Stormwater Management Report

38 Peddler Hill Road, Village of South Blooming Grove, Orange County, New York

SBL 206-1-27

February 2025

Prepared by:

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Lic. 103757

Introduction

The project site is located along Pedder Hill Road with a 40-foot access road to the site.

The project proposes a two-story building with a basement and underground parking below.

Methodology

The Calculation was performed using the NRCS Technical release 20/55 method of calculating runoff volume and rate. The site specifics were input into the HydroCAD Stormwater Modeling System program by HydroCAD Software Solutions LLC.

The inputs and outputs from HydroCAD are attached to this report.

Proposed Drainage System

A drainage collection system is proposed onsite to mitigate stormwater runoff from impervious runoff. The site was split into 3 different drainage areas. Multiple detention/recharge systems are proposed, one to be under the 40-foot access road, another to be under the parking area by the main entrance, and the last to be under the western part of Lot 7 SBL 206-1-26 also owned by the client. The system under the access road consist of 142 feet of 2 rows of 72” perforated CMP pipe surrounded by 36” of open graded crushed stone, the system under the parking area is 162 feet of 3 rows of 72” perforated CMP pipe surrounded by 36” of open graded crushed stone, lastly the system in Lot 7 consists of 6 rows of 82 feet of 72” perforated CMP pipe surrounded by 36” of open graded crushed stone.

Infiltration Rate

An infiltration rate of 4” per hour was assumed and used in this report.

Pre-Development Conditions

Below is a table that shows the pre-development conditions for each drainage area:

Drainage Area	Area (Ac.)	CN	Tc (hrs.)	10 Yr. Peak Runoff (cfs)	100 Yr. Peak Runoff (cfs)
DA1	0.72	59	0.16	0.69	2.60
DA2	2.77	55	0.24	2.12	8.79
DA2-A	0.38	55	0.18	0.33	1.37
DA3	1.49	55	0.28	1.03	4.28

Post-Development Conditions

Below is a table that shows the pre-development conditions for each drainage area with drainage area 2 and 2-A being combined:

Drainage Area	Area (Ac.)	CN	Tc (hrs.)	10 Yr. Peak Runoff (cfs)	100 Yr. Peak Runoff (cfs)
DA1	0.72	87	0.16	0.18	1.84
DA2 & DA2-A	2.77	88	0.16	1.00	4.39
DA3	1.49	42	0.16	0.77	2.99

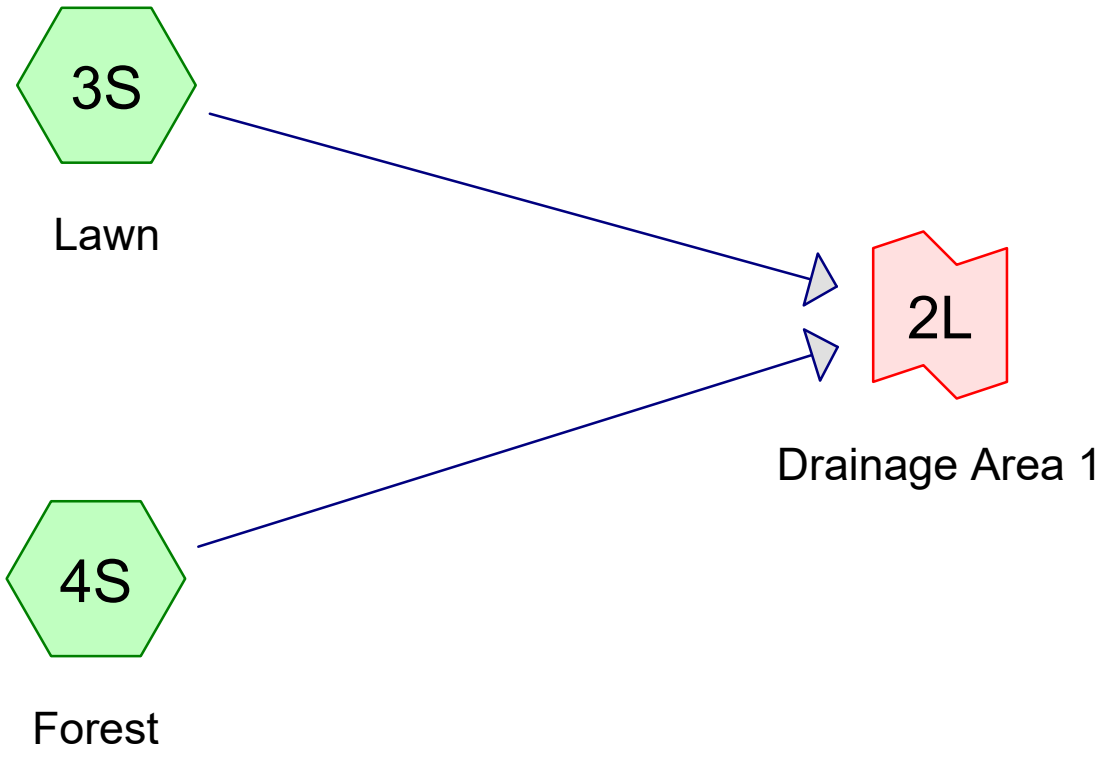
Conclusion

In summary, the proposed system ensures a net zero runoff in volume for the proposed flows for a 100-year storm. The table below summarizes the pre an post-development flow rates for each drainage area:

Drainage Area	Condition	10 Yr. Peak Runoff (cfs)	100 Yr. Peak Runoff (cfs)
DA1	Pre-Development	0.69	2.6
	Post-Development	0.18	1.84
	Difference	-0.51	-0.76
	Percent Decrease (%)	73.91%	29.23%

DA2 & DA2-A	Pre-Development	2.45	10.16
	Post-Development	1.00	4.39
	Difference	-1.45	-5.77
	Percent Decrease (%)	59.18%	56.79%
DA3	Pre-Development	1.03	4.28
	Post-Development	0.77	2.99
	Difference	-0.26	-1.29
	Percent Decrease (%)	25.24%	30.14%

Existing Report



Subcat Reach Pond Link

Routing Diagram for 2507 EX 38 peddlers 2025-01-23 - DA1
Prepared by Terranova Consultants, Printed 2/7/2025

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland
Rainfall events imported from "Atlas-14-Rain.txt" for 1426 NY Rockland
Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-Year	NRCC 24-hr	C	Default	24.00	1	9.00	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.164	61	>75% Grass cover, Good, HSG B (3S)
0.499	55	Woods, Good, HSG B (4S)
0.663	**56**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.663	HSG B	3S, 4S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.663		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.164	0.000	0.000	0.000	0.164	>75% Grass cover, Good	3S
0.000	0.499	0.000	0.000	0.000	0.499	Woods, Good	4S
0.000	**0.663**	**0.000**	**0.000**	**0.000**	**0.663**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment3S: Lawn Runoff Area=7,164 sf 0.00% Impervious Runoff Depth=4.22"
Flow Length=98' Slope=0.1800 '/' Tc=10.0 min CN=61 Runoff=0.75 cfs 0.058 af

Subcatchment4S: Forest Runoff Area=21,716 sf 0.00% Impervious Runoff Depth=3.49"
Tc=10.0 min CN=55 Runoff=1.85 cfs 0.145 af

Link 2L: Drainage Area 1 Inflow=2.60 cfs 0.203 af
Primary=2.60 cfs 0.203 af

Total Runoff Area = 0.663 ac Runoff Volume = 0.203 af Average Runoff Depth = 3.67"
100.00% Pervious = 0.663 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: Lawn

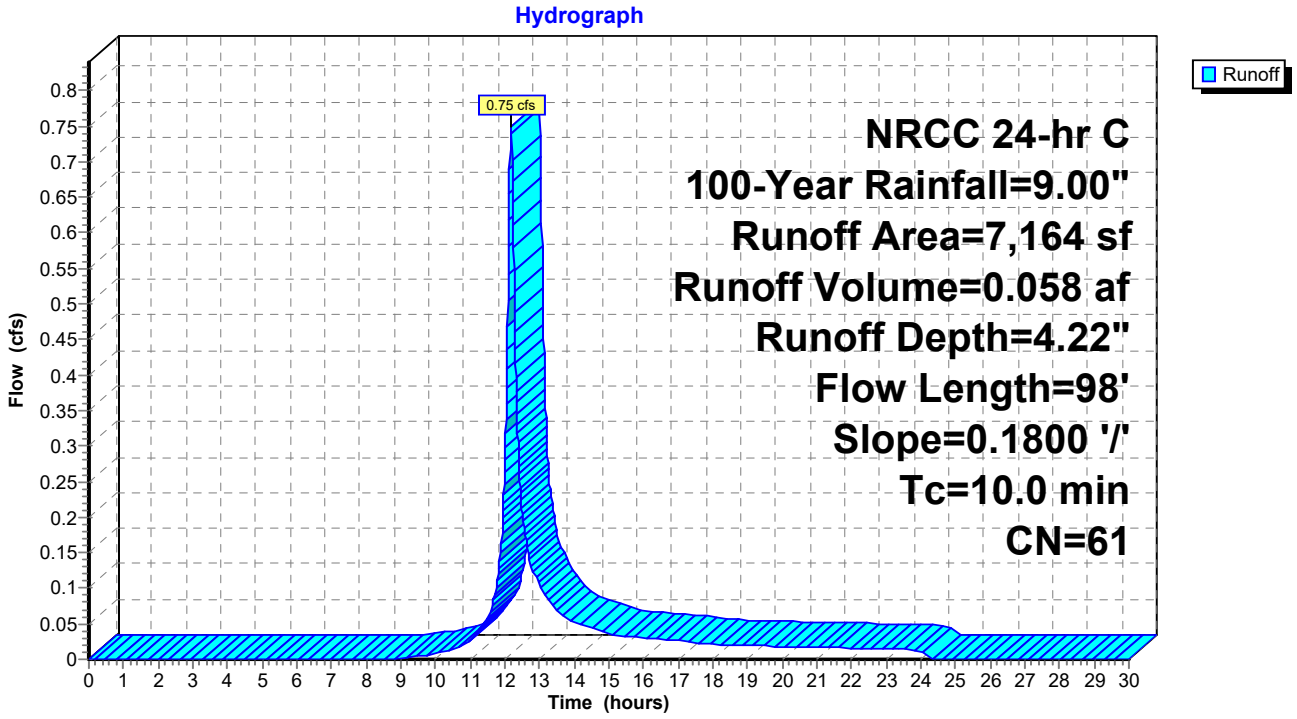
Runoff = 0.75 cfs @ 12.18 hrs, Volume= 0.058 af, Depth= 4.22"
Routed to Link 2L : Drainage Area 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=9.00"

Area (sf)	CN	Description
7,164	61	>75% Grass cover, Good, HSG B
7,164		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	98	0.1800	0.22		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.00"
2.6					**Direct Entry, Minimum**
10.0	98	Total			

Subcatchment 3S: Lawn



Summary for Subcatchment 4S: Forest

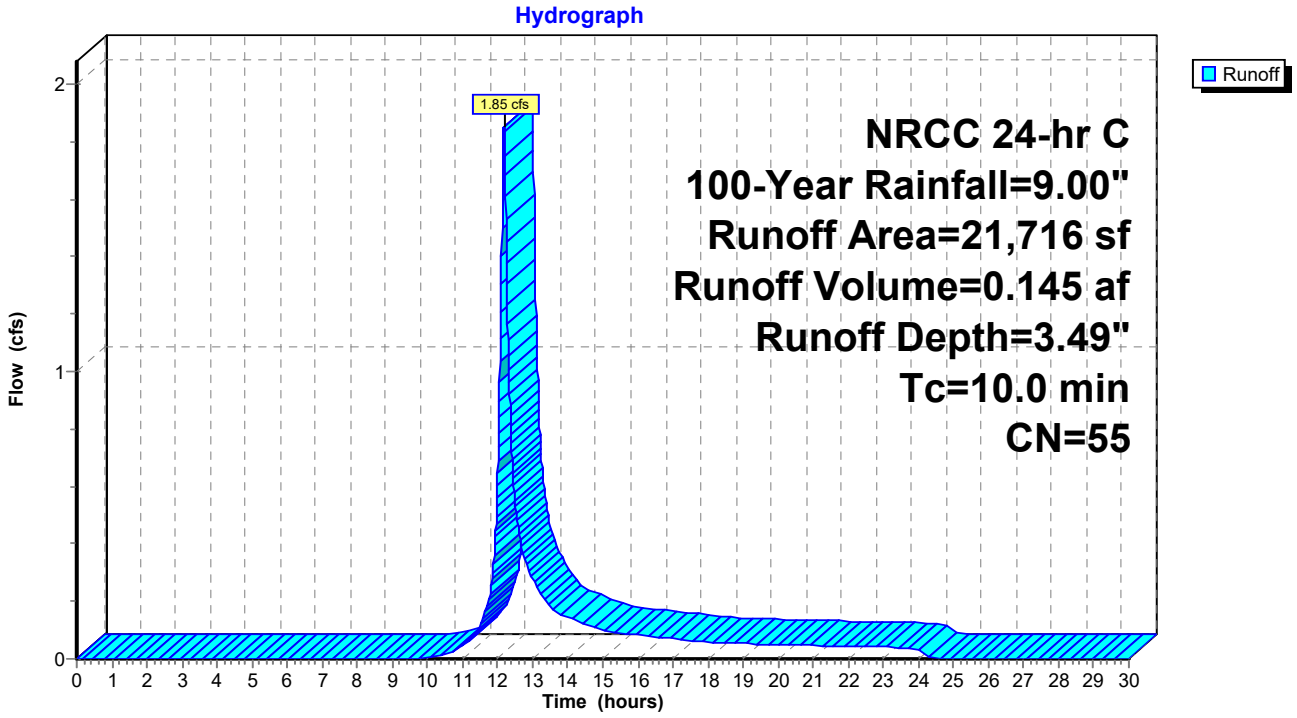
Runoff = 1.85 cfs @ 12.18 hrs, Volume= 0.145 af, Depth= 3.49"
Routed to Link 2L : Drainage Area 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=9.00"

Area (sf)	CN	Description
21,716	55	Woods, Good, HSG B
21,716		100.00% Pervious Area

