Appendix 4.3

Runoff Reduction Worksheets

Step 2 - Calculate Water Quality Volume

Is this project subject to Section 4.3 of the NYS Design Manual for Enhanced Phosphorus Removal?	No
What is the nature of this construction project?	Redevelopment with increase in impervious area

Design Point:	1		
P=	1.10	inches	*Enter 90% Rainfall Event as P*

Calculate Required WQv

Drainage Area Number	Contributing Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (cf)	SMP Description
1	0.37	0.25	68	0.66	972	
2	0.25	0.20	80	0.77	769	
3	1.06	0.31	29	0.31	1,326	
4	0.30	0.25	83	0.80	958	
5	0.15	0.13	87	0.83	497	

Step 4 - Calcuate Minimum RRv Required

Enter the Soils Data for the site		
Hydrologic Soil Group	Acres	S
A		55%
B	0.88	40%
C		30%
D		20%
Total Area	0.88	

Calculate the Minimum RRv		
S =	**0.40**	
Impervious =	0.88	*acres*
Precipitation	1.10	*inches*
Rv	0.95	
Minimum RRv	**0.031**	***af***
	1350	cf

Infiltration Basin (I-2)

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**Precipitation** (in)	**Description**
3	1.06	0.31	29	0.31	1,326	1.10	0

Design Criteria		
Enter underlying soil infiltration rate (based on geotechnical testing, refer to Appendix D)	4	
Is the contributing area to the practice an "Infiltration Restricted" stormwater hotspot?	No	
Is the contributing area to the practice an "Infiltration Prohibited" stormwater hotspot?	No	
Maximum contributing area (acres)	10	
Is the contributing area greater than the maximum allowed contributing area?	No	
Enter depth to seasonal high water table (ft)	6	
Enter depth to bedrock (ft)	8	
Enter pretreatment volume provided (cf)	350	
Enter depth of freeboard (ft)	1	
Enter depth of basin (ft)	2	
Enter slope of maintenance access (%)	1	
Enter width of maintenance access (ft)	12	

Sizing Criteria				
		Value	Units	Notes
Water Quality Volume	WQv	1326	cf	
Basin depth	db	2.0	ft	
Required Surface Area	Ab	663	sf	
Enter Surface Area Provided	Ab	950	sf	

Determine Runoff Reduction		
RRv Provided	**1,326**	***cf***

Infiltration Basin (I-2)

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**Precipitation** (in)	**Description**
4	0.30	0.25	83	0.80	958	1.10	0

Design Criteria		
Enter underlying soil infiltration rate (based on geotechnical testing, refer to Appendix D)	10	
Is the contributing area to the practice an "Infiltration Restricted" stormwater hotspot?	No	
Is the contributing area to the practice an "Infiltration Prohibited" stormwater hotspot?	No	
Maximum contributing area (acres)	25	
Is the contributing area greater than the maximum allowed contributing area?	No	
Enter depth to seasonal high water table (ft)	6	
Enter depth to bedrock (ft)	8	
Enter pretreatment volume provided (cf)	250	
Enter depth of freeboard (ft)	1	
Enter depth of basin (ft)	2	
Enter slope of maintenance access (%)	2	
Enter width of maintenance access (ft)	12	

Sizing Criteria				
		Value	Units	Notes
Water Quality Volume	WQv	958	cf	
Basin depth	db	2.0	ft	
Required Surface Area	Ab	479.00	sf	
Enter Surface Area Provided	Ab	850	sf	

Determine Runoff Reduction		
RRv Provided	**958**	***cf***

Infiltration Bioretention (F-4)

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice

Drainage Area Number	Contributing Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (cf)	Precipitation (in)	Description
1	0.37	0.25	68	0.66	972	1.10	0

Design Criteria

Enter underlying soil infiltration rate (based on geotechnical testing, refer to Appendix D)	4	
Is the contributing area to the practice an "Infiltration Restricted" stormwater hotspot?	No	
Is the contributing area to the practice an "Infiltration Prohibited" stormwater hotspot?	No	
Is contributing area greater than max. contributing area?	No	
Enter depth to seasonal high water table (ft)	6	
Enter depth to bedrock (ft)	8	
Is pretreatment provided, in conformance with Section 6.4.3.1	Yes	
Enter average height of ponding (ft)	0.5	
Enter depth of surface layer (inches)	3	
Enter depth of filter media (ft)	2.5	
Enter depth of drainage layer (inches)	10	
Enter slope of maintenance access (%)	2	
Enter width of maintenance access (ft)	24	

Sizing Criteria

		Value	Units	Notes
Permeability Flow Rate	k	1	ft/day	
Filter Time	tf	2	days	
Required Filter Area	Af	405	sf	
Enter Provided Filter Area	Af	440	sf	

Calculate Runoff Reduction

RRv Provided	**972**	***cf***

Infiltration Bioretention (F-4)

PZ Clerk Rec'd
07.02.25

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**Precipitation** (in)	**Description**
2	0.25	0.20	80	0.77	769	1.10	0

Design Criteria		
Enter underlying soil infiltration rate (based on geotechnical testing, refer to Appendix D)	4	
Is the contributing area to the practice an "Infiltration Restricted" stormwater hotspot?	No	
Is the contributing area to the practice an "Infiltration Prohibited" stormwater hotspot?	No	
Is contributing area greater than max. contributing area?	No	
Enter depth to seasonal high water table (ft)	6	
Enter depth to bedrock (ft)	8	
Is pretreatment provided, in conformance with Section 6.4.3.1	Yes	
Enter average height of ponding (ft)	0.5	
Enter depth of surface layer (inches)	3	
Enter depth of filter media (ft)	2.5	
Enter depth of drainage layer (inches)	10	
Enter slope of maintenance access (%)	2	
Enter width of maintenance access (ft)	24	

Sizing Criteria				
		Value	Units	Notes
Permeability Flow Rate	k	1	ft/day	
Filter Time	tf	2	days	
Required Filter Area	Af	320	sf	
Enter Provided Filter Area	Af	440	sf	

Calculate Runoff Reduction		
RRv Provided	**769**	***cf***

Infiltration Bioretention (F-4)

PZ Clerk Rec'd
07.02.25

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**Precipitation** (in)	**Description**
5	0.15	0.13	87	0.83	497	1.10	0

Design Criteria		
Enter underlying soil infiltration rate (based on geotechnical testing, refer to Appendix D)	4	
Is the contributing area to the practice an "Infiltration Restricted" stormwater hotspot?	No	
Is the contributing area to the practice an "Infiltration Prohibited" stormwater hotspot?	No	
Is contributing area greater than max. contributing area?	No	
Enter depth to seasonal high water table (ft)	6	
Enter depth to bedrock (ft)	8	
Is pretreatment provided, in conformance with Section 6.4.3.1	Yes	
Enter average height of ponding (ft)	0.5	
Enter depth of surface layer (inches)	3	
Enter depth of filter media (ft)	2.5	
Enter depth of drainage layer (inches)	10	
Enter slope of maintenance access (%)	2	
Enter width of maintenance access (ft)	24	

Sizing Criteria				
		Value	Units	Notes
Permeability Flow Rate	k	1	ft/day	
Filter Time	tf	2	days	
Required Filter Area	Af	207	sf	
Enter Provided Filter Area	Af	400	sf	

Calculate Runoff Reduction		
RRv Provided	**497**	***cf***

Appendix 4.5

Watershed Schematics and Hydrologic Calculations

PZ Clerk Rec'd 07.02.25

Lamont Engineers

COBLESKILL NEW YORK
(518) 234-4028

FFM GROUP, LLC
538 US ROUTE 30
NEW LEBANON
COLUMBIA COUNTY NEW YORK STATE

Project Number	2024125
Drawn By	AS
Designed By	AHJ/AS
Checked By	BJB
Date	6/20/25
Scale	1" = 60'
File Name	tilden wshed

Sheet Title

WATERSHED SCHEMATIC EXISTING

Sheet No.

4.5

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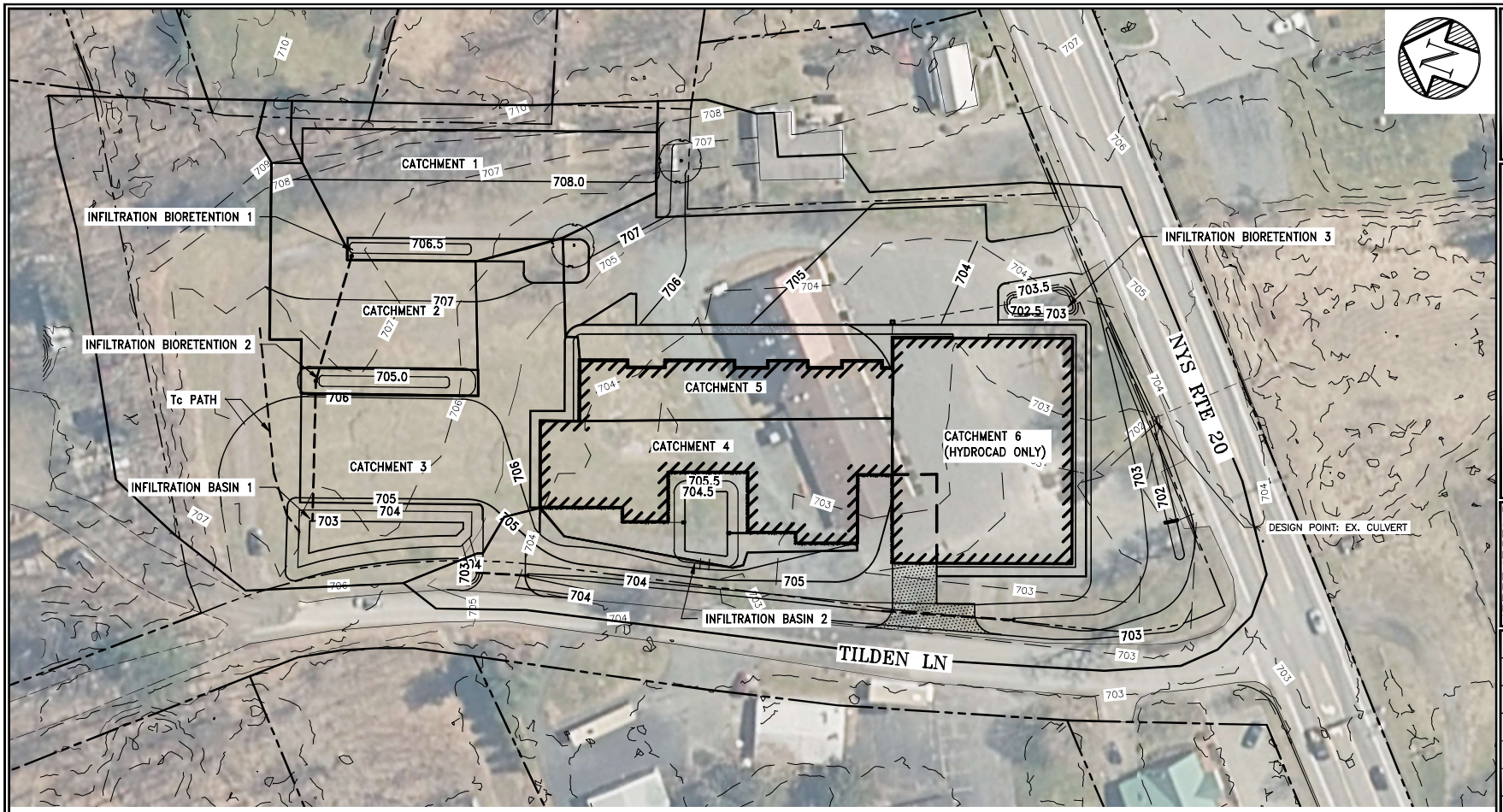
PZ Clerk Rec'd 07.02.25



Lamont Engineers
COBLESKILL NEW YORK
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FFM GROUP, LLC
538 US ROUTE 30
NEW LEBANON
COLUMBIA COUNTY NEW YORK STATE

Project Number	2024125
Drawn By	AS
Designed By	AHJ/AS
Checked By	BJB
Date	6/20/25
Scale	1" = 60'
File Name	tilden wshed

Sheet Title

WATERSHED SCHEMATIC PROPOSED

Sheet No.

4.5

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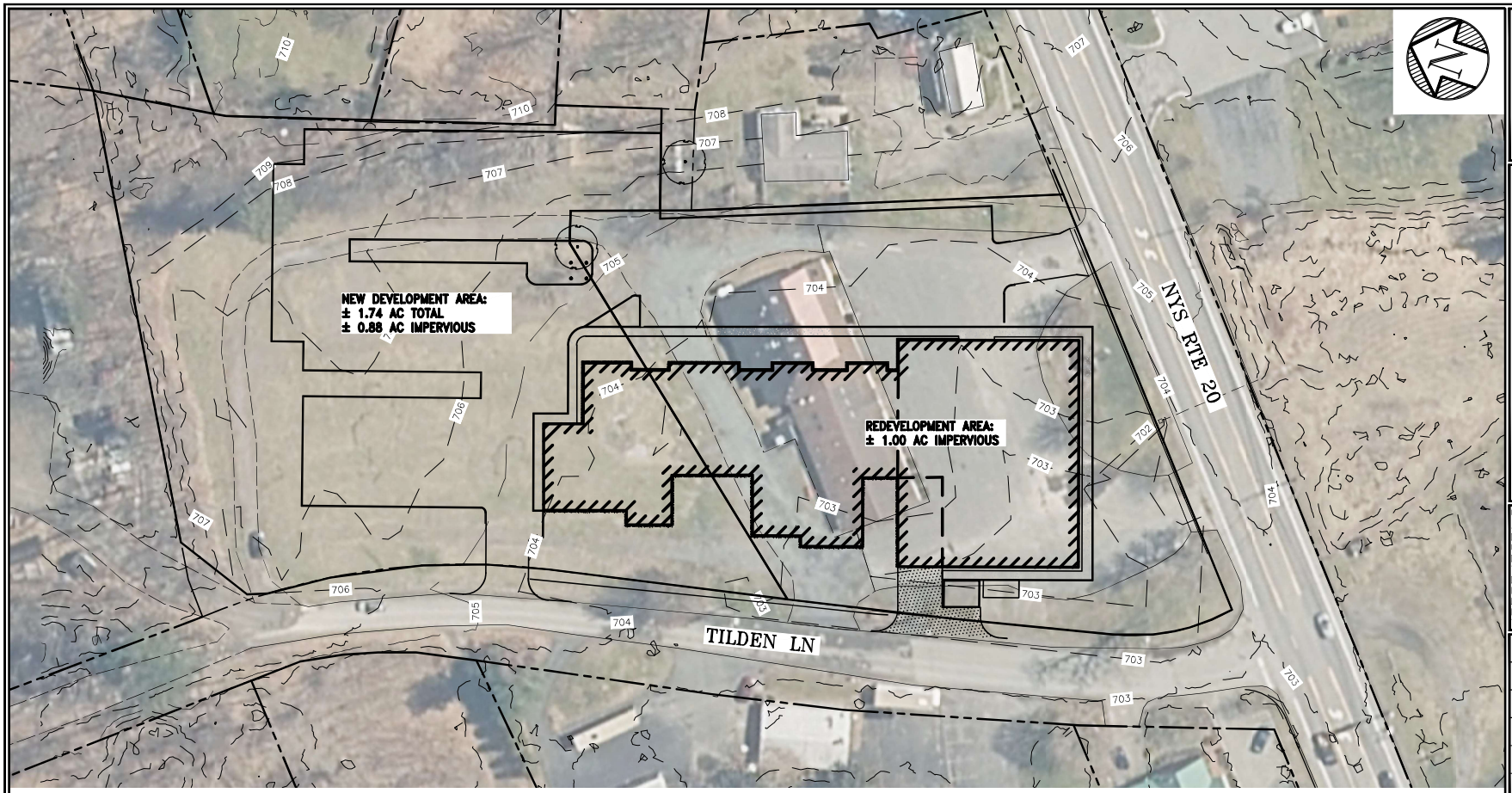
PZ Clerk Rec'd 07.02.25



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COBLESKILL NEW YORK
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FFM GROUP, LLC
538 US ROUTE 30
NEW LEBANON
COLUMBIA COUNTY NEW YORK STATE

Project Number	2024125
Drawn By	AS
Designed By	AHJ/AS
Checked By	BJB
Date	6/20/25
Scale	1" = 60'
File Name	tilden wshed

Sheet Title

WATERSHED SCHEMATIC REDEVELOPMENT

Sheet No.

4.5

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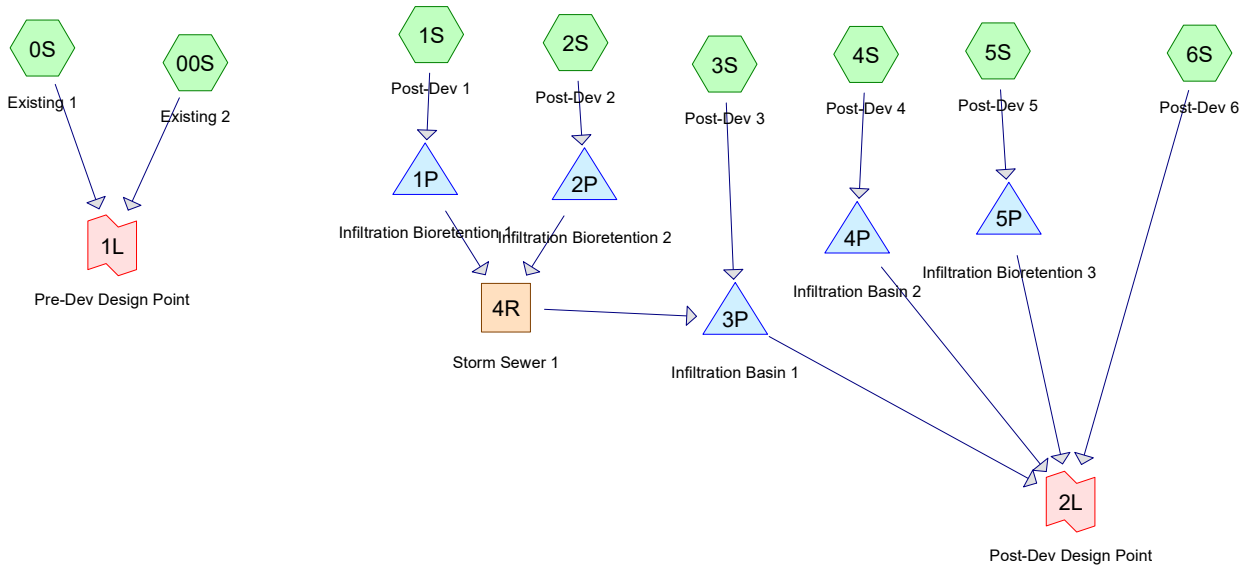


Subcat Reach Pond Link

Routing Diagram for Tilden Hydrology
Prepared by {enter your company name here}, Printed 7/2/2025

Project Notes

Defined 9 rainfall events from NY-Tilden IDF
Copied 9 events from NY-Tilden 24-hr S1 storm

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	NY-Tilden 24-hr S1	1-yr	Default	24.00	1	2.37	2
2	2-yr	NY-Tilden 24-hr S1	2-yr	Default	24.00	1	2.78	2
3	10-yr	NY-Tilden 24-hr S1	10-yr	Default	24.00	1	4.09	2
4	100-yr	NY-Tilden 24-hr S1	100-yr	Default	24.00	1	7.14	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.198	79	<50% Grass cover, Poor, HSG B (00S)
2.461	61	>75% Grass cover, Good, HSG B (0S, 1S, 2S, 3S, 4S, 5S, 6S)
0.378	98	Building & Sidewalks (4S, 5S)
0.049	98	Ex. Impervious (Off-Site) (00S)
0.105	98	Ex. Impervious (On-Site) (00S)
0.250	98	Existing Impervious (Off-Site) (0S)
1.077	98	Existing Impervious (On-Site) (0S)
0.288	98	Off-Site Impervious (6S)
0.762	98	On-Site Impervious (6S)
0.797	98	Parking (1S, 2S, 3S)
0.563	58	Woods/grass comb., Good, HSG B (00S)
7.927	**81**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
4.222	HSG B	0S, 00S, 1S, 2S, 3S, 4S, 5S, 6S
0.000	HSG C	
0.000	HSG D	
3.706	Other	0S, 00S, 1S, 2S, 3S, 4S, 5S, 6S
7.927		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	1.198	0.000	0.000	0.000	1.198	<50% Grass cover, Poor	00S
0.000	2.461	0.000	0.000	0.000	2.461	>75% Grass cover, Good	0S, 1S, 2S, 3S, 4S, 5S, 6S
0.000	0.000	0.000	0.000	0.378	0.378	Building & Sidewalks	4S, 5S
0.000	0.000	0.000	0.000	0.049	0.049	Ex. Impervious (Off-Site)	00S
0.000	0.000	0.000	0.000	0.105	0.105	Ex. Impervious (On-Site)	00S
0.000	0.000	0.000	0.000	0.250	0.250	Existing Impervious (Off-Site)	0S
0.000	0.000	0.000	0.000	1.077	1.077	Existing Impervious (On-Site)	0S
0.000	0.000	0.000	0.000	0.288	0.288	Off-Site Impervious	6S
0.000	0.000	0.000	0.000	0.762	0.762	On-Site Impervious	6S
0.000	0.000	0.000	0.000	0.797	0.797	Parking	1S, 2S, 3S
0.000	0.563	0.000	0.000	0.000	0.563	Woods/grass comb., Good	00S
0.000	**4.222**	**0.000**	**0.000**	**3.706**	**7.927**	**TOTAL AREA**	

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	4R	704.75	703.25	153.0	0.0098	0.012	0.0	12.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 0S: Existing 1 Runoff Area=90,141 sf 64.11% Impervious Runoff Depth>0.97"
Tc=6.0 min CN=85 Runoff=2.99 cfs 0.167 af

Subcatchment 00S: Existing 2 Runoff Area=1.915 ac 8.04% Impervious Runoff Depth>0.46"
Flow Length=675' Tc=29.7 min CN=74 Runoff=0.57 cfs 0.073 af

Subcatchment 1S: Post-Dev 1 Runoff Area=0.370 ac 67.57% Impervious Runoff Depth>1.03"
Tc=6.0 min CN=86 Runoff=0.57 cfs 0.032 af

Subcatchment 2S: Post-Dev 2 Runoff Area=0.270 ac 88.89% Impervious Runoff Depth>1.61"
Tc=6.0 min CN=94 Runoff=0.63 cfs 0.036 af

Subcatchment 3S: Post-Dev 3 Runoff Area=1.055 ac 29.10% Impervious Runoff Depth>0.39"
Flow Length=150' Slope=0.0100 '/' Tc=21.4 min CN=72 Runoff=0.29 cfs 0.035 af

Subcatchment 4S: Post-Dev 4 Runoff Area=0.300 ac 83.33% Impervious Runoff Depth>1.45"
Tc=6.0 min CN=92 Runoff=0.64 cfs 0.036 af

Subcatchment 5S: Post-Dev 5 Runoff Area=0.148 ac 86.49% Impervious Runoff Depth>1.53"
Tc=6.0 min CN=93 Runoff=0.33 cfs 0.019 af

Subcatchment 6S: Post-Dev 6 Runoff Area=1.800 ac 58.33% Impervious Runoff Depth>0.86"
Tc=6.0 min CN=83 Runoff=2.28 cfs 0.129 af

Reach 4R: Storm Sewer 1 Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
12.0" Round Pipe n=0.012 L=153.0' S=0.0098 '/' Capacity=3.82 cfs Outflow=0.00 cfs 0.000 af

Pond 1P: Infiltration Bioretention 1 Peak Elev=706.48' Storage=411 cf Inflow=0.57 cfs 0.032 af
Discarded=0.11 cfs 0.032 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.032 af

Pond 2P: Infiltration Bioretention 2 Peak Elev=705.11' Storage=473 cf Inflow=0.63 cfs 0.036 af
Discarded=0.11 cfs 0.036 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.036 af

Pond 3P: Infiltration Basin 1 Peak Elev=703.30' Storage=314 cf Inflow=0.29 cfs 0.035 af
Discarded=0.11 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.034 af

Pond 4P: Infiltration Basin 2 Peak Elev=704.98' Storage=460 cf Inflow=0.64 cfs 0.036 af
Discarded=0.10 cfs 0.036 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.036 af

Pond 5P: Infiltration Bioretention 3 Peak Elev=702.00' Storage=215 cf Inflow=0.33 cfs 0.019 af
Discarded=0.07 cfs 0.019 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.019 af

Link 1L: Pre-Dev Design Point Inflow=3.08 cfs 0.240 af
Primary=3.08 cfs 0.240 af

Link 2L: Post-Dev Design Point Inflow=2.28 cfs 0.129 af
Primary=2.28 cfs 0.129 af

Total Runoff Area = 7.927 ac Runoff Volume = 0.527 af Average Runoff Depth = 0.80"
53.25% Pervious = 4.222 ac 46.75% Impervious = 3.706 ac

Summary for Subcatchment 0S: Existing 1

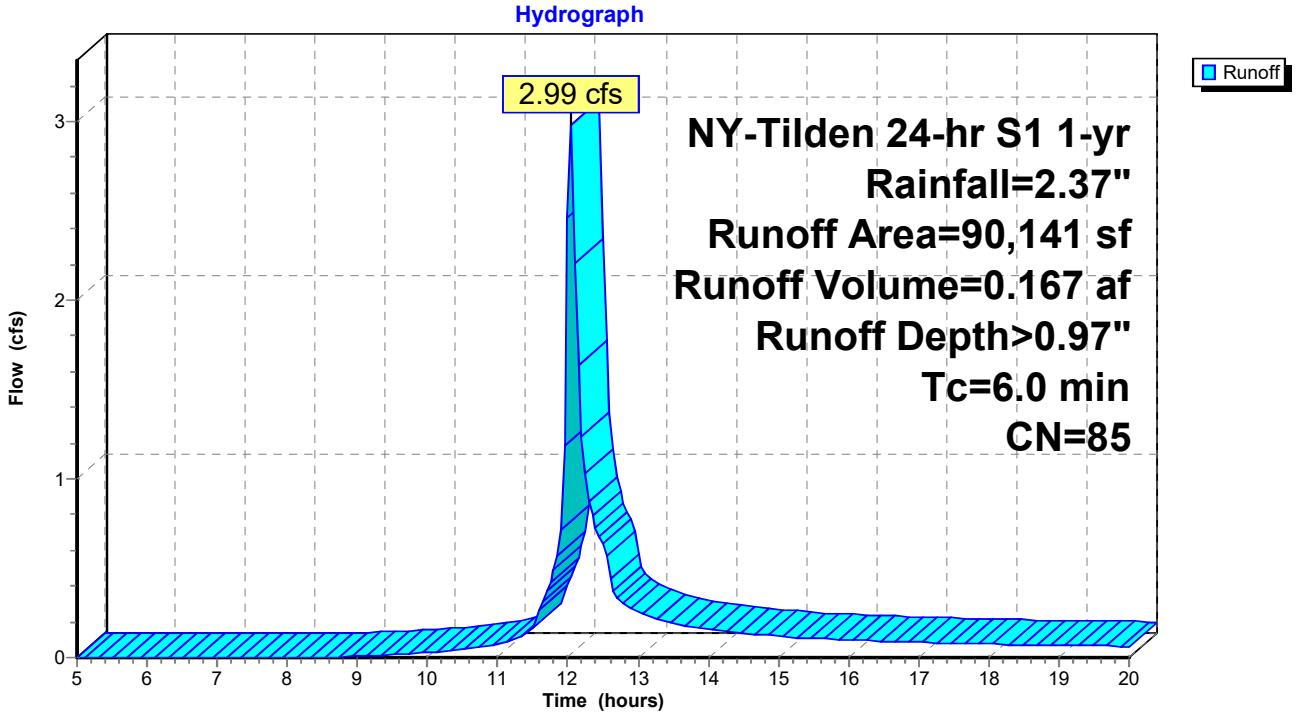
Runoff = 2.99 cfs @ 12.05 hrs, Volume= 0.167 af, Depth> 0.97"
Routed to Link 1L : Pre-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

	Area (sf)	CN	Description
*	46,902	98	Existing Impervious (On-Site)
*	10,889	98	Existing Impervious (Off-Site)
	32,350	61	>75% Grass cover, Good, HSG B
	90,141	85	Weighted Average
	32,350		35.89% Pervious Area
	57,791		64.11% Impervious Area

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

Subcatchment 0S: Existing 1



Summary for Subcatchment 00S: Existing 2

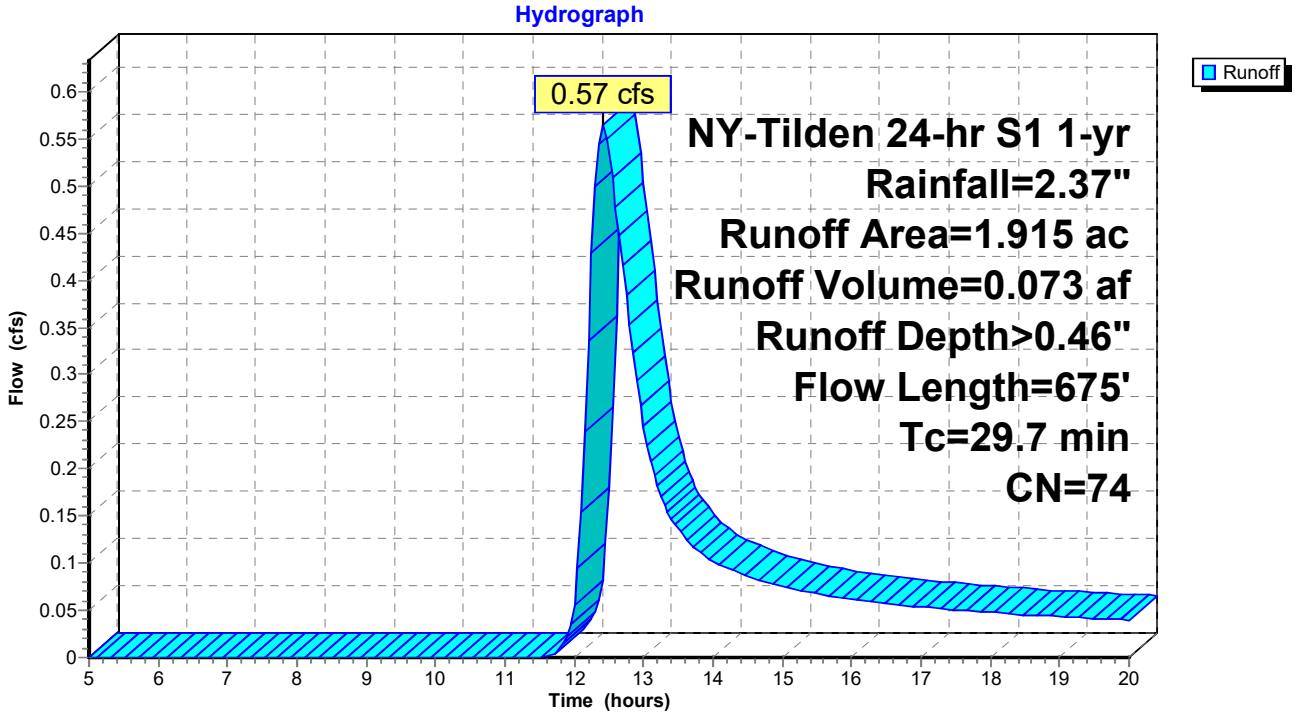
Runoff = 0.57 cfs @ 12.42 hrs, Volume= 0.073 af, Depth> 0.46"
Routed to Link 1L : Pre-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

	Area (ac)	CN	Description
*	0.049	98	Ex. Impervious (Off-Site)
*	0.105	98	Ex. Impervious (On-Site)
	1.198	79	<50% Grass cover, Poor, HSG B
	0.563	58	Woods/grass comb., Good, HSG B
	1.915	74	Weighted Average
	1.761		91.96% Pervious Area
	0.154		8.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.2	150	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.78"
9.0	380	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	145	0.0060	1.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
29.7	675	Total			

Subcatchment 00S: Existing 2



Summary for Subcatchment 1S: Post-Dev 1

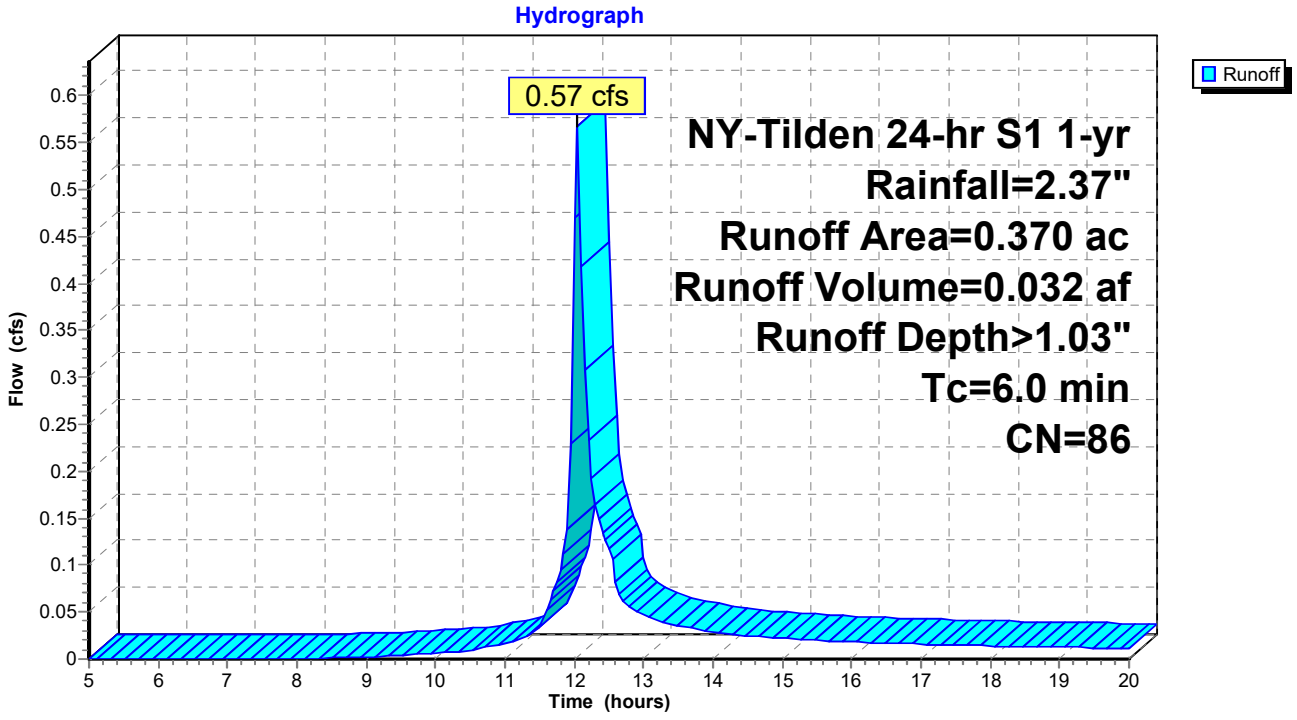
Runoff = 0.57 cfs @ 12.04 hrs, Volume= 0.032 af, Depth> 1.03"
Routed to Pond 1P : Infiltration Bioretention 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

	Area (ac)	CN	Description
*	0.250	98	Parking
	0.120	61	>75% Grass cover, Good, HSG B
	0.370	86	Weighted Average
	0.120		32.43% Pervious Area
	0.250		67.57% Impervious Area

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

Subcatchment 1S: Post-Dev 1



Summary for Subcatchment 2S: Post-Dev 2

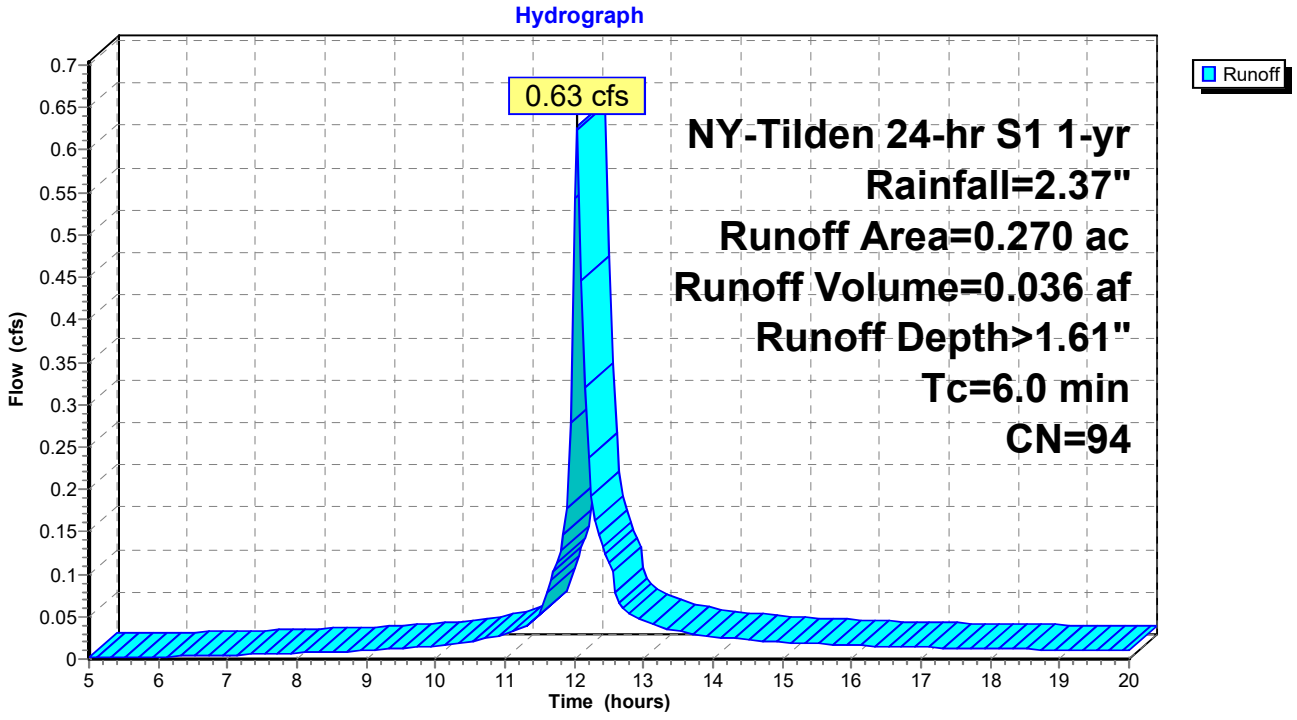
Runoff = 0.63 cfs @ 12.04 hrs, Volume= 0.036 af, Depth> 1.61"
Routed to Pond 2P : Infiltration Bioretention 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

	Area (ac)	CN	Description
*	0.240	98	Parking
	0.030	61	>75% Grass cover, Good, HSG B
	0.270	94	Weighted Average
	0.030		11.11% Pervious Area
	0.240		88.89% Impervious Area

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

Subcatchment 2S: Post-Dev 2



Summary for Subcatchment 3S: Post-Dev 3

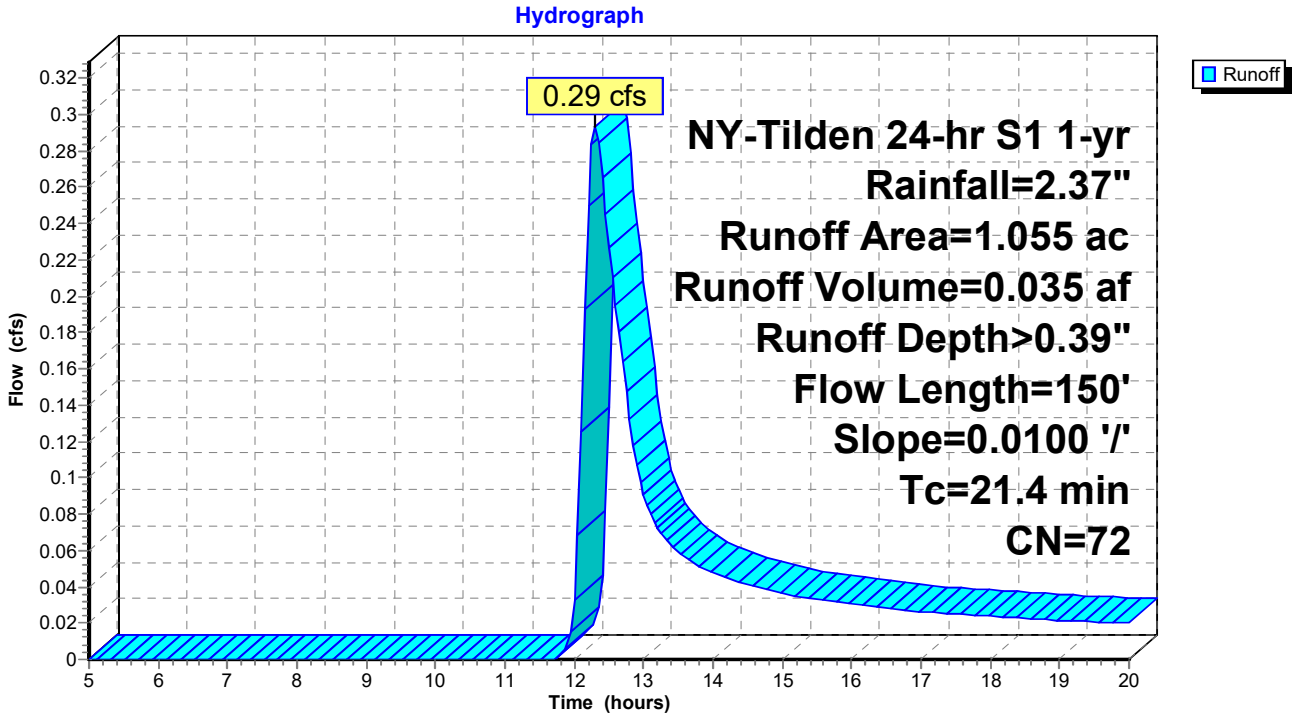
Runoff = 0.29 cfs @ 12.30 hrs, Volume= 0.035 af, Depth> 0.39"
Routed to Pond 3P : Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

	Area (ac)	CN	Description
*	0.307	98	Parking
	0.748	61	>75% Grass cover, Good, HSG B
	1.055	72	Weighted Average
	0.748		70.90% Pervious Area
	0.307		29.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.78"
1.2	50	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.4	150	Total			

Subcatchment 3S: Post-Dev 3



Summary for Subcatchment 4S: Post-Dev 4

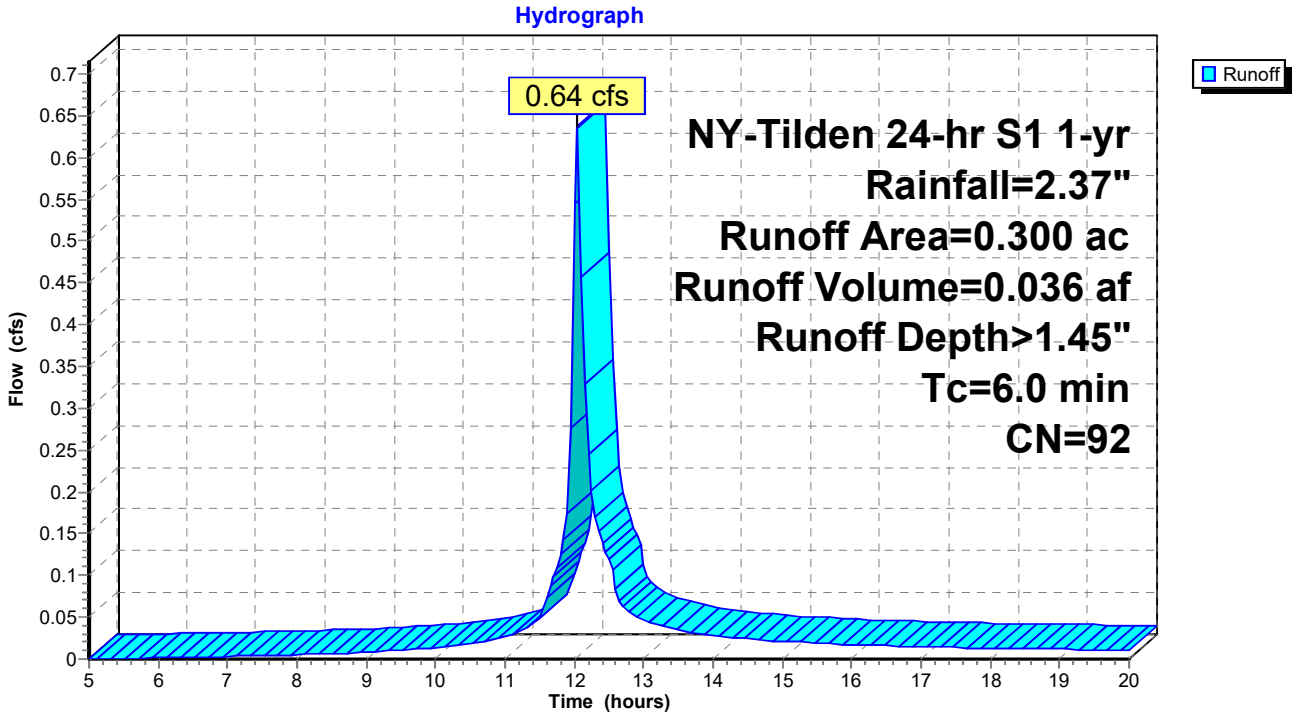
Runoff = 0.64 cfs @ 12.04 hrs, Volume= 0.036 af, Depth> 1.45"
Routed to Pond 4P : Infiltration Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

	Area (ac)	CN	Description
*	0.250	98	Building & Sidewalks
	0.050	61	>75% Grass cover, Good, HSG B
	0.300	92	Weighted Average
	0.050		16.67% Pervious Area
	0.250		83.33% Impervious Area

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

Subcatchment 4S: Post-Dev 4



Summary for Subcatchment 5S: Post-Dev 5

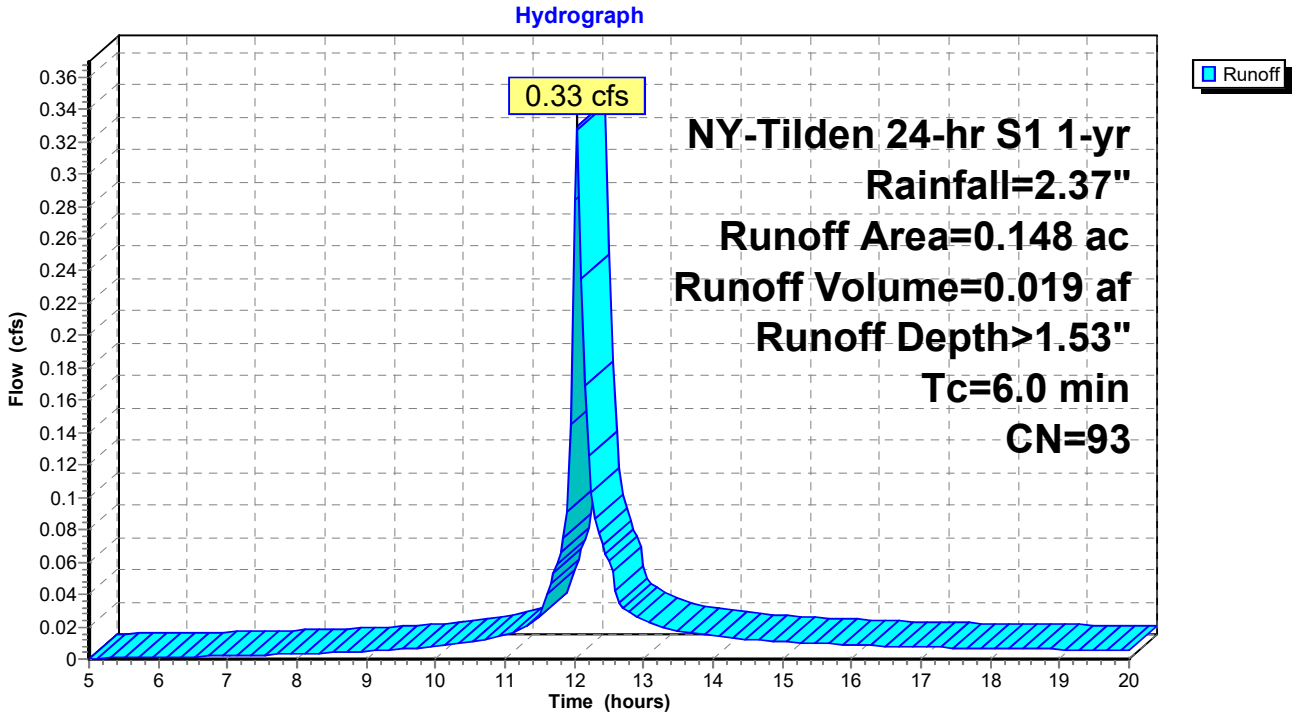
Runoff = 0.33 cfs @ 12.04 hrs, Volume= 0.019 af, Depth> 1.53"
Routed to Pond 5P : Infiltration Bioretention 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

	Area (ac)	CN	Description
*	0.128	98	Building & Sidewalks
	0.020	61	>75% Grass cover, Good, HSG B
	0.148	93	Weighted Average
	0.020		13.51% Pervious Area
	0.128		86.49% Impervious Area

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

Subcatchment 5S: Post-Dev 5



Summary for Subcatchment 6S: Post-Dev 6

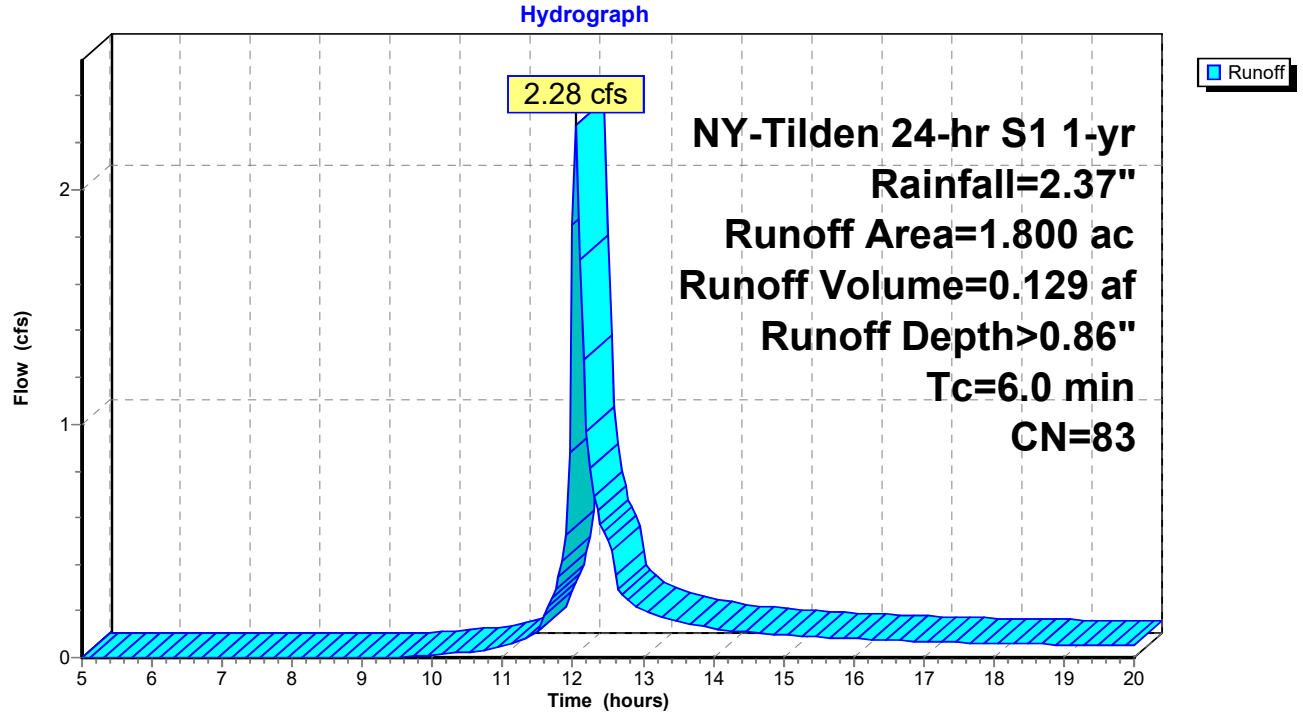
Runoff = 2.28 cfs @ 12.05 hrs, Volume= 0.129 af, Depth> 0.86"
Routed to Link 2L : Post-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

	Area (ac)	CN	Description
*	0.762	98	On-Site Impervious
*	0.288	98	Off-Site Impervious
	0.750	61	>75% Grass cover, Good, HSG B
	1.800	83	Weighted Average
	0.750		41.67% Pervious Area
	1.050		58.33% Impervious Area

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

Subcatchment 6S: Post-Dev 6



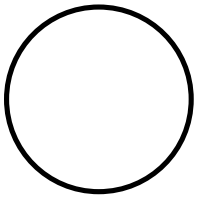
Summary for Reach 4R: Storm Sewer 1

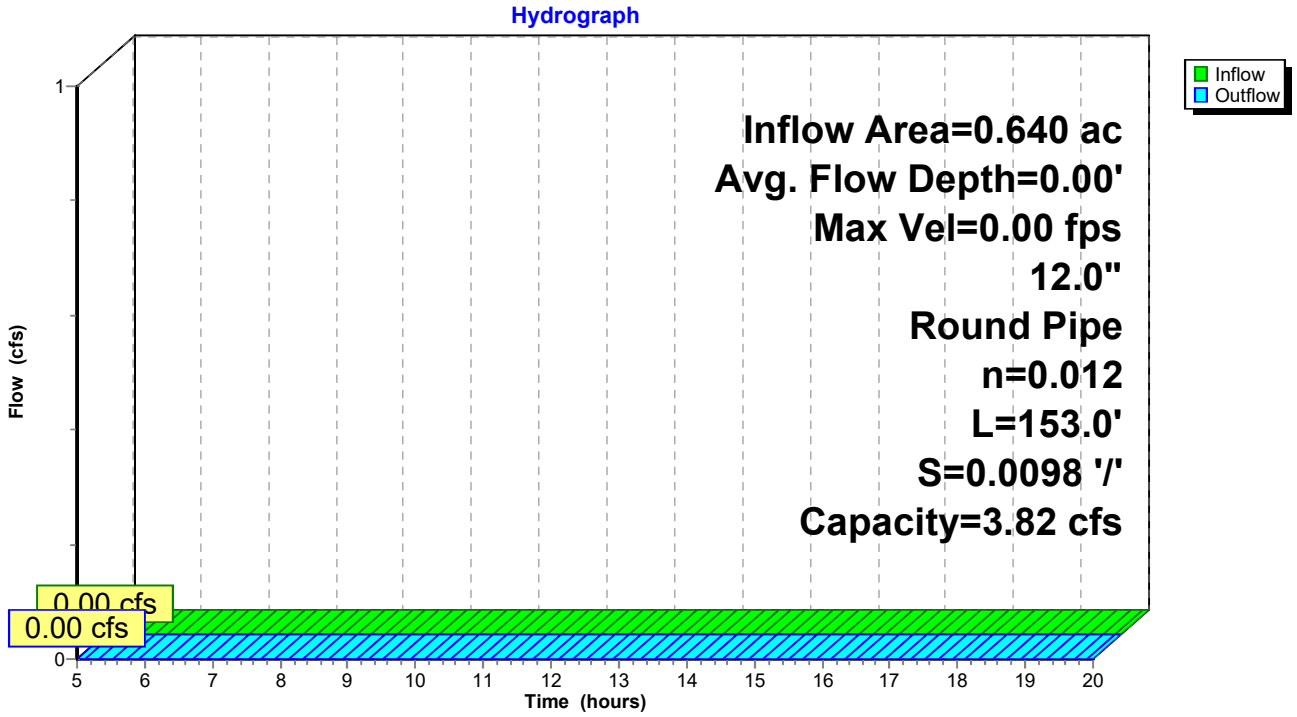
Inflow Area = 0.640 ac, 76.56% Impervious, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 3P : Infiltration Basin 1

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

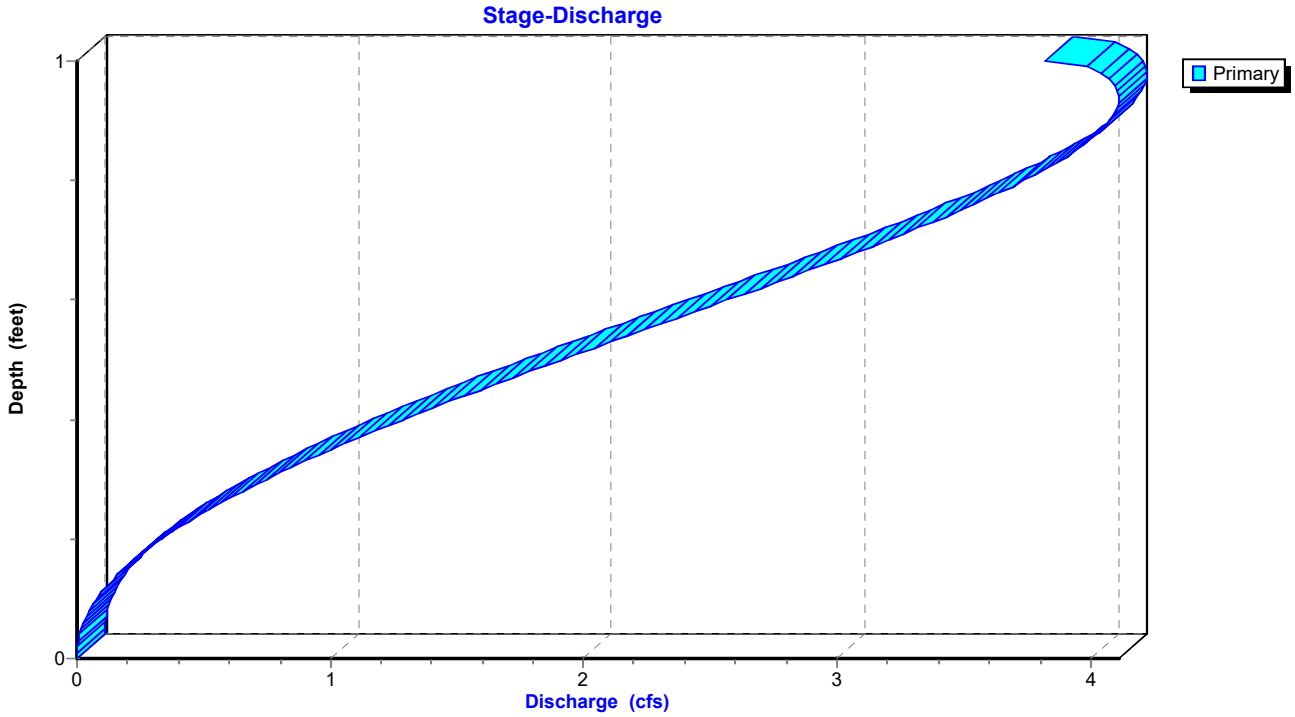
Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.82 cfs

12.0" Round Pipe
n= 0.012
Length= 153.0' Slope= 0.0098 '/'
Inlet Invert= 704.75', Outlet Invert= 703.25'

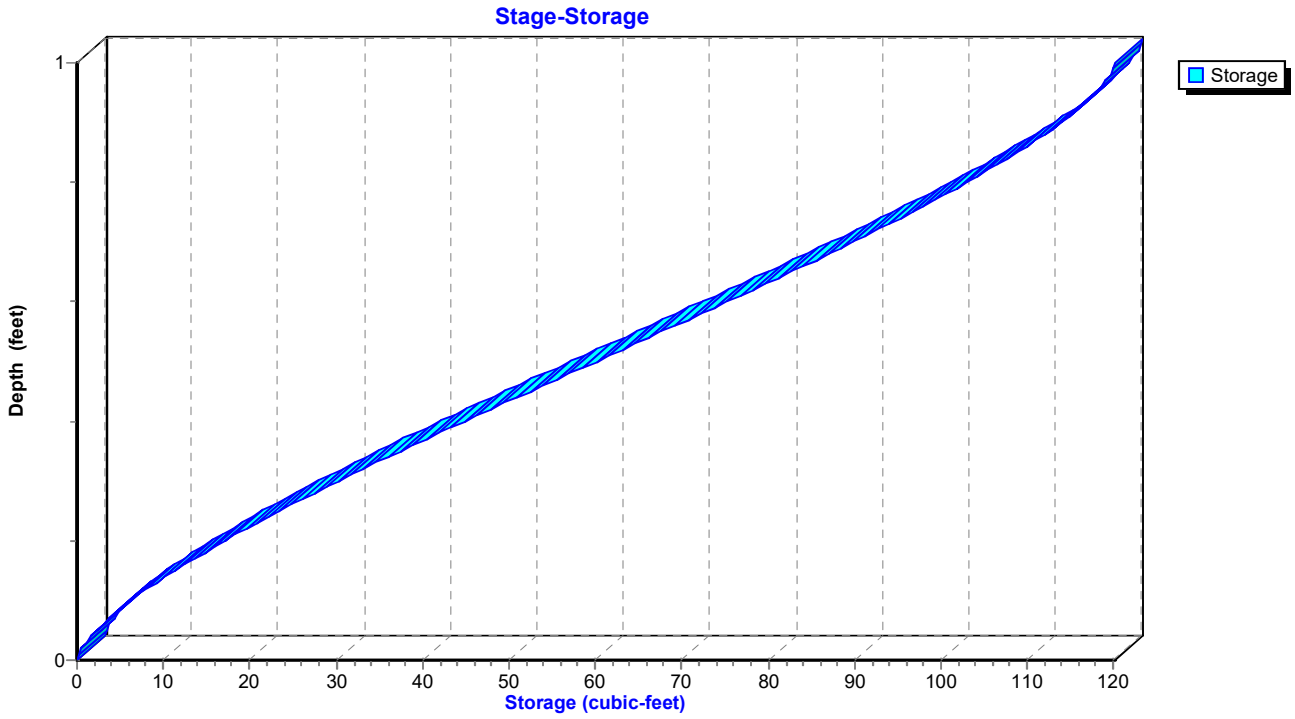




Reach 4R: Storm Sewer 1



Reach 4R: Storm Sewer 1



Summary for Pond 1P: Infiltration Bioretention 1

Inflow Area = 0.370 ac, 67.57% Impervious, Inflow Depth > 1.03" for 1-yr event
Inflow = 0.57 cfs @ 12.04 hrs, Volume= 0.032 af
Outflow = 0.11 cfs @ 12.54 hrs, Volume= 0.032 af, Atten= 81%, Lag= 29.8 min
Discarded = 0.11 cfs @ 12.54 hrs, Volume= 0.032 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 4R : Storm Sewer 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 706.48' @ 12.54 hrs Surf.Area= 440 sf Storage= 411 cf

Plug-Flow detention time= 31.1 min calculated for 0.032 af (100% of inflow)
Center-of-Mass det. time= 31.0 min (832.3 - 801.3)

Volume	Invert	Avail.Storage	Storage Description
#1	702.74'	1,114 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

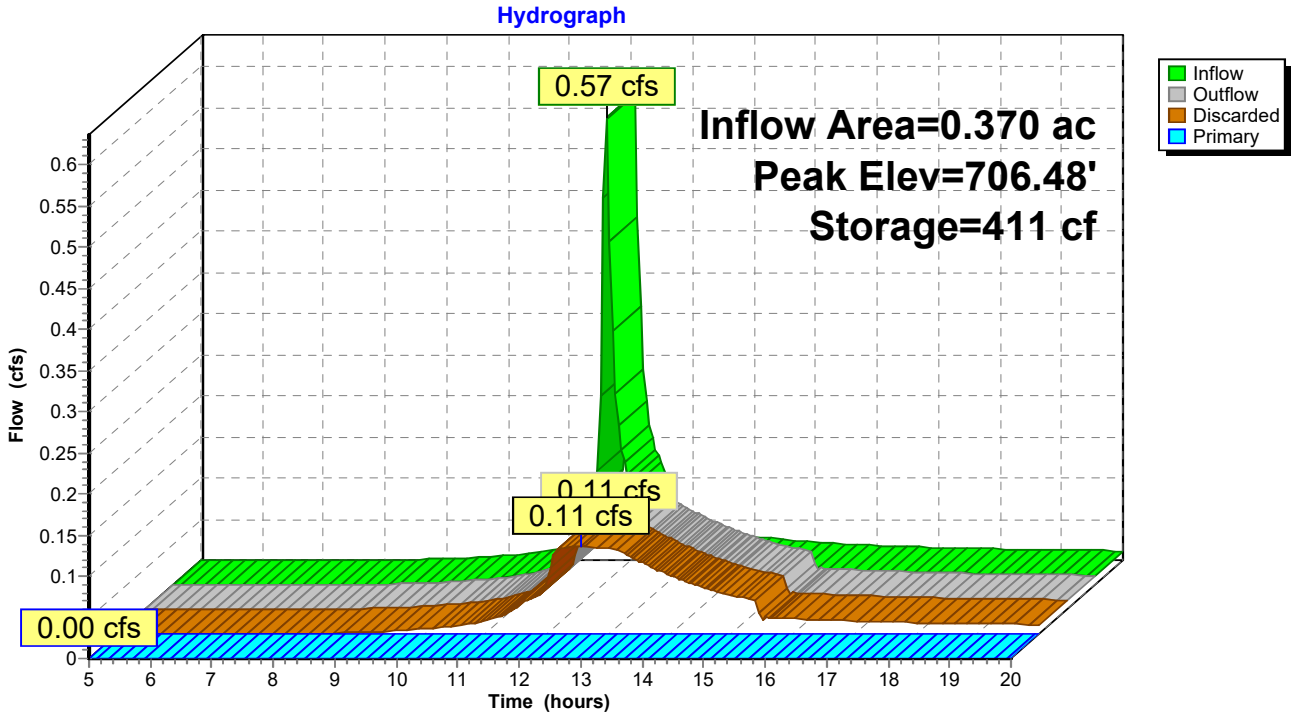
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
702.74	0	0.0	0	0
702.75	440	40.0	1	1
703.75	440	20.0	88	89
706.25	440	20.0	220	309
706.50	440	100.0	110	419
707.50	950	100.0	695	1,114

Device	Routing	Invert	Outlet Devices
#1	Discarded	702.74'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 700.50'
#2	Primary	707.00'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

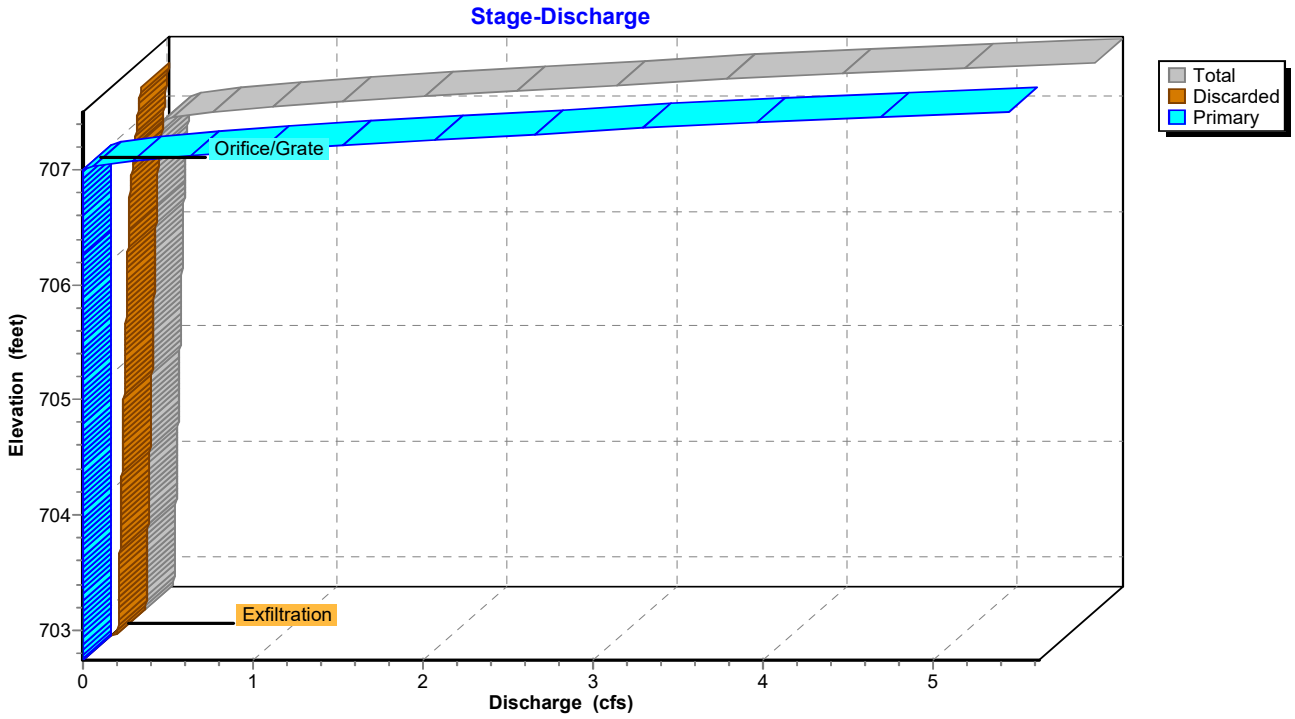
Discarded OutFlow Max=0.11 cfs @ 12.54 hrs HW=706.48' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=702.74' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

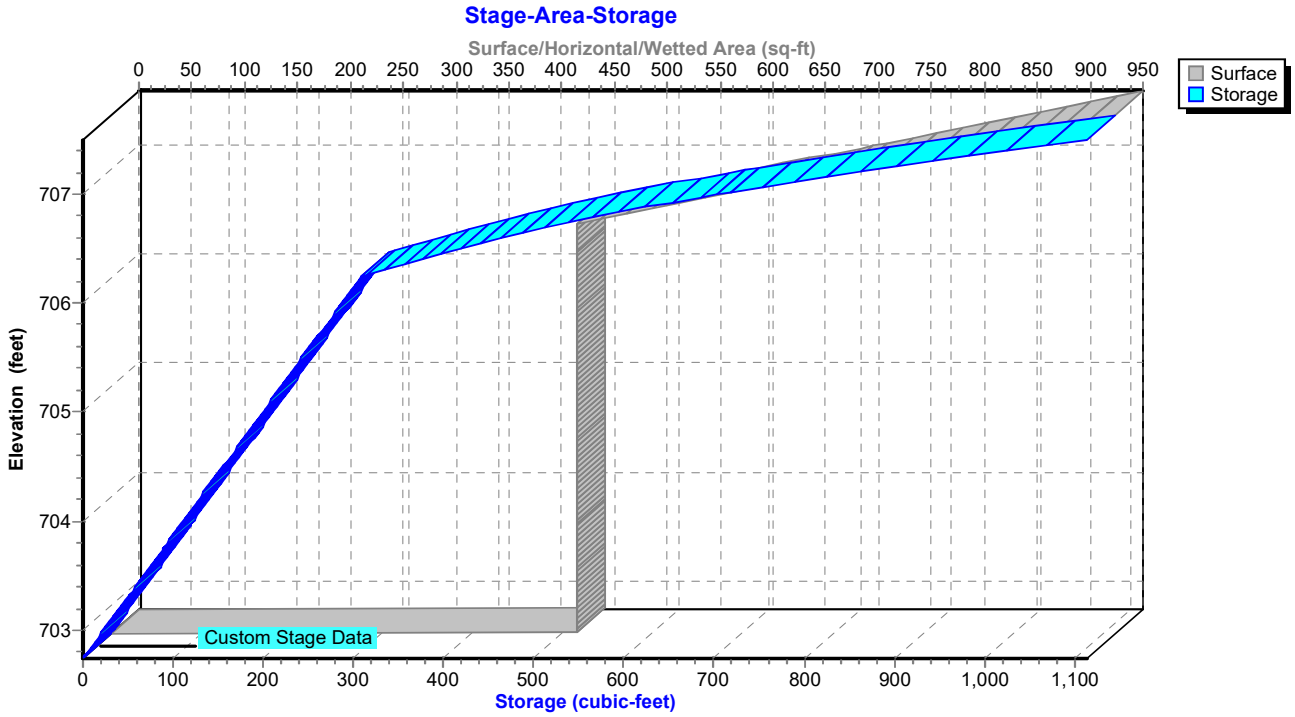
Pond 1P: Infiltration Bioretention 1



Pond 1P: Infiltration Bioretention 1



Pond 1P: Infiltration Bioretention 1



Summary for Pond 2P: Infiltration Bioretention 2

Inflow Area = 0.270 ac, 88.89% Impervious, Inflow Depth > 1.61" for 1-yr event
Inflow = 0.63 cfs @ 12.04 hrs, Volume= 0.036 af
Outflow = 0.11 cfs @ 12.50 hrs, Volume= 0.036 af, Atten= 82%, Lag= 27.3 min
Discarded = 0.11 cfs @ 12.50 hrs, Volume= 0.036 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 4R : Storm Sewer 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 705.11' @ 12.50 hrs Surf.Area= 498 sf Storage= 473 cf

Plug-Flow detention time= 31.9 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 31.7 min (796.8 - 765.1)

Volume	Invert	Avail.Storage	Storage Description
#1	701.24'	1,114 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

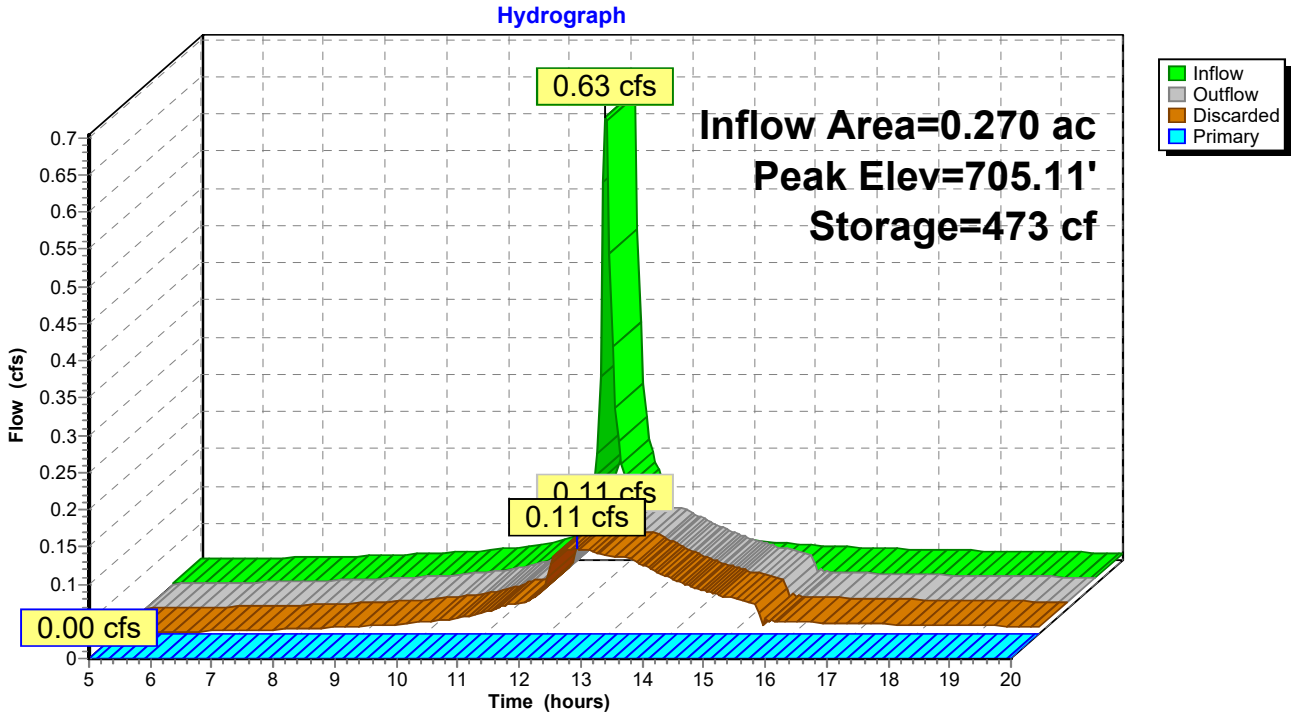
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
701.24	0	0.0	0	0
701.25	440	40.0	1	1
702.25	440	20.0	88	89
704.75	440	20.0	220	309
705.00	440	100.0	110	419
706.00	950	100.0	695	1,114

Device	Routing	Invert	Outlet Devices
#1	Discarded	701.24'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 699.00'
#2	Primary	705.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

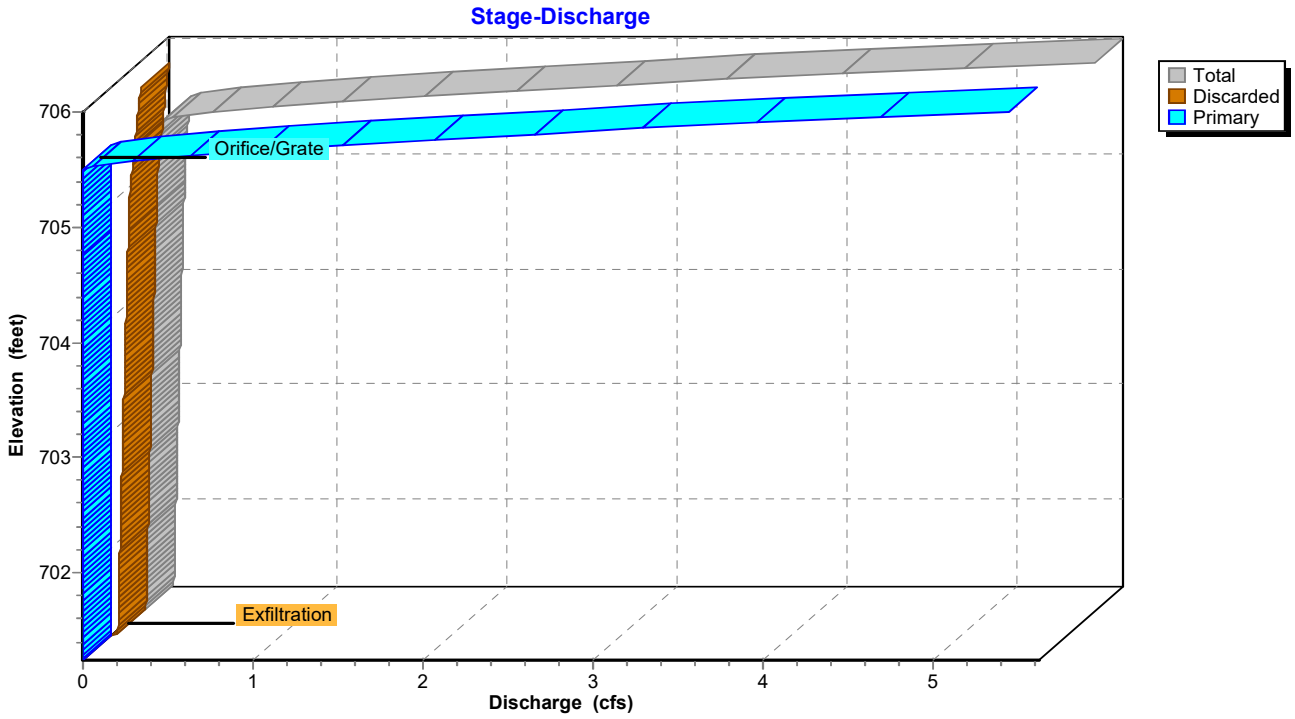
Discarded OutFlow Max=0.11 cfs @ 12.50 hrs HW=705.11' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=701.24' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

