	0.032		0.032	2 0.032
100.0	00	0.032		0.032	2 0.064
101.0	00	0.032		0.032	2 0.096
Device	Routing		Invert	Outle	t Devices
#1	Primary		94.50'	15.0"	Round HDPE Round 15"
	•				5.0' RCP, square edge headwall, Ke= 0.500
					Outlet Invert= 94.50' / 94.33' S= 0.0049 '/' Cc= 0.900
				n = 0.0	012, Flow Area= 1.23 sf
#2	Device '	1	98.70'	3.0" \	Vert. Orifice C= 0.600 Limited to weir flow at low heads
#3	Device	1	100.70'	42.0"	x 48.0" Horiz. Grate C= 0.600
				Limite	ed to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.00' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 0.00 cfs of 10.02 cfs potential flow)

—2=Orifice (Controls 0.00 cfs)
—3=Grate (Controls 0.00 cfs)

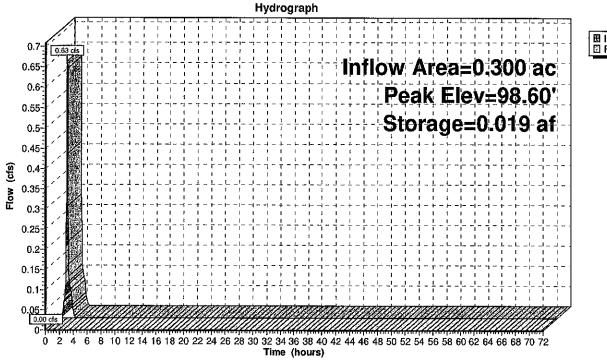
Water Quality Storm NJ DEP 2-hr WQ Rainfall=1.25" Printed 8/29/2023

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Pond 55P: Proposed Bioretention System #5





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Hydrograph for Pond 55P: Proposed Bioretention System #5

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(acre-feet)	(feet)	(cfs)
0.00	0.00	0.000	98.00	0.00
2.50	0.00	0.000	98.60	0.00
5.00	0.00	0.019	98.60	0.00
7.50	0.00	0.019	98.60	0.00
10.00	0.00	0.019	98.60	0.00
12.50	0.00	0.019	98.60	0.00
15.00	0.00	0.019	98.60	0.00
17.50	0.00	0.019	98.60	0.00
20.00	0.00	0.019	98.60	0.00
22.50	0.00	0.019	98.60	0.00
25.00	0.00	0.019	98.60	0.00
27.50	0.00	0.019	98.60	0.00
		•		
		#		*
		• • • • •		
			+	
		•		
		•	*	
30.00 32.50 35.00 37.50 40.00 42.50 45.00 52.50 55.00 57.50 60.00 62.50 65.00 67.50 70.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.019 0.019 0.019 0.019 0.019 0.019 0.019 0.019 0.019 0.019 0.019 0.019 0.019	98.60 98.60 98.60 98.60 98.60 98.60 98.60 98.60 98.60 98.60 98.60 98.60 98.60 98.60	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0

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Summary for Pond 56P: Proposed Bioretention System #6

Inflow Area = 1.450 ac, 51.72% Impervious, Inflow Depth = 0.54" for WQ event

Inflow 2.12 cfs @ 1.08 hrs. Volume= 0.065 af

Outflow 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

0.00 hrs, Volume= 0.00 cfs @ 0.000 af Primary

Routed to Link 61L: Total to P.O.I. "A"

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 97.57' @ 2.40 hrs Surf.Area= 4,912 sf Storage= 2,817 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Inv	ert Avail.Sto	rage Storage	Description	
#1	97.	00' 19,6	48 cf Custom	Stage Data (Pris	smatic) Listed below (Recalc)
Elevation (fee		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
97.0 98.0 99.0 100.0 101.0	00 00 00	4,912 4,912 4,912 4,912 4,912	0 4,912 4,912 4,912 4,912	0 4,912 9,824 14,736 19,648	
Device	Routing	Invert	Outlet Device	s	
#1	Primary	93.50'	L= 50.0' RC Inlet / Outlet I		5" eadwall, Ke= 0.500 3.25' S= 0.0050 '/' Cc= 0.900
#2 #3 #4	Device Device	99.00'	Chicago 3-in 1.0' long Sha 42.0" x 48.0"	VFR	

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=97.00' TW=0.00' (Dynamic Tailwater)

-1=HDPE_Round 15" (Passes 0.00 cfs of 9.86 cfs potential flow)
-2=Chicago 3-in VFR (Controls 0.00 cfs)