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

Subcatchment 4S: Forest

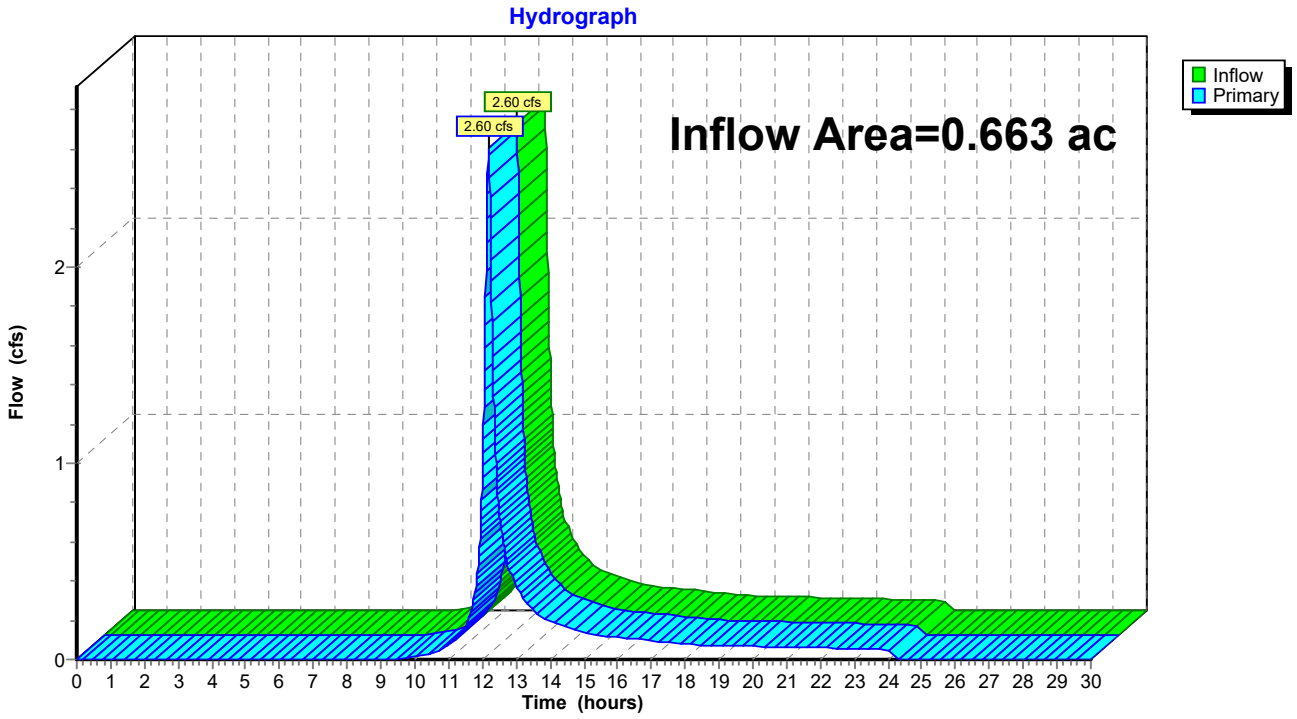


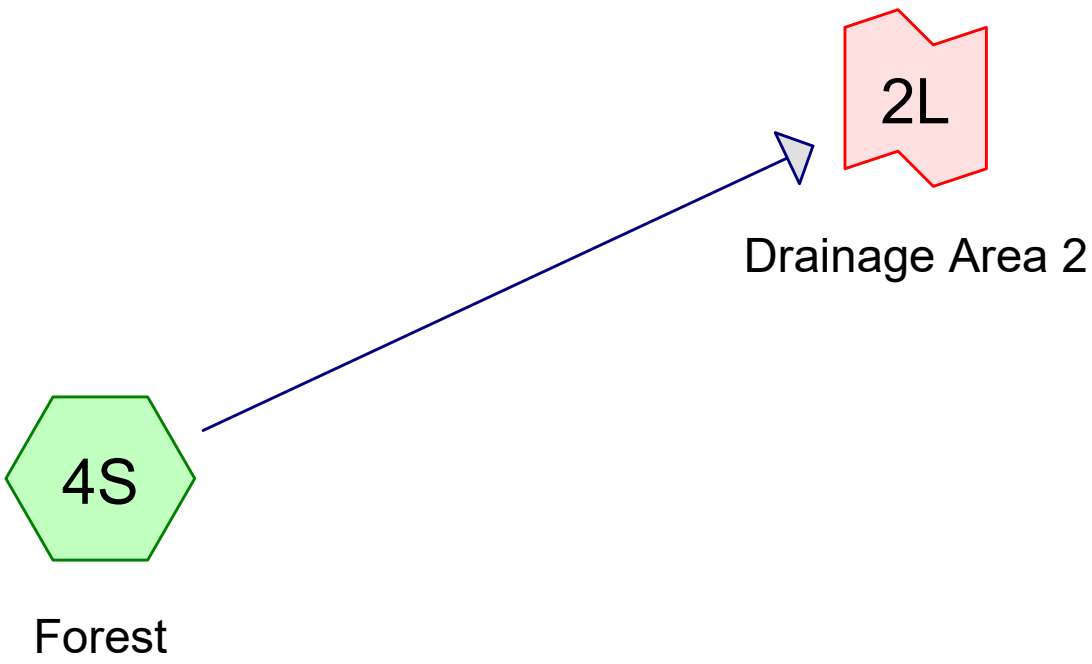
Summary for Link 2L: Drainage Area 1

Inflow Area = 0.663 ac, 0.00% Impervious, Inflow Depth = 3.67" for 100-Year event
Inflow = 2.60 cfs @ 12.18 hrs, Volume= 0.203 af
Primary = 2.60 cfs @ 12.18 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 3P

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 2L: Drainage Area 1





Subcat Reach Pond Link

Routing Diagram for 2507 EX 38 peddlers 2025-01-23 - DA2
Prepared by Terranova Consultants, Printed 2/7/2025

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland
Rainfall events imported from "Atlas-14-Rain.txt" for 1426 NY Rockland
Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-Year	NRCC 24-hr	C	Default	24.00	1	9.00	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.770	55	Woods, Good, HSG B (4S)
2.770	**55**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.770	HSG B	4S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.770		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	2.770	0.000	0.000	0.000	2.770	Woods, Good	4S
0.000	**2.770**	**0.000**	**0.000**	**0.000**	**2.770**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment4S: Forest Runoff Area=120,646 sf 0.00% Impervious Runoff Depth=3.49"
Flow Length=395' Tc=14.6 min CN=55 Runoff=8.79 cfs 0.805 af

Link 2L: Drainage Area 2 Inflow=8.79 cfs 0.805 af
Primary=8.79 cfs 0.805 af

Total Runoff Area = 2.770 ac Runoff Volume = 0.805 af Average Runoff Depth = 3.49"
100.00% Pervious = 2.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 4S: Forest

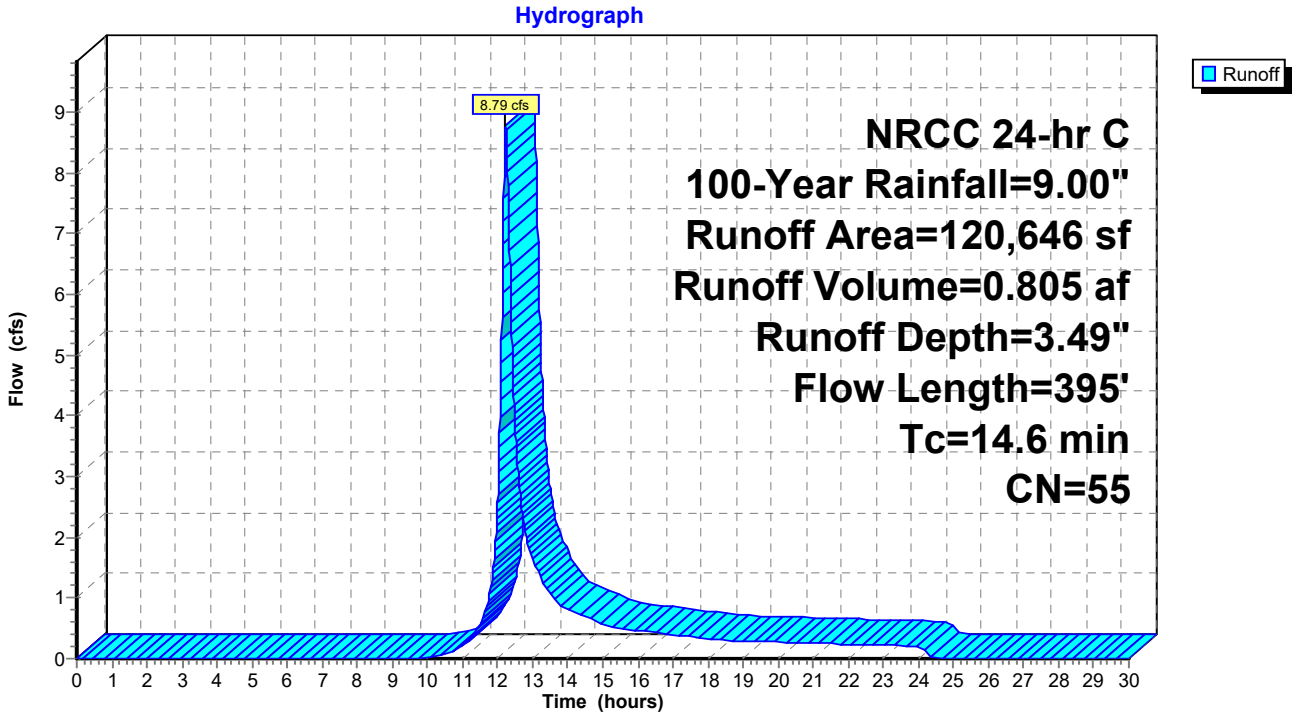
Runoff = 8.79 cfs @ 12.23 hrs, Volume= 0.805 af, Depth= 3.49"
Routed to Link 2L : Drainage Area 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=9.00"

Area (sf)	CN	Description
120,646	55	Woods, Good, HSG B
120,646		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.2200	0.16		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.00"
2.0	150	0.2500	1.25		**Shallow Concentrated Flow, Shallow Flow #1** Forest w/Heavy Litter Kv= 2.5 fps
2.2	145	0.1900	1.09		**Shallow Concentrated Flow, Shallow Flow #2** Forest w/Heavy Litter Kv= 2.5 fps
14.6	395	Total			

Subcatchment 4S: Forest

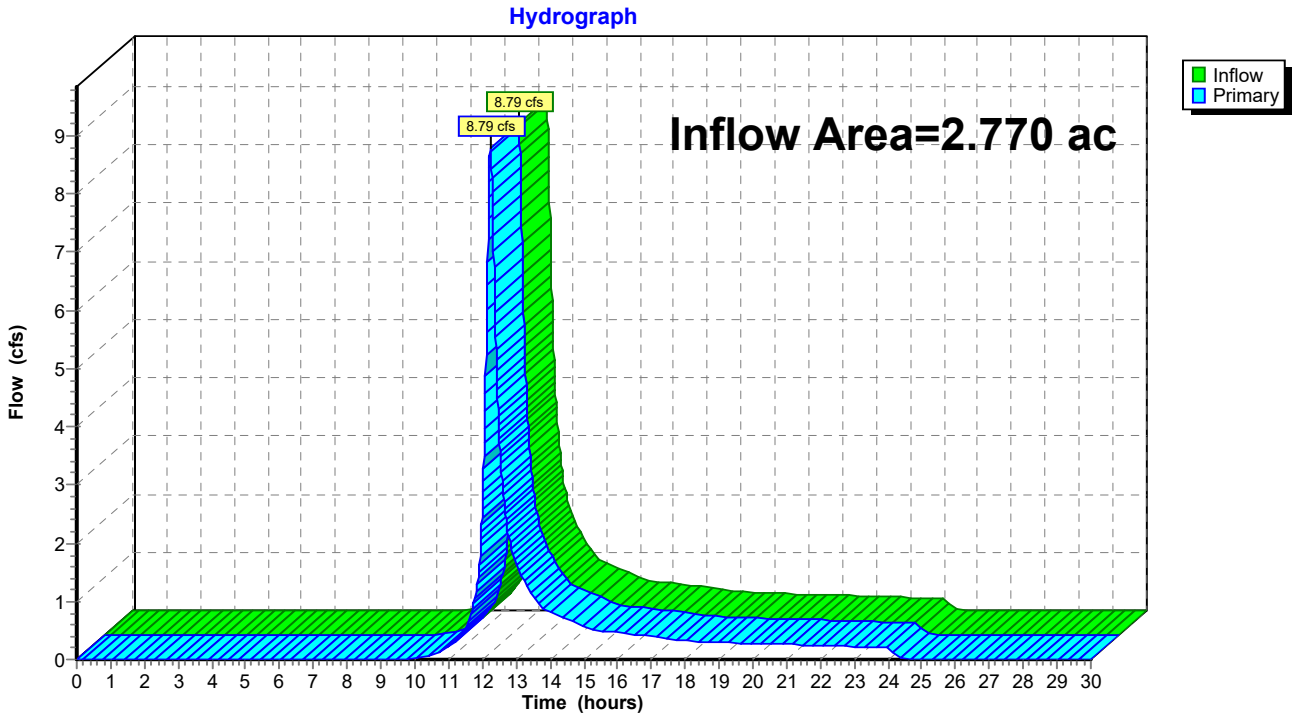


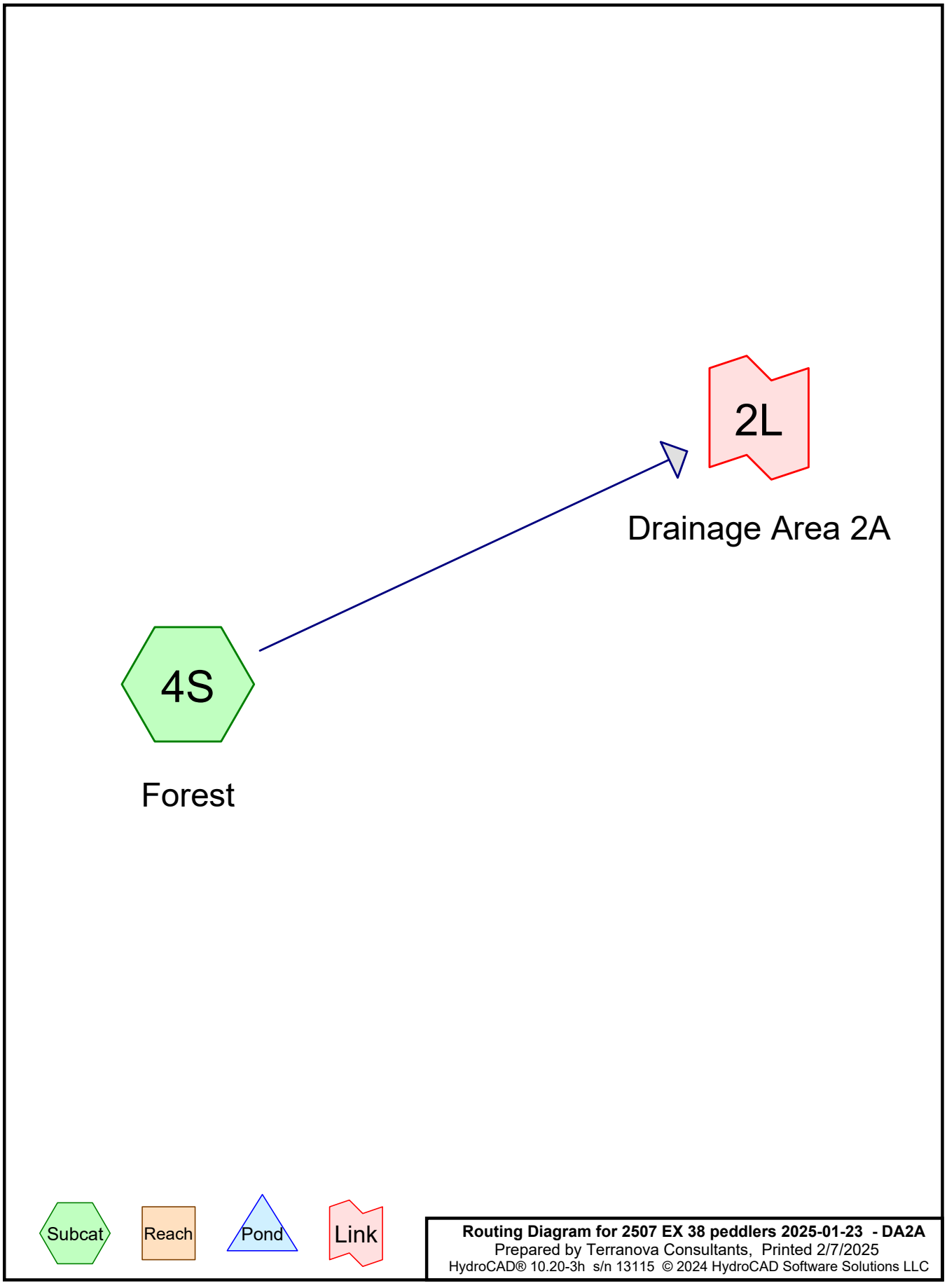
Summary for Link 2L: Drainage Area 2

Inflow Area = 2.770 ac, 0.00% Impervious, Inflow Depth = 3.49" for 100-Year event
Inflow = 8.79 cfs @ 12.23 hrs, Volume= 0.805 af
Primary = 8.79 cfs @ 12.23 hrs, Volume= 0.805 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 3P

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 2L: Drainage Area 2





Routing Diagram for 2507 EX 38 peddlers 2025-01-23 - DA2A
Prepared by Terranova Consultants, Printed 2/7/2025

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland
Rainfall events imported from "Atlas-14-Rain.txt" for 1426 NY Rockland
Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-Year	NRCC 24-hr	C	Default	24.00	1	9.00	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.384	55	Woods, Good, HSG B (4S)
0.384	**55**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.384	HSG B	4S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.384		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.384	0.000	0.000	0.000	0.384	Woods, Good	4S
0.000	**0.384**	**0.000**	**0.000**	**0.000**	**0.384**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment4S: Forest Runoff Area=16,726 sf 0.00% Impervious Runoff Depth=3.49"
Flow Length=256' Tc=11.2 min CN=55 Runoff=1.37 cfs 0.112 af

Link 2L: Drainage Area 2A Inflow=1.37 cfs 0.112 af
Primary=1.37 cfs 0.112 af

Total Runoff Area = 0.384 ac Runoff Volume = 0.112 af Average Runoff Depth = 3.49"
100.00% Pervious = 0.384 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 4S: Forest