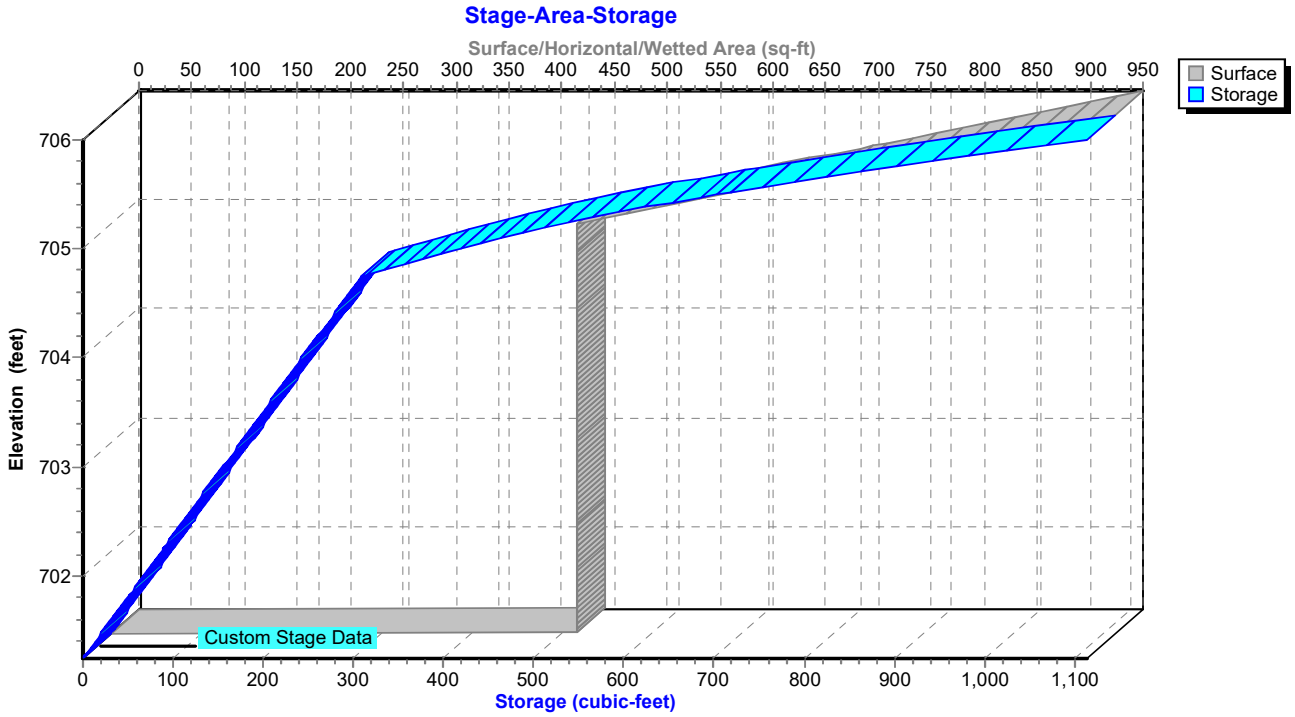
Pond 2P: Infiltration Bioretention 2



Pond 2P: Infiltration Bioretention 2



Pond 2P: Infiltration Bioretention 2



Summary for Pond 3P: Infiltration Basin 1

Inflow Area = 1.695 ac, 47.02% Impervious, Inflow Depth > 0.24" for 1-yr event
Inflow = 0.29 cfs @ 12.30 hrs, Volume= 0.035 af
Outflow = 0.11 cfs @ 12.88 hrs, Volume= 0.034 af, Atten= 62%, Lag= 34.8 min
Discarded = 0.11 cfs @ 12.88 hrs, Volume= 0.034 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 703.30' @ 12.88 hrs Surf.Area= 1,151 sf Storage= 314 cf

Plug-Flow detention time= 21.0 min calculated for 0.034 af (99% of inflow)
Center-of-Mass det. time= 20.0 min (877.9 - 858.0)

Volume	Invert	Avail.Storage	Storage Description
#1	703.00'	3,250 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

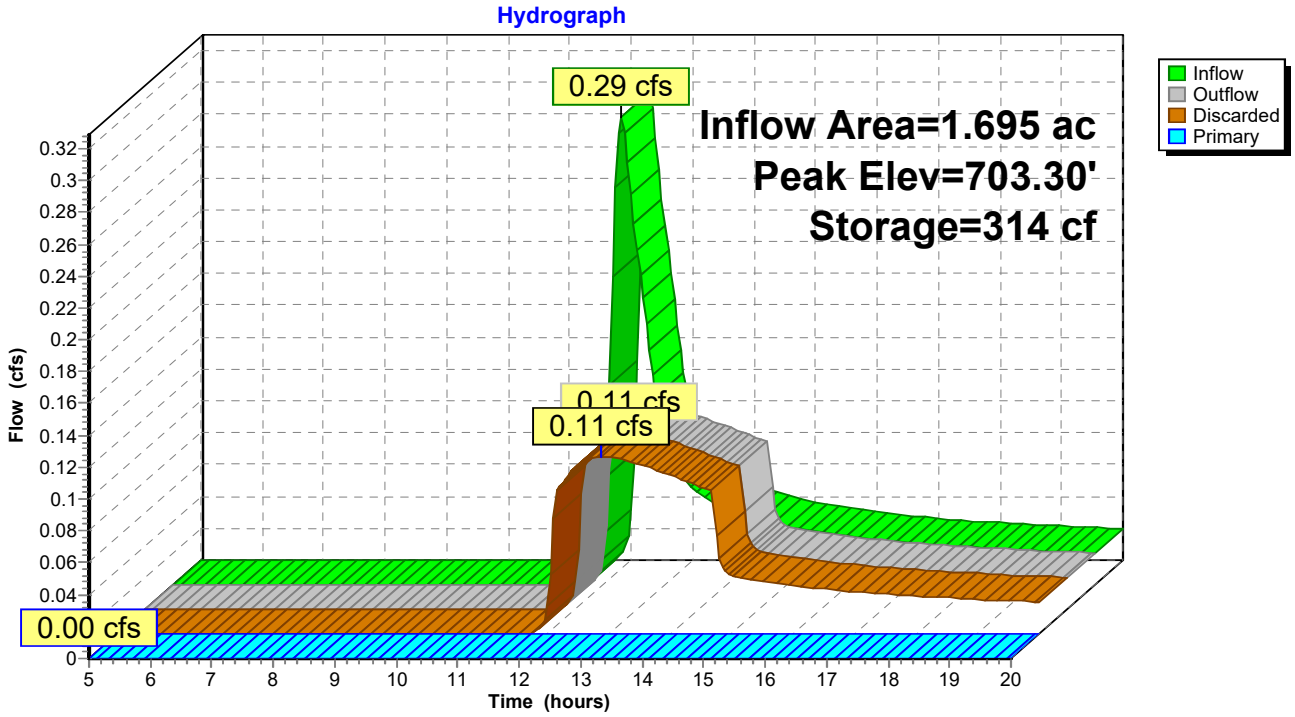
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
703.00	950	0	0
705.00	2,300	3,250	3,250

Device	Routing	Invert	Outlet Devices
#1	Discarded	703.00'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 697.00'
#2	Primary	704.50'	**8.0' long + 3.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

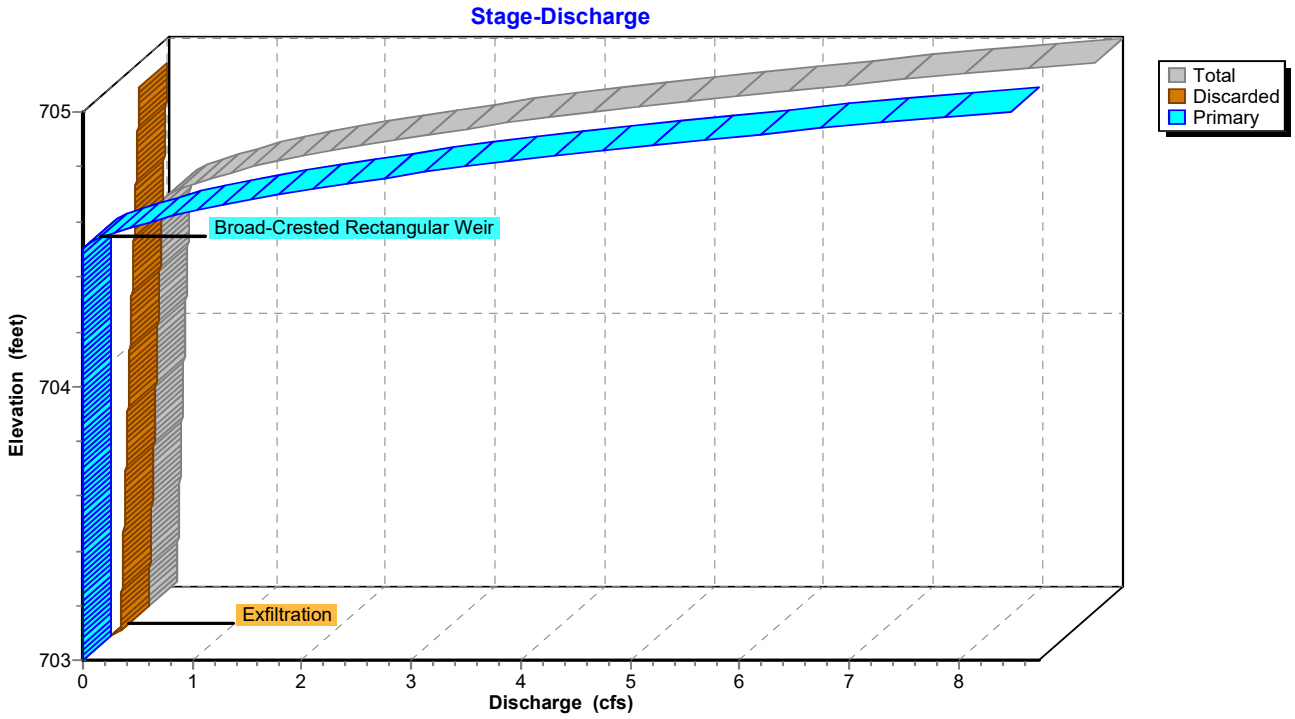
Discarded OutFlow Max=0.11 cfs @ 12.88 hrs HW=703.30' (Free Discharge)
1=Exfiltration (Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=703.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

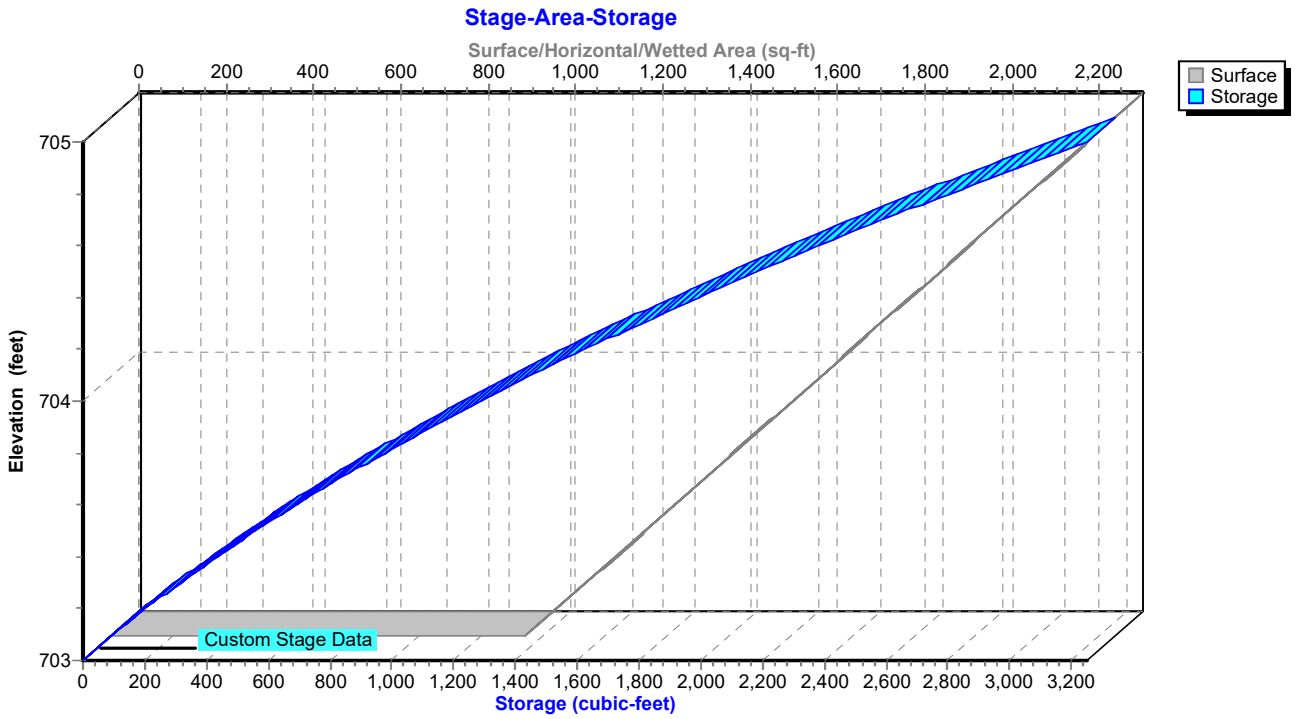
Pond 3P: Infiltration Basin 1



Pond 3P: Infiltration Basin 1



Pond 3P: Infiltration Basin 1



Summary for Pond 4P: Infiltration Basin 2

Inflow Area = 0.300 ac, 83.33% Impervious, Inflow Depth > 1.45" for 1-yr event
Inflow = 0.64 cfs @ 12.04 hrs, Volume= 0.036 af
Outflow = 0.10 cfs @ 12.55 hrs, Volume= 0.036 af, Atten= 84%, Lag= 30.5 min
Discarded = 0.10 cfs @ 12.55 hrs, Volume= 0.036 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 704.98' @ 12.55 hrs Surf.Area= 1,055 sf Storage= 460 cf

Plug-Flow detention time= 31.1 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 30.4 min (806.3 - 775.9)

Volume	Invert	Avail.Storage	Storage Description
#1	704.50'	2,550 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

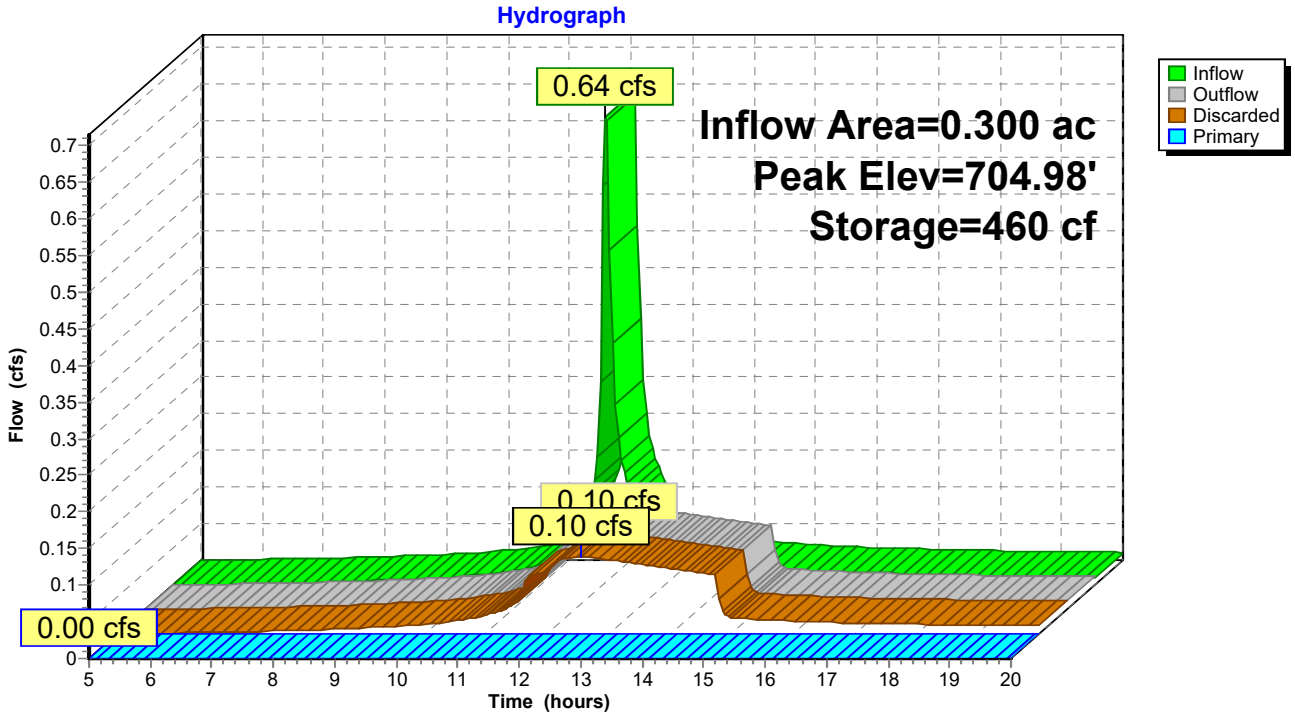
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
704.50	850	0	0
706.50	1,700	2,550	2,550

Device	Routing	Invert	Outlet Devices
#1	Discarded	704.50'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 698.50'
#2	Primary	706.00'	**5.0' long + 3.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

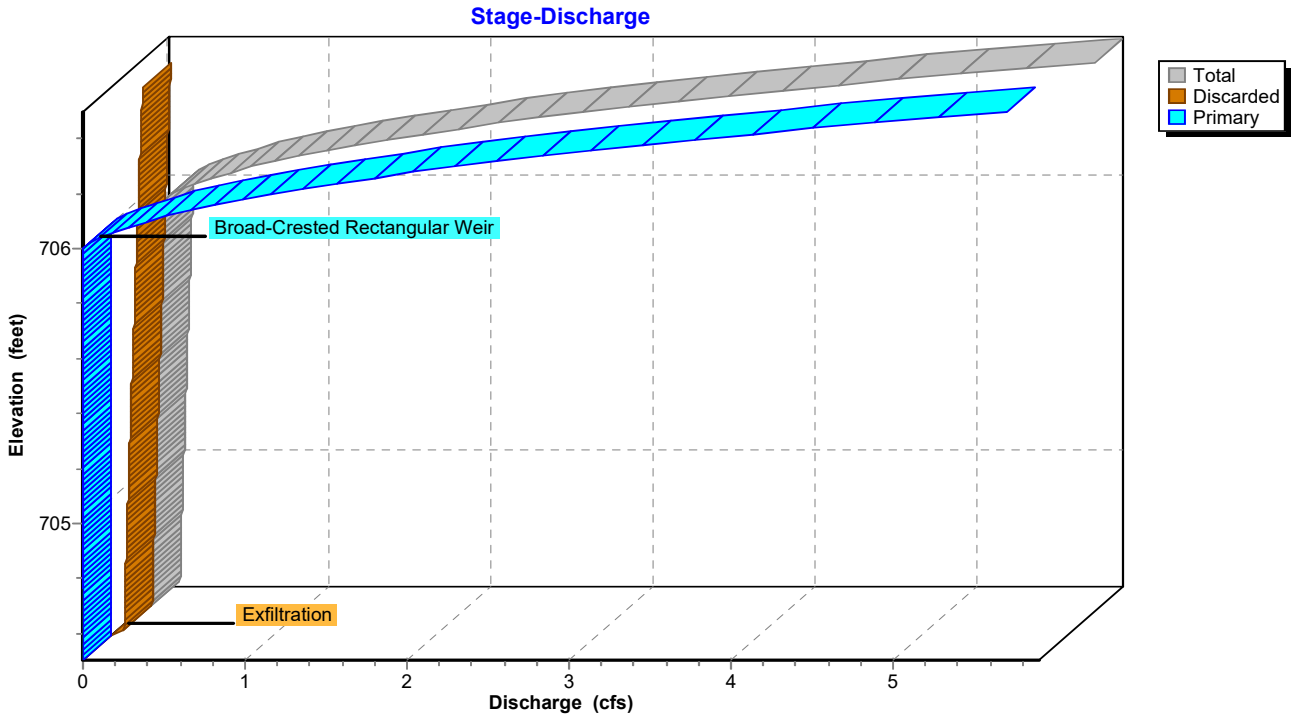
Discarded OutFlow Max=0.10 cfs @ 12.55 hrs HW=704.98' (Free Discharge)
1=Exfiltration (Controls 0.10 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=704.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

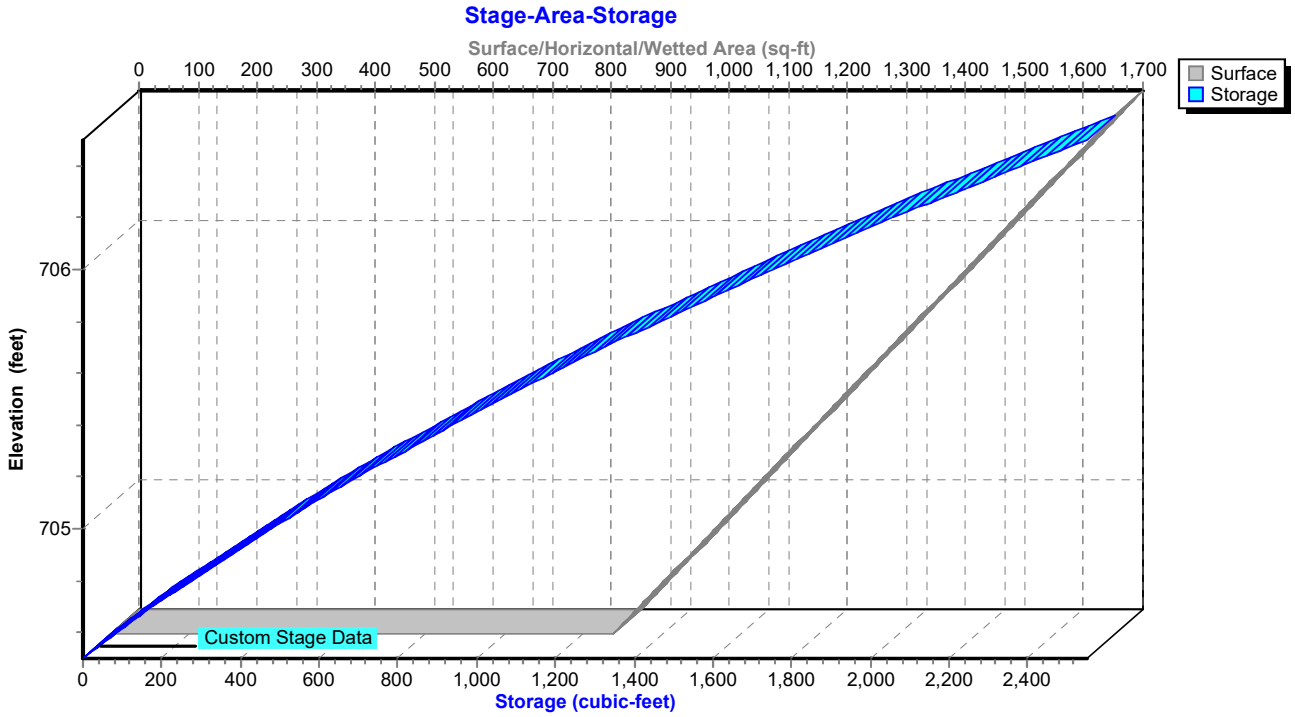
Pond 4P: Infiltration Basin 2



Pond 4P: Infiltration Basin 2



Pond 4P: Infiltration Basin 2



Summary for Pond 5P: Infiltration Bioretention 3

Inflow Area = 0.148 ac, 86.49% Impervious, Inflow Depth > 1.53" for 1-yr event
Inflow = 0.33 cfs @ 12.04 hrs, Volume= 0.019 af
Outflow = 0.07 cfs @ 12.38 hrs, Volume= 0.019 af, Atten= 78%, Lag= 20.3 min
Discarded = 0.07 cfs @ 12.38 hrs, Volume= 0.019 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 702.00' @ 12.38 hrs Surf.Area= 330 sf Storage= 215 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 22.0 min (792.5 - 770.6)

Volume	Invert	Avail.Storage	Storage Description
#1	698.74'	779 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

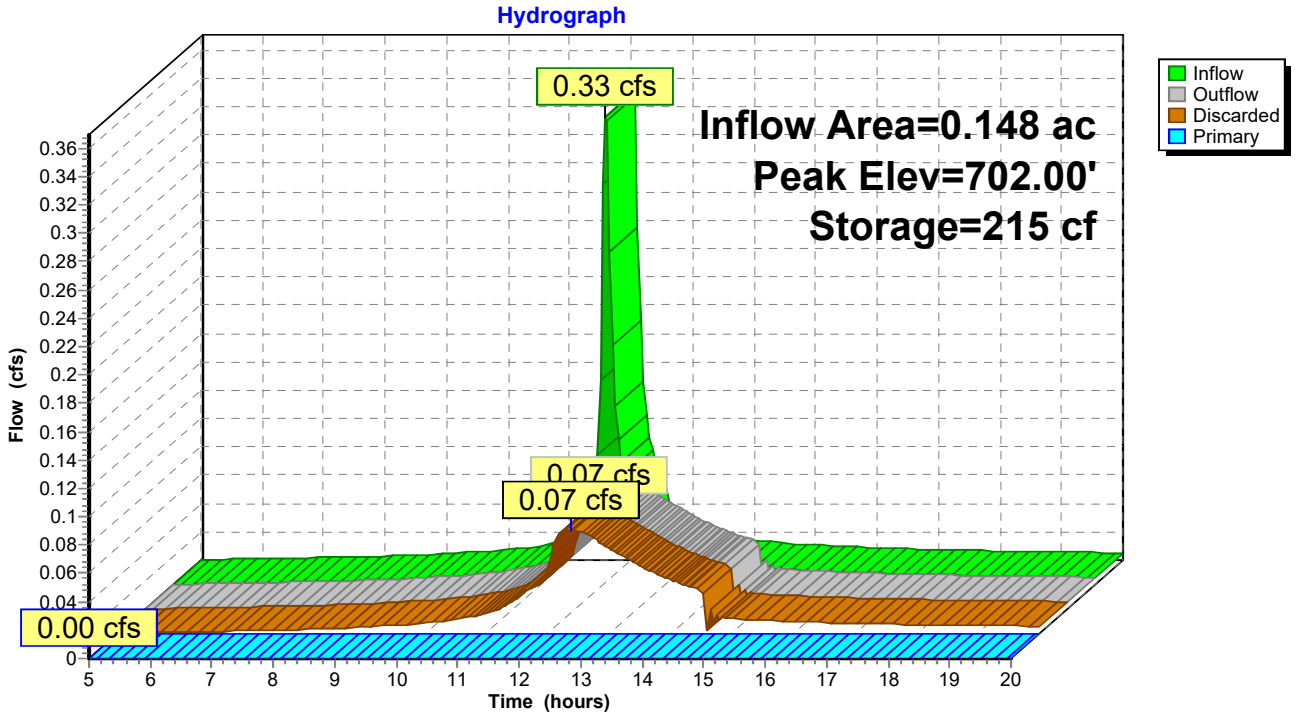
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
698.74	0	0.0	0	0
698.75	330	40.0	1	1
699.75	330	20.0	66	67
702.25	330	20.0	165	232
702.50	330	100.0	83	314
703.50	600	100.0	465	779

Device	Routing	Invert	Outlet Devices
#1	Discarded	698.74'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 696.50'
#2	Primary	703.00'	**5.0' long + 1.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

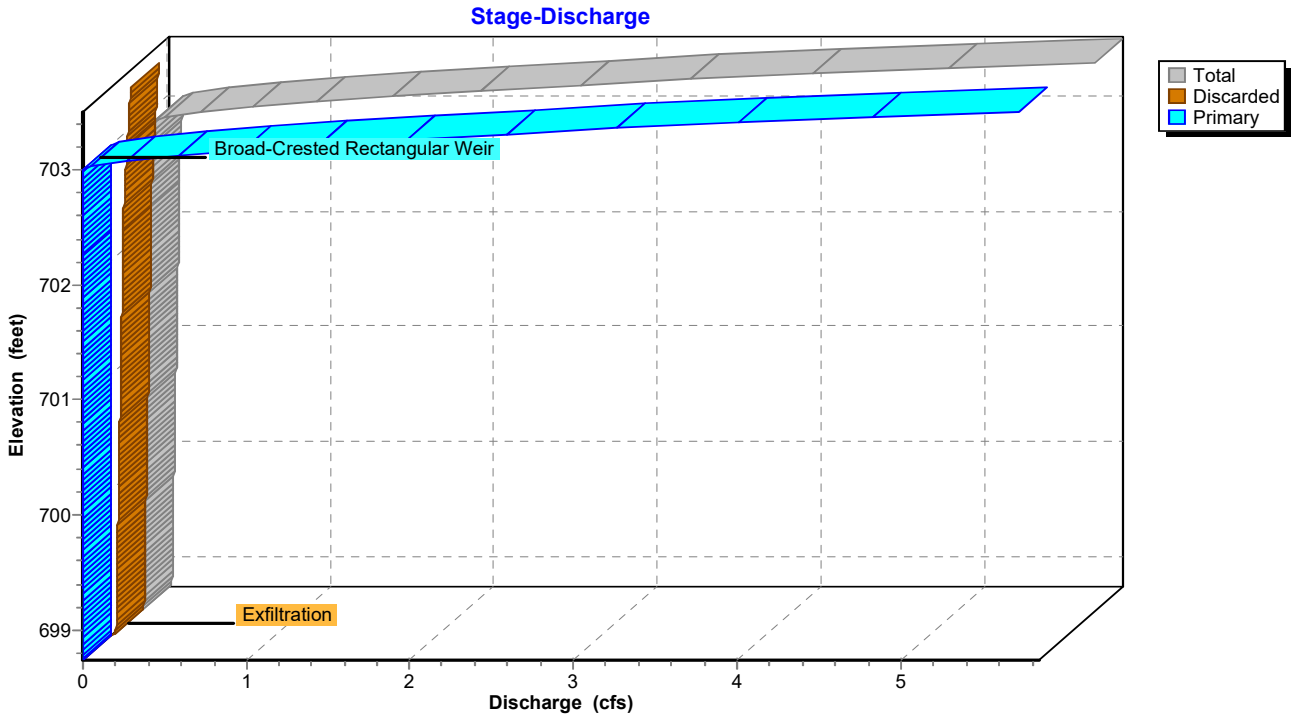
Discarded OutFlow Max=0.07 cfs @ 12.38 hrs HW=702.00' (Free Discharge)
↑**1=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=698.74' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

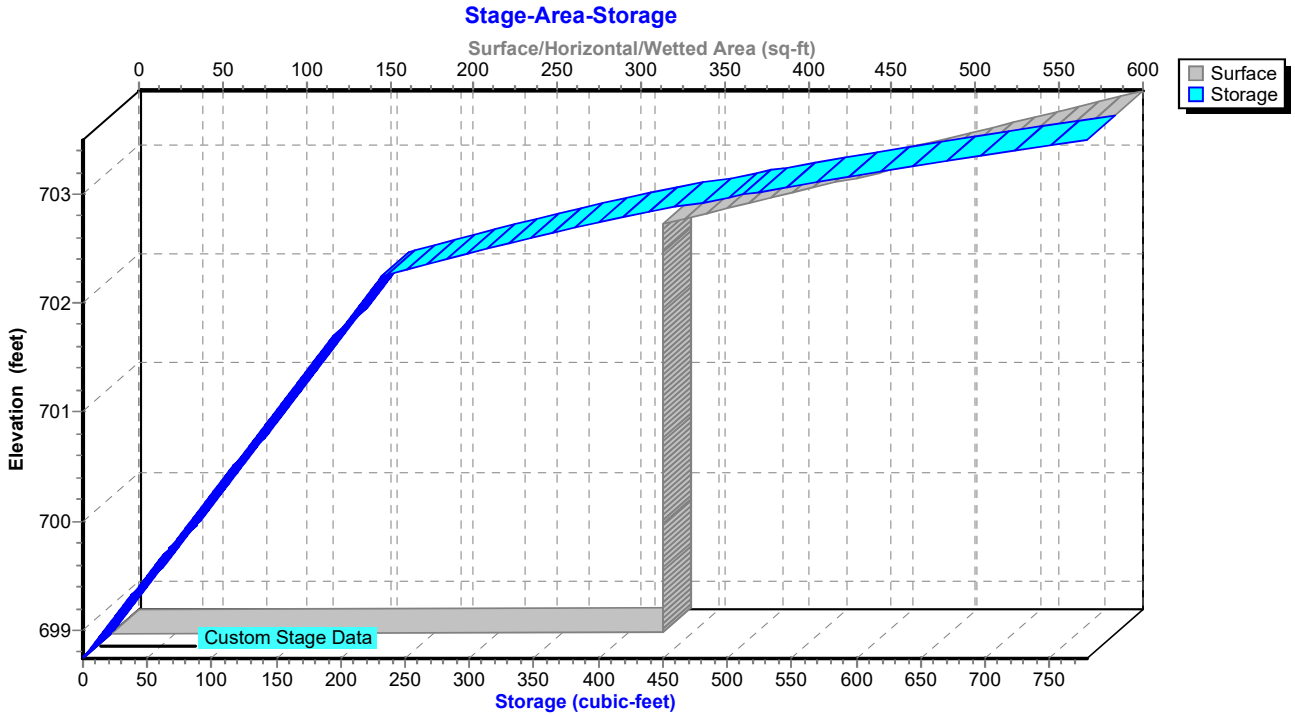
Pond 5P: Infiltration Bioretention 3



Pond 5P: Infiltration Bioretention 3



Pond 5P: Infiltration Bioretention 3

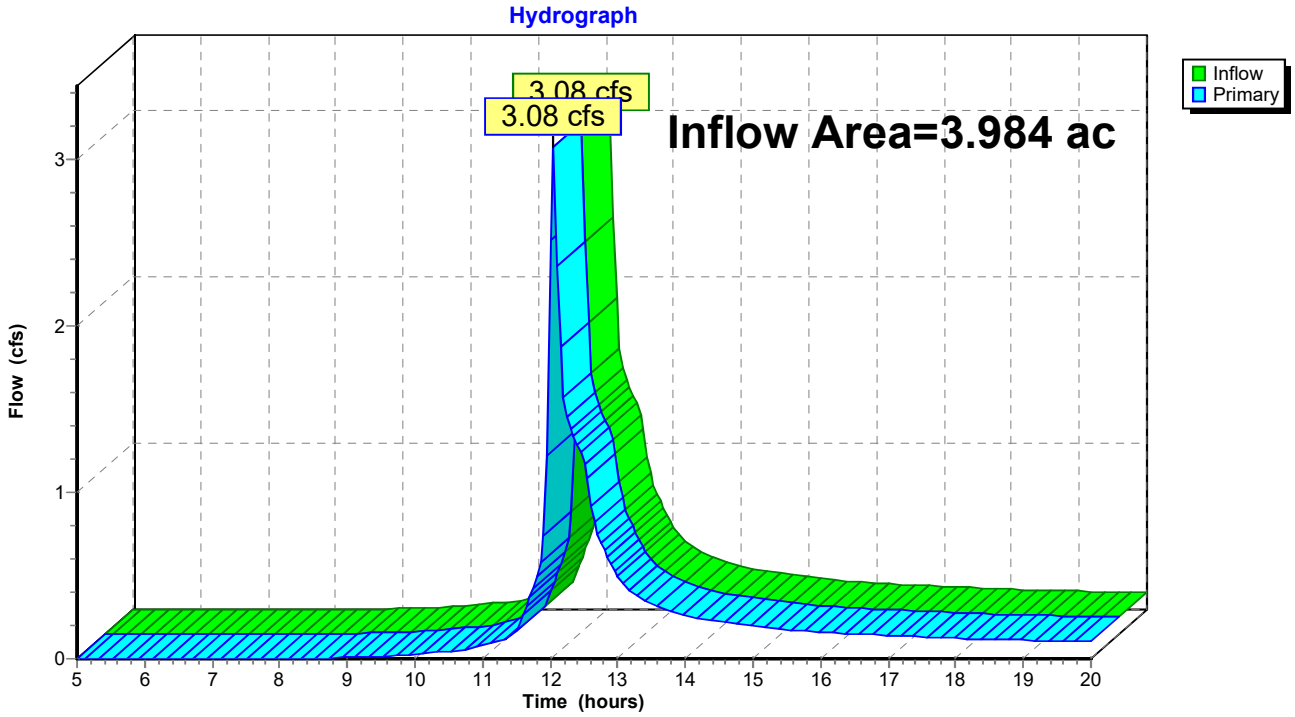


Summary for Link 1L: Pre-Dev Design Point

Inflow Area = 3.984 ac, 37.16% Impervious, Inflow Depth > 0.72" for 1-yr event
Inflow = 3.08 cfs @ 12.05 hrs, Volume= 0.240 af
Primary = 3.08 cfs @ 12.05 hrs, Volume= 0.240 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Pre-Dev Design Point

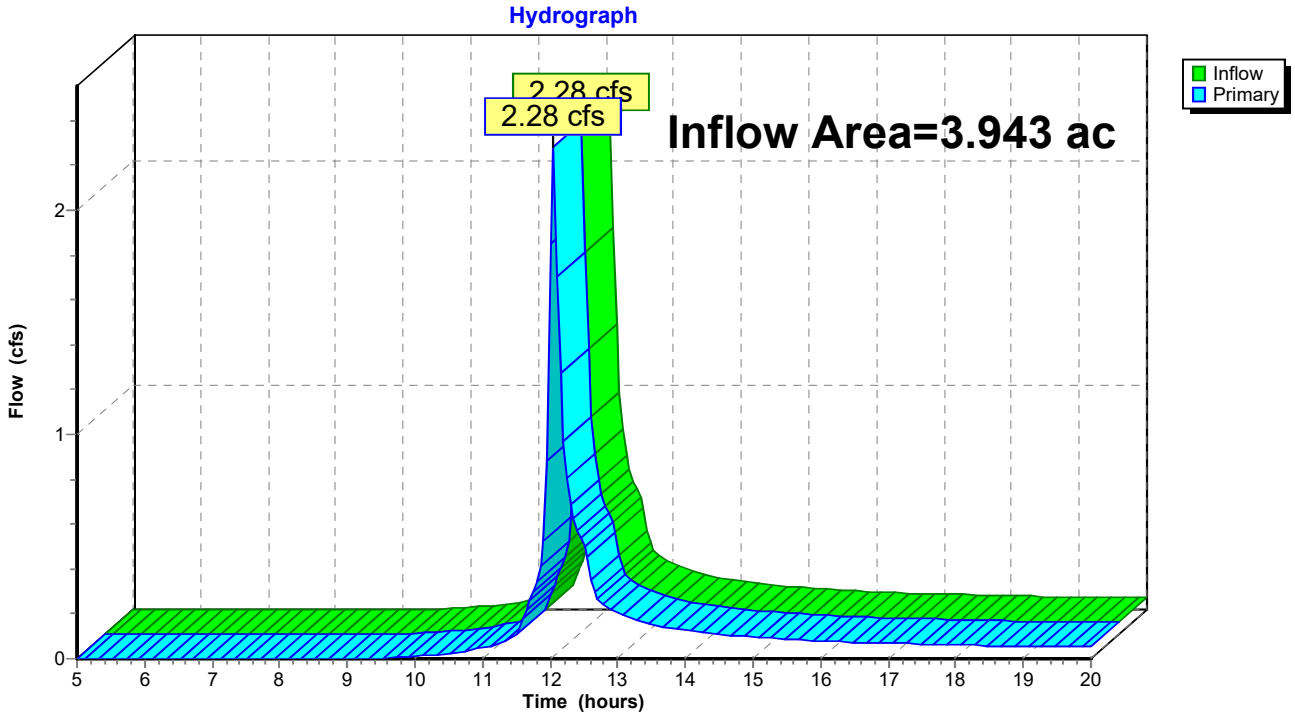


Summary for Link 2L: Post-Dev Design Point

Inflow Area = 3.943 ac, 56.43% Impervious, Inflow Depth > 0.39" for 1-yr event
Inflow = 2.28 cfs @ 12.05 hrs, Volume= 0.129 af
Primary = 2.28 cfs @ 12.05 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: Post-Dev Design Point



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 0S: Existing 1 Runoff Area=90,141 sf 64.11% Impervious Runoff Depth>1.28"
Tc=6.0 min CN=85 Runoff=4.04 cfs 0.221 af

Subcatchment 00S: Existing 2 Runoff Area=1.915 ac 8.04% Impervious Runoff Depth>0.67"
Flow Length=675' Tc=29.7 min CN=74 Runoff=0.91 cfs 0.107 af

Subcatchment 1S: Post-Dev 1 Runoff Area=0.370 ac 67.57% Impervious Runoff Depth>1.35"
Tc=6.0 min CN=86 Runoff=0.76 cfs 0.042 af

Subcatchment 2S: Post-Dev 2 Runoff Area=0.270 ac 88.89% Impervious Runoff Depth>1.99"
Tc=6.0 min CN=94 Runoff=0.78 cfs 0.045 af

Subcatchment 3S: Post-Dev 3 Runoff Area=1.055 ac 29.10% Impervious Runoff Depth>0.59"
Flow Length=150' Slope=0.0100 '/' Tc=21.4 min CN=72 Runoff=0.50 cfs 0.052 af

Subcatchment 4S: Post-Dev 4 Runoff Area=0.300 ac 83.33% Impervious Runoff Depth>1.81"
Tc=6.0 min CN=92 Runoff=0.81 cfs 0.045 af

Subcatchment 5S: Post-Dev 5 Runoff Area=0.148 ac 86.49% Impervious Runoff Depth>1.90"
Tc=6.0 min CN=93 Runoff=0.41 cfs 0.023 af

Subcatchment 6S: Post-Dev 6 Runoff Area=1.800 ac 58.33% Impervious Runoff Depth>1.15"
Tc=6.0 min CN=83 Runoff=3.15 cfs 0.173 af

Reach 4R: Storm Sewer 1 Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
12.0" Round Pipe n=0.012 L=153.0' S=0.0098 '/' Capacity=3.82 cfs Outflow=0.00 cfs 0.000 af

Pond 1P: Infiltration Bioretention 1 Peak Elev=706.86' Storage=613 cf Inflow=0.76 cfs 0.042 af
Discarded=0.13 cfs 0.042 af Primary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.042 af

Pond 2P: Infiltration Bioretention 2 Peak Elev=705.41' Storage=642 cf Inflow=0.78 cfs 0.045 af
Discarded=0.13 cfs 0.045 af Primary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.045 af

Pond 3P: Infiltration Basin 1 Peak Elev=703.59' Storage=681 cf Inflow=0.50 cfs 0.052 af
Discarded=0.14 cfs 0.052 af Primary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.052 af

Pond 4P: Infiltration Basin 2 Peak Elev=705.17' Storage=662 cf Inflow=0.81 cfs 0.045 af
Discarded=0.12 cfs 0.045 af Primary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.045 af

Pond 5P: Infiltration Bioretention 3 Peak Elev=702.46' Storage=303 cf Inflow=0.41 cfs 0.023 af
Discarded=0.08 cfs 0.023 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.023 af

Link 1L: Pre-Dev Design Point Inflow=4.23 cfs 0.328 af
Primary=4.23 cfs 0.328 af

Link 2L: Post-Dev Design Point Inflow=3.15 cfs 0.173 af
Primary=3.15 cfs 0.173 af

Total Runoff Area = 7.927 ac Runoff Volume = 0.708 af Average Runoff Depth = 1.07"
53.25% Pervious = 4.222 ac 46.75% Impervious = 3.706 ac

Summary for Subcatchment 0S: Existing 1

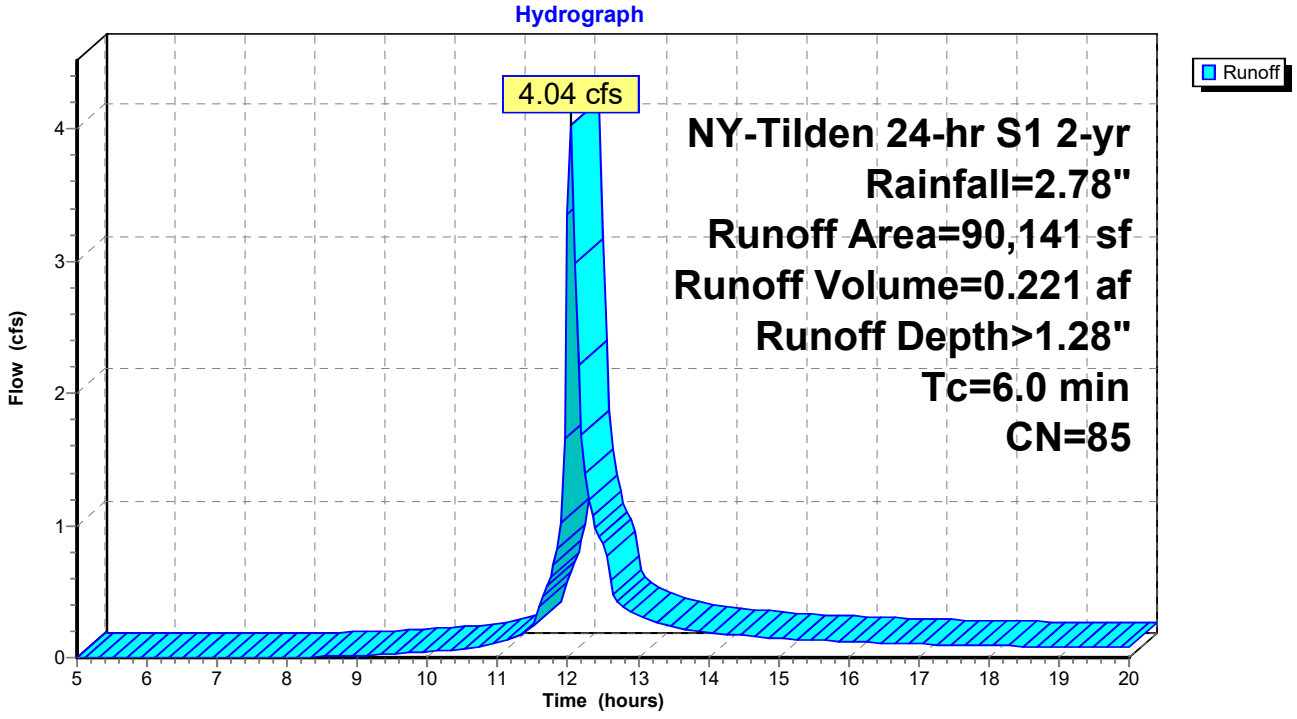
Runoff = 4.04 cfs @ 12.04 hrs, Volume= 0.221 af, Depth> 1.28"
Routed to Link 1L : Pre-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 2-yr Rainfall=2.78"

	Area (sf)	CN	Description
*	46,902	98	Existing Impervious (On-Site)
*	10,889	98	Existing Impervious (Off-Site)
	32,350	61	>75% Grass cover, Good, HSG B
	90,141	85	Weighted Average
	32,350		35.89% Pervious Area
	57,791		64.11% Impervious Area

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

Subcatchment 0S: Existing 1



Summary for Subcatchment 00S: Existing 2

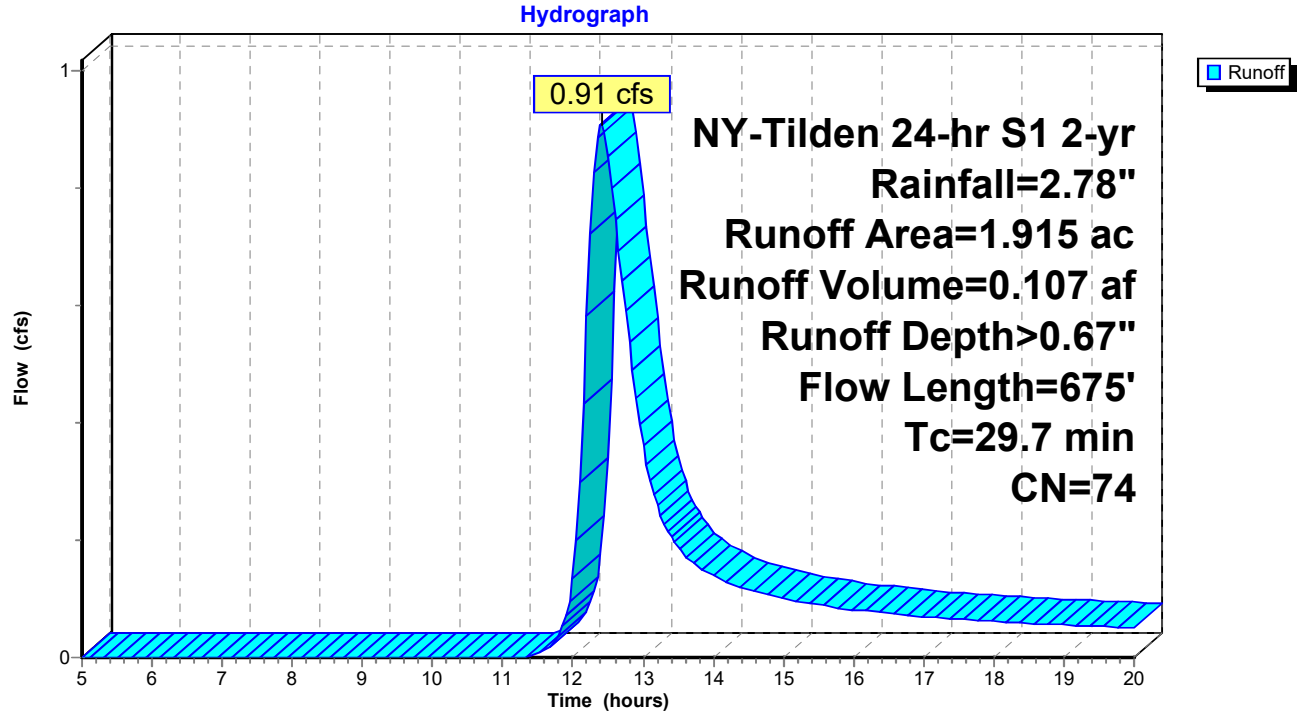
Runoff = 0.91 cfs @ 12.41 hrs, Volume= 0.107 af, Depth> 0.67"
Routed to Link 1L : Pre-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 2-yr Rainfall=2.78"

	Area (ac)	CN	Description
*	0.049	98	Ex. Impervious (Off-Site)
*	0.105	98	Ex. Impervious (On-Site)
	1.198	79	<50% Grass cover, Poor, HSG B
	0.563	58	Woods/grass comb., Good, HSG B
	1.915	74	Weighted Average
	1.761		91.96% Pervious Area
	0.154		8.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.2	150	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.78"
9.0	380	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	145	0.0060	1.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
29.7	675	Total			

Subcatchment 00S: Existing 2



Summary for Subcatchment 1S: Post-Dev 1

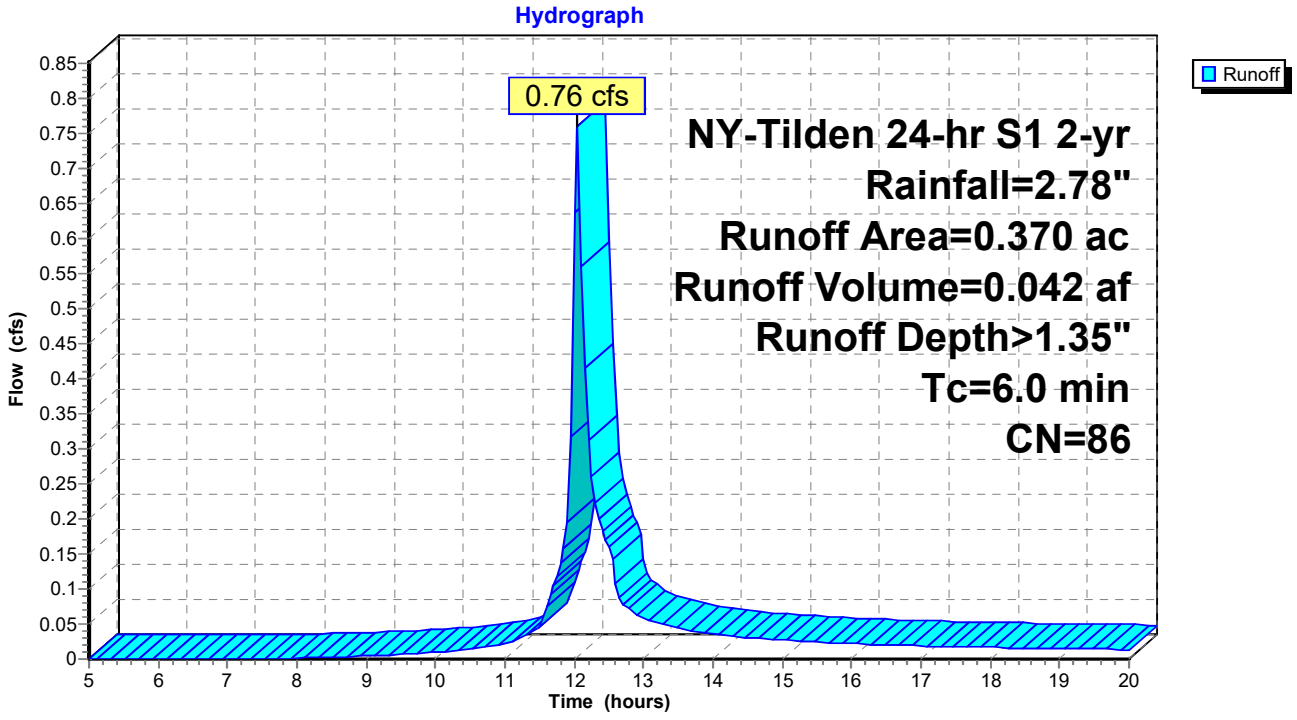
Runoff = 0.76 cfs @ 12.04 hrs, Volume= 0.042 af, Depth> 1.35"
Routed to Pond 1P : Infiltration Bioretention 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 2-yr Rainfall=2.78"

	Area (ac)	CN	Description
*	0.250	98	Parking
	0.120	61	>75% Grass cover, Good, HSG B
	0.370	86	Weighted Average
	0.120		32.43% Pervious Area
	0.250		67.57% Impervious Area

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

Subcatchment 1S: Post-Dev 1



Summary for Subcatchment 2S: Post-Dev 2

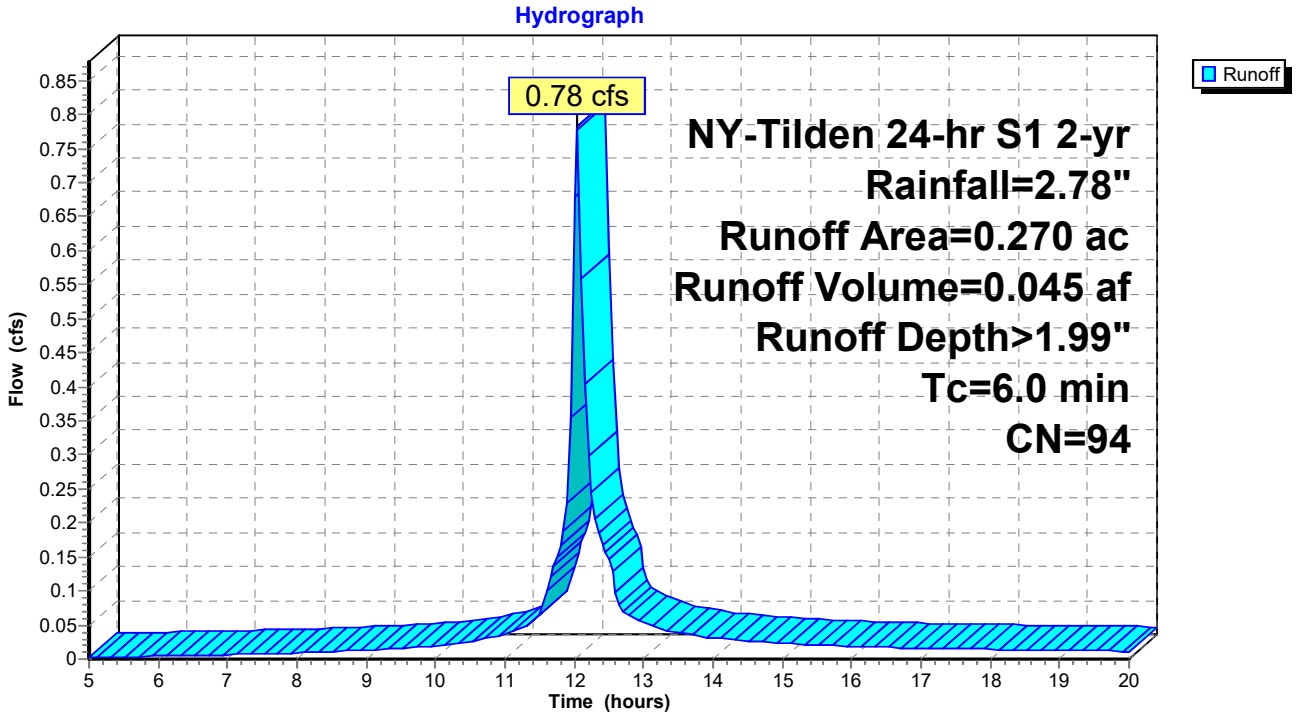
Runoff = 0.78 cfs @ 12.04 hrs, Volume= 0.045 af, Depth> 1.99"
Routed to Pond 2P : Infiltration Bioretention 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 2-yr Rainfall=2.78"

	Area (ac)	CN	Description
*	0.240	98	Parking
	0.030	61	>75% Grass cover, Good, HSG B
	0.270	94	Weighted Average
	0.030		11.11% Pervious Area
	0.240		88.89% Impervious Area

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

Subcatchment 2S: Post-Dev 2



Summary for Subcatchment 3S: Post-Dev 3

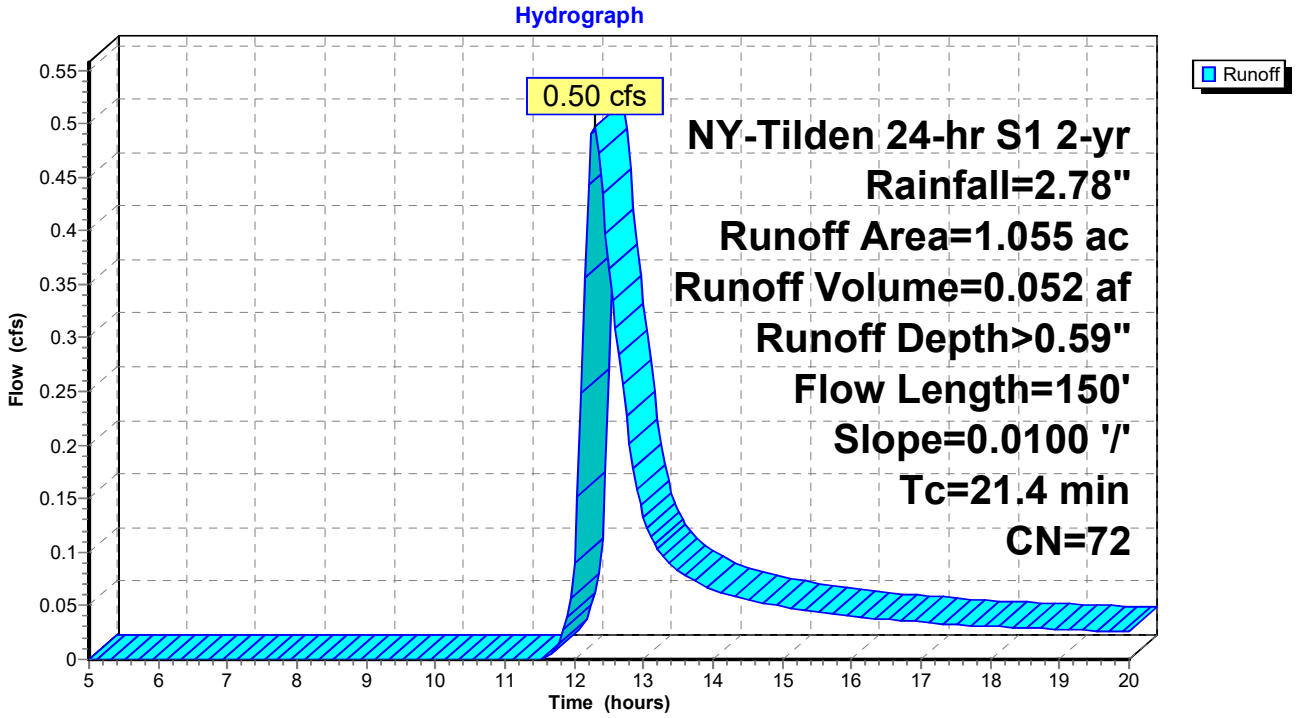
Runoff = 0.50 cfs @ 12.29 hrs, Volume= 0.052 af, Depth> 0.59"
Routed to Pond 3P : Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 2-yr Rainfall=2.78"

	Area (ac)	CN	Description
*	0.307	98	Parking
	0.748	61	>75% Grass cover, Good, HSG B
	1.055	72	Weighted Average
	0.748		70.90% Pervious Area
	0.307		29.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.78"
1.2	50	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.4	150	Total			

Subcatchment 3S: Post-Dev 3



Summary for Subcatchment 4S: Post-Dev 4

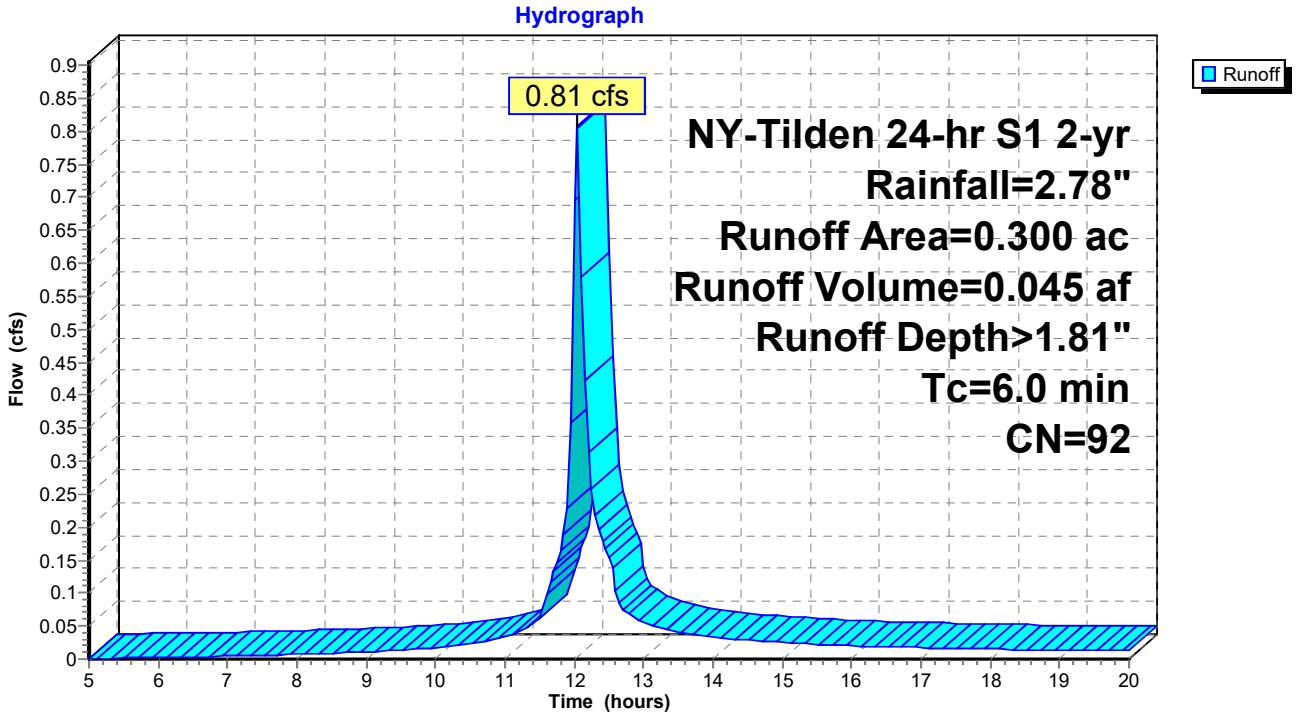
Runoff = 0.81 cfs @ 12.04 hrs, Volume= 0.045 af, Depth> 1.81"
Routed to Pond 4P : Infiltration Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 2-yr Rainfall=2.78"

	Area (ac)	CN	Description
*	0.250	98	Building & Sidewalks
	0.050	61	>75% Grass cover, Good, HSG B
	0.300	92	Weighted Average
	0.050		16.67% Pervious Area
	0.250		83.33% Impervious Area

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

Subcatchment 4S: Post-Dev 4



Summary for Subcatchment 5S: Post-Dev 5

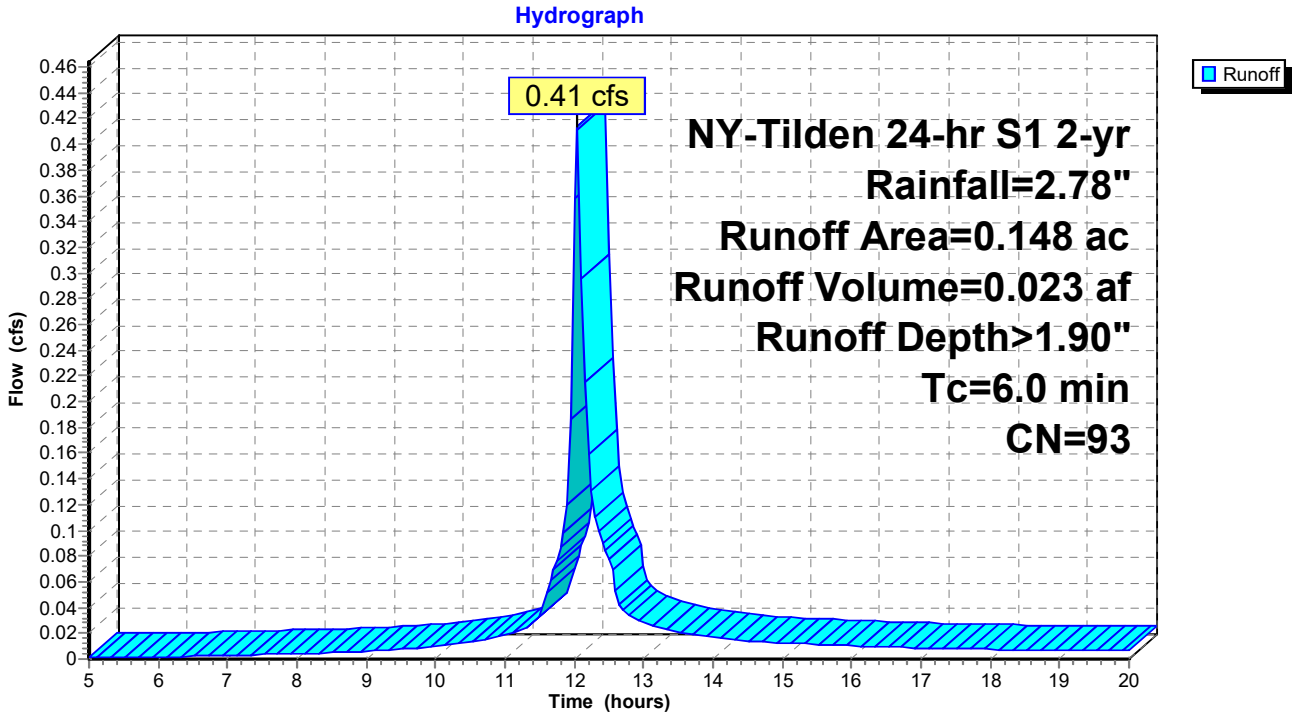
Runoff = 0.41 cfs @ 12.04 hrs, Volume= 0.023 af, Depth> 1.90"
Routed to Pond 5P : Infiltration Bioretention 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 2-yr Rainfall=2.78"

	Area (ac)	CN	Description
*	0.128	98	Building & Sidewalks
	0.020	61	>75% Grass cover, Good, HSG B
	0.148	93	Weighted Average
	0.020		13.51% Pervious Area
	0.128		86.49% Impervious Area

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

Subcatchment 5S: Post-Dev 5



Summary for Subcatchment 6S: Post-Dev 6

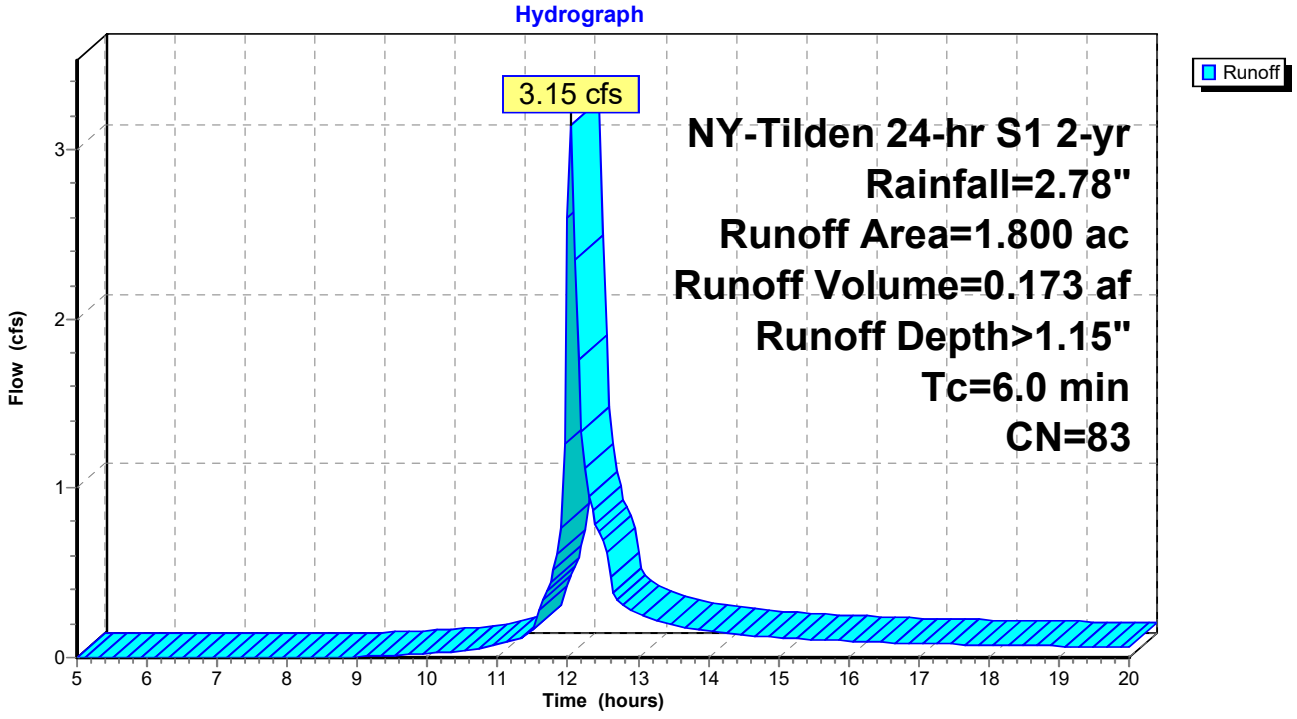
Runoff = 3.15 cfs @ 12.05 hrs, Volume= 0.173 af, Depth> 1.15"
Routed to Link 2L : Post-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 2-yr Rainfall=2.78"

	Area (ac)	CN	Description
*	0.762	98	On-Site Impervious
*	0.288	98	Off-Site Impervious
	0.750	61	>75% Grass cover, Good, HSG B
	1.800	83	Weighted Average
	0.750		41.67% Pervious Area
	1.050		58.33% Impervious Area

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

Subcatchment 6S: Post-Dev 6



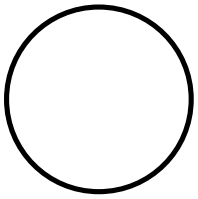
Summary for Reach 4R: Storm Sewer 1

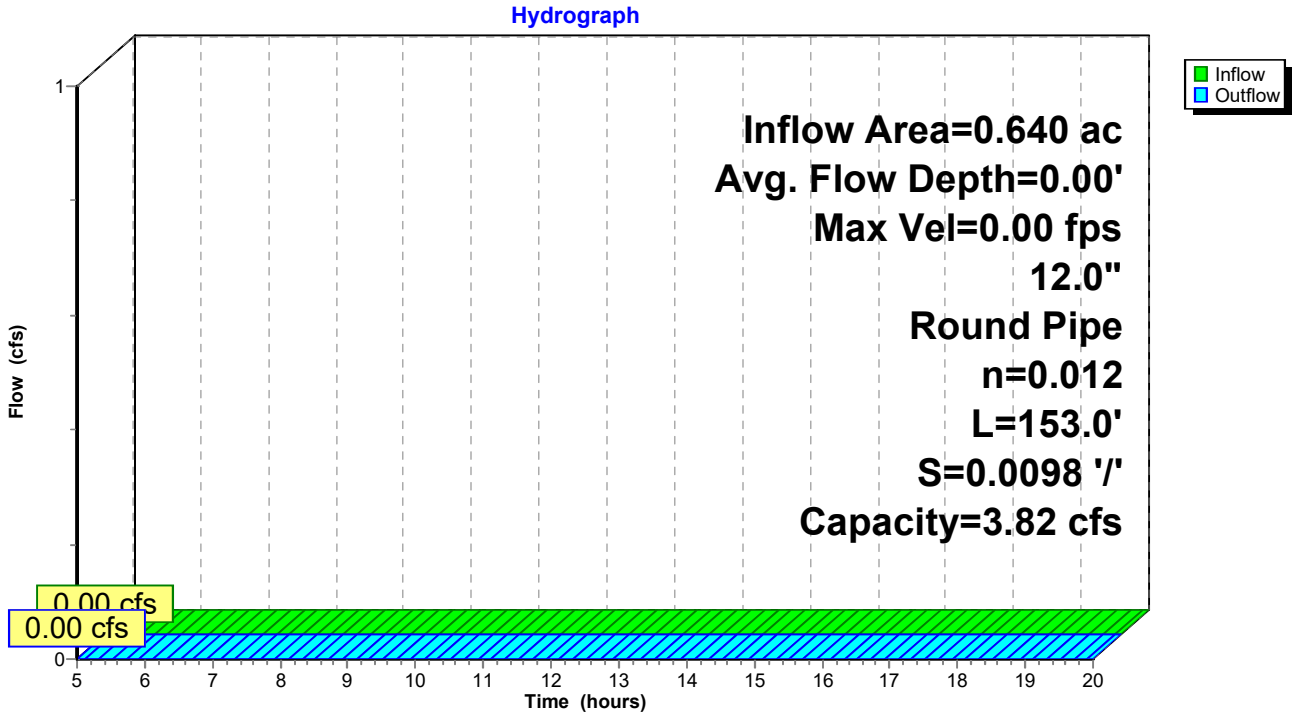
Inflow Area = 0.640 ac, 76.56% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 3P : Infiltration Basin 1

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

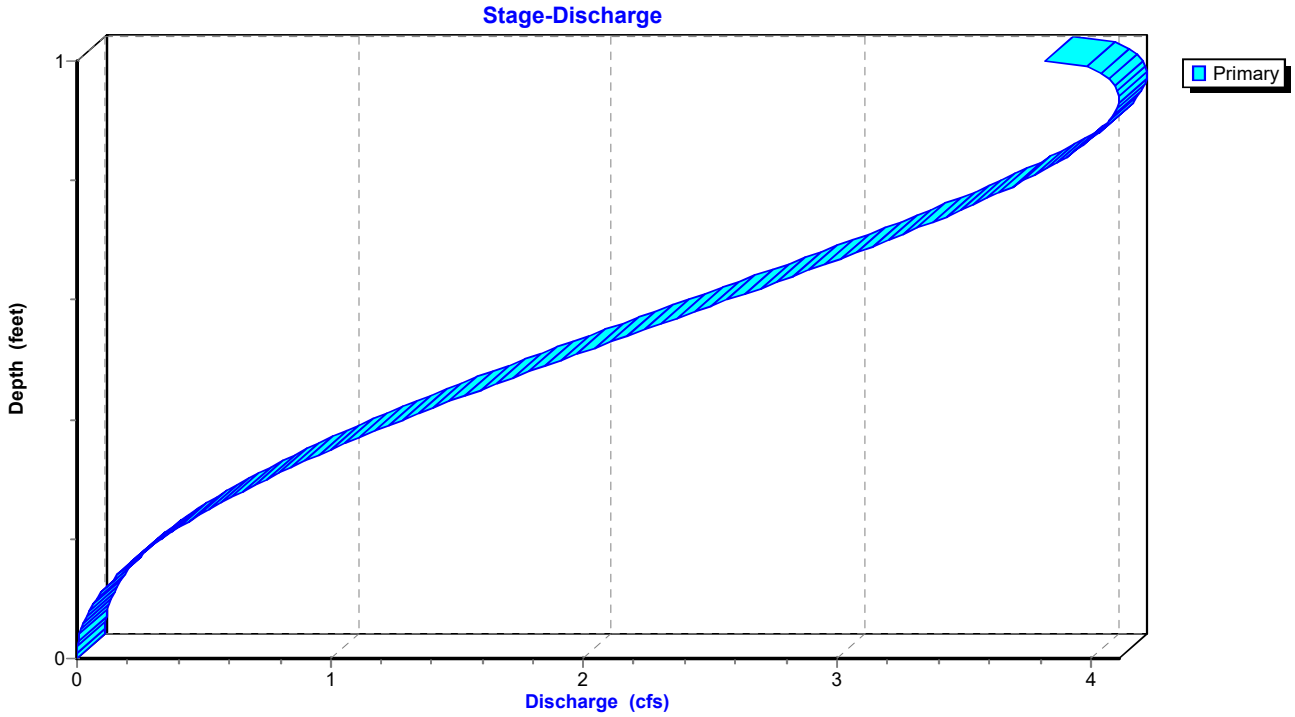
Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.82 cfs

12.0" Round Pipe
n= 0.012
Length= 153.0' Slope= 0.0098 '/'
Inlet Invert= 704.75', Outlet Invert= 703.25'