-3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

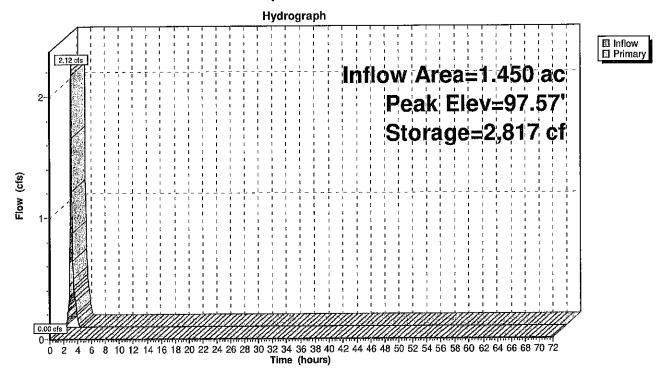
-4=Orifice/Grate (Controls 0.00 cfs)

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Pond 56P: Proposed Bioretention System #6



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Hydrograph for Pond 56P: Proposed Bioretention System #6

Time	Inflow	Storage	Elevation	Primary
(hours)	(cfs)	(cubic-feet)	(feet)	(cfs)
0.00	0.00	0	97.00	0.00
2.50	0.00	2,817	97.57	0.00
5.00	0.00	2,817	97.57	0.00
7.50	0.00	2,817	97.57	0.00
10.00	0.00	2,817	97.57	0.00
12.50	0.00	2,817	97.57	0.00
15.00	0.00	2,817	97.57	0.00
17.50	0.00	2,817	97.57	0.00
20.00	0.00	2,817	97.57	0.00
22.50	0.00	2,817	97.57	0.00
25.00	0.00	2,817	97.57	0.00
27.50	0.00	2,817	97.57	0.00
30.00	0.00	2,817	97.57	0.00
32.50	0.00	2,817	97.57	0.00
35.00	0.00	2,817	97.57	0.00
37.50	0.00	2,817	97.57	0.00
40.00	0.00	2,817	97.57	0.00
42.50	0.00	2,817	97.57	0.00
45.00	0.00	2,817	97.57	0.00
47.50	0.00	2,817	97.57	0.00
50.00	0.00	2,817	97.57	0.00
52.50	0.00	2,817	97.57	0.00
55.00	0.00	2,817	97.57	0.00
57.50	0.00	2,817	97.57	0.00
60.00	0.00	2,817	97.57	0.00
62.50	0.00	2,817	97.57	0.00
65.00	0.00	2,817	97.57	0.00
67.50	0.00	2,817	97.57	0.00
70.00	0.00	2,817	97.57	0.00

APPENDIX H: NONSTRUCTURAL STORMWATER MANAGEMENT STRATEGIES

PA-5 PA-4B PA-4 Acres PA-3 100.0% PA-2 B. Specify by Percent the Various Planning Areas Located within the Development Site: A. Specify Total Area in Acres of Development Site Described in Steps 2 and 3 = PA-1 Step 1 - Provide Basic Major Development Site Information NJDEP Nonstructural Strategies Points System (NSPS) Percent of Each Planning Area within Site: State Plan Planning Area: Note: Input Values in Yellow Cells Only Version: January 31, 2006 February 10, 2023 Americana Center Project: Notes: Date: User:

Note: See User's Guide for Equivalent Zones within Designated Centers and the NJ Meadowlands, Pinelands, and Highlands Districts

Total % Area

100.0%

Step 2 - Describe Existing or Pre-Developed Site Conditions

A. Specify Existing Land Use/Land Cover Descriptions and Areas:

	Points	0	109	0	0	0	0	0	0	0	0	0	0	0	0	0	J	Total % Area: 100.0%	
Use/Cover	Subtotals	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0:0	0.0	1.9	0.0	0.0		Ĕ	
ach HSG	HSG D																0:0	%0:0	
in Acres for E	HSG C		0.8											1.5			2.2	70.4%	
Specify Land Use/Land Cover in Acres for Each HSG	HSG B		0.5											0.4			6.0	29.6%	
specify Land Us	HSG A																0.0	%0.0	
S	Land Use/Land Cover Description	Wetlands and Undisturbed Stream Buffers	Lawn and Open Space	Brush and Shrub	Meadow, Pasture, Grassland, or Range	Row Crop	Small Grain and Legumes	Woods - Indigenous	Woods - Planted	Woods and Grass Combination	Ponds, Lakes, and Other Open Water	Gravel and Dirt	Porous and Permeable Paving	Directly Connected Impervious	Unconnected Impervious with Small D/S Pervious	Unconnected Impervious with Large D/S Pervious	HSG Subtotals (Acres):	HSG Subtotals (%):	
dio	Segment	i a.	- 0	ı m	4	വ	9	7	œ	6	10	Ξ	12	13	4	15			