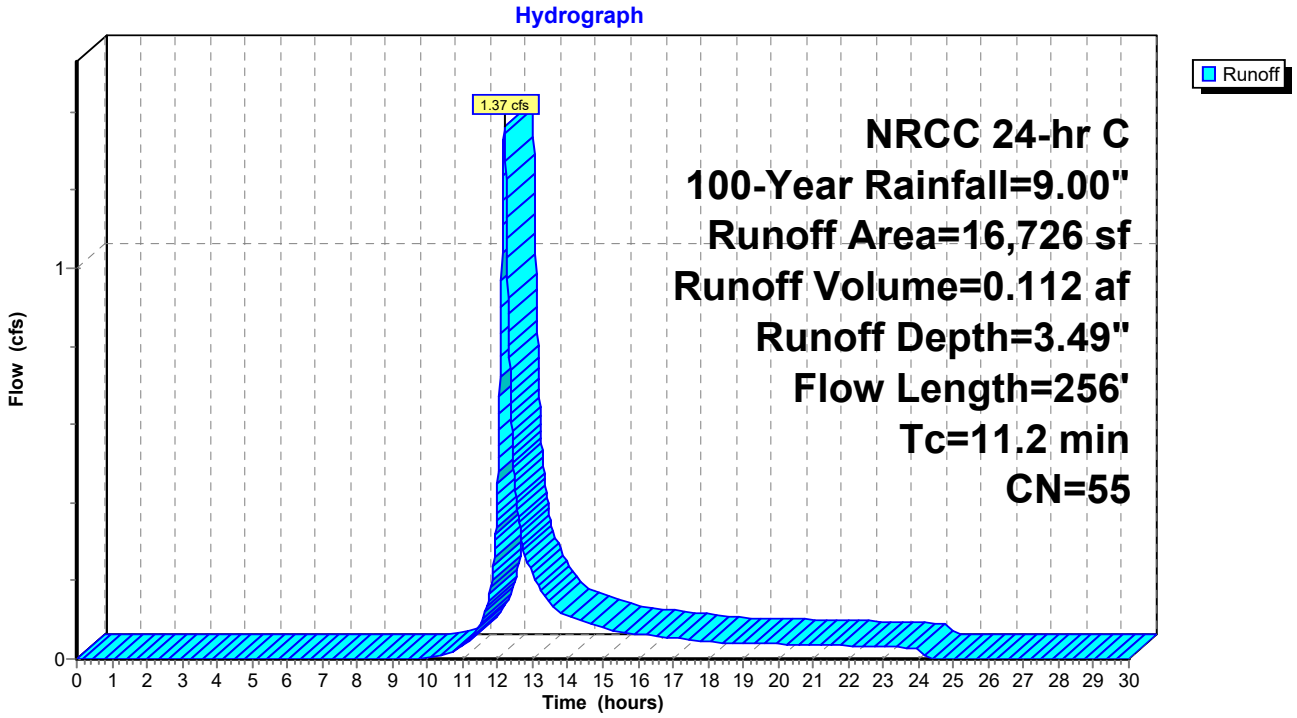
Runoff = 1.37 cfs @ 12.19 hrs, Volume= 0.112 af, Depth= 3.49"
Routed to Link 2L : Drainage Area 2A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=9.00"

Area (sf)	CN	Description
16,726	55	Woods, Good, HSG B
16,726		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.3050	0.18		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.00"
2.1	156	0.2400	1.22		**Shallow Concentrated Flow, Shallow Flow #1** Forest w/Heavy Litter Kv= 2.5 fps
11.2	256	Total			

Subcatchment 4S: Forest

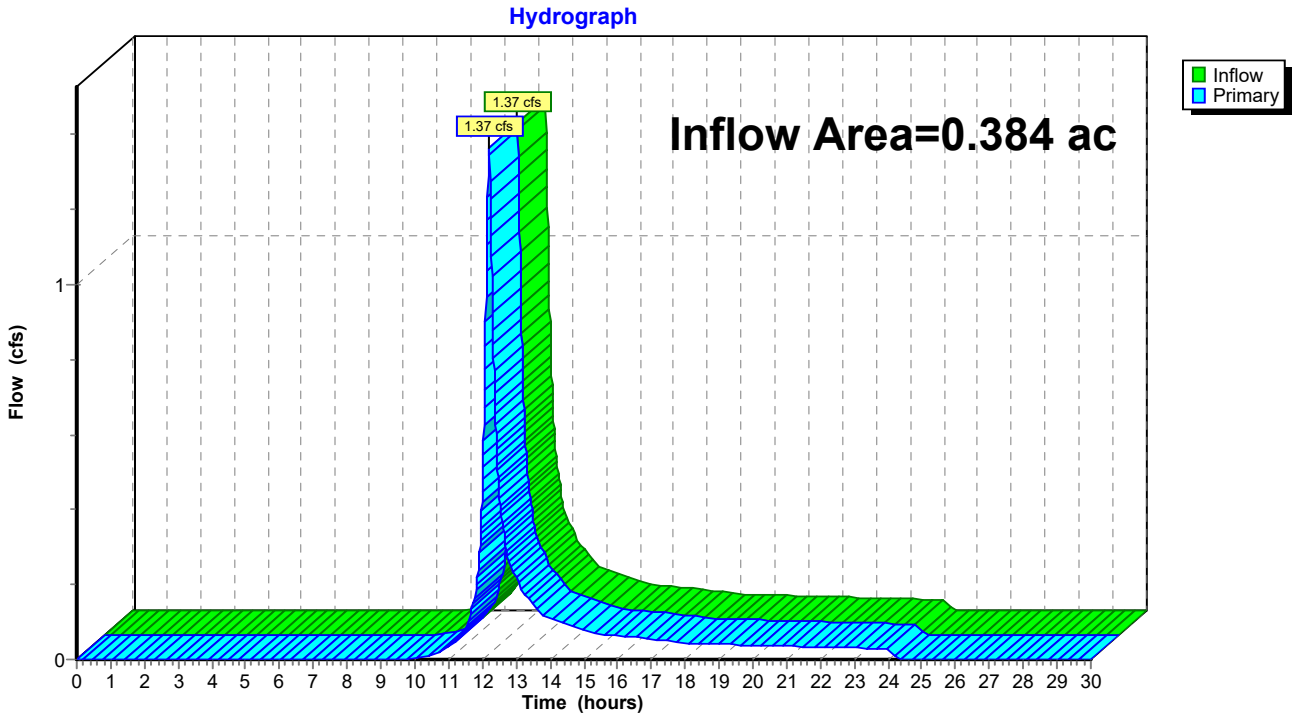


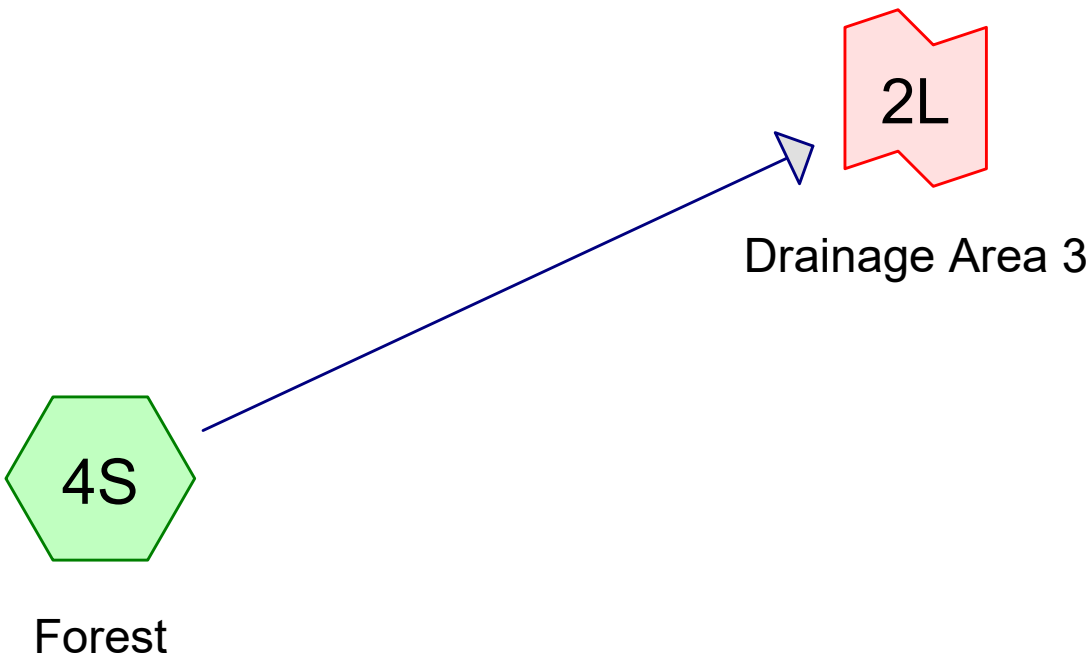
Summary for Link 2L: Drainage Area 2A

Inflow Area = 0.384 ac, 0.00% Impervious, Inflow Depth = 3.49" for 100-Year event
Inflow = 1.37 cfs @ 12.19 hrs, Volume= 0.112 af
Primary = 1.37 cfs @ 12.19 hrs, Volume= 0.112 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 3P

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 2L: Drainage Area 2A





Subcat Reach Pond Link

Routing Diagram for 2507 EX 38 peddlers 2025-01-23 - DA3
Prepared by Terranova Consultants, Printed 2/24/2025

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland
Rainfall events imported from "Atlas-14-Rain.txt" for 1426 NY Rockland
Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	10-Year	NRCC 24-hr	C	Default	24.00	1	5.05	2
2	100-Year	NRCC 24-hr	C	Default	24.00	1	9.00	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.408	55	Woods, Good, HSG B (4S)
1.408	**55**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.408	HSG B	4S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
1.408		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	1.408	0.000	0.000	0.000	1.408	Woods, Good	4S
0.000	**1.408**	**0.000**	**0.000**	**0.000**	**1.408**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment4S: Forest Runoff Area=61,353 sf 0.00% Impervious Runoff Depth=1.00"
Flow Length=469' Tc=15.9 min CN=55 Runoff=1.03 cfs 0.118 af

Link 2L: Drainage Area 3 Inflow=1.03 cfs 0.118 af
Primary=1.03 cfs 0.118 af

Total Runoff Area = 1.408 ac Runoff Volume = 0.118 af Average Runoff Depth = 1.00"
100.00% Pervious = 1.408 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 4S: Forest

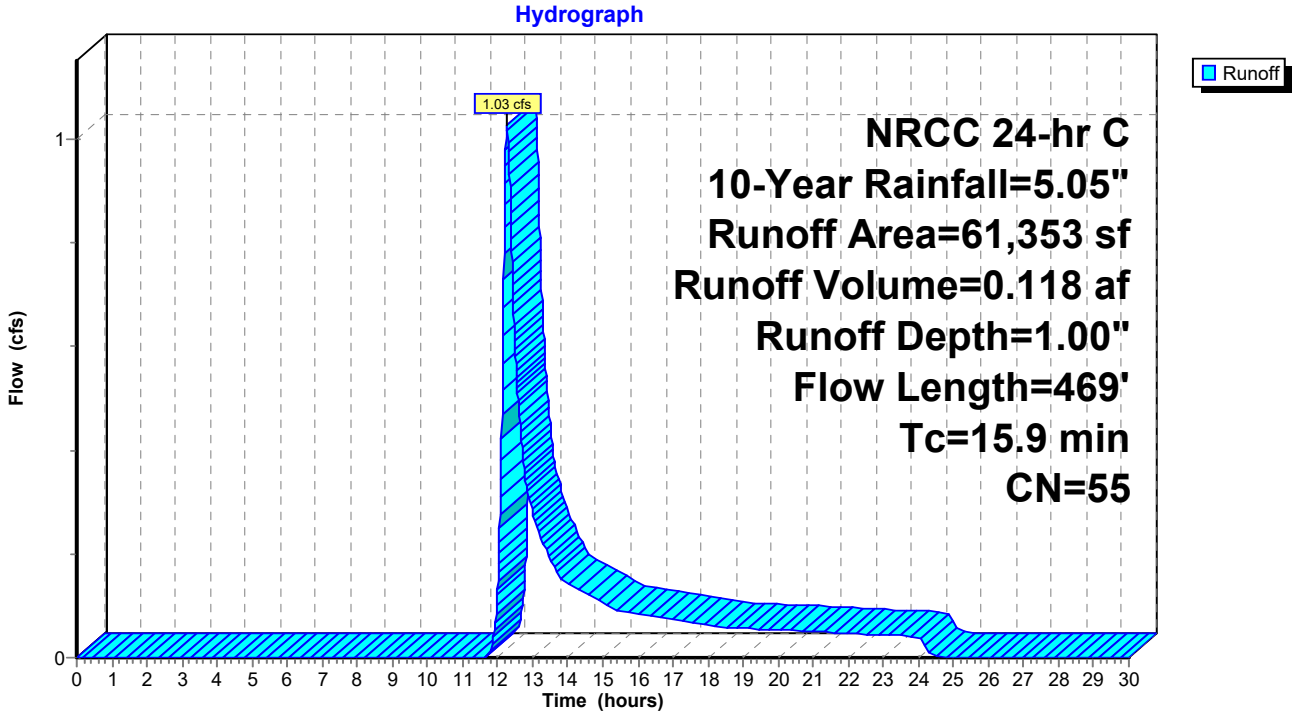
Runoff = 1.03 cfs @ 12.27 hrs, Volume= 0.118 af, Depth= 1.00"
Routed to Link 2L : Drainage Area 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 10-Year Rainfall=5.05"

Area (sf)	CN	Description
61,353	55	Woods, Good, HSG B
61,353		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.3625	0.20		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.00"
2.1	150	0.2300	1.20		**Shallow Concentrated Flow, Shallow Flow #1** Forest w/Heavy Litter Kv= 2.5 fps
3.5	150	0.0800	0.71		**Shallow Concentrated Flow, Shallow Flow #2** Forest w/Heavy Litter Kv= 2.5 fps
1.8	69	0.0648	0.64		**Shallow Concentrated Flow, Shallow Flow #3** Forest w/Heavy Litter Kv= 2.5 fps
15.9	469	Total			

Subcatchment 4S: Forest

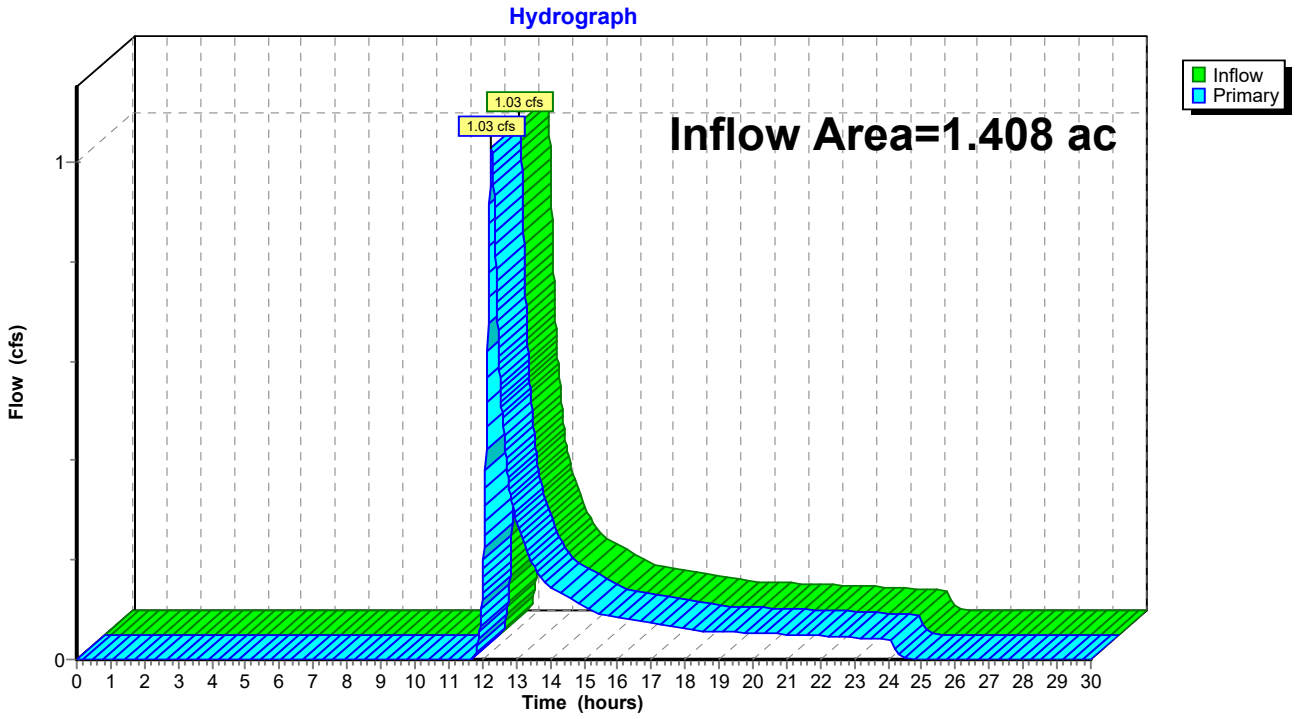


Summary for Link 2L: Drainage Area 3

Inflow Area = 1.408 ac, 0.00% Impervious, Inflow Depth = 1.00" for 10-Year event
Inflow = 1.03 cfs @ 12.27 hrs, Volume= 0.118 af
Primary = 1.03 cfs @ 12.27 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 3P

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 2L: Drainage Area 3



Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment4S: Forest Runoff Area=61,353 sf 0.00% Impervious Runoff Depth=3.49"
Flow Length=469' Tc=15.9 min CN=55 Runoff=4.28 cfs 0.409 af

Link 2L: Drainage Area 3 Inflow=4.28 cfs 0.409 af
Primary=4.28 cfs 0.409 af

Total Runoff Area = 1.408 ac Runoff Volume = 0.409 af Average Runoff Depth = 3.49"
100.00% Pervious = 1.408 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 4S: Forest