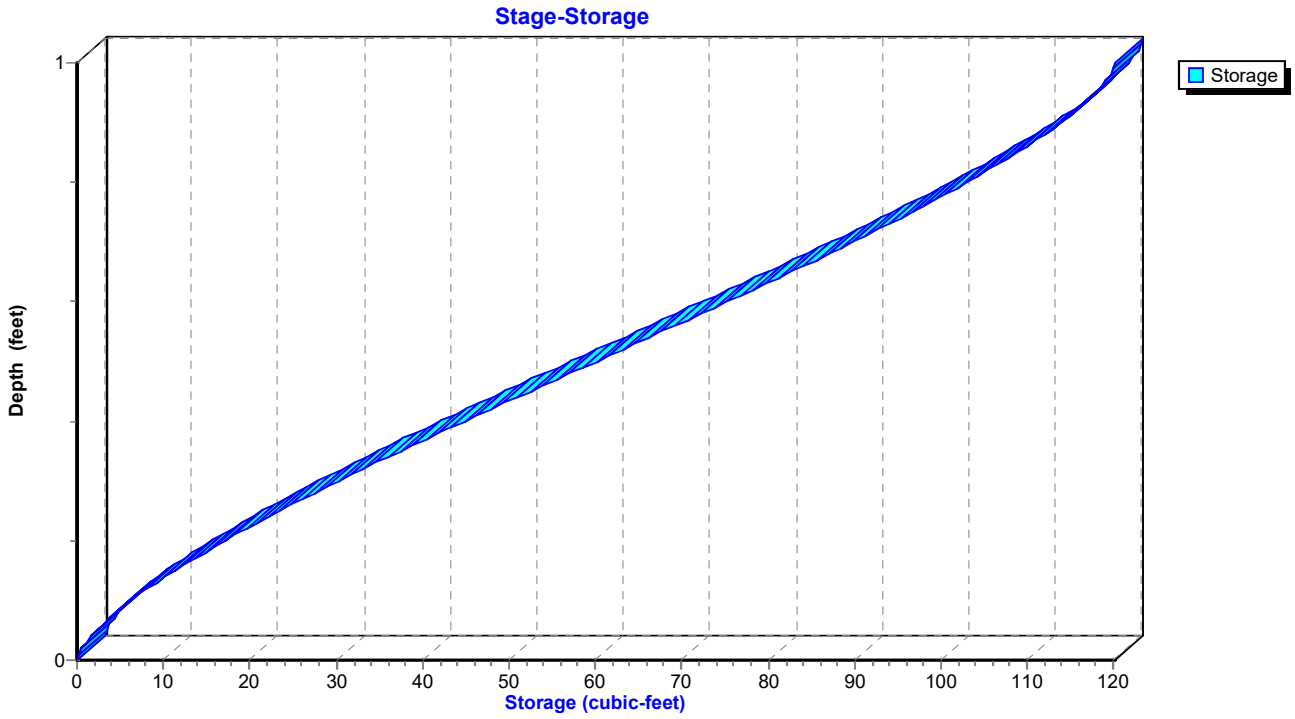




Reach 4R: Storm Sewer 1



Reach 4R: Storm Sewer 1



Summary for Pond 1P: Infiltration Bioretention 1

Inflow Area = 0.370 ac, 67.57% Impervious, Inflow Depth > 1.35" for 2-yr event
Inflow = 0.76 cfs @ 12.04 hrs, Volume= 0.042 af
Outflow = 0.13 cfs @ 12.56 hrs, Volume= 0.042 af, Atten= 83%, Lag= 31.2 min
Discarded = 0.13 cfs @ 12.56 hrs, Volume= 0.042 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 4R : Storm Sewer 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 706.86' @ 12.56 hrs Surf.Area= 626 sf Storage= 613 cf

Plug-Flow detention time= 41.6 min calculated for 0.042 af (100% of inflow)
Center-of-Mass det. time= 41.5 min (834.5 - 793.0)

Volume	Invert	Avail.Storage	Storage Description
#1	702.74'	1,114 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

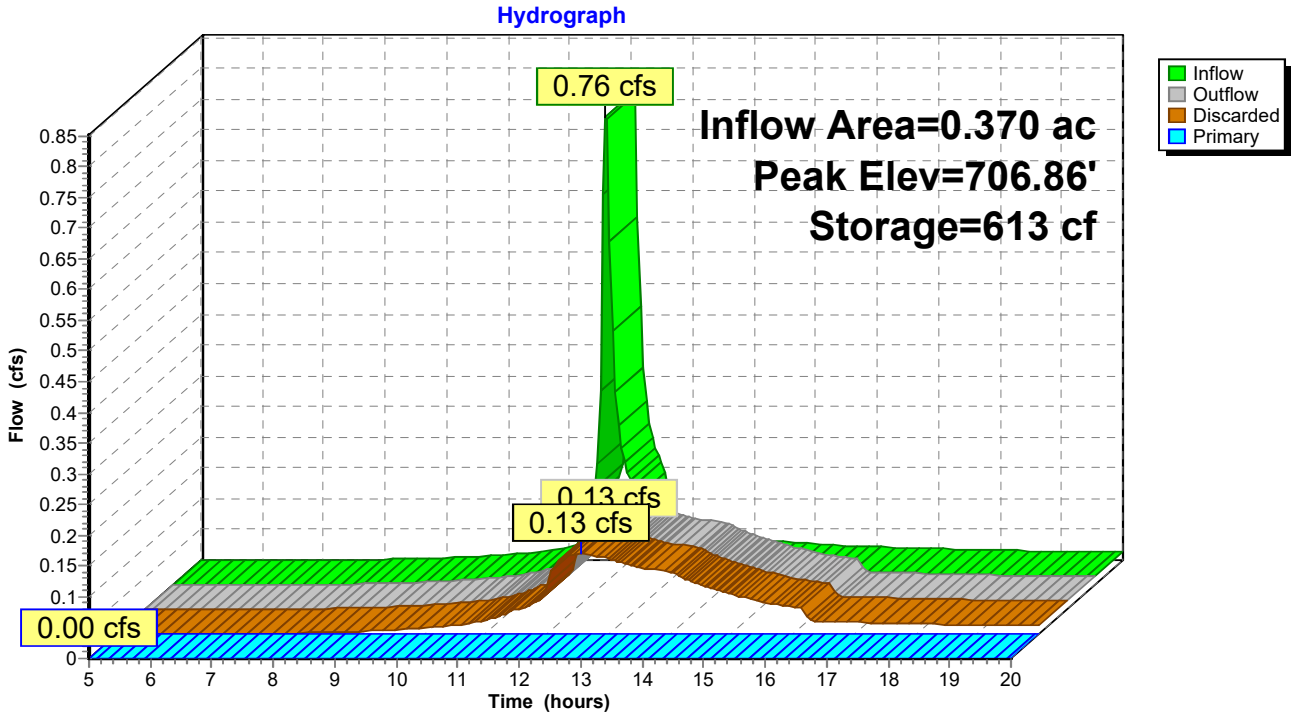
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
702.74	0	0.0	0	0
702.75	440	40.0	1	1
703.75	440	20.0	88	89
706.25	440	20.0	220	309
706.50	440	100.0	110	419
707.50	950	100.0	695	1,114

Device	Routing	Invert	Outlet Devices
#1	Discarded	702.74'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 700.50'
#2	Primary	707.00'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

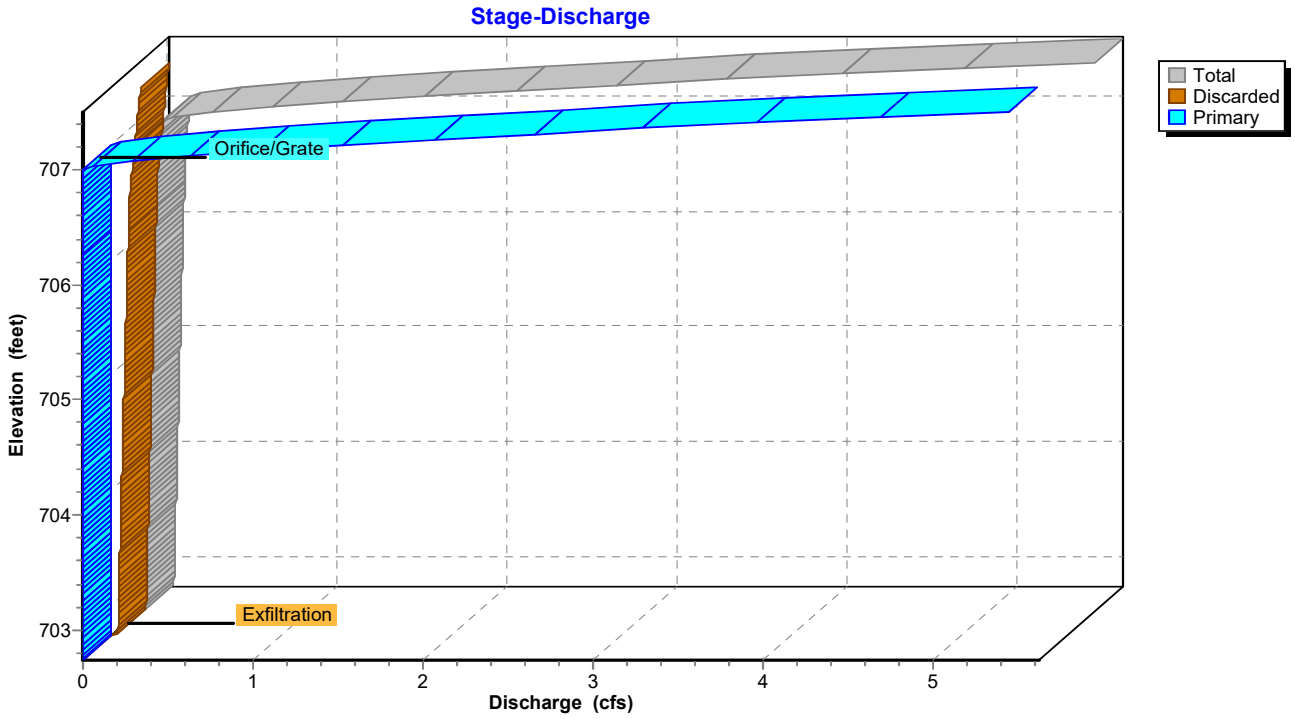
Discarded OutFlow Max=0.13 cfs @ 12.56 hrs HW=706.86' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=702.74' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

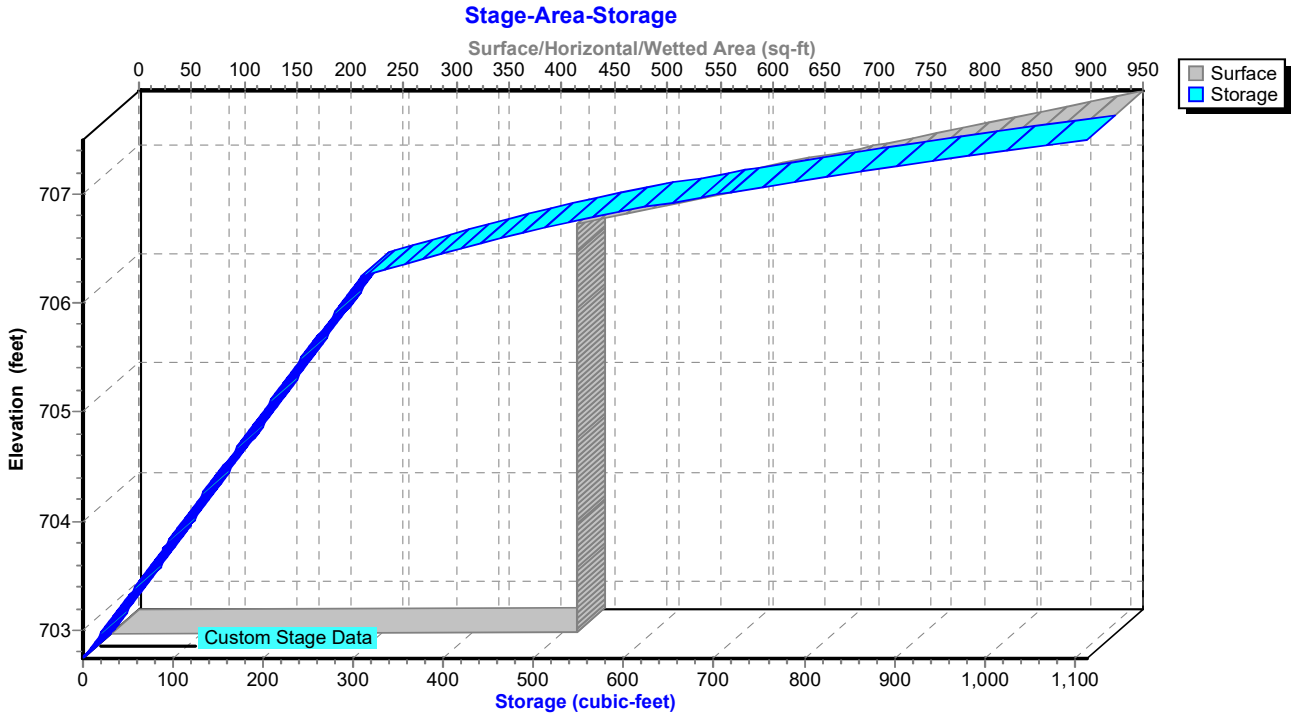
Pond 1P: Infiltration Bioretention 1



Pond 1P: Infiltration Bioretention 1



Pond 1P: Infiltration Bioretention 1



Summary for Pond 2P: Infiltration Bioretention 2

Inflow Area = 0.270 ac, 88.89% Impervious, Inflow Depth > 1.99" for 2-yr event
Inflow = 0.78 cfs @ 12.04 hrs, Volume= 0.045 af
Outflow = 0.13 cfs @ 12.53 hrs, Volume= 0.045 af, Atten= 83%, Lag= 29.5 min
Discarded = 0.13 cfs @ 12.53 hrs, Volume= 0.045 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 4R : Storm Sewer 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 705.41' @ 12.53 hrs Surf.Area= 649 sf Storage= 642 cf

Plug-Flow detention time= 39.7 min calculated for 0.045 af (100% of inflow)
Center-of-Mass det. time= 39.5 min (799.5 - 760.0)

Volume	Invert	Avail.Storage	Storage Description
#1	701.24'	1,114 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

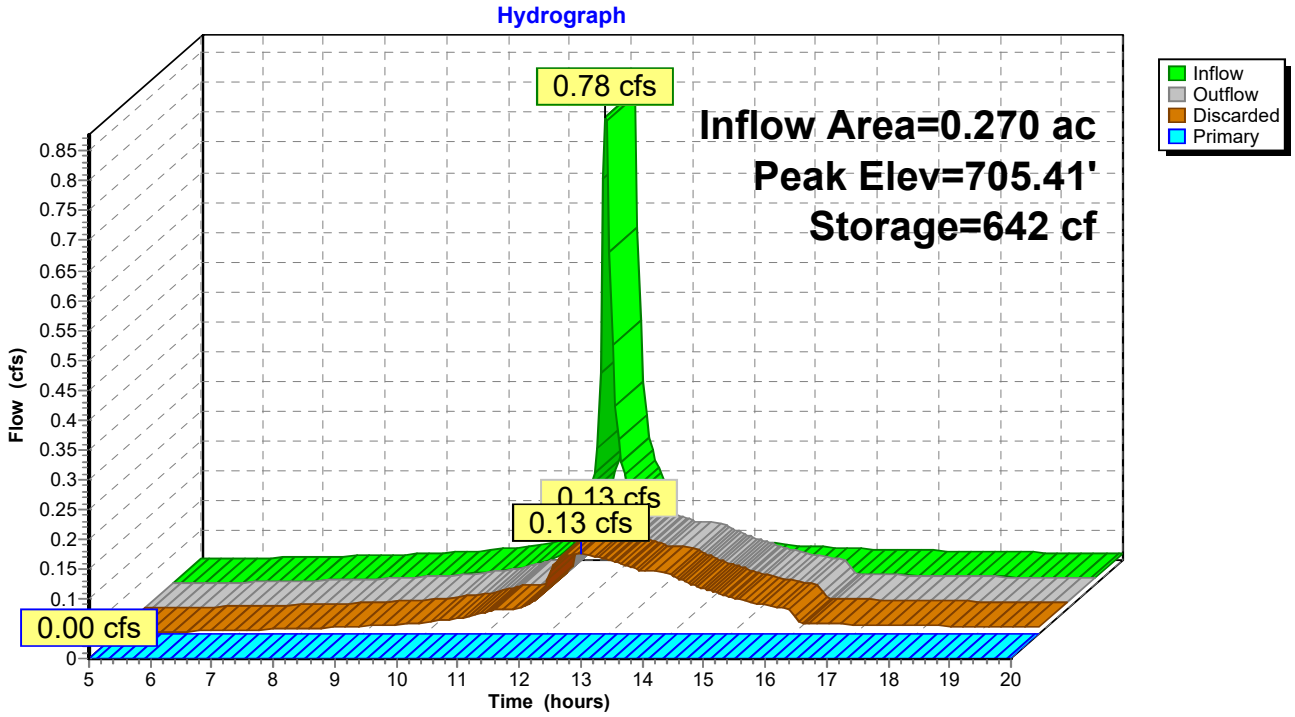
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
701.24	0	0.0	0	0
701.25	440	40.0	1	1
702.25	440	20.0	88	89
704.75	440	20.0	220	309
705.00	440	100.0	110	419
706.00	950	100.0	695	1,114

Device	Routing	Invert	Outlet Devices
#1	Discarded	701.24'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 699.00'
#2	Primary	705.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

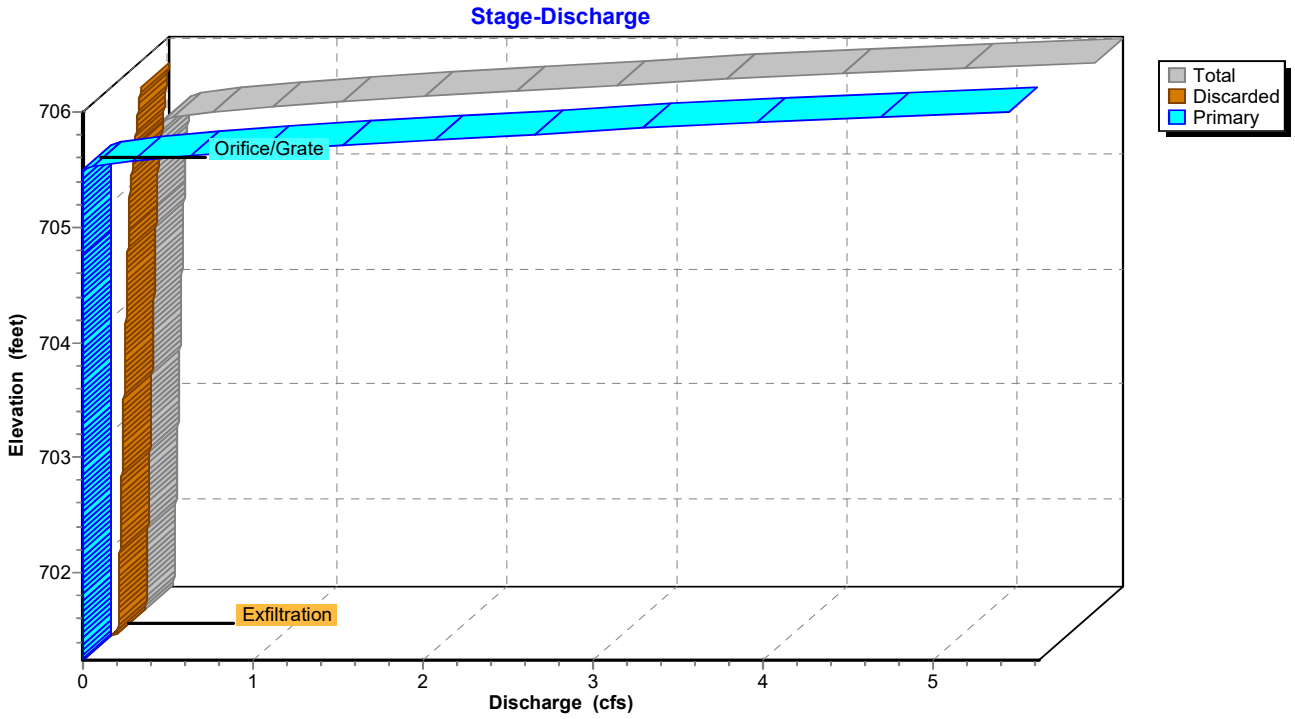
Discarded OutFlow Max=0.13 cfs @ 12.53 hrs HW=705.41' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=701.24' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

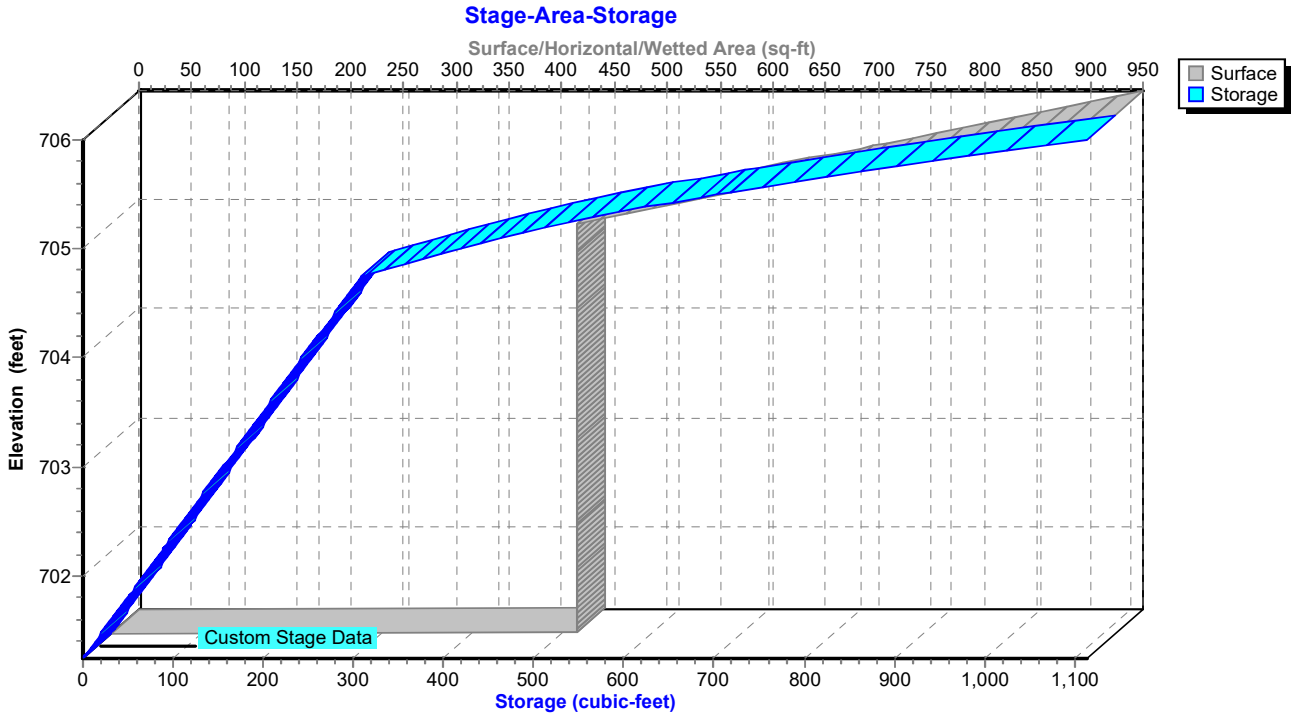
Pond 2P: Infiltration Bioretention 2



Pond 2P: Infiltration Bioretention 2



Pond 2P: Infiltration Bioretention 2



Summary for Pond 3P: Infiltration Basin 1

Inflow Area = 1.695 ac, 47.02% Impervious, Inflow Depth > 0.37" for 2-yr event
Inflow = 0.50 cfs @ 12.29 hrs, Volume= 0.052 af
Outflow = 0.14 cfs @ 12.99 hrs, Volume= 0.052 af, Atten= 73%, Lag= 42.1 min
Discarded = 0.14 cfs @ 12.99 hrs, Volume= 0.052 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 703.59' @ 12.99 hrs Surf.Area= 1,350 sf Storage= 681 cf

Plug-Flow detention time= 44.9 min calculated for 0.052 af (100% of inflow)
Center-of-Mass det. time= 44.1 min (888.0 - 844.0)

Volume	Invert	Avail.Storage	Storage Description
#1	703.00'	3,250 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

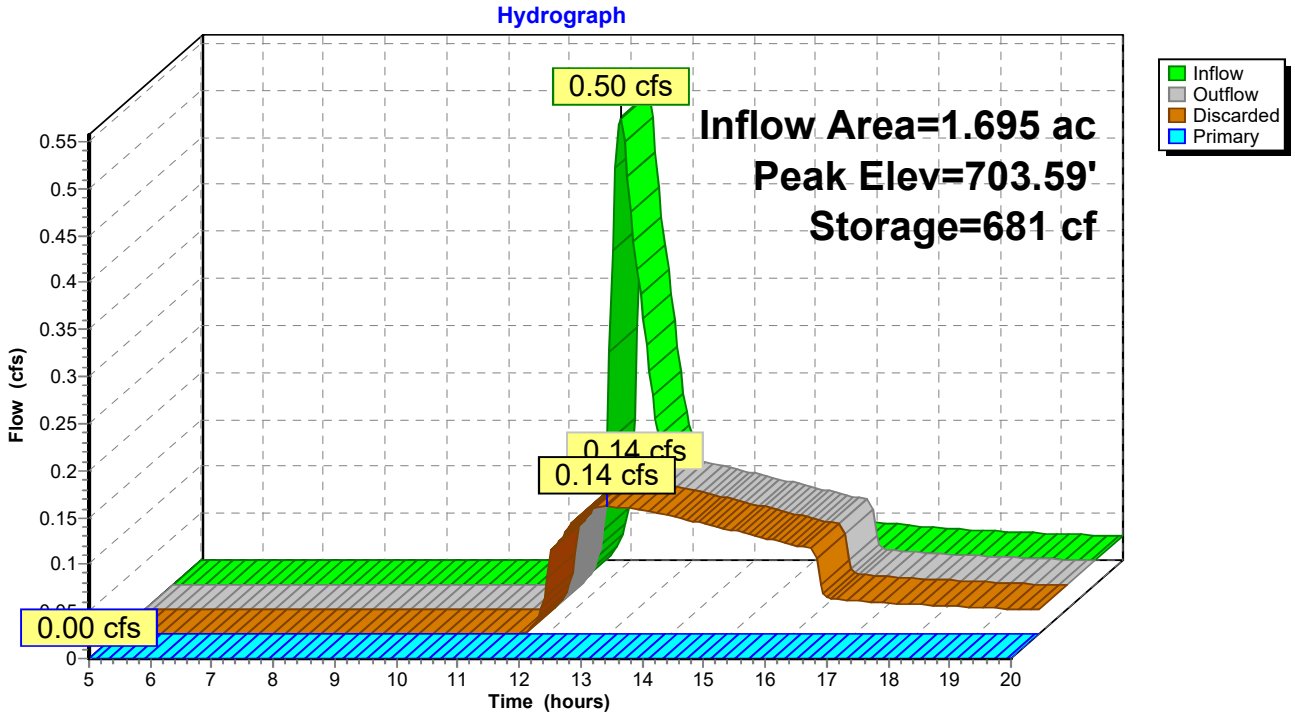
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
703.00	950	0	0
705.00	2,300	3,250	3,250

Device	Routing	Invert	Outlet Devices
#1	Discarded	703.00'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 697.00'
#2	Primary	704.50'	**8.0' long + 3.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

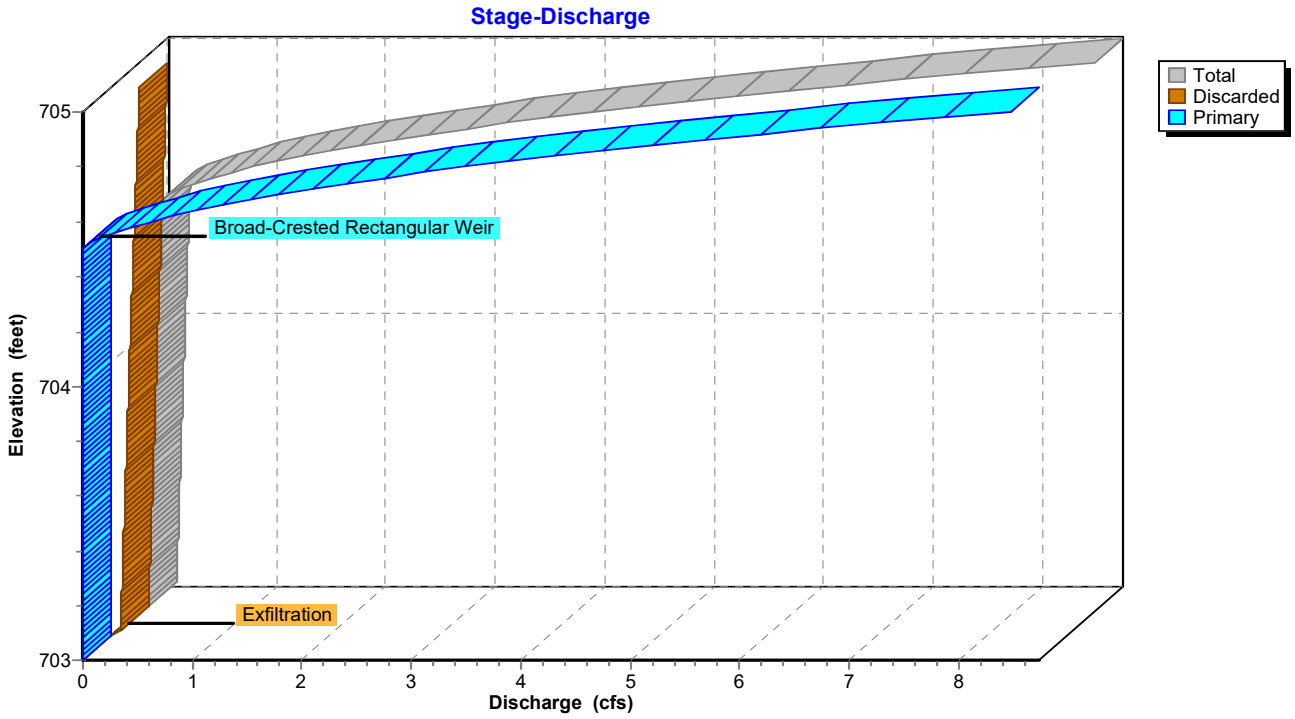
Discarded OutFlow Max=0.14 cfs @ 12.99 hrs HW=703.59' (Free Discharge)
1=Exfiltration (Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=703.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

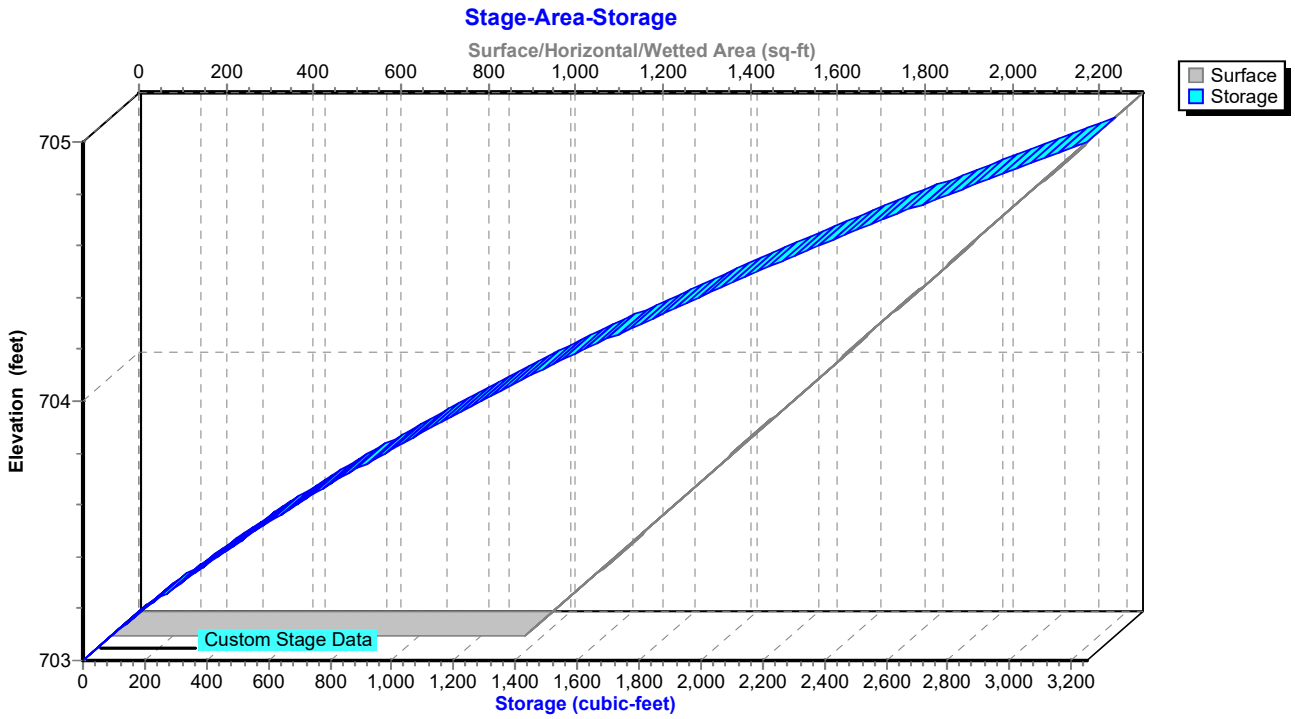
Pond 3P: Infiltration Basin 1



Pond 3P: Infiltration Basin 1



Pond 3P: Infiltration Basin 1



Summary for Pond 4P: Infiltration Basin 2

Inflow Area = 0.300 ac, 83.33% Impervious, Inflow Depth > 1.81" for 2-yr event
Inflow = 0.81 cfs @ 12.04 hrs, Volume= 0.045 af
Outflow = 0.12 cfs @ 12.59 hrs, Volume= 0.045 af, Atten= 86%, Lag= 32.7 min
Discarded = 0.12 cfs @ 12.59 hrs, Volume= 0.045 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 705.17' @ 12.59 hrs Surf.Area= 1,134 sf Storage= 662 cf

Plug-Flow detention time= 43.6 min calculated for 0.045 af (100% of inflow)
Center-of-Mass det. time= 42.9 min (812.4 - 769.5)

Volume	Invert	Avail.Storage	Storage Description
#1	704.50'	2,550 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

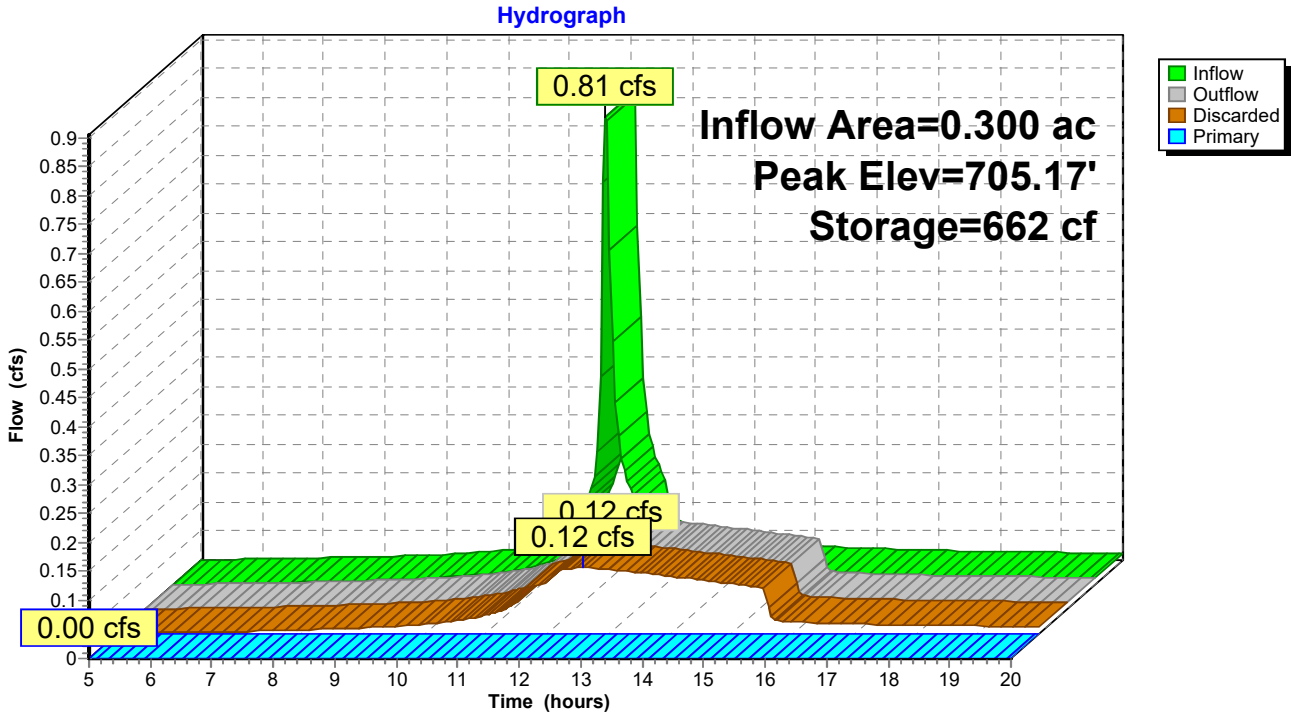
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
704.50	850	0	0
706.50	1,700	2,550	2,550

Device	Routing	Invert	Outlet Devices
#1	Discarded	704.50'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 698.50'
#2	Primary	706.00'	**5.0' long + 3.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

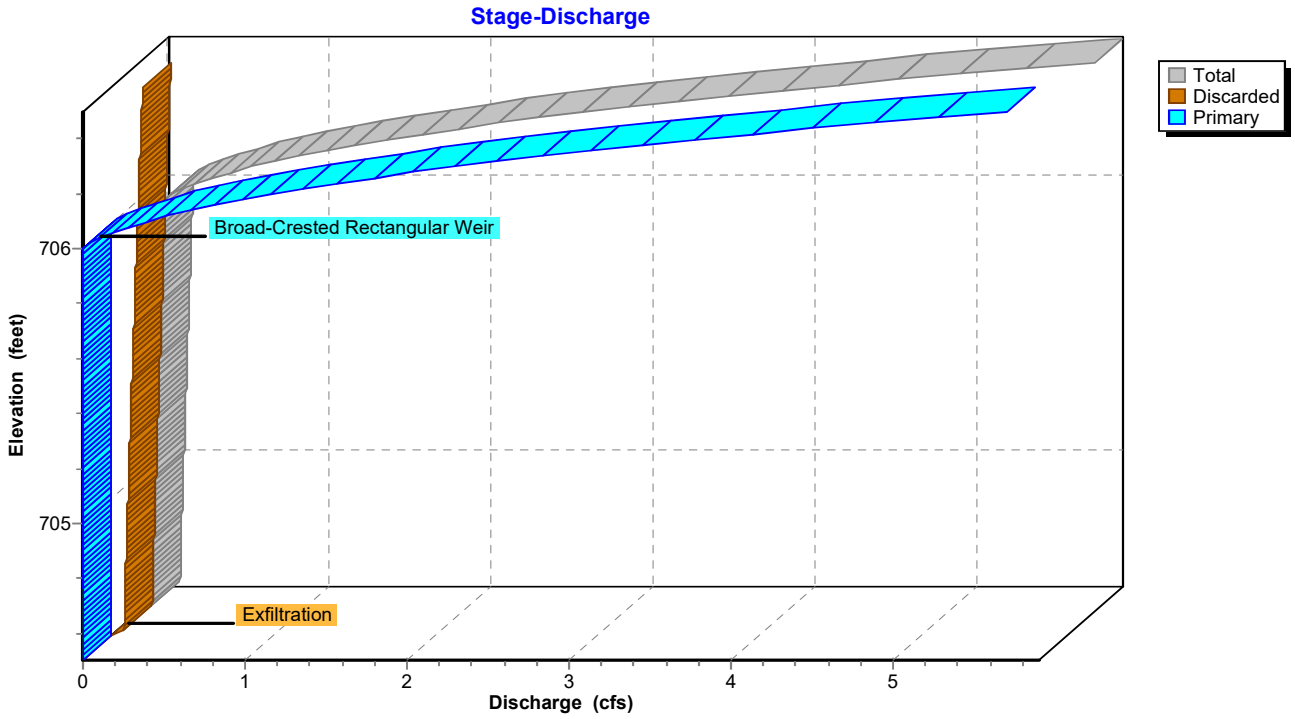
Discarded OutFlow Max=0.12 cfs @ 12.59 hrs HW=705.17' (Free Discharge)
1=Exfiltration (Controls 0.12 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=704.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

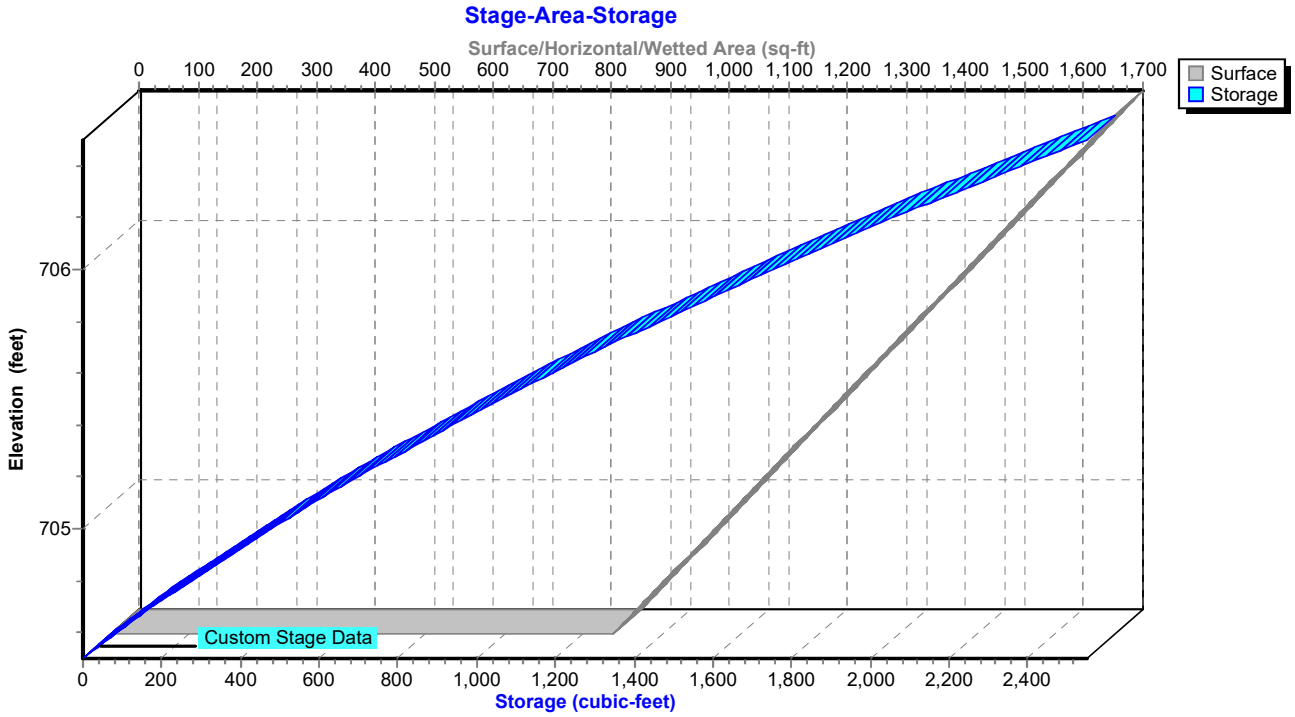
Pond 4P: Infiltration Basin 2



Pond 4P: Infiltration Basin 2



Pond 4P: Infiltration Basin 2



Summary for Pond 5P: Infiltration Bioretention 3

Inflow Area = 0.148 ac, 86.49% Impervious, Inflow Depth > 1.90" for 2-yr event
Inflow = 0.41 cfs @ 12.04 hrs, Volume= 0.023 af
Outflow = 0.08 cfs @ 12.48 hrs, Volume= 0.023 af, Atten= 81%, Lag= 26.6 min
Discarded = 0.08 cfs @ 12.48 hrs, Volume= 0.023 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 702.46' @ 12.48 hrs Surf.Area= 330 sf Storage= 303 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 28.5 min (793.3 - 764.8)

Volume	Invert	Avail.Storage	Storage Description
#1	698.74'	779 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

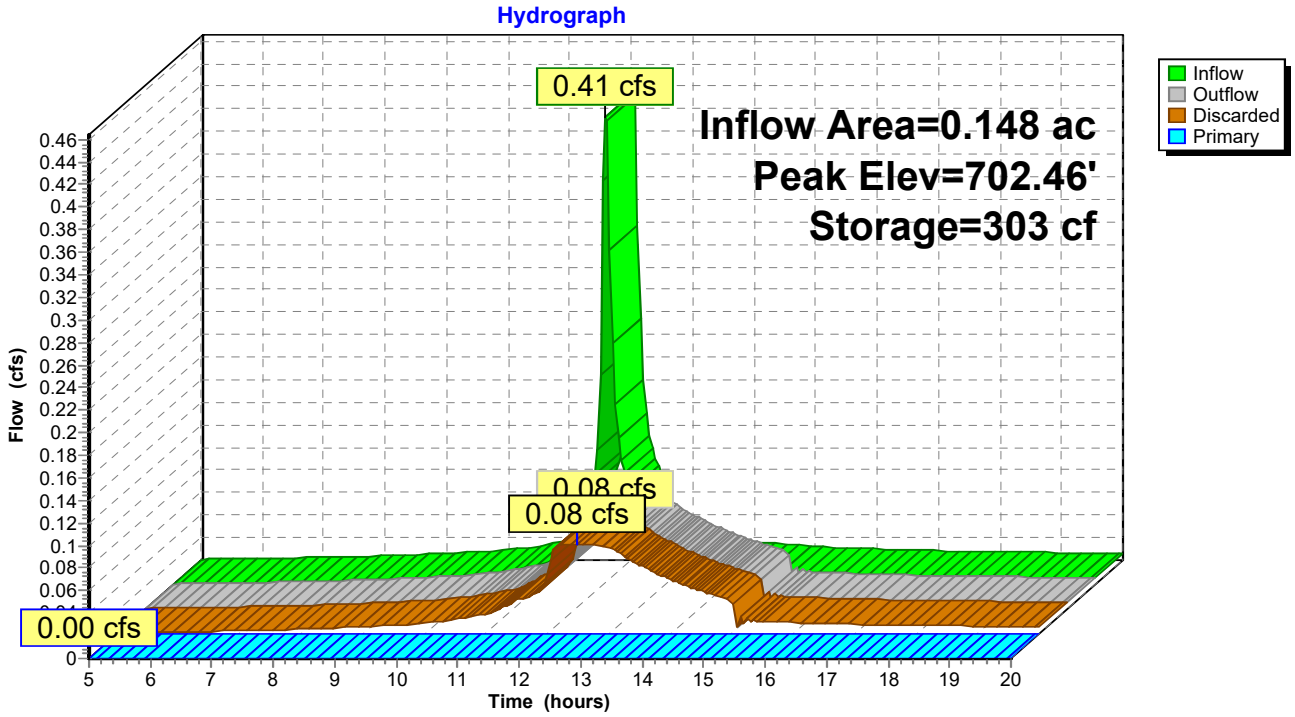
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
698.74	0	0.0	0	0
698.75	330	40.0	1	1
699.75	330	20.0	66	67
702.25	330	20.0	165	232
702.50	330	100.0	83	314
703.50	600	100.0	465	779

Device	Routing	Invert	Outlet Devices
#1	Discarded	698.74'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 696.50'
#2	Primary	703.00'	**5.0' long + 1.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

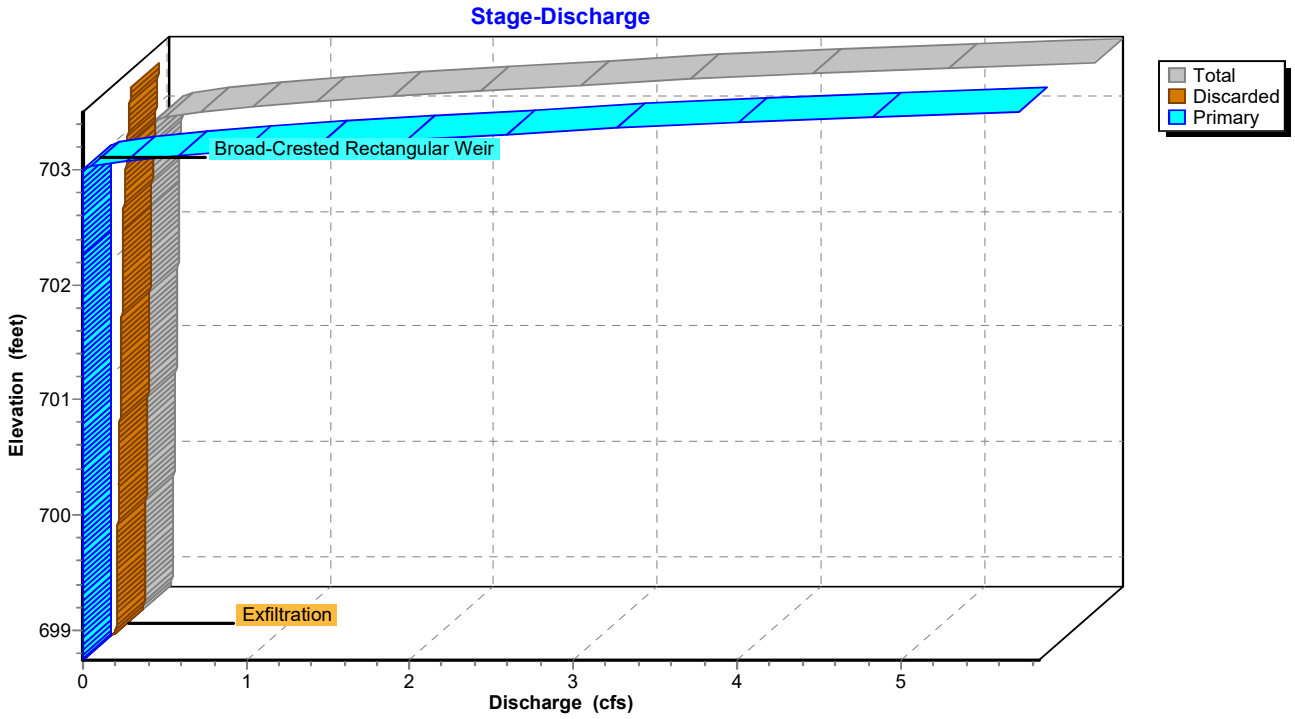
Discarded OutFlow Max=0.08 cfs @ 12.48 hrs HW=702.46' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.08 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=698.74' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

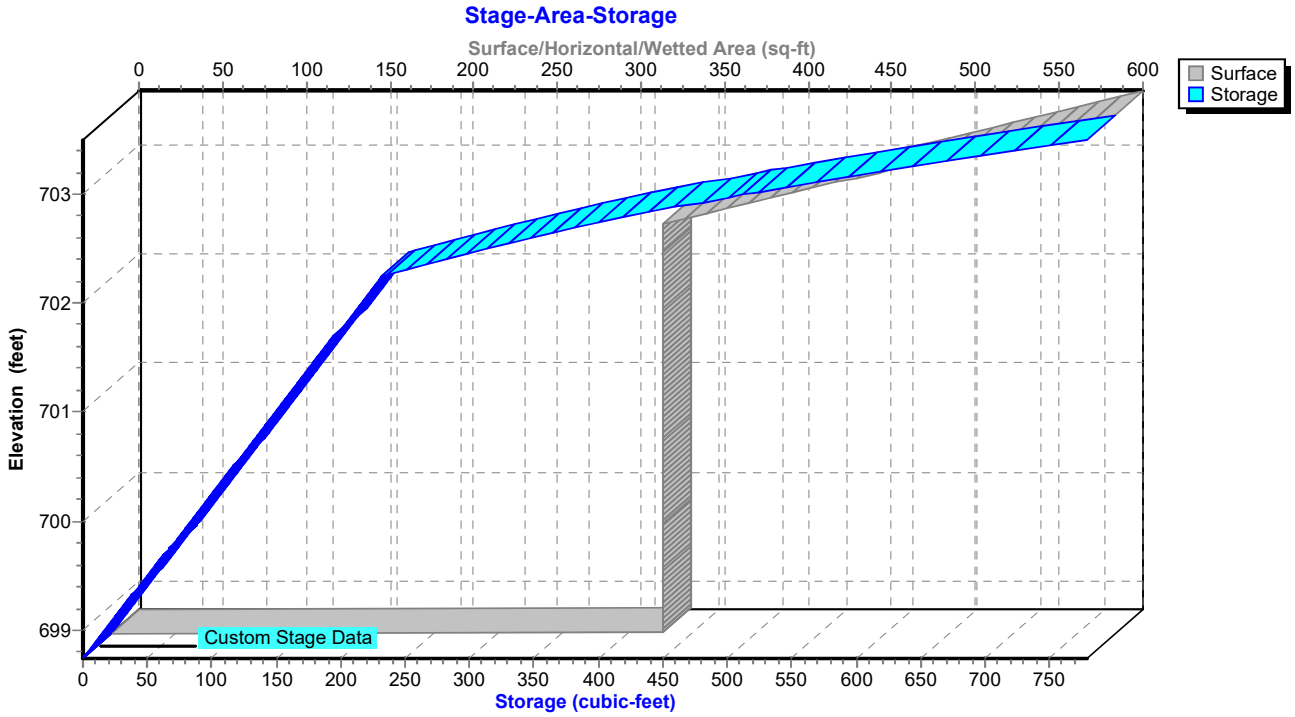
Pond 5P: Infiltration Bioretention 3



Pond 5P: Infiltration Bioretention 3



Pond 5P: Infiltration Bioretention 3

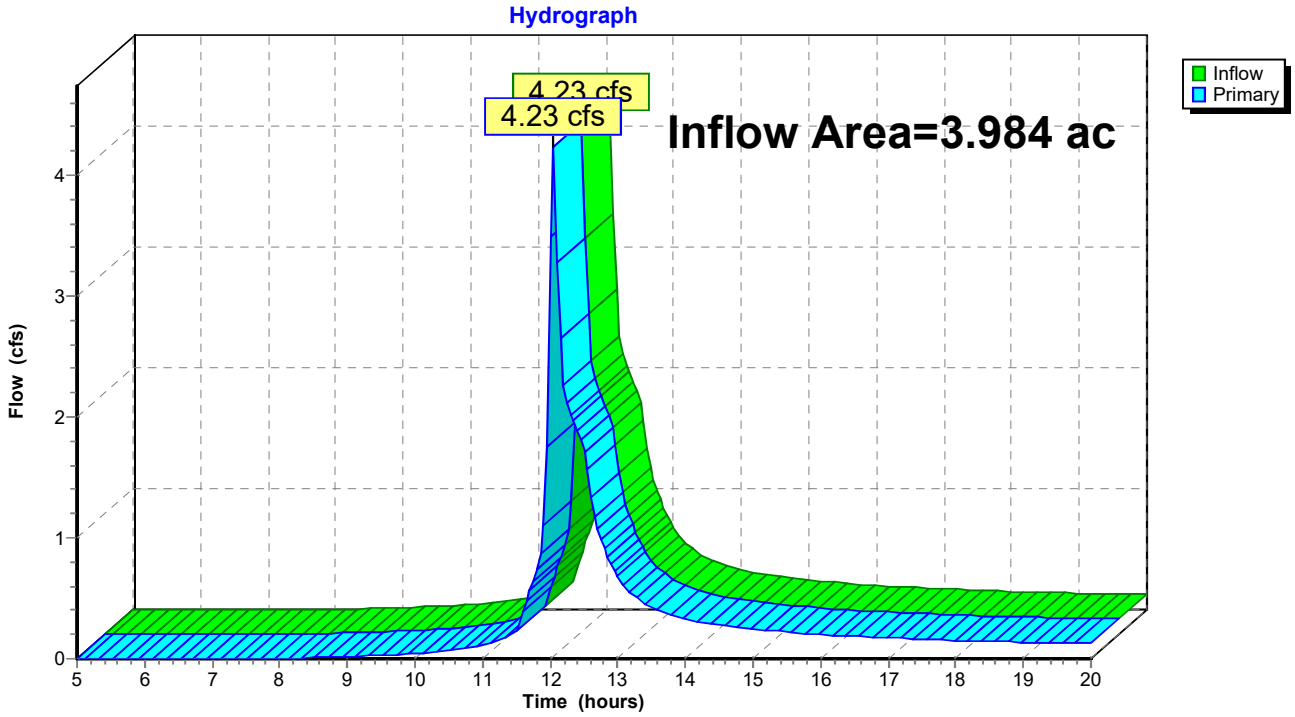


Summary for Link 1L: Pre-Dev Design Point

Inflow Area = 3.984 ac, 37.16% Impervious, Inflow Depth > 0.99" for 2-yr event
Inflow = 4.23 cfs @ 12.05 hrs, Volume= 0.328 af
Primary = 4.23 cfs @ 12.05 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Pre-Dev Design Point

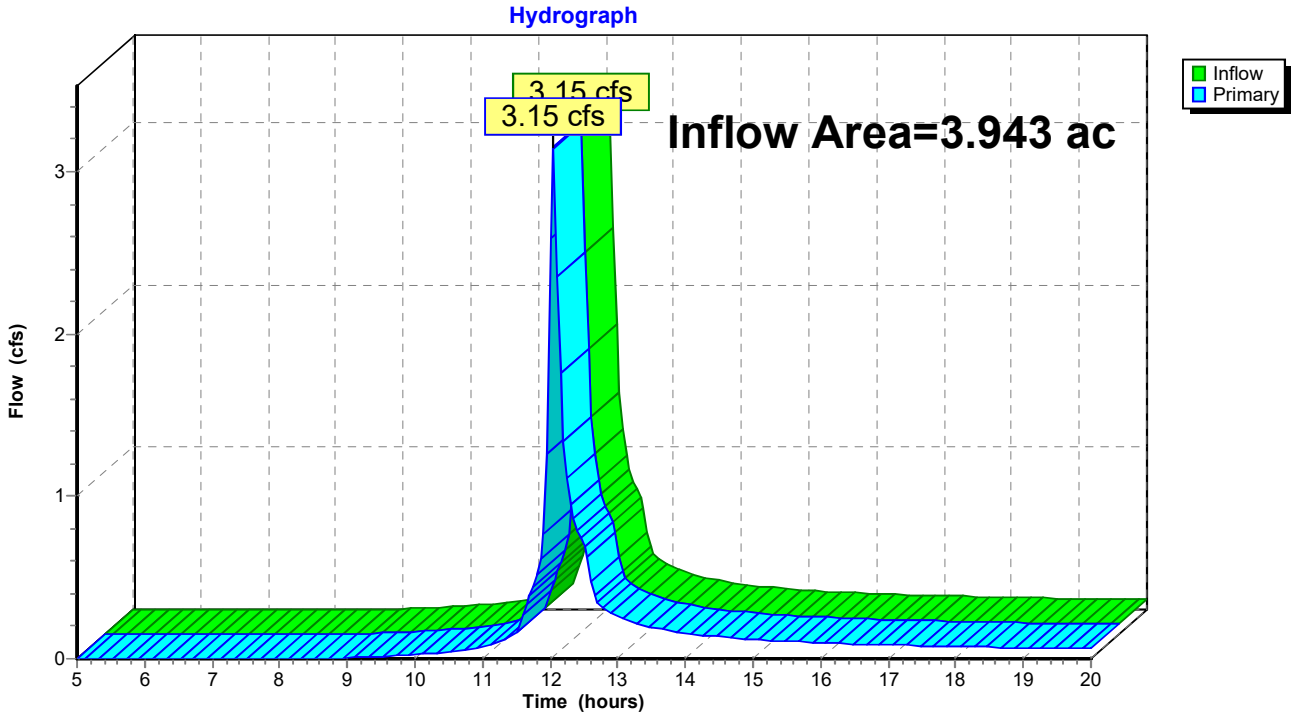


Summary for Link 2L: Post-Dev Design Point

Inflow Area = 3.943 ac, 56.43% Impervious, Inflow Depth > 0.53" for 2-yr event
Inflow = 3.15 cfs @ 12.05 hrs, Volume= 0.173 af
Primary = 3.15 cfs @ 12.05 hrs, Volume= 0.173 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: Post-Dev Design Point



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 0S: Existing 1 Runoff Area=90,141 sf 64.11% Impervious Runoff Depth>2.35"
Tc=6.0 min CN=85 Runoff=7.01 cfs 0.404 af

Subcatchment 00S: Existing 2 Runoff Area=1.915 ac 8.04% Impervious Runoff Depth>1.49"
Flow Length=675' Tc=29.7 min CN=74 Runoff=2.13 cfs 0.237 af

Subcatchment 1S: Post-Dev 1 Runoff Area=0.370 ac 67.57% Impervious Runoff Depth>2.43"
Tc=6.0 min CN=86 Runoff=1.30 cfs 0.075 af

Subcatchment 2S: Post-Dev 2 Runoff Area=0.270 ac 88.89% Impervious Runoff Depth>3.17"
Tc=6.0 min CN=94 Runoff=1.17 cfs 0.071 af

Subcatchment 3S: Post-Dev 3 Runoff Area=1.055 ac 29.10% Impervious Runoff Depth>1.36"
Flow Length=150' Slope=0.0100 '/' Tc=21.4 min CN=72 Runoff=1.25 cfs 0.120 af

Subcatchment 4S: Post-Dev 4 Runoff Area=0.300 ac 83.33% Impervious Runoff Depth>2.99"
Tc=6.0 min CN=92 Runoff=1.25 cfs 0.075 af

Subcatchment 5S: Post-Dev 5 Runoff Area=0.148 ac 86.49% Impervious Runoff Depth>3.08"
Tc=6.0 min CN=93 Runoff=0.63 cfs 0.038 af

Subcatchment 6S: Post-Dev 6 Runoff Area=1.800 ac 58.33% Impervious Runoff Depth>2.18"
Tc=6.0 min CN=83 Runoff=5.69 cfs 0.327 af

Reach 4R: Storm Sewer 1 Avg. Flow Depth=0.43' Max Vel=4.54 fps Inflow=1.31 cfs 0.027 af
12.0" Round Pipe n=0.012 L=153.0' S=0.0098 '/' Capacity=3.82 cfs Outflow=1.36 cfs 0.027 af

Pond 1P: Infiltration Bioretention 1 Peak Elev=707.13' Storage=796 cf Inflow=1.30 cfs 0.075 af
Discarded=0.15 cfs 0.060 af Primary=0.71 cfs 0.015 af Outflow=0.86 cfs 0.075 af

Pond 2P: Infiltration Bioretention 2 Peak Elev=705.61' Storage=785 cf Inflow=1.17 cfs 0.071 af
Discarded=0.15 cfs 0.060 af Primary=0.59 cfs 0.012 af Outflow=0.74 cfs 0.071 af

Pond 3P: Infiltration Basin 1 Peak Elev=704.62' Storage=2,433 cf Inflow=2.39 cfs 0.147 af
Discarded=0.23 cfs 0.116 af Primary=0.86 cfs 0.026 af Outflow=1.09 cfs 0.142 af

Pond 4P: Infiltration Basin 2 Peak Elev=705.67' Storage=1,284 cf Inflow=1.25 cfs 0.075 af
Discarded=0.14 cfs 0.075 af Primary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.075 af

Pond 5P: Infiltration Bioretention 3 Peak Elev=703.03' Storage=528 cf Inflow=0.63 cfs 0.038 af
Discarded=0.10 cfs 0.036 af Primary=0.09 cfs 0.002 af Outflow=0.19 cfs 0.038 af

Link 1L: Pre-Dev Design Point Inflow=7.67 cfs 0.642 af
Primary=7.67 cfs 0.642 af

Link 2L: Post-Dev Design Point Inflow=5.69 cfs 0.354 af
Primary=5.69 cfs 0.354 af

Total Runoff Area = 7.927 ac Runoff Volume = 1.347 af Average Runoff Depth = 2.04"
53.25% Pervious = 4.222 ac 46.75% Impervious = 3.706 ac

Summary for Subcatchment 0S: Existing 1

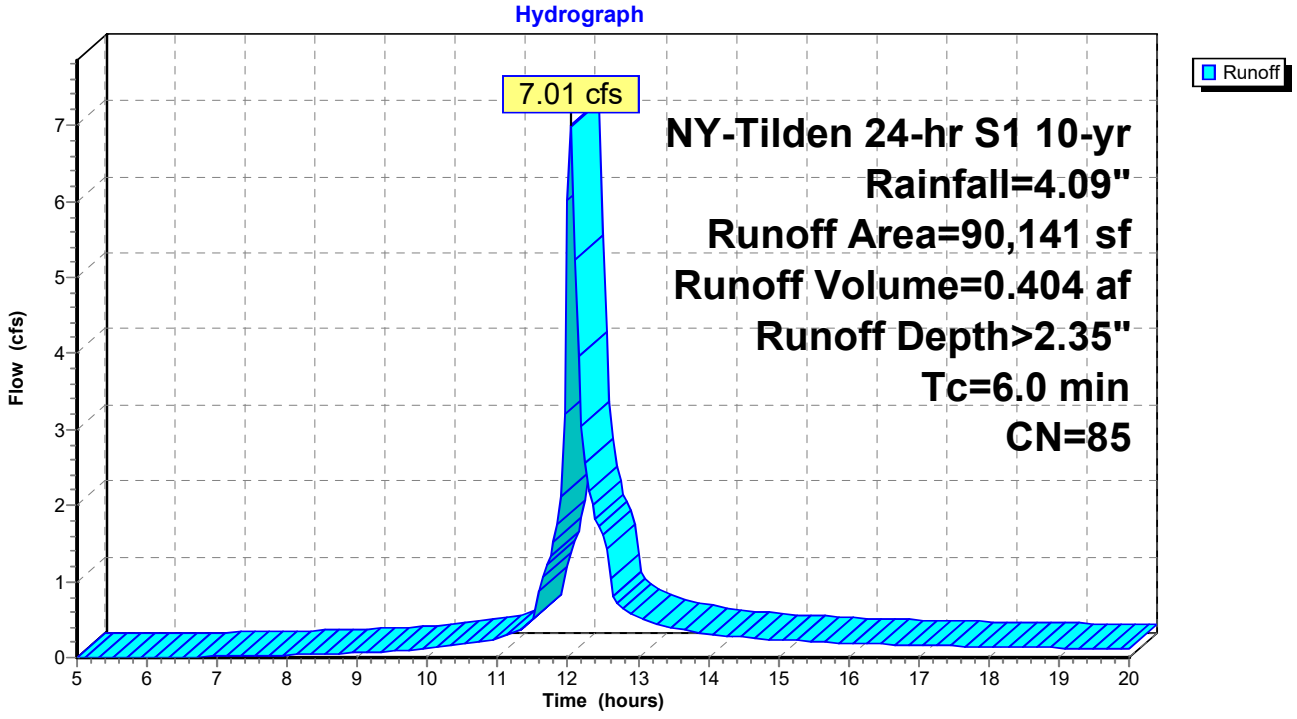
Runoff = 7.01 cfs @ 12.04 hrs, Volume= 0.404 af, Depth> 2.35"
Routed to Link 1L : Pre-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

	Area (sf)	CN	Description
*	46,902	98	Existing Impervious (On-Site)
*	10,889	98	Existing Impervious (Off-Site)
	32,350	61	>75% Grass cover, Good, HSG B
	90,141	85	Weighted Average
	32,350		35.89% Pervious Area
	57,791		64.11% Impervious Area

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

Subcatchment 0S: Existing 1



Summary for Subcatchment 00S: Existing 2

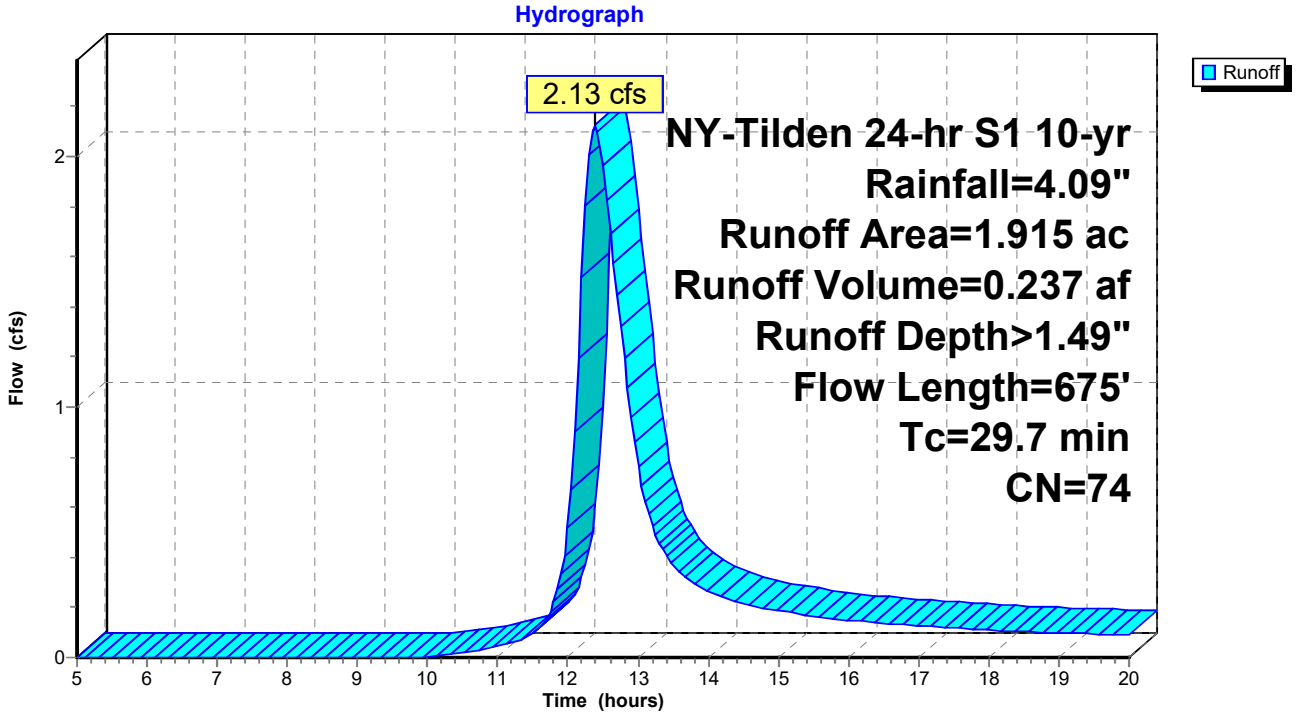
Runoff = 2.13 cfs @ 12.39 hrs, Volume= 0.237 af, Depth> 1.49"
Routed to Link 1L : Pre-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

	Area (ac)	CN	Description
*	0.049	98	Ex. Impervious (Off-Site)
*	0.105	98	Ex. Impervious (On-Site)
	1.198	79	<50% Grass cover, Poor, HSG B
	0.563	58	Woods/grass comb., Good, HSG B
	1.915	74	Weighted Average
	1.761		91.96% Pervious Area
	0.154		8.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.2	150	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.78"
9.0	380	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	145	0.0060	1.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
29.7	675	Total			

Subcatchment 00S: Existing 2



Summary for Subcatchment 1S: Post-Dev 1

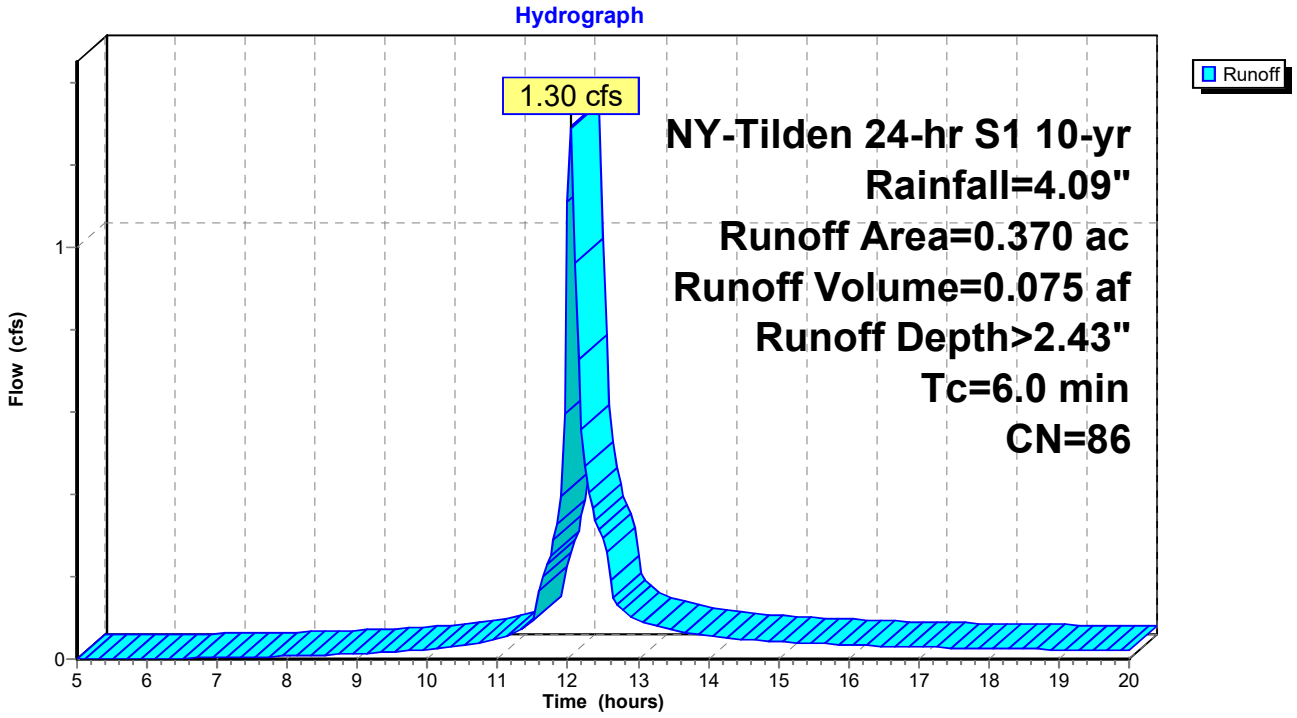
Runoff = 1.30 cfs @ 12.04 hrs, Volume= 0.075 af, Depth> 2.43"
Routed to Pond 1P : Infiltration Bioretention 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

	Area (ac)	CN	Description
*	0.250	98	Parking
	0.120	61	>75% Grass cover, Good, HSG B
	0.370	86	Weighted Average
	0.120		32.43% Pervious Area
	0.250		67.57% Impervious Area

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

Subcatchment 1S: Post-Dev 1



Summary for Subcatchment 2S: Post-Dev 2

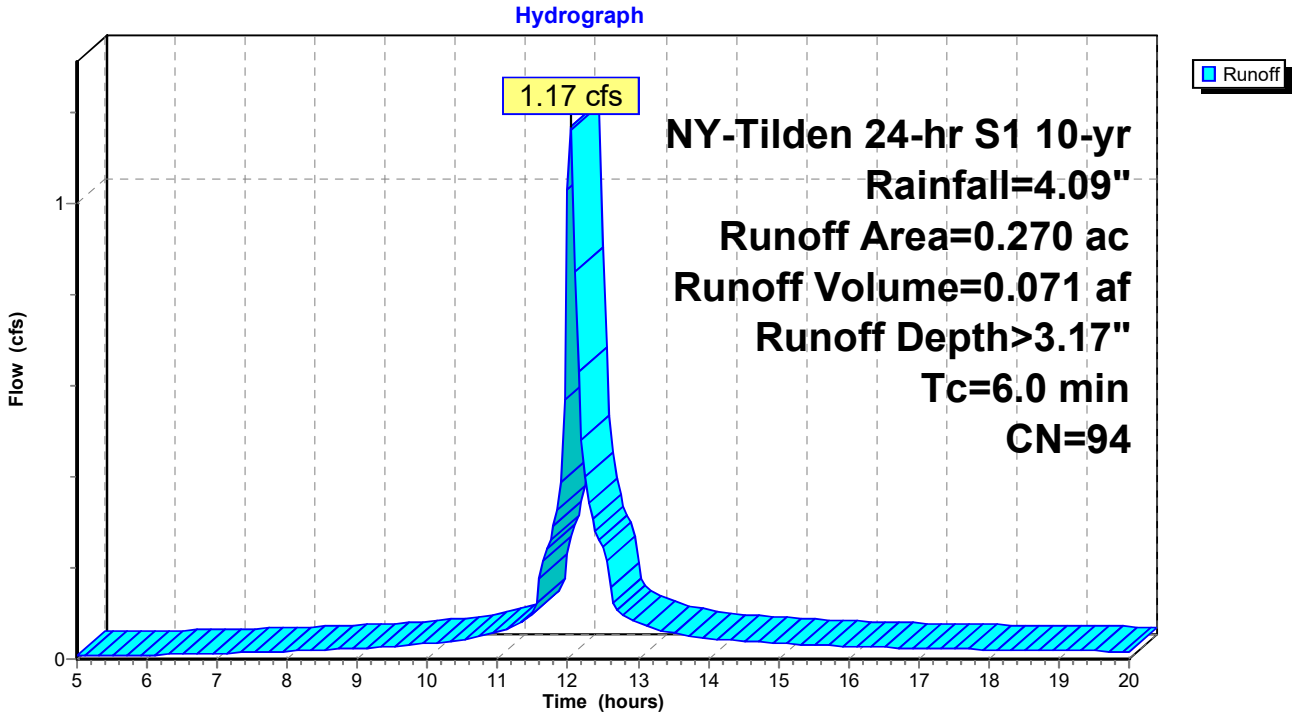
Runoff = 1.17 cfs @ 12.04 hrs, Volume= 0.071 af, Depth> 3.17"
Routed to Pond 2P : Infiltration Bioretention 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

	Area (ac)	CN	Description
*	0.240	98	Parking
	0.030	61	>75% Grass cover, Good, HSG B
	0.270	94	Weighted Average
	0.030		11.11% Pervious Area
	0.240		88.89% Impervious Area

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

Subcatchment 2S: Post-Dev 2



Summary for Subcatchment 3S: Post-Dev 3

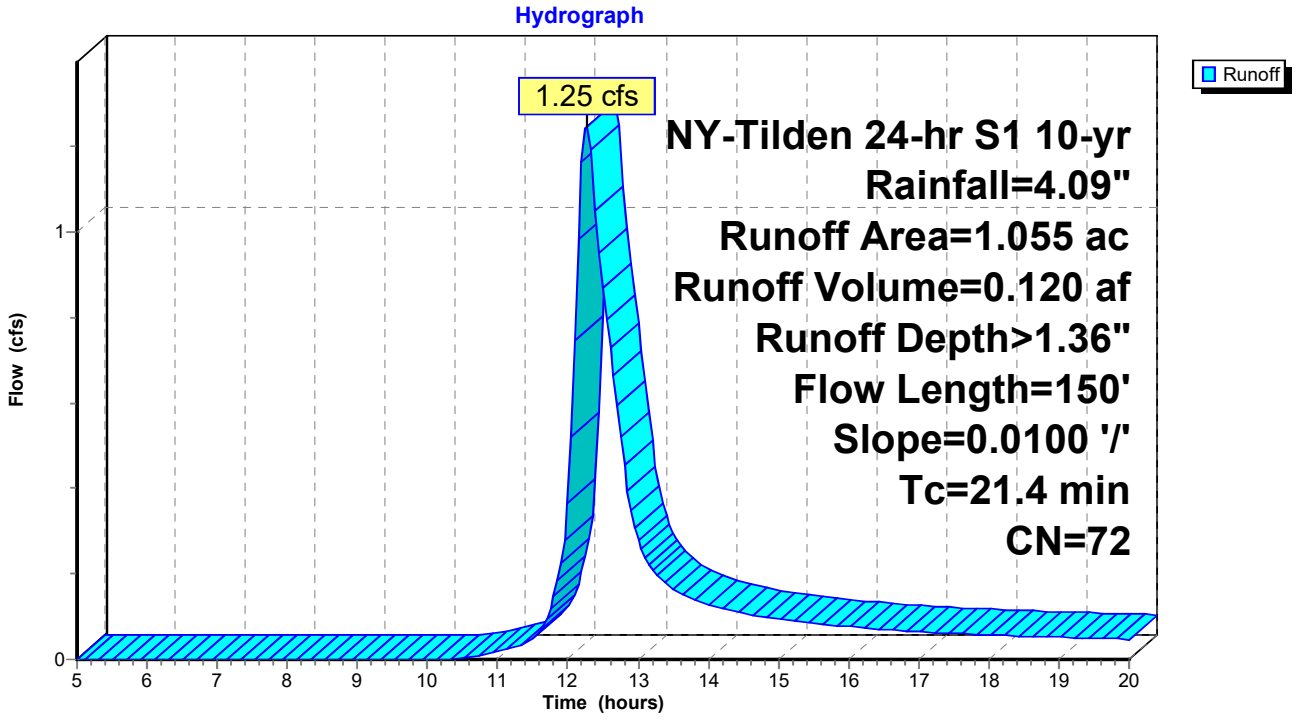
Runoff = 1.25 cfs @ 12.27 hrs, Volume= 0.120 af, Depth> 1.36"
Routed to Pond 3P : Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