109

Total Existing Site Points:

109

Points Subtotal:

Step 3 - Describe Proposed or Post-Developed Site Conditions

A. Specify Proposed Land Use/Land Cover Descriptions and Areas:

		Points	0	74	0	0	0	0	0	0	0	0	0	0	0	0	39		3.2	100.0%
								-										1	Total Area:	Total % Area:
	Use/Cover	Subtotals	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.7			
ach HSG		HSG D																	0.0	%0.0
Specify Land Use/Land Cover in Acres for Each HSG		HSG C		0.4				The second second							1.1		0.7		2.2	70.4%
se/Land Cover		HSG B		0.4											0.5				6.0	29.6%
Specify Land I		HSG A																	0.0	%0.0
		Land Use/Land Cover Description	Wetlands and Undisturbed Stream Buffers	Lawn and Open Space	Brush and Shrub	Meadow, Pasture, Grassland, or Range	Row Crop	Small Grain and Legumes	Woods - Indigenous	Woods - Planted	Woods and Grass Combination	Ponds, Lakes, and Other Open Water	Gravel and Dirt	Porous and Permeable Paving	Directly Connected Impervious	Unconnected Impervious with Small D/S Pervious	Unconnected Impervious with Large D/S Pervious	. ,	HSG Subtotals (Acres):	HSG Subtotals (%):
()	Site	Segment	-	2	ო	4	2	9	7	œ	6	10	Ξ	12	13	14	15			

Points Subtotal:

B. Compare Proposed Impervious Coverage with Maximum Allowable Impervious Coverage:

Total Directly Connected Impervious Coverage =

Total Unconnected Impervious Coverage with Small D/S Pervious =

Total Unconnected Impervious Coverage with Large D/S Pervious =

Total Site Impervious Coverage =

Effective Site Impervious Coverage =

Specify Source of Maximum Allowable Impervious Coverage:

Allowable Site Impervious Cover from Maximum Impervious Cover Table: Note: See Maximum Impervious Cover Table Worksheet for Details

%0

(None or Table)

Table

% of Site

63%

% of Site % of Site % of Site

% of Site

52%

0% 21% 74% Points Subtotal:

C. Compare Proposed Site Disturbance with Maximum Allowable Site Disturbance:

Total Proposed Site Disturbance = Maximum Allowable Site Disturbance by Municipal Ordinance =

49% % of Site 100% % of Site

Points Subtotal:

26

D. Describe Proposed Runoff Conveyance System:

Total Length of Runoff Conveyance System = Length of Vegetated Runoff Conveyance System = % of Total Runoff Conveyance System That is Vegetated =

% of Site

Points Subtotal:

Feet

%0

E. Residential Lot Clustering:

Percent of Total Site Area that will be Clustered =
Minimum Standard Lot Size as Per Zoning (Note: 1/2 Acre or Greater) =
Maximum Proposed Cluster Lot Size (Note:1/4 Acre or Less) =
Percent of Clustered Portion of Site to be Preserved as Vegetated Open Space =

Points Subtotal:

% of Clustered Site Portion

Acres

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Proposed Lawn Areas will be Graded with Lightweight Construction Equipment: Percent of Proposed Lawn Areas to be Graded with Such Equipment:

% of Lawn Areas (Yes or No) No 26%

Points Subtotal:

G. Are Any of the Following Stormwater Management Standards Met Using Only Nonstructural Strategies and Measures?

Groundwater Recharge Standards (NJAC 7:8-5.4-a-2): Stormwater Runoff Quality Standards (NJAC 7:8-5.5): Stormwater Runoff Quantity Standards (NJAC 7:8-5.4-a-3):

(Yes or No) (Yes or No) (Yes or No) 22 S

Points Subtotal:

Note: If the Answers to All Three Questions at G Above are "Yes", Adequate Nonstructural Measures have been Utilized.

140 Total Proposed Site Points: 128% Ratio of Proposed to Existing Site Points:

%98 Required Site Points Ratio:

Nonstructural Point System Results:

Proposed Nonstructural Measures are Adequate