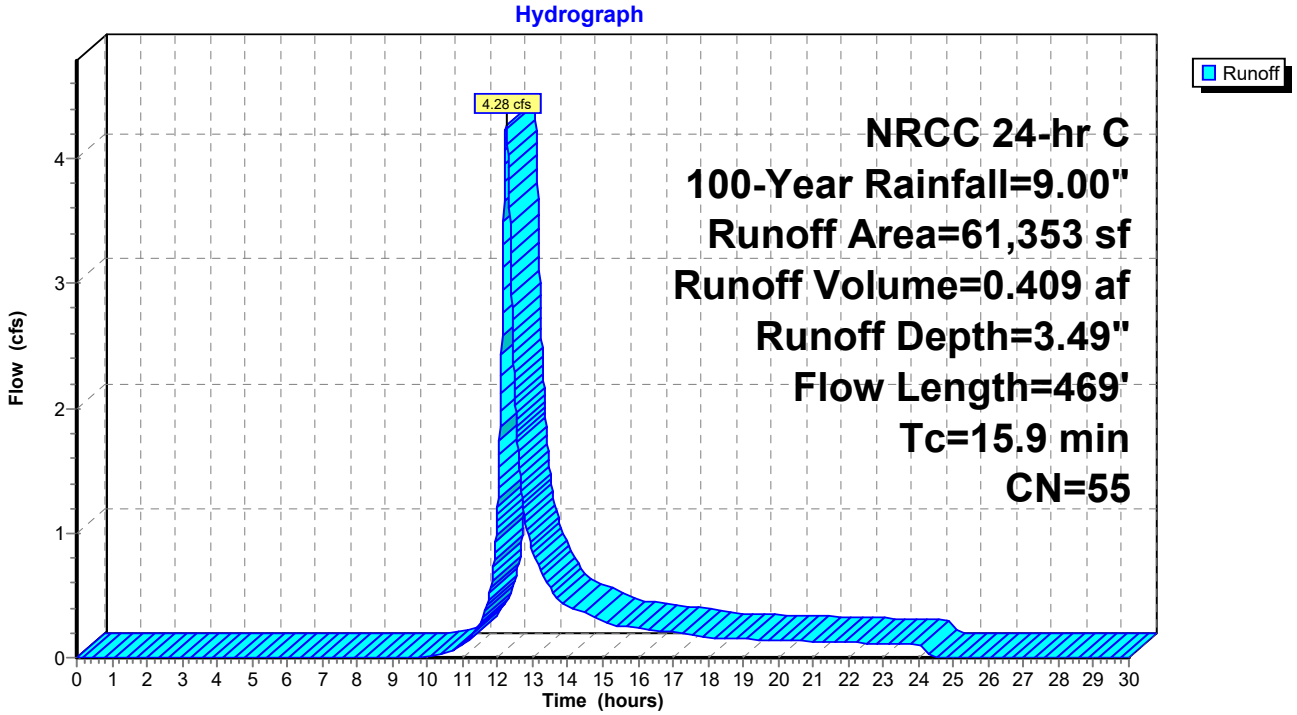
Runoff = 4.28 cfs @ 12.25 hrs, Volume= 0.409 af, Depth= 3.49"
Routed to Link 2L : Drainage Area 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=9.00"

Area (sf)	CN	Description
61,353	55	Woods, Good, HSG B
61,353		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.3625	0.20		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 2.00"
2.1	150	0.2300	1.20		**Shallow Concentrated Flow, Shallow Flow #1** Forest w/Heavy Litter Kv= 2.5 fps
3.5	150	0.0800	0.71		**Shallow Concentrated Flow, Shallow Flow #2** Forest w/Heavy Litter Kv= 2.5 fps
1.8	69	0.0648	0.64		**Shallow Concentrated Flow, Shallow Flow #3** Forest w/Heavy Litter Kv= 2.5 fps
15.9	469	Total			

Subcatchment 4S: Forest

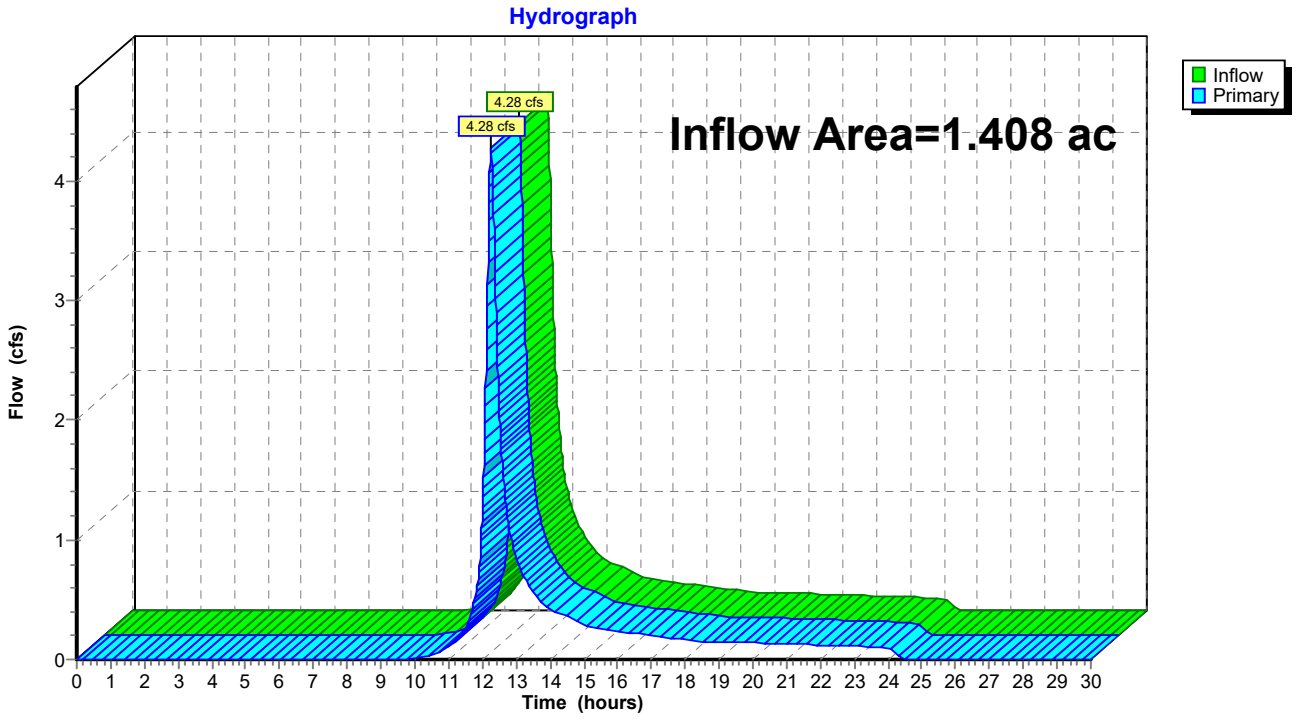


Summary for Link 2L: Drainage Area 3

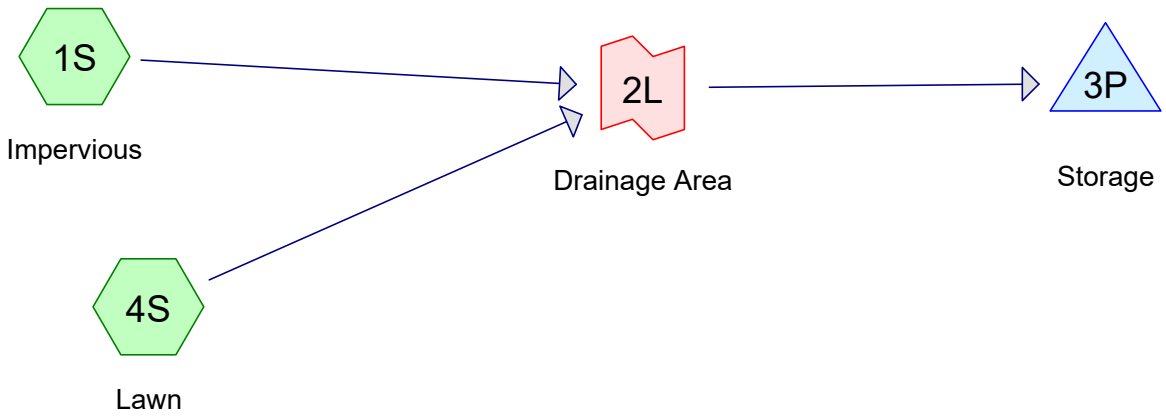
Inflow Area = 1.408 ac, 0.00% Impervious, Inflow Depth = 3.49" for 100-Year event
Inflow = 4.28 cfs @ 12.25 hrs, Volume= 0.409 af
Primary = 4.28 cfs @ 12.25 hrs, Volume= 0.409 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 3P

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 2L: Drainage Area 3



Proposed Report



Subcat Reach Pond Link

Routing Diagram for 2507 Prop 38 peddlers 2025-01-23 - DA1
Prepared by Terranova Consultants, Printed 2/7/2025

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland
Rainfall events imported from "Atlas-14-Rain.txt" for 1426 NY Rockland
Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-Year	NRCC 24-hr	C	Default	24.00	1	9.00	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.667	98	(1S)
0.056	39	>75% Grass cover, Good, HSG A (4S)
0.723	**93**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.056	HSG A	4S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.667	Other	1S
0.723		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.667	0.667		1S
0.056	0.000	0.000	0.000	0.000	0.056	>75% Grass cover, Good	4S
0.056	**0.000**	**0.000**	**0.000**	**0.667**	**0.723**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Impervious Runoff Area=29,054 sf 100.00% Impervious Runoff Depth=8.76"
Tc=10.0 min CN=98 Runoff=5.35 cfs 0.487 af

Subcatchment4S: Lawn Runoff Area=2,452 sf 0.00% Impervious Runoff Depth=1.60"
Tc=10.0 min CN=39 Runoff=0.08 cfs 0.008 af

Pond 3P: Storage Peak Elev=576.56' Storage=0.182 af Inflow=5.42 cfs 0.494 af
Discarded=0.20 cfs 0.379 af Primary=1.84 cfs 0.087 af Outflow=2.04 cfs 0.466 af

Link 2L: Drainage Area Inflow=5.42 cfs 0.494 af
Primary=5.42 cfs 0.494 af

Total Runoff Area = 0.723 ac Runoff Volume = 0.494 af Average Runoff Depth = 8.20"
7.78% Pervious = 0.056 ac 92.22% Impervious = 0.667 ac

Summary for Subcatchment 1S: Impervious

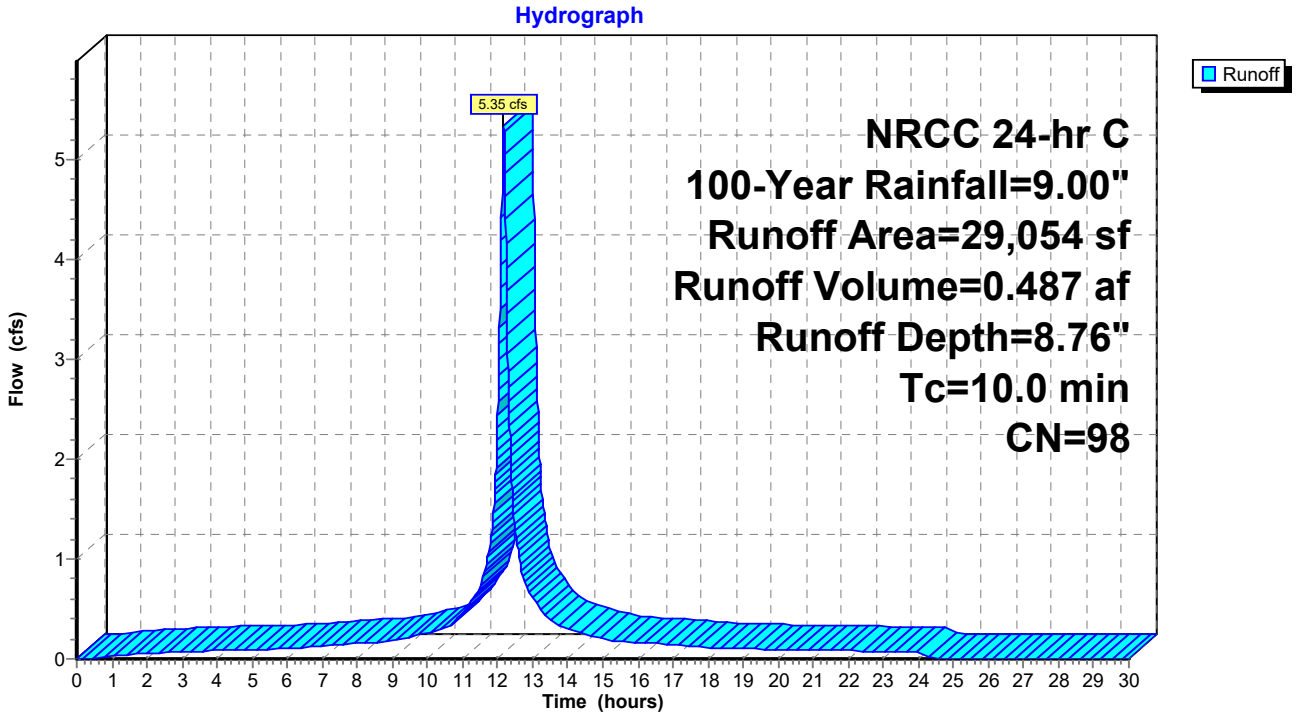
Runoff = 5.35 cfs @ 12.17 hrs, Volume= 0.487 af, Depth= 8.76"
Routed to Link 2L : Drainage Area

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=9.00"

	Area (sf)	CN	Description
*	29,054	98	
	29,054		100.00% Impervious Area

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

Subcatchment 1S: Impervious



Summary for Subcatchment 4S: Lawn

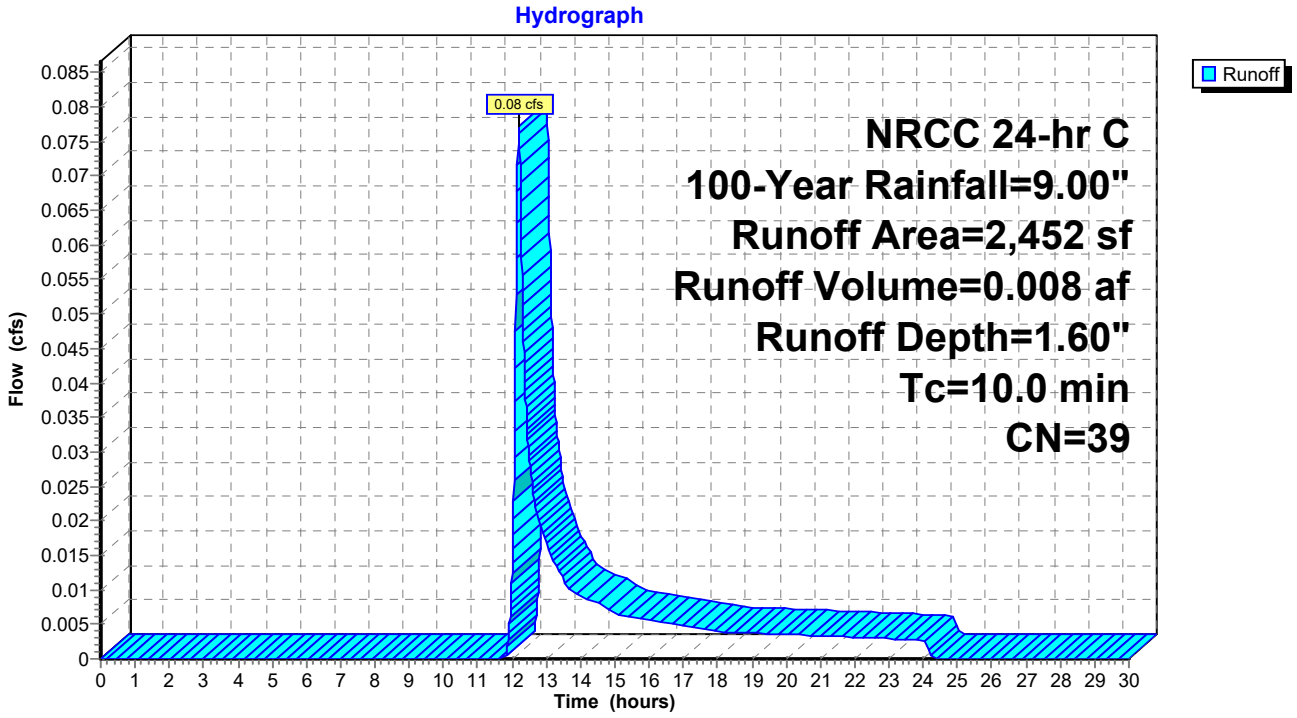
Runoff = 0.08 cfs @ 12.19 hrs, Volume= 0.008 af, Depth= 1.60"
Routed to Link 2L : Drainage Area

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=9.00"

Area (sf)	CN	Description
2,452	39	>75% Grass cover, Good, HSG A
2,452		100.00% Pervious Area

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

Subcatchment 4S: Lawn



Summary for Pond 3P: Storage

Inflow Area = 0.723 ac, 92.22% Impervious, Inflow Depth = 8.20" for 100-Year event
Inflow = 5.42 cfs @ 12.17 hrs, Volume= 0.494 af
Outflow = 2.04 cfs @ 12.37 hrs, Volume= 0.466 af, Atten= 62%, Lag= 12.2 min
Discarded = 0.20 cfs @ 12.37 hrs, Volume= 0.379 af
Primary = 1.84 cfs @ 12.37 hrs, Volume= 0.087 af
Routed to nonexistent node 2P