	Area (ac)	CN	Description
*	0.307	98	Parking
	0.748	61	>75% Grass cover, Good, HSG B
	1.055	72	Weighted Average
	0.748		70.90% Pervious Area
	0.307		29.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.78"
1.2	50	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.4	150	Total			

Subcatchment 3S: Post-Dev 3



Summary for Subcatchment 4S: Post-Dev 4

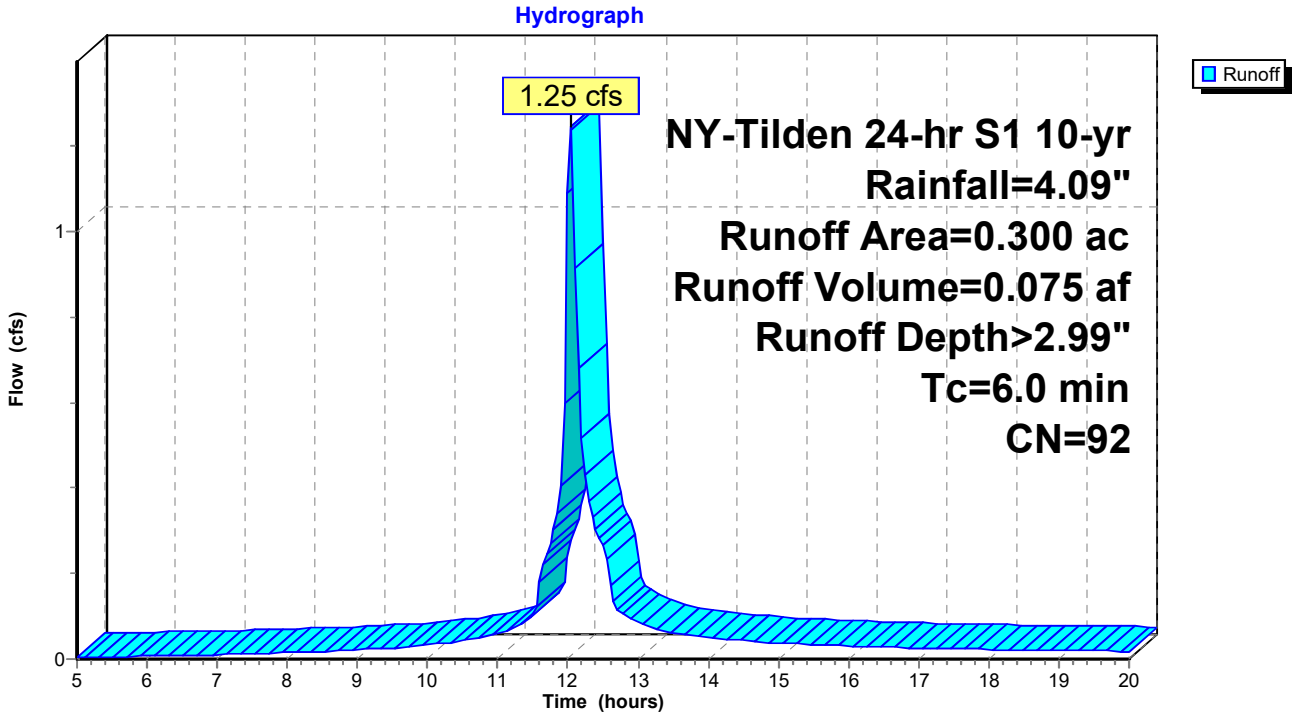
Runoff = 1.25 cfs @ 12.04 hrs, Volume= 0.075 af, Depth> 2.99"
Routed to Pond 4P : Infiltration Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

	Area (ac)	CN	Description
*	0.250	98	Building & Sidewalks
	0.050	61	>75% Grass cover, Good, HSG B
	0.300	92	Weighted Average
	0.050		16.67% Pervious Area
	0.250		83.33% Impervious Area

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

Subcatchment 4S: Post-Dev 4



Summary for Subcatchment 5S: Post-Dev 5

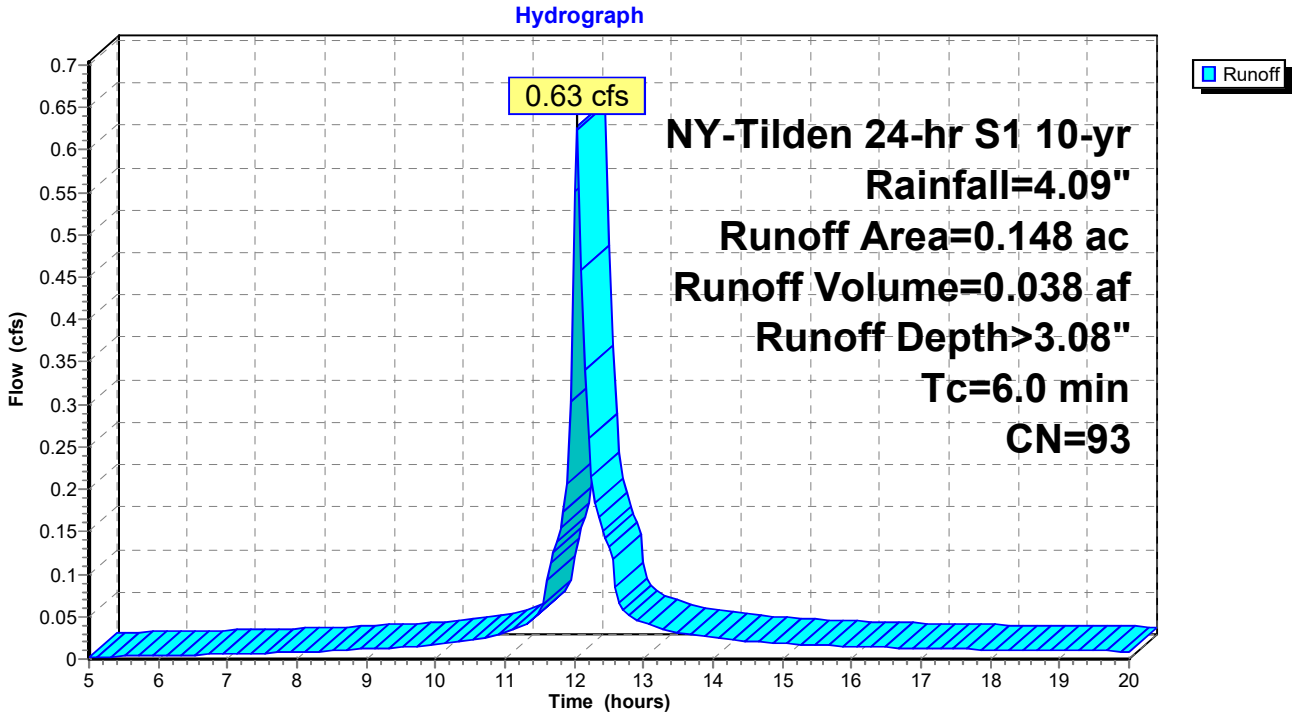
Runoff = 0.63 cfs @ 12.04 hrs, Volume= 0.038 af, Depth> 3.08"
Routed to Pond 5P : Infiltration Bioretention 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

	Area (ac)	CN	Description
*	0.128	98	Building & Sidewalks
	0.020	61	>75% Grass cover, Good, HSG B
	0.148	93	Weighted Average
	0.020		13.51% Pervious Area
	0.128		86.49% Impervious Area

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

Subcatchment 5S: Post-Dev 5



Summary for Subcatchment 6S: Post-Dev 6

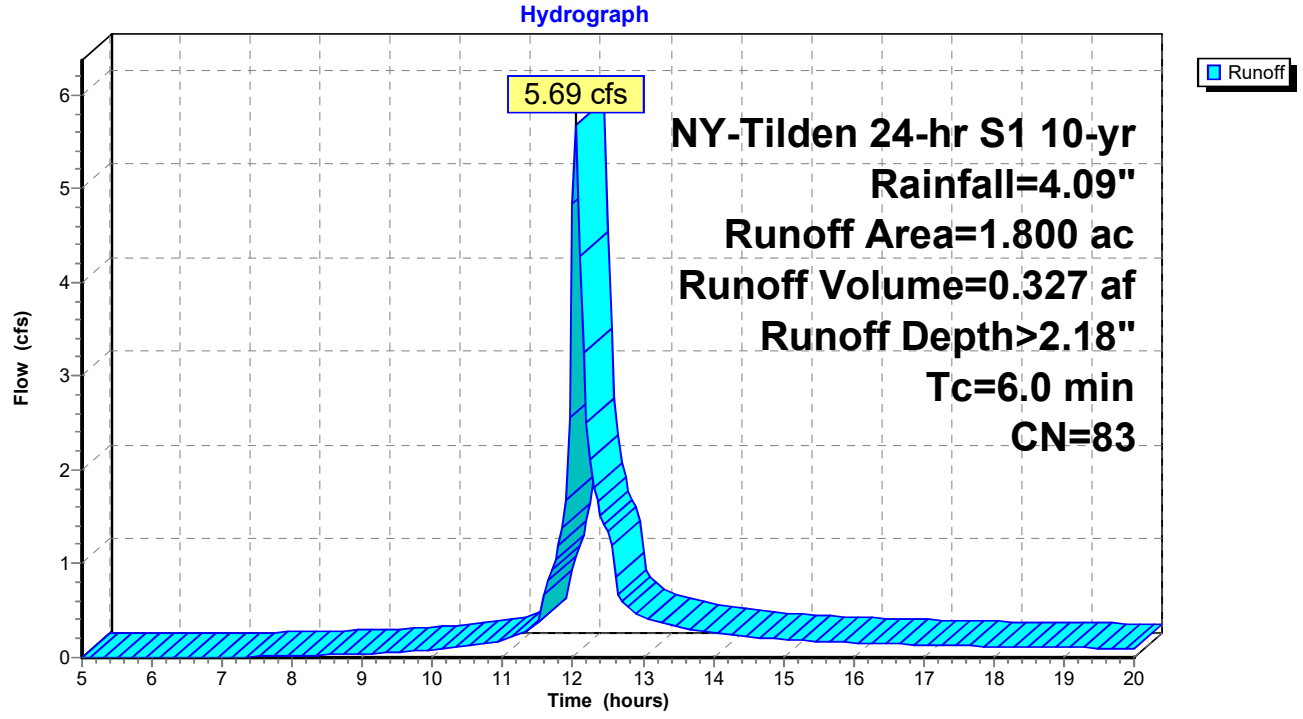
Runoff = 5.69 cfs @ 12.04 hrs, Volume= 0.327 af, Depth> 2.18"
Routed to Link 2L : Post-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

	Area (ac)	CN	Description
*	0.762	98	On-Site Impervious
*	0.288	98	Off-Site Impervious
	0.750	61	>75% Grass cover, Good, HSG B
	1.800	83	Weighted Average
	0.750		41.67% Pervious Area
	1.050		58.33% Impervious Area

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

Subcatchment 6S: Post-Dev 6



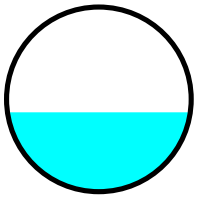
Summary for Reach 4R: Storm Sewer 1

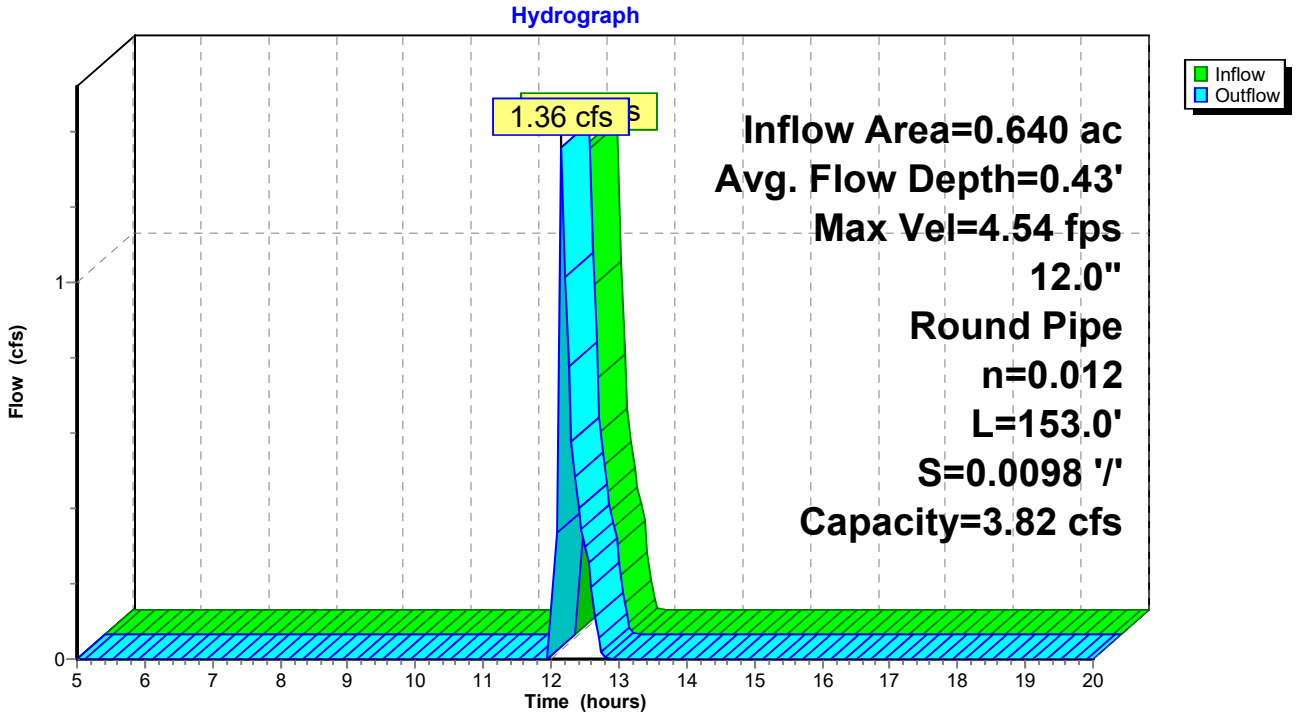
Inflow Area = 0.640 ac, 76.56% Impervious, Inflow Depth = 0.51" for 10-yr event
Inflow = 1.31 cfs @ 12.14 hrs, Volume= 0.027 af
Outflow = 1.36 cfs @ 12.16 hrs, Volume= 0.027 af, Atten= 0%, Lag= 1.4 min
Routed to Pond 3P : Infiltration Basin 1

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.54 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.17 fps, Avg. Travel Time= 1.2 min

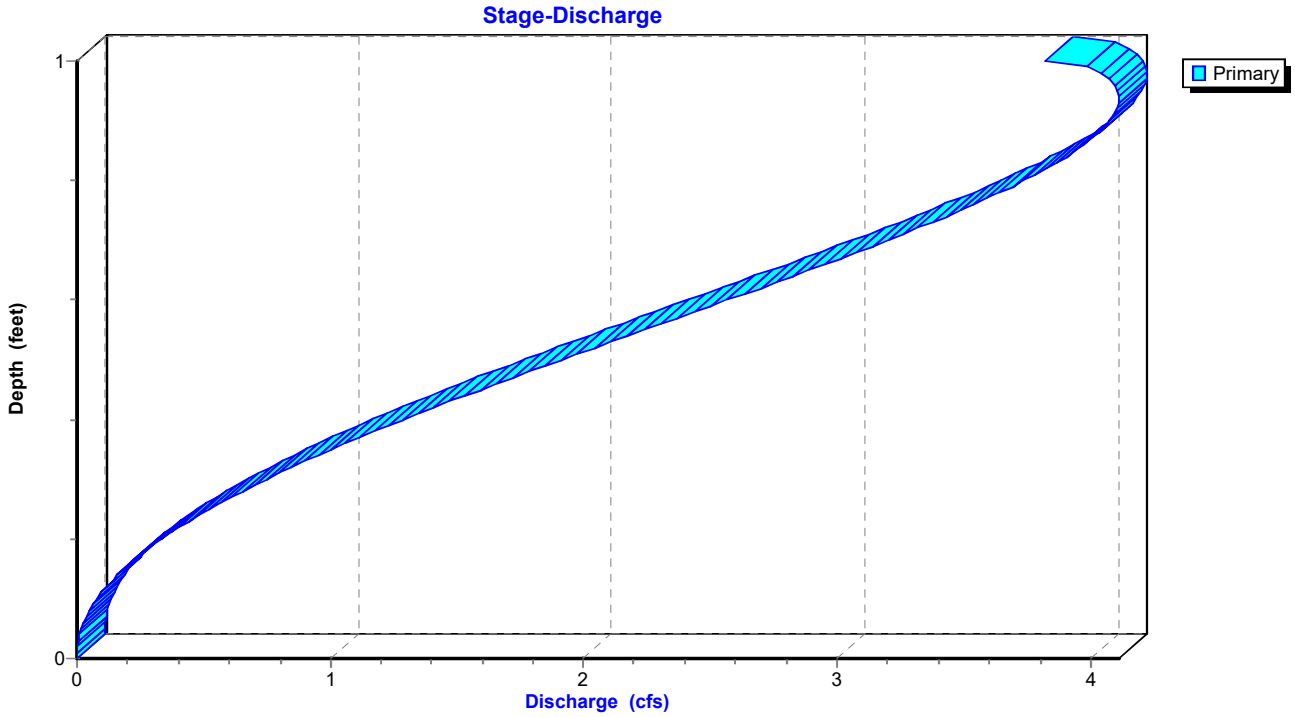
Peak Storage= 49 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.43' , Surface Width= 0.99'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.82 cfs

12.0" Round Pipe
n= 0.012
Length= 153.0' Slope= 0.0098 '/'
Inlet Invert= 704.75', Outlet Invert= 703.25'

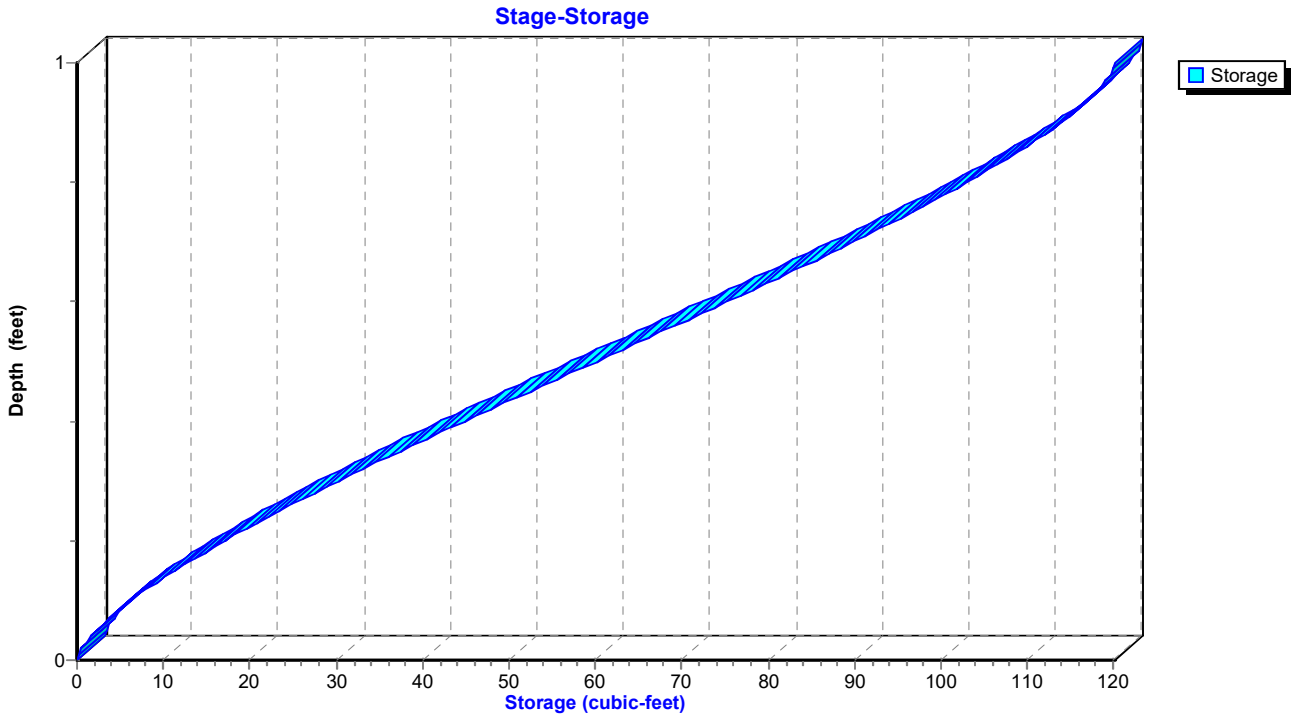




Reach 4R: Storm Sewer 1



Reach 4R: Storm Sewer 1



Summary for Pond 1P: Infiltration Bioretention 1

Inflow Area = 0.370 ac, 67.57% Impervious, Inflow Depth > 2.43" for 10-yr event
Inflow = 1.30 cfs @ 12.04 hrs, Volume= 0.075 af
Outflow = 0.86 cfs @ 12.13 hrs, Volume= 0.075 af, Atten= 34%, Lag= 5.4 min
Discarded = 0.15 cfs @ 12.13 hrs, Volume= 0.060 af
Primary = 0.71 cfs @ 12.13 hrs, Volume= 0.015 af
Routed to Reach 4R : Storm Sewer 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 707.13' @ 12.13 hrs Surf.Area= 761 sf Storage= 796 cf

Plug-Flow detention time= 38.0 min calculated for 0.075 af (100% of inflow)
Center-of-Mass det. time= 37.9 min (815.5 - 777.6)

Volume	Invert	Avail.Storage	Storage Description
#1	702.74'	1,114 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

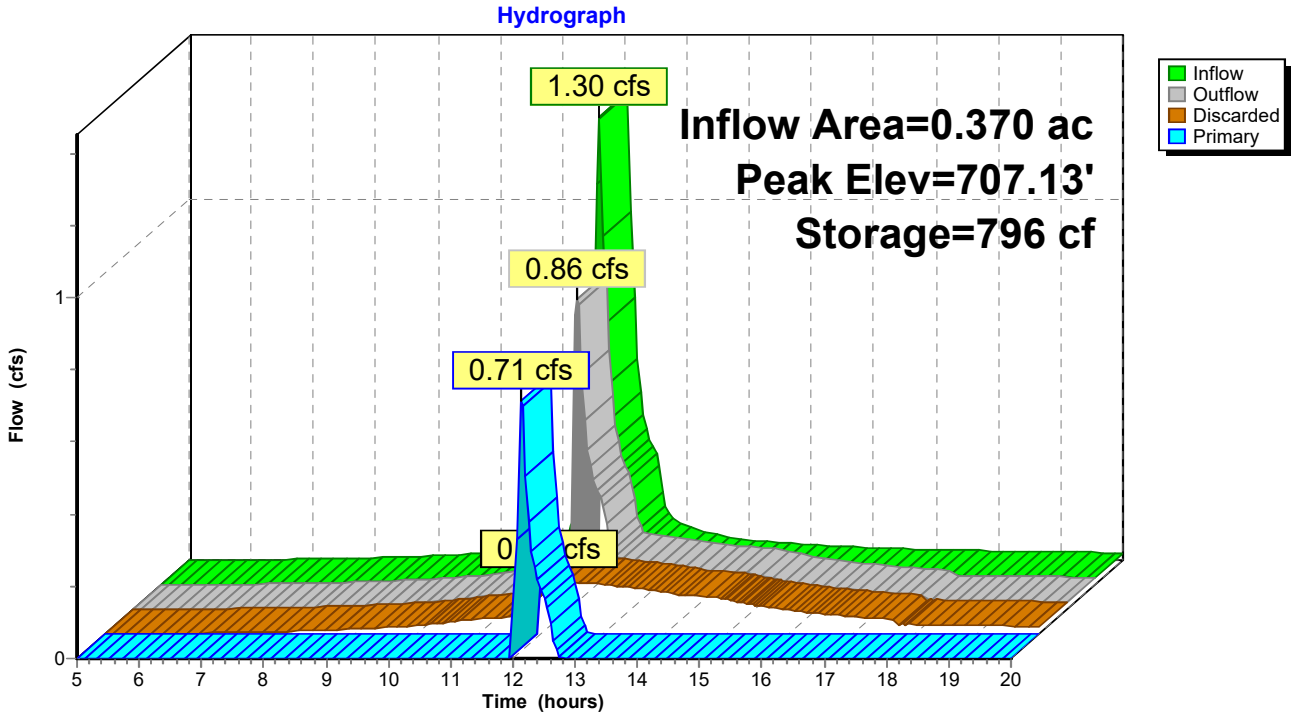
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
702.74	0	0.0	0	0
702.75	440	40.0	1	1
703.75	440	20.0	88	89
706.25	440	20.0	220	309
706.50	440	100.0	110	419
707.50	950	100.0	695	1,114

Device	Routing	Invert	Outlet Devices
#1	Discarded	702.74'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 700.50'
#2	Primary	707.00'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

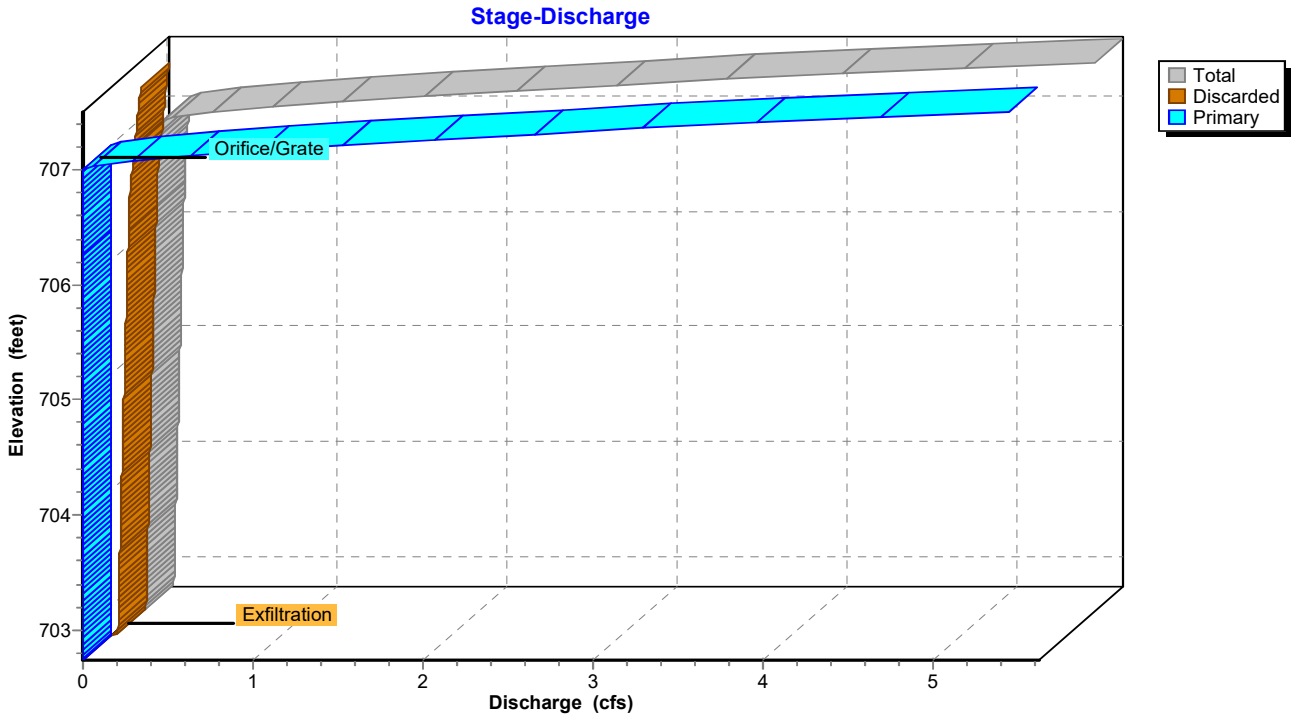
Discarded OutFlow Max=0.15 cfs @ 12.13 hrs HW=707.13' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.15 cfs)

Primary OutFlow Max=0.68 cfs @ 12.13 hrs HW=707.13' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.68 cfs @ 1.16 fps)

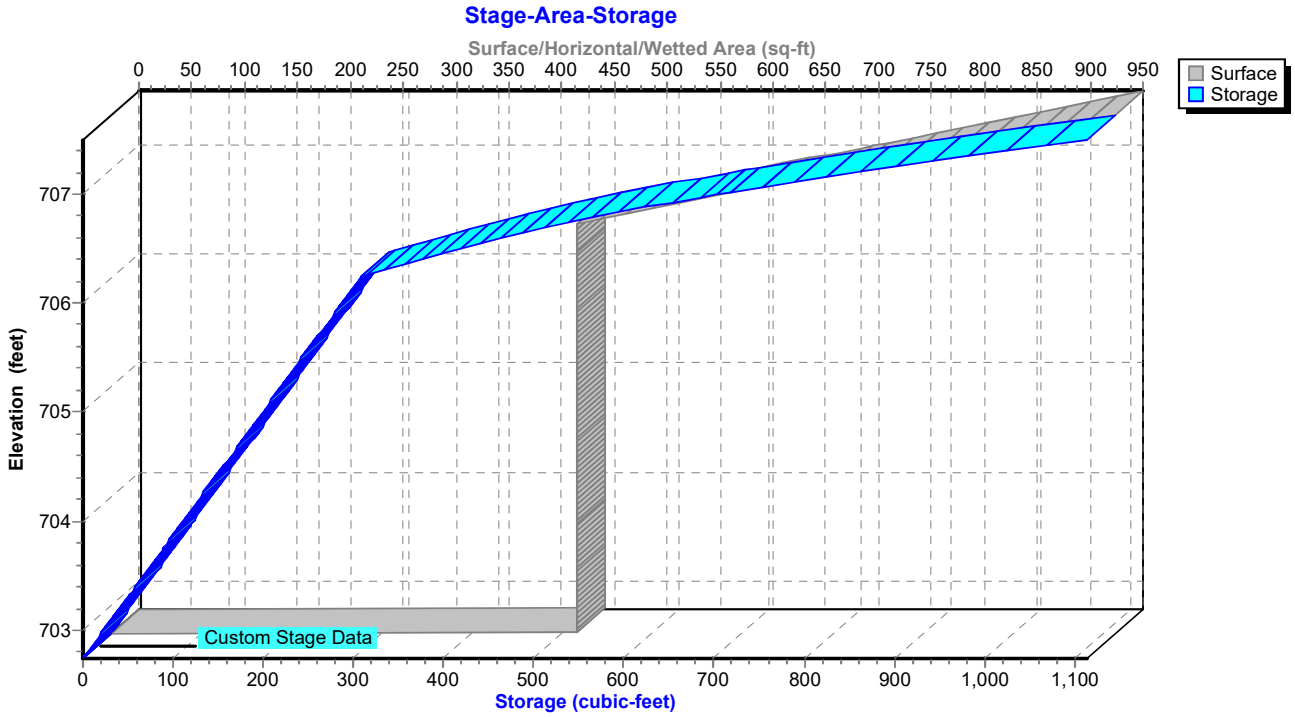
Pond 1P: Infiltration Bioretention 1



Pond 1P: Infiltration Bioretention 1



Pond 1P: Infiltration Bioretention 1



Summary for Pond 2P: Infiltration Bioretention 2

Inflow Area = 0.270 ac, 88.89% Impervious, Inflow Depth > 3.17" for 10-yr event
Inflow = 1.17 cfs @ 12.04 hrs, Volume= 0.071 af
Outflow = 0.74 cfs @ 12.14 hrs, Volume= 0.071 af, Atten= 37%, Lag= 5.9 min
Discarded = 0.15 cfs @ 12.14 hrs, Volume= 0.060 af
Primary = 0.59 cfs @ 12.14 hrs, Volume= 0.012 af
Routed to Reach 4R : Storm Sewer 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 705.61' @ 12.14 hrs Surf.Area= 753 sf Storage= 785 cf

Plug-Flow detention time= 36.1 min calculated for 0.071 af (100% of inflow)
Center-of-Mass det. time= 36.0 min (786.6 - 750.6)

Volume	Invert	Avail.Storage	Storage Description
#1	701.24'	1,114 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

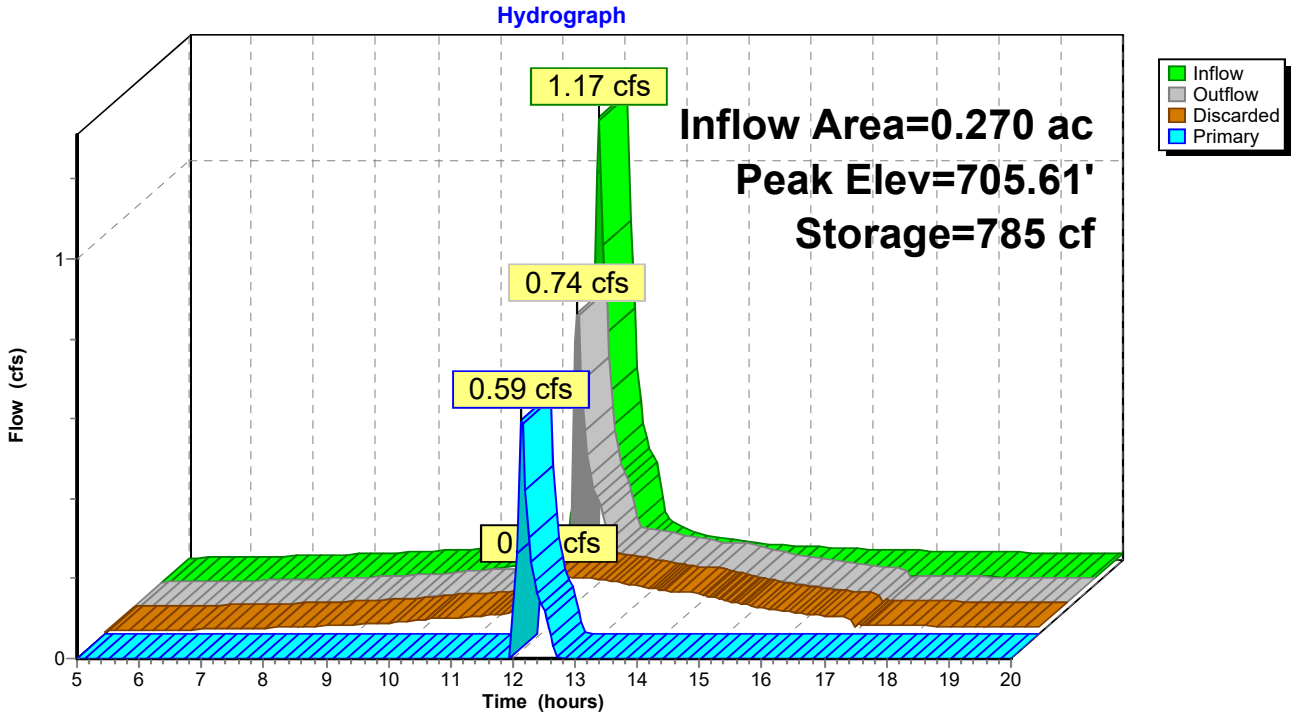
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
701.24	0	0.0	0	0
701.25	440	40.0	1	1
702.25	440	20.0	88	89
704.75	440	20.0	220	309
705.00	440	100.0	110	419
706.00	950	100.0	695	1,114

Device	Routing	Invert	Outlet Devices
#1	Discarded	701.24'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 699.00'
#2	Primary	705.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

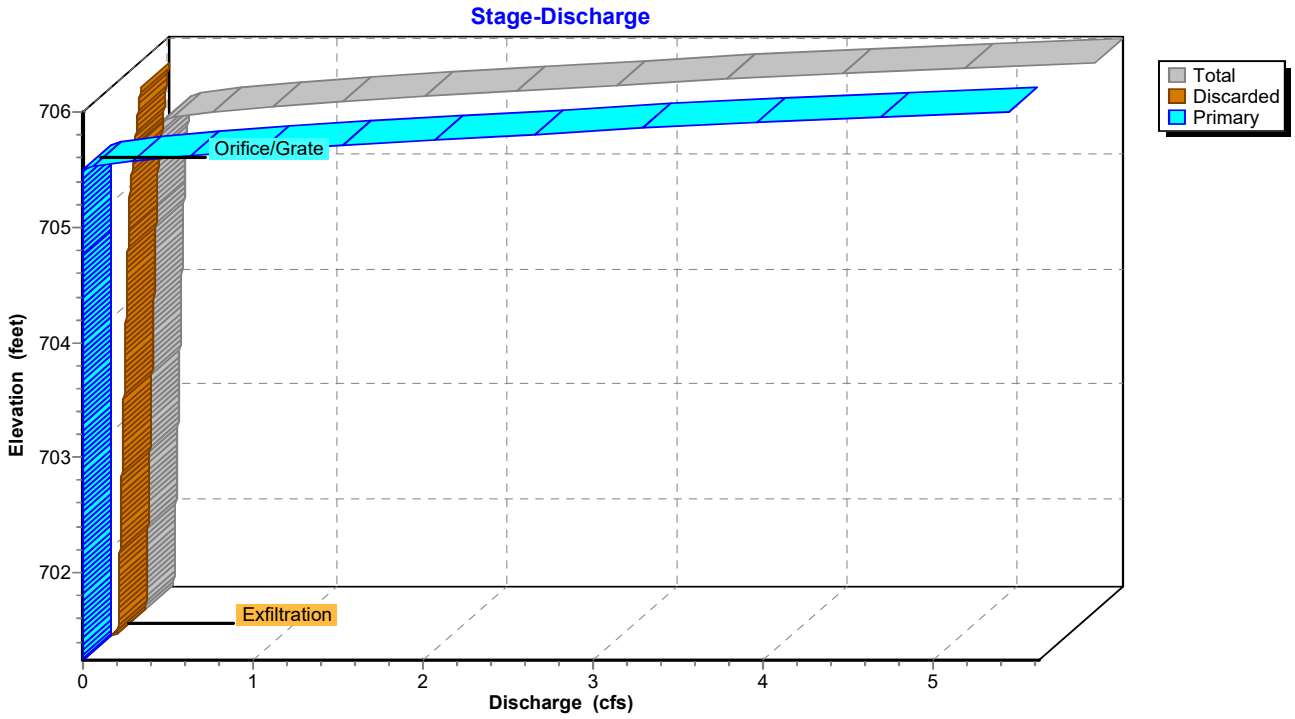
Discarded OutFlow Max=0.15 cfs @ 12.14 hrs HW=705.61' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.15 cfs)

Primary OutFlow Max=0.57 cfs @ 12.14 hrs HW=705.61' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.57 cfs @ 1.09 fps)

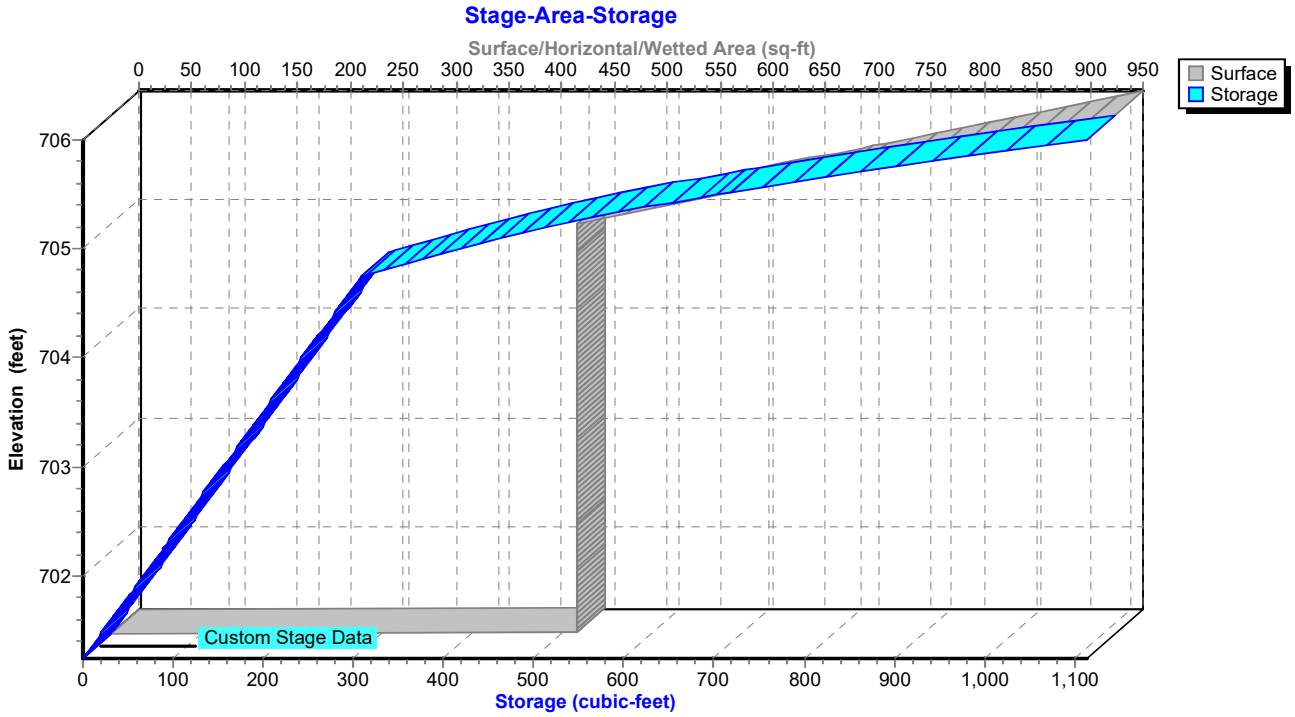
Pond 2P: Infiltration Bioretention 2



Pond 2P: Infiltration Bioretention 2



Pond 2P: Infiltration Bioretention 2



Summary for Pond 3P: Infiltration Basin 1

Inflow Area = 1.695 ac, 47.02% Impervious, Inflow Depth > 1.04" for 10-yr event
Inflow = 2.39 cfs @ 12.17 hrs, Volume= 0.147 af
Outflow = 1.09 cfs @ 12.54 hrs, Volume= 0.142 af, Atten= 55%, Lag= 22.6 min
Discarded = 0.23 cfs @ 12.54 hrs, Volume= 0.116 af
Primary = 0.86 cfs @ 12.54 hrs, Volume= 0.026 af
Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 704.62' @ 12.54 hrs Surf.Area= 2,046 sf Storage= 2,433 cf

Plug-Flow detention time= 99.9 min calculated for 0.142 af (97% of inflow)
Center-of-Mass det. time= 87.5 min (894.5 - 807.0)

Volume	Invert	Avail.Storage	Storage Description
#1	703.00'	3,250 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

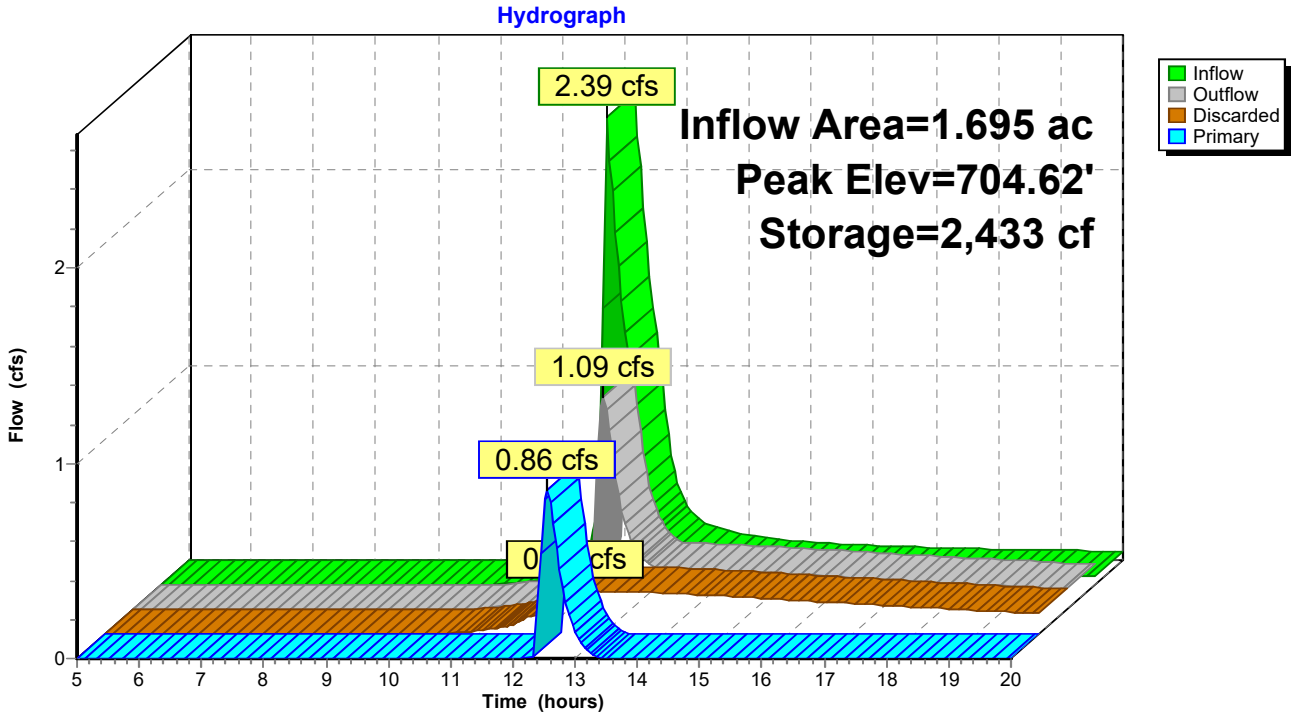
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
703.00	950	0	0
705.00	2,300	3,250	3,250

Device	Routing	Invert	Outlet Devices
#1	Discarded	703.00'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 697.00'
#2	Primary	704.50'	**8.0' long + 3.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

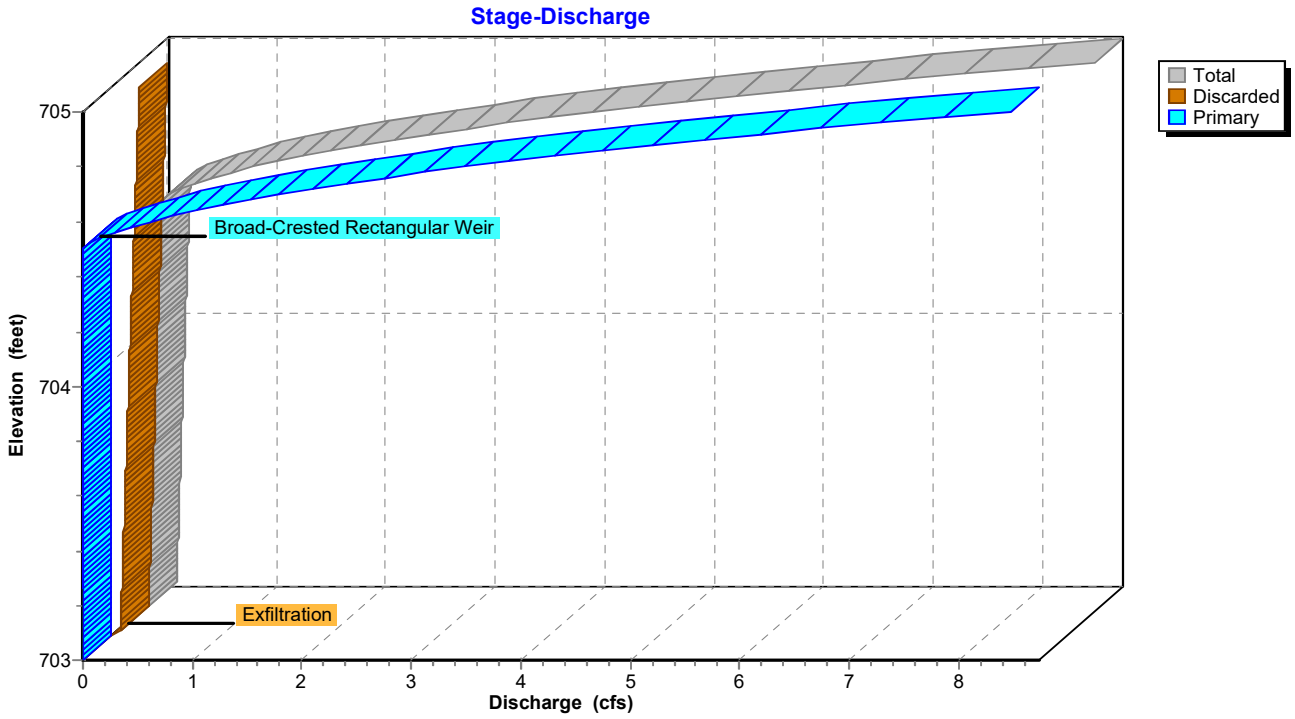
Discarded OutFlow Max=0.23 cfs @ 12.54 hrs HW=704.62' (Free Discharge)
1=Exfiltration (Controls 0.23 cfs)

Primary OutFlow Max=0.85 cfs @ 12.54 hrs HW=704.62' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.85 cfs @ 0.83 fps)

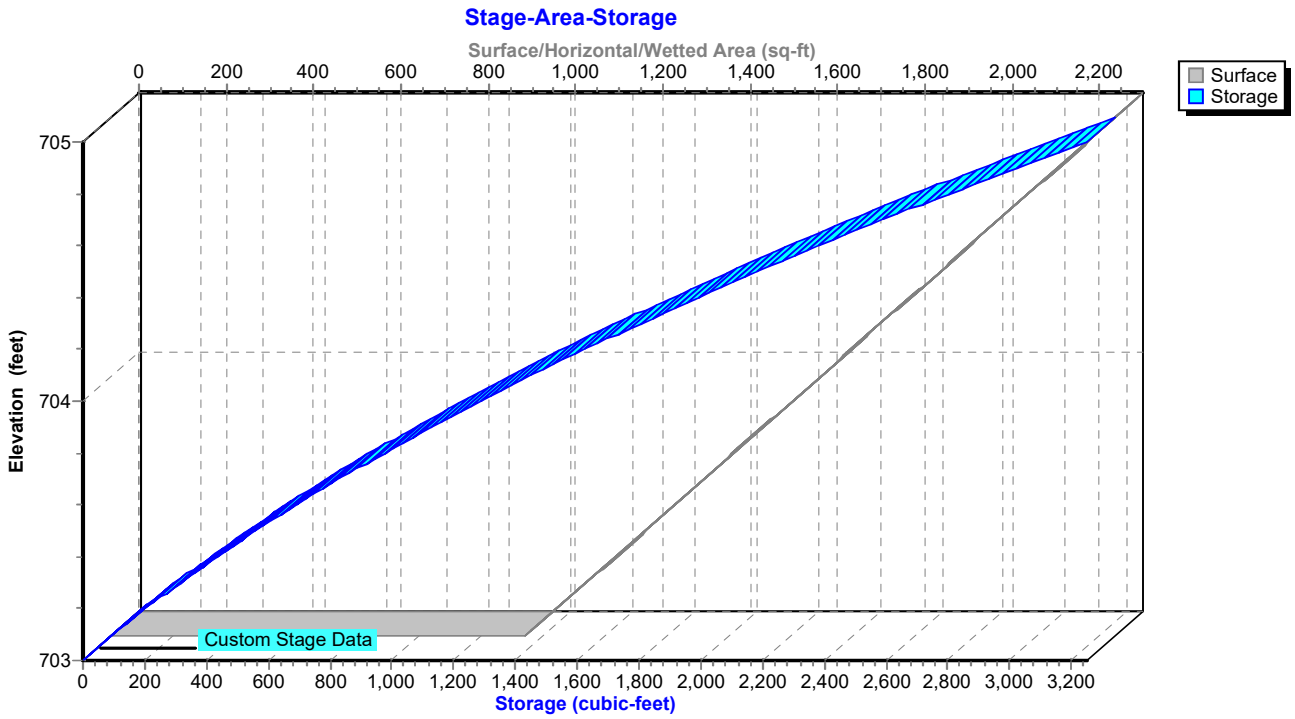
Pond 3P: Infiltration Basin 1



Pond 3P: Infiltration Basin 1



Pond 3P: Infiltration Basin 1



Summary for Pond 4P: Infiltration Basin 2

Inflow Area = 0.300 ac, 83.33% Impervious, Inflow Depth > 2.99" for 10-yr event
Inflow = 1.25 cfs @ 12.04 hrs, Volume= 0.075 af
Outflow = 0.14 cfs @ 12.64 hrs, Volume= 0.075 af, Atten= 88%, Lag= 35.9 min
Discarded = 0.14 cfs @ 12.64 hrs, Volume= 0.075 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 705.67' @ 12.64 hrs Surf.Area= 1,347 sf Storage= 1,284 cf

Plug-Flow detention time= 75.6 min calculated for 0.075 af (100% of inflow)
Center-of-Mass det. time= 75.0 min (832.7 - 757.7)

Volume	Invert	Avail.Storage	Storage Description
#1	704.50'	2,550 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

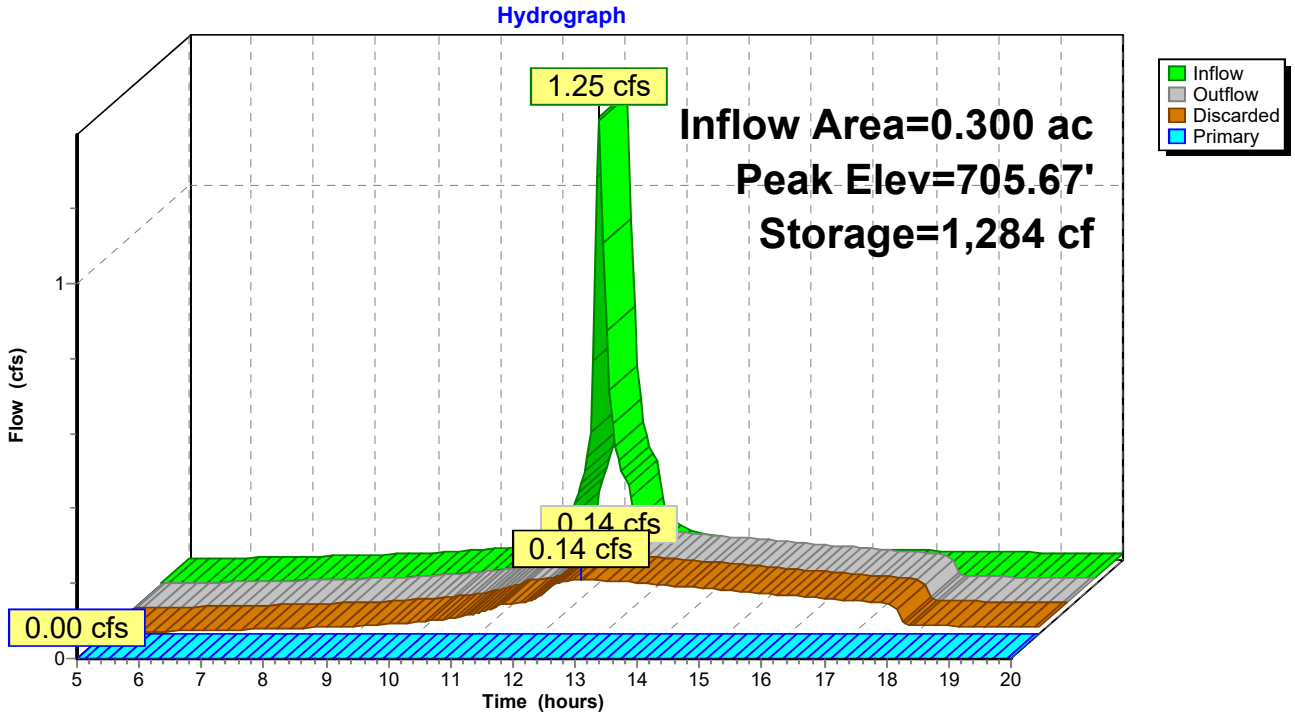
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
704.50	850	0	0
706.50	1,700	2,550	2,550

Device	Routing	Invert	Outlet Devices
#1	Discarded	704.50'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 698.50'
#2	Primary	706.00'	**5.0' long + 3.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

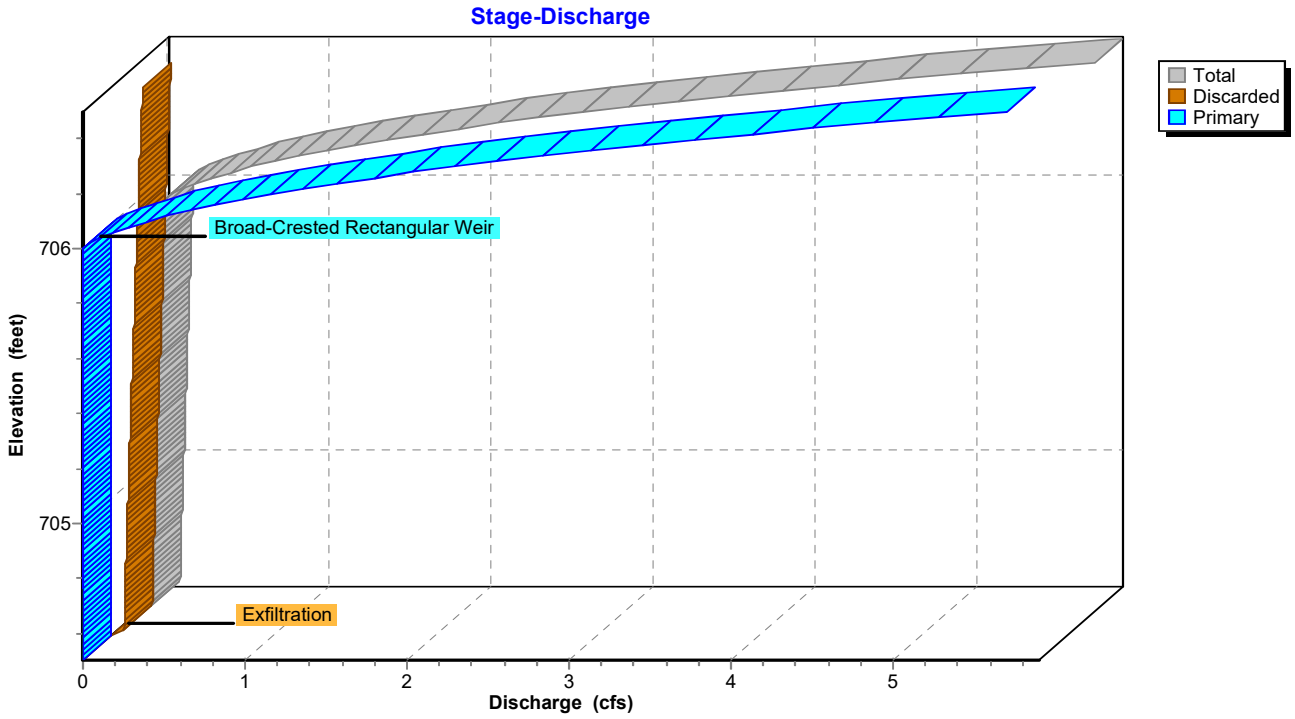
Discarded OutFlow Max=0.14 cfs @ 12.64 hrs HW=705.67' (Free Discharge)
1=Exfiltration (Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=704.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

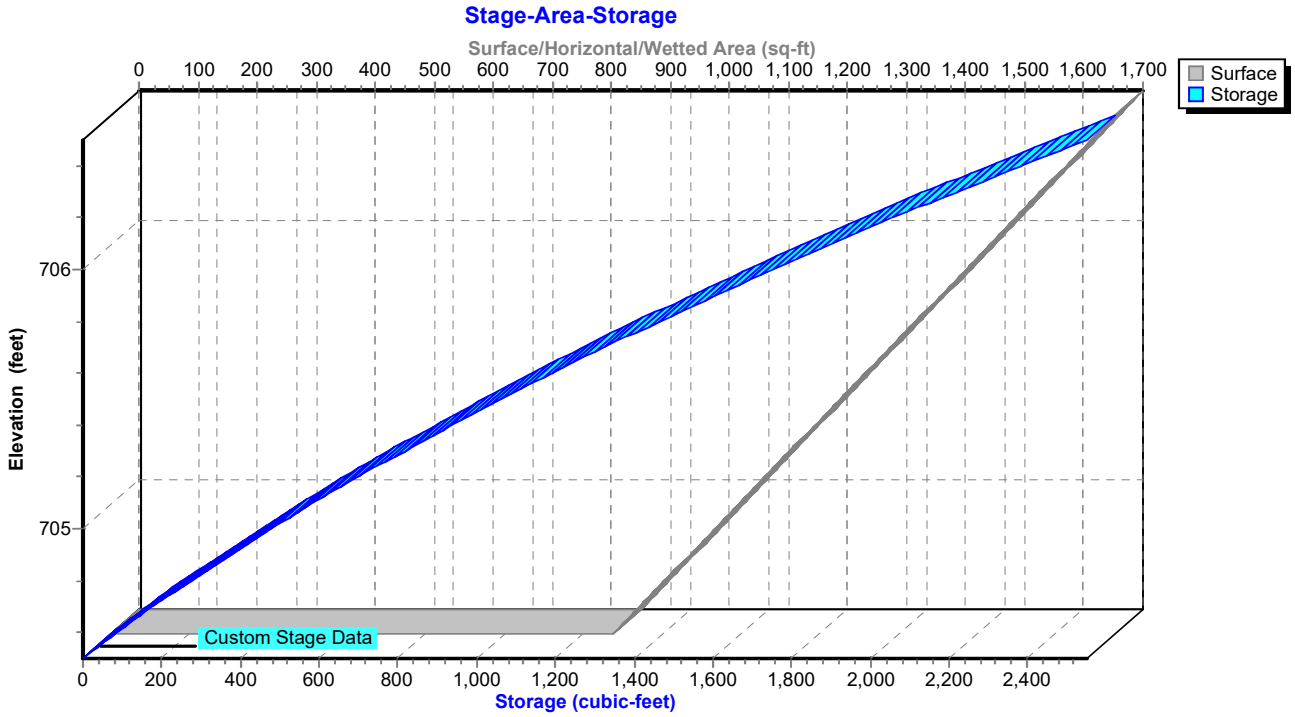
Pond 4P: Infiltration Basin 2



Pond 4P: Infiltration Basin 2



Pond 4P: Infiltration Basin 2



Summary for Pond 5P: Infiltration Bioretention 3

Inflow Area = 0.148 ac, 86.49% Impervious, Inflow Depth > 3.08" for 10-yr event
Inflow = 0.63 cfs @ 12.04 hrs, Volume= 0.038 af
Outflow = 0.19 cfs @ 12.32 hrs, Volume= 0.038 af, Atten= 70%, Lag= 16.6 min
Discarded = 0.10 cfs @ 12.32 hrs, Volume= 0.036 af
Primary = 0.09 cfs @ 12.32 hrs, Volume= 0.002 af
Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 703.03' @ 12.32 hrs Surf.Area= 474 sf Storage= 528 cf

Plug-Flow detention time= 40.6 min calculated for 0.038 af (100% of inflow)
Center-of-Mass det. time= 40.5 min (794.7 - 754.2)

Volume	Invert	Avail.Storage	Storage Description
#1	698.74'	779 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

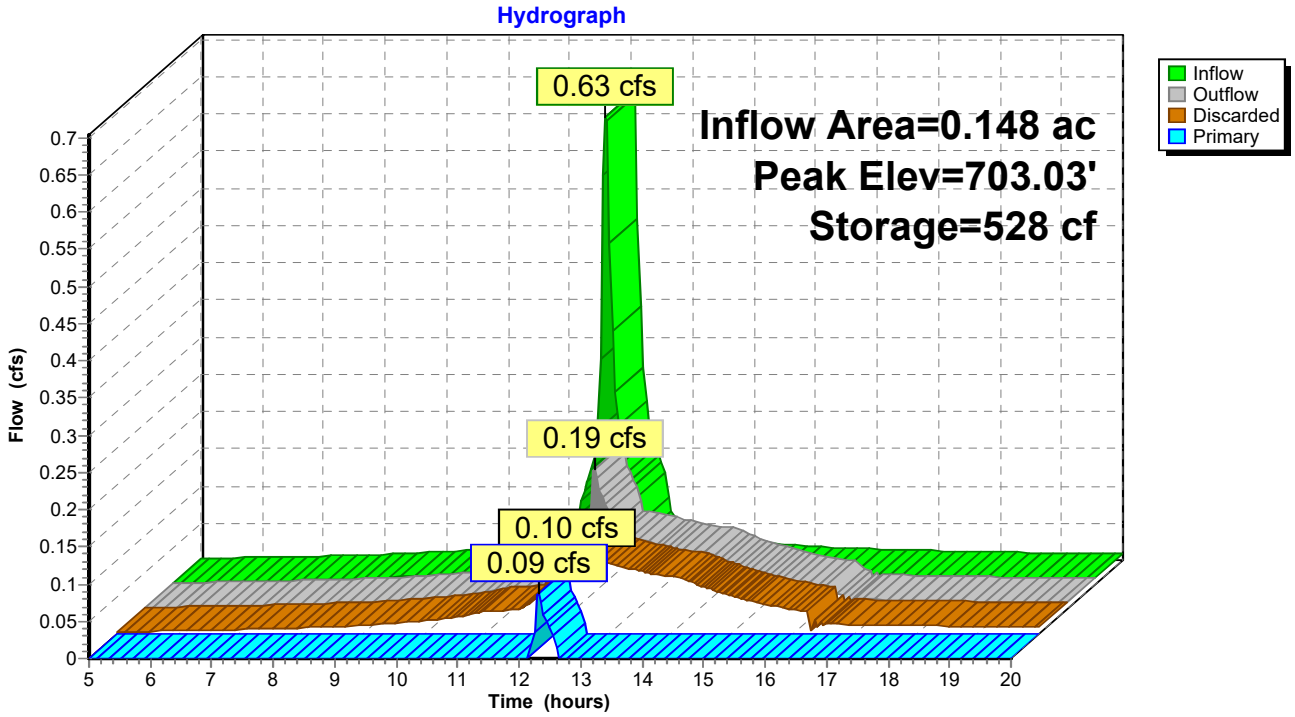
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
698.74	0	0.0	0	0
698.75	330	40.0	1	1
699.75	330	20.0	66	67
702.25	330	20.0	165	232
702.50	330	100.0	83	314
703.50	600	100.0	465	779

Device	Routing	Invert	Outlet Devices
#1	Discarded	698.74'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 696.50'
#2	Primary	703.00'	**5.0' long + 1.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

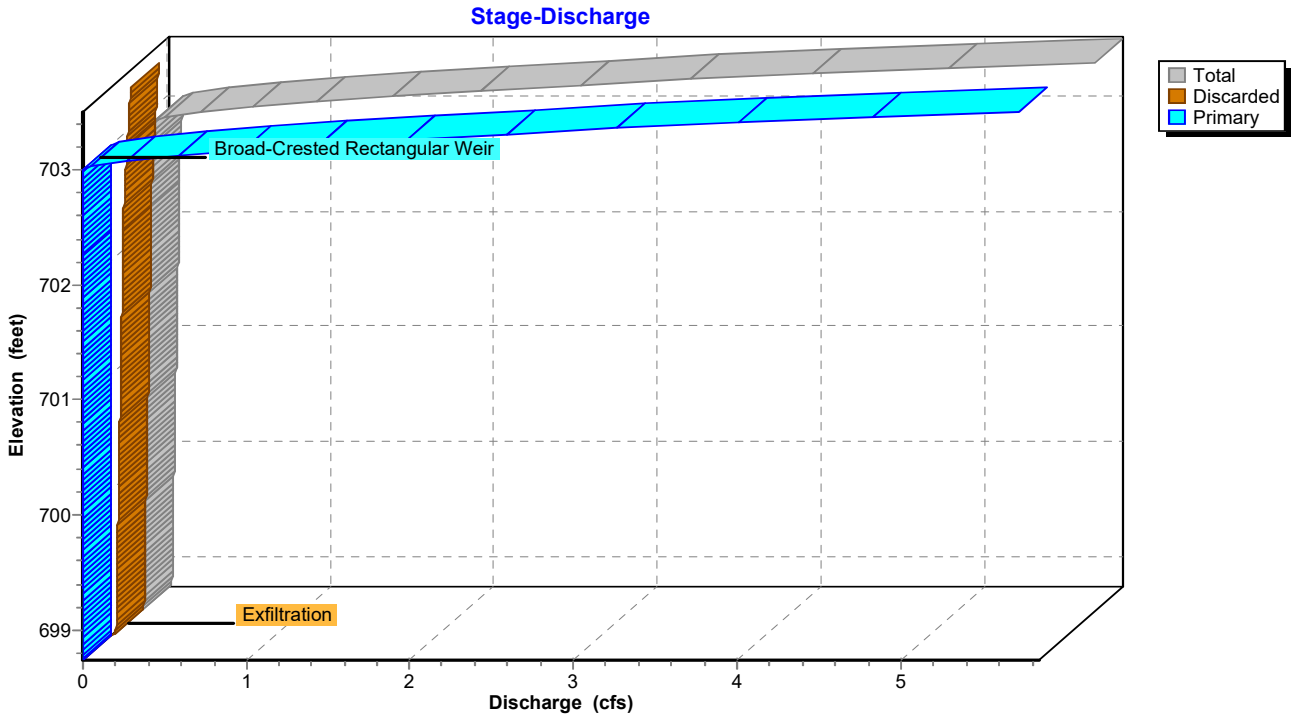
Discarded OutFlow Max=0.10 cfs @ 12.32 hrs HW=703.03' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=0.07 cfs @ 12.32 hrs HW=703.03' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.07 cfs @ 0.49 fps)

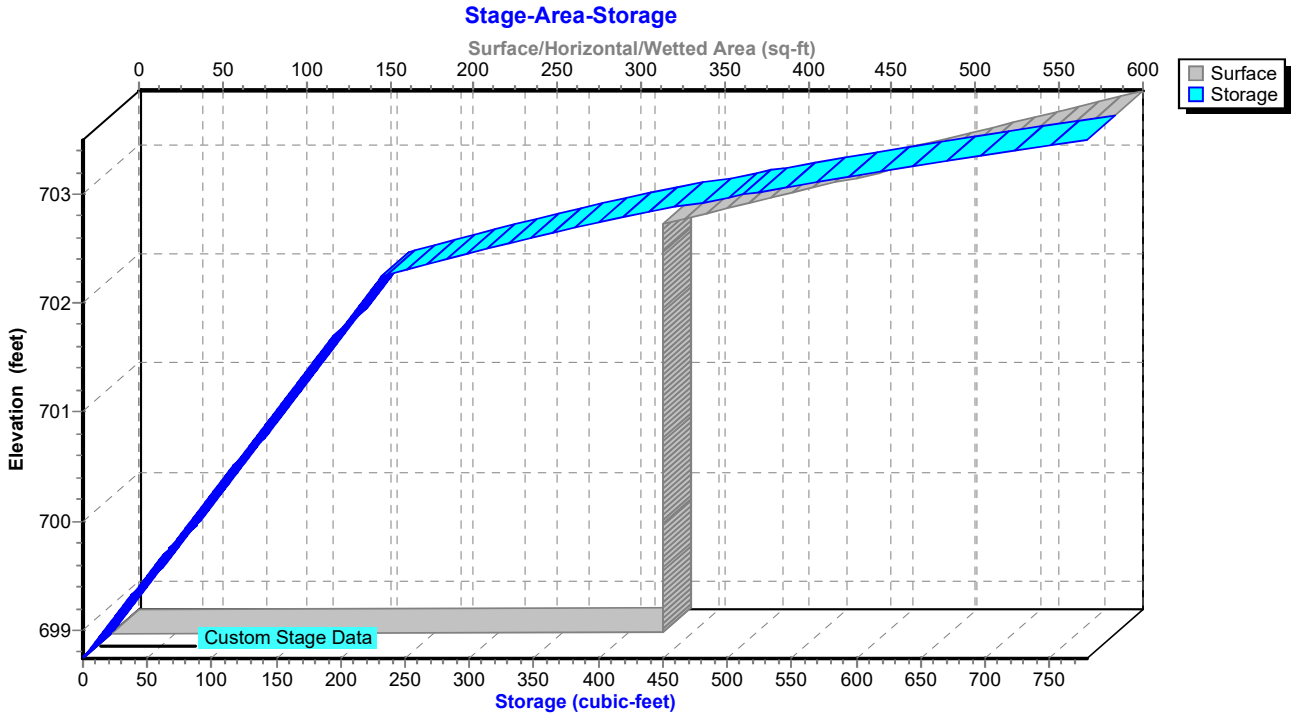
Pond 5P: Infiltration Bioretention 3



Pond 5P: Infiltration Bioretention 3



Pond 5P: Infiltration Bioretention 3

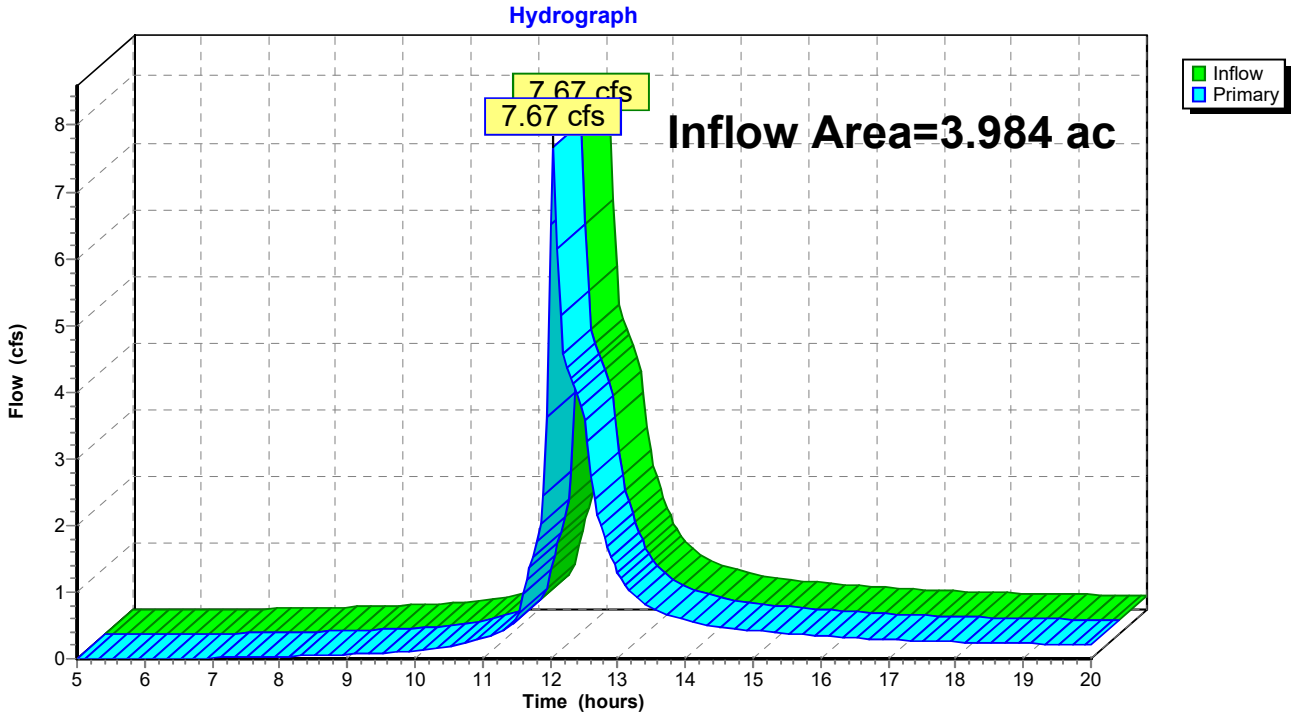


Summary for Link 1L: Pre-Dev Design Point

Inflow Area = 3.984 ac, 37.16% Impervious, Inflow Depth > 1.93" for 10-yr event
Inflow = 7.67 cfs @ 12.05 hrs, Volume= 0.642 af
Primary = 7.67 cfs @ 12.05 hrs, Volume= 0.642 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Pre-Dev Design Point

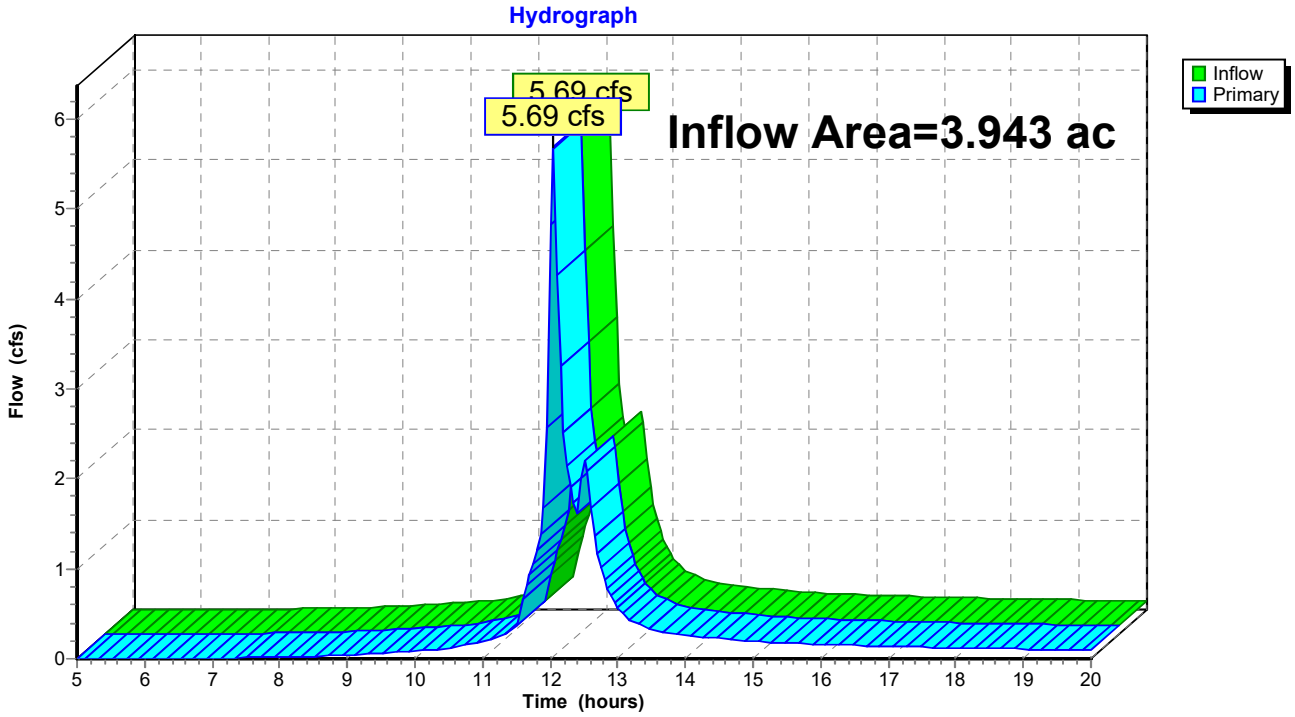


Summary for Link 2L: Post-Dev Design Point

Inflow Area = 3.943 ac, 56.43% Impervious, Inflow Depth > 1.08" for 10-yr event
Inflow = 5.69 cfs @ 12.04 hrs, Volume= 0.354 af
Primary = 5.69 cfs @ 12.04 hrs, Volume= 0.354 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: Post-Dev Design Point



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 0S: Existing 1 Runoff Area=90,141 sf 64.11% Impervious Runoff Depth>5.04"
Tc=6.0 min CN=85 Runoff=14.39 cfs 0.870 af