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 576.56' @ 12.37 hrs Surf.Area= 0.040 ac Storage= 0.182 af

Plug-Flow detention time= 272.7 min calculated for 0.466 af (94% of inflow)
Center-of-Mass det. time= 237.8 min (984.7 - 746.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	570.00'	0.060 af	**17.00'W x 102.00'L x 7.00'H Field A** 0.279 af Overall - 0.130 af Embedded = 0.149 af x 40.0% Voids
#2A	570.50'	0.130 af	**CMP Round 72** x 10 Inside #1 Effective Size= 72.0"W x 72.0"H => 28.27 sf x 20.00'L = 565.5 cf Overall Size= 72.0"W x 72.0"H x 20.00'L 10 Chambers in 2 Rows
		0.189 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	570.00'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 540.00'
#2	Primary	576.00'	**24.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.20 cfs @ 12.37 hrs HW=576.56' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.20 cfs)

Primary OutFlow Max=1.84 cfs @ 12.37 hrs HW=576.56' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 1.84 cfs @ 2.55 fps)

Pond 3P: Storage - Chamber Wizard Field A

Chamber Model = CMP Round 72 (Round Corrugated Metal Pipe)
Effective Size= 72.0"W x 72.0"H => 28.27 sf x 20.00'L = 565.5 cf
Overall Size= 72.0"W x 72.0"H x 20.00'L

72.0" Wide + 36.0" Spacing = 108.0" C-C Row Spacing

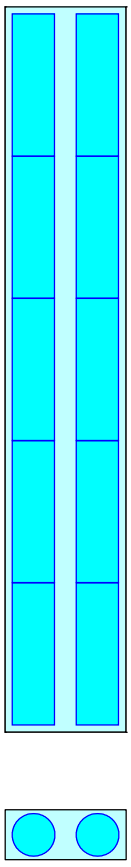
5 Chambers/Row x 20.00' Long = 100.00' Row Length +12.0" End Stone x 2 = 102.00' Base Length
2 Rows x 72.0" Wide + 36.0" Spacing x 1 + 12.0" Side Stone x 2 = 17.00' Base Width
6.0" Stone Base + 72.0" Chamber Height + 6.0" Stone Cover = 7.00' Field Height

10 Chambers x 565.5 cf = 5,654.9 cf Chamber Storage

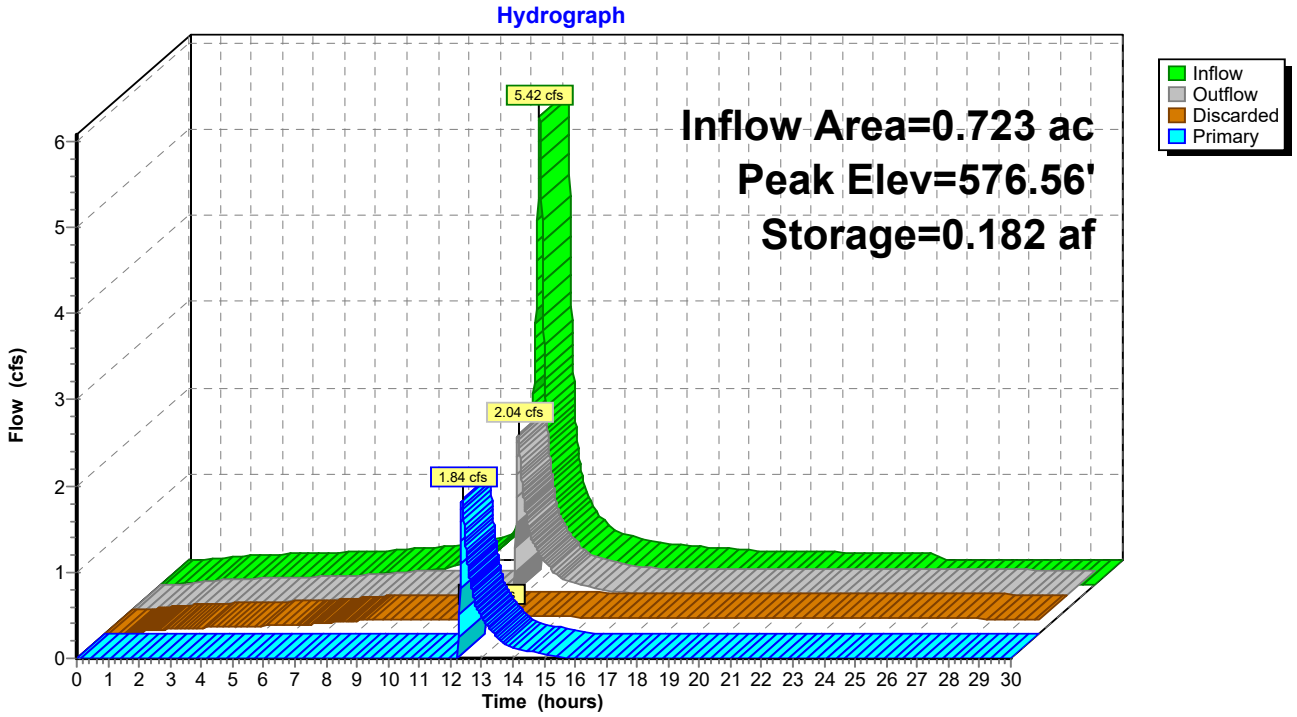
12,138.0 cf Field - 5,654.9 cf Chambers = 6,483.1 cf Stone x 40.0% Voids = 2,593.3 cf Stone Storage

Chamber Storage + Stone Storage = 8,248.1 cf = 0.189 af
Overall Storage Efficiency = 68.0%
Overall System Size = 102.00' x 17.00' x 7.00'

10 Chambers
449.6 cy Field
240.1 cy Stone



Pond 3P: Storage

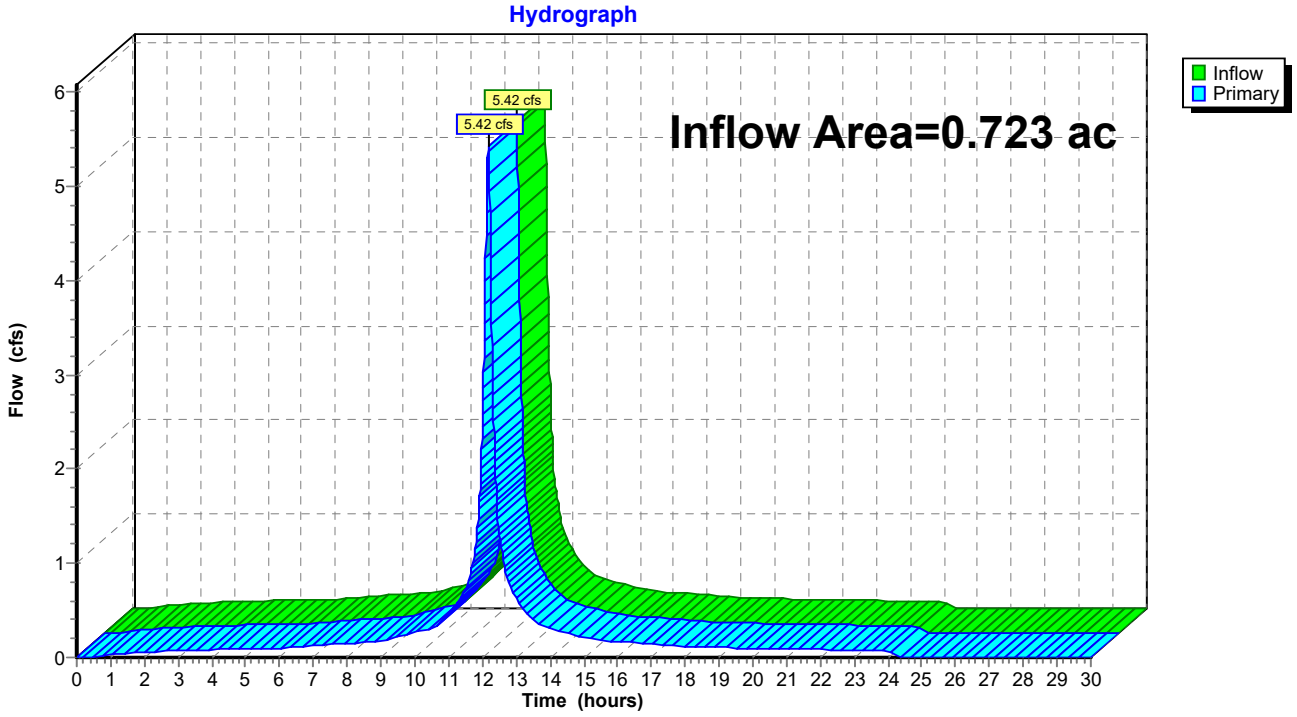


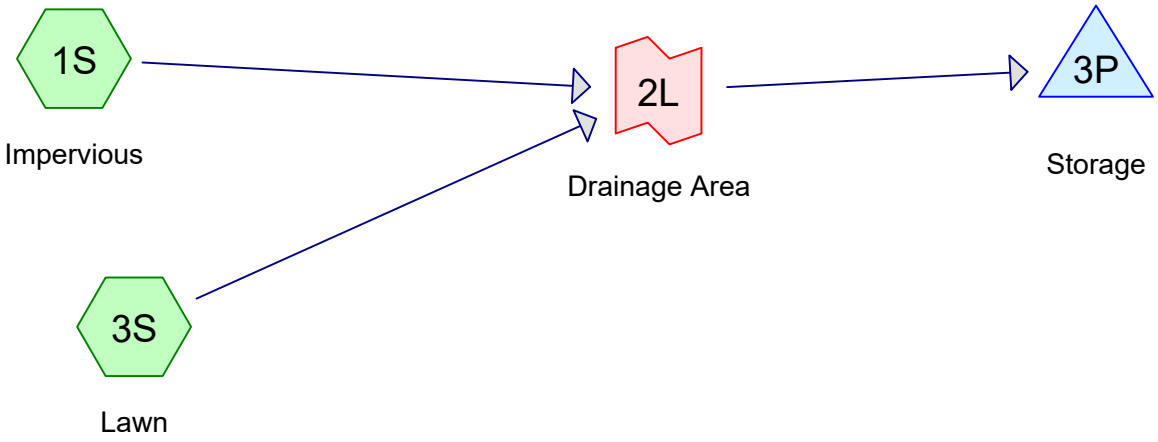
Summary for Link 2L: Drainage Area

Inflow Area = 0.723 ac, 92.22% Impervious, Inflow Depth = 8.20" for 100-Year event
Inflow = 5.42 cfs @ 12.17 hrs, Volume= 0.494 af
Primary = 5.42 cfs @ 12.17 hrs, Volume= 0.494 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 3P : Storage

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 2L: Drainage Area





Subcat Reach Pond Link

Routing Diagram for 2507 Prop 38 peddlers 2025-01-23 - DA2
Prepared by Terranova Consultants, Printed 2/7/2025

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland
Rainfall events imported from "Atlas-14-Rain.txt" for 1426 NY Rockland
Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-Year	NRCC 24-hr	C	Default	24.00	1	9.00	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.157	98	(1S)
0.227	39	>75% Grass cover, Good, HSG A (3S)
3.384	**94**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.227	HSG A	3S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
3.157	Other	1S
3.384		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	3.157	3.157		1S
0.227	0.000	0.000	0.000	0.000	0.227	>75% Grass cover, Good	3S
0.227	**0.000**	**0.000**	**0.000**	**3.157**	**3.384**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Impervious Runoff Area=137,536 sf 100.00% Impervious Runoff Depth=8.76"
Tc=10.0 min CN=98 Runoff=25.33 cfs 2.305 af

Subcatchment3S: Lawn Runoff Area=9,875 sf 0.00% Impervious Runoff Depth=1.60"
Tc=10.0 min CN=39 Runoff=0.31 cfs 0.030 af

Pond 3P: Storage Peak Elev=541.90' Storage=0.918 af Inflow=25.63 cfs 2.335 af
Discarded=1.16 cfs 2.017 af Primary=4.39 cfs 0.303 af Outflow=5.55 cfs 2.320 af

Link 2L: Drainage Area Inflow=25.63 cfs 2.335 af
Primary=25.63 cfs 2.335 af

Total Runoff Area = 3.384 ac Runoff Volume = 2.335 af Average Runoff Depth = 8.28"
6.70% Pervious = 0.227 ac 93.30% Impervious = 3.157 ac

Summary for Subcatchment 1S: Impervious

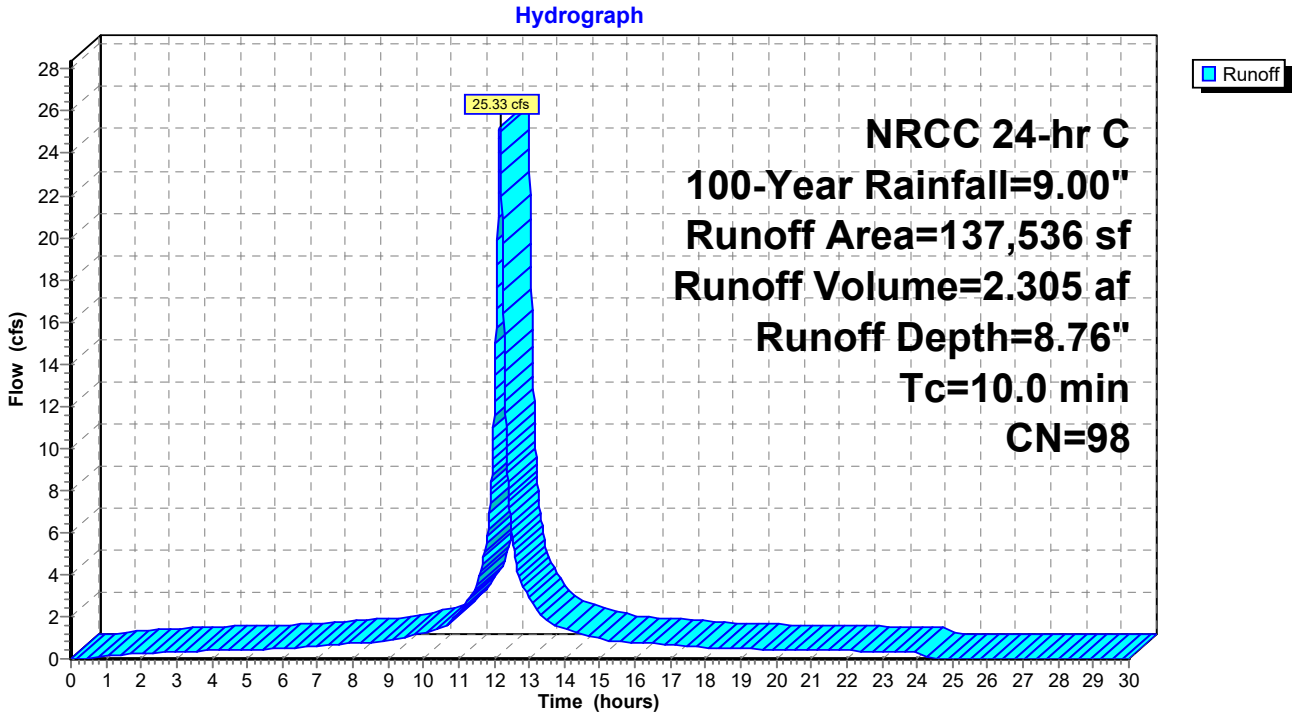
Runoff = 25.33 cfs @ 12.17 hrs, Volume= 2.305 af, Depth= 8.76"
Routed to Link 2L : Drainage Area

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=9.00"

	Area (sf)	CN	Description
*	137,536	98	
	137,536		100.00% Impervious Area

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

Subcatchment 1S: Impervious



Summary for Subcatchment 3S: Lawn

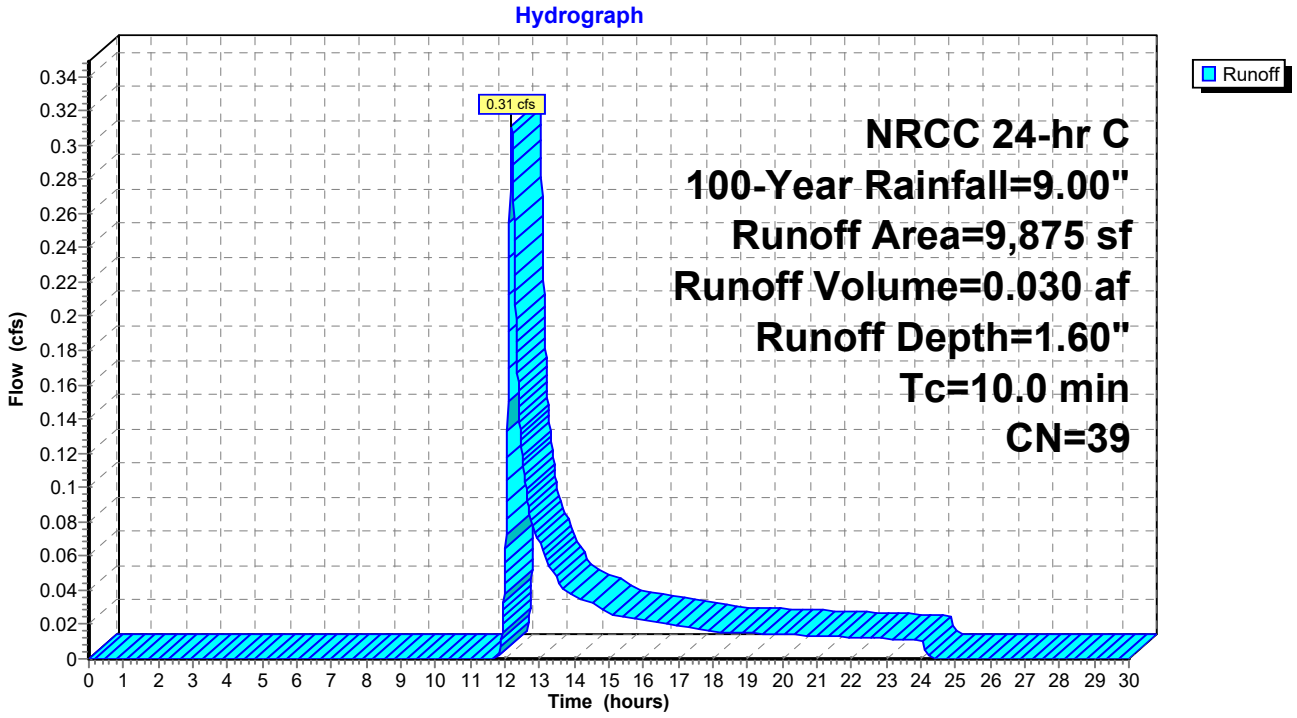
Runoff = 0.31 cfs @ 12.19 hrs, Volume= 0.030 af, Depth= 1.60"
Routed to Link 2L : Drainage Area

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=9.00"

Area (sf)	CN	Description
9,875	39	>75% Grass cover, Good, HSG A
9,875		100.00% Pervious Area

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

Subcatchment 3S: Lawn



Summary for Pond 3P: Storage

Inflow Area = 3.384 ac, 93.30% Impervious, Inflow Depth = 8.28" for 100-Year event
Inflow = 25.63 cfs @ 12.17 hrs, Volume= 2.335 af
Outflow = 5.55 cfs @ 12.55 hrs, Volume= 2.320 af, Atten= 78%, Lag= 22.8 min
Discarded = 1.16 cfs @ 12.55 hrs, Volume= 2.017 af
Primary = 4.39 cfs @ 12.55 hrs, Volume= 0.303 af
Routed to nonexistent node 2P

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 541.90' @ 12.55 hrs Surf.Area= 0.197 ac Storage= 0.918 af

Plug-Flow detention time= 263.6 min calculated for 2.319 af (99% of inflow)
Center-of-Mass det. time= 259.3 min (1,005.8 - 746.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	535.00'	0.303 af	**53.00'W x 162.00'L x 7.00'H Field A** 1.380 af Overall - 0.623 af Embedded = 0.757 af x 40.0% Voids
#2A	535.50'	0.623 af	**CMP Round 72** x 48 Inside #1 Effective Size= 72.0"W x 72.0"H => 28.27 sf x 20.00'L = 565.5 cf Overall Size= 72.0"W x 72.0"H x 20.00'L 48 Chambers in 6 Rows
		0.926 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	541.00'	**24.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	535.00'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 520.00'

Discarded OutFlow Max=1.16 cfs @ 12.55 hrs HW=541.90' (Free Discharge)
↑—**2=Exfiltration** (Controls 1.16 cfs)

Primary OutFlow Max=4.39 cfs @ 12.55 hrs HW=541.90' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 4.39 cfs @ 3.22 fps)

Pond 3P: Storage - Chamber Wizard Field A

Chamber Model = CMP Round 72 (Round Corrugated Metal Pipe)
Effective Size= 72.0"W x 72.0"H => 28.27 sf x 20.00'L = 565.5 cf
Overall Size= 72.0"W x 72.0"H x 20.00'L

72.0" Wide + 36.0" Spacing = 108.0" C-C Row Spacing

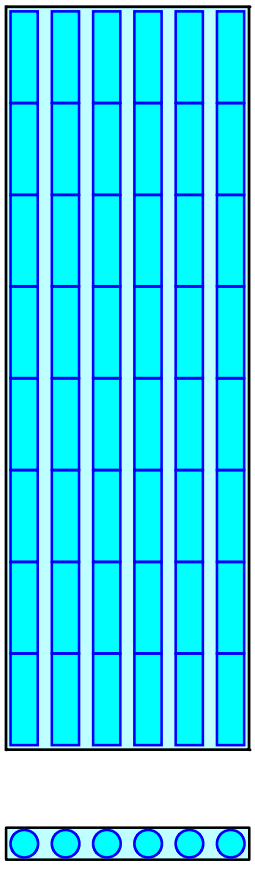
8 Chambers/Row x 20.00' Long = 160.00' Row Length +12.0" End Stone x 2 = 162.00' Base Length
6 Rows x 72.0" Wide + 36.0" Spacing x 5 + 12.0" Side Stone x 2 = 53.00' Base Width
6.0" Stone Base + 72.0" Chamber Height + 6.0" Stone Cover = 7.00' Field Height

48 Chambers x 565.5 cf = 27,143.4 cf Chamber Storage

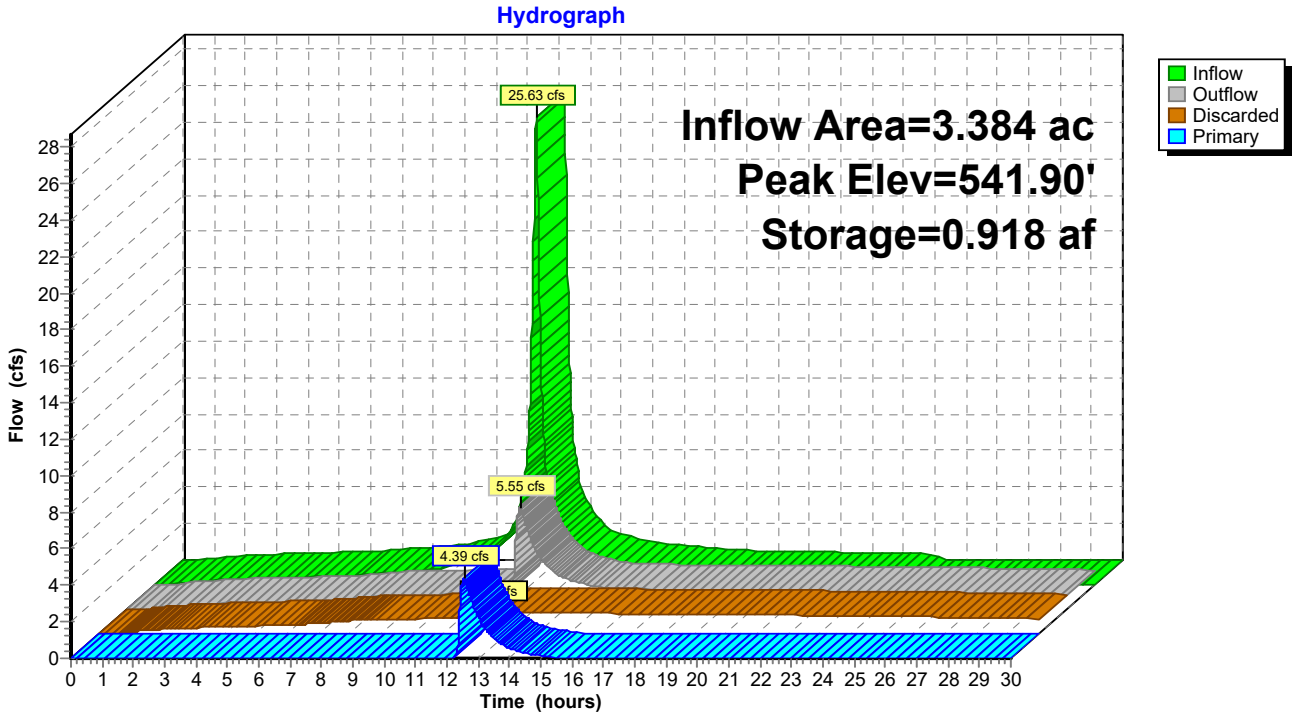
60,102.0 cf Field - 27,143.4 cf Chambers = 32,958.6 cf Stone x 40.0% Voids = 13,183.5 cf Stone Storage

Chamber Storage + Stone Storage = 40,326.8 cf = 0.926 af
Overall Storage Efficiency = 67.1%
Overall System Size = 162.00' x 53.00' x 7.00'

48 Chambers
2,226.0 cy Field
1,220.7 cy Stone



Pond 3P: Storage

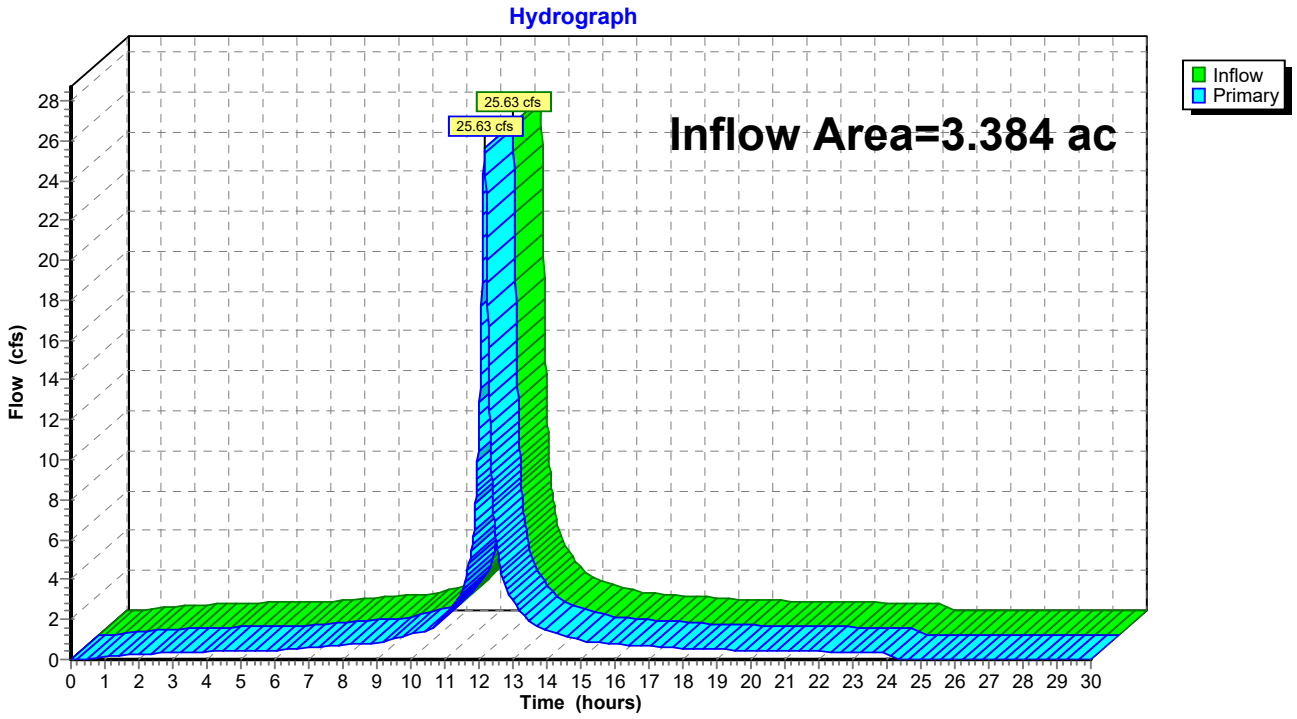


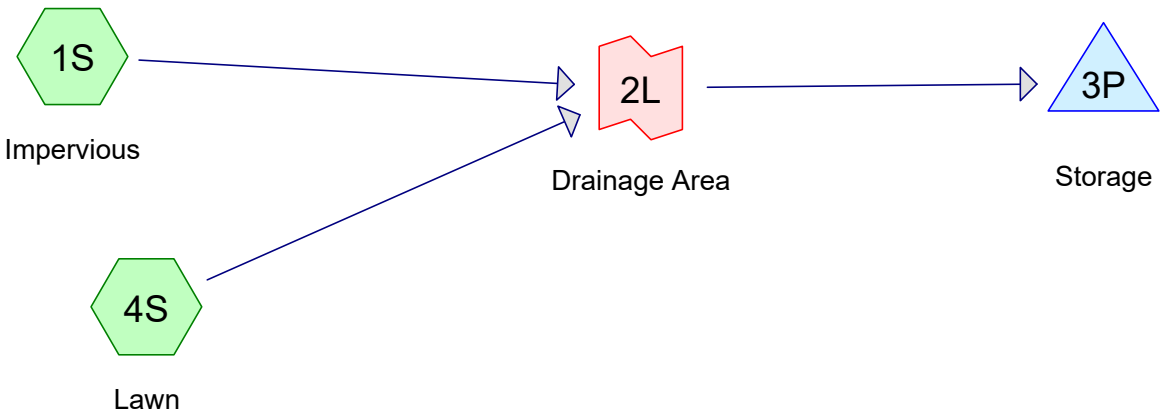
Summary for Link 2L: Drainage Area

Inflow Area = 3.384 ac, 93.30% Impervious, Inflow Depth = 8.28" for 100-Year event
Inflow = 25.63 cfs @ 12.17 hrs, Volume= 2.335 af
Primary = 25.63 cfs @ 12.17 hrs, Volume= 2.335 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 3P : Storage

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 2L: Drainage Area





Subcat Reach Pond Link

Routing Diagram for 2507 Prop 38 peddlers 2025-01-23 - DA3
Prepared by Terranova Consultants, Printed 2/24/2025

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland
Rainfall events imported from "Atlas-14-Rain.txt" for 1426 NY Rockland
Rainfall events imported from "NRCS-Rain.txt" for 7096 NY Rockland

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	10-Year	NRCC 24-hr	C	Default	24.00	1	5.05	2
2	100-Year	NRCC 24-hr	C	Default	24.00	1	9.00	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.190	98	(1S)
1.301	39	>75% Grass cover, Good, HSG A (4S)
1.490	**47**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.301	HSG A	4S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.190	Other	1S
1.490		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.190	0.190		1S
1.301	0.000	0.000	0.000	0.000	1.301	>75% Grass cover, Good	4S
1.301	**0.000**	**0.000**	**0.000**	**0.190**	**1.490**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Impervious Runoff Area=8,259 sf 100.00% Impervious Runoff Depth=4.81"
Tc=10.0 min CN=98 Runoff=0.85 cfs 0.076 af

Subcatchment4S: Lawn Runoff Area=56,658 sf 0.00% Impervious Runoff Depth=0.21"
Tc=10.0 min CN=39 Runoff=0.04 cfs 0.023 af

Pond 3P: Storage Peak Elev=570.39' Storage=0.006 af Inflow=0.85 cfs 0.099 af
Outflow=0.77 cfs 0.099 af

Link 2L: Drainage Area Inflow=0.85 cfs 0.099 af
Primary=0.85 cfs 0.099 af

Total Runoff Area = 1.490 ac Runoff Volume = 0.099 af Average Runoff Depth = 0.80"
87.28% Pervious = 1.301 ac 12.72% Impervious = 0.190 ac