Subcatchment 00S: Existing 2 Runoff Area=1.915 ac 8.04% Impervious Runoff Depth>3.82"
Flow Length=675' Tc=29.7 min CN=74 Runoff=5.65 cfs 0.610 af

Subcatchment 1S: Post-Dev 1 Runoff Area=0.370 ac 67.57% Impervious Runoff Depth>5.15"
Tc=6.0 min CN=86 Runoff=2.62 cfs 0.159 af

Subcatchment 2S: Post-Dev 2 Runoff Area=0.270 ac 88.89% Impervious Runoff Depth>5.97"
Tc=6.0 min CN=94 Runoff=2.11 cfs 0.134 af

Subcatchment 3S: Post-Dev 3 Runoff Area=1.055 ac 29.10% Impervious Runoff Depth>3.63"
Flow Length=150' Slope=0.0100 '/' Tc=21.4 min CN=72 Runoff=3.43 cfs 0.319 af

Subcatchment 4S: Post-Dev 4 Runoff Area=0.300 ac 83.33% Impervious Runoff Depth>5.78"
Tc=6.0 min CN=92 Runoff=2.30 cfs 0.144 af

Subcatchment 5S: Post-Dev 5 Runoff Area=0.148 ac 86.49% Impervious Runoff Depth>5.88"
Tc=6.0 min CN=93 Runoff=1.14 cfs 0.072 af

Subcatchment 6S: Post-Dev 6 Runoff Area=1.800 ac 58.33% Impervious Runoff Depth>4.82"
Tc=6.0 min CN=83 Runoff=12.08 cfs 0.724 af

Reach 4R: Storm Sewer 1 Avg. Flow Depth=0.93' Max Vel=5.53 fps Inflow=4.27 cfs 0.118 af
12.0" Round Pipe n=0.012 L=153.0' S=0.0098 '/' Capacity=3.82 cfs Outflow=4.07 cfs 0.118 af

Pond 1P: Infiltration Bioretention 1 Peak Elev=707.29' Storage=924 cf Inflow=2.62 cfs 0.159 af
Discarded=0.16 cfs 0.090 af Primary=2.38 cfs 0.068 af Outflow=2.54 cfs 0.158 af

Pond 2P: Infiltration Bioretention 2 Peak Elev=705.75' Storage=889 cf Inflow=2.11 cfs 0.134 af
Discarded=0.16 cfs 0.085 af Primary=1.89 cfs 0.050 af Outflow=2.04 cfs 0.134 af

Pond 3P: Infiltration Basin 1 Peak Elev=704.91' Storage=3,035 cf Inflow=6.26 cfs 0.437 af
Discarded=0.25 cfs 0.154 af Primary=5.82 cfs 0.257 af Outflow=6.07 cfs 0.411 af

Pond 4P: Infiltration Basin 2 Peak Elev=706.18' Storage=2,020 cf Inflow=2.30 cfs 0.144 af
Discarded=0.17 cfs 0.115 af Primary=0.94 cfs 0.029 af Outflow=1.12 cfs 0.143 af

Pond 5P: Infiltration Bioretention 3 Peak Elev=703.18' Storage=602 cf Inflow=1.14 cfs 0.072 af
Discarded=0.11 cfs 0.051 af Primary=1.11 cfs 0.021 af Outflow=1.22 cfs 0.072 af

Link 1L: Pre-Dev Design Point Inflow=16.54 cfs 1.480 af
Primary=16.54 cfs 1.480 af

Link 2L: Post-Dev Design Point Inflow=15.05 cfs 1.031 af
Primary=15.05 cfs 1.031 af

Total Runoff Area = 7.927 ac Runoff Volume = 3.032 af Average Runoff Depth = 4.59"
53.25% Pervious = 4.222 ac 46.75% Impervious = 3.706 ac

Summary for Subcatchment 0S: Existing 1

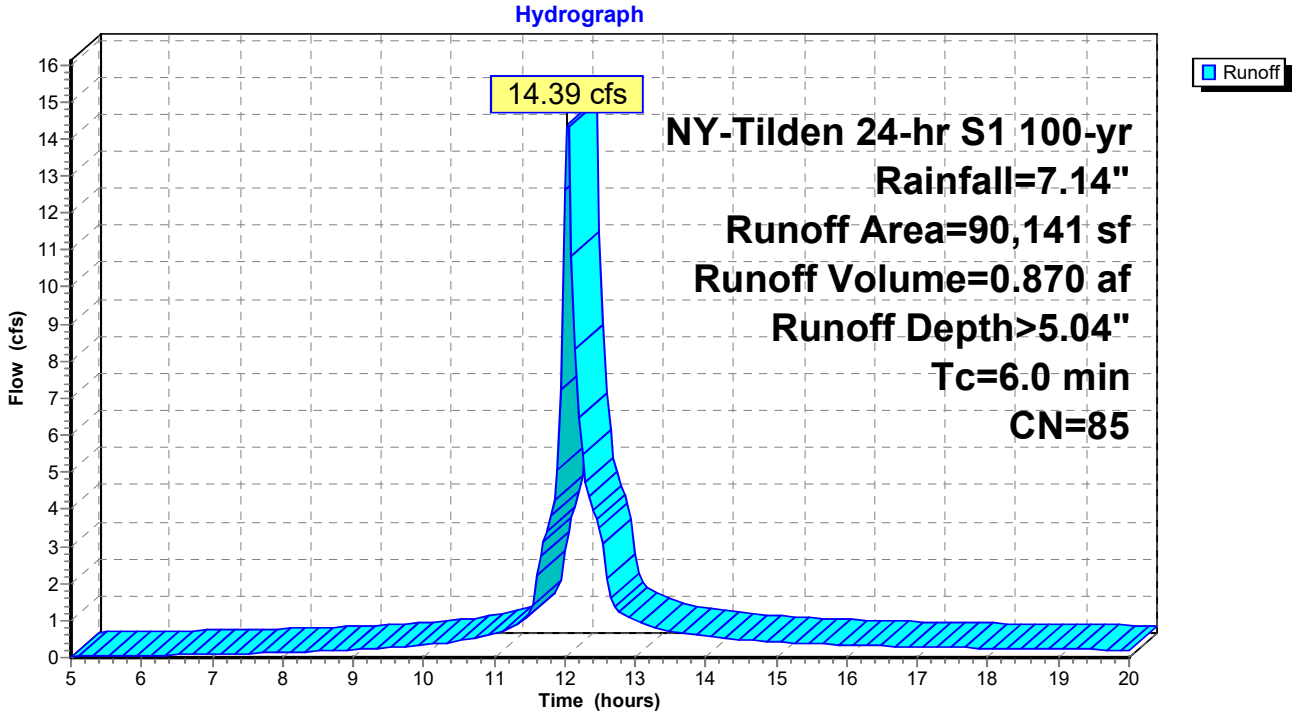
Runoff = 14.39 cfs @ 12.04 hrs, Volume= 0.870 af, Depth> 5.04"
Routed to Link 1L : Pre-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

	Area (sf)	CN	Description
*	46,902	98	Existing Impervious (On-Site)
*	10,889	98	Existing Impervious (Off-Site)
	32,350	61	>75% Grass cover, Good, HSG B
	90,141	85	Weighted Average
	32,350		35.89% Pervious Area
	57,791		64.11% Impervious Area

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

Subcatchment 0S: Existing 1



Summary for Subcatchment 00S: Existing 2

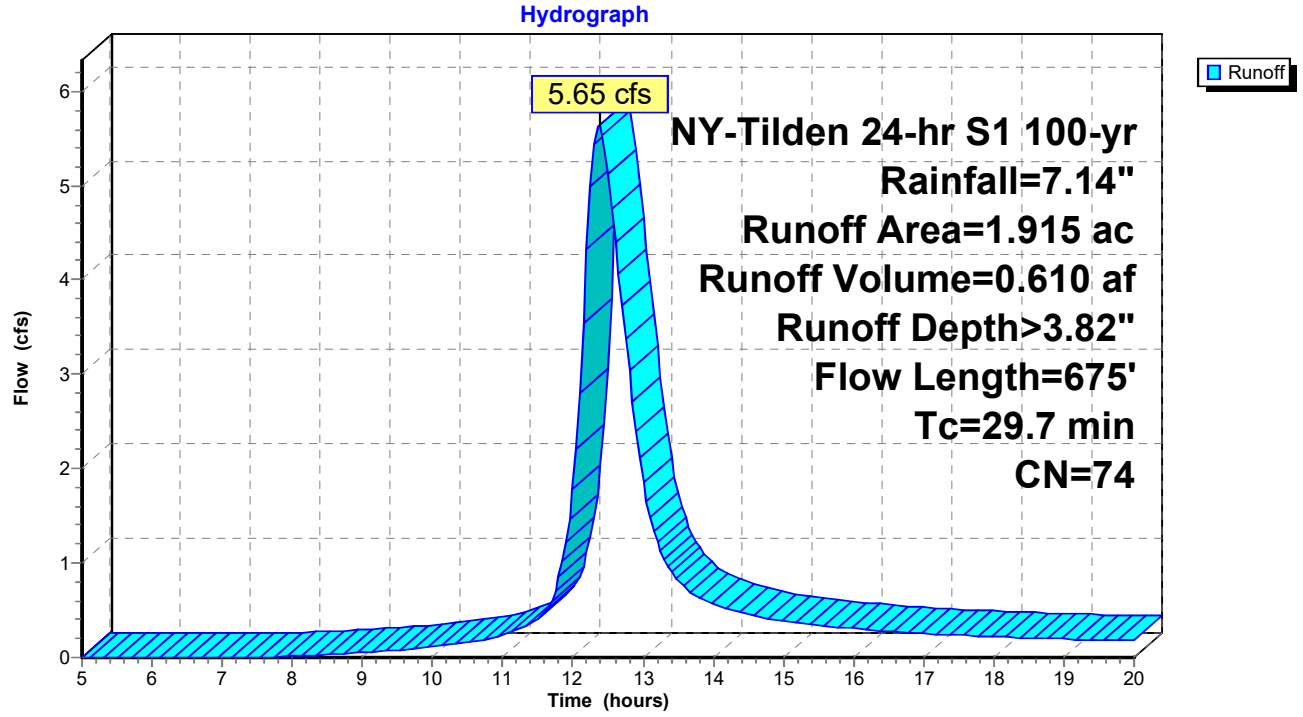
Runoff = 5.65 cfs @ 12.37 hrs, Volume= 0.610 af, Depth> 3.82"
Routed to Link 1L : Pre-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

	Area (ac)	CN	Description
*	0.049	98	Ex. Impervious (Off-Site)
*	0.105	98	Ex. Impervious (On-Site)
	1.198	79	<50% Grass cover, Poor, HSG B
	0.563	58	Woods/grass comb., Good, HSG B
	1.915	74	Weighted Average
	1.761		91.96% Pervious Area
	0.154		8.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.2	150	0.0100	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.78"
9.0	380	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.5	145	0.0060	1.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
29.7	675	Total			

Subcatchment 00S: Existing 2



Summary for Subcatchment 1S: Post-Dev 1

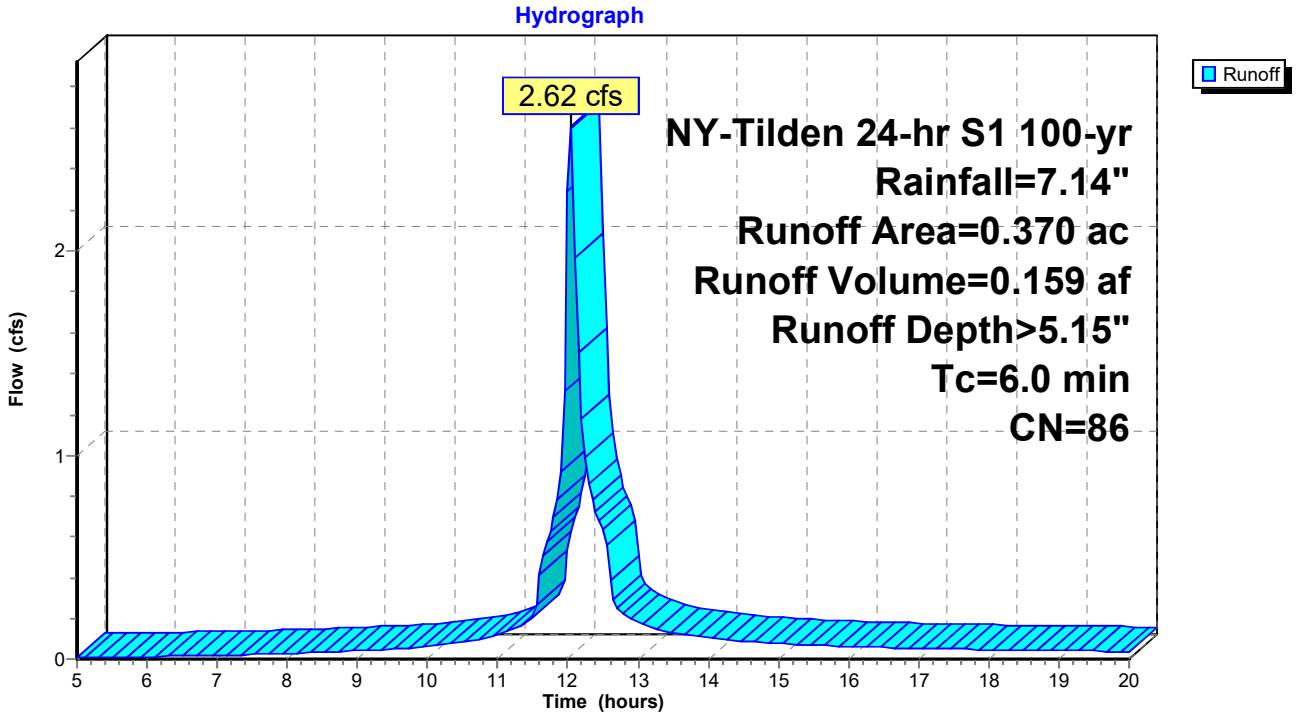
Runoff = 2.62 cfs @ 12.04 hrs, Volume= 0.159 af, Depth> 5.15"
Routed to Pond 1P : Infiltration Bioretention 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

	Area (ac)	CN	Description
*	0.250	98	Parking
	0.120	61	>75% Grass cover, Good, HSG B
	0.370	86	Weighted Average
	0.120		32.43% Pervious Area
	0.250		67.57% Impervious Area

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

Subcatchment 1S: Post-Dev 1



Summary for Subcatchment 2S: Post-Dev 2

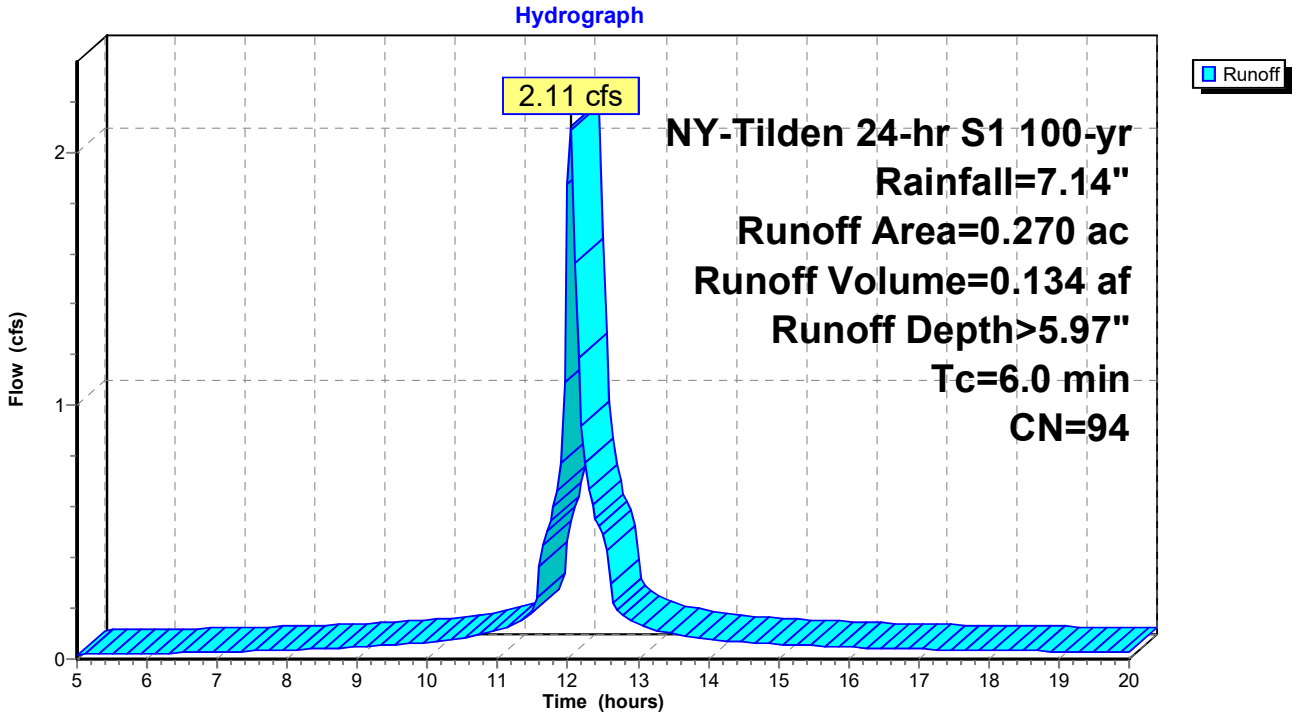
Runoff = 2.11 cfs @ 12.04 hrs, Volume= 0.134 af, Depth> 5.97"
Routed to Pond 2P : Infiltration Bioretention 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

	Area (ac)	CN	Description
*	0.240	98	Parking
	0.030	61	>75% Grass cover, Good, HSG B
	0.270	94	Weighted Average
	0.030		11.11% Pervious Area
	0.240		88.89% Impervious Area

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

Subcatchment 2S: Post-Dev 2



Summary for Subcatchment 3S: Post-Dev 3

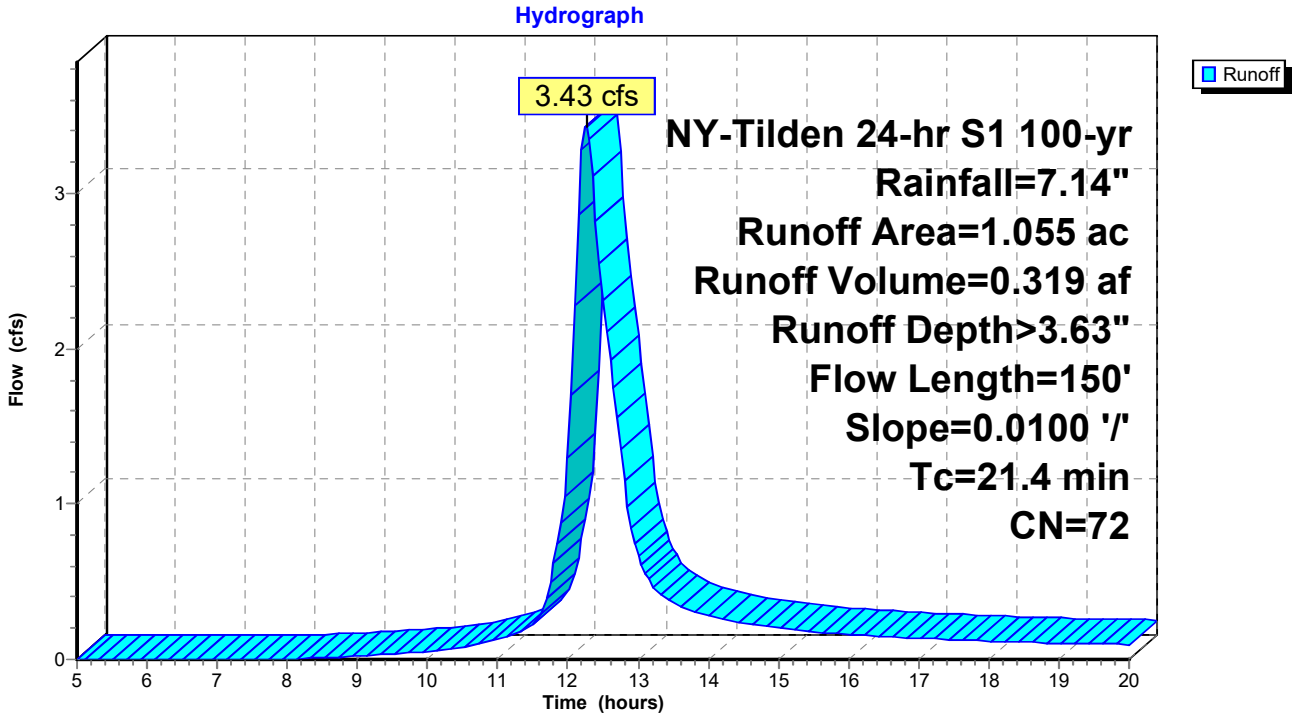
Runoff = 3.43 cfs @ 12.26 hrs, Volume= 0.319 af, Depth> 3.63"
Routed to Pond 3P : Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

	Area (ac)	CN	Description
*	0.307	98	Parking
	0.748	61	>75% Grass cover, Good, HSG B
	1.055	72	Weighted Average
	0.748		70.90% Pervious Area
	0.307		29.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.78"
1.2	50	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.4	150	Total			

Subcatchment 3S: Post-Dev 3



Summary for Subcatchment 4S: Post-Dev 4

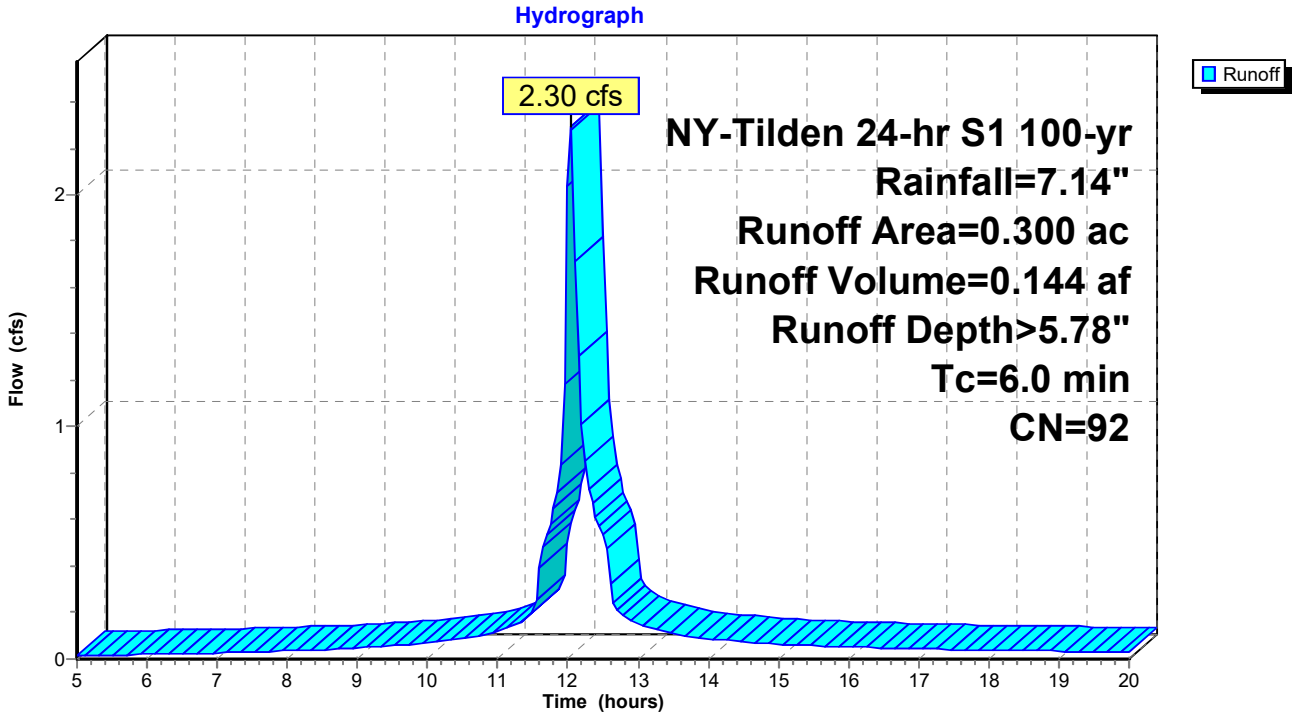
Runoff = 2.30 cfs @ 12.04 hrs, Volume= 0.144 af, Depth> 5.78"
Routed to Pond 4P : Infiltration Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

	Area (ac)	CN	Description
*	0.250	98	Building & Sidewalks
	0.050	61	>75% Grass cover, Good, HSG B
	0.300	92	Weighted Average
	0.050		16.67% Pervious Area
	0.250		83.33% Impervious Area

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

Subcatchment 4S: Post-Dev 4



Summary for Subcatchment 5S: Post-Dev 5

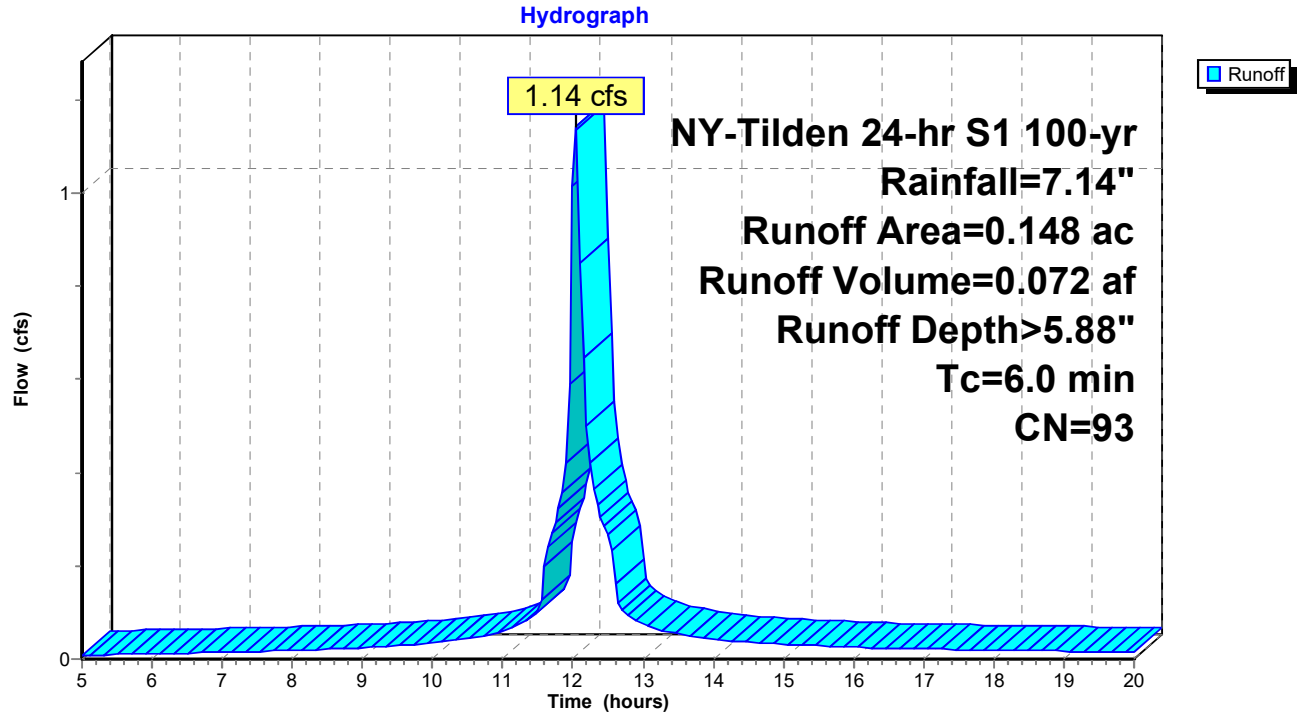
Runoff = 1.14 cfs @ 12.04 hrs, Volume= 0.072 af, Depth> 5.88"
Routed to Pond 5P : Infiltration Bioretention 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

	Area (ac)	CN	Description
*	0.128	98	Building & Sidewalks
	0.020	61	>75% Grass cover, Good, HSG B
	0.148	93	Weighted Average
	0.020		13.51% Pervious Area
	0.128		86.49% Impervious Area

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

Subcatchment 5S: Post-Dev 5



Summary for Subcatchment 6S: Post-Dev 6

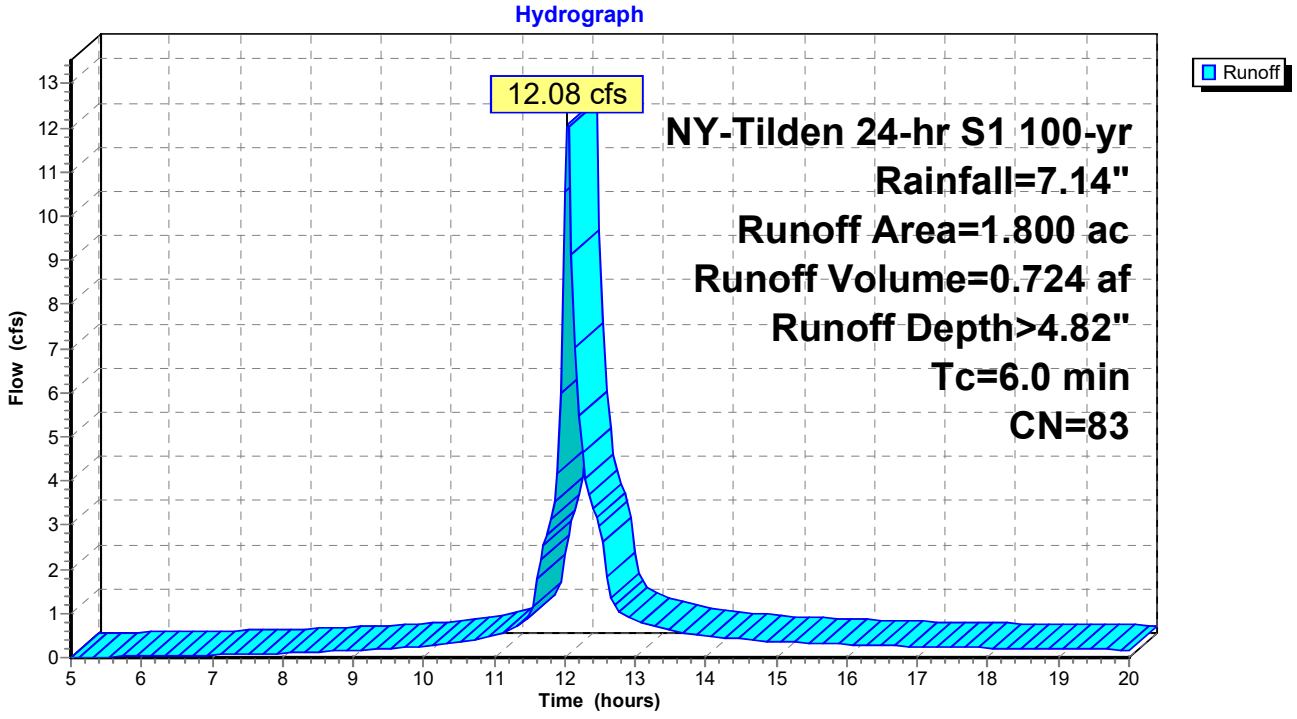
Runoff = 12.08 cfs @ 12.04 hrs, Volume= 0.724 af, Depth> 4.82"
Routed to Link 2L : Post-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

	Area (ac)	CN	Description
*	0.762	98	On-Site Impervious
*	0.288	98	Off-Site Impervious
	0.750	61	>75% Grass cover, Good, HSG B
	1.800	83	Weighted Average
	0.750		41.67% Pervious Area
	1.050		58.33% Impervious Area

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

Subcatchment 6S: Post-Dev 6



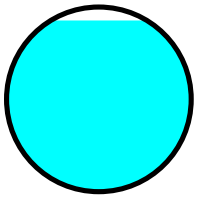
Summary for Reach 4R: Storm Sewer 1

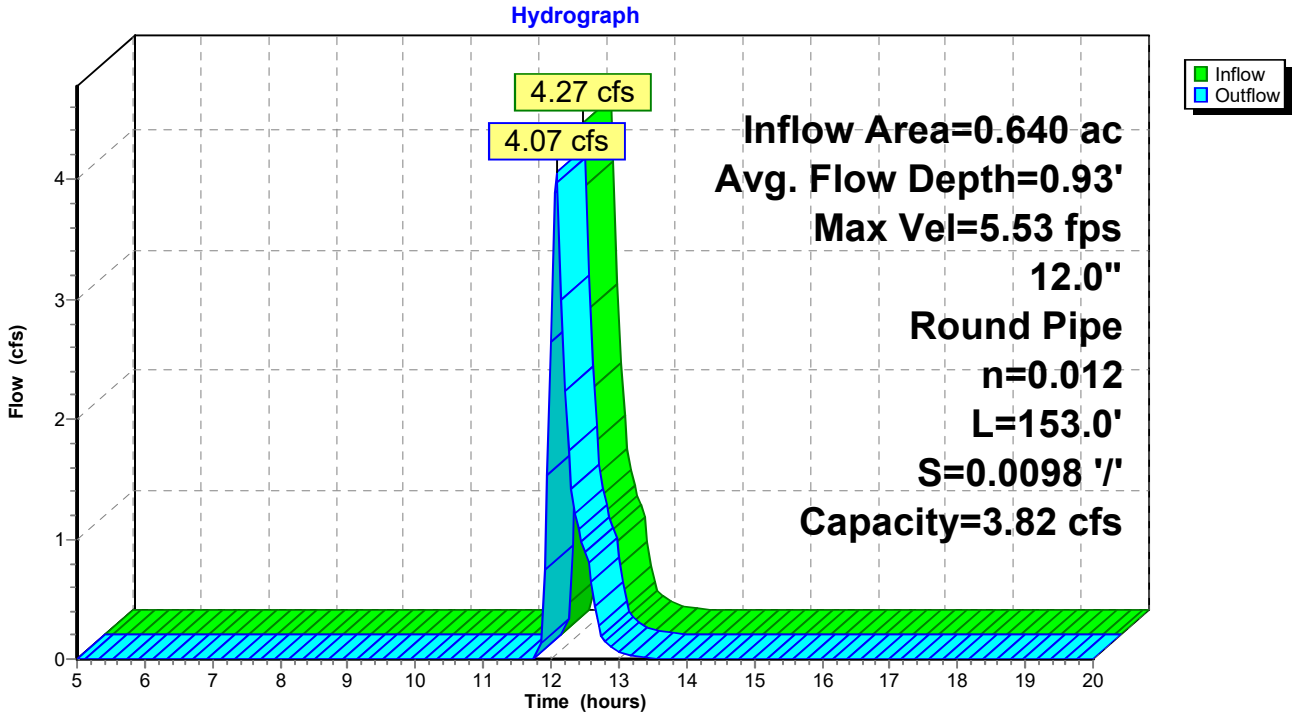
Inflow Area = 0.640 ac, 76.56% Impervious, Inflow Depth = 2.21" for 100-yr event
Inflow = 4.27 cfs @ 12.06 hrs, Volume= 0.118 af
Outflow = 4.07 cfs @ 12.08 hrs, Volume= 0.118 af, Atten= 5%, Lag= 1.1 min
Routed to Pond 3P : Infiltration Basin 1

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.53 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.64 fps, Avg. Travel Time= 1.0 min

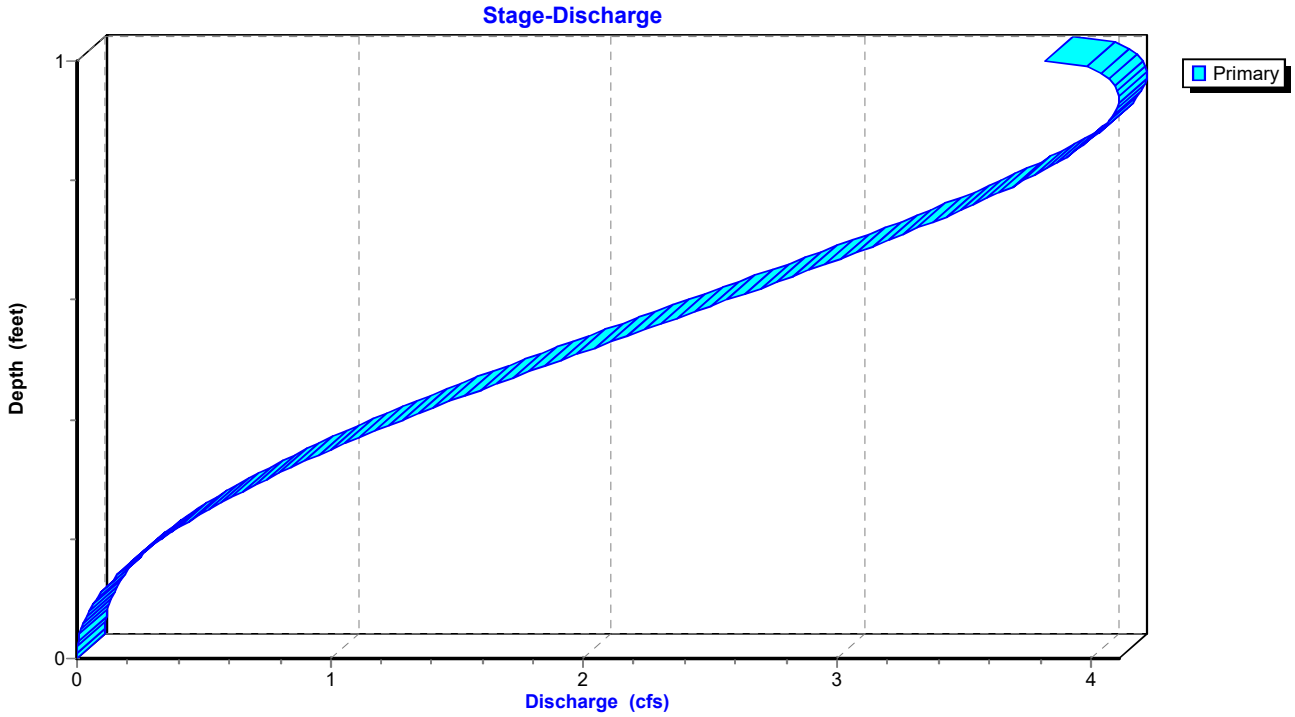
Peak Storage= 117 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.93' , Surface Width= 0.52'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.82 cfs

12.0" Round Pipe
n= 0.012
Length= 153.0' Slope= 0.0098 '/'
Inlet Invert= 704.75', Outlet Invert= 703.25'

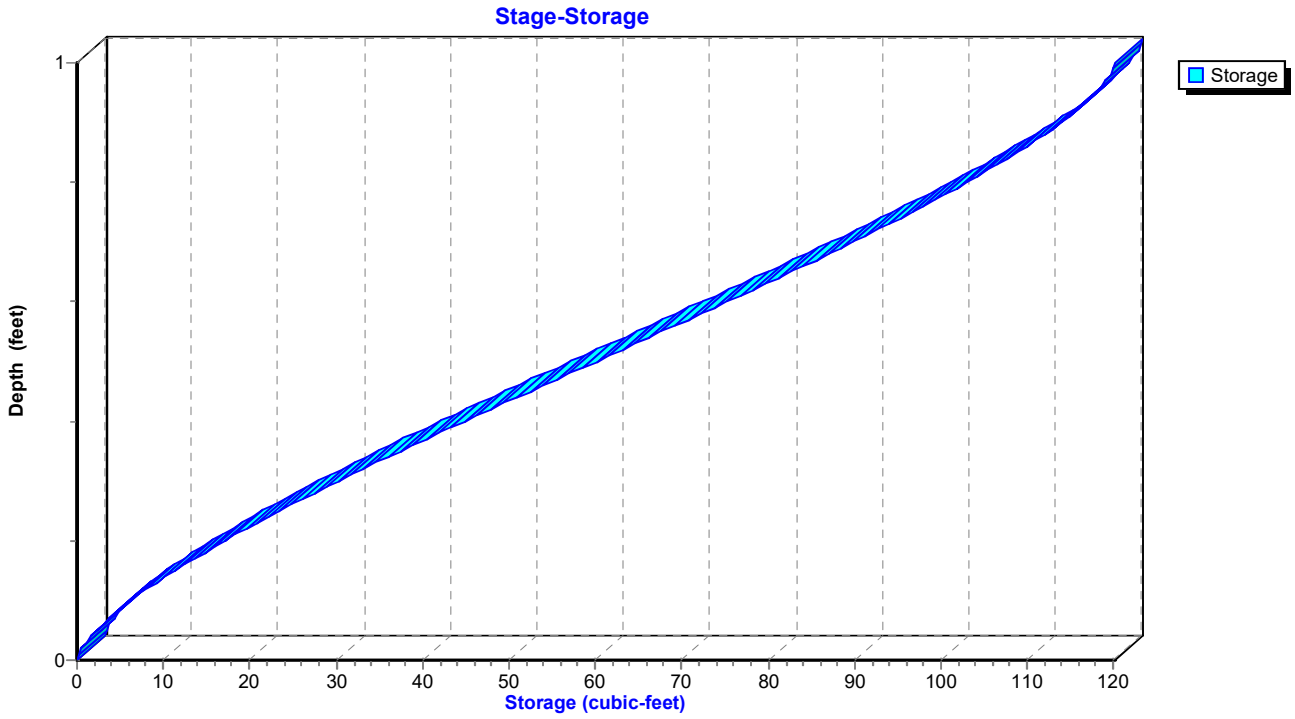




Reach 4R: Storm Sewer 1



Reach 4R: Storm Sewer 1



Summary for Pond 1P: Infiltration Bioretention 1

Inflow Area = 0.370 ac, 67.57% Impervious, Inflow Depth > 5.15" for 100-yr event
Inflow = 2.62 cfs @ 12.04 hrs, Volume= 0.159 af
Outflow = 2.54 cfs @ 12.06 hrs, Volume= 0.158 af, Atten= 3%, Lag= 1.2 min
Discarded = 0.16 cfs @ 12.06 hrs, Volume= 0.090 af
Primary = 2.38 cfs @ 12.06 hrs, Volume= 0.068 af
Routed to Reach 4R : Storm Sewer 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 707.29' @ 12.06 hrs Surf.Area= 842 sf Storage= 924 cf

Plug-Flow detention time= 31.3 min calculated for 0.158 af (100% of inflow)
Center-of-Mass det. time= 29.4 min (788.5 - 759.0)

Volume	Invert	Avail.Storage	Storage Description
#1	702.74'	1,114 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

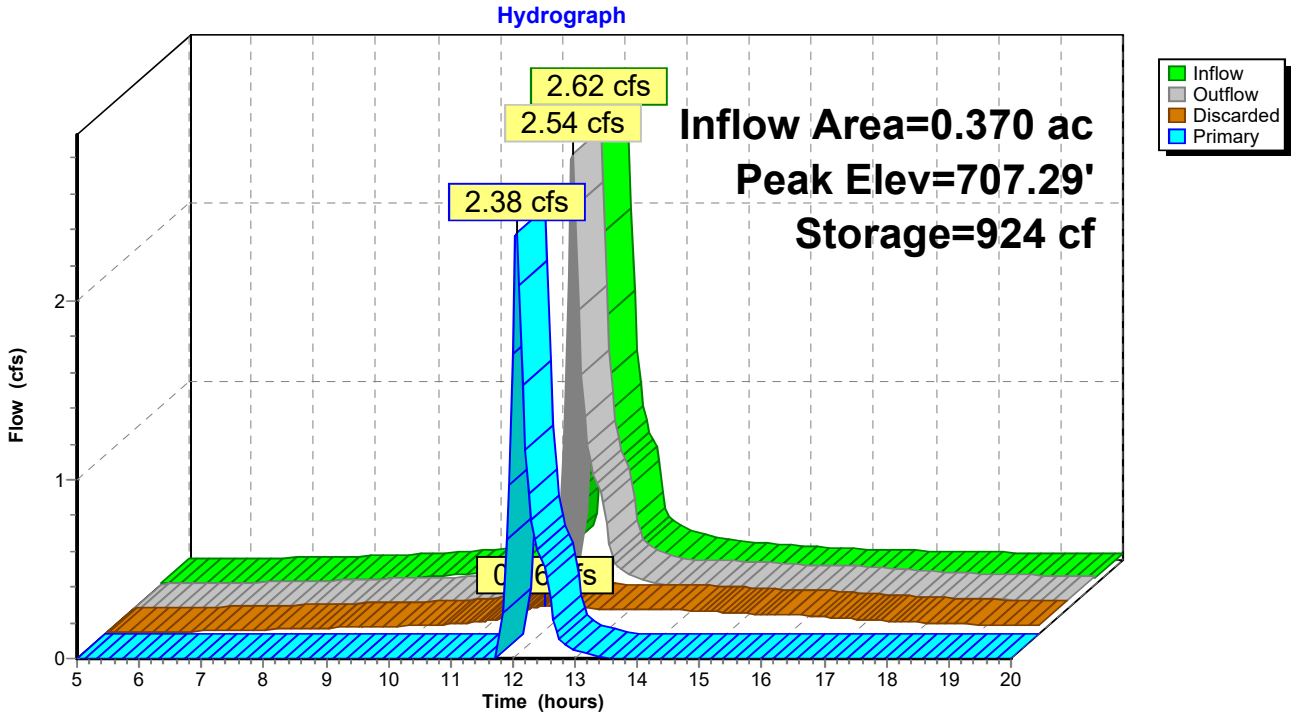
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
702.74	0	0.0	0	0
702.75	440	40.0	1	1
703.75	440	20.0	88	89
706.25	440	20.0	220	309
706.50	440	100.0	110	419
707.50	950	100.0	695	1,114

Device	Routing	Invert	Outlet Devices
#1	Discarded	702.74'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 700.50'
#2	Primary	707.00'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

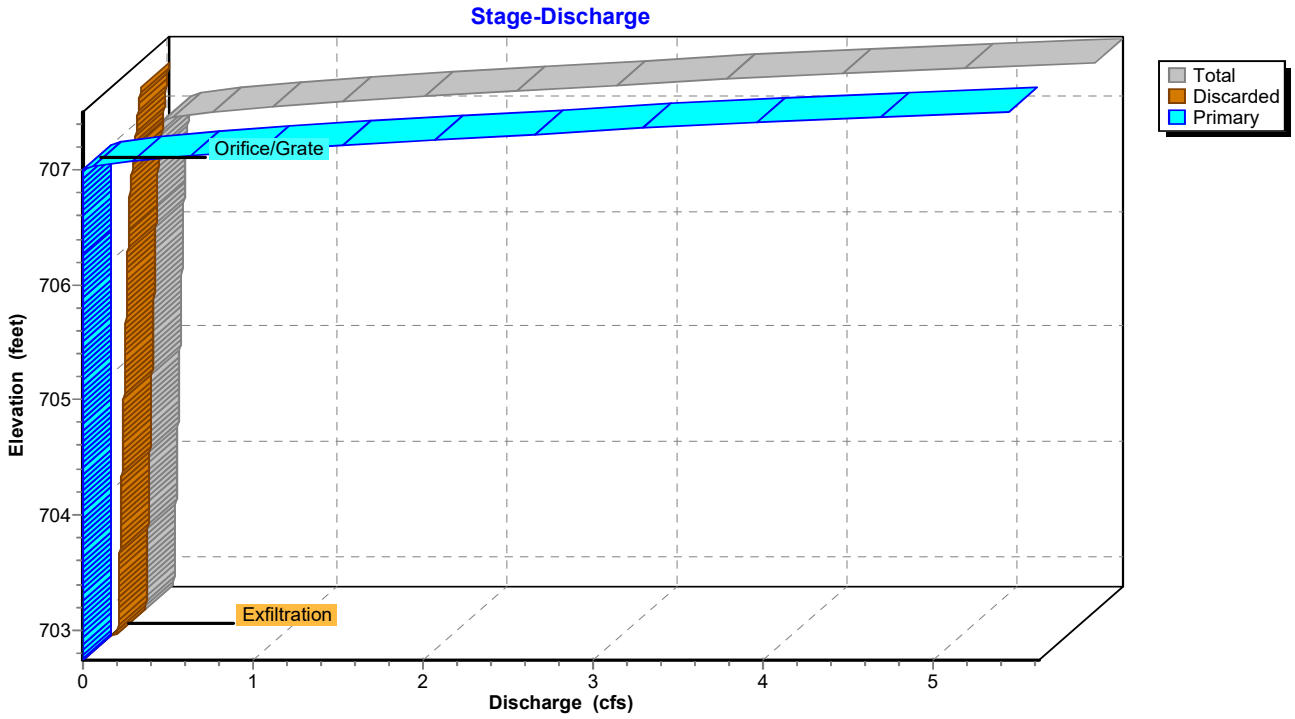
Discarded OutFlow Max=0.16 cfs @ 12.06 hrs HW=707.28' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.16 cfs)

Primary OutFlow Max=2.30 cfs @ 12.06 hrs HW=707.28' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 2.30 cfs @ 1.73 fps)

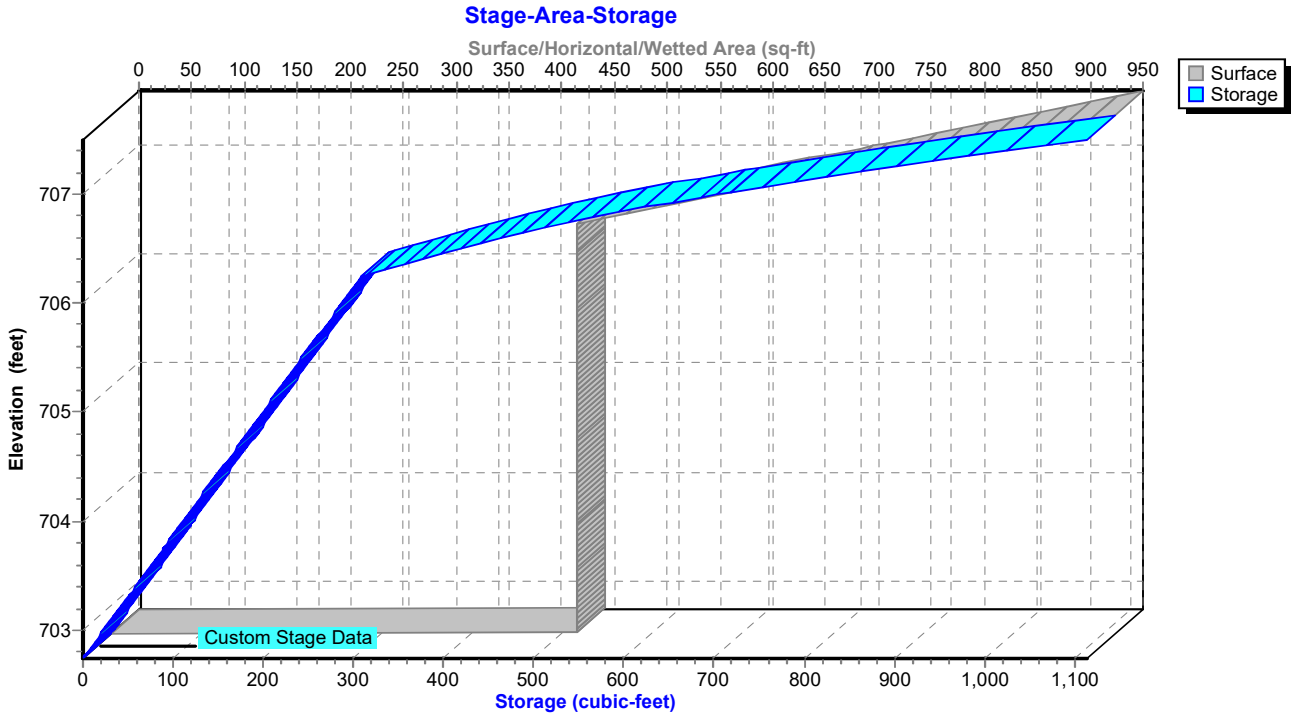
Pond 1P: Infiltration Bioretention 1



Pond 1P: Infiltration Bioretention 1



Pond 1P: Infiltration Bioretention 1



Summary for Pond 2P: Infiltration Bioretention 2

Inflow Area = 0.270 ac, 88.89% Impervious, Inflow Depth > 5.97" for 100-yr event
Inflow = 2.11 cfs @ 12.04 hrs, Volume= 0.134 af
Outflow = 2.04 cfs @ 12.06 hrs, Volume= 0.134 af, Atten= 3%, Lag= 1.2 min
Discarded = 0.16 cfs @ 12.06 hrs, Volume= 0.085 af
Primary = 1.89 cfs @ 12.06 hrs, Volume= 0.050 af
Routed to Reach 4R : Storm Sewer 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 705.75' @ 12.06 hrs Surf.Area= 821 sf Storage= 889 cf

Plug-Flow detention time= 30.9 min calculated for 0.134 af (100% of inflow)
Center-of-Mass det. time= 30.7 min (771.8 - 741.1)

Volume	Invert	Avail.Storage	Storage Description
#1	701.24'	1,114 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

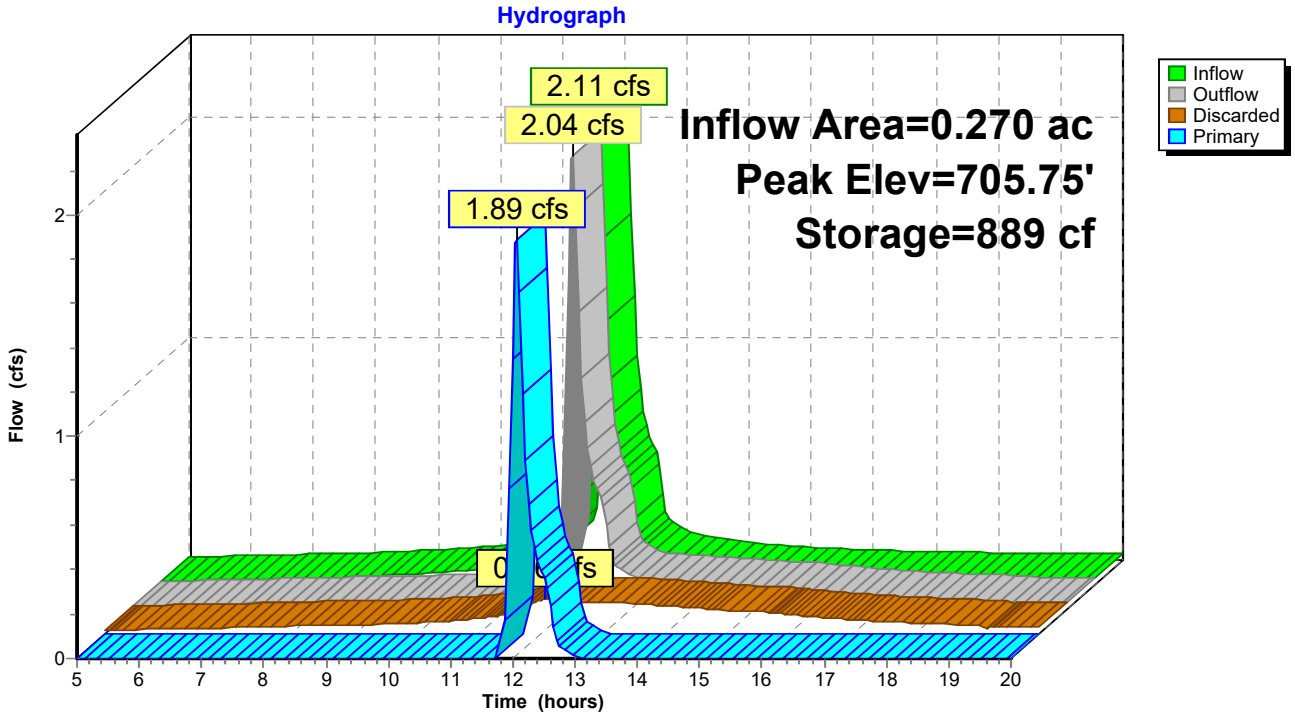
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
701.24	0	0.0	0	0
701.25	440	40.0	1	1
702.25	440	20.0	88	89
704.75	440	20.0	220	309
705.00	440	100.0	110	419
706.00	950	100.0	695	1,114

Device	Routing	Invert	Outlet Devices
#1	Discarded	701.24'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 699.00'
#2	Primary	705.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

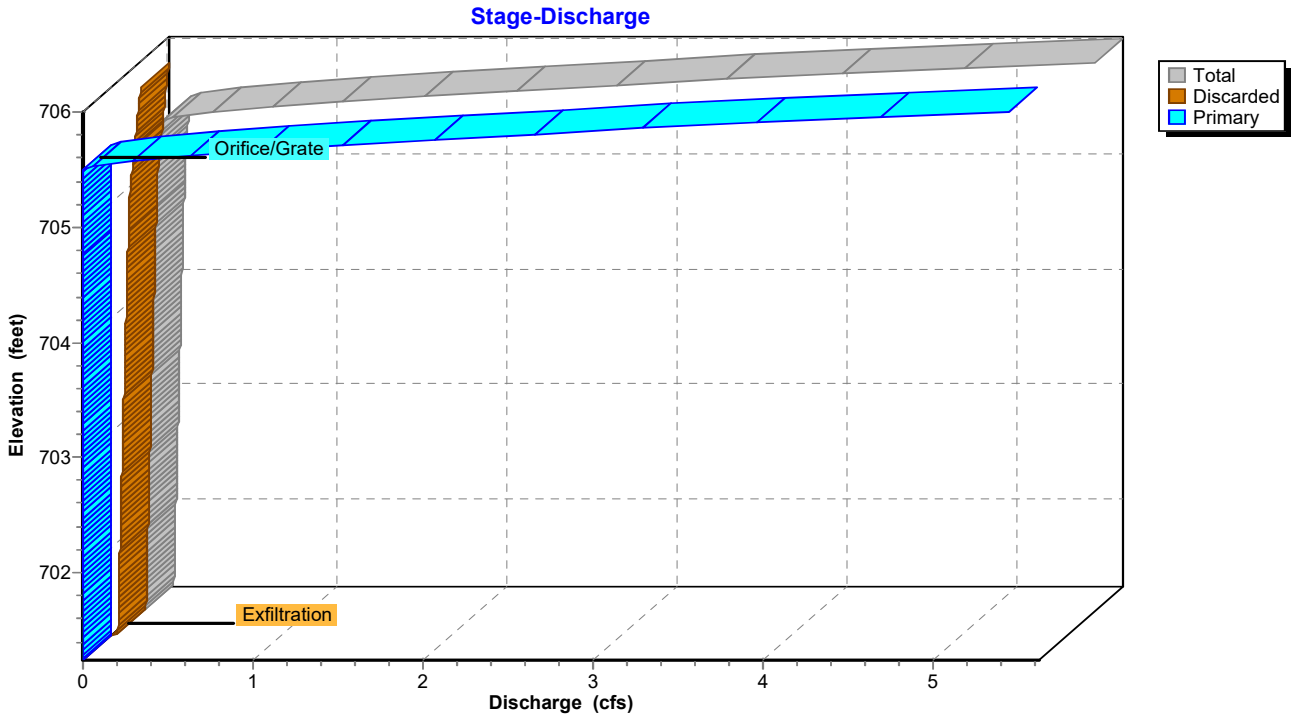
Discarded OutFlow Max=0.16 cfs @ 12.06 hrs HW=705.74' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.16 cfs)

Primary OutFlow Max=1.82 cfs @ 12.06 hrs HW=705.74' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 1.82 cfs @ 1.60 fps)

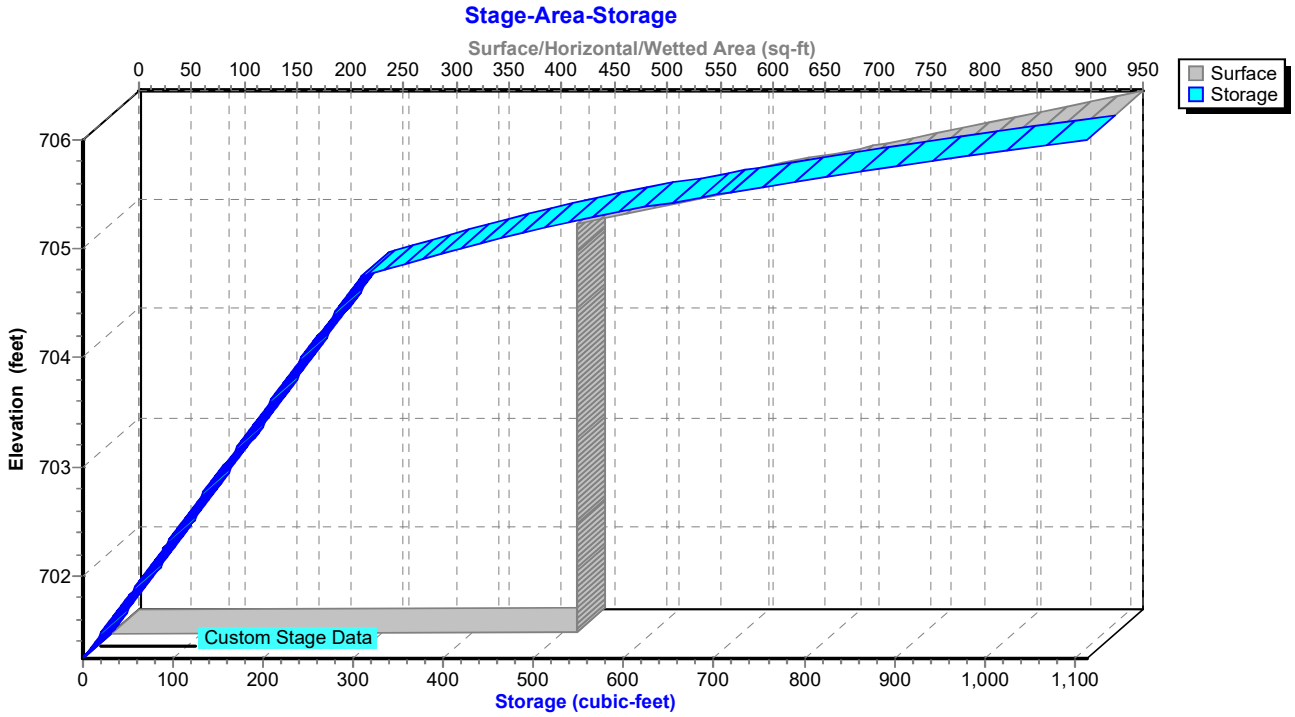
Pond 2P: Infiltration Bioretention 2



Pond 2P: Infiltration Bioretention 2



Pond 2P: Infiltration Bioretention 2



Summary for Pond 3P: Infiltration Basin 1

Inflow Area = 1.695 ac, 47.02% Impervious, Inflow Depth > 3.09" for 100-yr event
Inflow = 6.26 cfs @ 12.11 hrs, Volume= 0.437 af
Outflow = 6.07 cfs @ 12.16 hrs, Volume= 0.411 af, Atten= 3%, Lag= 3.3 min
Discarded = 0.25 cfs @ 12.16 hrs, Volume= 0.154 af
Primary = 5.82 cfs @ 12.16 hrs, Volume= 0.257 af
Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 704.91' @ 12.16 hrs Surf.Area= 2,236 sf Storage= 3,035 cf

Plug-Flow detention time= 48.0 min calculated for 0.410 af (94% of inflow)
Center-of-Mass det. time= 27.9 min (809.0 - 781.1)

Volume	Invert	Avail.Storage	Storage Description
#1	703.00'	3,250 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

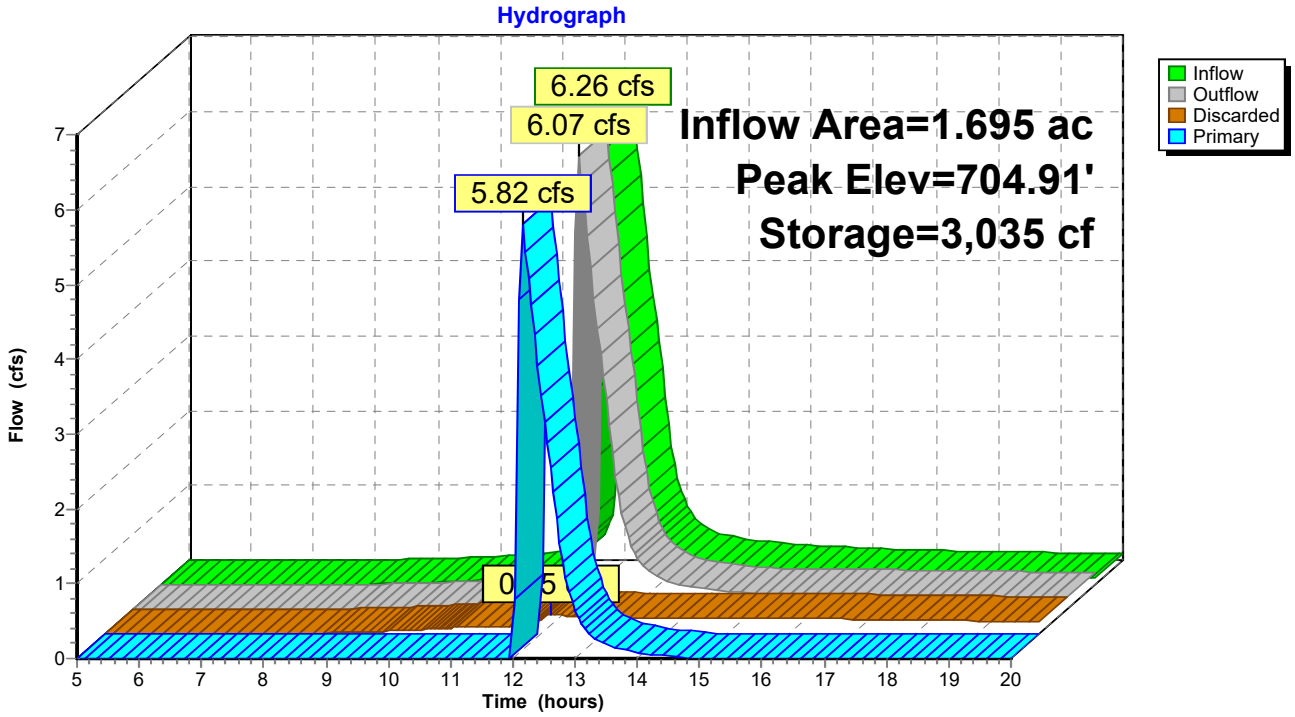
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
703.00	950	0	0
705.00	2,300	3,250	3,250

Device	Routing	Invert	Outlet Devices
#1	Discarded	703.00'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 697.00'
#2	Primary	704.50'	**8.0' long + 3.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

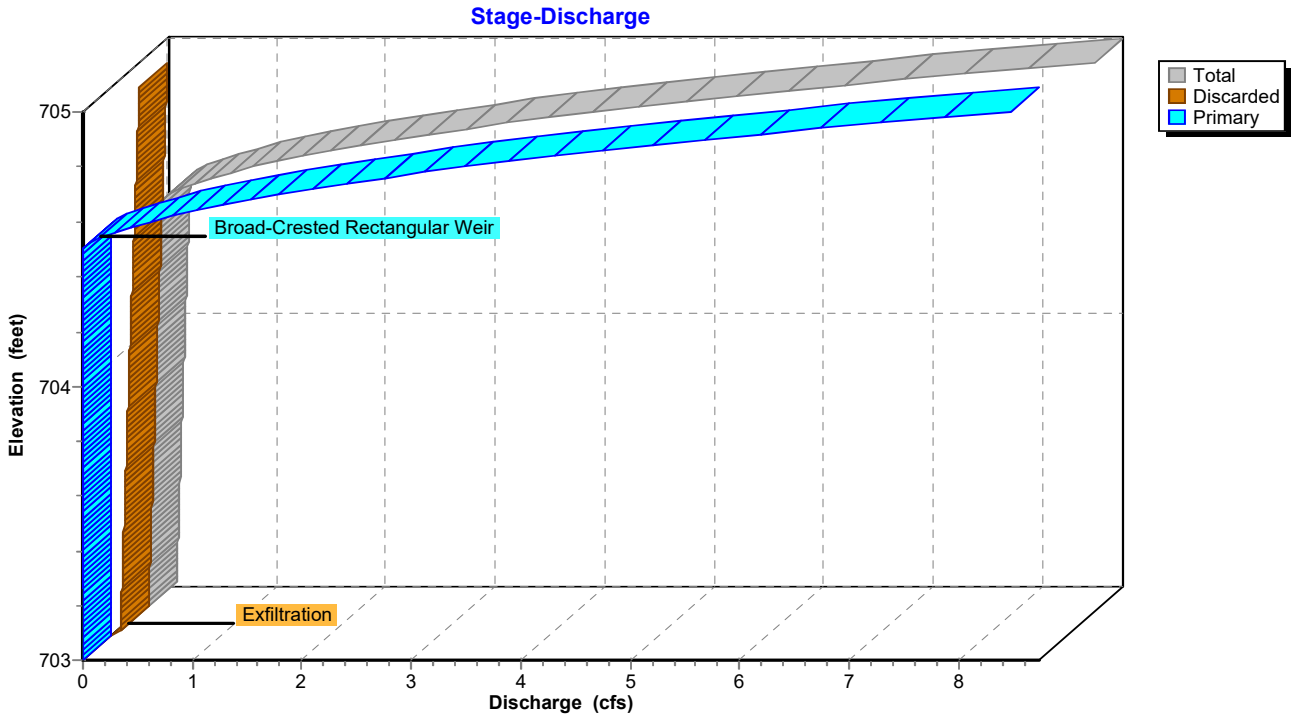
Discarded OutFlow Max=0.25 cfs @ 12.16 hrs HW=704.90' (Free Discharge)
1=Exfiltration (Controls 0.25 cfs)

Primary OutFlow Max=5.70 cfs @ 12.16 hrs HW=704.90' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 5.70 cfs @ 1.55 fps)

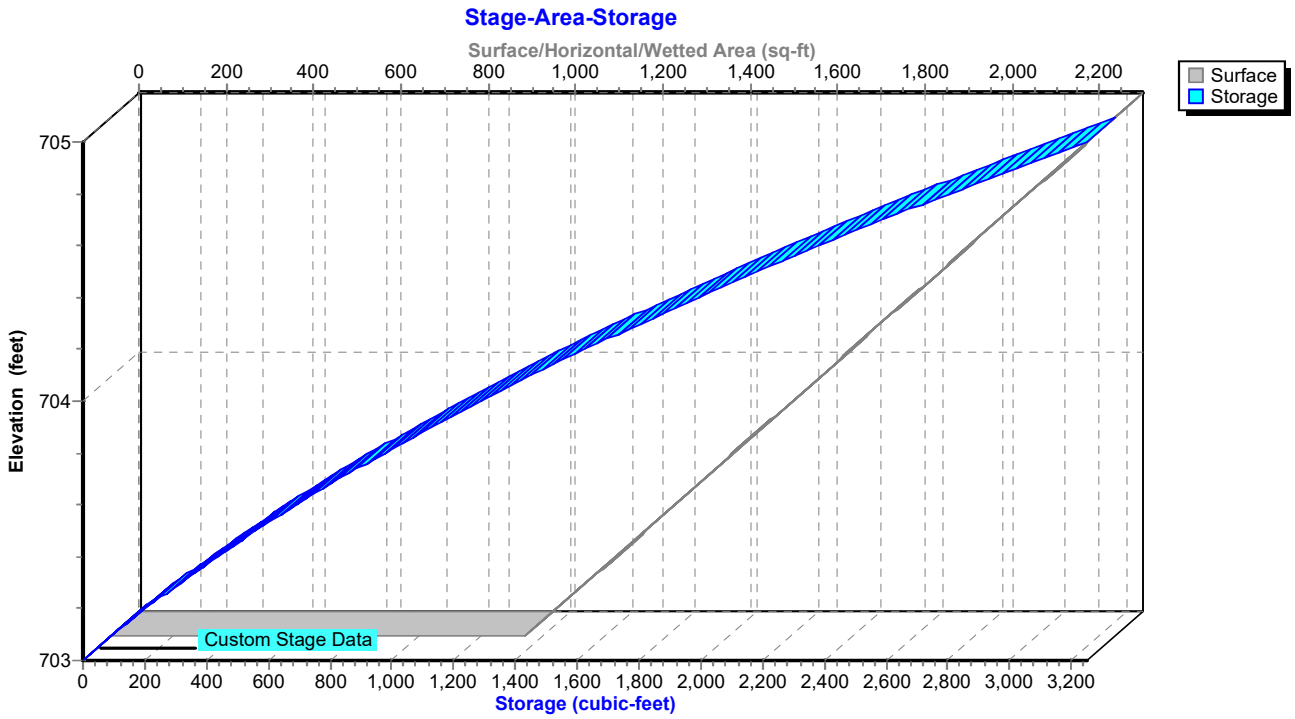
Pond 3P: Infiltration Basin 1



Pond 3P: Infiltration Basin 1



Pond 3P: Infiltration Basin 1



Summary for Pond 4P: Infiltration Basin 2

Inflow Area = 0.300 ac, 83.33% Impervious, Inflow Depth > 5.78" for 100-yr event
Inflow = 2.30 cfs @ 12.04 hrs, Volume= 0.144 af
Outflow = 1.12 cfs @ 12.19 hrs, Volume= 0.143 af, Atten= 51%, Lag= 9.2 min
Discarded = 0.17 cfs @ 12.19 hrs, Volume= 0.115 af
Primary = 0.94 cfs @ 12.19 hrs, Volume= 0.029 af
Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 706.18' @ 12.19 hrs Surf.Area= 1,562 sf Storage= 2,020 cf

Plug-Flow detention time= 82.0 min calculated for 0.143 af (99% of inflow)
Center-of-Mass det. time= 78.6 min (824.2 - 745.6)

Volume	Invert	Avail.Storage	Storage Description
#1	704.50'	2,550 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

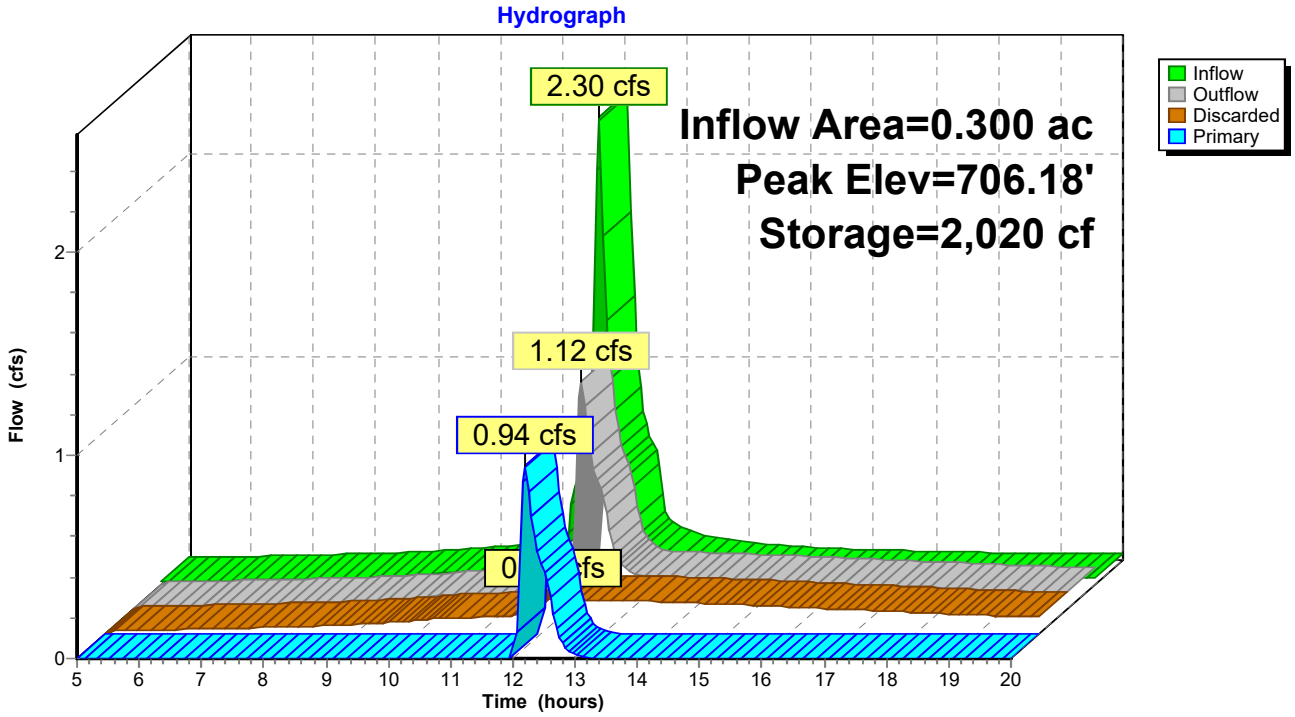
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
704.50	850	0	0
706.50	1,700	2,550	2,550

Device	Routing	Invert	Outlet Devices
#1	Discarded	704.50'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 698.50'
#2	Primary	706.00'	**5.0' long + 3.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

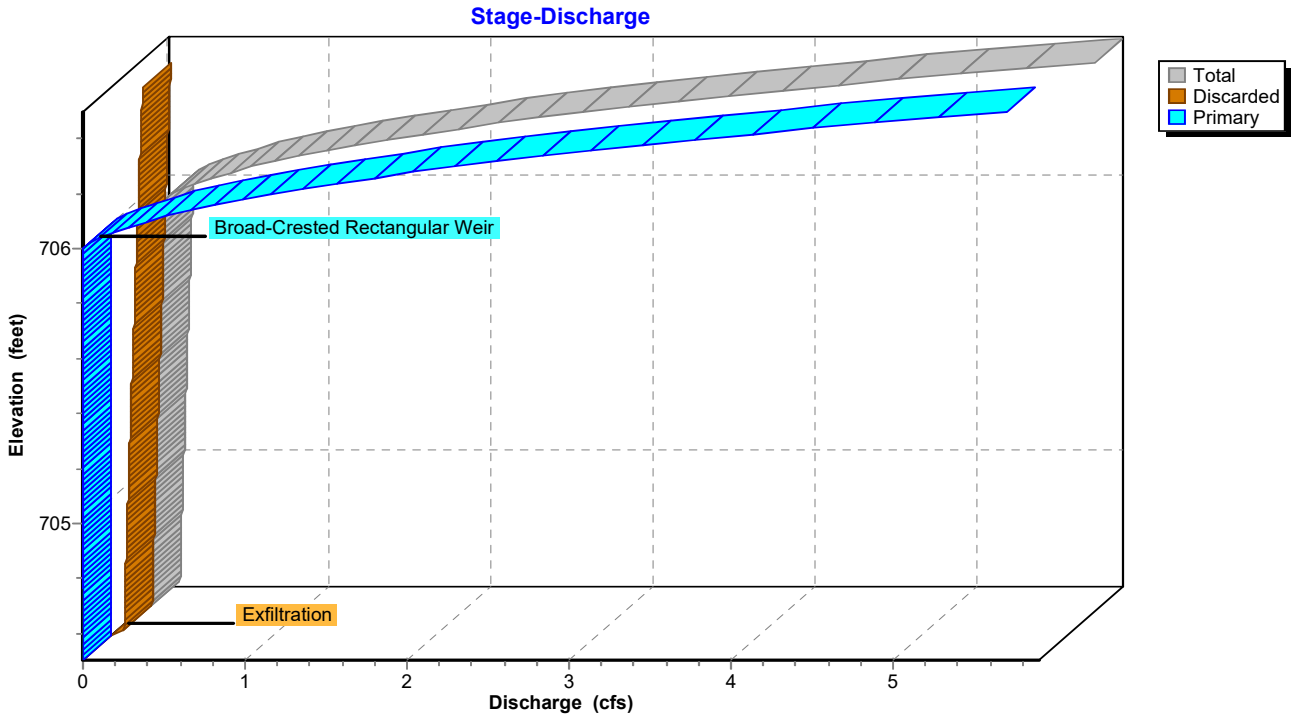
Discarded OutFlow Max=0.17 cfs @ 12.19 hrs HW=706.17' (Free Discharge)
1=Exfiltration (Controls 0.17 cfs)