Summary for Subcatchment 1S: Impervious

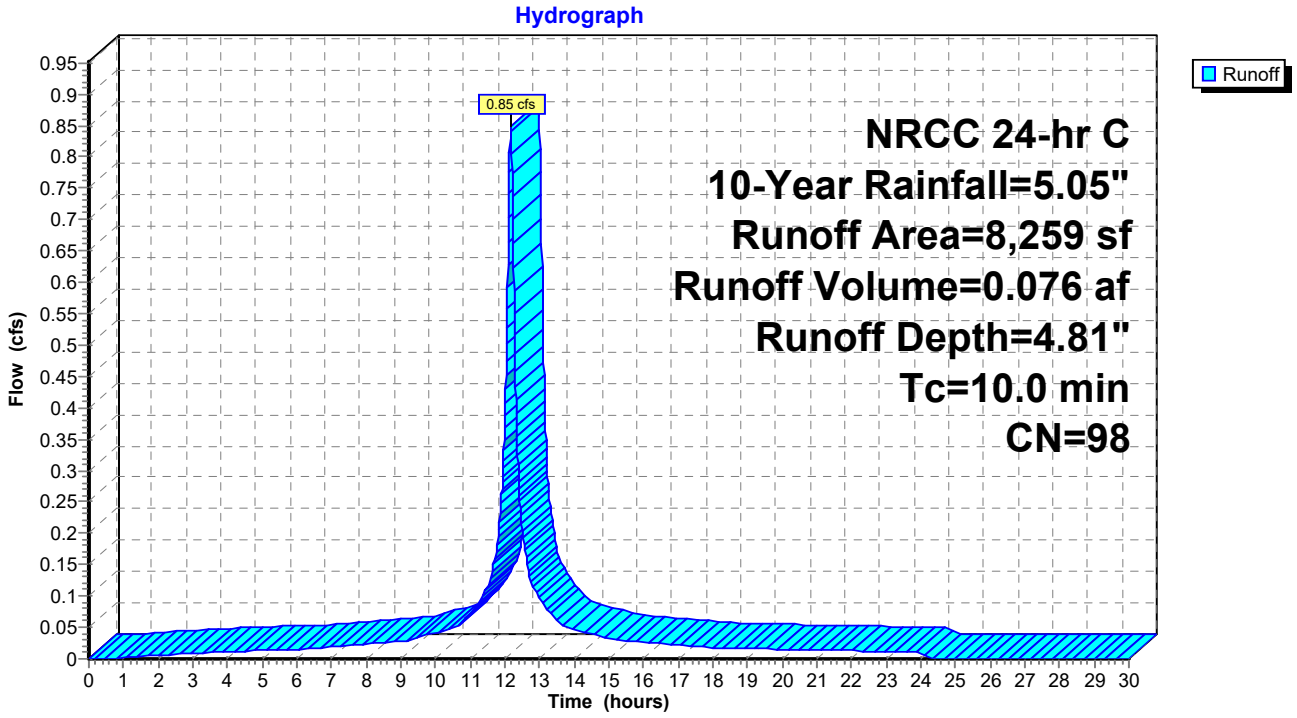
Runoff = 0.85 cfs @ 12.17 hrs, Volume= 0.076 af, Depth= 4.81"
Routed to Link 2L : Drainage Area

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 10-Year Rainfall=5.05"

	Area (sf)	CN	Description
*	8,259	98	
	8,259		100.00% Impervious Area

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

Subcatchment 1S: Impervious



Summary for Subcatchment 4S: Lawn

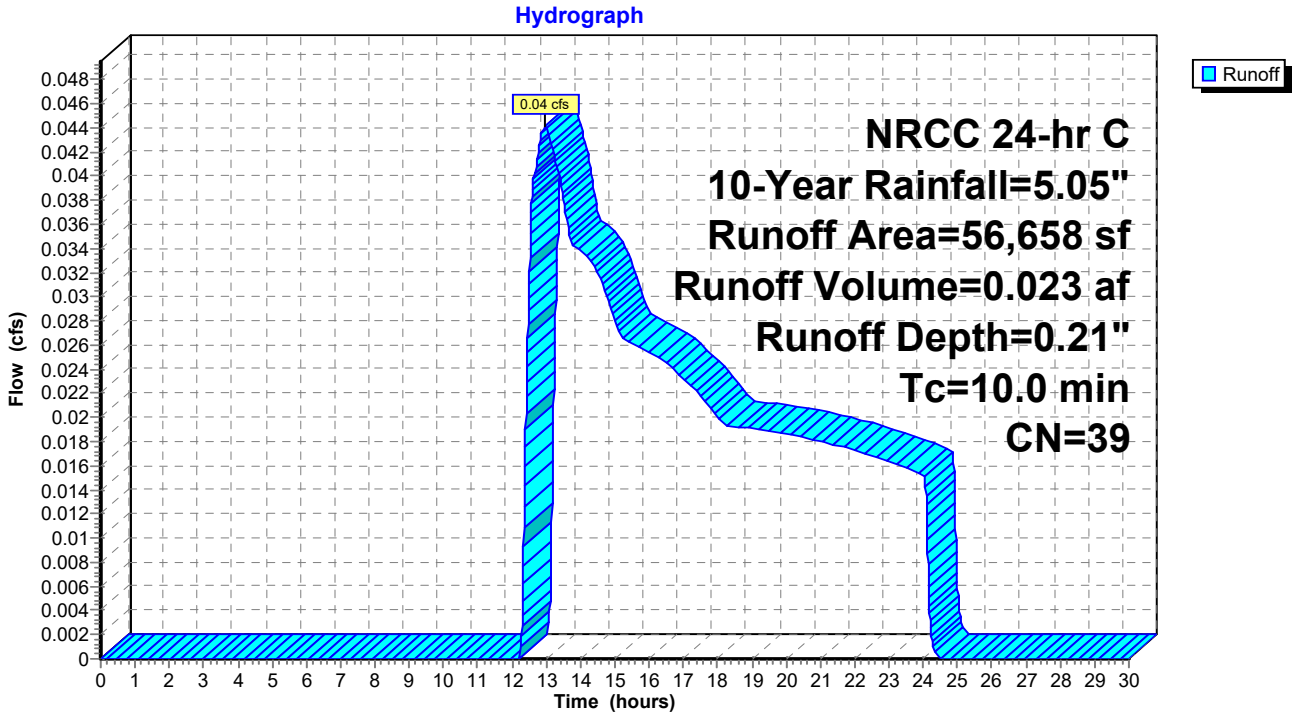
Runoff = 0.04 cfs @ 12.97 hrs, Volume= 0.023 af, Depth= 0.21"
Routed to Link 2L : Drainage Area

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 10-Year Rainfall=5.05"

Area (sf)	CN	Description
56,658	39	>75% Grass cover, Good, HSG A
56,658		100.00% Pervious Area

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

Subcatchment 4S: Lawn



Summary for Pond 3P: Storage

Inflow Area = 1.490 ac, 12.72% Impervious, Inflow Depth = 0.80" for 10-Year event
Inflow = 0.85 cfs @ 12.17 hrs, Volume= 0.099 af
Outflow = 0.77 cfs @ 12.21 hrs, Volume= 0.099 af, Atten= 10%, Lag= 2.5 min
Primary = 0.77 cfs @ 12.21 hrs, Volume= 0.099 af
Routed to nonexistent node 2P

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 570.39' @ 12.21 hrs Surf.Area= 0.040 ac Storage= 0.006 af

Plug-Flow detention time= 19.3 min calculated for 0.099 af (100% of inflow)
Center-of-Mass det. time= 19.2 min (837.3 - 818.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	570.00'	0.028 af	**3.23'W x 542.00'L x 2.06'H Field A** 0.083 af Overall - 0.013 af Embedded = 0.070 af x 40.0% Voids
#2A	570.42'	0.013 af	**CPP single-wall 12"** x 27 Inside #1 Inside= 12.0"W x 12.0"H => 1.04 sf x 20.00'L = 20.8 cf Outside= 14.7"W x 14.7"H => 1.04 sf x 20.00'L = 20.8 cf
		0.041 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	570.00'	**18.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.76 cfs @ 12.21 hrs HW=570.39' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.76 cfs @ 2.12 fps)

Pond 3P: Storage - Chamber Wizard Field A

Chamber Model = CPP single-wall 12" (Single-wall corrugated HDPE pipe)
Inside= 12.0"W x 12.0"H => 1.04 sf x 20.00'L = 20.8 cf
Outside= 14.7"W x 14.7"H => 1.04 sf x 20.00'L = 20.8 cf

27 Chambers/Row x 20.00' Long = 540.00' Row Length +12.0" End Stone x 2 = 542.00' Base Length
1 Rows x 14.7" Wide + 12.0" Side Stone x 2 = 3.23' Base Width
5.0" Stone Base + 14.7" Chamber Height + 5.0" Stone Cover = 2.06' Field Height

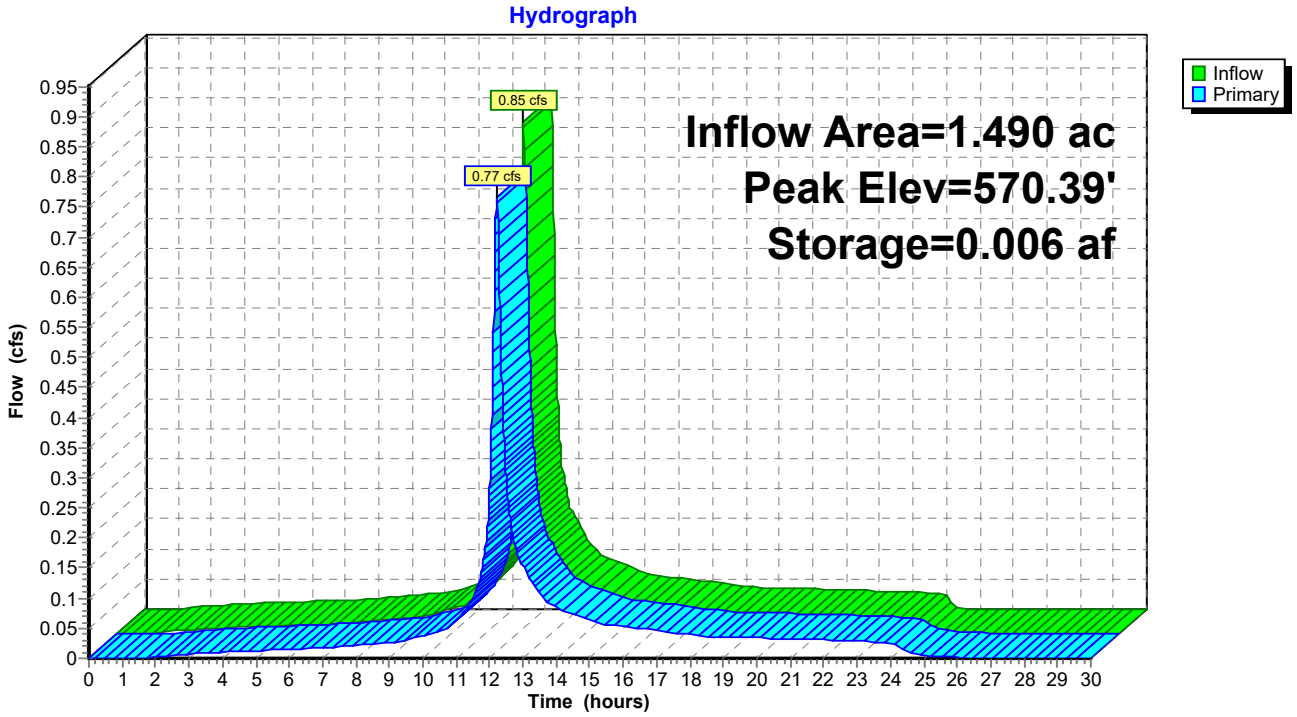
27 Chambers x 20.8 cf = 562.1 cf Chamber Storage

3,597.9 cf Field - 562.1 cf Chambers = 3,035.7 cf Stone x 40.0% Voids = 1,214.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,776.4 cf = 0.041 af
Overall Storage Efficiency = 49.4%
Overall System Size = 542.00' x 3.23' x 2.06'

27 Chambers
133.3 cy Field
112.4 cy Stone

Pond 3P: Storage

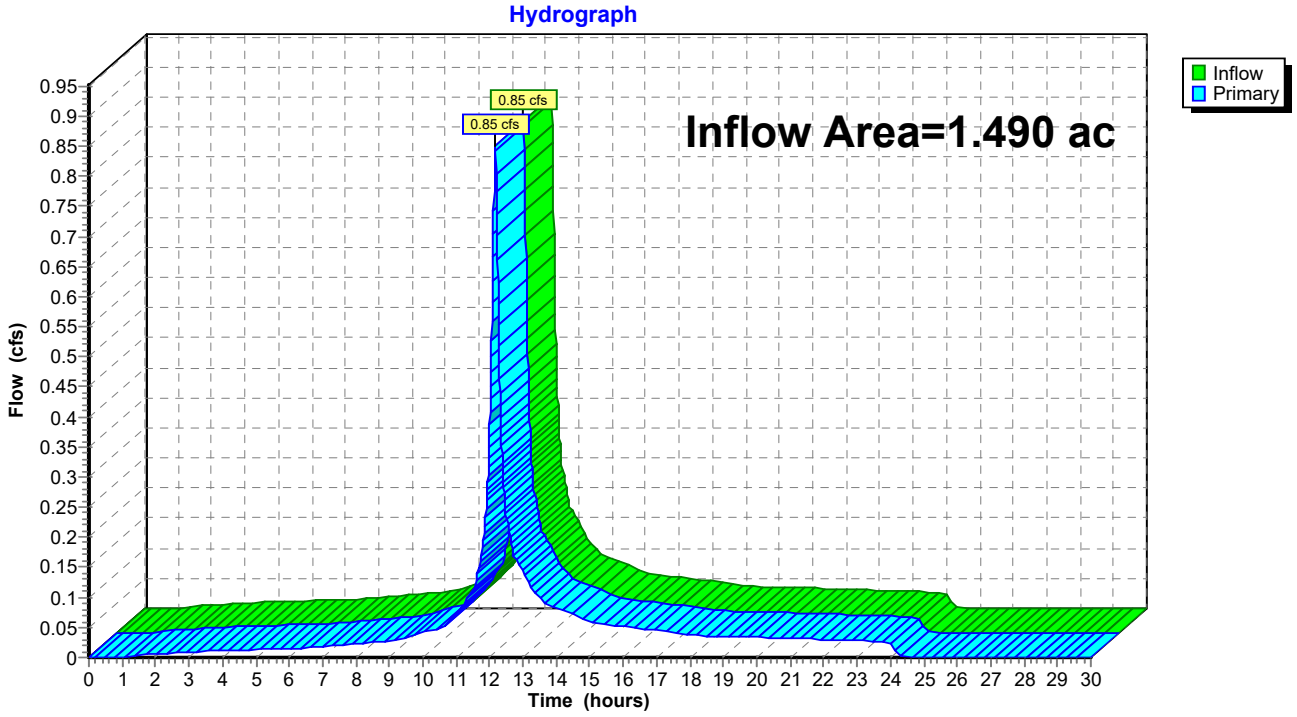


Summary for Link 2L: Drainage Area

Inflow Area = 1.490 ac, 12.72% Impervious, Inflow Depth = 0.80" for 10-Year event
Inflow = 0.85 cfs @ 12.17 hrs, Volume= 0.099 af
Primary = 0.85 cfs @ 12.17 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 3P : Storage

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 2L: Drainage Area



Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Impervious Runoff Area=8,259 sf 100.00% Impervious Runoff Depth=8.76"
Tc=10.0 min CN=98 Runoff=1.52 cfs 0.138 af

Subcatchment4S: Lawn Runoff Area=56,658 sf 0.00% Impervious Runoff Depth=1.60"
Tc=10.0 min CN=39 Runoff=1.79 cfs 0.174 af

Pond 3P: Storage Peak Elev=570.81' Storage=0.015 af Inflow=3.28 cfs 0.312 af
Outflow=2.99 cfs 0.312 af

Link 2L: Drainage Area Inflow=3.28 cfs 0.312 af
Primary=3.28 cfs 0.312 af

Total Runoff Area = 1.490 ac Runoff Volume = 0.312 af Average Runoff Depth = 2.51"
87.28% Pervious = 1.301 ac 12.72% Impervious = 0.190 ac

Summary for Subcatchment 1S: Impervious

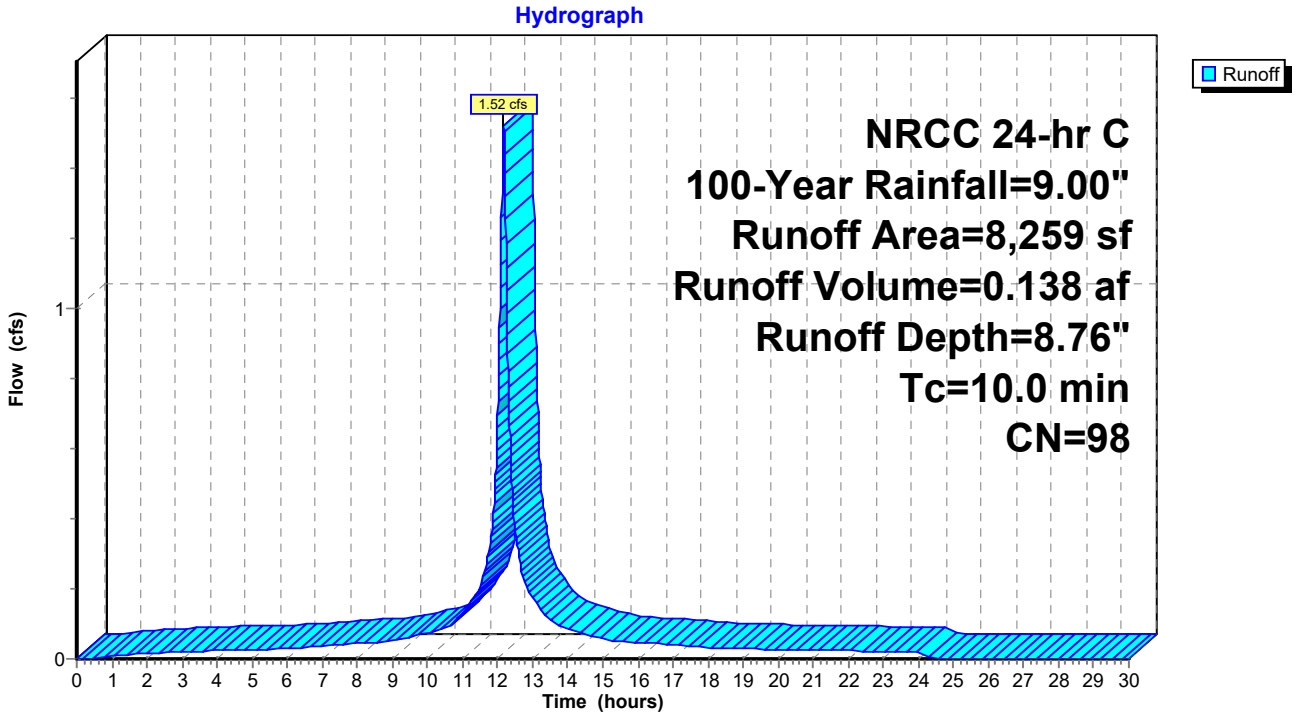
Runoff = 1.52 cfs @ 12.17 hrs, Volume= 0.138 af, Depth= 8.76"
Routed to Link 2L : Drainage Area