Primary OutFlow Max=0.93 cfs @ 12.19 hrs HW=706.17' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.93 cfs @ 0.97 fps)

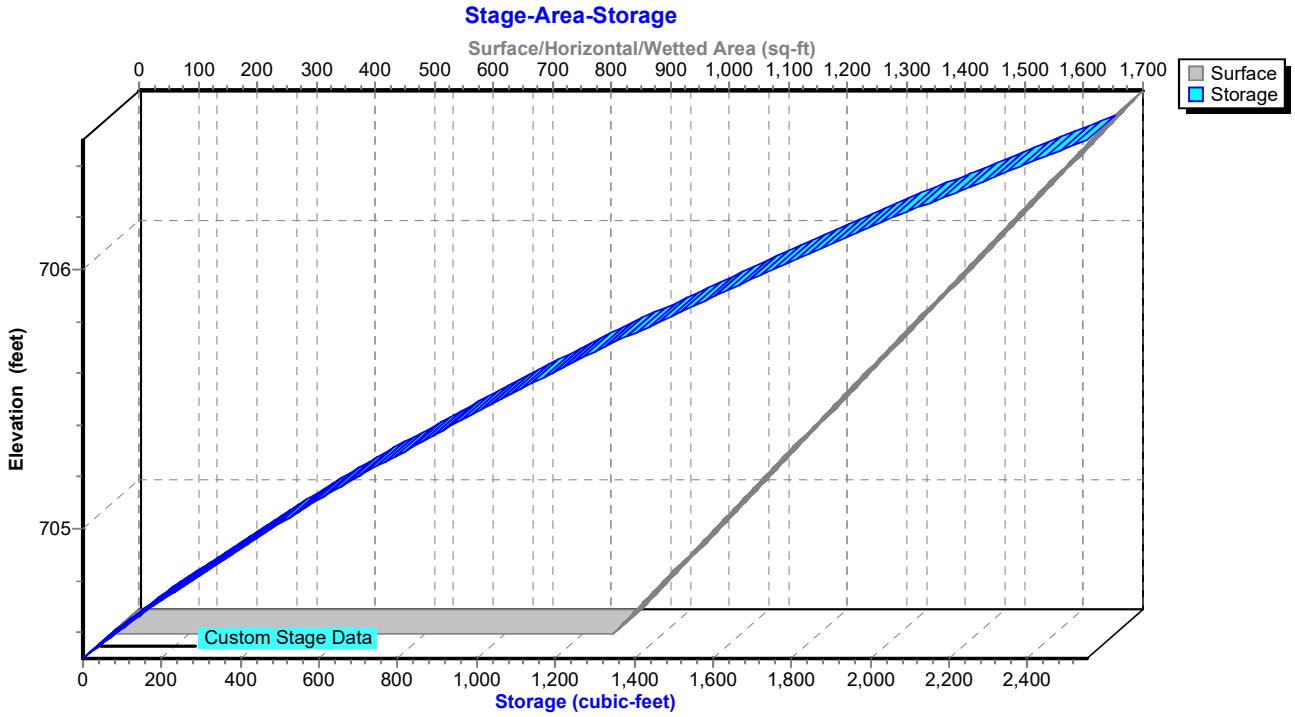
Pond 4P: Infiltration Basin 2



Pond 4P: Infiltration Basin 2



Pond 4P: Infiltration Basin 2



Summary for Pond 5P: Infiltration Bioretention 3

Inflow Area = 0.148 ac, 86.49% Impervious, Inflow Depth > 5.88" for 100-yr event
Inflow = 1.14 cfs @ 12.04 hrs, Volume= 0.072 af
Outflow = 1.22 cfs @ 12.06 hrs, Volume= 0.072 af, Atten= 0%, Lag= 1.4 min
Discarded = 0.11 cfs @ 12.06 hrs, Volume= 0.051 af
Primary = 1.11 cfs @ 12.06 hrs, Volume= 0.021 af
Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 703.18' @ 12.06 hrs Surf.Area= 514 sf Storage= 602 cf

Plug-Flow detention time= 32.0 min calculated for 0.072 af (100% of inflow)
Center-of-Mass det. time= 31.8 min (775.2 - 743.4)

Volume	Invert	Avail.Storage	Storage Description
#1	698.74'	779 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

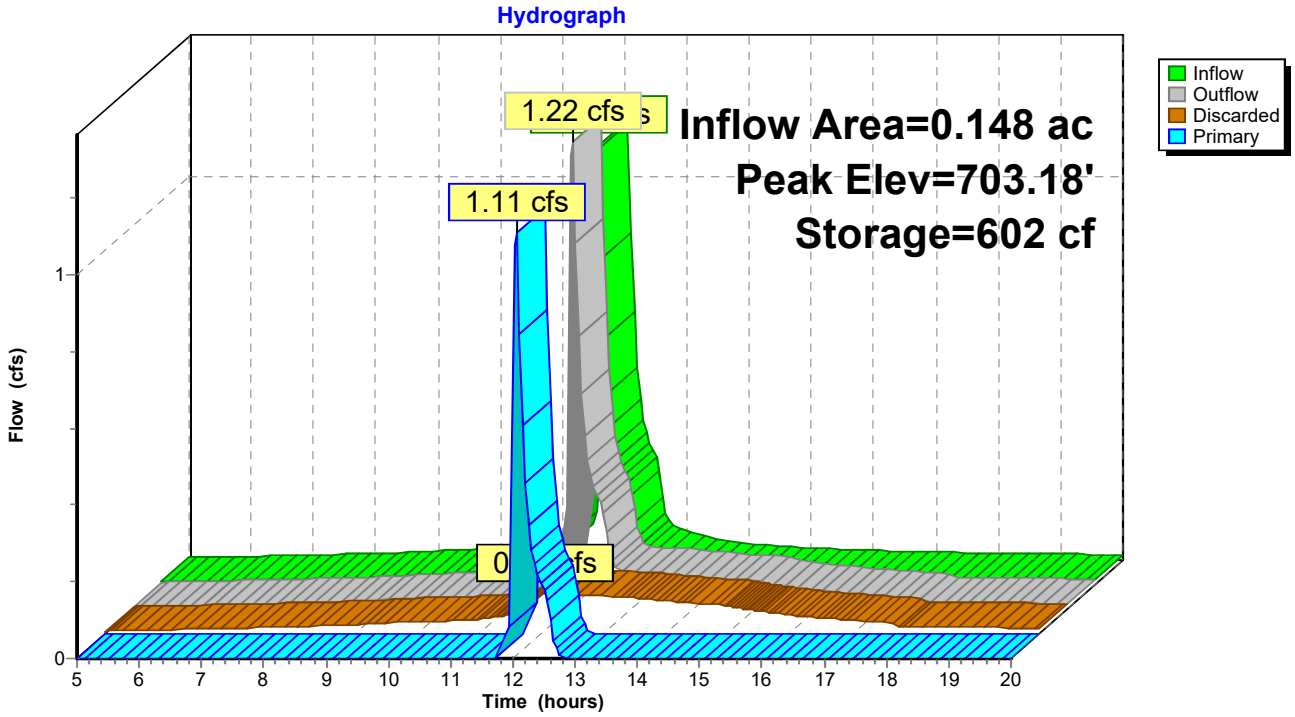
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
698.74	0	0.0	0	0
698.75	330	40.0	1	1
699.75	330	20.0	66	67
702.25	330	20.0	165	232
702.50	330	100.0	83	314
703.50	600	100.0	465	779

Device	Routing	Invert	Outlet Devices
#1	Discarded	698.74'	**4.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 696.50'
#2	Primary	703.00'	**5.0' long + 1.0 '/' SideZ x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

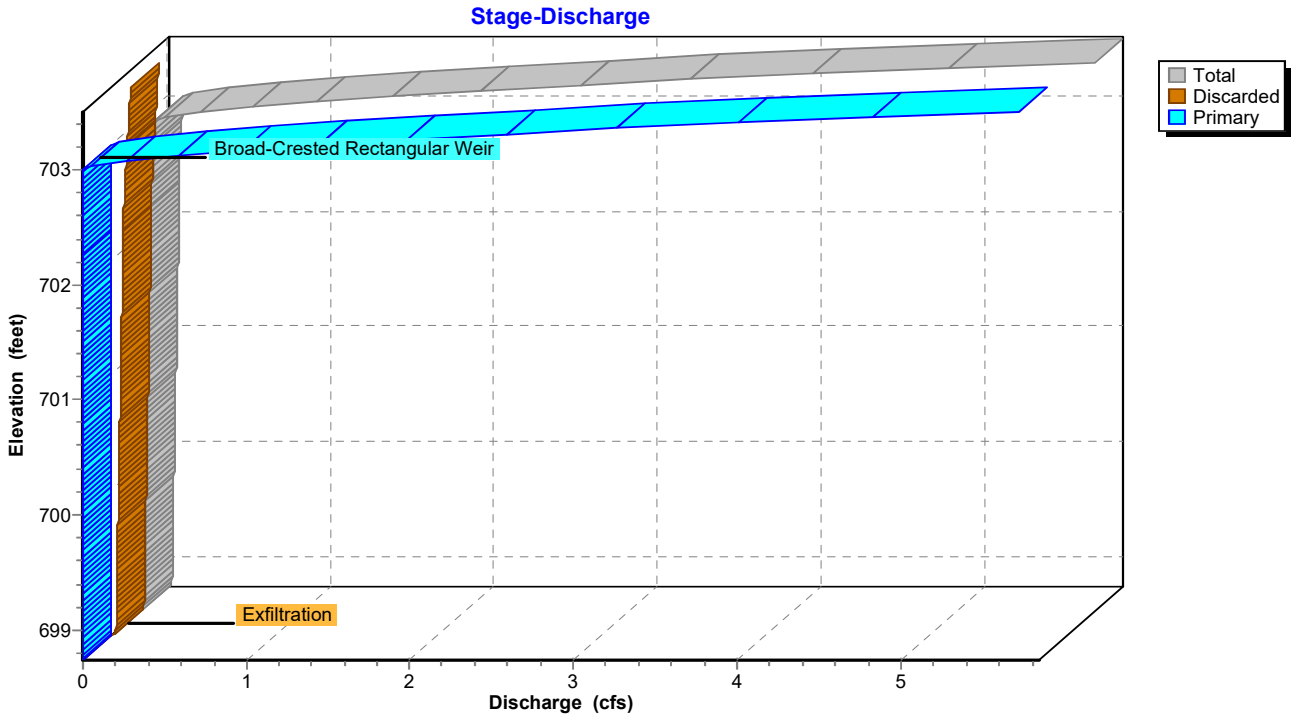
Discarded OutFlow Max=0.11 cfs @ 12.06 hrs HW=703.17' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.11 cfs)

Primary OutFlow Max=1.01 cfs @ 12.06 hrs HW=703.17' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 1.01 cfs @ 1.15 fps)

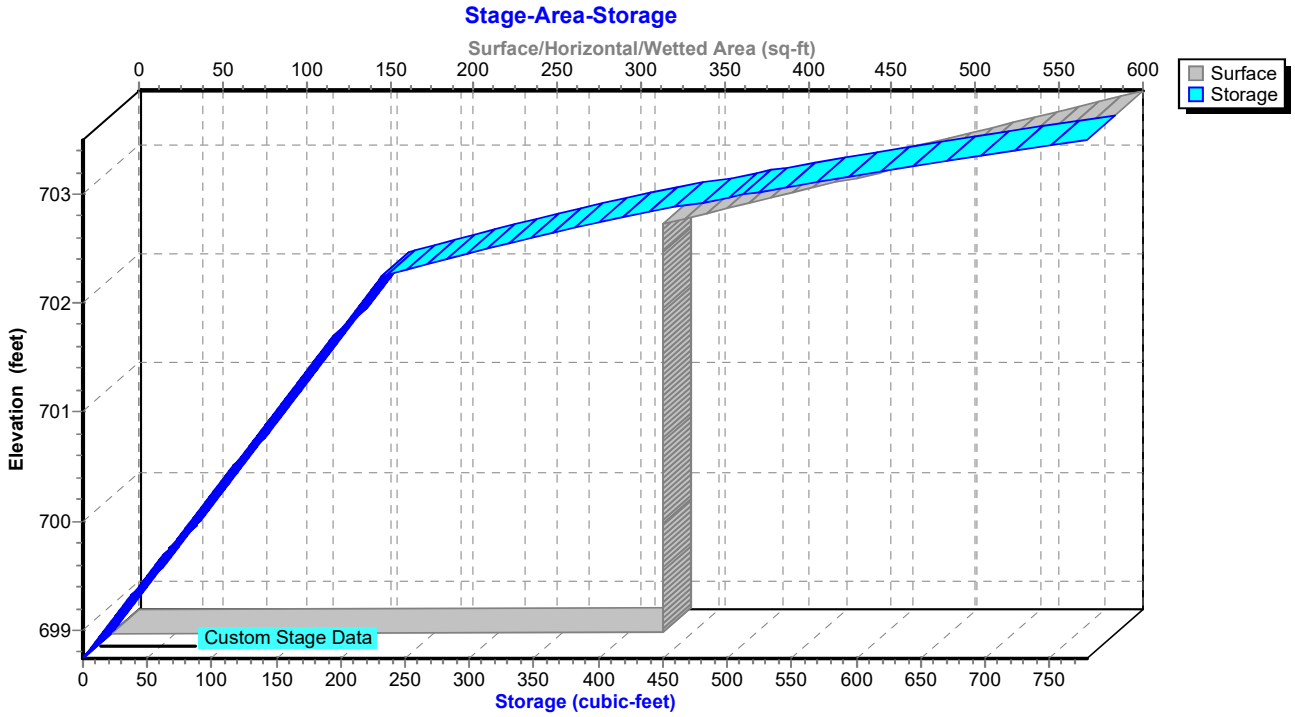
Pond 5P: Infiltration Bioretention 3



Pond 5P: Infiltration Bioretention 3



Pond 5P: Infiltration Bioretention 3

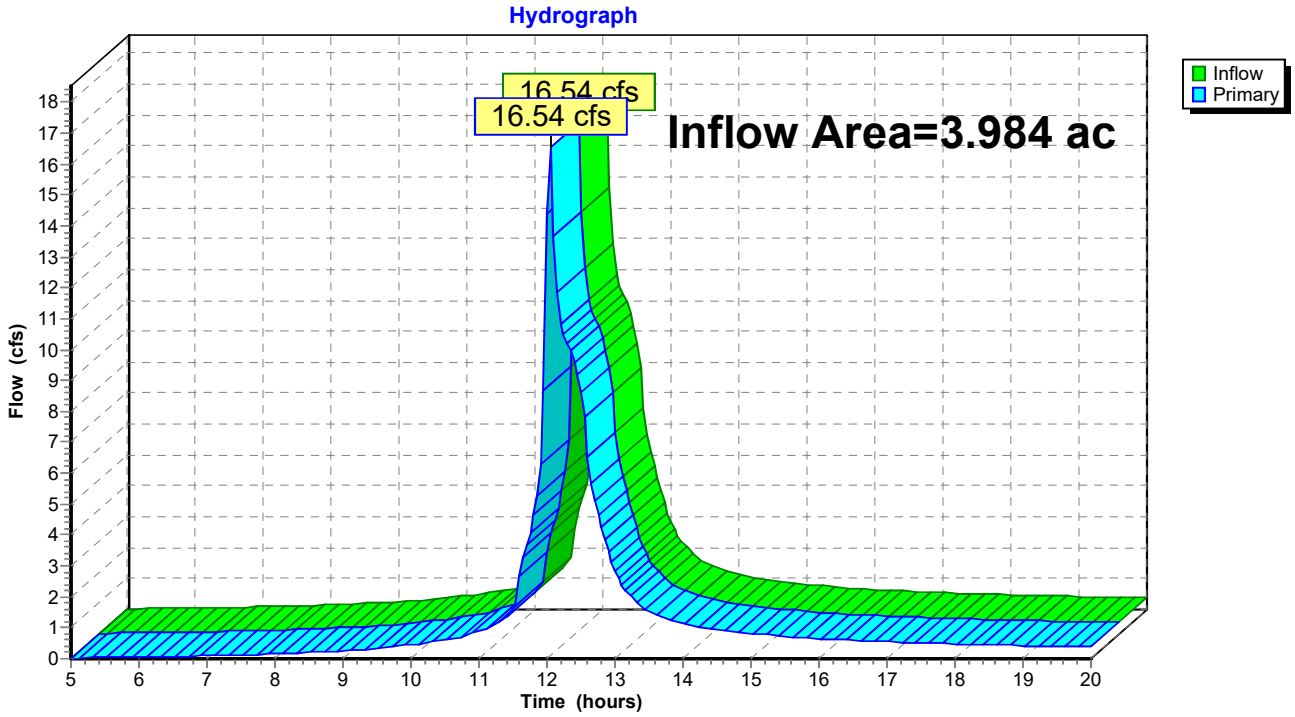


Summary for Link 1L: Pre-Dev Design Point

Inflow Area = 3.984 ac, 37.16% Impervious, Inflow Depth > 4.46" for 100-yr event
Inflow = 16.54 cfs @ 12.05 hrs, Volume= 1.480 af
Primary = 16.54 cfs @ 12.05 hrs, Volume= 1.480 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Pre-Dev Design Point

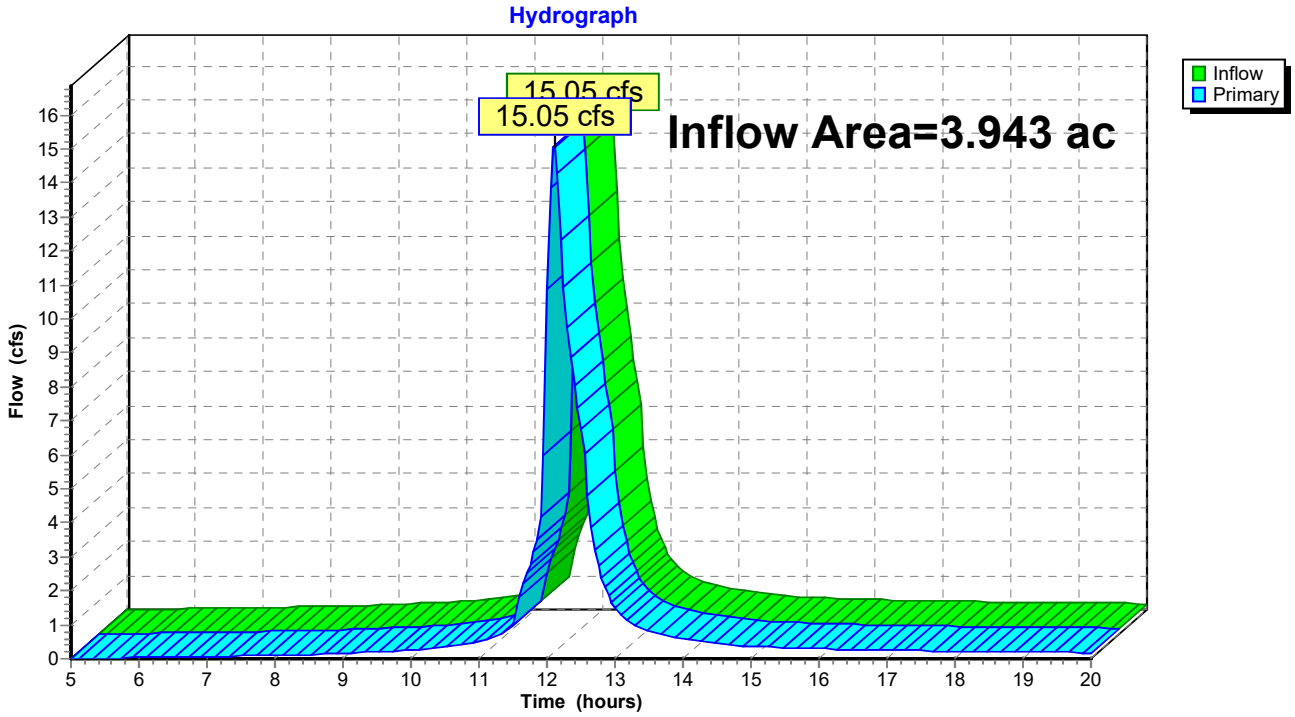


Summary for Link 2L: Post-Dev Design Point

Inflow Area = 3.943 ac, 56.43% Impervious, Inflow Depth > 3.14" for 100-yr event
Inflow = 15.05 cfs @ 12.11 hrs, Volume= 1.031 af
Primary = 15.05 cfs @ 12.11 hrs, Volume= 1.031 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: Post-Dev Design Point



Appendix 4.9

Operation and Maintenance Manual

LONG TERM OPERATION AND MAINTENANCE OF POST-CONSTRUCTION STORMWATER MANAGEMENT PRACITCES

Additional maintenance guidance can be found at the following:
dec.ny.gov/environmental-protection/water/water-quality/stormwater/construction-stormwater-toolbox

Swales

- Clean debris from channel and contributing area monthly and after major storm events.
- Mow as needed – monthly or less often.
- Remove sediment annually.

Infiltration Bioretention Basins

- Routine landscaping maintenance: weeding, mulching, thinning plants, replacing dead plants, watering. Re-mulch annually.
- Monthly and after major storm events, inspect the basin components, vegetation, and clean out debris.
- Annually and after major storm events, check sumps for evidence of sediment buildup and standing water, clean sediment from swale, check that the spillway is in good repair with no sign of erosion, and filter bed has not been blocked.
- Repair erosion on earthen berm as needed.

Infiltration Basins

- Routine landscaping maintenance: mowing and watering as required.
- Monthly and after major storm events, inspect the basin components, vegetation, and clean out debris.
- Annually and after major storm events, check for evidence of sediment buildup and standing water, clean sediment as req'd, check that the spillway is in good repair with no sign of erosion.
- Repair erosion on earthen berm as needed.

Outlet Structures

- Monthly and after major storm events, inspect catch basins, inlet pipes, and outlet pipes for sediment and debris.
- Clean all debris and remove sediment when it accumulates to 6" of depth.
- Remove sediment manually or with a vacuum truck.

Outfalls

- Inspect yearly and after major storm events.
- Repair erosion as needed.
- Replace stone outfall material as needed.

Disposal

- Disposal of all material removed from all practices shall be done in accordance with local regulations.

Soil Restoration Maintenance:

- First year maintenance operations includes:
  1. Initial inspections for the first six months (once after each storm greater than half-inch)
  2. Reseeding to repair bare or eroding areas to assure grass stabilization
  3. Water once every three days for first month, and then provide a half inch of water per week during first year. irrigation plan may be adjusted according to the rain event.
  4. Fertilization may be needed in the fall after the first growing season to increase plant vigor
  5. Keep site free of vehicular and foot traffic or other weight loads.

PZ Clerk Rec'd 07.02.25

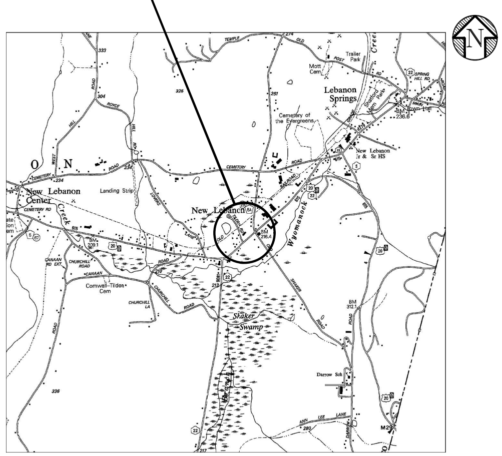
TILDEN COMMONS
NEW LEBANON DEVELOPMENT, LLC.

TOWN OF NEW LEBANON

COLUMBIA COUNTY NEW YORK

JULY 2025

PROJECT LOCATION



PORTION OF USGS 7.5
MINUTE QUADRANGLE
1" = 2000'

SHEET NO.	DRAWING INDEX
C10	TITLE PAGE, LOCATION MAP AND DRAWING INDEX
C30	WORK ZONE TRAFFIC CONTROL DETAILS
C31	WORK ZONE TRAFFIC CONTROL DETAILS
C35	STORMWATER POLLUTION PREVENTION NOTES
C36	EROSION AND SEDIMENT CONTROL DETAILS
C37	EROSION AND SEDIMENT CONTROL DETAILS
C100	EXISTING CONDITIONS & DEMOLITION PLAN
C110	SITE PLAN
C115	GRADING & STORMWATER PLAN
C125	TURNING RADIUS
C150	STORMWATER DETAILS
C151	STORMWATER DETAILS
C155	SITE DETAILS
C156	SITE DETAILS
C160	SEPTIC PLAN
C161	SANITARY DETAILS
C162	SANITARY DETAILS
C163	SANITARY DETAILS
C164	UV SYSTEM PLAN AND SECTION

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Consultant

TILDEN COMMONS
NEW LEBANON DEVELOPMENT, LLC.
COLUMBIA COUNTY NEW YORK STATE

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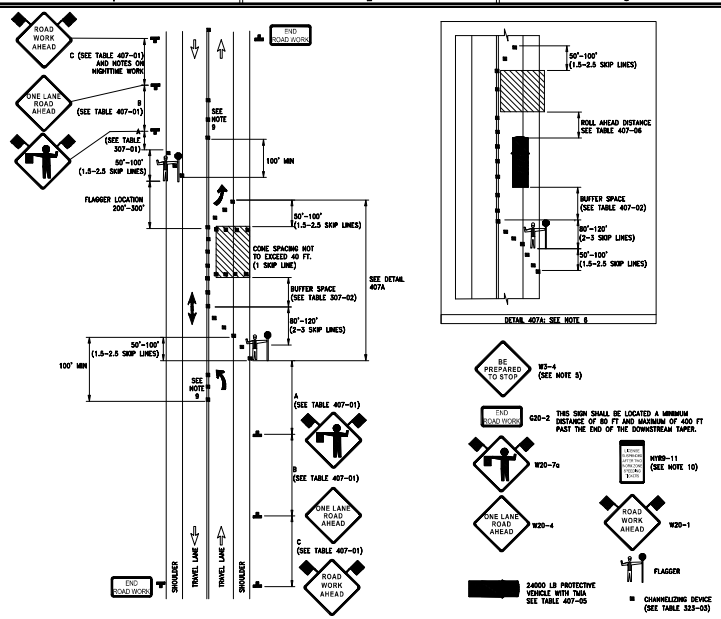
Stamp

Issue	Rev.	Date	Remarks
	0	7/1/25	PLANNING BOARD

Project Number	2024125
Drawn By	SK
Designed By	BJB
Checked By	BJB
Date	6/25/25
Scale	AS SHOWN
File Name	C10 - COVER

Sheet Title
TITLE PAGE, LOCATION MAP AND DRAWING INDEX

Sheet No.
C10



DETAIL 407A: SEE NOTE 8

NOTES:

1. INTERMEDIATE-TERM IS STATIONARY WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS, OR NIGHTTIME WORK LASTING MORE THAN 1 HOUR.
2. WHEN A SIDE ROAD OR DRIVEWAY INTERSECTS THE ROADWAY WITHIN A WORK ZONE TRAFFIC CONTROL AREA, ADDITIONAL TEMPORARY TRAFFIC CONTROL DEVICES AND/OR FLAGGERS SHALL BE PLACED AS NEEDED. ADDITIONAL FLAGGERS SHALL BE LOCATED AT ALL INTERSECTIONS AND COMMERCIAL DRIVEWAYS LOCATED WITHIN OR NEAR THE ACTIVE WORK SPACE. NO WORK ACTIVITY, EQUIPMENT, OR STORAGE OF VEHICLES, OR MATERIAL SHALL OCCUR WITHIN THE BUFFER SPACE AT ANY TIME.
3. CHANNELIZING DEVICE SPACING (CENTER TO CENTER) SHALL NOT EXCEED 20' IN THE ACTIVE WORK SPACE.
4. CHANNELIZING DEVICES SHALL BE PLACED TRANSVERSELY A MINIMUM OF EVERY 800' AS SHOWN WHEN A PAVED SHOULDER HAVING A WIDTH OF 8' OR GREATER IS CLOSED FOR A DISTANCE GREATER THAN 800'.
5. IF THE TRAFFIC IS EXPECTED TO QUEUE PAST THE W20-4 SIGN, A W3-4 SIGN SHOULD BE ADDED HALFWAY BETWEEN THE W20-4 AND W20-1 SIGNS.
6. IF CONDITION WARRANTS, PROTECTIVE VEHICLE WITH APPROPRIATE ROLL AHEAD DISTANCE MAY BE USED IN ADVANCE OF THE WORK AREA, TO USE PROTECTIVE VEHICLE, BUFFER SPACE SHALL BE PROVIDED ACCORDINGLY, AND THE WHEELS SHALL BE ALIGNED WITH THE LANE STRIPING.
7. FLAGGER SIGN (W20-7a) AND ONE LANE ROAD AHEAD SIGN (W20-4) SHALL BE REMOVED, COVERED OR TURNED AWAY FROM ROAD USERS WHEN FLAGGING OPERATIONS ARE NOT OCCURRING.
8. ALL FLAGGERS SHALL USE 24" (MIN.) OCTAGON SHAPED STOP/SLOW PADDLES HAVING 6" STAFF. THE PADDLE IS THE PREFERRED DEVICE, BUT THE FLAG MAY BE USED AT INTERSECTIONS WHERE THE STOP/SLOW PADDLE WOULD OFFER CONTRADICTING INFORMATION TO DRIVERS TRAVELING IN OPPOSITE DIRECTIONS/LEGS OF THE INTERSECTION OR DURING INCIDENT MANAGEMENT SITUATIONS.
9. CENTERLINE CONES MAY BE ADDED TO ENHANCE THE VISIBILITY OF THE FLAGGER STATION. IF CONES ARE USED, PLACE THEM 100 FT. (MINIMUM) FROM FLAGGER.
10. THE NY9-11 SIGN IS RECOMMENDED. WHEN USED, IT SHALL BE PLACED IN ADVANCE OF THE FIRST ADVANCE WARNING SIGN. THE PLACEMENT DISTANCE SHALL BE 1000' FOR POSTED SPEED LIMITS OF 45 MPH OR HIGHER, AND 300' – 500' FOR POSTED SPEED LIMITS OF LESS THAN 45 MPH.

TABLE 407-01: ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS A (FT.)	B (FT.)	C (FT.)	SIGN LEGEND XX	YY
URBAN (≤ 30 MPH*)	100	100	100	100	100
URBAN (35–40 MPH*)	200	200	200	AHEAD	AHEAD
URBAN (≥ 45 MPH*)	350	350	350	1000 FT.	AHEAD
RURAL	500	500	500	1500 FT.	1000 FT.

*RECONSTRUCTION POSTED SPEED LIMIT

TABLE 407-02: LONGITUDINAL BUFFER SPACE

PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	LONGITUDINAL BUFFER SPACE DISTANCE (FT.)/ # OF SKIP LINES
45	360/9
50	425/11
55	495/13
65	645/16

TABLE 407-03: CHANNELIZING DEVICE APPLICATION FOR INTERMEDIATE-TERM STATIONARY WORK ZONES

WORK ZONE PROVISIONS	MINIMUM DEVICE SPACING (CENTER TO CENTER)	MUTCD COMPLIANT CHANNELIZING DEVICE: DRUMS	STANDARD CONES	TALL CONES	EXTRA TALL CONES	TEMPORARY TUBULAR MARKERS	INTERIM TUBULAR MARKERS	VERTICAL PANELS	OVERSIZED VERTICAL PANELS	TYPE III BARRICADES
INTERMEDIATE-TERM STATIONARY WORK ZONES INVOLVE WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS, OR NIGHTTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR										
SHOULDER/MERGING/ SHIFTING TAPERS	20 FT. *	X							X	
	40 FT.	X							X	
MARKING FOR TRANSVERSE BUMPS (1)	N/A	X (2)			X (2)				X (2)	
TRANSVERSE DEVICE WITHIN CLOSED TRAFFIC LANE AND/OR SHOULDER	800 FT.	X		X	X			X	X	0
REMOVAL OF EXISTING GUIDE RAIL	80 FT.	X		X	X	X		X	X	0
	40 FT.									

NOTES: X= ALLOWED, BLANK= NOT ALLOWED
1. – A TYPE 1 OBJECT MARKER MAY BE USED IN LIEU OF CHANNELIZING DEVICE
2. – CHANNELIZING DEVICES SHALL BE EQUIPPED WITH A FLASHING WARNING LIGHT
* SEE NOTE 3 ABOVE

TABLE 407-04: REQUIRED SIGN SIZES*

SIGN	NON-FREEWAY	FREEWAY
G20-2	36x18	48x24
W3-4	36x36	48x48
W20-1	36x36	48x48
W20-4	36x36	48x48
W20-7a	36x36	48x48
WARNING FLAG	18x18	18x18

*FREEWAY SIZES MAY BE USED ON NON-FREEWAY, IF SPACE CONSTRAINTS DO NOT EXIST.

TABLE 407-05: PROTECTIVE VEHICLE REQUIREMENTS

CLOSURE TYPE	ROAD TYPE & SPEED	NON-FREEWAY ≤ 45 MPH	35 – 40 MPH	≤ 30 MPH
	EXPOSURE CONDITIONS (1)			
LANE CLOSURE OR ENCROACHMENT	WORKERS ON FOOT OR VEHICLE EXPOSED TO TRAFFIC	P, TMA	P, TMA	SEE NOTE 2
	OTHER HAZARDS NO WORKERS EXPOSED	P, TMA	SEE NOTE 2	SEE NOTE 2
SHOULDER CLOSURE OR ENCROACHMENT	WORKERS ON FOOT OR VEHICLE EXPOSED TO TRAFFIC	P, TMA	SEE NOTE 2	SEE NOTE 2
	OTHER HAZARDS NO WORKERS EXPOSED	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2

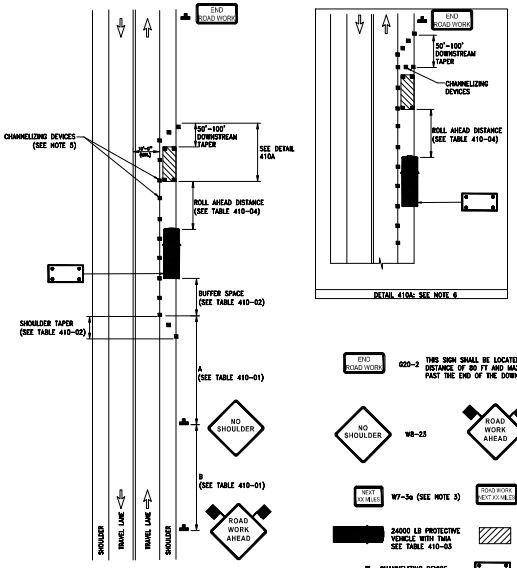
LEGEND
P: PROTECTIVE VEHICLE REQUIRED FOR EACH CLOSED LANE & EACH CLOSED PAVED SHOULDER 8' OR WIDER, IF THE WORK SPACE MOVES WITHIN THE STATIONARY CLOSURE, THE PROTECTIVE VEHICLE SHALL BE REPOSITIONED ACCORDINGLY
TMA: TMA REQUIRED
NOTES:
1. THE EXPOSURE CONDITIONS ASSUME THERE IS NO POSITIVE PROTECTION PRESENT
2. EITHER A PROTECTIVE VEHICLE OR THE STANDARD BUFFER SPACE SHALL BE PROVIDED

TABLE 407-06: ROLL AHEAD DISTANCE

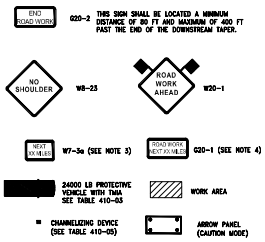
ROLL AHEAD DISTANCE (FT.)/# OF SKIP LINES FOR VEHICLES		
PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	STATIONARY OPERATION MIN	MAX
≥ 55	120/3	200/5
45–50	80/2	160/4
≤ 40	40/1	120/3

FLAGGING OPERATION
SINGLE LANE CLOSURE ON 2-LANE 2-WAY ROADWAY

(NOT TO SCALE)



DETAIL 410A: SEE NOTE 6



NOTES:

1. INTERMEDIATE-TERM IS STATIONARY WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS, OR NIGHTTIME WORK LASTING MORE THAN 1 HOUR.
2. WHEN A SIDE ROAD OR DRIVEWAY INTERSECTS THE ROADWAY WITHIN A WORK ZONE TRAFFIC CONTROL AREA, ADDITIONAL TEMPORARY TRAFFIC CONTROL DEVICES AND/OR FLAGGERS SHALL BE PLACED AS NEEDED. ADDITIONAL FLAGGERS SHALL BE LOCATED AT ALL INTERSECTIONS AND COMMERCIAL DRIVEWAYS LOCATED WITHIN OR NEAR THE ACTIVE WORK SPACE. NO WORK ACTIVITY, EQUIPMENT, OR STORAGE OF VEHICLES, OR MATERIAL SHALL OCCUR WITHIN THE BUFFER SPACE AT ANY TIME.
3. CHANNELIZING DEVICE SPACING (CENTER TO CENTER) SHALL NOT EXCEED 20' IN THE ACTIVE WORK SPACE.
4. CHANNELIZING DEVICES SHALL BE PLACED TRANSVERSELY A MINIMUM OF EVERY 800' AS SHOWN WHEN A PAVED SHOULDER HAVING A WIDTH OF 8' OR GREATER IS CLOSED FOR A DISTANCE GREATER THAN 800'.
5. IF THE TRAFFIC IS EXPECTED TO QUEUE PAST THE W20-4 SIGN, A W3-4 SIGN SHOULD BE ADDED HALFWAY BETWEEN THE W20-4 AND W20-1 SIGNS.
6. IF CONDITION WARRANTS, PROTECTIVE VEHICLE WITH APPROPRIATE ROLL AHEAD DISTANCE MAY BE USED IN ADVANCE OF THE WORK AREA, TO USE PROTECTIVE VEHICLE, BUFFER SPACE SHALL BE PROVIDED ACCORDINGLY, AND THE WHEELS SHALL BE ALIGNED WITH THE LANE STRIPING.
7. FLAGGER SIGN (W20-7a) AND ONE LANE ROAD AHEAD SIGN (W20-4) SHALL BE REMOVED, COVERED OR TURNED AWAY FROM ROAD USERS WHEN FLAGGING OPERATIONS ARE NOT OCCURRING.
8. ALL FLAGGERS SHALL USE 24" (MIN.) OCTAGON SHAPED STOP/SLOW PADDLES HAVING 6" STAFF. THE PADDLE IS THE PREFERRED DEVICE, BUT THE FLAG MAY BE USED AT INTERSECTIONS WHERE THE STOP/SLOW PADDLE WOULD OFFER CONTRADICTING INFORMATION TO DRIVERS TRAVELING IN OPPOSITE DIRECTIONS/LEGS OF THE INTERSECTION OR DURING INCIDENT MANAGEMENT SITUATIONS.
9. CENTERLINE CONES MAY BE ADDED TO ENHANCE THE VISIBILITY OF THE FLAGGER STATION. IF CONES ARE USED, PLACE THEM 100 FT. (MINIMUM) FROM FLAGGER.
10. THE NY9-11 SIGN IS RECOMMENDED. WHEN USED, IT SHALL BE PLACED IN ADVANCE OF THE FIRST ADVANCE WARNING SIGN. THE PLACEMENT DISTANCE SHALL BE 1000' FOR POSTED SPEED LIMITS OF 45 MPH OR HIGHER, AND 300' – 500' FOR POSTED SPEED LIMITS OF LESS THAN 45 MPH.

TABLE 410-01: ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS A (FT.)	B (FT.)
URBAN (≤ 30 MPH*)	100	100
URBAN (35–40 MPH*)	200	200
URBAN (≥ 45 MPH*)	350	350
RURAL	500	500

*RECONSTRUCTION POSTED SPEED LIMIT

TABLE 410-02: LONGITUDINAL BUFFER SPACE AND TAPER LENGTHS

PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	LONGITUDINAL BUFFER SPACE DISTANCE (FT.)/ # OF SKIP LINES	TAPER LENGTH: L (FT.)/# OF SKIP LINES/ # OF CHANNELIZING DEVICES FOR LANE WIDTH IN FT. (LATERAL SHIFT OF TRAFFIC FLOW PATH) 10	11	12	SHOULDER TAPER LENGTH: L/3 (FT.)/ # OF SKIP LINES/ # OF CHANNELIZING DEVICES FOR SHOULDER WIDTH 40/1/2	40/1/2	40/1/2
25	155/4	120/3/4	120/3/4	120/3/4	40/1/2	40/1/2	40/1/2
30	200/5	160/4/8	160/4/8	200/5/8	40/1/2	40/1/2	40/1/2
35	250/6	200/5/8	240/6/7	240/6/7	40/1/2	40/1/2	80/2/3
40	305/8	280/7/8	320/8/9	320/8/9	40/1/2	80/2/3	80/2/3
45	360/9	440/11/12	520/13/14	560/14/15	80/2/3	80/2/3	120/3/4
50	425/11	520/13/14	560/14/15	600/15/16	80/2/3	120/3/4	160/4/5
55	495/13	560/14/15	600/15/16	680/17/18	80/2/3	120/3/4	160/4/5

TABLE 410-03: PROTECTIVE VEHICLE REQUIREMENTS

CLOSURE TYPE	ROAD TYPE & SPEED	NON-FREEWAY ≤ 45 MPH	35 – 40 MPH	≤ 30 MPH
	EXPOSURE CONDITIONS (1)			
LANE CLOSURE OR ENCROACHMENT	WORKERS ON FOOT OR VEHICLE EXPOSED TO TRAFFIC	P, TMA	P, TMA	SEE NOTE 2
	OTHER HAZARDS NO WORKERS EXPOSED	P, TMA	SEE NOTE 2	SEE NOTE 2
SHOULDER CLOSURE OR ENCROACHMENT	WORKERS ON FOOT OR VEHICLE EXPOSED TO TRAFFIC	P, TMA	SEE NOTE 2	SEE NOTE 2
	OTHER HAZARDS NO WORKERS EXPOSED	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2

LEGEND
P: PROTECTIVE VEHICLE REQUIRED FOR EACH CLOSED LANE & EACH CLOSED PAVED SHOULDER 8' OR WIDER, IF THE WORK SPACE MOVES WITHIN THE STATIONARY CLOSURE, THE PROTECTIVE VEHICLE SHALL BE REPOSITIONED ACCORDINGLY
TMA: TMA REQUIRED
NOTES:
1. THE EXPOSURE CONDITIONS ASSUME THERE IS NO POSITIVE PROTECTION PRESENT
2. EITHER A PROTECTIVE VEHICLE OR THE STANDARD BUFFER SPACE SHALL BE PROVIDED

SHOULDER CLOSURE
2-LANE 2-WAY ROADWAY

(NOT TO SCALE)

TABLE 410-04: ROLL AHEAD DISTANCE

ROLL AHEAD DISTANCE (FT.)/# OF SKIP LINES FOR VEHICLES		
PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	STATIONARY OPERATION MIN	MAX
≥ 55	120/3	200/5
45–50	80/2	160/4
≤ 40	40/1	120/3

TABLE 410-05: CHANNELIZING DEVICE APPLICATION FOR INTERMEDIATE-TERM STATIONARY WORK ZONES

WORK ZONE PROVISIONS	MINIMUM DEVICE SPACING (CENTER TO CENTER)	MUTCD COMPLIANT CHANNELIZING DEVICE: DRUMS	STANDARD CONES	TALL CONES	EXTRA TALL CONES	TEMPORARY TUBULAR MARKERS	INTERIM TUBULAR MARKERS	VERTICAL PANELS	OVERSIZED VERTICAL PANELS	TYPE III BARRICADES
INTERMEDIATE-TERM STATIONARY WORK ZONES INVOLVE WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS, OR NIGHTTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR										
SHOULDER/MERGING/ SHIFTING TAPERS	20 FT. *	X							X	
	40 FT.	X							X	
MARKING FOR TRANSVERSE BUMPS (1)	N/A	X (2)			X (2)				X (2)	
TRANSVERSE DEVICE WITHIN CLOSED TRAFFIC LANE AND/OR SHOULDER	800 FT.	X		X	X			X	X	0
REMOVAL OF EXISTING GUIDE RAIL	80 FT.	X		X	X	X		X	X	0
	40 FT.									

NOTES: X= ALLOWED, BLANK= NOT ALLOWED
1. – A TYPE 1 OBJECT MARKER MAY BE USED IN LIEU OF CHANNELIZING DEVICE
2. – CHANNELIZING DEVICES SHALL BE EQUIPPED WITH A FLASHING WARNING LIGHT
* SEE NOTE 3 ABOVE

TABLE 410-06: REQUIRED SIGN SIZES*

SIGN	NON-FREEWAY	FREEWAY
G20-2	36x18	48x24
W20-1	36x36	48x48
W21-5	36x36	48x48
W7-3a	24x18	36x30
G20-1	36x18	48x24
WARNING FLAG	18x18	18x18

*FREEWAY SIZES MAY BE USED ON NON-FREEWAY, IF SPACE CONSTRAINTS DO NOT EXIST.

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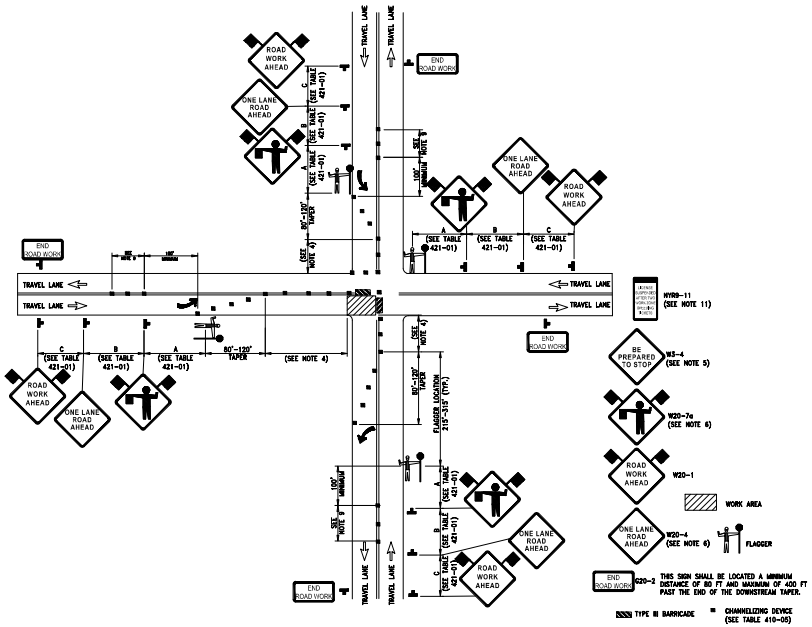
Sheet Title
WORK ZONE TRAFFIC CONTROL DETAILS

Sheet No.
C30



FLAGGING OPERATION
2-LANE 2-WAY ROADWAY INTERSECTION
(NOT TO SCALE)

NOTES:

1. INTERMEDIATE-TERM IS STATIONARY WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS, OR NIGHTTIME WORK LASTING MORE THAN 1 HOUR.
2. AT SIGNALIZED INTERSECTIONS, SIGNALS SHALL BE TURNED OFF FOR ANY FLAGGING OPERATIONS, UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.
3. CHANNELIZING DEVICE SPACING (CENTER TO CENTER) SHALL NOT EXCEED 20' IN THE ACTIVE WORK SPACE.
4. IF CONDITIONS WARRANT, PROTECTIVE VEHICLE WITH APPROPRIATE ROLL AHEAD DISTANCE MAY BE USED IN ADVANCE OF THE WORK AREA, TO USE PROTECTIVE VEHICLE, BUFFER SPACE SHALL BE PROVIDED ACCORDINGLY AND THE VEHICLE SHALL BE POSITIONED PARALLEL TO TRAFFIC AND HAVE THE WHEELS ALIGNED WITH THE LANE STRIPING.
5. IF THE TRAFFIC IS EXPECTED TO QUEUE PAST THE W20-4 SIGN, A W3-4 SIGN SHOULD BE ADDED HALFWAY BETWEEN THE W20-4 AND W20-1 SIGNS.
6. FLAGGER SIGN (W20-7a) AND ONE LANE ROAD AHEAD SIGN (W20-4) SHALL BE REMOVED, COVERED OR TURNED AWAY FROM ROAD USERS WHEN FLAGGING OPERATIONS ARE NOT OCCURRING.
7. ALL FLAGGERS SHALL USE 24" (MIN.) OCTAGON SHAPED STOP/SLOW PADDLES HAVING 6" STAFF. THE PADDLE IS THE PREFERRED DEVICE, BUT THE FLAG MAY BE USED AT INTERSECTIONS WHERE THE STOP/SLOW PADDLE WOULD OFTEN CONTRADICTING INFORMATION TO DRIVERS TRAVELING IN OPPOSITE DIRECTIONS/LEGS OF THE INTERSECTION OR DURING INCIDENT MANAGEMENT SITUATIONS.
8. ADDITIONAL FLAGGERS SHALL BE LOCATED AT ALL INTERSECTIONS AND COMMERCIAL DRIVEWAYS LOCATED WITHIN OR NEAR THE ACTIVE WORK AREA.
9. CENTERLINE CONES MAY BE ADDED TO ENHANCE THE VISIBILITY OF THE FLAGGER STATION. IF CONES ARE USED, PLACE THEM 100 FT. (MINIMUM) FROM FLAGGER.
10. NO WORK ACTIVITY, EQUIPMENT, OR STORAGE OF VEHICLES, OR MATERIAL SHALL OCCUR WITHIN THE BUFFER SPACE AT ANY TIME.
11. THE NYR9-11 SIGN IS RECOMMENDED. WHEN USED, IT SHALL BE PLACED IN ADVANCE OF THE FIRST ADVANCE WARNING SIGN. THE PLACEMENT DISTANCE SHALL BE 1000' FOR POSTED SPEED LIMITS OF 45 MPH OR HIGHER, AND 300' – 500' FOR POSTED SPEED LIMITS OF LESS THAN 45 MPH.

TABLE 421-01: ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS			SIGN LEGEND	
	A (FT.)	B (FT.)	C (FT.)	XX	YY
URBAN (≤ 30 MPH*)	100	100	100	100	100
URBAN (35–40 MPH*)	200	200	200	AHEAD	AHEAD
URBAN (≥ 45 MPH*)	350	350	350	1000 FT.	AHEAD
RURAL	500	500	500	1500 FT.	1000 FT.

*PRECONSTRUCTION POSTED SPEED LIMIT

TABLE 421-02: CHANNELIZING DEVICE APPLICATION FOR INTERMEDIATE-TERM STATIONARY WORK ZONES

WORK ZONE PROVISIONS	MAXIMUM DEVICE SPACING (CENTER TO CENTER)	MUTCD COMPLIANT CHANNELIZING DEVICE							
		DRUMS	STANDARD CONES	TALL CONES	EXTRA TALL CONES	TEMPORARY TUBULAR MARKERS	INTERIM TUBULAR MARKERS	VERTICAL PANELS	OVERSIZED VERTICAL PANELS	TYPE III BARRICADES
INTERMEDIATE-TERM STATIONARY WORK ZONES INVOLVE WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS, OR NIGHTTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR										
SHOULDER/MERGING/ SHIFTING TAPERS	20 FT. *	X							X	
	40 FT.	X							X	
MARKING FOR TRANSVERSE BUMPS (1)	N/A	X (2)			X (2)				X (2)	
TRANSVERSE DEVICE WITHIN CLOSED TRAFFIC LANE AND/OR SHOULDER	800 FT.	X		X	X			X	X	0
REMOVAL OF EXISTING GUIDE RAIL	80 FT.	X		X	X	X		X	X	0
	40 FT.									

NOTES: X= ALLOWED, BLANK= NOT ALLOWED * SEE NOTE 3 ABOVE
1. – A TYPE 1 OBJECT MARKER MAY BE USED IN LIEU OF CHANNELIZING DEVICE
2. – CHANNELIZING DEVICES SHALL BE EQUIPPED WITH A FLASHING WARNING LIGHT

TABLE 421-03: REQUIRED SIGN SIZES*

SIGN	NON-FREEWAY	FREEWAY
W20-1	36x36	48x48
W20-4	36x36	48x48
W20-7A	36x36	48x48
G20-2	36x18	48x24
WARNING FLAG	18x18	18x18

*FREEWAY SIZES MAY BE USED ON NON-FREEWAY, IF SPACE CONSTRAINTS DO NOT EXIST.

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Sheet Title
WORK ZONE TRAFFIC CONTROL DETAILS

Sheet No.
C31

STORMWATER POLLUTION PREVENTION PLAN NOTES (SWPPP)

THIS SWPPP WAS PREPARED IN COMPLIANCE WITH THE SPDES GENERAL PERMIT GP-0-25-001.

THE OWNER IS SOLELY RESPONSIBLE FOR IMPLEMENTING AND ENFORCING THE CONTENTS OF THIS STORMWATER POLLUTION PREVENTION PLAN DURING CONSTRUCTION. THE OWNER WILL BE RESPONSIBLE FOR ALL POST-CONSTRUCTION INSPECTION AND MAINTENANCE DUTIES.
SEE CERTIFICATION REQUIREMENTS IN SECTION I.

I. CERTIFICATION:

THIS STORMWATER POLLUTION PREVENTION PLAN REFLECTS ALL REQUIREMENTS AS DESCRIBED IN THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY. TO ENSURE COMPLIANCE, THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE LATEST EDITION OF "NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" MANUAL PUBLISHED BY THE EMPIRE STATE SOIL AND WATER CONSERVATION SOCIETY, AND THE NYSDEC PUBLICATION ENTITLED "STORMWATER MANAGEMENT DESIGN MANUAL – JULY 2024".

ALL CONTRACTORS AND SUBCONTRACTORS RESPONSIBLE FOR SITEWORK ON THIS CONTRACT SHALL SIGN A COPY OF THE FOLLOWING STATEMENT BEFORE UNDERTAKING ANY CONSTRUCTION ACTIVITY ON THE PROJECT. A COPY OF THIS STATEMENT IS INCLUDED IN THE SWPPP.

"I HEREBY CERTIFY THAT I UNDERSTAND AND AGREE TO COMPLY WITH THE TERMS AND CONDITIONS OF THE SWPPP AND AGREE TO IMPLEMENT ANY CORRECTIVE ACTIONS IDENTIFIED BY THE QUALIFIED INSPECTOR DURING A SITE INSPECTION. I ALSO UNDERSTAND THAT THE OWNER OR OPERATOR MUST COMPLY WITH THE TERMS AND CONDITIONS OF THE MOST CURRENT VERSION OF THE NEW YORK STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES AND THAT IT IS UNLAWFUL FOR ANY PERSON TO CAUSE OR CONTRIBUTE TO A VIOLATION OF WATER QUALITY STANDARDS. FURTHERMORE, I UNDERSTAND THAT CERTIFYING FALSE, INCORRECT OR INACCURATE INFORMATION IS A VIOLATION OF THE REFERENCED PERMIT AND THE LAWS OF NEW YORK STATE AND COULD SUBJECT ME TO CRIMINAL, CIVIL AND/OR ADMINISTRATIVE PROCEEDINGS."

THE CERTIFICATION MUST INCLUDE THE NAME AND TITLE OF THE PERSON PROVIDING THE SIGNATURE IN ACCORDANCE WITH PART V.H OF THE GENERAL PERMIT; THE NAME ADDRESS AND PHONE NO. OF THE CONTRACTING FIRM; THE ADDRESS OF THE SITE; AND THE DATE THE CERTIFICATION IS MADE. SEE THE COMPLETE SWPPP FOR CERTIFICATION FORM.

II. SEQUENCE OF MAJOR CONSTRUCTION ACTIVITIES:

NO WORK WILL BE ALLOWED TO BE COMPLETED OUT OF SEQUENCE WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER. CONTRACTOR MAY NOT DISTURB MORE THAN 5 ACRES AT ANY ONE TIME.

1. STAKE OUT LIMIT OF DISTURBANCE. STAKEOUT POINTS SHALL HAVE A MAXIMUM SPACING OF 15'. COORDINATE WITH RESIDENT PROJECT REPRESENTATIVE.
2. PROVIDE CONSTRUCTION/SNOW FENCE ALONG SENSITIVE AREAS DESIGNATED ON DRAWINGS AHEAD OF ALL FURTHER OPERATIONS. DO NOT TRENCH IN.
3. ACCESS WORK AREAS FROM APPROVED ACCESS WAYS SHOWN ON THE DRAWING.
4. PROVIDE SILT FENCE AS INDICATED ON THE DRAWINGS OR ORDERED BY ENGINEER.
5. PROVIDE STABILIZED CONSTRUCTION ENTRANCES AS INDICATED ON THE DRAWINGS.
6. FIELD LOCATE AND CONSTRUCT TEMPORARY STAGING AND STOCKPILING AREAS. COORDINATE WITH ENGINEER.
7. CONDUCT DEMOLITION WORK, INCLUDING BUILDINGS, ASPHALT, AND SUBBASE.
8. CLEAR TREES AND BRUSH WITHIN THE WORK AREA LIMITS. DO NOT DISTURB TREES AND BRUSH OUTSIDE THE LIMIT OF DISTURBANCE. DO NOT DISTURB TREES SCHEDULED TO REMAIN.
9. REMOVE ALL TOPSOIL WITHIN PROPOSED GRADING AREAS AND STOCKPILE AT LOCATIONS DESIGNATED ON PLANS.
10. REMOVE SUBSOIL AS REQUIRED, STOCKPILE ON-SITE OR DISPOSE SURPLUS OFF-SITE.
11. CONSTRUCT FOUNDATIONS AND ESTABLISH ROUGH GRADE TO WITHIN 6" OF FINISHED GRADE. CONSTRUCT UTILITY PIPING AND STRUCTURES.
12. PROVIDE PAVED PARKING/DRIVEWAY AREA SUBBASE.
13. CONSTRUCT BUILDING.
14. UPON COMPLETION OF ROUGH GRADING WORK, INCLUDING RE-USE OF STOCKPILED SUBSOIL, CONTRACTOR SHALL SEED AND MULCH ALL DISTURBED AREAS WITHIN 7 DAYS.
15. EXCESS NATIVE SOIL NOT USED FOR THE PROJECT SHALL BE DISPOSED OF OFF-SITE AT AN APPROPRIATE SPOILS AREA.
16. CONSTRUCT INFILTRATION AND INFILTRATION BIORETENTION BASINS. IF SOILS WITHIN THESE AREAS ARE COMPACTED DURING CONSTRUCTION, CONTRACTOR SHALL PROVIDE SOIL RESTORATION AS REQUIRED BY ENGINEER.
17. CONTRACTOR SHALL PROVIDE JUTE MESH ON SLOPES GREATER THAN 3H:1V, AS INDICATED ON THE DRAWINGS, OR AS ORDERED BY ENGINEER.
18. ESTABLISH FINISHED GRADE. PROVIDE DRIVEWAY AND PARKING AREA ASPHALT PAVEMENT. REMOVE TEMPORARY STAGING/STOCKPILE AREAS AND RESTORE PER PLANS.
19. CONTRACTOR SHALL SEED AND MULCH ALL DISTURBED AREAS WITH SEEDING AS OUTLINED IN SEEDING SCHEDULE.
20. UPON ESTABLISHMENT OF TURF, CONTRACTOR SHALL REMOVE ALL EROSION AND SEDIMENT CONTROL DEVICES AND RESTORE THOSE AREAS AS NECESSARY.

III. NON-STORMWATER DISCHARGES

DEWATERING

1. EXCAVATION DEWATERING SHALL BE ACCOMPLISHED BY INSTALLING A PERFORATED STANDPIPE PACKED IN STONE, IN A SUMP, ADJACENT TO THE WORK AREA
2. DO NOT PUMP WATER DIRECTLY FROM THE EXCAVATION
3. DIVERT SURFACE WATER AWAY FROM THE EXCAVATION AND WORK AREA
4. DEWATERING EFFLUENT SHALL BE PUMPED TO A STABLE GRASSY AREA, TO A GEOTEXTILE SEDIMENT BAG OR TO A TEMPORARY SETTLING BASIN FOR FILTERING AND SETTLING
5. FILTERING OR SETTLING PRACTICE SHALL BE APPROPRIATELY SIZED FOR THE PUMP USED
6. LOCATION OF FILTERING OR SETTLING PRACTICE SHALL BE APPROVED BY THE ENGINEER
7. DEWATERING EFFLUENT ENTERING ANY STREAM OR WATERCOURSE SHALL CAUSE NO VISIBLE CONTRAST TO THE RECEIVING WATERS
8. IF DEWATERING EFFLUENT FILTERING/SETTLING PRACTICES ARE FOUND TO BE INEFFECTIVE, CONTRACTOR SHALL CEASE OPERATIONS IMMEDIATELY AND CORRECT THE PROCEDURE.

CONCRETE TRUCK WASHOUT

CONCRETE TRUCKS SHALL BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE ONLY AT LOCATIONS SPECIFICALLY APPROVED BY THE ENGINEER. CONCRETE TRUCKS SHALL NOT, UNDER ANY CIRCUMSTANCES, BE ALLOWED TO DISCHARGE WASH WATER INTO WETLANDS, WATER COURSES, OR STORM DRAINS. ALL CONCRETE TRUCK WASH AREAS SHALL BE ALLOWED TO DRY AND THEN BE BROKEN UP INTO PIECES NO LARGER THAN 4" IN ANY DIMENSION AND BURIED BELOW NEW PAVEMENT SURFACES.

THE WASHOUT SHALL BE LOCATED A MINIMUM OF 100 FEET FROM DRAINAGE SWALES, STORM DRAIN INLETS, WETLANDS, STREAMS AND OTHER WATER SURFACES. PREVENT SURFACE WATER FROM ENTERING THE STRUCTURE EXCEPT FOR THE ACCESS ROAD. PROVIDE APPROPRIATE ACCESS WITH A GRAVEL ACCESS ROAD SLOPED DOWN TO THE STRUCTURE. SIGNS SHALL BE PLACED TO DIRECT DRIVERS TO THE FACILITY AFTER THEIR LOAD IS DISCHARGED.

IV. CONSTRUCTION EROSION & SEDIMENT CONTROLS:

IMMEDIATE STABILIZATION: FOR AREAS NEAR WETLANDS MULCH WORK AREA WITH WOOD CHIPS, HAY OR STRAW IMMEDIATELY AFTER ROUGH GRADING FOLLOWING EACH SOIL DISTURBING OPERATION. ANY WORK AREA ON SLOPES OF 10% OR GREATER SHALL BE STABILIZED NO LATER THAN THE END OF EACH DAY. SEE SEQUENCE OF MAJOR CONSTRUCTION ACTIVITIES ON SHEETS C100-C102.

TEMPORARY STABILIZATION: TOPSOIL STOCKPILES AND DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES SHALL BE STABILIZED WITH TEMPORARY SEED AND MULCH IMMEDIATELY AFTER THE TEMPORARY CESSATION OF CONSTRUCTION ACTIVITY IN THAT AREA. ALL AREAS MUST BE STABILIZED NO LATER THAN 7 DAYS AFTER WORK HAS CEASED. THE TEMPORARY SEED SHALL BE RYE APPLIED AT THE RATE OF 30 POUNDS PER ACRE. STRAW (CEREAL GRAIN) MULCH SHALL BE APPLIED AT A RATE OF 2 TON/ACRE. SLOPES OVER 3(H):1(V) SHALL BE STABILIZED WITH JUTE MESH, UNTIL SUCH TIME AS VEGETATION HAS BEEN ESTABLISHED. AREAS TO BE PAVED SHALL BE TEMPORARILY STABILIZED WITH GEOTEXTILES AND STONE SUB-BASE MATERIAL, AS SHOWN ON THE PLANS, UNTIL PAVEMENT IS INSTALLED.

PERMANENT STABILIZATION: DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE PERMANENTLY CEASED SHALL BE STABILIZED WITH PERMANENT SEED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY. PRIOR TO PERMANENT SEEDING, APPLY LIME TO THE SOIL TO ATTAIN A pH OF 6.5 IN THE UPPER 2 INCHES OF SOIL. APPLY COMMERCIAL FERTILIZER AT 850 LBS OF 5-5-10 OR EQUIVALENT PER ACRE.

PERMANENT SEED SHALL BE AS FOLLOWS:
LAWN/GRADED AREAS: 65% CREEPING RED FESCUE (85-114 LBS/ACRE), 20% PERENNIAL RYEGRASS (26-35 LBS/ACRE) 15% FINE FESCUE (19-26 LBS/ACRE)

NON-GRADED AREAS: CONSERVATION MIX BY NEW ENGLAND WETLAND PLANTS, OR EQUAL. APPLY AT 25 LBS/ACRE OR MANUFACTURERS RECOMMENDATION.

APPLY OTHER SEED MIXES AS NOTED ON THE DRAWINGS AT THE RESPECTIVE MANUFACTURERS RECOMMENDATIONS.

APPLY STRAW (CEREAL GRAIN) MULCH AT A RATE OF 2 TONS/ACRE.

MAINTAIN A pH OF 6.0-7.0 IN PERMANENT SEEDED AREAS. FERTILIZE IN LATE MAY TO EARLY JUNE AND REPEAT IN LATE AUGUST IF SOD DENSITY IS NOT ADEQUATE. AVOID FERTILIZING WHEN HEAT IS GREATER THAN 85°F.

SILT FENCING: AT A MINIMUM, SILT FENCING SHALL BE INSTALLED AT LOCATIONS SHOWN AND AS DETAILED ON THE DRAWINGS, CONTRACTOR MAY BE REQUIRED TO PROVIDE ADDITIONAL SILT FENCING, TO PROVIDE NECESSARY SEDIMENT CONTROL WHERE ACTIVITIES OF THE CONTRACTOR MAY RESULT IN OFF-SITE SEDIMENT DISCHARGE.

CONSTRUCTION FENCING: SHALL BE INSTALLED AT LOCATIONS SHOWN AND AS DETAILED ON THE DRAWINGS. THE PURPOSE OF THE FENCING IS TO DELINEATE THE LIMITS OF DISTURBANCE AND TO PROTECT THE BUFFER ZONE VEGETATION.

OFFSITE TRACKING OF VEHICLES: A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROVIDED, IF NECESSARY, TO REDUCE VEHICLE TRACKING OF SEDIMENTS ONTO THE ADJACENT PARKING AREAS AND ONTO STREETS. ALL SEDIMENTS TRACKED ONTO STREETS SHALL BE IMMEDIATELY REMOVED AND SEDIMENTS TRACKED ONTO THE PARKING AREAS SHALL BE REMOVED AT THE END OF EACH WORK DAY. SITEWORK CONTRACTOR SHALL PROVIDE TRUCK TIRE CLEANING AT ALL SITE EGRESS POINTS AS NEEDED TO PREVENT TRACKING ONTO STREETS AND THE EXISTING PARKING AREAS.

EXCAVATION: ALL EXCAVATED MATERIAL AND SIDE CAST FROM TRENCHING ACTIVITIES SHALL BE TEMPORARILY PLACED AWAY FROM ANY ENVIRONMENTALLY SENSITIVE AREA.

DUST CONTROL: ALL CONTRACTS SHALL APPLY WATER FOR THE CONTROL OF DUST WITHIN THE LIMIITS OF THEIR RESPECTIVE WORK. WATER APPLICATION SHALL BE THE PRIMARY METHOD OF DUST CONTROL. CALCIUM CHLORIDE WILL NOT BE ALLOWED.

OTHER TEMPORARY CONTROLS: AS CONDITIONS WARRANT, OTHER TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE UTILIZED SO THAT ALL REQUIREMENTS OF THE "NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" MANUAL ARE MET. NO ADDITIONAL PAYMENTS SHALL BE MADE FOR ADDITIONAL TEMPORARY MEASURES REQUIRED AS A RESULT OF THE CONTRACTOR'S PHASING OF THE WORK.

V. PERMANENT STORMWATER MANAGEMENT CONTROLS:

THE PERMANENT STORMWATER CONTROL SYSTEM WILL CONSIST OF A INFILTRATION BIORETENTION BASINS, INFILTRATION BASINS, A GRASS SWALE, CULVERTS, AND STORM SEWERS.

VI. SPILL PREVENTION PLAN (SPP):

ALL CONTRACTORS ARE RESPONSIBLE FOR IMPLEMENTING AND ENFORCING THE CONTENTS OF A SPILL PREVENTION PLAN AS OUTLINED IN THE SWPPP

VII. MAINTENANCE AND INSPECTION OF EROSION, SEDIMENT & STORMWATER MANAGEMENT PRACTICES BY THE CONTRACTOR:

THE CONTRACTOR SHALL NOT BEGIN THE WORK UNTIL ALL EROSION AND SEDIMENT CONTROLS ARE IN PLACE AND HAVE BEEN INSPECTED AND CERTIFIED AS DESCRIBED BELOW.

THE CONTRACTOR SHALL INSPECT THE SITE DAILY AND AFTER EVERY RAINFALL EVENT.

ANY DEFICIENCIES SHALL BE REPAIRED AND BROUGHT INTO COMPLIANCE DAILY.

CONSTRUCTION PHASE	SCHEDULED MAINTENANCE
-STABILIZED CONSTRUCTION ENTRANCE	-PROVIDE ADDITIONAL STONE AND MAINTENANCE AS NEEDED. ALL SEDIMENT TRACKED ONTO PUBLIC ROADS SHALL BE REMOVED IMMEDIATELY.
-TEMPORARY DRAINAGE SWALES/DITCHES	-ADD STONE RIP RAP AND CLEAN AS NEEDED.
-TEMPORARY SILT FENCES	-MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN SILT FENCE.
-FABRIC DROP INLET PROTECTION	-INSPECT FABRIC BARRIER AFTER EACH RAIN EVENT. MAKE REPAIRS AS NEEDED. REMOVE SEDIMENT AS NECESSARY WITH CARE NOT TO DAMAGE FILTER.
-CONCRETE WASHOUT	-REMOVED HARDENED MATERIAL WHEN 75% OF STORAGE CAPACITY IS FILLED. ANY EXCESS WASH WATER SHALL BE PUMPED INTO A CONTAINMENT VESSEL AND PROPERLY DISPOSED OF OFF-SITE. THE PLASTIC LINER SHALL BE REPLACED WITH EACH CLEANING OF THE WASHOUT FACILITY.
-TEMPORARY SEDIMENT TRAPS	-INSPECT WEEKLY AND AFTER EACH RUNOFF EVENT. REPAIR AS NEEDED.
-ANCHORED STABILIZATION MATTING	-INSPECT WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 80% COVERAGE THROUGHOUT BLANKETED AREA.
-GENERAL SITE INSPECTION	-INSPECT THE CLEARING AND GRADING LIMITS ADJACENT TO THE ENVIRONMENTALLY SENSITIVE AREAS TO ENSURE THAT SEDIMENT IS NOT ENTERING THESE PROTECTED AREAS. ONCE A MONTH INSPECT THE PERIMETER OF THE SITE AND NOTE ANY AREAS IN NEED OF ADDITIONAL EROSION CONTROLS OR MAINTENANCE.

POST-CONSTRUCTION PHASE

THE CONTRACTOR SHALL CONTINUE TO PERFORM INSPECTION AND MAINTENANCE OF THE WORK UNTIL THE FINAL SITE INSPECTION AND CERTIFICATION HAS BEEN PERFORMED AS DESCRIBED BELOW

-STORMWATER TREATMENT FACILITIES	-AFTER ALL UPHILL AREAS ARE PERMANENTLY STABILIZED, REMOVE ACCUMULATED SILT AND TEMPORARY EROSION CONTROLS IN THE DESIGNATED AREA.
-BIORETENTION BASINS	-DURING FIRST 6 MONTHS, INSPECT AFTER EACH STORM EVENT GREATER THAN 0.5". BIORETENTION BASIN AND PLANTINGS SHALL BE PRUNED, WEEDED, AND MOWED AROUND AT MINIMUM 4 TIMES DURING GROWING SEASON. REMOVE SEDIMENT, TRASH, DEBRIS, AS NEEDED. REPAIR OR REPLACE DAMAGED/DEAD VEGETATION AS NEEDED. RESTORE EROSION AND REPLENISH MULCH AS NEEDED.

VIII. INSPECTION OF EROSION, SEDIMENT & STORMWATER MANAGEMENT PRACTICES BY THE OPERATOR (OWNER):

THE OPERATOR (OWNER) AGREES TO HAVE A QUALIFIED PROFESSIONAL CONDUCT AN ASSESSMENT OF THE SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND CERTIFY IN AN INSPECTION REPORT THAT THE APPROPRIATE EROSION AND SEDIMENT CONTROLS DESCRIBED IN THE SWPPP HAVE BEEN ADEQUATELY INSTALLED OR IMPLEMENTED TO ENSURE OVERALL PREPAREDNESS OF THE SITE FOR THE COMMENCEMENT OF CONSTRUCTION. FOLLOWING COMMENCEMENT OF CONSTRUCTION, SITE INSPECTIONS SHALL BE CONDUCTED BY A QUALIFIED PROFESSIONAL AT LEAST 2 TIMES EVERY 7 CALENDAR DAYS WHILE MORE THAN 5 ACRES IS DISTURBED AND AT LEAST 1 TIME EVERY 7 CALENDAR DAYS WHEN LESS THAN 5 ACRES IS DISTURBED.

THE OPERATOR (OWNER) SHALL MAINTAIN A RECORD OF ALL INSPECTION REPORTS IN A SITE LOG BOOK. THE SITE LOG BOOK SHALL BE MAINTAINED ON SITE AND BE MADE AVAILABLE TO THE PERMITTING AUTHORITIES UPON REQUEST. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE OPERATOR SHALL CERTIFY IN THE SITE LOG BOOK THAT THE SWPPP MEETS ALL FEDERAL, STATE AND LOCAL EROSION AND SEDIMENT CONTROL REQUIREMENTS.

PRIOR TO FILING THE NOTICE OF TERMINATION OR THE END OF THE PERMIT TERM, THE OPERATOR (OWNER) SHALL HAVE THE QUALIFIED PROFESSIONAL PERFORM A FINAL SITE INSPECTION. THE QUALIFIED PROFESSIONAL SHALL CERTIFY THAT THE SITE HAS UNDERGONE FINAL STABILIZATION USING EITHER VEGETATIVE OR STRUCTURAL STABILIZATION METHODS AND THAT ALL TEMPORARY EROSION AND SEDIMENT CONTROLS NOT NEEDED FOR LONG-TERM EROSION CONTROL HAVE BEEN REMOVED.

THE OWNERS QUALIFIED PROFESSIONAL SHALL REPORT ANY DEFICIENCIES IN THE CONTRACTORS EROSION AND SEDIMENT CONTROL DEVICES AND THE CONTRACTOR SHALL IMMEDIATELY MAKE CORRECTIVE ACTIONS AS REQUIRED. FAILURE OF CONTRACTOR TO MAKE SATISFACTORY CORRECTIVE MEASURES WILL BE GROUNDS FOR THE OWNER TO WITHHOLD DISBURSEMENTS FROM CONTRACTORS PAYMENT REQUEST.

IX. WINTER STABILIZATION:

THIS APPLIES TO ALL CONSTRUCTION ACTIVITIES INVOLVED WITH ONGOING LAND DISTURBANCE AND EXPOSURE BETWEEN NOVEMBER 15TH TO THE FOLLOWING APRIL 1ST.

WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ONE TIME.

SNOW MANAGEMENT

1. EXPOSED AREA SHOULD BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY PRIOR TO A SNOW EVENT
2. CONTRACTOR SHALL USE AREAS DESIGNATED ON THE PLANS TO STOCKPILE SNOW. INSTALL SILT FENCE DOWNHILL OF STOCKPILE AREA.
3. ON ACCESS ROADS, SNOW SHALL BE STORED ON THE DOWNHILL SIDE TO AVOID RUNOFF FROM SNOWMELT CROSSING THE ROADWAY.
4. A MINIMUM 25 FOOT BUFFER SHALL BE MAINTAINED FROM ALL PERIMETER CONTROLS SUCH AS SILT FENCE. MARK SILT FENCE WITH TALL STAKES THAT ARE VISIBLE ABOVE THE SNOW PACK.
5. EDGES OF DISTURBED AREAS THAT DRAIN TO A WATERBODY WITHIN 100 FEET SHALL HAVE 2 ROWS OF SILT FENCE, 5 FEET APART, INSTALLED ON THE CONTOUR.
6. DRAINAGE STRUCTURES SHALL BE KEPT OPEN AND FREE OF SNOW AND ICE DAMS. ALL DEBRIS, ICE DAMS, OR DEBRIS FROM PLOWING OPERATIONS, THAT RESTRICT THE FLOW OF RUNOFF AND MELTWATER, SHALL BE REMOVED.
7. SEDIMENT BARRIERS SHALL BE INSTALLED AT ALL APPROPRIATE PERIMETER AND SENSITIVE LOCATIONS. SILT FENCE AND OTHER PRACTICES REQUIRING EARTH DISTURBANCE MUST BE INSTALLED BEFORE THE GROUND FREEZES.
8. SOIL STOCKPILES SHALL BE PROTECTED BY THE USE OF ESTABLISHED VEGETATION, ANCHORED STRAW MULCH, ROLLED STABILIZATION MATTING, OR OTHER DURABLE COVERING. A BARRIER SHALL BE INSTALLED AT LEAST 15 FEET FROM THE TOE OF THE STOCKPILE TO PREVENT SOIL MIGRATION AND TO CAPTURE LOOSE SOIL.
9. IN AREAS WHERE SOIL DISTURBANCE ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED, THE APPLICATION OF SOIL STABILIZATION MEASURES SHALL BE INITIATED BY THE END OF THE NEXT BUSINESS DAY AND COMPLETED WITHIN THREE (3) DAYS. ROLLED EROSION CONTROL BLANKETS MUST BE USED ON ALL SLOPES 3 HORIZONTAL TO 1 VERTICAL OR STEEPER.
10. STRAW MULCH ALONE IS USED FOR TEMPORARY STABILIZATION, IT SHALL BE APPLIED AT DOUBLE THE STANDARD RATE OF 2 TONS PER ACRE, MAKING THE APPLICATION RATE 4 TONS PER ACRE. OTHER MANUFACTURED MULCHES SHALL BE APPLIED AT DOUBLE THE MANUFACTURER'S RECOMMENDED RATE.
11. TO ENSURE ADEQUATE STABILIZATION OF DISTURBED SOIL IN ADVANCE OF A MELT EVENT, AREAS OF DISTURBED SOIL SHALL BE STABILIZED AT THE END OF EACH WORK DAY UNLESS:
    a. WORK WILL RESUME WITHIN 24 HOURS IN THE SAME AREA AND NO PRECIPITATION IS FORECAST OR;
    b. THE WORK IS IN DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF, SUCH AS OPEN UTILITY TRENCHES, FOUNDATION EXCAVATIONS, OR WATER MANAGEMENT AREAS.
12. USE STONE PATHS TO STABILIZE ACCESS PERIMETERS OF BUILDINGS UNDER CONSTRUCTION AND AREAS WHERE CONSTRUCTION VEHICLE TRAFFIC IS ANTICIPATED. STONE PATHS SHALL BE A MINIMUM OF 10 FEET IN WIDTH BUT WIDER AS NECESSARY TO ACCOMMODATE EQUIPMENT.

MAINTENANCE

THE SITE SHALL BE INSPECTED FREQUENTLY TO ENSURE THAT THE EROSION AND SEDIMENT CONTROL PLAN IS PERFORMING ITS WINTER STABILIZATION FUNCTION. IF THE SITE WILL NOT HAVE EARTH DISTURBING ACTIVITIES ONGOING DURING THE "WINTER SEASON", ALL BARE EXPOSED SOIL MUST BE STABILIZED BY ESTABLISHED VEGETATION, STRAW OR OTHER ACCEPTABLE MULCH, MATTING, ROCK, OR OTHER APPROVED MATERIAL SUCH AS ROLLED EROSION CONTROL PRODUCTS. SEEDING OF AREAS WITH MULCH COVER IS PREFERRED BUT SEEDING ALONE IS NOT ACCEPTABLE FOR PROPER STABILIZATION.

COMPLIANCE INSPECTIONS SHALL BE PERFORMED ONCE PER MONTH AND REPORTS FILED PROPERLY IN ACCORDANCE WITH THE SWPPP FOR ALL SITES UNDER A WINTER SHUTDOWN.

X. SOIL RESTORATION – DEEP RIPPING AND DE-COMPACTION:

ALL DISTURBED SOILS SHALL BE RESTORED IN ACCORDANCE WITH TABLE 4.6 OF THE 2016 NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, OR AS ORDERED BY ENGINEER. RESTORATION SHALL OCCUR DURING THE ESTABLISHMENT OF FINAL GRADING SEQUENCE.

ALL ON-SITE SOILS HAVE BEEN IDENTIFIED AS HSG B.

FULL SOIL RESTORATION CRITERA:

1. APPLY 3 INCHES OF COMPOST OVER SUBSOIL.
2. TILL COMPOST INTO SUBSOIL TO DEPTH OF 12 INCHES USING CAT-MOUNTED RIPPER, TRACTOR-MOUNTED DISC OR TILLER, MIXING AND CIRCULATING AIR AND COMPOST INTO SUBSOILS.
3. ROCK PICK UNTIL UPLIFTED STONE/ROCK MATERIALS OF > 4 INCHES ARE REMOVED.
4. APPLY TOPOSOIL TO A DEPTH OF 6".
5. PROVIDE DENSE VEGETATION AS REQUIRED PER PLANS.

TABLE 4.6 – 2016 NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL

Type of Soil Disturbance	Soil Restoration Requirement		Comments/Examples
No soil disturbance	Restoration not permitted		Preservation of Natural Features
Minimal soil disturbance	Restoration not required		Clearing and grubbing
Areas where topsoil is stripped only - no change in grade	HSG A&B	HSG C&D	Protect area from any ongoing construction activities.
	Apply 6 inches of topsoil	Aerate* and apply 6 inches of topsoil	
Areas of cut or fill	HSG A&B	HSG C&D	
	Aerate* and apply 6 inches of topsoil	Apply full Soil Restoration**	
Heavy traffic areas on site (especially in a zone 5-25 feet around buildings but not within a 5 foot perimeter around foundation walls)	Apply full Soil Restoration (decompaction and compost enhancement)		
Areas where Runoff Reduction and/or Infiltration practices are applied	Restoration not required, but may be applied to enhance the reduction specified for appropriate practices.		Keep construction equipment from crossing these areas. To protect newly installed practice from any ongoing construction activities construct a single phase operation fence area
Redevelopment projects	Soil Restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area.		

* Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler.
** Per "Deep Ripping and De-compaction, DEC 2008".

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Issue	Rev.	Date	Remarks
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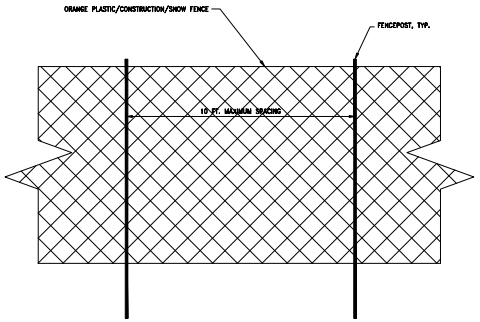
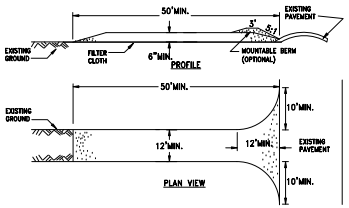
Sheet Title
STORMWATER POLLUTION PREVENTION PLAN

Sheet No.
C35



1 C36 DETAIL – CONSTRUCTION FENCE
SCALE: NTS



CONSTRUCTION SPECIFICATIONS

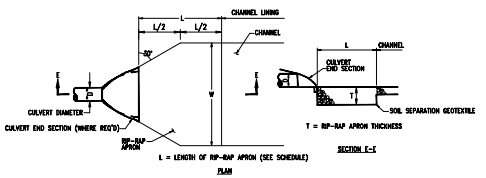
1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CON- STRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

2 C36 STABILIZED CONSTRUCTION ENTRANCE
SCALE: NTS

RIP-RAP SHALL BE INSTALLED AS PER NYSDOT "STANDARD SPECIFICATIONS – CONSTRUCTION AND MATERIALS" (1/2/90) SECTIONS 620-3.02 & 3.03. RIP-RAP GRADATION SHALL BE AS PER FIGURE 620-1 AND BELOW:

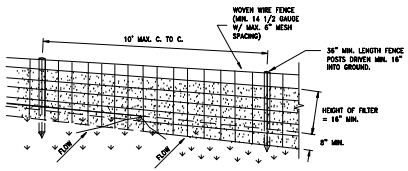
CULVERT OUTLET RIP-RAP APRON SCHEDULE				
"D" CULVERT OUTLET DIAMETER	L	T	W	NYSDOT GRADATION
12"ø	6 ft.	12"	≥54"	"LIGHT"
15"ø	7.5 ft.	12"	≥67"	"LIGHT"
24"ø	12 ft.	12"	≥107"	"LIGHT"

NOTE: L=LENGTH OF APRON
T=THICKNESS OF RIP-RAP APRON



RIP-RAP APRON

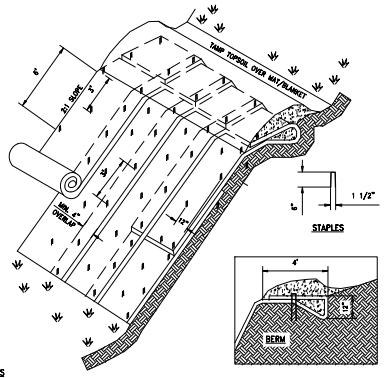
3 C36 STABILIZED OUTLET STRUCTURE
SCALE: N.T.S.



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

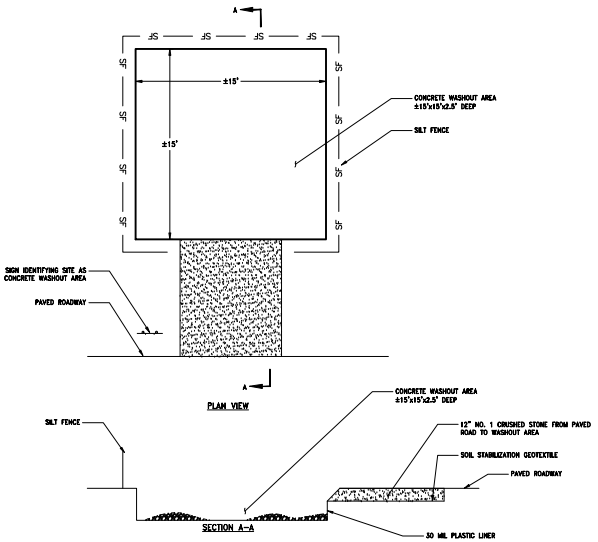
4 C36 SILT FENCE
SCALE: NTS



NOTES

1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/ BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH
4. MATS/BLANKETS SHOULD BE INSTALLED VERTICALLY DOWNSLOPE.

5 C36 TYPICAL JUTE MESH SLOPE STABILIZATION
SCALE: NTS



6 C36 CONCRETE WASHOUT AREA
SCALE: NTS

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Sheet Rev.	Date	Remarks
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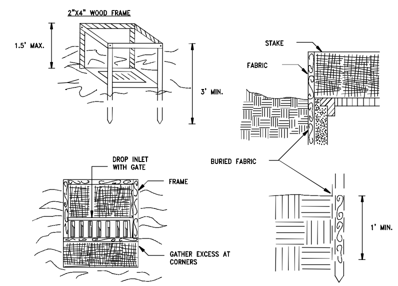
Sheet Title
EROSION AND SEDIMENT CONTROL DETAILS

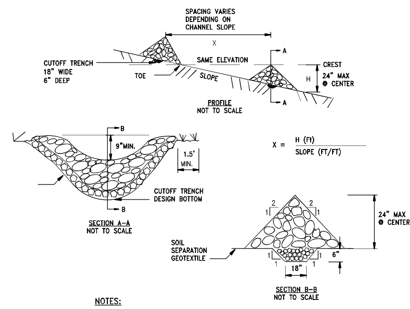
Sheet No.
C36



CONSTRUCTION SPECIFICATIONS

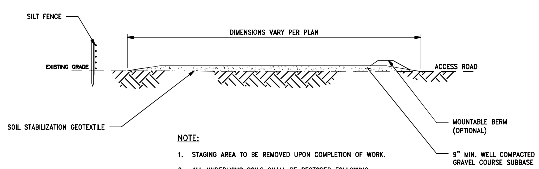
NOTES:
1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.
7. MAXIMUM DRAINAGE AREA 1 ACRE

1/C37 FILTER FABRIC DROP INLET PROTECTION
SCALE: NTS



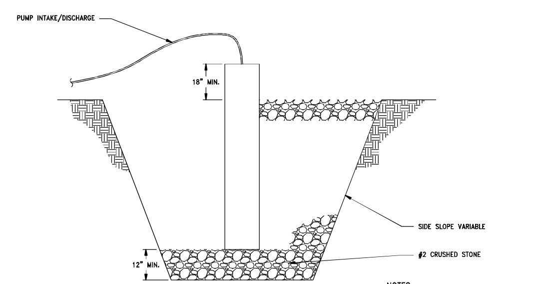
NOTES:
1. PLACE STONE ON A SOIL SEPARATION GEOTEXTILE FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN ON THE PLANS.
2. STONE CHECK DAM MATERIAL: NYSDOT LIGHT STONE FILL.
3. CUTOFF TRENCH MATERIAL: #2 STONE.
4. SET SPACING OF THE CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
5. EXTEND STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
6. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
7. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

2/C37 CHECK DAM DETAIL
SCALE: NTS



NOTE:
1. STAGING AREA TO BE REMOVED UPON COMPLETION OF WORK.
2. ALL UNDERLYING SOILS SHALL BE RESTORED FOLLOWING REMOVAL OF IMPORTED MATERIALS.

3/C37 TEMPORARY STAGING/STOCKPILING AREA
SCALE: NTS



NOTES:
1. PIT DIMENSIONS ARE VARIABLE.
2. PIT SURROUNDING STANDPIPE SHALL BE BACKFILLED WITH #2 CRUSHED STONE.
3. IF DISCHARGE WILL BE PUMPED DIRECTLY TO A STORM DRAINAGE SYSTEM, THE STANDPIPE SHALL BE WRAPPED WITH FILTER CLOTH BEFORE INSTALLATION.

4/C37 DEWATERING SUMP PIT DETAIL
SCALE: N.T.S.

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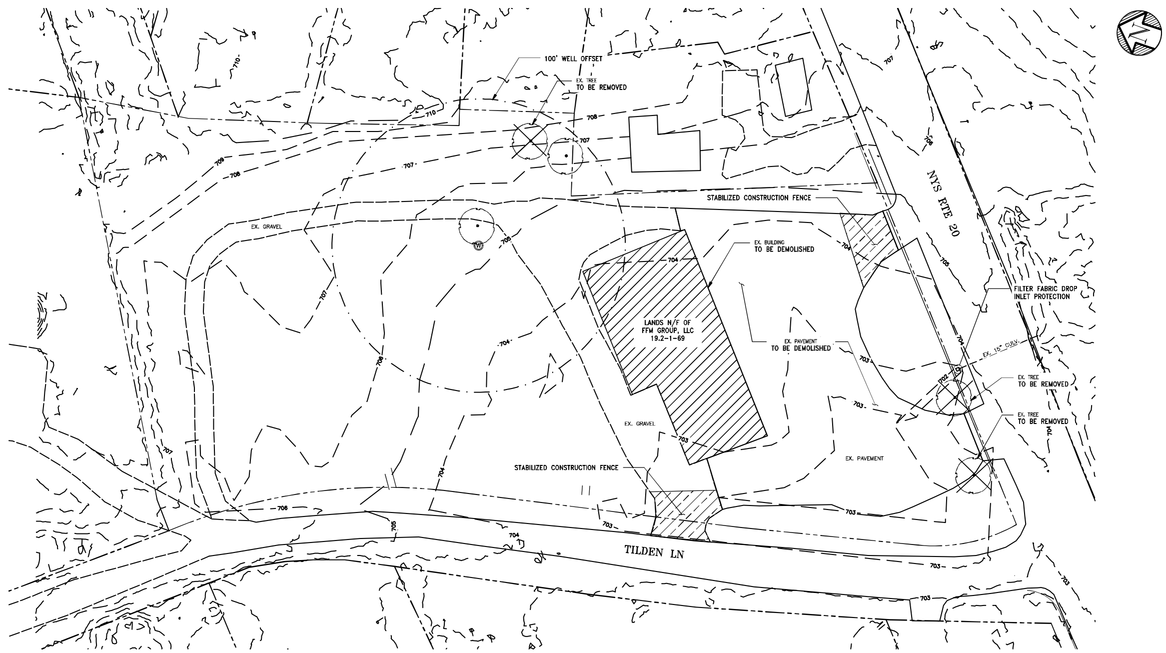
Sheet Title: EROSION AND SEDIMENT CONTROL DETAILS

Sheet No. C37



EXISTING CONDITIONS AND DEMOLITION SITE PLAN
1"=40'

GRAPHIC SCALE
40 20 0 20 40 80 160
1 INCH = 40 FEET

GENERAL DEMOLITION NOTES:

1. IN ACCORDANCE WITH THIS DRAWING, ALL AT-GRADE OR ABOVE GRADE WOOD AND/OR METAL FRAMED STRUCTURES ARE TO BE DEMOLISHED, REMOVED FROM THE SITE, AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL CODES, RULES, LAWS, REQUIREMENTS PERTAINING TO SUCH WORK.

2. ALL DEMOLITION WORK MUST CONFORM TO INDUSTRIAL CODE RULE 56 OF THE NEW YORK STATE LABOR DEPARTMENT AND CURRENT PUBLICATION OF NFPA 241, CHAPTER 14 OF THE NEW YORK STATE FIRE CODE AND ANY APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

3. ALL DEMOLITION WORK SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, STANDARDS AND CODES GOVERNING ASBESTOS ABATEMENT AND ANY OTHER TRADE WORK DONE IN CONJUNCTION WITH THE ABATEMENT.

4. CONTRACTOR SHALL CONTACT DIG SAFELY NEW YORK (1-800-962-7962) TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES 72 HOURS PRIOR TO ANY DEMOLITION WORK.

5. ALL MATERIALS TRANSPORTED OFF-SITE SHALL BE HANDLED IN SUCH A MANNER AS TO PREVENT SPILLAGE ON ADJACENT SURFACES AND AREAS.

6. THE CONTRACTOR SHALL PROVIDE FOR DUST CONTROL AT ALL TIMES. NO DUST SHALL BE ALLOWED TO LEAVE THE LIMITS OF THE PROJECT PROPERTY. CONTRACTOR SHALL FURNISH ALL WATER NECESSARY TO PROVIDE DUST CONTROL. THE OWNERS EXISTING WELL SHALL NOT BE USED AS A SOURCE OF WATER FOR THE CONTRACTOR.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING APPROPRIATE BARRICADES, FENCES, AND OTHER DEVICES, IN ACCORDANCE WITH NEW YORK STATE DEPARTMENT OF LABOR INDUSTRIAL CODE RULE 23, FOR THE PROTECTION OF THE PUBLIC.

8. ACTUAL DEMOLITION OPERATIONS SHALL TAKE PLACE IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES AND REGULATIONS GOVERNING DEMOLITION PROCEDURES AND DUST CONTROL. THE OWNER DOES NOT, AND WILL NOT IN ANY WAY DIRECT OR CONTROL THE MEANS OR METHODS EMPLOYED BY THE DEMOLITION CONTRACTOR TO ACCOMPLISH THE DEMOLITION. IT IS THE AFFIRMATIVE DUTY OF THE CONTRACTOR TO COMPLY WITH ANY APPLICABLE PROVISIONS OF THE NEW YORK STATE INDUSTRIAL CODE.

9. THE CONTRACTOR SHALL BE REQUIRED TO PROTECT ALL PUBLIC UTILITIES, RIGHTS-OF-WAY, PROPERTY MONUMENTATION, ETC., AND IF DAMAGES TO FACILITIES OCCUR (BY THE CONTRACTOR OR DUE TO ANY ACTIVITY RELATED TO THE DEMOLITION), THE CONTRACTOR SHALL BE REQUIRED TO PERFORM REPAIRS AS NECESSARY BY THE TO SATISFY THE BODY HAVING AUTHORITY. THE CONTRACTOR IS ENCOURAGED TO TAKE PRECONSTRUCTION PHOTOGRAPHS PRIOR TO THE START OF WORK.

10. ALL BURIED OIL TANKS ENCOUNTERED SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH THE APPLICABLE STANDARD. NO BURIED TANKS ARE KNOWN TO EXIST AT THE SITE.

11. ALL DEMOLISHED TELEPHONE POLES AND ELECTRICAL WIRING SHALL REMAIN THE PROPERTY OF THE OWNER. CONTRACTOR SHALL DISPOSE OF AT A LOCATION AT THE SITE AS DIRECTED BY OWNER.

12. CONTRACTOR MUST MAINTAIN A VALID PERMIT(S) FOR DISPOSAL OF WASTE AT ALL WASTE DISPOSAL FACILITIES THAT CONTRACTOR THE UTILIZES.

13. CONTRACTOR SHALL SUPPLY THE OWNER WITH COPIES OF BILLS OF LADING AND INVOICES THERETO. BILL OF LANDINGS, DUMP TICKETS FOR HAZARDOUS AND NONHAZARDOUS WASTE, AND FINAL AIR MONITORING REPORT (IF APPLICABLE) SHALL BE SUBMITTED BEFORE ANY PAYMENT WILL BE MADE.

14. CONTRACTOR SHALL NOTIFY THE OWNERS OF PROPERTIES ADJACENT TO THE PROPOSED DEMOLITION (WITHIN 0.1 MILES OF SITE). NOTIFICATION SHALL TAKE PLACE AT LEAST TEN (10) BUSINESS DAYS PRIOR TO THE COMMENCEMENT OF OPERATIONS. AT THIS TIME, THEY WILL BE NOTIFIED OF THEIR RIGHT TO HAVE PLASTIC PLACED ON OPENINGS OF THEIR BUILDING PER REGULATION.

15. THE OWNER SHALL BE RESPONSIBLE FOR SECURING ANY SITE-SPECIFIC VARIANCES PRIOR TO THE WORK TAKING PLACE. THE OWNER WILL BE RESPONSIBLE FOR ANY AIR-QUALITY MONITORING DURING ABATEMENT AND DEMOLITION ACTIVITIES. CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST TEN (10) BUSINESS DAYS PRIOR TO THE COMMENCEMENT OF ABATEMENT AND DEMOLITION OPERATIONS. NO WORK SHALL TAKE PLACE UNTIL ALL CONTROL AND MONITORING ARE IN PLACE.

16. THE HOURS OF WORK FOR DEMOLITION ACTIVITIES SHALL BE LIMITED TO BETWEEN 8:00 AM AND 5:00 PM MONDAY THROUGH FRIDAY.

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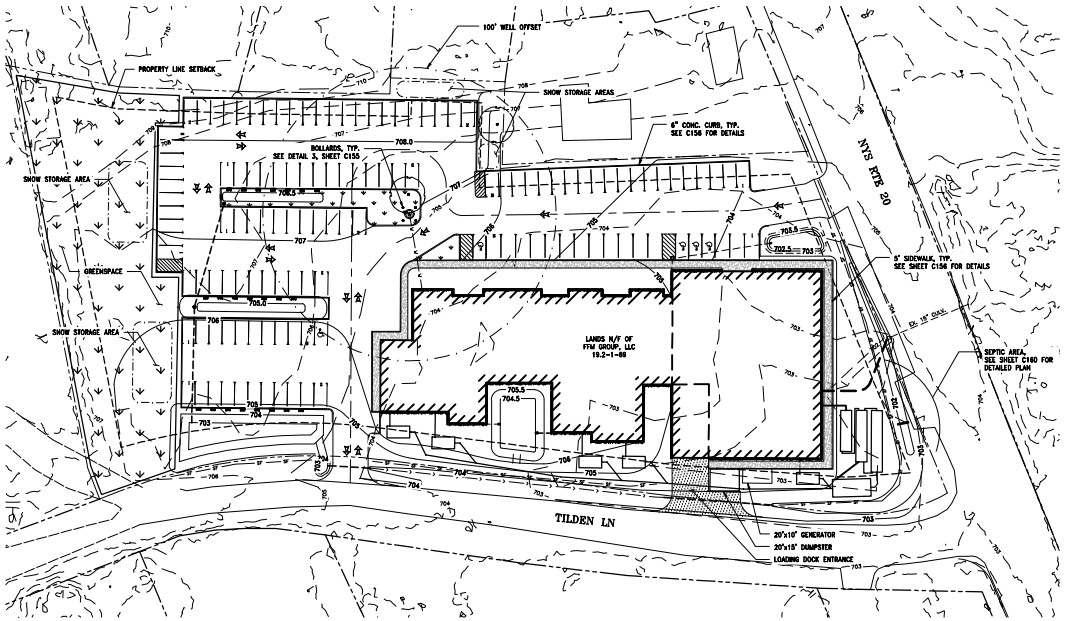
Sheet Title
EXISTING CONDITIONS & DEMOLITION PLAN

Sheet No.
C100



OVERALL SITE PLAN
1"=40'

GRAPHIC SCALE

40 20 0 20 40 80 160

1 INCH = 40 FEET

LEGEND

- PROPERTY LINE
- Ex. CONTOURS
- Ex. WELL
- Ex. CULVERT AND CATCH BASIN
- PROPOSED CONTOURS
- PROPOSED WATER LINE
- PROPOSED SEWER LINE
- PROPOSED CULVERT
- PROPOSED DRAINAGE DITCH

SITE PLAN NOTES:

1. SEE SHEET C100 AND SECTION 02100 FOR CLEARING AND GRUBBING REQUIREMENTS AND LIMITATIONS.
2. ALL EARTHWORK SHALL BE SMOOTHLY AND EVENLY BLENDED INTO EXISTING CONDITIONS.
3. PERFORM EXCAVATION AND GRADING WORK IN ACCORDANCE WITH SECTIONS 02218, 02222, 02223 & 02225.
4. ALL DISTURBED AREAS NOT RECEIVING ASPHALT OR CRUSHED STONE WEARING SURFACES SHALL BE TOPSOILED AND SEEDED. ADDITIONALLY, SOME AREAS REQUIRE PREPARATORY SOIL RESTORATION.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE ALL PLAN SHEETS AND SPECIFICATIONS, PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING, OF ANY ERRORS OR DISCREPANCIES.
6. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING, OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE PLANS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE PLANS WITHOUT THE EXPRESSED WRITTEN APPROVAL OF THE OWNER.
7. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EX. SUBSURFACE UTILITIES AT THE SITE PRIOR TO SETTING HEAVY EQUIPMENT (E.G. CRANES) AND MATERIALS ON THE SITE.
8. PRIOR TO CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING DIG SAFE NEW YORK AND ANY REGIONAL UTILITIES TO LOCATE ALL RELATED UTILITIES.
9. THE CONTRACTOR SHALL PROTECT EXISTING PROPERTY LINE MONUMENTATION. ANY MONUMENTATION DISTURBED OR DESTROYED, AS JUDGED BY THE ENGINEER, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE UNDER THE SUPERVISION OF A NEW YORK STATE LICENSED LAND SURVEYOR.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND INCURRING THE COST OF ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATIONS, ETC.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL FIELD LAYOUT. THE CONTRACTOR SHALL TAKE TIES TO ALL UTILITY CONNECTIONS AND PROVIDE MARKED-UP AS-BUILT PLANS FOR ALL UTILITIES SHOWING TIES TO CONNECTIONS, BENDS, VALVES, LENGTHS OF LINE AND INVERTS. AS-BUILT PLANS SHALL BE REVIEWED BY THE OWNER AND HIS REPRESENTATIVES, AND THE CONTRACTOR SHALL PROVIDE ANY CORRECTIONS TO THE SATISFACTION OF THE OWNER AND HIS REPRESENTATIVES BEFORE AS-BUILT PLANS WILL BE ACCEPTED.
12. CONTRACTOR SHALL FIELD VERIFY ALL LAYOUT DIMENSIONS AND ELEVATIONS WITH ENGINEER PRIOR TO CONSTRUCTION. CONTRACTOR SHALL COORDINATE A FIELD VISIT WITH ENGINEER TO REVIEW LAYOUT AND DIMENSIONS. CONTRACTOR SHALL SCHEDULE FIELD VISIT WITH ENGINEER TO CONFIRM FINISHED FLOOR ELEVATION.
13. ALL SUITABLE TOPSOIL TO BE TEMPORARILY STOCKPILED (AS APPLICABLE) FOR REUSE.
14. ALL MATERIALS TRANSPORTED OFF-SITE SHALL BE HANDLED IN SUCH A MANNER AS TO PREVENT SPILLAGE ON ADJACENT SURFACES AND AREAS.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR DE-WATERING AND THE MAINTENANCE OF SURFACE DRAINAGE DURING THE COURSE OF THE WORK, IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN.
16. BUILDING DIMENSIONS TO BE TAKEN FROM BUILDING CONSTRUCTION PLANS.
17. ALL AREAS WITHIN THE LIMIT OF DISTURBANCE (SEE SHEET C100) MAY BE USED FOR STOCKPILING, EQUIPMENT STORAGE, AND FIELD OFFICES. ADDITIONAL SEDIMENT AND EROSION CONTROL PRACTICES MAY BE NEEDED TO PROTECT SENSITIVE AREAS. COORDINATE WITH ENGINEER.
18. SEE ELECTRICAL DRAWINGS FOR ON-SITE ELECTRICAL, CONTROLS, AND INTERNET WIRING.

PARKING:

TOTAL SPACES: 130
GROCERY: 39
APARTMENTS: 81
ACCESSIBLE: 5

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Sheet Rev.	Date	Remarks
1	7/1/25	PZB Submission
2		
3		
4		

Project Number	2024125
Drawn By	SK
Designed By	BJB
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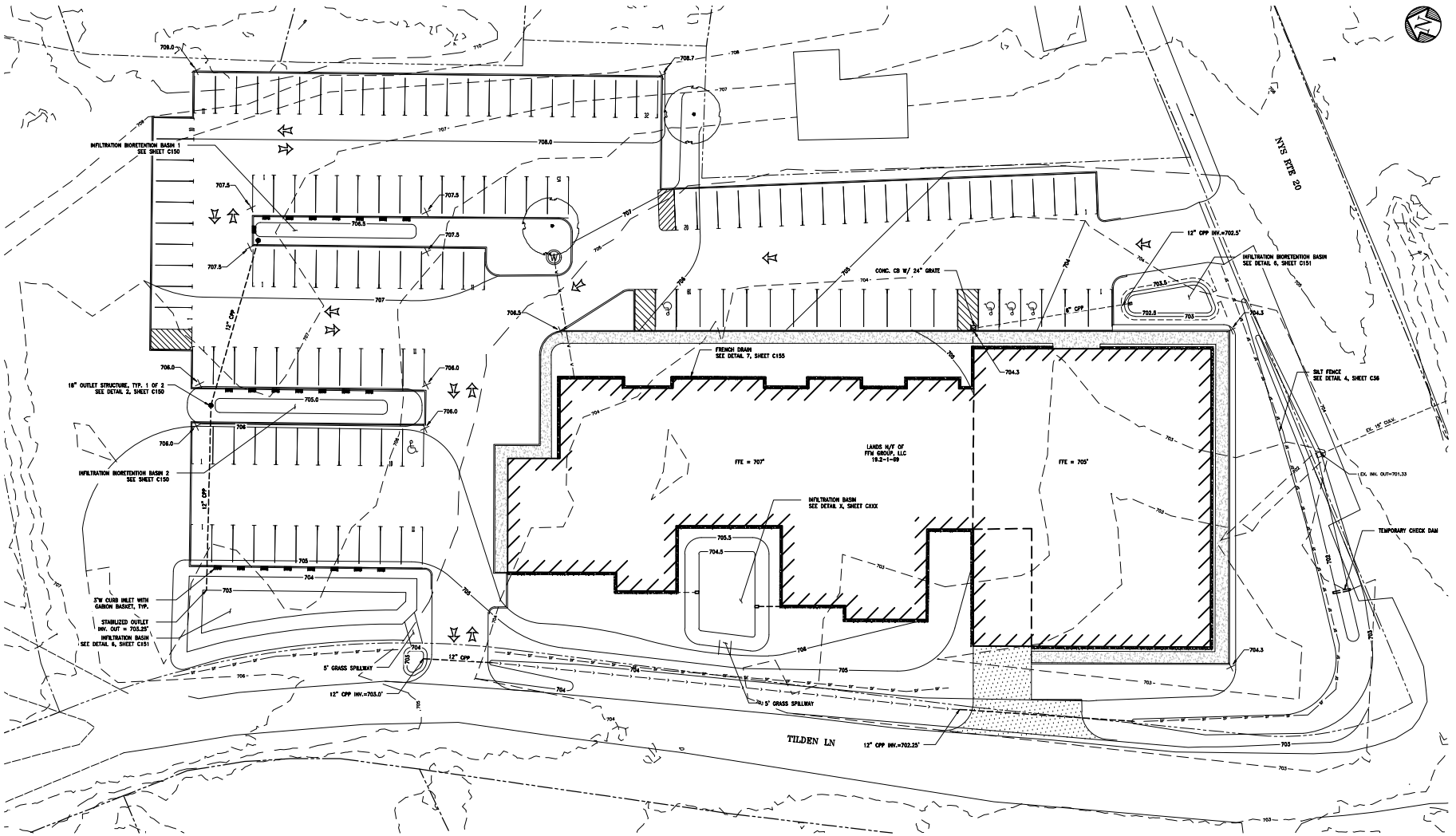
File Name	BM_TILDEN

Sheet Title

SITE PLAN

Sheet No.

C110



GRADING AND STORMWATER PLAN
1"=20'

GRAPHIC SCALE
20 10 0 10 20 40 80
1 INCH = 20 FEET

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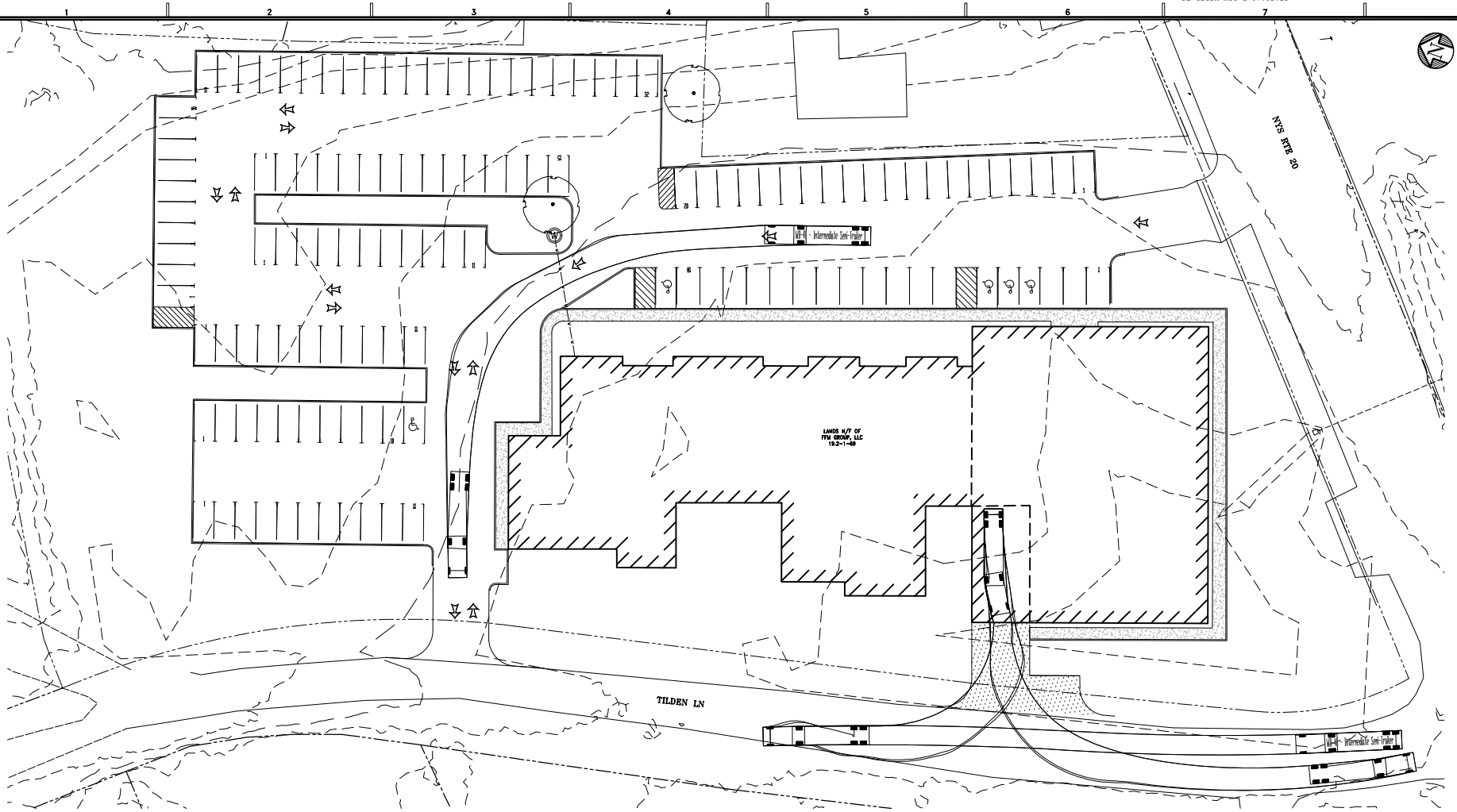
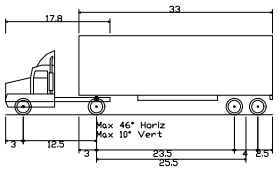
File Name	BM_TILDEN

Sheet Title
GRADING PLAN

Sheet No.
C115



TURNING RADIUS PLAN
1"=20'



WB-40 - Intermediate Semi-Trailer	
Overall Length	45.499ft
Overall Width	8.000ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.334ft
Track Width	8.000ft
Lock-to-lock time	4.00s
Max Steering Angle (Virtual)	20.30°

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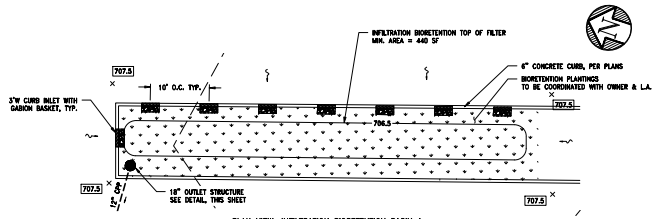
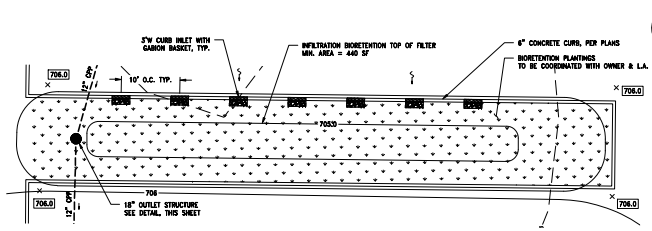
File Name	BM_TILDEN

Sheet Title
TURNING RADIUS PLAN

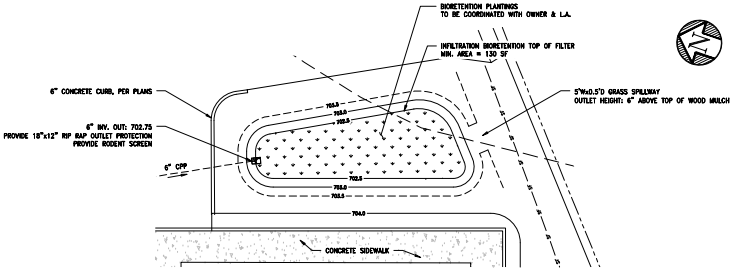
Sheet No.
C120



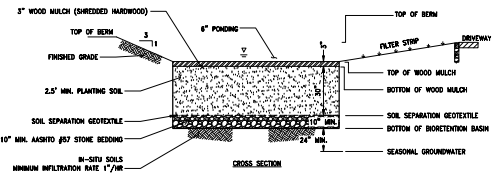
PLAN VIEW: INFILTRATION BIORETENTION BASIN 1
SCALE: 1" = 10'



PLAN VIEW: INFILTRATION BIORETENTION BASIN 2
SCALE: 1" = 10'



PLAN VIEW: INFILTRATION BIORETENTION BASIN 3
SCALE: 1" = 10'



1 C150 TYPICAL INFILTRATION BIORETENTION BASIN SECTION
SCALE: NTS

BIORETENTION ELEVATION SCHEDULE			
	BASIN 1	BASIN 2	BASIN 3
TOP OF BERM	707.50	706.00	703.50
PONDING DEPTH	707.00	705.50	703.00
TOP OF WOOD MULCH	706.50	705.00	702.50
BOTTOM OF WOOD MULCH	706.25	704.75	702.25
SOIL SEPARATION GEOTEXTILE	703.75	702.25	699.75
BOTTOM OF BIORETENTION BASIN	702.92	701.42	698.92

PLANTING SOIL CHARACTERISTICS

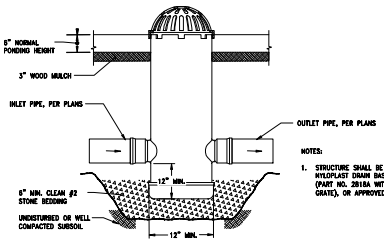
1. THE PLANTING SOIL SHALL BE A UNIFORM MIX FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER, BRUSH OR SEEDS FROM NOXIOUS WEEDS. THE PLANTING SOIL SHALL BE A WELL-BLENDED MIXTURE OF THREE (3) PARTS SAND AND ONE (1) PART TOPSOIL, BY VOLUME.
2. SAND SHALL CONFORM TO ASTM STANDARD C-33 FOR CLEAN WASHED SAND.
3. TOPSOIL SHALL CONFORM WITH NYSDOT SECTION 715-01.
4. A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (0.5"/HR) IS REQUIRED. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN LIFTS OF 12 TO 18", LOOSELY COMPACTED (TAMPED LIGHTLY WITH A DOZER OR BACKHOE BUCKET).
5. CONTRACTOR SHALL PROVIDE SUBMITTAL OF SAND AND TOPSOIL TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.

BIORETENTION BASIN PLANTING PLAN

Item Number / Identifier	Type	Mature Height	Mature Spread	Common Name	Latin Name	Planting	Hydrologic zone	Inundation Tolerant	Location/Planting Instructions
RM	Deciduous Tree	40'-60'	30-40'	Red Maple	Acer Rubrum	1"-4' Sapling	3-8	Yes	Per Plans
SA	Deciduous Tree	10-20'	8'-15'	Smooth Alder	Alnus Serrulata	1"-4' Sapling	3-5	Yes	Per Plans
AV	Deciduous Shrub	6'-15'	6'-15'	Arrowwood Viburnum	Viburnum Dentatum	#3 Container	3-4	YES	Per Plans
WB	Deciduous Shrub	7-9'	7-9'	Winterberry	Ilex Verticillata	#3 Container	3-5	Yes	Per Plans
SB	Deciduous Shrub	8'-12'	6'-12'	Common Spicebush	Lindera Benzoin	#3 Container	3-5	Yes	Per Plans

PLANTING PLAN NOTES:

1. PLANTING SCHEDULE SHOWN IS FOR REFERENCE. PLANTINGS TO BE COORDINATED WITH OWNER, LANDSCAPE ARCHITECT AND ENGINEER PRIOR TO CONSTRUCTION OF BIORETENTION BASINS.
2. CONTRACTOR SHALL SUBMIT PLANTING SCHEDULE TO ENGINEER FOR APPROVAL PRIOR TO SEEDING OR PLANTING. ALL PLANTINGS SHALL BE NATIVE AND APPROPRIATE FOR USE IN THE PROPOSED PRACTICE.
3. MATURE HEIGHTS AND SPREAD BASED ON INFO PROVIDED BY THE ARBOR DAY FOUNDATION & US FOREST SERVICE.
4. DURABLE, LEGIBLE LABELS WITH THE SCIENTIFIC AND COMMON NAME AND CULTIVAR SHALL BE SECURELY ATTACHED TO PLANTS, BUNDLES OF SEEDLINGS, CONTAINERS, AND/OR FLATS.
5. PLANT ALL DECIDUOUS TREES AND SHRUBS BETWEEN APRIL 1 – JUNE 1 AND OCTOBER 15 – DECEMBER 15.
6. PLANT TREES AND SHRUBS PER "TREES, SHRUBS, AND VINES" SECTION OF THE NYS SEDIMENT AND EROSION CONTROL MANUAL, A.K.A. THE "BLUE BOOK." SECTION IS FOUND ON PAGES 4.63-4.64.

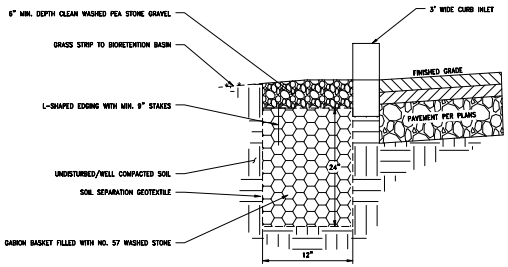


NOTES:

1. STRUCTURE SHALL BE 18"ø YARD DRAIN, NYLOPLAST DRAIN BASIN WITH GRATE (PART NO. 2815A WITH 18" DOMED GRATE), OR APPROVED EQUAL.

OUTLET STRUCTURE SCHEDULE		
	BASIN 1	BASIN 2
RIM	707.00	705.50
TOP OF FILTER	706.50	705.00
OUTLET STRUCTURE BOTTOM	704.25	663.00
12" INVERT IN	N/A	704.54
18" INVERT OUT	705.25	704.94

2 C150 BIORETENTION BASIN OUTLET STRUCTURE
SCALE: NTS



3 C150 TYPICAL GABION BASKET CURB INLET
SCALE: NTS

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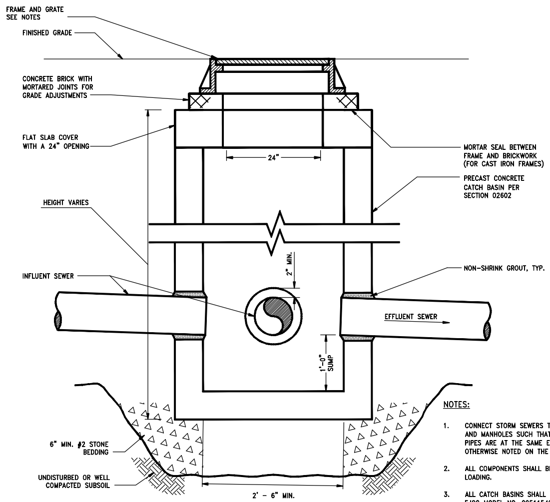
Sheet Title
STORMWATER DETAILS

Sheet No.
C150

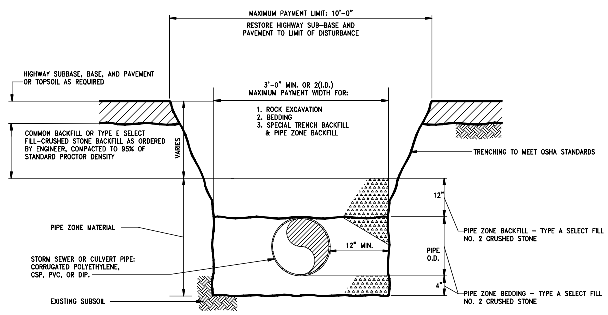


NOTES:

1. CONNECT STORM SEWERS TO CATCH BASINS AND MANHOLES SUCH THAT THE TOP OF THE PIPES ARE AT THE SAME ELEVATION UNLESS OTHERWISE NOTED ON THE PROFILES.
2. ALL COMPONENTS SHALL BE RATED FOR H20 LOADING.
3. ALL CATCH BASINS SHALL BE EQUIPPED WITH EJCO MODEL NO. 00511540 BICYCLE PROOF GRATE, OR EQUAL.
4. ALL DRAINAGE MANHOLES SHALL BE EQUIPPED WITH A FRAME AND SOLID COVER. EJCO MODEL NO. D0166567, OR EQUAL.

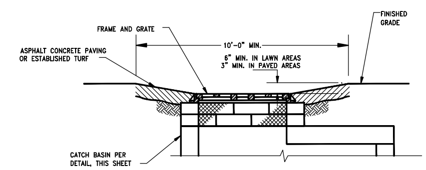
1 / C151 CATCH BASIN AND MANHOLE DETAIL

SCALE: N.T.S.



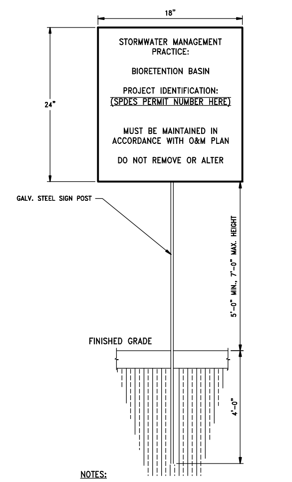
2 / C151 TYPICAL STORM SEWER TRENCH DETAIL

SCALE: N.T.S.



3 / C151 OPEN AREA FRAME AND GRATE DETAIL

SCALE: N.T.S.

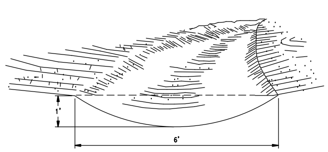


NOTES:

1. STORMWATER PRACTICE NAMED IN THIS DETAIL IS FOR EXAMPLE. ACTUAL PRACTICE NAME SHALL BE USED FOR EACH PRACTICE.
2. DETAIL TYPICAL FOR FIVE STORMWATER LOCATIONS.

5 / C151 STORMWATER SIGN

SCALE: N.T.S.

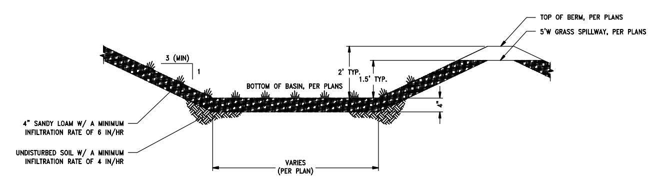


NOTES:

1. SEED SWALE WITH THE FOLLOWING MIX:
   1.1. PERENNIAL RYGRASS @ 30 LBS/ACRE
   1.2. TALL FESCUE @ 20 LBS/ACRE
   1.3. REDTOP @ 2 LBS/ACRE
2. MULCH PER PLAN. APPLY ANCHORED STABILIZATION MATTING IF RILLING OCCURS, OR A.O.B.E.
3. GRADE SWALE SO THAT IT IS MOW-ABLE.

4 / C151 TYPICAL GRASS SWALE

SCALE: NTS



6 / C151 TYPICAL INFILTRATION BASIN CROSS SECTION

SCALE: N.T.S.

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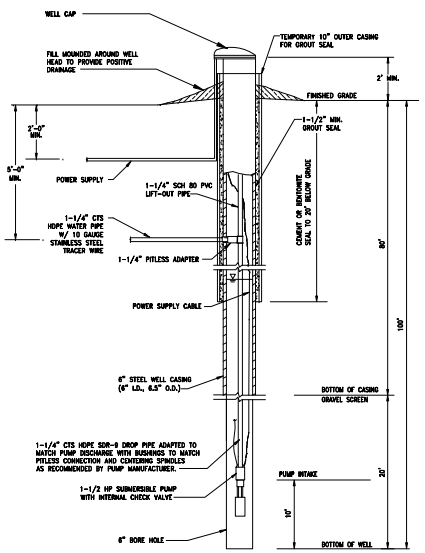
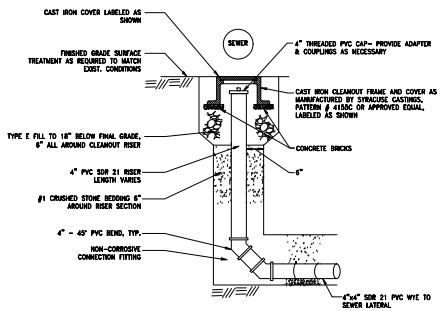
Sheet Title: STORMWATER DETAILS

Sheet No. C151

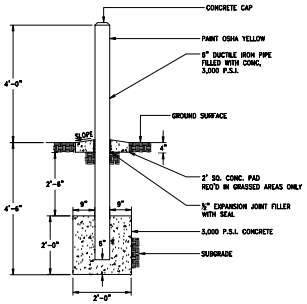


NOTE:
1. PLACE A 6" WIDE STRIP OF METALLIC BLUE BURIED PIPELINE TAPE 2'-0" BELOW FINAL GRADE FOR THE WELL WATER PIPE.

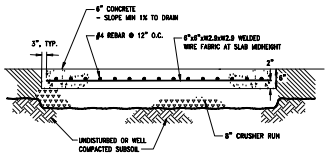
1 / C155 WELL DETAIL
SCALE: N.T.S.



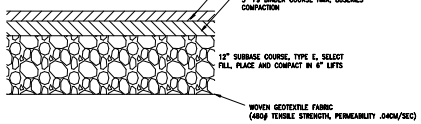
2 / C155 TYPICAL PVC CLEANOUT DETAIL
SCALE: NTS



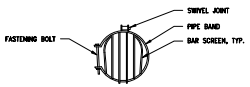
3 / C155 TYPICAL BOLLARD DETAIL
SCALE: NTS



4 / C155 TYPICAL CONCRETE EQUIPMENT PAD DETAIL
SCALE: N.T.S.

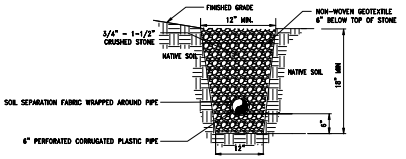


5 / C155 STANDARD ASPHALT PAVEMENT DETAIL
SCALE: N.T.S.

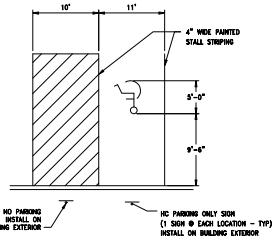


NOTES:
1. FOR PVC PIPE USE BAND-TYPE BAT GUARD BY AGRIDRAIN, OR EQUAL.
2. FOR CORRUGATED HDPE PIPE USE EXTERNAL RODENT GUARDS BY AGRIDRAIN, OR EQUAL.
3. PROVIDE APPROPRIATELY SIZED SCREEN PER PIPE DIAMETER.
4. ALL SCREENS SHALL BE SECURED TO THE EXTERIOR OF THE PIPE'S OUTLET. INTERNAL MESH GUARDS SHALL NOT BE ACCEPTED.

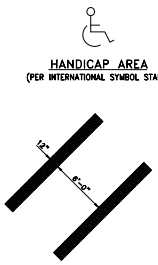
6 / C155 TYPICAL RODENT SCREEN DETAIL
SCALE: NTS



7 / C155 FRENCH DRAIN DETAIL
SCALE: N.T.S.

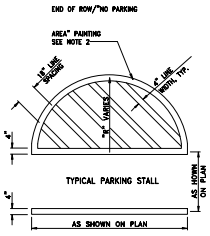


8 / C155 HC PARKING STALL
SCALE: N.T.S.



CROSSWALK ARROWS

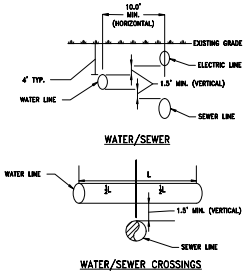
NOTES:
1. HANDICAP PARKING SIGNS SHALL BE SETON #M5398 OR APPROVED EQUAL.
2. HANDICAP ACCESS AISLE SIGNS SHALL BE SETON #37899 OR APPROVED EQUAL.



PARKING STALL/MEDIAN

NOTES:
1. PAVEMENT MARKING MATERIALS AND CONSTRUCTION SHALL CONFORM TO NYSDOT STANDARD SPECIFICATION 640 FOR REFLECTORIZED PAVEMENT MARKINGS. STALL STRIPING SHALL BE WHITE, "NO PARKING" STRIPING SHALL BE YELLOW, ALL HANDICAP AREAS SHALL BE BLUE.
2. "NO PARKING AREA" RADII AND SHAPE SHALL BE AS INDICATED ON SITE PLAN.
3. PROVIDE ALL NECESSARY HANDICAP SIGNAGE AS REQUIRED PER CODE.

9 / C155 PAVEMENT MARKINGS DETAILS
SCALE: N.T.S.



WATER/SEWER CROSSINGS

10 / C155 TYPICAL DETAILS FOR UTILITY CROSSINGS
SCALE: NOT TO SCALE

NOTES:
1. ALL SEWER MAIN AND WATER MAINS SHALL BE SEPARATED BY DISTANCES SPECIFIED IN THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES (10 STATES STANDARDS).
2. PIPE JOINTS ARE TO BE ARRANGED SO THAT SEWER MAIN JOINTS AND WATER MAIN JOINTS ARE SEPARATED AS FAR AS POSSIBLE FROM EACH OTHER.

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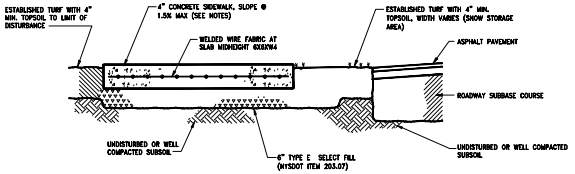
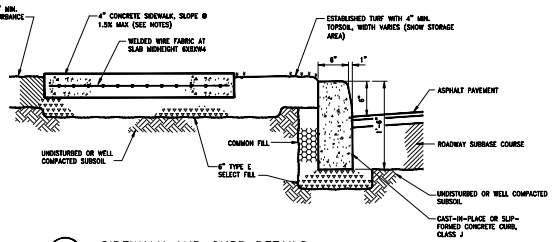
Sheet Title
SITE DETAILS

Sheet No.
C155

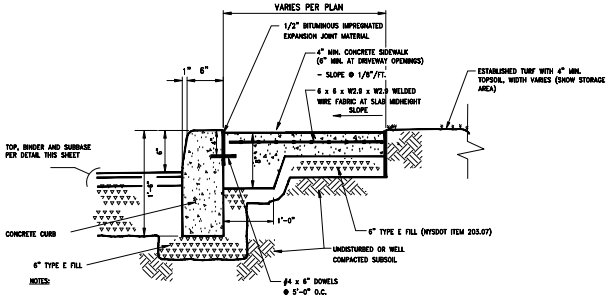
NOTES:
1. INCREASE SIDEWALK THICKNESS TO 6" MIN. AND INCREASE REINFORCEMENT PER SECTION 02620 THROUGHOUT LENGTH OF DRIVEWAY OPENINGS.
2. MATCH EXISTING SIDEWALK WIDTHS BY PROVIDING A 10'-0" LONG TAPER SECTION.
3. SIDEWALK CONCRETE SHALL BE NYSDOT CLASS D (NYSDOT ITEM 608.0101) WITH FIBER MESH (2 LBS/CY).



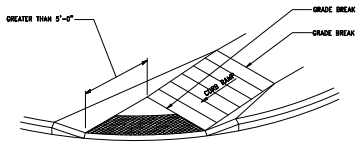
1 C156 SIDEWALK DETAILS
SCALE: N.T.S.



2 C156 SIDEWALK AND CURB DETAILS
SCALE: N.T.S.



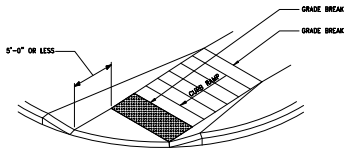
3 C156 INTEGRAL SIDEWALK AND CURBING DETAILS
SCALE: N.T.S.



DETECTABLE WARNING PLACEMENT DETAIL 1

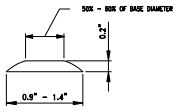
NOTE: IF THE DISTANCE FROM THE BOTTOM GRADE BREAK IS GREATER THAN OR EQUAL TO 5'-0", DETECTABLE WARNINGS SHOULD BE PLACED ALONG THE RADIUS OF THE CURVE AS SHOWN IN THE ABOVE DETAIL.

DETECTABLE WARNING NOTES:
1. THE DETAILS PROVIDED ARE NOT DRAWN TO SCALE. THE QUANTITY OF DOMES DEPICTED ON THE DETECTABLE WARNING UNIT (THE DOMES AND THE ENTIRE 24" LEVEL SURFACE) IS FOR ILLUSTRATION ONLY.
2. DETECTABLE WARNING UNIT DIMENSIONS: THE SIZE OF THE DETECTABLE WARNING FIELD SHALL BE 24" IN THE DIRECTION OF TRAVEL AND SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE, EXCLUSIVE OF SIDE FLARES.
3. DOME ALIGNMENT: THE ROWS OF DOMES SHALL BE ALIGNED TO BE PERPENDICULAR OR RADIAL TO THE GRADE BREAK BETWEEN THE RAMP LANDING OR CURB RAMP AND THE STREET.
4. WHERE DOMES ARE ARRAYED RADIALLY THEY MAY DIFFER IN DOME DIAMETER AND CENTER-TO-CENTER SPACING WITHIN THE RANGES SPECIFIED ON THIS SHEET.
5. COLOR REQUIREMENTS: THE DETECTABLE WARNING FIELD SHALL BE THE COLOR SPECIFIED IN THE CONTRACT DOCUMENTS OR MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS.
6. DETECTABLE WARNINGS LOCATIONS: DETECTABLE WARNINGS SHALL BE LOCATED SO THAT THE EDGE OR CORNER OF THE WARNING FIELD NEAREST TO THE ROADWAY IS 5" TO 8" FROM THE FRONT OF THE CURB OR THE ROADWAY EDGE (12" WHERE TRAVERSABLE CURB IS USED).

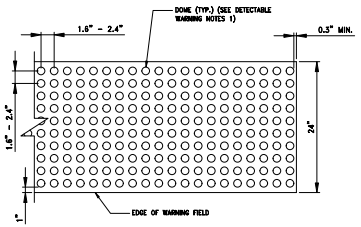


DETECTABLE WARNING PLACEMENT DETAIL 2

NOTE: IF THE DISTANCE FROM THE BOTTOM GRADE BREAK IS LESS THAN OR EQUAL TO 5'-0", DETECTABLE WARNINGS SHOULD BE PLACED ON THE CURB RAMP ALONG THE BOTTOM GRADE BREAK WITH ONE CORNER 5" TO 9" FROM THE FRONT OF THE CURB OR EDGE OF THE ROADWAY.

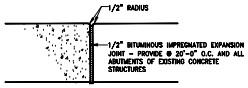


DOME SECTION

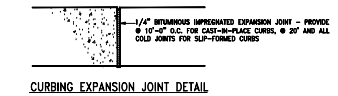


DOME SPACING

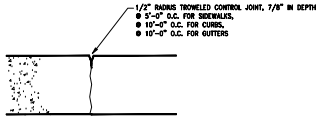
4 C156 CONCRETE SIDEWALK DETECTABLE WARNING DETAILS
SCALE: N.T.S.



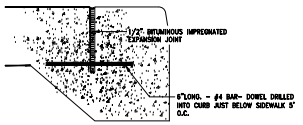
EXPANSION JOINT DETAIL



CURBING EXPANSION JOINT DETAIL



CONTROL JOINT DETAIL



CURBING TO SIDEWALK EXPANSION JOINT DETAIL

NOTE:
1. SIDEWALKS TO BE PICTURE FRAMED W/ BROOM FINISH.

5 C156 TYPICAL CONSTRUCTION DETAILS FOR SIDEWALKS AND CURBS
SCALE: N.T.S.

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TILDEN COMMONS
NEW LEBANON DEVELOPMENT, LLC.
COLUMBIA COUNTY NEW YORK STATE

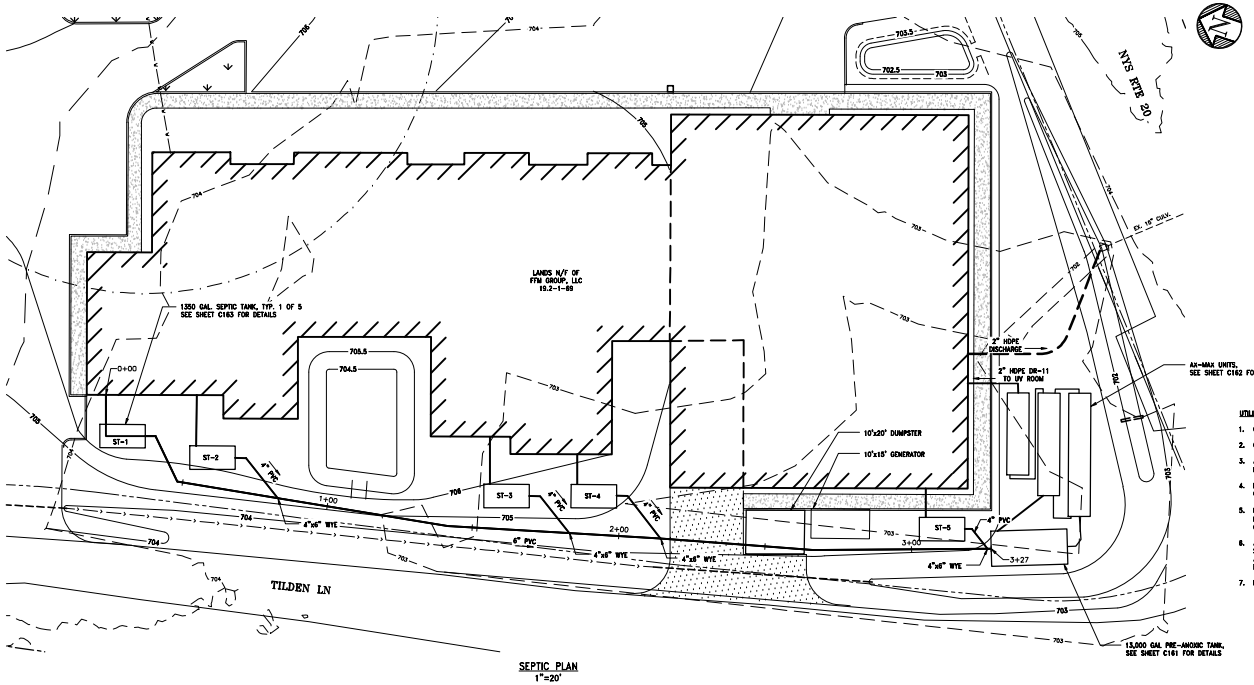
Stamp

Sheet Rev.	Date	Description
1	7/7/25	PLANNING BOARD

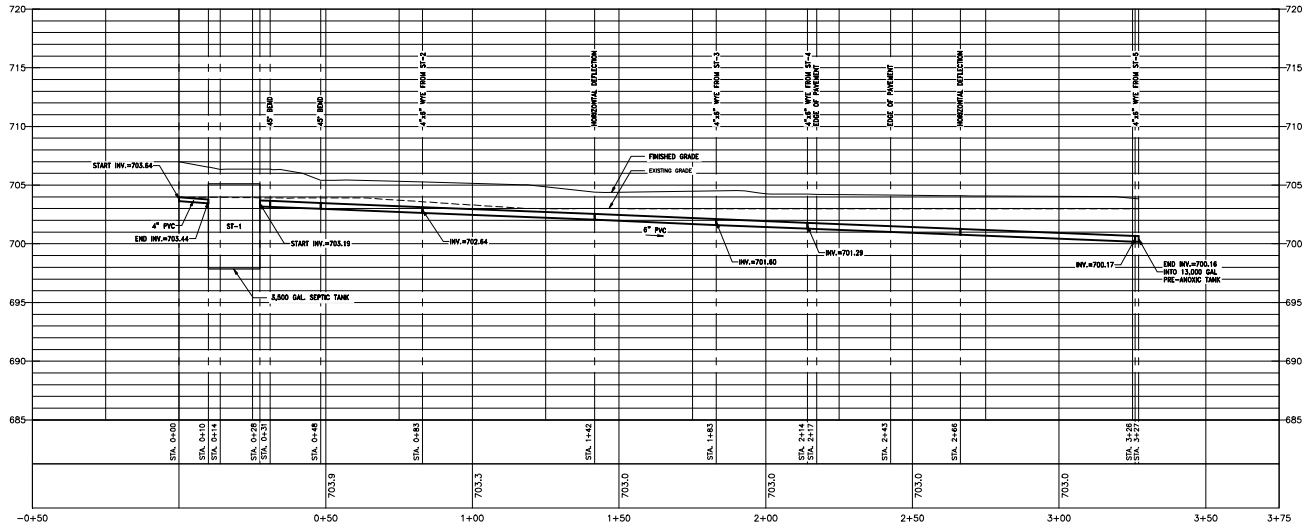
Project Number	2024125
Drawn By	AS
Designed By	BJB
Checked By	BJB
Date	6/30/25
Scale	AS SHOWN
File Name	BM_TILDEN

Sheet Title
SITE DETAILS

Sheet No.
C156



SEPTIC PLAN
1"=20'



SEPTIC PROFILE
H: 1"=20' / V: 1"=5'

UTILITY NOTES:

1. CONTRACTOR SHALL INSTALL ALL GRAVITY SEWER LINES WITH A MINIMUM 1.0% SLOPE POSITIVE DRAINAGE.
2. CONTRACTOR SHALL MAINTAIN ALL MINIMUM WELL OFFSETS TO NYSDOH & NYSDEC STANDARDS.
3. ALL NEW MANHOLES CONSTRUCTED WITHIN PAVED AREAS SHALL HAVE THE TOPS SET FLUSH WITH THE EXISTING PAVEMENT GRADE. IN LANDSCAPED AREAS, ALL FRAMES SHALL BE 0.1' ABOVE GRADE.
4. HDPE FORCE MAIN SHALL BE INSTALLED TO PROVIDE FULL DRAIN-BACK TO PUMP STATION. PROVIDE CONTINUOUS UPSLOPE TO DISCHARGE POINT.
5. PROVIDE TWO (2) 45° BENDS INSTEAD OF ONE (1) 90° BEND AT ALL "RIGHT-ANGLE" BENDS IN GRAVITY FLOW PIPING (UNLESS OTHERWISE NOTED) -- PROVIDE WYES WITH 45° BENDS AT ALL "T-TYPE" JUNCTIONS IN GRAVITY FLOW PIPING.
6. AT LEAST 2 DAYS PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL CONTACT NYCDEP IN ORDER TO SCHEDULE INSPECTIONS. IF CONSTRUCTION CEASES FOR MORE THAN 7 DAYS NYCDEP WILL BE RE-CONTACTED AT LEAST 2 DAYS PRIOR TO RESTART OF CONSTRUCTION. NYCDEP SHALL BE NOTIFIED 1 BUSINESS DAY BEFORE BURYING ANY COMPONENT OF THE APPROVED DESIGN.
7. REFER TO SHEET C120 FOR DRAINAGE INFRASTRUCTURE INFORMATION.

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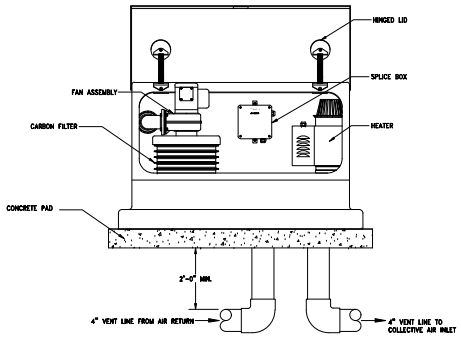
Sheet Rev.	Date	Remarks
1	7/7/25	Planning Board

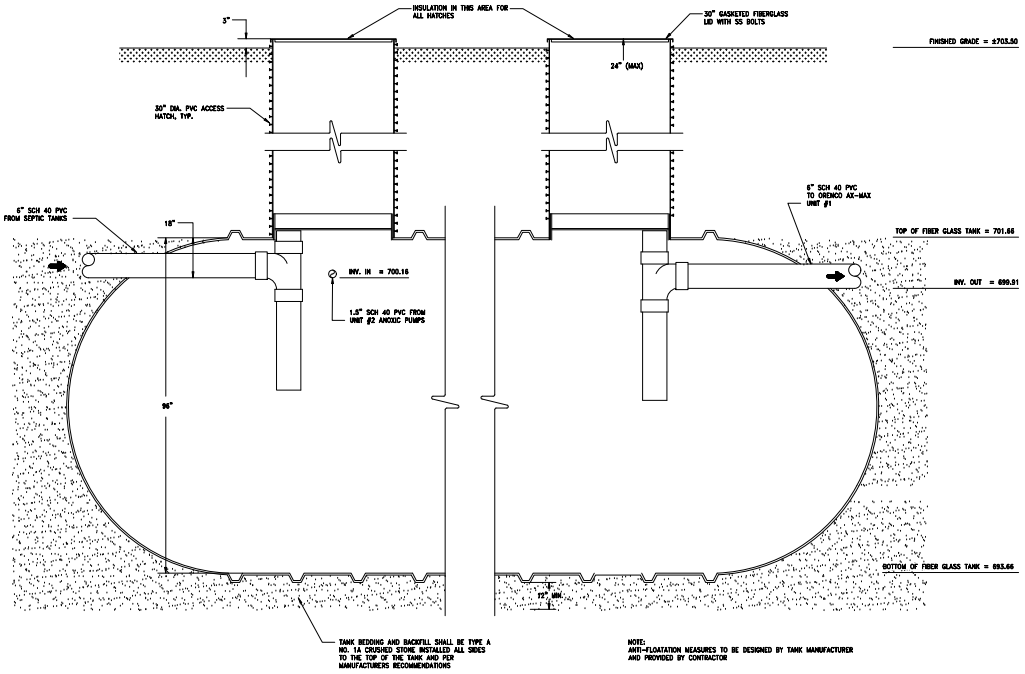
Project Number	2024125
Drawn By	SK
Designed By	BJB
Checked By	BJB
Date	6/30/25
Scale	AS SHOWN
File Name	BM_TILDEN

Sheet Title
SEPTIC PLAN

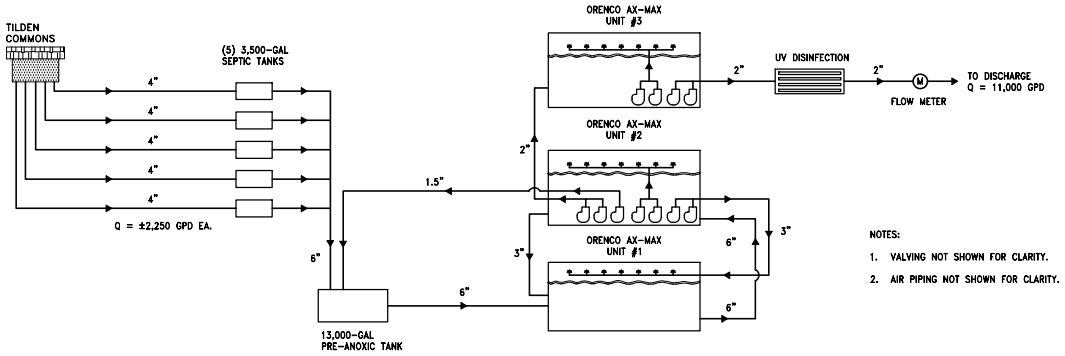
Sheet No.
C160



1 C161 ABOVE GROUND FAN ASSEMBLY
SCALE: NTS



2 C161 8' DIAMETER PRE-ANOXIC TANK – 13,000 GALLONS
SCALE: NTS



NOTES:
1. VALVING NOT SHOWN FOR CLARITY.
2. AIR PIPING NOT SHOWN FOR CLARITY.

3 C161 PROCESS FLOW DIAGRAM
SCALE: NTS

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1	7/7/25	PLANNING BOARD

Project Number	2024125
Drawn By	LM
Designed By	BJB
Checked By	BJB
Date	6/30/2025
Scale	NTS
File Name	SEPTIC DETAILS

Sheet Title
SANITARY DETAILS

Sheet No.
C161

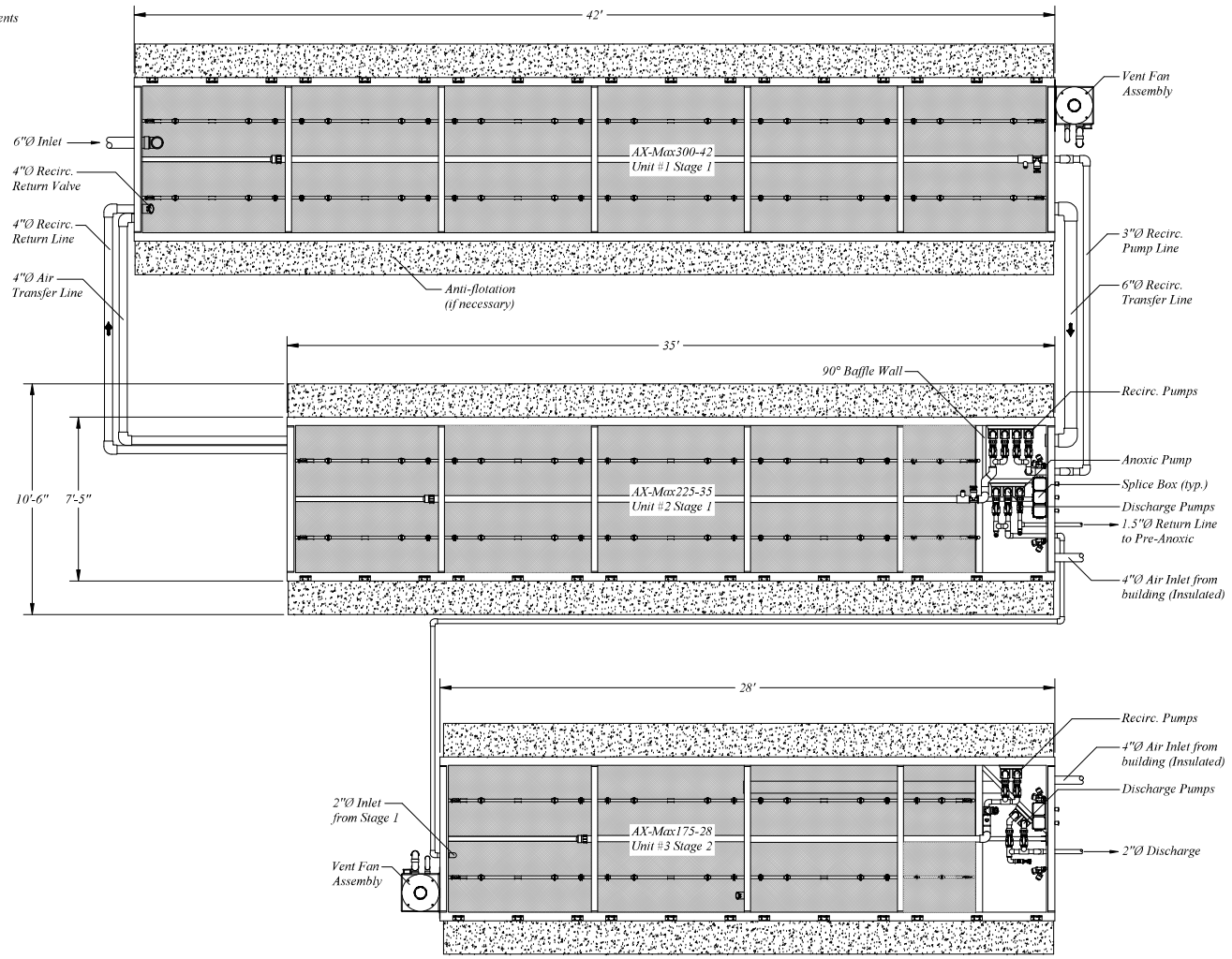
Note: AX-Max units are designed to withstand lateral loads, uniform loads, and buoyancy forces. Consult Orenco Engineering for spacing requirements and the most up-to-date structural calculations.

Design Parameters

Q_{avg} = 11,000 gpd
Q_{max} = 22,000 gpd

Influent (Avg.):
BOD: 250 mg/L
TSS: 250 mg/L
TKN: 65 mg/L
NH3-N: 45 mg/L (Summer)
NH3-N: 45 mg/L (Winter)
pH: 7 - 8

Effluent Limits:
BOD: 5 mg/L
TSS: 10 mg/L
NH3-N: 1.5 mg/L (Summer)
NH3-N: 2.2 mg/L (Winter)
pH: 6 - 9
SS: 0.1 mg/L
DO: 7 mg/L



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Issue/Rev.	Date	Remarks
1	7/7/25	PLANNING BOARD

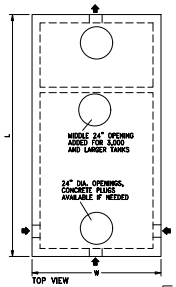
Project Number	2024125
Drawn By	LM
Designed By	BJB
Checked By	BJB
Date	7/1/25
Scale	NTS
File Name	SEPTIC DETAILS

Sheet Title
SANITARY DETAILS

Sheet No.
C162

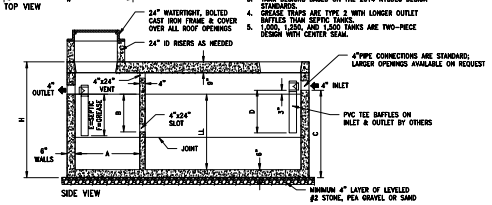
SEPTIC TANK SCHEDULE

TANK NO.	1	2	3	4	5
INVERT IN (FT)	703.44	703.10	702.68	702.50	701.66
INVERT OUT (FT)	703.19	702.85	702.43	702.25	701.43

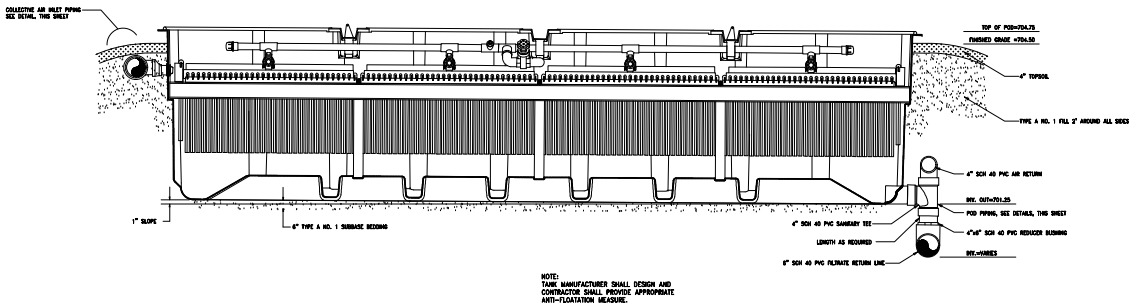


GALLONS	L	W	H	LL	A	B	C	D	E	F
3,500	15'-6"	8'	7'-3"	58"	52"	31"	67"	32"	29"	46"
4,000	17'-3"	8'	7'-3"	58"	58"	31"	67"	32"	29"	48"
5,000	18'-8"	9'	7'-3"	58"	70"	31"	67"	32"	29"	48"
6,000	20'-0"*	9'-6"*	7'-3"	60"	70"	33"	69"	32"	30"	48"

NOTES:
1. EFFLUENT OUTLET FILTERS ARE AVAILABLE AS WELL AS HIGH LEVEL ALARMS.
2. GAS DEFLECTORS ARE AVAILABLE FOR 4" OUTLET PIPES.
3. TANK DESIGNS BASED ON THE 2014 NYSDEC DESIGN STANDARDS.
4. GREASE TRAPS ARE TYPE 2 WITH LONGER OUTLET BAFFLES THAN SEPTIC TANKS.
5. 1,000, 1,250, AND 1,500 TANKS ARE TWO-PIECE DESIGN WITH CENTER SEAM.