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=9.00"

	Area (sf)	CN	Description
*	8,259	98	
	8,259		100.00% Impervious Area

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

Subcatchment 1S: Impervious



Summary for Subcatchment 4S: Lawn

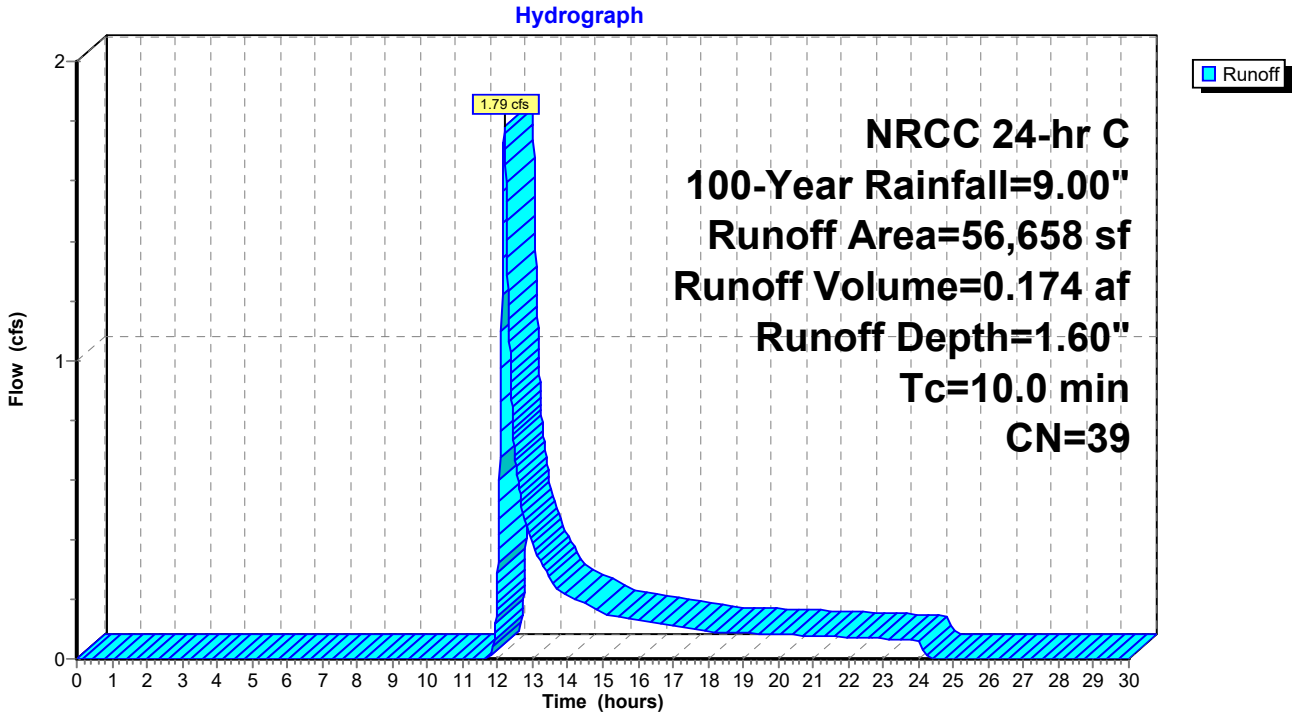
Runoff = 1.79 cfs @ 12.19 hrs, Volume= 0.174 af, Depth= 1.60"
Routed to Link 2L : Drainage Area

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=9.00"

Area (sf)	CN	Description
56,658	39	>75% Grass cover, Good, HSG A
56,658		100.00% Pervious Area

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

Subcatchment 4S: Lawn



Summary for Pond 3P: Storage

Inflow Area = 1.490 ac, 12.72% Impervious, Inflow Depth = 2.51" for 100-Year event
Inflow = 3.28 cfs @ 12.18 hrs, Volume= 0.312 af
Outflow = 2.99 cfs @ 12.22 hrs, Volume= 0.312 af, Atten= 9%, Lag= 2.4 min
Primary = 2.99 cfs @ 12.22 hrs, Volume= 0.312 af
Routed to nonexistent node 2P

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 570.81' @ 12.22 hrs Surf.Area= 0.040 ac Storage= 0.015 af

Plug-Flow detention time= 10.7 min calculated for 0.312 af (100% of inflow)
Center-of-Mass det. time= 10.6 min (851.9 - 841.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	570.00'	0.028 af	**3.23'W x 542.00'L x 2.06'H Field A** 0.083 af Overall - 0.013 af Embedded = 0.070 af x 40.0% Voids
#2A	570.42'	0.013 af	**CPP single-wall 12"** x 27 Inside #1 Inside= 12.0"W x 12.0"H => 1.04 sf x 20.00'L = 20.8 cf Outside= 14.7"W x 14.7"H => 1.04 sf x 20.00'L = 20.8 cf
		0.041 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	570.00'	**18.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.99 cfs @ 12.22 hrs HW=570.81' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 2.99 cfs @ 3.07 fps)

Pond 3P: Storage - Chamber Wizard Field A

Chamber Model = CPP single-wall 12" (Single-wall corrugated HDPE pipe)
Inside= 12.0"W x 12.0"H => 1.04 sf x 20.00'L = 20.8 cf
Outside= 14.7"W x 14.7"H => 1.04 sf x 20.00'L = 20.8 cf

27 Chambers/Row x 20.00' Long = 540.00' Row Length +12.0" End Stone x 2 = 542.00' Base Length
1 Rows x 14.7" Wide + 12.0" Side Stone x 2 = 3.23' Base Width
5.0" Stone Base + 14.7" Chamber Height + 5.0" Stone Cover = 2.06' Field Height

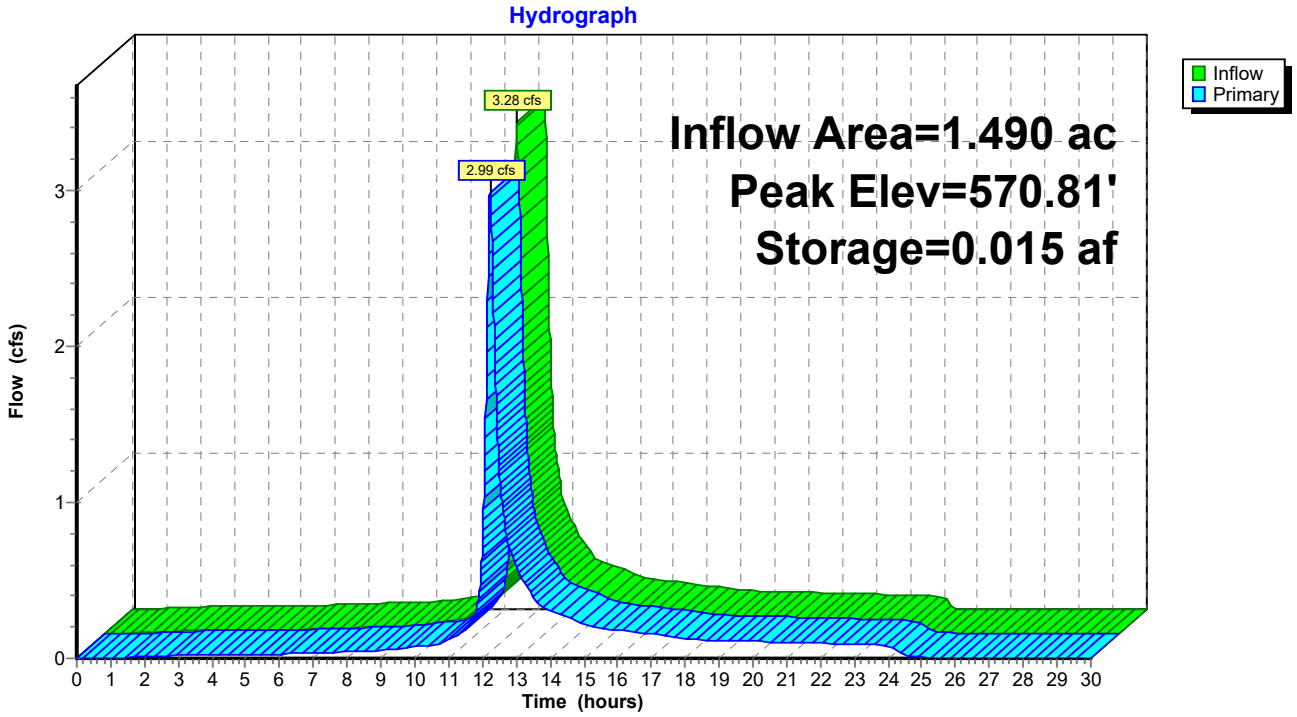
27 Chambers x 20.8 cf = 562.1 cf Chamber Storage

3,597.9 cf Field - 562.1 cf Chambers = 3,035.7 cf Stone x 40.0% Voids = 1,214.3 cf Stone Storage

Chamber Storage + Stone Storage = 1,776.4 cf = 0.041 af
Overall Storage Efficiency = 49.4%
Overall System Size = 542.00' x 3.23' x 2.06'

27 Chambers
133.3 cy Field
112.4 cy Stone

Pond 3P: Storage

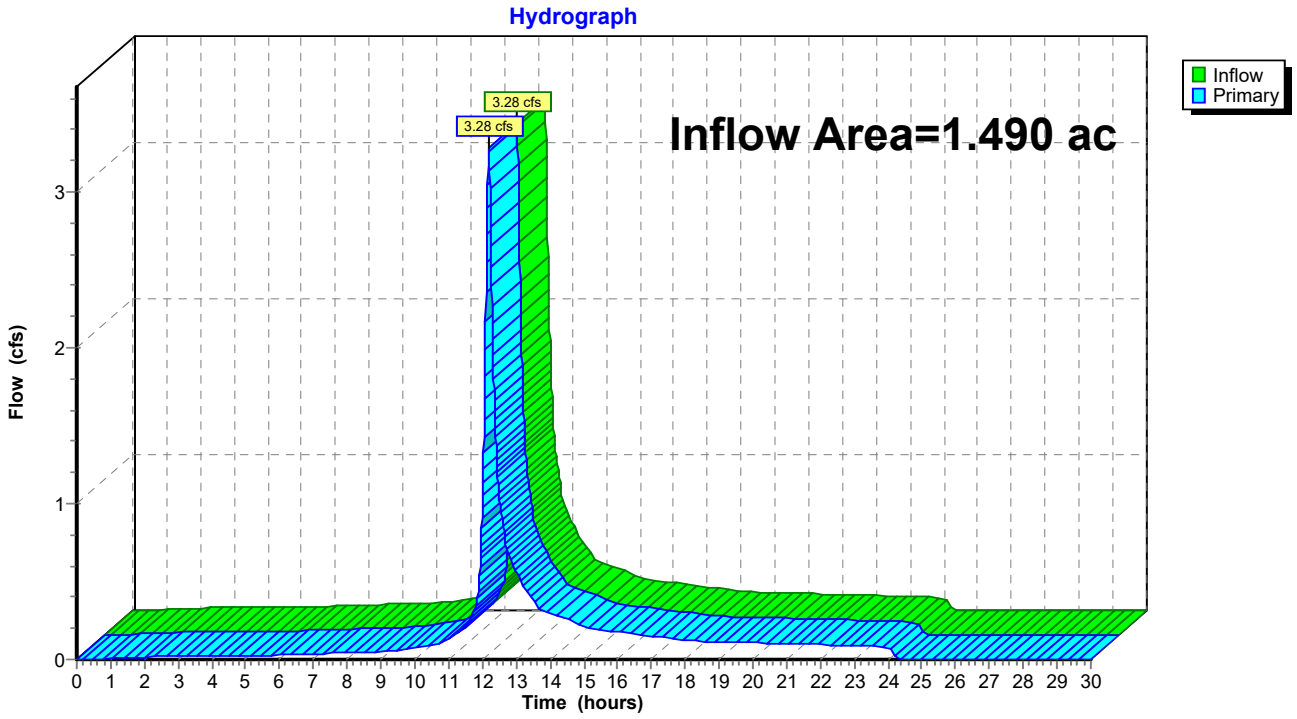


Summary for Link 2L: Drainage Area

Inflow Area = 1.490 ac, 12.72% Impervious, Inflow Depth = 2.51" for 100-Year event
Inflow = 3.28 cfs @ 12.18 hrs, Volume= 0.312 af
Primary = 3.28 cfs @ 12.18 hrs, Volume= 0.312 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 3P : Storage

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 2L: Drainage Area



Soil Map

Map Scale: 1:2,200 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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

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

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

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

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

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

Soil Survey Area: Orange County, New York
Survey Area Data: Version 25, Aug 25, 2024

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

Date(s) aerial images were photographed: May 31, 2022—Oct 27, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BnC	Bath-Nassau channery silt loams, 8 to 15 percent slopes	2.0	29.4%
MdB	Mardin gravelly silt loam, 3 to 8 percent slopes	1.0	14.5%
MdD	Mardin gravelly silt loam, 15 to 25 percent slopes	3.9	56.1%
Totals for Area of Interest		**6.9**	**100.0%**

Maintenance Manual

Maintenance Manual

CLEANING AND REPAIR OF CULVERTS AND CLOSED DRAINAGE SYSTEMS

General Principle To maintain culverts and closed drainage systems in a workable condition so as to safely carry away collected surface and subsurface water.

Inspection Inspect large culverts in accordance with the criteria stated in the Culvert Inventory and Inspection Manual. Closed drainage systems and small culverts should be inspected on a attainable schedule based on available resources. Storm events and known problem locations may warrant additional inspections. January, 2009 11 Check catch basins (CB's), man holes (MH's), and drainage inlets (DI's) to determine necessary structural repair work. Check that frames and grates are clear of debris; note any properly seated sumps which need cleaning for scheduled cleaning. Check pipe culverts for the condition of pipe, condition of headwalls, and alignment of entrance and outlet ditches. Inspect pavement over culverts and around drainage structures for distress, which may be an early sign of problems. Check inlet and outlet ends of pipe culverts for obstructions. Bring conditions affecting highway drainage, that are outside the highway ROW, to the Resident Engineer'sattention for evaluation. Subsurface drains should have free flowing outlets. Immediately remove any debris causing severe obstruction to flow. When working with culverts and closed drainage systems it is important to review Department worker safety policies. The Regional Safety Officer can provide the necessary guidance concerning confined space entry, working in proximity to water and personal protective equipment. Additional information may be obtained in the Department's Transportation Maintenance Safety Manual.

Make necessary repairs to concrete and masonry structures as required to provide structurally sound units. All grates and covers should be seated properly. Improperly seated or loose grates and covers may be corrected by application of mortar or asphalt emulsion on the cover seat. Remove and replace defective and broken grates and covers. Frames that support grates and covers should have 100 percent contact with the supporting structure. The sumps for structures should be cleaned to maintain storage so that silt, sand and stones will not be washed into pipes causing possible plugging. Areas that drain to a closed drainage system should be swept annually to limit the amount of debris entering the system. Outlets for subsurface drains should be free flowing. Mark the outlets for french drains and drain tile to make future location of them easier. Culverts that require replacement should be brought to the attention of the Resident Engineer for review. If the culvert passes a regulated stream the Resident Engineer should contact the Maintenance Environmental Coordinator (MEC) for guidance.

It is important to use good environmental practices, particularly sediment control, when cleaning culverts and closed drainage systems. These systems often have outfalls to streams, wetlands and/or coastal waters. It is also important to recognize, and minimize the spread of, invasive plant species located in the work area. Consult with your Maintenance Environmental Coordinator (MEC) for guidance in working in areas with invasive plants.

The Goal is to maintain drainage structures in a safe structural condition and to efficiently carry runoff away from traffic areas. All drainage facilities should be maintained so that there is structural soundness and each facility is clean to allow free flow of water. Culverts should be cleaned when any form of obstruction severely decreases its performance. Natural bottoms in culverts should be preserved to enhance fish habitat and facilitate passage. Sumps should be cleaned when 50 percent filled to allow free and efficient flow with adequate storage for debris.