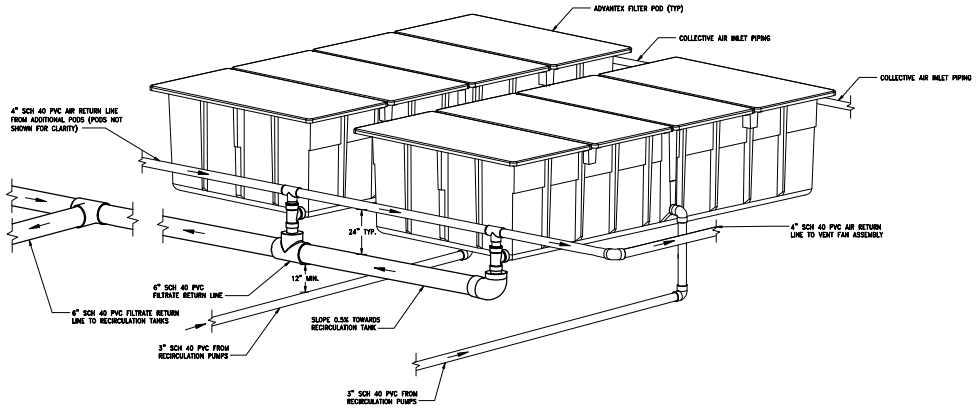


1 C165 TYPICAL SEPTIC TANK DETAIL – 3,500 GAL TO 6,000 GAL
SCALE: NTS

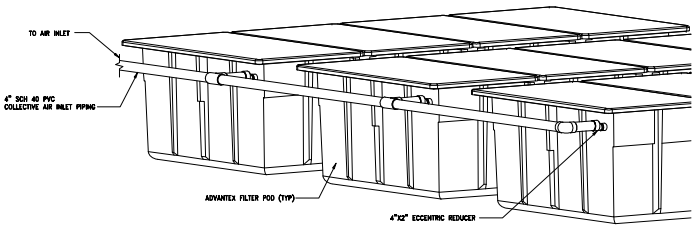


NOTE:
TANK MANUFACTURER SHALL DESIGN AND CONTRACTOR SHALL PROVIDE APPROPRIATE ANTI-FLOATATION MEASURE.

2 C163 ADVANTEX FILTER DETAIL
SCALE: NTS



3 C163 TYPICAL POD PIPING DETAIL
SCALE: NTS



4 C163 COLLECTIVE AIR INLET PIPING
SCALE: NTS

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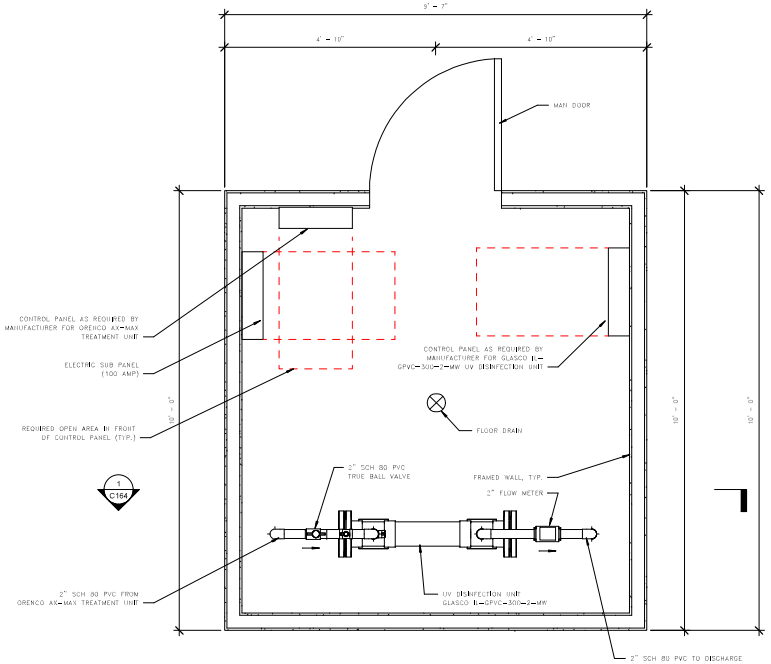
1	7/1/25	PLANNING BOARD

Project Number	2024125
Drawn By	LM
Designed By	BJB
Checked By	BJB
Date	7/1/25
Scale	NTS
File Name	SEPTIC DETAILS

Sheet Title
SANITARY DETAILS

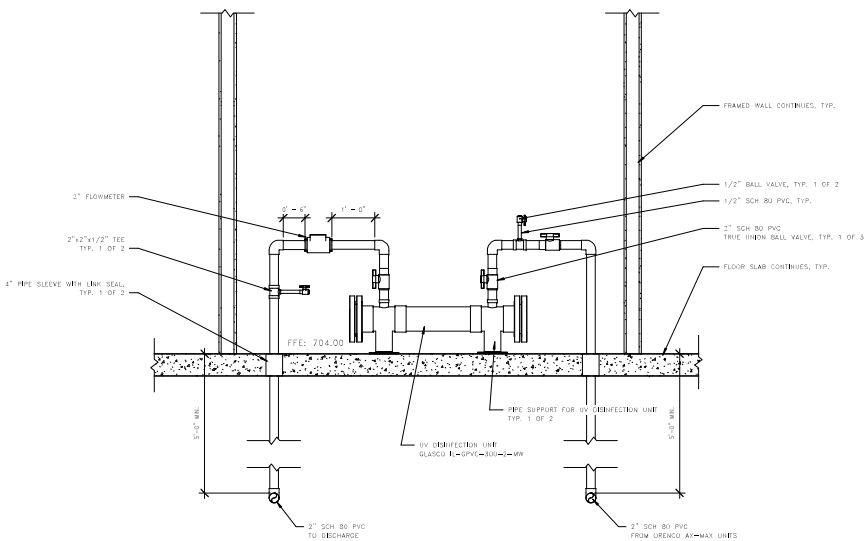
Sheet No.
C163



NOTE:

1. UV ROOM LOCATION AND ORIENTATION IN BUILDING TO BE DETERMINED

FLOOR PLAN
3/4" = 1'-0"



UV SYSTEM SECTION
3/4" = 1'-0"

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Issue No.	Date	Remarks
1	7/7/25	PLANNING BOARD

Project Number	2016002
Drawn By	AS
Designed By	BJB
Checked By	BJB
Date	12-5-19
Scale	3/4" = 1'-0"
File Name	UV TREATMENT...

Sheet Title
UV SYSTEM PLAN AND SECTION

Sheet No.
C164

7/2/2025 11:52:39 AM

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2024125

July 2, 2025

Michael DeRuzzio, P.E.
County Engineer
Columbia County Department of Health
325 Columbia Street
Hudson, New York 12534
michael.deruzzio@columbiacountyny.com

RE: Tilden Commons LLC
538 US route 20, New Lebanon
Water and Sanitary System Engineer's Report

Dear Mr. DeRuzzio:

Lamont Engineers, P.C. is pleased to submit this letter report summarizing the design/installation of the water system and wastewater system for the proposed Tilden Commons development at 538 US Route 20 in the Town of New Lebanon, Columbia County, New York. This initial report is being completed as an initial concept for the proposed development and supporting system in conjunction with the site plan review process of the project. Further information and data will be supplied following this report once further investigations have been completed.

I. Introduction

It is our understanding that the proposed construction will include a three-story building located approximately as indicated on the site drawing in Attachment A. The building is proposed as a mixed-use building with approximately 10,000 SF commercial space on the 1st floor of the south side of the building and 41 residential apartments and community space in the remainder of the building, for a total square footage of 60,000 SF. The building will be required to have a sprinkler system to comply with current NYS adopted IBC codes. The building sprinkler system will be supplied with a below grade waters storage tank. Because the project involves the construction of 41 residential units, the water system for this building will be considered a community water system regulated by the Department of Health and to comply with the NYS DOH Part 5 regulations.

The site currently has an existing well that served the commercial building currently on the site, to be demolished. This well will be evaluated for use at the supply source for the proposed water system.

II. Projected Water System Demand

The projected water demand of the site is summarized in Table I below. The average daily flow amounts were developed using the NYSDEC intermediate wastewater system design standards. Detailed water demand calculations are provided in Attachment B.

Table I – Water System Demand

	Average Daily Demand (gpd)	Maximum Daily Demand (gpd) 1.5x
Residential Space	9,020	13,530
Commercial Space	2,000	3,000
Total =	11,020	16,530

Based on these figures, the following can be deduced:

1. In accordance with NYSDOH requirements, a water source must have a capacity equal to or greater than the estimated Maximum Daily Demand. The average daily demand is 11,020 GPD, which equated to about 8 gpm. The maximum daily demand of 16,530 gpd equates to 11 gpm. The existing well is currently being evaluated to determine if sufficient to meet this capacity requirement. Utilizing the fixture count as show in Attachemetn C, we should design the system to supply a maximum water supply demand of 40 gpm.

III. Water Sources

The existing Groundwater Well #1 has been on the site for several years, long enough that the DOH office does not have any records on file regarding the construction. Pertinent well information, including drawdown test information for the well based on the investigations to date is presented in the well detail drawing the Attachment C and in Table II below. If the well proves to be a viable well for quantity and quality following completion of all testing, it is the intent to scope (camera) the existing well to verify these conditions:

Table II – Summary of Groundwater Supply

	Production Well
Well Depth	100 ft.
Pump Setting Depth	90 ft.
Rated Yield	13 gpm

Drawdown (feet) @ Rated Yield	80 ft. @ 13 gpm

A 72-hour pump test performed on June 29 – July 2 of the existing well indicated that this well has a yield of 13 gallons per minute (gpm) with 80 ft. of drawdown.

The initial basic water quality results were pulled from the well prior to the pump test. The results of these tests showed the water to be very turbid and high in iron. This is most likely a result of the well sitting for such a long period (At least 1 year) being out of service with no flow. Upon initial start of the pump test, the water turbidity exceeded 200 NTU, toward the end of the pump test the turbidity was approaching 20 NTU so we are confident that once the well has been flowed for an extended period of time the turbidity and likely the iron levels will improve. Following the completion of the well recovery after the July 2 completion of the pump test, a full Part-5 water quality sample will be pulled for laboratory testing. This information will be provided to amend this report once able. If water quality still shows concerns with the existing well, treatment will need to be considered.

The well location on the site has been considered for the majority of the other components on the site. The well is located on the opposite side of the proposed wastewater treatment system and it is currently close to the middle of the site. The development parcel is only about 200' in width. The property contains most of the area to be within the required 100' well projection area but there would be no location on this property able to meet the 200' well control area as suggested by the DOH requirements. The 72-hour pump test included monitoring of several other wells within a 500' radius of the site to ensure the draw down of this well does not affect nearby property owners. That data will also be used to evaluate the suspected cone of influence for this well to determine if that 200' protection area for this well is a major concern or if some consideration can be given for a narrow cone of influence on a lower flow production well of this size regarding well setback restrictions.

IV. Well Pump

Well #1 will be equipped with a Goulds 10GS10422C submersible well pump with 1.5 HP motor that will convey water from the well to the proposed facility. The pump will be equipped with a constant pressure controller that will maintain distribution system pressures. Three (3) 120-gallon hydro-pneumatic pressure tank will be installed to serve as a buffer during low demand periods. A pressure transducer will relay system pressure information to the pump's controller which will adjust the operating capacities of the pump to maintain system flows and pressures. A pressure of 55 psi will be maintained in the water treatment facility. Distribution pressures will vary throughout the system from 70 psi to 30 psi.

V. Iron and Turbidity Treatment

This will only be required if final water quality analysis reveals the well iron levels are over the DOH Maximum Contaminant Limit (MCL).

VI. Chemical Treatment & Water Storage

In accordance with current groundwater treatment standards as set forth by the NYSDOH, adequate disinfection must be provided to achieve 4-log (99.99%) inactivation of viruses.

Disinfection will be achieved by injecting Sodium Hypochlorite (NaOCl) prior to a 2,500 gallon clearwell/contact tank before the first service site. CT calculations were completed to determine the contact volume required to achieve 4.0-log virus inactivation at the anticipated peak flow rate of 11 gpm with a minimum free chlorine residual of 0.5 ppm based on a tank configuration, inlet/outlet baffling, and intra-basin baffling, corresponding to a baffling factor of 0.9. Based on this baffling factor, a flow rate of 11 gpm, and an average pH of 7 at a temperature of 10°C, the volume of water required to achieve 4-log inactivation is approximately 150 gallons. Due to the need to be able to meet the maximum fixture demand flow in the building of 40 GPM during peak demand, a more than sufficient clearwell of 2,500 gallons will be provided for storage and contact time. The section piping for the outlet of the clearwell tank will be positioned in a way so the tank will always have a minimum of 150 gallons to ensure the booster pump cannot short circuit the contact time of the tank. Refer to Attachment C for CT storage volume calculations.

Chemical Feed Rate & Equipment

12.5% Sodium Hypochlorite (NaOCl) solution will be injected prior to the contact tanks. The chemical feed pump will operate simultaneously with the well pump by means of a dry contact in the simplex well pump control panel and will be capable of providing a free residual of 0.5 ppm to 2 ppm. Assuming a free chlorine residual of 0.5 ppm, a flow of 11 gpm and a dilution ratio of 9 parts H_2O to 1 part chlorine, the required chemical feed rate is 0.53 gpd or 0.02 gph. Assuming a free chlorine residual of 2.0 ppm, and the same flow and dilution ratio, the required chemical feed rate is 2.13 gpd or 0.09 gph. A Stenner Peristaltic Adjustable-Rate Feed Pump, Model 45MHP2, with a max. capacity of 10 gpd at a maximum working pressure of 100 psi and a turndown ratio of 20:1 is provided. Refer to Attachment C for chemical feed calculations and chemical feed pump information.

The treated water will be supplied to a 2,500 gallon clearwell tank capable of providing a flow of 40 GPM for 60 minutes during peak demand. A booster pump will draw water from the clearwell and supply the domestic water system with pressurized water throughout the building. A variable speed booster pump in conjunction with a 120 gallon hydropneumatics tank and pressure switch will ensure 40 – 60 psi of pressure is supplied to the building at all times. A AY Mcdonald 1 HP 17062C035PC booster pump system with variable speed controller or similar will be provided.

VII. Sprinkler System

A 30,000 Gallon water storage tank will be provided below grade to serve as the storage supply for the sprinkler system. This would be capable of providing 500 GPM for 60 minutes through the use of a fire pump to be designed with the sprinkler system. This tank and piping for the fire system will be separated from the domestic water system using a double check backflow preventer as it will likely sit unused for long periods of time.

VIII. Wastewater System

The proposed wastewater treatment system for the facility will be as follows:

- Primary Treatment: Standard septic tank settling – PER NYSDEC standards
- Secondary Treatment – Orenco AX MAX treatment system with pre-anoxic tank.
- UV Treatment system
- Surface Water Discharge

As mentioned above, primary treatment will be provided by conventional septic tanks. Residential waste has been separated from the commercial waste portion of the building. The total residential flow is estimated at 9,020 gallons. Using the NYSDEC design standards, the required tank sizing for this treatment would be 1.5 x 9,020 = 13,530 gallons. Rather than provide this in one tank, and for the ease of connecting plumbing in the building, we have proposed separating the building sewers to collect in 4 separate 3,500 gallon septic tanks with effluent lines connected together. A separate 3,000 gallon tank will be provided for the commercial flow requirements of 2,000 gal x 1.5 = 3,000.

From the septic tanks the effluent will flow by gravity to the pre-anoxic tank of the Orenco treatment system. This tank will aid the removal of nitrogen from the wastewater. From there, wastewater flows by gravity to the Orenco AX-MAX treatment units. This is separated into 3 units, the first two being part of the 1-stage of treatment and the 3rd the 2nd stage. Wastewater sits within these tanks and the hanging biomedia within them. Pumps will recirculate the wastewater within the tanks to header pipes and spray nozzles to coat the media, and aerate. Blowers will feed air to these treatment units to support the aeration process. In the final stage, a portion of the flow will be sent back to the pre-anoxic tank and a portion will be pumped to the UV Treatment system. The UV treatment system will provide disinfection prior to the discharge of the wastewater to an existing storm structure. The entire treatment system is intended to meet the anticipated intermittent stream discharge limits as shown below:

Table B-4B Typical Effluent Limits for Intermittent Streams[32]

Parameter	Type	Limitation	Units
BOD_5	Daily Maximum	5	mg/L
TSS	Daily Maximum	10	mg/L
Settleable Solids	Daily Maximum	0.1	ml/L
Total Residual Chlorine	Daily Maximum	0.02	mg/L
Ammonia[33]	Daily Maximum or Average	2.2 in winter 1.5 in summer	mg/L as NH_3
Dissolved Oxygen	Daily Minimum	≥ 7.0	mg/L
pH	Range	6.0 – 9.0	SU
Total Phosphorus	Site-specific	Site-specific	mg/L as P
Coliform, fecal, when disinfecting	30-day geometric mean	200	Number of colonies per 100 ml
Coliform, fecal, when disinfecting	7 consecutive-day geometric mean	400	Number of colonies per 100 ml

These treatment limits will need to be confirmed following the processing of the attached SPDES permit application.

If you have any questions or comments, please feel free to contact me at your convenience.

Sincerely,

Brendon Becker

Brendon Becker, P.E.
Project Engineer
Lamont Engineers, P.C.

Attachments:
A. Site Plans and Details
B. Demand Calculations
C. Chemical Disinfection Calcs & Information
D. SPDES Permit

Cc: Michael DeRuzzio, DOH
Tilden Commons LLC.

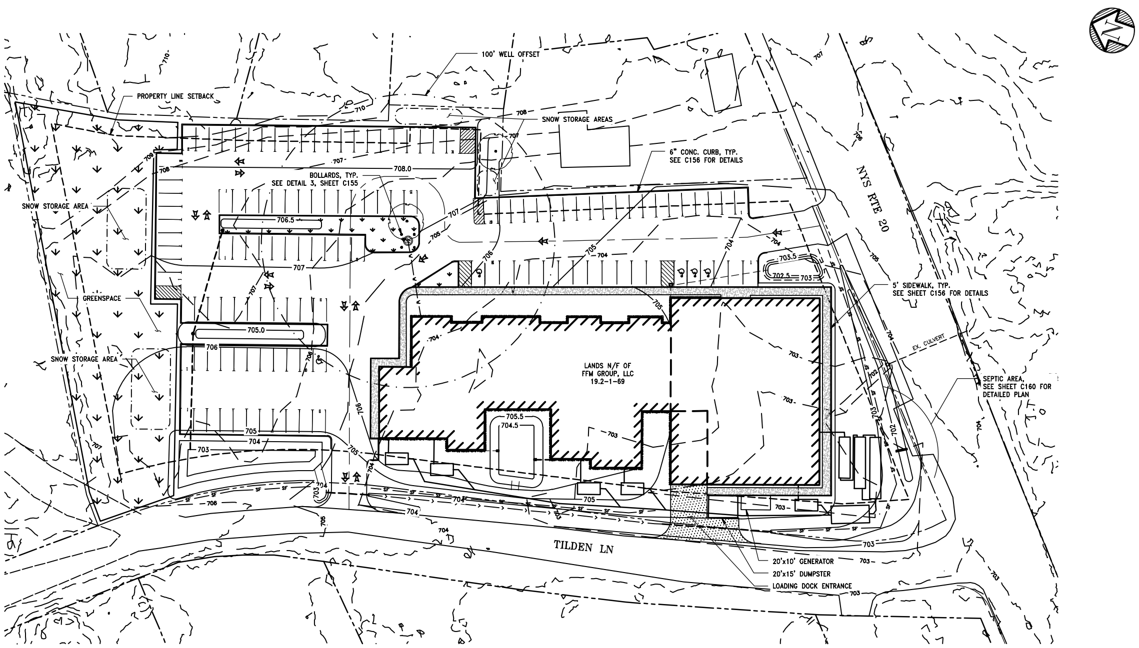
R:\2024125\eng\water\Herkimer Reference\Water System Eng. Report - BJB 6-2-23.docx

ATTACHMENT A

SITE PLANS & DETAILS

(HARD COPIES AND PDF PREVIOUSLY PROVIDED)

PZ Clerk Rec'd 07.02.25



OVERALL SITE PLAN
1"=40'

GRAPHIC SCALE

1 INCH = 40 FEET

LEGEND	
	PROPERTY LINE
	EX. CONTOURS
	EX. WELL
	EX. CULVERT AND CATCH BASIN
	PROPOSED CONTOURS
	PROPOSED WATER LINE
	PROPOSED SEWER LINE
	PROPOSED CULVERT
	PROPOSED DRAINAGE DITCH

SITE PLAN NOTES:

1. SEE SHEET C100 AND SECTION 02100 FOR CLEARING AND GRUBBING REQUIREMENTS AND LIMITATIONS.
2. ALL EARTHWORK SHALL BE SMOOTHLY AND EVENLY BLENDED INTO EXISTING CONDITIONS.
3. PERFORM EXCAVATION AND GRADING WORK IN ACCORDANCE WITH SECTIONS 02218, 02222, 02223 & 02225.
4. ALL DISTURBED AREAS NOT RECEIVING ASPHALT OR CRUSHED STONE WEARING SURFACES SHALL BE TOPSOILED AND SEEDED. ADDITIONALLY, SOME AREAS REQUIRE PREPARATORY SOIL RESTORATION.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE ALL PLAN SHEETS AND SPECIFICATIONS. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING, OF ANY ERRORS OR DISCREPANCIES.
6. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING, OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE PLANS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE PLANS WITHOUT THE EXPRESSED WRITTEN APPROVAL OF THE OWNER.
7. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EX. SUBSURFACE UTILITIES AT THE SITE PRIOR TO SETTING HEAVY EQUIPMENT (E.G. CRANES) AND MATERIALS ON THE SITE.
8. PRIOR TO CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING DIG SAFE NEW YORK AND ANY REGIONAL UTILITIES TO LOCATE ALL RELATED UTILITIES.
9. THE CONTRACTOR SHALL PROTECT EXISTING PROPERTY LINE MONUMENTATION. ANY MONUMENTATION DISTURBED OR DESTROYED, AS JUDGED BY THE ENGINEER, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE UNDER THE SUPERVISION OF A NEW YORK STATE LICENSED LAND SURVEYOR.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND INCURRING THE COST OF ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATIONS, ETC.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL FIELD LAYOUT. THE CONTRACTOR SHALL TAKE TIES TO ALL UTILITY CONNECTIONS AND PROVIDE MARKED-UP AS-BUILT PLANS FOR ALL UTILITIES SHOWING TIES TO CONNECTIONS, BENDS, VALVES, LENGTHS OF LINE AND INVERTS. AS-BUILT PLANS SHALL BE REVIEWED BY THE OWNER AND HIS REPRESENTATIVES, AND THE CONTRACTOR SHALL PROVIDE ANY CORRECTIONS TO THE SATISFACTION OF THE OWNER AND HIS REPRESENTATIVES BEFORE AS-BUILT PLANS WILL BE ACCEPTED.
12. CONTRACTOR SHALL FIELD VERIFY ALL LAYOUT DIMENSIONS AND ELEVATIONS WITH ENGINEER PRIOR TO CONSTRUCTION. CONTRACTOR SHALL COORDINATE A FIELD VISIT WITH ENGINEER TO REVIEW LAYOUT AND DIMENSIONS. CONTRACTOR SHALL SCHEDULE FIELD VISIT WITH ENGINEER TO CONFIRM FINISHED FLOOR ELEVATION.
13. ALL SUITABLE TOPSOIL TO BE TEMPORARILY STOCKPILED (AS APPLICABLE) FOR REUSE.
14. ALL MATERIALS TRANSPORTED OFF-SITE SHALL BE HANDLED IN SUCH A MANNER AS TO PREVENT SPILLAGE ON ADJACENT SURFACES AND AREAS.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR DE-WATERING AND THE MAINTENANCE OF SURFACE DRAINAGE DURING THE COURSE OF THE WORK, IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN.
16. BUILDING DIMENSIONS TO BE TAKEN FROM BUILDING CONSTRUCTION PLANS.
17. ALL AREAS WITHIN THE LIMIT OF DISTURBANCE (SEE SHEET C100) MAY BE USED FOR STOCKPILING, EQUIPMENT STORAGE, AND FIELD OFFICES. ADDITIONAL SEDIMENT AND EROSION CONTROL PRACTICES MAY BE NEEDED TO PROTECT SENSITIVE AREAS. COORDINATE WITH ENGINEER.
18. SEE ELECTRICAL DRAWINGS FOR ON-SITE ELECTRICAL, CONTROLS, AND INTERNET WIRING.

PARKING:

TOTAL SPACES: 130
GROCERY: 40
APARTMENTS: 90
ACCESSIBLE: 5

Lamont Engineers
ENGINEERS - PLANNERS
FACILITY OPERATIONS
197 ELM ST., COBLESKILL, NY 12043
(518) 234-4028
www.lamontengineers.com

Consultant

TILDEN COMMONS
NEW LEBANON DEVELOPMENT, LLC.
COLUMBIA COUNTY NEW YORK STATE

Stamp

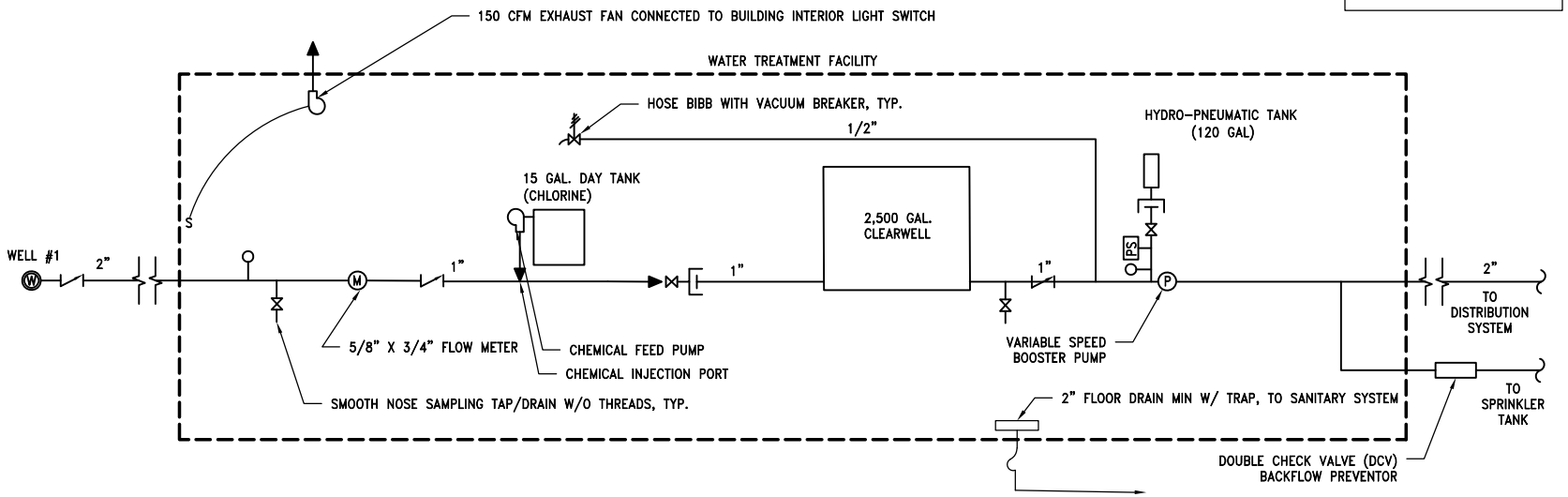
Issue	Rev.	Date	Remarks
A		6/3/25	FOR ZBA REVIEW
B		7/7/25	PLANNING BOARD

Project Number	2024125
Drawn By	SK
Designed By	BJB
Checked By	BJB
Date	6/7/24
Scale	1"=40'
File Name	BM_TILDEN

Sheet Title
SITE PLAN

Sheet No.
C110

PZ Clerk Rec'd 07.02.25



EQUIPMENT LIST:

1. CONTACT TANK – FLEXCON MODEL FLU120
2. HYDRO-PNEUMATIC TANK – FLEXCON, FLEXLITE FL28
3. CHEMICAL FEED PUMP – STENNER 45MHP2
4. DAY TANK – CLACK CST35 WITH H-4036 SPILL CONTAINMENT PALLET
5. PRESSURE SWITCH – SQUARE D FSG – 50/70

Lamont Engineers
COBLESKILL NEW YORK
(518) 234-4028

TILDEN COMMONS
NEW LEBANON
DEVELOPMENT, LLC.
COLUMBIA COUNTY NEW YORK STATE

Project Number	2024125
Drawn By	LM
Designed By	BJB
Checked By	BJB
Date	7/2/2025
Scale	NTS
File Name	WSS

Sheet Title
PROPOSED WATER SYSTEM SCHEMATIC

Sheet No.
ATT-A

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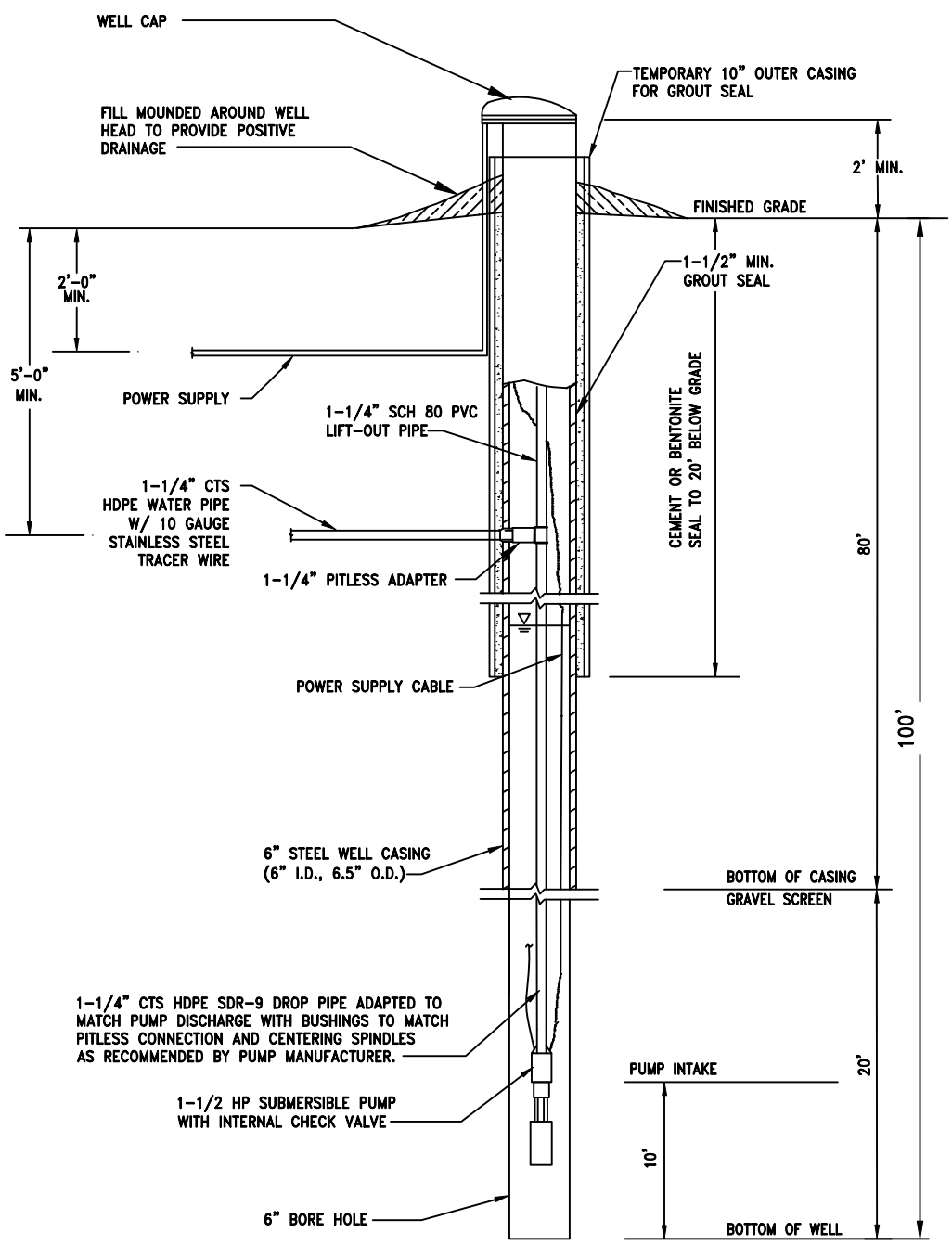

NOTE:

1. PLACE A 6" WIDE STRIP OF METALLIC BLUE BURIED PIPELINE TAPE 2'-0' BELOW FINAL GRADE FOR THE WELL WATER PIPE.

1 / C155 WELL DETAIL

SCALE: N.T.S.

DATE 7-2-2025	PROJECT NO. 2024125	TILDEN COMMONS NEW LEBANON DEVELOPEMENT, LLC WELL DETAILS	Lamont Engineers ENGINEERS • PLANNERS • FACILITY OPERATIONS
SCALE NTS	DRAWN MVC		

ATTACHMENT B

WATER SYSTEM DEMAND CALCULATIONS

PZ Clerk Rec'd
07.02.25

ATTACHMENT B
Tilden Commons Water System Water
System Demand Calculations

AVERAGE & MAX. DAILY DEMAND

Area	Item [1]	Unit	Flow (Gal./Day)	Total Average Daily Flow (Gal./Day)	Maximum Day Demand Factor (1.5)	Maximum Day Demand (Gal./Day)		
Residential	1 Bedroom Apartment	13	110	1430	1.5	2145		
Residential	2 Bedroom Apartment	15	220	3300	1.5	4950		
Residential	3 Bedroom Apartment	13	330	4290	1.5	6435		
							9020	13530
commercial	Grocery (0.1 gpd/SF)	10000	0.1	1000	1.5	1500		
commercial	Food Service (2 Seats Per table)	10	70	700	1.5	1050		
commercial	Employees	20	15	300	1.5	450		
1) Design Wastewater Flows taken from NYSDEC Design Standards for Intermediate Wastewater System			TOTALS =	11020		16530		
				8	gpm	11	2000	3000
							11020	16530

ESTIMATED PEAK DEMAND

Area	Item	Qty.	Fixture Unit	Fixture Value
Residential				
	Lavatory	41	2	82
	Water Closet	41	3	123
	Combo Shower/Bathtub	41	8	328
	Kitchen Sink	41	3	123
	Washing Machine	8	5	40
	Mop/Service Sink	3	3	9
	Hose Bibbs	6	10	60
	Dishwasher	41	7	287
		Total Fixture Value, Residential =		1052
		Estimated Peak Demand, GPM =		65
Commercial				
	Lavatory	8	2	16
	Water Closet	8	3	24
	Service Sink	3	4	12
	Kitchen Sink	2	3	6
		Total Fixture Value, Commercial =		58
		Estimated Peak Demand, GPM =		40

1) Based on AWWA Figure 4.4, Water Flow Demand per Fixture Unit Value
2) Fixture Unit Values taken from AWWA Table 4.3, Plumbing Fixture Unit Values

Total Peak Demand of 105 GPM.

ATTACHMENT C

CHEMICAL DISINFECTION CALCS & INFORMATION

Tilden Development

CHEMICAL FEED RATE - SODIUM HYPOCHLORITE (NaOCl)

Anticipated Average Daily Consumption:

Q_{avg} = 11,020 gpd = 0.01102 mgd

Net In/Out Flow Rate:

Q_{pump} = 11 gpm = 0.01584 mgd

NaOCl Solution Specific Gravity:

S = 1.19

NaOCl Solution Specific Weight:

γ = 1.19 x 8.35 lbs H_2O / gal

γ = 9.94 lbs/gal

Desired Pure Chlorine Dosage: NaClO Residual Goal = 0.50 mg/l (ppm) NaOCl Dosage of 12.5% NaOCl Solution to Achieve 0.50 ppm Chlorine Dosage: 0.50 mg/l ÷ 12.5% = 4.00 mg/l (ppm) NaClO Feed Rate for NaOCl Diluted 9 to 1 (H_2O to NaOCl): Q_{feed} = [(0.0432 mgd x 4.00 ppm x 8.34 lbs H_2O/gal) ÷ 9.94 lbs NaOCl/gal] x 10 Q_{feed} = 0.53 gpd 0.02 gph	MIN. DOSAGE

Desired Pure Chlorine Dosage: NaClO Residual Goal = 2.00 mg/l (ppm) NaOCl Dosage of 12.5% NaOCl Solution to Achieve 2.0 ppm Chlorine Dosage: 2.0 mg/l ÷ 12.5% = 16.00 mg/l (ppm) NaClO Feed Rate for NaOCl Diluted 9 to 1 (H_2O to NaOCl): Q_{feed} = [(0.0432 mgd x 16.00 ppm x 8.34 lbs H_2O/gal) ÷ 9.94 lbs NaOCl/gal] x 10 Q_{feed} = 2.13 gpd 0.09 gph	MAX. DOSAGE

Tilden Development LLC

CT provided by 2 - 120 gal. tanks installed in series.

Baffling Factor (BF) 0.9 **(3+ Tanks in Series per NYSDOH Guidance)**

1	2	3	4	5	6	7	8	9	10	11
Cl Conc	**pH**	**Temp**	**Peak Flow**	**Storage**	**Total Detention**	**Contact Time**	**CT calc**	**CT req**	**Inactivation Ratio**	**Log Removal**
mg/L		°C	GPM	**Volume**	**Time (TDT)**	min	Cl Conc x	table B-2	CT calc/CT req	4 X Inact. Ratio
				Gallons	Vol/Peak Flow	TDT x BF	Contact Time			
0.5	7	10	11	240	21.82	19.64	9.82	6	1.64	6.55

Table 4-2
Baffling Factors

Factor	Description
0.1	None, agitated basin, very low length to width ratio, high inlet/outlet velocities
0.3	Single or multiple unbaffled inlets or outlets, no intra-basin baffles
0.5	Baffled inlet/outlet with some intra-basin baffling
0.7	Perforated inlet baffle, serpentine or perforated intra-basin baffles, outlet weir or perforated launders
1	Very high length to width ratio (pipeline flow) perforated inlet, outlet and intra-basin baffles

TABLE B-2
CT VALUES* FOR
4- LOG INACTIVATION OF VIRUSES BY FREE CHLORINE

T (°C)	pH	
	6-9	10
0.5	12	90
5	8	60
10	6	45
15	4	30
20	3	22
25	2	15

ATTACHMENT D

SPDES Permit Application

PZ Clerk Rec'd 07.02.25

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

State Pollutant Discharge Elimination System (SPDES) Application Form: Private, Commercial & Institutional (P/C/I) Discharge of Treated Sanitary Sewage

(•) New Application ( ) Renewal Application ( ) Modification Application

SPDES Number [ ] NY########

DEC Authorization [ ] #-####-#####

Applicant/Owner Information

Type of Ownership: ( ) Corporate ( ) Individual ( ) Partnership ( ) Public

Name | Taxpayer ID

Mailing Address

City | State | Zip

Phone | Email

Contact/Agent Information

Name

Title

Mailing Address

City | State | Zip

Phone | Email

Facility Information

Facility Name: Tilden Commons | Nature of Business or Facility: Mixed Use | Population Served: 100

Street Address: 538 US Route 20 | City: New Lebanon | State: NY | Zip: 12125

Municipality: (•) Town ( ) Village ( ) City | Municipality Name: New Lebanon | County: COLUMBIA

Additional Facility Location Information (if needed): Intersection of US Route 20 and Tilden Road

Tax Map Information: Section 19.2 | Block 1 | Lot 69

Certification: I hereby affirm under penalty of perjury that the information provided on this form and any attached supplemental forms is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to section 210.45 of the Penal Law.

Signature of Applicant/Owner | Printed Name | Title | Date

Applicable discharge data on the following pages must be completed. Discharges from this facility are not authorized until this application form is attached to the permit signed and authorized by the New York State Department of Environmental Conservation or its designated agency.

Please Indicate Whether Your Facility 'Discharges To Groundwater', 'Discharges To Surface Water', or both.

☐ Discharges To Groundwater

☒ Discharges To Surface Water

SPDES Application for P/C/I Discharge of Treated Sanitary Sewage

Discharges To Groundwater - 1 of 1

Facility Name Tilden Commons

SPDES Number _____ **DEC Authorization** _____

To Add or Remove outfalls, click on the Green + or the Red X respectively. + X

Complete this page of the application if your facility has any discharges to groundwater. Use additional copies of this page to list additional groundwater outfalls. Sampling information is only required if the disposal system is designed to discharge, or discharges 30,000 GPD or more.

Outfall Information:

Outfall No. _____

Outfall Status ○ Proposed ○ Replacement ○ Existing ○ Expansion

Design Flow _____ Gal/Day

Outfall Location (if subsurface system, indicate center of disposal system area)

Latitude _____ ° _____ ' _____ "

Longitude _____ ° _____ ' _____ "

Treatment:

Standard On Site Treatment: Septic Tanks with:		Alternative On Site Treatment: Septic Tanks with:	
☐ Absorption Trenches	☐ Cut and Fill Systems	☐ Absorption Trenches Using An Alternative Aggregate	☐ Single-Pass Sand Filters & Pressurized Shallow Narrow Drainfields
☐ Shallow Absorption Trenches	☐ Raised Systems	☐ Shallow Absorption Trenches Using An Alternate Aggregate	☐ Mound Systems
☐ Absorption Beds	☐ Seepage Pits	☐ Absorption Beds Using An Alternate Aggregate	☐ Drip Dispersal or Other Low Profile Dispersal System

☐ Other (describe) _____

Frequency of Discharge Months/Year _____ Days/Week _____

Name of Nearest Surface Waters	Distance	Soil Type	Depth To Water Table
_____	_____ Ft.	_____	_____ Ft.

SPDES Application for P/C/I Discharge of Treated Sanitary Sewage

Discharges to Groundwater

Facility Name Tilden Commons

SPDES Number _____ **DEC Authorization** _____

Outfall No. _____

Sampling Information

Include the following sampling information if the disposal system is designed to discharge, or discharges, 30,000 GPD or more. Please indicate whether the values listed are from sampling results (include the date), estimated from the treatment system design as installed, or estimated from the proposed treatment system design.

Plant Design Pollutant Information	Influent		Effluent		Number of Samples or Source of Estimate
	mg/l	lbs/day	mg/l	lbs/day	
BOD5					
Percent removal, BOD5					
pH, Range					
Nitrate, as N					
Nitrite, as N					
Ammonia, as N					
Nitrogen, Total, as N					
Phosphorus, Total, as P					
Total Residual Chlorine, if used					
Solids, Total Dissolved (Nassau/Suffolk only)					

SPDES Application for P/C/I Discharge of Treated Sanitary Sewage

Discharges To Surfacewater - 1 of 1

Facility Name Tilden Commons

SPDES Number _____ **DEC Authorization** _____

To Add or Remove outfalls, click on the Green + or the Red X respectively. [+] [X]

Complete this page of the application if your facility has any discharges to surface water. Complete this form for each surface water outfall.

Discharge Data

Outfall No.	Outfall Status	Design Flow
1	(•) Proposed ( ) Replacement ( ) Existing ( ) Expansion	11020 Gal/Day

Outfall Location (end of pipe or conveyance)

Latitude 42 ° 27 ' 57.8 "

Longitude 73 ° 23 ' 37.6 "

Type of Treatment

Primary treatment provided by conventional septic tank settling, secondary provided by an Orenco filter and UV disinfection

Frequency of Discharge Months/Year 12 Days/Week 7

Name of Receiving Water	Classification	Water Index Number
Wyomanock Creek	C(TS)	H-204- 2-25

SPDES Application for P/C/I Discharge of Treated Sanitary Sewage

Discharges to Surface Water

Facility Name Tilden Commons

SPDES Number _____ **DEC Authorization** _____

Outfall No. 1

Sampling Information

Include the following sampling information. Please indicate whether the values listed are from sampling results (include the date), estimated from the treatment system design as installed, or estimated from the proposed treatment system design.

Plant Design Pollutant Information	Influent		Effluent		Number of Samples or Source of Estimate
	mg/l	lbs/day	mg/l	lbs/day	
BOD5	250		5		Estimate on similar resi system
Suspended solids	250		10		Estimate on similar resi system
Percent removal, BOD/TSS	-		98%		Estimate on similar resi system
pH, Range	7-8		6-9		Estimate on similar resi system
Settleable solids, ml/l	10		0.1		Estimate on similar resi system
Solids, total dissolved	500		500		Metcalf & Eddy
Dissolved oxygen	1		7		Estimate on similar resi system
Ammonia, as N	45		1.5/2.2		Estimate on similar resi system
Nitrogen, Total, as N	90		10		Estimate on similar resi system
Phosphorus, Total, as P	8				Assuming not in permit
Fecal Coliform, MPN	10,000		200/400		
Total Residual Chlorine (if used)	-	-	-	-	Not Used
Temperature, Degrees F, Summer	50		50		Degree F, similar system
Temperature, Degrees F, Winter	50		50		Degree F, similar system

Phase I Environmental Site Assessment

Proposed Tilden Road Development

538 US Route 20

New Lebanon, Columbia County, NY

June 11, 2025 | Terracon Project No. JB257044

Prepared for:

Hudson River Housing Inc
313 Mill St
Poughkeepsie, NY

Prepared by:

Terracon Consultants-NY, Inc.
Albany, New York

PZ Clerk rec'd 07.02.25

30 Corporate Cir Ste 201
Albany 12203-5169
P 518-266-0310
Terracon.com

June 11, 2025

Hudson River Housing Inc
313 Mill St
Poughkeepsie, New York 12601

Attn: Mr. Javier Gomez
P: (845) 454-5176 x 117
E: jgomez@hudsonriverhousing.org

Re: Phase I Environmental Site Assessment
Proposed Tilden Road Development
538 US Route 20
New Lebanon, Columbia County, New York
Terracon Project No. JB257044

Dear Mr. Gomez:

Terracon Consultants-NY, Inc. (Terracon) is pleased to submit the enclosed Phase I Environmental Site Assessment (ESA) report for the above-referenced subject property (hereinafter known as the 'site'). This assessment was performed in accordance with our proposal PJB257044 dated May 15, 2025.

We appreciate the opportunity to be of service to you on this project. In addition to ESA services, our professionals provide other environmental, geotechnical, construction materials, and facilities services on a wide variety of projects locally, regionally, and nationally. For more detailed information on all of Terracon's services please visit our website at www.terracon.com. If there are any questions regarding this report or if we may be of further assistance, please do not hesitate to contact us.

Sincerely,

Terracon Consultants-NY, Inc.

Olivia R. Burns
Project Manager
Senior Staff Scientist

Amanda G. Lofink
Environmental Department Manager
Senior Associate

Attachments

Table of Contents

Appendices

Executive Summary

This Phase I Environmental Site Assessment (ESA) was performed in accordance with our proposal PJB257044 dated May 15, 2025, and was conducted consistent with the procedures included in ASTM E1527-21, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. The purpose of this ESA was to assist the client in developing information to identify RECs in connection with the site as reflected by the scope of this report. The ESA was conducted under the supervision or responsible charge of Amanda G. Lofink, Environmental Professional. Olivia R. Burns performed the site reconnaissance on May 21, 2025.

Findings and Opinions

A summary of the findings is provided below. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein.

Site Description and Use

The site is identified by section, block, and lot number 19.2-1-69, located at 538 US Route 20 (also identified as US Route 22, Columbia Pike, and Albany-Pittsfield Road) in the town of New Lebanon, Columbia County, New York. The 3-acre site is occupied by an 8,660-square foot vacant building located on the southern half of the site. A large asphalt-paved parking area is present between the building and US Route 20, while the area north of the building is occupied by grassed lawn. A scattering of trees is present across the site, and a small, wooded area is present in the northeast corner of the site. The site is generally flat. A small shed is present along the site's eastern border north of the site building.

Historical Information

According to historic information, the site was developed prior to 1873. At that time several small buildings were present on the site, including several identified as being occupied by or associated with the Tilden family and/or the former Tilden Pharmaceutical Company (manufacturer of plant extracts), which was reportedly established on the south adjoining property circa 1824. A railroad line (Rutland Railroad) was also constructed transversing the north side of the site in a northeast to southwest direction prior to 1873. By the late 1800s several of the buildings had been demolished and several more constructed. Between 1900 and 1942 the Tilden Pharmaceutical Company facilities were downsized and transferred from the south adjoining property to the site. A large site building was constructed just south of the railroad line, and two more buildings were present fronting US Route 20. Tilden Road had been constructed along the western border of the site by this time. During the 1950s two water towers were

constructed to the east of the large site building, and a third building has been constructed along US Route 20. The Tilden Pharmaceutical Company operated on the site until 1963 after it had been sold to Textron Pharmaceutical Company in 1961.

Between 1971 and 1981 the site buildings and the water towers were demolished, and a single, medium-sized building was constructed in the central area of the site. This new building appears to be a portion of the current site building. Circa 1985, an addition was constructed to the site building, and a large parking lot was installed on the south side of the building. The rear (north) side of the building consisted of grassed lawn, and the railroad line was no longer present. The site has remained relatively unchanged since that time. In the early 2000s a gravel driveway looped around the north side of the site; this portion of the site appears to have been occasionally used as a flea market. Circa 2010 a shed was constructed on the north side of the site building along the site's eastern border. Since construction, the current site building has been used variably as a café/restaurant, offices, and retail. The site building has been vacant for approximately one year and the site has been unused since it was purchased by the current owner in April 2025.

The site was historically part of Tilden & Company (later the Tilden Pharmaceutical Company), which manufactured medicinal plant extracts beginning circa 1824 and operating until 1963. Information regarding the use of potential chemical use, storage and/or disposal was not identified during this assessment, which represents a significant data gap.

The site was developed with several buildings prior to 1873. A number of these buildings and others constructed later were demolished between that time and the 1970s. The potential exists for these buildings to have been heated via fuel oil, utilizing aboveground or underground storage tanks, which have the potential to still be present on site. It is also unknown if other hazardous materials remain on site as a result of the previous building demolitions. This represents a significant data gap.

Records Review

The site and adjoining properties were not identified within the database report. No RECs were identified at the time of the records review.

Site Reconnaissance

At the time of the site reconnaissance Terracon observed a water treatment system, heating and cooling systems, several 5-gallon containers, interior floor drains, pole-mounted electrical transformers, surface litter and debris, construction debris, a manhole cover, decorative landscaping ponds, and a potable water well. In addition, a septic system is known to be present on the site. RECs were not identified on the site at the time of the site reconnaissance.

Adjoining Properties

The site is bordered to the north by a residence (43 Tilden Road), Lebanon Springs Excavating (26 Tilden Lane), and rural land with improvements (what appears to be a barn) (County Route 5A); to the east by undeveloped land (County Route 5A) and residences (7a, 9, and 13 County Route 5A and 536 US Route 20); to the south by Jimmy D's Pizzeria (531 US Route 20) and undeveloped land (US Route 20); and to the west by the New Lebanon Library (550 US Route 20), a residence, a vacated restaurant, and SHR Speed Shop (also labeled as DMC Racing Products) (7, 9, 11, and 17 Tilden Lane), and a commercial property (21 Tilden Lane). No RECs were identified associated with the adjoining properties.

Conclusions

We have performed a Phase I ESA consistent with the procedures included in ASTM Practice E1527-21 at 538 US Route 20, New Lebanon, Columbia County, New York, the site. RECs and Controlled RECs (CRECs) were not identified in connection with the site. The following Significant Data Gaps (SDGs) were identified on the site:

- The site was historically part of Tilden & Company (later the Tilden Pharmaceutical Company), which manufactured medicinal plant extracts beginning circa 1824 and operating until 1963. Information regarding the use of potential chemical use, storage and/or disposal was not identified during this assessment, which represents a significant data gap.
- The site was developed with several buildings prior to 1873. A number of these buildings and others constructed later were demolished between that time and the 1970s. The potential exists for these buildings to have been heated via fuel oil, utilizing aboveground or underground storage tanks, which have the potential to still be present on site. It is also unknown if other hazardous materials remain on site as a result of the previous building demolitions. This represents a significant data gap.

Recommendations

Based on the scope of services, limitations, and conclusions of this assessment, Terracon did not identify RECs or CRECs in connection with the site. As such, no additional investigation is warranted at this time. Should tanks or evidence of environmental contamination be encountered during future development, these items should be addressed in accordance with local and state regulations.

1.0 Introduction

1.1 Site Description

Site Name	Proposed Tilden Road Development
Site Location/Address	538 US Route 20, New Lebanon, Columbia County, New York
Parcel Number	SBL no. 19.2-1-69
Land Area	Approximately 3 acres
Site Improvements	8,660-square foot retail building and small shed
Anticipated Future Site Use	Redevelopment for mixed use
Reason for the ESA	Redevelopment of the site

The location of the site is depicted on Exhibit 1 of Appendix A, which was reproduced from a portion of the United States Geological Survey (USGS) 7.5-minute series topographic map. The site and adjoining properties are depicted on the Site Diagram, which is included as Exhibit 2 of Appendix A.

1.2 Scope of Services

This Phase I Environmental Site Assessment (ESA) was performed in accordance with our proposal PJB257044 dated May 15, 2025, and was conducted consistent with the procedures included in ASTM E1527-21, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. The purpose of this ESA was to assist the client in developing information to identify RECs in connection with the site as reflected by the scope of this report. Recognized environmental conditions are defined by ASTM E1527-21 as "(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment." This ESA includes consideration of the movement of hazardous substances and petroleum products in any form, including migration of vapor in the subsurface. A de minimis condition is not a recognized environmental condition.

This purpose was undertaken through user-provided information, a regulatory database review, historical and physical records review, interviews (including local government inquiries, as applicable), and a visual noninvasive reconnaissance of the site and

adjoining properties. Limitations, ASTM deviations, and significant data gaps (if identified) are noted in the applicable sections of the report.

Review of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)

PFAS are a family of compounds which are considered emerging contaminants of concern due to their mobility and longevity in the environment. PFAS has been used in many products, including but not limited to fire-fighting foam, anti-stick coatings, stain and water-repellent coatings, electroplating, and paper products, among others. On July 8, 2024, US EPA designated two PFAS compounds, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), including their salts and structural isomers, as hazardous substances under CERCLA; accordingly, PFOA and PFOS was evaluated within the scope of E1527-21. Please note that PFAS compounds are ubiquitous in the environment and this limited review is not to be construed as confirmation that PFAS compounds are not present in, at or under the site.

1.3 Standard of Care

This ESA was performed in accordance with generally accepted practices of this profession, undertaken in similar studies at the same time and in the same geographical area. We have endeavored to meet this standard of care, but may be limited by conditions encountered during performance, a client-driven scope of work, or inability to review information not received by the report date. Where appropriate, these limitations are discussed in the text of the report, and an evaluation of their significance with respect to our findings has been conducted.

Phase I ESAs, such as the one performed at this site, are of limited scope, are noninvasive, and cannot eliminate the potential that hazardous, toxic, or petroleum substances are present or have been released at the site beyond what is identified by the limited scope of this ESA. In conducting the limited scope of services described herein, certain sources of information and public records were not reviewed. It should be recognized that environmental concerns may be documented in public records that were not reviewed. No ESA can wholly eliminate uncertainty regarding the potential for RECs in connection with a property. Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs. No warranties, express or implied, are intended or made. The limitations herein must be considered when the user of this report formulates opinions as to risks associated with the site or otherwise uses the report for any other purpose. These risks may be further evaluated – but not eliminated – through additional research or assessment. We will, upon request, advise you of additional research or assessment options that may be available and associated costs.

1.4 Additional Scope Limitations, ASTM Deviations, and Data Gaps

Based upon the agreed-on scope of services, this ESA did not include subsurface or other invasive assessments, vapor intrusion assessments or indoor air quality assessments (i.e., evaluation of the presence of vapors within a building structure), business environmental risk evaluations, or other services not particularly identified and discussed herein. Credentials of the company (Statement of Qualifications) have not been included in this report but are available upon request. Pertinent documents are referred to in the text of this report, and a separate reference section has not been included. Reasonable attempts were made to obtain information within the scope and time constraints set forth by the client; however, in some instances, the information requested is not, or was not, received by the issuance date of the report. Information obtained for this ESA was received from several sources that we believe to be reliable; nonetheless, the authenticity or reliability of these sources cannot and is not warranted hereunder. This ESA was further limited by the following:

- The site was historically part of Tilden & Company (later the Tilden Pharmaceutical Company), which manufactured medicinal plant extracts beginning circa 1824 and operating until 1963. Information regarding the use of potential chemical use, storage and/or disposal was not identified during this assessment, which represents a significant data gap.

- The site was developed with several buildings prior to 1873. A number of these buildings and others constructed later were demolished between that time and the 1970s. The potential exists for these buildings to have been heated via fuel oil, utilizing aboveground or underground storage tanks, which have the potential to still be present on site. It is also unknown if other hazardous materials remain on site as a result of the previous building demolitions. This represents a significant data gap.

- Vegetation and debris across the site limited close observation of ground surface conditions in certain areas. This is not considered a significant data gap due to the known historical uses of the site and observations of the remainder of the site.

- Information requests were submitted to the Town of New Lebanon, Columbia County, Lebanon Valley Protective Association, and the Lebanon Valley Historical Society. These requests are pending. This does not represent a significant data gap based on information obtained through other sources.

- A manhole cover was observed at the rear of the site building adjacent to a concrete slab at the time of the site reconnaissance. The site contact was not able to provide any information about the observed features. While it appears to be in a similar area to the site building's septic tank, it is not confirmed if the two structures are connected. This represents a data gap. The data gap is not considered significant due to the historic use of the current site building.

An evaluation of the significance of limitations and missing information with respect to our findings has been conducted, and where appropriate, significant data gaps are identified and discussed in the text of the report. However, it should be recognized that an evaluation of significant data gaps is based on the information available at the time of report issuance, and an evaluation of information received after the report issuance date may result in an alteration of our conclusions, recommendations, or opinions. We have no obligation to provide information obtained or discovered by us after the issuance date of the report, or to perform any additional services, regardless of whether the information would affect any conclusions, recommendations, or opinions in the report. This disclaimer specifically applies to any information that has not been provided by the client.

This report represents our service to you as of the report date and constitutes our final document; its text may not be altered after final issuance. Findings in this report are based upon the site's current utilization, information derived from the most recent reconnaissance and from other activities described herein; such information is subject to change. Certain indicators of the presence of hazardous substances, petroleum products or PFAS compounds may have been latent, inaccessible, unobservable, or not present during the most recent reconnaissance and may subsequently become observable (such as after site renovation or development). Further, these services are not to be construed as legal interpretation or advice.

1.5 Reliance

This ESA report is prepared for the exclusive use and reliance of Hudson River Housing, Inc. Use or reliance by any other party is prohibited without the written authorization of Hudson River Housing Inc and Terracon Consultants, Inc. (Terracon).

Reliance on the ESA by the client and all authorized parties will be subject to the terms, conditions and limitations stated in the proposal, ESA report, and Terracon's Agreement for Services. The limitation of liability defined in the Agreement for Services is the aggregate limit of Terracon's liability to the client and all relying parties.

Continued viability of this report is subject to ASTM E1527-21 Section 4.6. If the ESA will be used by a different user (third party) than the user for whom the ESA was originally prepared, the third party must also satisfy the user's responsibilities in Section 6 of ASTM E1527-21.

1.6 Client Provided Information

Prior to the site visit, Josh Young, the client's representative, provided the following user questionnaire information as described in ASTM E1527-21 Section 6.

Client Questionnaire Responses

Client Questionnaire Item	Client Did Not Respond	Client's Response		
		N/A*	Yes	No
Actual Knowledge of Environmental Liens that may encumber the site.				X
Actual Knowledge of Activity Use Limitations (AULs) that may encumber the site.				X
Specialized Knowledge or Experience that is material to a REC in connection with the site.				X
Actual Knowledge of a Lower Purchase Price because contamination is known or believed to be present at the site.				X
Commonly Known or Reasonably Ascertainable Information that is material to a REC in connection with the site.				X
Obvious Indicators of Releases at the site.				X

*N/A = Not Applicable

Terracon's consideration of the client provided information did not identify RECs. A copy of the questionnaire is included in Appendix C.

2.0 Physical Setting

Physical Setting Information		Source
Topography		
Site Elevation	Approximately 710 feet above mean sea level	USGS Topographic Quadrangle Map, Canaan and Pittsfield West, 2019-2021 Appendix A
Topographic Gradient	Gently down toward the southwest	
Closest Surface Water	An unnamed tributary of the Wyomanock Creek, located approximately 600 feet north/northwest of the site	
Soil Characteristics		
Soil Type	Occum loam (Om)	Columbia County, NY USDA-

Physical Setting Information		Source
Description	Loamy over sandy alluvium	NRCS Web Soil Survey
Geology/Hydrogeology		
Formation	Stockbridge Formation	United States Geological Survey (USGS)
Description	Calcitic and dolomitic marble	
Estimated Depth to First Occurrence of Groundwater	Approximately 5 feet below the ground surface	Soil Survey Geographic Database (SSURGO)
*Hydrogeologic Gradient	Not known - may be inferred to be parallel to topographic gradient (primarily to the southwest)	

* The groundwater flow direction and the depth to shallow, unconfined groundwater, if present, would likely vary depending upon seasonal variations in rainfall and other hydrogeological features. Without the benefit of on-site groundwater monitoring wells surveyed to a datum, groundwater depth and flow direction beneath the site cannot be directly ascertained.

3.0 Historical Use Information

Terracon reviewed the following historical sources to develop a history of the previous uses of the site and surrounding area. Copies of selected historical documents are included in Appendix C.

3.1 Historical Topographic Maps, Aerial Photographs, and Sanborn Maps

Readily available historical USGS topographic maps, selected historical aerial photographs (at approximately 10-to-15-year intervals) and historical fire insurance maps produced by the Sanborn Map Company were reviewed to evaluate land development and obtain information concerning the history of development on and near the site. Reviewed historical topographic maps, aerial photographs, and Sanborn maps are summarized below.

Historical fire insurance maps produced by the Sanborn Map Company were requested from EDR to evaluate past uses and relevant characteristics of the site and surrounding properties. Based upon inquiries to the above-listed Sanborn provider, Sanborn maps were not available for the site.

- Topographic maps: Pittsfield (Massachusetts) **1890, 1893, 1894, 1897** (1:62,500), Housatonic (Massachusetts) **1899, 1900** (1:125,000), Pittsfield West and Canaan

1946, 1959, 1973, 2013-2015, 2016-2018, 2019-2021 (1:24,000), Pittsfield West and Canaan **1947** (1:31,680), Canaan **1975** (1:24,000), Pittsfield West **1988, 1998** (1:25,000)

- Aerial photographs: USGS **1942, 1969, 1960, 1968, 1971, 1975, 1981, 1997** (1" = 500'), USDA **1952, 1986** (1" = 500'), USGS/DOQQ **1994** (1" = 500'), USDA/NAIP **2006, 2010, 2013, 2016, 2019** (1" = 500')
- Beers Atlas: **1873, 1888** (online digital archives)

Historical Maps and Aerial Photographs

Direction	Description
Site	**1873:** Several small buildings appear to be present on the site; at least two are present fronting US Route 20, while a third is located adjacent to a railroad line, which is located along the northern border of the site. The building labels are illegible in the source reviewed. **1888**: Four small buildings are present on the south side of the site. Three are labeled "Tilden" and one, within its own parcel, is identified as "Wright". A fourth building on the northwest corner of the site (just south of the railroad line) and is also labeled "Tilden". An access road or path traverses the site in a general southeast to northwest direction. **1890-1900**: All but one building on the southwest corner of the site appears to have been demolished while more appear to have been constructed on the southeast corner of the site. **1942**: One large building is present on in the central/north area of the site, while two smaller buildings are present fronting US Route 20. A scattering of trees, lawn areas, and access drives are present among the site buildings. Tilden Road is now present along the western border of the site. **1946-1968**: A third building is depicted fronting US Route 20. By the 1950s, two water towers appear to be present on the east side of the larger site building. **1971-1981**: The four site buildings have been demolished. A single, medium-sized building is present in the center of the site. Most of the trees have been cleared from the site. The railroad line appears less prominent on the north side of the site. **1986-1988**: An addition has been constructed onto the site building. A large parking area is present on the south side of the building. The rear of the building is mostly grassed lawn. The railroad line no longer appears to be present. **1994-1998**: What appears to be a gravel trail loops around the northern half of the building within the grassed lawn area. What appears to either be

Direction	Description
	a structure or stockpile appears to be present just north of the site building. The northeast corner of the site appears wooded. **2006**: A number of vehicles, trailers, or tents appear to be present scattered across the entirety of the site, indicating suspected use as a flea market or similar event. **2010-2021**: A minimal amount of vehicles, trailers, and/or tents are observed in the parking area south of the building and within the lawn area to the north of the building. By 2013 a shed appears to have been constructed on the east side of the site.
North	**1873**: Several small buildings are present on the north adjoining property west of Tilden Road, though their labels are illegible in the source reviewed. The remaining are of the property appears undeveloped. **1888**: The buildings on the north adjoining property west of Tilden Road are labeled as "Tilden Glass Works", and one is labeled as a freight house. A railroad spur is also located in the area of the buildings. What appears to be a residence is located on the north adjoining property fronting West Street north of the railroad line. **1890-1900**: The small residence is no longer present along West Street. **1942-1988**: The Glass Works buildings no longer appear present on the west side of the north adjoining property. Several buildings are located further north at the dead end of Tilden Road, and a pond is located west of the former Glass Works building. A residential-type building is located on the northeast side of the property. The remaining area is undeveloped and grassed with several tree lines. By 1952, a baseball field has been installed in an undeveloped area in the center of the property, though it no longer appears present by 1971. An outbuilding was constructed in the northeast corner of the property. **1994-2021**: The south-central portion of the property is occupied by what appears to be a gravel-covered lot and a small structure or trailers. By 2006 this area has expanded.
East	**1873**: Several small buildings are present on the east adjoining property; one fronting US Route 20 and the remaining fronting West Street. They appear to be residential, but the labels are mostly illegible in the source reviewed. **1888**: Three residential-type buildings are located on the property. A store associated with the Tilden Chemical Works, located on the south adjoining property, is present at the corner of US Route 20 and West Street. **1890-1900**: Several small buildings are present fronting US Route 20. The remaining buildings on the property have been demolished.

Direction	Description
	1942-2021: Two residential-type buildings are now present along West Street. Trees are scattered throughout the property. Additional buildings were constructed in the 1950s.
South	**1873-1888**: The south adjoining property is identified as the Tilden & Co. Chemical Works (pharmaceutical manufacturing) and undeveloped land. **1890-1900**: One or two small buildings are present on the west side of the property fronting US Route 20. **1942**: The Tilden & Co. buildings are no longer present. The area is mostly wooded. Small buildings are no longer present on the west side of the property. The west side of the property is mostly grassed. **1946-1975**: One building is depicted in historic topography maps from 1946 to 1975 in the center of the south adjoining property fronting US Route 20, though it is not visible in aerial photographs from this time period. **1981-1988**: A building is present in the center of the east side of the property. By 1986, a pond and access drives are also present. The trees have been cleared from this area of the property. **1994-1998**: A commercial-type building with surrounding parking has been constructed on the northeast corner of the property. **2006-2021**: A gravel-covered parking lot is present on the northwest corner of the property.
West	**1873**: The west adjoining property is occupied by a large building identified as a hotel on the south side of the property and a train depot on the north side of the property. **1888-1900**: A post office is now present on the north side of the property. The hotel is now identified as the Wyomandock House. **1942-1960**: The hotel building on the west adjoining property is no longer present. It has been replaced by a small building in the center of the property. Several additional small buildings were constructed in the 1950s. **1968**: A medium-sized commercial-type building has been constructed east of the train depot. **1971-1997**: The building that currently houses the New Lebanon Library is now present on the south side of the site. **2006-2021**: Another medium-sized commercial type building has been constructed southeast of the train depot. Parking lots around the buildings have been expanded.

The site was developed with several buildings prior to 1873. A number of these buildings and others constructed later were demolished between that time and the 1970s. The

potential exists for these buildings to have been heated via fuel oil, utilizing aboveground or underground storage tanks, which have the potential to still be present on site. It is also unknown if other hazardous materials remain on site as a result of the previous building demolitions. This represents a significant data gap.

RECs associated with the site were not identified through a review of available historical resources.

3.2 Historical City Directories

The EDR Digital Archive and Cole Information city directories used in this study were made available through EDR (selected years reviewed: 2005 to 2020) and were reviewed at approximate five-year intervals, if readily available. The current street address for the site was identified as 538 US Route 20. Adjoining properties that do not have a street address could not be included in this search. It should be noted that west and north adjoining properties were labeled both Tilden Lane and Tilden Road through the directory documentation.

Historical City Directories

Direction	Description
Site	**538 US Route 20**: (2005-2010) Not listed, (2014) Hitching Post Café, (2017) Backwater Grille & Country Store, (2020) Not listed
North	**26 Tilden Lane**: (2005-2020) Not listed **43 Tilden Road**: (2005-2010) Not listed, (2014-2020) Residence
East	**7a County Route 5A**:(2005) Not listed, (2010-2020) Residence **9 County Route 5A**:(2005-2020) Not listed **13 County Route 5A**:(2005-2017) Not listed, (2020) Residence **536 US Route 20**: (2005-2020) Not listed
South	**531 US Route 20**: (2005-2020) Not listed
West	**550 US Route 20**: (2005-2014) Not listed, (2017-2020) New Lebanon Library (also listed as #22 Tilden Road) **7 Tilden Lane**: (2005) Not Listed, (2010) Occupant unknown, (2014-2020) Residence **9 Tilden Lane**: (2005-2014) Not Listed, (2017-2020) Shaker Mountain Barbeque Co. **11 Tilden Lane**:(2005) WW Antiques & Collectables, (2010) Not listed, (2014-2020) DMC Racing Products **17 Tilden Lane**: (2005-2020) Not Listed

Terracon reviewed the above historical city directories for indications of RECs associated with the site. RECs associated with the site were not identified through a review of available historical city directories.

3.3 Site Ownership

Based on a review of Columbia County information obtained online (Search IQS – Columbia County) the current owner of the site is Tilden Project, LLC, who purchased the site in April 2025 from the former owner, FFM Group.

3.4 Title Search

At the direction of the client, a title search was not included as part of the scope of services. Unless notified otherwise, we assume that the client is evaluating this information outside the scope of this report.

3.5 Environmental Liens and Activity and Use Limitations

The EDR regulatory database report included a review of both Federal and State Engineering Control (EC) and Institutional Control (IC) databases. Based on a review of the database report, the site is not listed on the EC and IC databases. Please note that in addition to these federal and state listings, AULs can be recorded at the county and municipal level that may not be listed in the regulatory database report. Additional environmental liens and activity and use limitation records recorded against the site were not provided by the client. At the direction of the client, performance of a review of these records was not included as part of the scope of services and unless notified otherwise, we assume that the client is evaluating this information outside the scope of this report.

3.6 Interviews Regarding Current and Historical Site Uses

The following individuals were/were not interviewed regarding the current and historical use of the site.

Interviews

Interviewer	Name	Title	Date
Olivia Burns	Josh Young	Site Owner Representative	May 21, 2025

Terracon interviewed Mr. Josh Young, of Tilden Project, LLC, at the time of the site reconnaissance. Mr. Young has been familiar with the site for approximately 5 years. Terracon was informed that the current site building has been historically used as office space, retail, and a café/restaurant. Later the site routinely hosted a flea market. The

site itself was, in the early 20th century, part of the Tilden Pharmaceutical Company. Mr. Young informed Terracon the site building is connected to private sewer and water systems, public electricity, and formerly propane (though the above-ground tanks have been removed). With the exception of the septic tank, Mr. Young is not aware of any subsurface structures including fuel oil tanks or grease traps, nor is Mr. Young aware of any spills that may have occurred at the site. The site building has a slab-on-grade foundation. Mr. Young did not have any information regarding a manhole cover, a concrete slab, and a small addition at the rear of the site building.

3.7 Local Area Knowledge

According to the site contact and local history sources, the site was historically part of Tilden & Company (later the Tilden Pharmaceutical Company). This facility, established in 1824 by Elam Tilden, manufactured medicinal plant extracts. The company was also the first to coat pills in sugar and later, gelatin. The facility had its own glass works, manufacturing their own glass bottles for their products. A large laboratory building was constructed in 1898, though it appears the facility downsized and relocated in the early part of the 20th century from the south adjoining property to the site. This facility operated until 1963 when it was closed after being sold to Textron Pharmaceutical Products in 1961. Terracon reached out to the Lebanon Valley Historical Society for additional information pertaining to the site. This request is pending.

Information regarding the use of potential chemical use, storage and/or disposal was not identified during this assessment, which represents a significant data gap.

4.0 Prior Report Review

Terracon requested the client provide any previous environmental reports and geotechnical reports they are aware of for the site. The client provided Terracon with a Certified Property Line Survey Map completed on the site and dated June 30, 2022 (updated from a 2006 survey). The survey identifies a number of site features including the current site building and shed, and the potable water well. The survey identifies the former railroad line as the Former Rutland Railroad. Hand notations on the survey include the locations at the rear of the site building of a septic tank and leach field, a dumpster, propane tank, light poles, parking area markings, and vegetation.

Terracon was also provided a EAQuick Loan Check Environmental Review In Accordance with a USSBA SOP 50 10 6 Records Search with Risk Assessment (RSRA), completed on the site by LCS, Inc. (LCS) in July 2022. This limited assessment of the site is based on a review of an environmental questionnaire completed by a representative of the property owner at that time (Ashley Zapp), regulatory data provided by EDR, historical maps and aerial photographs, city directories, and municipal information. Based on the information provided the site was not identified as ever having generated, treated,

stored, transported, or disposed of hazardous materials. An owner representative also indicated that the facility did not historically practice painting, paint storage, dry cleaning, petroleum sale, usage, or storage, auto servicing, photo finishing, electronic equipment assembly or repair, ink use or storage, solvent use or storage, any time of metal plating, metal finishing, chemical mixing, or pollutant discharge of any kind. Frank Rubino was the owner of the site at the time of the LCS report. LCS concluded that the site posed a "Low" environmental risk and further work was not warranted.

5.0 Records Review

Regulatory database information was provided by EDR, a contract information services company in a report dated Database Report Date. The purpose of the records review was to identify RECs in connection with the site. Information in this section is subject to the accuracy of the data provided by the information services company and the date at which the information is updated. The scope herein did not include confirmation of facilities listed as "unmappable" by regulatory databases.

In some of the following subsections, the words up-gradient, cross-gradient, and down-gradient refer to the topographic gradient in relation to the site. As stated previously, the groundwater flow direction and the depth to shallow groundwater, if present, would likely vary depending upon seasonal variations in rainfall and the depth to the soil/bedrock interface. Without the benefit of on-site groundwater monitoring wells surveyed to a datum, groundwater depth and flow direction beneath the site cannot be directly ascertained.

5.1 Federal and State/Tribal Databases

Terracon reviewed standard federal, state, and tribal environmental record sources within the approximate minimum search distances as required by ASTM E1527-21. Further, to enhance and supplement the standard environmental record sources, Terracon reviewed additional federal, state, tribal, local, and proprietary environmental record sources, provided by the database firm, if potentially useful and reasonably ascertainable. Please refer to Appendix D (the environmental regulatory database report) for the number of listings within each database reviewed and database definitions and descriptions.

Due to conversion of address data to location coordinates and the accuracy of government records, the facility locations depicted in the environmental regulatory database report may not match actual physical locations. As such, Terracon attempted to field-verify the actual distances of facilities of concern from the site.

The following table summarizes the site-specific information provided by the database and/or gathered by this office for identified facilities within 500 feet of the site. Facilities

are listed in order of proximity to the site. The site was not identified in the database report. The east, south, and west adjoining properties were not identified in the database report.

Listed Facilities

Facility Name and Location	Estimated Distance / Direction / Gradient	Database Listings	Findings Summary
Raynor's Larabee Tilden Road / Tilden Road	North adjoining / Down gradient	NY Spills	Discussed below

Spills ID no. 9205262 was reported on the north adjoining property in August 1992. This spill reportedly occurred due to human error at 43 Tilden Road, where approximately 1 gallon of #2 fuel oil was spilled. According to NYSDEC remarks, contaminated soil was removed and disposed, and a new vent whistle was installed, so it is assumed the spill was caused by a tank overfill caused by a broken vent whistle. The case was closed by the NYSDEC a few days after the spill with a cleanup that met NYSDEC standards. Due to this regulatory status, the de minimis amount of fuel oil spilled, and the down gradient position of this spill location to the site, this spill does not represent a REC.

The remaining facilities listed in the database report do not appear to represent RECs to the site at this time based upon regulatory status, apparent topographic gradient, and/or distance from the site.

Unmapped facilities are those that do not contain sufficient address or location information to evaluate the facility listing locations relative to the site. The report did not list facilities in the unmapped section.

5.2 Local Agency Inquiries

Agency Contacted/ Contact Method	Response
Town of New Lebanon / Contacted via email / Freedom of Information Law (FOIL) Request	No response was received by Terracon at the time of this report
Columbia County / Online FOIL Request	No response was received by Terracon at the time of this report.
New York State Department of Environmental Conservation / Online database review	Discussed below.
Lebanon Valley Protective Association (fire department)	Terracon left a message with the Protective Association regarding information for the site. A response has not yet been received.

NYSDEC

One petroleum bulk storage (PBS) facility was identified on the north adjoining property at 26 Tilden Lane. The property (PBS no. 4-601602) was identified as Lebanon Springs Excavating. Four (4) 300-gallon above ground storage tanks (ASTs), identified as unregistered, are listed as being located on the north adjoining property, and are identified as holding diesel fuel. As there have been no spills associated with this property, the presence of the adjoining ASTs does not represent a REC.

In March 1988 a Spills case (ID no. 8800127) was reported at the Town Library, located on US Route 20 on the west adjoining property. Approximately 50 gallons of fuel oil were spilled due to a tank truck equipment failure. Details of the cleanup are not included, however, the Spills case was closed in April of that year, indicating no further remedial action was required. Due to this, and due the down gradient position of the Library from the site, this spill does not represent a REC.

6.0 Site Reconnaissance

6.1 General Site Information

Information contained in this section is based on a visual reconnaissance conducted while walking through the site and the accessible interior areas of structures, if any, located on the site. The site and adjoining properties are depicted on the Site Diagram, which is included in Exhibit 2 of Appendix A. Photo documentation of the site at the time of the visual reconnaissance is provided in Appendix B. Credentials of the individuals planning and conducting the site visit are included in Appendix E.

General Site Information

Site Reconnaissance	
Field Personnel	Olivia R. Burns
Reconnaissance Date	May 21, 2025
Weather Conditions	Cloudy, 50 degrees Fahrenheit
Site Contact/Title	Josh Young / Site Owner Representative
Site Utilities	
Drinking Water	Private potable water well
Wastewater	Private septic system
Electric	NYSEG Mechanicville
Natural Gas	N/A